Vergelegen Nature Reserve

Western Cape
South Africa

Management Plan

Prepared by
CapeNature Biodiversity Stewardship Programme

Citation
Vergelegen Nature Reserve: Management Plan. Version 1.0, (2019) Andrie Brink.

AUTHORISATION

This Integrated Management Plan for the Vergelegen Nature Reserve was drafted and recommended by Vergelegen Wines (Pty) Ltd.

Supported by:
CapeNature

Name and Title	**Signature and Date**
CapeNature Regional Manager *Tierck Hoekstra*	

Recommended and adopted by:

Name and Title	**Signature and Date**
Management Authority *Vergelegen Wines (Pty) Ltd*	

Approved by:

Name and Title	**Signature and Date**
Mr Anton Bredell Minister of Local Government, Environmental Affairs and Development Planning	

Review Date: 2024

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

Bionet	City of Cape Town's Biodiversity Network
CBA	Critical Biodiversity Area
CoAE	Certificate of Adequate Enclosure
CREW	Custodians of Rare and Endangered Wildflowers
DEA&DP	Department of Environmental Affairs and Development Planning
DEA	National Department of Environmental Affairs
DWA	National Department of Water Affairs
DWS	Department of Water and Sanitation
EMF	Environmental Management Framework
EMP	Environmental Management Plan
FEPA	Freshwater Ecosystem Priority Area
FPA	Fire Protection Association in terms of the National Veld and Forest Fire Act (No.1 of 1998)
GIS	Geographical Information System
IDP	Municipal Integrated Development Plan
KPA	Key Performance Area
LUPO	Land Use Planning Ordinance
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NEMA	National Environmental Management Act
NEMBA	National Environmental Management Biodiversity Act
NEMPA	National Environmental Management Protection Act
NFEPA	National Freshwater Ecosystem Priority Area
NPAES	National Protected Area Expansion Strategy
PA	Protected Area
SAHRA	South African Heritage Resources Agency
SANBI	South African National Botanical Institute
SOB	State of Biodiversity Report
SDF	Municipal Spatial Development Framework
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WULA	Water Use Licence Applications
WoF	Working on Fire

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 Vergelegen Nature Reserve, 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 Vergelegen Nature Reserve in such a way that its values and the purpose for which it has been established are protected.

1.2 Structure of the plan

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

1.3 Adaptive management

The preparation of this management plan has been undertaken based on the guiding principles of adaptive management, which is a structured, iterative process in which decisions are made using the best available information, with the aim of obtaining better information through monitoring of performance (Figure 1.1). In this way, decision making is aimed at achieving the best outcome based on current understanding, whilst accruing the information needed to improve future management. Adaptive management can lead to revision of a part or if necessary the whole management plan.

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

Adaptive management enables landowners and managers to:

i) Learn through experience.

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

iii) Develop or refine management processes.

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

v) Demonstrate that management is appropriate and effective.

1.4 Introduction

Vergelegen Nature Reserve is situated between the Helderberg and Hottentots Holland Mountain Ranges stretching from the top of the Hottentots Holland Mountains down the slopes onto the banks of the Lourens River. It is approximately 50km east of Cape Town City Centre. The reserve is within the City of Cape Town Municipal boundary, approximately 5 km north east of the town Somerset West. It borders on the north east directly onto the Hottentots Holland Nature Reserve managed by CapeNature which is also a proclaimed World Heritage Site See Figure 1.2 for a locality map of Vergelegen Nature Reserve.

The declared Nature Reserve covers two portions. The northern portion is approximately 1790 ha and the southern portion is approximately 102 ha. The total area conserved is approximately 1892 ha.

Approximately 388 ha of the northern part of Vergelegen Nature Reserve are classified as Mountain Catchment. The Lourens River runs on the north eastern boundary of the reserve where it borders onto Lourensford Wine Estate.

The northern part of the reserve falls within buffer zone of the Cape Winelands Biosphere Reserve which was proclaimed by United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 2007.

The property contains four vegetation types. A very small portion of Critically Endangered Kogelberg Sandstone Fynbos occurs at the top of the mountain range. Boland Granite Fynbos makes up the biggest portion of the northern section. This is classified in terms of the National Environmental Management: Biodiversity Act, 2004 (Act no 10 of 2004), (NEMBA) as Vulnerable. A small portion of the northern section consists of the Critically Endangered Lourensford Alluvium Fynbos. The southern section of the reserve consists of Swartland Shale Renosterveld classified also classified as Critically Endangered.

The critically endangered Geometric tortoise used to be found primarily in Alluvium Fynbos. In the 1980's Harmony Flats Nature Reserve (9ha) which is the only other reserve conserving Lourensford Alluvium Fynbos, lost their last population of Geometric tortoises. Geometric tortoises might have historically occurred on Vergelegen as well.

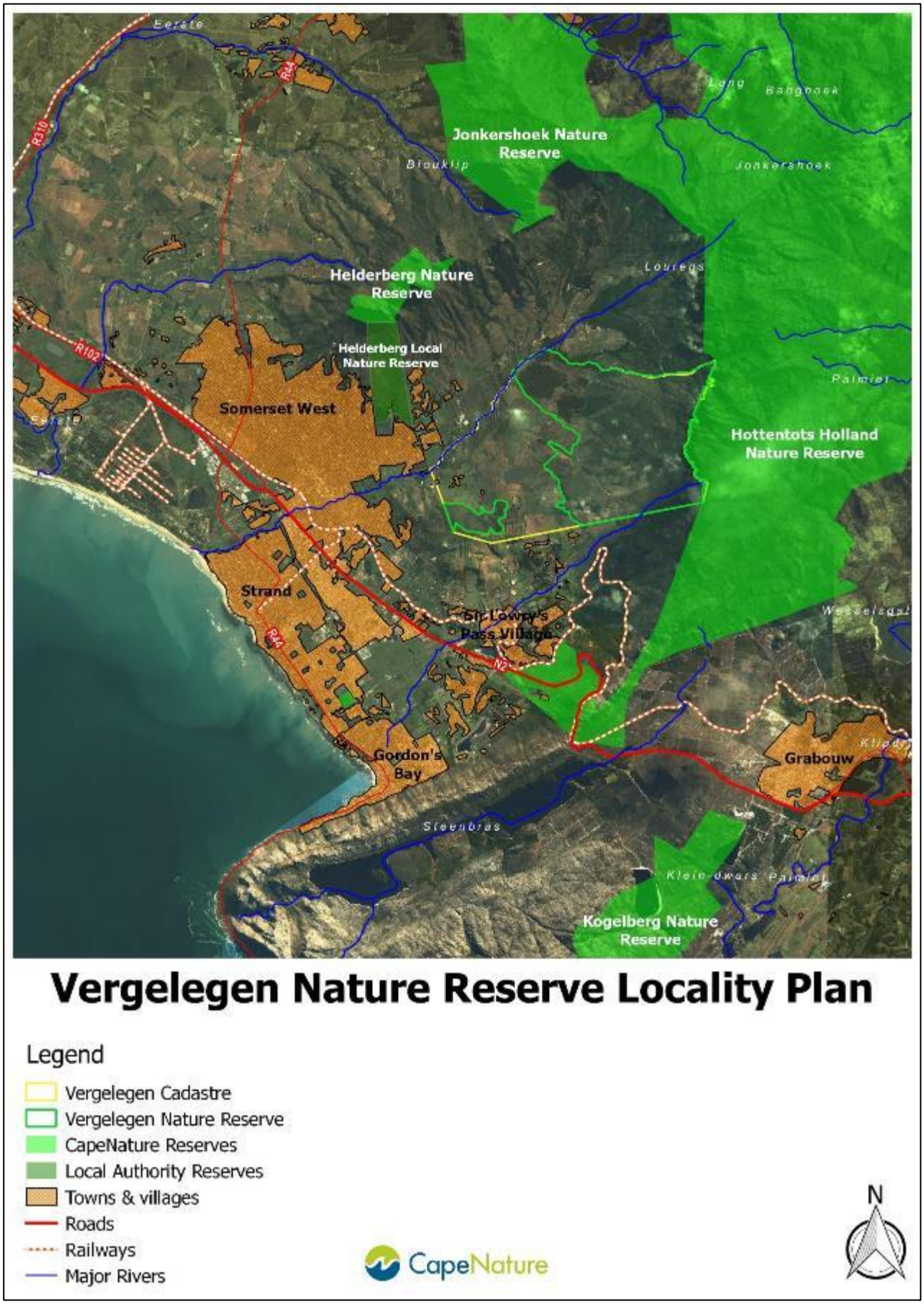


Figure 1.2 Regional location of Vergelegen Nature Reserve

1.5 The values of Vergelegen Nature Reserve

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

Natural values	➢ Two Critically Endangered and one vulnerable vegetation types are represented in the Nature Reserve, all of which are under-conserved and in urgent need of formal protection. o Lourensford Alluvium Fynbos (CR) is one of the two most threatened vegetation types in South Africa, and the approximately 15ha present on Vergelegen constitutes probably the only realistic chance to conserve a significant portion of this vegetation type. o The Swartland Shale Renosterveld (CR) contains approximately 8 Red Data Book species, and roughly 100 different plant species. The Schaapenberg renosterveld area is a major regional conservation priority. o The northern section constitutes one of the largest privately owned portions of Boland Granite Fynbos (VU) in good condition, and supports a major upland-lowland gradient, rainfall gradient, and a braided stream system, and is thus a regional conservation priority for this Endangered vegetation type. ➢ A population of the threatened *Serruria krausii* was identified in the Lourensford Alluvium Fynbos section in 1997, but dense alien vegetation stands and disturbance from activities along the road threaten the existence of this species. Frequent fires have probably eliminated this species from the northern sections, but it may be present to the south, currently amongst pines. The species has been atlassed from a number of sites in Vergelegen, and it is likely that there is a viable population on the property. This species has only two other viable populations – the northern slopes of the Helderberg, and Jonkershoek. It is possible that more individuals of this species are located in some of the other Boland Granite Fynbos areas on the property too.
Ecosystem service values	Purification and Detoxification: filtration, purification and detoxification of air, water and soils Regulation and Stabilisation: erosion control, regulation of rainfall and water supply, climate regulation, mitigation of storms and floods Habitat Provision: refuge for animals and plants, storehouse for genetic material, pollination Services.

Cultural and historic values	Vergelegen boasts a proud history extending over 300 years. Vergelegen has carefully conserved the items of heritage that has formed the foundation of Cape Culture in South Africa based on the layered historicism of links to the Netherlands, Far East, England and France. Over the centuries, the owners of Vergelegen have contributed to the preservation of the unique facets of the Estate, ranging from the ancient Camphor trees, believed to have been planted by van der Stel in 1700, the "Royal Oak" grown from an acorn taken from Blenheim Palace in 1928, through to sensitively revamped hospitality facilities that blend seamlessly into the centuries old landscape.
Socio-Economic values	Vergelegen has been able to create stable employment for 4 wood cutting teams that harvest the large alien invasive trees for fire wood and in doing so provides jobs for a minimum of 4 people per team. Vergelegen does not charge the woodcutters for any of the material harvested from the estate. The alien control programme uses contractors from local communities, providing work for an average of 40 people per annum.

1.6 Summary of management challenges and opportunities

Table 1.6.1 Management challenges and opportunities

Key performance area	Challenges and Opportunities
Fire management	In 1997 a wild fire covered over 2800 ha of Vergelegen. The land-use type most affected by this fire was land covered in invasive alien vegetation that covered 1600 ha; other land uses impacted by the fire were agriculture - 403 ha; natural vegetation – 650 ha and plantations – 164 ha. In 2009 a large wild fire burnt 2500 ha of Vergelegen. Land uses impacted by this fire, agriculture – 38 ha; invasive alien vegetation– 570 ha and natural vegetation – 1800 ha. This fire burnt 900 ha of areas that were cleared of invasive alien vegetation in the 7 years leading up to the fire. Since the 2009 fire Vergelegen has cleared over 1000 ha of invasive alien plants. The clearing produced thousands of cubic meters of biomass, a lot of which is removed by woodcutters for fire wood. However, the remaining biomass needs to be removed in order to rehabilitate the area. The most cost effective method to remove the biomass is by prescribed burning. In January 2017 another big fire came across the property burning the largest portion of the Nature Reserve causing many alien seeds to germinate. Follow up have since been done to control the re-growth and the last initial clearing was also completed in October of 2018. Vergelegen with the help of the Helderberg FPA (East ward) and Working on Fire (WoF) conducts prescribed

	burns annually to reduce fire hazard created by the cleared material. This is normally done during the late summer period to reduce the associated negative ecological impacts of winter burns
Invasive vegetation management	The reserve has an extensive alien clearing plan which is updated annually. Funding for the plan comes from the landowner (Anglo American). Between 2014 and 2018, portion of the cost came from Working for Water (WfW) land-user incentive project. The reserve has since 2004 cleared over 2200 ha and completed the last of the initial clearing in October 2018. These areas undergo follow-up annually, most of which has entered a maintenance phase.
Wildlife management	The reserve has 4 trap cameras that form part of their wild life monitoring programme. These cameras are checked weekly and findings recorded. Bontebok (Damaliscus pygargus pygargus) are found on the reserve. There are 3 breeding groups that make up approximately 30 animals as well as bachelor herds of 3 to 4 animals each bringing the total number of Bontebok on the property to approximately 50+ animals.
Erosion prevention and control	Roads and jeep tracks are continuously monitored for erosion. As soon as erosion occurs, it must be repaired, and the cause of erosion must be minimised or stopped where possible by preventative measures. Landslides caused by heavy rain should be visually monitored to determine whether active intervention is needed. Currently there are 5 badly eroded sites on the property caused by flooding in 2013 and Vergelegen is in the process of getting the Environmental Impact Assessment (EIA) approved by the Department of Environmental Affairs & Development Planning (DEA&DP) to have the repairs done to these areas.
Monitoring and Baseline data collection	**Implement a monitoring program which is easy to implement, accurate, meaningful & affordable.** • **Fixed Point Photography (FPP):** Fixed Point photography points is set up in the Nature Reserve to monitor the following: ➢ Alien Vegetation regrowth as well as indigenous vegetation monthly. ➢ Post Fire Monitoring effects of fire on natural vegetation. • **Custodians of rare and endangered wild flowers (CREW):** The reserve is broken up into management units. CREW conduct monthly visits within these management units to report on plant species diversity and help monitor rehabilitation progress. • **Bird Club:** The local bird club conducts monthly visits to monitor bird species diversity.
Biodiversity security	Zonation of reserve still to be determined.
Development of tourism opportunities	No tourism opportunities available yet, but will be investigated in the future.

Legal compliance	Water extraction licence: Vergelegen extracts water from a branch of the Lourens River; approximately 2 150 000.00 cubic metres can be extracted per year.
Management effectiveness	• Annual Management Reports will be done by CapeNature and the Management Authority to ensure the effective implementation of the reserve management plan. • The management plan will be reviewed annually and amended if necessary.
Infrastructure	• Vergelegen reserve has an extensive road infrastructure which needs to be monitored continuously for soil erosion. • The reserve has two man made dams totalling 9 ha's. These dams provide water to the larger Rooiland dam located outside the reserve boundaries on Vergelegen. • Sluice located on the Lourens River and associated canals that feed the water to Rooiland dam. • The Johnson Hut was built by the Mountain Club South Africa (MCSA) in the period between 1960 and 1964. Since the property was sold to Anglo American in 1987, access has been permitted but is strictly controlled. The MCSA is responsible for the maintenance of the building as well as firebreaks around the building.

2) STRATEGIC MANAGEMENT FRAMEWORK

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

2.1 Vergelegen Nature Reserve's Vision and Purpose

The Vision

When Anglo American purchased the property in 1987, extensive investments were made in viticulture and in restoring the Estate's historic core, with a view to sharing the Estate with visitors worldwide.

Among the many projects undertaken on the Estate by Anglo American was an extensive programme of clearing invasive alien vegetation, land rehabilitation and restoration of the Estate's natural and historic core.

Our vision is to ensure the long-term protection of the site for generations to come by appropriately managing the reserve. The management of Vergelegen Nature Reserve will strive to continually improve all aspects of the way in which the Reserve is managed - environmentally, socially and economically.

Purpose

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

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

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

Vergelegen 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.

2.2 Objectives

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

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

Table 2.1 Objectives and Key Deliverables for Vergelegen Nature Reserve

Key Performance Area	Objective	Key Deliverable
Biodiversity Management		
Fire management	To ensure conservation of species and processes by maintaining and improving ecosystem functioning. To allow for natural fire processes to occur without impacting on safety and infrastructure. To implement effective Integrated Catchment Management.	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 and implement an ecological burn programme (if applicable).
Invasive vegetation management	To enhance biodiversity protection and conservation. To ensure conservation of species and processes by maintaining and improving ecosystem functioning.	Eradicate Alien and Invasive Species. Prevent Further Introduction of Aliens.
Wildlife management	To ensure effective conservation of species and processes by maintaining and improving ecosystem functioning. To enhance biodiversity protection and conservation.	Prevent the introduction of alien fauna species. Control invasive alien fauna. Manage the introduction of fauna on the Reserve. Evaluate and monitor impact of fauna on the Reserve.
Erosion prevention and control	To ensure implementation of effective conservation management interventions. To enhance biodiversity protection and conservation.	Prevent and mitigate soil erosion.
Monitoring and Baseline data collection	To manage biodiversity knowledge to ensure effective conservation management. To implement measures to ensure resilience and persistence of biodiversity in light of climate change. To ensure the implementation of effective conservation management interventions. To ensure conservation of species and processes by maintaining and improving ecosystem functioning.	Create a Biodiversity Resource Inventory. Implement Monitoring Programme. Implement Research Programme. Protection of Flora of Conservation Concern. Conservation of Threatened and Endemic Fauna. Manage consumptive utilisation of biological resources.

