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Conservation, Partnerships & Ecotourism

UKHAHLAMBA DRAKENSBERG PARK

SOUTH AFRICAN COMPONENT OF THE MALOTI-DRAKENSBERG PARK WORLD HERITAGE SITE

Integrated MANAGEMENT PLAN


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Maloti-Drakensberg Park
World Heritage Site

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Integrated Management Plan

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uKhahlamba Drakensberg Park Management Committee,
2020

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PREFACE

The Integrated Management Plan for the uKhahlamba Drakensberg Park, part of the Maloti-Drakensberg Park World Heritage Site, is the primary and overarching management document for the Park [1]. The Integrated Management Plan forms the framework within which the Park is managed towards the achievement of its desired state through a vision and management objectives, derived in collaboration with stakeholders during 2012 and updated with this revision in 2020. This plan should be read and implemented with the Maloti-Drakensberg Park World Heritage Site Joint Management Plant as revised in 2020.

The management planning process has been designed to meet the statutory requirements of the World Heritage Convention Act No. 49 of 1999, the National Environmental Management: Protected Areas Act No. 57 of 2003 and other relevant legislation, as well as of national and provincial heritage legislation, namely the National Heritage Resources Act No. 25 of 1999 and the KwaZulu-Natal Heritage Management Act No. 4 of 2008.

The development, implementation and revision of the Integrated Management Plan require participation from the uKhahlamba Drakensberg Park stakeholders, the general public and specialists. The Integrated Management Plan and its sub-components are planning documents, and an annual review process ensures an active adaptive management planning approach in the implementation of the plan. The Integrated Management Plan

A long-term business approach has also been introduced that ensures that the Park's management objectives are operationalised and reflected through an Annual Plan of Operation. A Business Plan will, at the same time, actively pursue additional funding and income to achieve the natural and cultural heritage conservation objectives of the uKhahlamba Drakensberg Park over the next ten years. The Integrated Management Plan covers a minimum period of ten years, where after an assessment will determine specific review requirements. The implementation component of the Integrated Management Plan is the Annual Operations Plan that will ensure adaptive management and set out the goals and actions to ensure the achievement of management objectives and the Park vision.

Chief Executive Officer

Ezemvelo KwaZulu-Natal Wildlife

[1] Developed in 2013 and revised in 2020.

AUTHORISATION

The uKhahlamba Drakensberg Park Management Committee recommends the Integrated Management Plan for the uKhahlamba Drakensberg Park, a multi-disciplinary team consisting of:

EZEMVELO KWAZULU-NATAL WILDLIFE [2]

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[2] With acknowledgement to Officers in Charge, Resort Managers, the Plant Scientist and the Financial Operation's Manager for their input into the Integrated Management Plan.

APPROVAL

This Integrated Management Plan for the uKhahlamba Drakensberg Park (2020) (Version 2.0) is recommended by:

EZEMVELO KWAZULU-NATAL WILDLIFE

TITLE	NAME	SIGNATURE	DATE
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THE KWAZULU-NATAL AMAFA & RESEARCH INSTITUTE

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This Integrated Management Plan for the uKhahlamba Drakensberg Park (2019) is approved in accordance with the World Heritage Convention Act No. 49 of 1999, the National Environmental Management: Protected Areas Act No. 57 of 2003, the National Heritage Resources Act No. 25 of 1999 and the Kwazulu-Natal Heritage Management Act No. 10 of 1997 by:

TITLE	NAME	SIGNATURE	DATE
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NATIONAL MINISTER: ENVIRONMENTAL, FORESTRY AND FISHERIES		B.D. GRETCH	9/9/2022

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EXECUTIVE SUMMARY

Introduction

The uKhahlamba Drakensberg Park, a component of the Maloti-Drakensberg Park World Heritage Site is situated in the KwaZulu-Natal Province of the Republic of South Africa and is part of the Drakensberg Range - an inland mountain range in south-eastern Africa. The Park is a national and international asset due to its outstanding natural and cultural values. As such it was listed as a mixed World Heritage Site in 2000. The site was extended by the inclusion of Sehlabathebe National Park and renamed as the Maloti-Drakensberg Park World Heritage Site in 2013. This Integrated Management Plan applies to the South African component of the World Heritage Site, namely the uKhahlamba Drakensberg Park.

The uKhahlamba Drakensberg Park is 242 813 ha, and its height above sea level extends from approximately 1 200 m to 3 408 m, the highest point in South Africa. It falls within the uThukela, uMgungundlovu and Harry Gwala District Municipalities and Ezemvelo KwaZulu-Natal Wildlife is the management authority of the Park. The Drakensberg catchment area is of major economic importance as it contributes significantly to the flow of the uThukela, uMkhomazi and uMzimkhulu Rivers, the three largest catchments in KwaZulu-Natal. The western boundary of the Park forms the international boundary with the Kingdom of Lesotho. It is also the east/west watershed divide between the Orange/Senqu River system flowing into the Atlantic Ocean. The Park plays a vital role in the economy of KwaZulu-Natal and South Africa, through the production of high-quality water from its dense network of wetlands and rivers (hence its designation as a Ramsar Site in 1996), the sustainable use of natural resources, and by serving as a core destination for the tourism industry.

The development of this Integrated Management Plan has been undertaken through a collaborative process, involving local communities, organs of state and other key stakeholders. Public consultation has been undertaken through a series of meetings and discussions with key stakeholders culminating in two key stakeholder workshops, held on 22 and 23 March 2018. Furthermore, the draft revised management plan has been made available for public review and comment before its finalisation in 2019. This process has ensured valuable input into the revised plan, the outcomes of which have been incorporated into it.

Vision and objectives of the uKhahlamba Drakensberg Park

***Vision*:**

A World Heritage Site that protects its Outstanding Universal Value and is supported by the people of Southern Africa.

***Mission*:**

A World Heritage Site that maintains the biodiversity, cultural and aesthetic values representative of the mountain grassland landscape, enjoys support from the people of Southern Africa and contributes significantly to the socio-economic development of the region through eco-cultural tourism, provision of ecosystem services and the provision of sustained benefits to the people.

The primary objectives of the uKhahlamba Drakensberg Park are to:

- Comply with and enforce legislation pertaining to the protection, development and management of the Park.
- Maintain effective linkages with affected community and other stakeholders to ensure collaborative management.
- Protect the Park values from activities, processes, or land uses outside of its boundaries, which may threaten it, through an established buffer zone which is accepted by the broader communities and stakeholders.
- Create awareness, understanding and appreciation of the Park's natural, cultural and Wilderness values.
- Give access to the Park's natural, cultural and Wilderness values to sustainably capitalise on the tourism potential for the Park and its surrounding areas.
- Implement effective conservation management and public appreciation of all cultural and heritage resources within the Park in accordance with statutory regulations.
- Conserve the full range of biodiversity in the Park, including the natural processes that maintain it.
- Provide adequate human resources, equipment and funding to enable the effective protection, development and management of the uKhahlamba Drakensberg Park.
- Facilitate adaptive management through the assessment of management interventions and the provision of information for achieving the objectives of the Park.

Management issues, challenges and opportunities for the uKhahlamba Drakensberg Park

A situational analysis was done in consultation with stakeholders with input from the Park Management Committee, in the form of a Strengths, Weaknesses, Opportunities and Threats analysis. Furthermore, an annual Management Effectiveness Assessment highlighted specific management issues that needed to be addressed. It is important to note that some of these challenges are at an organisational level and others at Park level. Some of the more critical issues that were identified are listed below:

Organisational level:

- There is a lack of capacity to manage the cultural heritage of the Park. Currently, the provincial Heritage Agency (The KwaZulu-Natal Amafa & Research Institute) is assisting with this function through an existing Memorandum of Agreement (MoA), but since they too have declining capacity levels this concern, that could potentially threaten the World Heritage status of the Park, requires urgent intervention. On 1 April 2019, when Amafa withdrew their support to the UDP since the lapse of the MoA.
- Lack of a common understanding of the location of the international border. Although it is generally accepted that the watershed is the boundary between Lesotho and South Africa, and therefore also the Park boundary, it is not always clear at the operational level where the watershed is which makes it challenging to do law enforcement and prevent illegal grazing, thereby compromising the biodiversity value of the pockets of high-altitude vegetation types.
- Lack of financial and human resources to effectively manage the Park.

Park level:

- Access control is an ongoing concern with issues relating to illegal entry and exit points and the lack of an effective mechanism to control air space access and unmanned entry points.
- Non-compatible land-uses and/or developments adjacent to the Park that may threaten the Outstanding Universal Value and other Park values.
- Lack of coordination of organs of state to protect the viewsheds leading into the Park.
- Alien and invasive species' infestation threatening the biodiversity of the Park.
- Illegal activities including entry, stock theft, poaching, illegal plant harvesting and drug and contraband smuggling.

Managing the issues, challenges and opportunities for the uKhahlamba Drakensberg Park

The strategic outcomes listed below have been identified as key to the effective management of the uKhahlamba Drakensberg Park. The strategic outcomes have been incorporated into the Operational Management Framework where they have been linked to management activities, targets, timeframes and responsibilities in Section 4.

- Secure permanent conservation/heritage legal status of all properties and features in the uKhahlamba Drakensberg Park.
- Ensure the integrity of the Park through effective partnerships with stakeholders, security services and the justice system.
- Ensure effective control of legitimate access in the uKhahlamba Drakensberg Park.
- Ensure effective co-management of the uKhahlamba Drakensberg Park with co-management partners.
- Ensure constructive stakeholder involvement in Park management through effectively functioning liaison forums.
- Provide support to the community in developing capacity to make inputs into the management of the Park.
- Ensure effective branding of the uKhahlamba Drakensberg Park as part of the Maloti-Drakensberg Park World Heritage Site.
- Ensure as far as possible that there is public support for the uKhahlamba Drakensberg Park.
- Prioritise the key buffer zone areas within the provincial Protected Area Expansion Plan.
- Maintain the transboundary linkages between the Park, authorities and communities of Lesotho.
- Encourage appropriate compatible land use, water use and land care practices in the uKhahlamba Drakensberg Park buffer.
- Ensure tourist infrastructure to access the uKhahlamba Drakensberg Park safely is prioritised by the relevant authorities.
- Ensure that neighbouring communities, stakeholders and visitors are aware of the Park objectives and values.
- Integrate Park tourism activities with tourism strategies and plans for the region.
- Implement updated standards developed for signage.

- Develop transfrontier activities and travel in line with the new vision for Transfrontier Conservation Areas (walking based lower carbon footprint tourism activities) in southern Africa.
- Develop indigenous gardens around resorts.
- Ensure adequate fire safety within the uKhahlamba Drakensberg Park.
- Maintain the Wilderness character of naturalness and solitude of the zoned Wilderness areas in the uKhahlamba Drakensberg Park.
- Ensure effective reduction of alien and invasive species in the uKhahlamba Drakensberg Park.
- Implement procedures to manage alien animals found within the uKhahlamba Drakensberg Park.
- Ensure effective accelerated soil erosion control to safeguard infrastructure and biodiversity.
- Ensure that extractive resource use is undertaken legally and conforms to Ezemvelo KwaZulu-Natal Wildlife policy.
- Ensure that bioprospecting (if undertaken) is undertaken legally and conforms to Ezemvelo KwaZulu-Natal Wildlife policy.
- Develop and implement a strategy for management of the wildlife in the uKhahlamba Drakensberg Park in accordance with Ezemvelo KwaZulu-Natal Wildlife policies and norms and standards.
- Implement a human/wildlife conflict strategy that complies with provincial and national norms and standards.
- Develop a Climate Change Adaptation and Mitigation Response Strategy based on Ezemvelo KwaZulu-Natal Wildlife's 2013 KwaZulu-Natal Climate Change Response Strategy to Reduce the vulnerability of provincial biomes.
- Ensure that there are sufficient information and understanding of biodiversity in the uKhahlamba Drakensberg Park to inform and support the achievement of specific biodiversity objectives.
- Establish processes to determine the success of management interventions in protecting the ecosystems, communities and species of the Park.
- Sustainably manage the globally significant cultural heritage and living heritage to ensure their protection for present and future generations.
- Comply with legislative requirements for reporting in terms of the National Environmental Management: Protected Areas Act No. 57 of 2003, World Heritage Convention Act No. 49 of 1999 and the Ramsar Convention.
- Provide opportunities for both applied and theoretical research in the uKhahlamba Drakensberg Park.
- Maintain critical ecological processes and functions within the uKhahlamba Drakensberg Park.
- Ensure that rare and endangered species management is undertaken using the best available scientific knowledge.
- Establish processes to determine the success of management interventions in protecting the ecosystems, communities and species of the Park.
- Adequately resource the Park to ensure all objectives can be achieved.
- Ensure effective management of financial resources.
- Ensure that the Park is resourced with a staff establishment adequate for its effective management and operation.
- Ensure that there is an effective staff management programme in place.
- Ensure that the Park is compliant with the Occupational Health and Safety Act No. 85 of 1993 (OHSA).
- Ensure that all facilities and infrastructure in the Park are adequately maintained.
- Ensure that existing and proposed roads, tracks and paths in the uKhahlamba Drakensberg Park are maintained.
- Ensure that service infrastructure and practices in the uKhahlamba Drakensberg Park do not cause environmental harm.

Annual Operations Plan

To effectively implement the management plan and address the critical issues identified in it, an Annual Operations Plan (AOP) will be prepared. The AOP is based on the management plan objectives, targets, SWOT analysis and Mett assessment. The Annual Operations Plan will guide the implementation and monitoring of the management plan. It includes a component to record any revisions required to the management plan, to be incorporated in the next management plan revision.

This management plan is valid from the date of signature of the MEC. Annual assessments by the management team will guide the review requirements. Should a substantial change be required to the strategic component of the plan, a review process with public consultation and resubmission to the MEC and National Minister will be triggered.

ABBREVIATIONS

a.s.l.	Above sea level
Amafa	The KwaZulu-Natal Amafa & Research Institute
AOP	Annual Operations Plan
BP	Before Present
CARA	Conservation of Agricultural Resources Act No. 43 of 1983
CCA	Community Conservation Area
CDP	Concept Development Plan (Component of the Integrated Management Plan)
CEO	Chief Executive Officer
CMS	Co-management Structure
COMPACT	Community Management of Protected Areas for Conservation (Project)
DCO	District Conservation Officer
DEFF	National Department of Environment, Forestry and Fisheries, South Africa
DoC	Department of Culture of the Ministry of Tourism, Environment and Culture
DWAS	Department of Water Affairs and Sanitation
EDTEA	Department of Economic Development, Tourism and Environmental Affairs
EIA	Environmental Impact Assessment
EZEMVELO	Ezemvelo KwaZulu-Natal Wildlife
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EWT	Endangered Wildlife Trust
FPA	Fire Protection Association
FP	Financial Plan
GDP	Gross Domestic Product
GIS	Geographical Information System
HIA	Heritage Impact Assessment
IBA	Important Bird and Biodiversity Area
ICOMOS	International Council on Monuments and Sites
IDP	Municipal Integrated Development Plan
IMP	Integrated Management Plan
IUCN	International Union for the Conservation of Nature
KZN	KwaZulu-Natal Province of the Republic of South Africa
KZN NCMA	KwaZulu-Natal Nature Conservation Management Act No. 9 of 1997
KZN HA	KwaZulu-Natal Heritage Act No. 4 of 2008
LUMS	Land Use Management Scheme
MDP WHS	Maloti-Drakensberg Park World Heritage Site
MEC	Member of the Executive Council
MCSA	Mountain Club of South Africa

MDTP	Maloti-Drakenberg Transfrontier Programme
MoA	Memorandum of Agreement
MoU	Memorandum of Understanding
NEMA	National Environmental Management Act No. 107 of 1998
NEMBA	National Environmental Management: Biodiversity Act No. 10 of 2004
NEMPA	National Environmental Management: Protected Areas Act No. 57 of 2003
NHRA	National Heritage Resources Act No. 25 of 1999
NPAES	National Protected Area Expansion Strategy
NSBA	National Spatial Biodiversity Assessment
OUV	Outstanding Universal Value
OHSA	Occupational Health and Safety Act No. 85 of 1993.
PA	Protected Area
PFMA	Public Finance Management Act No. 1 of 1999
PMC	Park Management Committee
RABAS	Rock Art and Baseline Archaeological Survey
RARI	Rock Art Research Institute (University of the Witwatersrand)
RSA	Republic of South Africa
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resource Information System
SANDF	South African National Defence Force
SAPPI	South African Pulp and Paper Industry
SCAP	Special Case Area Plan
SAPS	South African Police Service
SDF	Municipal Spatial Development Framework
SNP	Sehlabathebe National Park (Lesotho component of the MDP WHS).
SMME	Small, Micro and Medium Enterprises
TCA	Transboundary Conservation Area
UDP	The uKhahlamba Drakensberg Park (South African component of the MDP WHS)
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHS	World Heritage Site
WiMP	Wilderness Management Plan
WWF	Word Wildlife Fund

DEFINITION OF TERMS

Term	Definition
Adaptive re-use	The process of reusing an old site or building for a purpose other than which it was built or designed for.
Alien species	Species or genotypes, which are not indigenous to the uKhahlamba Drakensberg Park and the surrounding area including hybrids and genetically altered organisms.
Biodiversity	The variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and also includes diversity within species, between species, and of ecosystems (as per the National Environmental Management: Biodiversity Act No. 10 of 2004).
Bioprospecting	In relation to indigenous biological resources, means any research on, or development or application of, indigenous biological resources for commercial or industrial exploitation, and includes – the systematic search, collection or gathering of such resources or making extractions from such resources for purposes of such research, development or application (as per the National Environmental Management: Biodiversity Act No. 10 of 2004).
Board	The KwaZulu-Natal Nature Conservation Board as defined by the KwaZulu-Natal Nature Conservation Management Act No.9 of 1997.
Buffer Zone	An area surrounding the uKhahlamba Drakensberg Park where collaborative projects and programmes are undertaken to afford additional protection to the Park.
Co-management	The term must be understood within the context of Section 42 of the National Environmental Management: Protected Areas Act No. 57 of 2003. A co-management agreement is when a management authority enters into an agreement with another organ of state, a local community, an individual or other party for the co-management of the area by the parties.
Cultural heritage	As defined in Article 1 of the World Heritage Convention (UNESCO) 1972, 'cultural heritage' is considered as "monuments, architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of (…) value from the point of view of history, art or science, groups of buildings, groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of significance from the point of view of history, art or science, sites, works of man or the combined works of nature and man, and areas including archaeological sites which are of (…) value from the historical, aesthetic, ethnological or anthropological point of view." For the purpose of this Integrated Management Plan, living heritage features such as mountains, pools, rivers, boulders, etc. as well as palaeontological features are included under this definition.
Cultural heritage management	Conservation, presentation and improvement of heritage resources.
Cultural significance	Of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance as defined in National Heritage Resources Act No. 25 of 1999: "Cultural significance means aesthetic, historic, scientific,

	social or spiritual value for past, present or future generations (Burra Charter). Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects". Places may have a range of values for different individuals or groups. Cultural significance is a concept which helps in estimating the value of places. The places that are likely to be of significance are those which help an understanding of the past or enrich the present, and which will be of value to future generations [Australia ICOMOS 1988].
Eco-cultural tourism (ecotourism):	Nature-based tourism where people travel to natural areas to learn about the cultural history of people and the natural history of the environment, while taking care not to change the environment and contribute to the economic welfare of the local people (adapted from a definition of ecotourism by Hecto Ceballos Lascurain).
Ecological integrity	The sum of the biological, physical and chemical components of an ecosystem and its products, functions and attributes (as per the National Environmental Management: Protected Areas Act No. 57 of 2003).
Ecosystem	A dynamic complex of animal, plant and micro-organism communities and their non-living environment interacting as a functional unit (as per the National Environmental Management: Protected Areas Act No. 57 of 2003).
Ecosystem services	As defined in Section 1 of the National Environmental Management: Protected Areas Act No. 57 of 2003 as "environmental goods and services" meaning: a. Benefits obtained from ecosystems such as food, fuel and fibre and genetic resources. b. Benefits from the regulation of ecosystem processes such as climate regulation, disease and flood control and detoxification. c. Cultural non-material benefits obtained from ecosystems such as benefits of a spiritual, recreational, aesthetic, inspirational, educational, community and symbolic nature For the purposes of this Integrated Management Plan, sustainable water production is also specifically included under this definition.
Environmental degradation	The deterioration of the environment through depletion of resources such as air, water and soil; the destruction of ecosystems and the loss of species or undesirable reduction of species population numbers from a specific area from an environmental health perspective.
Ezemvelo KwaZulu-Natal Wildlife	KwaZulu-Natal Nature Conservation Service as established in terms of the KwaZulu-Natal Nature Conservation Management Act No. 9 of 1997.
Heritage conservation	Preservation, maintenance and sustainable use of a place or objects so as to safeguard their cultural significance.
Heritage object	As defined by the National Heritage Resources Act No. 25 of 1999: ▪ Any archaeological artefact, palaeontological and rare geological specimens and meteorites found in South Africa. ▪ Antiquities, e.g. utensils, coins, weapons, jewellery, seals, pottery etc. that have been in South Africa for more than 100 years. ▪ Original fabric removed from South African historical buildings. ▪ South African items of numismatic (medals and coins) and philatelic interest that have been in South Africa for more than 100years.

	▪ South African zoological, botanical and geological specimens that have been in South Africa for more than 100 years.
Heritage resource	As defined by KwaZulu-Natal Heritage Resources Act No. 4 of 2008: ▪ Archaeological artefacts and sites (material remains resulting from human activity which is in a state of disuse and is in or on the land and are older than 100 years, including artefacts, human and hominid remains and artificial structures and features). ▪ Living Heritage Sites (includes the cultural tradition, oral history, and performance, ritual, popular memory, skills and techniques, Indigenous Knowledge Systems as well as the artefacts/objects and cultural space/landscape associated therewith – that communities recognise as part of their cultural heritage). ▪ Rock art (being a form of painting or engraving on a fixed rock surface or a loose stone slab, older than 100 years, executed by a human agency plus a 50 meters radius surrounding the area). ▪ Features, structures and artefacts associated with military history, which are older than 75 years and the sites on which they are found. ▪ Historical buildings or parts thereof older than 60 years. ▪ Public monuments and memorials. ▪ Wrecks of any vessel or aircraft and their associated cargo, which are older than 60 years. ▪ Graves and traditional burial places inside and outside formal graveyards; Landscapes and natural features containing cultural significance. ▪ Palaeontological and rare geological specimens. ▪ Meteorite sites.
Indigenous species	In relation to a specific protected area, means a species that occurs, or has historically occurred, naturally in a free state of nature within that specific protected area, but excludes a species introduced in that protected area as a result of human activity (as per the National Environmental Management: Protected Areas Act No. 57 of 2003).
Invasive species	Means any species whose establishment and spread outside of its natural distribution range – a. May threaten ecosystems, habitats or other species or have a demonstrable potential to threaten ecosystems, habitats or other species. b. May result in economic and environmental harm or harm to human health. (As per the National Environmental Management: Protected Areas Act No. 57 of 2003).
Joint management	The agreed co-ordination of management and/or management actions by landowners and/or mandated managers on their individual or combined properties in order to achieve common management objectives.
Local community	Any community of people living or having rights or interests in a distinct geographical area (as per the National Environmental Management: Protected Areas Act No. 57 of 2003).
Management	In relation to a protected area, includes control, protection, conservation, maintenance and rehabilitation of the protected area with due regard to the use and extraction of biological resources, community-based practices and benefit-sharing activities in the area in a manner consistent with the National

	Environmental Management: Biodiversity Act No. 10 of 2004 (as per the National Environmental Management: Protected Areas Act No. 57 of 2003).
Management authority	In relation to a protected area, means the organ of state or other institution or person in which the authority to manage the protected area is vested (as per the National Environmental Management: Protected Areas Act No. 57 of 2003).
Minimum tool	Apply only the minimum tools, equipment, device, force, regulation, action or practices that bring the desired result. It is the minimum management intervention used to achieve the desired result in keeping with the legislation and Wilderness Management Plan and uses the most 'light-handed' approach (Dawson & Hendee 2009).
Monitoring	The collection and analysis of repeated observations or measurements to evaluate change in status, distribution or integrity in order to track the impacts of directed management implemented to achieve a stated management objective.
Nature conservation	The conservation of naturally occurring ecological systems, the sustainable utilisation of indigenous plants and animals therein, and the promotion and maintenance of biological diversity (as per the KwaZulu-Natal Nature Conservation Management Act No.9 of 1997).
Neighbouring community	The communities and people permanently living in the local municipal area/s bordering onto the Park.
Natural heritage	As defined in Article 2 of the World Heritage Convention (UNESCO) 1972 'natural heritage' is as: "natural features consisting of physical and biological formations or groups of such formations, which are of (…) value from the aesthetic or scientific point of view, geological and physiographical formations and precisely delineated areas which constitute the habitat of threatened species of animals and plants of (…) value from the point of view of science or conservation, natural sites or precisely delineated natural areas of (…) value from the point of view of science, conservation or natural beauty." For this Integrated Management PlanMP, this would include the required ecological integrity of the protected area for the production of ecosystem services.
Outstanding Universal Value	Outstanding Universal Value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole.
Palaeontological site	A site containing fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace fossils. Palaeontological refers to any fossilised remains or trace fossils.
Park	The uKhahlamba Drakensberg Park, the South African component of the Maloti-Drakensberg Park World Heritage Site.
Partnerships	A co-operative and/or collaborative arrangement between the protected area management/Ezemvelo KwaZulu-Natal Wildlife and a third party that supports the achievement of the protected area management objectives.
Protected areas	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 protected areas referred to in section 9 of the National Environmental Management: Protected Areas Act No. 57 of 2003.
Park Management Committee	Is the management body that deals with the day-to-day management of the protected area and is chaired by the Park Manager.
Ramsar Convention	Means: "The Convention on Wetlands of International Importance, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty, which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources." (There are presently 158 Contracting Parties to the Convention, the Convention has broadened its scope to cover all aspects of wetland conservation and wise use, recognising wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities.)
Stakeholders / interested parties	These are interested individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, 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).
Surveillance	The collection and analysis of single or repeated measurements to establish status or distribution or integrity at a point in time in the absence of a specific management context or objective.
Sustainable	In relation to the use of a biological resource, means the use of such resource in a way and at a rate that would not lead to its long-term decline; would not disrupt the ecological integrity of the ecosystem in which it occurs; and would ensure its continued use to meet the needs and aspirations of present and future generations of people (as per National Environmental Management: Biodiversity Act No. 10 of 2004).
Wilderness area	Means an area designated in terms of section 22 or 26 for the purpose of retaining an intrinsically wild appearance and character, or capable of being restored to such and which is undeveloped and roadless, without permanent improvements or human habitation (as defined by the National Environmental Management: Protected Areas Act No. 57 of 2003).
World Heritage Site	Means a World Heritage Site as defined in the World Heritage Convention Act No. 49 of 1999 under Chapter 1, section 1 subsection (xxiv).

1 INTRODUCTION TO THE INTEGRATED MANAGEMENT PLAN

1.1 Purpose of the Plan

The Integrated Management Plan (IMP) is a high-level, strategic document that provides the direction for the development and operation of the uKhahlamba Drakensberg Park (UDP, also referred to as the Park). The IMP informs management at all levels, from the staff on-site through to the Chief Executive Officer (CEO), the Board and the Member of the Executive Council (MEC). The World Heritage Convention Act No. 49 of 1999 (WHCA) determines in Section 23 that the overarching objective of every IMP is to ensure the protection and management of the World Heritage Site (WHS) in a manner that is consistent with the objectives and principles of this Act. Furthermore, the purpose of the IMP is to:

- Align the management of the Park with national policy, the WHCA and the National Environmental Management: Protected Areas Act No. 57 of 2003 (NEMPA) and their amendments; the KwaZulu-Natal Heritage Act No. 4 of 2008 (KZN HA) and the National Heritage Resources Act No. 25 of 1999 (NHRA).
- Align the management of the Park with the Vision, Mission and strategic objectives of Ezemvelo KwaZulu-Natal Wildlife (Ezemvelo).
- Provide the primary strategic tool for the management of the UDP, informing the need for specific programmes and operational procedures.
- Provide motivations for budgets and provide indicators that the budget is spent correctly.
- Build accountability into the management of the UDP.
- Provide for capacity building, future thinking and continuity of management.
- Enable Ezemvelo to develop and manage the UDP in such a way that its Outstanding Universal Value (OUV) and other values, and the purpose for which it was established, are protected.
- Provide an integrated overview and understanding of the cultural heritage of the Park by drawing together information to present an overall description through time.
- Provide an assessment of the significance of cultural heritage sites and the landscapes and provide a statement of significance and grading for these sites.
- Provide cultural heritage conservation policies and approaches appropriate to the site and its context, ensuring that the significance of the site is retained.

1.2 Structure of the Plan

As a result of its status as a mixed WHS, the management of cultural heritage (based on the Cultural Heritage Management Plan (Wahl, Mazel & Roberts 1998), is integrated with the IMP.

The IMP has been divided into three main sections to provide an easy to use reference for the management of the Park. The sections are set out in Table 1 and Figure 1 and are as follows:

- The Context Section (1 and 2) provides background information to both the Park and the planning process.
- The Strategy Section (3) provides the 'roadmap' to the management of the UDP [what is the desired state, and how will we get there?].
- The Operational Section (4 – 8) provides for the implementation of the management plan. This section together with the conservation targets, wildlife management strategies and the Annual Operations Plan of (AOP) forms the operational component that facilitates implementation of the IMP.
- To effectively implement the management plan and address the critical issues identified in it, an Annual Operations Plan (AOP) will be prepared. The AOP is based on the management plan objectives, targets, SWOT analysis and Mett assessment. The Annual Operations Plan will guide the implementation and monitoring of the management plan. It includes a component to record any revisions required to the management plan, to be incorporated in the next management plan revision.

Table 1: Structure of the Integrated Management Plan

CONTEXT	
1	Provides an introduction and background to the Integrated Management Plan, the framework for the management of the UDP and the planning approach that was followed in the development of the Integrated Management Plan.
2	Establishes the context of the UDP, providing the basis for the strategic and operational management frameworks that follow.
STRATEGY	
3	Sets out the vision and objectives that must be achieved in efforts to effectively conserve the UDP, describes the management framework that provides direction to the operational management and describes the administrative structure required to manage the UDP effectively.
OPERATIONS	
4	Sets out the detailed management targets that must be achieved in managing the UDP.
5	Describes the research strategy for the UDP and the history of research in the UDP.
6	Sets out the monitoring measures required to determine if management targets are being met.
7	Sets out the requirements for reporting on performance in implementing the plan.
8	Describes the components that must be included in the Annual Plan of Operation, including resource requirements.

1.3 Institutional Framework for the Management of Protected Areas in KwaZulu-Natal

The Park was listed as a WHS by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) on 29 November 2000, and proclaimed as a WHS Site on 18 December 2007 in accordance with the WHCA. The KZN Nature Conservation Board, established in terms of the KwaZulu-Natal Nature Conservation Management Act No. 9 of 1997 (KZN NCMA), was appointed by the Minister of Environmental Affairs and Tourism as the Authority for the UDP on 11 July 2008 (Gazette 31220, Notice 741) and re-appointed on 18 July 2014 (Gazette 37830, Notice 568). Powers and the duties of the Management Authority shall be exercised in terms of sections 13 and 15 of the WHCA, and in compliance with sections 33, 35, 36, 37, 39, 40(1 & 2) and 42. The Board's implementing agency is KZN Nature Conservation Service, generally known as Ezemvelo.

The Authority is accountable to both MEC (for Economic Development, Tourism and Environmental Affairs) and the Minister (Environment Forestry and Fisheries), and this relationship is described in a Memorandum of Understanding (MoU). Critical aspects of the MoU are that the Minister, MEC and Board agree that the IMP is the primary document for decision making and resource allocation and agree not to promote activities or initiatives that may threaten the site. Furthermore, the parties agree to work together in achieving the objectives of the site.

The MEC will ensure that all provincial departments, parastatals, local government and national departments operating within the province are aware of the WHS values and the roles and responsibilities of the Board. The MEC will endeavour through appropriate interventions and channels to ensure that decisions made by other organs of state in effecting their mandates do not negatively impact on the WHS values or the powers and responsibilities of the Board.

Since Ezemvelo's primary focus is biodiversity conservation, it entered into a Memorandum of Understanding (MoU) with the KwaZulu-Natal Amafa & Research Institute (Amafa), the provincial Heritage Agency, whereby Amafa agreed to provide the necessary capacity for cultural heritage management within the UDP. The MoU dated July 2005 and updated in 2015, provides for collaboration, mutual support and channels of communication. In terms of the memorandum the following liaison forums were established:

- Amafa-Ezemvelo Liaison Committee: Dealing with policy issues as well as issues of common concern. The meeting is attended by members of the Executive of both organisations, with a rotating chair.
- The Quarterly Cultural Heritage Management Meeting: Dealing with heritage management issues within the Park. This committee was active until 1 April 2019, when Amafa withdrew their support to the UDP.

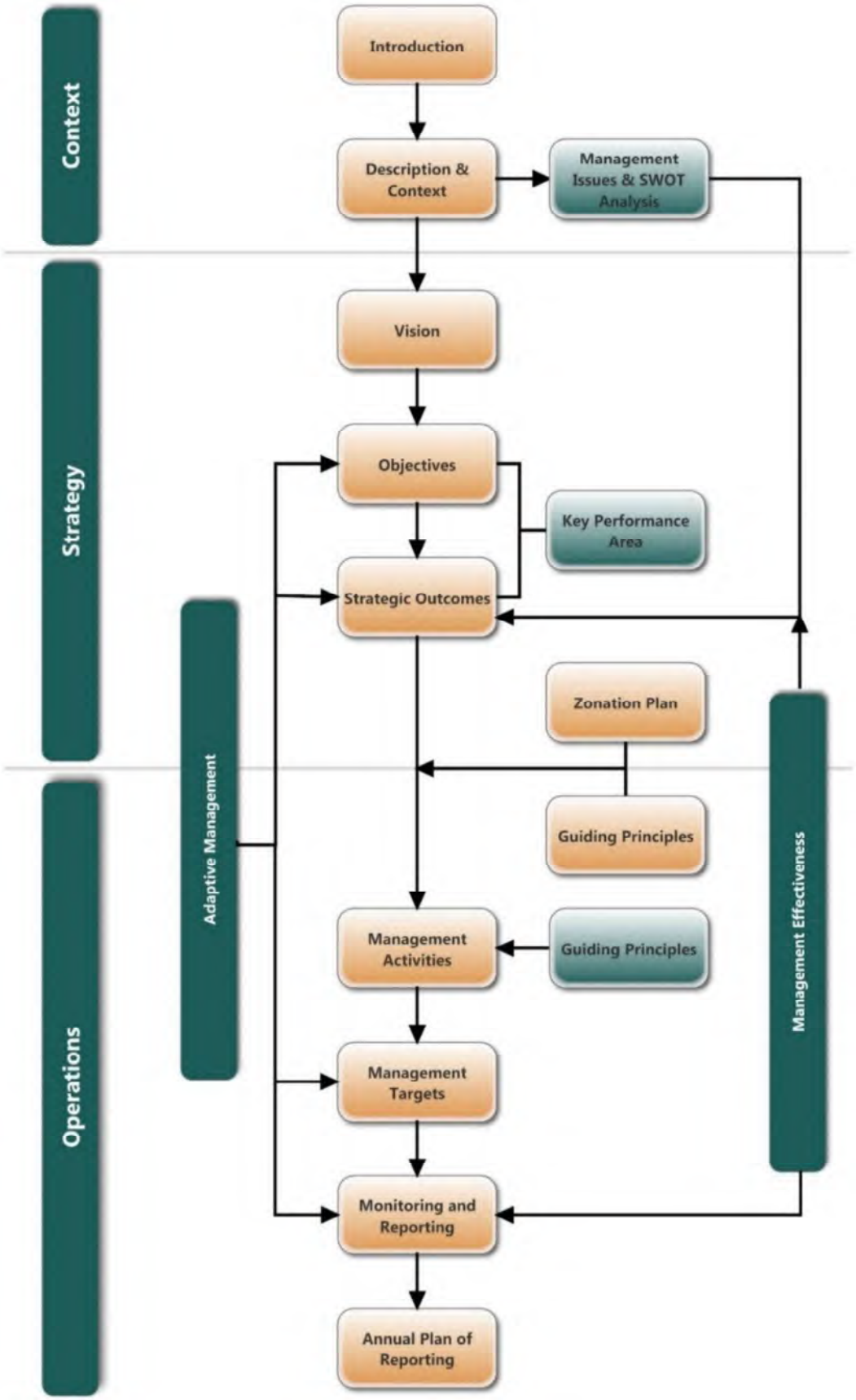

Figure 1: Structure of the Integrated Management Plan

Management of the Park will be undertaken in accordance with relevant legislation and the management policies of Ezemvelo, which includes a commitment to maintaining the character and ecological, cultural and aesthetic integrity of the site.

A list of unpublished and supporting documentation of the Park is available in Appendix A: List of published and unpublished supporting documents of the uKhahlamba Drakensberg Park and managers must familiarise themselves with the documents including all local agreements, leases, servitudes and policies.

1.4 The Policy Framework Guiding the Management of the uKhahlamba Drakensberg Park

In conserving and managing the biodiversity of KZN, Ezemvelo operations are undertaken within a broad framework of policies. At a national level, the overarching policy is set out in:

- The White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity of 1997.
- The Bioregional Approach to South Africa's Protected Areas, 2001/2002.
- Community-Based Natural Resource Management Guidelines, 2003.
- National environmental management principles set out in section 2 of the National Environmental Management Act No. 107 of 1998 (NEMA).
- Relevant norms and standards set by the Minister and MEC in terms of NEMPA.
- Operational Guidelines for WHS in terms of the WHCA.

Amafa policies provide for the management of cultural heritage resources. Amafa and Ezemvelo established a liaison committee to ensure alignment of mandates, policies and agreements in terms of the management of cultural aspects in protected areas. The International Council on Monuments and Sites (ICOMOS), guides the requirements for conducting Heritage Impact Assessments (HIA) in World Heritage properties (ICOMOS 2011).

The following international charters are applicable in managing the cultural heritage of the Park:

- Burra and Venice Charters.
- UNESCO Convention for Safeguarding of Intangible Cultural Heritage.
- United Nations Declarations on the Rights of Indigenous People.

The Cultural Heritage component of the IMP is guided by:

- Previous management plans (known as CURE documents (1998-2014) and the Cultural Heritage Management Plan (2015).
- A 1999 Cultural Heritage Audit assessing cultural heritage aspects in the greater transboundary area.

This IMP has utilised the abovementioned framework of policies that is consistent with the broad goals of Ezemvelo and Amafa. Within the province, Ezemvelo has adopted a Five-Year Strategic Plan and Performance Plan for 2015-2020 and revised in 2021 for the next five years, which has developed a corporate strategic profile (Figure 2).

1.5 The Legislative Basis for the Management of the uKhahlamba Drakensberg Park

There is a large body of legislation that is relevant to the management of the UDP, but the primary legislation guiding the management of the Park is the WHCA and NEMPA. The WHCA provides for the cultural and environmental protection as well as sustainable development of the WHS and ensures that the management authority fulfils its obligations in terms of the WHS.

NEMPA establishes the legal basis for the creation and administration of protected areas in South Africa, as its objectives include provisions "for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes". The Act sets out the mechanisms for the declaration of protected areas and the requirements for their management. The Act and its regulations regulate aspects of both natural and cultural heritage management of protected areas.

In terms of NEMA Environmental Impact Assessment (EIA) Regulations, various activities require environmental authorisation before they may commence. In terms of Regulation RN.546, Listing Notice 3, several activities require environmental approval because of their proximity to a protected area. The implication of this is that if any of the activities listed in Listing Notice 3 are proposed in the Park, or within ten kilometres of it, they will be subject to either a basic assessment or a full scoping and EIA process. Several general activities and those proposed for either tourism development or operational management within the Park or its buffer areas will thus also require environmental

authorisation. The definition of 'environment' in NEMA includes cultural heritage; therefore, the entire Act is relevant to both cultural and natural resources.

Section 76 of the National Environmental Management: Biodiversity Act No. 10 of 2004 (NEMBA), requires the management authority of a protected area preparing a management plan for the area in terms of NEMPA, must incorporate into the management plan an invasive species control and eradication strategy. This requirement is addressed in Sections 3 and 4 of this IMP.

The KwaZulu-Natal Planning and Development Act No. 6 of 2008, regulates all building and planning activities in municipal areas. As all protected areas now fall within municipal areas, planning permission is required for all structures that are built within these areas.

Cultural Heritage aspects of the UDP are legislated by the WHCA, as well as the KZN HA and the NHRA. The KZN HA provides for the conservation, protection and administration of both physical and living or intangible heritage resources of the Province. The NHRA aims to promote proper management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations.

There is a wide range of legislation and regulations that govern the management of human resources, health and safety, vehicles and equipment, fire preparedness, financial controls, acquisition of goods and services etc. These requirements are, however, implemented through the implementation of organisational policies.

A detailed list of relevant legislation is provided in Appendix B: List of statutes to which the uKhahlamba Drakensberg Park is subject. Managers are required to familiarise themselves with the purpose and contents of these statutes and their subsequent amendments and regulations. Any conflict management will be dealt with as per Chapter 1 and Section 7 of NEMPAA and Section 4 of the World Heritage Convention Act.

1.6 Planning Approach

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

1.6.1 Adaptive Management

Adaptive management is a structured, iterative process in which decisions are made using the best available information, to obtain better information through monitoring of performance (Figure 3).

In this way, decision making is aimed at achieving the best outcome based on current understanding, whilst accruing the information needed to improve future management. Adaptive management can lead to the revision of a part or if necessary, the whole management plan.

Adaptive management enables managers to:

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

1.6.2 Collaboration and Transparency

Stakeholder involvement and support is an essential aspect of effective protected area management. It is also a requirement in terms of Sections 39(3) and 41(2)(e) of the NEMPA and section 25 (3) of the WHCA. Accordingly, the development of this IMP has been undertaken through a collaborative process, involving local communities and other key stakeholders.

Public consultation has been undertaken through a series of meetings and discussions with key stakeholders culminating in key stakeholder workshops, held on 22 and 23 March 2018. Furthermore, the draft revised management plan has been made available for public review and comment before its finalisation. A separate meeting with the AmaNgwane Traditional Council was held on 13 of June 2018 as per a request at the main stakeholder workshop. This process has ensured valuable input into the development of the management plan. The outcomes of this process have been incorporated into the plan. A detailed Public Participation Report is appended in Appendix I. The IMP will be

implemented in collaboration with stakeholders, an updated stakeholder database, and various mechanisms are in place to jointly facilitate the implementation of the IMP.

Figure 2: Ezemvelo KwaZulu-Natal Wildlife Corporate Strategic Profile

Figure 3: The Adaptive Management Cycle

The consultation also formed an essential part in the development of the cultural component of the plan. Numerous stakeholder focus groups were consulted; including Rock Art Custodians, tour guides, the hospitality sector, San representatives, traditional authorities, private landowners, commercial forestry, tertiary academic institutions, and heritage agencies and institutions. Internal and external subject specialists and advisors have provided advice on various aspects of the cultural resources and its management.

2 DESCRIPTION OF THE UKHAHLAMBA DRAKENSBERG PARK AND ITS CONTEXT

2.1 Geographic Location

The UDP is situated in the KZN Province of the Republic of South Africa and is part of the Drakensberg Range - an inland mountain range in south-eastern Africa. Map 1 indicates the location of the Park in KZN and the Park boundary.

The western boundary of the Park forms the international boundary with the Kingdom of Lesotho, which is also the east/west watershed divide between the Orange/Senqu River system flowing into the Atlantic Ocean. The Park encompasses the major part of the Drakensberg mountain catchment area within KwaZulu-Natal and is roughly crescent-shaped with an approximate total length of 158 km and width of 28 km at its widest point.

The northern and southern areas of the UDP are not contiguous and are divided by tribal land. The western edge of the Park extends from 28° 52’ E to 29° 45’ E, the northern border of the northern component area extends from 28° 38’ S and to 28° 46’ S and the southern component area extends from 28° 55’ S to 29° 55’ S. The proclaimed area of the Park is 242 813 ha and its height above sea level (a.s.l.) extends from approximately 1 200 m to 3 408 m, the highest point in South Africa.

2.2 The History of the Conservation and Management of the uKhahlamba Drakensberg Park

In 1903 the Natal Colonial Government took preliminary steps to establish the first protected area in the Drakensberg by way of a Government Notice (No. 735 of 29 October 1903), which stated its intention to proclaim a “game reserve on the Crown Land in the vicinity of Giant’s Castle”. The area was declared a “Demarcated Forest” in 1905 but later proclaimed a game reserve in terms of Government Gazette Notice No. 356 of 1907, which allowed for the enforcement of the game protection laws. Subsequently, over the years since 1916, there have been twelve proclamations or amending notices which have increased the size of Giant’s Castle.

Several government-owned farms and adjoining Crown Land near Mont-Aux-Sources were to become the nucleus of a second protected area in the Drakensberg. The Natal Provincial Administration formally established the Natal National Park on the 19th of September 1916, and an advisory committee was appointed to study the area, control the land and develop its potential. Additional land was added to the Natal National Park increasing its original size of 3 294 ha to 8 094 ha, and in 1950 the adjacent area was proclaimed as the Rugged Glen Nature Reserve making the total area protected of 8 856 ha. The land added east of the uThukela River, known as Lion Ridge, is leased from the Amazizi Community and was proclaimed as part of the Park on 18 December 2007. Because of the visit by the British Royal family to the Park in 1947, the name was changed to Royal Natal National Park. In terms of the provincial Nature Conservation Ordinance, several other nature reserves were proclaimed in the Drakensberg. These were Kamberg Nature Reserve in

1951, Lotheni Nature Reserve in 1953 and Vergelegen Nature Reserve in 1967. Following the establishment of the Natal Parks, Game and Fish Preservation Board (later the Natal Parks Board) in 1947, all these protected areas were managed by this organisation until the establishment of the KZN Nature Conservation Service.

Concerns regarding the exploitation of indigenous forests were already expressed in reports submitted to the Natal Colonial Government in 1880, 1889 and 1902. In 1927, three areas were demarcated as State Forests, and these have been retained as protected areas in successive legislation. These were Cathedral Peak (including Cathkin Forest Reserve), Monk's Cowl and Cobham State Forests. The high rugged terrain along the face of the escarpment (mostly above 1800 m) remained as Crown Land (unallocated), but areas could be hired out for grazing. A parliamentary resolution in 1934 called for the protection of national mountain catchments in the headwaters of the most important rivers of South Africa for the conservation of water supplies. Therefore, the then Department of Agriculture and Forestry was given responsibility for the implementation of this resolution, and extensive areas of mountainous land were transferred into its custody.

Concerns regarding the effects of plantation forestry on catchment water supplies also emerged at this time and led to the founding of a research station in the Cathedral Peak State Forest. This research station was one of three such stations established in South Africa for long-term hydrological and other research programmes, which devolved around a series of nested gauged catchments, to investigate the influence of management practices including initially commercial afforestation and fire, on streamflow, and the influence of fire on the natural communities. The information gained from this research informed the development of the fire regime for the Park and, by demonstrating the reduction in water production by afforestation, prevented the establishment of large-scale plantations in the Drakensberg (Bosch 1979).

It was, however, only after World War II in 1948 that the Drakensberg Catchment Reserve (later the Drakensberg Catchment Area) was proclaimed "with a view of the future needs of the country, the mountain slopes should be held by the State in perpetuity, and that this land, being of so little value for farming and the slopes generally very steep, should not be given out either for cultivation or grazing... In delimitation, the area should embrace the stretch between the Little Berg and Basutoland with one, possibly two rows of farms below the little Berg...". Thereby the protection of these critical water-producing areas of South Africa was ensured. This national authority later became the Department of Forestry, which was responsible for the management of the Drakensberg Catchment Area for nearly fifty years.

In 1973, two extensive areas within the Park were proclaimed as Wilderness Areas in terms of the Forest Act No. 72 of 1968. These were the Mdedelelo (27 000 ha) and uMkhomazi (56 122 ha) Wilderness Areas. They were two of the first three wilderness areas to be so proclaimed in South Africa and Africa. Subsequently, the Mzimkhulu (28 340 ha) and Mlambonja (6 270 ha) Wilderness Areas were proclaimed in 1989. The management policy for wilderness areas is to retain the wild character of these areas by prohibiting all forms of human-made developments (roads, buildings, etc.) or other signs of modern man.

Mpongweni Cave in the Mzimkhulu Wilderness Area was declared a National Monument in terms of the National Monuments Act No. 28 of 1969. The motivation, timed for the opening of the wilderness area in 1979, was that it "would emphasise the importance currently placed on the preservation of the Drakensberg rock art and the place that the art plays in providing the particular atmosphere and character of the Drakensberg" (Motivation by Secretary of Forestry dated 23.4.79, NMC file 16/N/A/2). The site is not fenced, but a bronze plaque was erected.

The Park was furthermore listed in the Directory of Wetlands of International Importance (Ramsar Site No. 886) on 21 January 1996.

The long conservation history of the Park is fragmented, incomplete and not documented in a single publication. The fact that several authorities have over the past 100 or so years managed various portions of the Park as we know it today has resulted in the loss of much of its factual, land use and development history. A comprehensive history of the Park must be collated and published. Not only will such a publication be valuable from a historical perspective, but it could provide valuable historical insights into observed ecological phenomena.

2.2.1 Origin of the Name of the Mountains

The Drakensberg, named by the Dutch settlers because the eastern part of southern Africa's Great Escarpment, resembled the ridges on a dragon's back, is also known in isiZulu as 'uKhahlamba' meaning 'a barrier of spears' referring to the height of this escarpment rising to 3 000m or more in places. Some Voortrekker (Dutch immigrant settlers) legends also recall how a father and son, out on a stroll, 'saw' a dragon float in the misty clouds surrounding the high peaks of the Berg. Even the Zulu believe that the 'Inkanyamba', a mythological python-type creature with a horse-like head and mane, lives on top of these mountains and that it can control weather conditions, and that especially Berg

thunderstorms were ascribed to the actions of this creature. Legend has it that the Drakensberg Bushmen could control this feared being, a belief that caused people from all over southern Africa to seek the San out as rainmakers (Derwent 2006).

The mountain range was also known as the Drakensberg before the Voortrekkers settled in KZN in 1838. Early maps pre-dating the Great Trek already referred to this mountain range as the 'Draaks' or dragon mountains. The popular notion is that the prominent peaks and ridges in the basaltic layers of the mountain range resembled the back of a dragon hence the name. However, it is also possible that the name originated from early indigenous notions encountered by the first traders and travellers in the area. The original San inhabitants of the area believed that the mountain range was the habitation of their lesser deity – the rain-animal or iNkanyamba. The rain-animal could change its shape and often manifest as a rain-serpent with dragon-like qualities. Many rock paintings in the Drakensberg depict this rain-serpent often with an antelope or horse-like face. The black farmers in the foothills of the Drakensberg adopted this Bushman belief; however, for them, the rain-serpent became a 'monster' associated with adverse climatic phenomena such as tornados and hail storms. Like dragons in European myth, the iNkanyamba is also believed to fly from mountain peak to mountain peak looking for suitable bodies of water to occupy. Interestingly, some early settler accounts do refer to some Dutch farmers who encountered flying dragons in the Drakensberg.

The name uKhahlamba was the name initially given to the mountain range by the amaZizi, the descendants of the first African group who occupied the foothills of the northern Drakensberg at around 1300 AD. The name refers to a row of upright spears or as is more popularly known – a barrier of spears.

2.2.2 Origin of the Name of the uKhahlamba Drakensberg Park

Names of individual proclamations of land by the Natal Colonial Government, Natal Provincial Administration and Department of Forestry since 1903 were generally based on or linked to farm names or individual geographical features. Some confusion had always existed for Natal National Park, later renamed Royal Natal National Park, which was proclaimed under provincial legislation before the establishment of the National Parks Act, i.e. despite the name it was never a national park in the real sense of the word. The list below provides a summary of the evolution of the name of the UDP:

- When the State Forests were transferred to the Natal Parks Board in 1988, the consolidated area was named, but not proclaimed, as the Natal Drakensberg Park.
- The 24th session of the World Heritage Committee in December 2000 listed the Park as the uKhahlamba/Drakensberg Park World Heritage Site.
- On 18th December 2007 in Government Gazette 30950 Notice 1199, the Park was proclaimed under section 1(xxiv)(a) of the WHCA as the uKhahlamba Drakensberg Park.
- The 37th session of the World Heritage Committee in June 2013 approved the inclusion of the Sehlabathebe National Park in Lesotho as an extension of the uKhahlamba/Drakensberg Park into a transboundary WHS. The name of the site as listed by UNESCO was as a result changed to Maloti-Drakensberg Park World Heritage Site.
- On 7th August 2013, Park management submitted a motivation to the Biodiversity Conservation Operations Committee of Ezemvelo to change the name of the Park to Maloti-Drakensberg Park World Heritage Site.
- In Government Gazette 38232 Notice 1063 of 2014, the Minister of Environmental Affairs published the intention to change the name to "Maloti-Drakensberg World Heritage Site". This process has not been concluded.
- The 115-year history of the establishment of the Park from individual proclamations through to consolidated non-proclaimed and changed proclaimed names has resulted in some confusion in public. A coordinated branding process must be undertaken to establish the Park's identity.

2.2.3 History of Eco-Cultural Tourism

Similar to the conservation history of the Park, tourism history is fragmented and needs to be consolidated in a single document. Historically visitors to the Park could enjoy activities that included primarily hiking and fly fishing in the rivers and dams, horse riding at Rugged Glen and Hillside, swimming in the many rivers/rock pools and mountaineering (rock and ice climbing).

The Park has a long association with the Mountain Club of South Africa who has been mountaineering in the Park for decades and opening new climbing routes on the numerous peaks.

There is approximately 1 550 km of hiking trails including the five-day Giant's Cup Hiking Trail, and well-demarcated paths for more leisurely walks and day hikes. The Department of Forestry established the Giant's Cup Hiking Trail as part of the National Hiking Way System in South Africa. The trail has since achieved Green Flag status through the Hiking organisation of South Africa.

The vulture hide at Giant's Castle opened and continuously running since 17 September 1967, is also available to view vultures at close range and is world-renown for vulture viewing and photography in spectacular surrounds.

2.3 The Values of the uKhahlamba Drakensberg Park

Values are the positive qualities and characteristics assigned by the people to a place that form the reason for the declaration as a protected area. Values are therefore crucial in planning and management, as they are the aspects of the protected area that must be protected.

Outstanding Universal Value as recognised under the World Heritage Convention means cultural and/or natural significance that is so exceptional as to transcend national boundaries and to be of universal importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community. When a site is inscribed on the World Heritage List, the World Heritage Committee adopts a Statement of Outstanding Universal Value, which details the reasons why the site is considered exceptional and should be protected for present and future generations.

2.3.1 Statement of Outstanding Universal Value

The Statement of Outstanding Universal Value as approved by the World Heritage Committee in 2000 and then updated in 2014:

Brief synthesis

The Maloti-Drakensberg Transboundary World Heritage Site is a transnational property spanning the border between the Kingdom of Lesotho and the Republic of South Africa. The property comprises Sehlabathebe National Park (6,500ha) in Lesotho and the uKhahlamba Drakensberg Park (242,813 ha) in South Africa. Maloti-Drakensberg Transboundary World Heritage Site is renowned for its spectacular natural landscape, importance as a haven for many threatened and endemic species, and for its wealth of rock paintings made by the San people over a period of 4000 years. The property covers an area of 249,313 ha making it the largest protected area complex along the Great Escarpment of southern Africa.

The Maloti-Drakensberg range of mountains constitutes the principal water production area in Southern Africa. The areas along the international border between the two countries create a drainage divide on the escarpment that forms the watershed for two of southern Africa's largest drainage basins. The Thukela River from the uKhahlamba Drakensberg Park flows eastwards into the Indian Ocean. The rivers of southern Maloti-Drakensberg including SNP drain into the Senqu/Orange River which flows westwards into the Atlantic Ocean, and extension of the UDP WHS to include SNP will add special hydrologic qualities to the area. The Senqu/Orange River from Sehlabathebe National Park flows westwards into the Atlantic Ocean.

With its pristine steep-sided river valleys and rocky gorges, the property has numerous caves and rock shelters containing an estimated 665 rock art sites, and the number of individual images in those sites probably exceeds 35,000. The images depict animals and human beings, and represent the spiritual life of the San people, representing an exceptionally coherent tradition that embodies their beliefs and cosmology over several millennia. There are also paintings done during the nineteenth and twentieth centuries, attributable to Bantu speaking people.

Extending along most of KwaZulu-Natal's south-western border with Lesotho, the property provides a vital refuge for more than 250 endemic plant species and their associated fauna. It also holds almost all of the remaining subalpine and alpine vegetation in KwaZulu-Natal, including extensive high-altitude wetlands above 2,750m and is a RAMSAR site. The Park has been identified as an Important Bird Area and forms a critical part of the Lesotho Highlands Endemic Bird Area.

Criterion (i): The rock art of the Maloti-Drakensberg Park is the largest and most concentrated group of rock paintings in Africa south of the Sahara and is outstanding both in quality and diversity of subject.

Criterion (iii): The San people lived in the mountainous Maloti-Drakensberg area for more than four millennia, leaving behind them a corpus of outstanding rock art, providing a unique testimony which throws much light on their way of life and their beliefs.

Criterion (vii): The site has exceptional natural beauty with soaring basaltic buttresses, incisive dramatic cutbacks and golden sandstone ramparts. Rolling high altitude grasslands, the pristine steep-sided river valleys and rocky gorges also contribute to the beauty of the site.

Criterion (x): The property contains significant natural habitats for in situ conservation of biological diversity. It has outstanding species richness, particularly of plants. It is recognised as a Global Centre of Plant Diversity and endemism, and occurs within its own floristic region – the Drakensberg Alpine Region of South Africa. It is also within a globally important endemic bird area and is notable for the occurrence of a number of globally threatened species, such as the Yellow-breasted Pipit. The diversity of habitats is outstanding, ranging across alpine plateaux, steep rocky slopes and river valleys. These habitats protect a high level of endemic and threatened species.

Integrity

The uKhahlamba Drakensberg Park, composed of 12 protected areas established between 1903 and 1973 has a long history of effective conservation management. Covering 242,813 ha in area, it is large enough to survive as a natural area and to maintain natural values. It includes 4 proclaimed Wilderness areas almost 50% of the Park, while largely unaffected by human development, the property remains vulnerable to external land uses including agriculture, plantation forestry and ecotourism, although agreements between Ezemvelo KZN Wildlife and local stakeholders have been implemented to manage these threats.

Invasive species and fire also threaten the integrity of the site, along with land claims in certain areas, infrastructural developments, soil erosion caused by fire and tourist impacts on vulnerable alpine trails, and poaching. The lack of formal protection of the mountain ecosystem over the border in Lesotho exacerbates these threats.

Boundary issues highlighted at time of inscription included the gap belonging to the amaNgwane and amaZizi Traditional Council between the northern and much larger southern section of the Park. While planning mechanisms restrict development above the 1,650m contour to maintain ecological integrity, it was recommended that a cooperative agreement between the amaNgwane and amaZizi Traditional Council and Ezemvelo KZN Wildlife be envisaged. Extending conservation areas by agreements with privately-owned land along the escarpment to the south of the property was also recommended. Finally an important step to strengthening integrity has been the development of the Drakensberg Maloti Transfrontier Conservation and Development Area, which has recognised the importance of a Transboundary Peace Park linking the Sehlabathebe National Park (and eventually the contiguous Sehlabathebe and Mokhotlong Range Management Areas) in Lesotho with the uKhahlamba Drakensberg Park. Project Coordinating Committees in both KwaZulu-Natal and Lesotho are cooperating in a planning process.

The extension of the area to include SNP (6,500ha) has been protected since 1970 as a wildlife sanctuary and a national Park and gazetted in 2001 to enhance protection of the biodiversity and scenic qualities of the property. This area added to the UDP World Heritage Site is sufficient to protect the biodiversity and cultural values of the area.

The property contains the main corpus of rock art related to the San in this area. A comparatively high concentration of rock art sites seems present in the western buffer zone in Lesotho and future surveys of these should be undertaking with the surveys for rock art in the Maloti-Drakensberg Park to judge their potential contribution to the Outstanding Universal Value. Although the area has changed relatively little since the caves were inhabited, management practices, the removal of trees (which formerly sheltered the paintings) and the smoke from burning grass both have the capacity to impact adversely on the fragile images of the rock shelters, as does unregulated public access.

Authenticity

The synthesis of rock art sites and their natural setting in Maloti-Drakensberg Park convey a very strong sense of authenticity in setting, location and atmosphere but also material, substance and workmanship. It should be noted as a positive factor that in large parts of the property no systematic conservation or consolidation treatment has been attempted, which has left the rock art sites perhaps more fragile but with the utmost possible degree of authenticity. The sites remain closely integrated with their surrounding landscape and credibly convey the narratives of San life and activity in respect to the harsh climatic conditions of the area and necessary exploitation of natural resources and shelter. Potential influences of UV rays and weathering on the images could lead to fading of colors and reduce the clarity of image content, which in turn that could lessen their ability to display their meaning. It is important that explanatory materials assist the interpretation of the image content as understood by the San people.

Protection and Management requirements

Management of the Park is guided by an Integrated Management Plan with subsidiary plans, and is undertaken in accordance with the World Heritage Convention Act, 1999 (South Africa, Act No. 49 of 1999); National Environmental Management: Protected Areas Act, 2003 (South Africa, Act 57 of 2003); National Environmental Management: Biodiversity Act, 2004 (South Africa, Act No. 10 of 2004); KwaZulu-Natal Nature Conservation Management Amendment Act (South Africa, No. 5 of 1999); the Game Preservation Proclamation (Lesotho, No. 55 of 1951); the Historical Monuments, Relics, Fauna and Flora Act (Lesotho, No. 41 of 1967); the National Heritage Act 2011 and Environment Act (Lesotho, No. 10 of 2008); World Heritage Convention Operational Guidelines; Environment policies in Lesotho and Ezemvelo KZN Wildlife policies. In terms of these legislation, all development within or outside the property is subjected to an Environmental Impact Assessment and Heritage Impact Assessments respectively, which consider the Outstanding Universal Value of the property. In addition, all World Heritage Sites are recognized as protected areas, meaning that mining or prospecting will be completely prohibited from taking place within the property or the proclaimed buffer zone. Furthermore, any unsuitable development with a potential impact on the property will not be permitted by the South African Minister of Water and Environmental Affairs and the Lesotho Minister of Environment and Culture who are responsible for the implementation of the World Heritage Convention.

Invasive species and fire are major management challenges. At the time of inscription 1% of the property was covered with alien vegetation, including existing plantations and wattle infestations. This poses a threat to the ecological integrity of the Park as well as to the yield of water from its wetlands and river systems. Park management is actively addressing the removal of alien species. The interaction between the management of invasive species and the management of fire should also be carefully considered, taking into account the effects of fire on fire-sensitive fauna such as endemic frogs. Management of fire and invasive species needs to be addressed jointly by Lesotho and KwaZulu-Natal, ideally within the framework established for transboundary protected area cooperation.

There is a need to ensure an equitable balance between the management of nature and culture through incorporating adequate cultural heritage expertise into the management of the Park and providing the responsible cultural heritage authorities with adequate budgets for the inventory, conservation and monitoring tasks. This shall ensure that all land management processes respect the paintings, that satisfactory natural shelter is provided to the rock art sites, that monitoring of the rock art images is conducted on a regular basis by appropriately qualified conservators, and that access to the paintings is adequately regulated. Furthermore, there is a need to ensure that Heritage Impact Assessments are undertaken in conjunction with Environmental Impact Assessments for any proposed development affecting the setting within the property.

2.3.2 Other Important Values

In addition to the Outstanding Universal Value, the Park has other important values that need to be equally protected and contribute to its overall significance. Table 2 presents a summary of all the values of the UDP.

2.4 The Purpose of the uKhahlamba Drakensberg Park

Consistent with Section 17 of NEMPA and the requirements of the WHCA, the purpose of the UDP is to:

- Protect the OUV and other values of the Park.
- Contribute to the achievement of Provincial and National conservation targets through protecting a representative portion of mountain grassland landscapes and its associated biodiversity, including the ecological and evolutionary processes that generate and maintain this diversity.
- Protect the endangered, rare and endemic species indigenous to the area including but not limited to Bearded Vulture and Oribi.
- Preserve and conserve the ecological and cultural integrity of the area.
- Safeguard the archaeological, historical, palaeontological and living cultural heritage of the area.
- Conserve the natural beauty and outstanding aesthetic value of the area.
- Provide controlled access by the public to the area.
- Contribute to local, regional, and national economies through sustaining water production and other life support systems, supporting eco-cultural tourism, and providing for sustainable use of natural resources.
- Provide a significant destination for eco-cultural tourism.

2.5 The uKhahlamba Drakensberg Park as a World Heritage Site

The Park is a national and international asset due to its unique natural and cultural values. As such, it was listed as a World Heritage Site by UNESCO on 29 November 2000 and proclaimed as a World Heritage Site on 18 December 2007 under the WHCA (Appendix E). The Park was listed as a WHS of dual significance, one of only 23 properties worldwide at the time of listing [3] to be listed as such.

The 37th session of the World Heritage Committee in June 2013 approved the inclusion of the Sehlabathebe National Park in Lesotho as an extension of the uKhahlamba / Drakensberg Park into a "transboundary World Heritage Site". The name of the site as listed by UNESCO was as a result changed to "Maloti-Drakensberg Park World Heritage Site".

Table 2: Values of the uKhahlamba Drakensberg Park

Value	Description of the Value
Ecosystem Service Values	The Drakensberg range of mountains constitutes the principal water production area in southern Africa and is thus critical to supporting both the people and the economy of the sub-continent. The UDP ensures that a significant portion of this mountain catchment area is conserved and managed to ensure the sustained production of high-quality water. Climate change adaptation through ecological gradients for resilience and carbon sequestration values are important, and many downstream users benefit from soil stability and soil formation. The unique geological setting, including a continuum of 80 million years of the earth's history written into the rock sequence of the UDP. The quality of preservation of the palaeontological material. The opportunity to consolidate the protection of moist high-altitude grasslands through the Transboundary project.
Wilderness Values	The values of wilderness can be categorised into four distinct themes; i) experiential, the direct value of the wilderness experience; ii) the value of wilderness as a scientific resource and environmental baseline; iii) the symbolic and spiritual values of wilderness to the nation and the world; and iv) the value of wilderness as a commodity or place that generates direct and indirect economic benefits.
Cultural Values	Living heritage value that includes rituals performed within the UDP and ancestral sites that are frequently or regularly visited for such purposes. The sense of place that is a result of a symbiotic relationship between a place and the community members exercising their cultural right in that place.
Social Values	Employment opportunities for local communities. The experiential value of wilderness includes personal growth and healing. Wilderness experience programmes take people into the wilderness to develop their human potential through education, personal growth (including leadership and organisational development) or therapy and healing for those dealing with various forms of trauma. These programmes derive from a belief that, in the natural environment (ideally wilderness), away from the social pressures, excessive stimuli, and diversions, we can confront our true and deeper selves, identify our values and priorities, derive great personal benefits (such as emotional and spiritual renewal, improved self- esteem, improved physical or mental health), test our outdoor survival skills and recover a sense of wholeness.
Scientific Values	Serve as a benchmark and provide opportunities for applied and theoretical science.

[3] Currently one of 31 properties.

Economic Values	Income generation through eco-cultural tourism opportunities. Ecosystem services with economic value such as water production. As the largest mountain protected area in the country and the only World Heritage Site listed for having both natural and cultural Outstanding Universal Value, the UDP is an icon of the country's tourism industry and a significant destination for both domestic and international visitors.

2.6 The uKhahlamba Drakensberg Park as a Transfrontier Park

Collaboration between the Kingdom of Lesotho and the Republic of South Africa dating from 1997 resulted in the establishment of a transnational conservation initiative known as the Maloti Drakensberg Transfrontier Conservation Programme (MDTP). This programme demarcated a Maloti Drakensberg Transfrontier Conservation Area that included the Maloti Highlands in Lesotho and neighbouring high-lying areas of the KZN, Eastern Cape and Free State provinces in South Africa.

The UDP became part of a transfrontier park with the inclusion of Sehlabathebe National Park in Lesotho in 2013, known as the Maloti-Drakensberg Park World Heritage Site (Map 2).

