WildeAlsVlei Nature Reserve Management Plan

Western Cape
South Africa

AUTHORISATION

This Protected Area Management Plan for the WildeAlsVlei Nature Reserve was drafted and recommended by the *The Nel Family Trust* as the management authority.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

APO	Annual Plan of Operations
CBA	Critical Biodiversity Area
DEA&DP	Department of Environmental Affairs and Development Planning
GRDM	Garden Route District Municipality
IDP	Municipal Integrated Development Plan
IUCN	International Union for the Conservation of Nature
WHS	World Heritage Site
KPA	Key Performance Area
MEC	Member of the Executive Council
NR	Nature Reserve
NEMA	National Environmental Management Act
NEM:PAA	National Environmental Management Protected Areas Act
NPAES	National Protected Area Expansion Strategy
PA	Protected Area
SOB	State of Biodiversity Report
SDF	Municipal Spatial Development Framework
UNESCO	United Nations Educational, Scientific and Cultural Organisation

1) BACKGROUND

1.1 Purpose of the plan

Management plans for biodiversity stewardship sites are strategic documents that provide the framework for the development and operation of biodiversity stewardship sites. They inform management at all levels, from the landowner through to support staff within CapeNature. The purpose of the management plan is to:

- Provide the primary strategic tool for management of WildeAlsVlei NR, informing the need for specific programmes and operational procedures.
- Provide for capacity building, future thinking and continuity of management.
- Enable the landowner to develop and manage WildeAlsVlei NR in such a way that its values and the purpose for which it has been established are protected.

1.2 Structure of the plan

Section 1:	Provides an introduction and background to the management plan and WildeAlsVlei NR.
Section 2:	Sets out the vision and objectives for the biodiversity stewardship site.
Section 3:	Establishes the context of the biodiversity stewardship site, providing the basis for the operational management framework that follows.
Section 4:	Sets out the zonation of the biodiversity stewardship site, outlining the land uses in particular zones.
Section 5:	Describes the administrative structure that has been established for WildeAlsVlei NR.
Section 6:	Operational Management Framework - Sets out the management targets that must be achieved in managing the nature reserve.
Section 7:	Annual Plan of Operation and Review

1.3 Adaptive management

The preparation of this management plan has been undertaken based on the guiding principles of adaptive management, which is a structured, iterative process in which decisions are made using the best available information, with the aim of obtaining better information through monitoring of performance (Figure 1.1). 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 revision of a part or if necessary, the whole management plan.

Figure 1.1 The adaptive management cycle (Management Strategy Evaluation, 2009)

Adaptive management enables landowners and managers to:

i) Learn through experience.

ii) Take account of, and respond to, changing factors that affect the biodiversity stewardship site.

iii) Develop or refine management processes.

iv) Adopt best practices and new innovations in biodiversity conservation management.

v) Demonstrate that management is appropriate and effective.

1.4 Introduction

WildeAlsVlei NR borders the Kammanassie World Heritage Site and Nature Reserve which forms part of the Kammanassie Mountains; an inselberg located in the eastern Little Karoo. The WildeAlsVlei NR is 865,29 ha in extent, comprising of one land portion (The Farm Wild Als Vlei no. 5) and is situated within the George Municipality and the Garden Route District Municipality, Western Cape Province. The closest towns are Uniondale in the east, De Rust in the north-west and Dysselsdorp in the west (Figure 1.2).

At a national level, WildeAlsVlei NR contains Central Inland Shale-band Vegetation and South Kammanassie Sandstone Fynbos. At a regional level it contains five vegetation units i.e. Kammanassie Arid Proteoid Fynbos, Kammanassie Subalpine Fynbos, Kammanassie Perennial Stream, Kammanassie Mesic Proteoid Fynbos and Kammanassie Waboomveld.

WildeAlsVlei NR falls within the Protected Area category of the Critical Biodiversity Areas map because it is situated within a pristine area of high biodiversity value as well as being Declared Mountain Catchment Area. It also contains suitable habitat for the unique Kammanassie population of Cape mountain zebra, *Equus zebra zebra* (Least Concern) which occur on the property.

Key ecological features of the reserve are:

(a) Permanent fountains;
(b) Seasonal wet patches;
(c) Diverse habitats and topography;
(d) Abuts the Kammanassie WHS and NR on the southern boundary;
(e) High biodiversity value;
(f) The provision of environmental goods and services.

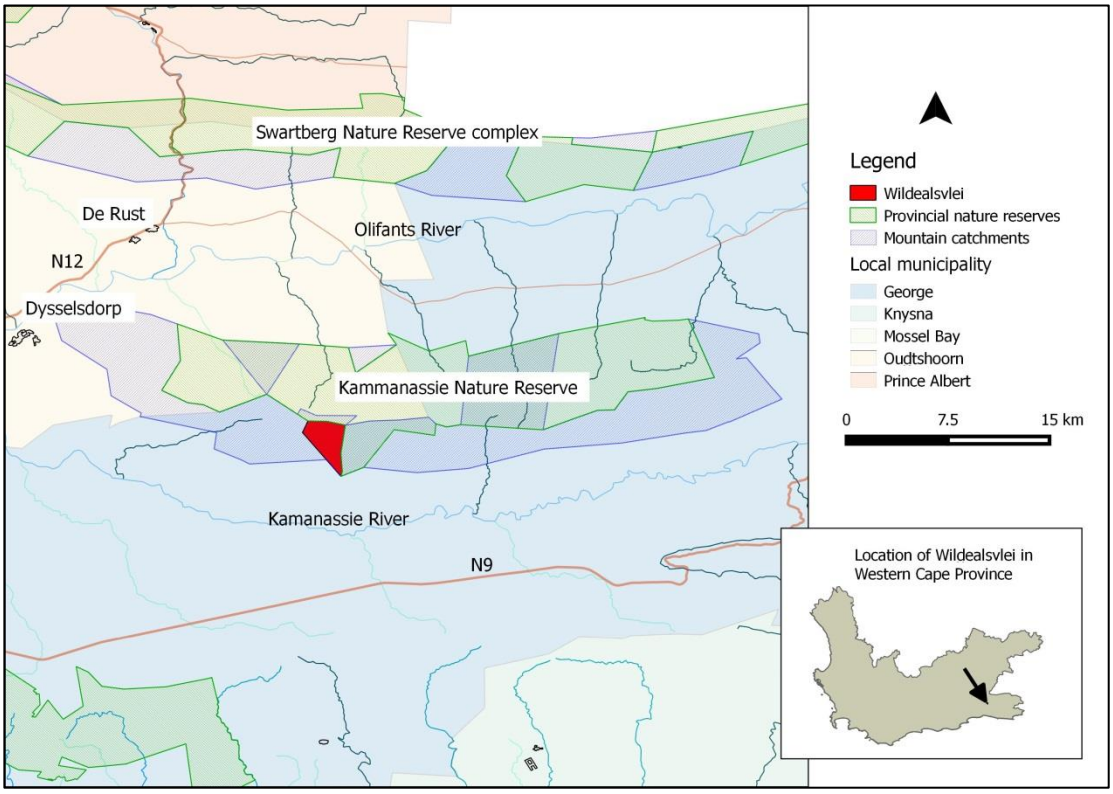

Figure 1.2 Regional location of WildeAlsVlei NR

1.5 The values of WildeAlsVlei Nature Reserve

The values of a site are those remarkable attributes that led to it being identified as a priority for the Biodiversity Stewardship Programme. The values are important in planning and management, as they are the aspects of the place that must be protected. The values of WildeAlsVlei NR include:

Natural values	Kammanassie Arid Proteoid Fynbos, Kammanassie Subalpine Fynbos, Kammanassie Perennial Stream, Kammanassie Mesic Proteoid Fynbos and Kammanassie Waboomveld are the regional vegetation units present on the property, all least threatened. The vegetation is in a pristine/near pristine condition. The Kammanassie Waboomveld is known to be exceptionally species rich. The property falls within the Protected Area category of the Critical Biodiversity Areas and is part of a Declared Private Mountain Catchment Area. The property contains suitable habitat for the unique Kammanassie population of Cape mountain zebra. Contributes to the Protected Area network within the United Nations Educational, Scientific and Cultural Organization (UNESCO) Gouritz Cluster Biosphere Reserve.
Ecosystem service values	Purification and Detoxification: filtration, purification and detoxification of air, water and soils; Cycling Processes: nutrient cycling, nitrogen fixation, carbon sequestration, soil formation;

	Regulation and Stabilisation: erosion control, regulation of rainfall and water supply, climate regulation, mitigation of storms and floods; Habitat Provision: refuge for animals and plants, storehouse for genetic material. Pollination Services.
Eco-cultural tourism values	Natural scenic beauty. Peace and tranquillity. Unpolluted skies. Contains wilderness attributes. Existing infrastructure of roads. Wildlife viewing.
Socio-Economic values	Opportunities to improve environmental awareness and education. Local economic development opportunities. Research opportunities. Contains wilderness attributes.

1.6 Summary of management challenges and opportunities

WildeAlsVlei Nature Reserve's key management challenges are associated with typical Fynbos Biome characteristics, such as unplanned or out-of-season wildfires that occur in areas where they could have undesirable ecological effects, susceptibility to invasive alien plants and floods. Opportunities are the sustainable harvesting of natural resources, eco-tourism and habitat protection for Cape mountain zebra.

Table 1.1 Management challenges and opportunities

Key performance area	Challenges and Opportunities
Fire management	Challenge: Unplanned or out-of-season wildfires. Opportunity: Employment opportunities for fire-fighters.
Invasive vegetation management	Challenge: Maintaining near pristine character, low density of *Hakea sericea.* Opportunity: Employment opportunities for alien plant control teams.
Wildlife management	Challenge: Adequate fencing, patrolling and prevention of poaching. Opportunity: Providing additional suitable habitat for Cape mountain zebra.
Sustainable harvesting	Challenge: Adequate fencing, patrolling and prevention of poaching and over-exploitation. Opportunity: Exploring the possibility of harvesting Proteas, Wildeals, Honeybush tea and honey.
Erosion prevention and control	Challenge: The mountainous terrain is prone to floods, especially access routes. Opportunity: Employment opportunities for erosion control teams.

Monitoring and Baseline data collection	Opportunity: Potentially discovering new plant species and archaeological sites.
Biodiversity security	Opportunity: Contribute to the conservation of Cape mountain zebra and water catchments.
Development of tourism opportunities	Opportunity: Natural scenic beauty and peace and tranquillity offer a unique eco-tourism opportunity. Generation of Income to contribute towards operational costs. Challenge: Mitigation of negative environmental impacts associated with tourism.
Legal compliance	Opportunity: Comply with NEMA and relevant environmental legislation.
Management effectiveness	Opportunity: Implement management actions and partake in annual audits.
Infrastructure	Challenge: Rehabilitation and maintenance of access road due to floods. Opportunity: Employment opportunities for road repair and maintenance teams.

2) STRATEGIC MANAGEMENT FRAMEWORK

The strategic management framework is aimed at providing the basis for the protection, development and operation of the protected area over a ten-year period. It consists of the vision, purpose and objectives of WildeAlsVlei NR. It has been prepared collaboratively through a process involving the landowner (Management Authority) and CapeNature.

2.1 WildeAlsVlei Nature Reserve Vision and Purpose

The Vision

To conserve the natural beauty, biodiversity and wilderness state of the WildeAlsVlei NR and to ensure that it acts as an extension of the Kammanassie WHS and NR, being indistinguishable from it in terms of fauna and flora and natural processes, for future generations.

Purpose

The purpose is the foundation on which all future actions are based and is in line with the overall management philosophy of the nature reserve.

According to S17 of NEM:PAA, the purpose of declaring an area as a protected area are:

a) to protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected areas;
b) to preserve the ecological integrity of those areas;
c) to conserve biodiversity in those areas;
d) to protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;
e) to protect South Africa's threatened or rare species;
f) to protect an area which is vulnerable or ecologically sensitive;
g) to assist in ensuring the sustained supply of environmental goods and services;
h) to provide for the sustainable use of natural and biological resources;
i) to create or augment destinations for nature-based tourism;
j) to manage the interrelationship between natural environmental biodiversity, human settlement and economic development;
k) generally, to contribute to human, social, cultural, spiritual and economic development; or
l) To rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.

WildeAlsVlei NR was declared for a-i, k and l, and its purpose is: Creating shared value through Biodiversity Stewardship.

WildeAlsVlei NR serves in the protection of South Africa's threatened and rare species, provides protection to ecosystems and preserves ecological integrity. Benefits of appropriate nature based economic activities may be utilised to promote human, social, cultural and economic development while protecting ecosystems that are vulnerable and ecologically sensitive.

2.2 Objectives

The objectives were derived from the vision and purpose and are grouped into Key Performance Areas (KPA) in which achievement must be obtained in order to support the management intention. Objectives are then prioritised through the development of action plans which are set out in the Operational Management Framework.

The prioritised objectives for WildeAlsVlei NR are to:

1. Protect and maintain the natural character of the environment, biodiversity, associated natural and cultural resources and the provision of environmental goods and services;
2. Maintain the ecological processes and systems of the Kammanassie WHS & NR, with the focus on endemic and indicator species as well as habitat integrity;
3. Maintain the optimal delivery of water of the best possible quality;
4. Provide the opportunity for outstanding eco-tourism experiences which generate income and make a sustainable contribution towards management costs of the reserve;
5. Provide for the sustainable harvesting of natural resources;
6. Establish partnerships with the statutory bodies, research institutions, conservationists and/or other initiatives that promote the conservation of the natural environment.
7. Effective waste management.

Table 2.1 sets out the key performance areas, the objective for each key performance area and the key deliverables, required to realise the objectives.

Table 2.1 Objectives and Key Deliverables for WildeAlsVlei Nature Reserve

Key Performance Area	Objective	Key Deliverable
Biodiversity Management		
Fire management	To ensure conservation of species and processes by maintaining and improving ecosystem functioning. To implement effective Integrated Catchment Management. To allow for natural fire processes to occur without impacting on safety and infrastructure.	Reduce/prevent the spread of fires. Maintain partnerships to improve fire management. Determine and implement thresholds of potential concern. Reduce wildfires due to human negligence
Invasive vegetation management	To enhance biodiversity protection and conservation. To ensure conservation of species and processes by maintaining and improving ecosystem functioning. To implement effective Integrated Catchment Management.	Develop and implement a plan to manage alien and invasive species. Implement biological control Prevent further introduction of aliens.
Wildlife management	To ensure effective conservation of species and processes by maintaining and improving ecosystem functioning with special reference to the unique Kammanassie Cape mountain zebra. To enhance biodiversity protection and conservation. To implement effective Integrated Catchment Management.	Act as custodian of the Cape mountain zebra on WildeAlsVlei NR. Prevent the introduction of alien species or hybridisation risks Control alien and invasive, and hybridisation risk species Manage the introduction of fauna on the Reserve. Evaluate and monitor impact of fauna on the Reserve.
Sustainable harvesting	To ensure the sustainable use of wild fynbos resources. To ensure the conservation of biodiversity where harvesting operations occur. To monitor the impact of harvesting on selected fynbos species.	Develop and implement a sustainable harvesting plan. Identify management zones for harvesting. Classify floral species according to Vulnerability Index. Minimise harvesting impact. Monitoring and record keeping. Compliance with relevant legislation.

Erosion prevention and control	To ensure implementation of effective conservation management interventions. To enhance biodiversity protection and conservation.	Develop and implement a plan to prevent and mitigate soil erosion.
Monitoring and Baseline data collection	To manage biodiversity knowledge to ensure effective conservation management. To implement measures to ensure resilience and persistence of biodiversity in light of climate change. To ensure the implementation of effective conservation management interventions. To ensure conservation of species and processes by maintaining and improving ecosystem functioning.	Create a biodiversity resource inventory. Implement monitoring programme. Implement research programme. Protection of flora of conservation concern. Conservation of threatened and endemic fauna.
Biodiversity security	To enhance biodiversity protection and conservation. To ensure conservation of species and processes by maintaining and improving ecosystem functioning.	Improved security and safety of the biodiversity assets on the Nature Reserve.
Development		
Development of tourism opportunities	To evaluate potential tourism opportunities. To implement effective management systems. To ensure legal compliance and implementation of authorised development plans.	Development of appropriate and sustainable tourism opportunities that generate revenue for the Nature Reserve following the correct process.
Operational Management		
Legal compliance	To ensure legal compliance to all relevant legislation and policies.	Ensure that all legal requirements are met.
Management effectiveness	To implement effective management systems.	Conduct annual audits and METT. Auditing systems inform management and management plan revision and APO.
Infrastructure	To ensure the implementation of effective conservation management interventions. To enhance biodiversity protection and conservation.	All infrastructure on the Reserve is adequately maintained.

	To ensure conservation of species and processes by maintaining and improving ecosystem functioning. To ensure effective waste management.	Responsible waste management

3) DESCRIPTION OF WILDEALSVLEI NATURE RESERVE AND ITS CONTEXT

3.1 The legislative basis for the management of WildeAlsVlei Nature Reserve

There is a large body of legislation that is relevant to the management of WildeAlsVlei NR, but the primary legislation guiding the management of protected areas is the National Environmental Management: Protected Areas Act (No.57 of 2003) (Hereafter referred to as the Act).

The Act 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.

In the Western Cape, CapeNature is the Provincial Conservation Authority and its Biodiversity Stewardship Programme facilitates the establishment and management of protected areas on private land.

A detailed list of relevant legislation is provided in Appendix A. Landowners should familiarise themselves with the purpose and contents of the statutes and their subsequent amendments and regulations.

3.1.1 Proclamation status of WildeAlsVlei Nature Reserve

WildeAlsVlei NR is proclaimed under Section 23(1) of the National Environmental Management: Protected Areas Act (Act 57 of 2003). See Appendix B.

3.1.2 Invasive species control in terms of the Biodiversity Act

In terms of Section 76 of the National Environmental Management: Biodiversity Act (No.10 of 2004), the management authority of a protected area must incorporate an invasive species control plan in the protected area management plan. This is addressed in Sections 6 and 8 below.

3.2 The regional and local planning context of WildeAlsVlei Nature Reserve

3.2.1 The Protected Area Expansion Strategy and Implementation Plan

The Protected Area Expansion Strategy and Implementation Plan is a response to the National Protected Area Expansion Strategy (NPAES) (DFFE, 2016) which calls on provinces to develop implementation plans in support of the NPAES and in support of provincial conservation efforts and priorities. The NPAES, which provides a broad national framework for Protected Area expansion in South Africa, also identifies areas of importance to be targeted for Protected Area expansion in the country, and mechanisms to achieve this.

The draft Western Cape Protected Area Expansion Strategy (CapeNature, 2021) addresses the formal proclamation of priority natural habitats as protected areas to secure biodiversity and ecosystem services for future generations. This strategy is aligned to the concepts and goals of the (NPAES) (DEA, 2016), but does identify some different spatial priorities.