		Insert Ecological plan of Operation into CapeNature Conservation Services Ecological Matrix for the Area.
Biodiversity security	To enhance biodiversity protection and conservation. To ensure conservation of species and processes by maintaining and improving ecosystem functioning.	Improved security and safety of the biodiversity assets on the Nature Reserve.
Development		
Development of tourism opportunities	To evaluate potential tourism opportunities. To implement effective management systems. To ensure legal compliance and implementation of authorised development plans	Development of tourism opportunities that generate revenue for the Nature Reserve.
Operational Management		
Legal compliance	To ensure legal compliance to all relevant legislation and policies.	Ensure that all legal requirements are met.
Management effectiveness	To implement effective management systems.	Conduct annual audits Auditing systems inform management and management plan revision.
Infrastructure	To ensure the implementation of effective conservation management interventions. To enhance biodiversity protection and conservation. To ensure conservation of species and processes by maintaining and improving ecosystem functioning.	All infrastructure on the Reserve is adequately maintained.

3) DESCRIPTION VERGELEGEN NATURE RESERVE AND ITS CONTEXT

3.1 The legislative basis for the management of Vergelegen Nature Reserve

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

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

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

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

3.1.1 Proclamation status of Vergelegen Nature Reserve

Vergelegen Nature Reserve is proclaimed under Section 23(1) of the National Environmental management: Protected Areas Act (Act 57 of 2003). See Appendix B

3.1.2 Invasive species control in terms of the Biodiversity Act

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

3.2 The regional and local planning context of Vergelegen Nature Reserve

3.2.1 The Protected Area Expansion Strategy and Implementation Plan

The Protected Area Expansion Strategy and Implementation Plan is a response to the National Protected Area Expansion Strategy (NPAES) (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 CapeNature Protected Area Expansion Strategy addresses the formal proclamation of priority natural habitats as protected areas to secure biodiversity and ecosystem services for future generations. This strategy is aligned to the concepts and goals of the 2008 NPAES, but does identify some different spatial priorities.

Vergelegen Estate lies within the City of Cape Town Municipal Boundaries. The City of Cape Town's biodiversity network (BioNet) includes those areas that are the viable minimum needed to conserve a representative sample of Cape Town's unique biodiversity and thus promote sustainable development (City of Cape Town n.d.-a).

Cape Town is the city with the highest number of threatened plant species in the world – almost a third of the threatened plants in the Cape floral kingdom are found within its boundaries. Of the 24 South African vegetation types rated as "Critically Endangered", half are found in Cape Town.

It is therefore essential that the City plans and directs housing to suitable areas, while balancing the needs of our precious natural heritage. The only option for sustainability and improved quality of life is to ensure that the built, cultural and natural environment is integrated.

Eighteen different national vegetation types occur in Cape Town, and of these, City conservation targets can be met for only nine. For the other vegetation types, all remaining natural remnants are important to secure a representative sample of the City's biodiversity.

Eight planning districts were mapped in the City of Cape Town (City of Cape Town, n.d.-b). The Vergelegen Nature Reserve falls within the Helderberg planning district. An Environmental Management Framework (EMF) and district plan have been compiled for each of the eight planning districts. The plans have been approved by the City of Cape Town as structure plans in terms of section 4(10) of the Land Use Planning Ordinance (LUPO) and are informed by the city-wide Cape Town Spatial Development Framework (SDF).

These planning districts were further divided into sub-districts and Vergelegen falls within Sub-district 5: Somerset West (City of Cape Town, 2012).

Figure 3.1 shows the Critical Biodiversity Map of Vergelegen Nature Reserve. See Table 3.1 for the CBA Name and description of the CBA categories of the Biodiversity Network of the City of Cape Town.

Table 3.1 CBA Category, CBA Name and Description of the Biodiversity Network in the City of Cape Town

CBA Category	CBA Name	Description
Protected: In Perpetuity	Protected Area proclaimed in perpetuity	Protected Areas (National, Provincial, Local & Contractual Nature Reserves)
Protected: Not In Perpetuity	Protected Area proclaimed for a limited period	These areas are currently being managed as part of existing reserves or core flora sites but have no legal status as yet.
Conservation Area	Protected Area that is not yet proclaimed	Non-proclaimed local & private conservation areas
CBA 1a	Irreplaceable Core Flora Site	Core Flora Sites: Irreplaceable sites of historical significance & very high priority.
CBA 1b	Irreplaceable Good & Fair Condition Site	Critically Endangered vegetation of High & Medium quality. Needed for national targets. Any loss is a permanent & irrevocable loss.
CBA 1c	Minset Good & Fair Condition site	High & Medium condition vegetation that is endangered or vulnerable & selected on the Biodiversity Network for meeting national targets (C-Plan). Loss can be replaced by obtaining specific Unselected Natural Vegetation Sites.
CBA 1d	Irreplaceable Consolidation Site	Critically Endangered vegetation of low/ restorable condition. Essential for management consolidation & viability of CBA 1a, CBA 1b & protected sites.
CBA 1e	Connectivity Site	Vegetation that is selected in the Biodiversity Network for connectivity & ecological processes (Marxan).
CBA 2	Restorable Irreplaceable Site	Critically endangered vegetation of restorable condition. Needed for national targets but not for management consolidation,

		connectivity or viability of priority Biodiversity network sites.
ESA	Unselected Natural Area of Conservation Significance	Unselected areas that are in natural vegetation. Essential ecological support for CBA 1, CBA 2 & protected sites.
OESA	Irreversibly Modified Site of Conservation Significance	Open space transformed by agriculture or other activities. Essential for protected sites.
Other Natural Areas	Unselected Natural Area: Good/Fair/Restorable	Natural vegetation in Endangered, Vulnerable and Least Concern in good or restorable condition.

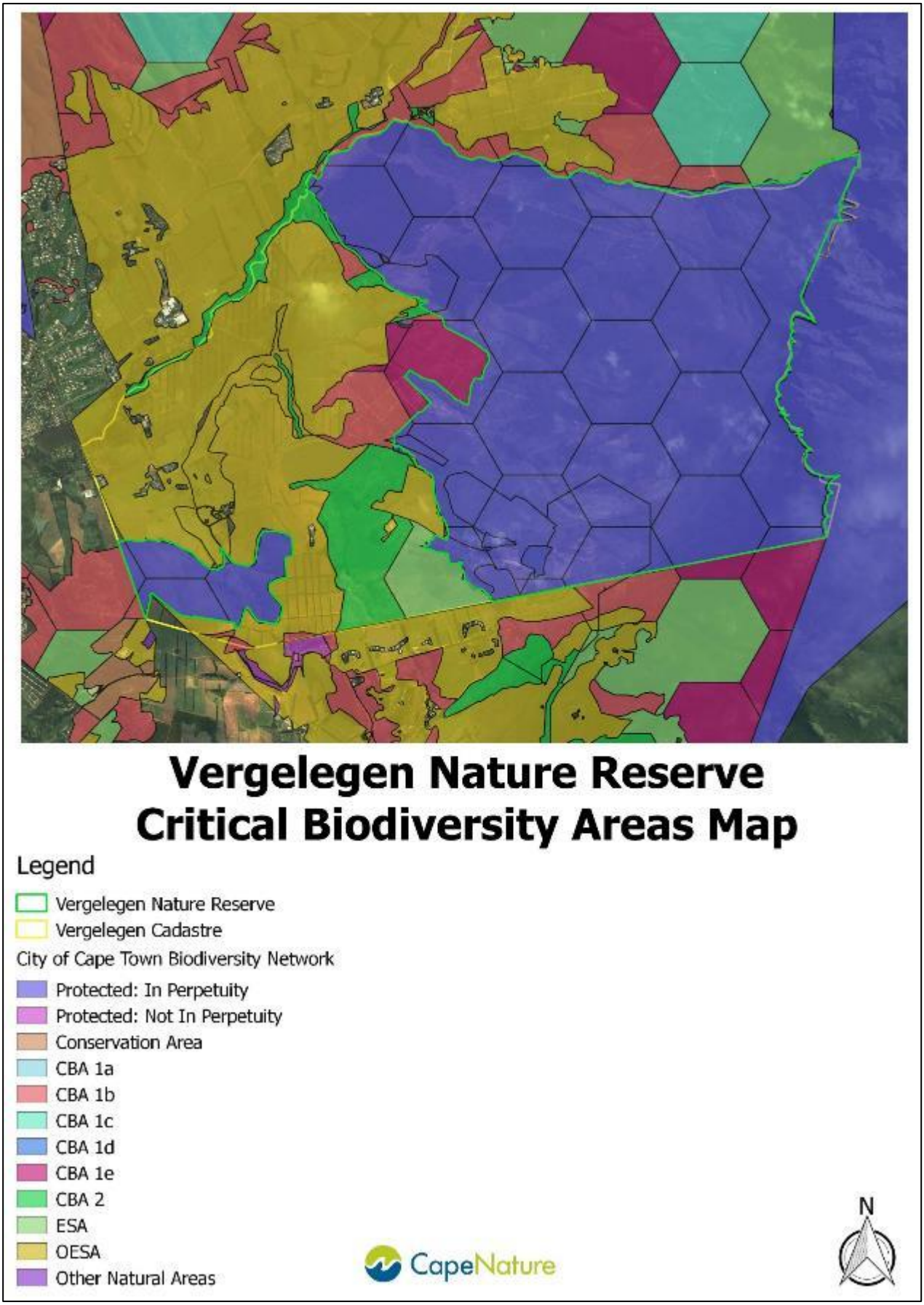


Figure 3.1 Critical Biodiversity Area map of Vergelegen Nature Reserve

3.3 The history of Vergelegen Nature Reserve

Historical synopsis

In the early 1700s European settlers discovered the fertile ground that was suitable for the cultivation of vines and a large variety of crops in the Helderberg Basin. Large areas were available to provide grazing for sheep and cattle. Willem Adriaan van der Stel transformed the area from "wilderness" to a highly productive farm by planting vineyards, a variety of grains, vegetable and flower gardens. Later he laid out orchards and orange groves and "enhanced" his land by planting camphor (*Cinnamomum camphora*) and oak (*Quercus* species) trees.

In the early 1800s Vergelegen increased the area covered in vines from 15 to 400 ha. Crops of wheat, oats, rye and barley yielded good returns. For a period of almost two hundred years Vergelegen belonged to a number of Dutch families who were mainly subsistence farmers.

Vergelegen changed hands in the early 1920s at which point the vineyards were uprooted. Leading up to 1938 the invaded areas were predominantly situated in and around cultivated and transformed land in riparian areas. The dominant invasive species were *Acacia* and *Eucalyptus*. Between 1938 and 1966 agricultural land-use grew with the introduction of contour ploughing and the planting of grass, clovers and trees, and natural vegetation declined accordingly.

The property changed hands again in the early 1940s followed by the introduction of the largest Jersey herd in South Africa at the time. During this period large dams were built, and fruit orchards, pastures and pine trees were planted. Vergelegen Estate (Propriety) Limited and Vergelegen Timber (Propriety) Limited were formed in 1956 with the planting of an additional 217 ha of *Pinus radiata*. A large dam was built in 1973 to provide water to growing crops and modern and efficient irrigation methods were established. Cash crops were planted at large scale in the early 1970s and the property started supplying a large national supermarket chain with vegetables in 1975. In the period of 1966 – 1977 the focus was on agricultural development which came at the expense of natural vegetation which was converted to crops or became invaded.

Between 1978 and 1990, the farming enterprise at Vergelegen was in a sorry state of neglect when taken over by Anglo American Farms (Amfarms). Although the basic infrastructure existed, like buildings, roads and irrigation systems, dams, drainage and windbreaks, most of it was not suitable for a viable farming enterprise. Cash crops were cultivated after the second half of 1987, but production was limited, because of insufficient irrigation systems, and was later abandoned due to poor economic returns. Agricultural land-use declined and the extent of invaded land increased. The rapid increase in the extent of invasion was directly correlated with the loss of agricultural land, since disturbed vacant land was invaded by herbaceous weeds as well as woody alien plant species.

Vergelegen was purchased by Anglo American Farms in 1987 with the purpose of turning the property into a working farm including the production of wine. Extensive soil and climate testing was undertaken and a plan was drawn up for the development of the area and a large winery was built. Suitable soils were cultivated and large portions of plantations were felled at the beginning of 1988 by Cape Timbers under contract to harvest the remainder of the viable commercial timber. The remainder of the plantations comprised of approximately 3 - 5 ha young trees (15 - 20 years) and the rest were adult trees (older than 25 years). These plantations were subsequently neglected and had no commercial value. Due to a lack of management, these areas became invaded and also contributed to the spread of pine to the surrounding natural vegetation. After 1989 the extent of agricultural land-use plateaued, and the area of invaded land increased.

Forming part of Vergelegen's commitment to preserving natural and cultural heritage, Vergelegen implemented a large privately-funded alien clearing project in 2004 with the goal of rehabilitating 2200 ha of natural vegetation. The decision was made after the 1997 wild fire that covered over 2800 ha of the study area. The land-use type most affected by this fire was invaded land that covered 1600 ha; other land uses impacted by the fire were agriculture - 403 ha; natural vegetation – 650 ha and plantations – 164 ha. Post fire the Vergelegen wine business funded a small project to clear and rehabilitate 140 ha of Boland granite fynbos. This project was a success and in 2002 the Anglo board committed to a 10-year project to clear the remaining of 2200 ha whereafter an alien clearing management plan was drawn up and implemented in 2004. This resulted in a sharp decline in invaded land and an increase in natural vegetation. In 2009 a large wild fire burnt 2147 ha of the study area. Land uses impacted by this fire, agriculture – 38 ha; invaded land – 570 ha and natural vegetation – 1800 ha. This fire burnt 900 ha of areas that were cleared in the 7 years leading up to the fire.

3.4 Ecological context of Vergelegen Nature Reserve

This section reflects the ecological conditions of Vergelegen Nature Reserve.

3.4.1 Climate and weather

The climate is hinterland (further from oceanic influences) Mediterranean, with cool, rainy winters and warm, dry summers.

Maximum temperatures are experienced in February (average daily maximum = 27°C) and minimum temperatures usually occur in July (average daily minimum = 7°C).

Rainfall occurs mainly in winter between mid-May and late August with an average of 568mm of rain per year. It receives the lowest rainfall (10mm) in February and the highest (96mm) in June (saexplorer, n.d.).

Occasional snowfalls occur on the mountains adjacent to Vergelegen during winter.

3.4.2 Topography

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

Lying at the foot of the westerly lying slopes of the Hottentots Holland Mountain Range, the reserve varies from 120m to 1060m above sea level. The Swartland Shale Renosterveld koppie to the west varies from 160m in the north to 300m above sea level to the south. See Figure 3.2.

3.4.3 Geology and soils

The portion in the middle of Vergelegen Estate consists mostly of Granite. It is surrounded to the north and east by scree/talus/alluvium grading into piedmont gravel. To the north west of the property alluvium is found with a small portion in between the granite to the south. A small section in the middle of the granite consists of ferricrete.

The Swartland Shale Renosterveld koppie consists mostly of Shale, greywacke, quartzite, minor volcanic rocks with a very small portion to the south east consisting of loam and sandy loam.

See figure 3.2 for a map of the geology of Vergelegen Estate.

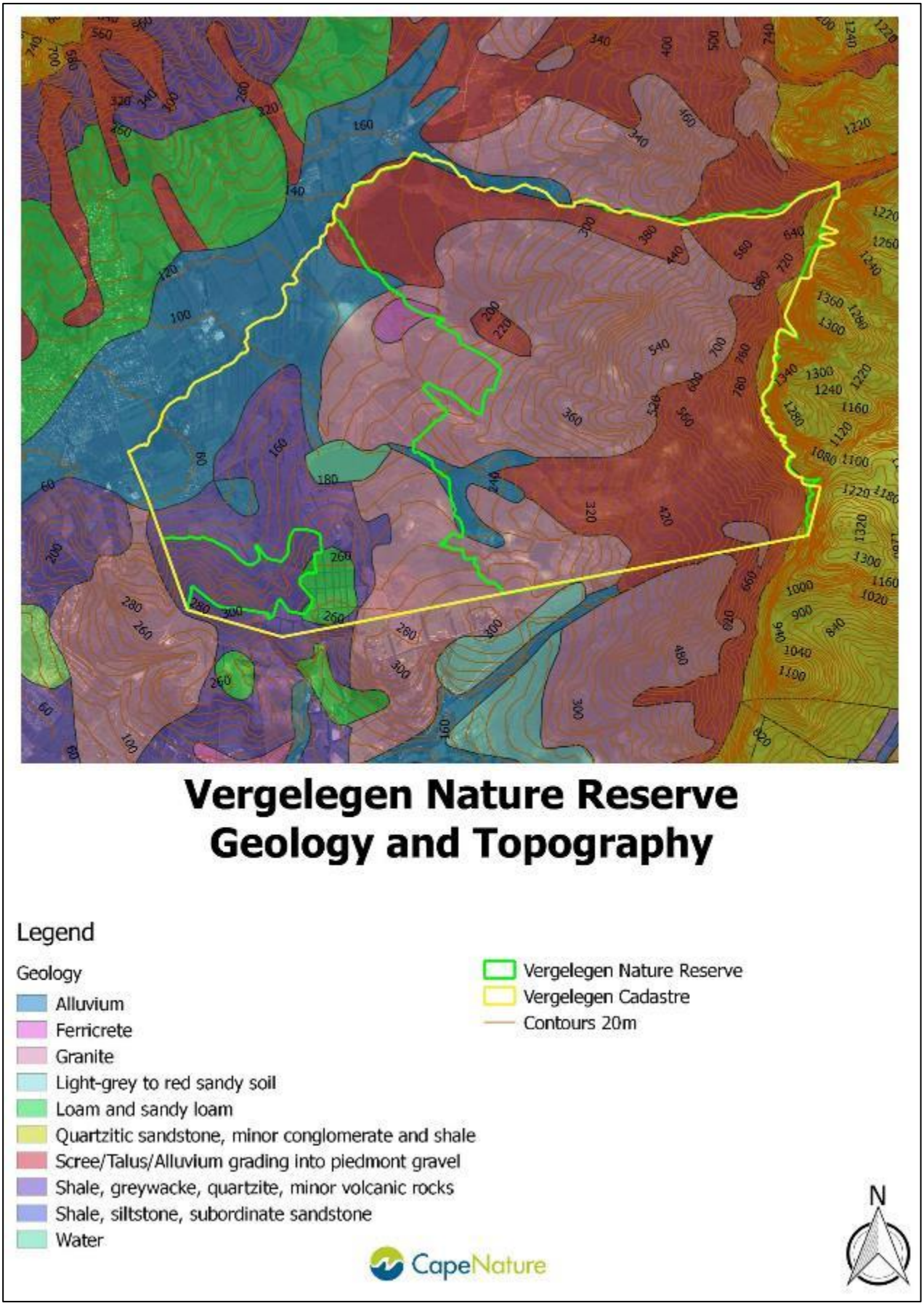


Figure 3.2 Topography and Geology of Vergelegen Nature Reserve

3.4.3.1 Soil interfaces

Where two soil types meet there is often a “tension zone”. Different soils support different vegetation types and the meeting point is known as an ecotone. The vegetation here is often a unique combination of both parent types. These ecotones are biologically important because they are often areas of active speciation. For this reason, disturbance in this zone must be avoided and it is preferable to buffer it with at least 30m of vegetation on either side.