2.7 The uKhahlamba Drakensberg Park as a Ramsar site

In addition to being a WHS, the UDP is also internationally recognised as a Ramsar site under the Convention on Wetlands (Ramsar 1971). This an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Map 3 indicates the boundary of the Ramsar site.

The Park was listed in the Directory of Wetlands of International Importance (Ramsar Site No. 886) on 21 January 1996 for several reasons (Bainbridge 1999):

- The Drakensberg is regarded as the most important mountain catchment in South Africa due to its high yield of good quality water, supplying rural, agricultural, urban and industrial users downstream.
- The Park has been conserved since the turn of the century, and the entire wetland system is in a near-pristine state.
- The three largest rivers in KZN originate in the Drakensberg, supporting extensive wetlands of various types within the Afro-alpine and Afromontane belts.
- The area is characterised by an abundance of high-altitude tarns, springs, bogs, marshes and streams, classified broadly as permanent rivers and streams, including waterfalls, permanent and seasonal marshes and ponds, with emergent vegetation waterlogged for at least most of the growing season, peatlands, freshwater springs, seasonally flooded meadows and sedge marshes.
- The Park supports numerous endemic and endangered plant and animal species.
- Human activities include nature conservation and a variety of outdoor recreation activities.
- A research station and a conservation education centre are available.
- The Park is renowned for the quantity, quality and variety of prehistoric rock art.
- Many parts of the Park are declared Wilderness Areas.

2.8 Proclamation Status of the uKhahlamba Drakensberg Park

The Park has a rich conservation history of more than 100 years. Although the UDP is now managed as a consolidated unit, the Park used to consist of several separate protected areas (now referred to as Management Units) proclaimed between 1903 and 1989, according to various Forest Acts and provincial Ordinances applicable at the time (Table 3). Large parts of the State Forest areas were subsequently proclaimed Wilderness Areas in terms of the Forest Act (Table 4).

The UDP was proclaimed as a consolidated unit as a WHS in 2007. This proclamation excludes some of the satellite forest patches which are managed in addition to the UDP, and this IMP applies to them (Table 5).

The total area of the Park is 242 813 ha of which 117 765 ha consists of proclaimed Wilderness Areas. The area proclaimed as a WHS is 231 101 ha. The difference in size is explained by the satellite forests that are excluded from the World Heritage proclamation as per Table 5. In 2013 the World Heritage Site status was extended to include Sehlabathebe National Park in Lesotho, to become the Maloti-Drakensberg Park.

In terms of the national system of classification of protected areas, which follows that of the International Union for the Conservation of Nature (IUCN), the Park presently comprises both Wilderness Areas – Category I [117 765 ha or 48, 5 %] and national park and equivalent reserve – Category II [125 048 ha or 51, 5%]. Candidate wilderness areas in the Park are presently being evaluated for proclamation.

There are areas of leased land such as the area south of the uThukela River that have never been formally proclaimed and where formal protection needs to be sought. Confirmation of the exact boundaries and legal status of all areas of the Park is urgently required, and management in consultation with relevant stakeholders must resolve these issues.

The boundary between South Africa and Lesotho, which forms the western boundary of the Park has never been surveyed. Whilst it is generally accepted that the watershed forms the international boundary, the exact position of this is often not clear and this has resulted in various problems, including encroachment of infrastructure into the Park, illegal entry by 4x4 vehicles and stand-offs between Ezemvelo law enforcement staff and Lesotho law enforcement agencies. There is an urgent need to survey the international boundary, to demarcate it and for it to be agreed upon by the two governments. However, this should be undertaken in the spirit of promoting and harmonising transboundary conservation initiatives.

Table 3: Historical proclamations of component protected areas of the uKhahlamba Drakensberg Park

Proclaimed area name	**Year of establishing proclamation**
Giant's Castle Game Reserve	1903
Royal Natal National Park	1916
Cathedral Peak State Forest	1927
Cobham State Forest	1927
Monk's Cowl State Forest	1927
Rugged Glen Nature Reserve	1950
Garden Castle State Forest	1951
Highmoor State Forest	1951
Kamberg Nature Reserve	1951
Mkhomazi State Forest	1951
Lotheni Nature Reserve	1953
Vergelegen Nature Reserve	1967
Culfargie Nature Reserve	1989

Table 4: Wilderness Areas proclaimed in terms of the Forest Act

Wilderness Area	**Proclamation**	**Area (ha)**
Mdedelelo	Gazette Notice 791 of 1973	27 000
Mkhomazi	Gazette Notice 791 of 1973; Gazette Notice 962 of 1989	56 155
Mzimkhulu	Gazette Notice 1563 of 1979	28 340
Mlambonja	Gazette Notice 961 of 1989	6 270
Total		**117 765**

Table 5: Forest patches excluded from the uKhahlamba Drakensberg Park

Forest Patch	Relevant Management Unit
Poccolan Bush Reserve	Cathedral Peak
Robinson's Bush	Cathedral Peak
Ingwe Bush Reserve	Cathedral Peak
Sungubala Bush Reserve	Cathedral Peak
Bush Reserve 1	Monk's Cowl
Bush Reserve 2	Monk's Cowl
Ntabamhlope State Forest	Monk's Cowl, managed by Hillside
Hlatikhulu State Forest	Highmoor

2.9 Co-management and Land Claims

Various communities are currently claiming certain portions of the Park. It is anticipated that upon resolution of the land claims by the Regional Land Claims Commission, ownership of land will revert to these communities. Based on a cabinet resolution, change of land use in conservation areas is however not an option, but co-management of areas owned by communities is a realistic possibility. Ezemvelo Board Policy No. 4.1 (Conservation Partnerships Policies) outlines the organisation's approach in this regard. The outcomes of the land claims process will be incorporated into the IMP in the next review process. Co-management is one of the popular approaches for reconciling land claims and biodiversity conservation in South Africa (Kepe 2008). A Memorandum of Agreement (MoA) [4] between the then ministers of the Department of Environmental Affairs and the Department of Land Affairs ensures that land restitution inside a protected area excludes occupancy by the owners and that the land use shall not be altered. The area will remain a conservation area in perpetuity under the management of the existing management authority. The memorandum sets out guidelines for a co-operative national approach to the resolution of land claims in protected areas, and it states that:

- Where feasible and applicable, land title shall be transferred to claimants without settlement rights and conditions of land use shall be registered against the title deed in respect of restored land.
- All the claimants for a protected area will be required to form one association to ensure representation into management structures appointed by the national minister under the applicable legislation.
- The existing conservation agency shall continue to manage the land situated within the protected area after restitution until the minister Forestry, Fisheries and the Environment reviews it; and beneficiation of the claimants shall be structured in such a way that it may be tangible, realistic and optimal, though not compromising the financial or ecological sustainability of the protected area.

The following management units of the UDP have land claims that are in progress of resolution: Rugged Glen, Royal Natal, Cathedral Peak, Culfargie, Kamberg, Lotheni and Vergelegen.

2.10 Regional and Local Planning Context

2.10.1 The National Protected Area Expansion Strategy

A National Protected Area Expansion Strategy (NPAES) has been developed and approved at a national ministerial level (Department of Environmental Affairs 2008) to address a lack of adequate protection and representation of all vegetation types within the protected areas system. The document was updated in 2016. The purpose of the NPAES is to provide a national framework for the expansion and consolidation of the protected area system, focussing on priority areas for representation and persistence of biodiversity.

In terms of the NPAES, areas around the northern, eastern and southern boundary of the UDP were identified as priorities for protected area expansion. These priority areas provide opportunities for consolidating protection of moist high-altitude grasslands, protecting ecosystem services and incorporating ecological gradients for resilience to climate

[4] Signed on 2 May 2007.

change, as well as protecting the source area for several free-flowing rivers. The UDP, at a national level, is a strategically important protected area that forms a critical nodal point for the expansion of protected area efforts.

2.10.2 The Provincial Protected Area Expansion Plan

The KZN Protected Area Expansion Plan developed by Ezemvelo in 2010 identified areas around the borders of the UDP as priorities for protected area expansion and the UDP forms a key hub in creating a connected protected area system in the region (Carbutt & Escott 2010).

Certain areas around the UDP are characterised by high levels of irreplaceability, primarily due to losses of natural habitat within the grassland biome and the individual vegetation types in which they occur. This is exacerbated as the grassland biome, and many of its vegetation types are poorly protected. Land identified as a priority for protected area expansion may be incorporated into the UDP either through land acquisition or through stewardship agreements, established with individual landowners or communities. To capitalise on these opportunities, it is of great importance to resolve all issues regarding the settlement of the land claim and co-management of the area. Map 4 indicates the 20-year expansion strategy for the UDP. A site-specific subsidiary plan that deals with site-specific requirements for Provisional Expansion Plan was developed in 2017 and will be updated as required.

2.10.3 Maloti-Drakensberg Park World Heritage Site Join Management Plan

The MDTP's Conservation and Development Strategy provides for the forging of transboundary linkages between the Park, and the authorities and communities of bordering Lesotho will be promoted and maintained as part of the Park management and MDTP biodiversity conservation and social development strategies for the bioregion.

The MDP WHS is managed through a Joint Management Plan that establishes a framework for the management objectives of the MDP WHS (Maloti Drakensberg Transfrontier Programme. 2012). This Joint Management Plan is currently being revised.

2.10.4 Bioregional Plans

The Park is the core conservation area and integral part of the Special Case Area Plan (SCAP) as well as the MDTP region. The SCAP produced by the KZN Town and Regional Planning Commission (now the KZN Provincial Planning and Development Commission) incorporates planning principles, regional zonation and recommendations.

In the province of KZN, a decision was taken that a Biodiversity Sector Plan must be developed as a precursor to the Bioregional Plan. The reason for this was the identified need for KZN to set out the baseline for the conservation priorities in each of the Districts, before interacting with the various other sector plans, Integrated Development Plans (IDPs) and Spatial Development Framework (SDFs) as required by Section 48 of NEMBA and the Bioregional Guidelines (Department of Environmental Affairs and Tourism 2008). As such, the Biodiversity Sector Plans for uThukela District Municipality, Harry Gwala District Municipality and uMgungundlovu District Municipality comply with the abovementioned guidelines. As an intermediate product, the Biodiversity Sector Plan does not, however, reflect the interaction with other sector planning tools and the gazetting of the document.

2.10.5 Municipal Planning Documents

The UDP falls within the following District Municipalities:

- uThukela District Municipality [DC 23]
- uMgungundlovu District Municipality [DC 22]
- Harry Gwala District Municipality [DC 43]

This IMP, including its zonation, is in the process of being aligned in terms of the requirements of the Local Government: Municipal Systems Act No. 32 of 2000 with the IDPs for each of the above District Municipalities, the Thaba Mofutsanyane District Municipality [DM 19] and the following eight Local Municipality areas adjoining the Park:

- Okhahlamba Local Municipality [KZN235]
- Inkosi Langalibalele Local Municipality [KZN 237]
- Mpofana Local Municipality [KZN223]
- uMngeni Local Municipality [KZN222]

- Impendle Local Municipality [KZN224]
- Dr Nkosazana Dlamini-Zuma Local Municipality [KZN237]
- Greater Kokstad Local Municipality [KZN433]

The Buffer Zone Steering Committee and the Buffer Zone Technical Committee were established in 2006 to address issues in and around the UDP in collaboration with municipalities and other government departments. These committees provide a forum for collaboration and consistency in terms of dealing with development applications in the Park's buffer zone to prevent negative impacts on the UDP's OUV and other important Park values. A further process to ensure the integration of the UDP buffer zone requirements into municipal land use frameworks, specifically into the Impendle and Mpofana Land Use Schemes, are currently in the process based on the 'Draft Consultation Paper and Draft Norms and Standards for Enhancement and Protection of Landscape Character in KwaZulu Natal'.

2.10.6 Buffer Zone Policy

The establishment of a Buffer Zone is a formal requirement of UNESCO. It is furthermore a legal and moral requirement and will ensure that the UDP can be preserved for the benefit of present and future generations. The Buffer Zone Policy was developed in 2016 and included an extensive public consultation process. The purpose of the Buffer Zone Policy is threefold:

- To protect the purpose and values of the World Heritage Site.
- To protect the biodiversity and ecosystems which transcend the Park boundary.
- Assist adjacent and affected communities to secure appropriate and sustainable benefits from the Buffer Zone.

The policy has been approved by the Ezemvelo Board and submitted to the Department of Environmental Affairs, whereafter it will be submitted to UNESCO.

2.11 Ecological context

2.11.1 Background

Inscribed as a mixed site, the Park's status as a WHS relies on the holistic and inclusive protection and management of its natural resources. The diversity of habitats contained within the Park is outstanding. The range in habitat diversity is from the high altitude mountain peaks and summit plateaux with their diverse vegetation communities including the unique alpine tundra to the steep slopes in mid-altitude areas supporting a wide variety of grassland, fynbos scrubland and woodland vegetation communities, to the lower-lying areas in river valleys which contain various grassland and forest vegetation community types. Found within these habitats is a remarkable richness of plant and animal species. Knowledge of many taxonomic groups occurring in the Park is poor, notably lower plant and invertebrate groups. However, those taxonomic groups that have been researched clearly indicate the universal nature of the species richness contained in this area. It is considered that the biotic communities in the Park contain all or most of their original component species.

2.11.2 Ecosystem Services

The UDP delivers a wide range of services to a wide range of users (Mander, Diedricks & van Niekerk 2009). The following services are highlighted:

- The world heritage status of the UDP implies that the natural heritage and cultural heritage services are globally important services, with no alternatives at the global level.
- In terms of national importance, conservation, knowledge generation and learning, and water supply are key services. Furthermore, some mountain peaks or features such as the amphitheatre are international icons, a service used for marketing South Africa at the global level.
- There are many users downstream (2.5 million in the Sisonke and uThukela Districts) of the Park who benefit significantly from the UDP. These users benefit from soil stability, water supply regulation, water distribution, disaster damage control, moderating climate extremes and waste assimilation.
- These services also benefit households and municipalities downstream through generating savings on water infrastructure costs.
- There are between 400 000 and 150 000 users immediately adjacent to the UDP in Sisonke and uThukela respectively who benefit in various ways from the UDP. For example, fire damage control, disease control in stock, flood attenuation, pollination and soil formation, are all critical local benefits.

- There are between 200 000 and 300 000 people who benefit by either visiting the UDP area or by looking onto the mountains from adjacent areas.
- There are also several local beneficiaries of services, such as sacred sites, medicinal plants, ornamental plants, seed dispersal and genetic vigour.

Site-specific projects are underway to determine ecosystem service values for various components of the Park, linked to specific communities, e.g. the case study of Kamberg and the Thendele community.

2.11.3 Climate and Weather

The Drakensberg region has a summer rainfall climate dominated by the influence of subtropical anticyclones. In winter, the subsidence of air causes atmospheric stability and consequently a distinct dry season. In summer, the subsidence inversion may rise above the escarpment resulting in an influx of humid air from the warm Mozambique current of the Indian Ocean by south-easterly winds (Tyson, Preston-Whyte & Schulze 1976). The mean annual temperature of the Drakensberg is about 16°C, but variations are considerable, both seasonally and between day and night. The highest temperatures (up to 35°C) occur during summer on north-facing slopes at lower altitudes, while the lowest temperatures (down to about -20°C) occur during winter nights on the summit plateau.

The Drakensberg is one of the best-watered, least drought-prone areas of southern Africa. Annual precipitation totals vary in the region between about 1 000 mm in the foothills to 1 800 mm on the escarpment. Precipitation in the summer months (November to March) accounts for 70% of the annual total, while the winter months account for less than 10% of the annual rainfall. Both orographically-induced and squall-line thunderstorms are almost entirely a summer phenomenon, and due to their local nature and the pronounced effect exerted by relief, precipitation may vary considerably from area to area. Snowfalls, with an average frequency of about eight days of snowfall per year, occur mainly in winter and may remain for several weeks to a few months in shadow-sites. Snowfalls at high elevations have been recorded for all months of the year; however, at lower altitudes, they are rare and melt quickly.

The Park falls within an area of southern Africa with the highest density of lightning flashes (Schulze 1997), e.g. 13 lightning flashes per square kilometre per year have been recorded at Giants Castle (www.sinetech.co.za > lightning protection).

Although strong westerly pressure winds (known as 'berg winds' prevalent mainly between August and September) prevail ahead of frontal disturbances, local topographically-induced winds occur at a variety of scales as a result of solar heating of the ground and radiational cooling at night. Thus, at a sub-regional scale, a cool mountain-plain wind blows at night whereas, in the daytime, a warm wind blows towards the escarpment.

2.11.3.1 Climate Change Plan [5]

It is important that the Park both anticipates and, where possible, plans for climate change impacts. The World Heritage Committee has requested all State Parties to implement strategies to protect the Outstanding Universal Value, integrity and authenticity of World Heritage properties from the adverse impacts of climate change. The World Heritage Committee also recommends that World Heritage properties will be used wherever appropriate and possible as a means to raise awareness about the impacts of climate change upon World Heritage and to communicate best practices in vulnerability assessments, adaptation strategies and mitigation opportunities. It also requires that climate change will be considered in all aspects of managing, monitoring and reporting on the status of these properties.

Although some effort is being made globally to curb greenhouse gas emissions, emissions have been tracking just above the representative concentration pathway 8.5 scenario up to at least 2014, considered the worst-case scenario (business-as-usual) by the Intergovernmental Panel on Climate Change. Owing to the consensus that the climate change we experience over the next few decades will primarily be caused by past emissions, the representative concentration pathway 8.5 scenario was used to assess potential climate change in the UDP. Furthermore, because near-term projections of climate change scenarios tend to have a higher degree of certainty, a relatively short time horizon of 2050 was used. Apart from the uncertainty inherent in longer time frames, the choice of 2050 limits the magnitude of divergence between the different representative concentration pathways.

Projected Changes in Climate

Six downscaled climate models were used to project the average changes in mean, maximum and minimum temperatures, precipitation and relative humidity across the UDP. The models project an increase in mean annual temperature of 15.3%, with every month of the year expected to experience an increase (Figure 4). Of interest, the

[5] Kevin Coldrey, Tim O'Connor and Ian Rushworth with input from Clinton Carbutt and Alan Manson.

current September temperatures will be experienced a month earlier in future. Figure 5 and Figure 6 provide the monthly projections for the average maximum and minimum temperatures; July, August, September and October average maximum temperatures will be noticeably higher, while night-time temperatures are likely to be significantly warmer from January to April.

The same climate models project a marginal increase in total annual precipitation of 3.8% for the Park as a whole, but the northern parts of the Park are likely to become drier (Figure 7). Mean monthly humidity is likely to be significantly higher, especially in winter, which could have implications for fire behaviour and the burning programme (Figure 8).

The projected changes in climate variables are not uniform with greater warming in higher elevations and drying in the northern part of the Park expected (Figure 9 and Figure 10).

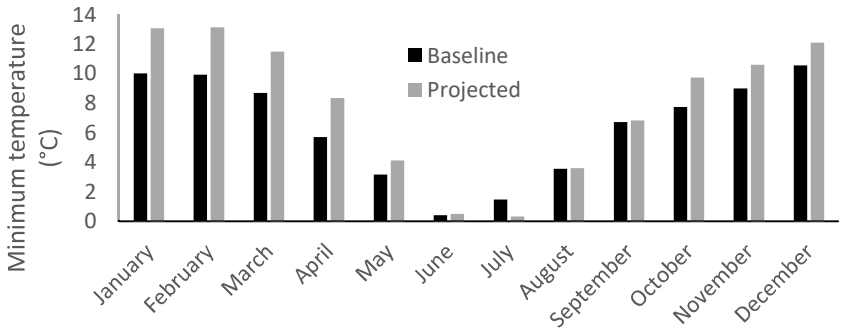

Figure 4: The Baseline (1970 – 2000) and projected (2040 – 2060) mean monthly temperatures for the uKhahlamba Drakensberg Park

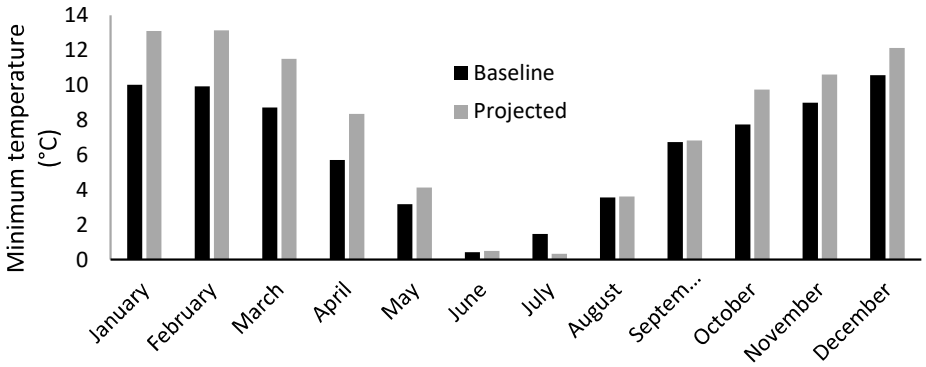

Figure 5: The Baseline (1970 – 2000) and projected (2040 – 2060) minimum monthly temperatures for the uKhahlamba Drakensberg Park

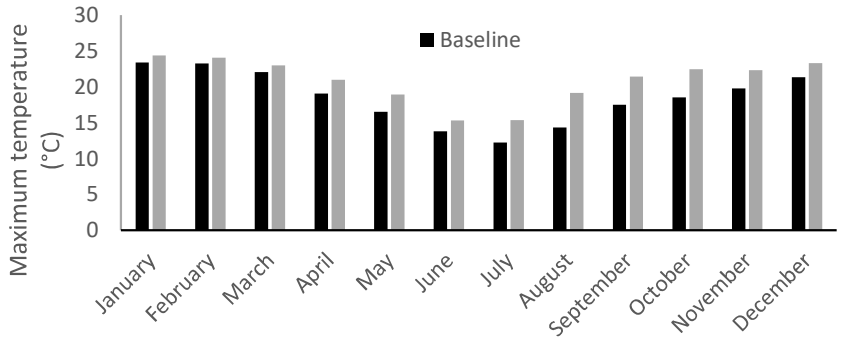

Figure 6: The Baseline (1970 – 2000) and projected (2040 – 2060) maximum monthly temperatures for the uKhahlamba Drakensberg Park

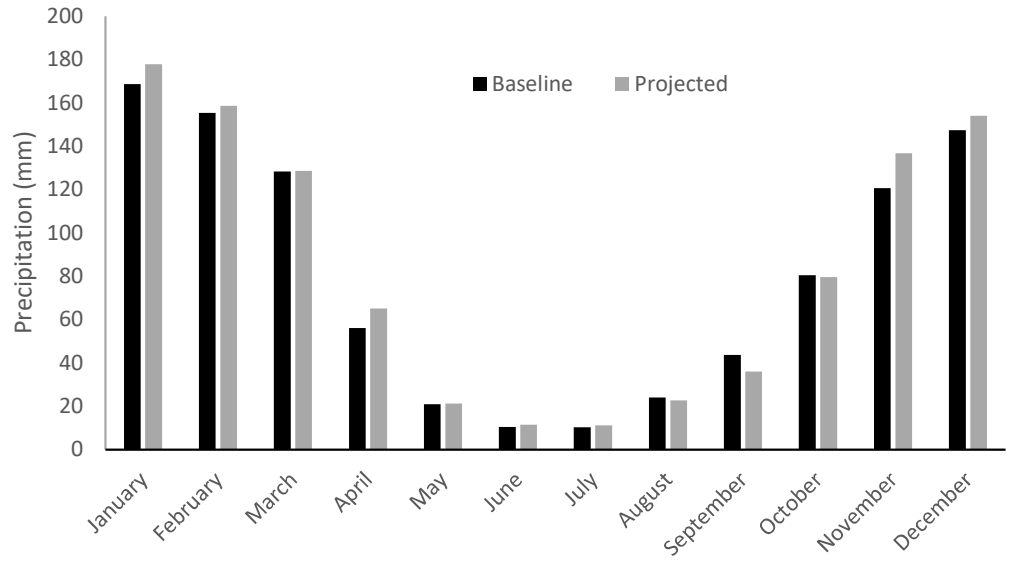

Figure 7: The Baseline (1970 – 2000) and projected (2040 – 2060) total monthly precipitation for the uKhahlamba Drakensberg Park

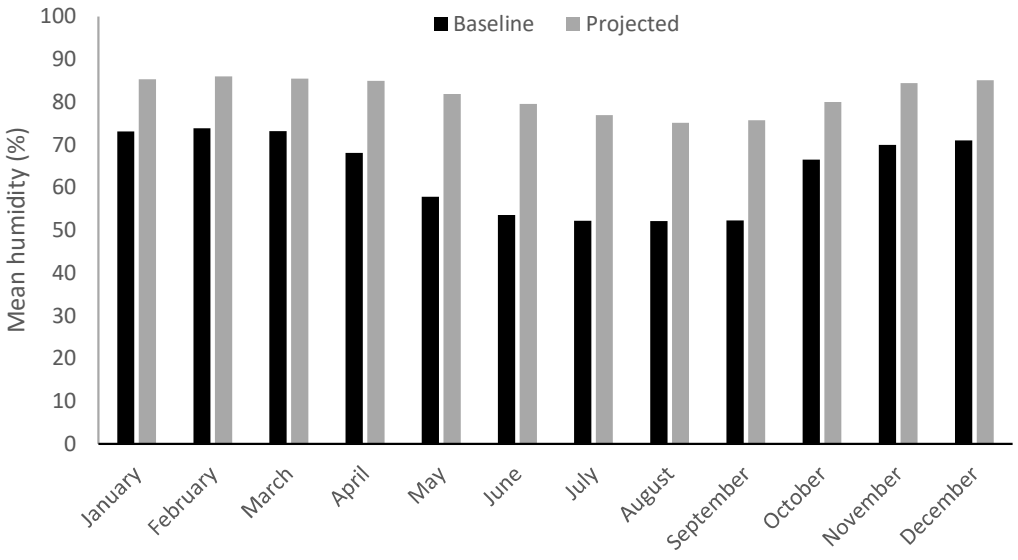

Figure 8: The Baseline (1970 – 2000) and Projected (2040 – 2060) mean monthly humidity for the uKhahlamba Drakensberg Park

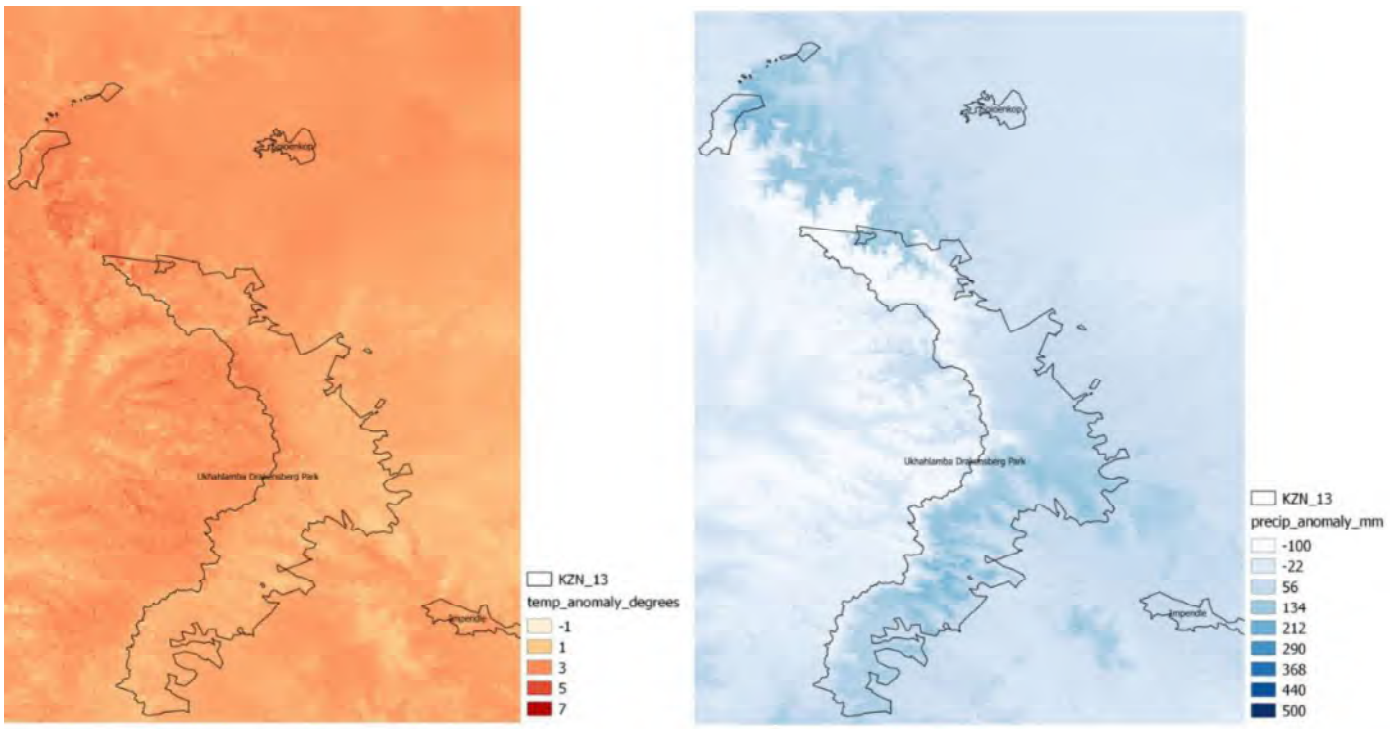

Figure 9: Projected anomalies [6] for mean annual temperature (°C) and total annual precipitation (mm) for the period 2040 – 2060 across the uKhahlamba Drakensberg Park

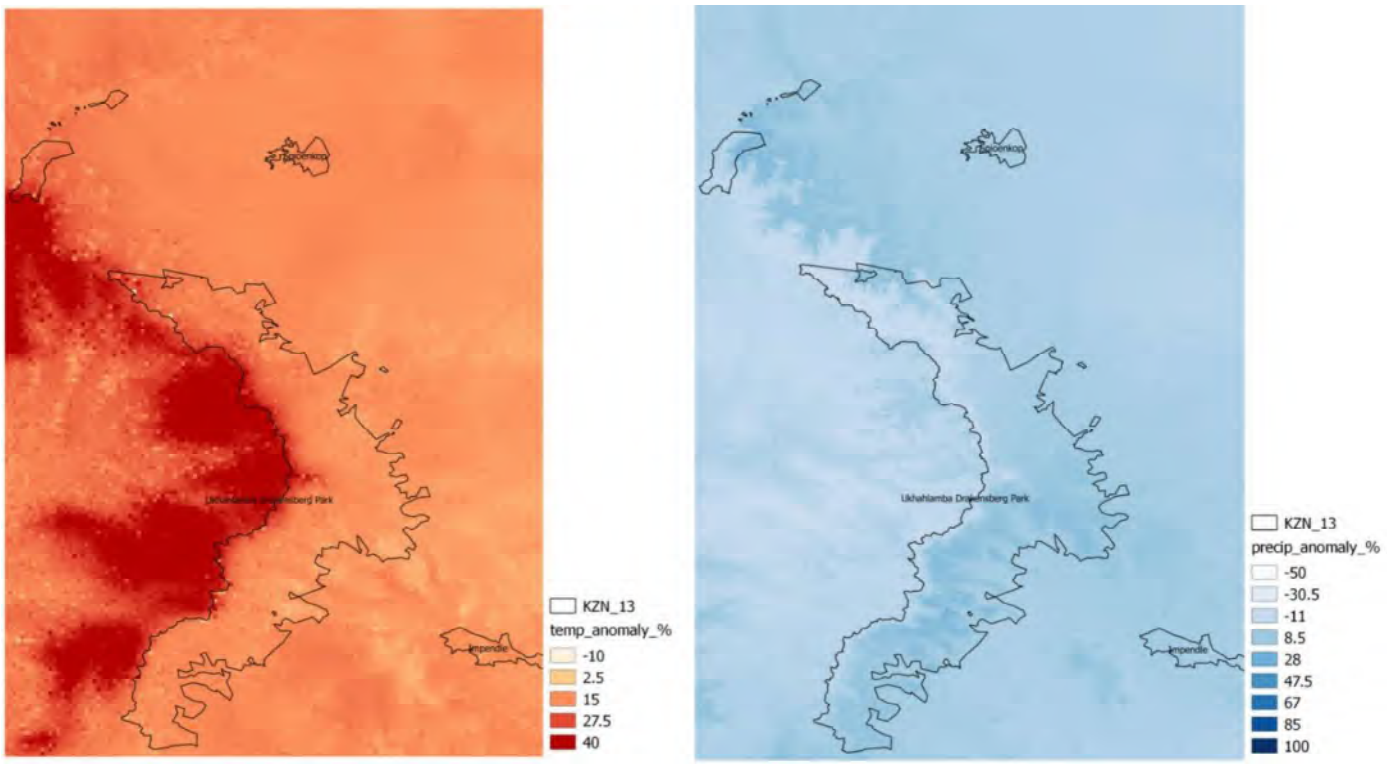

Figure 10: Projected anomalies[6] for mean annual temperature (%) and total annual precipitation (%) for the period 2040 – 2060 across the uKhahlamba Drakensberg Park

[6] Change between the projected values and the historic values; negative values indicate a decrease and positive values an increase.

Potential Biodiversity Impacts

Notwithstanding the complexities and limitations of modelling species distributions, especially in the context of likely altitudinal bias in species records, the potential responses to climate change of 5 538 species in the Drakensberg region were assessed as part of the Stratospheric Processes And their Role in Climate (SPARC) project (http://www.sparc-website.org). Only 24 species (0.4% of the modelled species) are predicted to no longer find some part of the Park climatically suitable in the future, probably due to the altitudinal and latitudinal range and topographic complexity that the Park provides (Table 6).

Table 6: The number of species of each of five taxon groups assessed and the number of those species projected to find the uKhahlamba Drakensberg Park climatically unsuitable by 2050

Parameter	Reptiles	Amphibians	Birds	Mammals	Plants	Total
Count	23	40	299	60	5116	5538
Loss	0	2	3	0	19	24
Percentage change	0	5	1	0	0.4	0.4

However, in terms of vegetation communities, the Park is expected to experience a 25% change in vegetation composition, based on the dynamic global vegetation model developed for the SPARC project. This is largely a result of a shift from grassland to savanna and is largely consistent with current thoughts and observations. The same global vegetation model predicts a shift from C4 to C3 species.

While there have been modelling approaches to anticipate some changes, the Park anticipates 10 key impacts based on the current ecological understanding of the system which should form the basis for future research, monitoring and discussions on management strategies (Appendix D). In summary; reasonably dramatic vegetation transformations are expected; changes in fire patterns and behaviour are expected, hydrological functioning could be markedly impacted, and direct human threats and impacts may intensify.

Potential Socio-economic Impacts

The Park infrastructure seems relatively resilient to any future increase in flooding, with only 2.2% of buildings and bridges being at risk of flooding. However, 25.7% of neighbouring communities within a 10 km buffer to the Park are at risk of flooding or drought. This could result in increased pressure on the Park for grazing and other resources.

Tourism demand in the Drakensberg is unlikely to be impacted by climate change as temperatures are not predicted to increase above the average comfort threshold for South African protected areas, there is no additional malaria risk, there is no loss of charismatic species predicted and, although some bush encroachment is predicted for the Drakensberg based on the vegetation model, this is not expected to impact tourism demand.

The need for additional alien plant management in the face of climate change will increase job opportunities provided that the Park can source resources for such employment.

Vulnerability

Overall, compared to other protected areas, the UDP is considered to be relatively resilient to climate change as the potential ecological impacts of climate change are low, and the capacity to adapt is high.

Adaptation and Mitigation

The Park will develop a Climate Change Adaptation and Mitigation Response Strategy based on the Ezemvelo's Climate Change Response Strategy to Reduce the Vulnerability of Provincial Biomes (2013).

While the main focus of the response strategy will be site-level adaptation, several activities relating to Park management and tourism result in the emission of greenhouse gases. Therefore, mitigation options will be explored and actions taken for reducing and/or offsetting these emissions, and these practices will be publicised. The Park offers an excellent opportunity to promote and highlight the use of energy-efficient and carbon-neutral technologies and will undertake active measures to do this.

Mitigation measures will also include the following; a recycling programme, progressively increasing use of the web- and video-conferencing technologies in order to obviate the need to undertake travel, progressively decreasing paper usage at meetings by encouraging the dissemination and utilisation of electronic documents, measures to ensure that

meetings will be carbon neutral and where airline flights are necessary and unavoidable, the purchasing of carbon offsets, including providing meeting budgets with financing for such offsets. Tourists will be encouraged to offset their carbon emissions through purchasing carbon offsets.

2.11.4 Topography

The Drakensberg has two main topographical features:

- The High Berg consists of the summit plateau adjacent to the escarpment edge, the peaks and rock faces of the main escarpment and the steep slopes beneath them.
- The Little Berg, grass-covered plateau or terrace below the slopes of the High Berg which extends eastward into KZN as finger-like spurs and ridges, which end in prominent sandstone cliffs ranging in height from 1900 m a.s.l. in the northern Drakensberg to over 2200 m a.s.l. in the southern Drakensberg.

2.11.5 Geology and Soils

The UDP area is, geologically speaking, relatively young. About 180 million years ago, with the breakup of Gondwanaland, the earlier sedimentary deposition of the glacially deposited Dwyka Group, and later Ecca, Beaufort and Stormberg Groups (Karoo Supergroup) were overlain by massive basalt outpourings. This basalt layer of the Drakensberg Group capped almost the entire area to a depth of 1600 m. Central upliftment of the last 20 million years and subsequent retreat of this basalt escarpment is what gives the Drakensberg its rugged appearance, with many peaks in excess of 3000 m a.s.l. The Clarens Formation, within the Stormberg Group, directly below the basalt layer, has also subsequently eroded, creating the many caves and overhangs in which San rock art is found.

The UDP is located in the ancient Great Karoo Basin, a large shallow basin that formed the locus for the deposition of continental shelf sediments from over 200 million years ago. This inter-continental basin spanned beyond the present margins of the African subcontinent, when Antarctica, Africa, Australia, India, New Zealand and South America formed a super-continent known as Gondwanaland. During the prolonged sedimentation phase, which totalled 7 000 m in depth in places, climate changed from glacial conditions (Dwyka Tillite) through temperate to desert conditions when windblown sand deposits represented the final stage of sedimentation to form the Clarens Formation. The basin sediments formed near-horizontal conformably bedded sedimentary formations. As Gondwanaland began to break up through rifting, extensive basaltic lava outpourings started some 187 million years ago, forming the Drakensberg volcanic group (Figure 11 and Map 5).

The oldest layers of rock in the UDP date back to about 250 million years and consist of sandstone and mudstone. Geologically, they belong to the Upper Beaufort Group and were laid down in flood plains and river valleys and are located at an altitude of about 1 300 m. The second oldest rock layers are known as the Stormberg Group, and physically they make out the foothills. The lowest of these layers are known as the Molteno Formation dating to about 220 million years ago, and they contain the first examples of dinosaur trace fossils. These layers are located at an altitude between 1 500 and 2 000 m. Above the Molteno Formation; the Elliot Formation, also known as the Red Beds because of the presence of purple mudstone and sandstones, can be found dating to about 180 to 170 million years ago. Physically, the Red Beds make out the steep slopes of the mountain and are known for their fossilised wood and dinosaur remains.

Above the Elliot Formation, the Clarence Formation is found and is also known as the Cave Sandstone. The Cave Sandstone dates to about 170 to 160 million years ago, and today it represents the line of cliffs and overhangs where the San lived and where the most rock art can be found. Cave Sandstone is the most significant feature of the Little Berg.

At about 160 million years ago the Gondwana landmass began breaking up, accompanied by volcanic activity and over the next 20 million years, basalt lava flowed from the fissures. The outflows lasted about 50 million years, from the early Jurassic period to the Cretaceous period and capped the sedimentary rock formations. This basalt layer eroded back to form the massive cliffs of the High Berg.

The UDP contains and protects a significant amount of soil carbon, estimated to be 10 216 tonnes/km^2 on average or 30 769 600 tonnes for the Park as a whole (https://dopa-explorer.jrc.ec.europa.eu/wdpa/145552). Without the Park, this store of carbon would be significantly reduced, as evidenced from studies comparing the Park to neighbouring communal rangelands. These neighbouring areas have lost a significant amount of soil carbon - the magnitude of the difference in carbon stocks in the top 30 cm of soil between the Park and neighbouring communal areas is 230 tonnes of CO_2 /ha for the mid-slope catenal position and 198 tonnes of CO_2 /ha for the upper plateau areas respectively (soil carbon per hectare within top 30 cm of soil expressed as CO_2 equivalents) (Knowles, von Maltitz & Makhado 2008).

Figure 12 shows the variation in soil carbon (converted to CO_2 equivalents) in the Drakensberg in relation to land use and catenal position.

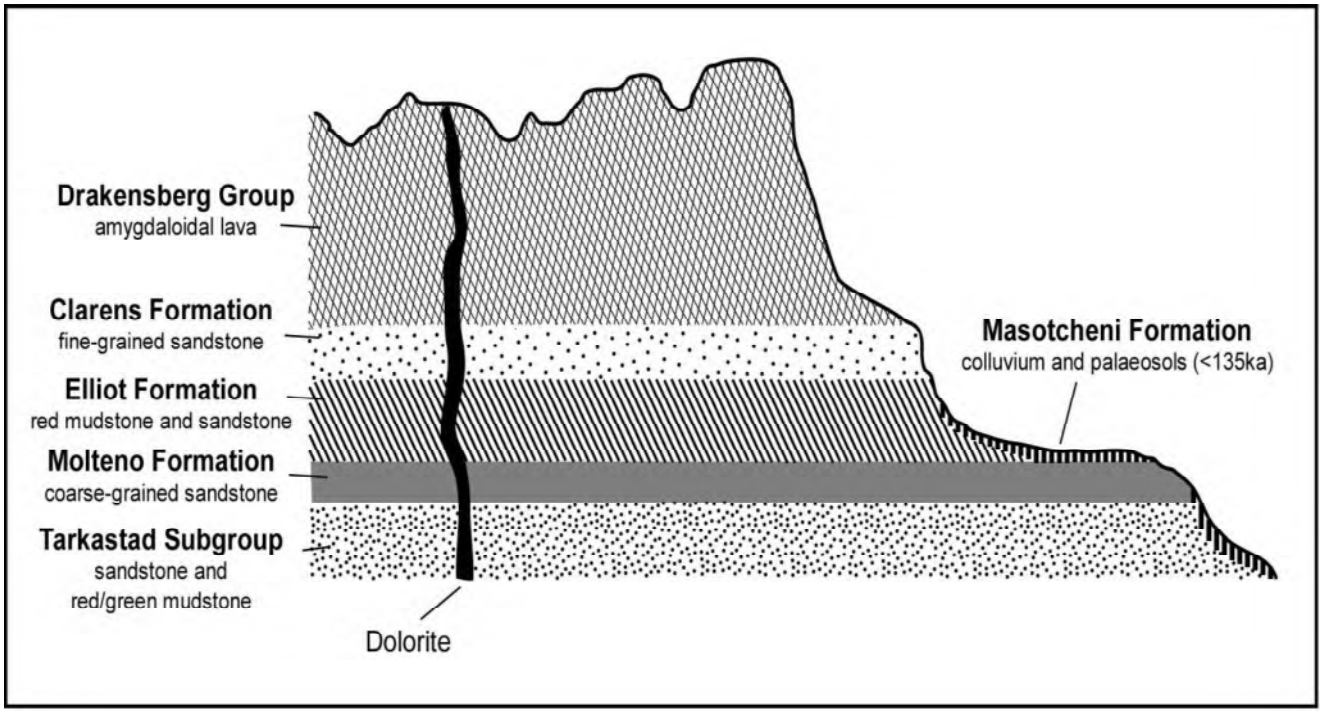

Figure 11: Typical topographical expression of each unit in the geological succession of the Drakensberg

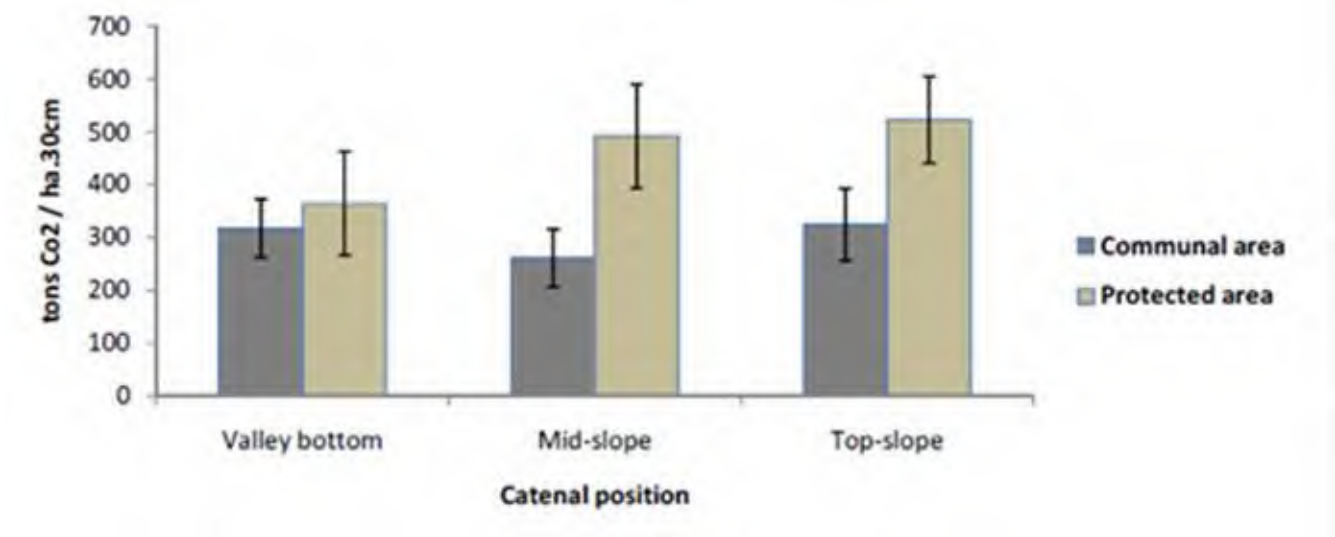

Figure 12: Variation in soil carbon (converted to CO_2 equivalents) in the Drakensberg in relation to land use and catenal position (where error bars reflect 95% confidence intervals around the mean distance)

2.11.6 Geomorphology

The geomorphology of the Park is varied owing to the considerable geological and climatological differences between the lower altitude sandstone regions and higher altitude basalt outcrops. Substantial climatological contrasts play an important role in establishing site-specific geomorphologic processes. Areas above ca. 2 800 m host landscape components that are typical to 'alpine' or 'periglacial' environments, where cold temperatures, ice and snow are important controlling factors. The steep slopes and deep valleys to the east of the Great Escarpment, combined with high annual precipitation, produce substantial hydraulic gradients along fluvial channels and on slopes, thus providing for a diverse landscape which hosts a wide assortment of erosional and depositional features. Some features that are no longer actively forming are referred to as 'fossil-', 'relict-'or 'palaeo- 'landforms. Such landforms may have developed

under a different climate than that of today, reflecting a constantly adjusting landscape. The Park has landforms that are both Holocene (last 10 000 years) and Pleistocene (last 2 million years) in age.

2.11.7 Hydrology

The UDP is the largest protected area within the MDTP area that falls within the country's most important water supply area (Mander & Dierichs 2004).

The Great Escarpment within the Park forms the watershed of two of southern Africa's largest drainage basins, namely that of the Senqu/Orange River flowing westwards into the Atlantic Ocean, and the uThukela River flowing eastwards into the Indian Ocean. The Drakensberg catchment area is of major economic importance as it contributes significantly to the flow of the uThukela, uMkhomazi and uMzimkhulu Rivers, the three largest catchments in KZN. The steep gradients and shallow soils of the Drakensberg result in almost half (up to 600 mm) of the mean annual rainfall leaving the Drakensberg as runoff. Although heavy storms are prevalent, the soils bound by indigenous vegetation rapidly absorb surface flow and exert excellent control over runoff, providing a gradual and sustained water yield throughout the year rather than sporadic flooding followed by dryness. Under these conditions, water reaching the streams is sediment-free and of very high quality. The conservation of the indigenous vegetation maintains these favourable characteristics.

Numerous rivers and streams are associated with the three major river catchments. At high altitudes, streams often freeze over at night and may remain frozen for several weeks in winter. Water temperature increases as streams flow to lower altitudes and freezing is uncommon below about 2 300 m. Tarn lakes are found mainly on terraces of the southern Little Berg. These vary from shallow seasonal pans to large permanent pools up to 2 m deep.

The Drakensberg, including the Park, is a significant water catchment area for the southern Africa region. Recognising the importance of this resource to the sustained livelihoods of people in the region, it is essential that Park management practices do not threaten sustained natural flow regimes of good quality water with low sediment loads.

Water flow and quality must be effectively monitored over the long-term, and this must be included in the Park monitoring programme.

2.11.8 Fire Management

Ecological processes need to be managed to ensure biodiversity conservation. Fire is one of the most important ecosystem drivers requiring management to maintain the biodiversity of the Drakensberg. The fire requirements of the fauna and flora of the Drakensberg are very diverse, and this poses a challenge to managers. Management strategies need to be identified, which are general enough to be easily applied and support the majority of species and ecosystem processes.

Fire is a natural feature of the bioregion, and the fauna and flora appear to have either evolved to tolerate being burnt or avoid fire by making use of natural fire refugia. Therefore fire management should ensure the protection of sufficient fire refugia to maintain representative populations of fire-sensitive species and should generate a patchwork of heterogeneous fire mosaics across the landscape. This means varying the frequency/"time-since-last-burn", season and extent of burns to generate a wide enough range of burn conditions over varying areas to support the full complement of biodiversity in the Park. In order to achieve this, four principles have been adopted. These are i) variability, ii) responsibility, iii) flexibility and iv) patchiness

It is generally agreed that burning at any time, when perennial grasses are dormant, is acceptable. Burning when grasses are in active growth is less acceptable, but a limited amount of early (pre-frost, autumn) burning to achieve specific objectives, provided it is not repeated successively in the same area, will be permitted under strict control. Where relevant, the frequency of burning should be decreased from every two years, to cater for plants and animals that are less fire-tolerant.

A joint Fire Management Plan for the Maloti-Drakensberg Park World Heritage Site was developed in 2011, and the plan was revised in 2016. All fire management planning is done with Sehlabathebe National Park and is aligned to this plan that serves as a guideline for managers. Fire management in the UDP is implemented in accordance with the Fire Management Plan (MDTP 2016).

2.11.9 Vegetation

The UDP, forming a small part of South Africa's only alpine region, is located within one of southern Africa's 19 centres of plant endemism (Van Wyk & Smith 2001; Clark, Barker & Mucina 2009), namely the Drakensberg Alpine Centre. Its

mountain flora is therefore highly representative of the broader Drakensberg Alpine Centre and contributes a number of rare and endemic plant species. The flora of the UDP is very species-rich - some 2153 vascular plant species have been recorded (Porter, Scott-Shaw & Thomson 1999) out of the 2618 vascular plant species recorded in the Drakensberg Alpine Centre (Carbutt & Edwards 2004). This total for the UDP includes a large proportion of the 334 plant species endemic to the Drakensberg Alpine Centre (Carbutt & Edwards 2006). The genera *Helichrysum* and *Senecio*, which contribute the most species to the flora of the Drakensberg Alpine Centre, as well as the most endemics and near-endemics, most likely also make the most significant contributions to the flora of the UDP. A plant species checklist has not been included in this IMP but is available from Ezemvelo's Biodiversity Database.

The flora of the UDP is an interesting repository for taxa of diverse origin, including both temperate and subtropical elements (Killick 1963; Hilliard & Burtt 1987) and shows very strong floristic links to the Cape Floristic Region (Hilliard & Burtt 1987; Carbutt & Edwards 2001). The UDP is suitably positioned to facilitate the movement of temperate plant species from the species-rich Cape Floristic Region northwards to the mountains of equatorial Africa and beyond ('the southern track' of plant migration). It also facilitates the movement of temperate plant species from the Boreal Floristic Kingdom of the northern hemisphere through the mountain reaches of equatorial Africa towards the Cape Floristic Region ('the northern track' of plant migration). Its significantly high elevations and associated climatic envelope have attracted a temperate element from each track of migration and in so doing have accumulated a wealth of temperate species from multiple origins. In addition, it is located within the Great Escarpment at a latitude that sees the mixing of both temperate and subtropical elements. Those species of subtropical affinity most likely reach the natural upper limit of their altitudinal range in the UDP (Carbutt 2012).

The UDP is located within the Drakensberg Grassland Bioregion of the Grassland Biome (Mucina & Rutherford 2006) (Map 6). The vegetation of the Park is therefore dominated by moist temperate grasslands which are dependent on fire for maintaining structure. These grasslands are structurally fairly conservative and uniform (O'Connor & Bredenkamp 1997), comprising single-layered herbaceous communities of tufted (or 'bunch') graminoids (predominantly perennial grasses of the Family Poaceae), as well as a forb component of mostly long-lived perennials that re-appear on an annual basis from significant below-ground biomass (corms, rhizomes, tubers or bulbs) until the end of their life-span. However, recruitment is heavily reliant on viable seed. Biomass is mostly attributed to the grass component (Family Poaceae), whilst species richness is attributed mostly to the forb component. Woody plants (usually low to medium-sized shrubs) are mostly confined to specific habitats serving as fire refugia such as rocky hilltops, drainage lines etc. (O'Connor & Bredenkamp 1997). Grassy or Afromontane 'fynbos' (heathland-like vegetation) occurs at the higher elevations and in higher rainfall areas, often on steep, highly leached slopes protected from fire (Mucina & Rutherford 2006). C4 grasses dominate except at the higher elevations where C3 grasses predominate (Low & Rebelo 1996). Canopy cover of the grassland is moisture-dependent and decreases with low mean annual rainfall. Cover is also influenced by the intensity and type of grazing, as well as by fire (seasonality, intensity) and by minimum temperature (particularly the frequency of frosts). In addition to grassland and woody plant communities, hygrophilous, aquatic and lithophilic communities occupy the Park's wetlands, tarns and rocky outcrops, respectively (Carbutt & Edwards 2004).

The vegetation of the UDP is shaped by climate into discrete vegetation belts (Killick 1963; Killick 1978). The lower-montane belt (± 1300-1900 m a.s.l.) is characterised mostly by *Themeda triandra* grassland and associated communities of *Protea* species. The dominant woody communities are boulder-bed and streambank scrub, and patches of the climax Drakensberg Montane Forest (in the Northern Afrotemperate Forest Group (Mucina & Rutherford 2006)). These forest patches are more common in the northern (warmer and moister) recesses of the UDP (Hilliard & Burtt 1987), occupying south and south-east facing aspects, mostly on steep gradients in sheltered sites excluded from fire. These montane forests support ferns, mosses and other cryptogams. The upper-montane belt (± 1900-2800 m a.s.l.) is also characterised mostly by *Themeda triandra* grassland and more temperate grasslands on the upper slopes below the escarpment. The climax community is a Passerina-Erica-Widdringtonia fynbos. The alpine belt (± 2800-3482 m a.s.l.) is characterised by climax Erica-Helichrysum dwarf shrubland and C3 grass species such as *Festuca*, *Merxmuellera*, *Pentameris* and *Tenaxia*. The alpine belt is poorly represented in the UDP, occurring mostly on inselberg summits and in those summit areas where the South African-Lesotho boundary shifts away (inland towards Lesotho) from the escarpment edge.

The Park's plant diversity is accounted for by the altitudinal, climatic, topographic and edaphic gradients on a broad scale and the multitude of micro-habitats (combinations of relief, aspect, exposure and slope angle) on a finer scale which collectively presents many ecological niches for prolific species coexistence. Approximately 1 700 km^2 of the Drakensberg Alpine Centre lies within the Park making it the most significant core protected area in this botanical region.

2.11.10 Invasive Species

An Alien and Invasive Species Management Plan was developed for the UDP (Ezemvelo KZN Wildlife & MTEC 2018), to provide the strategic direction for invasive species control in the UDP. The purpose of this subsidiary plan is to:

- Provide principles, policy direction and management actions to ensure that the:
    - Outstanding Universal Value of the World Heritage Site is protected.
    - Vision, Mission and Objectives of the two Parks are not threatened by the presence of alien and invasive species.
    - Production and supply of water from the catchments in the Park are maintained and enhanced.
- Ensure the Park is compliant with the legal requirements for the monitoring, control and eradication of invasive species in terms of the NEMBA.
- Quantify for stakeholders the total resource requirements for effective invasive alien species management, and provide assurance of efficient and effective use of resources; likewise, quantify the impacts to decision-makers of not allocating sufficient resources.
- Provide strategic direction and guidelines for Park management on how to manage invasive alien species and how to prioritize areas for clearing, thereby maximizing efficiency and effectiveness of management interventions.
- Ensure that tourism and management operations do not exacerbate the establishment and impact of alien species.
- Provide for management of invasive species in such a way as to maximise socio-economic benefits to neighbouring communities.

The strategic approach to alien and invasive species control in the UDP as set out in the Alien and Invasive Species Management Plan of 2018 is the:

- Prevention and intervention of emerging species and threats.
- Effective management to prevent further spread and effective control of already established alien and invasive species.
- Monitoring and reporting.
- Planning and adaptive management.
- Capacity Building.
- Funding and strategic partnerships.
- Legal compliance.

2.11.10.1 Alien and Invasive Flora [7]

Alien invasive plant species have been identified as the most important threat to the biodiversity and water production objectives of the Park (Ezemvelo KZN Wildlife & MTEC 2018), and therefore require serious and sustained management interventions. Whilst significant time and resources have historically been allocated to law enforcement; insufficient attention has been given to managing the greater long-term threat of invasive species. Some areas of the Park, especially those areas that were previously farmed and/or added more recently to the Park, are heavily infested, whilst the majority of the Park still has relatively low densities of alien plants (that are however increasing in abundance exponentially).

The most important alien invasive species in the Park is American Bramble (*Rubus cunefolius*). This species is increasing exponentially, with large biodiversity, tourism and water production impacts. Much of the growth is vegetative, but the fruit are dispersed long distances by birds, baboons and humans. Other key species threatening the Park include Black Wattle (*Acacia mearnsii*), Silver Wattle (*A. dealbata*), gums (*Eucalyptus spp.*) and pines (*Pinus spp*.). In recent years Lantana (*Lantana camara*) has moved up the valleys in the northern Drakensberg and the species has already established small populations in Royal Natal and Cathedral Peak.

There are a number of 'emerging' invasive species within the Park, i.e. those that have recently arrived or were previously benign but are now showing signs of spreading. Four of the most important species in this respect are *Hypericum pseudohenryi*, Formosa Lily (*Lilium formosanum*), Lantana (*Lantana camara*) and Pampas Grass (*Cortaderia selloana*). It is essential to eradicate these species before they become serious invaders.

[7] Extracted from the Alien and Invasive Species Control Plan developed in 2018

It is essential that alien species in tourism and management nodes are removed (and replaced with locally appropriate indigenous species), and that no further introductions of species not indigenous to the Drakensberg are permitted. A few species used by management for soil stabilisation purposes such as Weeping Love Grass (*Eragrostis curvula*) and Kikuyu (*Pennisetum clandestinum*) are showing limited signs of spreading into undisturbed grasslands and scrub patches and watercourses respectively. Kikuyu used in camps and management nodes must be demarcated and not allowed to spread beyond this boundary.

Scotch broome (*Cystus scorparius*) was introduced into Highmoor by the Department of Forestry in the early 1970s for experimental erosion donga control (Forestry File Reference Number R3790/510/8, 2 February 1972) and has spread from there. The pine trees in Cathedral Peak all originated from windblown seeds from the hydrological experiments in Catchments II and III, and other plantings by the Department of Forestry when they still managed the area.

2.11.10.2 Alien and Invasive Fauna

The Maloti-Drakensberg Park World Heritage Site Invasive Species Plan (2018) indicates that no systematic survey has been undertaken for alien animals in the UDP, although at least 14 species have been recorded. Alien and invasive fauna include; fish species such as Rainbow Trout (*Oncorhynchus mykiss*), Brown Trout (*Salmo trutta*) and Bluegill Sunfish (*Lepomis macrochirus*), birds such as the House Sparrow (*Passer domesticus*), Common Myna (*Acridotheres tristis*) and rock dove/feral pigeon (*Columba livia*) and mammals such as the domestic cat and house rat.

2.11.11 Mammalian Fauna

Forty-eight species of indigenous mammal occur within the Park (based on records captured in Ezemvelo's Biodiversity Database as at 1 January 2020; Species List 1: Mammal checklist for the uKhahlamba Drakensberg Park), but several species known to occur in the UDP have not be added to the database (but are included in the checklist apart from the bat species) and several species that are known to occur in the Drakensberg ecosystem such as Hewitt's Red Rock Rabbit (*Pronolagus saundersiae*) have not been formally recorded within the Park. Thus the true total is likely to be higher.

The number of species in each order is as follows: Afrosoricida 3, Tubulidentata 1, Hyracoidea 1, Lagomorpha 2, Rodentia 10, Primates 2, Eulipotyphla 4, Chiroptera 5, Carnivora 16, Suiformes 1 and Ruminantia 11 (Taxonomy according to (Bronner et al. 2003)). At least two species that historically occurred in the Drakensberg are now locally extinct – Lion (*Panthera leo)* and African Wild Dog (*Lycaon pictus)* (Rowe-Rowe 1992). Following active shooting and persecution, the last African Wild Dog sighting in the Park was in Giant's Castle in 1932 (Barnes 2003). There have been a few, but increasing, number of reliable reports of leopard sightings in or near the Park since the mid 1990's; prior to this, there were no records of leopard since the establishment of the Park. Bushpig (*Potamochoeus porcus*) have arrived in the Park within the last decade, this being part of a province-wide range expansion of this species; the ecological implications of increased herbivory and disturbance as a result of bushpig, especially in forest patches, has yet to be understood.

The Park protects populations of one Critically Endangered species - Rough-haired Golden Mole (*Chrysospalax villouss*); four Endangered species - Oribi (*Ourebia ourebi*), Mountain Reedbuck (*Redunca fulvorufula),* White-tailed Rat (*Mystromys albicaudatus*) and KwaZulu-Natal population Cape Mole Rat (*Georychus capensis*); one Vulnerable species - Makwassie Musk Shrew (*Crocidura maquassiensis*); and four Near Threatened species - Geoffroy's Horseshoe Bat (*Rhinolophus clivosus*), Spotted-necked Otter (*Lutra maculicollis*), Serval (*Leptailurus serval*) and Water Rat (*Dasymys incomtus*). Population sizes and conservation status of none of these important species are known, other than for Oribi where the population is estimated to be in the order of 400-500 occurring in discontinuous patches of suitable habitat (Krüger 2020a). The UDP has the largest Oribi population of any protected area in South Africa, and probably southern Africa. Population sizes and conservation status of none of these important species are known, other than for Oribi where the population is estimated to be in the order of 400-500 occurring in discontinuous patches of suitable habitat (Krüger 2020a). The UDP has the largest Oribi population of any protected area in South Africa, and probably southern Africa.

It is essential to determine the current status of the Rough-haired Golden Mole and the contribution that the Park can make to its conservation, given that several populations and subspecies elsewhere of this South African endemic mammal are now thought to be extinct. Additional surveys for Rodentia and Chiroptera are urgently needed.

The largest population of African Clawless Otter (*Aonyx capensis*) and Spotted-necked Otterin KZN, and in term of freshwater habitat, probably South Africa, occurs within the Park (Rowe-Rowe 1994). Recent research has however demonstrated that otter populations outside but adjacent to the Park, as well as in the Stillerust section of the Park, are declining, probably as a result of a combination of a decline in water quality, habitat changes and direct persecution (Kubheka et al. 2010). The largest population of the South African near-endemic Grey Rhebok (*Pelea capreolus*) in a

protected area is also found here (Rowe-Rowe 1994). The Eland (*Tragelaphus oryx*) population consists of approximately 1200-1500 individuals (Krüger 2020b) and is also one of the largest populations of this species in South Africa (Rowe-Rowe 1994).

It has been estimated that the natural carrying capacity for wild ungulates of this environment is as low as 1 Animal Unit per 50 ha (Rowe-Rowe & Scotcher 1986). This is owing to the phenomenon that the sourveld grasslands have an extremely low nutritional value from late summer until the end of winter. The smaller antelope species need to feed very selectively and are therefore widely dispersed and occur at low densities. The large-bodied eland, a mixed feeder, aggregates in large numbers on recently burnt grass in mid-summer. The herds then become scattered and widespread and occurring at all altitudes in autumn and winter, switching their diet from grasses to forbs and woody plants.

Several species of antelope have either been introduced or re-introduced over time. Black Wildebeest (*Connochaetes gnou*), which formerly occurred on flat highland sourveld below the Drakensberg, was introduced into several areas of the Park. Generally, these introductions failed, other than in the low-lying areas of Kamberg. Likewise, Red Hartebeest (*Alclaphus buselaphus caama*) and Blesbok (*Damaliscus pygargus*) were introduced, but these introductions were unsuccessful other than for Blesbok at Kamberg.

There are several old reports of Cape Grysbok (*Raphicerus melanotis*) sightings in the Park. For example, Bill Barnes reports that Grysbok Bush in Giant's Castle was named because "two grysbuck were shot by my father Phil Barnes for display at the British Empire Exhibition in Johannesburg in 1936"(Barnes 2003). There are also handwritten reports from the 1940s and 1950s from Cathedral Peak Forest Station making reference to the presence of Grysbok.

The Drakensberg is the most important area in KZN for conservation of the Chacma baboon (*Papio ursinus*). It is estimated that the total baboon population for the KwaZulu-Natal ("Natal") Drakensburg conservation area extrapolated from counts in 61 troops to 7 500 animals (Henzi & Lycett 1995). A more recent estimate based on sightings data collected in the Park provides a lower estimate of 4 300 animals (Stone et al. 2012). Whilst it is possible, therefore, that there has been a decline in this population, it is not known to what extent the difference may be due to the use of different estimation methods.

2.11.12 Avifauna

A total of about 313 indigenous bird species have been recorded for the Park (based on records captured in Ezemvelo's Biodiversity Database as at 1 January 2020; Species List 2: Avifaunal checklist for the uKhahlamba Drakensberg Park), representing approximately 37% of the terrestrial birds recorded for southern Africa, of which just over 200 species are considered either permanently resident or are regular visitors (59 migratory species). The Palaearctic (Europe and Asia) migrants to the Park (16 species) are non-breeding summer visitors, while 20 of the 22 intra-African summer migrants probably breed in the Park. There are also 21 local (altitudinal) migrants all of which probably breed in the Park.

The Park was designated in 2003 by BirdLife International as an Important Bird Area (Code ZA048) and is recognised as a Globally Important Bird and Biodiversity Area (IBA) by BirdLife South Africa (Marnewick MD et al. 2015). The IBA system was initiated to conserve a broader array of biodiversity by saving the habitats and ecosystems important for birds because birds are a useful indicator for wider biodiversity. The reasons for the classification of the Park as an IBA are as follows:

- The Park regularly holds significant numbers of a globally threatened species or other species of global conservation concern.
- The Park holds a significant component of a group of species whose breeding distributions define an Endemic Bird Area or Secondary Area.
- The Park holds a significant component of a group of species whose distributions are largely or wholly confined to one biome.
- The Park holds, on a regular basis,>1% of the global population of a congregatory terrestrial species.

Many of the bird species in the Park have Afro-tropical affinities and are relatively widespread elsewhere in Africa. However, it is important to note that not all these species have contiguous ranges, and some of the Drakensberg populations are genetically isolated from their main ranges. Climate and vegetation changes are likely to have played an important role in these isolated distributions - an example is the Olive Woodpecker (*Dendropicos griseocephalus*) which is confined to cooler forests, with one race present in South Africa separated by an arid gap from the race found in sub-equatorial Africa. Some of these isolations, for example, that of the Bearded Vulture (*Gypaetus barbatus*) may also be exacerbated by the influence of man.

There is a high degree of endemism present with 40 southern African endemics recorded from the Park, of which about 30 species are endemic to South Africa. These include birds such as Buff-streaked Chat (*Campicoloides bifasciatus*), Cape Rock Thrush (*Monticola rupestris*), Sentinel Rock Thrush (*Monticola explorator*), Gurney's Sugarbird (*Promerops gurneyi*), Bald Ibis (*Geronticus calvus*) and Ground Woodpecker (*Geocolaptes olivaceus*). There are also three high altitude endemics, namely the Drakensberg Rockjumper (*Chaetops aurantius*), Drakensberg Siskin (*Crithagra symonsi*) and Yellow-breasted Pipit (*Anthus chloris*). It is considered that nearly all the southern African endemics breed in the Park.