3.2.2 Municipal Biodiversity Assessment

The Biodiversity Assessment of the Kannaland and Oudtshoorn Local Municipality and Garden District Management Area (Uniondale) (Skowno et al., 2010) points out that this region is unique because of its location in the Succulent Karoo Biome. Twelve habitat types in the region are threatened, and urbanization and agriculture are the main drivers of biodiversity loss. Stewardship is mentioned as a means for conserving threatened habitats outside formal protected areas (Skowno et al., 2010). According to the 2017 Western Cape Biodiversity Spatial Plan (Pool-Stanvliet et al., 2017) and the bioregional sector plan for the Garden Route (Vromans et al., 2010), WildeAlsVlei NR falls within the Protected Area CBA category (Figure 3.1). Management priorities for Critical Biodiversity Areas are the minimization of loss and further fragmentation, the maintenance of natural ecosystem processes, and prioritization for incorporation into the Protected Areas Network through processes such as stewardship (Vromans et al., 2010).

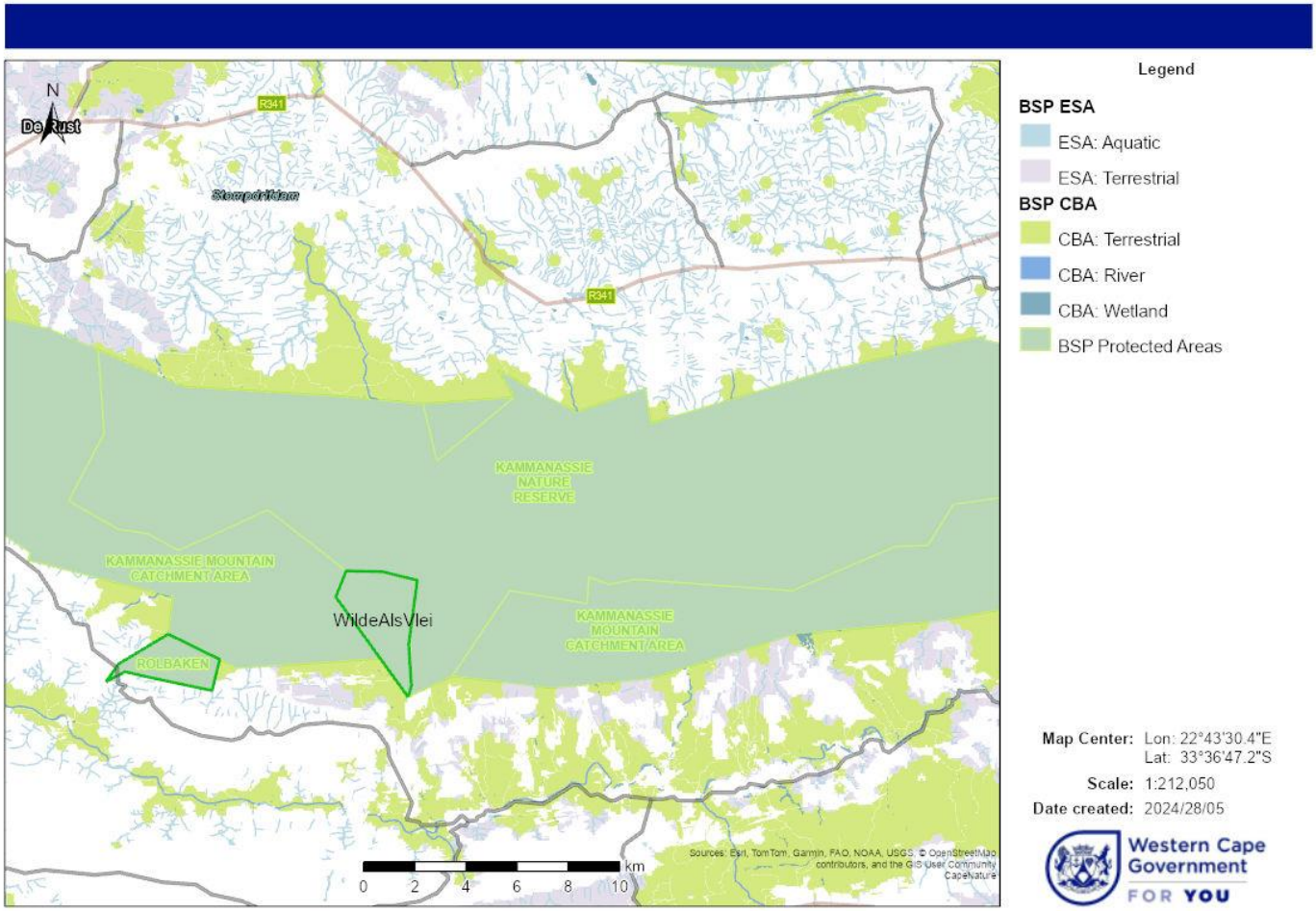

Figure 3.1. Critical Biodiversity Area map of WildeAlsVlei NR.

3.2.3 Municipal Plans

Strategic Development Framework (GRDM, 2017) and Integrated Development Plans (GRDM, 2022)

This refers to the Integrated Development Plans (IDP), Spatial Development Frameworks (SDF) and Land Use Management Systems (LUMS) of the district and local municipalities within which the protected area falls.

Garden Route District, also known as the as the "Garden Route" is situated on the southern- eastern coast of the Western Cape Province is currently the third largest district municipality within the Western Cape. With a total earth surface coverage of approximately 23 332 km², the municipality shares its borders with four other district municipalities namely Cacadu District in the Eastern Cape, Overberg and Cape Winelands in the west and to the north the boundary with the Central Karoo District Municipality runs along the Swartberg mountains. In the east, the municipality runs up to the Eastern Cape provincial boundary. Oudtshoorn is the largest inland town, located along the R62 and N12 linking smaller inland towns of Ladismith, Calitzdorp, De Rust and Uniondale.

The inland areas of the Garden Route District are characterised by a strongly rural setting with dispersed farming hamlets and small towns, which in some cases are isolated due to transport and social service delivery costs. Along the coast, the dominant port industrial town of Mossel Bay is functionally linked inland with George, the services centre of the District, as well as along the N2 to the tourism and lifestyle driven settlements of Knysna, Bitou to the East. To the west of Mossel Bay, the towns of Riviersonderend and Riversdale are gateways to the Garden Route and South to the coastal towns of Witsand, Stilbaai and Gouritzmond.

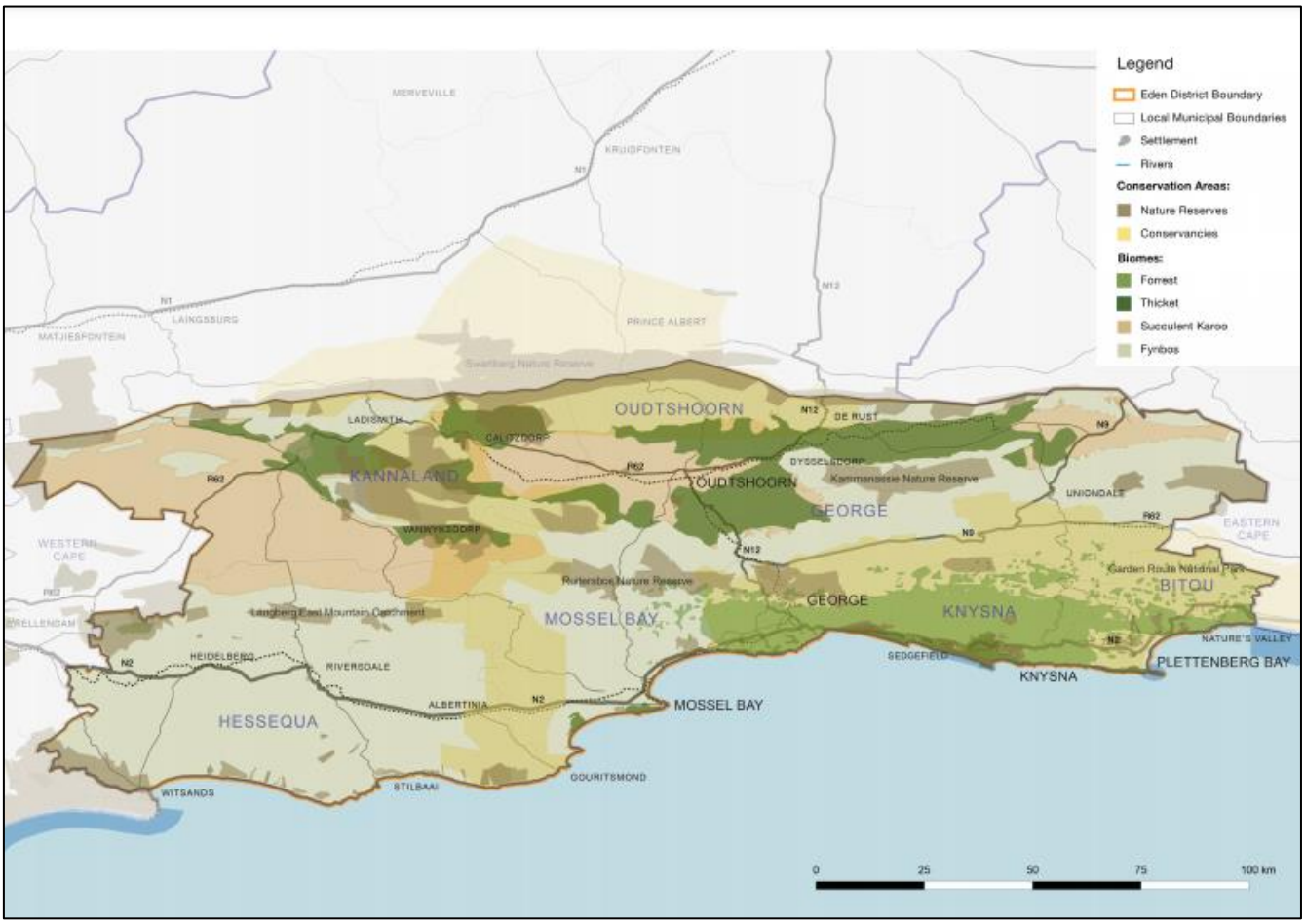

Figure 3.2 Local Spatial Development context for Garden Route Municipality.

The IDP and SDF of the GRDM recognise the importance of being part of the Cape Floristic Region which is classified to be a global biodiversity hotspot. These documents note that the Garden Route's outstanding natural beauty is made up of diverse wilderness and agricultural landscapes, estuaries and lagoons, mountain backdrops and coastal settings, including the verdant landscapes of the Garden Route. As a result of the natural beauty, the area is well known for its tourism.

As it is stated that the Southern Cape coastal belt has been identified as a significant leisure, tourism, lifestyle and retirement economic destination, driven largely by the quality of life and climatic advantages of the region. The district's natural capital and its varied scenic and cultural resources are the attractions that make the Western Cape the country's premier tourism destination (GRDM SDF, 2017). Keeping the natural environment, wetlands, lakes and rivers in a pristine condition is key to future security in the future of the region.

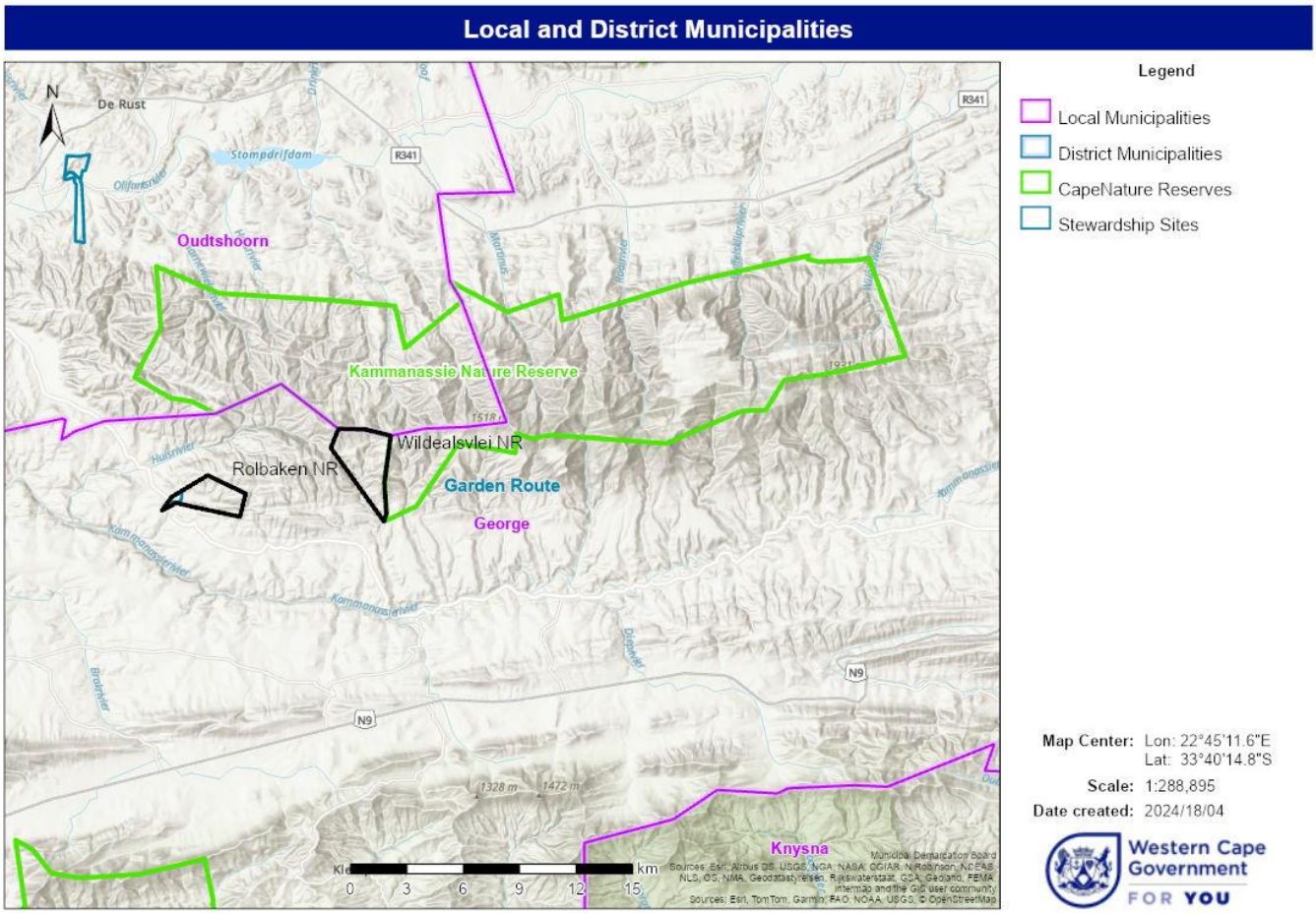

Figure 3.3 The range of protected areas recognised in the SDF indicating the location of WildeAlsVlei NR in black border.

3.3 The history of WildeAlsVlei Nature Reserve

The pre-colonial occupants of the Kammanassie Mountains were the hunter-gathering San who may have deliberately burnt the vegetation to encourage game to concentrate on new growth and to stimulate growth and reproduction of edible bulbs and the pastoralists Khoi who reported to have habitually burnt the vegetation to provide pasture for sheep. It is believed that these Khoi herders may have pushed the San into the more marginal mountain and as a result changed the fire regime through regular patch-burning. The San and Khoi mainly occupied the low-lying areas and consequently had little impact on the higher-lying upland vegetation types (referenced in Wheeler et al. 2012).

By the end of the eighteenth century, European farmers occupied the lower-lying foothills and valley lands and used the mountains for grazing. They moved their sheep to the low-lying areas during winter, and burnt the mountain vegetation in late winter or early spring to provide summer grazing. This practice to provide pasture was continued until the introduction of fire protection areas in the late nineteenth century (referenced in Wheeler et al. 2012).

The nearly pristine WildeAlsVlei NR has been the direct result of the low land capability of the nature reserve, making it unsuitable for any agricultural purposes (Figure 3.4).

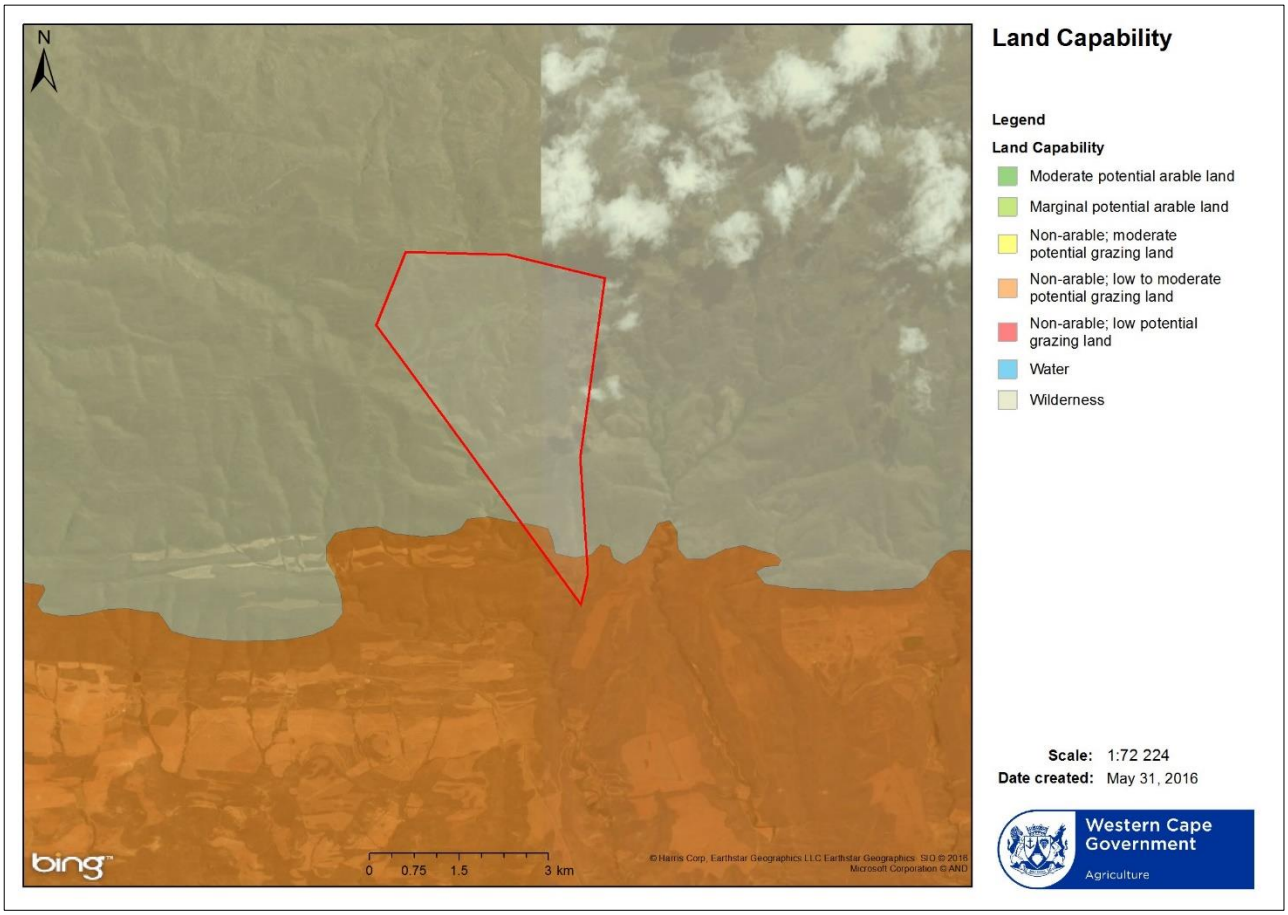

Figure 3.4. Land capability map of WildeAlsVlei NR. Land Capability is determined by the collective effects of soil, terrain and climate features, and indicates the most intensive long-term use of land for rain-fed agriculture as well as the permanent limitations associated with various land-use classes.