3.4.4 Geomorphology

The Hottentots Holland Mountains are part of the Cape Fold Belt (Wikipedia, 2015). The range is primarily composed of Table Mountain Sandstone with some shale which results in a high surface runoff of low-salinity, acidic water (River Health Programme, 2003).

The lower section of the Lourens River falls within the Southern coastal belt. This ecoregion terrain is typified by plains, hills and mountains with an altitude ranging from 0 - 600m above mean sea level. Rock types include quartzitic sandstone, shale, sand and biotite granite. The vegetation is mainly dune thicket, coastal renosterveld and sand plain fynbos. This region is mostly underlain by shale and sand, resulting in a lower surface runoff of more saline, alkaline water (River Health Programme, 2003).

3.4.5 Hydrology

The Lourens River and several minor tributaries rise in the Hottentots Holland Mountains at an altitude of more than 1 110m amsl. According to the River Health Programme (2003) the river flows in a southwesterly direction for almost 20km before passing through Somerset West and entering False Bay at Strand beach where it forms a small estuary. The upper reaches of the catchment are situated within the Helderberg and Hottentots Holland Nature Reserves. Natural fynbos vegetation of the upper catchment outside the reserves has largely been replaced by forestry and agriculture (predominantly orchards and vineyards). There are no major in-channel dams along the Lourens River, only a number of farm dams in the tributaries. Surplus winter flows are stored in the dams for use in summer when flow in the river is low. The National Freshwater Ecosystem Priority Areas (NFEPA) wetlands layer for this property is not correct and is in the process of being amended. The shapefile layer for these wetlands are not available yet. See Figure 3.3 for a map of the hydrology of Vergelegen Estate and surrounding areas.

Figure 3.3 Hydrology Map of Vergelegen Nature Reserve

3.4.6 Vegetation

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

Three vegetation types are found on the Vergelegen Estate: Lourensford Alluvium Fynbos, Boland Granite Fynbos and Swartland Shale Renosterveld. In these vegetation types, many threatened plant species have been found. See Figure 3.4 for a map of the vegetation types and locality points of some of the threatened species found on Vergelegen Estate.

See Appendix C for a species list of the plant species that have been found on Vergelegen Estate. Data from iNaturalist has also been used to compile this list.

Lourensford Alluvium Fynbos

Lourensford Alluvium Fynbos is classified as Critically Endangered (CR) according to Mucina and Rutherford (2006). The original area for this ecosystem extended 6 000 ha, but only 9% is now remaining. 3% of the original area is currently protected in the Helderberg and Harmony Flats Nature Reserves, with the remainder in the Lourens River area. 21 known Red Data plant species occur within this vegetation type. According to Nick Helme (2005) the approximately 15ha present on Vergelegen constitutes probably the only realistic chance to conserve a significant portion of this vegetation type.

This vegetation type consists of low-lying plains supporting low, medium dense shrubland with short graminoid understorey. Restioid and asteraceous fynbos are dominant, although there is some evidence that proteoid fynbos might once have been dominant. Some remnants are exceptionally rich in geophytes. Boundaries are edaphically determined. There are no known endemic species.

Lourensford Alluvium Fynbos is located in low-lying areas between Firgrove, Gordon's Bay including much of the Stand and Somerset West, extending up the Lourens River Valley to the sawmill above and Lourensford Estate.

Boland Granite Fynbos

Boland Granite Fynbos is classified as Vulnerable (VU) according to Mucina and Rutherford (2006). The original extent of this ecosystem was 50 000 ha with 62% of this remaining. Only 14% of the original extent is protected in the Hawequas, Hottentots Holland and Paarl Mountain Nature Reserves, with a further 34% found in Hawequas, Hottentots Holland mountain catchment areas and Helderberg and Paardenberg Nature Reserves. 56 known Red Data plant species occur within this

vegetation type with 23 endemic plant species. Waboomveld is very typical and very extensive within the ecosystem.

This vegetation type occurs within the upper slopes and summits of Paardeberg and Paarl Mountain as well as the lower slopes of mountains spanning the Groenberg and Hawequasberge (western foothills near Wellington); Pniel (Simonsberg, Groot Drakenstein Mountains and Klapmutskop); Franschhoek (Middelberg, Dassenberg, Skerpheuwel and Middagkransberg); Stellenbosch (Jonkershoek Valley and northern side of the Helderberg); the lower south- and west-facing slopes of Haelkop and the Hottentots Holland Mountains; and the free-standing Skapenberg. It also occurs in the Du Toitskloof and Wemmershoek Valleys, Kaaimansgat and lower Stettynskloof, with outcrops on the Bottelary Hills and Kanonkop (near Pella). Moderately undulating plains and hills, varying from extensive deep soils, to localised deep soils between large granite domes and sheets. A fairly dense, 1–2 m tall closed shrubland with occasional low, gnarled trees dotted through the landscape. A diverse type, dominated by scrub, asteraceous and proteoid fynbos (with *Protea repens, P. burchelli, P. laurifolia* with *Leucadendron rubrum* and L. daphnoides as dominants on drier slopes; *Leucospermum grandiflorum* or *L. guenzii* dominant in seepage areas; and *P. neriifolia* and *Leucadendron sessile* on moist slopes), but with patches of restioid and ericaceous fynbos in wetter areas.

According to Nick Helme (2005) the Boland Granite Fynbos found on Vergelegen Estate constitutes one of the largest privately owned portions of this vegetation type in good condition and supports a major upland-lowland gradient, rainfall gradient, and a braided stream system, and is thus a regional conservation priority for this Endangered vegetation type.

Swartland Shale Renosterveld

Swartland Shale Renosterveld is classified as Critically Endangered according to Mucina and Rutherford (2006). The original area for this ecosystem extended 495 000 ha, but only 8% of this now remains. Less than 1% of the original area is currently protected. 151 known Red Data plant species occur within this vegetation type with at least 35 endemic plant species.

This vegetation type consists of moderately undulating plains and valleys supporting low to moderately tall leptophyllous shrubland of varying canopy cover as well as low, open shrubland dominated by renosterbos. Heuweltjies are a very prominent local feature of the environment, forming 'hummockveld' near Piketberg and giving the Tygerberg Hills their name. Stunted trees and thicket are often associated with the heuweltjies. Disturbed areas are dominated by *Athanasia trifurcata* and *Otholobium hirtum*. Patches of *Cynodon dactylon* 'grazing lawns' also occur in abundance. Boundaries are edaphically determined and within the west coast renosterveld are delimited by endemic species.

Swartland Shale Renosterveld occurs in large, generally continuous areas of the Swartland and the Boland on the West Coast lowlands, from Het Kruis in the north, southwards between the Piketberg and Olifantsrivierberge, widening appreciably in

the region around Moorreesburg between Gouda and Hopefield, and encompassing Riebeek-Kasteel, Klipheuwel, Philadelphia, Durbanville, Stellenbosch to the south and Sir Lowry's Pass Village near Gordon's Bay.

When this area was surveyed previously, 8 Red Data Book species and roughly 100 different plant species were identified on Vergelegen. The Schaapenberg renosterveld area is a major regional conservation priority according to Nick Helme (2005).

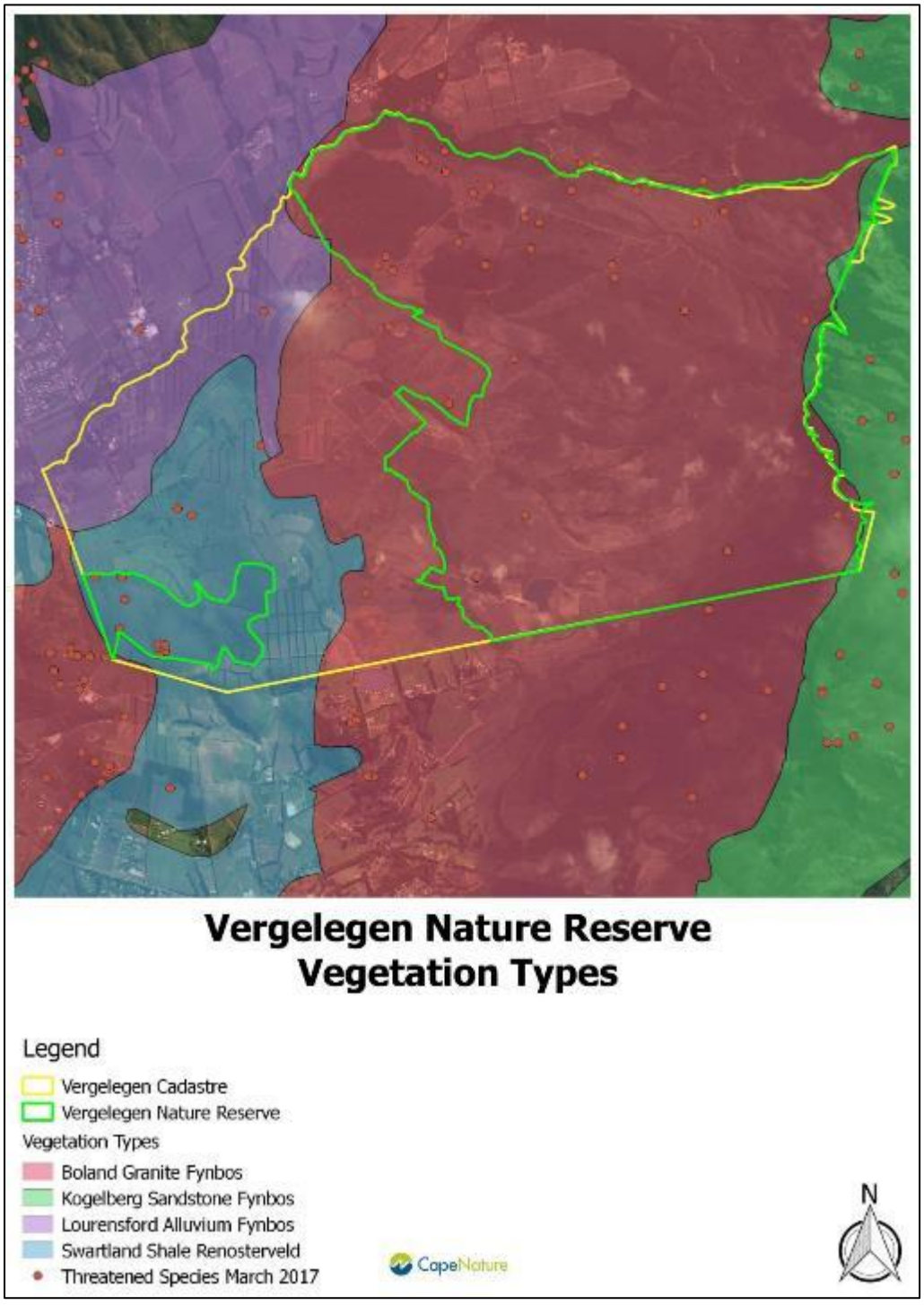


Figure 3.4 Vegetation types and threatened species found on Vergelegen Nature Reserve

3.4.7 Fire regime

The reserve has had three large wild fires that have mostly originated out of the North, north-eastern parts of the reserve.

In 1997 a wild fire started that covered over 2800 ha of Vergelegen. The land-use type most affected by this fire was invaded land that covered 1600 ha; other land uses impacted by the fire were agriculture - 403 ha; natural vegetation – 650 ha and plantations – 164 ha.

In 2009 a large wild fire burnt 2147 ha of Vergelegen. Land uses impacted by this fire: agriculture – 38 ha; invaded land – 570 ha and natural vegetation – 1800 ha. This fire burnt 900 ha of areas that were cleared in the 7 years leading up to the fire.

Since the 2009 fire Vergelegen has cleared over a 1000 ha of invasive alien plants. This has resulted in the production of many thousands of cubic meters of biomass a lot of which is removed by woodcutters for fire wood. However, the remaining biomass needs to be removed in order to rehabilitate the area. The most cost effective method to remove the biomass is by prescribed burning.

In January 2017 another large fire came across the property and burnt the largest portion of the Nature Reserve. This caused germination of large numbers of alien plants that was treated since to control spread. The rest of the initial clearing has also been done since and was completed in October 2018. This in turn leaves large amounts of biomass that needs to be disposed of and the most cost effective way is through controlled burning.

Vergelegen with the help of the Helderberg Fire Protection Association (FPA) (East ward) and Working on Fire performs prescribed burns annually to reduce fire hazard created by the biomass. As late summer is accepted as the natural fire season when most natural fires in the fynbos occur, it is done during this period to minimise negative ecological impacts e.g. poor fynbos regeneration if burnt during winter. Areas burnt annually are mapped and monitored for remerging natural vegetation and all young alien invasive plants treated.

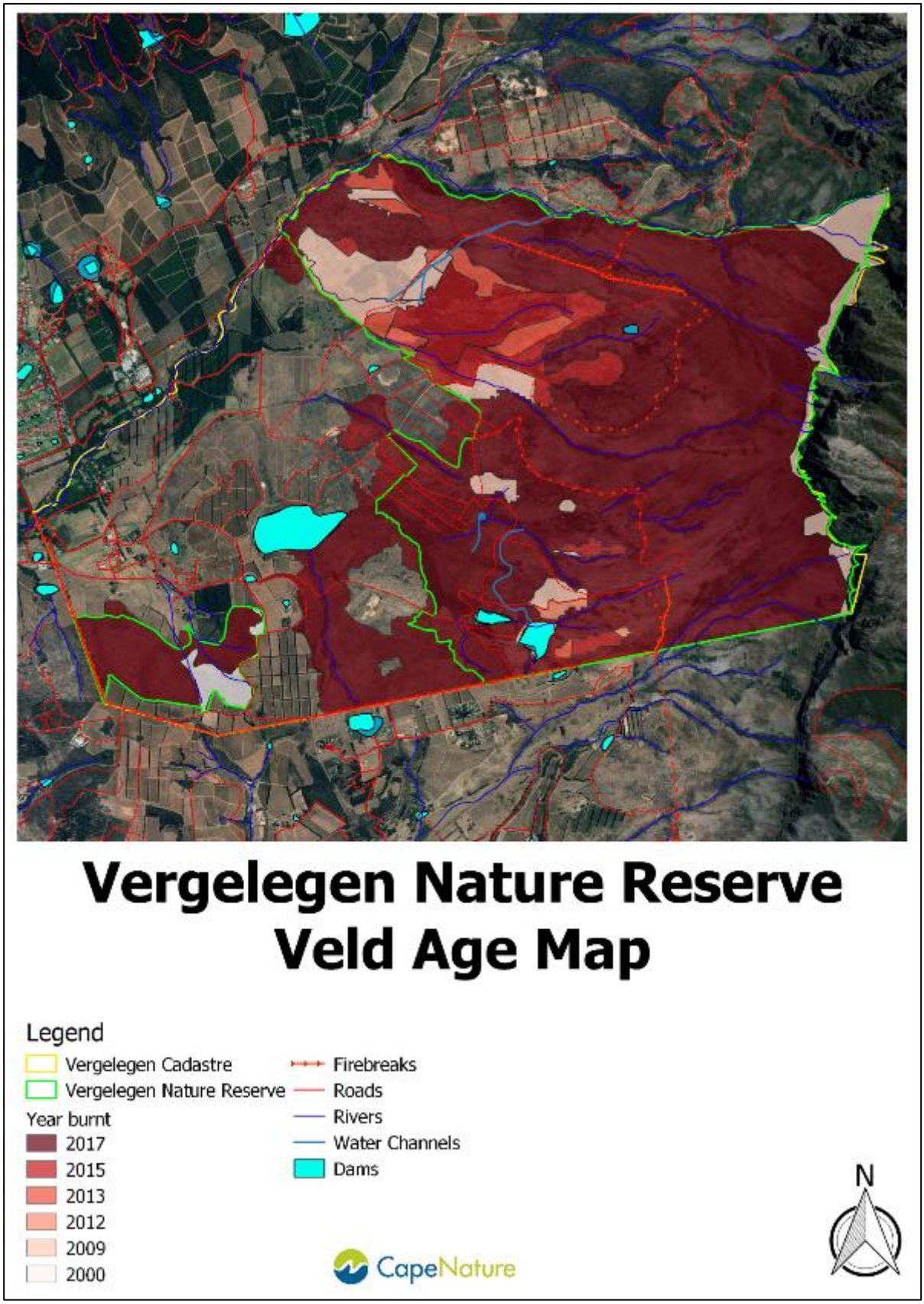


Figure 3.5 Veld Age map of Vergelegen Nature Reserve

3.4.8 Invasive species

The reserve has an extensive alien management plan that is updated annually. Funding for the management plan comes from the landowner (Vergelegen Wines (Pty) Ltd) and between 2014 and 2017 a portion of the funding came from WfW's (Working for Water) land-user incentive project.

