Management Plan
for the Viljoensdrift Nature Reserve

Western Cape, South Africa

Protected Area Management Plan

2024-2034

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Cover image:
Management Plan for Viljoensdrift Nature Reserve
Western Cape, South Africa

Recommended citation:
Mr AW Bredell, 30 December 2024. Viljoensdrift Nature Reserve Management Plan. Version 2.0, Place: Viljoensdrift Nature Reserve

Management plan format:
CapeNature, version December 2024

Protected area management plan format has been developed by CapeNature with input from external partners and industry stakeholders

The development of this revised management plan format has been funded by the Table Mountain Fund.

STATUS

The Viljoensdrift Nature Reserve has been declared as a Section 23 Nature Reserve.

Declaration Date:	Government Gazette Notice:
2021-04-30	REF NO. 8420

AUTHORISATION

This Protected Area Management Plan for the Viljoensdrift Nature Reserve was drafted and recommended by the Viljoensdrift Boerdery (Pty) Ltd.

Supported by:

- CapeNature Conservation Management

Recommended and adopted by:

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Mr. Anton Wilhelm Bredell Minister of Local Government, Environmental Affairs and Development Planning	

Review Date: 30/12/2024

PART A • Strategic Management Plan

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Abbreviations

APO	Annual Plan of Operation
CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Area
CBD	Convention on Biological Diversity
CEO	Chief Executive Officer
CoAE	Certificate of Adequate Enclosure
CFR	Cape Floristic Region
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMA	Catchment Management Authority
CR	Critically Endangered
DEA&DP	Department of Environmental Affairs and Development Planning
DEA	National Department of Environmental Affairs
DAFF	Department of Agriculture, Forestry and Fisheries
DoA	Department of Agriculture Western Cape
DWA	National Department of Water Affairs
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EN	Endangered
ESA	Ecological Support Area
EWT	Endangered Wildlife Trust
FEPA	Freshwater Ecosystem Priority Area
FPA	Fire Protection Association
GIS	Geographical Information System
IDP	Integrated Development Plan (Municipal)
IUCN	International Union for the Conservation of Nature
LC	Least Concern
LT	Least Threatened
LUPA	Western Cape Land Use Planning Act
MA	Management Authority
MAB	Man and the Biosphere Programme
MCA	Mountain Catchment Area
MCM	National Department of Marine and Coastal Management
MEC	Member of the Executive Council
METT	Management Effectiveness Tracking Tool
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPA	Marine Protected Area
NBA	National Biodiversity Assessment
NEM:BA	National Environmental Management: Biodiversity Act
NEM:PAA	National Environmental Management: Protected Areas Act

NEMA	National Environmental Management Act
NFEPA	National Freshwater Ecosystem Priority Area
NGO	Non-governmental Organisation
NN	No Natural
NPAES	National Protected Area Expansion Strategy
NR	Nature Reserve
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act
ONA	Other Natural Area
PA	Protected Area
PAMP	Protected Area Management Plan
PBSAP	Western Cape Provincial Biodiversity Strategy and Action Plan
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANParks	South African National Parks
SDF	Spatial Development Framework
SMP	Strategic Management Plan
SOB	State of Biodiversity Report
SPLUMA	Spatial Planning and Land Use Management Act
SDF	Municipal Spatial Development Framework
SEA	Strategic Environmental Assessment
SMME	Small, Micro and Medium Enterprises
SMP	Strategic Management Plan
SWOT	Strengths, weaknesses, opportunities and threats analysis
TMF	Table Mountain Fund
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCC	United Nations Framework Convention on Climate Change
VU	Vulnerable
WCBB	Western Cape Biodiversity Bill
WCBF	Western Cape Biodiversity Framework
WCBSP	Western Cape Biodiversity Spatial Plan
WCPAES	Western Cape Protected Area Expansion Strategy
WWF-SA	Word Wildlife Fund for Nature South Africa

PART A

STRATEGIC MANAGEMENT PLAN

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 [Insert site's name], 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 [Insert site's name] 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:	Background. Provides an overview of the reserve, an introduction to protected area management planning and highlights applicable legislation and the regional and local planning context.
Section 2:	Site Description. Establishes the context of the biodiversity stewardship site, providing the basis for the strategic management framework that follows.
Section 3:	Strategic Management Framework. Lays out the management authority's high-level strategic decisions that guide the operational management of the reserve. Includes the: Zonation Plan. Which sets out the zonation of the biodiversity stewardship site and outlines the land uses in particular zones. Administrative Structure. Describes the administrative structure that has been established for the reserve.
Section 4:	Operational Management Framework. Sets out the management targets that must be achieved in managing the reserve.
Section 5:	Implementing the Strategic Management Plan. Describes how Part B of the Management Plan, the Annual Plan of Operation (APO), guides the operational implementation of management objectives laid out in this document - Part A, the Strategic Management Plan.

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.

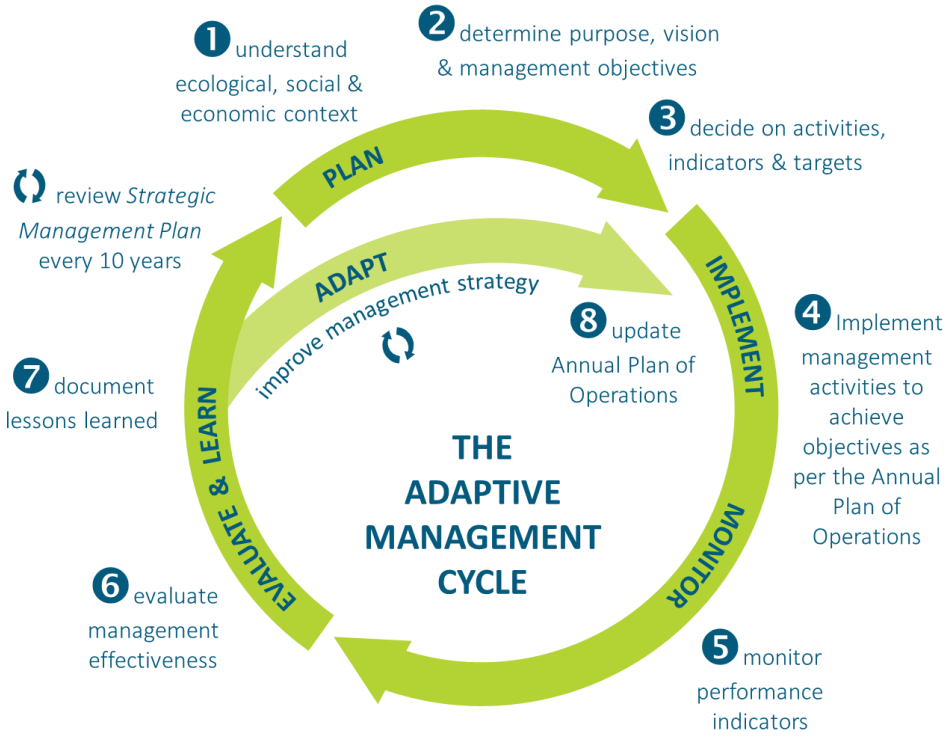


Figure 1.1 The adaptive management cycle

Adaptive management enables landowners and managers to:

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

1.4 Guiding Legislation

There is a large body of legislation that is relevant to the management of Nature Reserves, 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.

1.4.1 Purpose of declaring protected areas

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

i) to protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected areas;
ii) to preserve the ecological integrity of those areas;
iii) to conserve biodiversity in those areas;
iv) to protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;
v) to protect South Africa's threatened or rare species;
vi) to protect an area which is vulnerable or ecologically sensitive;
vii) to assist in ensuring the sustained supply of environmental goods and services;
viii) to provide for the sustainable use of natural and biological resources;
ix) to create or augment destinations for nature-based tourism;
x) to manage the interrelationship between natural environmental biodiversity, human settlement and economic development;
xi) generally, to contribute to human, social, cultural, spiritual and economic development; or
xii) to rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.

1.4.2 Declaration status of Viljoensdrift Nature Reserve

Viljoensdrift Nature Reserve is declared under Section 23(1)(a)(i) of the National Environmental management: Protected Areas Act (Act 57 of 2003).

See Appendix B – Copy of Viljoensdrift Nature Reserve Declaration Notice.

2 Site Description

2.1 Introduction

Viljoensdrift Nature Reserve is situated about 11km from the town of Robertson in the Langeberg Local Municipality in the Cape Winelands District Municipality. The Nature Reserve is approximately 225 hectares in size. The farm is situated along the R317 which runs between Robertson and Bonnievale.
The property was identified as a top conservation priority by the Succulent Karoo Ecosystem Programme (SKEP), the Lesley Hill Succulent Karoo Trust (LHSKT) Expert Review, the National Protected Area Expansion Strategy (NPAES) and the Western Cape Protected Area Expansion Strategy.
Combined with its neighbouring properties it is a very important expansion area to the Vrolijkheid Nature Reserve and contributes to a corridor between the Vrolijkheid Nature Reserve and the Breede River.
The property contains terrestrial Critical Biodiversity Area (CBA) for vegetation type threshold and the Breede River and Floodplain is a Fresh Water Ecosystem Priority Area (FEPA);
The properties form part of an identified Climate Change mitigation corridor for species movement (Riviersonderend Mountains to Breede River to Langeberg Mountains).
The properties support Breede Shale Renosterveld (LT), Robertson Karoo (LT), and Muscadel Riviere (CR) vegetation types as identified by Mucina & Rutherford and are currently not well represented in Protected Areas.

The Nature Reserve is defined by undulating flats and adjacent hills supporting dwarf succulent shrubland to succulent thicket of medium height, dominated by Euphorbiaceae, Crassulaceae and vygies such as Drosanthemum and Ruschia. Heuweltjies are an important element. Scattered taller woody shrubs (e.g. ganna Lebeckia cytisoides) and low trees (e.g. gwarrie Euclea crispa) are prominent.

In the more well-watered areas of the Little Karoo viticulture poses the biggest threat to biodiversity. In many cases natural vegetation survives as patches or fragments surrounded by cultivated lands. Many of these contain viable populations of threatened species. These remaining populations are further threatened by agricultural chemicals and mechanical damage by machinery.
These remnants are important in terms of biodiversity conservation and provide habitat not only for threatened plants but also animals that contribute towards pest control.

The locality map below shows the following:

- The location of the site within Western Cape.
- The location of nearby protected areas.
- The location of major river systems.
- The location of major roads – provincial and national.
- The location of towns in the region.

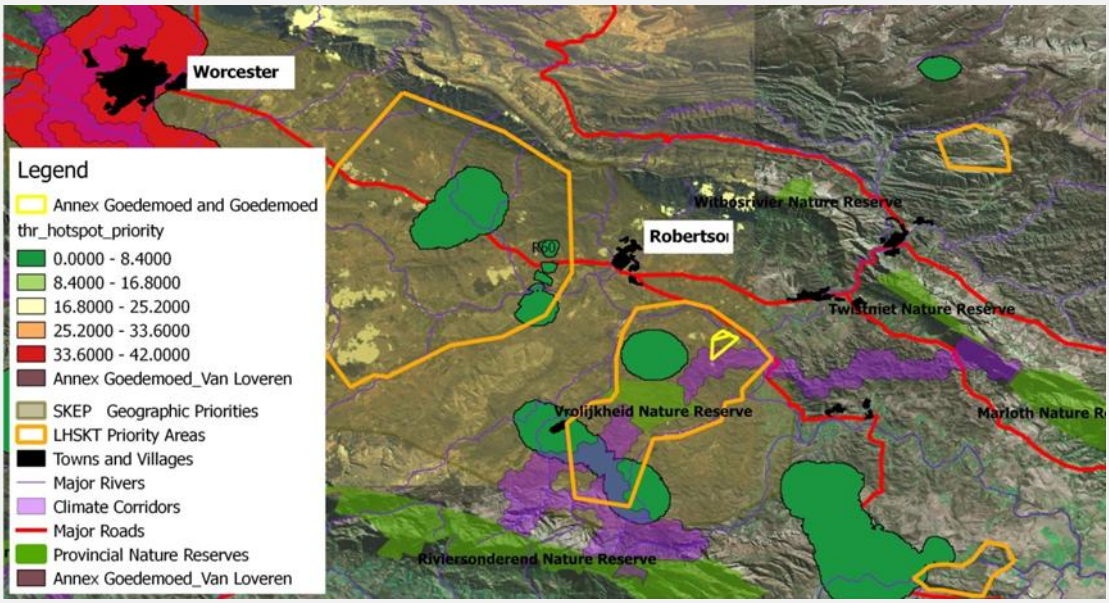


Figure 2.1 Regional location of Viljoensdrift Nature Reserve.

2.2 Landowner details

Owner	Viljoensdrift CC (Company No. 2000/027451/07)
Contact person	Mr. Frederick Jacobus Viljoen
Contact details – Tel.	082 805 6108
Contact details – email	fred@viljoensdrift.co.za
Management Authority	Mr. Frederick Jacobus Viljoen (“owner”)
Property descriptions	-Por. 27 (por. Of por. 2) of the Farm Goedemoed No 128, Div Robertson, Langeberg district, WC (54.7267 ha) -Por. 2 of Farm Annex Goedemoed No. 127, Div Robertson, Langeberg district, WC (213.2848 ha)
Total property area	268.0115 ha

2.3 Key Attributes

The values of a site are those remarkable attributes that led to it being identified as a priority for the conservation. The values are important in planning and management, as they are the aspects of the place that must be protected. The values of Viljoensdrift Nature Reserve include:

Natural values	The property supports a diversity of habitats and topography on the property. The property supports Breede Shale Renosterveld (LT), Robertson Karoo (LT), and Muscadel Riviere (CR) vegetation types Combined with its neighbouring properties it is a very important expansion area to the Vrolijkheid Nature Reserve and contributes to a corridor between the Reserve and the Breede River; The property contains terrestrial Critical Biodiversity Area (CBA) for vegetation type threshold and the Breede River and Floodplain is a Fresh Water Ecosystem Priority Area (FEPA); The property form part of an identified Climate Change mitigation corridor for species movement (Riviersonderend – Breede River – Langeberg). The veld is not currently utilised in any way and there are no plans for future agriculture expansion into the natural areas (Threat level low) Connectivity to the Breede River is still good.
Ecosystem service values	Habitat Provision: refuge for animals and plants, storehouse for genetic material; Regeneration and Production: production of biomass providing raw materials and food, pollination and seed dispersal; Purification and Detoxification: filtration, purification and detoxification of air, water and soils; Cycling Processes: nutrient cycling, nitrogen fixation, carbon sequestration, soil formation It is an important expansion node for Vrolijkheid Nature Reserve. This cluster of properties forms a corridor linking Vrolijkheid Nature Reserve to the Breede River and was highlighted as very important in the LHSKT specialist report of priority properties for conservation action.
Tourism values	Development of hiking routes Development of mountain bike trails, Basic facilities to cater for visitors to the nature Reserve namely development of 5 Eco units
Socio-Economic values	• Cultural, intellectual and spiritual inspiration; • Contribution to the local economy through job creation; • Recreational experiences (including ecotourism).
Summary of Biodiversity Targets	Ensure security and biodiversity assets and prevent illegal hunting and flora collection. The natural areas of the property (233.78 hectares) is an intact and well-connected natural area and have been identified as a top conservation priority area by the Succulent Karoo Ecosystem Program (SKEP) (Central Breede River Valley), Lesley Hill Succulent Karoo Trust (LHSKT), and the National Protected Area Expansion Strategy (NPAES); Combined with its neighboring properties it is a very important expansion area to the Vrolijkheid Nature Reserve and contributes to a direct corridor between the Reserve and the Breede River; The property contains terrestrial Critical Biodiversity Area (CBA) for vegetation type threshold and the Breede River and Floodplain is a Fresh Water Ecosystem Priority Area (FEPA);

	The properties form part of an identified Climate Change mitigation corridor for species movement (Riviersonderend – Breede River – Langeberg). The properties support Breede Shale Renosterveld (LT), Robertson Karoo (LT), and Muscadel Riviere (CR) vegetation types as identified by Mucina & Rutherford and are currently not well represented in Protected Areas.

2.4 Summary of management challenges and opportunities

A summary of the key management challenges and opportunities, addressed in the management plan are highlighted in the table below.

Table 2.3 Management challenges and opportunities

BIODIVERSITY & ECOLOGICAL COMPONENTS

Management Focus Area	Challenges and Opportunities
Integrated Wildfire Control	Opportunities: - To ensure conservation of species and processes by maintaining and improving ecosystem functioning. - To allow for natural fire regime to occur without impacting on safety and infrastructure. - To ensure the implementation of effective conservation management interventions. Challenges: - 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.
Integrated Invasive Alien Species Control	Opportunities: - To enhance biodiversity protection and conservation. - To ensure conservation of species and processes by maintaining and improving ecosystem functioning Challenges: - Identify and map alien invasive flora distribution - Conduct initial clearing of alien invasive flora outside riparian zone and ensure follow-up of cleared areas. - Ensure follow-up of cleared areas within the riparian zone) - Implement Biological Control. - Prevent Further Introduction of Aliens.
Rehabilitation and Restoration	Opportunities: -Conduct a soil erosion assessment

	-Map Erosion Sites and ensure Photographs are available -Ensure implementation of effective conservation management interventions. -Enhance biodiversity protection and conservation. Challenges: To prevent and mitigate soil erosion: - Map erosion areas -Plan erosion control -Construct rock packs and soil fences -Monitor rehabilitation
Species of Special Concern	Opportunities: -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. Challenges: - Create a Biodiversity Resource Inventory. -Implement Monitoring Programme. -Implement Research Programme. -Protection of Flora of Conservation Concern. Flora survey conducted by CREW -Conservation of Threatened and Endemic Fauna. -Manage consumptive utilisation of biological resources. -Insert Ecological plan of Operation into CapeNature Conservation Services Ecological Matrix for the Area -Implement Monitoring Programme and deploy camera traps - Capture species information on SOB database
Wildlife	Opportunities: -Prevent the introduction of alien fauna -Management of damage causing animals -To ensure effective conservation of species and processes by maintaining and improving ecosystem functioning. - To enhance biodiversity protection and conservation. Challenges: - Prevent the poaching and capture of faunal species In the Viljoensdrift Nature Reserve. -Monitor alien fauna with camera traps -Utilise holistic methods to manage damage causing animals.

SUSTAINABLE UTILISATION OF NATURAL RESOURCES

Management Focus Area	Challenges and Opportunities
Recreation and Tourism	Opportunities: -Development of hiking routes -Development of mountain bike trails, -Basic facilities to cater for visitors to the nature Reserve namely development of 5 Eco units Challenges: -Maintain hiking and mountain bike trails

MANAGEMENT AUTHORITY EFFECTIVENESS & SUSTAINABILITY

Management Focus Area	Challenges and Opportunities
Legal Compliance	Opportunities: -To ensure legal compliance to all relevant legislation and policies -Conduct annual audits Challenges: - Ensure that all legal requirements are met, CARA, NEMA and Nas. Water Act
Management Infrastructure and Equipment	Opportunities: -Planning and development of hiking routes, mountain bike trails and basic facilities to cater for visitors to the nature reserve. Challenges:
Signage, Access Control and Security	Opportunities: -To enhance biodiversity protection and conservation by preventing illegal hunting and flora collection -To ensure conservation of species and processes by maintaining and improving ecosystem functioning. Challenges: -Improved security and safety of the biodiversity assets on the Nature Reserve -Ensure site access control -Report any suspect biodiversity crime to Conservation Authority

2.5 Landuse History

Viljoensdrift nestled south of the Elandsberg Mountains, on the banks of the Breede River, the lifeblood of the Robertson Wine Valley, is home to the Viljoen family whose heritage of winemaking dates back to 1818 when their French Huguenot forefathers first planted vines. Today brothers Fred and Manie Viljoen continue this proud tradition and, after humble beginnings in 1998, they are producing award-winning wines with global appeal.
Besides crafting exquisite wines on the farm, a significant amount of energy goes into fruit production operation, with apricots and peaches grown mainly for canning purposes.