Some 28-species recorded for the Park are listed as Threatened or Near-threatened (Barnes 2000), with two species; Wattled Crane (*Bugeranus carunculatus*) and Bearded Vulture, listed as Critically Endangered, one Endangered namely the Cape Vulture (*Gyps coprotheres*), 14 are listed as Vulnerable and 11 are Near Threatened. There are about four major breeding colonies of the Cape Vulture within or adjacent to the Park with between 20 and 100 breeding pairs per site and 21 Bearded Vulture nest sites in the Park that have been used in the last 6 years with approximately 10 occupied in any one year.

The Park supports a number of altitudinal migrants, e.g. Short-tailed Pipit (*Anthus brachyurus*) considered Vulnerable, Barratt's Warbler (*Bradypterus barratti*), Bush Blackcap (*Sylvia nigricapillus*), Gurney's Sugarbird (*Promerops gurneyi*), Fairy Flycatcher (*Stenostira scita*) and Chorister Robin-chat (*Cossypha dichroa*). In winter, these birds move down to suitable habitat in the midlands and the coast (Short-tailed Pipit). In summer, they move back up to the Park where most of them breed. Similarly, in harsh winters some birds, e.g. Yellow-breasted Pipit (Vulnerable) and Drakensberg Rock-jumper (*Chaetops aurantius*) move off the top of the escarpment and down into the Park for refuge and food.

2.11.13 Fish

Five species of fish, including two introduced alien species of Salmonidae (trout), have been recorded within the Park. The other indigenous fish species are Chubbyhead Minnow (*Enteromius anoplus*), KwaZulu-Natal Yellowfish or Scaly (*Labeobarbus natalensis*) and Natal Mountain Catfish (*Amphilius natalensis*).

The Maloti minnow (*Pseudobarbus quathlambae*), had previously been considered extinct (Barnard 1938) in South African waters. Populations were considered confined to various rivers in the Lesotho highlands. A study by Kubheka *et al.* (2017) highlighted the rediscovery of the species in the uMzimkhulu River system in KZN. This rediscovery emphasises the need for extensive surveys to determine its distribution range, population sizes estimates, assess conservation status and implement effective strategies to ensure its continued existence in KZN.

2.11.14 Herpetofauna

The Park is considered to be one of the eight major centres of herpetofaunal (amphibians and reptiles) diversity in southern Africa (Branch 1998). The Park forms part of the mountainous region stretching from the Cape in the south to tropical Africa in the north and is considered to have functioned as a corridor along which various faunal taxa have moved in geological time. Given a wide range of habitat types at different altitudes, there is a high diversity of species but with fewer species being present at the high, cold and wet altitudes.

The UDP hosts 29 species of frogs, 21 species of lizards and 24 species of snakes (based on records captured in Ezemvelo's Biodiversity Database as at 1 January 2020; Species Checklists 3 and 4).

The majority of the distribution ranges of the Lang's crag lizard *Pseudocordylus langi* and cream-spotted mountain snake *Montaspis gilvomaculata* is situated in the Park, and similarly a large proportion of the distribution ranges of the Cottrell's mountain lizard *Tropidosaura cottrelli*, Essex's mountain lizard *Tropidosaura essexi* and spiny crag lizard *Pseudocordylus spinosus*. One Endangered species, the Long-toed tree frog *Leptopelis xenodactylus*, and two Near-threatened species, the Phofung river frog *Amietia hymenopus* and the Drakensberg dwarf chameleon *Bradypodion dracomontanum* (IUCN 2018), occur in the Park.

Most of the threats to the Long-toed tree frog do not occur in the Park (such as urbanization, trampling of wetlands by livestock, overgrazing, dam construction etc.), but inappropriate fire regimes and alien plant establishment are two threats that need to be countered in the Park. Chytrid fungus infection and global climate change are the two main threats facing the Phofung river frog. The Drakensberg dwarf chameleon does not seem to face threats in the Park at this stage, although too-frequent burning of its grassland habitat would be a threat.

Reptiles and amphibians form an important part of the ecosystem, and certain species serve as bio-indicators due to their sensitivity to environmental factors. The Park is, therefore, very important for the conservation of the above-

mentioned species (List 3 and List 4). Much remains to be discovered about the reptile and amphibian species complement of the area, their life histories, inter-relationships and contributions to the functioning of its ecosystems.

2.11.15 Invertebrate Fauna

Large parts of the Park have never been surveyed for invertebrates, and existing data consist largely of scattered records and species descriptions for individual taxa. Knowledge of the diversity, biology, ecology and conservation requirements and status of the invertebrates of the Park and surrounding area is, however, improving. Several taxa, namely earthworms, snails, centipedes, millipedes, assassin flies, butterflies, cetonid beetles, crane flies, dragonflies, hanging flies and lacewings, have been studied in sufficient detail to provide some information and insight into the invertebrate groups. More than one thousand species of invertebrates, with different habitat requirements and differing life-history strategies, have been recorded in the Park. Invertebrate species checklists have not been included in this IMP but are available from Ezemvelo's Biodiversity Database.

Conservation of the Park's invertebrates is critical because of their roles in ecosystem functioning, the dependence of many vertebrate species on invertebrates as a source of food, and because of the large numbers of species and genera endemic to the region. The invertebrate fauna constitutes the greatest component of species diversity in natural systems, but it is often poorly understood. Invertebrates are fundamentally important in terms of biodiversity and their roles in ecosystems and the provision of ecosystem services. They form important components of food webs and assist with control of plant growth and animal populations, nutrient cycling, aeration of soil, decomposition and pollination of plants, among various other roles.

Certain species are endemic to the Park and include; the Cathedral Peak agate snail *Cochlitoma montistempli*, Hutchinson's bristly earthworm *Parachilota hutchinsoni*, small bristly earthworm *Parachilota minimus*, encircling-clitellum wrinkled earthworm *Proandricus amphius*, Michelle's wrinkled earthworm *Proandricus michelleae*, Pajor's wrinkled earthworm *Proandricus pajori*, Adrian's bristly earthworm *Udeina adriana* and Petros's bristly earthworm *Udeina petrosi*. Endemic insects include the spineless long-horn beetle *Apterotoxitiades aspinosus*, Drakensberg rove beetle *Atheta drakensbergi*, Natal rove beetle *Atheta natalica*, Thendele rove beetle *Atheta thendeli*, Gama's eighth rove beetle *Octavius gamai*, Drakensberg eighth rove beetle *Octavius montiumdraconis*, Natal Thendele rove beetle *Thendelecrotona natalica*, dwarf tiger beetle *Dromica pusilla*, Uyttenboogaart's ground beetle *Pseudomegalonychus uyttenboogaarti*, Drakensberg leaf chafer *Eriesthis drakensbergensis*, minutely marked flower chafer *Stripsipher signatulus*, white-lined woolly fruit chafer *Eriopeltastes lineatus*, blotched woolly fruit chafer *Eriopeltastes maculatus*, Zulu flea beetle *Chaetocnema zulu*, African furrow-bellied fly *Aulacigaster africana*, Natal campichoetid fly *Campichoeta natalensis*, Sebetuane's dance fly *Drapetis sebetuanei*, Sekeletu's dance fly *Drapetis sekeletui*, Indumeni dance fly *Empis indumeni*, similar broad-palped dance fly *Platypalpus similis*, Indumeni fynbos dance fly *Syndyas indumeni*, grass dance fly *Syneches graminis*, peculiar fungus gnat *Paradoxa paradoxa*, Marriott's tabanid fly *Philoliche marriotti*, emerald-eyed tabanid fly *Rhigioglossa smaragdops*, riverine assassin fly *Neolophonotus io*, white-crowned assassin fly *Neolophonotus leucodiadema*, protea-dwelling hildine bug *Hilda proteacola*, small Drakensberg green cicada *Stagira dracomontanoides*, erect-cercus wingless grasshopper *Eremidium erectus* and three-colour geometric moth *Pseudomaenas tricolor*. The endemic millipedes are the minor Drakensberg keeled millipede *Drakensius minor*, Brinck's keeled millipede *Gnomeskelus brincki*, toothless keeled millipede *Gnomeskelus edentulus*, original keeled millipede *Gnomeskelus origensis*, many-rowed flat-backed millipede *Platytarropus polydesmoides*, Gudu Falls flat-backed millipede *Platytarrus guduensis*, Lawrence's sucking millipede *Rynchomecogaster lawrencei* and simple soil millipede *Ulodesmus simplex*. The species living at high altitudes tend to be endemic to the southern African alpine zone (Armstrong & Brand 2012). Some other species are also found just outside the boundary of the Park, and various undescribed species are known only from the Park.

Threatened invertebrates found in the Park include the Endangered seedpod shieldback katydid *Thoracistus semeniphagus* and the Vulnerable southern black millipede *Doratogonus meridionalis*, Zlobin's meadow katydid *Conocephalus zlobini* and Drakensberg grass shortwing katydid *Paracilacris lateralis*(IUCN 2018). Three butterfly species that occur in the Park are threatened namely the Endangered Pennington's protea butterfly *Capys penningtoni*, and the Vulnerable Estcourt blue *Lepidochrysops pephredo* and Drakensberg daisy copper *Chrysoritis oreas* butterflies. The counter-measures against the threats to the threatened species include ensuring appropriate fire regimes and invasive alien plant and animal control. More specifically for the Endangered species, too frequent fires may be a threat to the seedpod shieldback katydid, as it requires relatively mature vegetation including grasses as habitat and for food. Threats to Pennington's protea butterfly include too frequent burning of its protea savanna habitat and too great flame heights during burning. Frequent burning leads to lack of recruitment of seedlings of the butterfly's hostplant, the common sugarbush *Protea caffra*, and high flames lead to death of mature hostplants. Bracken *Pteridium aquilinum* and alien invasive plant species established under and near the protea trees also cause increased flame heights (Adie et al. 2011); therefore these species (and in some places bracken), present in the protea savanna where the butterfly species occurs,

need to be controlled. The alien invasive harlequin ladybird beetle *Harmonia axyridis,* appears to be a grave threat to Pennington's protea butterfly, and it may be necessary to institute a control programme for this beetle in the Park.

Some studies quantifying the contribution of invertebrates to ecosystem processes have been carried out in South Africa, and internationally the complexity of the invertebrate interactions required in sustaining ecosystems and even in influencing the structure of plant communities is becoming increasingly evident. Several invertebrates, such as termites, are keystone species. Termites recycle large quantities of plant biomass into the soil and keep the soil porous with their tunnelling, allowing water to infiltrate the soil profile. Earthworms play a similar role to termites but are more diverse and widespread in the Park's grasslands. The dung beetle fauna of the Park is responsible for the removal of animal wastes and recycling of nutrients to the soil, and also assist with water penetration into the soil. Pollination of a large proportion of flowering plants, including endemics, is dependent 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.

For many of these invertebrate species, habitat conservation is the most important management intervention required with habitat loss being the biggest threat to their survival. The Park is very important for the conservation of Alpine invertebrates. Levels of endemicity vary according to taxon and habitat. Park endemics are more likely to be represented by less mobile, moisture dependant, forest-dwelling taxa such as millipedes, earthworms, spiders and molluscs, and also by invertebrates confined to the specific environmental conditions found above about 2 700 m. Endemic genera and species of ostracod (mussel shrimp), copepod and anostracan crustaceans (fairy shrimp) occur in the temporary rock pools and tarns in the region. The rivers and streams in the Park also have a large endemic ostracod fauna and are inhabited by the aquatic larvae of endemic insect species and genera.

Many of the Park's endemics belong to the most ancient animal groups; evidence of their age is a discontinuous, often Gondwanan distribution. In Africa, they are mostly montane and do not extend north of South Africa. Examples of this 'palaeogenic' fauna in the Park's forests are onychophorans or velvet worms, the carnivorous slug family Chlamyphoridae, some genera of opilionids (harvestmen) and myriapods (millipedes and centipedes). Other palaeogenic taxa include insects with aquatic larvae confined to high altitude streams such as the net-winged midges (Blephariceridae), the stonefly family Notonemouridae and some mayfly (Ephemeroptera) genera.

The invertebrate fauna of the Park survives extremes of temperature. This is especially true for those endemic species that do not migrate to warmer areas during winter or that do not re-colonise the region from less extreme climates in spring or summer. Many insects over-winter in dormant stages such as eggs or pupae. Others can survive by burrowing deep into the soil during extreme cold, while others have physiological adaptations that allow them to survive temperatures below freezing.

2.12 Cultural Context

2.12.1 Background

Inscribed as a mixed site, the Park's status as a WHS relies on the holistic and inclusive protection and management of its cultural resources. The Justification for the Park's Cultural Property criteria as a WHS was based on the uniqueness of the Drakensberg as an art region, the uniqueness of the rock art images, the events, traditions and beliefs of the San people as depicted in the and value and importance of the Drakensberg rock art, as well as the justification for the Park to be a Cultural Landscape Property.

Present knowledge of the cultural heritage of the Park is biased in terms of past research projects with a very strong San rock art component (Table 7). However, the cultural heritage of the Park is more diverse and covers different periods. Archaeological sites from the Early, Middle and Later Stone Age and the Late Iron Age are present, indicating that this region may have been occupied by humans over the last million years.

There is some evidence for early human presence in the area since the Early Stone Age (2.5 million – 250 000 years ago). There is also evidence that early modern man inhabited the foothills of the Drakensberg during the Middle Stone Age (250 000 – 25 000 years ago). San hunter-gatherers [8] were the first modern people to occupy the area where the Park is today. The earliest convincing archaeological evidence for San in the region dates to 8 000 years ago; however, evidence from adjacent parts of south eastern Lesotho suggests that San populations may have already inhabited the area around 20 000 years ago. The oldest cultural heritage resources in the Park relate to archaeological excavations

[8] From the Late Stone Age dating from 25 000 – the early 20th century in the Drakensberg

focusing on the Stone Age in the southern Drakensberg which date back to about 8 000 years before present (BP), 5 000 years BP for the northern Drakensberg and 3 000 years BP in the central Drakensberg.

2.12.2 History

During the last 2000 years, various linguistic groups of San inhabited the area. These included the !Ga !ne in the southern parts, the //Xegwi in the central and northern KZN Drakensberg region and the Baroa in areas adjacent to Lesotho. These populations were either displaced or assimilated by later immigrant groups, although their descendants still live in the area.

By around 1400 BP, indigenous farming communities were migrating into the region occupying the foot-hills and valleys below the Drakensberg Mountains. They introduced settled life, domesticated livestock, crop production and the use of iron (Huffman 2007). Over the next millennium, the Nguni groups in the greater region consolidated, giving rise to socio-cultural complex societies and ultimately the Zulu Kingdom in the early nineteenth century. Indigenous language speaking farmers soon appeared in the region of the UDP and were responsible for Late Iron Age prehistoric villages such as the Mgoduyanuka in the grasslands below the mountain range (Huffman 2007).

Around 500 years ago the first black farmers moved into the area and occupied the foothills of the northern KZN Drakensberg. The people living towards the north were known as the amaZizi and to the south, the amaThola. The amaThola probably also painted rock art, and it is suggested that they believed that horses and baboons had special powers, thus painting these animals would protect them during cattle raiding expeditions. The amaZizi formed a series of loosely organised chiefdoms in the northern and central Drakensberg. With the expansion of the Zulu state in the early 1820s, the amaZizi were attacked and dispersed by the amaNgwane. Many fled to the Eastern Cape, but some remained behind. The amaNgwane moved into the Bergville area towards the end of the eighteenth century, but they also fled into Lesotho and the Eastern Cape when attacked by the Zulu and other groups. Other groups who occupied parts of the central and southern Drakensberg from the late 1700s onwards include the amaHlubi, amaNgwe, amaBhele, amaBhaca and various refugees from Zululand and Lesotho. Although never part of the Zulu state of King Shaka, most of these groups are culturally related to the Zulu.

Relations between these people and the San were complex during the Nineteenth Century, but from 1816, under the leadership of King Shaka, the rise of Zulu military power in Zululand far to the north-east brought an end to peace in the region as successive waves of refugees displaced by the Zulu army settled towards the Drakensberg, in turn attacking those already there. Most of these groups were permitted to settle along the base of the Drakensberg by the Natal colonial authorities in the early 1840s as part of Lord Shepstone's Native Policies.

In the 1830s, Dutch settlers (the Voortrekkers), arrived and settled in the foothills of the Drakensberg Mountains. Many turned to livestock farming and hunted wild game. This brought them into conflict with the San, who were partly dependent on hunting. The shrinking of the San's traditional hunting grounds and the political dynamics among the Nguni-Zulu farming communities and the arrival of the white settlers all contributed to instability within the San communities. The very existence of the San people was threatened with the encroaching Voortrekkers in the foothills of the Drakensberg. Clashes over hunting grounds, private ownership of land, and the arrival of cattle led to increasing numbers of cattle raids by the San people. When the area became part of the British colony of Natal in 1843, many Boer farms were abandoned but later re-occupied by British settlers, who themselves continued the persecution of the San. The last sighting of San people in the Drakensberg Mountains was in early 1926 at Eland Cave (Wright & Mazel 2007), and painting is known to have continued into the nineteenth century (Deacon & Deacon 1999; Wright & Mazel 2007), evidenced by a San hunting kit found adjacent to grass bedding in Eland Cave, Cathedral Peak in 1926 (Wright & Mazel 2007). Many Zulu people claim San ancestry and/or associate themselves with San customs. These descendants are typified as 'secret' because they kept their status secret as they feared retribution since they became used to conflict with other ethnic groups (Derwent 2006).

All cultural heritage sites are afforded protection by heritage legislation; the NHA and KZN HA. The legislation and associated regulations clearly define the applicable constraints and actions when dealing with these sites. The South African Heritage Resources Information System contains all inventories of cultural heritage in the UDP and its Buffer Zone.

2.12.3 Archaeology

The rock art evidences the creative genius of the San and their cultural traditions and is a non-renewable resource that provides testimony of the spiritual and artistic achievements of the San. A long history of archaeological investigation over nearly a century (Table 7), yielded the valuable information on which the WHS nomination was based.

Early attempts to inventorise rock art resulted in a hard copy database maintained by the Natal Museum. This information has subsequently been checked and incorporated into more recent digital records. A number of recent attempts have been made to consolidate the rock art inventory of the UDP. This includes the Cultural Heritage Audit for the Maloti Trans-frontier and Development Area (1999), which identified the lack of digital databases as a critical challenge to rock art management.

A Rock Art Mapping Project (RAMP I and II) was undertaken by the African Conservation Trust between 2010-2012. This project created the first digital archive of rock art in the Park and included a comprehensive database containing records for just under 6 000 sites, including 80 previously undocumented rock art sites, all visited by an archaeologist. A number of sites were also visited by Tommy Topp and other survey teams who scanned and created accurate 3D models of the shelters. Virtual tours and videos were also created as well as spatial mapping and analyses. Some management units of the Park contain very large concentrations of art, with Cathedral Peak containing 17 sites and 3 909 individual images along a 5.5 km stretch of land (Sycholt 2002). The rock art is outstanding both in quality and diversity of subject.

Overall, 544 sites were verified by the RAMP project. Part of the Bushman's Nek area was not completely surveyed during this project, and Amafa surveyed this area in 2016 and an additional five sites added to the database. Estimates from 2016, based on the surveys mentioned above, suggests that the Park contains a total of 549 verified sites a minimum of 17 000 individual images. Information contained in older databases suggests a higher number of images (600 painted sites with over 40 000 individual images (Derwent 2006; Wright & Mazel 2007)), but it must be cautioned here that recorder bias, inconsistent recording protocols, fragmented imagery and other factors might skew precise recording of the number of individual images. As of 2018, Heritage Managers believe the rock art inventory to be virtually complete.

Since 2009, the focus in research shifted from the interpretation of the art to the management of rock art and rock art tourism. This is evident in the work of (Duval & Smith 2013; (Duval & Smith 2014) and on sustainable rock art tourism, (Topp 2009) on the value of San Rock Art in the uKhahlamba Drakensberg World Heritage Site, and (Rossouw & Dye 2015) on encouraging rock art tourism.

Some archaeological sites, including certain painted shelters and natural features in the landscape, continue to feature in the beliefs and ritual of local communities. These living heritage sites are also an important component of the cultural heritage of the Park (see 2.12.4 below).

Table 7: Cultural Heritage research focus in the uKhahlamba Drakensberg Park

Researcher	**Material**
D Bleek	1933. Recorded trance and 'rain animal' belief amongst the San.
P Vinnecomb	Tracing of Rock art during the early to mid-20th century, Numerical analysis of rock art during the early 1960s. Publication of People of the Eland: rock paintings of the Drakensberg Bushmen as a reflection of their life and thought (1976).
A R Wilcox	Rock Paintings of the Drakensberg by A R Wilcox provides a comprehensive record of rock art, based on field surveys (1956).
Harald Pager	Hand coloured photographic copies of art.
Walter Battis	Hand painted water colour copies.
J Lewis Williams	Formulated the ideas around rock art as an expression of Shamanistic trance, founded the Rock Art Research Institute in 1978. *Images of Power* published in 1989.
J Deacon	Rock Art management.
S Basset	Experimented using natural pigments and brushes.
B Smith	Documentation of Rock art and interpretation using indigenous belief systems.
J Wintjes	Digital restoration of images
African Conservation Trust	3-D scanning of rock art sites.
F Prins and N Ndlovu	Living heritage and consumptive use of rock art

2.12.4 Living Heritage

The UDP contains various living heritage sites. Most of these are situated within the lower altitude areas of the Park and the surrounding Buffer Zone. These are the areas most accessible to local communities who live adjacent to the Park and who attach living heritage values to particular sites.

The living heritage sites of the Park can be divided into four broad categories, namely:

- Natural sites or features such as mountains, pools and waterfalls with spiritual, legendary and cultural values.
- Archaeological sites with living heritage values including caves, overhangs and boulders.
- Graves.
- Places of worship.

Examples of natural sites include Penwarn 7 (an initiation site), Inkanyamba Cave (rain making site) and Waterfall Shelter (visited by Zion Christian Church pilgrims, who believe that the Holy Ghost blessed the water and that the mythological creature, the Inkanyamba, visits the pool at the bottom of the waterfall). Archaeological sites with living heritage values include certain rock art sites (e.g. Game Pass Shelter) as well as certain old homesteads of African leaders that are still frequented by local and affected communities. Rock art sites have also been appropriated by certain Zulu-speaking diviners (izangoma) who often train their students at these sites. Some grave sites situated within the Park are still frequented by the relatives of the deceased and thus have living heritage value. There are many places of worship within the Park and the associated Buffer Zone. These are mostly areas utilised by independent African church groups.

Living heritage sites are utilised by all the known ethnic groups who live or used to live adjacent to the Park. These include Zulu-speaking and Southern Sotho-speaking communities. Initiation sites are mostly associated with the Southern-Sotho speaking groups. San descendants live in various areas adjacent to the Park, especially in the south. Despite the social and cultural change, some descendants continue to interact with rock art sites and regard them as sacred. However, it is not only local communities who attach living heritage values to the Park, but also certain groupings such as the //Xegwi San descendants of the Mpumalanga Province who refer to the Drakensberg as their 'sacred ancestral home'.

2.12.5 Palaeontological Heritage

The UDP contains a potentially rich fossil heritage in the lower sedimentary deposits that underly the Basalt escarpment. This heritage resource has been superficially researched and is poorly documented poorly, but can potentially increase the already high significance of the Park. The Amafa palaeontological sensitivity map of KZN, however, predicts a high probability of significant fossil material in the foothills and buffer areas of the UDP. The upper basaltic areas of the Park are fossil free, however, the underlying the Karoo basin sedimentary rocks are rich in fossil material. The latter sedimentary deposits of the Karoo Supergroup were laid down between 260 and 190 million years ago. These rocks preserve abundant fossilised remains of land-dwelling vertebrates, including early mammals, early turtles and early dinosaurs. The Park has extensive outcrops of the Stormberg Group of sediments, which are the uppermost (youngest) rocks of the Karoo Supergroup. The Stormberg rocks can be further subdivided into the red, Elliot Formation and the yellow Clarens Formations. In these sediments, scientists have found incredible dinosaur body fossils and footprints, including such iconic species as *Massospondylus carinatus* and *Lesothosaurus diagnosticus*. These fossils provide information as to how dinosaurs diversified and went on to dominate the Earth. Fossilised footprints in these sediments were among the pieces of evidence scientists have used for understanding plate tectonics and the breakup of Pangaea in the Jurassic period some 200 million years ago.

At lower elevations, particularly on the eastern fringes of the Park, rocks from the Beaufort Group crop out. These rocks are older and stratigraphically lower than those of the Stormberg Group, and they preserve earlier moments in the deposition of the Karoo Supergroup. These rocks hold the remains of mammal-like reptiles, the vertebrates that ultimately gave rise to the mammals we see today. Fossils of a shrew-like creature, Megazostrodon, considered one of the earliest mammals, are occasionally found in the region.

The probability of significant fossil material in the foothills and buffer areas of the UDP must be flagged for any potential development that may entail earth movements. All fossils are afforded protection by the heritage legislation, with restrictions on collecting and ownership.

2.12.6 Stone Age and Iron Age Sites

Several Stone Age and Iron Age sites, features, ecofacts and artifacts have been recorded in the UDP, but excavations and research have mostly been conducted at and associated with rock art sites. The research is fairly dated, and the need exists for additional research to better understand these aspects of the Park's prehistory. Cognizance must be

taken of the fact that the Park has not been subject to a full-scale intensive survey of Stone Age and Iron Age and due to the nature of these sites, there is a high probability that a significant number of sites remain unrecorded. As such, all archaeological sites must receive general protection in applicable heritage legislation (KZN HA and Section 35 of HRA); no person may destroy, alter, damage, remove, excavate or bring onto any site any equipment for the detection of such sites unless permitted by Amafa.

2.12.7 Built Environment

A complete built environment and public memorial survey for the entire Park, excluding a few isolated structures, was completed in 2014 (Cellier 2014). Each structure was recorded and assessed for significance and condition. Structure-specific management recommendations were also provided.

The most significant clusters of built environment have been identified at Cobham, Lotheni, Kamberg and Royal Natal. The cluster of pioneer vernacular buildings at Lotheni has a history of maintenance as this is used as an open-air museum. Continued maintenance is essential to retain the value of these structures. The cluster of buildings at Stillerust (Kamberg) has not suffered significant neglect, but there are signs of deterioration. Of most concern is the situation at Royal Natal, where various reports have documented the rapid decline of structures of both historical and social importance (Whelan 2008).

2.12.8 Assessment of Significance

The assessment of significance of the rock art and other historic sites generally derives from the ICOMOS' *Charter for the Conservation of Cultural Significance*. Levels of significance are summarised in Table 8.

Table 8: Assessment of significance for historic sites in the uKhahlamba Drakensberg Park

Assessment	**Explanation of significance**
Exceptional	Features of exceptional/international significance or which contain elements with a significance beyond national boundaries
Considerable	Features of considerable/national significance
Some	Features of some/regional significance
Limited	Features of limited/local significance
None	Features of no significance
Unknown	Features of unknown significance

Negative or intrusive features also have a bearing on significance values. Each heritage site is significant in its own right. All sites are representations of individual people that are, in turn, representations of the society within which they live. As such all heritage resources can be assigned significance according to the following categories, as set by the HRA (Chapter 1, Section 3.3) and detailed in Table 9; aesthetic, spiritual, architectural, historical, scientific, social, linguistic or technological value/significance, rarity and representivity.

In summary, the cultural heritage of the Park is significant because of the:

- Exceptional concentration, quality, diversity of subject, detailed depictions, and spiritual significance of San rock art which is regarded by many to be the finest prehistoric rock art in the world, having a high degree of complexity of meaning, and including some of the last rock art ever painted.
- Living heritage value that includes rituals performed within the Park and ancestral sites that are frequently or regularly visited for such purposes.
- The sense of place that is a result of a symbiotic relationship between a place and the community members exercising their cultural right in that particular place.
- Authenticity brought about the unchanged context of the sites.

Table 9: Criteria that contribute to the significance of cultural heritage

Criteria	Significance
Aesthetic	EXCEPTIONAL: Global significance as the rock art includes some of the finest prehistoric rock art depictions in the world. The use of shaded polychrome technique, in which human and animal figures animals are represented through use of more than two colours, is unique. The depiction of animals and people in a wide range activities and postures is also noteworthy. Examples include Battle Cave, Main Caves, Eland Cave, Painter's Shelter and Mystery Shelter.
Quantitative	EXCEPTIONAL: The largest concentration of rock art sites in Africa: e.g. Didima Gorge in Cathedral Peak, which has 17 sites including 3909 individual images in a 5.5km long gorge (Sycholt 2002).
Interpretive	EXCEPTIONAL: Ritual depictions (e.g. Sheltered Vale), contact period motifs (e.g. Bellevue Shelter, Mpongweni, Painter's Shelter) and shamanistic motifs (e.g. Rosetta Panel/Game Pass, Procession Shelter, Lower Mushroom Shelter, Boundary Rock).
Rarity	CONSIDERABLE: Facial features (e.g. southern UDP), therianthropes (mainly northern UDP, although there are some images in the south), insects (e.g. northern UDP) and hallucinatory motifs and entopic patterns (e.g. southern and central UDP and Sorcerer's Rock in northern UDP).
Integrity	CONSIDERABLE: The natural context in which the art was produced is little changed.
Authenticity	CONSIDERABLE: The images are authentic depictions by a culture that has disappeared.
Vulnerability	CONSIDERABLE: The art is subject to natural weathering as well as management and consumptive human interventions (e.g. wind, rain, fire and visitation).

2.12.9 Grading of Cultural Heritage Sites

Early heritage legislation led to the term 'historical monument' for any site declared in terms of national heritage legislation. The promulgation of the South African Heritage Resources Act No. 25 of 1999 introduced a system of grading, whereby sites of national significance were Grade 1 sites, Provincial significance was Grade 2 and local significance, Grade 3. All previously declared historical monuments were assigned Grade 2 status. Currently no Grade I sites are proclaimed in the Park and the handful of sites that previously enjoyed National Monument Status are all in the process of being re-graded by Amafa to establish whether their current Grade 2 status is appropriate, or whether they should be proclaimed as Grade 1 sites.

Virtually all buildings in the Park have been informally assessed and graded for significance (Cellier 2014). Several buildings have been assessed to have outstanding importance and significance; therefore, formal grading and proclamation need to be undertaken.

Part of the grading process involves an analysis of various criteria that contribute to significance. Table 9 indicates the criteria that contribute to significance.

The grading system applies to individual sites or structures. The Park as a whole, however, should be considered a Cultural Landscape, as permitted by NHRA and KZN HA.

2.13 Socio-economic Context

The South African border of the Park exceeds 300 km with approximately 1 000 000 people living in the area near the Park border. The majority of this population is from previously disadvantaged South African communities. Agriculture and plantation forestry are the main land uses in this area. Cattle farming is the dominant form of agriculture practiced on both commercial farms belonging to individual landowners and in the communal tribal areas bordering the Park. Commercial agriculture and eco-cultural tourism related to the Park and its environs are the main economic drivers for the area and possibly offer the most employment opportunities.

The Lesotho communities (numbering less than 200 000 people) within the MDTP bioregion along the approximately 180 km of the Park border with Lesotho are mainly communal cattle farmers.

2.14 Eco-cultural Tourism Context

Research has established that World Heritage Sites are important travel destinations with huge potential impact for local economic development and long-term sustainability. Tourism is one of the largest industries, and heritage tourism is its most rapidly growing international sector. The MDP WHS Sustainable Tourism Strategy (2019-2029) was developed to unlock the economic potential of the MDP WHS. It was developed collaboratively between Lesotho and South Africa to ensure that a common vision and a coordinated and integrated strategy was agreed upon for the entire destination.

The authority has the mandate to develop the Park in such a way that sustainable eco-cultural tourism can be provided. Eco-cultural tourism facilities are provided for after an objective and integrated assessment of the relevant areas in the Park in terms of its biophysical and cultural heritage sensitivities, management and bulk infrastructure, its sense of place and its visitor infrastructure and facilities.

Various zones have been designated within the Park (see Section 3) ensuring a continuum of land uses and visitor densities from strict conservation zones to more intensive use zones. In identifying these zones and areas of potential development, significant weighting has been attached to the area's biodiversity, cultural heritage and sense of place values. Consideration of these criteria in an integrated and objective manner will enable the priority objectives of the UDP to be maintained, whilst enabling access to the unique and diverse experiences associated with the Park.

Tourism facilities include seven hutted accommodation facilities with 668 beds, 10 camping facilities with 241 camp sites accommodating up to 1446 people, and numerous caves that people can sleep in while overnight hiking. Apart from the eco-cultural tourism infrastructure provided, visitors to the Park can enjoy activities that include hiking, mountaineering (rock and ice climbing), fly fishing in the rivers and dams, horse riding at Rugged Glen, bird watching, running, rock art education, photography, camping, 4x4 trails, mountain biking, game drives, canoeing, tennis, swimming, helicopter flips, conferencing, weddings, cultural trails, vulture hides and cultural experiences including dancing and traditional healer visits.

There are approximately 1 550 km of hiking trails including the five-day Green Flag accredited Giant's Cup Hiking Trail and well-demarcated paths for more leisurely walks and day hikes. The Park is also host to various extreme adventure challenges, and special permission needs to be sought from the PMC for any such events.

2.15 Operational Management Context

2.15.1 Infrastructure

Eco-cultural Tourism Infrastructure

The eco-cultural tourism infrastructure in the Park includes:

- Six hutted resorts within the following management units; Royal Natal (Thendele), Cathedral Peak (Didima), Injesuthi, Giant's Castle, Kamberg and Lotheni- providing 177 accommodation units with 478 beds (Table 10).
- Eight campgrounds within the following management units; Royal Natal (Mahai), Rugged Glen, Cathedral Peak, Monks Cowl, Injesuthi, Highmoor, Lotheni, Cobham and Garden Castle- with 226 campsites accommodating up to 1 338 visitors per night (Table 10).
- Two licensed restaurants within Giant's Castle and Cathedral Peak (Didima), the latter boasting a state-of-the-art wedding venue/conference centre.
- Curio shops (most resorts), stocking local goods and basic groceries.
- Five overnight huts on the Giant's Cup Hiking Trail in Cobham and Garden Castle.
- Rock Art Interpretative Centres at Cathedral Peak and Kamberg and an interpretive rock art display at Main Caves at Giant's Castle.
- Vulture hides at Giant's Castle and Cathedral Peak and a bird hide at Giant's Castle.
- Day visitor facilities include picnic sites and ablution facilities at all resorts.

Table 10: Accommodation infrastructure in the uKhahlamba Drakensberg Park

Management Unit	Hutted Accommodation/Safari Tents	Camping
Garden Castle	None	10 sites with 60 guests
Giant's Castle	43 units and 108 beds	3 Hiking units 30 guests
Highmoor	None	7 sites with 42 guests
Injesuthi	17 units with 72 beds, 3 tents with 6 beds	20 sites with 120 guests
Kamberg	6 units with 16 beds	none
Lotheni	14 units with 48 beds	14 sites with 84 guests
Monks Cowl	None	43 sites with 258 guests
Cathedral Peak (Didima)	65 units with 138 beds	30 sites with 180 guests
Royal Natal (Mahai and Thendele)	None	84 sites with 504 guests
Rugged Glen	29 units with 90 beds	15 sites with 60 guests

Management infrastructure

Management infrastructure in the Park is located at Royal Natal, Rugged Glen, Cathedral Peak, Monks Cowl, Culfargie, Injesuthi, Hillside, Witteberg, Highmoor, Kamberg, uMkhomazi, Lotheni, Vergelegen, Cobham and Garden Castle and consists of:

- 17 Administration offices.
- 13 Workshops.
- 12 Stables.
- 40 Staff accommodation units.
- 10 Field Ranger outposts.

The Park's bulk infrastructure consists of:

- Approximately 84.1 km of roads and vehicle tracks.
- Eight waste management sites where solid waste is collected, sorted and removed to the municipal dump at Mooi River or Himeville.
- Three sewage treatment plants.
- One water treatment plant.
- Six helipads.

The Park's conservation infrastructure outside the development nodes consists of:

- Approximately 1 550 km of hiking trails.
- Five weather stations; namely at Royal Natal, Cathedral Peak, Witteberg, Monk's Cowl and Cobham.
- One borehole for monitoring groundwater at Garden Castle.

2.15.2 Staffing Establishment

The existing human resource structure and capacity is insufficient to meet Park management requirements fully. The following management objectives are emphasised:

- Park security.
- Cultural heritage management.
- Community liaison.
- Environmental and biodiversity monitoring.
- MDTP initiatives.

To effectively address the full spectrum of Park management functions, the human resource needs must be fully addressed in an effective and efficient human resource structure for the Park.

To significantly improve accountability, efficiency, coordination and reporting, the Park staff structure resides under a single Park Manager.

2.15.3 Funding Levels

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

Levels of funding have decreased annually, and over time the management of the Park cannot be sustained at the required levels. Capital assets, including infrastructure, are also not being effectively maintained. It is necessary, therefore, to develop a realistic Strategic Financial Plan to secure funding to effectively support the achievement of the mission and management objectives for the Park.

The development of the Park's Strategic Financial Plan is a priority and must indicate past income and expenditure trends, as well as a projection of income and expenditure targets that will allow for effectively achieving the objectives of the Park. In addition, planning must be put in place to address any budget shortfalls after the annual grants from the KZN Provincial Government have been accounted for.

The total self-sufficiency of commercial operations within the Park is a minimum requirement, while it will be expected that commercial operations must respect the biodiversity and cultural values of the Park and that any operational profit will be used to subsidise the Park's conservation and community programmes.

As at the 20219/2020 financial year: The annual operational budget for the UDP was R 12 554 164 and the staff budget was R 2 309 507. The total management budget was R 14 863 671, which equates to R 63.90 per hectare. This excludes the cost of commercial operations, support services, externally funded projects and internal projects.

The value of ecosystem services that the Park provides as well as the direct and indirect economic value of the Park to the local and regional economy must be used to market the Park, ensure continued government funding and where appropriate, leverage additional funding from other sources.

2.15.4 Management Effectiveness

As with all Ezemvelo protected areas, the intention is to continually improve management effectiveness of the UDP in line with the levels adopted for all protected areas within the KZN protected area network. In 2010, Ezemvelo conducted management effectiveness assessments for all of its protected areas (Carbutt & Goodman 2010), and these assessments have subsequently been done on an annual basis. Management effectiveness assessments consider protected area design, the appropriateness of management systems and processes, and delivery of protected area objectives. These assessments assist with the following:

- Promoting adaptive management.
- Improving project planning.
- Promoting accountability.

Such assessments are intended to enable conservation organisations to refine their strategic, system-wide responses to the most pervasive threats and management weaknesses (Carbutt & Goodman 2010). They are not performance assessments of individuals but serve to reflect an organisation's proficiency for protected area management as a whole. The assessments for the UDP are peer-reviewed and evidence-based.

The 2020 assessment indicated a score of 67.00%, which is lower than the 70.33% in 2019 and 70.00% in 2018, but equal to the national standard of 67%. Certain critical issues have been highlighted as low scoring in the UDP through this process:

- Legal status.
- Human Resource Capacity.
- Adequate operational budget.
- Capital budget.
- Human Resource Management systems.
- Administrative support service.
- Management of hazardous substances.
- Achievement of biodiversity targets.

2.15.5 Risk Preparedness and Disaster Management

World heritage properties are important for local, national and international communities, and there is an obligation on the managing authority to protect the Outstanding Universal Value of these sites for future generations.

As disasters happen from time to time, it is best to be prepared for these unavoidable events. Risks may also threaten the OUV of the Park and procedures to manage and mitigate these should be monitored and reviewed as part of the IMP. Management Units within the UDP have several plans and procedure manuals that guide management in the event of various identified risks. Risks and threats have been identified, and strategies to address the root causes of the risks have been developed. These documents and plans are consolidated in the Risk Preparedness and Disaster Management Plan. This process will assist in avoiding, reducing or managing risks where possible and ensuring that the necessary control/mitigation measures are in place to protect the values of the UDP.

The 'Bilateral Security Strategy' produced for MDTP, is a document that guides the work of the UDP Security Working Groups in that the Security Working Group members are each responsible for a part of the implementation of the Bilateral Security Strategy. In order for the UDP Security Working Group to comply with their responsibilities along the KZN with Lesotho, the UDP Security Strategy has been formulated.

A preventative strategy must be developed, outlining the organisation's strategy for risk avoidance and mitigation measures based on the identification of potential threats. An assessment is required to establish whether risk is increasing or decreasing based on the potential threats identified.

Table 11 indicate risks that have been identified and are addressed either directly in the IMP or through subsidiary documents.

Table 11: Risk and Disaster Management

Risk	Actions
Illegal activities	Addressed through the UDP Security Strategy
Alien and invasive species	Addressed through the UDP IMP and the Alien and Invasive Species Control Plan
Loss of biodiversity	Addressed in the IMP including referenced subsidiary documents
Loss of cultural heritage	Addressed through the review of the Cultural Heritage Management Plan
Uncontrolled fire	Addressed in the UDP Fire Management Plan
Drought	The UDP should not be used as drought relief by providing, for example, grazing for cattle
Climate change	This is addressed through buffer zone protection and regional management
Inappropriate development (fracking, mining, cableways, wind farms)	Addressed through partnerships with like-minded stakeholders and cooperative governance as well as the implementation of the Buffer Zone Policy
Tourism Pressure and delopment pressure	Addressed in the Tourism Strategy, buffer zone process and IEM process

Diseases

Diseases such as Anthrax, Bovine Tuberculosis, Rabies, etc., need to be addressed through a disease contingency plan - still to be developed.

Pandemics

The impacts associated with the Covid-19 pandemic at the time of revising the IMP highlighted the need for a strategy to address the risk of pandemics, such as Covid-19, and the implications for protected area management.

The dramatic impacts that the COVID-19 pandemic had on the global community in early 2020; on people's lives, their health, livelihoods, on economies, and behaviours as well as on protected areas around the world was highlighted by several authors (e.g. (Hockings et al. 2020); (McCleery et al. 2020). After only five months of South Africa and Lesotho's lockdown, the UDP experienced negative impacts on management capacity, budgets and effectiveness. Similarly, the negative impacts of the pandemic on the neighbouring communities were also significant as a result of the loss of direct benefits from the UDP, in the form of (1) income from employment or tourism-related activities, and (2) access to cultural and natural resources. These losses resulted in an increase in illegal activities such as arson fires, extractive resource use and poaching. The impacts on biodiversity management further impacted on the UDP's effectiveness in the provision of ecosystem services.

As an integral part of the protected area network of KZN and South Africa, the UDP can contribute to job creation and the improvement of economic activity, as well as by maintaining vital ecosystem services and mitigating climate change. The UDP, therefore, needs to be managed going forward as a response to the pandemic that both lessens the chance of a recurrence of the impacts of similar events and builds a more sustainable future for people and nature as suggested by McCleery et al. (2020).

The UDP can anticipate Covid-19 related impacts for the validity period of this IMP in an environment of global recession. Strategies must be developed to ensure that legal requirements (e.g. firebreaks) are met timeously, primary threats to biodiversity (e.g. invasive and alien plant infestations) continue to be addressed, and the livelihoods of neighbours are incorporated into the Park's planning priorities. Alternate funding sources must be pursued, funding applications must be actively submitted and upscaled, and continued pressure on the use of natural sources and hostility from neighbours must be anticipated and solutions sought.

2.16 Summary of management issues – Strengths, Weaknesses Opportunities and Threats

Below is a summary of key management issues, strengths, weaknesses, opportunities, and threats which will be addressed through this IMP based on the descriptions and issues highlighted in the sections above.

Strengths

- Outstanding Universal Value of the Park.
- Other values, as indicated in section on values in Section 2.3.
- Collaboration with other stakeholders and departments in terms of resources required for communities.
- Collaboration with other stakeholders and departments.
- Protection of altitudinal gradient for migratory bird species.
- Potential benefit flow to communities.
- World heritage status.
- The transfrontier programme and collaboration with international counterpart.
- The Park contributes to skills development in the broader community.
- The Park contributes to the provision of Natural Resources in a sustainable manner.
- Support of Honorary Officers and Environmental Monitors to assist with effective management.
- Stewardship and protected area expansion opportunities exist in the UDP's buffer zone.

Weaknesses

- Agreement by Lesotho and South Africa on the exact boundary of the Park along the international border.
- State of tourism facilities in certain areas linked to resources and maintenance of these facilities.
- Grazing concessions that need to be reviewed and documented.
- Lack of capacity to manage cultural heritage.
- Need to improve the information management system.
- Rock art is subject to degradation and loss from natural weathering processes.
- Some research has been done on weathering processes of rock art pigments and the parent material on which rock art is painted, but much remains to be learned.
- Lack of communication and awareness and the lack ion an interpretation strategy.
- Lack of marketing of the Park as a destination and linked to other tourism products in the region.
- The marketing of the Park focusses on natural heritage and needs to be expanded to include cultural tourism marketing.
- Branding of the Park is not finalised.
- The state of tourism and management infrastructure due to financial constraints impacting on maintenance of these facilities.
- The Park does not adequately measure the outcomes of management actions or conservation targets for key and priority species.
- Key and priority species management requires staff to work beyond the boundaries of the Park to ensure effective management (no resources or have to rely on others to implement).
- Internal and external communication.
- Title deeds of the UDP are not endorsed.
- Gazetting of internal Park Rules.
- Boundary deviations are not all documented. Examples of this are Lion's Ridge, Culfargie, Hillside and Vergelegen.
- Lack of servitude register and relevant agreements.
- Information on recorded, written agreements not available on station.
- Erosion along hiking paths and some of the big mountain passes.
- Lack of a waste management programme in each management unit.
- Lack of visitor records and statistics as well as information on the use of trails.
- Inadequate financial controls (cannot link the number of vehicles and visitors to actual income).
- Lack of a formal guiding programme in the Park in terms of trails.
- Degraded state of main access roads (provincial) to the Park.
- Vacant and unfunded posts.
- Inability to maintain tourism and management infrastructure and equipment.
- Human Resource processes in terms of building capacity and performance management.
- Lack of adequate support from organisational support services.
- Lack of a research facility in the southern part of the Park which skews the focus of research to the central and northern sections of the Park.
- Failing to capitalise on stewardship and expansion opportunities due to lack of capacity and resources.
- Informal or unregulated access in certain areas.

Opportunities

- Consolidate and proclaim additional wilderness areas.
- Flow of benefits to local communities, including economic benefits such as employment opportunities and development of communities.
- Awareness of communities in terms of land claims and land care processes that are environmentally acceptable.
- Communication strategy to communicate the IMP to visitors and adjacent communities and stakeholders.

- Strategy to brand the Park to internal and external stakeholders as a World Heritage Site with international obligations.
- Declaration of the buffer zone as the World Heritage Site Buffer.
- Ecological infrastructure and ecosystem service, especially water production and Payment for Ecosystem Services.
- Research value in terms of biodiversity and cultural aspects.
- International grading in terms of the Green List for protected areas.
- Opportunity for the development of a research facility in the southern part of the Park.
- Linkages with additional formalised volunteer groups.
- Opportunities for national and international collaboration and sharing management ideas through the world heritage status.
- Linking of tourism products in the buffer area to the Park.
- International Trekking Trail

Threats

- Illegal activities in and around the Park (specifically stock theft and drug smuggling).
- Access control issues relating to illegal entry and exit points into South Africa.
- Lack of mechanisms to control air space access.
- Non-compatible land-uses and/or developments in areas adjacent to the Park that may threaten the UDP's values.
- Human/wildlife conflict (bush pig, eland, baboon and jackal).
- Alien and invasive species both within and in the buffer areas of the Park.
- Accelerated erosion on hiking paths.
- Arson fires.
- Lack of prosecutions due to lack of capacity and awareness in the security sector.
- Loss or degradation of cultural heritage sites and the threat to the world heritage status if this not addressed.
- Inadequate human and financial resources.
- Disaster, particularly fire. Damage caused by visitors and grassland fires at rock art sites is some of the most pressing threats to the rock art (Topp 2010).
- Criminal damage, including vandalism and arson compromising rock art.
- Theft of archaeological material.
- Degradation or destruction of rock art or archaeological material through neglect of timely or appropriate maintenance and management.
- Misuse of cultural heritage, either from inappropriate use or overloading at cultural sites.
- Inappropriate, ill-judged or ill-planned presentation of cultural heritage or changes to the heritage assets.
- Removal of historic fabric or historically significant elements.
- Inappropriate change in its environs, including deleterious physical changes to its natural setting, inside or outside the Park, and substantive increases in visitation volumes.
- Natural weathering processes of rock art, including rockfalls and collapse of rock shelters.
- Climate Change.
- Lack of sufficient law enforcement equipment.
- Large infrastructure development threatening the UDP, e.g. cableway, fracking and windfarms, expansion of diamond mines in Lesotho etc.
- Uncontrolled cattle grazing leading to accelerated soil erosion.
- Diseases threatening biodiversity.
- Lack of coordination of organs of state to protect the viewsheds leading to the Park.
- Neighbours not respecting the Park boundaries and illegal incursions taking place.
- Lack of coordinated planning around the Sani Pass development between South Africa and Lesotho.
- Unmanned access areas.
- Lack of a clearly demarcated and agreed upon international border with Lesotho.

- Poisoning, illegal hunting and poaching of biodiversity and illegal harvesting of plants.

3 STRATEGIC MANAGEMENT FRAMEWORK

To ensure that the UDP is effectively managed, the following strategic framework has been developed. It is aimed at providing the strategic basis for the protection, development and operation of the UDP over the next ten years. It has been prepared collaboratively through a process involving stakeholders within Ezemvelo, the communities neighbouring the UDP, local and provincial government departments and others.

The vision describes the overall long-term goal for the operation, protection and development of the UDP. The objectives and strategic outcomes that follow are intended to provide the basis for the achievement of the vision. The objectives provide a broad description of the goals for each key performance area. The strategic outcomes, which flow from the objectives, set out what is needed to achieve the objectives, based on the management issues, strengths, weaknesses, opportunities and threats and described in Section 2.16 above.

3.1 The uKhahlamba Drakensberg Park Vision and Mission

Vision:

A World Heritage Site that protects its Outstanding Universal Value and is supported by the people of Southern Africa.

Mission:

A World Heritage Site that maintains the biodiversity, cultural and aesthetic values representative of the mountain grassland landscape, enjoys support from the people of Southern Africa and contributes significantly to the socio-economic development of the region through eco-cultural tourism, provision of ecosystem services and the provision of sustained benefits to the people.

3.2 Objectives and Desired Outcomes

An objective has been identified for each of the UDP key performance areas, which follow from the management challenges, issues and opportunities, and relate to the important functions and activities necessary to protect, develop and manage the Park effectively. The objectives have then been translated into strategic outcomes which form the basis for the management activities and targets set out in the operational management framework described in Section 4 below. Table 12 sets out the key performance areas, the objective for each key performance area and the strategic outcomes required to realise the objectives.

Table 12: Objectives and strategic outcomes for the uKhahlamba Drakensberg Park

Key Performance Areas	Objectives	Strategic Outcomes
Legal Compliance and Law Enforcement	Comply with and enforce legislation pertaining to the protection, development and management of the UDP	▪ The conservation/heritage status of all properties and features in the UDP is legally secured. ▪ The integrity of the UDP is ensured through effective partnerships with stakeholders, security services and the justice system. ▪ Legitimate access to the UDP is effectively controlled. ▪ The UDP is effectively managed with co-management partners.
Stakeholder Engagement	Maintain effective linkages with affected communities and other stakeholders to ensure collaborative management	▪ Constructive stakeholder involvement in the UDP management through an effectively functioning Local Board and liaison forums. ▪ The community is capacitated to provide inputs into the management of the UDP. ▪ The UDP is effectively branded as part of the Maloti-Drakensberg Park World Heritage Site. ▪ Public support for the UDP is ensured as far as possible.

Key Performance Areas	Objectives	Strategic Outcomes
Buffering Mechanisms and Regional Management	Protect the UDP's values from activities, processes or land uses outside its boundaries, which may threaten it, through an established buffer zone which is accepted by the broader community and stakeholders	▪ Prioritised key buffer zone areas within the provincial Protected Area Expansion Plan. ▪ Transboundary linkages between the UDP, authorities and communities along the border with Lesotho are maintained. ▪ Appropriate compatible land use, water use and land care practices in the UDP buffer are encouraged. ▪ The relevant authorities must prioritise tourist infrastructure to access the UDP safely.
Environmental Interpretation and Awareness	Create awareness, understanding and appreciation of the UDP's natural, cultural and wilderness values	▪ Neighbouring communities, stakeholders and visitors are aware of the UDP's objectives and values.
Eco-cultural Tourism Management and Development	Give access to the UDP's biodiversity, cultural and wilderness values in order to sustainably capitalise on the tourism potential of the UDP and its surrounding areas	▪ The UDP's tourism activities are integrated with tourism strategies and plans for the region. ▪ The updated standards developed for signage are implemented. ▪ Transfrontier activities and travel are in line with the new vision for Transfrontier Conservation Areas (walking based lower carbon footprint tourism activities) in Southern Africa. ▪ Indigenous gardens within resorts.
Biodiversity Resource and Conservation Management	Conserve the full range of biodiversity in the UDP including the natural processes that maintain it	▪ Adequate fire safety within the UDP. ▪ The wilderness character of naturalness and solitude of the zoned wilderness areas in the UDP is maintained. ▪ A reduced presence of alien and invasive species plant species in the UDP. ▪ Procedures to manage alien animals found within the UDP are implemented. ▪ Accelerated soil erosion is controlled to safeguard infrastructure and biodiversity. ▪ Extractive resource use conforms with Ezemvelo policy and provincial and national legislation. ▪ Bioprospecting (if undertaken) conforms with Ezemvelo policy and provincial and national legislation. ▪ A wildlife management strategy that is implemented in accordance with Ezemvelo policies and norms and standards. ▪ A human/wildlife conflict strategy that complies with provincial and national norms and standards. ▪ A Climate Change Adaptation and Mitigation Response Strategy that is implemented based on Ezemvelo's Climate Change Response Strategy to Reduce the Vulnerability of Provincial Biomes (2013). ▪ Sufficient information and understanding of biodiversity in the UDP exists to inform and support the achievement of specific biodiversity objectives. ▪ Processes are established to determine the success of management interventions in protecting the ecosystems, communities and species of the UDP.

Key Performance Areas	Objectives	Strategic Outcomes
Cultural Heritage Resource Management	Implement effective conservation management and public appreciation of all cultural heritage resources within the UDP in accordance with statutory regulations	▪ The globally significant cultural and living heritage is sustainably managed to ensure its protection for present and future generations.
Research, Monitoring and Reporting	Facilitate adaptive management through the assessment of management interventions and the provision of information for achieving the objectives of the UDP	▪ Legislative requirements for reporting in terms of NEMPA, WHCA and the Ramsar Convention are complied with. ▪ Critical ecological processes and functions are maintained within the UDP. ▪ Rare and endangered species management is undertaken using the best available scientific knowledge. ▪ Processes are established to determine the success of management interventions in protecting the ecosystems, communities and species of the UDP.
Operational Management	Provide adequate human resources, equipment and funding to enable the effective development, management and protection of the UDP	▪ The UDP is adequately resourced to ensure the achievement of all objectives. ▪ Financial resources are effectively managed. ▪ An adequate staff establishment that ensures effective management and operation of the UDP. ▪ Financial resources are effectively managed. ▪ An effective staff management programme is in place. ▪ The UDP is compliant with the OHSA. ▪ The facilities and infrastructure in the UDP are adequately maintained. ▪ The road and trail networks in the UDP are adequately maintained. ▪ The service infrastructure and practices in the UDP do not cause environmental harm.

3.3 Management Framework

Protected areas are required to be zoned, according to NEMPA chapter 41 (2) (g). The act requires that conservation objectives for the different zones are identified as well as activities that may take place in each zone. The purpose of zonation within a protected area is to identify types and levels of usage that are acceptable based on an area's sensitivity and resilience and to manage visitor experience and inter-user conflict. Zonation is used to identify areas in which infrastructure may be located and/or activities may take place. The principles set out in sections 3.1.1 to 3.1.5, together with the Concept Development Plan and the Wilderness Management Plan, will guide the assessment and approval process of any application for activities/development in the UDP.

All activities and/or developments that take place must be in accordance with the legislative framework, Ezemvelo policies, norms and standards and the UDP's rules and regulations.

3.3.1 Zonation

Legal Context

The NEMPA requires protected areas to be zoned, and conservation objectives and permissible activities for the different zones to be specified. The Norms and Standards for the Management of Protected Areas in South Africa (Notice 382; Government Gazette 39878), section 11.1(a)(vii) and (viii), specifies that this zoning plan must be included

in the management plan, and further specifies that the infrastructure development plan (and by implication any infrastructure development) must be subject to the zoning plan.

In terms of the Regulations for the Proper Administration of Special Nature Reserves, National Parks and World Heritage Sites (Notice R1061; Government Gazette 28181), section 57(2)(f), the management authority, in preparing a management plan, must have due regard for the sense of place, which the management authority must define in a separate section in the management plan.

All activities and/or developments that take place in the Park must be in accordance with the legislative framework, Ezemvelo policies, norms and standards and the UDP's internal rules. In addition, any requirements or restrictions identified in the CDP, WiMP and Buffer Zone Policy (Ezemvelo KZN Wildlife 2017) must be adhered to.

Purpose

The purpose of zoning the UDP is to define and control the location, type and scale of infrastructure development and activities within the Park, to ensure the OUV and other values, objectives and targets are protected or achieved, whilst making provision for management activities, eco-cultural tourism opportunities, and appropriate levels of socio-economic beneficiation. The OUV, in addition to biodiversity and cultural heritage, specifically includes the scenic splendour and so the management of the Park, including the zonation, must seek to protect that value. Zonation also assists in managing potential inter-user conflict.

The zonation is also intended to help visitors anticipate the type of experience that they may have in different areas, and guides management to (1) ensure that management activities do not degrade that experience, and (2) engage with other landowners and authorities to influence land use in the buffer zone to maintain or enhance the sense of place and experience within the UDP.

Approach

Zonation is a composite that takes into account biodiversity sensitivity, sense of place, cultural resource sensitivity, patterns of environmental settings, and existing development and use patterns. While the zonation represents the current state, it also guides management towards a future desired state in line with the broader objectives of the Park.

The Park has two zonation systems that are used concurrently to guide decision making:

- The *Visitor Experience Zonation* (Table 13, Map 7) describes the potential visitor experience and guides management accordingly.
- The *Spatial Planning Zonation* (Table 14, Map 8) translates the Visitor Experience Zonation, in conjunction with legal and geological constraints, into zones that define where infrastructure development is permissible.

A *Resource Protection Overlay* provides additional, and more flexible, protection and may introduce additional constraints onto the underlying zonation category; in these instances, the strictest constraints apply.

Proposed changes to the Park Zonation have to go through a public participation process, and the IMP needs to be updated accordingly during the annual review; however, the Resource Protection Overlay is intended to be flexible and adaptable to allow for timeous protection of newly discovered features and may be amended by the PMC. Due to the sensitivity of some of the features to be protected by the Resource Protection Overlay, e.g. rock art sites, management may choose not to make the spatial attributes of some features public while still using them for decision-making purposes.

See Escott (2020) for a full description of the technical delineation of the zones, summarised below.

General principles

- There is a general gradation in the zonation categories from lower to higher protection and constraints.
- Where possible, both management and tourism infrastructure should be developed outside the protected area to reduce impacts. If infrastructure is required within the Park, it should preferentially occur within an existing developed zone or, if that is not possible, in the lowest possible zonation category.
- Any activities permitted in a category of higher protection are also permitted in a category of lower protection, e.g. activities permitted in the Natural Zone are also permitted in the Rural Zone.
- The Zonation and associated conditions/constraints are binding on the Park Management as well as visitors.

Deviation from zonation

- All decisions and activities must consider and take the Park Zonation into account and must be compatible with the objectives of the zone in which the activity is to take place.
- Any proposed activities that are not recommended or compatible with the objectives of a specific zone will have to be strongly motivated for, with a clear need and desirability assessment, supported by the PMC and approved by the regional management unit.
- Any proposed infrastructure development not compatible with the zonation would require a detailed assessment of potential impacts on Park values and would need to be supported by the PMC, the regional management unit, Development Committee and subsequent approval by the Executive Committee.

3.3.1.1 Visitor Experience Zonation

The visitor experience zones describe the current potential visitor experience taking into account the intensity and duration of visual and sound impact of existing developments and activities both within and surrounding the Park. This zonation allows visitors to anticipate as well as to plan for the type of experience that they seek in terms of the degree of naturalness, tranquillity, wildness, remoteness, intactness and visual quality. It also constrains the Park management in terms of management activities, infrastructure development and authorisation of other activities, such that there is no further erosion of the qualities of each zone, in particular the Wilderness Core Zone.

Methods

The combined extent of visual and sound intrusion into the UDP of existing infrastructure and human activities, originating both inside and outside the Park, was assessed and used to derive the visitor experience zonation.

Visual Impact

The collective level of visual impact from all infrastructure and certain human-created land cover types (e.g. roads, households, buildings, power lines, afforestation, crops, dams), both those occurring inside the Park and up to 10 km from the Park boundary, as moderated by distance and accounting for topography (effect of topography in shielding areas from visual impact), was assessed at each location within the Park.

The degree of impact was based on the visual characteristics of the objects, as well as the intensity and duration of activity associated with that feature.

The visual impact of features reduces over distance, thereby changing the influence on an individual's experience depending on how far they are from the feature. This reduction happens in different ways for different features, and a profile of reduced visual impact over distance was developed for each feature.

A viewshed analysis module in GIS, using a 20 m x 20 m grid cell size Digital Elevation Model and accounting for both the object's and viewer's height, was used. A separate viewshed analysis for each category of feature was produced. The effect of distance was incorporated into the determination of summed visual impact.

An Analytical Hierarchy Process (AHP) was used to objectively weight the visual impacts of each category of feature, taking into account both the attributes (e.g. size, colour, angularity) of the feature as well as the degree of activity associated with the feature, e.g. infrequent passing of trains versus almost constant activity at a shopping mall. These weights were used to modify the visual impact.

The visual impacts of all feature were summed after adjusting by the weighting derived from the AHP process to produce a surface of total visual impact, subsequently normalised to values from 0 to 1.

The normalised summed visual impacts were broken into classes of impact based on natural breaks in the data, combined with knowledge of visual impact at known sites, and range from zero impact (no evidence of human presence visible at all) to the opposite extreme of high degree of visual impact (human presence very noticeable because of occurrence of visually intrusive features, in close proximity, with high intensity and duration of activity).

Hiking trails were excluded from the analysis, and polygons ≤ 1 ha were dissolved into the matrix.

Sound Impact

In addition to visual impact, the effect of sound was included and added to the visual impact to determine total impact.

Each infrastructure type and land use category were ascribed a generic sound level based on published levels in the literature. Sound levels are known to reduce over distance based on an inverse square law, and weightings were ascribed assuming 100% influence in the first 500 m, and a 50% reduction per 500 m distance thereafter up to 2 km (after which no sound effect is assumed).

Combined Visual and Sound Impact

Five visitor experience classes resulted from the combined impacts of both the visual and sound impacts. The Visitor Experience Zonation constitutes five categories based on the expectation and experience of naturalness, tranquillity, wildness, remoteness, intactness and visual quality (Map 7).

Some areas, particularly close to the eastern boundary of the Park that have no or low visual impact could be downgraded to a lower category based on the sound impact. Wilderness Core areas are those areas with zero visual and sound intrusion, while the Wilderness Protection zone are those areas surrounding the core with minimal visual intrusion and no sound intrusion. Three other classes of visual impact were derived, with the highest impact being the Rural Zone (Table 13).

Due to the rugged topography of the Park, and the strong influence of topography on light and sound propagation, the resultant zone boundaries are complex. This complexity is real and so, although difficult to manage, is retained in the zone boundaries to represent the actual conditions best.

The area and percentage of the Park represented by each of the Visitor Experience Zones is as follows:

- Wilderness Core: 20.64%
- Wilderness Protection: 44.41%
- Wild Nature: 7.47%
- Natural: 25.36%
- Rural: 2.12%

Reciprocal viewsheds

Many wilderness areas have been lost over time owing to human development outside the Park. However, some areas where a wilderness experience is still possible, only occur as a result of the current absence of visually intrusive infrastructure in certain localities outside the Park. If infrastructure development was to take place in these areas, then there would be further loss of wilderness areas of the Park.

These areas were identified by undertaking a viewshed analysis from current Wilderness Core areas (as identified using the process identified above) to identify areas within the Buffer Zone of the Park (see also 3.3.1.3) where infrastructure development should be avoided in order to achieve the Park objective of limiting the further loss of wilderness. These areas are referred to as 'reciprocal viewsheds' in the buffer zonation.

Table 13: The Visitor Experience Zonation of the uKhahlamba Drakensberg Park

Wilderness Core Zone	
Objective	The Wilderness Core Zone provides outstanding opportunities for solitude, tranquillity, naturalness, wildness, remoteness and visual quality in an environment free from evidence of modern man. It provides the highest level of protection of ecological integrity and natural character and allows for an appreciation of rock art in the context of the natural environment in which it was painted.
Description	Areas with an intrinsic wild appearance and character (or capable of being restored to such) which are undeveloped, road-less, without permanent improvement or human habitation. Access may be controlled and is by non-mechanical and non-motorised means only. This zone is characterised by an essentially unmodified natural environment of fairly large size. ▪ No visual evidence of human presence, except infrequent encounters with small groups of other wilderness users. ▪ Natural ambient soundscape prevails. The only evidence of human-caused sounds is that of other wilderness users and commercial aircraft at high altitude. These sounds are infrequent, of low intensity and short duration. ▪ Minimum tool management activities approved by the PMC, e.g. annual eland aerial counts, may be encountered but these will be infrequent and of short duration. ▪ Trails are visible, but many are indistinct and may have erosion barriers (poles), but are not marked and have no hardened surface. ▪ Tracer lines and firebreaks are evidence of a seasonal management activity.

Technical delineation	This zone was delineated based on an index indicating the degree of impact on an area derived from a GIS viewshed analysis of a wide variety of infrastructure and land use datasets, and the associated weighted impacts of these. The index value of the Wilderness Core is 0 (i.e. *no* visual or audio impact).
Implementation	▪ Non-motorised and non-mechanical access only, including bicycles. ▪ No aircraft (where ''aircraft'' means an airborne craft of any type whatsoever, whether self-propelled or not, and includes a hovercraft, paragliders, gliders, hang gliders, base jumpers, drones etc.) within a level of 2 500 feet above the highest point of the UDP; unless the area has been sub-zoned for temporary or permanent use of the airspace. ▪ Non-mechanical and non-motorised activities only; management activities to avoid using motorised equipment and must use minimum tool to achieve management objectives (e.g. electric chainsaws or electric brush-cutters may only be used for essential management purposes and aircraft only if minimum tool for monitoring, management and casualty evacuation activities). Deviations to be approved by the PMC. ▪ Tourism activities as specified in the Wilderness Management Plan (visitor activity matrix); essentially only activities associated with hiking and mountaineering. ▪ Hiking and mountaineering group size of 12 or less. ▪ Events (commercial ventures, sports, cultural, filming, religious and music) that contradict any of the wilderness principles (in terms of number of events, number of people, type of event or type of equipment used) are not permissible. ▪ No new formal (constructed and maintained) hiking trails. ▪ Signage is not permitted in wilderness (although some rock art sites require signage to prevent degradation) and UDP-approved rock signs (see Signage protocol and Wilderness Management Plan) may be required where there is a safety concern. ▪ Infrastructure, including hiking huts and fencing, is not permitted. ▪ Historical agricultural infrastructure (dipping tanks) and infrastructure of cultural and historical significance (e.g. graves, kraal sites) may be present (more than 60 years old). ▪ No extractive resource use. ▪ Wilderness dependent research or permitted collections are permissible but must be undertaken using the minimum tool principle. ▪ Only manipulative experiments and temporary structures, marking of fauna, flora or research plots that are wilderness dependent will be considered by the PMC. Must be undertaken using the minimum tool principle.
Wilderness Protection Zone	
Objective	The Wilderness Protection Zone provides significant potential for solitude, tranquillity, naturalness, wildness, remoteness and visual quality but with some visual intrusion. While a natural ambient soundscape predominates, infrequent human-made sounds originating within the UDP may detract from the feeling of remoteness. This zone contributes to the protection of the wilderness quality of Wilderness Core Zone.
Description	Characterised by an essentially unmodified natural environment with minimal visual impact but no audio impact other than limited management activities and sound of other visitors. ▪ Unobtrusive visual evidence of human presence from outside but also inside the UDP. ▪ Natural quiet predominates, but there are occasional sounds of management and visitor activities from within the UDP. ▪ Minimum tool management activities approved by the PMC, e.g. annual eland aerial counts, may be encountered but these will be infrequent and of short duration. ▪ Trails are visible, but many are indistinct and may have erosion barriers (poles), but are not marked and have no hardened surface. ▪ Tracer lines and firebreaks are evidence of a seasonal management activity.
Technical delineation	Some evidence of human impact based on the GIS analysis of all existing infrastructure and associated activities within and outside the UDP (excluding trails and aircraft).
Implementation	▪ Non-motorised and non-mechanical access only, including bicycles. ▪ No aircraft (where ''aircraft'' means an airborne craft of any type whatsoever, whether self-propelled or not, and includes a hovercraft, paragliders, gliders, hang gliders, base jumpers, drones etc.) within a level of 2 500 feet above the highest point of the UDP; unless the area has been sub-zoned for temporary or permanent use of the airspace.