3.4 Ecological context of WildeAlsVlei Nature Reserve

This section reflects the ecological conditions of WildeAlsVlei NR.

3.4.1 Climate and weather

The climate is hinterland (further from oceanic influences) Mediterranean, with cool, rainy winters and warm, dry summers. Maximum temperatures are experienced in January (average daily max = 37ºC) and minimum temperatures usually occur in July (average daily min = 0ºC). Rainfall occurs mainly in winter between mid-May and late August. Occasional snowfalls occur on the mountains adjacent to WildeAlsVlei NR during winter.

Rainfall data on adjacent Kammannassie WHS and NR, shows that the Kammannassie Mountains receive rain throughout the year with an average annual rainfall of approximately 450 mm. The highest annual rainfall of 1 216 mm and lowest of 242 mm were recorded in 1981 and 1984 respectively. The hottest months on the Kammanassie Mountains are December to February with maximum temperatures of 35ºC. The coldest months are June and July with minimum temperatures reaching -4ºC (Wheeler et al. 2012). Refer to Figure 3.5 & 3.6.

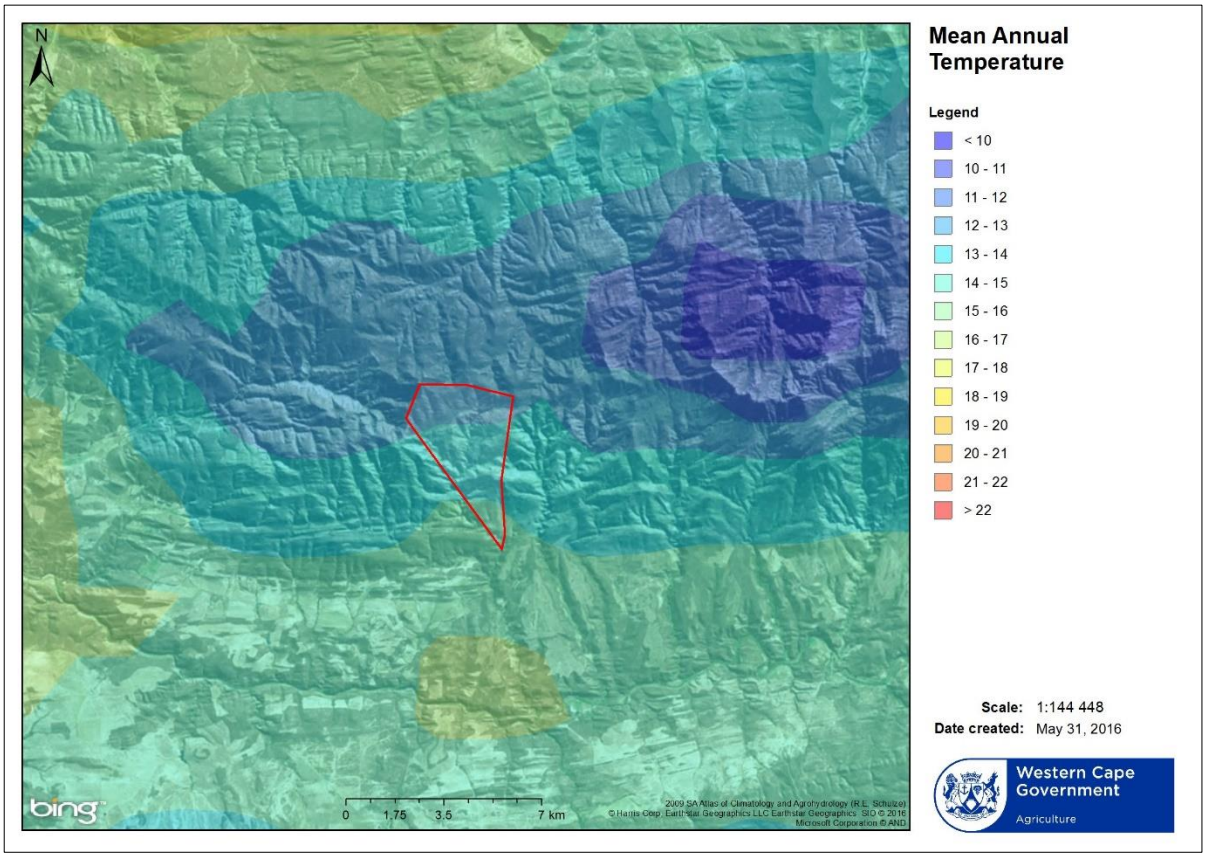

Figure 3.5. The mean annual temperature (˚C) of WildeAlsVlei NR.

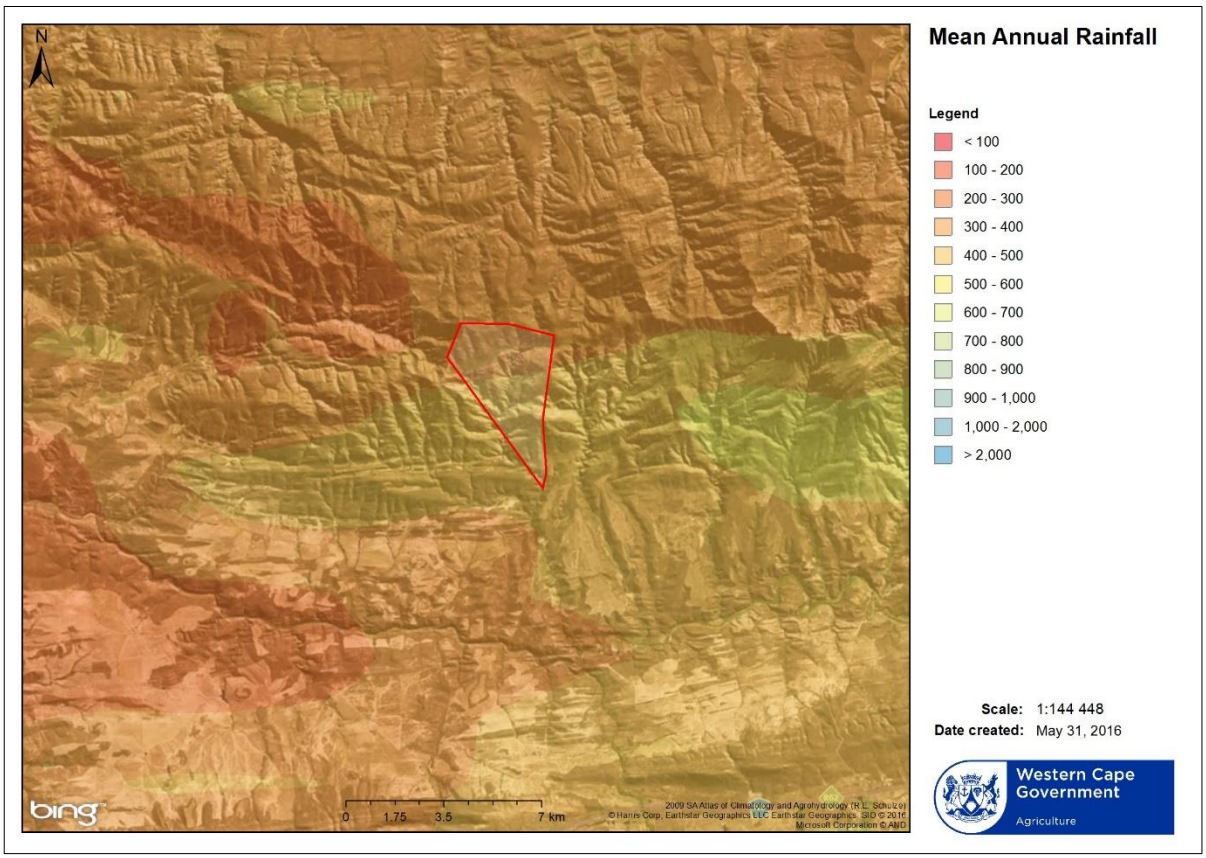

Figure 3.6. The mean annual rainfall (mm) of WildeAlsVlei NR.

3.4.2 Topography

The Fynbos Biome is topographically diverse and this heterogeneity of habitats has been a major driving force in the creation of arguably the most diverse and unique of the temperate floras.

The highest peak, situated in the northern most corner of WildeAlsVlei NR, is 1500 m above sea level. The lowest elevations occur along the southern boundary of the reserve and are approximately 620 m above sea level Figure 3.7).

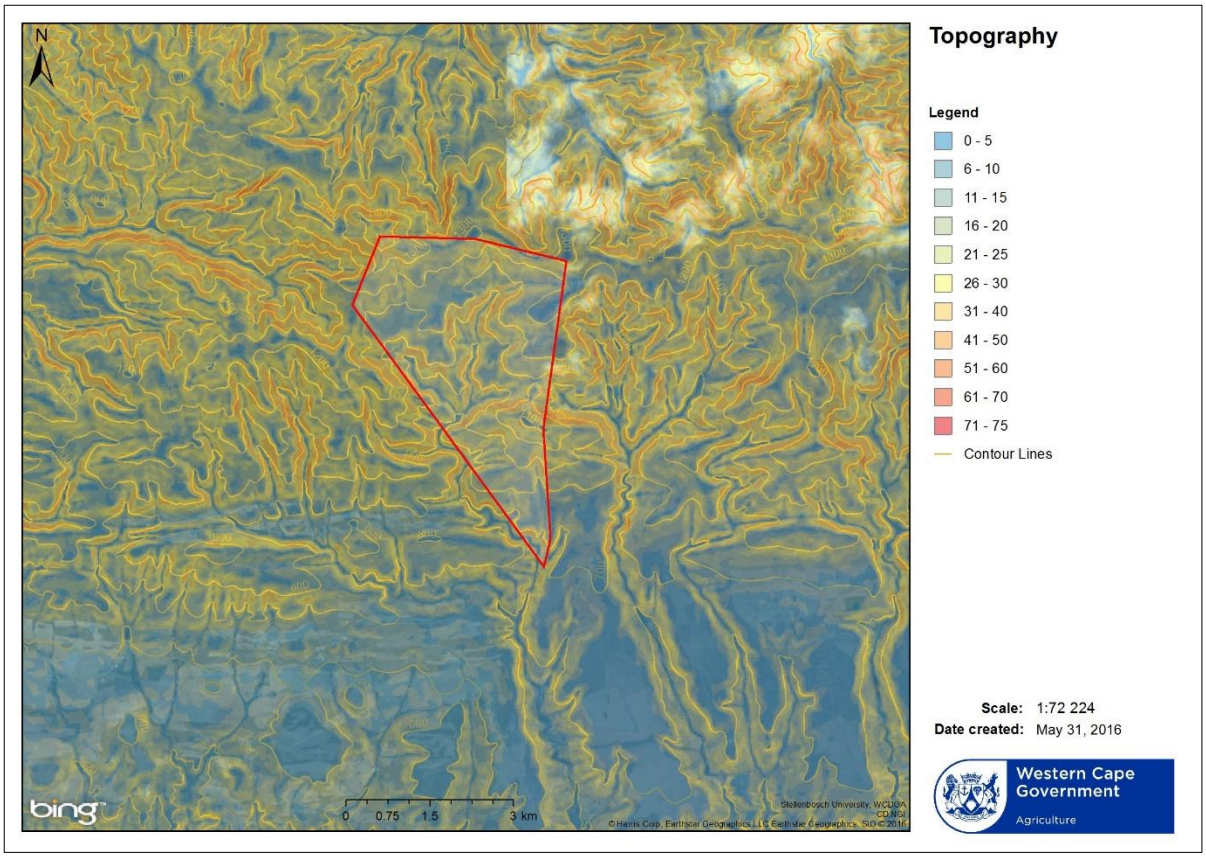

Figure 3.7. Topography of WildeAlsVlei NR.

3.4.3 Geology and soils

The dominant rock type on the reserve is Arenite, a sedimentary rock (Figure 3.8). There are three types of arenite: quarts-arenite (quarts grains with secondary silica content), lithic-arenite (quarts and grains of rock like chert and lava), and felspathic-arenite (up to 25% feldspar). These rocks are formed when weathered grains are consolidated into rock via consolidation and cementation. This rock type typically occurs along the coastlines of Southern Africa within the sand deposits. Arenites usually occur within recent sand deposits forming local harder zones. Weathering will result in a sandy material consisting of medium sized quartz grains. The residual material is seldom deeper than 1m. Engineering qualities of Aranite – it causes harder zones within recent coastal deposits and may vary from a rock-like material to soft soil. Very low groundwater yields are typical and it is used as a construction material after washing to get rid of the high salt content. It occurs within recent coastal dunes or flat pediplains formed during the previous retreating of the ocean.

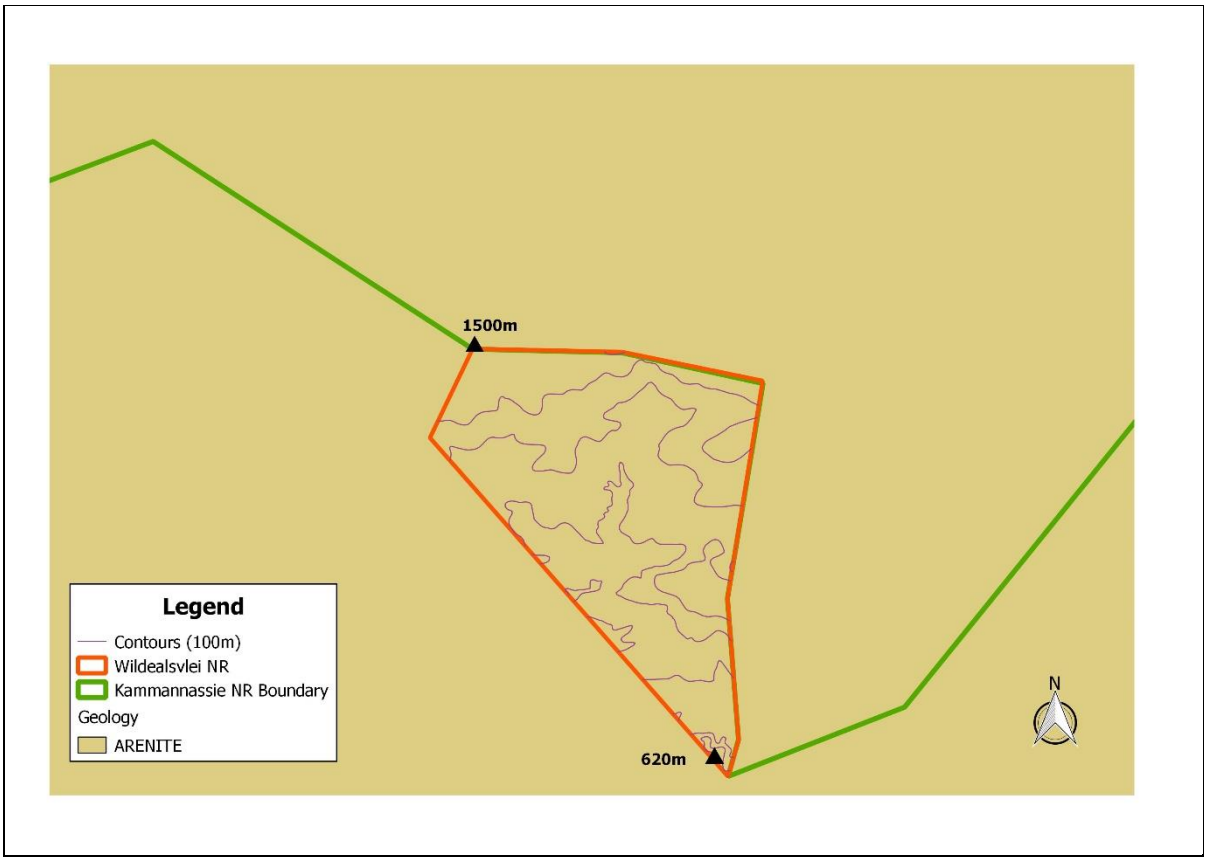

Figure 3.8. Geology of WildeAlsVlei NR.

3.4.5 Hydrology

WildeAlsVlei NR, a Declared Private Mountain Catchment Area, falls within the southern slopes of the Kammanassie catchment which drains into the Kammanassie River in the south. The upper catchment of the Dieprivier falls almost entirely on this property (Figure 3.9). There are at least two waterfalls indicated on the topographical map, and a major river system. There are important seepage areas which are vital for the Kammanassie catchment, especially given the fact that over-abstraction of groundwater in the western section of the Kammanassie has become a huge threat. Over-abstraction of groundwater in Vermaaksrivier for water supply to Dysselsdorp and the Klein Karoo has resulted in more than 80% of the springs monitored by CapeNature, to dry up. One spring on WildeAlsVlei NR (no 42) dried up in 1997 and has stopped flowing since. The second spring higher up in the mountain (no 11) has been flowing constantly. Groundwater abstraction started in 1993.