Combined with its neighbouring properties it is a very important expansion area to the Vrolijkheid Nature Reserve and contributes to a corridor between the Vrolijkheid Nature Reserve and the Breede River.
The property contains terrestrial Critical Biodiversity Area (CBA) for vegetation type threshold and the Breede River and Floodplain is a Fresh Water Ecosystem Priority Area (FEPA);
The properties form part of an identified Climate Change mitigation corridor for species movement (Riviersonderend Mountains to Breede River to Langeberg Mountains).

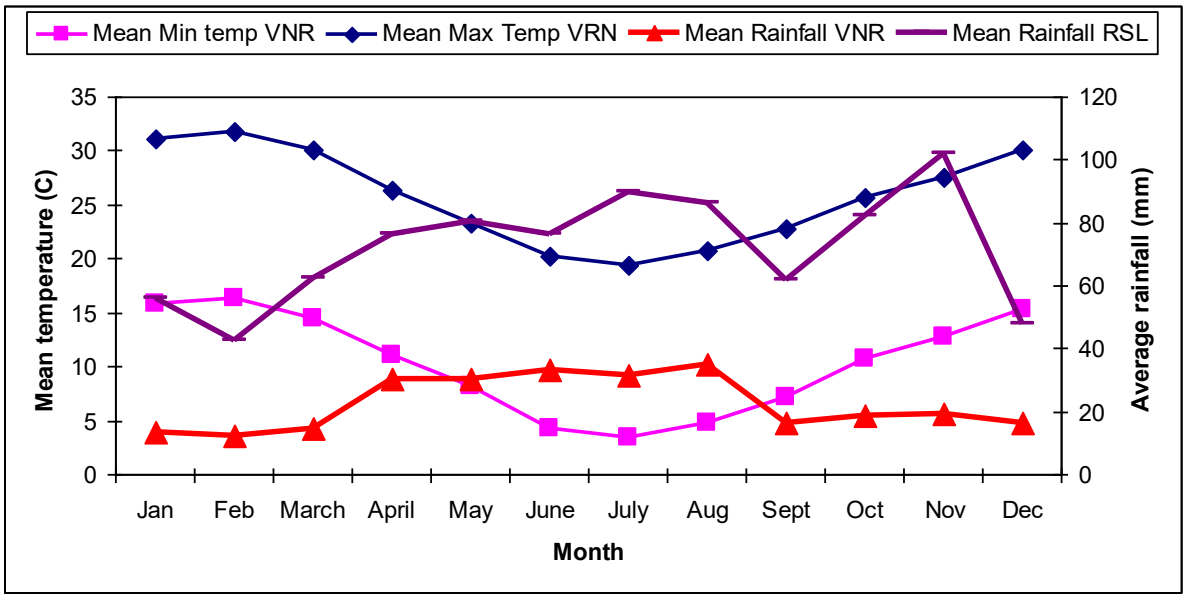
2.6 Ecological context

This section describes the ecological factors that influence biodiversity and ecological processes on Viljoensdrift Nature Reserve.

2.6.1 Climate and weather

The Robertson Karoo area is a semi-arid region with a mainly inter-rainfall regime and with maximum precipitation occurring in August (61 mm for Worcester). Another slight precipitation peak is in June. Mean Average Precipitation is 125–350 mm; with most of the region receiving about 300 mm. The low precipitation of this region surrounded from all sides by various Fynbos Biome vegetation units is ascribed to the rain-shadow effect due to the high surrounding mountain ranges. Mean Average Temperature is above 16°C. Summer temperatures are high and in January vary from 30–45°C (an average of 34.5°C in February was recorded for Worcester). Occasional northwestern berg winds may intensify the heat. Winter nights might experience light frost—7 days a year on average (Mucina and Rutherford 2006). Occasional snowfalls occur on the mountains adjacent to Viljoensdrift Nature Reserve during winter.

Rainfall recorded at the Vrolijkheid Nature Reserve office between 1968 and 2010, averaged 275 mm, with the lowest rainfall recorded in 1973 (125 mm) and the highest during 2008 (417 mm) (Figure 3.4.1). The wettest months are from April to August. Mist occurs during the winter in the low-lying areas.



Climate for the Viljoensdrift Nature Reserve as measured from the Vrolijkheid Nature Reserve office.

2.6.2 Topography, Hydrology and Soils

Topography:

The altitude for Viljoensdrift Nature Reserve ranges from 140 m at the Breede River to 360 m.a.s.l. at its highest peak
Refer to Figure 2.5.3

Geology and soils:

The Viljoensdrift Nature Reserve geology, as shown below is dominated by shale which is a sedimentary rock consisting of silt and clay sized particles and with visible layering (fissile) as opposed to a mudstone that is massive. Shale always occurs within a succession of coarse-grained sandstone alternating with fine-grained shale (mud rock). These soils are highly erodible and thus result in deep donga's forming on many slopes in the Karoo (Council of Geoscience 2001). The geology also comprises arenite (Council of Geoscience 2001).
The formations of the Witteberg group represent the higher altitudinal areas, the Bokkeveld group the lower slopes and most flats and the Cenozic deposits, the lowest parts close to the river (Heard et al. 2000a).

Soils in these biomes are easily eroded. In undisturbed natural veld there are two natural phenomena that protect the soil and enrich them – the biogenic crust and plant litter mulch. The biogenic crust is a living crust consisting of lichens and mosses. These protect the fine-grained soil against splash erosion by acting as a mulch and provide the ideal conditions for

seeds to germinate. Furthermore, they create the ideal environment for algal films to develop. These algae are nitrogen-fixing – they harvest nitrogen from the atmosphere and return it to the soil for use by plants. In over-utilised veld, reduced vegetation cover and trampling lead to destruction of the biogenic crust and lay the soil bare to erosion.
Plant litter, besides being mulch, also creates barriers across run-off lines and rills. This slows the water flow down and allows for infiltration. It also traps seeds, and then provides favorable conditions for germination.

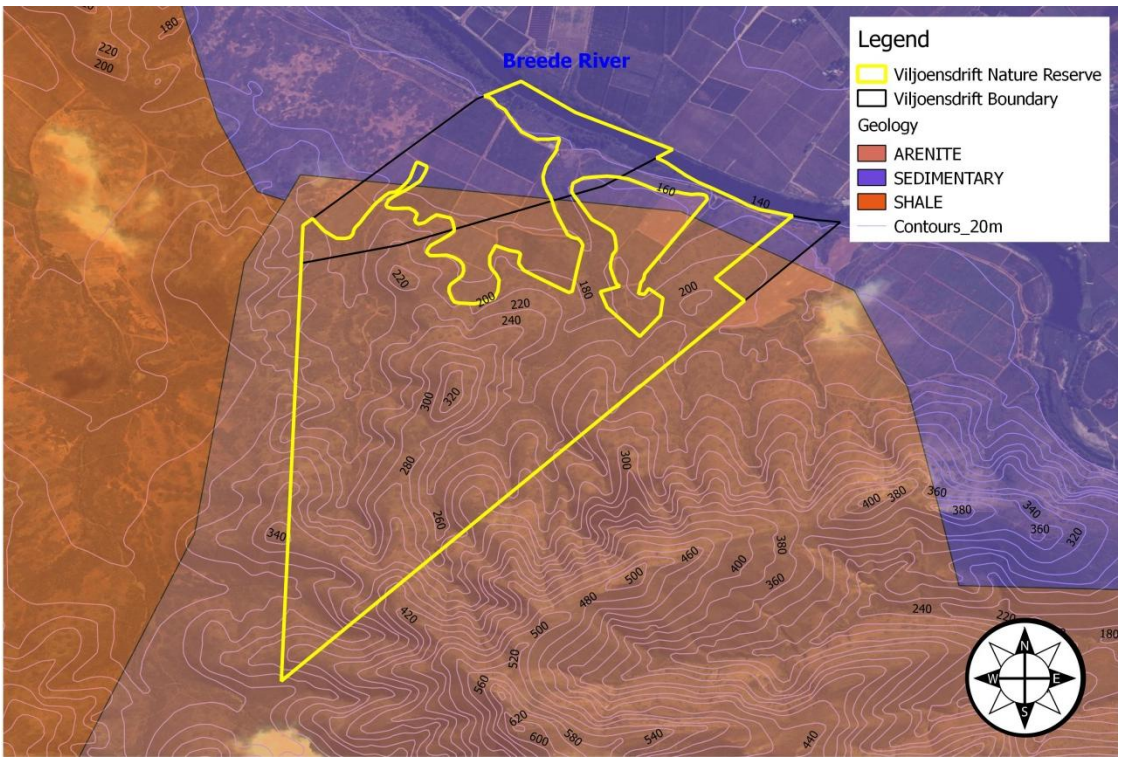


Figure 2.5.3 Topography and Geology of Viljoensdrift Nature Reserve

2.6.3 Vegetation

(Refer to Figure 2.5.7 Vegetation map and Vegetation map 2.5.7(i) illustrating the Fine-scale vegetation types for Viljoensdift Nature Reserve).

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).

Viljoensdrift Nature Reserve falls within the Succulent Karoo Biome. The Succulent Karoo Biome vegetation units are characterised by the high frequency and usually dominance by succulent plants. They can generally be described as dwarf to low succulent shrublands with a matrix of

succulent thicket of medium height and occasionally dotted with solitary trees and tall bush clumps. In some areas, particularly rain shadow mountain slopes the vegetation is akin to an arid asteraceous fynbos but has a high proportion of tall succulent shrubs. The heterogeneity of the topography lends itself to a diversity of growth forms and even where there are extensive plains they are often littered with rocks, pebbles or cobbles and provide unique habitat The natural vegetation of the property and surrounding area consists out of Robertson Karoo (Least Threatened) and Breede Shale Renosterveld (Least Threatened) and Muscadel Riviere (Critically Endangered) (Mucina and Rutherford (2006).
The following is a description of the various vegetation units occurring in the management area according to Mucina and Rutherford (2006) as shown in Figure 2.5.7:

The reserve represents the Robertson Karoo vegetation (Status classification Least Threatened of extent 115.51 ha). This vegetation is characterised by undulating flats and adjacent hills sometimes with very steep flanks supporting dwarf succulent shrubland to succulent thicket of medium height dominated by succulent species of Euphorbia, Crassula and vygies (members of the Mesembryanthemaceae family). Euphorbia mauritanica is usually dominant on heuweltjies which are an important element of the landscape and vegetation of the Robertson Karoo. Robertson Karoo is currently classified as Least Threatened but is poorly protected. The Viljoensdrift Nature Reserve meets 1.18% target for this vegetation type.

The remainder of the reserve is classified as Breede Shale Renosterveld (Status classification Least Threatened of extent 86.47 ha - National Gazette No 34809 of 09-December-2011, Volume 558). This vegetation is characterised by low hills, slightly undulating to undulating plains and lower mountain slopes. “Heuweltjies” are very prominent with either bush clumps in the moister areas or succulent shrubs in drier habitats. The Viljoensdrift Nature Reserve meets 0.31% target for this vegetation type.

The Muscadel Riviere is classified as Critical Endangered of which 49.79 ha occur on Viljoensdrift Nature Reserve and is not protected. The reserve meets 0.31% target for this vegetation type.

The CAPE Fine-scale vegetation map (figure 2.5.7(i)) indicates the vegetation types on the property as Bonnievale Gwarrieveld, Breede River & Floodplain and Robertson Gannobos Thicket Mosaic.

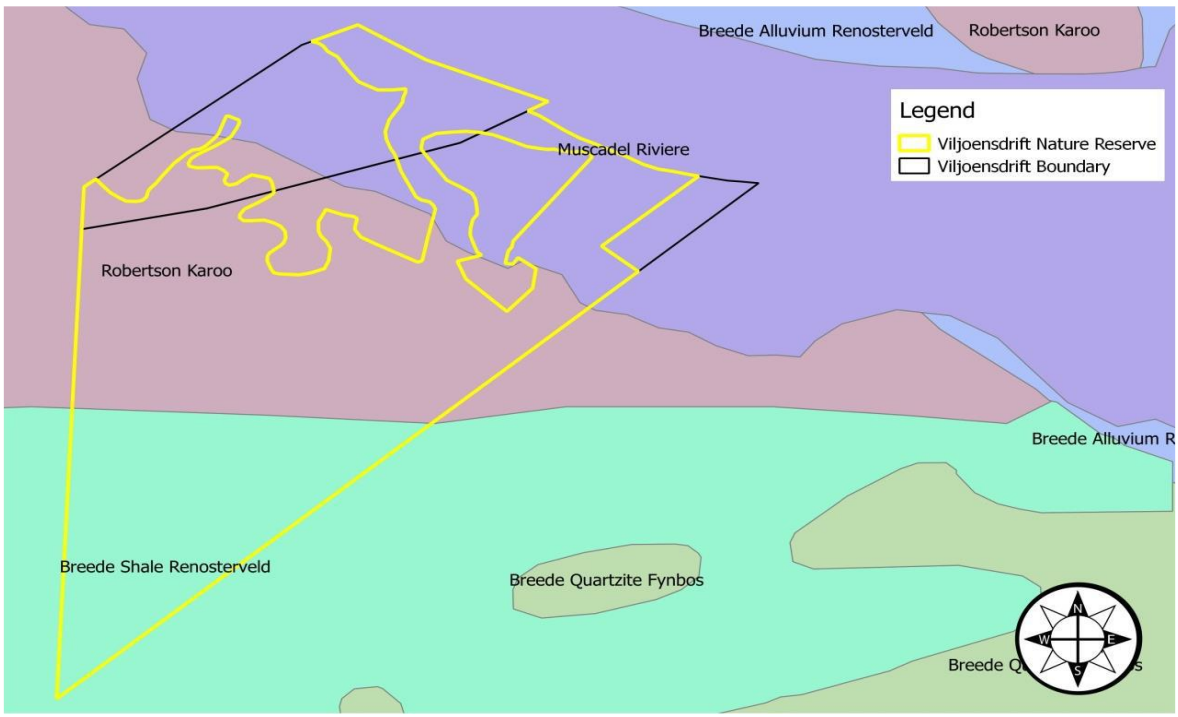


Figure 2.5.7 Vegetation types found on Viljoensdrift Nature Reserve. Species lists are included as Appendix C.

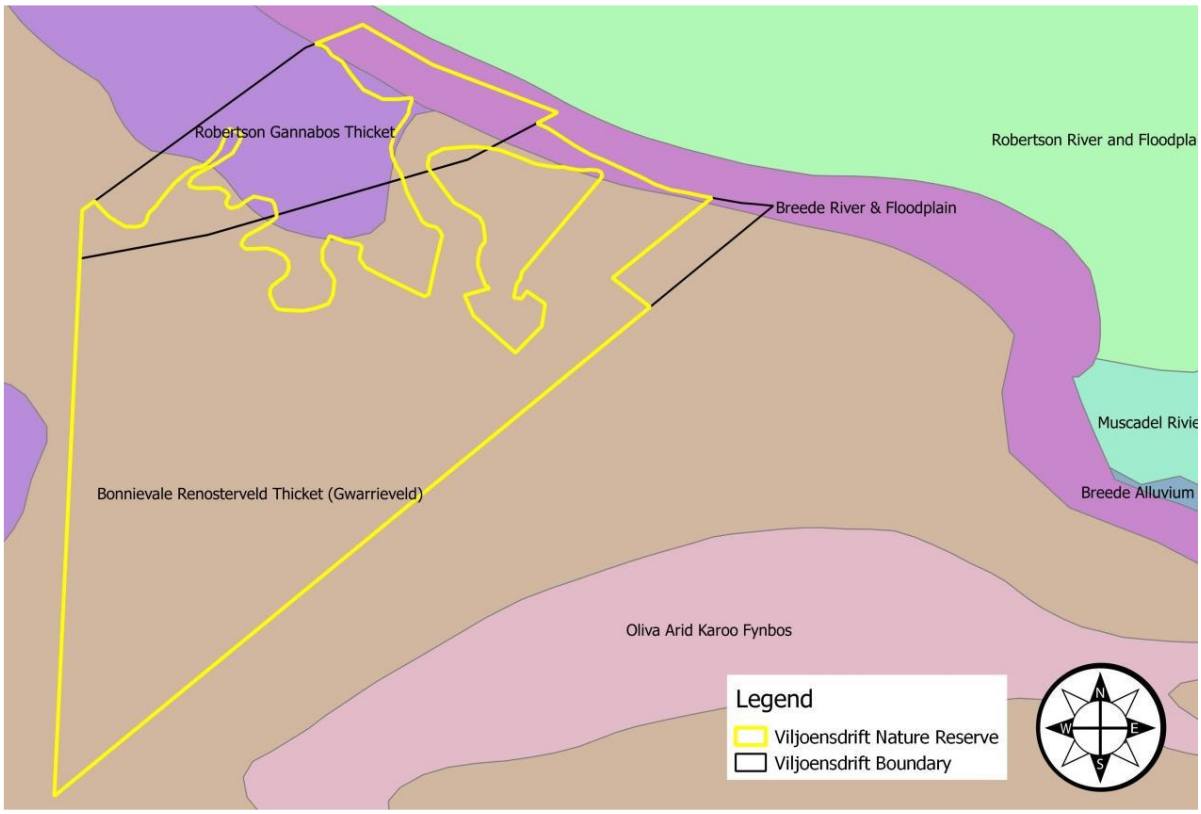


Figure 2.5.7(i): Fine-scale vegetation types found on Viljoensdrift Nature Reserve (Extract from the CAPE Fine-scale vegetation map.

Viljoensdrift are an important and contribute for the expansion of the Vrolijkheid Nature Reserve corridor to the Breede River which is also identified in the Vrolijkheid Nature Reserve PAMP for expansion.

There are one Critically Endangered, one Endangered, eight Vulnerable and one Near Threatened plant species recorded for the Vrolijkheid Nature Reserve and it is likely that some of these species also occur within Viljoensdrift Nature Reserve (please refer to table below):

FAMILY	TAXON	IUCN STATUS = SPECIES OF CONSERVATION CONCERN
ASPHODELACEAE	*Astroloba rubriflora* (L.Bolus) Gideon F.Sm. & J.C.Manning	Vulnerable (B1ab)
ASTERACEAE	*Gnaphalium declinatum* L.f.	Near Threatened (B1ab)
FABACEAE	*Amphithalea pageae* (L.Bolus) A.L.Schutte	Vulnerable (B1ab)
FABACEAE	*Aspalathus lactea breviloba* R.Dahlgren	Vulnerable (D2)
FABACEAE	*Aspalathus steudeliana* Brongn.	Vulnerable (A2c)
IRIDACEAE	*Chasmanthe bicolor* (Gasp.) N.E.Br.	Vulnerable (B1ab)
IRIDACEAE	*Ferraria crispa nortieri* M.P.de Vos	Vulnerable (A2bc, A4bc)
IRIDACEAE	*Gladiolus vandermerwei* (L. Bolus) Goldblatt & M.P.de Vos	Endangered (B1ab+2ab; C2a)
IRIDACEAE	*Moraea cooperi* Baker	Vulnerable (B1ab)
IRIDACEAE	*Moraea radians* (Goldblatt) Goldblatt	Critically Endangered (B1ab)
POLYGALACEAE	*Muraltia obovata* DC.	Vulnerable (C2a)

Plant Species of Conservation Concern recorded for the Vrolijkheid Nature Reserve.