The reserve has since 2004 cleared the entire extent of the property comprising of 2200 ha. These areas undergo follow-up annually to manage re-growth of alien plants.

Management units MU001, 005, 006 is located on the higher slopes of the property, these areas were 90% invaded by pine species and was cleared in 2011, 2012. However due to the terrain and lack of access the biomass created by the clearing operation has been left to decompose in stacks. These stacks burnt in the 2017 fire decreasing risk for a next fire as well as assisted with future follow up operations.

See Figure 3.6 for the invasive vegetation map and management units of Vergelegen Nature Reserve.

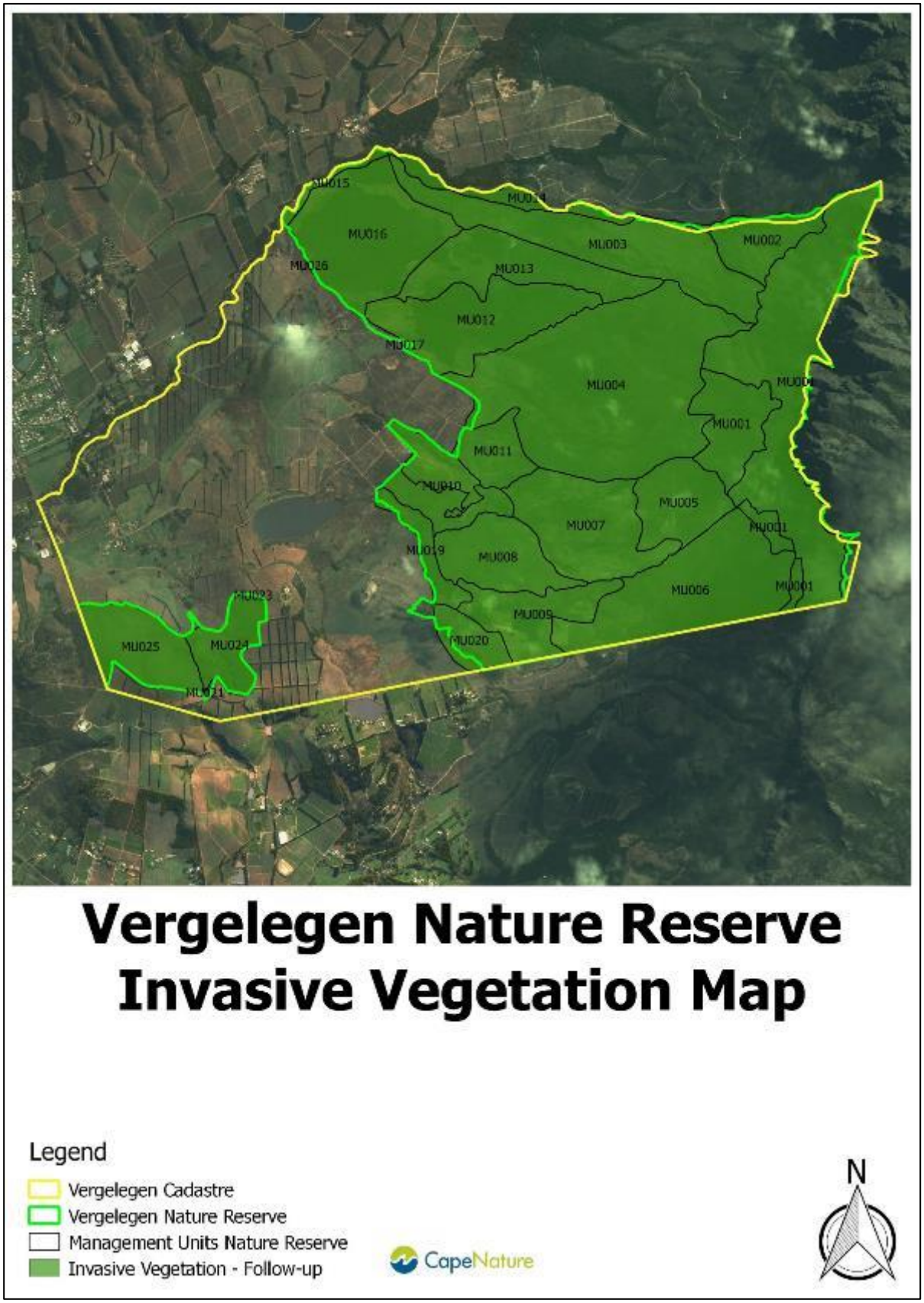


Figure 3.6 Invasive Vegetation Management Map of Vergelegen Nature Reserve

3.4.9 Mammalian fauna

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

Due to the rehabilitation of the reserve, indigenous fauna has returned to the area. In 2010 the reserve set up 4 trap cameras that forms part of their wild life monitoring programme. These cameras are checked weekly and findings recorded.

Bontebok (*Damaliscus pygargus pygargus*) are found on the reserve. There are 3 breeding groups that make up 30 animals as well as bachelor herds of 3 to 4 animals each bringing the current number of Bontebok on the property to approximately 50 animals.

Species list included in Appendix C.

3.4.10 Avifauna

The local bird club conducts a monthly survey on the reserve. Species are identified, and breeding details are captured and logged on GIS according to the management units within the reserve.

See Appendix C for the species list.

3.4.11 Herpetofauna (reptiles and amphibians)

See Appendix C for the herpetofauna species list. This list was compiled from observations by staff and data from iNaturalist.

3.4.12 Invertebrates

Information from iNaturlist was used to create the species list on the invertebrates found in Vergelegen. See Appendix C for this list.

3.5 Socio-economic context

Vergelegen Nature Reserve falls within the Helderberg District within the City of Cape Town. The District covers 33 191 ha in extent. The boundaries of this district are along the Baden Powell Drive to the north-west up to the eastern boundary of the City of Cape Town Municipality. It includes the towns Macassar, Faure, Firgrove, Somerset West, Strand, Nomzamo, Lwandle, Sir Lowry's Pass and Gordon's Bay.

According to the Helderberg District Plan (City of Cape Town, 2012) this District had an approximate population 194 548 people in 2008 with an average annual growth rate of 3.67%. The district also has the largest ratio of youth and aged dependant on the potential labour force. The unemployment rate is 25.5% which is lower than the average within the city (29.2%). Almost half of the employed population in this district earns less than R 1 600.00. High levels of unemployment are concentrated in areas such as Macassar and Sir Lowry's Pass.

As part of the extensive alien control program 4 local woodcutting teams harvest invasive alien wood from the reserve. All funds generated from this goes towards the woodcutting teams. The clearing operation and invasive plant follow-up programme creates on average 40 jobs annually.

4) ZONATION PLAN

The purpose of the zonation of Vergelegen Nature Reserve is to control the intensity and type of use within it, in efforts to ensure the main goal of biodiversity conservation is met. On this basis, within some zones, the permissible intensity of use will be relatively higher than in others. See Figure 4.1 for a map of the zonation within the Vergelegen Nature Reserve.

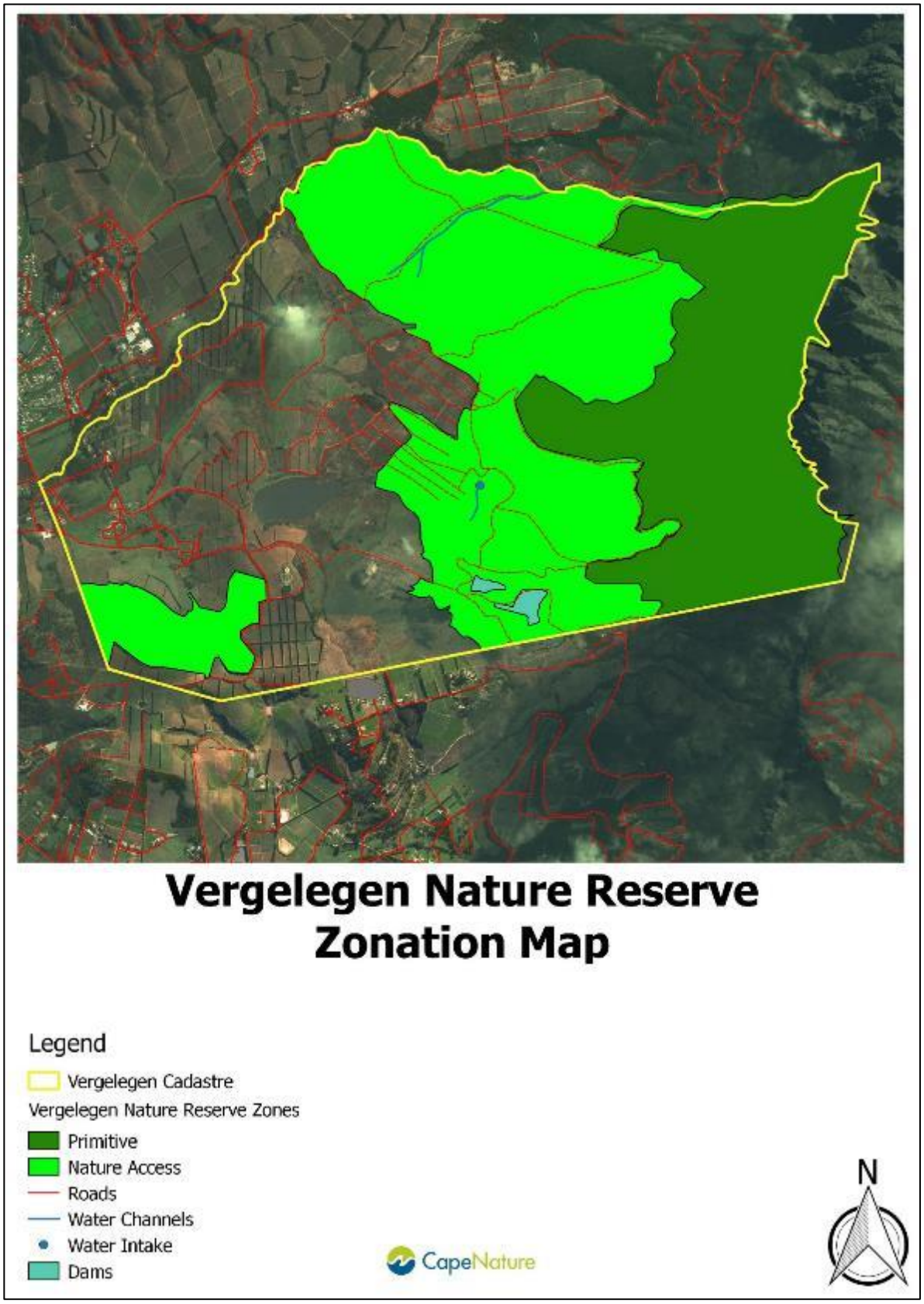


Figure 4.1 Zonation map of Vergelegen Nature Reserve

Table 4.1 Conceptual development guidelines

Zone	Zone Objective	Characteristics	Visitor Activities	Facilities / Infrastructure	Visitor Access	Management Guidelines
Primitive	***Conservation:*** To limit visitor use, numbers and infrastructure to minimise impact in sensitive environments. To reduce need for management of users and visitor impacts. Allows for minimal or more intensive 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] 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.

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 is 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 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.

[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.

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

5) ADMINISTRATIVE STRUCTURE

The landowner is appointed as the management authority for the Nature Reserve as agreed to in the Management Agreement concluded between CapeNature and the landowner.

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

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

CapeNature is also responsible for conducting an annual audit of the Nature Reserve and updating the Management Plan accordingly.

6) OPERATIONAL MANAGEMENT FRAMEWORK

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

6.1 Biodiversity management

6.1.1 Fire management

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

- Burning should be undertaken in such a way that it maintains spatial and temporal heterogeneity within the landscape.
- A patch mosaic of burnt and un-burnt areas should be maintained.
- The burning of areas should be undertaken in such a way that promotes patchy burns (i.e. within the block being burnt, some patches will remain un-burnt rather than aiming for a complete burn).
- Burning must be undertaken with consideration of the biodiversity conservation requirements of the site and the need to protect rare and endangered species.
- Burning and fire management must be undertaken in a safe manner that is legally compliant with the National Veld and Forest Fire Act (No.101 of 1998).

See Figure 6.1 for the fire management map of Vergelegen Nature Reserve.

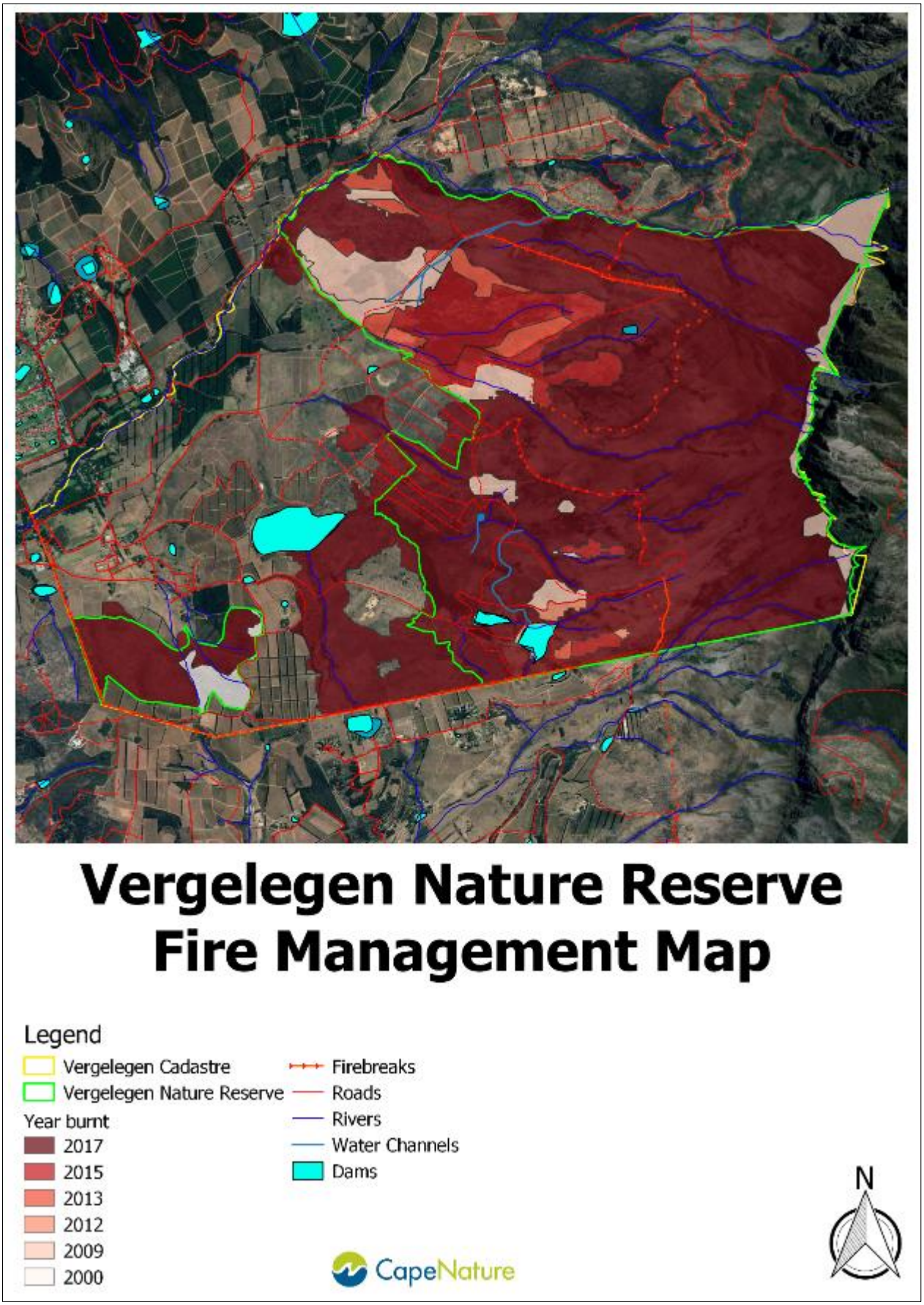


Figure 6.1 Fire Management Map for Vergelegen Nature Reserve

Table 6.1 Operational Management Framework

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. Negotiate Firebreak Agreement with Neighbours. Fuel Reduction around Infrastructure to Minimise Risk. Conduct Pre-Fire Season Fire Audit. Mapping of all Fires and Capture on GIS.	Management Authority	Annually
Maintain Partnerships to Improve Fire Management.	Attend Local FPA Meetings. Maintain Firebreak Agreements with Neighbours. Attend Pre-Fire Season meetings with local Fire & Rescue Service.	Management Authority	Annually
Determine and Implement Thresholds of Potential Concern.	Establish a series of Fixed Point Photography Monitoring Plots. Conduct Permanent *Protea spp.* Plot Monitoring. Conduct Post-Fire Regeneration Monitoring. Set and Monitor Thresholds of Potential Concern.	Management Authority CapeNature	Annually
Reduce Wildfires due to Human Negligence.	Create Fire Awareness Programme for Members and Staff Eradication and Control of Alien Vegetation Infestations where Necessary (see AVM management)	Management Authority	Annually

6.1.2 Invasive vegetation management

A listed invasive species means any species, which is listed in terms of section 70 of the Biodiversity Act, whose establishment and spread occurs outside of its natural distribution range. In undertaking invasive plant control, the following guiding principles will be adhered to:

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

The whole Nature Reserve is in maintenance phase. See Figure 6.2 for the invasive vegetation map of the Vergelegen Nature Reserve.