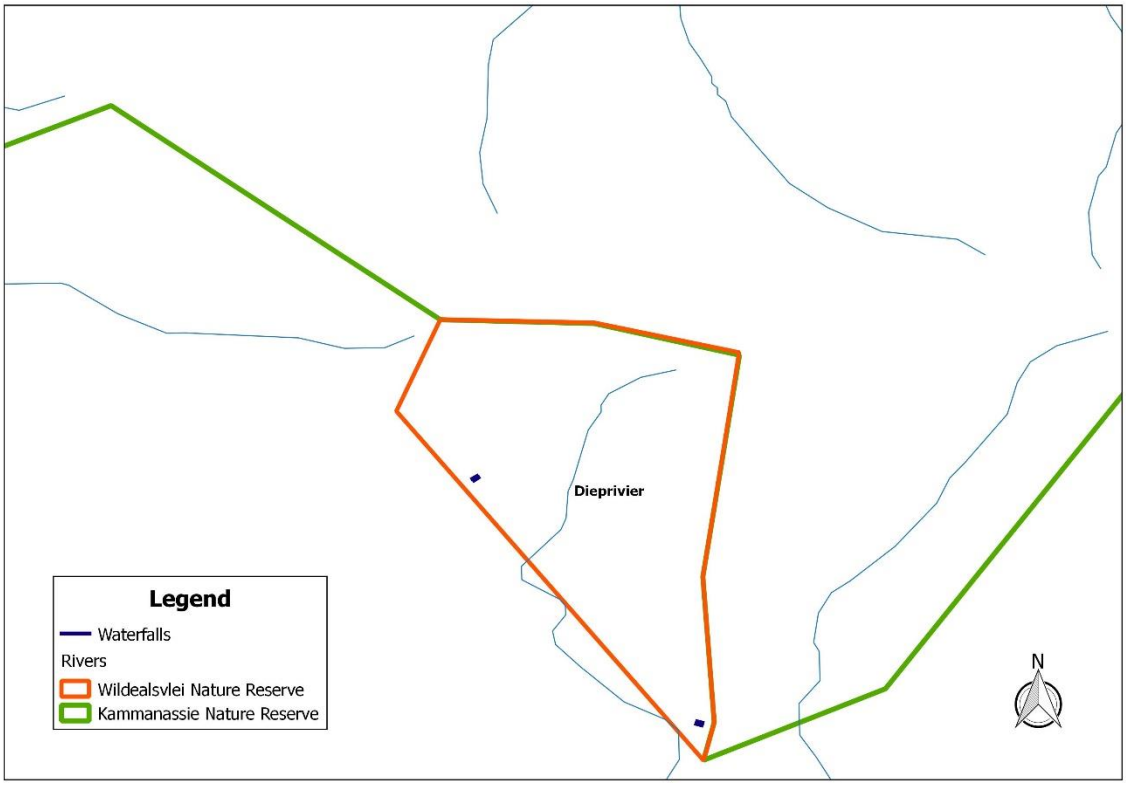

Figure 3.9. Hydrology of WildeAlsVlei NR.

3.4.6 Vegetation

The Cape Floristic Kingdom, one of six world floral kingdoms, is internationally renowned for its special rich flora containing an estimated 9 000 species of vascular plants of which almost 69% are endemic (restricted to the region). This makes it one of the richest regions in the world in terms of botanical diversity. It is characterized by five endemic families and by the conspicuous presence of, amongst others, species belonging to the families Aizoaceae, Ericaceae, Fabaceae, Iridaceae, Orchidaceae, Proteaceae, Restionaceae, Rutaceae and Scrophulariaceae (Goldblatt & Manning, 2000).

At a national level, WildeAlsVlei NR contains Central Inland Shaleband Vegetation and South Kammanassie Sandstone Fynbos, both Least Threatened according to the vegetation map of South Africa (Mucina and Rutherford, 2006).

At a regional level the property contains five vegetation units i.e. Kammanassie Arid Proteoid Fynbos, Kammanassie Subalpine Fynbos, Kammanassie Perennial Stream, Kammanassie Mesic Proteoid Fynbos and Kammanassie Waboomveld (Vlok et al. 2005), all Least Threatened. WildeAlsVlei NR falls within the Protected Area category of the Critical Biodiversity Areas map compiled by Skowno et al. (2010) (Figure 3.10).

Vegetation descriptions according to Vlok et al. 2005:

"The **Kammanassie Arid Proteoid Fynbos** is most similar to the Doringrivier Arid Proteoid Fynbos in having species such as *Agathosma capensis, Agathosma ovata, Aspalathus hystrix, Erica versicolor, Erica speciosa, Ficinia deusta, Hypodiscus aristatus, Hypodiscus striatus, Ischyrolepis capensis, Leucadendron salignum, Leucospermum cuneiforme, Pentameris eriostoma, Pentameris macrocalycina, Pentashistis malouinensis, Pentashistis pallida, Protea lorifolia, Protea repens,*

Rhodocoma fruticosa, Tetraria cuspidata, Tetraria ustulata and *Thamnochortus rigidus* prominent and abundant, but it differs in having uncommon species such as *Cliffortia dispar, Cliffortia polita, Cliffortia robusta, Lampranthus diffusus* and *Leucospermum royenifolium* present. The orange-red variant of *Leucadendron salignum* is quite abundant here, indicating that there is a shift in genetic material of this species in this unit."

"As in all the other Subalpine Fynbos units, the **Kammanassie Subalpine Fynbos** unit is dominated by Restios, Ericas and short (less than 1 meter) Proteoid shrubs. It share some of its rare species with the Groot Swartberg - and Kouga Subalpine Fynbos, but can be recognized by the local combination of rare and local endemic species, that includes *Alepidea delicatula, Aspalathus patens, Disa neglecta, Disa pillansii, Elegia altigena, Erica inordinata, Erica montis-hominis, Erica valida, Leucadendron singulare, Protea venusta* and *Syncarpha montana*."

"The **Kammanassie perennial stream** unit is also indicated by an abundance of *Cannamois virgata, Calopsis paniculata* and *Rhodocoma capensis*, along with *Erica caffra, Erica curviflora*, several Psoralea species and *Pteronia camphorata*. The broad-leaved herb *Gunnera perpensa* is another typical element and reliable indicator of this unit, as well as the tree *Virgilia divaricata* that is often present along the mid slopes of the mountain. Small patches of forest may occur in fire-protected kloofs, often with an abundance of ferns (mostly Blechnum species.) A number of localized endemic species such as *Geissorhiza elsiae* and *Liparia genistoides* and some rare orchids (e.g. *Disa elegans*) occur in the upper seepage areas."

"The **Kammanassie Mesic Proteoid Fynbos** can be easily recognized and differs from the Kammanassie Arid Proteoid Fynbos, by its proteoid shrub component. Here *Leucadendron eucalyptifolium, Protea eximia, Protea punctata* and *Protea neriifolia* are abundant to locally dominant. It differs from all the other Mesic Proteoid Fynbos units in having the following rare and local endemic species present, *Agathosma affinis, Amphithalea axillaris, Bobartia paniculata, Cyclopia alopecuroides, Cyclopia plicata, Disa lugens var. lugens, Erica costatisepala, Erica inordinata, Geissorhiza elsiae, Gladiolus fourcadei, Lachnaea glomerata, Leucadendron rourkei, Liparia gensitoides, Oxalis fourcadei, Paranomus esterhuyseniae, Protea grandiceps* and *Romulea vlokii*."

"The species present in the **Kammanassie Waboomveld** is somewhat intermediate between those that occur in the Groot Swartberg - and Outeniqua Waboomveld units. *Protea nitida* is also abundant and prominent in this unit. This unit is rich in species with the following species recorded here; *Agathosma capensis, Agathosma ovata, Artemisia afra, Aspalathus alpestris, Aspalathus laricifolia, Babiana sambucina, Bulbinella cauda-felis, Cannamois scirpoides, Chrysanthemoides monilifera, Cineraria alchemilloides, Cliffortia linearifolia, Cliffortia neglecta, Cliffortia ramossisima, Cliffortia ruscifolia, Clutia polifolia, Ehrharta bulbosa, Elegia filacea, Eragrostis chloromelas, Erica cerinthoides, Erica maesta, Erica melanthera, Eriocephalus africanus, Felicia filifolia, Ferraria divaricata, Ficinia nigrescens, Freylinia densiflora, Haemanthus albiflos, Helichrysum cylindriflorum, Helichrysum teretifolium, Hermannia diffusa, Hermannia multiflora, Hypodiscus striatus, Ischyrolepis capensis, Ischyrolepis hystrix, Ischyrolepis unispicata, Leucadendron salignum, Leucospermum cuneiforme, Lobostemon fruticosus, Lobostemon marlothii, Muraltia dispersa, Oedera squarrosa, Othonna auriculifolia, Othonna lobata, Oxalis obtusata, Oxalis punctata, Passerina obtusifolia, Pelargonium scabrum, Pelargonium suburbanum, Pelargonium tricolor, Pentzia dentata, Phylica paniculata, Polygala microlopha, Polygala myrtifolia, Protea neriifolia, Protea repens, Restio multiflorus, Restio triticeus, Rhodocoma fruticosa, Ruschia lineolata, Senecio cotyledonis, Senecio ilicifolius, Spiloxene trifurcillata, Struthiola macowanii, Sutera campanulata, Tephrosia capensis, Tetraria cuspida*ta and *Willdenowia teres*. The combination of rare and localized endemic species differs from any other Waboomveld unit, with the following uncommon species recorded; *Acmadenia maculata, Agathosma affinis, Cliffortia arcuata, Erica passerinae, Gladiolus leptosiphon, Lachenalia*

haarlemensis, Lachnostylis bilocularis, Lampranthus scaber, Paranomus esterhuyseniae, Pelargonium denticulatum and *Romulea jugicola*."

The property has ideal habitat (Kammanassie Waboomveld) for the unique Kammanassie genotype of the Cape mountain Zebra.

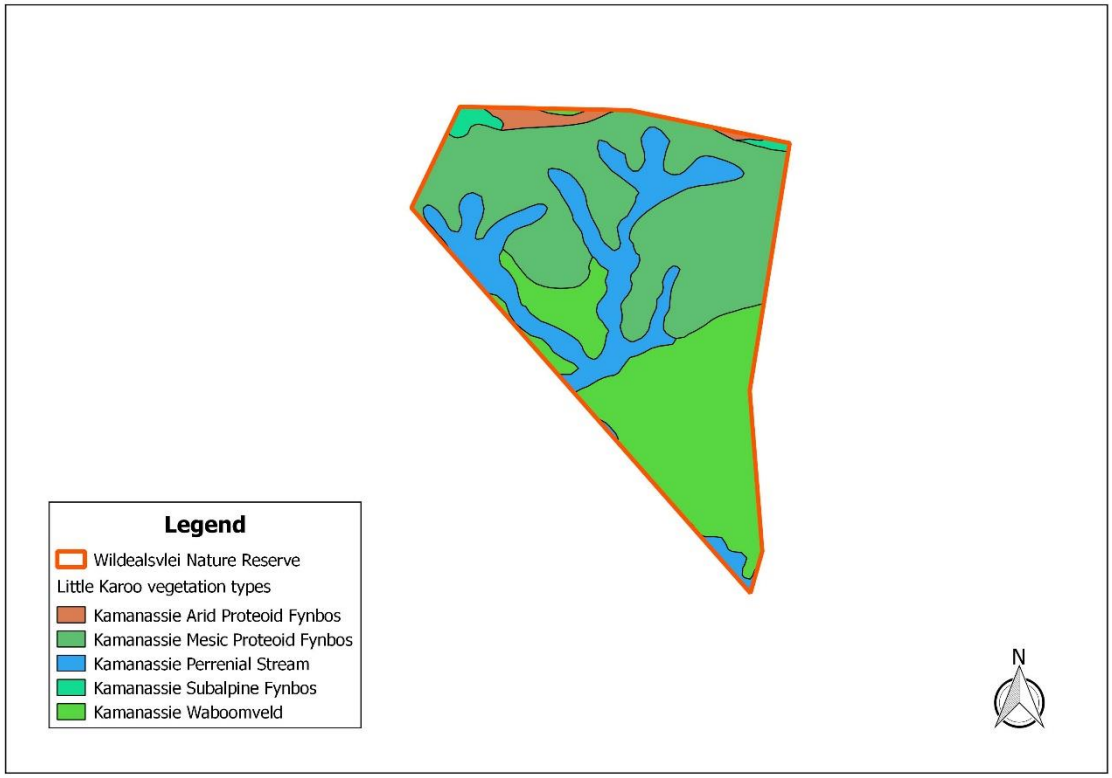

Figure 3.10. Vegetation types found on WildeAlsVlei NR (Vlok et al. 2005)

3.4.7 Fire regime

The overall goals of fire management in the Western Cape are as follows:

- The maintenance of the optimum levels of biodiversity in all regions managed either directly or indirectly by CapeNature.
- The conservation of all natural processes within the Fynbos Biome.
- The conservation of hydrological systems that deliver a sustained yield of stream flow in all Mountain Catchment Areas.
- The reduction of fire risk and hazard in all protected and neighbouring areas.

The aims of fire management include:

- The maintenance of fire as a vital ecological process in fynbos ecosystems.
- The integration of Fire Management into programmes aimed at the reduction and control of invasive alien plan species.
- The minimisation of the occurrence and extent of ecologically undesirable or otherwise potentially damaging wildfires.

WildeAlsVlei NR will aim to reduce / avoid the spread of fires across the reserve's borders and minimize accidental/deliberate fires within the reserve and allow for natural fire processes to occur without negatively impacting on safety and infrastructure.

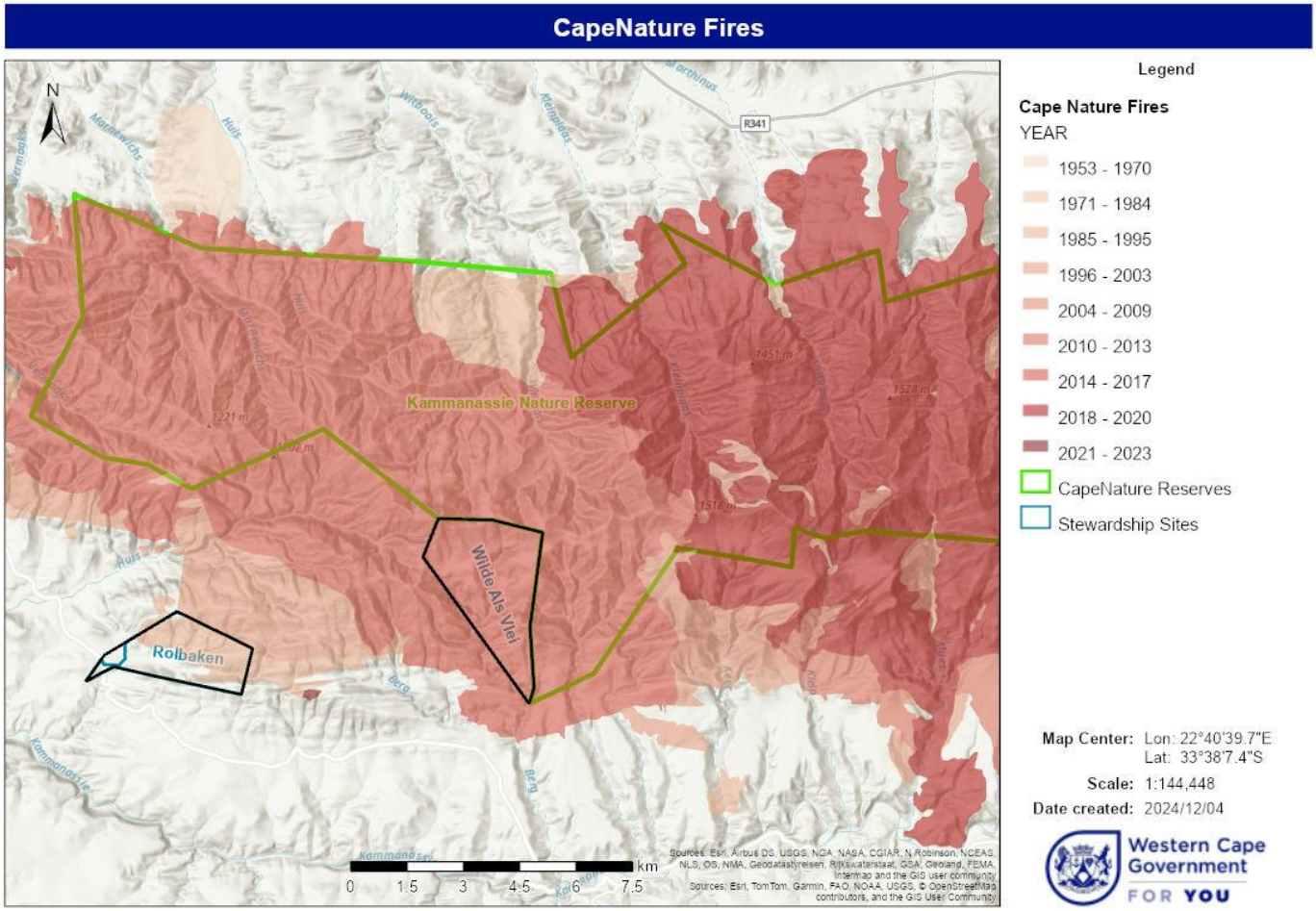

Figure 3.11. Veld Age map for WildeAlsVlei NR.

3.4.8 Invasive species

WildeAlsVlei NR is in a near pristine condition, therefore only a few invasive alien plants are present on the reserve. There is a low density of *Hakea sericea* plants as well as some scattered individuals of *Pinus* species occur higher up in the mountain.

The management intervention required at this stage is the monitoring of the veld, especially after the recent fires, to check for regeneration or any new alien vegetation species that may occur.

The scattered alien vegetation is being eradicated by both the WildeAlsVlei NR Management Authority and Kammanassie WHS and NR Management, according to an alien invasive plant clearing plan.

3.4.9 Mammalian fauna

Large mammals have largely been absent from fynbos for almost two centuries and we can only speculate as to their effects on the vegetation. Fynbos however has evolved with animals and is reliant on them for its fundamental processes such as grazing, pollination and dispersal.

A number of small antelope species such as Common Duiker and Steenbok occur on the reserve. Various predators including the Cape leopard (*Panthera pardus*) and Caracal (*Caracal caracal*) are also present on WildeAlsVlei NR.

Cape mountain Zebra (*Equus zebra zebra*; CMZ) are often sighted on WildeAlsVlei NR and is the only known mammal species of special concern. Cape mountain zebra are classified as least concern in the IUCN Red List and as endangered in the Nature and Environmental Conservation Ordinance (Ordinance 19 of 1974). The CMZ that are often sighted on WildeAlsVlei NR are part of the population of CMZ managed by CapeNature, and which receives special attention in the Biodiversity Management Plan for CMZ in the Western Cape. Mammal Species list for QDS 3322DA is included in Appendix C.

3.4.10 Avifauna

The species occurring on the reserve are typical of those associated with mountainous fynbos vegetation. Avifaunal species diversity within this type of vegetation is not high hence the low number of species.

Threatened species that may occur on the reserve are:

Peregrine Falcon (*Falco peregrinus*), NT; Black Harrier (*Circus mauruss*), NT; Denham's Bustard (*Neotis denhamii*), VU; Lesser Kestrel (*Vanellus melanopterus*), VU. Bird Species list for QDS 3322DA is included in Appendix C.

3.4.11 Herpetofauna (reptiles and amphibians)

There are 43 reptile species recorded for the Kammanassie area and WHS and NR. None of these are listed as Threatened although the revised threat status for reptiles is yet to be published. The reptile species list for the Kammanassie WHS and NR is updated through baseline data collection and input from research and data is submitted to the CapeNature State of Biodiversity database.

There are 11 amphibian species recorded for the Kammanassie area. None of these are listed as Threatened. The amphibian species list for the Kammanassie WHS and NR is updated through baseline data collection and input from research and data is submitted to the CapeNature State of Biodiversity database (Wheeler et al 2012). Herpetofauna Species list for QDS 3322DA is included in Appendix C.