2.6.4 Fire regime

Fire is an essential ecosystem process in fynbos. It provides the disturbance and stimulus that has contributed to the unprecedented floristic response we experience in our landscape. Fire is an ecosystem process that is essential for the continued functioning of the ecosystem as well as the continued evolution of biota therein. Due to fragmentation of the natural landscape however, fire can no longer operate naturally on a landscape scale. We therefore need to facilitate the process within these smaller compartments to ensure persistence of biodiversity whilst ensuring the safety of persons and property.

Wildfires as well as the use of fire as a management tool pose serious potential risks. Consult the National Veld and Forest Fire Act (101 of 1998) to acquaint yourself with the legal obligations of landowners in fire-prone landscapes.

Refer to Figure 2.5.8.1 - Veld age map.

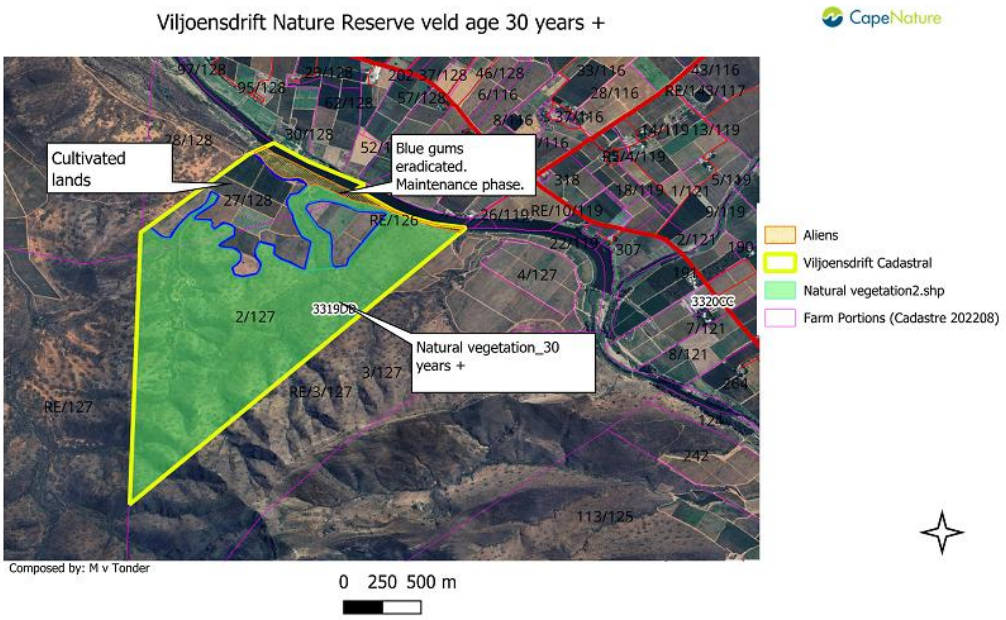


Figure 2.5.8.1 Veld Age map Viljoensdrift Nature Reserve

2.6.5 Invasive species

Any land management programme in South Africa will inevitably include an alien plant control program. Alien control programs are essential to protect valuable resources such as surface and ground water, biodiversity and the landscapes of our country.

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 section 4.1 below.

An alien control program however requires a high level of commitment, coordination between landowners and authorities, professional planning and implementation and a good dose of common sense. The guidelines provided are compiled from a wide source and will hopefully provide insight to land managers in order for financial and human resources to be effectively used in an integrated control programme.

See Figure 2.5.9 for Invasive vegetation map and management units.

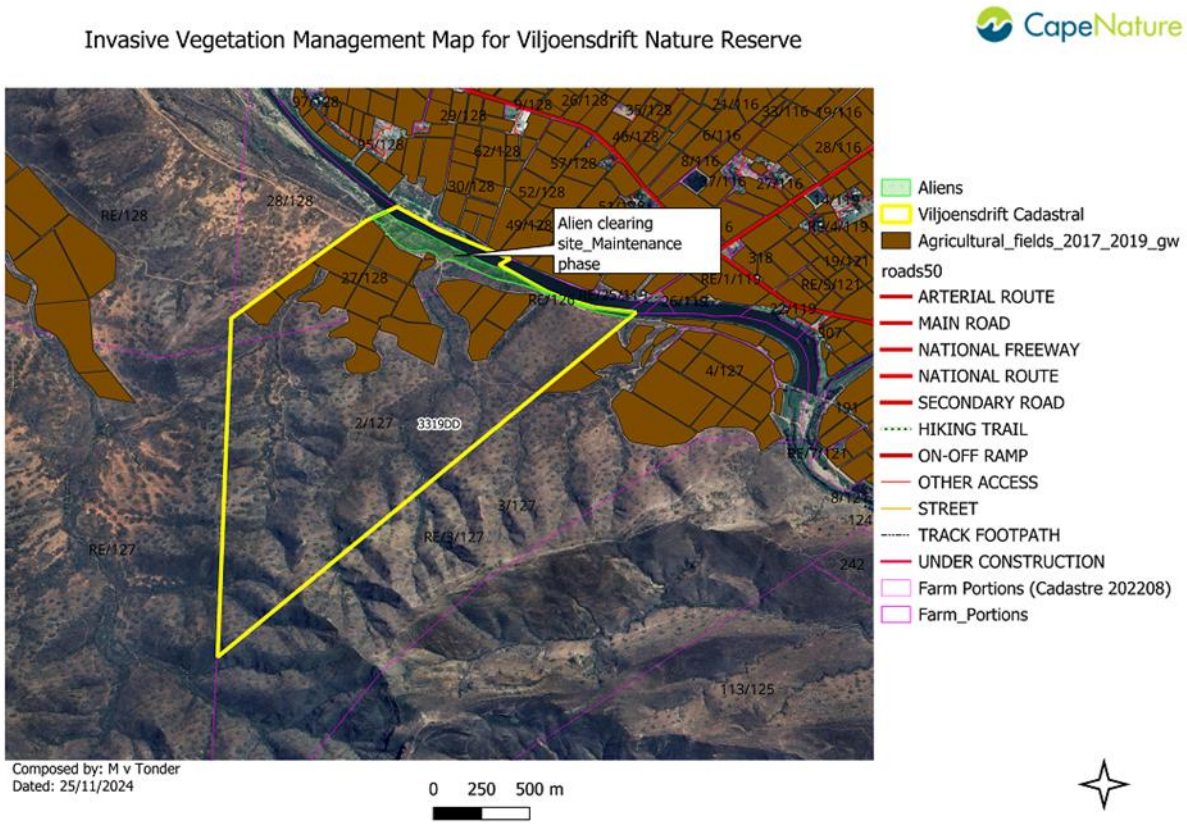


Figure 2.5.9 Invasive alien vegetation map for Viljoensdrift Nature Reserve

2.6.6 Species of conservation concern

A general description of key threatened or red data species present.
One threatened plant species was identified during the site assessment: *Brianhuntleya intrusa* [NT]. It is very likely that several other rare or threatened plant species are present on the site but were not identifiable or above ground at the time of the survey. CREW to visit site for assessment and reporting.

Combined with its neighbouring properties Viljoensdrift Nature Reserve is a very important expansion area to the Vrolijkheid Nature Reserve and contributes to a corridor between the Vrolijkheid Nature Reserve and the Breede River.

2.7 Cultural Heritage

Viljoensdrift Nature Reserve is a very important expansion area to the Vrolijkheid Nature Reserve and contributes to a corridor between the Vrolijkheid Nature Reserve and the Breede River.

The property contains terrestrial Critical Biodiversity Area (CBA) for vegetation type threshold and the Breede River and Floodplain is a Fresh Water Ecosystem Priority Area (FEPA).

The properties form part of an identified Climate Change mitigation corridor for species movement (Riviersonderend Mountains to Breede River to Langeberg Mountains).

Based on the Heritage Impact Assessment findings dated 17 August 2022, compiled by ASHA Consulting, no historical materials were observed on the site. The only evidence of historical use were the overgrown jeep tracks and small stone cairn, none of which are significant. The cultural landscape with views southwards towards the units is the only identified sensitive heritage feature

2.8 Regional and local planning context

Policy and Legislative framework: The legislative basis for management of Viljoesdrift Nature Reserve in terms of NEMPA 42(2)B:

- Western Cape biodiversity Act is the WC Biodiversity Act, Act 6 of 2021
- The Provincial Biodiversity Strategy and Action Plan (PBSAP) 2015 to 2025 (outlines the strategic objectives and outcomes for biodiversity management in the Western Cape).
- 2023 Western Cape Biodiversity Spatial Plan and Guidelines (a comprehensive document and spatial tool for strategic guidelines and planning related to biodiversity in the region.

The local and regional planning context is illustrated by the map shown in Figure 1.5.2. showing:

- The site overlaying CBA's

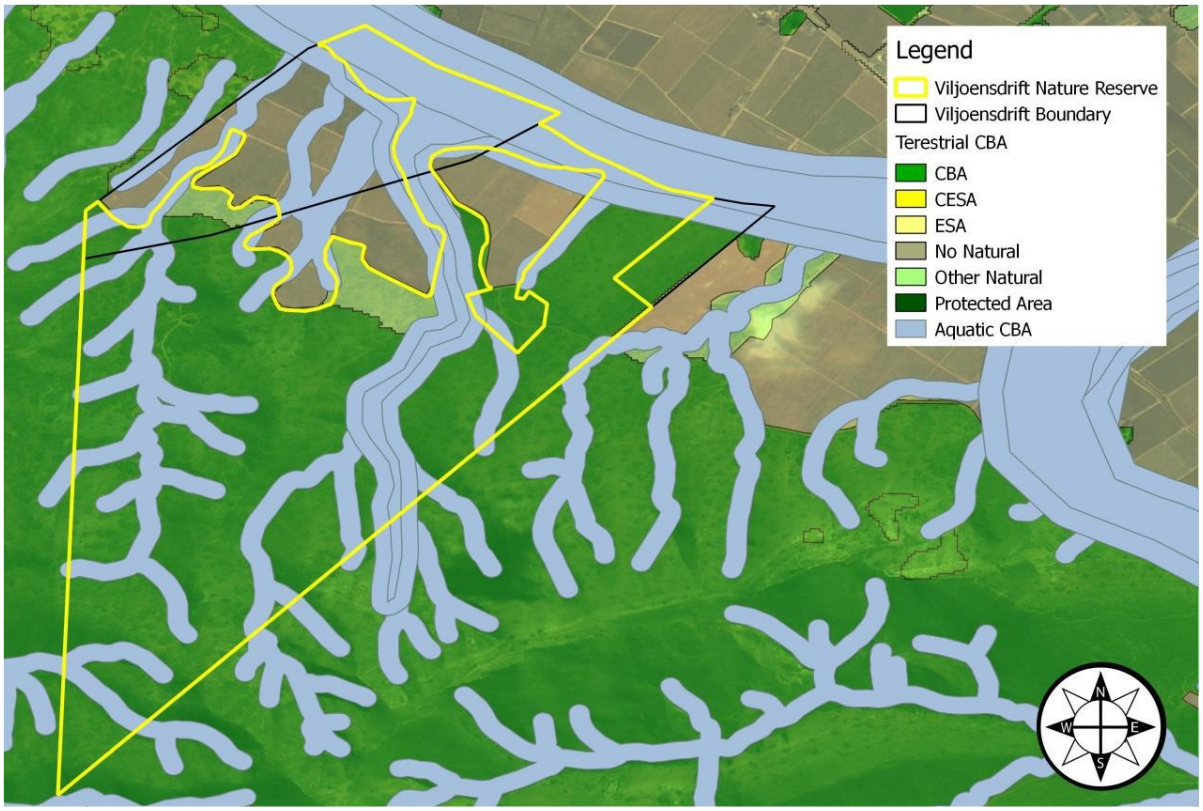


Figure 1.5.2 Critical Biodiversity Area map of Viljoensdrift Nature Reserve

2.8.1 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) (SANBI & DEAT, 2010) 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 Western Cape Protected Area Expansion Strategy addresses the formal declaration of priority natural habitats as protected areas to secure biodiversity and ecosystem services for future generations. This strategy is aligned with the concepts and goals of the NPAES.

2.8.2 The Strategic Development Framework and Integrated Development Plan

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.

There is no reference in the Langeberg Valley Municipality's Integrated Development Plan (IDP) and Spatial Development Plan (SDF) relating specifically or contextually to the proposed conservation area.

2.9 Socio-economic context

There are no specific Land Use Management Systems (LUMS) of the district and local municipality within which the protected area falls. There is no reference in the Langeberg Valley Municipality's Integrated Development Plan (IDP) and Spatial Development Plan (SDF) relating specifically or contextually to the proposed conservation area.

3 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 [Nature Reserve's name]. It has been prepared collaboratively through a process involving the landowner (Management Authority), site manager and CapeNature.

3.1 Purpose

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

> Purpose
> Viljoensdrift Nature Reserve 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.

3.2 Vision

The vision statement below describes the desired long-term, over-arching outcome that is a result of the effective management of the reserve.

> Vision
> In the future, the Viljoensdrift Nature Reserve will be an optimally functioning ecosystem where all threats are mitigated, and the Nature Reserve is able to generate sufficient revenue through eco-tourism to fund its own management costs.

3.3 Management Objectives under Key Performance Areas

The objectives that follow are intended to provide the basis for the achievement of the vision.

The objectives are derived from the vision and purpose and are grouped under Key Performance Areas (KPAs). Tables 3.3.1-4 below set out the key performance areas, the objective for each key performance area and the key deliverables of each objectives.

In the Annual Plan of Operations, the objectives below are prioritised in terms of importance and urgency and detailed management activities are described that will deliver the desired outcomes under each objective.

Table 3.3.1 Biodiversity and ecological components objectives and deliverables

KPA: Biodiversity and ecological Components		
OBJECTIVE	**OBJECTIVE STATEMENT**	**KEY DELIVERABLES**
Integrated Wildfire and Invasive Alien Plants	To manage invasive alien plants and the risks associated with uncontrolled wildfire in an integrated way to limit negative impacts on biodiversity and ecosystem function as well as the risks to human safety and infrastructure from wildfire.	Wildfire: • Allow natural fire processes to take place. • Reduced risk of uncontrolled wildfire. • Staff trained and equipped to manage wildfires. • Monitor extent of wildfires and establish thresholds of concern. Invasive Aliens: • Eradicate invasive alien species using mechanical and biological control methods. • Reduce combustible material to reduce intensity and spread of wildfires. • Effective monitoring to prevent further introductions of invasive aliens.
Aquatic and riparian systems	To conserve the biodiversity and ecosystem function of aquatic and riparian systems on the reserve.	• Health of aquatic ecosystems is determined. Threats are identified. • Management action are identified and implemented to safeguard and improve aquatic health. • Monitoring programme in place to identify changes in ecosystem health. • Effectively functioning seeps, wetlands, streams, rivers and riparian areas in the reserve.
Rehabilitation and restoration	To identify areas of degraded ecosystems and/or habitat in the reserve, understand the causes of degradation and implement restoration/rehabilitation measures.	• Limit the loss of biodiversity and disruption to ecological processes due to degraded habitat. • Extent and cause of degradation determined, and restoration/rehabilitation measures planned. • Soil erosion effectively prevented and eroded sites restored/rehabilitated. • Long-term monitoring of degraded sites and restoration/rehabilitation effectiveness.
Species of special concern	To ensure the optimal long-term population health and ecological function of any plants and animals of special concern.	• Monitoring of populations of species of special concern. • Identify and implement specific management requirements.
Wildlife	To ensure effective conservation of faunal species, populations and inter-relationships in order to enhance biodiversity and maintain and improve ecosystem functioning.	• Manage the introduction and offtakes of wildlife on the Reserve. • Monitor and evaluate the heath of faunal populations. • Monitor and evaluate the impact of fauna on the ecosystem.

Table 3.3.2 Sustainable utilisation of natural resources objectives and deliverables

KPA: Sustainable utilisation of Natural Resources		
OBJECTIVE	**OBJECTIVE STATEMENT**	**KEY DELIVERABLES**
Recreation and tourism	To generate income from a tourism business that makes a sustainable contribution towards the conservation management costs of the reserve.	• Viable tourism business model to guide tourism development and operations. • A range of appropriate eco-tourism products and services are offered. • Tourism infrastructure and operations do not have a negative impact on any of the conservation objectives of the reserve. • Tourism infrastructure design and construction complies with development planning requirements. • Profits from tourism operations make a meaningful contribution towards conservation management costs.

Table 3.3.3 Socio-economic and heritage objectives and deliverables

KPA: Socio-economic and heritage		
OBJECTIVE	**OBJECTIVE STATEMENT**	**KEY DELIVERABLES**
Environmental Awareness and Education	Stakeholders receive an increased awareness and understanding of the importance and value of functioning ecosystems and an introduction to careers in eco-tourism, hospitality and nature conservation.	• Increase awareness about the value of functioning ecosystems and conservation land use. • Address specific management issues such as security, poaching, etc. • Informal training and/or holiday camps provided to school groups. • Formal career development training provided to potential employees.
Socio-economic development initiatives	To work with relevant stakeholders to make a meaningful contribution towards the socio-economic development needs of local communities.	• Eco-tourism guides, hospitality staff and conservators are sourced from local community • Community receives tangible value from the reserve. • Positive relationships with key community role players and groups.

Table 3.3.4 Management authority effectiveness and sustainability objectives and deliverables

KPA: Management Authority effectiveness and sustainability		
OBJECTIVE	**OBJECTIVE STATEMENT**	**KEY DELIVERABLES**
Governance and institutional arrangements		•
Legal Compliance	To ensure all reserve declaration documentation is in order and that all activities are compliant with relevant legislation and policies.	• Fully compliant with the Protected Area legislation.
Employee skills development	Managers and staff are supported in the implementation of the management plan by ensuring they have the necessary knowledge and skills to perform their management responsibilities.	• Training needs are identified. • Informal and/or formal training is provided. • Management support and mentorship is provided.
Management infrastructure and equipment	The reserve has the necessary infrastructure and equipment to enable the cost-effective achievement of the management objectives.	• Infrastructure needed to support personnel in implementing the management plan is in place. • Personnel have the necessary vehicles and equipment to carry out management activities. • Infrastructure is adequately maintained, and equipment serviced and kept in safe working order.
Signage, access control and security	Signage, access control and security measures are put in place that effectively address related threats.	• The perimeter boundary of the reserve is clearly marked with fencing and signage. • Access onto the property in remote areas is restricted with locked gates and controlled through a limited number of managed entry points. • Security measures are put in place to address specific threats.
Research and management knowledge	Knowledge on how to achieve management objectives is gathered, documented and shared with the team to increase management effectiveness.	• Address knowledge gaps through desk-top research, scientific research and getting advice from experts. • Use increased knowledge and research findings to improve management effectiveness.