INVASIVE VEGETATION MANAGEMENT			
Objectives	· To enhance biodiversity protection and conservation. · To ensure conservation of species and processes by maintaining and improving ecosystem functioning. · To implement effective Integrated Catchment Management.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Eradicate Alien and Invasive Species	Identify and Map all Alien Invasive Flora Within or Threatening the Reserve. Compile a Management Unit Clearing Plan. Identify Areas in Maintenance Phase.	MA / CapeNature	Annually
Prevent Further Introduction of Aliens	Ensure Surrounding Landowners are aware of Relevant Legislation.	CapeNature	Ongoing

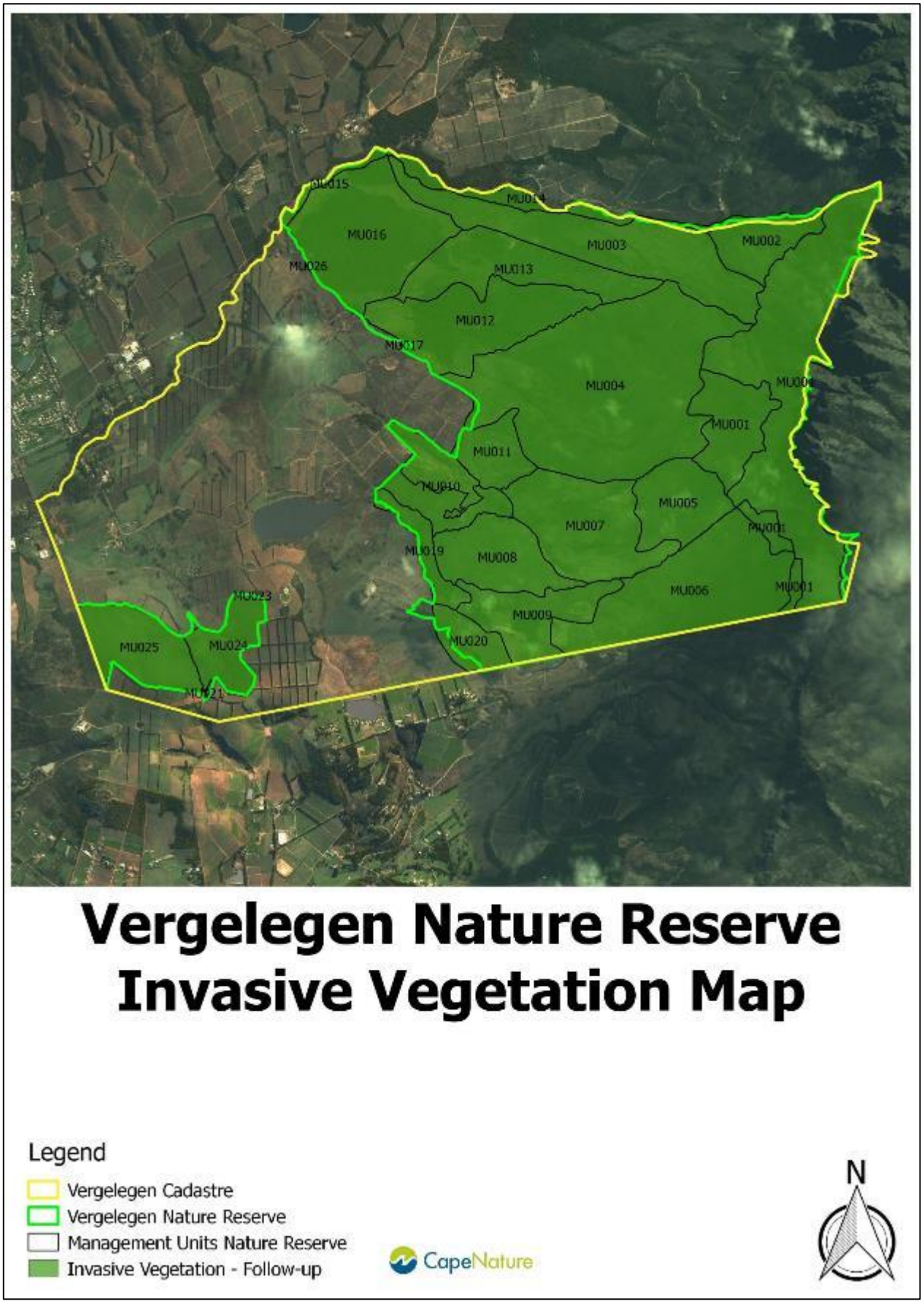


Figure 6.2 Invasive Vegetation Management Map for Vergelegen Nature Reserve

6.1.3 Wildlife Management

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

Small antelope (Cape Grysbok, Common (Grey) Duiker, Steenbok and Vaal (Grey) Rhebok) occur naturally in the area and move freely between farms.

Three bontebok (*Damaliscus pygargus pygarus*) groups occur on the reserve accounting for 30 individuals. There is currently no need to manage these populations, however weekly monitoring of the bontebok herd is undertaken. Dr. Anja Wasilewski of Marburg University in Germany recently completed several years of research at Vergelegen. Dr. Wasilewski mainly researched social bonds, relationships, scent communication and use of space. The programme should ultimately lead to a far greater understanding of the antelopes' complex social systems.

Trap cameras are located on the reserve serving as a monitoring tool.

Vergelegen Estate have a stud of approximately 250 Nguni Cattle that is totally free ranging, currently also feeding over the area declared as a Nature Reserve. Since the property contains critically endangered vegetation types, the need for a habitat assessment were raised to establish whether the Nguni Cattle should be prohibited in certain areas and/or certain times of the year.

From the habitat assessment done in 2015, CapeNature recommended the following:

- No Nguni Cattle should be allowed in the Lourensford Alluvium Fynbos or Swartland Shale Renosterveld vegetation types as these are very sensitive vegetation types that are critically endangered. Even if they do not feed on these vegetation types, their trampling has a negative impact on these vegetation types.
- The current permanent stud of 138 cattle should either be lessened or they should not allow that the permanent stock should exceed 138 animals. The cattle can also be rotated into different areas at certain times of the year to reduce their pressure on the vegetation.

- Once an area has burnt, Nguni Cattle should not be allowed in that area for at least two years as the vegetation coming up are very sensitive and needs time to recover.

6.1.3.1 Reintroduction of Game

Before reintroduction the following points need to be considered:

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

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

The careful reintroduction of species can enhance the conservation value of the area and increase the marketability of the Nature Reserve. All reintroductions must be based on sound ecological principles. CapeNature must be consulted on the translocation and reintroduction of all fauna. All translocations and introductions should be done in accordance with the Game Translocation and Utilisation Policy for the Western Cape Province.

WILDLIFE MANAGEMENT			
Objectives	· To enhance biodiversity protection and conservation. · To ensure conservation of species and processes by maintaining and improving ecosystem functioning. · To implement effective Integrated Catchment Management.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Prevent the Introduction of Alien Species	Formulate Policy regarding Domestic Animals in the Reserve. No Introduction of Alien Fish Species into River Systems.	MA	Ongoing
Control Alien and Invasive Species	Identify the Occurrence of Alien Fauna on Nature Reserve. Monitor Populations of Alien Fauna on the Reserve. Implement Control Measures where appropriate. Measure Success of Control Methods utilised.	MA / CapeNature	Ongoing
Manage the introduction of fauna on the Reserve	All possible introductions of game needs to be in accordance with all the necessary permits and permissions of CapeNature. This includes the construction of and maintenance of a fence according to the CapeNature policy, after which a Certificate of Adequate Enclosure (CoAE) will be issued. If the introduction of extra-limital species are considered, a separate mamangement plan for this activity needs to be approved by CapeNature.	MA / CapeNature	Ongoing
Evaluate and monitor the impact of fauna on the Reserve	Impact in the Reserve by large herbivores needs to be closely monitored. Monitoring is to be carried out by a mutually agreed third party, who will prescribe indicators of change to determine when management interventions will be necessary. Hunting of game is permitted under the hunting proclamation and rights obtained from the CoAE in the Contract Reserve provided it is to manage the game population and remove surplus game	MA / CapeNature	Ongoing

6.1.4 Erosion Prevention and Control

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

- Areas impacted by soil erosion should be stabilised and re-vegetated with indigenous plant species to prevent the spread of listed invasive plant species.
- Areas susceptible to soil erosion, or showing early signs of soil erosion such as loss of vegetation cover, must be managed to prevent soil erosion.

A few areas have been identified where erosion is occurring on the property. All of these are in watercourses and have been mapped. A consultant is in the process of putting together a plan to apply for NEMA approval from DEA&DP and a WULA from DWS. See Figure 6.3 for the map of the erosion sites on the property.

EROSION PREVENTION AND CONTROL			
Objectives	- To ensure implementation of effective conservation management interventions. - To enhance biodiversity protection and conservation.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Prevent and Mitigate Soil Erosion	Conduct a Soil Erosion Assessment Map Erosion Sites and Ensure Photographs are available. Compile an Erosion Maintenance Plan. Monitor the effectivity of the Erosion Control Mitigation. Monitor Cost Effectiveness of Maintenance. Monitor Site Recovery Conduct a Roads and Footpath Assessment.	MA	Annually

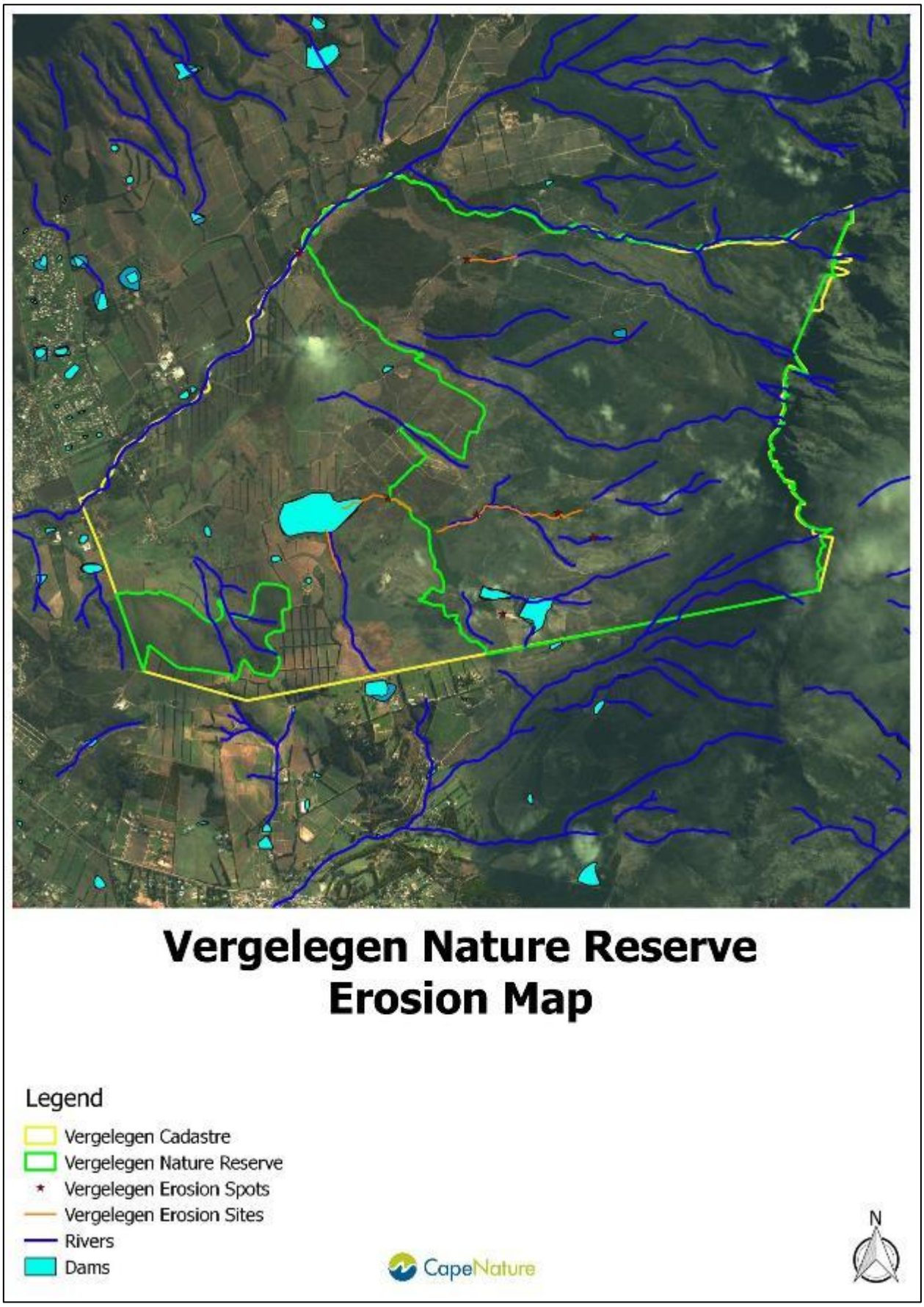


Figure 6.3 Map of the erosion sites on Vergelegen Nature Reserve.

6.1.5 Monitoring and Baseline Data Collection

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

MONITORING AND BASELINE DATA COLLECTION			
Objectives	· To manage biodiversity knowledge to ensure effective conservation management. · To implement measures to ensure resilience and persistence of biodiversity in light of climate change. · To ensure the implementation of effective conservation management interventions. · To ensure conservation of species and processes by maintaining and improving ecosystem functioning.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Compile Ecological Plan of Operations (in APO) and insert CapeNature's responsible activites into CapeNature Conservation Services Ecological Matrix	Collate all relevant Monitoring and Research Protocols and Data Sheets. Insert CapeNature's responsible activites into the CapeNature Conservation Services Ecological Matrix for the Area.	MA/CapeNature	Annually
Create a Biodiversity Resource Inventory	Prioritise Species for inclusion in the CapeNature Conservation Services Ecological Matrix. Collect Specimens and Submit to CapeNature Scientific Services.	MA/CapeNature	Annually
Implement Monitoring Programme	Review Monitoring Protocols. Identify Monitoring Needs of Nature Reserve in consultation with CapeNature. Establish Indicators for Monitoring. Implement Monitoring Activities as per Ecological Matrix (see above). Report on Monitoring Activities as per Ecological Matrix (see above). Analyse data, re-assess and implement Adaptive Management Strategies.	MA/CapeNature	Annually

6.1.6 Biodiversity and security

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

BIODIVERSITY SECURITY			
Objectives	· To enhance biodiversity protection and conservation. · To ensure conservation of species and processes by maintaining and improving ecosystem functioning.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Improved security and safety of the biodiversity assets on the Nature Reserve	Ensure Notarial Deed with surveyor diagram and title deed restrictions are registered with the Notary and Surveyor General against the property Ensure Conservation Area is rezoned to appropriate conservation zoning, e.g. Open Space III Ensure appropriate signage at access points.	MA/CapeNature	Once off

6.2 Operational Management

6.2.1 Legal Compliance

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

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

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

6.2.2 Management Effectiveness

MANAGEMENT EFFECTIVENESS			
Objectives	· To implement effective management systems.		
Key Deliverable	**Management Activities**	**Responsibility**	**Timeframe**
Annual audit completed. Auditing systems inform management	Conduct annual audits. Implementation , annual review and update of management plan Compile detailed work plan identifying specific targets for achieving management	Management Authority/ CapeNature	Annually

6.2.3 Infrastructure development and management

In order for Vergelegen Nature 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 maintained to avoid any damage to the environment and ensure the safety of staff and visitors to the site.
- Infrastructure must be provided to ensure the effective management and operation of the nature reserve.
- When authorisation is applied for developments in a nature reserve, it needs to be in line with the management plan and allowed in the specific zone. If not, the plan needs to be amended with amendment approved by the minister.

See Figure 6.3 for a map of the infrastructure on Vergelegen Nature Reserve.