3.4.12 Invertebrates

Butterflies are abundant and 46 species have been recorded in the adjacent Kammanassie WHS & NR. The Kammanassie Blue (*Orachrysops brinkmani*) belongs to the same genus as the Endangered Brenton Blue butterfly and Karkloof Blue butterfly. Thirty-five arthropod species have been recorded also on the adjacent Kammanassie WHS and NR. The freshwater invertebrate fauna in the various river systems of the Kammanassie Mountains have not yet received much attention, although preliminary South African Scoring System (SASS) surveys of the 13 rivers have indicated a diverse community in the Kammanassie aquatic systems. Groundwater abstraction is the most serious threat to the continued existence of this macro-invertebrate community (Wheeler et al. 2012). Invertebrate Species list for QDS 3322DA is included in Appendix C.

3.5 Cultural Heritage context of WildeAlsVlei Nature Reserve

There are nearly 40 archaeological sites on the adjacent Kammanassie WHS and NR, of which all of them contain rock art. The possibility that there are similar archaeological sites on WildeAlsVlei NR

is very good. Potential sites should be seeked out and investigated. Only then can such sites be documented, protected and managed.

3.6 Socio-economic context

The Garden Route District currently has a population of 622 664, meaning it is the third most populous municipal district in the Cape, after the Cape Winelands' and City of Cape Town. The total population is estimated to increase to 643 134 by 2023 which equates to 0.8 per cent average annual growth.
In 2017, the Garden Route District economy was dominated by the finance, insurance, real estate and business services (R10.733 billion; 24.9 per cent), wholesale and retail trade, catering and accommodation (R7.811 billion; 18.1 per cent) and manufacturing sectors (R6.312 billion; 14.6 per cent). Combined, these top three sectors contributed R24.856 billion (or 57.6 per cent) to the Garden Route District's economy, estimated to be worth R43.153 billion in 2017.
The wholesale and retail trade, catering and accommodation sector contributed the most jobs to the area in 2017 (55 985; 24.7 per cent), followed by the finance, insurance, real estate and business services sector (39 233; 17.3 per cent) and the community, social and personal services (35 255; 15.5 per cent) sector. Combined, these three sectors contributed 130 473 or 57.5 per cent of the 226 789 jobs in 2017.
The unemployment rate in the Garden Route District has been rising steadily since 2015, falling back slightly to 15.2 per cent in 2018. This is slightly lower than the Provincial rate of 17.7 per cent. Unemployment remains a key challenge for the Garden Route District area, with rising population numbers. Income inequality in the Garden Route District has worsened between 2012 and 2018, with the gini coefficient increasing from 0.585 in 2012 to 0.614 in 2018.
There are 140 informal settlements in the District, together amounting to 15% of all households and the housing waiting list amounts to 65 000 households. Roughly, 80% of the district's population lives in urban areas along the coast.

Roughly, 80% of the district's population lives in urban areas along the coast. Oudtshoorn is the largest inland town, located along the R62 and N12 linking smaller inland towns of Ladismith, Calitzdorp, De Rust and Uniondale (GRDM IDP, 2022).

The inland areas of the Garden Route District is characterised by a strongly rural setting with dispersed farming hamlets and small towns, which in some cases are isolated due to transport and social service delivery costs.

The geographic area of the municipality consists of seven municipalities, such as Bitou, Knysna, George, Mossel Bay, Oudtshoorn, Kannaland and Hessequa. George Municipality, comprising the towns of Uniondale, Haarlem, Blanco and George. The population of the Garden Route District (GRD) is 627 917 people in 2021, making it, outside of the metro, the second most populated district in the Province. In 2021, the population density of the GRD was 27 persons per square kilometer.

Agriculture plays an important role in providing employment in the district. In the 2019 Primary Sector figures, 28042 of the 28212 jobs created were in the agriculture, forestry and fisheries industries. The remaining 170 jobs were in the mining and quarrying industry. Agriculture in the Garden Route district varies according to the distribution of homogeneous farming areas from east to west and north to south throughout the Garden Route District Municipality (GRDM) The majority of agri- processing plants appear to cluster around George and surrounds as the service settlement of the region, with Oudtshoorn and surrounds hosting the second most number of agri-processing facilities. Farming systems in the GRDM are a mixture of irrigated crops and pastures, rainfed crops and pastures / rangelands, extensive livestock and intensive livestock. On a production level,

agriculture in the Garden Route District shows fairly high levels of adaptive capacity, with only a few commodities likely to come under direct threat due to moderate warming or other climate change impacts.

The district's profound natural, scenic and landscape beauty contributes to its appeal as a popular tourism destination. Tourism plays a key role in the economy of the district, which is linked to the retail, wholesale, catering and accommodation sector. There is an opportunity to develop unique tourism products that generate revenue for the Nature Reserve.

4) ZONATION PLAN

The purpose of the zonation of WildeAlsVlei NR is to control the intensity and type of use within it, in efforts to ensure the main goal of biodiversity conservation is met. On this basis, within some zones, the permissible intensity of use will be relatively higher than in others.

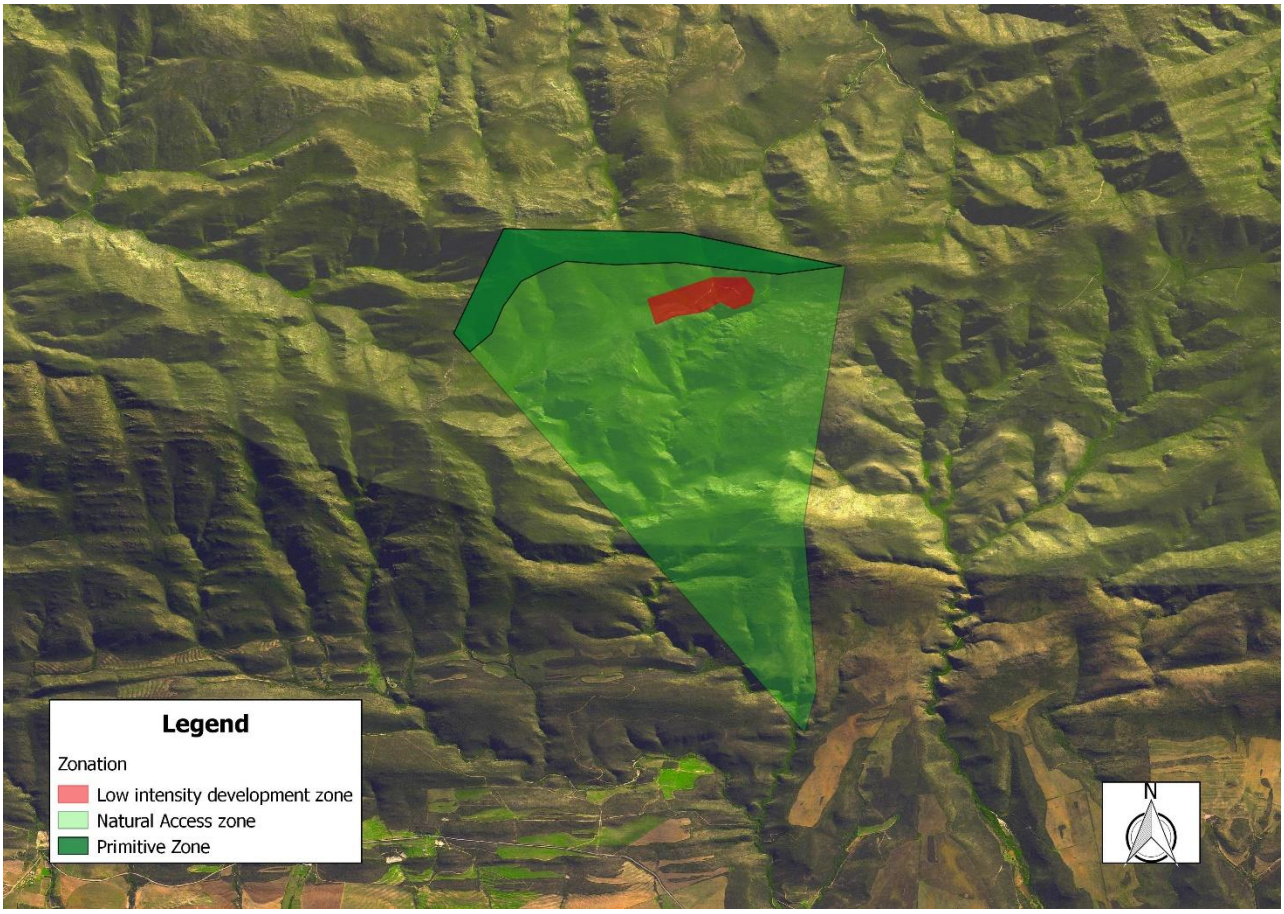

Figure 4.1 Zonation map of WildeAlsVlei NR.

Table 4.1 Conceptual development guidelines

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Primitive	***Conservation:*** To limit visitor use, numbers and infrastructure to minimise impact in sensitive environments. To reduce need for management of users and visitor impacts. Allows for minimal or more intensive biodiversity management intervention. *Include extensive areas of sensitive or threatened habitats & species in this low use zone when sites do not meet the criteria for wilderness* ***Users:*** To provide an experience of solitude in natural landscapes with little nearby evidence of human presence. Can provide access to and buffer Wilderness Zones	Intrinsically wild appearance & character. Areas where users will seldom encounter other human groups or presence. Any visible human impact or infrastructure inside the zone is unobtrusive. Human activities outside zone may be audible or visible in places. Areas remote from management centres, or otherwise difficult or expensive to access for management. Areas that might not meet the criteria for Wilderness but can serve as undeveloped visual buffers for Wilderness. Areas that may have natural burning regimes, with no active fire management and road/firebreak infrastructure OR areas that require active fire management to stay within thresholds of concern.	Guided or unguided nature observation Primarily intended for hiking or walking access. Only allows for 4x4 routes and if specifically considered and noted. Only allows for non-hiking accommodation node if specifically considered and noted.	Deviation from the natural and/or pristine state to be minimised. No visible infrastructure in Wilderness view sheds. May provide isolated, small, unobtrusive accommodation facilities for up to 16 guests on restricted footprints, particularly for overnight hiking trails. May have defined or beaconed hiking routes, management access roads, tracks and firebreaks. Roads for visitor use may only be existing roads or new routes that also allow access for essential management needs. All roads, tracks or trails should be located and constructed to reduce maintenance, visibility and erosion. Where unsurfaced tracks will result in erosion, use double concrete strip or interlocking pavers to stabilise. Re-route unstable or erosion-prone road sections if this will lower long-term visual and environmental impact. Avoid full width tarred or surfaced roads or roads and tracks wider than required for a single vehicle.	Visitor access only by permit. Control of visitor numbers, frequency and group sizes to meet zone objectives. Only users of facilities/activities will access to this zone. Defined or non-defined hiking and day trail routes On foot always, or by bicycle, 2x4 or 4x4 vehicle on designated routes. --- No access without zone permit	***Visitor Management:*** Manage to conserve natural and cultural resources, ecological processes and wild appearance & character. Restrict numbers of visitors and allow for no-use rest periods if required. All facilities will be small, very basic, self-catering and distributed to avoid contact between users There should be limited if any interaction between groups Since visitor use usually cannot be intensively managed, re-route trails away from any areas with sensitive local habitats or plant and animal species. Trail layout, design and construction must reduce maintenance requirements. Visible & audible human impacts from adjacent zones should be mitigated ***Conservation Management:*** Habitats with lower or higher management requirements. May be natural burning zones. Prevent or restore visible trampling or any other visitor impact. Rehabilitate non-useful roads to natural vegetation. ***Consumptive Use:*** Sustainable use can be appropriate under controlled circumstances subject to a formal assessment and application in accordance with CapeNature policies.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Nature Access	***Conservation:*** To manage and direct visitor use, and plan infrastructure to minimise impact on sensitive environments. To actively manage users and visitor impacts. Allows for minimal or more intensive biodiversity management intervention. *Provide additional protection to sensitive or threatened habitats, species or other features by Special Management Overlays* ***Users:*** To provide easy access to natural landscapes with low expectation of solitude at all times. Can buffer wilderness or Primitive Zone.	Areas with extensive lower sensitivity habitats: Areas able to accommodate higher numbers of visitors regularly, with no identified sensitive or regionally rare biodiversity. Extensive areas able to accommodate roads, trails and tracks without high risk of erosion and degradation. Areas accessible for regular management of roads and trails. Areas where roads and trail infrastructure can be located with low visibility from the surrounding landscape, particularly from adjacent Primitive or Wilderness Zones. Usually areas that require active fire management with firebreaks to stay within thresholds of concern, but may also include natural burning regimes.	Guided or unguided nature observation. Day hiking trails and/or short trails. Bird hides, canoeing, mountain biking & rock-climbing where appropriate. Other activities if specifically considered and approved as part of specific reserve zoning scheme. Motorised 2x4 self-drive access on designated routes. No accommodation or camping. Frequent interaction with other users.	Some deviation from natural/pristine state allowed particularly on less sensitive or already disturbed/transformed sites. No accommodation; but ablution facilities may be provided. May have defined or beaconed hiking routes, tourism and management access roads, and management tracks and firebreaks. Infrastructure should be designed to reduce impacts of higher visitor numbers. Roads open to the public should be accessible by 2x4 sedan. Full width tarred or surfaced roads or roads and tracks to accommodate two vehicles are appropriate. Unsurfaced roads may be surfaced if a road planning exercise has confirmed that the location is suitable.	No special access control or permits required for this zone. Will cater for larger number of visitors than primitive zone. Vehicle access on dedicated routes, with pedestrian access from parking areas or adjacent .Development Zones. On water – only non-motorised crafts allowed.	***Visitor Management:*** More frequent monitoring of these areas are necessary to prevent damage or degradation. More frequent footpath maintenance must be scheduled for busy routes, with particular attention paid to use of railings or other access control to prevent damage to sensitive areas. Unless visitor access can definitely be intensively guided and managed, re-route trails away from any sensitive local habitats or plant and animal species. Trail layout, design and construction must be specified to reduce maintenance requirements under higher use. Visible & audible human impacts to adjacent Primitive or Wilderness Zones should be mitigated. ***Conservation Management:*** Habitats with lower or higher management requirements. May be natural burning zones. Prevent or restore visible trampling or any other visitor impact. Rehabilitate non-useful roads to natural vegetation. ***Consumptive Use:*** Sustainable use may be appropriate subject to a formal assessment and application in accordance with CapeNature policies.

Development – Low Intensity	***Conservation:*** To locate the zone and infrastructure to minimise impact on sensitive environments. To actively manage users and visitor impacts on adjacent sensitive areas. *Provide additional protection to sensitive or threatened habitats, species or other features by Special Management Overlays* ***Users:*** To provide access to adjacent natural landscapes with little expectation of solitude. To provide primarily self-catering accommodation or camping. Can provide for Environmental Education accommodation and access into surrounding landscapes.	Areas with extensive degraded or transformed footprints. Natural or semi-natural habitats only when use of these areas is essential to minimise infrastructure/use impacts over whole reserve. Areas able to accommodate high numbers of visitors regularly, with no identified sensitive or regionally rare biodiversity. Areas able to accommodate roads, trails and accommodation infrastructure without risk of erosion or degradation. Areas easily accessible from reserve management centre. Areas where risk of fire damage to infrastructure is low or can be mitigated without unacceptable impacts on surrounding environment. Areas not visible from Primitive or Wilderness Zones. Areas where new infrastructure can be located with low visibility from the surrounding landscape. Areas with available potable water, and not sensitive to disposal of treated wastewater via soak away.	Picnicking. Walking or bicycle access into adjacent areas. Self-catering accommodation and camping. Meeting, workshops or mini-conference activities for no more than the number of people that can be accommodated overnight in the zone. Can provide for Environmental Education accommodation and access into surrounding landscapes, but this must be carefully planned not to conflict with visitor use.	Reception offices. Self-catering accommodation and camping for up to 100 guests in total at any time[1] No more than 6-8 beds per unit. Single small lodges for up to 30 guests are permissible if all facilities are contained in a compact footprint, this represents the total accommodation for the zone, and any restaurant or catering facilities are for overnight guests only. If possible, roads should be narrow with separate incoming and outgoing routes, otherwise double vehicle width roads are strongly advisable for safety and usability. Roads in this zone should be surfaced wherever possible to reduce management cost and environmental impacts. Development and infrastructure may take up a significant proportion of the zone, but planning should ensure that area still provides relatively natural outdoor experience.	Motorised self-drive 2x4 sedan car access. Tour bus access Parking areas This zone should be used to provide parking and walk-in access for day visitors to adjacent Nature Access zone if possible.	***Visitor Management:*** Use built and infrastructure solutions to such as railings, hard surfacing and boardwalks to manage undesirable visitor impacts. Accept some impact on natural habitats in this zone unless these are specifically addressed in a Special Management Overlay. Frequent footpath and road maintenance must be scheduled for high impact routes. Visible impacts to adjacent Zones should be mitigated ***Conservation Management:*** Provide access and generate revenue. Management should aim to mitigate the impacts of the high number of visitors. L largely transformed habitats with lower management requirements. Usually fire exclusion areas. Prevent or restore visible trampling or any other visitor impact. Plan for a compact overall development footprint, avoiding dispersed infrastructure that will increase fire risk and/or environmental footprint. This is most critical in fire-prone environments. ***Consumptive Use:*** Sustainable use may be appropriate subject to a formal assessment and application in accordance with CapeNature policies.

[1] Although this sounds high this is still in line with many CapeNature sites that would fall within this zone definition and e.g. configured as 10 x 4-sleeper self-catering units and 15 campsites this seems completely reasonable.

Other zones which can overlap any of the above zones = Special Management overlays:

Special Management overlays	Objective of zone	Characteristics	Type of Activities	Facilities / Infrastructure	Type of Access	Management Guidelines
Cultural Feature protection	Protection of localised identified important Cultural Feature	Could overlap any other zone, Permanent, temporary or temporal zone to manage important cultural or heritage features	Specific activities dependent on ability to manage activity and feature in question.	Usually none, but specific infrastructure dependent on feature in question.	Specific access dependent on ability to manage access and feature in question.	Feature specific – as required
Species/Habitat protection	Protection of localised identified important Biodiversity Feature	Could overlap any other zone, Permanent, temporary or temporal zone to manage important cultural or heritage features	Specific activities dependent on ability to manage activity and feature in question.	Usually none, but specific infrastructure dependent on feature in question.	Specific access dependent on ability to manage access and feature in question.	Feature specific – as required
Visual protection	Protection of localised sensitive view sheds and particularly for Wilderness Zone view sheds	. Sensitive view sheds and particularly for areas within Wilderness Zone view sheds	Specific activities dependent on ability to manage activity and feature in question.	No roads, firebreaks or buildings. No visible infrastructure Trails may be appropriate.	Walking access likely to be appropriate.	Feature specific – as required
Natural Resource Access	Access to identified sustainable consumptive use resources as per a resource management plant	Areas with identified natural resources formally assessed as not sensitive to harvesting and provided with a sustainable harvesting plan.	Harvesting of identified resources.	None	Specific access dependent on feature in question.	Feature specific – as required
Rehabilitation		This should fall under specific management objectives for any zone				

Research is permissible in all zones, except Species/Habitat protection or Cultural Protection where it may be considered on a case by case basis. Research that requires extensive destructive harvesting, or manipulation of more than a few square meters of habitat should not be considered in any of the Protection overlays, except where research outputs are considered essential for management of that ecosystem research cannot be done at an equivalent site elsewhere, and research results are certain to contribute substantially to management objective

5) ADMINISTRATIVE STRUCTURE

The landowner, Nel Trust (represented by Mr Raldu Nel) is appointed as the Management Authority for the WildeAlsVlei NR as agreed to in the Management Agreement concluded between CapeNature and the landowner.