	▪ Non-mechanical and non-motorised activities only; management activities to avoid using motorised equipment and must use minimum tools to achieve management objectives (e.g. electric chainsaws or brush-cutters may only be used for essential management purposes). ▪ Tourism activities as specified in the Wilderness Management Plan (visitor activity matrix); essentially only activities associated with hiking and mountaineering. ▪ Group size of 12 or less may be more frequently encountered than in the Wilderness Core. ▪ Events (commercial ventures, sports, cultural, filming, religious and music) that contradict any of the wilderness principles (in terms of number of events, number of people, type of event or type of equipment used) are not permissible. ▪ No new formal (constructed and maintained) hiking trails. The construction of new trails will only be considered in exceptional circumstances. ▪ UDP-approved rock signs (see Signage Protocol and Wilderness Management Plan) may be permitted if a need is identified, e.g. to prevent degradation or to ensure hiker safety. ▪ No new infrastructure will be considered. It is recognised that this zone does contain hiking huts and some ruins. ▪ Historical agricultural infrastructure (dipping tanks) and infrastructure of cultural and historical significance (e.g. graves, kraal sites) may be present (more than 60 years old). ▪ No extractive resource use. ▪ Wilderness dependent research or permitted collections are permissible but must be undertaken using the minimum tool principle. ▪ Only manipulative experiments and temporary structures, marking of fauna, flora or research plots that are wilderness dependent will be considered by the PMC. Must be undertaken using the minimum tool principle.
Wild Nature Zone	
Objective	The Wild Nature Zone provides some potential for solitude, tranquillity, naturalness and wildness but the feeling of remoteness, while enhanced by the proximity to the mountains and sheer cliffs, is degraded by substantial visual intrusion in the more distant horizon, and while a natural ambient soundscape prevails there may be occasional sounds of management and visitor activities.
Description	Characterised by essentially unmodified natural environment with moderate visual and/or audio impact. ▪ Visual evidence of human presence from outside but also inside the UDP. ▪ Natural quiet predominates, but there are occasional sounds of visitor and management activities.
Technical delineation	Moderate evidence of human impact, based on a GIS analysis of all existing infrastructure and associated activities within and outside the UDP (excluding trails and aircraft).
Implementation	▪ No new roads or infrastructure. ▪ Motorised and mechanised access (including bicycles) on existing roads that are open to visitor use and which have been designated for this activity. ▪ Aircraft access will be considered based on the submission of a flight application. ▪ The establishment of new paths or clearing of overgrown and rehabilitated paths will be subject to approval by the PMC. ▪ Signage is permitted following the UDP Signage Protocol as described in the Trails Manual. ▪ Larger (>12) groups of hikers are permitted. ▪ Events are permitted providing they do not impact on the Wilderness Core and Wilderness Protection Zones ▪ No hardened paths other than where essential to prevent erosion. ▪ Extractive resource use is permitted but requires permission from the OiC and must follow Ezemvelo policy guidelines.
Natural Zone	
Objective	The Natural Zone provides a natural or relatively natural environment but with almost no expectation or possibility of experiencing feelings of solitude, tranquillity or remoteness due to significant visual impact in the near distance from human development as well as being

	exposed to regular, and likely above ambient, sounds of human activities. Constantly conscious of human presence and activity outside the UDP, but also regularly from within the UDP.
Description	Areas with pervasive visual and audio impact, generally within 2 km of the eastern boundary of the UDP and below the top of the Clarens sandstone formation, and within 2 km of tar roads (including the servitude between Bushman's Nek node and Sehlabathebe National Park) within the UDP. Visual and audio impacts are highest in this zone.
Technical delineation	Significant evidence of human impact based on a GIS analysis of all existing infrastructure and associated activities within and outside the UDP (excluding trails and aircraft). An audio source within 2 km of the eastern boundary of the UDP and below the top of the Clarens sandstone formation was used and within 2 km of tar roads (including the servitude between Bushman's Nek node and Sehlabathebe National Park) within the UDP.
Implementation	▪ Large groups of hikers (>12 individuals) are permitted. ▪ Events are permitted providing they do not impact on the Wilderness Core and Wilderness Protection Zones. ▪ Signage is permitted following the UDP Signage Protocol as described in the Trails Manual. ▪ Trails, track and roads with hardened surfaces are permitted. ▪ Infrastructure is permitted in line with the Spatial Development Zonation.
Rural Zone	
Objective	A natural or relatively natural environment but with almost no expectation or possibility of experiencing feelings of solitude, tranquillity or remoteness due to significant visual impact in the near distance from human development as well as being exposed to regular and likely above ambient sounds of human activities. Constantly conscious of human presence and activity outside the Park, but also regularly from within the Park.
Description	Areas with high visual impact and sound impact generally within 2 km of the eastern boundary of the Park and/or within 2 km of tar roads (noise) within the Park. Visual and sound impacts are highest in this zone. The sound impact can be marginally constrained to the areas below the top of sandstone cliffs associated with the Clarens Formation.
Technical delineation	Sound source ≤ 2 km away (boundary of Park and tar roads – traffic noise); constrained to below top of sandstone cliffs associated with the Clarens Formation.
Implementation	▪ Large groups of hikers (>12 individuals) are permitted. ▪ Events are permitted providing they do not impact on the Wilderness Core and Wilderness Protection Zones. ▪ Infrastructure is permitted in line with the Spatial Development Zonation.
Resource Protection Overlay: No-camping	
Objectives	The No-Camping Zone protects the experience and viewsheds of visitors using designated camp sites. It prevents visitors from camping outside of and using the facilities of, designated campsites that they have not booked and paid for.
Description	The No-Camping Zone provides a buffer around the Administrative and Ecotourism subzones and Research Areas where camping is prohibited.
Technical delineation	A 1 km buffer was created around the Administrative and Ecotourism nodes and Research Areas (research catchments and Brotherton Trial Plots).
Implementation	No camping outside a designated campsite. Overnight hikers are not allowed to pitch their tents or overnight in the no-camping zones as demarcated on the hiking maps. No camping in Royal Natal except on the escarpment (as demarcated on the hiking map).

3.3.1.2 Spatial Planning Zonation

In order to protect the Park values, including the current sense of place and level of wilderness in the Park, a Spatial Planning Zonation was developed to identify those areas where no further infrastructure development should take place. This zonation is intended to simplify management decision making and takes into account relevant factors in addition to the Visitor Experience Zonation.

Methods

All areas that are part of (1) the Wilderness Core and Wilderness Protection Zones, (2) proclaimed Wilderness Areas (not all of which still retain wilderness values because of outside visual and sound intrusion), and (3) that occur above the bottom of the Molteno Formation geological layer (cliffs are unstable and should not be developed) are referred to as the Prohibited Zone. All other areas outside the current development nodes (Development Zone) would have to be assessed on a case by case basis to ensure that any development does not compromise the OUV or other Park values, and are known as the Restricted Zone.

In addition to the mapped Prohibited Zone, there are general non-mapped prohibitions which, by definition, become part of the Prohibited Zone:

- No infrastructure and restricted activities within 30 m of watercourses or wetlands or within the 1:100-year flood line.
- No infrastructure and restricted activities within 50 m of cultural heritage sites.

In addition, all areas within the Resource Protection Overlay are, by default, considered part of the Prohibited Zone.

The area and percentage of the Park represented by each of the Spatial Planning Zones is as follows:

- Prohibited: 82.99%
- Restricted: 16.96%
- Developed: 0.05%

Table 14: The Spatial Planning Zones of the uKhahlamba Drakensberg Park

Prohibited Zone	
Objective	The Prohibited Zone (1) provides for the protection of the Wilderness Core of the Visitor Experience Zonation, (2) provides for the protection of proclaimed wilderness areas, (3) gives effect to implementation of the Trail Zone concept as per the Drakensberg SCAP, (4) provides for the protection of designated research areas, and (5) provides for the protection of priority species, habitats and cultural heritage, by prohibiting infrastructure development and certain activities that have the potential to impact on these.
Description	This zone consists of all areas above the bottom of the Molteno Formation, and/or Wilderness Core and Wilderness Protection Zones of the Visitor Experience Zonation; which includes a 500 m buffer around the Wilderness Core Zone for soundscape protection, and/or proclaimed wilderness areas. The (temporary or permanent) Resource Protection Overlays, which may be dynamic, are considered by definition part of the Prohibited Zone and take on the same restrictions. Existing developments occurring within this area are inserted as a Developed Zone.
Technical delineation	This is the sum of; (1) the areas above the base of the Molteno Formation, (2) the Wilderness Core and Wilderness Protection Zones, with a 500 m buffer around the Wilderness Core Zone for soundscape protection, (3) proclaimed wilderness areas and (4) designated research areas.

Implementation	▪ No new infrastructure other than limited non-hardened trails to be built, as long as the use of these trails can be demonstrated to be sustainable, do not impact on the priority sensitive features and are outside the Wilderness Core and Wilderness Protection Zones. ▪ Where there is a specific requirement for management-related infrastructure or hardened surfaces, e.g. relating to resource protection, then a detailed need and desirability and environmental impact assessment process need to be conducted and approved by the Ezemvelo Board. ▪ No trail signage. ▪ Visual impact of any existing infrastructure in Developed Zones within the Prohibited Zone to be actively mitigated and where possible existing infrastructure and ruins, including old fences and other structures, to be removed and sites rehabilitated. ▪ Any activities should not detract from the objective of the zone. ▪ Motorised access is only permissible on existing management tracks (i.e. Mike's Pass and Cathedral Peak Research Catchments, Giant's Castle vulture and bird hides, Meander Hut and access roads to field ranger outposts).
Prohibited Zone Resource Protection Overlay: Vulture Nest Sites	
Objective	Minimise the risk of nest site abandonment or decline in breeding productivity of threatened vultures in or immediately adjacent to the UDP.
Description	Buffer around occupied Bearded Vulture nest sites and Cape Vulture breeding colony sites.
Technical delineation	1000 m buffer distance around occupied sites, where occupied means breeding activity has been recorded in the past 10 years or the site has potential to be re-used to facilitate the achievement of conservation targets for increase in population size.
Implementation	▪ No developments to take place within 1 km of Bearded Vulture nest sites and Cape Vulture breeding colony sites. ▪ Where sites are occupied or have been occupied in the past 10 years, these areas take on the same development constraints as the Prohibited Zone. ▪ No form of events or hiking, camping or mountaineering within 500 m of a Bearded Vulture nest site and Cape Vulture breeding colony during the breeding season. ▪ No flying within 1 km of Bearded Vulture Nest site and Cape Vulture breeding colony during the breeding season. ▪ Some activities and events (hiking, climbing, non-motorised flying) may take place during the non-breeding season (if Visitor Experience Zonation allows) but must be approved by the PMC.
Prohibited Zone Resource Protection Overlay: Crane Nest Sites	
Objective	Minimise the risk of nest site abandonment or decline in breeding productivity of threatened Wattled Cranes in or immediately adjacent to the UDP.
Description	Buffer around occupied Wattled Crane nesting sites.
Technical delineation	1 km buffer distance around occupied sites, where occupied means used in the last 10 years or with potential to be re-used to facilitate the achievement of conservation targets for increase in population size.
Implementation	▪ No developments to take place within 1 km of Wattled Crane nesting sites. ▪ Where sites are active or have been active in the last 10 years, these areas take on the same development constraints as the Prohibited Zone. ▪ No form of events or hiking, fishing, camping or mountaineering within 1 km of a Wattled Crane nest site during the breeding season (predominantly June to August). ▪ No flying within 1 km of Wattled Crane nest sites during the breeding season. ▪ Some activities and events (hiking, fishing) may take place during the non-breeding season (if Visitor Experience Zonation allows) but must be approved by the PMC.

Prohibited Zone Resource Protection Overlay: Research Areas	
Objective	To identify and protect research areas from inappropriate developments and activities.
Description	Areas designated for long term monitoring and research purposes.
Technical delineation	The boundaries of research areas have been defined during the research and monitoring project development phase, and refer to the Burgess burning experiment at Royal Natal, the catchment experiments at Cathedral Peak, the Brotherton Trial Plots at Cathedral Peak and the no-burn blocks at Giant's Castle.
Implementation	Only approved research and monitoring activities; no camping or events to take place. No infrastructure development, not even trails, other than installation of scientific instrumentation and associated infrastructure, e.g. weirs, weather stations.
Restricted Zone	
Objective	The Restricted Zone identifies areas where limited and essential management and ecotourism infrastructure could be considered subject to strict and thorough scoping or EIA processes that demonstrate that such development does not (1) threaten any values, priority biodiversity or cultural heritage of the UDP, or (2) reduce the area of Core Wilderness through audio or visual impact, and (3) is demonstrated to be financially and managerially sustainable.
Description	Areas outside of the Prohibited Zone and Developed Zone where limited management and tourism infrastructure can be considered under strict conditions following a full scoping or EIA process.
Technical delineation	By definition, this includes all areas outside of the Prohibited Zone and Developed Zone.
Implementation	▪ Hiking and formalised trails are permissible, and trails may include hardened surfaces for wheelchair access or to mitigate heavy use impact and are in line with the Trails Manual guidelines. ▪ Mountain biking and mountain bike trails are permissible in line with the Trails Manual guidelines. ▪ Motorised access is only permissible on existing management tracks (Mike's Pass, research catchments, Giant's Castle vulture and bird hides, Meander Hut and Injesuthi Jeep Track), limited to number of tracks and frequency of use as per site-specific rules and regulations. ▪ All infrastructure must be built to blend in with the environment using the Building in the Berg principles and guidelines. ▪ In principle, developments should be outside the UDP or on the periphery.
Developed Zone	
Objective	The Developed Zone delineates the existing development footprint that serves the administrative support functions of the UDP or designated ecotourism areas, and where future development should be focussed to minimise further loss of wilderness or impact on other UDP values.
Description	Areas that have already had some infrastructure and services development for either management purposes (Administrative sub-zone) or ii) ecotourism purposes (Ecotourism sub-zone).
Technical delineation	The outer boundary of the developed and actively managed (e.g. lawns) area; sometimes defined as the outer boundary of the firebreak around such infrastructure. Excludes access roads. This zone is further divided into an Administrative sub-zone and an Ecotourism sub-zone.

Implementation	▪ Where possible any future infrastructure development should take place outside the UDP to minimise additional direct and indirect (services, traffic) impacts on the UDP's values. ▪ The values of the UDP should be used to facilitate ecotourism development and job creation outside the UDP, rather than risking eroding the OUV of the UDP. ▪ Where additional development is considered inside the UDP or the expansion or refurbishment of existing infrastructure, this should always be in keeping with the character of the area by taking into account the Building in the Berg principles and guidelines, and must not compromise the values of the UDP. ▪ Wherever infrastructure is being replaced, the budget for the project must include the costs of demolishing old infrastructure, removing rubble from the UDP and restoring the site such that, as far as possible, there is no net increase in the footprint. ▪ Examples of compatible developments in the Ecotourism sub-zone include picnic areas, camping sites, interpretation centres and resort infrastructure (e.g. chalets, restaurants). Golf courses are incompatible. ▪ Examples of compatible developments in the Administration sub-zone include staff accommodation, administrative offices and other infrastructure for operational requirements such as waste handling sites and sewage treatment plants. ▪ Activities that generate noise significantly above the natural ambient sound will impact on sense of place of the UDP, even if outside wilderness areas and within the Developed Zone, and are considered incompatible with the UDP objectives and brand.

3.3.1.3 Buffer Zone

The Park Zonation includes the delineation of a Buffer Zone, which is external to the Park (Table 15 and Map 9). The Buffer Zone is a flexible multi-use transition area surrounding the Park, the purpose of which is to safeguard the OUV of the Park from human encroachment and maximise the benefits accruing from such protection. The Buffer Zone includes the immediate setting of the Park, important views and other areas and attributes that are functionally important as a support to the Park and its protection. In order to best achieve its purpose, the management of the Buffer Zone is guided by a Buffer Zone Policy (Ezemvelo KZN Wildlife 2017) developed to establish the necessary policy, guidelines and spatial frameworks. Details on the establishment, size, characteristics and authorized uses of the buffer zone can be found in (Ezemvelo KZN Wildlife 2017) and are summarized in the zonation table below (Table 15).

Table 15: Buffer Zone for the uKhahlamba Drakensberg Park

Buffer Zone	
Objectives	An area outside the boundary of the UDP where actions are taken, and agreements are made to protect the integrity of the UDP and enhance the livelihoods of the UDP's neighbours. In line with the UDP Buffer Zone Policy, the Buffer Zone objectives are to: ▪ Ensure the persistence of important species and ecological processes. ▪ Promote appropriate broad-based and sustainable economic activity. ▪ Preserve, adapt, restore and stabilise cultural heritage and secure the sustainable use thereof. ▪ Preserve and improve the quantity and quality of water from catchments in the UDP and the Buffer Zone. ▪ Protect, enhance and restore the unique and memorable character and the sense of place that underpins the image of the UDP and its approaches ▪ Protect and enhance the natural (including wilderness) and/or cultural experience of UDP users.
Description	Demarcated area along the UDP boundary of high biodiversity, cultural heritage, water and landscape importance where ownership is vested with private bodies or indirectly local user communities and where land management rights vest in the public rather than exclusively conservation specific agencies, and where land management is approached as a partnership between the conservation authority and those with user rights (Forster et al. 2007).
Technical Delineation	The Buffer Zone includes the airspace, to a height of 2500 feet above ground level throughout the demarcated area.

Implementation	It is desirable for the intensity of land use to decrease closer to the UDP. Activities that have the potential to negatively affect the UDP's OUV are listed in Listing Notice 3 of the EIA Regulations in so far as the activity is applicable within 10 kilometres of the UDP or listed in Appendix 3(a) of the Buffer Zone Policy. Activities that are not compatible with the adjacent protected area zonation must be discouraged. The UDP management must define these activities in terms of their specific values and objectives and taking into consideration the following: ▪ Alien and invasive species management. ▪ Pollution control and prevention. ▪ Impact on sense of place. ▪ Habitat fragmentation and isolation. ▪ Water resource protection. ▪ Human/ Wildlife conflict. ▪ Climate change adaptation. ▪ Compatible land use. ▪ Priority species management. Management activities will focus on: ▪ Strategically promoting and monitoring compatible land-use and land-care on adjacent lands and upstream catchments. ▪ Integrated alien species control. ▪ Biodiversity stewardship and environmental awareness. ▪ Working collaboratively with neighbours to secure sensitive sites that contribute to the protection of values and objectives of the UDP. Influencing and input into the municipal and regional planning tools such as SDFs, Schemes, IDPs and Bioregional Plans.

3.3.2 Cultural Heritage Management

3.3.2.1 Archaeology

Risk Analysis: Natural Processes

Rock art is subject to degradation and loss from natural weathering processes. Whilst rock weathering and fading of paintings has always taken place, there was previously a process of continual painting or re-painting by the San. Now that there is no further painting taking place, there is a unidirectional process of degradation and loss of paintings, which places a responsibility on management to understand and manage factors relating to weathering and degradation. Some research has been done on the parent material on which rock art was painted and the weathering processes of rock art pigments, but much remains to be learned.

The natural breakdown of sandstones, most notably in the Clarens Formation, is destroying much of the rock art heritage that occur there. Research suggests that rock moisture regimes and to a lesser extent, rock thermal regimes exert the most damaging influence on San paintings (Meiklejohn, Hall & Davis 2009). It is argued that granular disintegration and the enlargement of existing sandstone pores and bedding planes close to the rock surface, facilitate an increasingly dynamic moisture regime, which leads to an accelerating rate of weathering. Extensive flaking and honeycombing, the most dominant weathering processes occurring in rock art shelters, is most likely caused by water pockets in the near-surface zone, which are replenished through internal moisture transport, driving the superficial weathering processes (Mol & Viles 2010). Conservation strategies should, therefore, take internal processes into account as much as their superficial expression.

Many paintings are exposed to direct solar radiation for varying periods. The pigments that were used were composed of ferric oxide (ochre) and a gypsum-clay mix (white) which remained on top of, rather than penetrating the sandstone. Thermal data show that there are significant differences between the white and the ochre pigments and that these thermal variations may induce pigment-to-pigment stresses within the painting (Hall, Meiklejohn & Arocena 2007). The pigmented areas also exhibit different temperatures to the surrounding paint-free rock, suggesting that there may be both within-painting and between painting and rock (including the rock beneath the painting) stresses that can lead to degradation.

Risk Analysis: Anthropogenic Factors

In a report titled 'Brief summary of the rock art verification in the uKhahlamba Drakensberg Park World Heritage Site' (Topp 2011), a rock art verification was carried out in the Park between October 2009 and April 2011. This inventory revealed high percentages of both fire and human damage, both of which can be managed and, in most cases, controlled. (Topp (2011) estimated that at least 24% of sites have possibly been damaged by fire, and 25% of sites have some form of human damage (graffiti, scratching, etc.).

One of the most destructive impacts on archaeological sites, in general, is development, specifically infrastructure development. Section 38 of NHA regulates the processes which should be followed during certain categories of development. Furthermore, subsections 4(a)(i) and (iii) of NEMA sets out the principles that the loss of heritage resources should be minimised during any development process.

Access to Rock Art Sites

In terms of heritage legislation (NHA and KZN HA), access to rock art sites is restricted. To overcome the conflict created between the desire of the public to access rock art, and the management desire to limit damage, as well as other management issues, a number of policies have been developed.

Twenty-three rock art sites and a historic site (Rock 75) are currently open to the public in the UDP as well as a number of sites in the buffer zone (Appendix E). The public may visit these if in possession of a permit, or if accompanied by accredited custodians. However, in practice, there is unauthorised public visitation to sites not officially open to the public. Criteria that were used to determine which sites should be open include an understanding of existing tourism dynamics (i.e. sites that were already visited by tourists), the proximity of the sites to visitor facilities, the potential for creating community employment, accessibility and the desire to include sites from across the Park. These sites are managed according to a site-specific management plan. The result of the current presentation of the rock art is a regrettably low-quality visit at many of the open sites, although some (e.g. Sigubudu at Royal Natal) offer a good experience due to an effective guide. Formal interpretation of the rock art is currently limited to three sites: Main Caves in Giants Castle, Kamberg Rock Art Centre in Kamberg, and Didima Rock Art Centre in Cathedral Peak, of which Main Caves is the most visited site.

Access to Main Caves has been controlled since 1957, following incidents of vandalism. The interpretation at Main Caves dates back to 1969 when the site was formally developed for tourism by the then Natal Parks Board through the installation of displays, a San Diorama and paved paths (Blundell 1996). In 1998, the Main Caves tourist site was completely refurbished by Amafa and Ezemvelo, including the building of a wooden viewing platform to reduce dust and keep visitors away from the rock art, and guides were employed and trained to interpret the paintings. The fact that the site is easily accessible and well-developed makes it easy for both the elderly and children to visit the site, which currently the site receives between 600 and 800 visitors a month. The guide stationed at the site is both an accredited guide and a rock art custodian.

Main Caves is a multi-layered heritage site, including i) an open-air museum, displaying the ways of life of the Bushman, ii) two rock art sites in the northern and the other in the southern sections of Main Caves, and iii) a military history site, consisting of a defensive enclosure, within the northern section. The clarity and diversity of the paintings adds to the high tourism value of Main Caves. The southern shelter contains historical or contact phase paintings such as cattle, horses and Iron Age agriculturalists depicted with knobkerries as well as eland. The northern section contains both naturalist or narrative paintings of felines, eland and hartebeest, and more abstract paintings such as therianthropes (images that are half-animal and half-human) that may be linked to shamanism or altered states of consciousness. The convenience of a restaurant at the Resort and the reliable tour-times add to the attraction of this site, especially to tour operators. Proposals to improve the conservation of the site include the possible replacement of the wooden boardwalk, which may pose a fire-threat, with a suitable fire-resistant alternative.

Kamberg Rock Art Centre includes Game Pass Shelter. The site includes of the most breath-taking and inspiring rock art in the Park. The Rosetta Panel, that formed the basis for the improved understanding of the symbolic value of the art, and especially the art's relationship with San cosmology and religion, was researched in-depth by Professor David-Lewis Williams, contributing to Kamberg being known as the 'heart-land' of shamanist rock art interpretations in South Africa. Game Pass Shelter is also one of the rock art destinations that are aesthetically pleasing, since the presence of vandalism is limited because guests are accompanied to the site by Amafa accredited custodians. Game Pass Shelter is also a living heritage destination, being used by San-descendants usually in June each year, to carry out a pilgrimage. The spiritual leader of the group also received training from Amafa as a rock art custodian, and this ensures that no harm comes to the site during the ceremonies.

In 2000, the National Department of Environmental Affairs and Tourism, via the Poverty Relief Fund, employed the Rock Art Research Institute of the University of Witwatersrand to redevelop Game Pass Shelter. This involved infrastructural improvements, building an interpretation centre and training guides. The interpretive centre includes an audio-visual room where visitors are shown a DVD prior to visiting the shelter to contextualise their visit. This visitor experience is currently under review to improve and diversify the experience. Proposals to improve the visitors' experience at Kamberg include the training of staff, from several of the hospitality venues surrounding Kamberg, as rock art custodians. This site, as with all the rock art destinations in the UDP, needs to be marketed better.

The Didima Rock Art Centre was opened by Ezemvelo in 2003 at Didima Resort in Cathedral Peak, with museum-style displays and an auditorium for audio-visual presentations. Several rock art sites that are officially opened for public visitation can be visited in a single day, such as: Procession, Lower Mushroom and Aleit Shelters. Hikes to these shelters should be preceded by a visit to the Didima Rock Art Centre and its audio-visual show for orientation purposes. At present, the centre includes a basic archaeological exhibit, the history and meaning of the paintings in Cathedral Peak, as well as the history of researchers that specialised in rock art. Guides at the Cathedral Peak Hotel and guides from Ezemvelo were trained and accredited as rock art custodians.

3.3.2.2 Living Heritage

Article 11 of United Nations Declaration on the Rights of Indigenous Peoples reads: "*Indigenous peoples have the right to practise and revitalise their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artefacts, designs, ceremonies, technologies and visual and performing arts and literature".*

Living heritage sites fall into one of the prioritised categories for management and require a model of joint management by both the related communities and heritage conservators. As these sites are deemed to be sacred areas for ritual purposes, the spiritual and community values of these sites must be taken into account, and they should not be opened for public visitation as their religious entirety must be respected. Where rock art sites used for rituals are also open to the public, this has been negotiated with the community, as is the case at Game Pass Shelter (Ndlovu 2009).

Archaeological sites with living heritage values are still frequented by local and affected communities who, despite social and cultural change, continue to interact with rock art sites and regard them as sacred. Some grave sites situated within the Park are still frequented by the relatives of the deceased, and there are many places of worship within the Park that are utilised by independent African church groups.

While heritage legislation lists several categories of heritage resources and offers blanket protection to these, there is demand, particularly of a ritual nature, to make use of these resources. While the non-consumptive use of heritage sites within the legislative framework is encouraged, some traditional leaders perceive the paint within rock art sites to be imbued with strong powers and remove (scratch) some of the pigments from the rock surface to use in the production of their traditional medicine. While this practice is in contravention of heritage legislation, it poses certain problems related to freedom of religious expression. Until such time as a legislative change occurs, such behaviour will be treated as illegal. However, a strategy on how to deal with the matter needs to be devised.

A number of sites in the UDP have been appropriated by communities, claiming a religious or spiritual affinity to those sites. Research has commenced to investigate consumptive use of living heritage sites. Heritage legislation and consumptive use of living heritage sites may conflict with each other, as the issue has been well explored. The Park should operate within the framework of the law while adopting a pragmatic approach to individual sites where communities may lay claim to living heritage.

3.3.2.3 Stone Age and Iron Age Sites

All archaeological sites are afforded protection by heritage legislation (Section 35 of NHA). The legislation and associated regulations clearly define the applicable constraints and actions when dealing with archaeological sites.

Due to the spatial, temporal and cultural diversity of these sites, it would be onerous in this document to produce generic management guidelines to cover the magnitude of sites, features, ecofacts and artifacts that are known to occur. Cognizance must here be taken of the fact that the Park has not been subject to a full-scale intensive archaeological survey, and due to the nature of archaeological sites there is a high probability that a significant number of sites remain unrecorded. As such, it is important that all archaeological sites receive general protection in applicable heritage legislation and no person may destroy, alter, damage, remove, excavate or bring onto any site any equipment for the detection of such sites unless permitted by Amafa.

3.3.2.4 Built Environment

General principles for management of built environment structures should include adherence to applicable sections of the HRA (Section 34) and KZN HA. Thus alteration, demolition or any change to buildings, parts thereof and structures listed as being significant or deemed older than 60 years should follow the relevant permitting procedures. Buildings older than 60 years that are identified as being significant should be maintained to standards and practices that preserve their historical fabric. Any restoration must adhere to the principles set out by the national and provincial heritage agencies.

A built environment and public memorial survey for the Park was completed in 2014 (Cellier 2014). The survey report recorded each structure and included an assessment of its significance and condition and structure-specific management recommendations.

It must be noted that the most significant clusters of built environment have been identified at Cobham, Lotheni, Kamberg and Royal Natal. Continued maintenance of the open-air museum (cluster of pioneer vernacular buildings) at Lotheni is essential to retain the value of these structures. The cluster of buildings at Stillerust (Kamberg) has not suffered significant neglect, but there are signs of deterioration. The structures at Royal Natal, which are of both historical and social importance, have deteriorated rapidly (Whelan 2008).

3.3.3 Soundscape Management [9]

The Park provides, in addition to its other values, opportunities for quiet introspection, reflection and emotional healing. The wilderness experience is characterised by both physical and intangible qualities such as solitude, freedom, isolation, refuge and connection with nature. These values and qualities are closely related to the condition of the acoustic environment. Scientific research shows that being in an environment of natural sounds brings health benefits for humans, such as lowered stress, improved mood, cognition and social well-being.

The natural soundscape is the aggregate of all the natural sounds that occur in the Park, together with the physical capacity for transmitting natural sounds and exists in the absence of human-caused sound. Natural sounds occur within and beyond the range of sounds that humans can perceive, and can be transmitted through air, water, or solid materials. Some natural sounds in the natural soundscape are also part of the biological or other physical resource components of the Park. Examples of such natural sounds include:

- Sounds produced by birds and frogs to define territories or aid in attracting mates.
- Sounds produced by bats to locate prey or navigate.
- Sounds received by mice or antelope to detect and avoid predators or other danger.
- Sounds produced by physical processes, such as wind in the trees, claps of thunder, or running water.

Unnatural frequencies, magnitudes, and/or durations of human-caused sound may interfere with natural communication of the wildlife or may cause stress or flight responses. In some instances this may translate into displacement, reduced breeding success or negative physiological consequences for wildlife. Part of the objectives of protected areas in KZN, where 92% of the landscape is dominated by humans, is to provide places where wildlife are relatively free of damaging sounds caused by humans and where people can benefit from natural quiet.

Preservation of natural sound is important for the appreciation and enjoyment of natural and cultural heritage, and in particular to understand and appreciate rock art in context. Very loud sound and other vibrations may even damage rock art. Natural soundscapes contribute significantly to the feeling of relaxation and rejuvenation that people experience when in a protected area, and as such, has both societal and economic value. Causes of loss of natural quiet include motorised equipment, music, and human voices.

Ezemvelo aims to:

- Preserve, to the greatest extent possible, the natural soundscapes of the Park from degradation due to noise (undesirable human-caused sound).
- Restore degraded soundscapes to the natural condition wherever possible.

Ezemvelo will:

- Use appropriate management planning processes to identify what levels of human-caused sound are acceptable within the management zones of the Park (See Zonation Table 13 and Table 14). The frequencies,

[9] With acknowledgement to the United States National Park Service

magnitudes, and durations of human-caused sound considered acceptable will vary throughout the Park, being generally greater in developed areas and generally less in undeveloped areas. In the Wilderness Core and Protection Zones, the intention is to be free from the noise associated with technology and to even provide for the feeling of solitude through minimising exposure to any human-made sounds.

- Monitor human activities that generate noise that adversely affects Park soundscapes, both within and adjacent to the Park, including noise caused by mechanical or electronic devices.
- Take action to prevent or minimise all noise that, through frequency, magnitude, or duration, adversely affects the natural soundscape or other Park resources or values, or that exceeds levels that have been identified as being acceptable or appropriate for the different management zones.
- Minimise noise from management activities, including those caused by mechanical devices, vehicles and aircraft.
    - Management activities such as vehicles, chainsaws, brush cutters, shooting and speech are sources of noise that must be carefully managed. Practical considerations include the use of electrically-powered vehicles in resorts, battery-powered chainsaws and considering noise output in the selection and procurement of motor vehicles.
    - Staff and visitors will also be sensitised to the impact of loud talking/shouting and playing music on visitor enjoyment, and the Park Rules make provision for officers to manage the nuisance impact of noise.
- Manage the existing commercial helicopter concession to minimise noise impact on visitors, staff and the natural environment, and will not permit any additional commercial helicopter concessions within the Park.
- Minimise noise impact from aircraft through maintaining a formalised flight application and assessment process.
- Prohibit, including through enforcing the provisions of the Park Rules, the playing of loud music by visitors or staff in any zone of the Park, and manage the nuisance impact of any music on visitor experience and expectation of natural quiet.
- Explicitly consider the generation and impact of noise in scoping reports and Event Management Plans
    - Large events, such as weddings and races, may if not carefully managed, create considerable noise. Music concerts create considerable noise and are generally incompatible with Park soundscape objectives. The impacts of noise from such events may lead to inter-user conflict, complaints and a loss of existing visitors and revenue from an established portion of the market that appreciates and pays a premium for the natural soundscapes that protected areas provide.
    - In addition to the unacceptable fire risk that they create, fireworks are specifically banned from use in the Park because of their disruptive noise impact (Norms and Standards for the proper administration of national parks and world heritage sites).
- Ensure that comments on proposed or existing activities in the Buffer Zone will explicitly take into account the impact of those activities on the natural soundscapes of the Park, including assessing the societal, conservation and economic value of those natural soundscapes.

As the opportunities for solitude and appreciation of natural soundscapes diminish in the broader landscape, so the societal value of the natural soundscapes within the Park will increase. However, managing sound is anticipated to become increasingly difficult and contentious.

3.3.4 Use of Air Space

The NEMPA (Section 47) stipulates that a world heritage site includes the air space to a level of 2 500 ft above the highest point. In the case of the UDP, this translates into a column of air up to an approximate altitude of 13 815 ft a.s.l. (4 212 m a.s.l.). No person may fly over the Park at an altitude of less than 13 815 ft or land or take off in an aircraft in the Park except with the permission of the Authority or in the case of an emergency. This provision, whilst good for conserving the Park values, creates many difficulties for the aviation industry and the Authority in terms of managing and controlling access to the air space. Section 47 of NEMPA includes section 3A as amended by the National Environmental Management: Protected Area Amendment Act No. 15 of 2009:

a) The management Authority may provide for flight corridors over a special nature reserve, national park or world heritage site and through the protected air space identified under subsection (1) where this is necessary for a public purpose or in the public interest;
b) No person or organ of state may fly or cause any person to fly an aircraft over a special nature reserve, national park or world heritage site and through the protected airspace identified under section (1)-
    i) Without the prior written permission of the management authority;
    ii) Without the prescribed fee having first been paid, if applicable; and

iii) Unless and until the management authority has approved the flight plan for a flight and stipulated the terms and conditions upon which a flight is to take place.

c) The Minister, in agreement with the Minister of defence, may allow for specific areas within the identified protected airspace to be used for training and testing of aircraft.

d) The provision of any flight corridor in paragraph (a) or area in paragraph (c) is subject to an environmental authorization in terms of section 24 of the National Environmental Management Act.

There are approximately 20 airfields within 15-20 km of the Park boundary, and the number and/or use is set to continue increasing, especially for microlights and non-type aircraft. These airfields and associated aircraft are likely to have a negative impact on the Park. There is one commercial air lane crossing the Park in the Cobham area, linking Durban to Maseru and Bloemfontein. The minimum flight altitude in this air lane is 20 000 ft a.s.l.

Policy Statement

- Whilst aircraft overflights can cause considerable negative impacts on visitor appreciation, sense of place and biodiversity, it is the policy of the Park to provide for limited access to the air space under strict conditions to allow for appropriate local economic opportunities and visitor access.
- Management use of aircraft will be minimised, and all requests for flights require submission of an application on the prescribed form for authorisation by the Park Manager, taking into account the principles of Minimum Tool, operational efficiency, zonation and biodiversity considerations.
- No airstrips will be allowed inside the Park; the strip at Giant's Castle is officially closed, and the Civil Aviation Authority (CAA-SA) has been informed of this.
- Helicopter landing pads (helipads), maintained to the minimum aviation standards, are permitted at selected management units. These are not for public use and will primarily be for emergency or other management purposes, taking into account the effect on biodiversity, sense of place values, and noise impacts on tourists.
- Decisions on requests for access to the air space for non-management and non-security use require written requests and will be evaluated according to the principles and criteria in "Interim decision-making process and guidelines with respect to non-management and non-security aircraft use within the air space of the uKhahlamba Drakensberg Park".
- During military or police helicopter training or operations, aviation fuel may not be stored within or transported over the Park.
- The Authority must be vigilant and comment appropriately on all applications for new airfields in the Buffer Zone of the Park.

3.3.5 Mountaineering

Mountaineering is and has been undertaken in the Park as an activity historically, and the Mountain Club of South Africa (MCSA) has had a long association with the Park.

The zonation of the Park considers the need to maintain ecological integrity and wilderness quality, and it must be recognised that mountaineering takes place in an area sensitive in terms of biodiversity and cultural concerns. Biodiversity concerns include nesting raptors which are particularly sensitive to human activity close to their nest sites. As such, a policy has been developed together with MCSA to prevent possible detrimental impacts due to climbing in the Drakensberg (see Wilderness Management Plan, Appendix 10).

The MCSA has zoned the Drakensberg as a traditional [10] climbing area as opposed to a sport [11] climbing area. The use of fixed protection [12] is allowed but discouraged since prolific use thereof erodes wilderness qualities and the uncertainty inherent to wilderness climbing. Removable protection [13] and other temporary devices may be used provided they are removed after the climb.

[10] In traditional climbing the climber places protection measures on the rock/route himself whilst climbing.

[11] In sports climbing, the protection measures are already in place on the rock/route for the climber to use whilst climbing.

[12] Fixed protection is defined as pegs and bolts. Pegs are hammered into natural weaknesses in the rock whilst bolts are inserted into pre-drilled holes. Pegs are regarded as a traditional form of protection and have been utilised on a very limited basis and mainly as emergency protection when there is no other safe alternative.

[13] Mechanical camming devices ("friends"), wire stoppers, slings and other such devices typically inserted into the rock by the first climber (the leader) and removed by the last member of a climbing party, thereby leaving nothing behind in the rock.

Mountaineering is currently allowed within all zones of the Park, but the use of fixed protection is not allowed in the Wilderness Core. Mountain climbing is also a listed activity in terms of the WHCA, which requires permission from the management authority. Therefore, all new routes, which may be proposed by mountaineers, require permission. The management team will also review existing routes in terms of their potential threat to ecological integrity and wilderness quality.

3.4 Administrative Structure

A recommended organisational structure for the UDP is set out in Figure 13. The figure represents the staff complement and positions that are required to enable the effective operation, management and protection of the UDP.

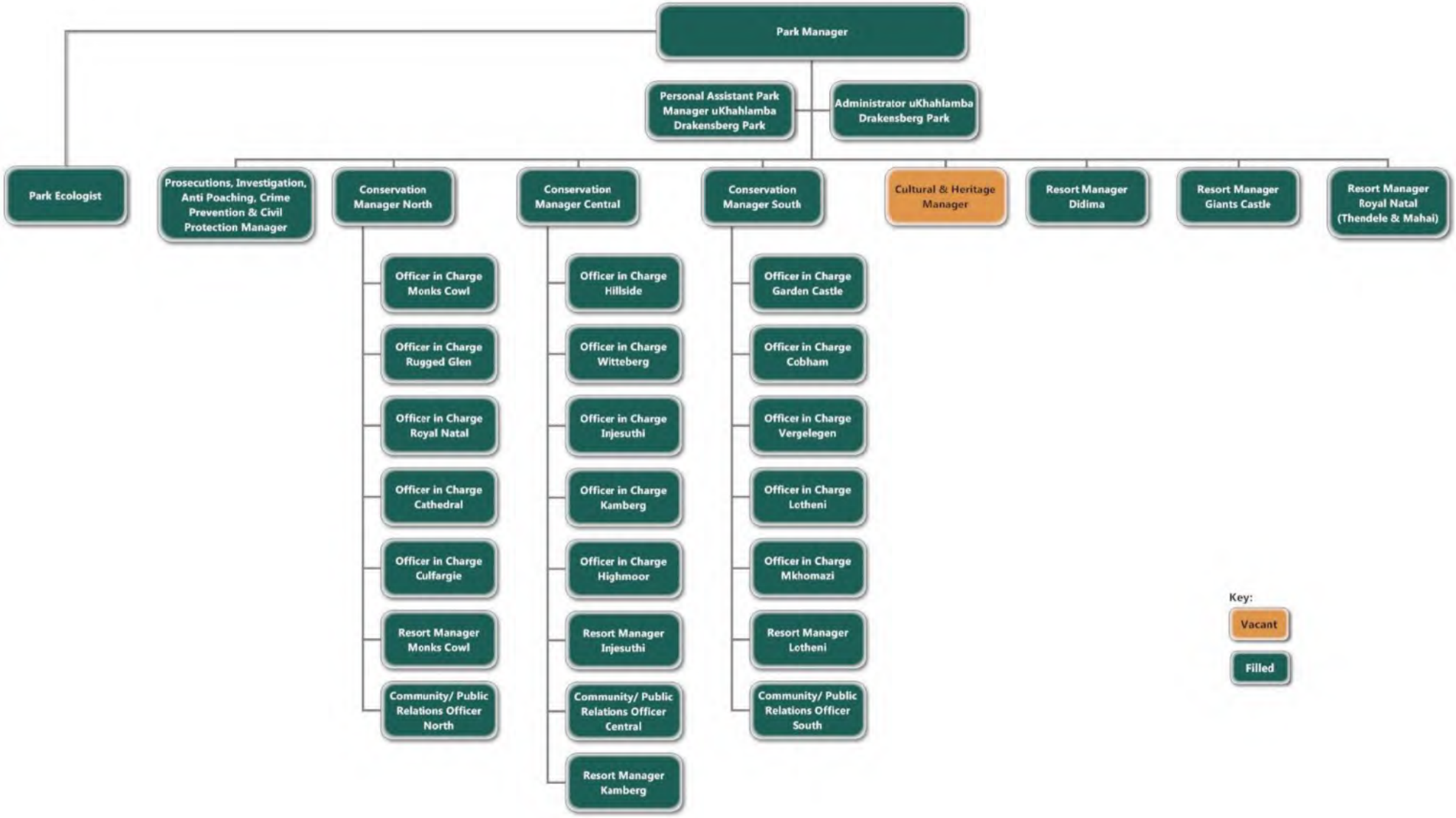

Figure 13: Organisational structure for the uKhahlamba Drakensberg Park

4 OPERATIONAL MANAGEMENT FRAMEWORK

This section translates the strategic management framework described in Section 3 above into management activities and targets, which will be used to inform annual plans of operation and the resources required to implement them. The management targets will form the basis for monitoring performance in implementing the plan and are thus measurable.

4.1 Legal Compliance and Law Enforcement

Through its mandate to undertake the conservation and management of protected areas in KZN, Ezemvelo must ensure that the province's protected areas have the appropriate legal protection and that the laws governing the use of protected areas and the prohibition of specific activities are enforced. In fulfilling this role, the managers of the UDP will adhere to the following guiding principles:

- All reasonable efforts must be made to ensure the effective conservation of biodiversity within and on the boundaries of the UDP.
- Cooperative structures should be established to enable participation by key stakeholders such as local communities and the South African Police Service in addressing offences and breaches of the law.
- Law enforcement within the UDP will be undertaken through surveillance, monitoring and appropriate reaction in the event of an offence.
- Managers should familiarise themselves with all relevant legislation and legal agreements and apply this to their management actions.

The Authority recognises that the level of illegal activities within and around the Park (in South Africa or cross border with Lesotho), is a severe threat to the integrity of its biodiversity, the safety of its users and neighbouring communities as well as the attainment of the Park's stated Vision, Mission and Objectives.

More specifically, illegal access and the known frequent use of the Park as a corridor for cross-border crime (e.g. drug, livestock and firearm smuggling) are serious threats resulting in *inter alia* tourist harassment, undesirable arson fires, malicious damage to property and undesirable trampling impacts as a result of the creation of illegal paths and campsites. See Map 1 for the UDP controlled access points.

Park management must, therefore, institutionalise a security strategy that ensures coordinated participation in all possible local, regional and transboundary security forums and networks while optimising security in and around the Park. This strategy must ensure sufficient capacity to deal with conservation-related illegal activities in the Park and contribute to a network of provincial, national and international security intelligence. Ezemvelo Board policy no. 4.2 applies in this regard (Appendix A).

It is policy to maintain an ongoing vigilance through cost-effective surveillance, monitoring programmes and reaction capabilities. Direct illegal use of natural resources will be dealt with by Park management while high risk cross-border criminal activities will be monitored and communicated to the relevant security forces as part of a broader cooperative security strategy. The main effort towards resolving the illegal utilisation of natural resources by neighbouring communities for subsistence purposes will be to create an understanding and awareness through pro-active education amongst these communities. Management will, however, be ruthless with those that illegally utilise natural resources for commercial or other purposes.

The operational requirements for legal compliance and law enforcement are set out in Table 16.

4.2 Co-management

(De Koning, 2010) Indicates that in terms of co-management, there is a need to:

- Clarify responsibilities, rights and power relations of co-management partners.
- Bring co-management partners together under one structure.
- Clarify expectations (vision) and an understanding of co-management among co-management partners.
- Begin to build capacity of co-management partners.
- Establish co-management structures and organisations.
- Establish the co-management plan (including joint vision) and co-management agreement.
- Modify the co-management plan and co-management agreement through adaptive management (Borrini et al. 2007)

The operational requirements for co-management are set out in Table 17.

4.3 Stakeholder engagement

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

- Efforts should be made to ensure that the communities living around the UDP are aware of the role that it fulfils in biodiversity protection and the provision of ecosystem services to the region.
- Stakeholder engagement should be undertaken to engender a sense of ownership of the UDP, within the communities, and support for its biodiversity conservation objectives.
- A common understanding of the issues that affect both the UDP and the surrounding communities should be developed and efforts to resolve them should be undertaken cooperatively.
- Provision of job opportunities to the nearby communities to promote environmental respect and lower poverty.

Neighbour relations and partnerships are guided by Ezemvelo Board Policies No. 4.8 and No. 4.11 (Appendix A: Conservation Partnerships Policies).

The Authority encourages community involvement in the management of the Park through collaboration with adjoining communities in the following programmes and projects:

4.3.1 Local Board

Community participation in the Park is realised, mainly, through a Local Board which is established in terms of Chapter 5 of the KZN NCMA. The Ezemvelo Board Policy No.4.9 (Appendix A: Conservation Partnerships Policies) provides an operational relationship framework between the Park and its Local Board to ensure effective community participation in the management of the Park.

4.3.2 Community Levy Trust Fund

Communities adjacent to the Park benefit from income generated by the Park through a community levy paid by visitors. These funds are administered through the Community Trust Fund and provided to communities for development needs as prescribed by Ezemvelo Board Policies No. 4.16 and No. 4.6 (Appendix A: Conservation Partnerships Policies).

4.3.3 Externally Funded Projects

The Park procures external funding for specific Park related projects. Priority is given to training members of the community and the creation of community Small, Micro and Medium Enterprise (SMME) business and employment opportunities.

The detailed operational requirements for stakeholder engagement are set out in Table 18.

Table 16: Framework for legal compliance and law enforcement in the uKhahlamba Drakensberg Park

Strategic Outcome	Activity Number	Management Activities	Management Target	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
Secure, permanent conservation /heritage legal status of all properties and features in the UDP	16.1	Update the boundaries of the UDP based on survey reports and in areas where necessary survey the boundaries of the UDP	Clarified, physically demarcated and updated boundaries	▪ PA Database boundaries ▪ Survey reports and diagrams	Inconsistency in the interpretation of boundaries of the UDP and the World Heritage Site	**Year 2**	Park Manager
	16.2	Ensure proper beacons are placed along the boundary based on the survey reports					
	16.3	Negotiate a joint understanding with Lesotho on the exact boundary between the two countries	Joint understanding and agreement of where the international boundary is	Memorandum of Understanding regarding the Lesotho / South African Boundary	Ineffective law enforcement due to lack of a clear agreed international boundary	**Year 2**	Legal Department DEFF and Park Manager
	16.4	Ensure that there is sufficient signage demarcating the boundary of the UDP	Public knowledge of the UDP boundary and clear indication of UDP entry points	Photographic record in relevant reports	Compromising law enforcement efforts due to a boundary that is not appropriately demarcated	**Year 3**	Park Manager
	16.5	Communicate awareness of the boundary of the UDP through presentations/maps at the Protected Area Liaison forum and other relevant forums	Create knowledge of the boundary of the UDP	Minutes, maps and presentations used at stakeholder forums	Uncertainty regarding the boundary	**Year 1 - 5**	Park Manager, Conservation Managers and Community Conservation staff
	16.6	Consolidate and facilitate the proclamation of all identified wilderness areas	Increase in area proclaimed as wilderness in the UDP	Gazette Notices	▪ Loss of wilderness areas due to increase in incompatible development in the buffer area ▪ Lack of an increase in area proclaimed as wilderness	**Year 3**	Ecological Advice Manager and Legal Unit

Strategic Outcome	Activity Number	Management Activities	Management Target	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
Ensure the integrity of the UDP through effective partnerships with stakeholders, security services and the judicial system	16.7	Work collaboratively with security stakeholders to revive and implement the MDP WHS security strategy	▪ Creation of cooperative structures with local communities and law enforcement officials ▪ Informant networks ▪ Co-ordinated security efforts	Security strategy, incident registers, patrol reports etc.	▪ Increase in stock theft incidents ▪ Increase in drug and firearm smuggling incidents ▪ Increase in people entering the UDP illegally ▪ Increase in arson fire incidents ▪ Loss of fauna through illegal hunting ▪ Illegal harvesting of flora ▪ Recorded losses of fauna and flora	**Ongoing**	Conservation Managers
	16.8	Implementation of security measures to protect the natural and cultural heritage of the UDP through an effective Security Reaction Unit	▪ Regular patrols covering strategic areas in the UDP ▪ Prosecution of any offender caught committing an offence ▪ Regular documented reports on security incidents	▪ Organogram of the reaction unit ▪ Incident books ▪ Security reports		**Year 2**	Conservation Manager North
	16.9	Develop and implement a Park Air Space Policy	▪ Documented Air Space Policy ▪ Formalise relations and operating rules for military, and police use of air space, as well as for stock theft pursuit	Adopted Air Space Policy and Norms and Standards and operating rules	Increased in incidents of uncontrolled use of air space	**Year 2**	Ecological Advice Manager
	16.10	Develop and gazette the Park Rules for controlling use and activities in the UDP	Compliance with NEMPAA in terms of gazetting of Park Rules that will facilitate effective law enforcement	Copy of Gazette Notice for Park Rules	Lack of control of use and activities in the UDP	**Year 2**	Conservation Manager
Effective control of legitimate access in the UDP	16.11	Compile a servitude register of all servitudes and their specific conditions for the UDP	Enforcement of conditions of relevant servitudes by the UDP staff	Register/copy of servitudes and their conditions on station	Lack of knowledge of the UDP staff of servitudes and their conditions and therefore lack of enforcing these correctly	**Year 1**	Conservation Manager

Strategic Outcome	Activity Number	Management Activities	Management Target	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
	16.12	Develop and implement Standard Operating Procedures /Station Standing Orders for gate access and control	Effective control measures for access	▪ Standard Operating Procedures / Station Standing Orders ▪ Gate records ▪ Records of the key register ▪ Occurrence books records	▪ Ineffective or partially effective control measures to control access ▪ Increase in illegal entry incidents	**Year 1 - 5**	Conservation Manager
	16.13	Ensure staff are capacitated to control access					
	16.14	Maintain access control records					
	16.15	Maintain a key register for the UDP					

Table 17: Framework for co-management in the uKhahlamba Drakensberg Park

Strategic Outcome	Activity Number	Management Activities	Management Target	Target Indicator (Evidence)	Indicators of Concern	Priority	Responsibility
Effective co-management of the UDP with co-management partners	17.1	Regular meetings with landowners (once claims are resolved including co-management agreements or any other agreements or actions required) on all relevant management issues	Partnerships with landowners that facilitates effective management and maximise community beneficiation	▪ Co-management agreements based on the outcomes of the land claims process ▪ Minutes of meetings with landowners	▪ Not resolving the land claims in an acceptable time frame (Even though this function does not lie with Ezemvelo they should still actively work with the relevant department to finalise the claims) ▪ Lack of effective communication with landowners	**Year 2**	Park Manager with Legal Department

Table 18: Framework for stakeholder engagement in the uKhahlamba Drakensberg Park

Strategic Outcome	Activity Number	Management Activities	Management Target	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
Constructive stakeholder involvement in the UDP management through an effectively functioning Local Board and liaison forums	18.1	Regular meetings of a functional UDP Local Board	Quarterly meetings of the Local Board and other stakeholder forums	Minutes, presentations and attendance register	Lack of regular meetings and community dissatisfaction with the UDP	**Year 1 - 5**	Park Manager
	18.2	Regular meetings of the Neighbour relations and Buffer Technical forums					
Provision of support to the community in developing capacity to make inputs into the management of the UDP	18.3	Facilitation of development projects in the community through the Community Levy Fund in line with the Conservation Partnership Policy of Ezemvelo	Community development projects reflected in the Annual Report and audit report of Community Levy Fund	Annual reports on projects	Lack of community development projects	**Year 1 - 5**	Park Manager
	18.4	Create ongoing awareness of the UDP, its values and the functions of the UDP Local Board for new members	Local Board that can effectively make inputs into the management of the UDP	Minutes, presentations and maps	Lack of understanding of issues and management practices in the UDP	**Year 1 - 5**	Park Manager
Effective branding of the UDP as part of the Maloti-Drakensberg Park World Heritage Site	18.5	Develop and implement a UDP branding strategy including a communication strategy to communicate the IMP and UDP values to communities, visitors and other stakeholders	Documented branding strategy as part of the tourism strategy and marketing strategy	Submission letter to UNESCO of the Tourism strategy	Lack of support for the WHS status of the UDP by internal and external stakeholders	**Year 1**	Park Manager
Ensure as far as possible that there is public support for the UDP	18.6	Facilitate an economic and social benefit assessment for the UDP	An objective assessment of social and economic benefits of the UDP	Social and economic benefit report for the UDP	Lack of understanding of the value of the UDP	**Year 4**	Social Ecology Unit

4.4 Buffering Mechanisms and Regional Management

4.4.1 Protected Area Expansion and Buffer Zone Management

In terms of the protected area expansion strategy, Ezemvelo has identified several areas as priorities for protected area expansion around the UDP. To safeguard the biodiversity within the UDP and to counter any threatening processes or edge effects, suitable buffer zones and appropriate land uses in these zones should be identified. Appropriate actions may then be taken to secure these buffer zones through protected area expansion mechanisms and local planning tools, as described below. In ensuring the protection of its biodiversity, the following guiding principles will be adopted in terms of protected area expansion and buffer zone management:

- If under threat, efforts must be made to formally protect the areas of critical habitat, located outside of the UDP.
- Threatening processes and edge effects on the UDP's boundary and beyond must be identified.
- Appropriate actions must be taken to manage threatening processes and edge effects on the UDP's boundary and beyond it.

4.4.2 Regional Management

It is important, in managing the buffer areas around the UDP, that Ezemvelo work with local government authorities to ensure that their land use planning considers the biodiversity conservation imperatives of the UDP. In this regard, it is necessary to ensure that buffer zone considerations are captured in planning tools such as IDPs, SDF's and Land Use Management Schemes (LUMS). In developing relationships with the local and district municipality, Ezemvelo will adhere to the following guiding principles:

- Relationships with local government and other provincial and national departments will be developed in the spirit of cooperative governance.
- Ezemvelo will endeavour to assist the local and district municipalities in determining appropriate land uses and development strategies in the areas surrounding the UDP.
- Ezemvelo will endeavour to align its plans and strategies with the programmes and strategies of the local and district municipalities, where appropriate.

In 2006, the World Heritage Committee adopted a strategy aimed at reducing the impacts of climate change on world heritage sites (Decision 30 COM 7.1) and requested all State Parties to implement the strategy, to protect the Outstanding Universal Value, integrity and authenticity of world heritage properties from the adverse impacts. A policy document on climate change was adopted at the General Assembly of State Parties at its 16th session which requires that State Parties fund and implement mitigation strategies. A key objective of establishing a buffer zone is to give effect to national obligations to put mitigation measures in place. The design of the buffer zone will allow for the altitudinal, latitudinal and longitudinal movement of species in response to change, and to incorporate climatically stable refugia.

South Africa is a signatory to the World Heritage Convention. Under Article 6, '…the State Parties to this Convention recognise that [such heritage] constitutes a world heritage for whose protection it is the duty of the international community as a whole to co-operate'. Under Article 6 (3), State Parties undertake 'not to take any deliberate measures which might damage directly or indirectly the cultural and natural heritage'. The buffer zone is an area where there are additional land uses and management controls to prevent damage to the Outstanding Universal Value of the site.

The detailed operational requirements for buffer zone protection and regional management are set out in Table 19.

4.5 Environmental Interpretation and Awareness

Environmental interpretation and education of the UDP's natural and cultural resources are aimed at creating awareness, understanding and appreciation of its unique cultural heritage, biodiversity and ecological function, and their significance. In implementing the environmental interpretation and education programme (see detailed operational requirements in Table 20), the following guiding principles should be adhered to:

- There should be a strong focus on neighbouring communities, in efforts to engage, inform and benefit them.
- Wherever possible, local community members should be trained to assist and operate environmental interpretation and education tours.
- Where possible, partnerships with NGOs should be established to ensure effective environmental education and awareness.
- Opportunities to create awareness based on international initiatives such as Arbour Day should be encouraged.

Table 19: Framework for buffering mechanisms and regional management

Strategic Outcome	Activity Number	Management Activities	Management Targets	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
PROTECTED AREA EXPANSION							
Prioritisation of key buffer zone areas within the provincial Protected Area Expansion Plan	19.1	Revise and update the UDP expansion plan	Prioritised site-specific expansion plan	Expansion plan, Stewardship agreements etc.	Not securing key priority areas in the buffer area to protect the UDP	**Year 2**	Park Manager
	19.2	Focus efforts of the Biodiversity Stewardship and Protected Area Expansion Programme on priority areas in the buffer zone on the UDP boundary	Legal protection of key buffer zone areas	Stewardship agreements, management plans and gazette notices	Priority areas in the buffer zone not targeted through the biodiversity stewardship programme	**Year 1 - 5**	Park Manager
Maintain the transboundary linkages between the UDP, authorities and communities of the bordering Lesotho	19.3	Maintain collaborative transboundary structures through regular meeting with the Joint Management Committee	▪ Quarterly meetings of the Joint Management Committee ▪ Achievement of objectives and outcomes of the Conservation Area Conservation and Development Strategy (2008-2028)	Minutes of quarterly meetings and annual report	▪ Lack of regular meetings ▪ Lack of progress in achieving the objectives of the MDTP	**Year 1-5**	Park Manager
	19.4	Work collaboratively with the MDTP to achieve the joint objectives of the Conservation and Development Strategy (2008-2028) as well as the five-year action plan					

Strategic Outcome	Activity Number	Management Activities	Management Targets	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
LOCAL AND REGIONAL PLANNING							
Encourage appropriate compatible land use, water use and land care practices in the UDP buffer	19.5	Inputs into the development of local and district municipality planning documents to avoid environmentally harmful land uses in the UDP's buffer zone	▪ Adoption of environmentally appropriate land uses in planning documents such as IDPs and SDFs and LUMS in the areas immediately surrounding the UDP ▪ Retention of existing benign land uses in the areas immediately surrounding the UDP	▪ SDF's, LUMS and IDP documents with UDP requirements incorporated ▪ Minutes of Buffer Zone Technical Committee meetings	Identification/approval of environmentally harmful land uses on the boundaries of the UDP	**Year 1-5**	Park Manager and Buffer Technical Committee
	19.6	Provide input to water-use planning through catchment management fora					
	19.7	Regular meetings of the Buffer Zone Technical Committee to ensure effective regional management					
	19.8	Submit proposed buffer zone requirements to UNESCO for approval	Declared buffer zone as part of the World Heritage Site	UNESCO and World Heritage Committee Resolutions	The lack of a declared buffer area for the World Heritage Site	**Year 1**	Park Manager
	19.9	Implement the standard policy to guide responses to development applications in the UDP buffer zone	Consistent documented responses to development applications	Comment letters and Environmental Authorisations	Inconsistent responses to development application	**Year 1 -5**	Park Manager and Buffer Technical Committee
Ensure tourist infrastructure to access the UDP safely is prioritised by the relevant authorities	19.10	Liaise with the South African National Roads Agency in determining agreed-upon access roads to the UDP that require upgrade and maintenance	▪ Adoption of agreed-upon access routes to the various management units within the UDP ▪ Upgrade and maintenance of degraded access routes	Minutes of meetings and correspondence with South African National Roads Agency and Provincial authorities	Inability of tourist to access the UDP due to condition of access roads	**Year 1-5**	Park Manager

Table 20: Framework for environmental interpretation and awareness in and around the uKhahlamba Drakensberg Park

Strategic Outcome	Activity Number	Management Activities	Management Targets	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
Ensure that neighbouring communities, stakeholders and visitors are aware of the UDP objectives and values	20.1	Implement the environmental awareness programme specifically for the UDP's neighbouring communities, visitors and special interest groups	▪ Implemented UDP specific environmental interpretation and awareness programme ▪ Identification of target groups ▪ Engagements with target groups ▪ Consider the integrated narrative (see definitions) in the development of interpretation materials ▪ Develop themes and materials for the abovementioned	▪ Awareness programmes and attendance lists ▪ Effectiveness of assessment/monitoring documentation ▪ Interpretation material ▪ Target group database	Lack of understanding of the importance of the UDP and its OUV	**Year 3**	Community Conservation and Park Management
	20.2	Implement an interpretation programme in a standard format for each management unit within the UDP that address the values and objectives of the UDP and management issues such as for example cultural heritage vandalism etc.					

4.6 Eco-cultural Tourism Management and Development

Ezemvelo has the mandate to sustainably develop the UDP to fully realise its eco-cultural tourism and associated income-generating potential, within the context of protecting its biodiversity and cultural values.

The MDP WHS Sustainable Tourism Strategy was developed in collaboration with Lesotho and South African stakeholders and guides tourism management in the MDP. The strategy identifies priorities to unlock economic potential through sustainable tourism development over a ten-year period. It further seeks to secure benefits associated with the Park for the local communities living around the Park.

Tourism products developed within the UDP must be appropriate to the values and purpose for which the UDP has been proclaimed and must not threaten its biodiversity or ecological function.

The Vision and Mission statements in this strategy provide clear strategic direction for the tourism management and development in the Park.

Vision: Conserving and creating a globally iconic mountain wilderness destination that reconnects humanity to their South African origins and generates economic benefits for the local communities, the First Peoples and beyond.

Mission: To develop and manage a range of authentic tourism products which protect and reflect the Outstanding Universal Value that inspires tourists to visit the Park.

The strategy furthermore clarifies functions, roles and responsibilities for the implementation of the strategy. The detailed operational requirements for tourism are set out in Table 21.

4.7 Biodiversity Resource and Conservation Management

4.7.1 Fire Management

Fire plays an important role in the ecological dynamics of grasslands and wetlands and has important effects on vegetation composition, primary productivity and nutrient cycling. In the implementation of fire management strategies for the UDP, the following guiding principles should be adhered to:

- Burning will take place based on the principles and procedures set out in the Maloti-Drakensberg Park World Heritage Site Joint Fire Management Plan (MDTP 2016).
- Burning should be undertaken in such a way that it maintains spatial and temporal heterogeneity within the landscape.
- A patch mosaic of burnt and un-burnt areas should be maintained.
- Burning should be undertaken in a way that promotes patchy burns (i.e. within the block being burnt, some patches will remain un-burnt rather than aiming for a complete burn);
- Burning must be undertaken with due consideration to the biodiversity conservation requirements of the UDP and the need to protect rare and endangered species.
- Burning and fire management must be undertaken in a safe manner that is legally compliant with the National Veld and Forest Fire Act No.101 of 1998.

In terms of Section 17 of the National Veld and Forest Fire Act, a landowner (in this case the protected area) must have such equipment, protective clothing and trained personnel for extinguishing fires as may be prescribed or, if not prescribed, reasonably required in the circumstances. It is, therefore, necessary to consider the following in relation to firefighting (see also operational requirements for fire management as set out in Table 22):

- The need to maintain a system of firebreaks to enable the management of controlled burns and to effectively fight wildfires.
- The size of the protected area and the requirements necessary to access different areas in the event of a wildfire, this relates to both roads and vehicles.
- The number of personnel necessary to effectively fight wildfires.
- The equipment necessary to effectively fight wildfires, which would include;
    - water tankers and pressure pumps mounted on or pulled behind tractors;
    - firefighting equipment mounted on the backs of vehicles;
    - backpack sprayers and beaters; and
    - safety equipment for personnel involved in firefighting.

Table 21: Framework for tourism management and development in and around the uKhahlamba Drakensberg Park

Strategic Outcome	Activity Number	Management Activities	Management Targets	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
Integrate UDP tourism activities with tourism strategies and plans for the region	21.1	Implement the Bilateral Sustainable Tourism Strategy	Achievement of strategic priorities and actions set out in the bilateral Sustainable Tourism Strategy	Annual reports on strategy implementation	Uncoordinated tourism efforts	**Year 2**	Park Manager
Implement updated standards developed for signage	21.2	▪ Finalise signage format ▪ Implement a phased programme for replacing signage with the updated standardised formats	▪ Appropriate signage located at all access points to the UDP ▪ Trail signage that conforms to the UDP and Ezemvelo standards	Annual reports on Infrastructure upgrades and maintenance	▪ Increased incidents of tourist getting lost inside and on the way to the UDP ▪ Inappropriate signage that does not conform to Ezemvelo standards.	**Year 1**	Conservation Managers
Development of Transfrontier activities and travel in line with new vision for Transfrontier Conservation Areas (Walking based lower carbon footprint tourism activities) in southern Africa	21.3	Develop a detailed project proposal and costing for the establishment of a world-class trekking route	Submitted proposal for trekking route	Project proposal to be used for funding submissions	Lack of progress on the buffer zone initiative to establish the trekking route	**Year 1**	Park Manager
Development of indigenous gardens in resorts	21.4	Develop a plan for each of the conservation and resort gardens including: ▪ Implement a programme to remove alien plants	▪ Coordinated efforts to remove alien plants from UDP gardens ▪ Reduction in alien plants in resort and staff gardens	Interpretation materials and garden plans, and reports on	▪ Alien plant species in resort camps ▪ Lack of interpretation of natural	**Year 2**	Ecological Advice and Park Management

Strategic Outcome	Activity Number	Management Activities	Management Targets	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
		▪ Implement a programme to interpret natural vegetation in resorts	▪ Interpretation material for resort gardens	alien invasive species removal	vegetation around resorts		

Table 22: Framework for biodiversity resource and conservation management in the uKhahlamba Drakensberg Park - Fire Management

Strategic outcome	Activity Number	Management activities	Management targets	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
Adequate fire safety within the UDP is ensured	22.1	Implement the 5-year Joint Fire Management plan that addresses the biological, legal and operational requirements	Implementation of the fire management plan	Fire reports, maps etc.	Burning regimes that result in ecological degradation of the UDP	**Year 1-5**	Park Manager and Ecological Advice
	22.2	Maintain a system of firebreaks within the UDP that are of adequate extent, which are prepared at the correct time of the year and under the appropriate weather conditions	Compliance with the National Veld and Forest Fires Act	▪ Fire Protection Association membership and meeting minutes ▪ Letters to neighbours to inform them of burning ▪ Records of notices placed informing stakeholders of burning ▪ Training registers ▪ Fire returns	▪ Inadequate personnel, equipment or an inability to communicate effectively in fighting fires ▪ Wildfires spreading from the UDP to neighbouring properties ▪ Legal actions against Ezemvelo due to non-compliance with the National Veld	**Ongoing**	Conservation Manager
	22.3	Ensure that staff are trained and that adequate firefighting equipment is available within the UDP					
	22.4	Maintain membership of the local Fire Protection Association, or if one does not exist, champion the creation of one					

Strategic outcome	Activity Number	Management activities	Management targets	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
					and Forest Fire Act		

4.7.2 Wilderness Management

Section 26 of the National Environmental Management: protected Areas Act No. 57 of 2003 states that Wilderness Areas are to:

- Protect the natural environment, biodiversity, associated natural and cultural resources and the provision of environmental goods and services.
- Provide outstanding opportunities for solitude.
- Control access and access only allowed by non-mechanised means.