3.4 Zonation plan

The purpose of the zonation of Viljoensdrift Nature Reserve is to control the intensity and type of land use within the reserve 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. Refer to the zonation map, Figure 3.4, below which illustrates the following:

- The site's boundaries.
- Infrastructure within the reserve.
- The different zones within the reserve.

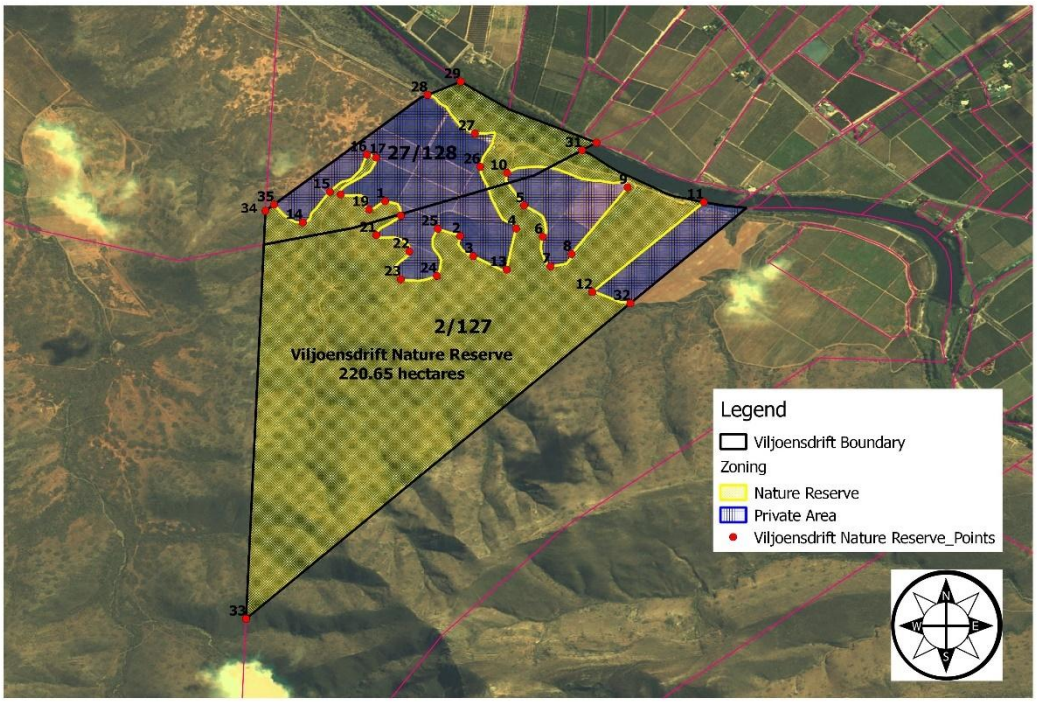


Figure 3.4 Zonation map of Viljoensdrift Nature Reserve

3.4.1 Development Plans

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 capitalize 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 6.2	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 tourism opportunities that generate revenue for the Nature Reserve	Planning and development of hiking routes, mountain bike trails, and basic facilities to cater for visitors to the nature Reserve Development of a business plan for tourism accommodation facilities.	Management Authority	As required

Potential further agricultural expansion was planned but due to the development of agricultural land not being financially viable, the decision was to develop on Portion 2 of Farm Annex Goedemoed No. 127, five tourism accommodation units instead.

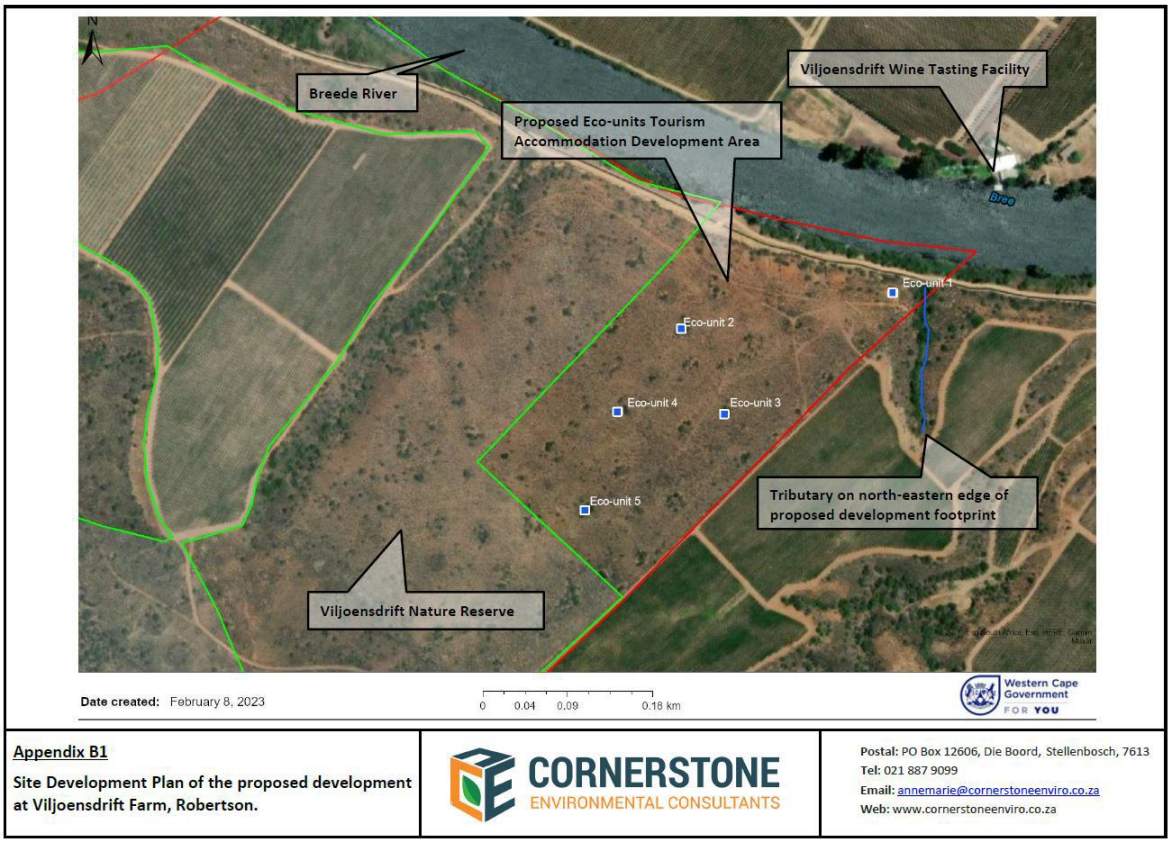
Authorization in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment ("EIA") regulations, 2014 the proposed development of five tourism accommodation units on Portion 2 of Farm Annex Goedemoed No 127 (Viljoensdrift Winery), Robertson has been approved by the Department of Environmental affairs & Development and Planning on the 01 September 2023.

Site description and location

The site where the authorised listed activity will be undertaken is on Portion 2 of Farm Annex Goedemoed No. 127 (Viljoensdrift Wine), Roberston and each unit has the following co-ordinates:

Co-ordinates:	Latitude (S)	Longitude (E)
Eco-Unit 1	33˚ 52' 12.77" South	19˚ 59' 06.40" East
Eco-Unit 2	33˚ 52' 13.99" South	19˚ 58' 57.69" East
Eco-Unit 3	33˚ 52' 16.92" South	19˚ 58' 59.45" East
Eco-Unit 4	33˚ 52' 16.84" South	19˚ 58' 55.05" East
Eco-Unit 5	33˚ 52' 20.21" South	19˚ 58' 53.71" East

The SG digit code is: C06500000000012700002



In view of the above, the NEMA principles, compliance with the conditions stipulated in this Environmental Authorisation, and compliance with the EMPr, the Competent Authority is satisfied that the proposed listed activity will not conflict with the general objectives of integrated environmental management stipulated in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and that any potentially detrimental environmental impacts resulting from the listed activity can be mitigated to acceptable levels.

3.5 Administrative structure

The landowner is appointed as the Management Authority for the Nature Reserve as agreed to in the Management Agreement concluded between CapeNature and the landowner. In the case of the Viljoensdrift Nature Reserve, the Management Authority is represented by Mr. Frederick Jacobus Viljoen.

Where applicable, management decisions can be made collaboratively between the Management Authority and CapeNature, however the Management Authority is responsible for the management of the reserve and caries the ultimate decision-making responsibility. The role of the Provincial Conservation Agency, CapeNature, is to provide support, advice and assist with the implementation of the management plan of the Nature Reserve as agreed upon.

Monitoring and Review of the Management Plan

CapeNature shall convene a meeting with the Owner on an annual basis to formally review and audit the annual progress towards achieving the management objectives. CapeNature may also assist the Owner with updating the Management Plan accordingly.

4 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 targets will form the basis for monitoring of performance in implementing the plan and are thus measurable.

4.1 Biodiversity and ecological components

4.1.1 Integrated Wildfire and Invasive Alien Plants

4.1.1.1 Wildfire

Objective statement:

To manage invasive alien plants and the risks associated with uncontrolled wildfire in an integrated way to limit negative impacts on biodiversity and ecosystem function as well as the risks to human safety and infrastructure from wildfire.

Deliverables –

- Allow natural fire processes to take place.
- Reduced risk of uncontrolled wildfire.
- Staff trained and equipped to manage wildfires.
- Monitor extent of wildfires and establish thresholds of concern.

Fire plays an important role in southern African ecology, and has important effects on vegetation composition, regeneration, primary productivity and nutrient cycling. The most important use of fire for conservation management is to maintain viable populations of all existing plant and animal species. The use of fire to achieve other management objectives should always take this into account. These may include reduction in fuel load to prevent unmanageable wildfires, the control of invasive alien plants, increase in water yield from catchments, promoting desirable plants for the flower picking industry, or improving grazing. 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. - this follows the precautionary principle, which suggests that a variety of burn practices and veld ages is the best way to maintain species diversity.
- 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).

- Season - burn vegetation at the end of autumn, never in winter or spring. Generally, a late summer or early autumn burn is best for fynbos species, however, prescribed burning in the summer months (Nov – Feb) is seldom advised due to the risk of runaway fires. Burning is usually only feasible in March and April. The season for prescribed burns in the Western Cape is the 15 January – 15 May.
- Frequency – Do not burn too frequently. Fynbos should be burnt at intervals between 8 and 20 years, while Renosterveld at 7 to 12-year intervals. No fire should be permitted in fynbos until at least 50% of the population of the slowest-maturing species in an area have flowered for at least three successive seasons. Similarly, a fire is probably not necessary unless a third or more of the plants of these slow-maturing species are senescent (i.e. dying or no longer producing flowers and seeds). Prescribed burns should generally not occur more often than every seven years as this may result in a loss of species that have not matured and produced seeds. Research suggests that, under natural conditions, fynbos should be burnt between eight and 20 years after the last fire. Fire at intervals greater than 25 years may result in the fynbos becoming senescent.
- The intensity of a fire is influenced by the fuel load, fuel moisture, relative humidity and wind speed. The intensity can be manipulated by either reducing the fuel load (i.e. burning more often) or by selecting the conditions that will lead to the desired type of fire. Most fynbos species require high intensity fires for survival; however, low intensity burns are often favoured for safety reasons.
- Burning must be undertaken with consideration of the biodiversity conservation requirements of the site and the need to protect rare and endangered species.
- The fire breaks should be prepared and maintained annually in a manner that is least damaging to the environment and aesthetics of the property. To this end where possible current management roads and tracks should be utilised.
- 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).

Viljoensdrift Nature Reserve is mainly comprised of Robertson Karoo vegetation with Renosterveld elements. Fire frequency is low as the succulent nature of Robertson Karoo impedes the spread of fire, except under exceptional conditions. Therefore, no active fire management occurs at the Reserve. Firebreaks should however still be in place and maintained along the northern boundaries for protection from accidental fires.

Legislation

National Veld and Forest Fire Act, (Act No. 101 of 1998)
National Forest Act, (Act No. 84 of 1998)

Guiding Principles

Unplanned wildfires that occur in areas where they could have undesirable ecological effects will be suppressed or controlled where possible.
Fires that threaten neighbouring property will also be controlled where possible.

Unplanned wildfires that occur in areas where they will do no ecological or other harm can or may be allowed to burn, if safety concerns and the relevant threshold of potential concern (TPC) are not compromised.
Fire protection measures and resources (equipment, trained personnel, firebreaks etc.) must be maintained at optimal levels of suitability and affectivity at all times.
Reserve management will implement integrated fire and alien vegetation management to limit the proliferation of fire adapted alien vegetation and facilitate the alien vegetation control programmes.

Management Actions

TABLE 6.1.1	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. Fuel Reduction around Infrastructure to Minimise Risk. Conduct Pre-Fire Season Fire Audit. Mapping of all Fires and Capture on GIS.	Management Authority Management Authority Management Authority CapeNature	Year 1 - 5
Maintain Partnerships to Improve Fire Management.	Attend Local FPA Meetings. Maintain Firebreak Agreements with Neighbours.	Management Authority	Year 1 - 5
Reduce Wildfires due to Human Negligence.	Create Fire Awareness Programme for Members and Staff Eradication and Control Alien Vegetation Infestations where Necessary (see AVM management)	Management Authority	Year 1 - 5

Introduction fire training (T100, T200 & T500) is available online to register staff members. One of the farm workers completed a basic fire training and was found to be competent and was issued with a basic fire fighting certificate, valid from 06/08/2024 to 06/08/2026.

A fire management map should be included here with a map showing burning blocks and firebreaks, other infrastructure such as water points, rivers and vegetation age in transparent layer. Figure 3.5 The Veld Age Map must also be referred to when compiling this map and may even be added as a layer in Figure 4.1.5.1.

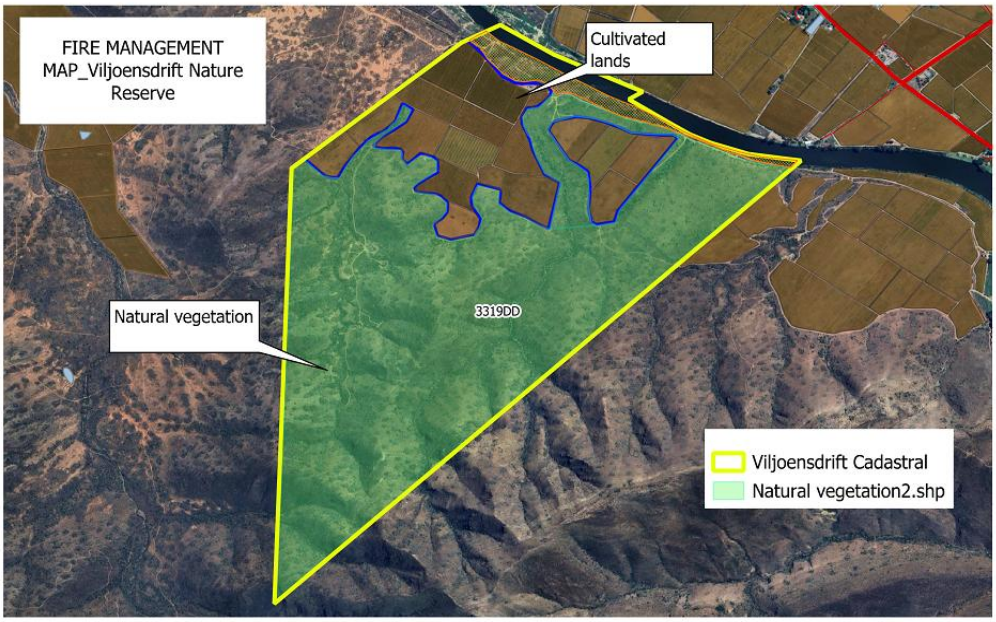


Figure 4.1.5.1 Fire Management Map for Viljoensdrift Nature Reserve

4.1.1.2 Invasive Alien Plants

Objective statement:
To Eradicate invasive alien species using mechanical and biological control methods, and to reduce combustible material to reduce intensity and spread of wildfires, as well as the effective monitoring to prevent further introductions of invasive aliens.

Deliverables –

Initial clearing of alien invasive flora outside the riparian zone to be conducted and ensure follow-up within- and outside riparian zones.

- Eradicate invasive alien species using mechanical and biological control methods.
- Reduce combustible material to reduce intensity and spread of wildfires.
- Effective monitoring to prevent further introductions of invasive aliens.

Landowners are under a legal obligation to control invading alien plants occurring on their properties. Planning this procedure is essential for the long-term success of the programme. 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 should 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 areas of young, less dense alien plants, as well as those areas containing infestations that are most likely to spread into new areas.
- The ability and resources available for follow up operations should determine the size and location of the initial clearing operation.
- All follow-up requirements must be strictly adhered to otherwise the problem will be exacerbated.
- Strategic partnerships and poverty relief programmes such as the Working for Water programme should be utilised.

Section 64 to 77 of the National Environmental Management: Biodiversity Act, (Act No. 10 of 2004).

It must be noted that Section 77 of the National Environmental Management: Biodiversity Act, (Act No. 10 of 2004) states the following: The management authority of a protected area must at regular intervals prepare and submit to the Minister or the MEC for Environmental Affairs in the Province a report on the status of any listed invasive species that occurs in that area.
A status report must include –

a. a detailed list and description of all listed invasive species that occur in the protected area
b. a detailed description of the parts of the area that are infested with listed invasive species.
c. an assessment of the extent of such infestation; and
d. a report on the efficacy of previous control and eradication measures.

Conservation of Agricultural Resources Act, (Act No. 43 of 1983): Amendments published in the Government Gazette Vol. 429, No 22166 of 30 March 2001.

Guiding Principles

- Invasive alien 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 such as the Working for Water programme should be utilised.

- Maintain the integrity of local species biodiversity by prohibiting and, as far as possible, preventing the introduction of alien and invasive species.
- Discourage the keeping of domestic animals within and from entering the nature reserve from surrounding areas. Removal of alien and invasive species must be performed in a cost-effective manner.

An invasive vegetation management map should be included here, showing management blocks and densities.
A table summarising the alien spp., density and age classes can be inserted here. See example of table below.

Table 6.1.2	INVASIVE AND NON-INVASIVE ALIEN SPECIES MANEGEMEMNT		
Objectives	· To enhance biodiversity protection and conservation. · To remove all invasive alien species from the natural areas by the most cost-effective methods with the least amount of damage to the natural environment. · 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**
INVASIVE ALIEN FLORA			
Eradicate Alien and Invasive Species	Identify and map all alien invasive flora within or threatening the reserve. Compile a Management Unit Clearing Plan. Implement the Management Unit Clearing Plan.	CapeNature CapeNature Management Authority	Year 1 - 5
Prevent Further Introduction of Aliens	Conduct awareness programs with neighbouring landowners. Eradicate and Control of Infestations.	CapeNature Management Authority	Year 1 - 5
INVASIVE ALIEN FAUNA			
Prevent the Introduction of Invasive Alien Fauna Species	Formulate Policy regarding Domestic Animals in the Reserve.	Management Authority	Year 1 - 5
Control Invasive Alien Fauna Species	No Introduction of Alien Fish Species into River Systems.	Management Authority	Year 1 - 5
	Identify the Occurrence of Alien Fauna on Nature Reserve.	Management Authority / CapeNature	Year 1 - 5
	Monitor Populations of Alien Fauna on the Reserve.	Management Authority	Year 1 - 5
	Implement Control Measures where appropriate.	Management Authority	Year 1 - 5
	Measure Success of Control Methods utilised.	Management Authority	Year 1 - 5

Table 4.1.5.2 Alien Species, Density and Age on Viljoensdrift Nature Reserve.