Where applicable, Management decisions are made collaboratively between the Management Authority and CapeNature.

The role of the conservation agency – CapeNature - is to provide support, advice and assist with the implementation of the management plan of the WildeAlsVlei NR as agreed upon.

CapeNature is also responsible for conducting an annual audit of the WildeAlsVlei NR and assist the Management Authority in updating the Management Plan

6) OPERATIONAL MANAGEMENT FRAMEWORK

This section translates the strategic framework described in Section 2 above into Key Deliverables and Management Activities, which will be used to inform annual plans of operation and the resources required to implement them. The management activities will form the basis for monitoring of performance in implementing the plan and are thus measurable.

In the tables below, MA = Management Authority and CN = CapeNature.

6.1 Biodiversity management

6.1.1 Fire management

Fire plays an important role in southern African ecology, and has important effects on vegetation composition, primary productivity, and nutrient cycling. In developing a fire management strategy for the site, the following guiding principles should be adhered to:

- 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.
- The burning of areas should be undertaken in such 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 consideration of the biodiversity conservation requirements of the site 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).

WildeAlsVlei NR will maintain a natural fire regime in partnership with Kammanassie WHS and NR. That entails the reducing / avoidance of the spread of fires across the reserve borders and minimize accidental/deliberate fires within the reserves and to allow for natural fire processes to occur without negatively impacting on safety and infrastructure.

Table 6.1 Operational Management Framework: Fire management

FIRE MANAGEMENT			
Objectives	· To ensure conservation of species and processes by maintaining and improving ecosystem functioning.		
	· To implement effective Integrated Catchment Management.		
	· To allow for natural fire processes to occur without impacting on safety and infrastructure.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Reduce/prevent the spread of fires.	Construct priority firebreaks according to schedule.	MA	Annually
	Negotiate firebreak agreement with neighbours.		
	Fuel reduction around infrastructure to minimise risk.		
	Conduct pre-fire season fire audit.		
	Mapping of all fires and capture on GIS.		
Maintain partnerships to improve fire management.	Attend local FPA meetings.	MA CapeNature	Annually
	Maintain firebreak agreements with neighbours.		
	Attend Pre-Fire season meetings with CapeNature and local Fire & Rescue Service.		
Determine and implement thresholds of potential concern.	Establish a series of fixed-point photography monitoring plots.		Annually
	Conduct permanent *Protea spp.* plot monitoring.	MA	
	Conduct post-fire regeneration monitoring.	CapeNature	
	Set and monitor thresholds of potential concern.		
Reduce wildfires due to human negligence.	Create fire awareness programme for family members/visitors.	MA	Annually

6.1.2 Invasive vegetation management

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

- Invasive plant control will require an ongoing programme that prioritises key infestations along water courses, drainage lines and upper catchment areas.
- Initial clearing efforts should focus on containing infestations that are most likely to spread into new areas.
- All follow-up requirements must be strictly adhered to otherwise the problem will be exacerbated.
- Strategic partnerships and poverty relief programmes should be utilised where possible.

Table 6.2 Alien species, Density and Age on WildeAlsVlei Nature Reserve

Man Comp	Dom Spec	Dom Den	Dom Age	Sec Spe	Sec Den	Sec Age	Other Spe	Other Den	Other Age
W01	Hakea	0.50	Y	Pine	0.1	A			
W02	Hakea	0.50	Y	Pine	0.1	A			
W03	Hakea	0.50	Y	Pine	0.1	A			
W04	Hakea	0.50	Y	Pine	0.1	A			

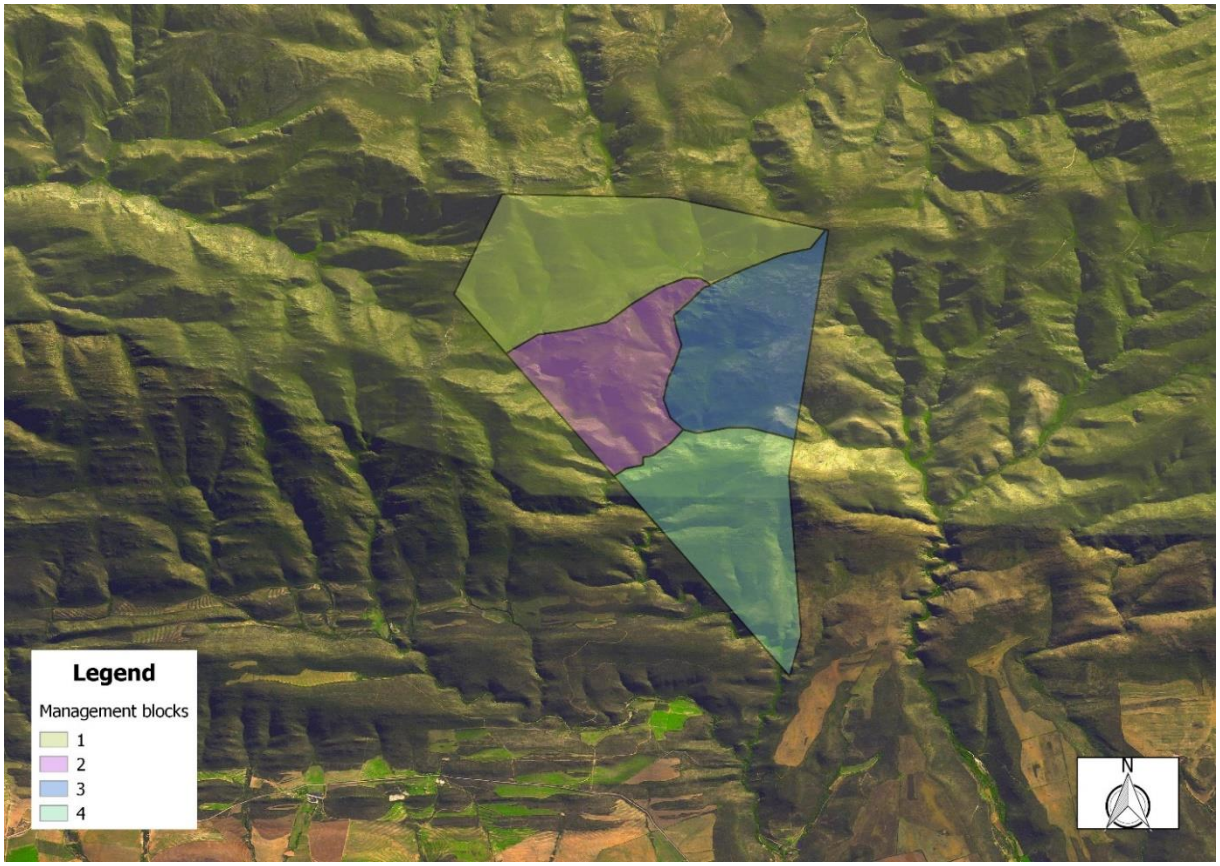

Figure 6.1. Management compartments for Invasive Vegetation Management of WildeAlsVlei NR

Table 6.3 Operational Management Framework: Invasive vegetation management

INVASIVE VEGETATION MANAGEMENT			
Objectives	· To enhance biodiversity protection and conservation. · To ensure conservation of species and processes by maintaining and improving ecosystem functioning. · To implement effective Integrated Catchment Management.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Eradicate alien and invasive species	Identify and map all alien invasive flora within or threatening the Reserve. Compile an alien invasive plant clearing plan and implement. Identify Areas in Maintenance Phase.	MA / CapeNature	Annually
Implement biological control	Identify potential biological control sites and prioritise accordingly. Map and update biological control sites. Implement new and supplement existing biological control. Monitor success of biological control. Ensure accurate record keeping of biological control data. Ensure biological control site security.	MA / CapeNature	Ongoing
Prevent further introduction of aliens	Ensure surrounding landowners are aware of relevant legislation.	MA / CapeNature	Ongoing

6.1.3 Wildlife Management

To promote the conservation of indigenous fauna as an important component contributing to and maintaining ecosystem functioning.

The unique Kammanassie gene of Cape mountain zebra (CMZ) occur naturally on the property. These animals face numerous risks such as: hybridisation with other equids, lack of access to natural drinking water, lack of access to suitable grazing, getting snared in internal fences and limited knowledge of distribution, breeding success and mortality rates. It is recommended that neighbouring landowners to the Kammanassie WHS and NR, who have Kammanassie CMZ on their property sign the Voluntary CMZ Custodianship Agreement with CapeNature which highlights sound CMZ Management Principles.

Indigenous antelope (Cape Grysbok, Klipspringer, Common Duiker, Steenbok, Vaal Rhebok and Kudu) occur naturally in the area and move freely between farms. There is currently no need to manage these populations.

6.1.3.1 Reintroduction of Game

Before reintroduction the following points need to be considered:

- Was the desired species naturally resident in the area?
- Why did the animal become extinct in the area?
- Is that causal factor still a threat?
- Is the habitat still suitable for the species?
- What are the potential negative effects of the reintroduction?
- Where is the nearest existing population?

Commission a reintroduction policy and plan for species that used to occur in the area and the suitable carrying capacities. Investigate the potential for reintroductions, specifically small game, which may have previously occurred naturally in the area. Herbivores are essential for biodiversity and ecosystem processes to persist.

The careful reintroduction of species can enhance the conservation value of the area and increase the marketability of the Nature Reserve. All reintroductions must be based on sound ecological principles. CapeNature must be consulted on the translocation and reintroduction of all fauna.

Table 6.4 Operational Management Framework: Wildlife management

WILDLIFE MANAGEMENT			
Objectives	· To enhance biodiversity protection and conservation. · To ensure conservation of species and processes by maintaining and improving ecosystem functioning. · To implement effective Integrated Catchment Management.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Conserve the unique Kammanassie CMZ	Sign Voluntary CMZ Custodianship Agreement with CapeNature. Implement risk reduction measures for CMZ.	MA	Ongoing
Prevent the Introduction of alien species or hybridisation risks	Formulate policy regarding domestic animals in the reserve. No introduction of alien fish species into river systems. No introduction of species which can hybridise with CMZ.	MA	Ongoing
Control alien and invasive, and hybridisation risk species	Identify the occurrence of alien of hybridisation risk fauna on the reserve. Monitor populations of alien or hybridisation risk fauna on the reserve. Implement control measures where appropriate. Measure success of control methods utilised.	MA / CapeNature	Ongoing
Manage the introduction of fauna on the reserve	All reintroductions must be based on sound ecological principles. CapeNature must be consulted on the translocation and reintroduction of all fauna.	MA	Ongoing
Evaluate and monitor impact of fauna on the reserve.	Draw up a basic evaluation and monitoring plan for fauna on the reserve.	MA	Ongoing

6.1.4 Sustainable Harvesting

The Sustainable Utilization of Wild Fynbos Resources ensures that the regenerative and/or productive capacity of the specific plant species is not exceeded. It is important, therefore, to make certain that species are harvested in a manner that minimizes harvesting impact on individual populations by: Adhering to the latest sustainable industry harvesting standards per species, and where no industry standard exists use must be made of CapeNature guidelines.

It is also therefore important to ensure that Pickers, Supervisors or Contractors must have completed an accredited sustainable harvesting course. Skills development programs must be in place for all pickers that have not attended the course.

An exclusion block or refuge, representative of all harvestable species utilized must be created to ensure population persistence. The block should be demarcated and included on the map incorporating the harvesting management zones. The exclusion block may be utilized further for research and monitoring purposes.

Table 6.5 Operational Management Framework: Sustainable Harvesting

SUSTAINABLE HARVESTING			
Objectives	· To ensure the sustainable use of Wild Fynbos Resources. · To ensure the conservation of biodiversity where harvesting operations occur. · To monitor the impact of harvesting on selected Fynbos species.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Develop and implement a sustainable harvesting plan	Develop and implement a sustainable harvesting plan.	MA / CN	Annually
Identify Management Zones	Map the boundaries of the property. Divide the property into harvesting management zones.	MA/CN	On-going
Classify Floral Species according to Vulnerability Index	Classify harvestable species according to Vulnerability Index. Develop list of harvestable species as per floral licence on the property. Classify harvestable species according to their distribution per management zone.	MA/CN	Annually
Minimise harvesting impact	Adhere to the latest sustainable industry harvesting standards per species. Where no industry standard exists use must be made of CapeNature guidelines. Pickers/Contractors must be accredited.	MA	On-going
Record keeping	Daily harvesting record maintained. Monthly harvesting records submitted. Invoice and delivery note system maintained.	MA	On-going
Compliance with relevant legislation	Possession of valid CapeNature flora license. Understanding of legislation relevant to protected flora.	MA	On-going
Monitoring	Identify and demarcate exclusion zones representative of harvestable species. Monitoring program in place to develop thresholds of potential concern	MA	On-going

6.1.5 Erosion Prevention and 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.

Table 6.6 Operational Management Framework: Erosion prevention and control

EROSION PREVENTION AND CONTROL			
Objectives	· To ensure implementation of effective conservation management interventions. · To enhance biodiversity protection and conservation.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Prevent and mitigate soil erosion	Conduct a soil erosion assessment. Map erosion sites and ensure photographs are available. Compile an erosion maintenance plan. Monitor the effectivity of the erosion control mitigation. Monitor cost effectiveness of maintenance. Monitor site recovery. Conduct a roads and footpath assessment.	MA	Annually

6.1.6 Monitoring and Baseline Data Collection

Information on the locality of Rare, Endangered and Endemic species is necessary to ensure effective management and monitoring of populations. This objective aims to improve the biological knowledge base through the implementation and promotion of effective baseline data collection and research opportunities.

Table 6.7 Operational Management Framework: Monitoring and baseline data collection

MONITORING AND BASELINE DATA COLLECTION			
Objectives	· To manage biodiversity knowledge to ensure effective conservation management. · To implement measures to ensure resilience and persistence of biodiversity in light of climate change. · To ensure the implementation of effective conservation management interventions. · To ensure conservation of species and processes by maintaining and improving ecosystem functioning.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Create a Biodiversity Resource Inventory	Collect specimens and submit to CapeNature Scientific Services.	MA/CapeNature	Annually
Implement Monitoring Programme	Review monitoring protocols. Identify monitoring needs of Nature Reserve in consultation with CapeNature. Establish indicators for monitoring. Implement and report on monitoring activities. Analyse data, re-assess and implement adaptive management strategies.	MA/CapeNature	Annually
Implement research programme	Identify research needs of Nature Reserve in consultation with CapeNature. Establish indicators for research. Implement and report on research activities. Analyse data, re-assess and implement adaptive management strategies.	MA/CapeNature	Annually
Protection of flora of conservation concern	Implement measures to protect flora of conservation concern	MA	Ongoing
Conservation of threatened and endemic fauna	Implement measures to conserve threatened and endemic fauna	MA	Ongoing

6.1.7 Biodiversity and security

Develop an integrated security strategy for the Nature Reserve. Access to the Nature Reserve needs to be controlled and conditions of entry for visitors into the Nature Reserve should be clearly stipulated on signboards at access points.

Table 6.8 Operational Management Framework: Biodiversity security

BIODIVERSITY SECURITY			
Objectives	· To enhance biodiversity protection and conservation. · To ensure conservation of species and processes by maintaining and improving ecosystem functioning.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Improved security and safety of the biodiversity assets on the Nature Reserve.	Registration of title deed endorsements by a Notary through a Notarial Deed and Notary to register it with the Deeds Office. Conservation Area is rezoned to appropriate conservation zoning, e.g. Open Space III, where beneficial to the Management of the Nature Reserve. Ensure appropriate signage at access points.	MA/CapeNature	Once off

6.2 Tourism development

In developing tourism within the biodiversity stewardship site, the following guiding principles should be adhered to:

- Tourism products must be appropriate to the site's values and must not threaten its biodiversity or ecological function.
- In developing tourism products, requirements for environmental authorisation must be considered and adhered to.
- Tourism products should be designed to capitalise on the unique beauty and biodiversity features of the site.
- Tourism products should be developed in response to tourism market demands and opportunities within the site and should be carefully assessed to determine their viability.

Table 6.9 Operational Management Framework: Development of tourism opportunities

DEVELOPMENT OF TOURISM OPPORTUNITIES			
Objectives	· To evaluate potential tourism opportunities. · To implement effective management systems. · To ensure legal compliance and implementation of authorised development plans.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Development of a range tourism opportunities that generate revenue for the Nature Reserve.	Planning and development of hiking routes, mountain bike trails, 4x4 trails, horse trails and basic facilities to cater for visitors to the nature Reserve. Development of a business plan for tourism accommodation facilities.	MA	As required

6.3 Operational Management

6.3.1 Legal compliance

Through the landowners of the biodiversity stewardship site, the management authority has been mandated to enforce laws related to the conservation of the site, which prohibit particular activities. In fulfilling this role, the managers of WildeAlsVlei NR will adhere to the following guiding principles:

- Law enforcement efforts should be coordinated with the relevant authorities including CapeNature and the South African Police Service in addressing offences and breaches of the law.
- Law enforcement at the site will be undertaken through surveillance, monitoring and appropriate reaction in the event of an offence.

Table 6.10 Operational Management Framework: Legal Compliance

LEGAL COMPLIANCE			
Objectives	· To ensure legal compliance to all relevant legislation and policies.		
Key Deliverable	**Management Activities**	**Responsibility**	**Timeframe**
Ensure that all legal requirements are met.	All development needs to be done according to the NEMA principles and follow the applicable legislation and procedures of all relevant stakeholders. All water management within the Reserve must comply with the National Water Act (No 36 of 1998). Abstraction of water from water sources originating in the Reserve must not affect the biodiversity of the Reserve Any resource harvesting activities to comply with the Western Cape Nature Conservation Ordinance and the Western Cape Biodiversity Act.	MA	Ongoing

6.3.1 Management effectiveness

Table 6.11 Operational Management Framework: Management effectiveness

MANAGEMENT EFFECTIVENESS			
Objectives	· To implement effective management systems.		
Key Deliverable	**Management Activities**	**Responsibility**	**Timeframe**
Annual audit completed	Conduct annual audits	MA/ CapeNature	Annually
METT completed	Conduct METT as required	MA & CapeNature	TBC
Auditing systems inform management and APO	Implementation, annual review and assistance with updating of the APO and revision of the management plan when due.	MA & CapeNature	Annually

6.3.3 Infrastructure development and management

For WildeAlsVlei NR to operate appropriately, adequate infrastructure needs to be developed and maintained both for management and tourism purposes. In addressing infrastructure needs at the site, the following guiding principles will be adhered to:

- Infrastructure must be maintained to avoid any damage to the environment and ensure the safety of staff and visitors to the site.
- Infrastructure must be provided to ensure the effective management and operation of the nature reserve.
- No waste disposal site is available on WildeAlsVlei NR. General household waste must be separated at source and non-organic recyclable waste must be taken to the nearest suitable deposit site where practical and viable. Organic waste such as food remains, and enviro loo solids (non-flushing toilets) can be composted on site in a suitable composting enclosure situated away from human activity and it must not be in or near a watercourse. Note that if food waste is composted, then the structure will need to be covered by a baboon and porcupine-proof wire mesh, and it will need to be monitored for effectiveness.