The Wilderness Management Plan (2013) (Ezemvelo KZN Wildlife 2013) is a supporting document of this IMP and the detailed principles for wilderness management is set out in the plan. Permissible activities, implementation and constraints for activities in wilderness are set out in the Zonation Plan for the Park in Section 4.

(Ezemvelo KZN Wildlife 2013) The detailed operational requirements for wilderness management are set out in Table 23.

4.7.3 Soil Erosion Control

In addressing soil erosion, the following guiding principles should be adhered to:

- Areas impacted by soil erosion should be stabilised and re-vegetated with indigenous plant species to prevent the spread of listed invasive plant species.
- Areas susceptible to soil erosion or showing early signs of soil erosion such as loss of vegetation cover, must be managed to prevent soil erosion.
- Gradual natural soil erosion processes will be allowed to continue. However, in the case of human-induced and/or aggravated erosion, appropriate remedial management action should be taken. Potential human impacts must be avoided through appropriate planning and maintenance of infrastructure.
- Soil erosion control and rehabilitation measures may include the need to re-vegetate disturbed areas. A detailed assessment of the nature and extent of soil erosion within the UDP will determine the appropriate responses required and the costs associated with them.

The detailed operational requirements for soil erosion control are set out in Table 24.

4.7.4 Alien and Invasive Species Control

A listed invasive species means any species, which is listed in terms of section 70 of the Biodiversity Act, whose establishment and spread occurs outside of its natural distribution range. Such species are considered to be a serious threat to the ecological functioning of natural systems and water production and must be strictly controlled.

In undertaking invasive plant control, the following guiding principles will be adhered to:

- Alien and invasive species control must take place in accordance with the Alien and Invasive Species Management Plan for the South African component of the Maloti-Drakensberg Park World Heritage Site (2016);
- Invasive plant control will require an ongoing programme that prioritises key infestations along watercourses, drainage lines and upper catchment areas;
- Initial clearing efforts should focus on containing infestations that are most likely to spread into new areas; and
- All follow-up requirements must be strictly adhered to; otherwise, the problem will be exacerbated.

Strategic partnerships and poverty relief programmes such as the Working for Water programme should be utilised in controlling invasive plants.

Alien and invasive animal species can threaten the ecological, genetic or natural aesthetic integrity of the UDP and can be vectors for the spread of diseases. In dealing with the control of alien animals, procedures to deal with animals that stray into the UDP should be developed. In addressing alien animal control, the following guiding principles should be adhered to:

- Alien and invasive species control must take place in accordance with the Alien and Invasive Species Management Plan for the South African component of the Maloti-Drakensberg Park World Heritage Site (2016).
- Domestic animals such as horses and donkeys will only be allowed if kept in the Park for official purposes such as patrolling.

Table 23: Framework for biodiversity resource and conservation management in the uKhahlamba Drakensberg Park – Wilderness Management

Strategic outcome		Activity Number	Management activities	Management targets	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
Maintain the wilderness character of naturalness and solitude of the areas zoned or proclaimed as wilderness in the UDP		23.1	Manage conservation and recreational impacts on the wilderness areas to maintain wilderness character	Wilderness areas remaining or in improved state	▪ Monitoring Reports ▪ Fixed Point Photographs	Deterioration of and/or decrease of wilderness areas	**Year 1-5**	Park Manager
		23.2	Investigate the potential to consolidate and expand the area zoned/proclaimed as wilderness area	Increased area size of wilderness areas			**Year 3**	Park Manager and Park Ecologist

Table 24: Framework for biodiversity resource and conservation management in the uKhahlamba Drakensberg Park – Soil Erosion Control

Strategic Outcome	Activity Number	Management Activities	Management Targets	Target Indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
Effective accelerated soil erosion control to safeguard infrastructure and biodiversity	24.1	Implement soil erosion control and rehabilitation measures, focussing strategically on key areas such as those impacting on watercourses or that are increasing in size	A detailed map depicting areas of soil erosion within the UDP Implementation of soil erosion control measures in areas of accelerated soil erosion	Fixed point photos and monitoring reports	Further erosion of impacted areas Sedimentation impacts in watercourses and wetland areas	**Year 1-5**	Conservation Managers

- No poultry may be kept by staff because of the potential for disease spread, noise and creation of conflict because of natural predation.
- Feral animal species that pose a threat to indigenous species will be removed or destroyed as humanely as practicably possible, with due regard to the tourist experience; in particular Mallard Ducks (*Anas platyrhynchos*), Common Starlings (*Sturnus vulgaris*) and Common Mynahs *(Acridotheres tristis*).
- Fences must be maintained at a standard that keeps domestic animals out of the Park; any domestic animals entering the Park must be removed immediately, and where there are repeat violations livestock must be impounded.
- No horse riding activities will be allowed in the Park other than at Rugged Glen. The Rugged Glen operation will be reviewed in terms of profitability and environmental impact.

The detailed operational requirements for alien and invasive species control are set out in Table 25.

4.7.5 Resource Utilisation

The detailed operational requirements for resource utilisation are set out in Table 26.

It is an accepted tenet of biodiversity conservation in South Africa and KZN that the sustainable use of natural and biological resources may be undertaken within a protected area if it does not compromise its ecological functioning or biodiversity conservation imperatives. Accordingly, applications for the extractive use of resources within the protected area will be considered, based on the following guiding principles:

- The context of the Park's zonation plan, in particular the ecological sensitivity of particular areas, must be considered.
- The benefits that such resource use will provide to the neighbouring communities around the Park must be considered.
- Opportunities for access to resources by neighbouring communities must be fair and equitable.
- All collection of biological materials for purposes falling under the definition of bioprospecting requires authorisation and a bioprospecting permit from DEFF; this process aims to ensure that the holders of indigenous knowledge benefit from any commercialisation of medicinal products derived from indigenous plants.
- Any extractive use may only take place if the Park is able to effectively control and monitor such resource use.
- In general, extraction of vegetative portions of plants (thatch, reeds) may be considered, whereas removal of entire plants (bulbs, corms) is not considered appropriate for a protected area.
- Collection of animals and animal parts from the protected area for traditional use will not be considered; however, animal parts from management activities such as culling or from natural mortalities may be made available under certain conditions.
- Notwithstanding the above, the Park will make eland available for specific traditional ceremonies for San descendants (currently two annually).
- Collection of biological materials/samples will be considered if for legitimate scientific purposes, undertaken through *bone fide* research institutions and if undertaken in accordance with relevant Ezemvelo policies.
- The ability of the Park's management team to effectively control and monitor such resource use.

4.7.6 Wildlife Management

Management interventions related to indigenous wildlife will be limited to those that are for the purposes of safeguarding populations of rare and endangered species or to meet set conservation targets. Interventions may also be required for problem animal management. In addressing wildlife management, the following guiding principles should be adhered to:

- Wildlife management must be focussed primarily on protecting the ecological functioning of the UDP and meeting set provincial conservation targets for species and vegetation types.
- The introduction of indigenous species into the UDP must be undertaken in accordance with relevant Ezemvelo policies.
- Population management of wildlife species may be required to ensure that such species are not causing ecological degradation of the UDP.
- Animals that become a danger or excessive nuisance to persons and property due to either habituation or aberrant behaviour must be managed in accordance with relevant Ezemvelo policies.
- Gardens in the Park Resort and Administrative areas (including staff housing) must be managed to reduce the potential for conflict with wildlife, such as attracting baboons to fruit trees or vegetables planted in gardens.

Table 25: Framework for biodiversity resource and conservation management in the uKhahlamba Drakensberg Park - Invasive Species Control

Strategic Outcome		Activity Number	Management Activities	Management Targets	Target Indicator (Evidence)	Indicators of Concern	Timeframes	Responsibility
Effective reduction of Alien and Invasive Species in the UDP		25.1	Implement the joint Alien and Invasive Species Control Plan for the UDP	▪ Compliance with the National Environmental Management: Biodiversity Act No. 10 of 2004 ▪ Understanding and records of the extent of invasions trough inventories and maps of sites	Inventory, maps and reports	▪ Further spread of existing levels of infestation of listed invasive species ▪ Persistence of existing infestations ▪ New infestations of listed invasive species	**Year 1**	Park Manager, Ecological Advice Manager and Alien Plant Control Unit
		25.2	Map the areas and extent of invasive species infestations					
Implementation of procedures to manage domestic alien animals found within the UDP		25.3	▪ Develop and implement a policy for keeping personal and official domestic animals and livestock in the UDP that includes procedures for dealing in a consistent manner with alien animals that stray into the UDP. This policy must clearly address: ▪ Threats to biodiversity conservation as a priority ▪ Reducing the numbers of such animals to an absolute minimum ▪ Designating areas where these animals must be kept. They must not be allowed to roam or feed in the UDP (except for official patrol horses when on patrol) or interfere in any way with tourists ▪ The proper and hygienic care of these animals ▪ Minimum standards (aesthetic acceptability, sizes, neatness and cleanliness) of facilities	▪ Control of alien animals found in UDP ▪ Awareness of communities of the implemented strategy	▪ Approved policy ▪ Incident Reports ▪ Community meeting minutes and attendance registers	Uncontrolled access of domestic animals or livestock within the UDP	**Year 2-5**	Conservation Manager

			housing these animals, e.g. stables, paddocks, camps, cages etc. ▪ Disciplinary measures for staff transgressing these regulations ▪ Community awareness					
		25.4	The grazing concession in Vergelegen and Cathedral Peak must be reviewed, confirmed, clarified and documented to allow the relevant manager to effectively monitor compliance and biodiversity impact	Reviewed and documented grazing concession	Legal agreements	Undocumented and un-clarified/ verbal grazing concession	**Year 2**	Park Manager

Table 26: Framework for biodiversity resource and conservation management in the uKhahlamba Drakensberg Park - Resource Utilisation

Strategic Outcomes	**Activity Number**	**Management Activities**	**Management target**	**Target indicator (Evidence)**	**Indicators of Concern**	**Timeframes**	**Responsibility**
Ensure that extractive resource use is undertaken legally and conforms to Ezemvelo policy	26.1	Raise awareness on the UDP approach to sustainable extractive natural and cultural resource use in the UDP	A communicated approach to extractive resource use	Minutes of meetings	▪ Illegal use of natural resources ▪ Communities that are not aware of the UDP's approach to resource utilisation ▪ Non-sustainable use of natural resources	**Year 1-5**	Community Conservation Officers
	26.2	Manage resource use in accordance with the UDP Resource Use Guidelines and Park zonation plan	Documented resource use application and records	Resource use records			Conservation Managers
Ensure that bioprospecting (if undertaken) is undertaken legally and conforms to Ezemvelo policy	26.3	Only allow the collection of biological materials or samples if the appropriate permits have been granted or permission has been given in accordance with national as well as Ezemvelo policy	Records of permits for bioprospecting	Permits and applications	Illegal collection of biological material or samples		Ecological Advice Manager

According to Ezemvelo Norms and Standards for the management of large herbivores (Table 27), protected areas should develop, where necessary, economic carrying capacities and management strategies for the management of these populations.

The detailed operational requirements for the management strategies for large herbivores and key species are set out in Table 27, Table 28 and Table 29.

Furthermore, key wildlife species such as predators also require specific management interventions and these strategies need to be recorded and monitored in order to facilitate adaptive management.

Supplementary Feeding Sites for Vultures

The Park currently has supplementary feeding sites in Giants Castle and Cathedral Peak. These feeding sites are places where carcasses of domestic stock, game and waste meat are put out on a controlled and regular basis, specifically to supplement the diet of, and provide safe food for, vultures. Management of these feeding sites is the responsibility of the OiC, and the tourism spin-off is an additional benefit.

These sites are important for vultures since they:

- Supplement the ever-decreasing natural food base.
- Provide a source of food for the vultures that is free of poisons, agrochemicals and harmful veterinary drugs.
- Provide safe places for vultures to feed.
- Allow for additional food items, such as fat and bone fragments for calcium, to be supplied to for example breeding birds.
- Serve to increase the survival rate of vultures, especially within their first year of leaving the nest.
- Provide an opportunity for tourists and photographers to see and photograph these majestic birds.
- Provide an ideal location for scientists to study the biology and ecology of these threatened species.
- Provide the public with an opportunity to participate in the conservation of vultures by recording and reporting observations of marked individuals.

Managers of these sites should ensure that animals that are provided at the feeding sites are free of any veterinary substances or lead fragments that could have a negative impact on the birds. A Supplementary Feeding Site Management Plan must be developed to guide the management of each site in the Park. A monitoring and surveillance plan for cliff-nesting vultures are being developed, and that will specify the requirements for monitoring vultures in the Park and its surrounds.

A Vulture Count Day is held on the first Saturday in September each year as part of International Vulture Awareness Day. Managers of all feeding site are encouraged to ensure carcasses are provided and record all vultures (on a standard form) arriving between sunrise and 14h00 on this day.

4.7.7 Conservation Targets

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

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

The KZN Systematic Conservation Plan ('C-Plan'; Appendix G) identifies that it is essential for the Park to conserve specific vegetation types and species (Table 28). No baseline status assessments have been conducted, and no formal monitoring programmes are currently in place, for any of these species or vegetation types, other than for Oribi. In addition, there is only a rudimentary understanding of the biology and ecology of many of the species, and it is currently assumed that controlling alien plant invasions, preventing livestock grazing and applying a shifting mosaic of burns (see

Fire Management) is the best strategy to maximise the persistence of these species and vegetation types. It is essential to better understand the biology and ecology of these biodiversity features and to design and implement appropriate monitoring programmes. It is of concern that the Park is the only place in South Africa where Drakensberg Afroalpine Heathland is nominally protected, but 100% of the vegetation type in the Park is subject to uncontrolled grazing and is degrading.

In addition to the elements of national and provincial importance identified in the KZN Systematic Conservation Plan, there are species of local concern and/or species that have not yet been incorporated into the KZN Systematic Conservation Plan but are known to be of local, provincial or national importance. Specific conservation targets have been set for these species (Table 29), and in most cases, monitoring programmes are implemented to measure status relative to targets and hence audit effectiveness of conservation interventions. It is particularly important to recognise that several species are currently well below target, thus identifying priority interventions. Conservation and monitoring strategies must be developed for all of these conservation target species.

Table 27: Management strategy categories for large herbivores as per the Ezemvelo KwaZulu-Natal Wildlife norms and standards for the management of large herbivores, as they apply to large herbivores in the uKhahlamba Drakensberg Park

No Management: Apply to species in a system that can be allowed to achieve ecological carrying capacity without knowingly endangering other important biodiversity components in the protected area. This management option assumes that the important ecological processes responsible for establishing the equilibrium between the species and its resources are largely intact.
Ecological Process Management: Applies to species in a system where clearly one or more ecological processes are dysfunctional and need to be simulated or re-established in order to create an equilibrium between the species and its resources. Management interventions include one or a combination of the following: • Reconfiguring landscape drivers: of population dynamics, e.g. artificial water supply, range expansion, corridor development etc. • Simulating ecological processes, e.g. dispersal (via dispersal sinks), predation (via predator simulation removals). • Re-establishing ecological processes, e.g. re-establishing indigenous predators. • Curtailment of population eruption, e.g. managing the growth rate and age and sex structure of a population to stay within the ecological or economic carrying capacity – removals, limited duration contraception etc.
Biodiversity Management: Management associated with a recognised direct threat to other biodiversity that the species to be managed poses, e.g. impacts on resources or competition with threatened or declining species. This management option often entails a fixed upper limit for species and is usually applicable to smaller protected areas that are fenced or species such as elephants that are ecosystem engineers that could potentially have a large impact on the environment and could cause irreversible changes to the state of vegetation.
Conservation Management: Management associated with live removal of a proportion of the population explicitly for establishing additional populations within the species natural range, e.g. black rhino removal and range expansion programme. Populations may be maintained at ecological carrying capacity to optimise production.
Sustainable Harvest Management: Population management associated with a predetermined and authorised commitment to harvest one or more animal populations for economic purposes, e.g. hunting or live sale. Sustainable harvesting is restricted to areas zoned for hunting or resource use areas in the protected area zonation plan.
Scientific Research: The removal of animals to collect material required to achieve a research objective must be identified and approved through a registered research proposal. Capture or culling of animals for research purposes can only be permitted where material cannot be derived from removal operations authorised for other reasons.

Table 28: Management strategies for large herbivores in the uKhahlamba Drakensberg Park

Species	Management Strategy	Target / Carrying Capacity	Justification
Blesbok	No management	Leave, for now, monitor and set upper limit if necessary	Move between properties, likely to decline
Bushbuck	No management	-	Critical ecological processes functional
Bushpig	Monitor and review	-	Recent range expansion
Common duiker	No management	-	Critical ecological processes functional
Eland	Manage to fixed upper limit based on fencing and extent of implementation of Eland Management Strategy	Depending on extent of implementation of strategy (2000, 1800, 1600)	As per the UDP Eland Strategy
Oribi	Habitat manipulation in key areas through firebreak/block burn configuration		Critical ecological processes functional
Klipspringer	No management	-	Critical ecological processes functional
Southern reedbuck	No management	-	Critical ecological processes functional
Mountain reedbuck	No management	-	Critical ecological processes functional
Grey rhebok	No management		Critical ecological processes functional
Black wildebeest	Fixed upper limit	50	Kamberg only

Table 29: Species conservation targets for the uKhahlamba Drakensberg Park

Species	Target	Rationale/Notes	Status
Bearded Vulture *Gypaetus barbatus*	≥ 32 breeding pairs	Based on nest site review undertaken in 2020 which includes currently active sites and abandoned sites that can be recolonised	2019: 10 breeding pairs (31% of target) (Krüger 2020c)
Cape Vulture *Gyps coprotheres*	≥ 150 breeding pairs in ≥ 4 sites	Population level in early 1980s when first survey was conducted	>100 breeding pairs in 2019 (>66% of breeding pairs target) (Ezemvelo Database)
Wattled Crane *Bugeranus carunculatus*	≥ 2 breeding pairs	Ensure pair at Stillerust, and Crystal Waters continues to breed and implement management strategies to encourage Highmoor pair to start breeding to contribute to national targets	2 breeding pairs – Stillerust and Crystal Waters (target achieved)
Oribi *Ourebia ourebi*	≥ 300	Although fragmented, this is the largest number of oribi in one protected area in South Africa and priorities for conservation outside formal protected areas are based on the assumption that the UDP continues to maintain a population of 300	Estimated at approximately 456-495 in 2019 (target achieved) (Krüger 2020a)
Eland *Tragelaphus oryx*	≥ 1500	Target to be reviewed as part of the Drakensberg Eland Management Strategy	1399 (target not achieved) (Krüger 2020b)

The Park makes an important contribution to the conservation of several species. However, for a number of species insufficient is known about their biology to set numerical conservation targets (Table 30). For these species, a programme of surveillance will be instituted, with regular review of status and/or trend and the initiation of an adaptive management response if required.

The 2011 version of the KZN systematic biodiversity plan identifies the provincial conservation targets referred to in Section 6.6.6, above. The conservation of the UDP contributes towards the achievement of a portion of some of these targets. Targets will continue to be updated as knowledge develops about the ecology of areas, connectivity between them, and other process requirements for ecosystems, communities and species. On this basis, the conservation targets should be viewed as a set of working hypotheses around which conservation planning and evaluation can take place. An advantage of developing strategies around targets is that this process highlights critical knowledge deficits, thus guiding future research.

The detailed operational requirements for wildlife management and the achievement of conservation targets are set out in Table 31.

Table 30: Species surveillance objectives for the uKhahlamba Drakensberg Park

Species	Surveillance objective	Rationale/notes
Cloud Protea *Protea nubigena*	Investigate implementing a drone monitoring programme and quantify stem number and size classes over time (not possible to enumerate genetically distinct individuals); identify potential habitat and undertake surveys; seek to obtain seed and accession into seed bank	Endemic to Royal Natal; assumed glacial relict in cool, dark environment. Unknown whether sexual reproduction is occurring, although seed is produced
Drakensberg cycad *Encephalartos ghellinckii*	Survey at least five subpopulations across the UDP to monitor age structure and recruitment. Resources to monitor this species target are currently not available	Current status incompletely known; estimated at 5000-10000 individuals at an unquantified number of locations (Rob Scott-Shaw *pers. comm*.)
Grey rhebok *Pelea capreolus*	Monitor population trend over time using an index of abundance from field ranger patrols	Grey rhebok is endemic to southern Africa, and the UDP is potentially the largest single population of this species. There is some evidence of population decline; the target is likely to be to maintain the population at or above the current index value
Mountain reedbuck *Redunca fulvorufula*	Monitor population trend over time using an index of abundance from field ranger patrols	The UDP is potentially one of the largest single populations of this species in Southern Africa. There is some evidence of population decline; the target is likely to be to maintain the population at or above the current index value
Spotted-neck otter (*Lutra maculicollis*) and **African Clawless Otter** (*Aonyx capensis*)	Undertake regular (at least every three years) surveys of abundance along three key rivers.	The UDP is the most important freshwater site for otter conservation in South Africa

Table 31: Framework for biodiversity resource and conservation management in the uKhahlamba Drakensberg Park - Wildlife Management and Conservation Targets

Strategic Outcomes	Activity Number	Management Activities	Management Targets	Target Indicators (Evidence)	Indicators of Concern	Priority	Responsibility
WILDLIFE MANAGEMENT							
Development and implementation of a strategy for management of the wildlife in the UDP in accordance with Ezemvelo policies and norms and standards	31.1	Develop a Disease Control Contingency Plan	Approved Disease Control Contingency Plan and Guidelines for vulture feeding sites	Contingency plan and approved guidelines	▪ Lack of effective management action during disease breakouts due to the lack of a contingency plan ▪ Vulture feeding sites that are not managed according to operational guidelines and pose a risk to the vultures	**Year 1-5**	Park Manager and Ecological Advice Manager
	31.2	Develop operational guidelines for the management of supplementary feeding sites for vultures					
Implementation of human/wildlife conflict strategy that complies with provincial and national norms and standards	31.3	Annually meet with stakeholders as recommended in the Drakensberg Eland Management Strategy to discuss permits, fencing and human-wildlife conflict (This meeting is informed by the results of the annual eland aerial survey)	▪ Minutes of annual stakeholder meetings as per the Drakensberg Eland Management Strategy requirements ▪ Effective procedures and good working relationships with Hospitality staff and neighbours in	Minutes of meetings, applications and permits	▪ Frequent complaints from neighbours with no clear response ▪ Lack of or delayed response ▪ Animals removed without adequate mitigation being implemented	**Year 1-5**	Conservation Managers
	31.4	Undertake preventative measures, such as boundary fence construction and maintenance, and removal					

Strategic Outcomes	Activity Number	Management Activities	Management Targets	Target Indicators (Evidence)	Indicators of Concern	Priority	Responsibility
		of all exotic fruit and oak trees to minimise the need for human/animal conflict control	dealing with damage-causing animals				
	31.5	Implement the human/wildlife conflict control strategy for the UDP					
	31.6	Capacitate managers as well as Community Conservation Officers to deal with human/animal conflict in neighbouring communities and landowners	Trained staff members to deal effectively with human/animal communities	Training records	Lack of responses in terms of human/animal conflict incidents	**Year 1-5**	Conservation Managers
CONSERVATION TARGETS							
Develop a Climate Change Adaptation and Mitigation Response Strategy based on the Ezemvelo's Climate Change Response Strategy to Reduce the Vulnerability of Provincial Biomes (2013)	31.7	Develop and implement a site-specific Climate Change Response Strategy for the UDP linked to the Protected Area Expansion Plan	Mitigation efforts in line with an adopted Climate Change Plan to address this threat to the UDP	Adopted Climate Change Response Strategy	Lack of coordinated mitigation measures to address climate change	Year 3	Social Ecology Unit with Park Manager and Ecological Advice
Ensure that there are sufficient information and understanding of biodiversity in the UDP	31.8	▪ Identify priority/key species, habitats and ecosystems	Priority species, habitats and ecosystems have been identified,	▪ Priority species, habitat and ecosystem	▪ Priority species, habitats and	Year 1 and then annually	Conservation Manager and

Strategic Outcomes	Activity Number	Management Activities	Management Targets	Target Indicators (Evidence)	Indicators of Concern	Priority	Responsibility
to inform and support the achievement of specific biodiversity objectives		▪ Identify gaps in available knowledge with regard to these species ▪ Develop internal and external partnerships to address these gaps ▪ Ensure that the abovementioned data are in an understandable format and readily accessible for decision-making purposes to managers	and information is available to support planning and decision making	conservation targets ▪ List of required information/ research needs ▪ Information management system containing supporting information	ecosystems have not been identified ▪ Information is not sufficient to support planning and decision making		Ecological Advice Unit
Processes are established to determine success of management interventions in protecting the ecosystems, communities and species of the UDP	31.9	Develop surveillance and monitoring plans for key management interventions in accordance with the Ezemvelo policies and norms and standards	Achievement of the UDP's conservation targets	▪ Surveillance and monitoring plans for key threatening processes ▪ Monitoring plans for key rare and endangered species	Lack of awareness of the status of key threatening processes including infestations of invasive plant species and severity and extent of soil erosion	Year 3	Ecological Advice Unit

4.8 Cultural Heritage Management

In managing the Park's cultural assets and protecting the OUV of the Park, the following guiding principles will apply:

- Access to sites will be in accordance with the Park zonation and site-specific management guidelines.
- No public access is allowed to cultural heritage sites without a Rock Art Custodian or a Rock Art Permit.
- Minimum intervention into the archaeological and historical fabric or disturbance of it; all intervention must be reversible.
- Archaeological, historical and other heritage elements of the Park are conserved through suitable management systems and actions.
- Heritage resources must be presented in such a way which enhances and truthfully conveys their significance.
- Conservation to recognised international standards and best practice in respect of site management, monitoring, maintenance, physical control and visitor management.

In a report titled 'Brief summary of the rock art verification in the uKhahlamba Drakensberg Park World Heritage Site' (Topp, 2011) a rock art verification was carried out in the Park between October 2009 and April 2011. This inventory revealed high percentages of both fire and human damage, both of which can be managed and, in most cases, controlled. The number of painted images that can still be seen also show alarmingly high levels of deterioration. Estimations of fire damage show that at least 24% of sites have possibly been damaged by fire. Estimation of human damage is currently 25%.

Recommendation management interventions include:

- Clear vegetative material around sites.
- Increase control methods to sites that are known to be visited (open sites or not) either by visitors, drug traffickers, poachers, local shamans or bandits.
- Document each site with photographic records of the sites which have graffiti.
- Develop site-specific management guidelines for each of the rock art sites that are open to the public and make these available to each manager.

A report on rock art sites and associated living heritage (Anderson 2007) has been rolled out to include the UDP Buffer Zone. In addition, Prins (2008) compiled a list of 35 sites known to have living heritage significance, which included suggested management guidelines.

Any heritage management statement must, however, be sympathetic to both needs of communities and the legislative prescripts. As such management needs to play a facilitator's role in moving toward what could become a best practice model.

The detailed operational requirements for cultural heritage management are set out in Table 32, and the key documents relevant to the management of cultural heritage resources are listed in Appendix F.

4.9 Operational Management

4.9.1 Financial and Human Resources

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

- Adequate funding must be provided for the management of the UDP to ensure the protection of its biodiversity and cultural values and the continued provision of its ecosystem services.
- Prioritisation of management action based on available funding must be aligned with priorities as determined in the IMP.
- Commercial operations within the UDP must be self-sufficient and, if profitable, should be used to subsidise its conservation and community programmes.
- Adequate, properly trained, and experienced staff must be employed at the UDP to undertake the operations required for its effective management.
- Adequate, trained and experienced support staff must be allocated to the UDP (e.g. Ecological Advice, Finance and Human Resource staff).

Table 32: Cultural heritage management in the uKhahlamba Drakensberg Park

Strategic outcome	Activity Number	Management activities	Management targets	Target indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
Sustainably Manage the globally significant cultural heritage and living heritage to ensure their protection for present and future generations	32.1	Develop specialist institutional capacity to ensure and champion the effective heritage management process of the Park's diverse cultural heritage	▪ An implemented Integrated Management Plan (IMP) for the UDP ▪ Institutional capacity exists to manage cultural heritage ▪ Ongoing survey for new cultural heritage sites ▪ Verification of existing heritage data (site information and location) (Accuracy rating GIS Act) ▪ Cumulatively grade the sites in management units of the UDP (not feasible to grade individual sites) ▪ Database of all cultural research and surveys that have been done ▪ Identification and documentation of various types of heritage resources within the UDP and in the Buffer Zone ▪ Ensure a working partnership and management of stakeholders	▪ IMP ▪ Organogram indicating specialist cultural heritage capacity ▪ Inventory of heritage sites ▪ Report on gaps in heritage inventory ▪ Table reflecting existing data versus verified data ▪ Research database ▪ Amafa-Ezemvelo Liaison Committee	▪ Continued loss and/or degradation of documented or undocumented cultural heritage resources. ▪ Lack of heritage specialist	**Year 1-5**	Amafa-Ezemvelo Liaison Committee and Park Management Committee
	32.2	Manage the heritage inventory					
	32.3	Develop control mechanisms for research and tourism					
	32.4	Maintain effective inter-institutional liaison capacity through the Amafa-Ezemvelo Liaison Committee					
	32.4	Develop a law enforcement and compliance framework for cultural heritage to include in the Security Strategy	▪ Ensure that permitting requirements with regards to heritage resources are met ▪ Maintain appropriate channels with law enforcement agencies to investigate and prosecute heritage-related crime ▪ Address heritage-related crime through pro-active awareness programs ▪ Encourage responsible visitation ▪ Training and sensitise all UDP staff in respect of cultural heritage management and legislation	▪ Permit ▪ Stakeholder Database ▪ Guideline of how to deal with heritage crime ▪ Public information	▪ Prosecutors unwilling to deal with heritage crime (lack of awareness) ▪ Increase in incidents relating to heritage crime and vandalism	**Year 1-5**	Amafa-Ezemvelo Liaison Committee and Park Management Committee

4.9.2 Facilities and Infrastructure

In order for the UDP to operate appropriately, adequate facilities and infrastructure need to be developed and maintained both for management, scientific and eco-cultural tourism purposes.

Given that South Africa is a long-haul destination, and that accessing the Drakensberg requires extensive travel, visitors travelling to the Park to appreciate its world heritage values produce an inevitable carbon footprint and contribute to the global climate change problem. In order to offset this, visitors are encouraged to calculate their carbon emissions associated with travel to the Park and to contribute voluntarily to the Ezemvelo land acquisition fund which will be used to purchase land that by virtue of good management will sequester additional carbon or avoid degradation and loss of carbon-storage potential. Management activities also generate greenhouse gas emissions, and the carbon footprint of these activities needs to be calculated and taken into account.

In addressing facility and infrastructure needs in the Park, the following guiding principles will be adhered to:

General

- The Authority will maintain, remove, expand or develop infrastructure within the Park for conservation management and eco-cultural tourism purposes. This will be undertaken cognisant of, and in accordance with, legal requirements and procedures regarding environmental and cultural resource impacts.
- Proposals for major maintenance projects or the removal, expansion and development of infrastructure must comply with the Park's zonation and be a listed project in the CDP or follow the application process as stated in the CDP.
- The project must also be recommended by the PMC and approved by the Ezemvelo Board's Development Committee.
- Placing infrastructure outside the boundaries should always be considered as an option, where practical, to reduce the amount of infrastructure within the Park.
- Park management is responsible for infrastructure within the Park and must at all times ensure that it is maintained in a safe, sound, clean, serviceable and aesthetically acceptable condition.
- Tourist accommodation, camping-grounds and other facilities must at all times be maintained to appropriate world-class standards regarding safety, appearance, cleanliness and serviceability.
- All structures must as far as possible be harmonised with the surrounding environment and landscape character through appropriate siting, use of colour, building materials, landscaping and screening.
- All structures are Fixed Assets and must be marked with their unique asset number using a permanent label or marker and must be verified annually.

Water and energy supply and efficiency

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

Communication

- Telephone communications should be via satellite, microwave or cellular technology. Wherever possible old telephone lines should be removed or relocated to reduce visual impact.
- The Park will not provide/lease sites for public communication structures.
- Park management requires a two-way radio system for efficient management. Radio communications with Sehlabathebe National Park are essential. Given the potential visual and wildlife impact of communication structures, any radio repeater stations, or other similar communication towers must be subject to the internal environmental authorisation process.

Waste management

- All solid waste must be sorted, and recyclable materials must be removed from the Park to authorised recycling companies and non-recyclable materials to municipal waste management sites.
- Incinerators are to be phased out due to air pollution concerns.
- Use of organic waste for compost purposes may be permitted but will be subject to strict conditions.
- All historical waste sites in the Park will be appropriately rehabilitated.
- All staff and public waste receptacles must be animal- and especially baboon-proof and must be maintained.
- Septic tank/French drain systems will not be installed at future small developments.

4.9.3 Events Management

Applications are regularly made to hold events and activities within protected areas. These events differ from ordinary visitor activities in their scale and potential impacts, as well often requiring additional management or hospitality duties.

- Events must be appropriate to the objectives of the protected area. The appropriateness will be evaluated based on whether the event requires to be held in the specific environment, the scale of the event, proposed event activities, potential risks and impacts, and the objectives and sensitivity of the protected area as well as protected areas rules.
- Applications must be made in good time for due process, consideration and a decision. Applications must follow the approved internal process and requirements to obtain DEVCO approval. An Environmental Management Plan will be required, together with other legislated Events documents, permits and a contract with Ezemvelo should the event be approved.

The detailed operational requirements for financial and human resources, and facilities and infrastructure development and management are set out in Table 33.

Table 33: Framework for operational management in the uKhahlamba Drakensberg Park- Financial, Human Resources and Infrastructure

Strategic outcome	Activity Number	Management activities	Management target	Target indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
FINANCIAL RESOURCES							
Adequately resource the UDP to ensure all objectives can be achieved	33.1	Develop a Strategic Plan that identifies the resource needs to achieve the objectives for the UDP	Adequate funding to achieve the objectives of the UDP	▪ Budget proposals and budget allocations ▪ Income generation statistics ▪ SAP Budget Reports	Inadequate funding to effectively protect and operate the UDP	**Year 1**	Park Manager
	33.2	Develop a Financial Plan linked to the Strategic Plan					

Strategic outcome	Activity Number	Management activities	Management target	Target indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
Effective management of financial resources	33.3	Develop and submit annual budget requests based on the Annual Operations Plan and the Financial Plan	Secure sufficient budget to address critical UDP needs	▪ Budget request ▪ Annual Operations Plan ▪ SAP Budget Reports	▪ No operational budget ▪ Inadequate operational budget	**Annual**	Officers-in-Charge
	33.4	Manage the budget in line with the IMP and the PFMA					
HUMAN RESOURCES							
Ensure that the Park is resourced with a staff establishment adequate for its effective management and operation	33.5	Create a job profile for the heritage management component	▪ Staff establishment that is adequate with all positions filled to achieve critical management needs ▪ Park staff adequately skilled for the execution of their duties	▪ Organogram ▪ Training requests, records and registers	▪ Staff establishment is inadequate for the achievement of critical management needs ▪ Park staff lack skills for protected area management ▪ No skills development programme	**Year 2**	Ezemvelo Regional Management Unit and Park Manager
	33.6	Employ sufficient, appropriately skilled staff to meet the management and operational requirements of the UDP					
	33.7	Undertake regular training and skills development to ensure that staff can effectively complete their duties					
Ensure that there is an effective staff management	33.8	Effective supervision of staff and continual assessment of standard of work	Fully implemented staff management system ensuring that staff execute duties to a high standard	Staff work plans, attendance records and performance assessments	No staff management programme is in place and	**Ongoing**	Park Manger, Conservation Managers and

Strategic outcome	Activity Number	Management activities	Management target	Target indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
programme in place	33.9	Implementation of a performance management system			unacceptable standard of work		Officers-in-Charge
Ensure that the UDP is compliant with the OHSA	33.10	Appoint Health and safety representatives	Protected area management effectively and fully implement the requirements in the OHSA	▪ Occupational Health and Safety Files ▪ Training records of first aiders ▪ Inspection sheets for Occupational Health and Safety representatives ▪ Incident reports ▪ Hazardous substance programme documentation	Noncompliance with the OHSA	**Ongoing**	Conservation Managers
	33.11	Provide training in work considered 'listed work' under the act as well as first aid training					
	33.12	Identify hazards and evaluate risks for listed work					
	33.13	Provide safety equipment where required					
	33.14	Maintain incident registers including Injury on Duty					
	33.15	Collaborate with Occupational Health and Safety representatives to minimise risks to employees	A secure and safe work environment				
	33.16	Implement a formal programme for hazardous substances, including the relevant infrastructure to house these substances securely	A secure and safe work environment				
	33.17	Provide such facilities, assistance and training as a health and safety	A secure and safe work environment				

Strategic outcome	Activity Number	Management activities	Management target	Target indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
		representative may reasonably require and as have been agreed upon for the carrying out of their functions					
	33.18	Ensure that any chemical or listed substances that are required to be stored or handled by UDP staff are stored and handled in a safe way	A secure and safe work environment				
FACILITIES AND INFRASTRUCTURE							
Ensure that all facilities and infrastructure in the UDP are adequately maintained	33.20	Develop and implement a maintenance schedule to maintain facilities and infrastructure in a condition that meets relevant environmental, health and safety requirements	Regular scheduled maintenance of all facilities and infrastructure	Roads and paths maintenance schedules and reports	Environmental, health or safety incidents associated with inadequately maintained facilities and infrastructure	**Year 1-5**	Park Manager
Ensure that existing and new roads, tracks and paths in the UDP are maintained	33.21	Maintain roads, tracks and paths according to standards that ensure safety and avoid environmental harm such as erosion	Rehabilitation and maintenance of roads, tracks and paths that are unsafe or are causing environmental damage	Road and paths maintenance schedules and reports	▪ Unattended erosion problems on roads, tracks and paths ▪ Environmental damage resulting from poorly maintained, roads, tracks and paths	**Year 1-5**	Conservation Managers
	33.22	Undertake regular assessments of the condition of roads, 4x4 tracks and specifically paths (using the system detailed in the Trails Assessment and Maintenance Manual) to					

Strategic outcome	Activity Number	Management activities	Management target	Target indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
		determine and implement scheduled maintenance needs					
	33.23	Unused roads and tracks should be closed to prevent further use and rehabilitate where required					
Service infrastructure and practices in the UDP do not cause environmental damage	33.24	Where service infrastructure, including those for water supply, electricity and sewerage are causing environmental damage, ensure proper maintenance is being undertaken and if necessary, upgrade infrastructure or modify practices to address this	▪ Appropriately functioning and serviced infrastructure ▪ Systems that do not cause damage to the environment	▪ Waste Management Plan ▪ Assessment Reports	Pollution events, complaints or incidents resulting from poorly maintained infrastructure and systems	**Year 1-5**	Officers-in Charge
	33.25	Develop an Integrated Waste Management Plan for the UDP					
	33.26	Develop, install and maintain effective standardised solid waste receptacles for the UDP that are animal-proof					

Strategic outcome	Activity Number	Management activities	Management target	Target indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
	33.27	All sewage systems in the UDP must be investigated for legal compliance and a phased programme to upgrade existing systems and septic tank/French drain systems must be implemented					
	33.28	Develop a phased programme to install standardised (reliable and tested) water- and energy-saving devices throughout the UDP					
	33.29	Conduct an assessment of all landfill sites and implement a rehabilitation programme					
	33.30	Assessment of all redundant infrastructure in the UDP					

5 Research

The Park has a long history of research which has been undertaken over the past few decades for both degree and non-degree purposes on both the cultural and natural heritage of the Park. This research has been captured in a scientific bibliography of the Drakensberg (Moffett 2020). The bibliography includes scientific articles on the Drakensberg, Maloti and adjacent Lowlands published between 1808 and 2019. Although it focusses on material appearing in accredited journals, it includes information in the form of unpublished reports, documents, presentations and dissertations. The bibliography covers 33 different disciplines ranging from Palaeobotany (17 entries) to Rock Art (502 entries).

All research activities within the Park, any collection or other listed activities in connection with indigenous species for scientific purposes and collection or manipulation of cultural artefacts/sites within the Park, require that Ezemvelo's procedures for the "Application for Registration of a Research Project and/or for a Scientific Collection Permit" be followed.

The total number of research projects that have been registered using the above-mentioned procedure is 257 during 1974 – 2020, of which half were registered within the past 12 years (Figure 14). The focus area varied from natural history (the most popular with 75 registered projects) to social ecology, biodiversity planning and managing natural resources with less five registered projects each (Figure 15). Only 10% of the studies focussed on cultural heritage. More than half the research projects were for postgraduate studies, with a large percentage being MSc level studies (Figure 16). A third of the research, however, was not necessarily for degree purposes and may include studies undertaken by staff or those for consultancies.

Notwithstanding the wealth of information obtained to date, the biodiversity components, the functioning of the ecosystems and the cultural heritage that the Park was proclaimed to conserve are still not adequately understood. Research is necessary to provide information that will assist in ensuring that the biodiversity and cultural objectives of the Park are comprehensively and adequately realised.

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

Long-term research and monitoring are desirable and necessary as a result of the dynamic and stochastic nature of the ecosystem and to ascertain whether management actions have their desired effect in terms of achieving the biodiversity and cultural heritage conservation objectives.

Partnerships and agreements with appropriate academic and research institutions will be promoted to stimulate and encourage the desired research in the Park. 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.
- Appropriate permanent research facilities must be developed and managed within or bordering the Park in order to facilitate research work.

The detailed operational requirements for research are set out in Table 34.

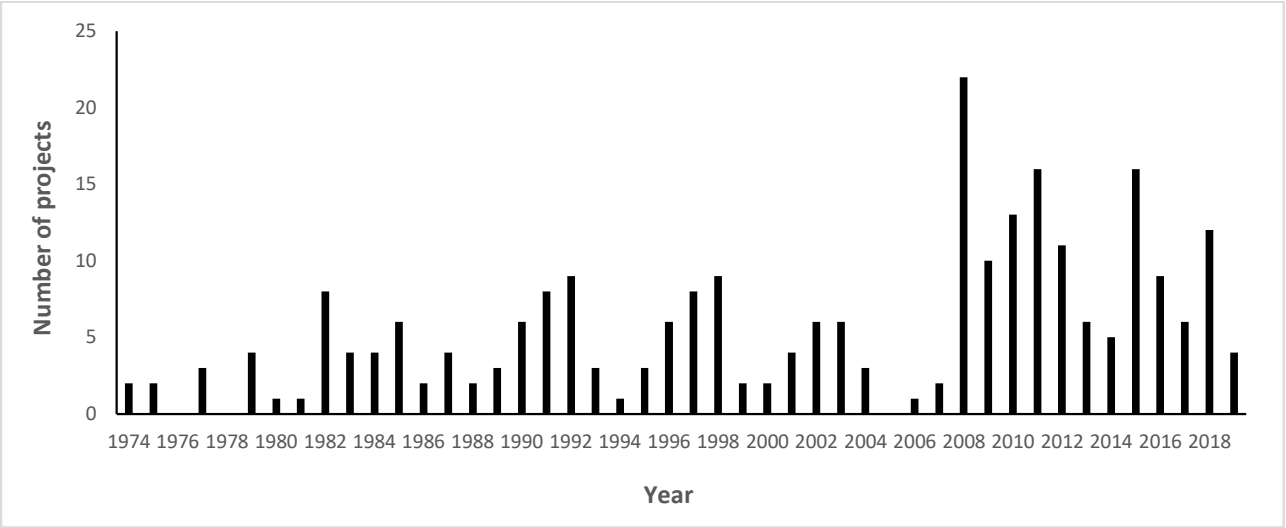

Figure 14: The number of research projects registered per year from 1914 in the uKhahlamba Drakensberg Park

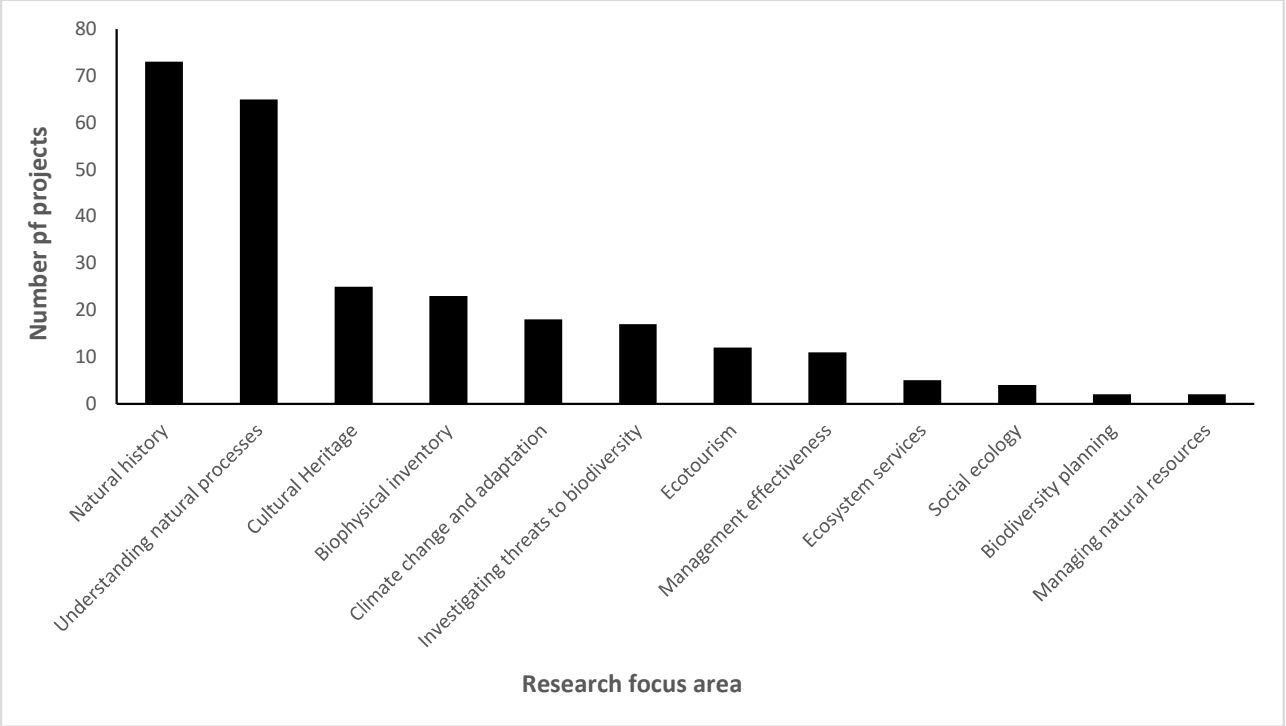

Figure 15: The research focus area of projects registered in the uKhahlamba Drakensberg Park

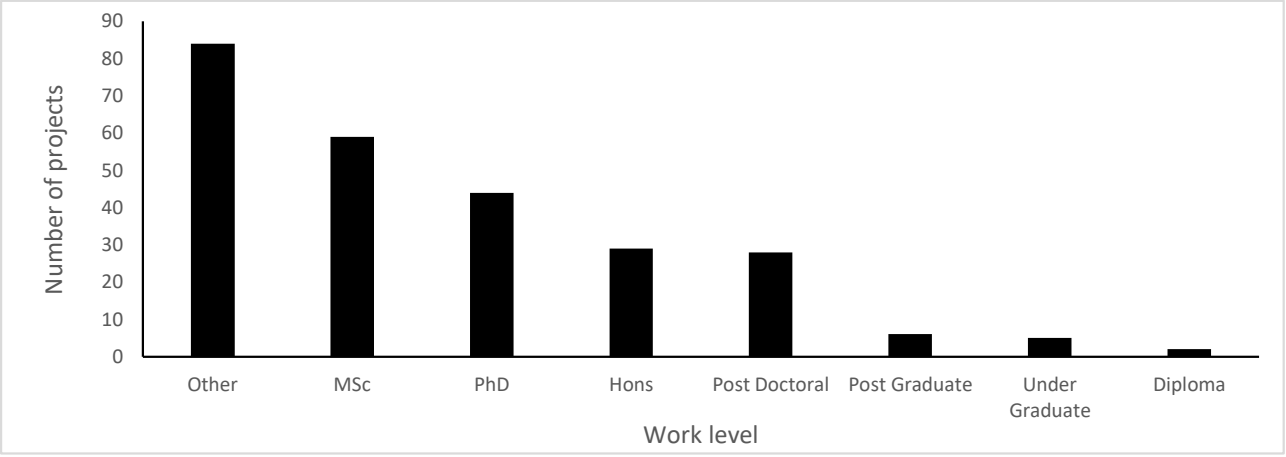

Figure 16: The work level of projects registered in the uKhahlamba Drakensberg Park

Table 34: Framework for research in the uKhahlamba Drakensberg Park

Strategic outcome	Activity Number	Management activities	Management targets	Target indicator (Evidence)	Indicators of Concern	Timeframes	Responsibility
Provide opportunities for both applied and theoretical research in the UDP	34.1	Maintain a prioritised UDP biodiversity and cultural heritage research project list	▪ Guidelines for the registration and assessment of cultural and natural research projects ▪ Prioritised research list for cultural and natural heritage ▪ Accessible research records and supporting documentation copies to be kept on station where relevant	Research applications and bibliography	Lack of research information and recommendations on which to base management decisions	**Year 1-5**	Ecological Advice Manager
	34.2	Maintain a UDP bibliography, reference library facilities and procedures to maintain hard and digital copies of all UDP related research work, and all documents listed as management supporting documentation. Strict curation rules must apply, and the ultimate responsibility for the curation of this library must be allocated to the Park Manager and the Ecological Advice Manager					

6 Monitoring

Monitoring and reporting are critical components of the adaptive management cycle. Monitoring enables the effective assessment of management interventions and, if necessary, can be used to direct modifications of management in an effort to achieve the outcomes required.

6.1 Integrated Management Plan Implementation

6.1.1 Annual Implementation Monitoring

The annual monitoring schedule should be designed to monitor the implementation of aspects of the management plan. It should be designed to be straightforward and relatively easy to implement by on-site staff. In accordance with the Ezemvelo Norms and Standards for Surveillance and Monitoring (Goodman 2011), monitoring is characterised by:

- An objective, target or desired state of the attribute or resource.
- Being part of a formalised adaptive management cycle.
- Establishing and repeatedly evaluating the measures of success of a conservation project or management intervention.

Records should be maintained of all key management interventions and problem events or incidents such as uncontrolled access, poaching, illegal plant collection and wildfires. In terms of the norms and standards set for surveillance and monitoring (Goodman 2011), these incidents would be deemed to be surveillance.

Scientific monitoring programmes may be established to monitor specific management interventions such as measures for the protection of flagship species. Not all of the management interventions will be monitored using the monitoring schedule. Most of the outcomes of the monitoring process will be captured in an annual report, which will be used to inform the following year's Annual Operations Plan.

On this basis, a monitoring framework for the UDP is set out in Table 35.

6.1.2 Annual Performance Review

The purpose of undertaking an annual performance review of implementation of the IMP is to:

- Determine how effectively the IMP been implemented.
- Assist in determining the focus for the AOP and the setting of appropriate time frames and budgets.
- Enable effective adaptive management by identifying changes and modifying management interventions.

The report produced from the annual IMP implementation review should be submitted to the PMC, prior to the annual IMP review meeting for the UDP, for review and comment. Records of recommendations for update/changes to the plan should be kept on record so that when the plan is revised, these recommendations can be assessed and included where necessary. This should be undertaken in the form of a running list which is updated in each annual report so that the final annual report, before the review of the management plan, contains the complete list of recommendations. Revisions can be recorded in the review process should include:

- Any recommended minor amendments to the IMP that do not affect the substance of the Vision, Objectives or Zonation.
- Any proposed significant changes to the IMP that is likely to result in an amendment to the Vision, Objectives and Zonation must be supported by the PMC and the relevant Operations Committee before being subjected to the appropriate stakeholder participation process, where after the proposed amended IMP will be submitted for authorisation to the Ezemvelo Executive Committee, Board and to the MEC.

6.2 Biodiversity Monitoring

The 2011 version of the KZN Systematic Biodiversity Plan identifies the provincial conservation targets in Appendix G. The conservation of the UDP contributes towards the achievement of a portion of some of these targets. Targets will continue to be updated as knowledge develops about the ecology of areas, connectivity between them and other process requirements for ecosystems, communities and species. On this basis, the conservation targets should be viewed as a set of working hypotheses around which conservation planning and evaluation can take place. An advantage of developing strategies around targets is that this process highlights critical knowledge deficits, thus guiding future research.

Biodiversity monitoring and surveillance programmes for the Park include:

- Game Observation patrols- intensive effort of recording fauna during field ranger patrols in April, May and June throughout the Park.
- Oribi and Klipspringer- recorded on patrols throughout the year.
- Oribi Point counts- undertaken in August/September as part of the provincial annual oribi count. These counts take place in Management Units from Cathedral Peak southwards.
- Spotted-necked Otter, African Otter and Water Mongoose- surveyed in Kamberg, Lotheni and Cobham annually in August/September. These sites were chosen to make them comparable to previous (baseline) studies.
- Vultures- monitoring of selected Bearded Vulture nest sites and Cape Vulture breeding colony sites in June and November for breeding success. All other sites are monitored in September.
- Eland- annual aerial counts in January to provide a total estimate and ground counts to determine the age and sex structure of the herds.
- *Protea nubegina*- monitored at Royal Natal according to a monitoring plan in conjunction with the Plant Scientist.
- Veld condition- assessments are undertaken every five years at the grazing schemes at Cobham (iKhanti) and Cathedral Peak.
- Climate change impacts- A monitoring plot has been established at Cathedral Peak representative of the global Nutrient Network (NUTNET) research programme to determine the likely impacts of climate change on the Park's grassland biodiversity. The plot is monitored by the Plant Scientist.
- Fixed Point Photographs- see the detailed schedule in Appendix H.
- Fire- the effects of fire frequency, intensity and season of burn are monitored through the Burgess Plots Research experiment at Royal Natal, the Brotherton Trial plots at Cathedral Peak and the catchment experiments at Cathedral Peak.
- Fire management implementation- monitored annually through the reporting and mapping of fires which is workshopped sub-regionally and regionally on an annual basis.

6.3 Cultural Heritage Monitoring

The cultural heritage monitoring schedule is set out in Table 36.

Records must be maintained of all key management interventions and of problem events or incidents affecting cultural heritage resources. These interventions should also be recorded in the SAHRIS database and submitted to the Ezemvelo Incident Database.

6.3.1 Rock Art

Regular inspections of the rock art sites, by Ezemvelo Field Rangers, takes place according to a cluster monitoring schedule. This rock art monitoring programme's main goal is to cluster rock art sites together that are able to be monitored together; taking into consideration the location of the site, walking distance to the sites, the number of sites in close proximity to each other that could be visited on the same day, as well as financial and human resources. The specific month the cluster of sites must be monitored, and the frequency of monitoring is detailed in the schedule. According to the schedule; rock art sites open to the public should be visited once a month, fire-threatened sites on a biannual basis illegally visited sites on a quarterly basis and sites where no threats have been identified should be visited on an annual basis.

The criteria recorded at each site are aligned with SAHRIS so that all data can be captured directly into the database.

6.3.2 Built Environment

All built environment structures should be monitored on at least an annual basis during asset checks, with particular and more detailed focus on structures of significance. A regular report on the state of conservation of built heritage should be produced.

6.3.3 Other Heritage

There are no formal monitoring programmes in place for palaeontological heritage, living heritage sites (except where these are also rock art sites) or Iron Age sites. The heritage agency relies on reactive reporting of issues related to these sites by Ezemvelo staff, academics and the public.

6.4 Other Monitoring Programmes

Social and biophysical aspects that are monitored in the Park, for example, Limits of Acceptable Change, are detailed in the Wilderness Management Plan (2011).

Social and biophysical aspects of paths in the Park are detailed in the Trail Monitoring and Condition Assessment System in the Trails Manual (2016).

As set out in Table 37, the following issues require a surveillance plan:

- The increase in density of listed invasive vegetation on the Park's boundaries; and
- The capture and storage of weather data.

In addition, the following issues require a monitoring plan:

- Measures taken to control invasive plant species;
- Measures taken to control soil erosion;
- Measures taken to manage rare and endangered species, particularly those for which conservation targets have been set; and
- The ecological status of the wetlands within the UDP.

These surveillance and monitoring plans must be developed and implemented in accordance with the Ezemvelo Norms and Standards: Surveillance and Monitoring Plans for Biodiversity (Goodman 2011). The preparation of these plans must be undertaken by the Ezemvelo Ecological Advice Unit with the support of the Conservation Services Operations Committee of Ezemvelo.

7 Reporting

Biodiversity Reporting requirements include:

- Annual reports on the implementation of the Bearded Vulture Biodiversity Management Plan.
- Annual State of Biodiversity Report for the Bearded Vulture.
- Annual CITES reports on the status of oribi and leopard in the Park.

The UDP has several local, provincial, national and international reporting requirements based on its status as a Ramsar and World Heritage Site. These reports include:

- Annual report to the Minister on the status of the World Heritage Site.
- Six yearly periodic reporting to the World Heritage Centre Committee on the status of the World Heritage Site.
- Reporting to the provincial and national minister on the state of the protected area.
- Annual reporting on the status and integrity of the Ramsar Site.
- Local reports as required.

Reporting requirements are listed in Table 38. Cultural Heritage reporting requirements are included in the local, provincial, national and international reporting requirements related to the World Heritage Site.

Table 35: Framework for biodiversity monitoring in the uKhahlamba Drakensberg Park

Strategic outcome	Activity Number	Management activities	Management targets	Target indicator (Evidence)	Indicators of Concern	Priority	Responsibility
Critical ecological processes and functions are maintained within the UDP	35.1	Implement a monitoring programme for water quality below all water treatment plants	An understanding of the critical ecological processes and using this understanding to facilitate adaptive management	Monitoring and water quality reports	Ecological degradation of the rivers and wetlands as shown through assessment	**Year 1-5**	Water Care Manager and Ecological Advice Manager
	35.2	Work collaboratively with SAEON on catchment monitoring and fire exclusion plots at Cathedral Peak					
Rare and endangered species management is undertaken using the best available scientific knowledge	35.3	Adopt procedures for the management of rare and endangered species within the UDP, particularly those for which specific conservation targets have been set, based on available literature and known best practices (Oribi and all Crane and cliff-nesting Vulture species)	Maintenance and increase in population numbers of rare and endangered species within the UDP	Monitoring reports and records of management interventions	Declining numbers of rare and endangered species that occur within the UDP	**Year 1-5**	Ecological Advice Manager
	35.4	Undertake monitoring of key rare and endangered species (Oribi and all Crane and Vulture species)	Monitoring of flagship species	Monitoring reports	Lack of understanding of the status of flagship species		Ecological Advice Manager
Processes are established to determine the success of management interventions in protecting the ecosystems, communities and species of the UDP	35.5	Develop and implement surveillance and monitoring plans for key management interventions in accordance with the Ezemvelo policies and norms and standards	▪ Surveillance and monitoring plans for key threatening processes ▪ Monitoring plans for key rare and endangered species	▪ Adopted monitoring plans ▪ Monitoring reports and records	Lack of awareness of the status of key threatening processes including infestations of invasive plant species and severity and extent of soil erosion		Ecological Advice Manager

Table 36: Framework for cultural heritage monitoring in the uKhahlamba Drakensberg Park

Strategic outcome	Activity Number	Management activities	Management targets	Target indicator (Evidence)	Indicators of Concern	Priority	Responsibility
Cultural heritage within the UDP is adequately maintained	36.1	Regular inspections of the rock art sites according to a cluster monitoring schedule	▪ All rock art sites open to the public inspected once a month ▪ All fire-threatened sites inspected biannually ▪ All illegally visited sites inspected quarterly ▪ All sites where no threats have been identified inspected annually	Cluster programme database updated monthly	Increased vandalism of sites or damage from fire or other natural causes	Year 1-5	OiC, Conservation Managers, Ecologist
	36.2	Regular inspections of all built environment structures	▪ All structures to be inspected annually ▪ Structures of significance to be inspected quarterly.	Report on the state of conservation of built heritage structures.	Structures deteriorating due to lack of maintenance	Year 1-5	OiC, Conservation Managers
Cultural heritage within the UDP is accessible to the public and adequately maintained	36.3	Rock art sites open to public visitation throughout the UDP and managed according to a site management plan	▪ 24 sites open to the public with individual site management plans	Implementation of Site Management Plan reported on through AOP in cluster monitoring database	Increased vandalism of sites by public	Year 1-5	OiC, Conservation Managers

Table 37: Annual surveillance and monitoring schedule for the uKhahlamba Drakensberg Park

Management issue	Parameters to be monitored	Monitoring measures	Monitoring frequency	Responsibility	Reporting requirements
Law enforcement	Schedule of patrols	Written record	Weekly	Officers-in-Charge	Annual report
	Recovery of snares	Photographs/written record	Weekly		Annual report
	Illegal incidents	Photographs/written record	Per event		Record of event
Stakeholder engagement	Minutes of meetings of the local board, community levy trust and liaison forums	Written record	Bi-monthly	Officers-in-Charge	Annual report
Buffer zone management	Influx of listed invasive vegetation on the nature reserve's boundaries.	Surveillance plan	To be determined	Officers-in-Charge supported by Ecological Advice Unit	Annual report
Local and regional planning	Land uses that are approved in the areas around the UDP in local and regional IDPs and SDFs	Written record	Annually	District Conservation Officers	Annual report
Eco-cultural tourism	Visitor statistics	Completion of questionnaire	Ongoing	Officers-in-Charge & Resort Managers	Annual report
Cultural Heritage Management	Open sites	Monitoring database	Monthly	Officers-in-Charge	Monthly biological returns & Annual report to the Amafa-Ezemvelo Liaison Committee
	Sites under fire threat	Monitoring database	Biannually	Officers-in-Charge	
	Illegally visited closed sites	Monitoring database	Quarterly	Officers-in-Charge	
	Sites with no identified threats	Monitoring database	Annually	Officers-in-Charge	
Fire management	Burning of firebreaks as part of fire management	Written record (fire management data form) including /map/photography, fire database	Annually	Officers-in-Charge and Ecological Advice Manager	Annual report
	Controlled burning		Annually		Annual report
	Control of wildfires		Per event		Record of event
Invasive plant control	Areas subject to invasive plant control	Monitoring plan	To be determined	Officers-in-Charge supported by Ecological Advice Unit	Annual report
	State of areas in which invasive plants have been eradicated				
	Records of labour hours/days	Written record	Annually		Annual report

Management issue	Parameters to be monitored	Monitoring measures	Monitoring frequency	Responsibility	Reporting requirements
	Herbicide usage	Written record	Annually		Annual report
Soil erosion control	Areas subject to erosion control	Monitoring plan Photographs/written record	To be determined Per event	Ecological Advice Manager and Officers-in-Charge supported by Ecological Advice Unit Officers-in-Charge	Annual report
	State of rehabilitated areas of erosion Incidents related to flagship species				
Conservation targets	Species numbers for assessment of progress towards achievement of targets	State of Biodiversity Report	Annually per event	Ecological Advice Manager and Officers-in Charge	State of Biodiversity Report
	Incidents related to flagship species	Incident reports			Record of event
Resource utilisation	Status of key rare and endangered species, particularly those for which conservation targets have been set	Monitoring plan	To be determined	Officers-in-Charge supported by Ecological Advice Unit	Annual report
	Extraction of resources from the UDP	Written records, database of extractive use	Per event	Officers-in-Charge, Ecological Advice Manager	Annual report
Human resources	Staffing levels	Number of full-time staff	Annually	Officers-in-Charge	Annual report
Facilities and infrastructure	State of roads, 4x4 tracks and paths	Photographs/written records	Quarterly	Officers-in-Charge	Annual report
	State of the boundary fence	Photographs/written records	Monthly		Annual report
	Weather data	Surveillance plan	Monthly	SA Weather Service (Giants Castle, Royal Natal) Ecological Advice Unit	Monthly biological returns
	State of facilities and service infrastructure	Maintenance schedule/written records	Monthly	Officers-in-Charge	Annual report
	Pollution events	Photographs/written records	Per event	On-site Officer-in-Charge	Record of event

Table 38: Framework for reporting in the uKhahlamba Drakensberg Park

Strategic outcome	Activity Number	Management activities	Management targets	Target indicator (Evidence)	Indicators of Concern	Timeframe	Responsibility
REPORTING							
Comply with legislative requirements for reporting in terms of NEMPA, WHCA, NHRA and the Ramsar Convention	38.1	Submit an annual report to the Minister on the status of the WHS	Legislative compliance in terms of reporting	▪ Reports ▪ Evaluation of reports ▪ Feedback on reports	Non-compliance with legislative reporting requirements	**As per legal requirement**	Park Manager
	38.2	Submit the six-yearly report to the WHS Committee on the status of the WHS					
	38.3	Report annually to the provincial and national minister on the state of the protected area					
	38.4	Reporting on the status and integrity of the Ramsar Site					
	38.5	State of biodiversity report and Cites report					
	38.6	State of conservation report					
	38.7	The National Cultural Heritage Act requires annual reporting to SAHRA on matters pertaining to Category 1 sites					

8 Annual Operations Plan

Each year an AOP will be prepared (Figure 11), based on the objectives, strategic outcomes, management activities and targets contained in the IMP.

8.1 Implementation of the Integrated Management Plan

The Park Manager will hold an annual management meeting for the UDP management team. In terms of the implementation of the IMP, the purpose of the annual management meeting for the UDP will be to finalise the annual report, as part of the annual IMP implementation review described in Figure 11. In addition, the following will be done:

- Determine the need to modify or change any of the IMP's objectives, strategic outcomes, management activities or targets.
- Determine management activities for the coming year and set goals for the year, based on the key performance areas set out in the IMP, in accordance with the Park Manager's performance contract.
- Determine how budgets will be spent in an effort to achieve the goals for each of the quarters of the coming year.

The Integrated Management Plan covers a minimum period of ten years, where after an assessment will determine specific review requirements.

The AOP, which will include all of the information set out in Figure 17 and will determine what management activities need to be completed for the coming year. The AOP will be linked to staff performance contracts, and goals set in these contracts will be categorised within the same key performance areas as the IMP.