Man Unit	Dom Spec	Dom Den	Dom Age	Sec Spe	Sec Den	Sec Age	Other Spe	Other Den	Other Age
R01	Blue gum-	5	-						
R02	-	-	-						
R03	-	-	-						

Currently there is no alien invasive flora on the property and are in a maintenance phase. The CBWUA in conjunction of Working for Water eradicated all aliens (eucalyptus trees) along the length of the Breede River. Follow-up is executed annually.

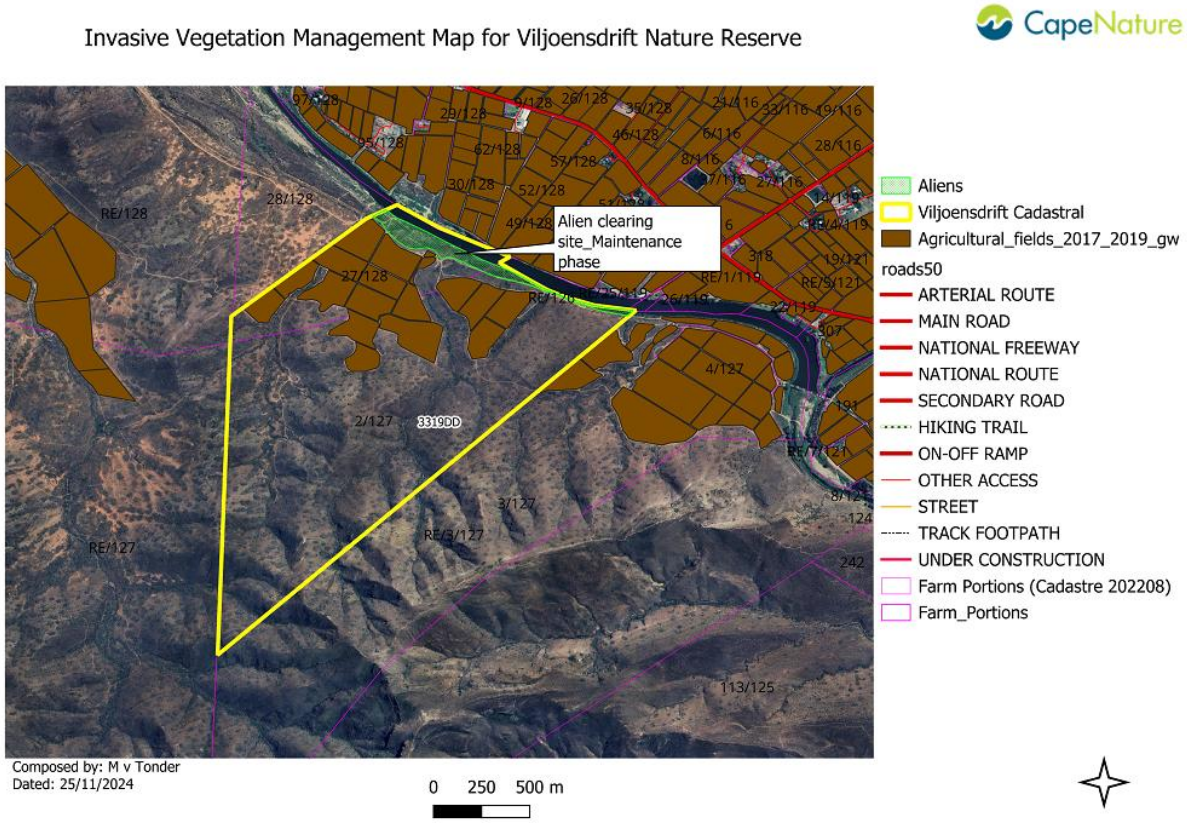


Figure 4.1.5.2 Invasive Vegetation Management Map for Viljoensdrift Nature Reserve

4.1.2 Rehabilitation and restoration

Objective Statement:

To identify areas of degraded ecosystems and/or habitat in the reserve, understand the causes of degradation and implement restoration/rehabilitation measures.

Deliverables:

- Limit the loss of biodiversity and disruption to ecological processes due to degraded habitat.
- Extent and cause of degradation determined, and restoration/rehabilitation measures planned.
- Soil erosion effectively prevented and eroded sites restored/rehabilitated.
- Long-term monitoring of degraded sites and restoration/rehabilitation effectiveness.

Areas of the reserve that have been degraded due to past human activities (over-grazing or inappropriately sited roads and tracks), or are left exposed due to alien plant clearing activities, can have a negative impact on the biodiversity value of the protected area. The

primary goal of restoration following degradation is to re-establish a structurally representative stand of indigenous vegetation that fulfils the major ecosystem functions, and prevents any further soil structure loss. Where soil structure and other ecological components are intact, the management objective is to restore the area back to a natural state. Where these components have been disturbed, the management goal is to rehabilitate the site so that vegetation resembles the structure and species composition of the naturally occurring vegetation type. It is important to note that disturbed areas that can only be rehabilitated to structurally resemble a natural state can still perform an important role in ecological connectivity.

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

- Prioritize areas requiring post-alien clearance restoration actions, as resources are usually limited, as well as those continuing to degrade.
- Aim to conserve what remains, i.e. minimise the loss of indigenous seed banks and soil, and in this way restoration costs may be kept to a minimum.
- 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.
- Keep records of all invaded sites being restored. Records should include alien vegetation clearance methods and dates, restoration actions, and results of alien and indigenous vegetation monitoring.

4.1.3 Aquatic and riparian systems

Objective Statement:

To conserve the biodiversity and ecosystem function of aquatic and riparian systems on the reserve.

Deliverables:

- Health of aquatic ecosystems is determined. Threats are identified
- Management actions are identified and implemented to safeguard and improve aquatic health.
- Monitoring programme in place to identify changes in ecosystem health.
- Effectively functioning seeps, wetlands, streams, rivers and riparian areas in the reserve

Essentially, aquatic systems are landscape features. Rivers and streams carve a channel through which they flow and are continuous longitudinal systems that are also recognisable by their lateral dimension, the actual water and the riparian zone. Wetlands,

although obvious during the rainy season, are somewhat more amorphous. They are more easily recognised by their vegetation, as supported in the National Water Act (36 of 1998) "…land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil."

As such, water and these systems are one of the most important natural resources in South Africa and the effective management of catchments, wetlands and river systems secures the availability of this resource for current and future generations. Wetlands play an important role in improving water quality and are also home to unique biodiversity.

The impact of siltation due to erosion and stream bank degradation, as well as pollution and eutrophication, have significant negative impacts on wetlands and river systems. For this reason, erosion and pollution control measures should always be a priority management objective.

River systems require a minimum *ecological reserve* of water flow in order to support aquatic ecosystems. Upstream extraction for agricultural, industrial and domestic use can significantly impact river health downstream. It is important to note that landowners do not own the water travelling over or under their lands and any water extraction therefore requires a water use license from the Department of Water and Sanitation.

In managing these aquatic systems, the following guiding principles should be maintained –

- Where possible, manage the aquatic system together with landowners both up- and down-stream.
- Prevent excessive water abstraction from rivers, in order to maintain seasonal flow differences.
- Prevent nutrient enrichment of the water / river / wetland system (these systems are naturally acidic and have characteristically low nutrient levels).
- Maintain a buffer area adjacent to the river and wetland habitats, clear of alien plants or impacts.
- Clear all alien plants from riparian areas, and rehabilitate where required (mainly bank stabilisation).
- Manage access points into these areas, include roadways and livestock access.
- Establish permanent water monitoring points to highlight potential impacts and management interventions.

4.1.4 Species of special concern

Objective Statement:

To ensure the optimal long-term population health and ecological function of any plants and animals of special concern.

Deliverables:

- Monitoring populations of species of special concern.
- Identify and implement specific management requirements.

The species of special concern in the Viljoensdrift Nature Reserve includes:
Brianhuntleya intrusa [NT]
Euphorbia nesemannii [NT]
It is very likely that a number of other rare or threatened plant species are present on the site but were not identifiable or above ground at the time of the survey. Await CREW site visit for assessment and reporting.

The only mammal species of conservation concern, listed in the South African Red Data Book (Friedmann and Daly 2004), as Near Threatened, that has been recorded on the reserve is the Honey badger (*Mellivora capensis*)

4.1.5 Wildlife

Objective Statement:

To ensure effective conservation of faunal species, populations and inter-relationships in order to enhance biodiversity and maintain and improve ecosystem functioning.

Deliverables:

- Manage the introduction and offtakes of wildlife on the Reserve.
- Monitor and evaluate the heath of faunal populations.
- Monitor and evaluate the impact of fauna on the ecosystem.

Many wildlife species are indigenous to the Western Cape region, and the conservation of these species is an important contribution to maintaining ecosystem functioning. Any wildlife management program must integrate the ecological and socio-economic objectives, so as to maximise the value to biodiversity and the protected area, but also to minimize the human-wildlife conflict.

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 faunae.

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

In managing these wildlife species, the following guiding principles should be maintained –

- Maintain only those species indigenous to your region.
- Remove extra-limital species from the property.
- 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?
- Obtain all necessary permits from CapeNature for game management.
- Monitor alien fauna with camera traps.
- Utilize holistic methods to manage damage causing animals.

4.2 Sustainable utilisation of Natural Resources

4.2.1 Grazing and browsing of livestock and game

Objective Statement:

Game and livestock are effectively used as a management tool to ensure the health of natural vegetation.

Deliverables:

- Veld condition assessments are used to determine carrying capacity relative to climatic and rainfall cycles.
- A Grazing Plan is compiled which takes into consideration veld condition, stock numbers, stock breeds, herd size, camp sizes and grazing frequency per camp.
- Game and livestock numbers are managed to ecological carrying capacity.

Vegetation (natural rangelands) has evolved with indigenous grazers and browsers and it is best to emulate their foraging habits. Under natural conditions, one would encounter a high concentration of animals of mixed feeding habits (bulk, selective and concentrate feeders) exerting high pressure on the vegetation and when the quantity of forage decreased, they moved off. The veld then had a period in which to recover and because all plants had been utilised equally the composition was not altered.

Where grazers and browsers have been contained, mismanagement of game numbers and game composition can not only alter vegetation species composition, reduce cover and

cause erosion, but can also threaten biodiversity and the long-term financial viability of this production. The correct utilisation of vegetation by livestock and game is an essential tool to maintain vegetation health and composition. Key factors to ensure that grazing and browsing has a beneficial impact include:

- Stocking rates Ha/SU (Hectares per (small/large) Stock Unit)
- Grazing camp size
- Duration that stock is held in the camp
- Camp rest interval

Long-term veld condition monitoring is essential to ensure that grazing and browsing activities have the desired outcome.

4.2.2 Recreation and tourism

Objective Statement:

To generate income from tourism businesses that make a sustainable contribution towards the conservation management costs of the reserve.

Deliverables:

- Viable tourism business model to guide tourism development and operations.
- A range of appropriate eco-tourism products and services are offered.
- Tourism infrastructure and operations do not have a negative impact on any of the conservation objectives of the reserve.
- Tourism infrastructure design and construction complies with development planning requirements.
- Profits from tourism operations make a meaningful contribution towards conservation management costs.

Recreation in natural areas is an excellent tool for reconnecting people with the environment. Besides the important educational function it is also a possible income stream and there are several opportunities that can be developed without compromising the conservation integrity of the area.

In developing tourism within the protected area, 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.

4.2.3 Sustainable Harvesting

Objective Statement:

To ensure the sustainable use of natural plant resources in a manner that ensures the conservation of biodiversity and minimal ecological disturbance in the areas where harvesting operations occur.

Deliverables:

- Harvesting Plan with well managed harvesting activities.
- Possession of all necessary harvesting permits.
- Accurate and up-to-date records of all harvesting operations maintained.
- Monitor and evaluate long-term impacts of harvesting operations.\

Sustainable harvesting is about satisfying today's demands without threatening the supply for future generations. Wildflower and thatch harvesting are recognised industries in the Western Cape, and have the ability to provide sustainable income for the management of a protected area. In order to prevent the degradation of the system on which you rely, in it important to understand the autecology of the species and the ecological requirements of the vegetation type. It is important, therefore, to make certain that species are harvested in a manner that minimizes harvesting impact on individual populations. These standards are as follows:

- Ensure the broader vegetation type is correctly managed.
- Ensure that you harvest at the right time of the year.
- Protect the seed bank of the species, allowing continually regeneration.
- Do not introduce extra-limital species and cultivars or hybrids into natural vegetation. We should not create genetic instability and jeopardise the evolutionary outcome of existing species.
- A cautionary approach must be followed whereby an amount not exceeding 50 % of the flower heads produced on a yearly basis by a plant shall be removed.
- No harvesting may occur one year prior to a burn, or seeding plants between one and five years after a burn.
- Correct harvesting equipment that is in good working condition must be used at all times.
- No breaking or uprooting of plants is allowed.
- Binding twine must be transported in a closed container, and it is the responsibility of pickers to remove binding twine from their harvesting location.
- No litter must be left in the harvesting location.

- Maintain an exclusion block representative of all harvestable species utilized, to ensure population persistence

It is 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.

No flora harvesting occurs on Viljoensdrift Nature Reserve.

4.3 Socio-economic and heritage

4.3.1 Environmental Awareness and Education

Objective Statement:

Stakeholders receive an increased awareness and understanding of the importance and value of functioning ecosystems and an introduction to careers in eco-tourism, hospitality and nature conservation.

Deliverables:

- Increase awareness about the value of functioning ecosystems and conservation land use.
- Address specific management issues such as security, poaching, etc.
- Informal training and/or holiday camps provided to school groups.
- Formal career development training provided to potential employees

The protected area provides the ideal practical learning space to teach people about the value of nature and conservation. Whilst a degree of awareness and knowledge is likely to flow outwards from the reserve through the engagement of employees with the broader community, a dedicated environmental awareness and education programme is far more effective. Such programmes can achieve specific educational goals and therefore help to address key threats relating to human behaviour.

4.3.2 Socio-economic development initiatives

Objective Statement:

To work with relevant stakeholders to make a meaningful contribution towards the socio-economic development needs of local communities.

Deliverables:

- Eco-tourism guides, hospitality staff and conservators are sourced from local community.
- Community receives tangible value from the reserve.
- Positive relationships with key community role players and groups.

Poverty and the associated social issues are prevalent in most rural communities in South Africa and the protected area offers a location that can serve as a development node within the rural landscape. It is recommended that the Management Authority partner with other organisations and community groups to identify socio-economic development needs and then decide in which area to play a role. Expanding the reach of the *biodiversity economy* to achieve positive socio-economic impacts in the communities closest to the reserve should be a primary goal.

4.3.3 Heritage features

Objective Statement:

To locate, document, and conserve archaeological, paleontological and cultural heritage features on the reserve.

Deliverables:

- Systematically map and document all archaeological, paleontological and cultural features with input from experts.
- To support the study of on-reserve features by experts and to share knowledge and insights gained.
- To conserve the integrity of all archaeological and heritage features on the reserve

The Management Authority is not only a custodian of the reserve in space, but also in time. The landscape in which the reserve is located has a number of paleontological, archaeological and cultural features that need to be discovered, understood and shared. Partnering with specialists in these fields is necessary to identify these features and ensure they are not damaged and that the sites are suitably preserved for further study.

4.4 Management Authority effectiveness and sustainability

The objectives in this key performance area are often overlooked in management plans as it is 'taken for granted' that the Management Authority has already addressed them in

other areas of their business. These objectives are however fundamentally important for the long-term, successful implementation of the protected area management plan.

4.4.1 Legal Compliance

Objective Statement:

To ensure all reserve declaration documentation is in order and that all activities are compliant with relevant legislation and policies.

Deliverables:

- Fully compliant with the Protected Area legislation.

Through the landowners of the protected area, 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 [Insert site's name] will adhere to the following guiding principles:

- The management authority will comply with its legal and reporting commitments, according to the NEM:PAA.
- The management authority will adhere to legislative requirements and permitting for all development, water management and biodiversity management activities.

Management activity	Responsibility	Timeframe
Ensure Notarial Deed with surveyor diagram and title deed restrictions are registered with the Notary and Surveyor General against the property	Management Authority/ CapeNature	Once off (Completed)
Conduct annual audits.	Management Authority/ CapeNature	Annually
Implementation of annual review and update of management plan	Management Authority/ CapeNature	Annually
Annual protected area management report to CapeNature	Management Authority/	Annually
All development needs to be done according to the NEMA principles and follow the applicable legislation and procedures of all relevant stakeholders.	Management Authority	Ongoing
All water management within the Reserve must comply with the National Water Act (No 36 of 1998).	Management Authority	Ongoing

4.4.2 Employee skills development

Objective Statement:

Managers and staff are supported in the implementation of the management plan by ensuring they have the necessary knowledge and skills to perform their management responsibilities.

Deliverables:

- Training needs are identified.
- Informal and/or formal training is provided.
- Management support and mentorship is provided.

The addition of specialised protected area management activities to the existing operations of the Management Authority often requires the acquisition of new knowledge and skills by the existing employees and management team on the property. It is the responsibility of the MA to assess the knowledge and skills of their human resources relative to the new/additional roles and responsibilities they are assigned and to identify and address knowledge and skills gaps.

In fulfilling this role, the managers of [Insert site's name] will carry out the following activities:

Management activity	Responsibility	Timeframe
identify the staff training needs in line with the requirements of their role and the performance management process	Management Authority	Ongoing
Implement formal (accredited / non-accredited) training	Management Authority	Ongoing
Implement informal on-the-job training and mentorship delivered by line managers	Management Authority	Ongoing
Line managers' report on training/mentorship provided	Management Authority	Ongoing

4.4.3 Infrastructure and equipment

Objective Statement:

The reserve has the necessary infrastructure and equipment to enable the cost-effective achievement of the management objectives.

Deliverables:

- Infrastructure needed to support personnel in implementing the management plan is in place.

- Personnel have the necessary vehicles and equipment to carry out management activities.
- Infrastructure is adequately maintained, and equipment serviced and kept in safe working order

In order for the reserve 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 provided to ensure the effective management and operation of the nature reserve.
- Infrastructure must be maintained to avoid any damage to the environment and ensure the safety of staff and visitors to the site.

An Infrastructure map should be included here with a map showing zonation and all infrastructure on the property including roads.