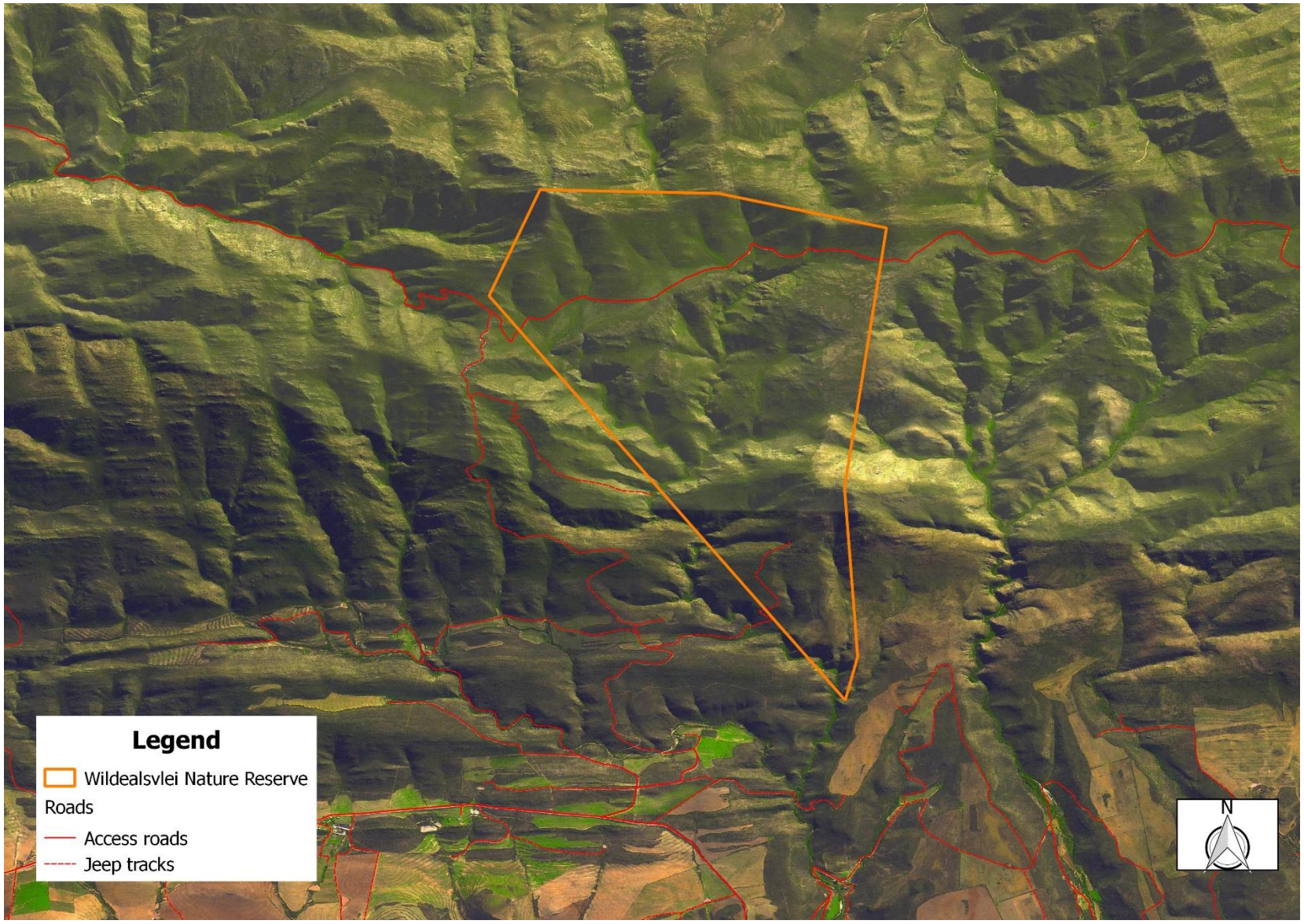

Figure 6.2 Infrastructure on WildeAlsVlei Nature Reserve.

Table 6.12 Operational Management Framework: Infrastructure

INFRASTRUCTURE			
Objectives	· To ensure the implementation of effective conservation management interventions. · To enhance biodiversity protection and conservation. · To ensure conservation of species and processes by maintaining and improving ecosystem functioning. · To ensure effective waste management.		
Key Deliverable	**Management Activities**	**Responsibility**	**Timeframe**
All infrastructure on the Reserve is adequately maintained.	Develop and implement a scheduled maintenance programme to maintain facilities and infrastructure in a condition that meet relevant environmental, health and safety requirements.	MA	Ongoing
Responsible waste management.	Ensure the responsible disposal of waste.	MA	Ongoing

7) ANNUAL PLAN OF OPERATION AND REVIEW

Monitoring and reporting enable the effective assessment of management interventions. If necessary, it can be used to direct modifications of management in an effort to achieve the outcomes required.

7.1 Five-year Costing Plan

Below is an estimated breakdown of management costs for each management objective over a five-year period of this Strategic Management Plan. The figures listed below are considered to be realistic in-terms of the Management Authorities forecasted budget at the time of drafting this plan. The detailed budgets in the successive Annual Plans of Operation will override this costing estimate.

Table Error! No text of specified style in document..1 Estimated annual management cost breakdown.

Management objectives	2024	2025	2026	2027	2028
1. Fire management	R5 000	R5 350	R5 724	R6 125	R6 553
2. Invasive vegetation management	R2 500	R3 675	R2 862	R3 062	R3 276
3. Wildlife management	R2 500	R3 675	R2 862	R3 062	R3 276
4. Sustainable harvesting	R5 000	R5 350	R5 724	R6 125	R6 553
5. Erosion Prevention and Control	R1 500	R1 605	R1 717	R1 837	R1 966
6. Monitoring and baseline data collection	R0,00	R0,00	R0,00	R0,00	R0,00
7. Biodiversity security	R2 000	R2 140	R2 289	R2 450	R2 621
8. Development of Tourism Opportunities	R5 000	R5 350	R5 724	R6 125	R6 553
9. Legal Compliance	R1 000	R1 070	R1 144	R1 225	R1 310
10. Management Effectiveness	R1 000	R1 070	R1 144	R1 225	R1 310
11. Infrastructure	R2 500	R3 675	R2 862	R3 062	R3 276
Estimated Annual Management Cost:	**R28 000**	**R29 960**	**R32 057**	**R34 301**	**R36 702**

7.2 Annual Plan of Operation

The Annual Plan of Operation (APO) (Appendix D) gives life to the Operational Management Framework on an annual basis and allows for progress to be tracked.

7.3 Management Plan Review

The purpose of undertaking an annual review of implementation of the protected area management plan will be to:

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

The annual audit will form the basis of the management plan review. This should include records of recommendations for update/changes to the annual revision of the management schedules as well as the ten-year plan.

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APPENDIX A: LIST OF STATUTES TO WHICH THE WILDEALSVLEI NATURE RESERVE 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]
- Western Cape Heritage Management Act [No. 10 of 1997]
- Western Cape Nature Conservation Management Act [No. 9 of 1997]
- National Environmental Management Act [No. 107 of 1998]
- National Environmental Management: Biodiversity Act [No. 10 of 2004]
- National Environmental Management: Protected Areas Act [No. 57 of 2003]
- National Forests Act [No. 84 of 1998]
- National Heritage Resources Act [No. 25 of 1999]
- National Water Act [No. 36 of 1998]
- National Water Amendment Act [No. 45 of 1999]
- National Veld and Forest Fire Act [No 101 of 1998]
- Nature Conservation Ordinance [No. 15 of 1974]

General Management:

- Development Facilitation Act [No. 67 of 1995]
- Disaster Management Act [No. 57 of 2002]
- Fire Brigade Services Act [No. 99 of 1987]
- Local Government: Municipal Systems Act [No. 32 of 2000]
- National Road Traffic Act [No. 93 of 1996]
- National Building Standards Act [No. 103 of 1977]
- Occupational Health and Safety Act [No. 85 of 1993]
- Western Cape Planning and Development Act [No. 5 of 1998]
- Water Services Act [No. 108 of 1997]

Financial Management:

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

Human Resource Management:

- Basic Conditions of Employment Act [No. 75 of 1997]
- 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]

A brief summary of the most applicable legislation:

Protected Areas are proclaimed under section 23(1) of the National Environmental Protected Areas Act, 57 of 2003, ("the Protected Areas Act").

- **Protected Areas Act (Act No. 57 of 2003)**

The *[Minister/MEC]* is empowered, under section 23(1) of the National Environmental Protected Areas Act, 57 of 2003, ("the Protected Areas Act") to declare an area as a Conservation Area if:

1 It has significant natural features or biodiversity;

2 Is in need of long-term protection for the maintenance of its biodiversity or for the provision of environmental goods and services.

Both of the above criteria pertain to the De Rust Nature Reserve and are discussed in detail under "Conservation Significance".

Biodiversity management agreements

The Minister may enter into a biodiversity management agreement with the person, organization or organ of state identified in terms of section 43(2), or any other suitable person, organization or organ of state, regarding the implementation of a biodiversity management plan, or any aspect of it.

- **Biodiversity Act (Act No. 10 0f 2004)**

Objectives of Act

(a) within the framework of the National Environmental Management Act, to provide for—

(i) the management and conservation of biological diversity within the Republic and of the components of such biological diversity;
(ii) the use of indigenous biological resources in a sustainable manner; and
(iii) the fair and equitable sharing among stakeholders of benefits arising from bio-prospecting involving indigenous biological resources;
(b) to give effect to ratified international agreements relating to biodiversity which are binding on the Republic;
(c) to provide for co-operative governance in biodiversity management and conservation; and
(d) to provide for a South African National Biodiversity Institute to assist in achieving the objectives of this Act.

- **National Veld and Forest Fire Act (Act No. 101 of 1998)**

Purpose

'The purpose of the Act is to prevent and combat veld, forest and mountain fires throughout the Republic.''

Firebreaks

In terms of section 12 and 14 every landowner must prepare and maintain a firebreak as determined in section 13. Failure to do so is an offence in terms of section 25(3), unless he has been exempted by the Minister in terms of section 15.

Fighting Preparedness

There is also a further duty on landowners to have equipment, protective clothing and trained personnel available in the eventuality that there may be fire on their property (section 17). Failure to meet this requirement is an offence in terms of section 25(4).

- **Conservation of Agricultural Resources Act, 1983 (No 43 of 1983)**

Purpose

CARA is an act of the National Department of Agriculture and makes provision for the conservation of the natural agricultural resources of South Africa through:

1. Maintaining the production potential of land;
2. Combating and preventing erosion;
3. Preventing the weakening or destruction of water sources;
4. Protecting the vegetation; and
5. Combating weeds and invader plants.

Applicable CapeNature policies

- Nature Conservation Ordinance (19/1974)
- Western Cape Nature Conservation Board Act No 15 of 1998
- Nature and Environmental Conservation Regulations (Provincial Notice 955/1975)
- CNC WC Fire Management Plan and Guidelines
- CNC Guidelines for the management of leopard management areas
- CNC Baseline and monitoring manual
- CNC guideline for river maintenance
- Policy on the re-establishment of Cape mountain zebra Populations
- Policy on the certificates of adequate enclosure
- Hunting Proclamation
- National Water Act, 1998 (No 36 of 1998)

Other Relevant Legislation:

- Municipal Systems Act
- National Water Act, 1998 (No 36 of 1998)
- Constitution of the Republic of South Africa Act, 1996 (No 108 of 1996)
- Environment Conservation Act No 73 of 1989
- Forest Act No 122 of 1984
- National Environmental Management Act, 1998 (No 107 of 1998)
- National Heritage Resources Act, 1999 (No 25 of 1999)
- World Heritage Convention Act, 1999 (No 109 of 1999)
- Western Cape Tourism Act, No. 3 of 1997
- Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970)
- The administration of the Act has been assigned to the Board by virtue of Act 3 of 2000 as published in Provincial Gazette Extraordinary No. 5442 dated 24 March 2000
- Land Use Planning Ordinance 15/1985 (section 29)

THERE MIGHT BE OTHER LEGISLATION APPLICABLE TO THE CONTRACT NATURE RESERVE AND IT IS THE LANDOWNER'S RESPONSIBILITY TO DETERMINE THIS IF NECESSARY.

APPENDIX B: COPY OF WILDEALSVLEI NATURE RESERVE PROCLAMATION

PROVINCIAL NOTICE

P.N. 40/2019 29 March 2019

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING

NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS ACT, 2003 (ACT 57 OF 2003)

DECLARATION OF WILDEALSVLEI NATURE RESERVE

I, Anton Bredell, Provincial Minister of Local Government, Environmental Affairs and Development Planning in the Western Cape, under Section 23(1)*(a)*(i) of the National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003), declare a nature reserve on:—

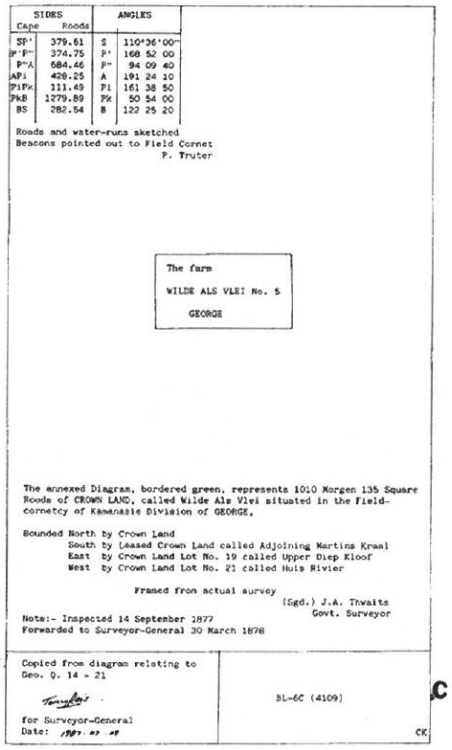
- The Farm Wilde Als Vlei No. 5, situated in the George Municipality, Division George, Western Cape Province;
  In extent: 865,2900 (Eight Hundred and Sixty-Five comma Two Nine Zero Zero) hectares;
  Held by Deed of Transfer No. T84858/2007.

I assign the name "Wildealsvlei Nature Reserve" to the reserve, of which the boundaries are reflected on the Surveyor-General Diagram No. 3355/1878, as set out in the Schedule.

Signed at Cape Town this 26th day of March 2019.

MR AW BREDELL
PROVINCIAL MINISTER OF LOCAL GOVERNMENT, ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING

SCHEDULE



SIDES Cape	Roods	ANGLES	
SP'	379.61	S	110°36'00"
P'P"	374.75	P'	168 52 00
P"A	684.46	P"	94 09 40
AP1	428.25	A	191 24 10
P1Px	111.49	P1	161 38 50
PxB	1279.89	Px	50 54 00
BS	282.54	B	122 25 20

Roads and water-runs sketched
Beacons pointed out to Field Cornet
P. Truter

The farm
WILDE ALS VLEI No. 5
GEORGE

The annexed Diagram, bordered green, represents 1010 Morgen 135 Square Roods of CROWN LAND, called Wilde Als Vlei situated in the Field-cornetcy of Kamanassie Division of GEORGE.

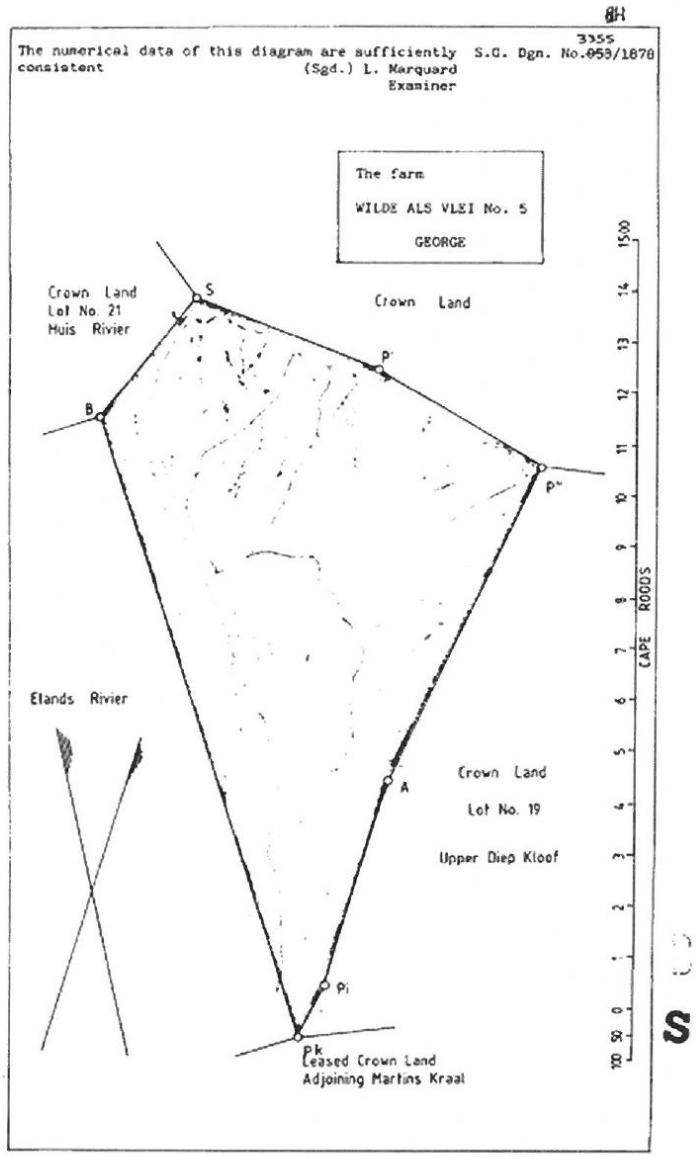
Bounded North by Crown Land
South by Leased Crown Land called Adjoining Martins Kraal
East by Crown Land Lot No. 19 called Upper Diep Kloof
West by Crown Land Lot No. 21 called Huis Rivier

Framed from actual survey
(Sgd.) J.A. Thwaits
Govt. Surveyor

Note:- Inspected 14 September 1877
Forwarded to Surveyor-General 30 March 1878

Copied from diagram relating to
Geo. G. 14 - 21
for Surveyor-General
Date: 1907. 07. 08

SL-6C (4109)
CK


3355
The numerical data of this diagram are sufficiently consistent
S.G. Dgn. No.059/1878
(Sgd.) L. Marquard
Examiner
The farm
WILDE ALS VLEI No. 5
GEORGE
Crown Land
Lot No. 21
Huis Rivier
Crown Land
Eland's Rivier
Crown Land
Lot No. 19
Upper Diep Kloof
Leased Crown Land
Adjoining Martins Kraal
CAPE ROODS
1500
100 50 0

APPENDIX C: SPECIES LISTS FROM QDS 3322DA

PLANT LIST

Plant species of special concern recorded from the Kammanassie WHS and NR and adjacent areas.