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

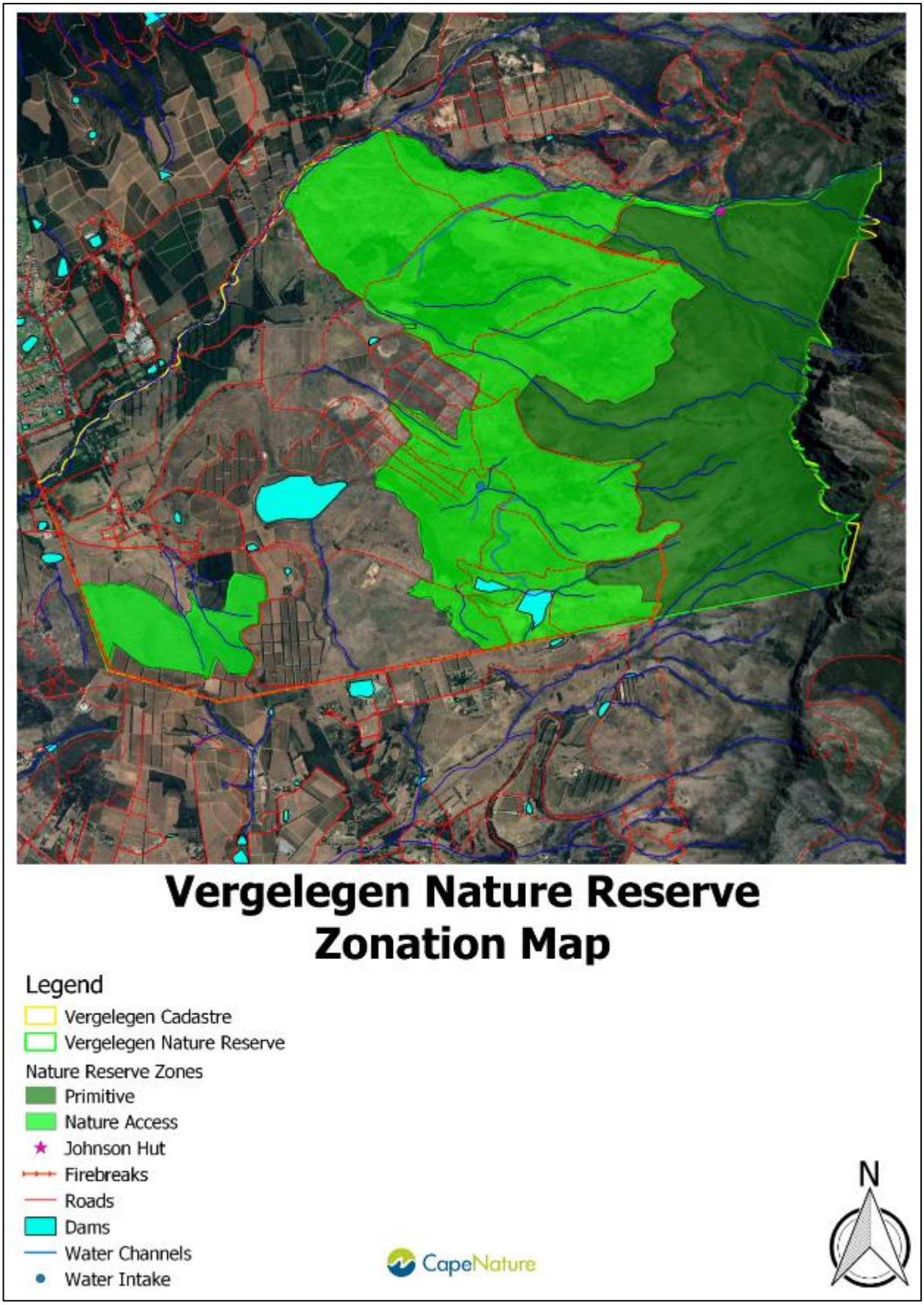


Figure 6.4 Infrastructure on Vergelegen Nature Reserve

7) ANNUAL PLAN OF OPERATION AND REVIEW

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

7.1 Annual Plan of Operation

The Annual Plan of Operation (APO) gives life to the Operational Management Framework on an annual basis and allows for progress to be tracked. See Table 7.1. The Annual Plan of Operation (APO) is in a similar format to the Annual Audit (See Appendix D).

7.2 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.

Table 7.1 Annual Plan of Operation Vergelegen Nature Reserve

Management target	2019/20 Actions & Comments	Completion date	Responsibility
1. FIRE MANAGEMENT			
1.1 Reduce/Prevent the Spread of Fires:			
1.1.1 Construct Priority Firebreaks according to Schedule.	Maintain firebreak maintenance according to schedule.	Ongoing	Landowner
1.1.2 Negotiate Firebreak Agreement with Neighbours.	Maintain firebreak agreement according to schedule.	Ongoing	Landowner and neighbours
1.1.3 Fuel Reduction around Infrastructure to Minimise Risk.	The Mountain Club of South Africa has a hut on the property. They have to maintain the firebreak around the hut and the jeep track leading to the hut. Further, there is only roads in the nature reserve.	Ongoing	The Mountain Club of South Africa
1.1.4 Conduct Pre-Fire Season Fire Audit.	Fire equipment gets checked regularly.	Ongoing	Landowner
1.1.5 Mapping of all Fires and Capture on GIS.	Last fire occurred in January 2017, this was mapped.	Ongoing	Landowner
1.2 Maintain Partnership to Improve Fire Management:			
1.2.1 Attend Local FPA Meetings.	Eben attends the meetings on a regular basis.	Ongoing	Landowner
1.3 Determine and Implement Thresholds of Potential Concern:			
1.3.1 Establish a series of Fixed Point Photography Monitoring Plots.	There is a FPP in every management block. Photographs taken on a monthly basis.	Monthly	Landowner
1.3.2 Conduct Permanent Protea spp. Plot Monitoring.	Monitoring of *Protea neriifolia* once they first flower. (These plants are generally about four or five years old before they flower, thus only about 2021/2022)	Start 2021/2022, then ongoing	CapeNature
1.3.3 Conduct Post-Fire Regeneration Monitoring.	Monitoring was done on the 31st of May 2018 (*Protea neriifolia*). Andrie to forward data to Leslie and Eben.	2018	CapeNature

Management target	2019/20 Actions & Comments	Completion date	Responsibility
2. INVASIVE ALIEN MANAGEMENT			
2.1 Eradicate Alien and Invasive Species:			
2.1.1 Identify and Map all Alien Invasive Flora Within or Threatening the Reserve.	All invasive flora is mapped. The whole Nature Reserve is in maintenance phase.	Annually	Landowner
2.1.2 Compile a Management Unit Clearing Plan.	This is done annually by reserve managers and includes a budget.	Annually	Landowner

Management target	2019/20 Actions & Comments	Completion date	Responsibility
3. WILDLIFE MANAGEMENT			
3.1 Prevent the Introduction of Alien Species:			
3.1.1 Formulate Policy regarding Domestic Animals in the Reserve.	Habitat assessment was done for the Nguni Cattle in 2015.	2015	CapeNature
3.1.2 No Introduction of Alien Fish Species into River Systems.	No alien fish species are introduced into the river systems.	N/A	Landowner
3.2 Control Alien and Invasive Species:			
3.2.1 Identify the Occurrence of Alien Fauna on VNR.	One male bush pig was captured on a trip camera late March 2019.	Ongoing	Landowner
3.2.2 Monitor Populations of Alien Fauna on the Reserve.	Trip cameras are checked every two weeks.	Ongoing	Landowner
3.2.3 Implement Control Measures where appropriate.	Bush pigs are not a problem on this property yet, but in case they do multiply, Andrie will find out different ways to eradicate them.	Ongoing	Landowner with assistance from CapeNature
3.2.4 Measure Success of Control Methods utilised.	Not applicable	N/A yet	Landowner with assistance from CapeNature

3.3 Manage the introduction of fauna on the Reserve:			
3.3.1 All possible introductions of game needs to be in accordance with all the necessary permits and permissions of CapeNature. This includes the construction of and maintenance of a fence according to the CapeNature policy, after which a Certificate of Adequate Enclosure (CoAE) certificate will be issued	Everything is in place.	Ongoing	Landowner
3.4 Evaluate and monitor the impact of fauna on the Reserve:			
3.4.1 Monitoring is to be carried out to determine when management interventions will be necessary.	Continue monitoring management units through fixed-point photography.	Ongoing	Landowner
3.4.2 Hunting of game is permitted under the hunting proclamation and rights obtained from the CoAE in the Contract Reserve provided it is to manage the game population and remove surplus game	No hunting is permitted on the property.	N/A	Landowner

Management target	**2019/20 Actions & Comments**	**Completion date**	**Responsibility**
4. EROSION PREVENTION AND CONTROL			
4.1 Prevent and Mitigate Soil Erosion:			
4.1.1 Conduct a Soil Erosion Assessment	Consultant to do a report on behalf of Vergelegen Wines to apply for authorisation from DEA&DP to proceed with the rehabilitation and mitigation of these sites.	Ongoing	Landowner; CapeNature provide assistance
4.1.2 Map Erosion Sites and Ensure Photographs are available.	Erosion sites have been mapped and photographed.	Completed	Landowner
4.1.3 Compile an Erosion Maintenance Plan.	To be done by consultant.	Ongoing	Landowner; CapeNature provide assistance
4.1.4 Monitor the affectivity of the Erosion Control Mitigation.	To be done once rehabilitation of these sites have been done.	NA	Landowner; CapeNature will provide assistance where appropriate & required

4.1.5 Monitor Cost Effectiveness of Maintenance.	To be done once rehabilitation of these sites have been done.	NA	Landowner; CapeNature provide assistance
4.1.6 Monitor Site Recovery	*To be done once rehabilitation of these sites have been done.*	NA	Landowner; CapeNature will provide assistance where appropriate and required
4.1.7 Conduct a Roads and Footpath Assessment.	This is done seasonally and gets fixed/repaired when required.	Ongoing	Landowner; CapeNature provide assistance

Management target	**2019/20 Actions & Comments**	**Completion date**	**Responsibility**
5. MONITORING AND BASELINE DATA COLLECTION			
5.1 Compile Ecological Plan of Operations and Ecological Matrix:			
5.1.1 Compile an Ecological Plan of Operations and insert into the Conservation Services Ecological Matrix. 5.1.2 Collate all relevant Monitoring and Research Protocols and Data Sheets.	Ecological Matrix gets done annually and included when Conservation Services – Central Region meet and update the list. Andrie to forward ecological matrix to Vergelegen management.	Annually	CapeNature and Landowner
5.2 Create a Biodiversity Resource Inventory:			
5.2.1 Prioritise Species for inclusion on the Ecological Matrix. 5.2.2 Compile and Implement the Ecological Matrix. 5.2.3 Collect Specimens and Submit to CapeNature Scientific Services. 5.2.4 Analyse data, re-assess and implement Adaptive Management Strategies.	CREW regularly visits the farm for botanical surveys. Monthly bird counts are also conducted on the farm.	Ongoing	CapeNature and Landowner
5.3 Implement Monitoring Programme:			
5.3.1 Review Monitoring Protocols.	No monitoring to be carried out by CapeNature this coming year.	NA	CapeNature and Landowner

Management target	2019/20 Actions & Comments	Completion date	Responsibility
6. BIODIVERSITY SECURITY			
6.1 Improved security and safety of the biodiversity assets on the Nature Reserve:			
6.1.1 Ensure Notarial Deed with surveyor diagram and title deed restrictions are registered with the Notary and Surveyor General against the property	Ellané is available to meet with Vergelegen management (including person who does their tax) from the 30th of April for a meeting. She will then explain this tax incentive, answer any questions regarding this, provide a legal tax opinion and do a calculation of the section 37D deduction for the Nature Reserve and she will also be available to interact with SARS in case they have any questions regarding these deductions. Vergelegen Wines are already receiving a 10 year tax break. Leslie will enquire whether a meeting is necessary for this. Isabella is busy with the notarisation, this should happen within the next week or 3.	June 2019	Landowner with support and advice from CapeNature
6.1.2 Ensure Conservation Area is rezoned to appropriate conservation zoning, e.g. Open Space III	Once the Nature Reserve is registered on the Title Deeds, Andrie to arrange for pre-consultation meeting with the City of Cape Town for rezoning of the Nature Reserve.	June 2020	Landowner with support from CapeNature
6.1.3 Ensure appropriate signage at access points.	CapeNature provided a new stewardship sign in 2017. Vergelegen Wines also purchased their own sign in 2017.	Completed	Landowner and CapeNature

Management target	2019/20 Actions & Comments	Completion date	Responsibility
7. DEVELOPMENT OF TOURISM OPPORTUNTIES			
7.1 Development of tourism opportunities that generate revenue for the Nature Reserve:	Vergelegen Wines would like to look into tourism opportunities, not necessarily to generate an income, but for possibly environmental education and to showcase the beauty of the natural vegetation and importance of the Nature Reserve in the landscape.	Ongoing	Landowner
7.2 Planning and development of hiking routes, mountain bike trails, and basic facilities to cater for visitors to the nature Reserve	Not applicable	NA	Landowner

7.3 Development of a business plan for tourism accommodation facilities.	Not applicable	NA	Landowner

Management target	**2019/20 Actions & Comments**	**Completion date**	**Responsibility**
8. LEGAL COMPLIANCE			
8.1 Ensure that all legal requirements are met:			
8.1.1 All development needs to be done according to the NEMA principles and follow the applicable legislation and procedures of all relevant stakeholders.	All activities on the farm are done in accordance with the law. In the process of getting a consultant to put in a report for erosion rehabilitation in the Nature Reserve to DEA&DP.	N/A	Landowner with advice and guidance from CapeNature where needed
8.1.2 All water management within the Reserve must comply with the National Water Act (No 36 of 1998).	Vergelegen Wines are complying.	Ongoing	Landowner
8.1.3 Abstraction of water from water sources originating in the Reserve must not affect the biodiversity of the Reserve	No water abstraction is affecting the biodiversity in the reserve.	Ongoing	Landowner
8.1.4 Creation of cooperative structures with law enforcement officials. Regular patrols covering the full extent of the nature reserve. Prosecution of any offender caught committing an offence.	The staff conduct patrols when they are working in the nature reserve. No illegal activities have been observed in the reserve.	Ongoing	Landowner and CapeNature

Management target	2019/20 Actions & Comments	Completion date	Responsibility
9. MANAGEMENT EFFECTIVENESS			
9.1 Annual audit completed:			
9.1.1 Conduct annual audits.	First Annual Management Report conducted on 16 April 2019.	Annually	CapeNature and landowner
9.2 Auditing systems inform management:			
9.2.1 Implementation , annual review and update of management plan 9.2.2 Compile detailed work plan identifying specific targets for achieving management	Management of Vergelegen Wines, CapeNature and Minister to sign management plan once they are satisfied with the content.	July 2019	CapeNature and landowner

Management target	2019/20 Actions & Comments	Completion date	Responsibility
INFRASTRUCTURE			
10.1 All infrastructures on the Reserve is adequately maintained:	An assessment of the roads are being done seasonally and gets fixed/repaired when required.	Ongoing	Landowner
10.2 Develop and implement a scheduled maintenance programme to maintain facilities and infrastructure in a condition that meet relevant environmental, health and safety requirements.	All maintenance programmes in place.	Completed	Landowner

REFERENCES

City of Cape Town (n.d.-a) *Environmental Resource Management, Biodiversity Network*, accessed 30 September 2015, <https://www.capetown.gov.za/en/EnvironmentalResourceManagement/functions/BiodivManagement/Pages/BiodiversityNetwork.aspx>

City of Cape Town (n.d.-b) *Environmental Resource Management, Environmental Management Framework maps*, accessed 29 September 2015, <https://www.capetown.gov.za/en/EnvironmentalResourceManagement/functions/Pages/EnvironmentalManagementFramework.aspx>

City of Cape Town (2012), Helderberg District Plan, Spatial Development Plan & Environmental Management Framework Technical Report, CitySpace.

Department of Environmental Affairs and Tourism (2008) The National Protected Area Expansion Strategy 2008-2012. Pretoria.

Goodman P.S. (2011) CapeNature Norms and Standards: Surveillance and Monitoring Plans for Biodiversity. CapeNature unpublished report, Pietermaritzburg.

Helme N. (2005) Site Assessment for Biodiversity Value - Vergelegen, Unpublished, CapeNature Stewardship Programme.

Mucina, L. and Rutherford, M.C. (eds.) (2006). The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19, South African National Biodiversity Institute, Pretoria.

River Health Programme (2003). State-of-Rivers Report: Diep, Hout Bay, Lourens and Palmiet River Systems. Department of Water Affairs and Forestry Pretoria ISBN No: 0-620-30757-9

saexplorer (n.d.), *Somerset West Climate*, accessed 30 September 2015, <http://www.saexplorer.co.za/south-africa/climate/somerset_west_climate.asp>

South African National Biodiversity Institute and the Department of Environmental Affairs. 2010. National Protected Areas Expansion Strategy for South Africa; Priorities for expanding the protected area network for ecological sustainability and climate change adaptation. Published by the Government of South Africa, Pretoria, 2010. ISBN 978-1-919976-55-6

CapeNature. 2019. Boland Mountain Complex: Protected Area Management Plan 2019-2029. Internal Report, CapeNature. Cape Town..

LIST OF STATUTES TO WHICH THE VERGELEGEN NATURE RESERVE IS SUBJECT

Biodiversity and Cultural Resource Management and Development:

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

General Management:

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

Financial Management:

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

Human Resource Management:

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

A brief summary of the most applicable legislation:

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

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

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

1 It has significant natural features or biodiversity;

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

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

Biodiversity management agreements

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

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

Objectives of Act

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

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

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

Purpose

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

Firebreaks

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

Fighting Preparedness

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

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

Purpose

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

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

Applicable CapeNature policies

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

Other Relevant Legislation:

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

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

COPY OF VERGELEGEN NATURE RESERVE PROCLAMATION

PROVINCIAL NOTICE

The following Provincial Notices are published for general information.

ADV. B. GERBER,
DIRECTOR-GENERAL

Provincial Legislature Building,
Wale Street,
Cape Town.

PROVINSIALE KENNISGEWING

Die volgende Provinsiale Kennisgewings word vir algemene inligting gepubliseer.

ADV. B. GERBER,
DIREKTEUR-GENERAAL

Provinsiale Wetgewer-gebou,
Waalstraat,
Kaapstad.

ISAZISO SEPHONDO

Esi saziso silandelayo sipapashelwe ukunika ulwazi ngokubanzi.

ADV. B. GERBER,
UMLAWULI-JIKELELE

ISakhiwo sePhondo,
Wale Street,
eKapa.