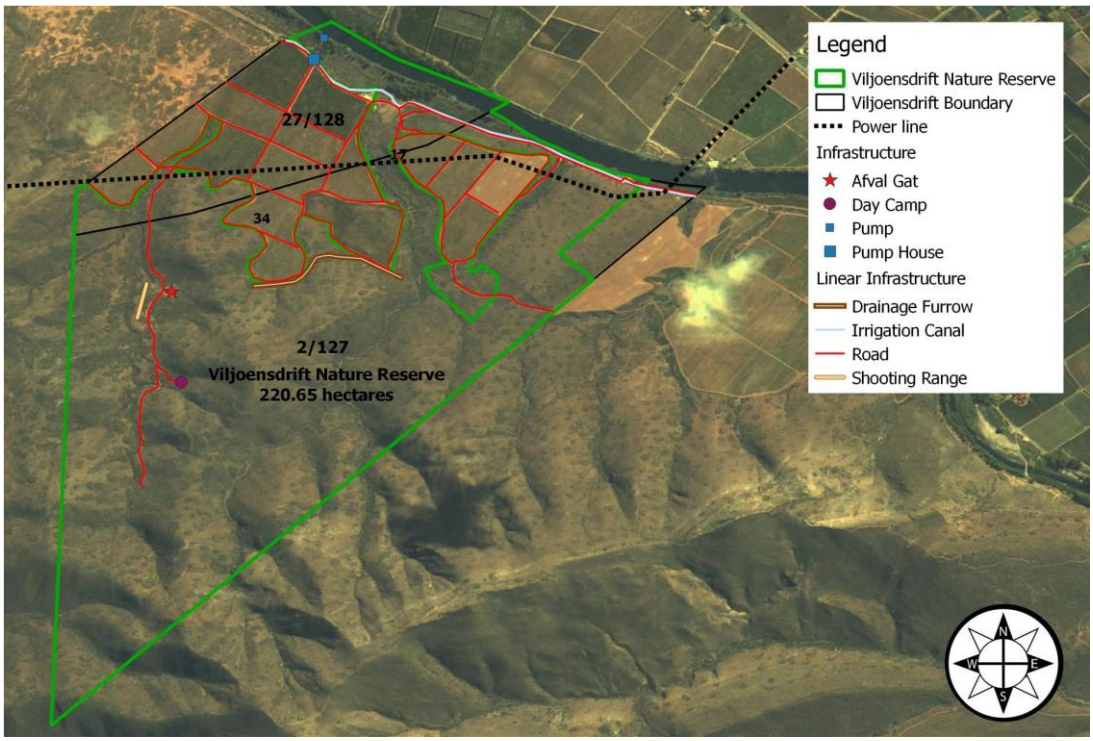


Figure 4.4.3 Infrastructure on Viljoensdrift Nature Reserve

4.4.4 Signage, access control and security

Objective Statement:

Signage, access control and security measures are put in place that effectively address related threats.

Deliverables:

- The perimeter boundary of the reserve is clearly marked with fencing and signage.

- Access onto the property in remote areas is restricted with locked gates and controlled through a limited number of managed entry points.
- Security measures are put in place to address specific threats.

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. Fencing needs to be effective in terms of demarcating the property boundary, restricting or allowing the movement of wildlife and livestock and performing a security function if required. 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.

Management activity	Responsibility	Timeframe
Maintain clearly demarcated protected area boundary (fence if required).	Management Authority	Once off
Install lockable gates at access points	Management Authority	Once off
Ensure appropriate signage along fence and at access points	Management Authority	Once off
Maintain a schedule of boundary fence patrols	Management Authority	ongoing
Maintain records of illegal trespassing and poaching incidents	Management Authority	ongoing
Maintain membership of local security groups	Management Authority	Once off

4.4.5 Research and management knowledge

Objective Statement:

Knowledge on how to achieve management objectives is gathered, documented and shared with the team to increase management effectiveness.

Deliverables:

- Address knowledge gaps through desk-top research, scientific research and getting advice from experts.
- Use increased knowledge and research findings to improve management effectiveness

In order to effectively achieve the intended outcomes of the management objectives, the Management Authority needs to apply sound knowledge and, at times, the findings of scientific research to determine the most effective management strategy. Much of this

knowledge may historically reside with the management authority, however some specialised insights may need to be gathered from partner organisations and/or subject matter experts.

In some cases, specific research may be required to determine the best course of action to achieve a desired outcome. Establishing partnerships with academic institutions, making the reserve an attractive site for student researchers and compiling a list of management problems that can be addressed by research projects will help to grow the knowledge base through scientific research.

Management activity	Responsibility	Timeframe
Identify and document knowledge gaps	Management Authority/ CapeNature	Ongoing
Establish strategic relationships with academic institutions and NPOs to address knowledge gaps through knowledge acquisition projects	Management Authority	Ongoing
Ensure that the findings of all knowledge acquisition projects are translated into practical management best-practice guidelines	Management Authority	Ongoing
Maintain records of all research projects / findings	Management Authority	Ongoing

5 Monitoring Plan

5.1 Monitoring and Evaluation

Objective Statement:

To gather data that can inform the reserves management strategy by monitoring threats, tracking progress towards the achievement of management objectives and prioritising budget allocation for management activities.

Deliverables:

- M&E requirements documented and responsibilities assigned.
- Monitoring activities implemented and data is captured, stored and collated.
- Monitoring data evaluated and management practices adapted based on insights.
- Improved effectiveness of management through learning and adaption.

Monitoring and evaluation is an essential component of the adaptive management process.

5.1.1 Ecological Monitoring

Long-term ecological monitoring, from a clear baseline, enables the reserve management team to determine if the implemented management activities are achieving the intended outcomes in terms of species conservation and ecological health. Additional ecological indicators may be required to effectively monitor species and ecosystem health.

5.1.2 Monitoring management effectiveness

Every action in the APO has a Key Performance Indicator and target. Monitoring and reporting on these targets enable the assessment of management effectiveness. These KPIs and targets can also be used to measure the performance of personnel responsible for implementing the different aspects of the management plan. During the annual review and planning workshop, performance against KPI targets must be assessed in order to accurately inform the actions in the following year's APO.

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Table:

Management issue	Parameters to be monitored	Monitoring measures	Monitoring frequency	Responsibility	Reporting requirements
Baseline data	Veld condition, plant community composition and population health of endangered plant species.	Written record/map/photography	Annually	Regional manager/ landowner	Annual report
	Establish a series of Fixed-Point Photography (FFP) Monitoring Plots	Written record/map/photography	Annually	Regional manager/ landowner	Annual report
Fire management	Burning of firebreaks as part of fire management	Written record/map/photography	Annually	Regional manager/ landowner	Annual report
	Burning of blocks as part of controlled burning		Annually		Annual report
	Unplanned wildfires	Written record/map/photography	Per event		Record of event
	Conduct post-fire vegetation monitoring				
Invasive plant control	Areas subject to invasive plant control	Photographs/written record	Quarterly	Regional manager/ landowner	Annual report
	State of areas in which invasive plants have been eradicated				
	Records of labour hours/days	Written record	Annually		Annual report
	Herbicide usage	Written record	Annually		Annual report
Soil erosion control	Areas subject to erosion control	Photographs/written record	Quarterly	Regional manager/ landowner	Annual report
	State of rehabilitated areas of erosion				Annual report
Law enforcement / security					
Facilities and infrastructure	State of roads, paths, fences and dams	Photographs/written records	Quarterly	Regional manager/ landowner	Annual report
	State of facilities and service infrastructure	Maintenance schedule/written records	Monthly	Regional manager/ landowner	Annual report
	Pollution events	Photographs/written records	Per event		Record of event

6 Implementing the Strategic Management Plan

6.1 Five-year Costing Plan

Below is an estimated breakdown of management costs for each management objective over the ten-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 5. Estimated annual management cost breakdown.

Management objectives	2024	2025	2026	2027	2028
1. AI flora - Maintenance phase	R5000	R5500	R6050	R6655	R7320
2. Roads/Tourism cycling track maintenance	12000	R12600	13230	13235	13896
3. Tourism	9540	10020	10512	11046	11592
Estimated Annual Management Cost:	**26 540**	**28 120**	**29 792**	**30 936**	**32 808**

* [1] Estimate. Soil erosion budget is dependent on assessment of priority sites in YR1 and YR6.
* [2] IAP control budget is dependent on individual landowner assessments in YR2 and budgets.
* TBD - 'To be determined'.

Management objectives	2029	2030	2031	2032	2033
1. AI flora - Maintenance phase	R8052	R8857	R9743	R10 717	R11 789
2. Roads/Tourism cycling track maintenance	R14 590	R16 049	R16 210	R17 020	R17 871
3. Tourism	R12 171	R12 780	R13 419	R14 090	R14 794
Estimated Annual Management Cost:	**R34 813**	**R37 686**	**R39 372**	**R41 827**	**R44 454**

* [1] Estimate. Soil erosion budget is dependent on assessment of priority sites in YR1 and YR6.
* [2] IAP control budget is dependent on individual landowner assessments in YR2 and budgets.
* TBD - 'To be determined'.

6.2 The Annual Review and Planning Workshop

6.2.1 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 five-year plan. The Annual Plan of Operation (APO) is in a similar format to the Annual Audit See Appendix D below, allowing for a seamless transition of information from Audit to new APO.

6.3 The Annual Plan of Operation

The Annual Plan of Operation (APO) forms an integral part (Part B) of the Protected Area Management Plan. The APO is documented within an associated excel spreadsheet (as shown in Annexure E) for the following reasons:

- to allow for ease of use as a management tool;
- to facilitate updates and changes;
- to simplify the annual audit process;
- to simplify the drafting of subsequent versions of the APO after the annual review and planning workshop.

6.3.1 Drafting the next year's APO

Either as part of the review process or directly after the review, the reserve management team should compile the list of management actions for the following years APO.

The following steps should be taken:

- Review performance of previous year's management actions under each Management Objective. Make note of actual performance relative to the KPI targets set. Discuss challenges experienced and ways to overcome them.
- You can now revise the KPI targets, Person responsible, Budget and Deadlines if necessary. If the KPI used previously was found to be an ineffective indicator, specify a new KPI.
- Systematically work through the APO in this manner one management objective at a time.

6.4 Five-year revision of the Strategic Management Plan

Legislation stipulates a maximum of a five-year management period prior to the revision of the (Part A) Strategic Management Plan (SMP). The SMP can be revised after a shorter management period and this is recommended for a newly establish Nature Reserve where significant management outcomes and infrastructure development is taking place.

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8 Appendices

8.1 APPENDIX A - List of statutes to which the 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:

- Companies Act [No.71 of 2008]
- Promotion of Access to Information Act [No. 2 of 2000]
- Occupational Health and Safety Act [No. 85 of 1993]
- Western Cape Planning and Development Act [No. 5 of 1998]
- 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]
- Water Services Act [No. 108 of 1997]

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]

8.2 APPENDIX B - Copy of Viljoensdrift Nature Reserve declaration

Western Cape Government • Wes-Kaapse Regering • URhulumente weNtshona Koloni

PROVINCE OF THE WESTERN CAPE | PROVINSIE WES-KAAP | IPHONDO LENTSHONA KOLONI

Provincial Gazette Extraordinary | **Buitengewone Provinsiale Koerant** | **Tsongezelelo kwiGazethi yePhondo**

8420 | *8420* | *8420*

Friday, 30 April, 2021 | *Vrydag, 30 April 2021* | *uLwesihlanu, 30 kuTshazimpuzi 2021*

Registered at the Post Office as a Newspaper | *As 'n Nuusblad by die Poskantoor Geregistreer* | *Ibhaliswe ePosini njengePhephandaba*

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*(*Reprints are obtainable at Room M21, Provincial Legislature Building, 7 Wale Street, Cape Town 8001.)* | *(*Afskrifte is verkrygbaar by Kamer M21, Provinsiale Wetgewer-gebou, Waalstraat 7, Kaapstad 8001.)* | *(*Ushicilelo oLutsha lufumaneka kwigumbi M21, kwiSakhiwo sePhondo seNdlu yoWiso-Mthetho, 7 Wale Street, eKapa 8001.)*

Provincial Notice | **Provinsiale Kennisgewing** | **ISaziso sePhondo**

The following Provincial Notice is published for general information:

Die volgende Provinsiale Kennisgewing word vir algemene inligting gepubliseer:

Esi saziso silandelayo sipapashelwe ukunika ulwazi ngokubanzi:

PROVINCIAL NOTICE

The following Provincial Notice is published for general information.

DR H.C. MALILA,
DIRECTOR-GENERAL

Provincial Legislature Building,
Wale Street,
Cape Town.

PROVINSIALE KENNISGEWING

Die volgende Provinsiale Kennisgewing word vir algemene inligting gepubliseer.

DR H.C. MALILA,
DIREKTEUR-GENERAAL

Provinsiale Wetgewer-gebou,
Waalstraat,
Kaapstad.

ISAZISO SEPHONDO

Esi saziso silandelayo sipapashelwe ukunika ulwazi ngokubanzi.

GQIR H.C. MALILA,
MLAWULI-JIKELELE

ISakhiwo sePhondo,
Wale Street,
eKapa.

PROVINCIAL NOTICE

P.N. 39/2021 30 April 2021

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING

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

DECLARATION OF SUNSHINE NATURE RESERVE

I, Anton Wilhelm 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:

1. Remainder of Portion 3 of the Farm Uitnood No. 129 Robertson, situated in the Langeberg Municipality, Division of Robertson, Western Cape Province;
   In extent: 796, 4642 (Seven Hundred and Ninety-Six comma Four Six Four Two hectares;
   Held by Deed of Transfer No. T33834/1980;

2. Remainder of the Farm Annex Goedemoed No. 127 Robertson, situated in the Langeberg Municipality, Division of Robertson, Western Cape Province;
   In extent: 592, 4832 (Five Hundred and Ninety-Two comma Four Eight Three Two) hectares;
   Held by Deed of Transfer No. T33834/1980;

3. Remainder of the Farm Goedemoed No. 128 Robertson, situated in the Langeberg Municipality, Division of Robertson, Western Cape Province;
   In extent: 421, 6808 (Four Hundred and Twenty-One comma Six Eight Zero Eight) hectares;
   Held by Deed of Transfer No. T33834/1980;

4. Portion 28 (Riverside) (a portion of Portion 21) of the Farm Goedemoed No. 128 Robertson, situated in the Langeberg Municipality, Division of Robertson, Western Cape Province;
   In extent: 59, 7231 (Fifty-Nine comma Seven Two Three One) hectares;
   Held by Deed of Transfer No. T33834/1980;

5. Portion 1 of the Farm Annex Goedemoed No.127 Robertson, situated in the Langeberg Municipality, Division of Robertson, Western Cape Province;
In extent: 364, 0832 (Three Hundred and Sixty-Four comma Zero Eight Three Two) hectares;
Held by Deed of Transfer No. T69811/1993;

6. Portion 94 (a portion of Portion 8) of the Farm Goedemoed No.128 Robertson, situated in the Langeberg Municipality, Division of Robertson, Western Cape Province;
In extent: 141, 5820 (One Hundred and Forty-One comma Five Eight Two Zero) hectares;
Held by Deed of Transfer No. T69811/1993; and

7. Remainder of Portion 8 of the Farm Goedemoed No. 128 Robertson, situated in the Langeberg Municipality, Division of Robertson, Western Cape Province;
In extent: 162, 1185 (One Hundred and Sixty-Two comma One One Eight Five) hectares;
Held by Deed of Transfer No. T24416/1996.

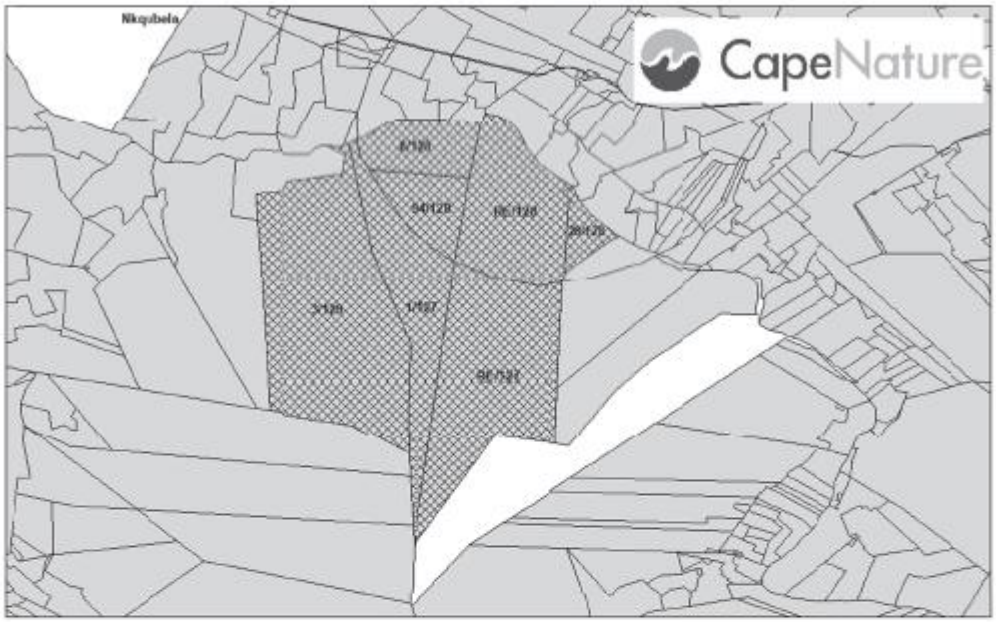
I assign the name "Sunshine Nature Reserve" to the reserve, of which the boundaries are reflected on the map and Surveyor-General Diagrams No. 2878/2019 as set out in the Schedule.

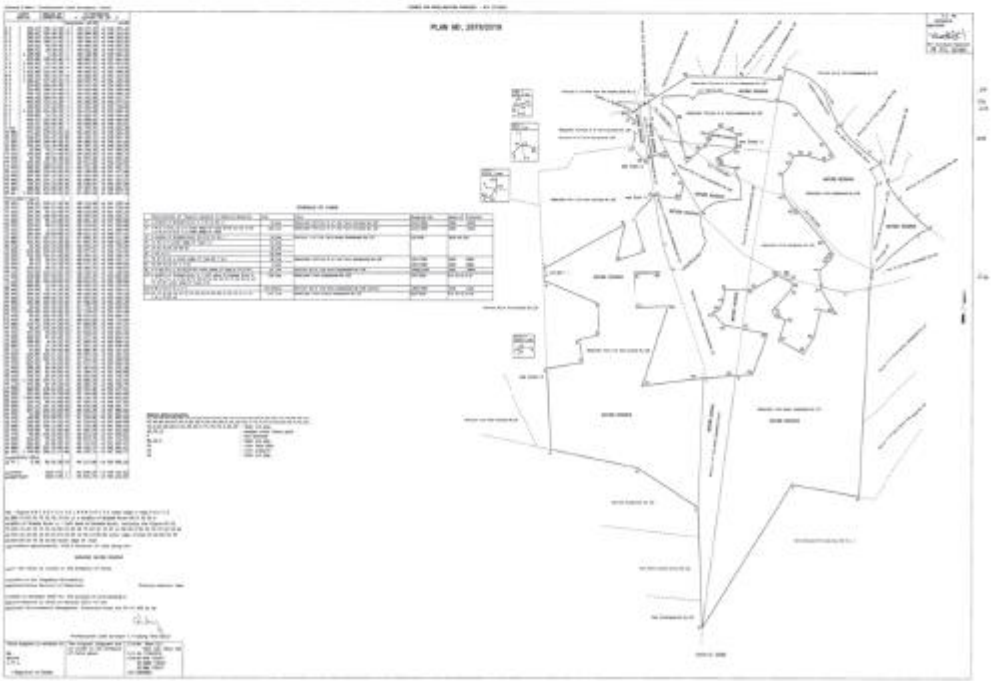
Signed at Cape Town this 17th day of March 2021.