Scientific Name	Conservation Status (Raimondo et al. 2009)
Acmadenia maculata	NT
Agathosma spinosa	Rare
Alepidea delicatula	Rare
Amphithalea axillaris	Rare
Aspalathus congesta	Rare
Aspalathus patens	Rare
Aspalathus sp. nov.	VU
Bobartia paniculata	Rare
Cyclopia alopecuroides	EN
Cyclopia plicata	EN
Disa elegans	LC
Disa lugens	EN
Disa pillansii	LC
Elegia altigena	VU
Erica annalis	Critically Rare
Erica costatisepala	Rare
Erica inordinata	Rare
Erica kammanassieae	Critically Rare
Erica montis-hominis	VU
Erica valida	Rare
Felicia esterhuyseniae	Rare
Geissorhiza elsiae	VU
Geissorhiza uliginosa	Rare
Gladiolus fourcadei	CR
Gladiolus leptosiphon	VU
Hoodia pilifera subsp. pilifera	NT
Hymenolepis sp. nov.	VU
Lachenalia haarlemensis	VU
Leucadendron rourkei	LC
Leucadendron singulare	VU
Liparia genistoides	EN
Manulea derustiana	VU
Otholobium racemosum	Rare
Oxalis fourcadei	Rare
Oxalis ioeides	DDD
Paranomus esterhuyseniae	NT
Pelargonium denticulatum	Rare
Phylica floccosa	Rare
Protea grandiceps	NT
Protea montana	VU

Protea rupicola	EN
Protea venusta	EN
Relhania decussata	Rare
Romulea jugicola	VU
Romulea vlokii	VU
Syncarpha montana	Rare
Syringodea derustensis	VU

MAMMAL LIST

MammalMAP — Virtual Museum of African Mammals
36 species found for locus = 3322DA. Date filter: Year collected/observed >= 1980

Genus	Species	Common name	Red list category	No. records	Atlas region endemic
Oreotragus	oreotragus	Klipspringer	Least Concern	3758	Yes
Pelea	capreolus	Vaal Rhebok	Least Concern	2561	Yes
Philantomba	monticola	Blue Duiker	Vulnerable	7	Yes
Raphicerus	campestris	Steenbok	Least Concern	25	Yes
Raphicerus	melanotis	Cape Grysbok	Least Concern	1473	Yes
Redunca	fulvorufula	Mountain Reedbuck	Least Concern	260	Yes
Sylvicapra	grimmia	Bush Duiker	Least Concern	298	Yes
Tragelaphus	strepsiceros	Greater Kudu	Least Concern	169	Yes
Canis	mesomelas	Black-backed Jackal	Least Concern	8	Yes
Otocyon	megalotis	Bat-eared Fox	Least Concern	4	Yes
Chlorotalpa	duthieae	Duthie's Golden Mole	Least Concern	4	Yes
Equus	zebra	Cape Mountain Zebra	Vulnerable	1246	
Caracal	caracal	Caracal	Least Concern	26	Yes
Panthera	pardus	Leopard	Least Concern	35	Yes
Graphiurus	ocularis	Spectacled African Dormouse	Least Concern	1	Yes
Atilax	paludinosus	Marsh Mongoose	Least Concern	2	Yes
Cynictis	penicillata	Yellow Mongoose	Least Concern	3	Yes
Herpestes	pulverulentus	Cape Gray Mongoose	Least Concern	424	Yes
Hystrix	africaeaustralis	Cape Porcupine	Least Concern	9	Yes
Lepus	capensis	Cape Hare	Least Concern	28	Yes
Lepus	saxatilis	Scrub Hare	Least Concern	32	Yes
Pronolagus	rupestris	Smith's Red Rock Hare	Least Concern	23	Yes
Elephantulus	edwardii	Cape Elephant Shrew	Least Concern	4	Yes
Acomys	subspinosus	Cape Spiny Mouse	Least Concern	1	Yes
Aethomys	namaquensis	Namaqua Rock Mouse	Least Concern	158	

Mus	minutoides	Southern African Pygmy Mouse	Least Concern	2	Yes
Myomyscus	verreauxi	Verreaux's Mouse	Least Concern	2	
Otomys	irroratus	Southern African Vlei Rat	Least Concern	16	Yes
Rhabdomys	pumilio	Xeric Four-striped Grass Rat	Least Concern	593	Yes
Aonyx	capensis	African Clawless Otter	Least Concern	4	Yes
Mystromys	albicaudatus	African White-tailed Rat	Endangered	18	Yes
Saccostomus	campestris	Southern African Pouched Mouse	Least Concern	1	Yes
Procavia	capensis	Rock Hyrax	Least Concern	32	Yes
Suncus	infinitesimus	Least Dwarf Shrew	Data Deficient	6	Yes
Potamochoerus	porcus	Red River Hog	Not listed	54	Yes
Neoromicia			Not listed	5	

BIRD LIST

http://birp.adu.org.za/site_summary.php?site=33402245 accessed on 31/05/2016.

Scientific Name	**Common Name**
Struthio camelus	Common Ostrich
Tachybaptus ruficollis	Little Grebe
Phalacrocorax carbo	White-breasted Cormorant
Phalacrocorax africanus	Reed Cormorant
Anhinga rufa	African Darter
Ardea cinerea	Grey Heron
Ardea melanocephala	Black-headed Heron
Egretta garzetta	Little Egret
Bubulcus ibis	Cattle Egret
Scopus umbretta	Hamerkop
iconia ciconia	White Stork
Threskiornis aethiopicus	African Sacred Ibis
Bostrychia hagedash	Hadeda Ibis
Plectropterus gambensis	Spur-winged Goose
Alopochen aegyptiacus	Egyptian Goose
Tadorna cana	South African Shelduck
Anas smithii	Cape Shoveler
Anas undulata	Yellow-billed Duck
Anas erythrorhyncha	Red-billed Teal
Anas capensis	Cape Teal
Falco peregrinus	Peregrine Falcon
Falco rupicolus	Rock Kestrel

Falco naumanni	Lesser Kestrel
Milvus aegyptius	Yellow-billed Kite
Elanus caeruleus	Black-shouldered Kite
Aquila verreauxii	Verreaux's Eagle
Aquila pennatus	Booted Eagle
Haliaeetus vocifer	African Fish-Eagle
Buteo rufofuscus	Jackal Buzzard
Buteo vulpinus	Steppe Buzzard
Accipiter tachiro	African Goshawk
Melierax canorus	Southern Pale Chanting Goshawk
Circus maurus	Black Harrier
Polyboroides typus	African Harrier-Hawk
Scleroptila africanus	Grey-winged Francolin
Scleroptila levaillantii	Red-winged Francolin
Pternistis capensis	Cape Spurfowl
Pternistis afer	Red-necked Spurfowl
Coturnix coturnix	Common Quail
Numida meleagris	Helmeted Guineafowl
Gallinula chloropus	Common Moorhen
Fulica cristata	Red-knobbed Coot
Anthropoides paradiseus	Blue Crane
Neotis denhami	Denham's Bustard
Charadrius tricollaris	Three-banded Plover
Vanellus coronatus	Crowned Lapwing
Vanellus armatus	Blacksmith Lapwing
Burhinus capensis	Spotted Thick-knee
Pterocles namaqua	Namaqua Sandgrouse
Columba guinea	Speckled Pigeon
Columba arquatrix	African Olive-Pigeon
Streptopelia semitorquata	Red-eyed Dove
Streptopelia capicola	Cape Turtle-Dove
Streptopelia senegalensis	Laughing Dove
Oena capensis	Namaqua Dove
Cuculus solitarius	Red-chested Cuckoo
Chrysococcyx caprius	Diderick Cuckoo
Bubo africanus	Spotted Eagle-Owl
Caprimulgus pectoralis	Fiery-necked Nightjar
Apus barbatus	African Black Swift
Apus caffer	White-rumped Swift
Apus affinis	Little Swift

Tachymarptis melba	Alpine Swift
Colius striatus	Speckled Mousebird
Colius colius	White-backed Mousebird
Urocolius indicus	Red-faced Mousebird
Megaceryle maximus	Giant Kingfisher
Alcedo cristata	Malachite Kingfisher
Merops apiaster	European Bee-eater
Upupa africana	African Hoopoe
Tricholaema leucomelas	Acacia Pied Barbet
Indicator indicator	Greater Honeyguide
Geocolaptes olivaceus	Ground Woodpecker
Dendropicos fuscescens	Cardinal Woodpecker
Calandrella cinerea	Red-capped Lark
Hirundo rustica	Barn Swallow
Hirundo albigularis	White-throated Swallow
Hirundo cucullata	Greater Striped Swallow
Hirundo abyssinica	Lesser Striped Swallow
Hirundo fuligula	Rock Martin
Delichon urbicum	Common House-Martin
Dicrurus adsimilis	Fork-tailed Drongo
Oriolus larvatus	Black-headed Oriole
Corvus albus	Pied Crow
Corvus capensis	Cape Crow
Corvus albicollis	White-necked Raven
Chaetops frenatus	Cape Rock-jumper
Pycnonotus capensis	Cape Bulbul
Andropadus importunus	Sombre Greenbul
Monticola rupestris	Cape Rock-Thrush
Monticola explorator	Sentinel Rock-Thrush
Oenanthe monticola	Mountain Wheatear
Cercomela familiaris	Familiar Chat
Cercomela sinuata	Sickle-winged Chat
Saxicola torquatus	African Stonechat
Cossypha caffra	Cape Robin-Chat
Cercotrichas coryphoeus	Karoo Scrub-Robin
Cryptillas victorini	Victorin's Warbler
Sphenoeacus afer	Cape Grassbird
Sylvietta rufescens	Long-billed Crombec
Apalis thoracica	Bar-throated Apalis
Cisticola juncidis	Zitting Cisticola

Cisticola fulvicapilla	Neddicky
Cisticola subruficapilla	Grey-backed Cisticola
Muscicapa striata	Spotted Flycatcher
Parisoma subcaeruleum	Chestnut-vented Tit-Babbler
Parisoma layardi	Layard's Tit-Babbler
Sigelus silens	Fiscal Flycatcher
Batis capensis	Cape Batis
Terpsiphone viridis	African Paradise-Flycatcher
Motacilla capensis	Cape Wagtail
Anthus cinnamomeus	African Pipit
Anthus leucophrys	Plain-backed Pipit
Macronyx capensis	Cape Longclaw
Lanius collaris	Common Fiscal
Laniarius ferrugineus	Southern Boubou
Dryoscopus cubla	Black-backed Puffback
Tchagra tchagra	Southern Tchagra
Telophorus zeylonus	Bokmakierie
Sturnus vulgaris	Common Starling
Creatophora cinerea	Wattled Starling
Onychognathus morio	Red-winged Starling
Spreo bicolor	Pied Starling
Promerops cafer	Cape Sugarbird
Nectarinia famosa	Malachite Sunbird
Anthobaphes violacea	Orange-breasted Sunbird
Cinnyris afer	Greater Double-collared Sunbird
Cinnyris chalybeus	Southern Double-collared Sunbird
Passer domesticus	House Sparrow
Passer melanurus	Cape Sparrow
Ploceus capensis	Cape Weaver
Ploceus velatus	Southern Masked-Weaver
Euplectes orix	Southern Red Bishop
Euplectes capensis	Yellow Bishop
Estrilda astrild	Common Waxbill
Vidua macroura	Pin-tailed Whydah
Crithagra totta	Cape Siskin
Serinus canicollis	Cape Canary
Serinus alario	Black-headed Canary
Crithagra sulphuratus	Brimstone Canary
Crithagra albogularis	White-throated Canary
Crithagra flaviventris	Yellow Canary

Crithagra gularis	Streaky-headed Seedeater
Crithagra leucopterus	Protea Seedeater
Emberiza capensis	Cape Bunting
Columba livia	Rock Dove
Turdus smithi	Karoo Thrush
Zosterops virens	Cape White-eye
Afrotis afra	Southern Black Korhaan
Prinia maculosa	Karoo Prinia

HERPETOFAUNA (AMPHIBIAN AND REPTILE) LISTS

FrogMAP — Frog Atlas of Southern African
4 species found for locus = 3322DA. Date filter: Year collected/observed >= 1980

Genus	Species	Common name	Red list category	No. records	Atlas region endemic
Vandijkophrynus	gariepensis	Karoo Toad (subsp. gariepensis)	Not listed	2	
Xenopus	laevis	Common Platanna	Least Concern	2	
Amietia	fuscigula	Cape River Frog	Least Concern	4	
Strongylopus	grayii	Clicking Stream Frog	Least Concern	1	

ReptileMAP — Reptile Atlas of Southern Africa
17 species found for locus = 3322DA. Date filter: Year collected/observed >= 1980

Genus	Species	Common name	Red list category	No. records	Atlas region endemic
Agama	atra	Southern Rock Agama	Least Concern (SARCA 2014)	7	
Cordylus	cordylus	Cape Girdled Lizard	Least Concern (SARCA 2014)	2	Yes
Karusasaurus	polyzonus	Karoo Girdled Lizard	Least Concern (SARCA 2014)	1	
Pseudocordylus	microlepidotus	Cape Crag Lizard	Least Concern (SARCA 2014)	1	Yes
Pseudocordylus	microlepidotus	Cape Crag Lizard (subsp. ?)	Not listed	4	
Afrogecko	porphyreus	Marbled Leaf-toed Gecko	Least Concern (SARCA 2014)	1	Yes
Chondrodactylus	bibronii	Bibron's Gecko	Least Concern (SARCA 2014)	5	
Pachydactylus	geitje	Ocellated Gecko	Least Concern (SARCA 2014)	1	Yes
Pachydactylus	maculatus	Spotted Gecko	Least Concern (SARCA 2014)	1	
Pachydactylus	oculatus	Golden Spotted Gecko	Least Concern (SARCA 2014)	1	Yes

Gerrhosaurus	typicus	Karoo Plated Lizard	Least Concern (SARCA 2014)	1	Yes
Pedioplanis	burchelli	Burchell's Sand Lizard	Least Concern (SARCA 2014)	1	Yes
Pedioplanis	namaquensis	Namaqua Sand Lizard	Least Concern (SARCA 2014)	1	
Duberria	lutrix	South African Slug-eater	Least Concern (SARCA 2014)	1	Yes
Trachylepis	homalocephala	Red-sided Skink	Least Concern (SARCA 2014)	2	Yes
Trachylepis	sulcata	Western Rock Skink	Least Concern (SARCA 2014)	1	
Chersina	angulata	Angulate Tortoise	Least Concern (SARCA 2014)	1	

INVERTEBRATE LIST

DungBeetleMAP — Atlas of Dung Beetles in southern Africa.
1 species found for locus = 3322DA. Date filter: Year collected/observed >= 1980

Genus	Species	Common name	Red list category	No. records	Atlas region endemic
Onthophagus	giraffa		Not listed	1	

LacewingMAP — Atlas of the Neuroptera and Megaloptera
1 species found for locus = 3322DA. Date filter: Year collected/observed >= 1980

Genus	Species	Common name	Red list category	No. records	Atlas region endemic
Nephoneura	collusor	Owlfly	Not listed	1	

LepiMAP — Atlas of African Lepidoptera
26 species found for locus = 3322DA. Date filter: Year collected/observed >= 1980

Genus	Species	Common name	Red list category	No. records	Atlas region endemic
Aloeides	depicta	Depicta copper	Least Concern (SABCA 2013)	2	Yes
Aloeides	juana	Juana copper	Least Concern (SABCA 2013)	2	Yes
Aloeides	pierus	Dull copper	Least Concern (SABCA 2013)	1	Yes
Cacyreus	fracta	Water geranium bronze	Least Concern (SABCA 2013)	1	
Cacyreus	lingeus	Bush bronze	Least Concern (SABCA 2013)	1	
Capys	alpheus	Orange banded protea	Least Concern (SABCA 2013)	3	Yes
Chrysoritis	chrysaor	Burnished opal	Least Concern (SABCA 2013)	1	Yes
Chrysoritis	plutus	Plutus' opal	Least Concern (SABCA 2013)	5	Yes
Chrysoritis	zeuxo	Cottrell's daisy copper	Least Concern (SABCA 2013)	2	Yes
Durbaniella	clarki	Clark's rocksitter	Least Concern (SABCA 2013)	1	Yes
Eicochrysops	messapus	Cupreous blue	Least Concern (SABCA 2013)	2	
Lampides	boeticus	Pea blue	Least Concern (SABCA 2013)	1	
Lepidochrysops	asteris	Brilliant blue	Least Concern (SABCA 2013)	1	Yes
Lepidochrysops	balli	Ball's blue	Least Concern (SABCA 2013)	2	Yes
Lepidochrysops	braueri	Brauer's blue	Least Concern (SABCA 2013)	4	Yes
Lepidochrysops	robertsoni	Robertson's blue	Least Concern (SABCA 2013)	1	Yes
Leptomyrina	lara	Cape black-eye	Least Concern (SABCA 2013)	3	
Thestor	murrayi	Murray's skolly	Least Concern (SABCA 2013)	1	Yes
Trimenia	argyroplaga	Large silver-spotted copper	Least Concern (SABCA 2013)	1	
Cassionympha	detecta	Cape brown	Least Concern (SABCA 2013)	3	Yes
Charaxes	pelias	Protea charaxes	Least Concern (SABCA 2013)	1	Yes
Pseudonympha	trimenii	Trimen's brown	Least Concern (SABCA 2013)	2	Yes
Stygionympha	irrorata	Karoo hillside brown	Least Concern (SABCA 2013)	1	
Tarsocera	fulvina	Karoo widow	Least Concern (SABCA 2013)	1	Yes
Vanessa	cardui	Painted lady	Least Concern (SABCA 2013)	2	

Pontia	helice	Common meadow white	Least Concern (SABCA 2013)	3	

ScorpionMAP — Atlas of African Scorpions
1 species found for locus = 3322DA. Date filter: Year collected/observed >= 1980

Genus	Species	Common name	Red list category	No. records	Atlas region endemic
Uroplectes	triangulifer		Not listed	1	

APPENDIX D. ANNUAL PLAN OF OPERATIONS TEMPLATE FOR WILDEALSVLEI NATURE RESERVE