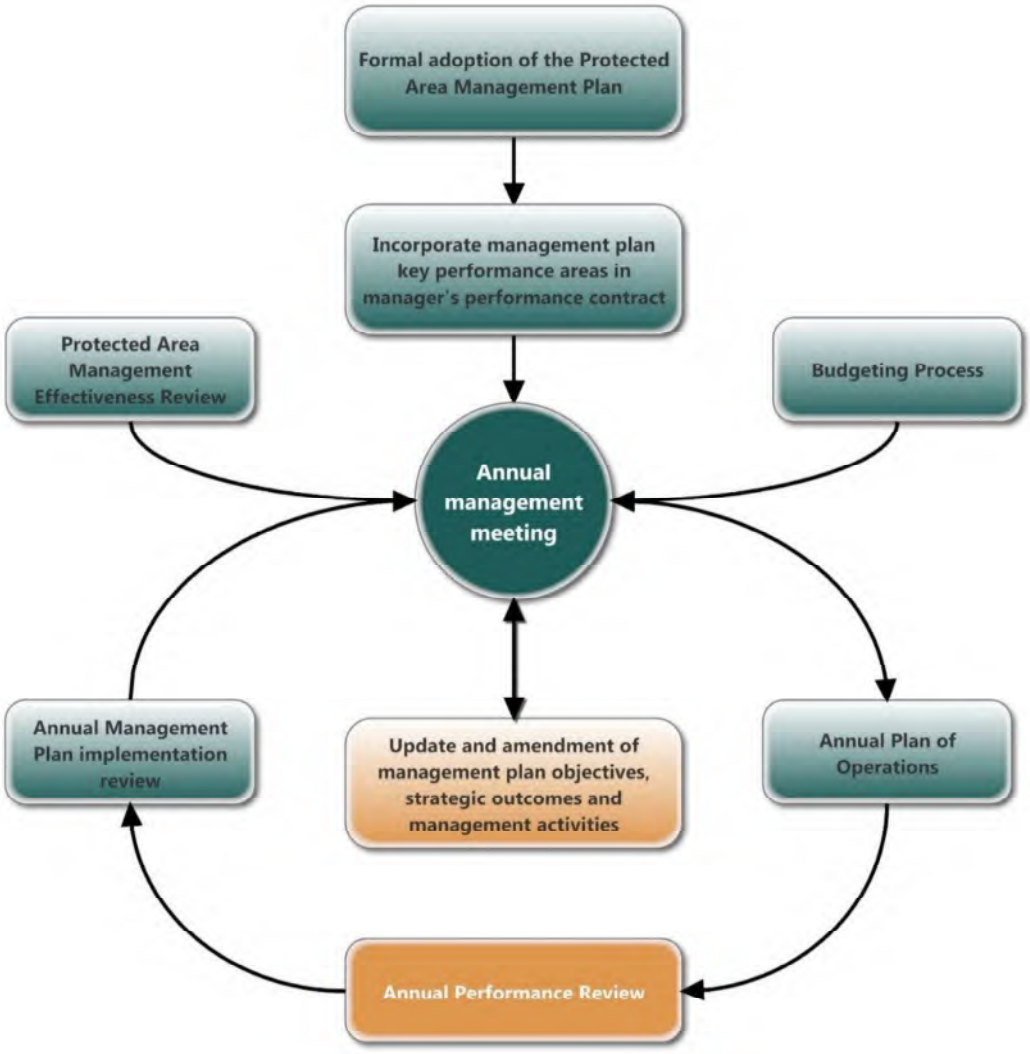

Figure 17: Process for the implementation of the Integrated Management Plan

8.2 Responsibilities in Implementing the Integrated Management Plan

In the operational management framework tables, the responsibilities for the completion of management activities are identified. In many cases, the people responsible for implementing the activities will be in attendance at the annual management meeting, and the requirements for the achievement of the management activities can be discussed and agreed to at the meeting. In some cases, however, the management activities may need to be referred to the PMC and the relevant Operations Committee in order to assign responsibility for the completion of the activity. The implementation component of the Integrated Management Plan is the Annual Operations Plan that will ensure adaptive management and set out the goals and actions to ensure the achievement of management objectives and the Park vision.

8.3 Resource Requirements

In developing AOPs for the UDP, the resource requirements associated with management activities and targets set out in the operational management framework must be considered and budgeted for. The following section broadly identifies the issues that must be considered in determining adequate human resources, funds and equipment for the UDP.

8.3.1 Staff and Equipment

AOP must consider the staff and equipment needs to undertake the following activities:

- Administration and management of the UDP.
- Patrolling of the UDP and its boundaries.
- An annual fire management programme and response to wildfires.
- An ongoing invasive plant species control programme.
- An ongoing soil erosion control and rehabilitation programme.
- Ecological monitoring and data capture.
- Maintenance of roads, paths and fences within the UDP.
- Maintenance of facilities and infrastructure within the UDP.
- Capture of visitor information and statistics.
- Admitting visitors to the UDP and charging entrance fees.
- Community liaison and cooperation.
- Environmental interpretation and awareness.
- Cultural heritage monitoring, data capture and management.

8.3.2 Projects

In addition to the requirements for annual recurrent funding for the issues outlined above, there will be a need to identify funding requirements for the following capital projects:

- Maintenance of the research centres at Cathedral Peak and Kamberg and the development of an additional research centre in the South.
- Development of a branding strategy to market the Park to internal and external stakeholders as a World Heritage Site and Transfrontier Park.
- Upgrade of the Didima and Kamberg Rock Art Centres.
- Development of theme-based environmental interpretation and awareness material.
- Investigate the replacement of the overhead powerline at Giant's Castle and Thendele (about 8 km) with underground cables.
- Provision of power to Hillside, Injesuthi and Lotheni.

8.4 Annual Financial Plan

The AOP must contain a financial plan, which must be approved by the PMC. The annual goals contained in the APO will be prioritised with the approved budget and guided by the strategic direction of the IMP.

8.5 Financial Accounting System

It is accepted that all fiscal management will be guided by the Public Finance Management Act No.1 of 1999 and Ezemvelo's Financial Policy and Procedures directive. Funding sources not generated internally will be accounted for in the prescribed process as determined by the donor source.

8.6 Financial Reporting

Annual and quarterly fiscal reports will be submitted as directed by the PMC.

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APPENDICES

Appendix A: List of published and unpublished supporting documents of the uKhahlamba Drakensberg Park

1. List of local agreements, leases and other servitude arrangements pertaining to the Park.
2. Geology of the UDP. Unpublished report by S. Grab (2004).
3. Species checklists for the Park (2020).
4. Commentary on the Reptiles and Amphibians of the uKhahlamba Drakensberg Park World Heritage Site. Unpublished document by A. Lambiris (2005).
5. The UDP WHS Integrated Management Planning Process Facilitated by Maloti Drakensberg Transfrontier Project on Behalf of Ezemvelo KwaZulu-Natal Wildlife. Proceedings from the Key-stakeholder Workshop held at Midmar Dam from 14 – 16 October 2003.
6. KZN Systematic Conservation Plan ['C-Plan'] (2011).
7. National Policy and Strategy for Problem Animal Control in South Africa (January 1998).
8. Cultural Resource Management Plan for the Natal Drakensberg Park (CURE document -1997).
9. Guidelines for the Registration and Administration of Research Projects Undertaken by or through Ezemvelo KwaZulu-Natal Wildlife (revised 2020).
10. Standing Instructions regarding Park Mountain Rescue Protocol.
11. Nomination Proposal for the uKhahlamba Drakensberg Park Alternatively known as uKhahlamba Park to be listed as a World Heritage Site. Prepared by the KZN Nature Conservation Service and Amafa (1999).
12. Nomination proposal for the Natal Drakensberg Park to be designated to the List of Wetlands of International Importance, Convention on Wetlands of International Importance, especially as Waterfowl Habitat. Prepared by W.R. Bainbridge (1991).
13. The UDP WHS Integrated Development Plan Part B (Zonation) –. Internal Report compiled by Brent Corcoran and Management Team (7 November 2003).
14. Amafa/Ezemvelo Cooperative Conservation Management of Cultural Heritage Agreement (signed July 2005).
15. uKhahlamba Drakensberg Park World Heritage Site, Concept Development Plan (revised April 2013).
16. uKhahlamba Drakensberg Park World Heritage Site Security Strategy (2007).
17. Maloti Drakensberg Transfrontier Conservation Area: Sehlabathebe National Park, Lesotho and uKhahlamba Drakensberg Park World Heritage Site, South Africa. Terms of Reference for the Joint Management Committee (2nd Amendment dated 6 June 2007).
18. Maloti-Drakensberg Tranfrontier Park (uKhahlamba Drakensberg Park World Heritage Site/Sehlabathebe National Park) Joint Management Plan: 2020-2029 (revised 2019).
19. Caring for Natural Rangelands, Ken Coetzee (2005).
20. Drakensberg Eland Management Strategy (August 2010).
21. uKhahlamba Drakensberg Park World Heritage Site Wilderness Management Plan (revised January 2013).
22. Alien and Invasive Species Control Plan for the uKhahlamba Drakensberg Park (October 2013).
23. Maloti-Drakensberg Park World Heritage Site South Africa Environmental Awareness Plan 2016-2020.
24. Maloti-Drakensberg Park Expansion Plan (2017).
25. Building in the Berg: Principles and guidelines for building in the Drakensberg. Buffer (2011).

Appendix A continued: List of published and unpublished supporting documents of the uKhahlamba Drakensberg Park

Servitudes and Agreements:

Poccolan

- Eskom - Servitude for power lines running from the Drakensberg Power Station through Poccolan.
- Memorandum of Agreement for the use of Poccolan house by the Amphitheatre Backpackers.
- In addition, there is a Memorandum of Agreement being developed to provide Eskom the concession to operate their business inside Poccolan.

Royal Natal

- Agreement for the section of land known as Lions Ridge that is being rented from the Amazizi Traditional Authority.

Cathedral Peak

- Access agreement with Cathedral Peak Hotel regarding access to the Hotel.
- Memorandum of Agreement and 99 year lease with Mountain Club South Africa for Cambalala Hut on Mike's Pass.
- Memorandum of Agreement with Department of Education and Culture for the use of the Education Centre.
- Need to finalise the proposed land swap between Ezemvelo KwaZulu-Natal Wildlife and the Amangwane Traditional Authority that was initiated in 1995.
- Memorandum of Agreement with African Conservation Trust with regards to the Cathedral Peak Research Centre.
- Agreement with Community with regards to the operation of the following facilities:
  1. Cathedral Peak Camp Site
  2. Didima Laundry Project
  3. Cathedral Peak Bicycle Hire Project
- Agreement with C3 Caterers for running of restaurant facilities at Didima.
- Agreement with Superclean for the housekeeping and grounds maintenance of Didima Resort.

Monks Cowl

- Access agreement / servitude to private properties initiated in 2007 by legal through Monks Cowl not finalised.
- Access agreement for Bush Reserve 2 currently under review.

Cobham

- Sani Pass Road which travels through the Park into Lesotho. It is a right of way and the road is managed by the Department of Transport.

Garden Castle

- Bushman's Nek to Sehlabathebe National Park. There is a foot/bridle path from the SAPS border post at Bushman's Nek to Sehlabathebe National Park. It is not a registered servitude but has been in existence for a very long time. The presence of a Border Post at Bushman's Nek and the ruins of Jonathan's Gate (old Lesotho Border Post) indicates a right of way.

Appendix A continued.: List of published and unpublished supporting documents of the uKhahlamba Drakensberg Park

Ezemvelo KwaZulu-Natal Wildlife Corporate Policies

The table below lists the Ezemvelo KwaZulu-Natal Wildlife corporate policies (norms and standards) that are most relevant to the UDP management. It is the responsibility of all management and other personnel associated with management of protected areas to ensure that they familiarise themselves and comply with the most recent versions of all Ezemvelo KwaZulu-Natal Wildlife Board Approved Policies.

CORPORATE AFFAIRS	
B 2	Access to Ezemvelo KZN Wildlife Areas and Employment
B 5	Outsourcing of Functions and Services
B 7	Monuments, Memorials and Names of Protected Areas under the control of Ezemvelo KZN Wildlife
B 8	Restricted use of Board Theatres, Halls and Conference Facilities etc
B 9	Code of Ethics / Conduct
B 10	Photography in Board Protected Areas
B 13	Mission Statement
B 14	Access to Information
INTERNAL AUDIT	
C 5	Management Control
Biodiversity conservation operations	
1. NATURAL RESOURCE SUSTAINABILITY	
Threatened Species and Ecosystems	
D 1.7	Cycads
D 1.8	Disposal of Threatened Species
Exotic and Invasive species	
D 1.9	Release of Alien Species
D 1.10	Control Measures for Red-billed Quelea
D 1.12	Grass Carp
D 1.13	Establishment of Alien Plantations
Migratory Species	
D 1.14	Black Wildebeest and Blue Wildebeest Hybridization and Conservation
D 1.15	Permit authorising the collection of Biological Material within Board Areas
2. CONSERVATION EFFECTIVENESS	
Strategic applications	
D 2.1	Involvement of the KwaZulu-Natal Nature Conservation Board in Project 8 of the MAB (Man and Biosphere) Programme
Conservation management: protected areas management	
D 2.2	Management of Wilderness Areas
D 2.3	Protected Area Development
D 2.4	Prohibition of Works and Servitudes in Board Areas
D 2.6	Quarries in KZN Protected Areas
D 2.7	Re-establishment and Management of Vegetation on Development Sites in the Ezemvelo KZN Wildlife Protected Areas
D 2.8	Ecotourism and Protected Areas
D 2.9	Solid Waste Management within Protected Areas
D 2.10	State Security Service Activities within Board Areas
Integrated environmental management	
D 2.12	Integrated Environmental Management - incorporating the procedure for the assessment of the impact of proposed development projects on nature conservation concerns.
D 2.13	Precautionary Principle
D 2.15	Bioprospecting in KwaZulu-Natal
D 2.17	Use of Pesticides by the Ezemvelo KZN Wildlife: Safety to Humans and the Environment
Ex Situ Wild Animal Management	
D 2.21	Re-establishment of Terrestrial Mammals in Board Areas
D 2.22	Translocation of Animals

D 2.28	Use of Narcotic Drugs
D 2.29	Falconry
Human Animal Conflict - Inside and Outside Protected Areas	
D 2.30	Disposal of Leopard from Ezemvelo KZN Wildlife Protected Areas
D 2.31	Problem Animal Control
D 2.33	Instances of Death as a result of an Unprovoked Attack by a Wild Animal Normally contained and originating from within a Fenced Protected Area under the Control of the KwaZulu-Natal Nature Conservation Board
Environmental Awareness	
D 2.34	Environmental Education Policy
3. BIODIVERSITY PROTECTION	
Co-management	
D 3.1	Supply of Game to Conservancies, Community Conservation Areas and Biosphere Reserves in KwaZulu-Natal
D 3.2	Establishment and Management of Community Conservation Reserves (CCR)
D 3.4	Community Conservation Programmes
D 3.5	Neighbours' Access to Board Protected Areas
D 3.6	Relationship with Local Boards
D 3.7	Conservation Partnerships Between KwaZulu-Natal Nature Conservation Board and Adjacent Landowners
D 3.8	Community Trust
D 3.9	Community Levy Policy and Guidelines
D 3.10	Land Claims on Proclaimed and Unproclaimed Provincial and Assigned National Protected areas in KwaZulu-Natal
D 3.11	Amafa Policy Guidelines for the access of rock art sites in KwaZulu Natal
Resource use benefits	
D 3.12	Disposal of Venison from Ezemvelo KZN Wildlife Management Operations
D 3.13	Sustainable use of wildlife resources
D 3.14	Freshwater Angling
D 3.15	Freshwater species utilisation
D 3.16	Use of plant resources from protected areas
D 3.17	Use of doomed biological material
D 3.19	Provision of hunting by Ezemvelo KZN Wildlife
4. RELATIONSHIPS	
D 4.1	Neighbour Relations
D 4.2	Participation - Non Government Organisations
D 4.3	Data Access
D 4.4	Consultation and Communication with Stakeholders: Policy and Guidelines
COMMERCIAL OPERATIONS	
E 1	Concessions for Welfare Groups
E 2	Hiking and Mountaineering
E 3	Educational Concessions
E 4	Club Facilities within Board Areas
E 5	Hutted Camps
E 6	Joint Venture Scheme
E 7	Allocation of Sites in terms of the Joint Venture Scheme
E 8	Access to Protected Areas through Unofficial Entry Points
E 9	Visitor Facilities Management by Ezemvelo KZN Wildlife.
E 11	Execution, Control and Management of Leases and Concession Contracts (excluding Biodiversity Conservation Partnerships and Leases of Wildlife)
E 12	Private Sector Reservations Policy
E 13	Partnerships for Eco-Tourism Development within or Adjacent to Protected Areas
E 14	Discounting of Tariffs for Walk-in Guests
E 15	Ecotourism Discounting Strategy
E 16	Travel Trade Commissions: Tour Operator/ Travel Agency
E 17	Policy and Procedure for the establishment and monitoring of Commercial Operations Public Private Partnership (PPP) Agreements
E 18	Administrative and operational policy on Professional hunting in South Africa
E 19	Commercialisation

Appendix B: List of statutes to which the uKhahlamba Drakensberg Park is subject

Biodiversity and Cultural Resource Management and Development:

- Animals Protection Act No. 71 of 1962
- Atmospheric Pollution Prevention Act No. 45 of 1965
- Conservation of Agricultural Resources Act No. 43 of 1983
- Constitution of the Republic of South Africa No. 108 of 1996
- Criminal Procedures Act 1977
- Environment Conservation Act No. 73 of 1989
- Forest Act No. 122 of 1984
- Hazardous Substances Act No. 15 of 1973
- KwaZulu Nature Conservation Act No. 8 of 1975
- KwaZulu-Natal Heritage Act No. 4 of 2008
- 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
- KwaZulu-Natal Nature Conservation Ordinance No. 15 of 1974
- World Heritage Convention Act No. 49 of 1999

General Management:

- Development Facilitation Act No. 67 of 1995
- Disaster Management Act No. 57 of 2002
- Fire Brigade Services Act No. 99 of 1987
- KwaZulu-Natal Planning and Development Act No. 6 of 2008
- Local Government: Municipal Systems Act No. 32 of 2000
- National Road Traffic Act No. 93 of 1996
- National Building Standards Act No. 103 of 1977
- Occupational Health and Safety Act No. 85 of 1993
- Water Services Act No. 108 of 1997

Financial Management: Public Finance Management Act No. 1 of 1999

H**uman Resource Management:**

- Basic Conditions of Employment Act No. 75 of 1997
- Broad-Based Black Economic Empowerment Act No. 53 of 2003
- Compensation for Occupational Injuries and Diseases Act No. 130 of 1993
- Employment Equity Act No. 55 of 1998
- Labour Relations Act No. 66 of 1995
- Occupational Health and Safety Act No. 85 of 1993
- Pension Funds Act No. 24 of 1956
- Skills Development Act No. 97 of 1998; Skills Development Levies Act No. 9 of 1999
- Unemployment Insurance Act No. 63 of 2001

STAATSKOERANT, 18 DESEMBER 2007 No. 30590 39

No. 1199 18 December 2007

NOTICE IN CONNECTION WITH THE PROCLAMATION OF THE uKHAHLAMBA DRAKENSBERG PARK AS A WORLD HERITAGE SITE

I, Marthinus Christoffel Johannes van Schalkwyk, Minister of Environmental Affairs and Tourism, proclaim by virtue of the powers vested in me in terms of
section I(xxiv) (a) of the World Heritage Convention Act, 1999 (Act No.49 of 1999), uKhahlamba Drakensberg Park inscribed in 2000 on the United Nations
Educational, Scientific and Cultural Organization (UNESCO) World Heritage List,
to be a World Heritage Site, as described in the Annexure below.

MARTHINUS VAN SCHALKWYK, MP
MINISTER OF ENVIRONMENTAL AFFAIRS AND TOURISM
DATE: 0711 2/07

Appendix D: Climate Change: 10 key socio-ecological changes expected [14]

While there have been modelling approaches to anticipate some changes (see above), the following 10 impacts are anticipated based on current ecological understanding of the system, and should form the basis for future research, monitoring and discussions on management strategies. In summary, reasonably dramatic vegetation transformations are expected; changes in fire patterns and behaviour are expected; hydrological functioning could be markedly impacted; and direct human threats and impacts may intensify.

1. Bush encroachment. Ameliorating temperatures, possibly in combination with the effect of increasing atmospheric CO2, may promote bush encroachment into grassland with consequences for grassland diversity and hydrological functioning. Tree species (the 'treeline') may move upwards from the lower montane belt into the upper montane belt (Carbutt & Edwards 2015). Casual inspection suggests ongoing spread and altitudinal creep of *Leucosidea sericea* in valleys in particular, plus *Acacia sieberiana* over a broader range of habitats. Very efficient use of fire is likely to remain the most efficacious means of controlling bush encroachment.

2. Expansion invasive alien species. For the same reasons as bush encroachment, woody alien plant species are likely to expand, and the rate of spread is likely to markedly increase. Urgent action is required now before current species begin to increase exponentially; response within protected areas without response in immediately adjacent areas would be short-sighted. As water temperatures rise the rivers of the Park are likely to become less suitable for trout but possible more suitable for bass.

3. New wave of alien invasive species. It is self-evident that ameliorating climate will create opportunities for an increasing number of alien species to establish within the Park. The main issue is probably vigilant surveillance in order to detect threats as early as possible, and the means to respond to these threats. Most of the new species could probably be predicted from the SAPIA database.

4. Change in community composition

   The current low levels of mineralisation of nitrogen into inorganic nitrogen is likely caused by temperature limitations on microbial activity (Carbutt et al. 2013; Carbutt & Edwards 2015). This intrinsically N-rich but functionally N-poor soil economy may change to one with more available inorganic N available under the predicted warmer and slightly wetter conditions. This may be at the detriment of plant taxa adapted to and more competitive in an environment of low soil N availability (Carbutt & Edwards, 2015), such as *Themeda triandra*.

5. Structural changes to grass swards. Berg grassland diversity (plant and animal) would be compromised if there was a change from the current short or medium height swards often dominated by *Themeda* to swards dominated by a tall, dense grass, to which forbs may not be adapted. There has been some cognisance of the potential expansion of C3 grasses, especially of *Festuca costata*, into lower altitudes in response to increasing atmospheric [CO2] (C3 grasses might also contract to higher altitudes as a consequence of increasing temperatures). Potential expansion of bracken fern *Pteridium aquilinum*, probably for similar reasons, is also commonly mooted but there is as yet no definitive evidence. However, increases in tall *Hyparrhenia* grasses might also be expected in response to warming. Ingress of such species is already readily evident along many paths, which is providing a seed source for colonisation of newly created bare soil surfaces. An obvious starting point for containing these expansions would be improved use of fire but the knowledge base for this does not exist, neither is it likely to be sufficient on its own.

6. Altered fire regimes. It is likely that there will be a number of (significant) changes to the way in which fire functions in the Drakensberg landscape. Fire behaviour will likely be affected by changes in humidity, temperature and rainfall seasonality; it is not possible to forecast changes in wind regimes at this stage. Possibly the biggest challenge is that an optimal fire regime for maintaining biodiversity has not been defined, nor is there any clear understanding of what adjustments need to be made. However, elaboration of consideration about fire could be based on a number of individual characteristics. For example, there is ample theoretical expectation plus empirical evidence (e.g. Grysbok Bush) that forests will become increasingly flammable on account of rising temperature and greater variation in moisture availability. Appropriate burning regimes could reduce the probability of ignition. Wetlands are also likely to become more susceptible to burning.

7. Novel diseases. Climate amelioration is expected to promote the altitudinal and geographic expansion of plant and animal diseases into regions from which they have been absent. Diseases affecting humans should also be considered not only because of their impact on tourism and Park employees but also because of their impact on land use behaviour of the local community. However, malaria is unlikely to be an issue.

[14] With acknowledgement to Prof. Tim O'Connor

8. Direct and indirect socio-economic impacts. Climate change could exacerbate socio-economic hardship of neighbouring communities, which in turn may become more reliant on Park resources and/or demand for land. Illegal grazing may escalate, especially during drought years where there is a dearth of grazing, with implications for plant populations sensitive to grazing and the invertebrate fauna dependent on them. Increasing temperatures will possibly promote increasing use by livestock from Lesotho of the upper catchments of rivers flowing into South Africa, resulting in increased soil erosion and water turbidity, with implications for stream-related biota at high altitude (including amphibians), a number of which are endemic.

9. Increased variability of rainfall and river flow. Higher inter-annual rainfall variability will result in greater variation in vegetation cover with increased soil sheet erosion following periods of particularly poor rainfall, especially following denudation by fire. If increased variability results in exceptionally wet episodes, slumping in the form of landslides and terracettes may become more commonplace and with individual events of larger extent. An increased frequency of rock slides might also be argued to be expected from such a change. Increased erosional activity may result in increased turbidity and nutrient enrichment of catchments that would affect the current aquatic biota adapted to clear, nutrient-poor water. Another important consequence of increased variability of water flow is expected to be transformation of a proportion of streams to lose their current perennial pattern of flow, with obvious consequences for biodiversity which requires a perennial flow pattern (e.g., dragonflies, amphibians). An increasing number and size of impoundments could be expected outside the Park that would affect organisms operating along extended lengths of river.

10. Expanding challenges with a fixed budget. Potential impacts of climate change need to be considered in relation to potential adaptation responses. Considering the increasing number and complexity of challenges, it would be expected that they could only be met with an increasing allocation of resources. Management capacity may become even more compromised as a consequence of an increased number of emerging threats.

Appendix E: List of Cultural Heritage sites open for public visitation in the uKhahlamba Drakensberg Park

Sites are listed by location and include contact details of the land manager and/or custodian/guide.

Cultural heritage sites in the northern sub-region of the uKhahlamba Drakensberg Park (total =7)

- Royal Natal: **Cascades Path Boulder** and **Sigubudu**. Contact Mr. Elijah Mbonwa (073 137 4690).
- Cathedral Peak: **Procession Shelter, Aleit Shelter** and **Lower Mushroom Shelter.** Contact Hospitality Manager Didima (036 488 8000) and Cathedral Peak Hotel (036 488 1888 / ent@cathedralpeak.co.za/ info@cathedralpeak.co.za).
- Monk's Cowl: **Bee Shelter** and **Rhebok Kop's Cave.** Contact Hospitality Manager Monk's Cowl (036 468 1103) and the Accredited Rock Art Custodians for the site: Mr. Graham Barry (083 784 9633 & 036 468 1133); Ushaka Horse Trials (072 664 2993, 071 538 4007 and 036 468 1136); Deon of Drakhike (082 679 4244) and James Seymour (082 925 5508).

Cultural heritage sites in the central sub-region of the uKhahlamba Drakensberg Park (total =6)

- Injesuthi: **Battle Cave**. Contact Hospitality Manager Injesuthi (036 431 9000).
- Giant's Castle: **Main Caves South** and **Main Caves North**, and **Rock 75**. Hospitality Manager Giant's Castle (036 353 3718) or guide Thandeka (082 429 0509).
- Kamberg: **Waterfall Shelter** and **Game Pass Shelter**. Hospitality Manager Kamberg (033 267 7251) and guides Mr. Rowan Mweli (073 641 2371) and Raymond Mweli (071 451 9557).

Cultural heritage sites in the southern sub-region of the uKhahlamba Drakensberg Park (total =11)

- Cobham: **Sipongweni Shelter, Boundary Rock, Bathplug Cave, Pholela Shelter, Ikanti I, Ikanti II and Ikanti III.** Contact Reception Cobham (033 702 0171) or refer to attached list of accredited Rock Art Custodians for the southern Drakensberg.
- Garden Castle: **Varnish Shelter, Pornographic Shelter, Painter's Cave** and **Mystery Shelter.** Contact Reception Garden Castle (033 701 1823) or refer to attached list of accredited Rock Art Custodians for the southern Berg.

List of Accredited Rock Art Custodians for the southern sub-region of the Drakensberg and surrounding area:

Name	Company	Contact details
Stuart McLean	Birds and Beyond	0827426981; info@birdsandbeyond.co.za
Glenn McLean	Birds and Beyond	072 6929906; Glenmclean16@yahoo.com
Charles Major	Major Adventures	082 0613241; info@majoradventures.com
Russell Suchet	Sani Lodge	033 7020330/083 9873071; info@sanilodge.co.za
Dane Engelbrecht	Sani Lodge	072 935 0962
Matthew Chaplin	Sani Lodge	076 3977 243; sixoclockrobbery@hotmail.com
Paul Roth	High Horizons	076 3950119; paul@highhorisons.co.za
Christeen Grant	Private	082 4179162; christeengrant@gmail.com
Phillip Grant	Private	082 4179163; pjcsgrant@gmail.com
Matthew Wiggill	Drakensberg Adventures	0825958444; Matthewwiggill@yahoo.com
Peter Muil	Drakensberg Gardens Hotel	033 7011355
Manager	Bushmans Nek Hotel	033 7011460
Manager	Sani Pass Hotel	033 7021320
Chris Wheeler	Albizia Tours	033 7021837; albiziatours@mweb.co.za
Sandile Mzolo	Thaba Tours	084 3492665/072 2965 903
Ray Watt	Manager of Thaba Tours	083 3535 958/033 7012 333
Tsebo Molefe	Private	082 409 6404
Warren Busani Dlamini	Major Adventures	076 8790625/033 7011 628
Mbongeni Nzimande	Private	072 443 8864; info@majoradventures.com

Cultural heritage sites in the Buffer Zone (total =15)

- **Good Hope Shelter I and II** (Sani Pass Hotel Property). Refer to list of accredited Rock Art Custodians for the southern Drakensberg.
- **Bulwer Mountain Hotel Site I and II** (municipal property next to the Bulwer Mountain Hotel). Contact Hotel reception (039 832 0026) or refer to list of accredited Rock Art Custodians for the southern Berg.
- **Lion's Rock** (Cathedral Peak Hotel property). Contact Cathedral Peak Hotel (036 488 1888).
- **Middle Valley Farm Rock Art Site** (St. Bernard's Peak Hotel). Contact hotel reception (039 747 4313).
- **New Beginnings cave** (administered by the ATKV Drakensville Resort). Contact Mr. Johan Outram (084 533 9704, johano@atkv.org.za).
- **Patrick's, Kwamfazi and Ezangomeni Rock Art Shelters** (within the Amangwane Traditional Authority Area). Contact Leonard Hlatshwayo (078 169 4022); Caiphus Mtabela (073 6039 107) and Khumbulani Ndaba (076 989 7387).
- **Mghwabama and Mkosheni** Rock Art Shelters (AmaZizi Traditional Authority Area). Contact Bawinile Mtolo of Thandanani Arts and Crafts Centre, Chair of Rock Art Monitors (074 724 7826) or Bawinile Mtolo (074 724 7826); Locracia Gcina Miya (083 573 8141); Inoch Mdideni Hlongwane (079 685 6414); Mhlonipheni Douglas Madlala (073 422 5392) and Thembisile Prudence Zwane (073 607 5765).
- **Uthekwane Rock Shelter** (AmaSwazi Traditional Authority Area). Contact Mr. Graham Barry (083 784 9633, 036 468 1133); Ushaka Horse Trials (072 664 2993, 071 538 4007, 036 468 1136); Deon of Drakhike (082 679 4244); James Seymour (082 925 5508) and Steven Mabaso (083 583 3966).
- **Zwelisha Rock Art Site** (Mbabazane Traditional Authority Area). Contact: Mrs. Nikiwe Sithole (072 819 5683); Mbalenhlo Molefe (079 8307 847); Lungisani Mdluli (072 748 7411); Mluleki Mkize (061 369 7325); Thembinkosi Thusi (066 190 3845); Zuziwe Mlaba (064 767 6047); Nokukhanya Mnguni (072 895 2228); Sabelo Mzolo (071 639 0357); Zamalotshwa Mbatha (079 814 4189) and Sifiso Khoza (078 026 0014).

Appendix F: List of key Documents relevant to the management of Cultural Heritage resources

Physical Surveys of the Park

1910: Trooper White .
1933: Mason, A. Y, Rock paintings in the Cathkin Peak area, Natal.
1976: Vinnicombe, P., People of the Eland.
1970s early 1980s: Department of Forestry
1981: Analyses of Rock art Lesotho (ARAL).
1981: Mazel, A.D., Up and down the Little Berg: archaeological resource management in the Natal Drakensberg. MA thesis, University of Cape Town.
1984: Mazel, A.D. Archaeological survey of the Natal Drakensberg, Natal, South Africa, Journal of Field Archaeology 11: 345-56.
2003-2011: African Conservation Trust (RAMP I & II).
2005-2006: Cain, C.R. Cultural Heritage Survey of Lesotho for the Maloti Drakensberg Transfrontier Project: Palaeontology, Archaeology, History and Heritage Management.
2007: Anderson, G. The Living Heritage Survey of the Designated Buffer Zone of the uKhahlamba Drakensberg World Heritage Site, Unpublished Report: Umlando Archaeological Tourism and Resource Management.
2009: Topp, T. Bushman Paintings Project in the Cobham Area of the uKhahlamba Drakensberg Park, Unpublished Report
2011: Topp, T. Brief summary of the Rock Art Verification in the UDP WHS, Unpublished report
2013: Prins, F.E. Cultural Heritage Impact Assessment of the Proposed Establishment of a new Diary, 650 000m³ Dam and the Cultivation of an additional 15ha of Virgin Veld, on the Farm Clovelly No. 16370, Underberg, KwaZulu-Natal Unpublished Report: Active Heritage.
2014: Cellier, J.P. Built Environment and Public Memorial Survey for the Maloti-Drakensberg Park World Heritage Site. Unpublished Report, Kudzala cc.

Other Relevant Surveys

1874: Orpen, J. M. A glimpse into the mythology of the Maluti Bushmen. Cape Monthly Magazine 9 (49): 1–13.
1923: Commission for the Protection of Natural and Historical Monuments of the Union of South Africa's Register of Monuments.
1957: Wilson, A.L., Wilton Material on the Natal slopes of the Drakensberg. South African Archaeological Bulletin.
1960: Beater, B.E. Some LSA assemblages near Robinson's Bush Forest Reserve, Oliviershoek, Natal. South African Archaeological Bulletin.
1968: Wilcox, A.R. A Survey of Our Present Knowledge of Rock-Paintings in South Africa.
1992: Mazel, A.D., Changing fortunes: 150 years of San hunter-gatherer history in the Natal Drakensberg, South Africa, Antiquity 66: 758-67.
1999: Cultural Heritage Audit For the uKhahlamba/Maloti Transfrontier Conservation and Development Area: Final Report.
2008: Rossouw, L. Phase 1 Archaeological Impact Assessment of a proposed water pipeline adjoining the R712 between Sterkfontein Dam and Puthaditjhaba. Unpublished Report.
2011. Topp, T. Rock art sites at Cobham.
2013: Palaeosensitivity Map of KwaZulu-Natal.

Visitor Feedback

2009: Topp, T. The Value of the San Rock Art in the UDP WHS.
2012: Duval, M. & Smith, B.W. Rock Art Tourism in the UDP WHS: Obstacles to the Development to Sustainable Tourism Journal of Sustainable Tourism: 1-20.
2012: Duval, M. Enjeux patrimoniaux et identitaires autour des sites d'art rupestre sud-africains : approche multiscalaire à partir de la cérémonie de l'Eland (abriorné de Game Pass, massif du Drakensberg, Afrique du Sud), Civilisations, Vol. 61, n° 1, p. 83-102.
2013: Duval, M. Place et fonctions de la patrimonialisation de la nature dans les espaces protégés. Enseignements à partir du massif de l'uKhahlamba-Drakensberg, Afrique du Sud, Revue VertigO, Hors-série n°16, mis en ligne le 30 mai 2013. URL : http://vertigo.revues.org/13572; DOI:10.4000/vertigo.13572.

2014: Duval, M. & Smith, B.W. Seeking Sustainable Rock Art Tourism: The example of the MDP WHS. South African Archaeological Bulletin 69(199):34-48.
2014: Duval, M. & Smith, B.W. Inscription au patrimoine mondial et dynamiques touristiques : le massif de l'uKhahlamba-Drakensberg (Afrique du Sud), Annales de Géographie, n°697, pp. 912-934.

Archive Research

Archival research has been carried out and copies of materials researched are mostly kept at:

- Amafa Offices in Pietermaritzburg
- KwaZulu-Natal Museum
- Ezemvelo KwaZulu-Natal Wildlife West Region Office, Midmar Nature Reserve

The Rock Art Research Institute (RARI) has a substantial collection of historical documents, photographs, redrawings and slides in addition to its large working collection of slides, tracings and redrawings. Archival material kept at RARI (Rock Art Research Institute) includes original tracings and associated records, especially that of Patricia Vinnicomb.

See also Moffett (2020): Moffet,R. 2020. A Scientific Bibliography of the Drakensberg, Maloti & Adjacent Lowlands. DOi https://doi.org/10.18820/9781928424451

Advisory Reports

1971: Pager, H., Mason, R. J. and Welbourne, R. G., Ndedema. A documentation of the rock paintings of the Ndedema Gorge. Graz: Akademische Druck- u. Verlagsanstalt, 375 pp.
1989: Rudner, I., The conservation of rock art in South Africa. Cape Town: National Monuments Council.
1998: Wahl, E.J, Mazel, A.D. & Roberts, S.E. Cultural Heritage Resource Management Plan for the Drakensberg Park.
1999: Cultural Heritage Audit For the uKhahlamba/Maloti Transfrontier Conservation and Development Area (Final report).
2001: Ouzman, S. The problems and potentials of developing and managing public rock art sites in southern Africa. Pictogram 12: 4–13.

Appendix G: Systematic Biodiversity Conservation Targets

Species	Description	Percentage contribution to overall target
Afrixalus spinifrons intermedius	Amphibian	7
Anhydrophryne hewitti	Amphibian	85.7
Anhydrophryne Sp Sentinel	Amphibian	75
Breviceps maculatus	Amphibian	91.6
Breviceps mossambicus	Amphibian	87.5
Breviceps verrucosus	Amphibian	16.6
Leptopelis xenodactylus	Amphibian	1707.1
Chilota dilatus	Annelid	50
Parachilota minimus	Annelid	100
Proandricus amphius	Annelid	100
Proandricus bergvillensis	Annelid	50
Proandricus gracilis	Annelid	50
Proandricus michelleae	Annelid	100
Proandricus pajori	Annelid	100
Proandricus richerti	Annelid	66.6
Udeina adriani	Annelid	100
Udeina petrosi	Annelid	100
Anthropoides paradiseus	Ave	0.3
Balearica regulorum	Ave	0.3
Bugeranus carunculatus	Ave	1.5
Gypaetus barbatus	Ave	72.9
Gyps coprotheres	Ave	64.1
Neotis denhami	Ave	0.2
Eriopeltastes lineatus	Beetle	100
Eriopeltastes maculatus	Beetle	100
Sciobius cultratus	Beetle	100
Somaticus lutulentus montis-draconis	Beetle	100
Capys penningtoni	Butterfly	25.7
Chrysoritis oreas	Butterfly	1544.1
Durbania amakosa natalensis	Butterfly	12.5
Hilda proteacola	Cicada	100
Bittacus sobrinus	Diplopoda	55.5
Damalis elongatus	Diplopoda	50
Damalis femoralis	Diplopoda	25
Dasophrys dorattina	Diplopoda	66.6
Dasophrys umbripennis	Diplopoda	12.5
Hypenetes argothrix	Diplopoda	33.3
Hypenetes dorattina	Diplopoda	100
Neolophonotus argyphus	Diplopoda	50
Neolophonotus hirsutus	Diplopoda	47.6
Neolophonotus io	Diplopoda	100
Neolophonotus leucodiadema	Diplopoda	100
Neolophonotus natalensis	Diplopoda	100
Rhigioglossa smaragdops	Diplopoda	100

Species	Description	Percentage contribution to overall target
Tabanus saxicolus	Diplopoda	100
Eremidium erectus	Grasshopper	45.5
Transvaaliana draconis	Grasshopper	45.1
Whitea alticeps	Grasshopper	80.9
Centrobolus tricolor	Millipede	90.3
Doratogonus meridionalis	Millipede	100.9
Doratogonus montanus	Millipede	93.4
Drakensius minor	Millipede	100
Gnomeskelus arcuatus	Millipede	50
Gnomeskelus attemsii	Millipede	83.3
Gnomeskelus brinki	Millipede	100
Gnomeskelus laevigatus	Millipede	100
Gnomeskelus tugelanus	Millipede	100
Patinatius bidentatus bidentatus	Millipede	100
Platytarropus polydesmoides	Millipede	100
Platytarrus guduensis	Millipede	100
Rynchomecogaster lawrencei	Millipede	100
Sphaerotherium tomentosum	Millipede	50
Spinotarsus triangulosus	Millipede	650.6
Ulodesmus simplex	Millipede	100
Cochlitoma montistempli	Mollusc	435.9
Cochlitoma omissa	Mollusc	2662.7
Euonyma lymneaeformis	Mollusc	33.8
Fauxulus mcbeanianus	Mollusc	57.1
Gulella inhluzaniensis	Mollusc	22.8
Gulella juxtidens	Mollusc	67.8
Trachycystis bifoveata	Mollusc	100
Alepidea amatymbica	Plant	44.4
Aloe maculata	Plant	15.3
Bowiea volubilis	Plant	10
Brachystelma petraeum	Plant	25
Crocosmia pearsei	Plant	50
Cryptocarya myrtifolia	Plant	25
Cyrtanthus epiphyticus	Plant	20
Delosperma gracile	Plant	100
Dierama dubium	Plant	20
Disa scullyi	Plant	50
Erica flanaganii	Plant	100
Felicia wrightii	Plant	100
Hesperantha woodii	Plant	820.9
Huttonaea oreophila	Plant	80
Huttonaea woodii	Plant	100
Kniphofia albomontana	Plant	410
Kniphofia brachystachya	Plant	1221.8
Kniphofia breviflora	Plant	545.8
Myrsine pillansii	Plant	100

Species	Description	Percentage contribution to overall target
Ocotea bullata	Plant	13.3
Polygala praticola	Plant	60
Protea dracomontana	Plant	81.8
Protea nubigena	Plant	100
Protea subvestita	Plant	85.7
Schizochilus bulbinella	Plant	50
Scilla natalensis	Plant	38.7
Selago monticola	Plant	100
Senecio dregeanus	Plant	10
Xerophyta longicaulis	Plant	100
Afroedura nivaria	Reptile	50
Agama atra	Reptile	100
Bitis atropos	Reptile	75
Bradypodion dracomontanum	Reptile	81.4
Bradypodion thamnobates	Reptile	630.5
Chamaesaura aenea	Reptile	100
Dasypeltis scabra	Reptile	25
Duberria lutrix	Reptile	100
Gerrhosaurus flavigularis	Reptile	3.7
Lamprophis guttatus	Reptile	50
Leptotyphlops scutifrons	Reptile	100
Montaspis gilvomaculata	Reptile	9832.4
Philothamnus natalensis occidentalis	Reptile	16.6
Psammophis crucifer	Reptile	28.5
Psammophylax rhombeatus	Reptile	66.6
Pseudocordylus langi	Reptile	85.7
Pseudocordylus melanotus subviridis	Reptile	74.5
Pseudocordylus spinosus	Reptile	100
Tetradactylus seps	Reptile	100
Trachylepis capensis	Reptile	100
Trachylepis punctatissima	Reptile	90
Trachylepis varia	Reptile	50
Tropidosaura cottrelli	Reptile	100
Tropidosaura essexi	Reptile	94.1
Tropidosaura montana natalensis	Reptile	28.5

Appendix G continued: Systematic Biodiversity Conservation Targets

Vegetation Types	**Percentage contribution to overall target**
Alluvial Wetlands : Temperate Alluvial Vegetation	2
Drakensberg Afroalpine Heathland	274.4
Drakensberg Foothill Moist Grassland	16
Drakensberg Montane Forests	73.8
Drakensberg-Amathole Afromontane Fynbos	265.1
Freshwater Wetlands : Drakensberg Wetlands	28.4
Freshwater Wetlands : Eastern Temperate Wetlands	0.2
Freshwater Wetlands : Lesotho Mires	235.5
Lesotho Highland Basalt Grassland	293
Mooi River Highland Grassland	4.3
Northern Drakensberg Highland Grassland	180.8
Northern KwaZulu-Natal Moist Grassland	1.1
Southern Drakensberg Highland Grassland	231.5
Southern KwaZulu-Natal Moist Grassland	0.6
uKhahlamba Basalt Grassland	328.4

Appendix H: Fixed Point Photo monitoring in the uKhahlamba Drakensberg Park

Id Code	Latitude	Longitude	Subject	Management Unit	Nest due date*
COB1	-29.65325957	29.43486437	Indigenous forest patch	Cobham	20-November-2020
COB2	-29.64476187	29.42964493	Indigenous forest patch	Cobham	20-November-2020
COB3	-29.63790042	29.42098164	Indigenous forest patch	Cobham	20-November-2020
COB4	-29.61528823	29.3772361	Indigenous forest patch	Cobham	20-November-2020
COB5	-29.61808323	29.38661819	Indigenous forest patch	Cobham	20-November-2020
COB6	-29.63790578	29.42099237	Indigenous forest patch	Cobham	20-November-2020
COB7	-29.64854399	29.43404362	Protea woodland	Cobham	20-November-2020
COB8	-29.65312009	29.43667212	Indigenous forest patch	Cobham	20-November-2020
COB9	-29.64605476	29.43210712	Indigenous forest patch	Cobham	20-November-2020
COB10	-29.6532703	29.43486973	Indigenous forest margin	Cobham	20-November-2020
COB11	-29.62701541	29.42108353	Indigenous forest margin	Cobham	20-November-2020
COB12	-29.62671498	29.42064903	None specified	Cobham	20-November-2020
COB13	-29.62767518	29.42398559	Indigenous forest patch	Cobham	20-November-2020
SANI1	-29.63307218	29.41654003	Gum and Wattle plantation	Sani Pass	20-November-2020
SANI 2	-29.65327030	29.43486973	Quarry	Sani Pass	20-November-2020
SANI 3	-29.61528823	29.37723610	Indigenous forest patch	Sani Pass	20-November-2020
SANI 4	-29.61808323	29.38661819	Indigenous forest patch	Sani Pass	20-November-2020
SANI 6	-29.63790578	29.42099237	Scrub forest with wattle patches	Sani Pass	20-November-2020
SANI 7	-29.64854399	29.43404362	Wattle	Sani Pass	20-November-2020
SANI 8	-29.65312009	29.43667212	Wattle	Sani Pass	20-November-2020
SANI 9	-29.64605476	29.43210712	Wattle	Sani Pass	20-November-2020
SANI10	-29.62701541	29.42108353	Wattle	Sani Pass	20-November-2020
SANI11	-29.62671498	29.42064903	Wattle	Sani Pass	20-November-2020
SANI12	-29.63790042	29.42098164	Wattle	Sani Pass	20-November-2020
CP01	-28.93535827	29.26771227	Grassland	Cathedral Peak	23-March-2023
CP02	-28.96263798	29.22914337	Indigenous forest patch	Cathedral Peak	23-March-2023
CP03	-28.95839975	29.23723801	Alien plant infestation	Cathedral Peak	23-March-2023
CP04	-28.96335147	29.23940518	*Protea caffra* community	Cathedral Peak	23-March-2023
CP05	-28.96839969	29.23492068	Quarry	Cathedral Peak	23-March-2023
CP06			An area prior to development	Cathedral Peak	23-March-2023
CP7A	-28.94555756	29.23849761	An area prior to development	Cathedral Peak	23-March-2023
CP7B			An area prior to development	Cathedral Peak	23-March-2023
GC1	-29.75387343	29.1865325	Indigenous forest patch	Garden Castle	05-September-2020
GC2A	29.75370177	29.18679535	Fire exclusion compartment	Garden Castle	05-September-2020
GC2B	29.75370177	29.18679535	Fire exclusion compartment	Garden Castle	05-September-2020
GC3	-29.75107321	29.1801542	Indigenous forest patch	Garden Castle	05-September-2020
GS01	-29.26830556	2952472222	Warden's Complex	Giant's Castle	01-December-2020
GS02	-29.2766548	29.52408314	None specified	Giant's Castle	01-December-2020
GS03	-29.27664944	29.52408314	None specified	Giant's Castle	01-December-2020
GS04	-29.28057083	29.5251292	None specified	Giant's Castle	01-December-2020
GS05	-29.28758333	29.52250000	None specified	Giant's Castle	01-December-2020
GS06	-29.29128894	29.52380419	None specified	Giant's Castle	01-December-2020
GS07	-29.29180929	29.52410996	None specified	Giant's Castle	01-December-2020

Id Code	Latitude	Longitude	Subject	Management Unit	Nest due date*
GS08	-29.27973398	29.51970041	None specified	Giant's Castle	01-December-2020
GS09	-29.27985736	29.51955557	None specified	Giant's Castle	01-December-2020
GS10	-29.25933333	29.52855556	None specified	Giant's Castle	01-December-2020
GS11	-29.25605556	29.52961111	None specified	Giant's Castle	01-December-2020
GS12	-29.23894444	29.54116667	None specified	Giant's Castle	01-December-2020
GS13	-29.22638889	29.53519444	None specified	Giant's Castle	01-December-2020
GS14	-29.22319444	29.54975000	None specified	Giant's Castle	01-December-2020
GS15	-29.22319363	29.5497501	None specified	Giant's Castle	01-December-2020
GS16	-29.13651	29.56373000	None specified	Giant's Castle	01-December-2020
GS17	-29.1358	29.56344	None specified	Giant's Castle	01-December-2020
GS17a	-29.13581	29.56317000	None specified	Giant's Castle	01-December-2020
HM1	-29.28344079	29.61119047	Indigenous forest patch	Highmoor	01-November-2023
HM2	-29.28666667	29.61660002	Indigenous forest patch	Highmoor	01-November-2023
HM3	-29.3114216	29.64639723	Indigenous forest patch	Highmoor	01-November-2023
HM4	-29.36329016	29.63654816	Alien plant infestation	Highmoor	01-November-2023
HM5	-29.36335453	29.63616192	*Leucosidea* scrub forest	Highmoor	01-November-2023
HM6	-29.3196077	29.62894142	Indigenous forest patch	Highmoor	01-November-2023
HM7	-29.31668409	29.64697659	Indigenous forest patch	Highmoor	01-November-2023
HM8	-29.31825587	29.65392351	Indigenous forest patch	Highmoor	01-November-2023
IJ1	-29.12450918	29.47091103	Forest ecotone and wetland	Injesuthi	01-September-2019
IJ2	-29.11204764	29.48784649	*Protea caffra* community	Injesuthi	01- September-2019
IJ3	-29.10581955	29.48092103	Protea woodland	Injesuthi	01- September-2019
KB1	-29.38380000	29.72010000	Wetland	Kamberg	01-November-2023
KB2	-29.37760000	29.67520000	Wetland	Kamberg	01-November-2023
KB7	-29.37810000	29.65810000	Quarry	Kamberg	01-November-2023
KB8			Wattle infestation	Kamberg	01-November-2023
KB9	-29.37944927	29.63990680	Wattle infestation	Kamberg	01-November-2023
KB10	-29.38178284	29.63984244	Wattle infestation	Kamberg	01-November-2023
KB12	-29.38315	29.6434	Wattle infestation	Kamberg	01-November-2023
KB13	-29.38352	29.6544	Wattle infestation	Kamberg	01-November-2023
KB15	-29.38220672	29.65118783	Wattle infestation	Kamberg	01-November-2023
KB16	-29.38400926	29.65308142	Wattle infestation	Kamberg	01-November-2023
KB17	-29.38310000	29.65450000	Wattle infestation	Kamberg	01-November-2023
LT1	-29.43838098	29.51813843	Wattle replaced by Acacia	Lotheni	08-April-2023
LT1A	-29.47086427	29.55810756	Wattle patches	Lotheni	08-April-2023
LT2	-29.43823613	29.51843883	Wattle to be removed	Lotheni	08-April-2023
LT2A	-29.47095547	29.55860644	Wattle patches	Lotheni	08-April-2023
LT3	-29.43718465	29.51520418	Landslip	Lotheni	08-April-2023
LT4	-29.4517123	29.52189881	Indigenous forest patch	Lotheni	08-April-2023
LT5	-29.47856265	29.55201379	Landslip	Lotheni	08-April-2023
LT6	-29.435556	29.590278	Protea savanna	Lotheni	08-April-2023
LT7	-29.445000	29.599722	Indigenous forest patch	Lotheni	08-April-2023
LT8	-29.445000	29.594400	Indigenous forest patch	Lotheni	08-April-2023
LT9	-29.448600	29.585833	Indigenous forest patch	Lotheni	08-April-2023

Id Code	Latitude	Longitude	Subject	Management Unit	Nest due date*
LT10	-29.428056	29.526111	Protea and forest patch	Lotheni	08-April-2023
MK01	-29.47549232	29.6902138	Wattle seedlings controlled with fire	uMkhomazi	01-August-2023
RN1	-28.66475173	28.993204236	Indigenous forest patch	Royal Natal	01-December-2019
RN2			Indigenous forest patch	Royal Natal	01-December-2019
RN3	-28.67795893	28.985543847	Indigenous forest patch	Royal Natal	01-December-2019
RN4			Protea patch	Royal Natal	01-December-2019
RN5	-28.68600019	28.953341246	Unburnt area	Royal Natal	01-December-2019
RN6	-28.68439086	28.960234523	Tuglea riverbed	Royal Natal	01-December-2019
RN7	-28.68998059	28.941754103	Indigenous forest patch	Royal Natal	01-December-2019
RN8	-28.69014152	28.941947222	Erosion	Royal Natal	01-December-2019
RN9	-28.66945096	28.937596679	Erosion/Protea	Royal Natal	01-December-2019
RN10	-28.71115931	28.935858607	Protea savanna	Royal Natal	01-December-2019
RN11	-28.71113249	28.933149576	Protea and erosion	Royal Natal	01-December-2019
RN12	-28.71113785	28.932945728	Proteas	Royal Natal	01-December-2019
RN13	-28.67447205	28.986804485	Forest margin damaged by fire	Royal Natal	01-December-2019
RN14	-28.67508360	28.985441839	Forest margin damaged by fire	Royal Natal	01-December-2019
RN15	-28.66333552	28.991117477	Indigenous forest patch	Royal Natal	01-December-2019
RN16	-28.66945096	28.937596679	Cypress plantation	Royal Natal	01-December-2019
RN17	-28.67863484	28.935799599	*Buddleia* patch with bottlebrush	Royal Natal	01-December-2019
RN18	-28.67718645	28.936137557	Indigenous forest patch	Royal Natal	01-December-2019
RN19	-28.67310413	28.936486244	Forest patch edge	Royal Natal	01-December-2019
RN20	-28.67136606	28.938036561	Indigenous forest patch	Royal Natal	01-December-2019
RN21	-28.66944023	28.937591314	Forest patch edge	Royal Natal	01-December-2019
RN22	-28.67850073	28.949940205	Dumping reclamation	Royal Natal	01-December-2019
PC01	-28.67850073	28.949940205	Wattle patches	Poccolan	01-December-2019
PC02	-28.556111	29.081944	Wattle patches	Poccolan	01-December-2019
PC03	-28.551111	29.085556	Wattle patches	Poccolan	01-December-2019
VNRAP1	-29.53281091	29.4453189620	Wattle patch view	Vergelegen	10-December-2020
VNRAP2	-29.54143725	29.4670924861	Scattered Wattle patches	Vergelegen	10-December-2020
VNRAP3	-29.54550376	29.4820861345	Wattle	Vergelegen	10-December-2020
VNRAP4	-29.54907666	29.4797253211	Wattle	Vergelegen	10-December-2020
VNRAP5	-29.54871186	29.4814526096	Wattle	Vergelegen	10-December-2020
VNR1	-29.32021454	29.27285848	Pine eradication & succession	Vergelegen	10-December-2020
VNR2	-29.32186892	29.27441952	Pine eradication & succession	Vergelegen	10-December-2020
VNR3	-29.32133785	29.27170298	Pine eradication & succession	Vergelegen	10-December-2020
VNR4	-29.32223585	29.27202163	Pine eradication & succession	Vergelegen	10-December-2020
VNR5	-29.32023063	29.2733638	Pine eradication & succession	Vergelegen	10-December-2020
VNR6	-29.3161011	29.27182529	Pine eradication	Vergelegen	10-December-2020
VNR7	-29.31692186	29.27169654	Gum eradication & grass seedlings	Vergelegen	10-December-2020
VNR8	-29.32039478	29.27282307	Pine eradication & grass seedlings	Vergelegen	10-December-2020
VNR9	-29.32201698	29.27201841	Gum eradication	Vergelegen	10-December-2020

*all taken at a frequency of every five years

Appendix I: Public Participation Report

uKhahlamba Drakensberg Park – Component of the Maloti Drakensberg Park World Heritage Site

KwaZulu-Natal
South Africa

Integrated Management Plan:
Public Participation Report
2020

Prepared by
Ezemvelo KwaZulu-Natal Wildlife Protected Area
Management Planning Unit

1

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1 Stakeholder Consultation Process

1.1 INTRODUCTION TO THE UKHAHLAMBA DRAKENSBERG PARK

The uKhahlamba Drakensberg Park (UDP), a component of the Maloti-Drakensberg Park World Heritage Site is situated in the KwaZulu-Natal Province of the Republic of South Africa and is part of the Drakensberg Range - an inland mountain range in south-eastern Africa (Ezemvelo KZN Wildlife 2020). The Park is a national and international asset due to its outstanding natural and cultural values, and as such it was listed as a mixed World Heritage Site in 2000, the site was extended by the inclusion of Sehlabathebe National Park and renamed as the Maloti-Drakensberg Park World Heritage Site. This Integrated Management Plan applies to the South African component of the World Heritage Site, namely the uKhahlamba Drakensberg Park (UDP). The UDP is 242 813 ha, and its height above sea level extends from approximately 1 200 m to 3 408 m, the highest point in South Africa. It falls within the uThukela District Municipality, uMgungundlovu District Municipality and Harry Gwala District Municipality.

Due to the status of the Park as a World Heritage Site, the management authority (Ezemvelo KZN Wildlife) has to comply with the World Heritage Convention Act No. 49 of 1999 (WHCA) as well as the National Environmental Management: Protected Areas Act No. 57 of 2003 (NEMPAA). These acts require the development and implementation of an Integrated Management Plan to ensure the protection of the World Heritage Site and specifically the Outstanding Universal Value. In preparing these plans, participatory processes, involving local communities and other stakeholders must be implemented to ensure that all critical issues are considered and incorporated into the Integrated Management Plan.

This public participation report provides the background to the process followed in developing the Integrated Management Plan for uKhahlamba Drakensberg Park World (UDP). It reflects the inputs and involvement of stakeholders in developing the plan and provides a summary of the critical issues that have emerged from this process. This document will form a supporting document to the management plan, providing some of the details and context of how the plan was formulated.

1.2 THE CONTEXT OF STAKEHOLDER CONSULTATION

In terms of Section 25 (3) of the World Heritage Convention Act No. 49 of 1999 and section 39(3) of the Protected Areas Act No. 57 of 2003, consultation is required with municipalities, other organs of state, local communities and other affected parties, which have an interest in the area, when compiling a management plan for a protected area. Furthermore, the input and support of critical stakeholders are considered vitally important in the management of protected areas and the implementation of many of the actions set out in the Integrated Management Plan. For this reason, a comprehensive public participation process has been undertaken in preparing the management plan for UDP.

1.3 APPROACH AND OBJECTIVES OF THE CONSULTATION PROCESS

The approach to consultation in preparing the Integrated Management Plan (IMP) for UDP WHS has been to target communities in the area around the Park together with municipalities, relevant government authorities and other key stakeholders. The process has been targeted at key representatives of stakeholder groups to enable meaningful input in the development of the management plan. The objectives of the public consultation process have been to:

- Ensure that the communities around the UDP WHS are aware of its importance and the conservation imperatives that formed the basis for its proclamation.

- Discuss and agree on the values of UDP in order to come to a common understanding of why it is essential and should be protected.
- Canvas aspirations, issues, concerns and conflicts associated with the Park that must be resolved through the Integrated Management Plan.
- Provide additional information that is required by individual stakeholders and to request input and pertinent information that may aid the process and the management of the Park from stakeholders.

The list of participants who have been consulted or who have attended meetings as part of the public consultation process is attached in Appendix 1.

1.4 CONSULTATION PROCESS

The Integrated Management Plan (IMP) of the UDP is a living document; as such, this is the third review of the plan that was initially developed in 2009. The stakeholder process commenced in March 2018 when two stakeholder workshops were held to facilitate discussions on the revision requirements. The first stakeholder workshop took place on 22nd March at the Underberg Country Club and followed by a meeting on 23rd March at the Estcourt Townhall.

Furthermore, focussed consultation included several meetings with the Department of Environmental Affairs, as well as the KwaZulu-Natal Amafa & Research Institute who assisted in developing and integrating the cultural heritage component of the IMP.

- Buffer Technical Committee (representation of district and local municipalities and government departments including AMAFA)
- Maloti Drakensberg Transfrontier Programme Forum
- Wilderness Action Group
- NGO's including WESSA, S A Crane Foundation and WWF
- Tourism Operators
- Neighbouring communities
- Department of Environmental Affairs and Rural Development
- Cooperative Governance and Traditional Affairs
- Mountain Club of South Africa
- SAPPI
- Farmers Association

A background information document has been made available before the meeting on the Ezemvelo KZN Wildlife website and through mailed copies. The background information document is attached in Appendix D.

After an extensive public consultation process, the draft plan was published for public review on the Ezemvelo KZN Wildlife website. This process and the overall process for the development of the Integrated Management Plan are summarised in Table 1 below.

Table 1: Summary of the Integrated Management Plan Development

Date	Activity
8th March 2018	IMP public workshop advertised in Ilanga
9th March 2018	IMP public workshop advertised in Witness
11th March 2018	IMP public workshop advertised in the Sunday Times
16th March 2018	IMP public workshop advertised in Estcourt and Midlands News
22nd March 2018 Underberg Country Club	Stakeholder workshop
23rd March 2018 Estcourt Town Hall	Stakeholder workshop
24th March 2019	Draft IMP advertised for public comment in the Sunday Times
25th March 2019	Draft IMP advertised for public comment in the Witness
25th March 2019	Draft IMP advertised for public comment in the Isolezwe
25th March 2019	Draft IMP advertised for public comment in the Mercurry
29 September 2020	Submit final document to Ezemvelo KZN Wildlife committees for approval

2 Key findings of the stakeholder consultation process

The following is some of the key issues that were raised during public consultation, and that will be addressed in the IMP:

- Lack of agreement by Lesotho and South Africa on the exact boundary of the Park along the international border.
- Management of grazing concessions that needs to be reviewed and documented.
- Lack of capacity to manage cultural heritage.
- Need to improve the information management system.
- Lack of awareness & interpretation strategy.
- The marketing of the Park. (Market the Park and activities, not only camps)
- Branding of the Park is not finalised.
- The state of tourism and management infrastructure due to financial constraints.
- Do not adequately measure the outcomes of our management actions or conservation targets for key and priority species.
- Key and priority species management require staff to work beyond the boundaries of the Park to ensure effective management. (No resources or have to rely on others to do.)
- Internal and external communication.
- Title deeds of the protected area are not endorsed.
- Boundary deviations are not all documented, examples of this are Lion's Ridge, Culfargie, Hillside and others.
- Lack of a servitude register and relevant agreements.
- Erosion along hiking paths and some of the big passes.
- Lack of waste management program in the management unit.
- Lack of visitor records and statistics, as well as information on the use of trails.
- Inadequate financial controls. (Cannot link the number of vehicles and visitors to actual income)
- Lack of formal guiding programs in the Park in terms of trails.
- The degraded state of main access roads (provincial) to the Park.
- Vacant and unfunded posts in the Park.
- HR processes in terms of building capacity and performance management.
- Lack of a research facility in the southern part of the Park which skews the focus of research opportunities to the central and northern sections of the Park.

- Failing to capitalise on stewardship and expansion opportunities due to lack of capacity and resources.
- Illegal activities in and around the Park (specifically stock theft, poaching, illegal harvesting of muthi plants, drug smuggling).
- Access control issues relating to illegal exit and entry points into South Africa.
- Lack of mechanisms to control air space access.
- Non-compatible land-uses and/or developments in the areas adjacent to the Park that may threaten the OUV and other Park values.
- Human/wildlife conflict (Bush pig, Eland, Baboons and Jackal).
- Alien and invasive species. (Including Pine & Wattle)
- Arson Fires.
- Inadequate human and financial resources.
- Climate Change is a threat to the Park.
- Large infrastructure development threatening the protected area e.g. cable car, fracking and windfarms, expansion of diamond mines in Lesotho etc.
- Uncontrolled cattle grazing leading to accelerated soil erosion.
- Diseases threatening biodiversity.
- Lack of coordination of organs of state to protect the viewsheds leading to the Park.
- Lack of coordinated planning around the Sani pass development between South Africa and Lesotho.

Written comments provided is attached in Appendix 5 and the plan has been updated to address these comments where relevant.

REFERENCES

Ezemvelo KZN Wildlife, 2020, *uKhahlamba Drakensberg Park Draft IMP*, Pietermaritzburg, South Africa.

Appendix 1: List of Stakeholders for the UDP

Ama Ngwane Traditional Council : 10h00

ATTENDANCE REGISTER
UDP WHS Review Workshop
13 June 2018

Name	Title/ Organisation	E-mail Address	Contact No.	Signature
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Ama Ngwane Traditional Council

Ama Ngwane Traditional Council : 10h00

N.C. Hlongwane	Induna T/C	N/A	072 299 0569	
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DC Hlongwane	induna	N/A	0763050946	

AmaNgwane Traditional Council : 10h00

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ATTENDANCE REGISTER

uKhahlamba Drakensberg Park World Heritage Site IMP Stakeholder Workshop

23rd March 2018 (Estcourt Town Hall)

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uKhahlamba Drakensberg Park World Heritage Site IMP Stakeholder Workshop

23rd March 2018 (Estcourt Town Hall)

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uKhahlamba Drakensberg Park World Heritage Site IMP Stakeholder Workshop

22nd March 2018 (Underberg Country Club)

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uKhahlamba Drakensberg Park World Heritage Site: Attendance Register

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ATTENDANCE REGISTER

uKhahlamba Drakensberg Park World Heritage Site IMP Stakeholder Workshop

22nd March 2018 (Underberg Country Club)

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uKhahlamba Drakensberg Park World Heritage Site: Attendance Register

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Nkosi Ndaba	Mhlungwini Traditional Authority		072 4461 614	None
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Appendix 2: Meeting Notes during Public Consultation

Notes on the Stakeholder Workshops for the UDP WHS IMP Review
22nd and 23rd of March
Underberg Country Club and Estcourt Town Hall

Background

Situated in the KwaZulu-Natal Province of the Republic of South Africa and is part of the Drakensberg - an inland mountain range in south-eastern Africa. The Park is a national and international asset due to its unique natural and cultural values, and as such it has been listed as a World Heritage Site of dual significance. Inscribed as a World Heritage Site in 2000, and in 2013 was extended by inclusion of the Sehlabathebe National Park into the site and renamed as the Maloti-Drakensberg Park World Heritage Site. It is dominated by a mountain range of unique origins, and has a diverse range of ecological niches resulting in a rich biodiversity and a high number of endemic species.

Home to thousands of rock art paintings, a product of the San's long historical relationship with this mountain environment. The Drakensberg catchment area is of major economic importance as it contributes significantly to the flow of the uThukela, uMkhomazi and uMzimkhulu Rivers, the three largest catchments in KwaZulu-Natal. (hence its designation as a Ramsar Site in 1996). Serve as a core destination for the tourism industry. The western boundary of the Park forms the international boundary with the Kingdom of Lesotho.

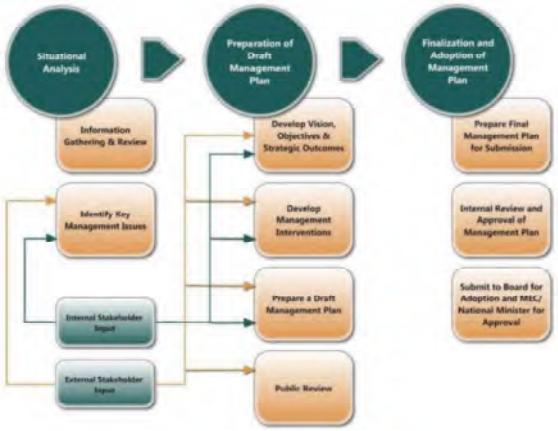
A brief background was provided on the UDP WHS.