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

SCHEDULE

SUNSHINE NATURE RESERVE





8.3 APPENDIX C - Species lists

Available species lists for the site should be included in this appendix. These should include:

- Plant species lists.
- General fauna lists (e.g. mammals, herpetofauna, invertebrates).
- Bird lists.
- Specific lists of listed threatened species.

The species lists should be sourced from the CapeNature biodiversity database and any other reliable source to ensure that the information presented is the most current and accurate, both in terms of the species present or absent at the site and their threatened status.

Flora species list:

Ruschia parviflora	*Cissampelos capensis*	*Hermannia alnifolia*
Ruschia orientalis	*Cisticapnos vesicaria*	*Hermannia filifolia*
Ruschia multiflora	*Heliophila suavissima*	*Hermannia incana*
Ruschia festiva	*Heliophila subulate*	*Hermannia vestita*
Psilocaulon coriarium	*Aplanodes sisymbriodes*	*Passerina obutsifolia*
Mesembryanthemum crystalinum	*Lepidium capense*	*Gnidia serceae*
Erepsia anceps	*Tylecodon paniculata*	*Anginon difforme*
Drosanthemum floribundum	*Crassula capensis*	*Limonium scabrum*
Delosperma ornatulum	*Crassula capitella*	*Euclea undulata*
Tetragonia fruticose	*Crassula muscosa*	*Olea europaea Africana*
Galenia secuna	*Crassula natans*	*Carissa haemantocarpa*
Galenia pubescens	*Crassula rupestis*	*Microloma sagittatuin*
Galenia cymose	*Crassula tetragona*	*Gomphocarpus fruticose*
Galenia Africana	*Adromischus caryophyllaceus*	*Heliotropium supinum*
Hepertelis salsoloides	*Montinia caryophyllaceus*	*Lobstemon echiodes*
Amaranthus praetermissus	*Acacia Karoo*	*Lobstemon trichotomus*

Salsola rabieana	*Acacia saligna*	*Ballota Africana*
Salsola kali	*Podalyria calyptrate*	*Stachys aethiopica*
Atriplex vestita	*Amphithalea pageae*	*Solanum tomentosum*
Atriplex semibaccata	*Calobata cyticoides*	*Diascia parviflora*
Chenopodium murale	*Wiborgia fusca*	*Nemesia pagae*
Poligonium plebeium	*Wiborgia mucronate*	*Freylinia undulata*
Rumex cordatus	*Wiborgia sericea*	*Manulea cephalotes*
Viscum rotundifolium	*Aspalathus alpestris*	*Chaenostoma caeruleum*
Viscum capense	*Aspalathus cordata*	*Chaenostoma revolutum*
Freesia refracta	*Aspalathus hirta*	*Limosella grandiflora*
Lapeirousia pyramidalis	*Aspalathus lacta breviloba*	*Selago canescens*
Gladiolus scullyi	*Aspalaphus pachyloba macroclada*	*Selago divaricate*
Gladiolus rogersii	*Aspalaphus securifolia*	*Selago scabrida*
Gladiolus densiflorus	*Aspalathus spinosa*	*Selago spinae*
Gladiolus carinatus	*Hypocalyptus oxalidifolius*	*Selago thunbergia*
Babiana ambigua	*Indigofera incana*	*Pseudoselago serrata*
Chasmanthe aethiopica	*Otholobium candicans*	*Hyobanche sunguinae*
Ixia capilaris	*Lessertia frutescens*	*Anthospermum galioides*
Hesperantha falcata	*Pelargonium abrotanifolium*	*Galium spurium africanum*
Geissorhiza aspera	*Pelargonium carnosum*	*Kedrostis Africana*
Moraea radians	*Perlargonium denticulatum*	*Citrulls lanatus*
Moraea cooperi	*Oxalis eckloniana*	*Cucumis myriocarpus lepotodermis*
Spiloxene aquatica	*Oxalis pardalis*	*Wahlenbergia albens*
Cyanella lutea	*Oxalis pes-caprae*	*Macledium spinosum*
Nerine undulata	*Zygophyllum flexuosum*	*Pteronia fasciculata*
Asparagas retrofractus	*Zygophyllum fulvum*	*Monoculus monstrosus*
Asparagus mucronatus	*Zygophyllum spinosum*	*Pteronia incana*
Asparagus kraussianus	*Tribulus terrestris*	*Pteronia paniculata*
Asparagus capensis	*Polygala scraba*	*Felicia cana*
Massonia depressa		
Ornithogalum juncifolium		

Ornithogalum hispidum	*Muraltia ovata*	*Felicia clavipilosa*
Ornithogalum dubium	*Nylandtia spinosa*	*Felicia fascicularis*
Drimia altissima	*Ricinus communis*	*Felicia filifloria*
Albuca cooperi	*Clutia polifolia*	*Conyza scrabrida*
Eriospermum paradoxum	*Euphorbia burmannii*	*Chrysocoma ciliata*
Bulbine frutescens	*Euphorbia inaeguilatera*	*Chrysocoma valida*
Juncus bufonius	*Euphorbia mauritanica*	*Chrysocoma longifolia*
Restio curviramis	*Searsia glauca*	*Gnaphalium declinatum*
Restio bolusii	*Searsia laevigata*	*Helichrysum athrixiifolium*
Mohria caffrorum	*Searsia lancea*	*Helichrysum excisum*
Gymnosporia capitata	*Searsia tomentosa*	*Helichrysum rosum*
Dondoneae viscosa	*Searsia undulata*	*Dicerothamus rhinocerotis*
Dondonaea viscosa angustifolia	*Anisodontea fruticose*	*Metalasia muricata*
Rhynchopsidium pumilum	*Oedera imbricata*	*Oncosiphon piluliferum*
Heterolepis peduncularis	*Oedera squarrosa*	*Senecio radicans*
Printzia polifolia	*Athanasia trifurcate*	*Senecio sophoides*
Eriocephalus africanus	*Cymbopappus adenosolen*	*Euryops rehmanii*
Eriocephalus ericoides	*Cotula coronopifolia*	*Euryops tenuissimus*
Eriocephalus microphyllus	*Pentzia incana*	*Othonna gymnodiscum*
Eriocephalus punctulatus	*Tripteris sinuate*	*Ursinia anthemoides*
Dimorphotheca acutifolia	*Gorteria diffusa*	*Gazania krebsiana*
Arctotis sulcocarpa	*Berkheya coriacea*	
Hirpicium integrifolium	*Berkheya spinosissima*	
Berkheya heterophylla		

Mammals:

Klipspringer, Cape Grey buck, Grey Rhebok, Cape Leopard, Caracal, Cape grey mongoose, water mongoose, yellow-mongoose, honey Badger, bat- eared fox, cape serotine bat.

Avifauna:

BIRDS RECORDED IN VROLIJKHEID NATURE RESERVE, ROBERTSON

Rob Martin Dawn Tyler Elsie Martin

Names from Sasol Guide (3rd edition)

ID	Scientific Name	Species	Afrikaans	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Br?	Status
270	*Tringa nebularia*	Common Greenshank	Groenpootruiter	X	X	X	X				X	X	X	X	X		European migrant
272	*Calidris ferruginea*	Curlew Sandpiper	Krombekstrandloper	X										X			European migrant
274	*Calidris minuta*	Little Stint	Kleinstrandloper	X													European migrant
286	*Gallinago nigripennis*	African Snipe	Afrikaanse snip	X			X	X			X				X		Visitor
295	*Himantopus himantopus*	Black-winged Stilt	Rooipootelsie	X	X					X		X			X		Visitor
297	*Burhunis capensis*	Spotted Thick-knee	Dikkop	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
298	*Burhunis vermiculatus*	Water Thick-knee	Waterdikkop	X													Visitor
301	*Rhinoptilus africanus*	Double-banded Courser	Dubbelbanddrawwertjie	X	X				X			X	X			Yes	Visitor*
339	*Chlidonias leucopterus*	White-winged Tern	Witvlerkstertjie												X		Vagrant
344	*Pterocles namaqua*	Namaqua Sandgrouse	Kelkiewyn	X	X	X			X	X			X	X			Visitor
349	*Columba guinea*	Speckled Pigeon	Kransduif	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
350	*Columbo arquatrix*	African Olive-pigeon	Geelbekbosduif										X				Visitor
352	*Streptopelia semitorquata*	Red-eyed Dove	Grootringduif	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
354	*Streptopelia capicola*	Cape Turtle-Dove	Gewone tortelduif	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
355	*Streptopelia senegalensis*	Laughing Dove	Rooiborsduifie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
356	*Onea capensis*	Namaqua Dove	Namakwaduifie	X	X		X				X	X	X	X	X	Yes	Visitor
380	*Clamator glandarius*	Great Spotted Cuckoo	Gevlekte Koekoek				X				X	X					Vagrant
385	*Chrysococcyx klaas*	Klaas's Cuckoo	Meitjie							X	X	X	X	X	X	Yes	Intra-African migrant
386	*Chrysococcyx caprius*	Diderick Cuckoo	Diederikkie	X							X	X	X	X	X	Yes	Intra-African migrant
391	*Centropus superciliosus*	Burchell's Courcal	Gewone Vleiloerie	X							X	X	X	X	X	Yes	Resident
392	*Tyto alba*	Barn Owl	Nonnetjie uil				X						X			Yes	Visitor
401	*Bubo africanus*	Spotted Eagle-Owl	Gevlekte ooruil				X			X						Yes	Resident
405	*Caprimulgus pectoralis*	Fiery-necked Nightjar	Afrikaanse Naguil				X										Resident
406	*Caprimulgus rufigena*	Rufous-cheeked Nightjar	Rooiwangnaguil										X	X	X	Yes	Intra-African migrant
412	*Apus barbatus*	African Black Swift	Swartwindswael	X	X	X					X	X	X	X	X		Intra-African migrant
415	*Apus caffer*	White-rumped Swift	Witkruiswindswael	X	X	X	X				X	X	X	X	X	Yes	Intra-African migrant
416	*Apus horus*	Horus Swift	Horuswindswael										X				Intra-African migrant
417	*Apus affinus*	Little Swift	Kleinwindswael	X	X	X	X	X	X	X	X	X	X	X	X		Resident
418	*Apus melba*	Alpine Swift	Witpenswindswael	X	X		X				X	X	X	X	X		Intra-African migrant
424	*Colius striatus*	Speckled Mousebird	Gevlekte muisvoël	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
425	*Colius colius*	White-backed Mousebird	Witkruismuisvoël	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
426	*Colius indicus*	Red-faced Mousebird	Rooiwangmuisvoël	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
428	*Ceryle rudis*	Pied Kingfisher	Bontvisvanger			X	X	X	X	X	X			X		Yes	Resident
429	*Ceryle maxima*	Giant Kingfisher	Reuse Visvanger	X	X	X	X	X	X		X					Yes	Resident
431	*Alcedo cristata*	Malachite Kingfisher	Kuifkopvisvanger				X	X			X	X	X			Yes	Visitor
435	*Halcyon albiventris*	Brown-hooded Kingfisher	Bruinkopvisvanger				X				X	X				Yes	Visitor

BIRDS RECORDED IN VROLIJKHEID NATURE RESERVE, ROBERTSON

Rob Martin Dawn Tyler Elsie Martin

Names from Sasol Guide (3rd edition)

ID	Scientific Name	Species	Afrikaans	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Br?	Status
438	*Merops apiaster*	European Bee-eater	Europese Byvanger	X	X										X		Intra-African migrant
451	*Upupa epops*	African Hoopoe	Hoephoep	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
465	*Lybius leucomelas*	Acacia Pied Barbet	Bonthoutkapper	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
474	*Indicator indicator*	Greater Honeyguide	Grootheuningwyser								X	X					Visitor
476	*Indicator minor*	Lesser Honeyguide	Kleinheuningwyser										X				Visitor
480	*Geocolaptes olivaceus*	Ground Woodpecker	Grondspeg	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
486	*Dendropicos fuscescens*	Cardinal Woodpecker	Kardinaalspeg					X			X	X				Yes	Visitor
495	*Mirafra apiata*	Cape Clapper Lark	Hoëveldklappertjie						X	X	X	X	X	X	X	Yes	Resident
500	*Mirafra curvirostris*	(Karoo?) Longbilled Lark	Langbeklewerik	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
507	*Calandrella cinerea*	Red-capped Lark	Rooikoplewerik			X	X	X	X	X	X	X	X	X	X	Yes	Visitor
512	*Galerida magnirostris*	Large-billed Lark	Dikbeklewerik	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
518	*Hirundo rustica*	Barn Swallow	Europese Swael	X	X	X							X	X	X		European migrant
520	*Hirundo albigularis*	White-throated Swallow	Witkeelswael	X	X	X					X	X	X	X	X	Yes	Intra-African migrant
523	*Hirondo dimidiata*	Pearl-breasted Swallow	Pêrelborsswael	X	X	X	X				X	X	X	X	X	Yes	Intra-African migrant
526	*Hirondo cucullata*	Greater Striped Swallow	Grootstreepswael	X	X	X	X	X			X	X	X	X	X	Yes	Intra-African migrant
529	*Hirundo fuligula*	Rock Martin	Kransswael	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
530	*Delichon urbica*	Common House-Martin	Huisswael	X	X												European migrant
533	*Riparia paludicola*	Brown-throated Martin	Afrikaanse oewerswael	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
534	*Riparia cincta*	Banded Martin	Gebande oewerswael												X		Vagrant
541	*Dicrurus adsimilis*	Fork-tailed Drongo	Miksterbyvanger	X	X												Visitor
548	*Corvus albus*	Pied Crow	Witborskraai				X										Visitor
550	*Corvus albicollis*	White-necked Raven	Withalskraai	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
551	*Parus afer*	Grey Tit	Piet-tjou-tjou-gysmees	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
557	*Anthoscopus minutus*	Cape Penduline-Tit	Kaapse Kapokvoël	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
566	*Pycnonotus capensis*	Cape Bulbul	Kaapse Tiptol	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
572	*Athropadus importunus*	Sombre Greenbul	Gewone Willie				X	X	X	X	X	X	X	X		Yes	Resident
577	*Turdus olivacues*	Olive Thrush	Olyflyster					X	X	X			X	X		Yes	Resident
586	*Oenanthe moniticola*	Mountain Wheatear	Bergwagter				X	X	X	X	X	X	X	X	X	Yes	Resident
587	*Oenanthe pileata*	Capped Wheatear	Hoëveldskaapwagter		X	X	X	X					X	X	X		Resident
589	*Cercomela familiaris*	Familiar Chat	Gewone spekvreter	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
592	*Cercomela schlegellii*	Karoo Chat	Karoospekvreter	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
596	*Saxicola torquata*	African Stonechat	Gewone bontrokkie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
601	*Cossypha caffra*	Cape Robin-Chat	Gewone Jan Frederik	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
614	*Erythropygia coryphaeus*	Karoo Scrub-Robin	Slangverskrikker	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
621	*Parisoma subcaeruleum*	Chestnut-vented Tit-Babbler	Bosveldtjeriktik	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
622	*Parisoma layardi*	Layard's Tit-Babbler	Grystjeriktik	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident

BIRDS RECORDED IN VROLIJKHEID NATURE RESERVE, ROBERTSON

Rob Martin Dawn Tyler Elsie Martin

Names from Sasol Guide (3rd edition)

ID	Scientific Name	Species	Afrikaans	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Br?	Status
126	*Milvus aegyptius*	Yellow-billed Kite	Geelbekwou										X				Vagrant
127	*Elanus caeruleus*	Black-shouldered Kite	Blouvalk	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
131	*Aquila verreauxii*	Verreauxs' Eagle	Witkruisarend	X			X		X		X		X				Visitor
136	*Hieraaetus pennatus*	Booted Eagle	Dwergarend	X									X	X	X		Intra-African migrant
140	*Polemaetus bellicosus*	Martial Eagle	Breëkoparend			X						X					Vagrant
148	*Haliaeetus vocifer*	African Fish-Eagle	Visarend	X			X	X			X	X	X		X		Visitor
149	*Buteo buteo*	Steppe Buzzard	Bruinjakkelsvoël			X						X		X	X		European migrant
152	*Buteo rufofuscus*	Jackal Buzzard	Rooiborsjakkelsvoël	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
155	*Accipiter rufiventris*	Rufous-chested Sparrowhaw	Rooiborssperwer											X			Visitor
158	*Accipiter melanoleucus*	Black Sparrowhawk	Swartsperwer					X									Visitor
160	*Accipiter tachiro*	African Goshawk	Afrikaanse Sperwer				X						X				Visitor
162	*Melierax canorus*	Southern Pale Chanting Goshawk	Bleeksingvalk	X	X	X	X	X	X	X	X	X	X	X		Yes	Resident
165	*Circus ranivorus*	African Marsh-Harrier	Afrikaanse Paddavreter	X									X				Visitor
166	*Circus pygargus*	Montagu's Harrier	Blouvleivalk		X												Vagrant
168	*Circus maurus*	Black Harrier	Witkruispaddavreter							X							Vagrant
169	*Polyboroides typus*	African Harrier-Hawk	Kaalwangvalk	X													Vagrant
172	*Falco biarmicus*	Lanner Falcon	Edelvalk			X			X	X							Visitor
181	*Falco tinnunculus*	Rock Kestrel	Rooivalk						X	X	X	X				Yes	Resident
190	*Francolinus africanus*	Grey-winged Francolin	Bergpatrys	X											X	Yes	Visitor
195	*Francolinus capensis*	Cape Spurfowl	Kaapse Fisant	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
200	*Coturnix coturnix*	Common Quail	Afrikaanse kwartel					X			X	X				Yes	Intra-African migrant
203	*Numida meleagris*	Helmeted Guineafowl	Gewone Tarentaal	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
208	*Anthropoides paradisea*	Blue Crane	Bloukraanvoël									X	X				Vagrant
210	*Rallus caerulescens*	African Rail	Grootriethaan					X	X	X	X	X	X			Yes	Resident
213	*Amaurornis flavirostris*	Black Crake	Swartriethaan			X		X	X	X	X	X	X	X	X	Yes	Resident
217	*Sarothrura rufa*	Red-chested Flufftail	Rooiborsvleikuiken					X	X	X	X	X	X	X	X	Yes	Resident
226	*Gallinula chloropus*	Common Moorhen	Waterhoender	X	X	X		X	X	X	X	X	X	X	X	Yes	Resident
228	*Fulica cristata*	Red-knobbed Coot	Bleshoender	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
239	*Eupodotis afra*	Southern Black Korhaan	Swartkorhaan	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
248	*Charadrius pecuarus*	Kittlitz's Plover	Geelborsstrandkiewiet	X	X	X	X					X	X	X	X	Yes	Visitor
249	*Charadrius tricollaris*	Three-banded Plover	Drienbandkiewiet	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
255	*Vanellus coronatus*	Crowned Lapwing	Kroonkiewiet	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
258	*Vanellus armatus*	Blacksmith Lapwing	Bontkiewiet	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
264	*Tringa hypoleucos*	Common Sandpiper	Gewone ruiter	X	X	X	X						X	X	X		European migrant
266	*Tringa glareola*	Wood Sandpiper	Bosruiter	X													European migrant