PROVINCIAL NOTICE

P.N. 135/2018 2 November 2018

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING

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

DECLARATION OF VERGELEGEN NATURE RESERVE

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

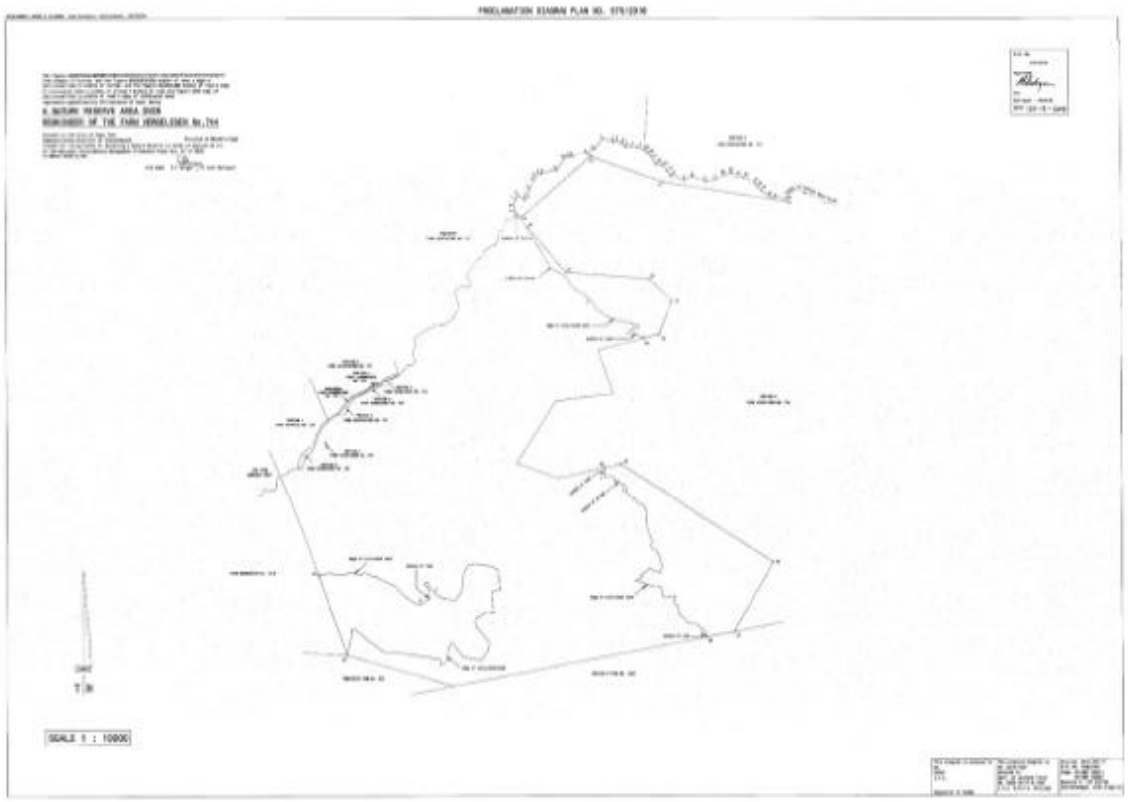
- Remainder of the Farm Vergelegen no. 744, situated in the City of Cape Town, Division Stellenbosch, Province of the Western Cape; In Extent: 1307,4185 (One Thousand Three Hundred and Seven comma Four One Eight Five) Hectares; Held by Deed of Transfer no. T12789/1956; and
- Portion 2 of the Farm Vergelegen no. 744, situated in the City of Cape Town, Division Stellenbosch, Province of the Western Cape; In Extent: 1687,0163 (One Thousand Six Hundred and Eighty Seven comma Zero One Six Three) Hectares; Held by Deed of Transfer no. T15174/2004.

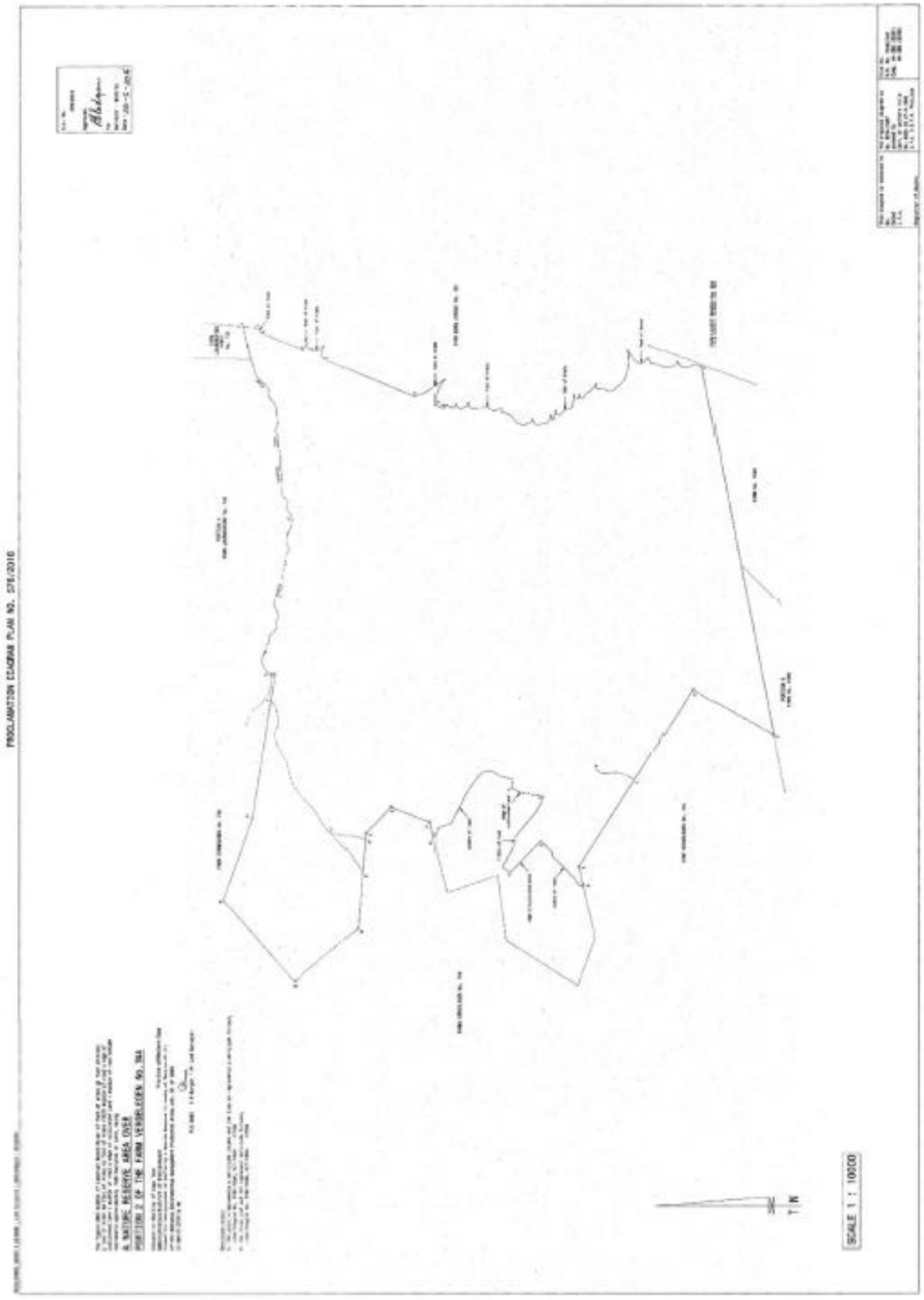
I assign the name **"Vergelegen Nature Reserve"** to the reserve, of which the boundaries are reflected on the Surveyor-General Diagrams numbers 575/2016 and 576/2016 as set out in the Schedule.

Signed at Cape Town this 25th day of October 2018.

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

SCHEDULE




PROCLAMATION DIAGRAM PLAN NO. 578/2016
A NATURE RESERVE AREA OVER
PORTION 2 OF THE FARM VERGELEGEN NO. 164
SCALE 1 : 10000

PROVINSIALE KENNISGEWING

P.K. 135/2018 2 November 2018

DEPARTEMENT VAN OMGEWINGSAKE EN ONTWIKKELINGSBEPLANNING

"NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS ACT, 2003" (WET 57 VAN 2003)

VERKLARING VAN VERGELEGEN NATUURRESERVAAT

Ek, Anton Bredell, Provinsiale Minister van Plaaslike Regering, Omgewingsake en Ontwikkelingsbeplanning in die Wes-Kaap, kragtens artikel 23(1)(a)(i) van die "National Environmental Management: Protected Areas Act, 2003" (Wet 57 van 2003), verklaar 'n natuurreservaat op:—

- Restant van die Plaas Vergelegen nr. 744, geleë in die Stad Kaapstad, Afdeling Stellenbosch, Provinsie Wes-Kaap;
  Groot: 1307,4185 (Een Duisend Drie Honderd en Sewe komma Vier Een Ag Vyf) Hektaar;
  Gehou kragtens Transportakte nr. T12789/1956; en

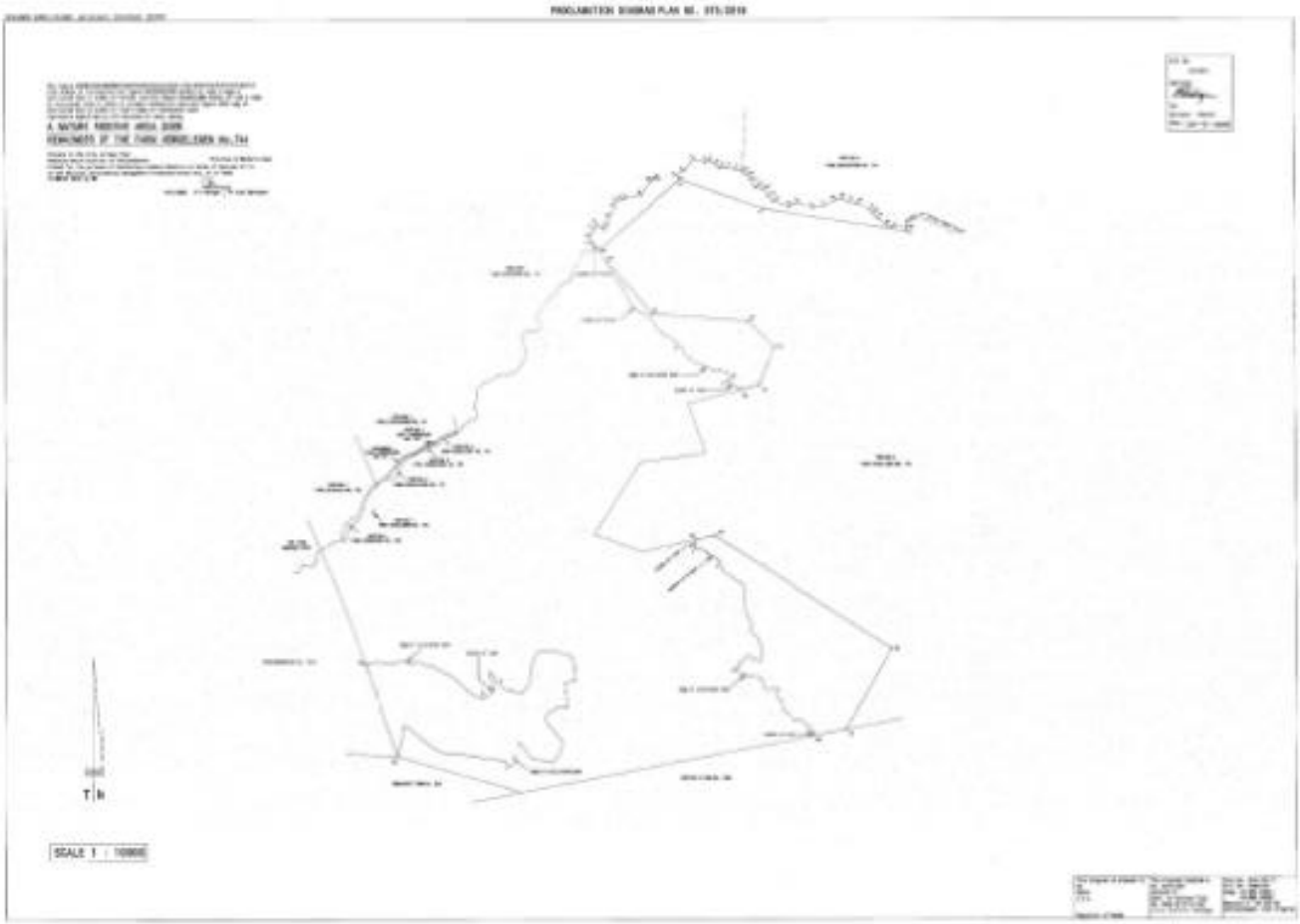
- Gedeelte 2 van die Plaas Vergelegen nr. 744, geleë in die Stad Kaapstad, Afdeling Stellenbosch, Provinsie Wes-Kaap;
  Groot: 1687,0163 (Een Duisend Ses Honderd Sewe en Tagtig komma Nul Een Ses Drie) Hektaar;
  Gehou kragtens Transportakte nr. T15174/2004.

Ek ken die naam **"Vergelegen Natuurreservaat"** toe aan die reservaat, waarvan die grense weergegee word op die Landmeter-generaaldiagramme nrs. 575/2016 en 576/2016 soos uiteengesit in die Bylae.

Geteken te Kaapstad op hede die 25st dag van Oktober 2018.

MNR AW BREDELL
PROVINSIALE MINISTER VAN PLAASLIKE REGERING, OMGEWINGSAKE EN ONTWIKKELINGSBEPLANNING

BYLAE



SPECIES LISTS

Plant species found on Vergelegen Nature Reserve

Nr	Family	Species	Common name	Status
1.	Rutaceae	*Adenandra uniflora*		LC
2.	Rutaceae	*Adenandra villosa*	Hairy Chinaflower	
3.	Podocarpaceae	*Afrocarpus falcatus*	Outeniqua yellowwood	LC
4.	Rutaceae	*Agathosma ciliaris*		LC
5.	Asparagaceae	*Albuca suaveolens*		LC
6.	Amaryllidaceae	*Amaryllis belladonna*	Belladonna Lily	LC
7.	Fabaceae	*Amphithalea ericifolia*		
8.	Malvaceae	*Anisodontea scabrosa*		LC
9.	Rubiaceae	*Anthospermum sp*		
10.	Asteraceae	*Arctotis hirsuta*		LC
11.	Iridaceae	*Aristea africana*	African Capeblue	LC
12.	Iridaceae	*Aristea capitata*		LC
13.	Iridaceae	*Aristea cantharophila*	Blue-eye Capeblue	VU
14.	Iridaceae	*Aristea spiralis*	Pale Capeblue	LC
15.	Fabaceae	*Aspalathus abietina*	Fir Capegorse	LC
16.	Fabaceae	*Aspalathus arida*	Arid Capegorse	LC
17.	Fabaceae	*Aspalathus arida procumbens*	Flat Arid Capegorse	LC
18.	Fabaceae	*Aspalathus cephalotes*	Purplehead Capegorse	LC
19.	Fabaceae	*Aspalathus cephalotes subs cephalotes*	Heady Capegorse	LC
20.	Fabaceae	*Aspalathus cephalotes violacea*		LC
21.	Fabaceae	*Aspalathus ciliaris*	Fringe Capegorse	LC
22.	Fabaceae	*Aspalathus citrina*		LC
23.	Fabaceae	*Aspalathus cordata*	Heart Capegorse	LC

24.	Fabaceae	*Aspalathus crenata*	Toothleaf Capegorse	LC
25.	Fabaceae	*Aspalathus cymbiformis*	Greentooth Capegorse	LC
26.	Fabaceae	*Aspalathus divaricata*		LC
27.	Fabaceae	*Aspalathus elliptica*		LC
28.	Fabaceae	*Aspalathus ericifolia*	Heathleaf Capegorse	LC
29.	Fabaceae	*Aspalathus ericifolia subsp ericifolia*		LC
30.	Fabaceae	*Aspalathus excelsa*		VU
31.	Fabaceae	*Aspalathus globosa*		VU
32.	Fabaceae	*Aspalathus hirta*		LC
33.	Fabaceae	*Aspalathus hispida*	Bristle Capegorse	LC
34.	Fabaceae	*Aspalathus hispida hispida*	Common Bristle Capegorse	LC
35.	Fabaceae	*Aspalathus juniperina*	Juniper Capegorse	LC
36.	Fabaceae	*Aspalathus juniperina juniperina*	Common Juniper Capegorse	LC
37.	Fabaceae	*Aspalathus laricifolia*	Larch Capegorse	LC
38.	Fabaceae	*Aspalathus laricifolia laricifolia*	Green Larch Capegorse	LC
39.	Fabaceae	*Aspalathus legra*		Not on list
40.	Fabaceae	*Aspalathus neglecta*		LC
41.	Fabaceae	*Aspalathus sciliaris*		Not on list
42.	Fabaceae	*Aspalathus spicata*		LC
43.	Fabaceae	*Aspalathus tridentata*		
44.	Asparagaceae	*Asparagus declinatus*	Weeping Asparagus	LC
45.	Asparagaceae	*Asparagus rubicundus*	Redstem Asparagus	LC
46.	Asparagaceae	*Asparagus scandens*	Climbing asparagus	LC
47.	Asteraceae	*Athanasia sp*		
48.	Proteaceae	*Aulax cancellata*		LC

49.	Proteaceae	*Aulax pallasia*		NT
50.	Iridaceae	*Babiana ambigua*		LC
51.	Iridaceae	*Babiana angustifolia*		NT
52.	Iridaceae	*Babiana villosula*		EN
53.	Colchicaceae	*Baeometra uniflora*	Beetle Lily	LC
54.	Asteraceae	*Berkheya armata*		LC
55.	Asteraceae	*Berkheya barbata*		LC
56.	Asteraceae	*Berkheya herbacea*		LC
57.	Bruniaceae	*Berzelia abrotanoides*		LC
58.	Bruniaceae	*Berzelia lanuginosa*	Vlei Kolkol	LC
59.	Blechnaceae	*Blechnum punctulatum*		LC
60.	Blechnaceae	*Blechnum punctulatum punctulatum*		LC
61.	Iridaceae	*Bobartia filiformis*		LC
62.	Iridaceae	*Bobartia gladiata*		
63.	Iridaceae	*Bobartia gladiata gladiata*		LC
64.	Iridaceae	*Bobartia indica*		LC
65.	Fabaceae	*Bolusafra bituminosa*	Tar Pea	LC
66.	Proteaceae	*Brabejum stellatifolium*	Wild Almond	LC
67.	Bruniaceae	*Brunia laevis*		LC
68.	Asphodelaceae	*Bulbine lagapus or praemorse*		LC
69.	Asphodelaceae	*Bulbine sp*		
70.	Asphodelaceae	*Bulbinella trinervis*		LC
71.	Asphodelaceae	*Caesia contorta*	Common Grasslily	LC
72.	Stilbaceae	*Campylostachys cernua*	Nodding Skewsage	LC
73.	Restionaceae	*Cannomois grandis*		LC
74.	Restionaceae	*Cannomois virgata*	Branch Broomreed	LC
75.	Poaceae	*Capeochloa cincta*		