Purpose of the meeting

To inform stakeholders of the process to revise the current Integrated Management Plan & highlight further opportunities for input

- To highlight anticipated changes to the IMP
- To reaffirm the vision of the UDP WHS
- To prepare a risk assessment through a SWOT analysis
- To discuss any other issues to be addressed in the IMP

The management planning process



Anticipated changes to the IMP

- Confirmation and discussion of the vision of the Park to determine if they require updating.
- Formal Risk assessment (SWOT analysis) with internal and external stakeholders to ensure that all risks and threats are identified and addressed, and any opportunities investigated, and if appropriate, capitalised on.
- Updating the internal zonation of the Park. This process includes a sensitivity and impact analysis. It identifies the areas outside of the WHS where the greatest visual (and other) impacts will be encountered, should they undergo significant land use change, and will be used to inform any changes to the zonation, should that be required. Furthermore in terms of the zonation, some seasonal and or temporary zonation layers will need to be updated.
- The Buffer Zone is a formal requirement of UNESCO which has advised South Africa that the process should be finalised in December 2016. It is furthermore a legal and moral requirement and will ensure that the MDP WHS can be preserved for the benefit of present and future generations. The Buffer Zone Policy was developed in 2016 including an extensive public consultation process. The purpose of this policy is to:
    - Protect the purpose and values of the UDP WHS, especially the Outstanding Universal Value.
    - Protect biodiversity, and ecosystems which transcend the UDP WHS boundary.
    - Assist adjacent and affected communities to secure appropriate and sustainable benefits from the UDP WHS and Buffer Zone Area.

  This policy will be incorporated into the revised IMP.
- Maloti-Drakensberg Park World Heritage Site Fire Management Plan.
- Maloti-Drakensberg Park World Heritage Site Alien and Invasive Species Management Plan.
- Maloti-Drakensberg Park World Heritage Site Sustainable Tourism Strategy.
- Environmental Awareness & Interpretation Plan.
- COMPACT - This is a bilateral community based project initiative (Lesotho and RSA around the World Heritage Site) which is funded by UNESCO.
- The Connecting Practice – This project seeks to achieve an integrated consideration of natural and cultural heritage under the World Heritage Convention.
- The revision and integration of the Cultural Heritage Resource management Plan into the IMP.

Confirmation of the vision

Stakeholders confirmed that the appropriateness of the vision of the Park.

A World Heritage Site that protects it's Outstanding Universal Value and is supported by the people of Southern Africa.

Swot analysis

Strengths:

- Outstanding Universal Value of the Park and other values.
- Collaboration with stakeholders and departments in terms of resources required for the Park.
- Protection of altitudinal gradient for migratory bird species.
- Important Bird Area & Ramsar site.

- Potential for benefit flow to communities.
- World Heritage Status of the site.
- The Transfrontier Programme and collaboration with international counterpart.
- There is still some human resource capacity to manage the Park.
- The Park contributes to skills development in the broader community.
- Park provides natural resources in a sustainable manner.
- Support of Honorary Officers and environmental monitors to assist with effective management.
- Stewardship and protected area expansion opportunities exist in the protected area buffer.

Weaknesses:

- Lack of agreement by Lesotho and South Africa on the exact boundary of the Park along the international border.
- Management of grazing concessions that needs to be reviewed and documented.
- Lack of capacity to manage cultural heritage.
- Need to improve the information management system.
- Lack of awareness & interpretation strategy.
- The marketing of the Park. (Market the Park and activities, not only camps)
- Branding of the Park is not finalised.
- The state of tourism and management infrastructure due to financial constraints.
- Do not adequately measure the outcomes of our management actions or conservation targets for key and priority species.
- Key and priority species management require staff to work beyond the boundaries of the Park to ensure effective management. (No resources or have to rely on others to do.)
- Internal and external communication.
- Title deeds of the protected area are not endorsed.
- Boundary deviations are not all documented, examples of this are Lion's Ridge, Culfargie, Hillside and others.
- Lack of a servitude register and relevant agreements.
- Erosion along hiking paths and some of the big passes.
- Lack of waste management program in the management unit.
- Lack of visitor records and statistics, as well as information on the use of trails.
- Inadequate financial controls. (Cannot link the number of vehicles and visitors to actual income)
- Lack of formal guiding programs in the Park in terms of trails.
- Degraded state of main access roads (provincial) to the Park.
- Vacant and unfunded posts in the Park.
- HR processes in terms of building capacity and performance management.
- Lack of a research facility in the southern part of the Park which skews the focus of research opportunities to the central and northern sections of the Park.
- Failing to capitalise on stewardship and expansion opportunities due to lack of capacity and resources.

Opportunities:

- Consolidate and proclaim additional wilderness areas.
- Flow of benefits to local communities including ecosystem services & economic benefits such as employment opportunities
- Awareness of communities in terms of land care processes that are environmentally acceptable.
- Communication strategy to communicate the IMP to visitors and adjacent communities and stakeholders.
- Strategy to brand the Park to internal and external stakeholders as a World Heritage Site with international obligations.
- Declaration of the buffer zone as the World Heritage Site Buffer.
- Acquire another research facility in the South of the Park.
- Ecological infrastructure and Ecosystem Service, especially water production.
- Payment for Ecosystem Service.
- Research value in terms of biodiversity and cultural aspects.
- International grading in terms of the Green List for protected areas.
- Linkages with additional formalised volunteer groups.

- Opportunities for national and international collaboration and sharing management ideas through the World Heritage Status.
- International Trekking trail.

Threats

- Illegal activities in and around the Park (specifically stock theft, poaching, illegal harvesting of muthi plants, drug smuggling).
- Access control issues relating to illegal exit and entry points into South Africa.
- Lack of mechanisms to control air space access.
- Non-compatible land-uses and/or developments in the areas adjacent to the Park that may threaten the OUV and other Park values.
- Human/wildlife conflict (Bush pig, Eland, Baboons and Jackal).
- Alien and invasive species. (Including Pine & Wattle)
- Arson Fires.
- Inadequate human and financial resources.
- Climate Change.
- Large infrastructure development threatening the protected area e.g. cable car, fracking and windfarms, expansion of diamond mines in Lesotho etc.
- Uncontrolled cattle grazing leading to accelerated soil erosion.
- Diseases threatening biodiversity.
- Lack of coordination of organs of state to protect the viewsheds leading to the Park.
- Lack of coordinated planning around the Sani pass development between South Africa and Lesotho.

General discussions

- Discussion around cooperation to inform flying clubs about areas to avoid due to vulture sensitivities
- The correct use of the term Outstanding universal value.
- Boundary demarcation issues especially in terms of grazing and community land.
- A need to notify all stakeholders within the buffer zone about the buffer zone and that they fall within the buffer zone and other buffer zone issues. It was agreed that some of these discussions needs to followed outside of the IMP workshops with Park Management.
- Need to integrate the buffer requirments with municipal planning documents.
- Comment that the biggest threat to park is unemployment. Need development along the Park to employ communities.
- The need for consultation with neighbouring local communities and Local Board.
- There is a need for an appropriate strategy for marketing.

Appendix 3: Advertisements for Public Consultation

EZEMVELO KZN WILDLIFE

STAKEHOLDER WORKSHOP

UKHAHLAMBA DRAKENSBERG PARK WORLD HERITAGE SITE
INTEGRATED MANAGEMENT PLAN REVISION

Ezemvelo KwaZulu-Natal Wildlife (Ezemvelo) is the designated Management Authority for the uKhahlamba Drakensberg Park World Heritage Site, and is responsible for the revision of the existing Integrated Management Plan for the Park in accordance with the World Heritage Convention Act, No. 49 of 1999 and the National Environmental Management: Protected Areas Act, No.57 of 2003. The existing Integrated Management Plan (an overarching management framework for a protected area which includes a zonation plan) will be reviewed with the assistance of stakeholders through a public consultation process.

To facilitate public input in reviewing this plan, you are invited to attend the Stakeholder Workshop that will be held at the following venues:

Venue:	Underberg Country Club	Estcourt Town Hall
Date:	22nd March 2018	23rd March 2018
Time:	10:00 am	10:00 am

A background document will be available one week prior to the workshop on the Ezemvelo website www.kznwildlife.com (Pathway is "Conservation" > "Public Comment").

Ezemvelo KZN Wildlife would like to extend an invitation to you, to attend one of the workshops as an individual or the representative of your department, organization or community. Should you be unable to attend the workshop, the revised document will be made available for comment on the Ezemvelo website (www.kznwildlife.com) , please register your contact detail and we will inform you once the draft plan is available for comments.

Should you wish to attend the workshop, or register your contact detail, please do so through the contact details below by 15th March 2018.

Contact: **Magda Goosen** **033 845 1465**
Magda.goosen@kznwildlife.com

The revised draft Integrated Management Plan will be compiled following the public consultation process and this document will be advertised and made available for final public review and comment before submission for approval.

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UMHLANGANO WEZINHLAKA ESIBAMBISENE NAZO

UKHAHLAMBA DRAKENSBERG PARK WORLD HERITAGE SITE

UKUBUYEKEZWA KWENDLELA YOKUPHATHA

Ezemvelo KwaZulu-Natal Wildlife (Ezemvelo) inhlangano egunyazwe ukuphatha uKhahlamba Drakensberg Park World Heritage Site, iphinde futhi ibe nomsebenzi wokwakha umqulu wamasu okuphathwa kwalendawo evikelekile njengokuyalelwa uMthetho weNgqungquthela wokuGcinwa kwamaGugu eMhlabeni kaNombolo 49 wonyaka ka 1999 kanye noMthetho kaZwelonke wokuPhathwa kweMvelo: weZindawo Ezivikelekile, No.57 wezi-2003.

Lomqulu wamasu okuphatha (iwona ongumgogodla wokuphatha izindawo ezivikelekile nemikamo yazo) uzobuyekezwa ngokuxoxisana nazo zonke izinhlaka ezithintekayo emihlanganweni ehlukene yemiphakathi. Lomqulu wamasu okuphatha ungumqulu wokuhlela weminyaka eyisihlanu.

Ukuthola imibono yomphakathi ekuthuthukiseni lamasu, uyamenywa ukuba uhambele lemihlangano yokubonisana nezinhlaka esibambisene nazo ezobanjelwa kulezizindawo ezilandelayo:

Venue:	Underberg Country Club	Estcourt Town Hall
Date:	22nd March 2018	23rd March 2018
Time:	10:00 am	10:00 am

Imiqulu eneminingwane yaloluhlelo iyotholakala sekusele isonto ngaphambi komhlangano wokubonisana kwi-website yeZemvelo ethi: www.kznwildlife.com (kulandelana kanje "Conservation" > "Public Comment" >).

I-Ezemvelo KZN Wildlife ifisa ukukumema kulemihlangano njengomuntu ozimele noma omele umnyango wakho, inhlangano yakho noma umphakathi. Umqulu obuyekeziwe wamasu uzofakwa kwi Website yezeMvelo ethi www.kznwildlife.com, ukuze labo abangezuphumelela ukuya emhlanganweni bekwazi ukubeka imibono yabo. Uyacelwa ukuba ubhalise imininingwano yakho ukuze sizokwazisa uma sesidinga imibono yakho mayelana nomqulu osalungiswa.

EZEMVELO KZN WILDLIFE

STAKEHOLDER WORKSHOP

UKHAHLAMBA DRAKENSBERG PARK WORLD HERITAGE SITE
INTEGRATED MANAGEMENT PLAN REVISION

Ezemvelo KwaZulu-Natal Wildlife (Ezemvelo) is the designated Management Authority for the uKhahlamba Drakensberg Park World Heritage Site, and is responsible for the revision of the existing Integrated Management Plan for the Park in accordance with the World Heritage Convention Act, No. 49 of 1999 and the National Environmental Management: Protected Areas Act, No.57 of 2003. The existing Integrated Management Plan (an overarching management framework for a protected area which includes a zonation plan) will be reviewed with the assistance of stakeholders through a public consultation process.

To facilitate public input in reviewing this plan, you are invited to attend the Stakeholder Workshop that will be held at the following venues:

Venue:	Underberg Country Club	Estcourt Town Hall
Date:	22nd March 2018	23rd March 2018
Time:	10:00 am	10:00 am

A background document will be available one week prior to the workshop on the Ezemvelo website www.kznwildlife.com (Pathway is "Conservation" > "Public Comment").

Ezemvelo KZN Wildlife would like to extend an invitation to you, to attend one of the workshops as an individual or the representative of your department, organization or community. Should you be unable to attend the workshop, the revised document will be made available for comment on the Ezemvelo website (www.kznwildlife.com) , please register your contact detail and we will inform you once the draft plan is available for comments.

Should you wish to attend the workshop, or register your contact detail, please do so through the contact details below by 15th March 2018.

Contact: **Magda Goosen** **033 845 1465**
Magda.goosen@kznwildlife.com

The revised draft Integrated Management Plan will be compiled following the public consultation process and this document will be advertised and made available for final public review and comment before submission for approval.

UMHLANGANO WEZINHLAKA ESIBAMBISENE NAZO

UKHAHLAMBA DRAKENSBERG PARK WORLD HERITAGE SITE

UKUBUYEKEZWA KWENDLELA YOKUPHATHA

Ezemvelo KwaZulu-Natal Wildlife (Ezemvelo) inhlangano egunyazwe ukuphatha uKhahlamba Drakensberg Park World Heritage Site, iphinde futhi ibe nomsebenzi wokwakha umqulu wamasu okuphathwa kwalendawo evikelekile njengokuyalelwa uMthetho weNgqungquthela wokuGcinwa kwamaGugu eMhlabeni kaNombolo 49 wonyaka ka 1999 kanye noMthetho kaZwelonke wokuPhathwa kweMvelo: weZindawo Ezivikelekile, No.57 wezi-2003.

Lomqulu wamasu okuphatha (iwona ongumgogodla wokuphatha izindawo ezivikelekile nemikamo yazo) uzobuyekezwa ngokuxoxisana nazo zonke izinhlaka ezithintekayo emihlanganweni ehlukene yemiphakathi. Lomqulu wamasu okuphatha ungumqulu wokuhlela weminyaka eyisihlanu.

Ukuthola imibono yomphakathi ekuthuthukiseni lamasu, uyamenywa ukuba uhambele lemihlangano yokubonisana nezinhlaka esibambisene nazo ezobanjelwa kulezizindawo ezilandelayo:

Venue:	Underberg Country Club	Estcourt Town Hall
Date:	22nd March 2018	23rd March 2018
Time:	10:00 am	10:00 am

Imiqulu eneminingwane yaloluhlelo iyotholakala sekusele isonto ngaphambi komhlangano wokubonisana kwi-website yeZemvelo ethi: www.kznwildlife.com (kulandelana kanje "Conservation" > "Public Comment" >).

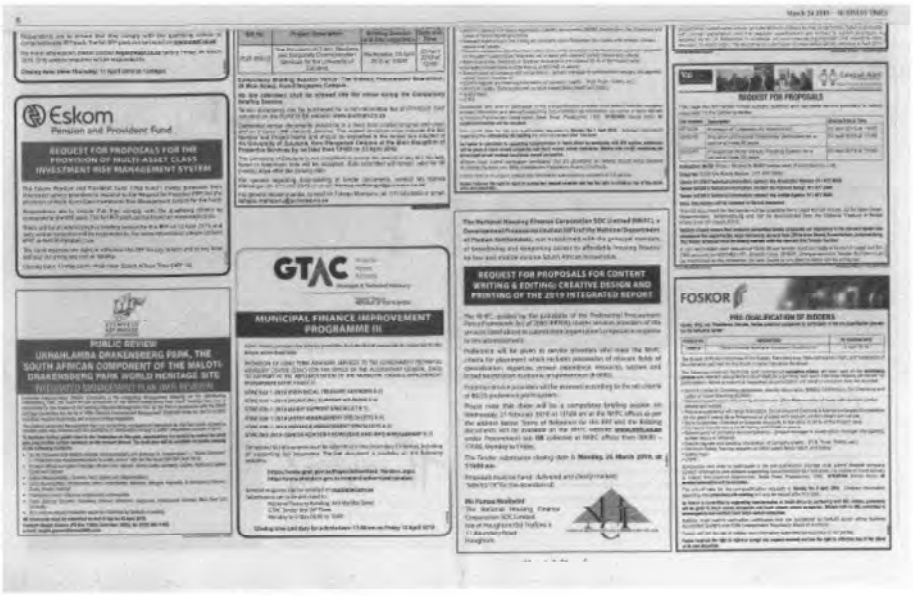
I-Ezemvelo KZN Wildlife ifisa ukukumema kulemihlangano njengomuntu ozimele noma omele umnyango wakho, inhlangano yakho noma umphakathi. Umqulu obuyekeziwe wamasu uzofakwa kwi Website yezeMvelo ethi www.kznwildlife.com, ukuze labo abangezuphumelela ukuya emhlanganweni bekwazi ukubeka imibono yabo. Uyacelwa ukuba ubhalise imininingwano yakho ukuze sizokwazisa uma sesidinga imibono yakho mayelana nomqulu osalungiswa.

Uma ufuna ukuba yingxenye yemihlangano noma ukubhalisa imininingwane yakho sicela ukuba usithinte ngalezizindlela ezilandelayo lungakadluli usuku lwe 15 ku Ndasa 2018.

Contact: **Magda Goosen** **033 845 1465**

Magda.goosen@kznwildlife.com

Umqulu wamasu okuphatha uyohlanganiswa ngemuva kwemihlangano yokubonisana nezinhlaka ezithintekayo bese kuvulwa elinye ithuba lokuwuhlolisisa.



Accommodation

Board & Lodging

To Let Flats

ISIPINGO RAIL

OVERPORT

OVERPORT

Education & Training

IMPUMELELO SKILLS TRAINING CENTRE

INVESTMENT IN METER TAXI

Legals

Sale In Execution

AUCTION

SALE NOTICE

Tenders | Tenders | Tenders

Supplier Database Registration

Invitation to Prospective Service Providers to Apply for Registration at UKZN Supplier Database and Updating of Current Service Provider Details

UKZN is in a process of updating current database, and therefore calling on all service providers who intend doing business and/or dealing with UKZN to register at UKZN Supplier Database.

Service providers that are currently registered on the UKZN database are also requested to submit updated documents to ensure compliance.

This is in line with UKZN Policy on procurement of goods, services and works, which requires service providers to be fully compliant when dealing with UKZN.

Vendor Registration Documents:

Vendor registration forms and amendment forms that need to be completed by all the new and current service providers can be downloaded from the UKZN website under "2019 Tender – Central "(link below):

https://innerweb.ukzn.ac.za/tenders/2019%20Tenders%20Central/Forms/AllItems.aspx

Completed database forms with all the supporting documents must be hand delivered at University of KwaZulu-Natal, Westville Campus, Room 02-012, 8th Floor, Block L, Procurement Office, University Road.

Note: Incomplete documents will not be considered.

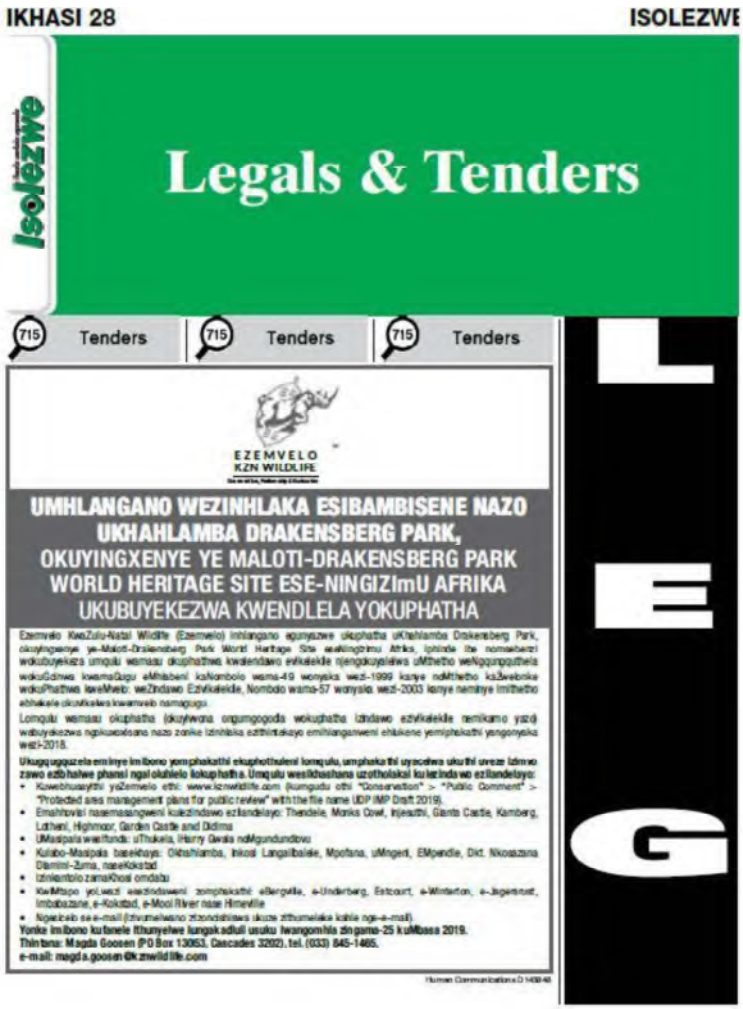
Queries in respect of the registration should be addressed to Nkanyiso Mlambo on e-mail: MlamboN@ukzn.ac.za

Closing date for submission is 12 April 2019. No late applications will be accepted after closing date.

Tenders | Tenders | Tenders

EZEMVELO KZN WILDLIFE

PUBLIC REVIEW
UKHAHLAMBA DRAKENSBERG PARK, THE SOUTH AFRICAN COMPONENT OF THE MALOTI-DRAKENSBERG PARK WORLD HERITAGE SITE
INTEGRATED MANAGEMENT PLAN (IMP) REVISION



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Legals & Tenders

715 Tenders | 715 Tenders | 715 Tenders

EZEMVELO
KZN WILDLIFE

UMHLANGANO WEZINHLAKA ESIBAMBISENE NAZO UKHAHLAMBA DRAKENSBERG PARK, OKUYINGXENYE YE MALOTI-DRAKENSBERG PARK WORLD HERITAGE SITE ESE-NINGIZIMU AFRIKA

UKUBUYEKEZWA KWENDLELA YOKUPHATHA

Ezemvelo KwaZulu-Natal Wildlife (Ezemvelo) inhlangano egunyazwe ukuphatha uKhahlamba Drakensberg Park, okuyingxenye ye-Maloti-Drakensberg Park World Heritage Site esekingizimu Afrika, iphinde ibe nomsebenzi wokubuyekeza umqulu wamasu okuphathwa kwesendawo enkulekile njengokuyalelwa uMthetho weNgqungquthela wokuGcinwa kwemaGugu eMhlabeni kaNombolo wama-49 wonyaka wezi-1999 kanye noMthetho kaZwelonke wokuPhathwa kweMvelo weZindawo Ezivikelekile, Nombolo wama-57 wonyaka wezi-2003 kanye nemiNye imithetho ebhekele ukuvikelwa kwemvelo nemaguga.

Lomqulu wamasu okuphatha (okuyiwona ongumgogodla wokuphatha izindawo ezivikelekile nemikumo yazo) wabuyekezwa ngokuvisisana nazo zonke izinhlaka ezithintekayo emihlanganweni ehlukene yemiphakathi yangonyaka wezi-2018.

Ukuququzela eminye imibono yemphakathi ekuphothuleni lomqulu, umphakathi uyacelwa ukuthi uveze izimvo zawo ezibhalwe phansi ngal okulelo lokuphatha. Umqulu wesikhashana uzotholakal kuleizindawo ezilandelayo:

- Kuwebhusayithi yeZemvelo ethi: www.kznwildlife.com (kumgudu othi "Conservation" :- "Public Comment" :- "Protected area management plans for public review" with the file name UDP IMP Draft 2019).
- Emishinini nasemasangweni kuleizindawo ezilandelayo: Thendele, Monks Cowl, Injisuthi, Giants Castle, Kamberg, Lotheni, Highmoor, Garden Castle and Didima
- UMasipala wesifunda: uThukela, iHarry Gwala ndMgungundlovu
- Kulabo-Masipala baseKhayo: Okhahlamba, Inkosi Langalibalele, Mpofana, uMngeni, EMpendle, Dkt. Nkosazana Dlamini-Zuma, naseKokstad
- Izinkantolo zamaKhosi omdabu
- KwiMtapo yolwazi wasendaweni zomphakathi eBergville, e-Underberg, Estcourt, e-Winterton, e-Jagersrust, Imbabazane, e-Kokstad, e-Mooi River nase Himeville
- Ngezikalo sa e-mail (Izivumelwano zibonditshiwa ukuze izithumelele kahle nge-e-mail).

Yonke imibono kufanele ithunyelwe kungakadluli usuku lwangomhla zingama-25 kuMbasa 2019.
Thintana: Magda Goosen (PO Box 13053, Cascades 3202), tel. (033) 845-1465.
e-mail: magda.goosen@kznwildlife.com

Human Communications D 1458/40

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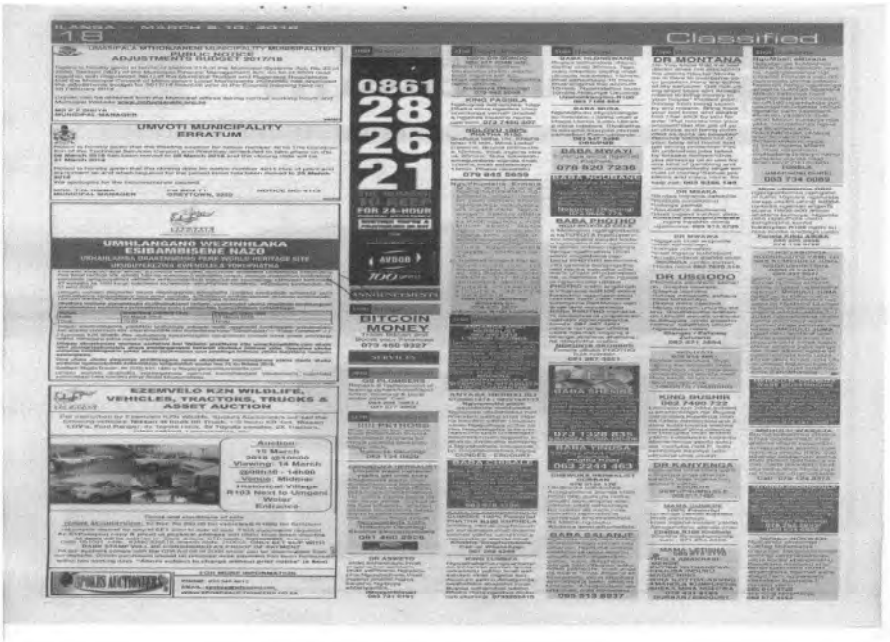
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UMVOTI MUNICIPALITY
ERRATUM
UMHLANGANO WEZINHLAKA ESIBAMBISENE NAZO
EZEMVELO KZN WILDLIFE, VEHICLES, TRACTORS, TRUCKS & ASSET AUCTION
BITCOIN MONEY
DR MONTANA
DR USGOOD
KING BUSHIR
DR RAMYENGA
BABA SALAMU

Appendix 4: Background Information Document for Public Consultation

UKHAHLAMBA DRAKENSBERG PARK WORLD HERITAGE SITE

REVISION OF THE INTEGRATED MANAGEMENT PLAN (IMP)

BACKGROUND INFORMATION DOCUMENT

Purpose of this document

- To inform stakeholders of the proposed review of the Integrated Management Plan.
- To invite stakeholders to participate in the review process.

The uKhahlamba Drakensberg Park World Heritage Site

The uKhahlamba Drakensberg Park World Heritage Site (UDP WHS) is situated in the KwaZulu-Natal Province of the Republic of South Africa, and is part of the Drakensberg – an inland mountain range in south-eastern Africa. The UDP WHS was inscribed as a World Heritage Site in 2000, and in 2013 was extended by inclusion of the Sehlabathebe National Park into the site to establish the Maloti-Drakensberg Park World Heritage Site.

UDP WHS is a national and international asset due to its unique suite of both natural and cultural values, which allowed it to be listed as a World Heritage Site of dual significance. Outstanding Universal Value as recognised under the World Heritage Convention means cultural and/or natural significance that are so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of the Outstanding Universal Value is of the highest importance to the local, provincial, national and international communities.

The World Heritage Site contributes significantly to the economy of KwaZulu-Natal and South Africa through the production of high quality water from its high dense network of wetlands (hence its additional designation as a Ramsar Site), the sustainable use of natural resources, and the development of appropriate forms of eco-cultural tourism.

The Park has been identified as a key "hotspot" of plant diversity and plays an important role in conserving various mountain vegetation types such as Drakensberg Montane Forest, Drakensberg Foothill Moist Grassland and other, as well as several rare and endangered species, including Bearded Vulture, Wattled Crane, Oribi and several important millipede species.

It is dominated by a mountain range of unique origins, and has a diverse range of ecological niches resulting in a rich biodiversity and a high number of endemic species. In addition, it is home to thousands of rock art paintings, a product of the San's long historical relationship with this mountain environment.

The Integrated Management Plan

This second revision of the Integrated Management Plan for the UDP WHS is intended to ensure compliance with a range of legislative requirements, including the World Heritage Convention Act 49 of 1999, the National Environmental Management: Protected Areas Act (No.57 of 2003) and the National Heritage Resources Act (No.25 of 1999) in managing the protected areas that make up the World Heritage Site. Furthermore, the set of documents are designed to be high-level documents that provide a tool to assist Ezemvelo KZN Wildlife in the strategic planning and management of the protected area under its control.

Key issues for review

Ezemvelo KZN Wildlife in keeping with adaptive management principles, facilitated annual review meetings that highlighted issues in the IMP that require revision. Furthermore annual assessments using the Management Effectiveness Tracking Tool (V3) highlighted further issues to be addressed in both the management of the Park and in the revised IMP.

In line with legislative requirements Ezemvelo had to report annually to the Department of Environmental Affairs (Annual report) and the World Heritage Committee (State of Conservation Report) and both entities assed the Integrated Management Plan and the implementation thereof, raising specific issues for the revision of the IMP.

Furthermore contextual changes, legislative requirement changes as well as changes in landscapes, planning and new threats and opportunities informed this revision process.

UKHAHLAMBA DRAKENSBERG PARK WORLD HERITAGE SITE

REVISION OF THE INTEGRATED MANAGEMENT PLAN (IMP)

Some of these revisions are highlighted below:

- Confirmation and discussion of the vision and objectives of the Park to determine if they require updating.
- Formal Risk assessment (SWOT analysis) with internal and external stakeholders to ensure that all risks and threats are identified and addressed, and any opportunities investigated and if appropriate, capitalised on.
- Updating the internal zonation of the Park. This process include a sensitivity and impacts analysis. This process identifies the areas outside of the WHS where the greatest visual (and other) impacts will be encountered should they undergo significant land use change and will be used to inform any changes to the zonation, should that be required. Furthermore in terms of the zonation some seasonal and or temporary zonation layers will need to be updated.
- The Buffer Zone is a formal requirement of UNESCO which has advised South Africa that the process should be finalised in December 2016. It is furthermore a legal and moral requirement and will ensure that the MDP WHS can be preserved for the benefit of present and future generations. The Buffer Zone Policy was developed in 2016 including an extensive public consultation process. The purpose of this policy is to:
  - Protect the purpose and values of the UDP WHS, especially the Outstanding Universal Value.
  - Protect biodiversity, and ecosystems which transcend the UDP WHS boundary.
  - Assist adjacent and affected communities to secure appropriate and sustainable benefits from the UDP WHS and Buffer Zone Area.

  This policy will be incorporated into the revised Integrated Management Plan.
- Inclusion of strategies, programmes and additional subsidiary plans that have been developed over the last five years including:
  - Maloti-Drakensberg Park World Heritage Site Fire Management Plan.
  - Maloti-Drakensberg Park World Heritage Site Alien and Invasive Species Management Plan.
  - Maloti-Drakensberg Park World Heritage Site Sustainable Tourism Strategy.
  - Environmental Awareness Plan.
  - COMPACT - This is a bilateral community based project initiative (Lesotho and RSA around the World Heritage Site) which is funded by UNESCO.
  - The Connecting Practice – This project seeks to achieve an integrated consideration of natural and cultural heritage under the World Heritage Convention. Currently there are three active projects through this programme.
- The revision and integration of the Cultural Heritage Resource management Plan into the IMP.

This list is by no means exhaustive but highlights the main changes anticipated during the revision.

Stakeholder consultation process

A principle of Ezemvelo KZN Wildlife's in reviewing the Integrated Management Plan is collaboration and transparency. Stakeholders will be canvassed and their inputs will be facilitated in the revision of the plan.

Stakeholder workshops have been advertised and will be held on the 22nd of March 2018 at the Underberg Country Club and the 23rd of March 2018 at the Estcourt Town Hall. The following issues will be discussed:

- Changes anticipated to the current Integrated Management Plan.

UKHAHLAMBA DRAKENSBERG PARK WORLD HERITAGE SITE

REVISION OF THE INTEGRATED MANAGEMENT PLAN (IMP)

- SWOT analysis to identify critical strengths, weaknesses, opportunities and threats to the Park.
- Discussions on management interventions required based on issues identified.

Once the draft Integrated Management Plan has been revised, it will be made available for public review and comment prior to its finalisation and submission to the KwaZulu-Natal Nature Conservation Board, MEC and National Minister.

If you or your organisation would like to participate in this process or would like any further information, please contact:

Magda Goosen

Magda.goosen@kznwildlife.com
(033) 845 1465

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

INTERGRATED MANAGEMENT PLAN ANALYSIS TEMPLATE FOR UKHAHLAMBA DRAKENSBERG PARK AND WHS (2019)

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
WORLD HERITAGE ATTRIBUTES		
1.1 Statement of Outstanding Universal Value **1.2 Attributes expressing the Outstanding Universal Value** **1.3 Vision and Mission** **1.4 Strategic objectives**	Statement of Outstanding Universal Value should – as formulated in the application documents – be integrated into the management plan to be submitted along with a nomination. If the World Heritage Committee makes changes, the management plan should be amended accordingly once the site is inscribed on the World Heritage List. If a management plan is created for an existing World Heritage Site, the statement and justification are to be taken from the Committee's working documents; they may also be summarized in a synthesis. Present a vision and long-term goals for the World Heritage site and actions required to achieve these goals; A collective vision for the	1.1. Addressed in p9 -10. 1.2. Addressed in Table 2 on p12. 1.3 -1.4. Addressed on p(xi), p6 1.4. Objectives are reflected in page (xi), pg. 6 Adequately addressed in p48-51

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
	management of the property (e.g., where it should be in the next 20-30 years).	
1.5.Statement of authenticity and/or integrity	Authenticity refers to the truthful and credible conveyance of the historic and cultural significance of the site. Depending on the cultural context, authenticity has to be expressed in a convincing and genuine manner through numerous attributes. Authenticity manifests itself in form and composition, material and substance, use and function, techniques and administrative systems, location and overall context and other expressions. Therefore, a site must express a multidimensional meaning and symbolism attested by scientific research. Integrity refers to the wholeness and intactness of a World Heritage site. With regard to cultural heritage the physical substance should be in good, conservationally controlled condition. The preservation of visual integrity is also decisive; this affects the overall aesthetic impression of a site, its unhindered perceivability and its dominating effect from a distance. Thus in a nomination, view perspectives, silhouettes and panorama views should be clearly defined and their future preservation ensured.	1.5. Addressed on p10-11

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
SUBJECT OF PROTECTION, PROTECTION GOAL AND INSTRUMENTS OF PROTECTION		
2.1 Description of property Type of property: World Heritage Identification Number: Year of inscription: Criteria under which the property was inscribed: Year of Proclamation:	Subject of protection	Year of proclamation is addressed on pg4 & 11. Criteria of inscription is adequately addressed on p10.
2.2. Geographic information table	<table><tr><th>Name</th><th>Coordinates (longitude / latitude)</th><th>Property (ha)</th><th>Buffer zone (ha)</th><th>Total (ha)</th><th>Inscription year</th></tr><tr><td>Mapungubwe Cultural Landscape and World Heritage Sire</td><td>-22 192 /29.239</td><td>28 168.66</td><td>100.000</td><td>128 168.66</td><td>2003</td></tr><tr><td colspan="2">Total (ha)</td><td>28 168.66</td><td>100 00.00</td><td>128 168.66</td><td></td></tr></table>	Total size of site is reflected on pg (xi)& p8

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
2.2 Purpose of the IMP (Protection goal)	The World Heritage Convention requires conservation of both the substance and the value of World Heritage sites. The protection goal which serves as a basis both for determining the type of protection a site is entitled to and for the procedure for consideration and decision within the framework of the national law and planning system, should be based on the definition of the subject of protection, the statement of significance, authenticity and/or integrity and the justification of its outstanding universal value. The protection goal should be precise but it should also be kept as succinct as possible, so as to allow incorporation into the preambles of regulations. The objective of determining the protection goal can be to preserve visual integrity in addition to conserving the material substance of the site. Experience reveals that in order to preserve view perspectives, as well as silhouettes and panoramas, it is advisable to legislate more strictly that certain areas must be kept free of development.	2.2. Addressed on pg1.
2.3 Instruments of protection (Enabling legal framework) 2.3.1 The World Heritage Convention	**Instruments of protection** – According to the Operational Guidelines (para 132, section 5) the format for the nomination of properties for inscription on the World Heritage List should	2.3.1 Adequately addressed in p4 &11. 2.3.2. Addressed on pg. 5

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
2.3.2 Other international conventions and charters 2.3.3 National law and planning system 2.3.4 Statutes and contracts	include "the list of the legislative, regulatory, contractual, planning, institutional and/or traditional measures most relevant to the protection of the property and provide a detailed analysis of the way in which this protection actually operates.	2.3.3. Addressed on page 4, 15 – 17) and Listed in Appendix D (p138-139). 2.3.4. Addressed on pg. 5, 16 and listed in Appendix D
PROTECTION, MANAGEMENT AND MONITORING OF THE PROPERTY		
3. Protected Area 3.1 Boundaries of the World Heritage Site 3.2 Buffer zones 3.3 Protection of view perspective, Silhouette and panorama 3.4. Maps	**Boundaries of the World Heritage site** – must be clearly defined and marked. It is advisable to indicate a precisely marked plot on a scale map. The same applies to buffer zones; their boundaries should also be represented on the map. This also permits the clear delineation of the different protection categories and protection goals for core buffer zones. **Specifications about buffer zones** can be found in **Paragraph 103 to 107** of the Operational Guidelines. It is advisable to anchor buffer zones for World Heritage sites in the framework of existing legal instruments. The sizes and designation of the buffer zone should be established and depicted on a map, which the boundaries of the World Heritage site are also indicated.	3.1. Addressed in Map 6, pg.156-165. 3.2. Addressed in Map 10 on p162. 3.3.Provided in Map 10 3.4. Page156-165

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
	Provide clear maps with explanatory notes or legends.	
4.1 Management Systems 4.1.1.Management structures 4.1.2 Authorities and procedure 4.1.3. Ownership structure and responsible bodies 4.1.4. Co-ordination 4.1.5. Protective designation (legal, regulatory, contractual, planning, institutional and / or traditional)	**Management structures** – The Authorities responsible for the protection of a World Heritage site should be named in the management plan. Their organizational form must be explained, e.g. the duties and responsibilities of an operating agency with respect to proprietors and users. Procedures and responsibilities should also be described. State of ownership of properties in the World Heritage site should be reflected. Structures of coordination should also be outlined.	4.1.1 Outlined in Sec. 2.7.4 on pg. 16, 63. Organogram provided on p64. 4.1.2- 4.1.4. Addressed in Sec 1.4. on pg. 4, 66 4.1.5. Addressed on pg. 25-27
4.2 Basic principles for planning and action 4.2.1 Objective, targets and strategies 4.2.2 Master plan and catalogue of measures 4.2.3 Inventories 4.2.4 Science and research	**Article 5** of the World Heritage Convention states the responsibility, "to adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes". The annual short-term and long-term activities and projects are to be listed in the master plan and in the catalogue of measures. The initial	4.2.1. Addressed in Table 16 -33 on pg. p67 115 4.2.4. Addressed from section 2.8.2.2 on p20 -25. 4.2.5. Addressed on p65 – 115 4.2.6. Annual plan of operation is addressed on page (xiii), pg. 122 -124 4.2.7. Addressed on Sec 5, pg. 116 -121

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
4.2.5. Actions to meet policies/objectives (including timing, priorities, resources and indicators) 4.2.6 Implementation plan; annual work plan, project formulation, indication of resources 4.2.7. Monitoring plan 4.2.8. Timetable for review	situation, bases of action, such as surveys and mapping of damage, methods, and objective, scientific and technical supervision by a committee or research institute should also be delineated, along with the type of documentation and monitoring of measures undertaken. Budget and funding should also be discussed or referenced. Generating a complete inventory is fundamental. Ideally this would mean an inventory of the World Heritage site's assets worthy of conservation. With regard to buildings, architectural components as well as movable and immovable inventories should be listed. Scientific studies and research programmes for the site, e.g. into the development and contextualization of inventory, risk assessment, monitoring procedures, climatic data, restoration requirements and archaeological findings should be named. In doing so, the plan should also make mention of the results and implementation of these studies.	4.2.8. Provided on page (v)
4.3. Factors affecting the property 4.3.1 Development pressure	A preventive conservation strategy outlining organizational and technical risk avoidance and mitigation measures, based on the	4.3.1. Not addressed

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
4.3.2 Climate change 4.3.3 Natural disasters 4.3.4 Tourism pressure 4.3.5 Over population 4.3.6 Security of buildings 4.3.7 Challenges and threats 4.3.8 Proposed remedial actions 4.3.9 Miscellaneous	identification of potential threats, should be developed for the World Heritage site. Any problems or risks that may endanger the World Heritage site should be specified. An assessment should be made establishing whether these risks are increasing or decreasing. Based on this assessment, planning for warding off threats should be developed. This should include the following elements: legal instruments, practical and technical measures, an explanation of competence and methods used at local, provincial and national levels.	4.3.2.Climate Change Plan is provided on pg. 27 -41 4.3.4 – Not addressed 4.3.7. Challenges and strategic outcomes are addressed in page (xii -xiii). Threats are addressed in p47
4.4 Monitoring and quality control 4.4.1 Periodic reporting 4.4.2 Reactive monitoring 4.4.3 Preventive monitoring 4.4.4 Advisory boards and commissions 4.4.5 Conflict management	Continuous monitoring of the condition of the World Heritage site is one of the most important instruments of the World Heritage Convention. This is based on the reporting requirement, spelled out in Article 29 of the Convention and cited in Paragraph 169 – 176, 190, 191 and 199 – 202 of the Operational Guidelines.	4.4.1 This section should include the report of the 2nd Cycle Periodic Reporting 4.4.2 and 4.4.6. Refer to the UNESCO decisions and progress in their implementation. 4.4.3. Addressed on pg.104-105 and p116-117. 4.4.5. Not addressed

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
4.4.6. Implementation of decisions of Unesco World Heritage Committee		
4.5 Mediation 4.5.1 Education and information 4.5.2 Tourism and visitor guidance 4.5.3 Events 4.5.4 Networks and international co-operation 4.5.5 Use of the World Heritage and Unesco emblems	The management plan should include a public relations plan proposing concrete communication measures.	4.5.1. Education is addressed on pg. 77-78. What are the visitor information and interpretation tools available e.g. brochures, maps, information booklets websites. The communication strategy should convey both the idea of the WH programme and the OUV of the site as well as the resulting responsibilities and opportunities. 4.5.2. Tourism management is addressed on pg. 79 -80 4.5.3. Pollution event highlighted on pg. 120. Management Authority should include other events to raise awareness on the world heritage property. **The** MA should indicate how the WHS is presented on a global scale within a network of other institutions at a global level and also its networking amongst other WHS. 4.5.4. The IMP must provide the details on how the Management Authority (MA) will interact with other international organization of the World Heritage Site. 4.5.5. The cover page must show emblems of World Heritage and UNESCO. MA to also indicate how it uses or will use the emblem in future. Please refer to the Operational Guidelines

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
SUSTAINABLE MANAGEMENT		
5. Sustainable Use	Sustainability is built upon space-saving, energy-saving and traffic-saving development in and around settlements with a special emphasis on the quality of community surrounding. Sustainability is enhanced by strengthening sustainable land use and environmentally friendly traffic planning aimed, among others, at reducing motorized individual traffic. To integrate the awareness for the cultural heritage into local and regional sustainable development is the underlying intention of the Management Plan process and implementation.	Sustainable Development is mentioned on page 4 and the information provided is inadequate as there is no information on process and implementation in the site. This section provides general information on sustainable development but does not elaborate on the sustainable measures employed in the WHS. The IMP should have more information on sustainability of resources on site. Key measures and local initiatives should be highlighted.
HUMAN, FINANCIAL AND INTELLECTUAL RESOURCES		
6. Resources 6.1 Staff 6.2 Budget	Human and financial resources are essential for the protection and conservation of a World Heritage site. These must be addressed in the management plan.	6.1. Staffing is highlighted on pages (xiii), 43, 123. Organogram is outlined in p64. MA to address human capital developments, transformation and wellness and staff capacity building. 6.2. Funding and budget is highlighted on pg. 43. MA to indicate mid-term financial planning for the next 3-5 years

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
		(if available). Financial resources should be listed with explanations of how they are acquired.
EXPANSION PLANS		
8. Expansion of the site	This section should clearly highlight the short and long term expansion plans and further it envisages the expansion to happen with clear timelines and financial implications.	Addressed in Section 4.5.1 on pg. 74, 99
STAKEHOLDER CONSULTATION		
9. Consultation of relevant stakeholder	a. Participation by key stakeholders and the wider community from the time of the preparation of the nomination, a shared understanding of the concept of World Heritage and of the implications of listing for property management; b. Participation by key stakeholders during the development of the IMP. Provide attendance registers and comments provided by stakeholders.	Addressed in Section 1.6.2 on page 7,71-73 Public Participation Report to be included as an Appendix Management Authority to attach the public participation advert Reference to made to Sec 25 (3) of the WHCA which also makes provision for this consultation.
10. Disaster Risk Management and Preparedness	A management system needs to be sufficiently flexible to deal with unforeseeable events, such as natural disasters or fluctuations in the financial or human resources available to it.	Risk Preparedness and Disaster Management is addressed on p44-45.

TABLE OF CONTENTS	EXPLANATORY NOTES	IMP ASSESSMENT COMMENTS
	Provide attendance registers and comments provided by stakeholders.	Risk analysis of Rock Art sites highlighted in section 2.8.2.4 on pg. 22

ADDITIONAL COMMENTS

PAGE	SECTION / PARAGRAPH	COMMENTS
1	Purpose of the Plan	There is a need to decide on whether reference is made to the park or world heritage site throughout the document.
13 -14	Error! Reference	To be corrected

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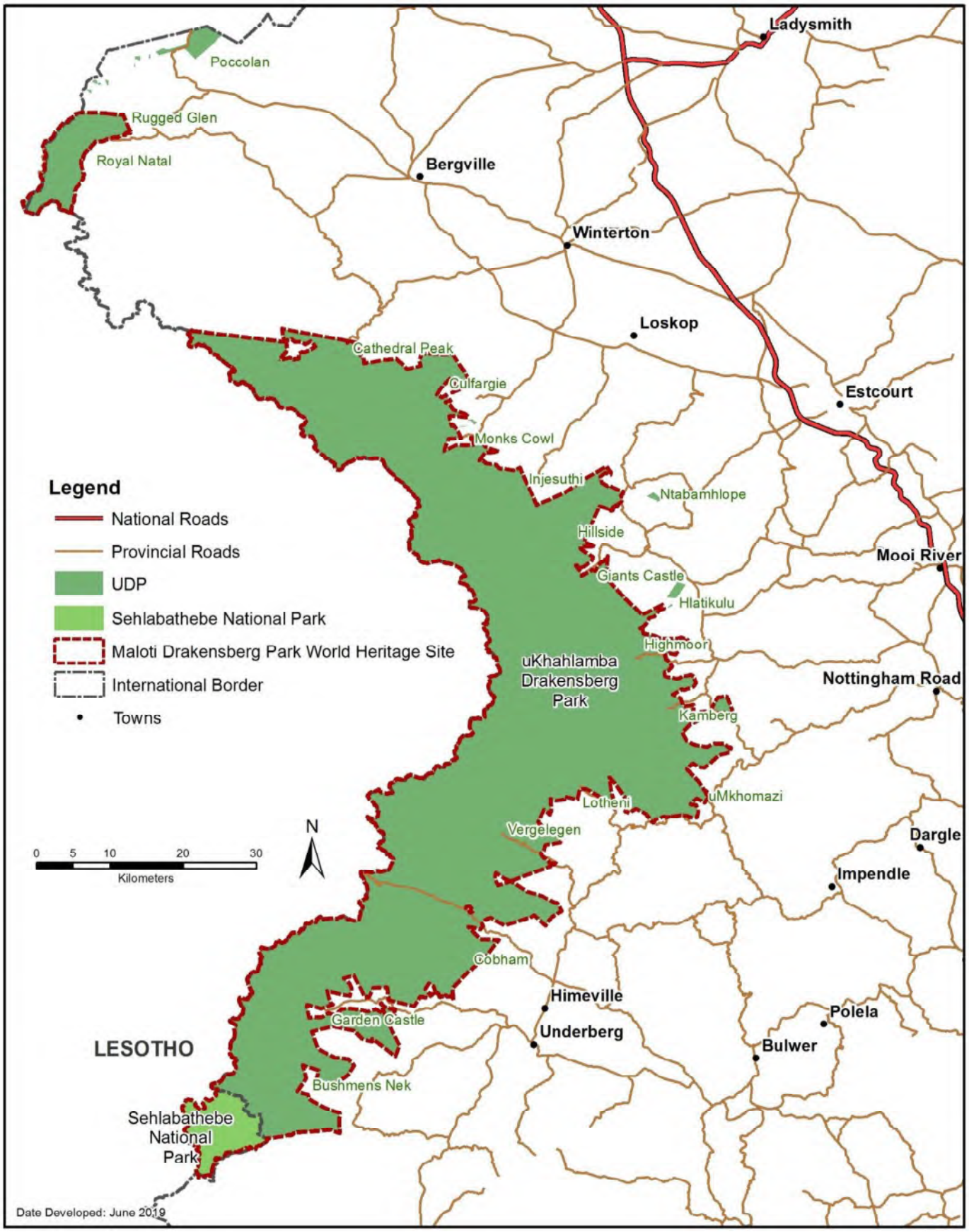
Ms Thumeka Ntloko

Director: World Heritage Management

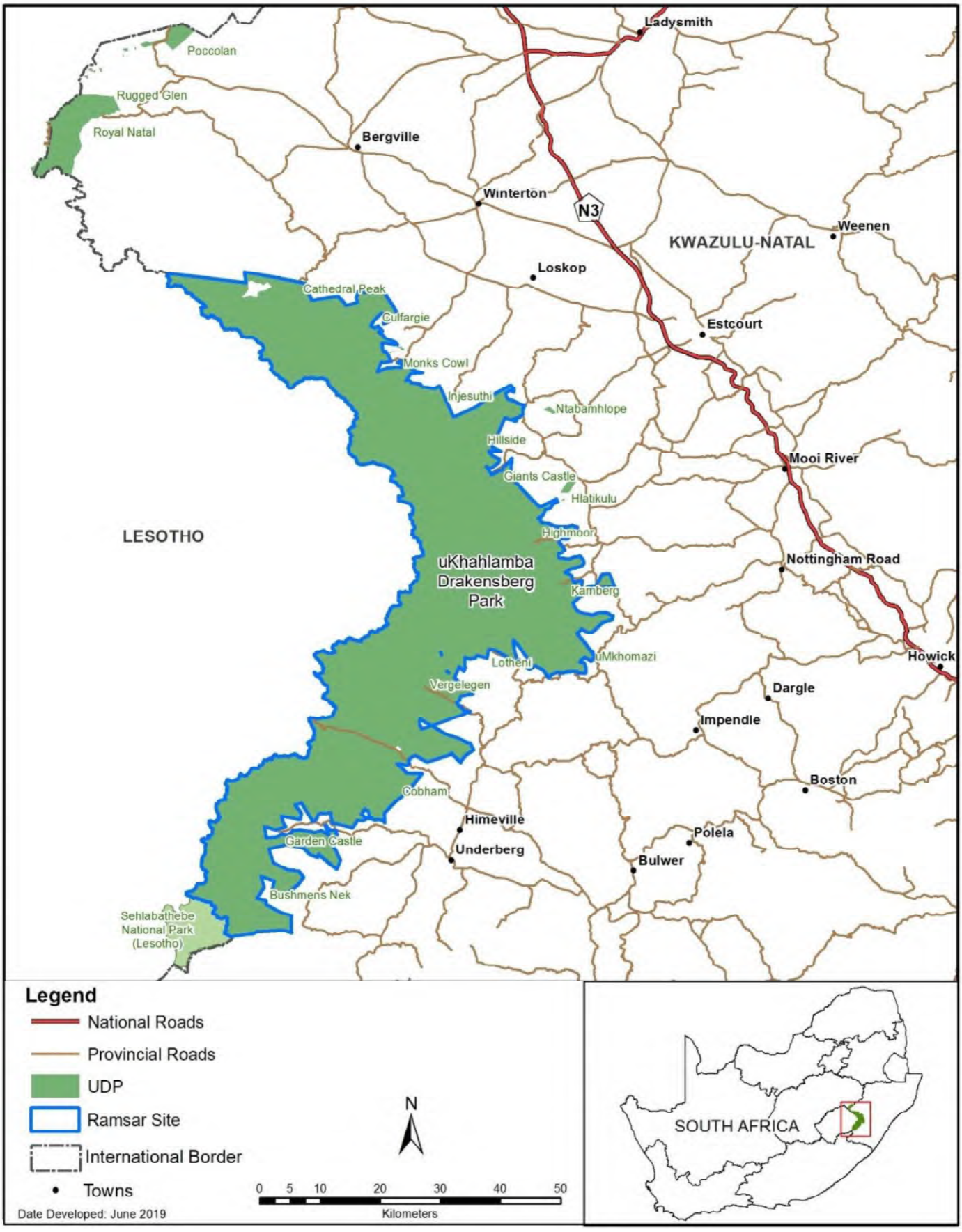
Date:

MAPS

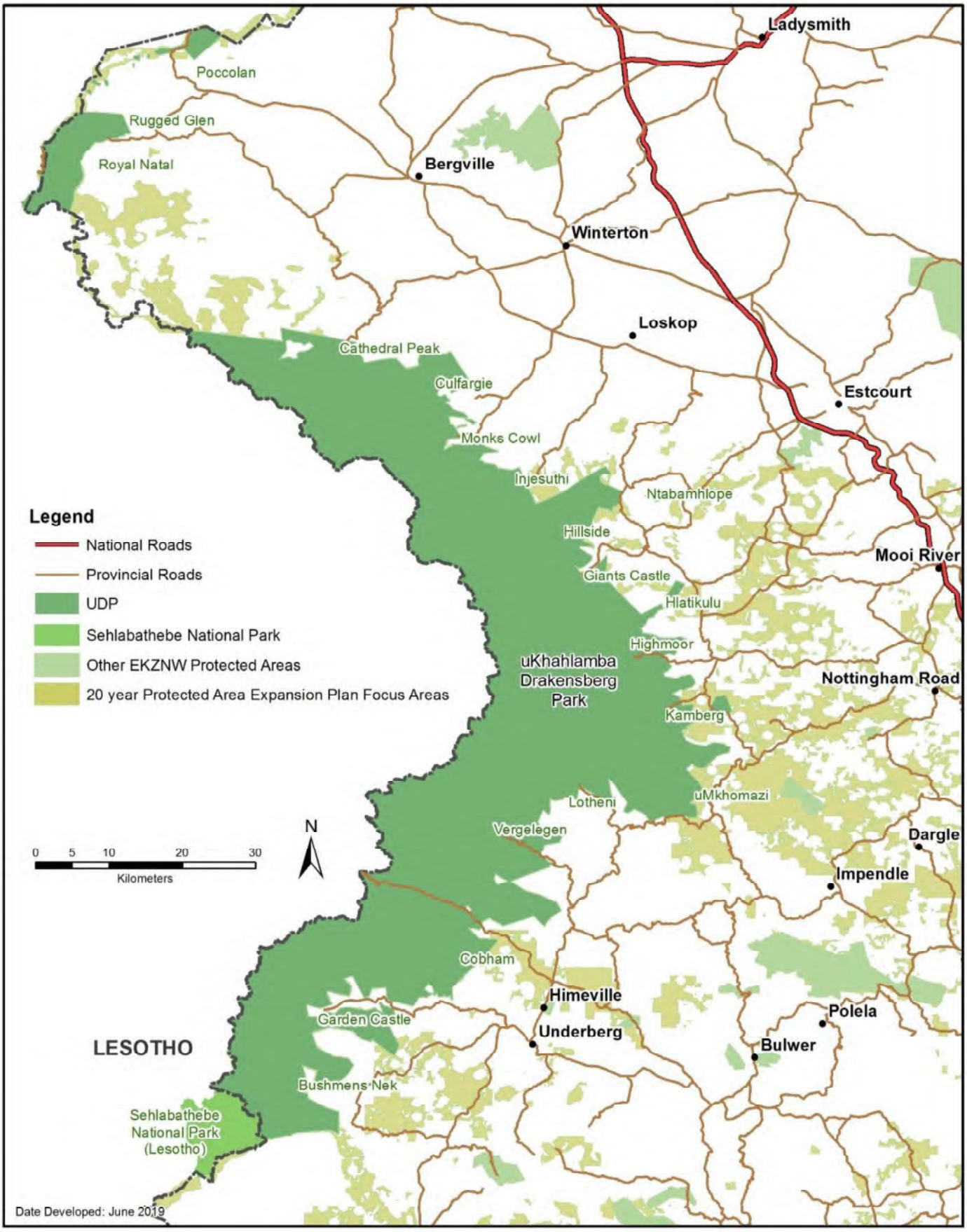
Map 1: The location of the uKhahlamba Drakensberg Park in western KwaZulu-Natal showing access control points to Management Units (red diamond)



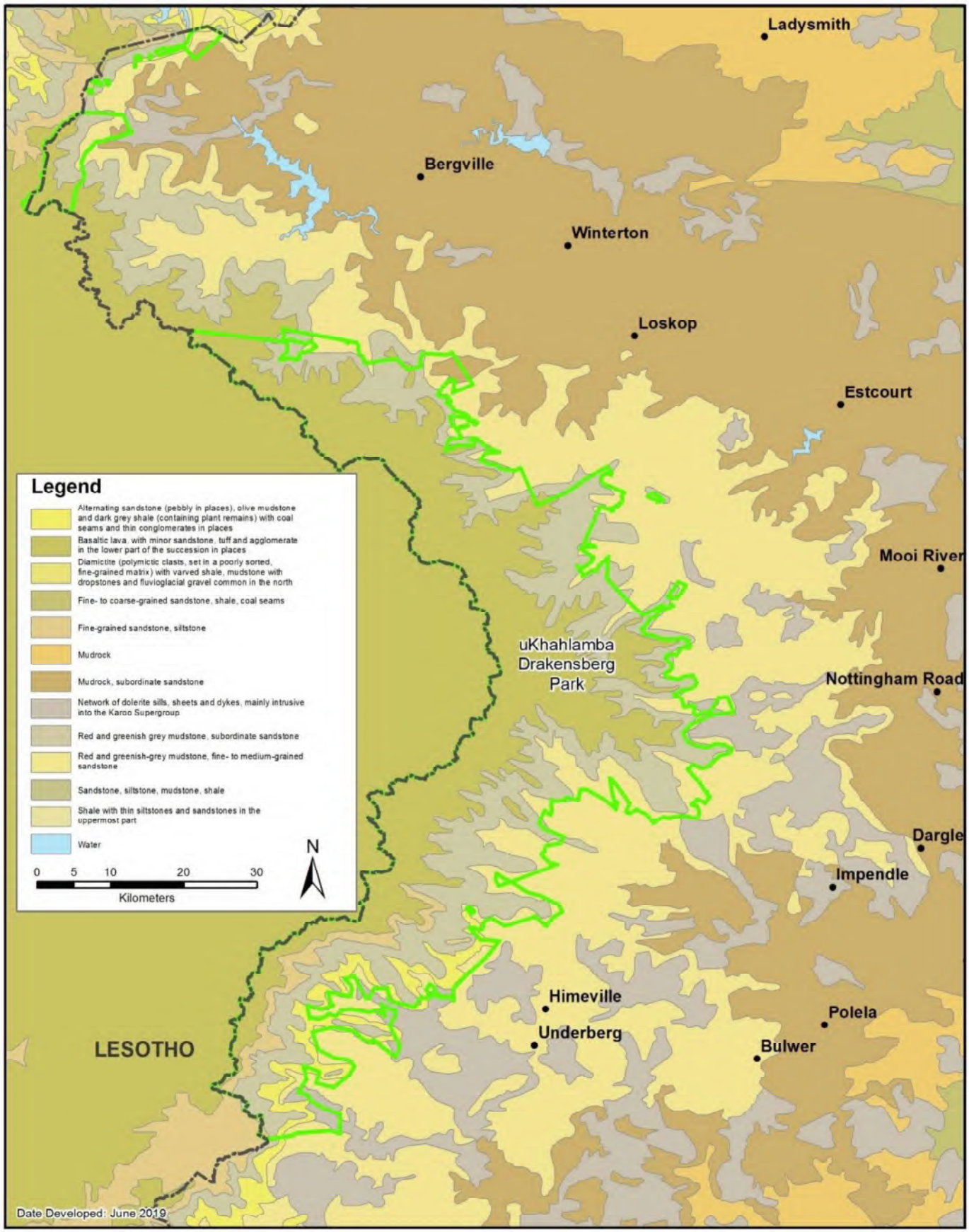
Map 2: The uKhahlamba Drakensberg Park as part of a Transboundary World Heritage Site



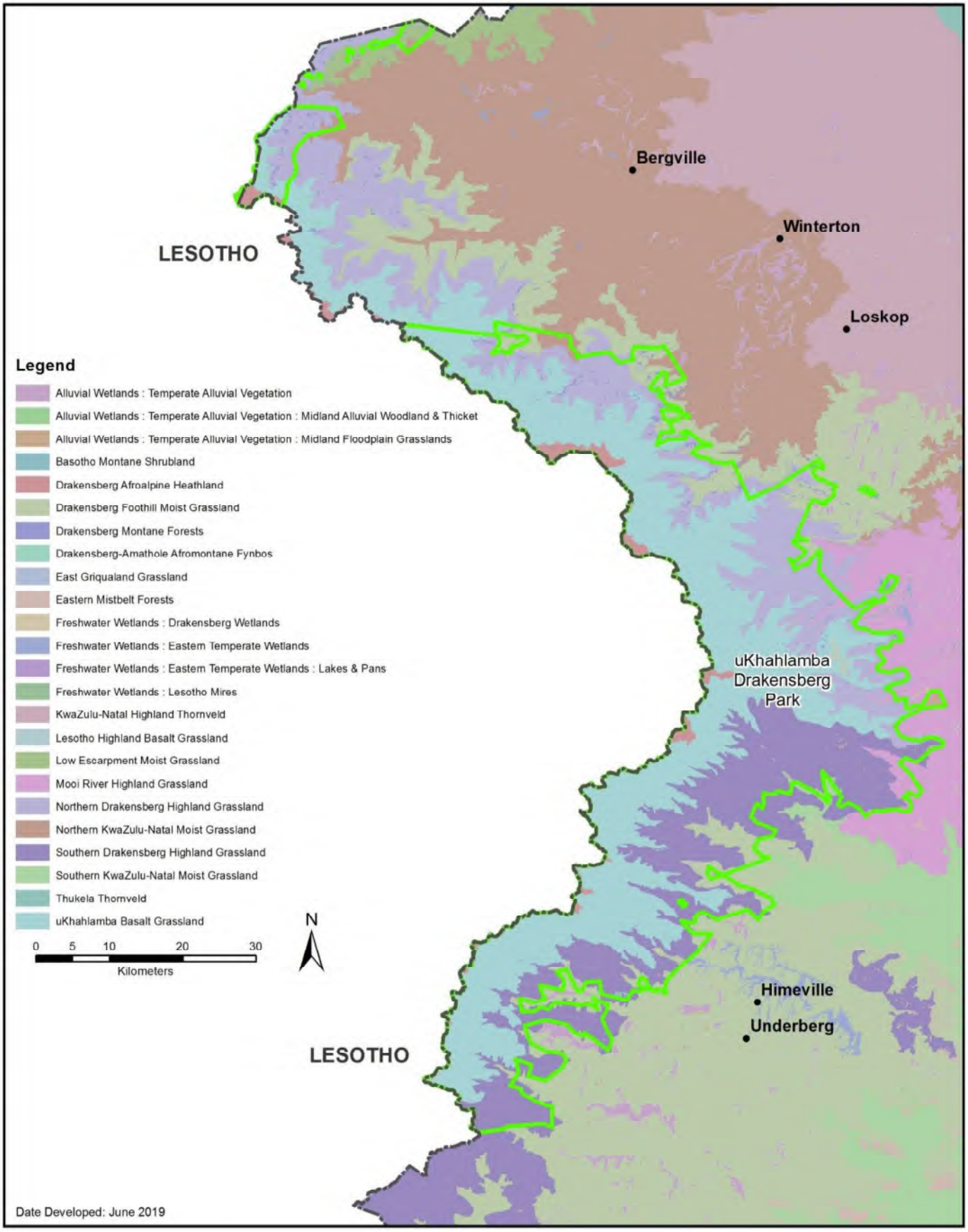
Map 3: The boundary of the uKhahlamba Drakensberg Park Ramsar Site



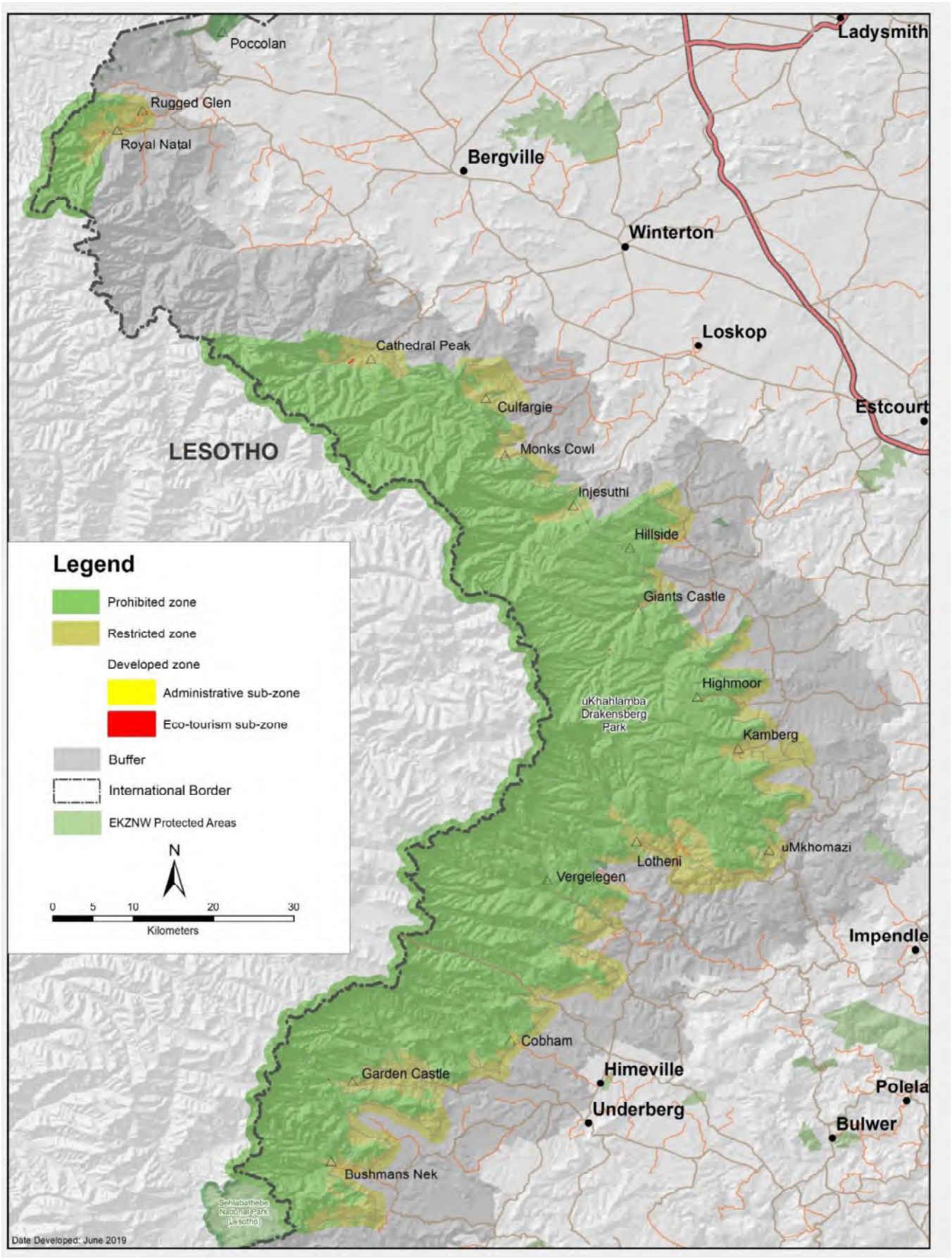
Map 4: The uKhahlamba Drakensberg Park Expansion Focus Areas