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1	*Struthio camelus*	Common Ostrich	Volstruis	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
6	*Podiceps cristatus*	Great Crested Grebe	Kuifkopdobbertjie		X								X				Visitor
7	*Podiceps nigricollis*	Black-necked Grebe	Swartnekdobbertjie		X		X						X		X		Visitor
8	*Tachybaptus ruficollis*	Little Grebe	Kleindobbertjie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
55	*Phalacrocorax lucidus*	White-breasted Cormorant	Witborsduiker	X	X	X	X	X	X	X	X	X	X	X	X		Resident
58	*Phalacrocorax africanus*	Reed Cormorant	Rietduiker	X	X	X	X	X	X	X	X	X	X	X	X		Resident
60	*Anhinga rufa*	African Darter	Slanghalsvoël	X	X	X	X	X	X	X	X	X	X	X	X		Resident
62	*Ardea cinerea*	Grey Heron	Bloureier	X	X	X	X	X	X	X	X	X	X	X	X		Resident
63	*Ardea melanocephala*	Black-headed Heron	Swartkopreier	X	X	X		X	X	X	X		X				Resident
64	*Ardea goliath*	Goliath Heron	Reusereier											X			Vagrant
65	*Ardea purpurea*	Purple Heron	Rooireier			X		X	X	X	X	X	X	X	X	Yes	Resident
66	*Egretta alba*	Great Egret	Grootwitreier						X	X							Vagrant
67	*Egretta garzetta*	Little Egret	Kleinwitreier	X	X	X	X			X	X	X	X	X	X		Resident
68	*Egretta intermedia*	Yellow-billed Egret	Geelbekwitreier	X	X	X	X	X	X				X	X	X		Visitor
71	*Bubulcus ibis*	Cattle Egret	Bosluisvoël	X	X	X	X	X	X	X	X	X	X	X	X		Resident
72	*Ardeola ralloides*	Squacco Heron	Ralreier										X				Vagrant
76	*Nycticorax nycticorax*	Black-crowned Night Heron	Gewone nagreier		X			X	X	X	X	X	X	X	X		Visitor
78	*Ixobrychus minutus*	Little Bittern	Woudapie		X												Visitor
81	*Scopus umbretta*	Hamerkop	Hamerkop	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
84	*Ciconia nigra*	Black Stork	Grootswartooievaar	X									X				Visitor
91	*Threskoirnis aethiopicus*	African Sacred Ibis	Skoonsteenveër	X	X	X	X	X	X		X	X	X	X	X		Resident
93	*Plegadis falcinellus*	Glossy Ibis	Glansibis								X	X					Visitor
94	*Bostrychia hagedash*	Hadeda Ibis	Hadeda	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
95	*Platalea alba*	African Spoonbill	Lepelaar	X	X	X	X	X	X	X	X	X	X	X	X		Resident
100	*Dendrocygna bicolor*	Fulvous Duck	Fluiteend										X				Vagrant
102	*Alopochen aegyptiacus*	Egyptian Goose	Kolgans	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
103	*Tadarna cana*	South African Shelduck	Kopereend	X	X	X	X	X	X	X	X	X	X		X	Yes	Visitor
104	*Anas undulata*	Yellow-billed Duck	Geelbekeend	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
105	*Anas sparsa*	African Black Duck	Swarteend							X	X	X					Visitor
106	*Anas capensis*	Cape Teal	Teeleend				X										Visitor
108	*Anas erythrorhyncha*	Red-billed Teal	Rooibekeend	X	X	X	X			X					X	Yes	Visitor
112	*Anas smithii*	Cape Shoveler	Kaapse Slopeend		X		X				X	X	X	X	X		Visitor
113	*Netta erythrophthalma*	Southern Pochard	Bruineend										X	X	X		Visitor
116	*Plectropterus gambensis*	Spur-winged Goose	Wildemakou	X	X		X	X	X		X	X	X				Visitor
117	*Oxyura maccoa*	Maccoa Duck	Bloubekeend												X		Vagrant
122	*Gyps coprotheres*	Cape Vulture	Kransaasvoël		X							X					Vagrant

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631	*Acrocephalus baeticatus*	African Reed- Warbler	Kleinrietsanger	X	X	X					X	X	X	X	X	Yes	Intra-African migrant
635	*Acrocephalus gracilirostris*	Lesser Swamp-Warbler	Kaapse Rietsanger	X			X	X	X	X	X	X	X	X	X	Yes	Resident
638	*Bradypterus trochilus*	Little Rush-Warbler	Kaapse Vleisanger	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Intra-African migrant
643	*Phylloscopus trochilus*	Willow Warbler	Hofsanger	X									X		X		European migrant
645	*Apalis throracica*	Bar-throated Apalis	Bandkeelkleinjantjie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
651	*Sylvietta rufescens*	Long-billed Crombec	Bosveldstompstert	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
653	*Eremomela icteropygialis*	Yellow-bellied Eremomela	Geelpensbossanger	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
661	*Sphenoeacus afer*	Cape Grassbird	Grasvoël										X				Visitor
664	*Cisticola juncidis*	Zitting Cisticola	Landeryklopkloppie	X	X	X			X	X	X	X	X	X	X	Yes	Resident
669	*Cisticola subruficapilla*	Grey-backed Cisticola	Grysrugtinktinkie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
677	*Cisticola tinniens*	Levaillant's Cisticola	Vleitinktinkie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
686	*Prinia maculosa*	Karoo Prinia	Karoolangstertjie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
687	*Prinia substriata*	Namaqua Warbler	Namakwalangstertjie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
688	*Malcorus pectoralis*	Rufous-eared Warbler	Rooioorlangstertjie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
698	*sigelus silens*	Fiscal Flycatcher	Fiskaalvlieëvanger	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
700	*Batis capensis*	Cape Batis	Kaapse Bontrokkie				X				X						Visitor
706	*Stenostira scita*	Fairy Flycatcher	Feevlieëvanger	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
710	*Terpsiphone viridis*	African Paradise-Flycatcher	Paradysvlieëvanger										X				Intra-African migrant
713	*Motacilla capensis*	Cape Wagtail	Gewone Kwikkie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
716	*Anthus novaeseelandiae*	African Pipit	Gewone Koester	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
717	*Anthus similis*	Long-billed Pipit	Nicholsonse Koester				X	X	X	X	X	X	X	X		Yes	Resident
718	*Anthus leucophrys*	Plain-backed Pipit	Donkerkoester						X	X				X			Visitor
721	*Anthus crenatus*	African Rock Pipit	Klipkoester	X	X	X		X				X	X	X	X	Yes	Resident
727	*Macronyx capensis*	Cape Longclaw	Oranjekeelkalkoentjie	X	X	X	X	X	X	X	X	X	X	X		Yes	Resident
732	*Lanius collaris*	Common Fiscal	Fiskaallaksman	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
736	*Laniarus ferrugineus*	Southern Boubou	Suiderlike Waterfiskaal	X	X	X	X	X					X				Resident
742	*Tchagra tchagra*	Southern Tchagra	Grysborstjagra			X	X	X	X	X	X	X	X	X	X	Yes	Resident
746	*Telophorus zeylonus*	Bokmakierie	Bokmakierie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
757	*Sturnus vulgaris*	Common Starling	Europese Spreeu	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
759	*Spreo Bicolor*	Pied Starling	Witgatspreeu	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
760	*Creatophora cinerea*	Wattled Starling	Lelspreeu	X		X	X	X	X	X	X	X	X	X	X		Resident
769	*Onychognathus morio*	Red-winged Starling	Rooivlerkspreeu	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
775	*Nectarinia famosa*	Malachite Sunbird	Jangroentjie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
783	*Nectarinia chalybea*	Southern Double-collared Su	Klein-rooiborssuikerbekkie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
796	*Zosterops pallidus*	Cape White-eye	Kaapse Glasogie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
801	*Passer domesticus*	House Sparrow	Huismossie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident

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803	*Passer melanurus*	Cape Sparrow	Gewone Mossie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
813	*Ploceus capensis*	Cape Weaver	Kaapse Wewer	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
814	*Ploceus velatus*	Southern Masked-Weaver	Swartkeelgeelvink	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
821	*Quelea quelea*	Red-billed Quelea	Rooibekkwelea			X											Vagrant
824	*Euplectes orix*	Southern Red Bishop	Rooivink			X	X	X	X	X	X	X	X	X	X	Yes	Resident
827	*Euplectes capensis*	Yellow Bishop	Kaapse Flap					X	X	X	X	X				Yes	Visitor
842	*Lagonosticta senegala*	Red-billed Firefinch	Rooibekvuurvinkie									X					Vagrant
846	*Estrilda astrild*	Common Waxbill	Rooibeksysie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
850	*Estrilda melanotis*	Swee Waxbill	Suiderlike swie								X	X	X	X	X	Yes	Visitor
860	*Vidua macroura*	Pin-tailed Whydah	Koningrooibekkie			X	X				X	X	X				Visitor
872	*Serinus canicollis*	Cape Canary	Kaapse Kanarie	X	X	X		X	X	X	X	X	X	X	X	Yes	Resident
876	*Serinus alario*	Black-headed Canary	Swartkopkanarie					X	X	X	X	X	X			Yes	Visitor
877	*Serinus sulphuratus*	Brimstone Canary	Dikbekkanarie	X	X					X	X	X				Yes	Visitor
878	*Serinus flaviventris*	Yellow Canary	Geelkanarie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
879	*Serinus albogularis*	White-throated Canary	Witkeelkanarie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
881	*Serinus gularis*	Streaky-headed Seedeater	Streepkopkanarie	X		X		X	X	X	X	X	X	X	X	Yes	Resident
885	*Emberiza capensis*	Cape Bunting	Rooivlerkstreepkoppie	X	X	X	X	X	X	X	X	X	X	X	X	Yes	Resident
887	*Emberiza impetuani*	Lark-like Bunting	Vaalstreepkoppie		X						X	X	X			Yes	Visitor

Amphibians:

Cape river frog, Common platanna, scabrous toad

Reptiles:

Tortoises: Leopard tortoise, Ungulate tortoise,

Snakes: Dangerous: Cape cobra, Puff adder, boomslang, mole snake, Berg adder, coral snake

Common snakes: Brown house snake, slug-eater, egg-eating snake, herald snake, Skaapsteker

Skinks: Cape skink, Cape legless skink

Chameleon: Western dwarf chameleon,

8.4 APPENDIX D – Zonation and special management overlay categories

8.4.1 Zonation categories

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Wilderness / Wilderness (declared)	Conservation: To limit visitor numbers and use to minimise impact. Minimal management intervention for visitor or biodiversity management. Include sensitive or threatened habitats & species in this low use zone when contiguous sites meet the criteria for wilderness Users: To provide an experience of solitude in pristine landscapes with minimal evidence of human presence or use.	Completely wild and rugged landscapes (or being restored to this). Areas where users have little chance of encountering any other human presence or group. Sight or sound of human activities outside zone barely discernable and at far distance; Preferably no human impact or infrastructure inside the zone other than trails. Natural burning regimes, with no active fire management and road/firebreak infrastructure. Areas with minimal Invasive Alien Plant infestations, where IAP control can be done without vehicle access. Area must meet the definition and requirements of the National Environmental Management: Protected Areas Act 57 of 2003. If formally declared in terms of the act, zone = "Wilderness (declared)"; if not = "Wilderness".	"Leave-no-trace" activities: Overnight hiking, without any sleeping facilities, formal campsites, or with only basic, unserviced shelters. "Carry in, Carry out" principle for all food and waste. Guided or unguided nature observation. No fires	No infrastructure of any type if possible. No roads or vehicle tracks. No structures except small existing buildings of cultural, historic or aesthetic value. These can be used as unserviced sleeping shelters for hikers & provided with composting toilets. Narrow permanent walking trails. No signage except small, unobtrusive markers for closed routes, or at trail junctions. NB – in the mountainous, slow-growing fynbos of the Western Cape, the traditional wilderness concept of access without defined trails is unsafe and rapidly results in undesirable user-created trails and erosion.	Unguided visitor access only on foot. Visitors have freedom to use various trails. Use of donkeys, horses or other animals with an official guide only on designated historical routes and trails, or existing roads, and only where this will not cause trampling, erosion or any degradation. Limits on visitor numbers and/or control of routes and access so that zone objectives are met. Use of non-motorised canoe or flotation device on rivers can be acceptable where entry is by foot or by river from outside the zone. No fires No vehicle access No access without zone permit	Visitor Management: Manage to conserve natural and cultural resources, ecological processes and wilderness integrity. Leave no trace ethic Restrict numbers of visitors and allow for no-use rest periods if required. Limited management interventions. Management measures may be carried out in extreme conditions, but tread lightly principles must apply. Since visitor use 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. Conservation Management: Habitats with minimal management requirements, typically natural burning zones. Prevent or restore visible trampling or any other impact. Rehabilitate non-essential roads to natural vegetation. Re-zone essential roads out of Wilderness Zoning. Consumptive Use: Not compatible

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 biodivesrity 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[1] No visible infrastructure in Wilderness viewsheds. May provide isolated, small, unobtrusive accomodation 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 vistor 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 stablise. 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.[2]	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 applicatoin in accordance with CapeNature policies.

[1] CapeNature should embark on a work shopping exercise to determine more explicit thresholds for development, including road infrastructure in this and other zones. Until this time, take a precautionary approach to maintain the zone objective and characteristics.

2 But do consider the safety requirements for access of more than one vehicle at a time for fire-fighting or rescue operations. Where a dedicated escape route might be required for tourism infrastructure, consider whether the additional road impact now or in the future is warranted.

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 biodivesrity 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 senstivity 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 applicatoin in accordance with CapeNature policies.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
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[3] 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 applicatoin in accordance with CapeNature policies.

[3] 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.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development – High 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 no expectation of solitude. To provide low and/or higher density accommodation.	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 very 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 larger amounts of treated wastewater.	Restaurants and small shops Picnicking. Walking or bicycle access into adjacent areas. Accommodation in small hotels, lodges and higher density self-catering accommodation and/or camping. Meetings, workshop or mini-conference activities for no more than the number of people that can be accommodated overnight in the zone.	High density tourist development nodes Modern amenities incl restaurants & shops Self-catering accommodation and camping for over 100 guests in total at any time Lodges or small hotels. 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.	Tour bus access Motorised self-drive sedan car access Parking areas Air access only permitted if considered and approved as part of zoning scheme and no possibility of faunal disturbance.	Visitor Management: Management action will focus mostly on maintenance of facilities & providing high quality experiences. Use built and infrastructure solutions to such as railings, hard surfacing and boardwalks to manage undesirable visitor impacts. Accept substantial 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 maximum revenue. Management should aim to mitigate the biodiversity impacts of the high number of visitors only in sensitive areas (if any) identified by Special Management Overlay. These are highly 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 unlikely to be compatible.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development - Management	Location of infrastructure and facilities for Reserve Administration & Conservation management facilities Not compatible with tourism	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 disturbance, with no identified sensitive or regionally rare biodiversity. Areas not visible or audible from Development - Low / High Intensity zone, but in close proximity to any other Development Zones. Areas providing easy access to reserve and infrastructure. 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.	n/a	Any reserve management infrastructure including offices, sheds, garages, stores, etc. Roads required to access these should be surfaced to reduce long-term maintenance costs and environmental impact.	none	Visitor Management: 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: Management should aim to contain all activities within the smallest possible footprint. L largely transformed habitats with lower management requirements. Usually fire exclusion areas. Prevent or restore trampling or any other management 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 unlikely to be possible in small zone.

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Development - Production	Commercial or subsistence farming (only applicable to privately owned & managed Contract Nature Reserves)	Areas identified for production farming Areas with extensive degraded or transformed footprints. Natural or semi-natural habitats only when use of these areas is supported by a bioregional plan and specialist site assessment.	May allow agri-tourism	Any agricultural infrastructure.	May allow agri-tourism	Agricultural best practise to support surrounding natural areas, particularly with regard to river and wetland buffer areas.
Development – Private Areas	Private dwelling and surrounds (only applicable to privately owned & managed Contract Nature Reserves)	Private homestead Areas with existing degraded or transformed footprints. Natural or semi-natural habitats only when use of these areas is supported by a bioregional plan and specialist site assessment.	n/a	Dwellings and private accommodation areas. Roads to access these.	No access to the public without permission from landowner	Should have no negative impacts on the surrounding conservation area

8.4.2 Special Management Overlays

Additional forms of zonation that can overlap any of the above zones.

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 viewsheds and particularly for Wilderness Zone viewsheds	. Sensitive viewsheds and particularly for areas within Wilderness Zone viewsheds	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.

8.5 APPENDIX E – Annual Plan of Operation

Management Authority	Viljoendrift Nature Reserve
Owner	Fred Viljoen
Compiled by:	Corne / Carina /Martin

KPA	Objective	Actions	Responsibility (CN-CapeNature; MA-Management Authority)	2023-2024 Apr-Jun	Jul-Sept	Oct-Dec	Jan-Mar	Comment
KPA 1: Erosion prevention and control	1. Conduct soil erosion assessment. 2. Map erosion sites and ensure photographs are available	1. Map erosion areas	CN					done 2018
		2. Plan erosion control	MA / CN					done 2018
		3. Construct erosion control intervention	MA / CN					subject to appointment of CN stewardship field officer
		4. Monitor rehabilitation	CN					subject to appointment of CN stewardship field officer
KPA 2: Invasive vegetation management	1. Identify and Map all alien invasive flora within the Reserve	1. Identify and map alien invasive flora distribution	CN					done CBWUA
		2. Conduct innitial clearing of alien invasive flora (outside riparian zone)	CN / MA					done CN
		3. Ensure follow-up of cleared areas (riparian area)	Central Breede Water Users Association					Jonathan da Silva follow-up
		4. Ensure follow-up of alien invasive flora (outside riparian zone	CN / MA		X			
KPA 3: Wildlife Management	1. Prevent the introduction of alien fauna 2. Management damage causing fauna	1. Monitor alien fauna with camera traps	CN / MA	X	X	X	X	
		2. Utelise holistic methods to manage damage causing a	MA				X	harvest season grapes / fruit
KPA 4: Monitoring and baseline data collection	1. Compile and implement ecological matrix 2. Implement measures to ensure resilience and persistance of biodiversity in light of climate change 3. To ensure the implementation of effective conservation management interventions.	1. Create a Biodiversity Resource Inventory.	CN / MA					done - update ad hoc as new data become available
		2. Conduct plant survey with CREW	CN / CREW		X			follow-up Ebrahim CREW availability spring?
		3. Implement Monitoring Programme and deploy camera trap	CN / MA					
		4. Capture species information on SOB database	CN	X	X	X	X	
KPA 5: Biodiversity security	1. Ensure security of biodiversity assests and prevent illegal hunting / plant collection	1. Ensure site access control	MA	X	X	X	X	
		2. Report any suspected biodiversity crime to Conservation Authority	MA / CN					as required
KPA 6: : Legal compliance	1. To ensure legal compliance to all relevant legislation and policies.	1. CARA; NEMA; Nat Water Act compliance	MA	X	X	X	X	Agric development CN comment NEMA & CARA
KPA 7: Management effectiveness	1. To implement effective management systems.	1. Conduct annual audits May	CN / MA	X				
KPA 8: Infrastructure Management	1. Planning and development of hiking routes, mountain bike trails, and basic facilities to cater for visitors to the nature Reserve	1. Maintain hiking and mountain bike trails	MA		X			

cc follow-up