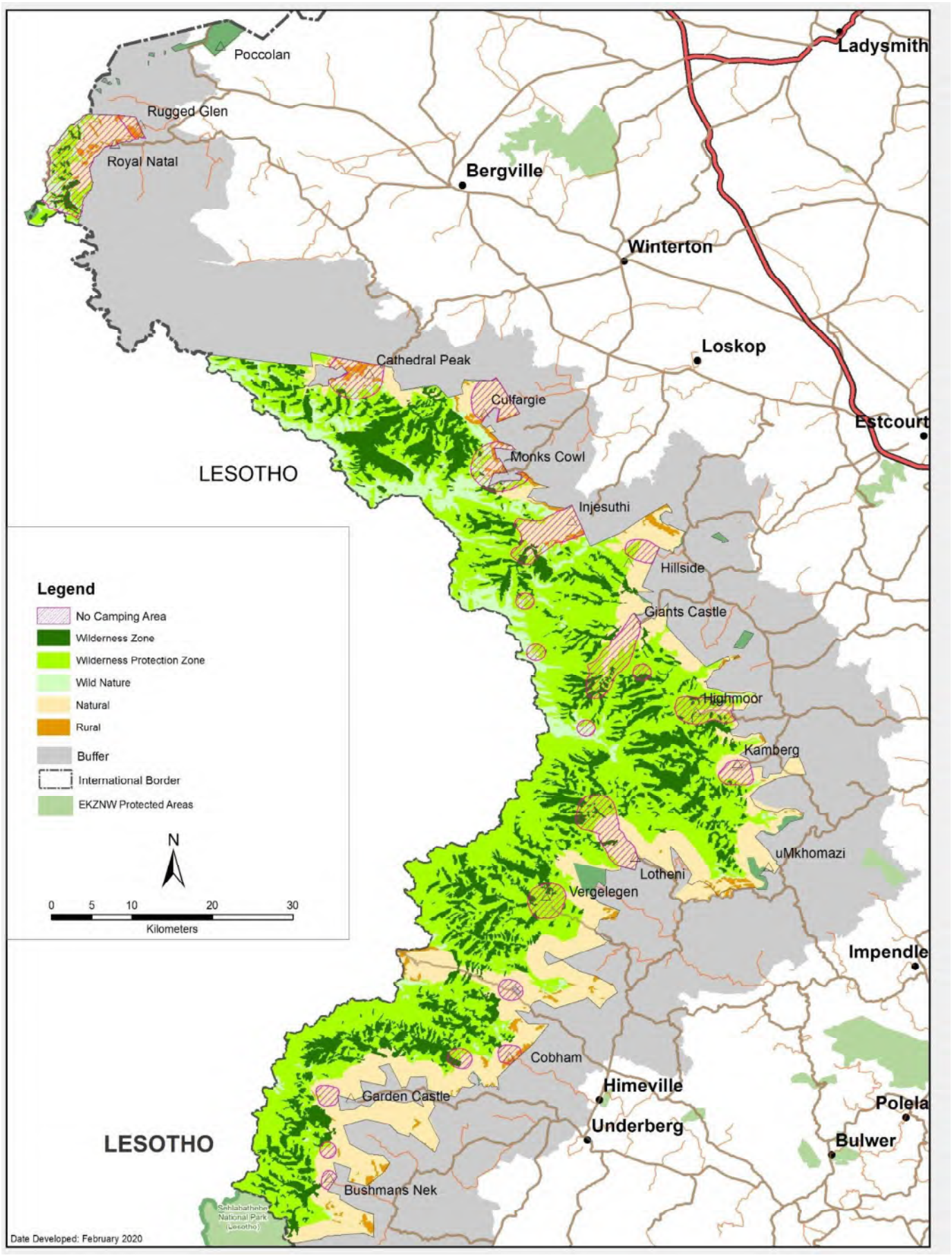
Map 5: The Geology of the uKhahlamba Drakensberg Park



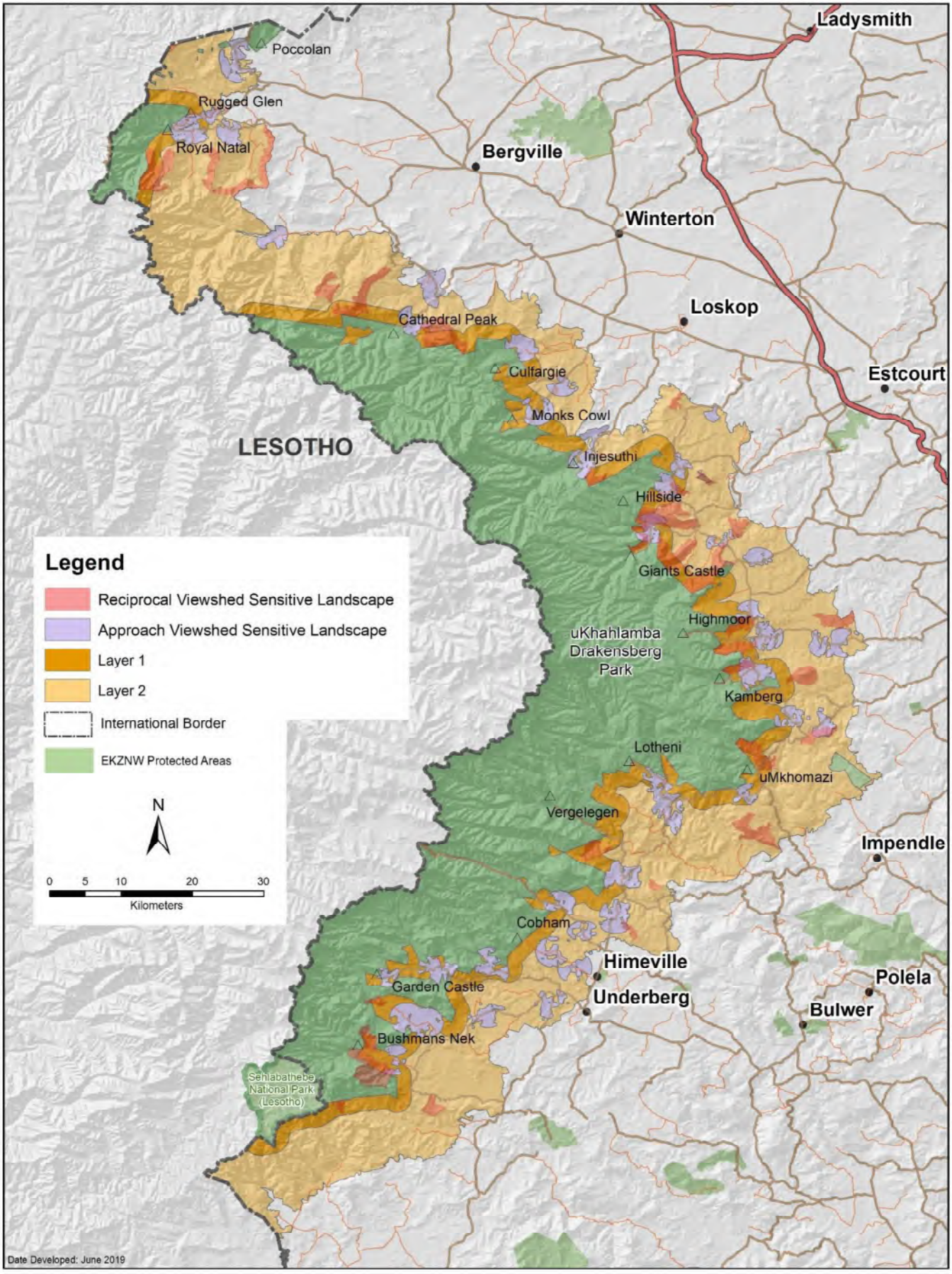
Map 6: The Vegetation of the uKhahlamba Drakensberg Park



Map 7: The Spatial Planning Zonation of the uKhahlamba Drakensberg Park



Map 8: The Visitor Experience Zonation of the uKhahlamba Drakensberg Park



Map 9: The uKhahlamba Drakensberg Park Buffer Zone

SPECIES CHECKLISTS

List 1: Mammal checklist for the uKhahlamba Drakensberg Park

Family	Common name	Scientific name	IUCN & SA Red Data Book status*	Distribution and Endemism	ToPS	CITES
Chrysochloridae	Hottentot golden mole	*Amblysomus hottentotus*	LC (IUCN & SA)	South Africa (restricted)	No	No
Chrysochloridae	Rough-haired golden mole	*Chrysospalax villosus*	V (IUCN) & CE (SA)	Restricted in & Endemic to KZN	Threatened	No
Bathyergidae	Cape Mole Rat	*Georychus capensis*	LC (IUCN) & E (SA)	South Africa	No	No
Canidae	Black-backed jackal	*Canis mesomelas*	LC (IUCN & SA)	South Africa	Protected	No
Felidae	Caracal	*Caracal caracal*	LC (IUCN & SA)	South Africa	Protected	Appendix I & II
Felidae	African wild cat	*Felis silvestris cafra*	LC (SA)	South Africa	No	Appendix II
Felidae	Serval	*Leptailurus serval*	LC (IUCN) & NT (SA)	South Africa	Protected	Appendix II
Felidae	Leopard	*Panthera pardus*	V (IUCN)	South Africa	Threatened	Appendix I
Herpestidae	Water mongoose	*Atilax paludinosus*	LC (IUCN & LR (SA)	South Africa	No	No
Herpestidae	Yellow mongoose	*Cynictis penicillata*	LC (IUCN & SA)	South Africa	No	No
Herpestidae	Cape grey mongoose	*Galerella pulverulenta*	LC (IUCN & SA)	Restricted in KZN	No	No
Herpestidae	Large grey mongoose	*Herpestes ichneumon*	LC (IUCN & SA)	South Africa	No	No
Herpestidae	White-tailed mongoose	*Ichneumia albicauda*	LC (IUCN & SA)	South Africa	No	No
Hyaenidae	Aardwolf	*Proteles cristatus*	LC (IUCN)	South Africa	No	Appendix III
Mustelidae	African clawless otter	*Aonyx capensis*	NT (IUCN) & LC (SA)	South Africa	Protected	Appendix II
Mustelidae	Striped polecat	*Ictonyx striatus*	LC (IUCN & SA)	South Africa	No	Appendix III
Mustelidae	Spotted-necked otter	*Lutra maculicollis*	NT (IUCN & SA)	South Africa	Protected	Appendix II
Mustelidae	African striped weasel	*Poecilogale albinucha*	LC (IUCN)	Endemic to Africa	No	No
Viverridae	South African large-spotted genet	*Genetta tigrina*	LC (IUCN & SA)	South Africa	No	No
Soricidae	Greater red musk shrew	*Crocidura flavescens*	LC (IUCN)	Endemic to Southern Africa	No	No
Soricidae	Maqwassie musk shrew	*Crocidura maquassiensis*	LC (IUCN) & V (SA)	South Africa (restricted)	No	No
Soricidae	Lesser grey-brown musk shrew	*Crocidura silacea*	LC (IUCN)	Southern Africa	No	No
Soricidae	Forest shrew	*Myosorex varius*	LC (IUCN)	Endemic to South Africa/Lesotho/Swaziland	No	No
Leporidae	Natal red rock rabbit	*Pronolagus crassicaudatus*	LC (IUCN)	Endemic to South Africa/Lesotho/Swaziland	No	No
Leporidae	Scrub hare	*Lepus saxatilis*	LC (IUCN)	South Africa (restricted)	No	No
Cercopithecidae	Chacma baboon	*Papio ursinus*	LC (IUCN)	South Africa	No	Appendix II

Family	Common name	Scientific name	IUCN & SA Red Data Book status*	Distribution and Endemism	ToPS	CITES
Cercopithecidae	Vervet Monkey	*Chlorocebus pygerythrus*	LC (IUCN)	South Africa	No	Appendix II
Hystricidae	Cape porcupine	*Hystrix africaeaustralis*	LC (IUCN)	South Africa	Protected	No
Muridae	Brants' climbing mouse	*Dendromus mesomelas*	LC (IUCN)	South Africa	No	No
Muridae	Woodland thicket rat	*Grammomys dolichurus*	LC (IUCN)	South Africa	No	No
Muridae	Southern multimammate mouse	*Mastomys coucha*	LC (IUCN)	Largely endemic to southern Africa	No	No
Muridae	Natal multimammate mouse	*Mastomys natalensis*	LC (IUCN)	South Africa	No	No
Muridae	Pygmy mouse	*Mus minutoides*	LC (IUCN)	South Africa	No	No
Muridae	White-tailed rat	*Mystromys albicaudatus*	E (IUCN & SA)	Endemic to South Africa/Lesotho/Swaziland	No	No
Muridae	Four-striped grass mouse	*Rhabdomys pumilio*	LC (IUCN)	South Africa (restricted)	No	No
Muridae	Water rat/African marsh rat	*Dasymys incomtus*	LC (IUCN)	South Africa	No	No
Myoxidae	Woodland dormouse	*Graphiurus murinus*	LC (IUCN)	South Africa	No	No
Procaviidae	Rock hyrax (Dassie)	*Procavia capensis*	LC (IUCN)	Africa	No	No
Bovidae	Red hartebeest	*Alcelaphus buselaphus caama*	LC (IUCN)	South Africa	No	No
Bovidae	Black wildebeest	*Connochaetes gnou*	LC (IUCN)	Endemic to South Africa/Lesotho/Swaziland	Protected	No
Bovidae	Blesbok/bontebok	*Damaliscus pygargus*	LC (IUCN) & V (SA)	South Africa	Threatened	Appendix I & II
Bovidae	Klipspringer	*Oreotragus oreotragus transvaalensis*	LC (IUCN)	South Africa	No	No
Bovidae	Oribi	*Ourebia ourebi*	LC (IUCN) & E (SA)	South Africa	Threatened	No
Bovidae	Grey rhebuck	*Pelea capreolus*	NT (IUCN) & LC (SA)	Restricted in KZN, Endemic to South Africa/Lesotho/Swaziland	No	No
Bovidae	Southern reedbuck	*Redunca arundinum*	LC (IUCN & SA)	South Africa	Protected	No
Bovidae	Mountain reedbuck	*Redunca fulvorufula*	E (IUCN & SA)	South Africa	No	No
Bovidae	Common duiker; Grey duiker	*Sylvicapra grimmia*	LC (IUCN & SA)	South Africa	Protected	No
Bovidae	Eland	*Tragelaphus oryx*	LC (IUCN & SA)	South Africa	No	No
Bovidae	Bushbuck	*Tragelaphus scriptus*	LC (IUCN & SA)	South Africa	No	No
Suidae	Bushpig	*Potamochoerus porcus*	LC (IUCN & SA)	South Africa	No	No
Orycteropodidae	Aardvark	*Orycteropus afer*	LC (IUCN & SA)	South Africa	No	Appendix II
Rhinolophidae	Geoffroy's Horseshoe Bat	*Rhinolophus clivosus*	LC (IUCN) & NT (SA)	South Africa	No	No

***** where SA refers to southern Africa, LC refers to Least Concern, LR is lower risk, NT is Near Threatened, E is Endangered, CE is Critically Endangered and V is Vulnerable

List 2: Avifaunal checklist for the uKhahlamba Drakensberg Park

Family	Common name	Scientific name	Ref	IUCN & Southern African Red Data Book status*	Distribution and Endemism	ToPS	CITES
Pandionidae	Osprey	*Pandion haliaetus*	170	Least Concern	Africa and beyond	No	Appendix II
Accipitridae	Shikra; Little Banded Goshawk	*Accipiter badius*	159	Least Concern	Africa	No	Appendix II
Accipitridae	Black sparrowhawk	*Accipiter melanoleucus*	158	Least Concern	Africa	No	Appendix II
Accipitridae	Little Sparrowhawk	*Accipiter minullus*	157	Least Concern	Africa	No	Appendix II
Accipitridae	Rufous-chested Sparrowhawk; Red-breasted Sparrowhawk	*Accipiter rufiventris*	155	Least Concern	Africa	No	Appendix II
Accipitridae	African Goshawk	*Accipiter tachiro*	160	Least Concern	Africa	No	Appendix II
Accipitridae	Verreauxs' Eagle; Black Eagle	*Aquila verreauxii*	131	Least Concern (IUCN) & Vulnerable (SA)	Africa	No	Appendix II
Accipitridae	African Cuckoo Hawk	*Aviceda cuculoides*	128	Least Concern	Africa	No	Appendix II
Accipitridae	Steppe Buzzard	*Buteo buteo*	149	Least Concern	Africa	No	
Accipitridae	Jackal Buzzard	*Buteo rufofuscus*	152	Least Concern	Endemic to Southern Africa	No	Appendix II
Accipitridae	Forest Buzzard	*Buteo trizonatus*	150	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Accipitridae	Brown Snake-Eagle	*Circaetus cinereus*	142	Least Concern	Africa	No	Appendix II
Accipitridae	Pallid Harrier	*Circus macrourus*	167	Near Threatened (IUCN & SA)	Africa	No	Appendix II
Accipitridae	Black Harrier	*Circus maurus*	168	Vulnerable (IUCN) & Endangered (SA)	Endemic to Southern Africa	No	Appendix II
Accipitridae	Montagu's Harrier	*Circus pygargus*	166	Least Concern	Africa	No	Appendix II
Accipitridae	African Marsh-Harrier	*Circus ranivorus*	165	Least Concern (IUCN) & Endangered (SA)	Africa	Threatened	Appendix II
Accipitridae	Black-shouldered Kite	*Elanus caeruleus*	127	Least Concern	Africa	No	Appendix II
Accipitridae	Bearded Vulture	*Gypaetus barbatus*	119	Least Concern (IUCN) & Critically Endangered (SA)	Africa	Threatened	Appendix II
Accipitridae	Cape Vulture	*Gyps coprotheres*	122	Vulnerable (IUCN) & Endangered (SA)	Africa	Threatened	Appendix II
Accipitridae	African Fish-Eagle	*Haliaeetus vocifer*	148	Least Concern	Sub-Saharan Africa	No	Appendix II
Accipitridae	Booted Eagle	*Hieraaetus pennatus*	136	Least Concern	Africa	No	Appendix II

Family	Common name	Scientific name	Ref	IUCN & Southern African Red Data Book status*	Distribution and Endemism	ToPS	CITES
Accipitridae	Long-crested Eagle	*Lophaetus occipitalis*	139	Least Concern	Africa	No	Appendix II
Accipitridae	Gabar Goshawk	*Melierax gabar*	161	Least Concern	Sub-Saharan Africa	No	Appendix II
Accipitridae	Black Kite;Yellow-billed Kite	*Milvus migrans*	126	Least Concern	Africa and beyond	No	Appendix II
Accipitridae	Martial eagle	*Polemaetus bellicosus*	140	Vulnerable (IUCN) & Endangered (SA)	Africa	Threatened	Appendix II
Accipitridae	African Harrier-Hawk; Gymnogene	*Polyboroides typus*	169	Least Concern	Sub-Saharan Africa	No	Appendix II
Accipitridae	African Crowned Eagle	*Stephanoaetus coronatus*	141	Near Threatened (IUCN) & Vulnerable (SA)	Africa	No	Appendix II
Accipitridae	Bateleur	*Terathopius ecaudatus*	146	Near Threatened (IUCN) & Endangered	Africa	Threatened	Appendix II
Sagittariidae	Secretary bird	*Sagittarius serpentarius*	118	Vulnerable (IUCN & SA)	Africa	No	Appendix II
Caprimulgidae	Fiery-necked Nightjar	*Caprimulgus pectoralis*	405	Least Concern	Africa	No	No
Caprimulgidae	Freckled Nightjar	*Caprimulgus tristigma*	408	Least Concern	Africa	No	No
Caprimulgidae	Pennant-winged Nightjar	*Caprimulgus vexillarius*	410	Least Concern	Africa	No	No
Otididae	White-bellied Korhaan	*Eupodotis senegalensis*	233	Least Concern (IUCN) & Vulnerable (SA)	Africa	No	Appendix II
Otididae	Denham's Bustard; Stanley's Bustard	*Neotis denhami*	231	Near Threatened (IUCN) & Vulnerable (SA)	Africa	Protected	Appendix II
Ardeidae	Grey Heron	*Ardea cinerea*	62	Least Concern	Africa and beyond	No	No
Ardeidae	Black-headed Heron	*Ardea melanocephala*	63	Least Concern	Sub-Saharan Africa	No	No
Ardeidae	Purple Heron	*Ardea purpurea*	65	Least Concern	Africa and beyond	No	No
Ardeidae	Cattle Egret	*Bubulcus ibis*	71	Least Concern	Africa	No	No
Ardeidae	Great Egret; Great White Egret	*Egretta alba*	66	Least Concern	Africa	No	No
Ardeidae	Little Egret	*Egretta garzetta*	67	Least Concern	Africa and beyond	No	No
Ardeidae	Yellow-billed Egret	*Egretta intermedia*	68	Least Concern	Sub-Saharan Africa	No	No
Ardeidae	Dwarf Bittern	*Ixobrychus sturmii*	79	Least Concern	Sub-Saharan Africa	No	No
Ardeidae	Black-crowned Night-Heron	*Nycticorax nycticorax*	76	Least Concern	Africa and beyond	No	No
Scopidae	Hamerkop	*Scopus umbretta*	81	Least Concern	Sub-Saharan Africa	No	No
Threskiornithidae	Hadeda Ibis	*Bostrychia hagedash*	94	Least Concern	Sub-Saharan Africa	No	No

Family	Common name	Scientific name	Ref	IUCN & Southern African Red Data Book status*	Distribution and Endemism	ToPS	CITES
Threskiornithidae	Southern Bald Ibis	*Geronticus calvus*	92	Vulnerable (IUCN & SA)	Endemic to South Africa, Lesotho or Swaziland	Threatened	Appendix II
Threskiornithidae	African Spoonbill	*Platalea alba*	95	Least Concern	Sub-Saharan Africa	No	No
Threskiornithidae	African Sacred Ibis; Sacred Ibis	*Threskiornis aethiopicus*	91	Least Concern	Africa	No	No
Podicipedidae	Little Grebe; Dabchick	*Tachybaptus ruficollis*	8	Least Concern	Africa	No	No
Procellariidae	Cory's Shearwater	*Calonectris diomedea*	34	Least Concern	Africa	No	No
Anhingidae	African Darter; Darter	*Anhinga rufa*	60	Least Concern	Africa	No	No
Phalacrocoracidae	Reed Cormorant	*Phalacrocorax africanus*	58	Least Concern	Sub-Saharan Africa	No	No
Phalacrocoracidae	White-breasted Cormorant	*Phalacrocorax lucidus*	55	Least Concern	Africa and beyond	No	No
Phasianidae	Common Quail	*Coturnix coturnix*	200	Least Concern	Africa	No	No
Phasianidae	Red-necked Spurfowl; Red-necked Francolin	*Pternistis afer*	198	Least Concern	Africa	No	No
Phasianidae	Natal Spurfowl; Natal Francolin	*Pternistis natalensis*	196	Least Concern	Africa	No	No
Phasianidae	Swainson's Spurfowl; Swainson's Francolin	*Pternistis swainsonii*	199	Least Concern	Africa	No	No
Phasianidae	Grey-winged Francolin	*Scleroptila afra*	190	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Phasianidae	Red-winged Francolin	*Scleroptila levaillantii*	192	Least Concern	Africa	No	No
Phasianidae	Shelley's Francolin	*Scleroptila shelleyi*	191	Least Concern	Africa	No	No
Numididae	Helmeted guineafowl	*Numida meleagris*	203	Least Concern	Africa	No	No
Anatidae	Egyptian Goose	*Alopochen aegyptiaca*	102	Least Concern	Africa	No	No
Anatidae	Red-billed Teal	*Anas erythrorhyncha*	108	Least Concern	Africa	No	No
Anatidae	Hottentot Teal	*Anas hottentota*	107	Least Concern	Africa and beyond	No	No
Anatidae	Cape Shoveller	*Anas smithii*	112	Least Concern	Africa	No	No
Anatidae	African Black Duck	*Anas sparsa*	105	Least Concern	Sub-Saharan Africa	No	No
Anatidae	Yellow-billed duck	*Anas undulata*	104	Least Concern	Africa	No	No
Anatidae	White-faced Duck	*Dendrocygna viduata*	99	Least Concern	Sub-Saharan Africa	No	No
Anatidae	Southern Pochard	*Netta erythrophthalma*	113	Least Concern	Africa	No	No
Anatidae	Spur-winged goose	*Plectropterus gambensis*	116	Least Concern	Sub-Saharan Africa	No	No
Anatidae	South African Shelduck	*Tadorna cana*	103	Least Concern	Africa	No	No
Anatidae	White-backed Duck	*Thalassornis leuconotus*	101	Least Concern	Africa	No	No

Family	Common name	Scientific name	Ref	IUCN & Southern African Red Data Book status*	Distribution and Endemism	ToPS	CITES
Indicatoridae	Greater Honeyguide	*Indicator indicator*	474	Least Concern	Sub-Saharan Africa	No	No
Indicatoridae	Lesser Honeyguide	*Indicator minor*	476	Least Concern	Sub-Saharan Africa	No	No
Indicatoridae	Brown-backed Honeybird; Sharp-billed Honeyguide	*Prodotiscus regulus*	478	Least Concern	Africa	No	No
Picidae	Golden-tailed Woodpecker	*Campethera abingoni*	483	Least Concern	Africa	No	No
Picidae	Cardinal Woodpecker	*Dendropicos fuscescens*	486	Least Concern	Africa	No	No
Picidae	Olive Woodpecker	*Dendropicos griseocephalus*	488	Least Concern	Africa	No	No
Picidae	Ground Woodpecker	*Geocolaptes olivaceus*	480	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Picidae	Red-throated Wryneck	*Jynx ruficollis*	489	Least Concern	Africa	No	No
Lybiidae	Black-collared Barbet	*Lybius torquatus*	464	Least Concern	Africa	No	No
Lybiidae	Yellow-rumped Tinkerbird; Golden-rumped Tinker Barbet	*Pogoniulus bilineatus*	471	Least Concern	Africa	No	No
Lybiidae	Acacia Pied Barbet; Pied Barbet	*Tricholaema leucomelas*	465	Least Concern	Africa	No	No
Upupidae	African Hoopoe	*Upupa africana*	451	Least Concern	Southern Africa	No	Unknown
Bucorvidae	Southern Ground-Hornbill	*Bucorvus leadbeateri*	463	Vulnerable (IUCN) & Endangered (SA)	Africa	Threatened	No
Phoeniculidae	Green Wood-Hoopoe; Red-billed Woodhoopoe	*Phoeniculus purpureus*	452	Least Concern	Africa	No	No
Phoeniculidae	Common Scimitarbill; Scimitar-billed Wood-Hoopoe	*Rhinopomastus cyanomelas*	454	Least Concern	Africa	No	No
Trogonidae	Narina Trogon	*Apaloderma narina*	427	Least Concern	Africa	No	No
Coraciidae	Lilac-breasted Roller	*Coracias caudatus*	447	Least Concern	Africa	No	No
Coraciidae	European Roller	*Coracias garrulus*	446	Near Threatened (IUCN & SA)	Africa	No	No
Alcedinidae	Half-collared Kingfisher	*Alcedo semitorquata*	430	Least Concerned (IUCN) & Near Threatened (SA)	Africa	No	No
Alcedinidae	Pied Kingfisher	*Ceryle rudis*	428	Least Concern	Africa	No	No
Alcedinidae	Malachite Kingfisher	*Corythornis cristatus*	431	Least Concern	Sub-Saharan Africa	No	No
Alcedinidae	Brown-hooded Kingfisher	*Halcyon albiventris*	435	Least Concern	Africa	No	No
Alcedinidae	African Pygmy-Kingfisher	*Ispidina picta*	432	Least Concern	Africa	No	No

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Alcedinidae	Giant Kingfisher	*Megaceryle maxima*	429	Least Concern	Africa	No	No
Meropidae	Madagascar Bee-eater; Olive Bee-eater	*Merops superciliosus*	439	Least Concern	Africa	No	No
Coliidae	Speckled Mousebird	*Colius striatus*	424	Least Concern	Africa	No	No
Coliidae	Red-faced Mousebird	*Urocolius indicus*	426	Least Concern	Africa	No	No
Cuculidae	Diederick Cuckoo; Diederik Cuckoo	*Chrysococcyx caprius*	386	Least Concern	Africa	No	No
Cuculidae	African Emerald Cuckoo	*Chrysococcyx cupreus*	384	Least Concern	Africa	No	No
Cuculidae	Klaas's Cuckoo	*Chrysococcyx klaas*	385	Least Concern	Africa	No	No
Cuculidae	Great Spotted Cuckoo	*Clamator glandarius*	380	Least Concern	Africa	No	No
Cuculidae	Jacobin Cuckoo	*Clamator jacobinus*	382	Least Concern	Sub-Saharan Africa	No	No
Cuculidae	Common Cuckoo; European Cuckoo	*Cuculus canorus*	374	Least Concern	Sub-Saharan Africa	No	No
Cuculidae	Black Cuckoo	*Cuculus clamosus*	378	Least Concern	Africa	No	No
Cuculidae	African Cuckoo	*Cuculus gularis*	375	Least Concern	Africa	No	No
Cuculidae	Red-chested Cuckoo	*Cuculus solitarius*	377	Least Concern	Africa	No	No
Psittacidae	Cape Parrot	*Poicephalus robustus*	362	Least Concern (IUCN) & Endangered (SA)	Endemic to South Africa	Threatened	Appendix II
Apodidae	Little Swift	*Apus affinis*	417	Least Concern	Africa and beyond	No	No
Apodidae	Common Swift; European Swift	*Apus apus*	411	Least Concern	Africa and beyond	No	No
Apodidae	African Black Swift	*Apus barbatus*	412	Least Concern	Africa	No	No
Apodidae	White-rumped Swift	*Apus caffer*	415	Least Concern	Sub-Saharan Africa	No	No
Apodidae	Horus Swift	*Apus horus*	416	Least Concern	Africa	No	No
Apodidae	African Palm-Swift	*Cypsiurus parvus*	421	Least Concern	Africa	No	No
Apodidae	Alpine Swift	*Tachymarptis melba*	418	Least Concern	Africa and beyond	No	No
Tytonidae	Barn Owl	*Tyto alba*	392	Least Concern	Africa and beyond	No	Appendix II
Tytonidae	African Grass-Owl	*Tyto capensis*	393	Least Concern (IUCN) & Vulnerable (SA)	Africa	Threatened	Appendix II
Strigidae	Marsh Owl	*Asio capensis*	395	Least Concern	Africa	No	Appendix II
Strigidae	Spotted Eagle-Owl	*Bubo africanus*	401	Least Concern	Africa	No	Appendix II
Strigidae	Cape Eagle-Owl	*Bubo capensis*	400	Least Concern	Africa	No	Appendix II
Strigidae	African Wood-Owl	*Strix woodfordii*	394	Least Concern	Sub-Saharan Africa	No	Appendix II

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Columbidae	African Olive-Pigeon; Rameron Pigeon	*Columba arquatrix*	350	Least Concern	Africa	No	No
Columbidae	Speckled Pigeon; Rock Pigeon	*Columba guinea*	349	Least Concern	Africa	No	No
Columbidae	Lemon Dove; Cinnamon Dove	*Columba larvata*	360	Least Concern	Africa	No	No
Columbidae	Namaqua Dove	*Oena capensis*	356	Least Concern	Africa	No	No
Columbidae	Cape Turtle-Dove	*Streptopelia capicola*	354	Least Concern	Africa	No	No
Columbidae	Red-eyed Dove	*Streptopelia semitorquata*	352	Least Concern	Sub-Saharan Africa	No	No
Columbidae	Laughing Dove	*Streptopelia senegalensis*	355	Least Concern	Africa and beyond	No	No
Sarothruridae	Striped flufftail	*Sarothrura affinis*	221	Least Concern (IUCN) & Vulnerable (SA)	Africa	No	No
Sarothruridae	Buff-spotted Flufftail	*Sarothrura elegans*	218	Least Concern	Africa	No	No
Sarothruridae	Red-chested Flufftail	*Sarothrura rufa*	217	Least Concern	Africa	No	No
Gruidae	Blue Crane	*Anthropoides paradiseus*	208	Vulnerable (IUCN) & Near Threatened (SA)	Southern Africa	Threatened	Appendix II
Gruidae	Grey Crowned Crane	*Balearica regulorum*	209	Endangered (IUCN & SA)	Africa	Threatened	Appendix II
Gruidae	Wattled Crane	*Bugeranus carunculatus*	207	Vulnerable (IUCN) & Critically Endangered	Africa	Threatened	Appendix II
Rallidae	Black Crake	*Amaurornis flavirostra*	213	Least Concern	Africa	No	No
Rallidae	Corn Crake	*Crex crex*	211	Least Concern (IUCN & SA)	Africa and beyond	No	No
Rallidae	Red-knobbed Coot	*Fulica cristata*	228	Least Concern	Africa	No	No
Rallidae	Common Moorhen	*Gallinula chloropus*	226	Least Concern	Africa and beyond	No	No
Rallidae	African Rail	*Rallus caerulescens*	210	Least Concern	Africa	No	No
Turnicidae	Black-rumped Buttonquail	*Turnix nanus*	206A	Least Concern (IUCN) & Vulnerable (SA)	Africa	No	No
Turnicidae	Kurrichane Buttonquail	*Turnix sylvaticus*	205	Least Concern	Africa and beyond	No	No
Scolopacidae	Common Sandpiper	*Actitis hypoleucos*	264	Least Concern	Africa and beyond	No	No
Scolopacidae	African Snipe; Ethiopian Snipe	*Gallinago nigripennis*	286	Least Concern	Africa	No	No
Scolopacidae	Ruff	*Philomachus pugnax*	284	Least Concern	Africa and beyond	No	No
Scolopacidae	Wood Sandpiper	*Tringa glareola*	266	Least Concern	Africa and beyond	No	No
Scolopacidae	Common Greenshank	*Tringa nebularia*	270	Least Concern	Africa and beyond	No	No

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Scolopacidae	Marsh Sandpiper	*Tringa stagnatilis*	269	Least Concern	Africa and beyond	No	No
Burhinidae	Spotted Thick-knee; Spotted Dikkop	*Burhinus capensis*	297	Least Concern	Sub-Saharan Africa	No	No
Charadriidae	Three-banded Plover	*Charadrius tricollaris*	249	Least Concern	Africa	No	No
Charadriidae	Blacksmith Lapwing; Blacksmith Plover	*Vanellus armatus*	258	Least Concern	Africa	No	No
Charadriidae	Crowned Lapwing; Crowned Plover	*Vanellus coronatus*	255	Least Concern	Africa	No	No
Charadriidae	Black-winged Lapwing; Black-winged Plover	*Vanellus melanopterus*	257	Least Concern	Africa	No	No
Charadriidae	African Wattled Lapwing; Wattled Plover	*Vanellus senegallus*	260	Least Concern	Africa	No	No
Falconidae	Amur Falcon; Eastern Red-footed Kestrel	*Falco amurensis*	180	Least Concern	Africa	No	Appendix II
Falconidae	Lanner falcon	*Falco biarmicus*	172	Least Concern (IUCN) & Vulnerable (SA)	Africa and beyond	No	Appendix II
Falconidae	Lesser Kestrel	*Falco naumanni*	183	Least Concern (IUCN & SA)	Africa and beyond	No	Appendix II
Falconidae	Peregrine falcon	*Falco peregrinus*	171	Least Concern	Africa and beyond	No	Appendix I & II
Falconidae	Greater Kestrel	*Falco rupicoloides*	182	Least Concern	Africa	No	Appendix II
Falconidae	Rock Kestrel	*Falco rupicolus*	181	Least Concern	Southern Africa	No	Appendix II
Falconidae	Eurasian Hobby; Hobby Falcon	*Falco subbuteo*	173	Least Concern	Africa and beyond	No	Appendix II
Ciconiidae	White Stork	*Ciconia ciconia*	83	Least Concern	Africa and beyond	No	No
Ciconiidae	Black Stork	*Ciconia nigra*	84	Least Concern (IUCN) & Vulnerable (SA)	Africa and beyond	Vulnerable	Appendix II
Acrocephalidae	Great Reed-Warbler	*Acrocephalus arundinaceus*	628	Least Concern	Africa and beyond	No	No
Acrocephalidae	African Reed-Warbler; African Marsh Warbler	*Acrocephalus baeticatus*	631	Least Concern	Southern Africa	No	Unknown
Acrocephalidae	Lesser Swamp-Warbler; Cape Reed Warbler	*Acrocephalus gracilirostris*	635	Least Concern	Africa	No	No
Acrocephalidae	Marsh Warbler; European Marsh Warbler	*Acrocephalus palustris*	633	Least Concern	Africa	No	No
Acrocephalidae	Icterine Warbler	*Hippolais icterina*	625	Least Concern	Africa and beyond	No	No
Acrocephalidae	Dark-capped Yellow Warbler; Yellow Warbler	*Iduna natalensis*	637	Least Concern	Africa	No	No
Emberizidae	Cape Bunting	*Emberiza capensis*	885	Least Concern	Africa	No	No
Emberizidae	Golden-breasted Bunting	*Emberiza flaviventris*	884	Least Concern	Africa	No	No
Emberizidae	Lark-like Bunting	*Emberiza impetuani*	887	Least Concern	Africa	No	No

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Emberizidae	Cinnamon-breasted Bunting; Rock Bunting	*Emberiza tahapisi*	886	Least Concern	Africa	No	No
Leiothrichidae	Arrow-marked Babbler	*Turdoides jardineii*	560	Least Concern	Africa	No	No
Locustellidae	Little Rush-Warbler; African Sedge Warbler	*Bradypterus baboecala*	638	Least Concern	Africa	No	No
Locustellidae	Barratt's Warbler	*Bradypterus barratti*	639	Least Concern	Endemic to Southern Africa	No	No
Locustellidae	Broad-tailed Warbler	*Schoenicola brevirostris*	642	Least Concern	Africa	No	No
Macrosphenidae	Cape Grassbird; Grassbird	*Sphenoeacus afer*	661	Least Concern	Endemic to Southern Africa	No	No
Phylloscopidae	Yellow-throated Woodland-Warbler; Yellow-throated Warbler	*Phylloscopus ruficapilla*	644	Least Concern	Africa	No	No
Phylloscopidae	Willow Warbler	*Phylloscopus trochilus*	643	Least Concern	Africa and beyond	No	No
Platysteiridae	Cape Batis	*Batis capensis*	700	Least Concern	Africa	No	No
Platysteiridae	Chinspot Batis	*Batis molitor*	701	Least Concern	Africa	No	No
Stenostiridae	Fairy Flycatcher	*Stenostira scita*	706	Least Concern	Endemic to Southern Africa	No	No
Turdidae	Kurrichane Thrush	*Turdus libonyanus*	576	Least Concern	Africa	No	No
Turdidae	Groundscraper Thrush	*Turdus litsitsirupa*	580	Least Concern	Africa	No	No
Turdidae	Olive Thrush	*Turdus olivaceus*	577	Least Concern	Southern Africa	No	No
Turdidae	Orange Ground-Thrush; Orange Thrush	*Zoothera gurneyi*	579	Least Concerned (IUCN) & Near Threatened (SA)	Africa	No	No
Oriolidae	Black-headed Oriole	*Oriolus larvatus*	545	Least Concern	Africa	No	No
Dicruridae	Fork-tailed Drongo	*Dicrurus adsimilis*	541	Least Concern	Africa	No	No
Monarchidae	African Paradise-Flycatcher	*Terpsiphone viridis*	710	Least Concern	Africa	No	No
Monarchidae	Blue-mantled Crested-Flycatcher; Blue-mantled Flycatcher	*Trochocercus cyanomelas*	708	Least Concern	South Africa	No	No
Malaconotidae	Olive Bush-Shrike	*Chlorophoneus olivaceus*	750	Least Concern	Southern Africa	No	No
Malaconotidae	Orange-breasted Bush-Shrike	*Chlorophoneus sulfureopectus*	748	Least Concern	Africa	No	No
Malaconotidae	Black-backed Puffback; Puffback	*Dryoscopus cubla*	740	Least Concern	Africa	No	No
Malaconotidae	Southern Boubou	*Laniarius ferrugineus*	736	Least Concern	Africa	No	No
Malaconotidae	Grey-headed Bush-Shrike	*Malaconotus blanchoti*	751	Least Concern	Africa	No	No

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Malaconotidae	Brubru	*Nilaus afer*	741	Least Concern	Africa	No	No
Malaconotidae	Black-crowned Tchagra	*Tchagra senegalus*	744	Least Concern	Africa	No	No
Malaconotidae	Bokmakierie	*Telophorus zeylonus*	746	Least Concern	Africa	No	No
Corvidae	White-necked Raven	*Corvus albicollis*	550	Least Concern	Africa	No	No
Corvidae	Pied Crow	*Corvus albus*	548	Least Concern	Africa	No	No
Corvidae	Cape Crow; Black Crow	*Corvus capensis*	547	Least Concern	Africa	No	No
Laniidae	Fiscal Shrike	*Lanius collaris*	732	Least Concern	Africa	No	No
Laniidae	Red-backed Shrike	*Lanius collurio*	733	Least Concern	Africa and beyond	No	No
Campephagidae	Black Cuckooshrike	*Campephaga flava*	538	Least Concern	Africa	No	No
Campephagidae	Grey Cuckooshrike	*Coracina caesia*	540	Least Concern	Africa	No	No
Chaetopidae	Drakensberg Rock-jumper; Orange-breasted Rockjumper	*Chaetops aurantius*	612	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Paridae	Grey Tit; Southern Grey Tit	*Parus afer*	551	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Paridae	Southern Black Tit	*Parus niger*	554	Least Concern	Africa	No	No
Hirundinidae	Lesser Striped Swallow	*Cecropis abyssinica*	527	Least Concern	Sub-Saharan Africa	No	No
Hirundinidae	Greater Striped Swallow	*Cecropis cucullata*	526	Least Concern	Africa	No	No
Hirundinidae	Common House-Martin	*Delichon urbicum*	530	Least Concern	Africa and beyond	No	No
Hirundinidae	White-throated Swallow	*Hirundo albigularis*	520	Least Concern	Africa	No	No
Hirundinidae	Rock Martin	*Hirundo fuligula*	529	Least Concern	Africa	No	No
Hirundinidae	Barn Swallow; European Swallow	*Hirundo rustica*	518	Least Concern	Africa and beyond	No	No
Hirundinidae	Black Saw-wing; Black Saw-wing Swallow	*Psalidoprocne pristoptera*	536		Africa	No	No
Hirundinidae	Banded Martin	*Riparia cincta*	534	Least Concern	Africa	No	No
Hirundinidae	Brown-throated Martin	*Riparia paludicola*	533	Least Concern	Africa	No	No
Hirundinidae	Sand Martin	*Riparia riparia*	532	Least Concern	Africa and beyond	No	No
Pycnonotidae	Sombre Greenbul; Sombre Bulbul	*Andropadus importunus*	572	Least Concern	Africa	No	No
Pycnonotidae	Dark-capped Bulbul; Black-eyed Bulbul	*Pycnonotus tricolor*	568	Least Concern	Southern Africa	No	Unknown
Sylviidae	Bush Blackcap	*Sylvia nigricapillus*	565	Near Threatened (IUCN) & Vulnerable (SA)	Endemic to South Africa; Lesotho or Swaziland	No	No

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Sylviidae	Layard's Tit-Babbler	*Sylvia layardi*	622	Least Concern	Endemic to Southern Africa	No	No
Zosteropidae	Cape White-eye	*Zosterops virens*	796	Least Concern	Endemic to Southern Africa	No	No
Cisticolidae	Bar-throated Apalis	*Apalis thoracica*	645	Least Concern	Africa	No	No
Cisticolidae	Lazy Cisticola	*Cisticola aberrans*	679	Least Concern	Africa	No	No
Cisticolidae	Wing-snapping Cisticola; Ayres' Cisticola	*Cisticola ayresii*	667	Least Concern	Africa	No	No
Cisticolidae	Pale-crowned Cisticola	*Cisticola cinnamomeus*	668	Least Concern	Africa	No	No
Cisticolidae	Neddicky	*Cisticola fulvicapilla*	681	Least Concern	Africa	No	No
Cisticolidae	Zitting Cisticola; Fan-tailed Cisticola	*Cisticola juncidis*	664	Least Concern	Africa	No	No
Cisticolidae	Wailing Cisticola	*Cisticola lais*	670	Least Concern	Africa	No	No
Cisticolidae	Levaillant's Cisticola	*Cisticola tinniens*	677	Least Concern	Africa	No	No
Cisticolidae	Drakensberg Prinia	*Prinia hypoxantha*	686	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Cisticolidae	Tawny-flanked Prinia	*Prinia subflava*	683	Least Concern	Africa	No	No
Alaudidae	Red-capped Lark	*Calandrella cinerea*	507	Least Concern	Africa	No	No
Alaudidae	Cape Long-billed Lark	*Certhilauda curvirostris*	500	Least Concern	Endemic to Southern Africa	No	No
Alaudidae	Chestnut-backed Sparrowlark; Chestnut-backed Finchlark	*Eremopterix leucotis*	515	Least Concern	Africa	No	No
Alaudidae	Large-billed Lark; Thickbilled Lark	*Galerida magnirostris*	512	Least Concern	Endemic to Southern Africa	No	No
Alaudidae	Rufous-naped Lark	*Mirafra africana*	494	Least Concern	Africa	No	No
Muscicapidae	Buff-streaked Chat	*Campicoloides bifasciatus*	588	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Muscicapidae	White-browed Scrub-Robin; White-browed Robin	*Cercotrichas leucophrys*	613	Least Concern	Africa	No	No
Muscicapidae	Cape Robin-Chat; Cape Robin	*Cossypha caffra*	601	Least Concern	Africa	No	No
Muscicapidae	Chorister Robin-Chat; Chorister Robin	*Cossypha dichroa*	598	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Muscicapidae	Sickle-winged Chat	*Emarginata sinuata*	591	Least Concern	Endemic to Southern Africa	No	No

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Muscicapidae	Southern Black Flycatcher	*Melaenornis pammelaina*	694	Least Concern	Africa	No	No
Muscicapidae	Fiscal Flycatcher	*Melaenornis silens*	698	Least Concern	Endemic to Southern Africa	No	No
Muscicapidae	Sentinel Rock-Thrush	*Monticola explorator*	582	Least Concern	Endemic to Southern Africa	No	No
Muscicapidae	Cape Rock-Thrush	*Monticola rupestris*	581	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Muscicapidae	African Dusky Flycatcher	*Muscicapa adusta*	690	Least Concern	Africa	No	No
Muscicapidae	Spotted Flycatcher	*Muscicapa striata*	689	Least Concern	Africa	No	No
Muscicapidae	Ant-eating Chat	*Myrmecocichla formicivora*	595	Least Concern	Africa	No	No
Muscicapidae	Familiar Chat	*Oenanthe familiaris*	589	Least Concern	Africa	No	No
Muscicapidae	Mountain Wheatear; Mountain Chat	*Oenanthe monticola*	586	Least Concern	Africa	No	No
Muscicapidae	White-starred Robin; Starred Robin	*Pogonocichla stellata*	606	Least Concern	Africa	No	No
Muscicapidae	African Stonechat	*Saxicola torquatus*	596	Least Concern	Africa	No	No
Muscicapidae	Mocking Cliff-Chat; Mocking Chat	*Thamnolaea cinnamomeiventris*	593	Least Concern	Africa	No	No
Sturnidae	Violet-backed Starling; Plum-coloured Starling	*Cinnyricinclus leucogaster*	761	Least Concern	Africa	No	No
Sturnidae	Wattled Starling	*Creatophora cinerea*	760	Least Concern	Africa	No	No
Sturnidae	Pied Starling	*Lamprotornis bicolor*	759	Least Concern	Endemic to Southern Africa	No	No
Sturnidae	Cape Glossy Starling; Glossy Starling	*Lamprotornis nitens*	764	Least Concern	Africa	No	No
Sturnidae	Black-bellied Starling	*Notopholia corrusca*	768	Least Concern	Africa	No	No
Sturnidae	Red-winged Starling	*Onychognathus morio*	769	Least Concern	Africa	No	No
Nectariniidae	Amethyst Sunbird; Black Sunbird	*Chalcomitra amethystina*	792	Least Concern	Africa	No	No
Nectariniidae	Greater Double-collared Sunbird	*Cinnyris afer*	785	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Nectariniidae	Southern Double-collared Sunbird; Lesser Double-collared Sunbird	*Cinnyris chalybeus*	783	Least Concern	Endemic to Southern Africa	No	No
Nectariniidae	Malachite Sunbird	*Nectarinia famosa*	775	Least Concern	Africa	No	No
Promeropidae	Gurney's Sugarbird	*Promerops gurneyi*	774	Least Concern	Endemic to Southern Africa	No	No

Family	Common name	Scientific name	Ref	IUCN & Southern African Red Data Book status*	Distribution and Endemism	ToPS	CITES
Ploceidae	Yellow-crowned Bishop; Golden Bishop	*Euplectes afer*	826	Least Concern	Africa	No	No
Ploceidae	White-winged Widowbird; White-winged Widow	*Euplectes albonotatus*	829	Least Concern	Africa	No	No
Ploceidae	Red-collared Widowbird; Red-Collared Widow	*Euplectes ardens*	831	Least Concern	Africa	No	No
Ploceidae	Fan-tailed Widowbird; Red-shouldered Widow	*Euplectes axillaris*	828	Least Concern	Africa	No	No
Ploceidae	Yellow Bishop; Yellow-rumped Widow	*Euplectes capensis*	827	Least Concern	Africa	No	No
Ploceidae	Southern Red Bishop; Red Bishop	*Euplectes orix*	824	Least Concern	Africa	No	No
Ploceidae	Long-tailed Widowbird; Long-tailed Widow	*Euplectes progne*	832	Least Concern	Africa	No	No
Ploceidae	Cape Weaver	*Ploceus capensis*	813	Least Concern	Endemic to Southern Africa	No	No
Ploceidae	Village Weaver; Spotted-backed Weaver	*Ploceus cucullatus*	811	Least Concern	Africa	No	No
Ploceidae	Spectacled Weaver	*Ploceus ocularis*	810	Least Concern	Africa	No	No
Ploceidae	Southern Masked-Weaver; Masked Weaver	*Ploceus velatus*	814	Least Concern	Africa	No	No
Ploceidae	Red-billed Quelea	*Quelea quelea*	821	Least Concern	Africa	No	No
Estrildidae	Red-headed Finch	*Amadina erythrocephala*	856	Least Concern	Africa	No	No
Estrildidae	Orange-breasted Waxbill	*Amandava subflava*	854	Least Concern	Africa	No	No
Estrildidae	Swee Waxbill	*Coccopygia melanotis*	850	Least Concern	Endemic to Southern Africa	No	No
Estrildidae	Common Waxbill	*Estrilda astrild*	846	Least Concern	Africa	No	No
Estrildidae	African Firefinch; Blue-billed Firefinch	*Lagonosticta rubricata*	840	Least Concern	Africa	No	No
Estrildidae	Bronze Mannikin	*Lonchura cucullatus*	857	Least Concern	Africa	No	No
Estrildidae	African Quailfinch; Quail Finch	*Ortygospiza atricollis*	852	Least Concern	Africa	No	No
Estrildidae	Blue Waxbill	*Uraeginthus angolensis*	844	Least Concern	Africa	No	No
Viduidae	Dusky Indigobird; Black Widowfinch	*Vidua funerea*	864	Least Concern	Africa	No	No
Viduidae	Pin-tailed Whydah	*Vidua macroura*	860	Least Concern	Africa	No	No
Passeridae	Yellow-throated Petronia; Yellow-throated Sparrow	*Gymnoris superciliaris*	805	Least Concern	Africa	No	No
Passeridae	Southern Grey-headed Sparrow; Grey-headed Sparrow	*Passer diffusus*	804	Least Concern	Africa	No	No
Passeridae	Cape Sparrow	*Passer melanurus*	803	Least Concern	Africa	No	No

Family	Common name	Scientific name	Ref	IUCN & Southern African Red Data Book status*	Distribution and Endemism	ToPS	CITES
Motacillidae	Short-tailed Pipit	*Anthus brachyurus*	724	Least Concern (IUCN) & Vulnerable (SA)	Africa	No	No
Motacillidae	Yellow-breasted Pipit	*Anthus chloris*	725	Vulnerable (IUCN & SA)	Endemic to South Africa; Lesotho or Swaziland	No	No
Motacillidae	African Pipit; Grassveld Pipit	*Anthus cinnamomeus*	716	Least Concern	Africa	No	No
Motacillidae	African Rock Pipit	*Anthus crenatus*	721	Least Concern (IUCN) & Near Threatened (SA)	Endemic to South Africa; Lesotho or Swaziland	No	No
Motacillidae	Mountain Pipit	*Anthus hoeschi*	901	Least Concern (IUCN) & Near Threatened (SA)	Endemic to South Africa; Lesotho or Swaziland	No	No
Motacillidae	Plain-backed Pipit	*Anthus leucophrys*	718	Least Concern	Africa	No	No
Motacillidae	Long-billed Pipit	*Anthus similis*	717	Least Concern	Africa	No	No
Motacillidae	Buffy Pipit	*Anthus vaalensis*	719	Least Concern	Africa	No	No
Motacillidae	Cape Longclaw; Orange-throated Longclaw	*Macronyx capensis*	727	Least Concern	Africa	No	No
Motacillidae	Yellow-throated Longclaw	*Macronyx croceus*	728	Least Concern	Africa	No	No
Motacillidae	African Pied Wagtail	*Motacilla aguimp*	711	Least Concern	Africa	No	No
Motacillidae	Cape Wagtail	*Motacilla capensis*	713	Least Concern	Africa	No	No
Motacillidae	Mountain Wagtail; Long-tailed Wagtail	*Motacilla clara*	712	Least Concern	Africa	No	No
Fringillidae	Black-throated Canary	*Crithagra atrogularis*	870	Least Concern	Africa	No	No
Fringillidae	Yellow Canary	*Crithagra flaviventris*	878	Least Concern	Africa	No	No
Fringillidae	Streaky-headed Seedeater; Streaky-headed Canary	*Crithagra gularis*	881	Least Concern	Africa	No	No
Fringillidae	Yellow-fronted Canary; Yellow-eyed Canary	*Crithagra mozambica*	869	Least Concern	Africa	No	No
Fringillidae	Forest canary	*Crithagra scotops*	873	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Fringillidae	Brimstone Canary; Bully Canary	*Crithagra sulphurata*	877	Least Concern		No	Unknown
Fringillidae	Drakensberg Siskin	*Crithagra symonsi*	875	Least Concern	Endemic to South Africa; Lesotho or Swaziland	No	No
Fringillidae	Cape Canary	*Serinus canicollis*	872	Least Concern	Southern Africa	No	No

***** where SA refers to southern Africa

List 3: Reptile checklist for the uKhahlamba Drakensberg Park

Family	Common name	Species name	IUCN & Southern African Red Data Book status*	Distribution and Endemism	CITES
Agamidae	Eastern ground agama; Distant's ground agama	*Agama aculeata distanti*	Least Concern (IUCN & SA)	Restricted in KZN; Endemic to South Africa, Lesotho or Swaziland	No
Agamidae	South African rock agama; South African mountain agama; Southern rock agama	*Agama atra*	Least Concern (IUCN & SA)	Endemic to Southern Africa	No
Agamidae	Western ground agama; Common ground agama; Distant's ground agama	*Agama aculeata*	Unknown	Unknown	No
Chamaeleonidae	Common Flap-neck chameleon; Flap-neck chameleon	*Chamaeleo dilepis dilepis*	Least Concern (IUCN & SA)	Endemic to Africa	Appendix II
Chamaeleonidae	Drakensberg dwarf chameleon	*Bradypodion dracomontanum*	Near Threatened (IUCN & SA)	Drakensberg Centre of Endemism; Restricted in KZN; Near-endemic (75-99%) to KZN	Appendix II
Chamaeleonidae	Emerlad dwarf chameleon	*Bradypodion "emerald"*		Southern Drakensberg middle to high altitudes	No
Colubridae	Eastern green snake	*Philothamnus occidentalis*	Least Concern (IUCN & SA)	Endemic to South Africa, Lesotho or Swaziland	No
Colubridae	Red-lipped snake; Herald snake	*Crotaphopeltis hotamboeia*	Least Concern (IUCN & SA)	Endemic to Africa	No
Colubridae	Rhombic egg-eater; Common egg-eater	*Dasypeltis scabra*	Least Concern (IUCN & SA)	Endemic to Africa	No
Colubridae	Southeastern green snake; Green water snake	*Philothamnus hoplogaster*	Least Concern (IUCN & SA)	Endemic to Africa	No
Cordylidae	Cape grass lizard	*Chamaesaura anguina anguina*	Least Concern (IUCN & SA)	Endemic to South Africa, Lesotho or Swaziland	No
Cordylidae	Common/Drakensberg crag lizard	*Pseudocordylus melanotus subviridis*	Least Concern (IUCN & SA)	Restricted in KZN; Endemic to South Africa, Lesotho or Swaziland	Appendix II
Cordylidae	Coppery grass lizard; Transvaal grass lizard	*Chamaesaura aenea*	Near Threatened (IUCN) & Least Concern (SA)	Restricted in KZN; Endemic to South Africa, Lesotho or Swaziland	No
Cordylidae	Lang's crag lizard	*Pseudocordylus langi*	Near Threatened (IUCN) & Least Concern (SA)	Drakensberg Centre of Endemism; Restricted in KZN; Near-endemic (75-99%) to KZN	Appendix II
Cordylidae	Spiny crag lizard; Prickly Girdled Lizard	*Pseudocordylus spinosus*	Least Concern (IUCN & SA)	South Africa (Free State & KZN)	Appendix II
Elapidae	Rinkhals	*Hemachatus haemachatus*	Least Concern (IUCN & SA)	Endemic to Southern Africa	No
Gekkonidae	Common tropical house gecko; Moreau's tropical house gecko	*Hemidactylus mabouia*	Least Concern (IUCN & SA)	Endemic to Africa	No
Gekkonidae	Drakensberg flat gecko; Mountain flat gecko	*Afroedura nivaria*	Least Concern (IUCN & SA)	Restricted in KZN; Near-endemic (50-75%) to KZN	No
Gerrhosauridae	Yellow-throated plated lizard	*Gerrhosaurus flavigularis*	Least Concern (IUCN & SA)	Endemic to Africa	No
Lacertidae	Delalande's sandveld lizard	*Nucras lalandii*	Least Concern (IUCN & SA)	Endemic to South Africa, Lesotho or Swaziland	No
Lacertidae	Essex's mountain lizard	*Tropidosaura essexi*	Least Concern (IUCN & SA)	Restricted in KZN; Near-endemic (50-75%) to KZN	No
Lacertidae	Natal mountain lizard	*Tropidosaura montana natalensis*	Least Concern (IUCN & SA)	Restricted in KZN; Endemic to KZN; Endemic to South Africa, Lesotho or Swaziland	No
Lamprophiidae	Brown water snake; Common water snake; Common brown water snake	*Lycodonomorphus rufulus*	Least Concern (IUCN & SA)	Endemic to Southern Africa	No
Lamprophiidae	Common slug-eater	*Duberria lutrix*	Least Concern (IUCN & SA)	Endemic to South Africa, Lesotho or Swaziland	No

Family	Common name	Species name	IUCN & Southern African Red Data Book status*	Distribution and Endemism	CITES
Lamprophiidae	Cream-spotted mountain snake	*Montaspis gilvomaculata*	Data Deficient	Drakensberg Centre of Endemism; Restricted in KZN; Endemic to KZN	No
Lamprophiidae	Cross-marked grass snake; Montane grass snake	*Psammophis crucifer*	Least Concern (IUCN & SA)	Endemic to Southern Africa	No
Lamprophiidae	Many-spotted snake; Cape many-spotted snake	*Amplorhinus multimaculatus*	Least Concern (IUCN & SA)	Endemic to Southern Africa	No
Lamprophiidae	Mole snake	*Pseudaspis cana*	Least Concern (IUCN & SA)	Endemic to Africa	No
Lamprophiidae	Olive ground snake; Black house snake; Olive house snake	*Lycodonomorphus inornatus*	Least Concern (IUCN & SA)	Endemic to South Africa, Lesotho or Swaziland	No
Lamprophiidae	Short-snouted grass snake	*Psammophis brevirostris*	Least Concern (IUCN & SA)	Endemic to Southern Africa	No
Lamprophiidae	South African slug-eater; Common slug-eater	*Duberria lutrix lutrix*	Least Concern (IUCN & SA)	Endemic to South Africa, Lesotho or Swaziland	No
Lamprophiidae	Spotted grass snake; Spotted skaapsteker	*Psammophylax rhombeatus rhombeatus*	Least Concern (IUCN & SA)	Endemic to Southern Africa	No
Lamprophiidae	Spotted harlequin snake	*Homoroselaps lacteus*	Least Concern (IUCN & SA)	Endemic to South Africa, Lesotho or Swaziland	No
Lamprophiidae	Yellow-bellied snake; Yellow-bellied house snake	*Lamprophis fuscus*	Lower Risk (near threatened) (IUCN) & Least Concern (SA)	Endemic to South Africa, Lesotho or Swaziland	No
Leptotyphlopidae	Peter's thread snake; Peter's worm snake	*Leptotyphlops scutifrons*	Least Concern (IUCN & SA)	Endemic to Africa	No
Lacertidae	Cottrell's mountain lizard	*Tropidosaura cottrelli*	Least Concern (IUCN & SA)	South Africa (Eastern Cape Province, KwaZulu-Natal, Free State)	No
Scincidae	Cape skink	*Trachylepis capensis*	Least Concern (IUCN & SA)	Endemic to Africa	No
Scincidae	Speckled rock skink; Montane speckled skink	*Trachylepis punctatissima*	Least Concern (IUCN & SA)	Endemic to Africa	No
Scincidae	Striped skink; Eastern striped skink	*Trachylepis striata*	Least Concern (IUCN & SA)	Endemic to Africa	No
Scincidae	Variable skink	*Trachylepis varia*	Least Concern (IUCN & SA)	Endemic to Africa	No
Testudinidae	Leopard tortoise; Mountain tortoise	*Stigmochelys pardalis*	Least Concern (IUCN & SA)	Restricted in KZN; Endemic to Africa	Appendix II
Typhlopidae	Bibron's blind snake	*Afrotyphlops bibronii*	Least Concern (IUCN & SA)	Endemic to Southern Africa	No
Varanidae	Nile monitor; Water monitor	*Varanus niloticus*	Least Concern (IUCN & SA)	Endemic to Africa	Appendix II
Viperidae	Berg adder	*Bitis atropos*	Least Concern (IUCN & SA)	Restricted in KZN; Endemic to Southern Africa	No
Viperidae	Puff adder	*Bitis arietans arietans*	Least Concern (IUCN & SA)	Endemic to Southern Africa	No
Viperidae	Rhombic night adder; Common night adder	*Causus rhombeatus*	Least Concern (IUCN & SA)	Endemic to Africa	No

* where SA refers to southern Africa

List 4: Amphibian checklist for the uKhahlamba Drakensberg Park

Family	Common name	Scientific name	IUCN & Southern African Red Data Book status*	Distribution and Endemism
Arthroleptidae	Long-toed Tree Frog; Weza Forest Tree Frog	*Leptopelis xenodactylus*	Endangered	Restricted in & Endemic to KZN
Arthroleptidae	Natal Tree Frog	*Leptopelis natalensis*	Least Concern	Endemic to south-eastern South Africa
Brevicipitidae	Bushveld Rain Frog; Common Rain Frog; Peter's Rain Frog	*Breviceps adspersus*	Least Concern	Endemic to Africa
Brevicipitidae	Mozambique Rain Frog; Flat-faced Frog; Flat-faced Rain Frog	*Breviceps mossambicus*	Least Concern	Endemic to Africa
Brevicipitidae	Plaintive Rain Frog; Natal Short-headed Frog; Spotted Rain Frog	*Breviceps verrucosus*	Least Concern	Endemic to South Africa; Lesotho or Swaziland
Bufonidae	Raucous Toad; Ranger's Toad	*Sclerophrys capensis*	Least Concern	Endemic to South Africa; Lesotho or Swaziland
Bufonidae	Guttural Toad; Common African Toad; Greater Cross-marked Toad	*Sclerophrys gutturalis*	Least Concern	Endemic to Africa
Bufonidae	Karoo toad	*Vandijkophrynus gariepensis*	Least Concern	Restricted to KZN, Endemic to southern Africa
Bufonidae	Karoo Toad; Drakensberg Toad	*Vandijkophrynus gariepensis nubicolus*	Least Concern	Restricted to KZN, Endemic to South Africa; Lesotho or Swaziland
Heleophrynidae	Natal Cascade Frog; Natal Ghost Frog	*Hadromophryne natalensis*	Least Concern	Endemic to South Africa; Lesotho or Swaziland
Hyperoliidae	Intermediate Spiny Reed Frog; Intermediate Natal Leaf-folding Frog; Intermediate Natal Spiny Reed Frog	*Afrixalus spinifrons intermedius*	Least Concern (IUCN) & Near Threatened (SA)	Endemic to KZN
Hyperoliidae	Painted Reed Frog; Marbled Reed Frog; Striped Reed Frog	*Hyperolius marmoratus*	Least Concern	Endemic to Africa
Hyperoliidae	Bubbling Kassina; Senegal Kassina	*Kassina senegalensis*	Least Concern	Endemic to Africa
Hyperoliidae	Rattling Frog; Weal's Running Frog	*Semnodactylus wealii*	Least Concern	Endemic to South Africa; Lesotho or Swaziland
Phrynobatrachidae	Snoring Puddle Frog; Natal Puddle Frog	*Phrynobatrachus natalensis*	Least Concern	Endemic to Africa
Pipidae	Common platanna	*Xenopus laevis laevis*	Least Concern	Endemic to Africa
Ptychadenidae	Striped Grass Frog; Three-striped Grass Frog	*Ptychadena porosissima*	Least Concern	Endemic to Africa
Pyxicephalidae	Common river frog	*Amietia delalandii*	Least Concern	Endemic to Africa
Pyxicephalidae	Phofung River Frog; Drakensberg Rana; Drakensberg Frog; Berg Stream Frog; Natal Drakensberg Frog; Drakensberg Stream Frog	*Amietia hymenopus*	Near Threatened	Endemic to South Africa & Lesotho
Pyxicephalidae	Poynton's river frog	*Amietia poyntoni*	Least Concern	Endemic to Africa
Pyxicephalidae	Maluti River Frog; Aquatic River Frog; Ice Frog; Water Rana; Water Frog; Umbraculate Frog; Umzimkulu River Leopard Frog	*Amietia vertebralis*	Least Concern	Endemic to South Africa; Lesotho or Swaziland

Pyxicephalidae	Natal Chirping Frog; Natal Moss Frog; Hewitt's Moss Frog	*Anhydrophryne hewitti*	Least Concern	Endemic to South Africa; Lesotho or Swaziland
Pyxicephalidae	Dwarf Dainty Frog; Bronze Caco	*Cacosternum nanum*	Least Concern	Endemic to South Africa; Lesotho or Swaziland
Pyxicephalidae	Mountain Dainty Frog; Mountain Caco	*Cacosternum parvum*	Least Concern	Endemic to South Africa; Lesotho or Swaziland
Pyxicephalidae	Rhythmic Dainty Frog; Rhythmic Caco	*Cacosternum rhythmum*	Least Concern	Near-endemic (75-100%) to KZN
Pyxicephalidae	Striped Stream Frog; Striped Grass Frog; Striped Long-toed Frog	*Strongylopus fasciatus*	Least Concern	Endemic to Africa
Pyxicephalidae	Clicking Stream Frog; Gray's Grass Frog; Gray's Stream Frog	*Strongylopus grayii*	Least Concern	Endemic to South Africa; Lesotho or Swaziland
Pyxicephalidae	Plain Stream Frog; Natal Upland Frog; Wager's Stream Frog	*Strongylopus wageri*	Least Concern (IUCN), Near Threatened (SA)	Near-endemic (75-100%) to KZN
Pyxicephalidae	Natal Sand Frog; Natal Burrowing Frog	*Tomopterna natalensis*	Least Concern	Endemic to southern Africa

***** where SA refers to southern Africa