76.	Poaceae	*Capeochloa cincta cincta*		LC
77.	Cyperaceae	*Carpha glomerata*		LC
78.	Aizoaceae	*Carpobrotus edulis*	Sea Fig	LC
79.	Lauraceae	*Cassytha ciliolata*		LC
80.	Apiaceae	*Centella asiatica*	Gotu Cola	LC
81.	Iridaceae	*Chasmanthe aethiopica*		LC
82.	Gentianaceae	*Chironia baccifera*	Christmas Berry	LC
83.	Anthericaceae	*Chlorophytum undulatum*		LC
84.	Rosaceae	*Cliffortia cuneata*		LC
85.	Rosaceae	*Cliffortia graminea*		LC
86.	Rosaceae	*Cliffortia graminea graminea*		LC
87.	Rosaceae	*Cliffortia juniperina*		LC
88.	Rosaceae	*Cliffortia juniperina juniperina*		
89.	Rosaceae	*Cliffortia odorata*		LC
90.	Rosaceae	*Cliffortia phillipsii*		VU
91.	Rosaceae	*Cliffortia ruscifolia*	Climbers Friend	LC
92.	Rosaceae	*Cliffortia ruscifolia ruscifolia*		LC
93.	Rosaceae	*Cliffortia strobilifera*		LC
94.	Euphorbiaceae	*Clutia polygonoides*		LC
95.	Iridaceae	*Codonorhiza corymbosa*	Blue Paintpetal	
96.	Rutaceae	*Coleonema juniperinum*	Resin Capemay	LC
97.	Asteraceae	*Corymbium glabrum*		LC
98.	Crassulaceae	*Crassula capensis*		LC
99.	Crassulaceae	*Crassula fascicularis*		LC
100.	Amaryllidaceae	*Crossyne guttata*		LC
101.	Asteraceae	*Cullumia setosa*		LC
102.	Asteraceae	*Cullumia setosa setosa*		LC
103.	Tecophilaaceae	*Cyanella hyacinthoides*		LC

104.	Tecophilaeaceae	*Cyanella lutea*		LC
105.	Fabaceae	*Cyclopia maculata*		NT
106.	Campanulaceae	*Cyphia incisa*	Kambro Baroe	LC
107.	Lobeliaceae	*Cyphia volubilis*		LC
108.	Asteraceae	*Dimorphotheca nudicaulis*	African oxeye	LV
109.	Asteraceae	*Dimorphotheca nudicaulis var. nudicaulis*	Cape oxeye	LC
110.	Rutaceae	*Diosma hirsuta*		LC
111.		*Diosporos sp*		All LC
112.	Ebenaceae	*Diospyros glabra*	Cape Starapple	LC
113.	Fabaceae	*Dipogon lignosus*	Okie bean	LC
114.	Orchidaceae	*Disa bifida*	Wire Disa	LC
115.	Orchidaceae	*Disa bracteata*		LC
116.	Orchidaceae	*Disa obliqua*		LC
117.	Orchidaceae	*Disa obliqua clavigera*	Kapotjie Disa	LC
118.	Orchidaceae	*Disa racemosa*		LC
119.	Orchidaceae	*Disperis capensis*		LC
120.	Orchidaceae	*Disperis capensis capensis*		Not evaluated
121.	Orchidaceae	*Disperis villosa*	Granny's-bonnet	LC
122.	Sapindaceae	*Dodonaea viscosa*	Akeake	
123.	Sapindaceae	*Dodonaea viscosa angustifolia*	Sand Olive	LC
124.	Hyacinthaceae	*Drimia sp*		
125.	Asparagaceae	*Drimia elata*		DDT
126.	Asparagaceae	*Drimia exuviata*		LC
127.	Asparagaceae	*Drimia media*		LC
128.	Droseraceae	*Drosera cistiflora*		LC
129.	Droseraceae	*Drosera pauciflora*		LC
130.	Droseraceae	*Drosera trinervia*	Small Sundew	LC

131.	Asteraceae	*Edmondia sesamoides*		LC
132.	Poaceae	*Ehrharta capensis*		LC
133.	Asteraceae	*Elytropappus rhinocerotis*		LC
134.	Hypoxidaceae	*Empodium gloriosum*		LC
135.	Hypoxidaceae	*Empodium plicatum*		LC
136.	Aizoaceae	*Erepsia anceps*		LC
137.	Aizoaceae	*Erepsia bracteata*	Bract Spoonfig	LC
138.	Aizoaceae	*Erepsia ramosa*	Branching Spoonfig	VU
139.	Ericaceae	*Erica abietina*	Peninsula Heath complex	
140.	Ericaceae	*Erica abietina subsp. aurantiaca*		LC
141.	Ericaceae	*Erica articularis*		LC
142.	Ericaceae	*Erica articularis articularis*		LC
143.	Ericaceae	*Erica bruniades*		LC
144.	Ericaceae	*Erica caffra*		LC
145.	Ericaceae	*Erica cerinthoides*	Fire Heath	LC
146.	Ericaceae	*Erica cerinthoides cerinthoides*	Common Fire Heath	Not evaluated
147.	Ericaceae	*Erica curviflora*	Water Heath	LC
148.	Ericaceae	*Erica equisetifolia*		LC
149.	Ericaceae	*Erica exleeana*		LC
150.	Ericaceae	*Erica filiformis*		
151.	Ericaceae	*Erica filiformis filiformis*		VU
152.	Ericaceae	*Erica grandiflora grandiflora*	Golden Heath	
153.	Ericaceae	*Erica hirta*		LC
154.	Ericaceae	*Erica hirtiflora*		
155.	Ericaceae	*Erica hirtiflora var hirtiflora*		LC
156.	Ericaceae	*Erica imbricata*		LC

157.	Ericaceae	*Erica lutea*	Rice Heath	LC
158.	Ericaceae	*Erica mauritanica*	Keyhole Heath	LC
159.	Ericaceae	*Erica nudiflora*		LC
160.	Ericaceae	*Erica plukenetii*	hangertjie	
161.	Ericaceae	*Erica plukenetti subsp penicellata*	Groovesepal Heath	LC
162.	Ericaceae	*Erica plukenetii plukenetii*		LC
163.	Ericaceae	*Erica pubescens*		LC
164.	Ericaceae	*Erica pubescens pubescens*		LC
165.	Ericaceae	*Erica quadrangularis*		LC
166.	Ericaceae	*Erica viscaria*	Roughpetal Heath complex	
167.	Ericaceae	*Erica viscaria longifolia*	Longleaf Heath	LC
168.	Asteraceae	*Eriocephalus africanus*	Cape Snow Bush	LC
169.	Asteraceae	*Eriocephalus africanus africanus*	African Wild Rosemary	LC
170.	Asparagaceae	*Eriospermum sp*		
171.	Euphorbiaceae	*Euphorbia silenifolia*		LC
172.	Asteraceae	*Felicia filifolia*		LC
173.	Cyperaceae	*Ficinia indica*		LC
174.	Cyperaceae	*Ficinia nigrescens*		LC
175.	Scrophulariaceae	*Freylinia lanceolata*	Honey Bellbush	LC
176.	Asteraceae	*Gazania krebsiana*	scarlet tanager African daisy	LC
177.	Asteraceae	*Gazania krebsiana krebsiana*		LC
178.	Iridaceae	*Geissorhiza aspera*	Blue-sequins	LC
179.	Iridaceae	*Geissorhiza ovata*	Pink Satin-flower	LC
180.	Fabaceae	*Genista monspessulana*	French broom	
181.	Asteraceae	*Gerbera crocea*		LC
182.	Asteraceae	*Gerbera linnaei*		LC
183.	Iridaceae	*Gladiolus brevifolius*		LC

184.	Iridaceae	*Gladiolus carneus*		LC
185.	Iridaceae	*Gladiolus floribundus*		LC
186.	Iridaceae	*Gladiolus hirsutus*		LC
187.	Iridaceae	*Gladiolus liliaceus*		LC
188.	Iridaceae	*Gladiolus maculatus*	Speckle-brown Afrikaner	LC
189.	Iridaceae	*Gladiolus martleyi*		LC
190.	Iridaceae	*Gladiolus recurvus*		VU
191.	Iridaceae	*Gladiolus trichonemifolius*		VU
192.	Thymelaeaceae	*Gnidia oppositifolia*	Bark Capesaffron	LC
193.	Thymelaeaceae	*Gnidia pinifolia*		LC
194.	Thymelaeaceae	*Gnidia sp*		
195.	Amaryllidaceae	*Haemanthus coccineus*		LC
196.	Amaryllidaceae	*Haemanthus sanguineus*	April-fool	LC
197.	Proteaceae	*Hakea sericea*	Bushy needlebush	
198.	Scrophulariaceae	*Halleria eliptica*	Elliptic Treefuchsia	LC
199.	Asteraceae	*Haplocarpha lanata*		LC
200.	Asteraceae	*Helichrysum revolutum*		LC
201.	Asteraceae	*Helichrysum teretifolium*		LC
202.	Asteraceae	*Helichrysum tinctum*		LC
203.	Brassicaceae	*Heliophila pendula*		LC
204.	Brassicaceae	*Heliophila scoparia*		LC
205.	Brassicaceae	*Heliophila scoparia var. scoparia*		LC
206.	Malvaceae	*Hermannia alnifolia*		LC
207.	Malvaceae	*Hermannia angularis*		LC
208.	Malvaceae	*Hermannia grossularifolia*		LC
209.	Malvaceae	*Hermannia hyssopifolia*		LC

210.	Malvaceae	*Hermannia ternifolia*		LC
211.	Malvaceae	*Hermannia trifoliata*		LC
212.	Iridaceae	*Hesperantha falcata*		LC
213.	Malvaceae	*Hibiscus aethiopicus*		LC
214.	Orchidaceae	*Holothrix villosa*		LC
215.	Asteraceae	*Hymenolepis crithmifolia*		LC
216.	Restionaceae	*Hypodiscus argenteus*	Silver Pineapplereed	LC
217.	Restionaceae	*Hypodiscus wildenowia*	Flatstem Pineapplereed	LC
218.	Fabaceae	*Indigofera cytisoides*	Fire Pea	LC
219.	Fabaceae	*Indigofera digitata*		LC
220.	Fabaceae	*Indigofera heterophylla*	Diverse Indigo	LC
221.	Cyperaceae	*Isolepis marginata*		LC
222.	Iridaceae	*Ixia odorata*		LC
223.	Iridaceae	*Ixia sciliaris*		LC
224.	Iridaceae	*Ixia scillaris scillaris*		NT
225.	Asphodelaceae	*Kniphofia uvaria*	Red Hot Poker	LC
226.	Ranunculaceae	*Knowltonia vesicatoria*	Common Burnleaf	LC
227.	Ranunculaceae	*Knowltonia vesicatoria vesicatoria*		
228.	Asparagaceae	*Lachenalia lutea*		LC
229.	Asparagaceae	*Lachenalia mediana*		
230.	Asparagaceae	*Lachenalia mediana mediana*		VU
231.	Hyacinthaceae	*Lachenalia orchioides*		LC
232.	Asparagaceae	*Lachenalia orchioides orchioides*	Orchid Viooltjie	LC
233.	Asparagaceae	*Lachenalia pallida*	Pale Viooltjie	LC
234.	Aizoaceae	*Lampranthus elegans*		LC
235.	Haemordoraceae	*Lanaria lanata*	Lambstail	LC
236.	Iridaceae	*Lapeirousia corymbosa*		Declining
237.	Proteaceae	*Leucadendron rubrum*	Spinning-top Conebush	LC

238.	Proteaceae	*Leucadendron salicifolium*		LC
239.	Proteaceae	*Leucadendron salignum*	common sunshine conebush	LC
240.	Proteaceae	*Leucadendron sessile*		NT
241.	Proteaceae	*Leucospermum conocarpodendron*	tree pincushion	LC
242.	Proteaceae	*Leucospermum conocarpodendron viridum*	Kreupelhout	NT
243.	Proteaceae	*Leucospermum gueinzii*		EN
244.	Apiaceae	*Lichtensteinia lacera*	Tornleaf Kalmoes	LC
245.	Fabaceae	*Liparia species*		
246.	Campanulaceae	*Lobelia coronopifolia*		LC
247.	Campanulaceae	*Lobelia pinifolia*	Pine-leaved Lobelia	LC
248.	Campanulaceae	*Lobelia sp*		
249.	Boraginaceae	*Lobostemon fruticosis*		LC
250.	Boraginaceae	*Lobostemon hottentoticus*		EN
251.	Fabaceae	*Lotononis prostrata*		NT
252.	Fabaceae	*Lotononis sciliaris*		Not on list
253.	Primulaceae	*Lysimachia arvensis*	scarlet pimpernel	
254.	Scrophulariaceae	*Manulea tomentosa*		LC
255.	Asteraceae	*Mairia coriacea*		LC
256.	Scrophulariaceae	*Manulea cheiranthus*		LC
257.	Asteraceae	*Metalasia densa*		LC
258.	Asteraceae	*Metalasia muricata*		LC
259.	Scrophulariaceae	*Microdon dubius*		LC
260.	Asclepiadaceae	*Microlobium tenuifolium*		LC
261.	Apocynaceae	*Microloma tenuifolium*	Wax-creeper	LC
262.	Proteaceae	*Mimetes cucculatus*	common pagoda	LC

263.	Geraniaceae	*Monsonia speciosa*		EN
264.	Montiniaceae	*Montinia caryophyllacea*	Pepperbush	LC
265.	Iridaceae	*Moraea bellendenii*	Matrix Uintjie	LC
266.	Iridaceae	*Moraea bituminosa*	Tar Tulp	LC
267.	Iridaceae	*Moraea ciliata*	Fringe Tulp	LC
268.	Iridaceae	*Moraea inconspicua*		LC
269.	Iridaceae	*Moraea miniata*		LC
270.	Iridaceae	*Moraea neglecta*	Gloaming Tulp	LC
271.	Iridaceae	*Moraea ochroleuca*	Apricot Tulp	LC
272.	Iridaceae	*Moraea papilionacea*		LC
273.	Iridaceae	*Moraea tricuspidata*	Reed Uintjie	LC
274.	Iridaceae	*Moraea vegeta*		LC
275.	Iridaceae	*Moraea versicolor*	Reverse Galaxy	VU
276.	Myricaceae	*Morella serrata*	Water Waxberry	LC
277.	Polygalaceae	*Muraltia alopecuroides*		LC
278.	Polygalaceae	*Muraltia heisteria*	Prickly Purplegorse	LC
279.	Polygalaceae	*Muraltia sp*		
280.	Scrophulariaceae	*Nemesia barbata*	Blue-beard Lionface	LC
281.	Scrophulariaceae	*Nemesia bicornis*		LC
282.	Asteraceae	*Oedera imbricata*		LC
283.	Scrophulariaceae	*Oftia africana*		LC
284.	Asparagaceae	*Ornithogalum thyrsoides*	Chincherinchee	LC
285.	Asteraceae	*Osmitopsis asteriscoides*	Swamp Daisy	LC
286.	Asteraceae	*Osteospermum moniliferum*		LC
287.	Asteraceae	*Osteospermum polygaloides*		LC
288.	Fabaceae	*Otholobium bracteolatum*		LC

289.	Fabaceae	*Otholobium hirtum*		LC
290.	Fabaceae	*Otholobium obliquum*		LC
291.	Fabaceae	*Otholobium rotundifolium*	Roundleaf Dottypea	VU
292.	Fabaceae	*Otholobium virgatum*	Carpet Dottypea	LC
293.	Asteraceae	*Othonna ciliata*		VU
294.	Asteraceae	*Othonna gymnodiscus*		LC
295.	Asteraceae	*Othonna heterophylla*		LC
296.	Asteraceae	*Othonna quinquedentata*		LC
297.	Oxalidaceae	*Oxalis livida*		LC
298.	Oxalidaceae	*Oxalis luteola*	Golden Sorrel	LC
299.	Oxalidaceae	*Oxalis minuta*		LC
300.	Oxalidaceae	*Oxalis obtusa*	yelloweye woodsorrel	LC
301.	Oxalidaceae	*Oxalis polyphylla*		LC
302.	Oxalidaceae	*Oxalis purpurea*		LC
303.	Oxalidaceae	*Oxalis tenuifolia*		LC
304.	Oxalidaceae	*Oxalis truncatula*		LC
305.	Thymelaeaceae	*Passerina corymbosa*	Common Gonna	LC
306.	Thymelaeaceae	*Passerina ericoides*		VU
307.	Hypoxidaceae	*Pauridia affinis*		LC
308.	Hypoxidaceae	*Pauridia alba*	White Capestar	LC
309.	Hypoxidaceae	*Pauridia capensis*	Stars	LC
310.	Geraniaceae	*Pelargonium asarifolium*		VU
311.	Geraniaceae	*Pelargonium capitatum*		LC
312.	Geraniaceae	*Pelargonium cucullatum*	wild mallow	LC
313.	Geraniaceae	*Pelargonium cucullatum cucullatum*	Coastal Hooded Storksbill	LC
314.	Geraniaceae	*Pelargonium myrrhifolium*		LC
315.	Geraniaceae	*Pelargonium myrrhifolium var. myrrhifoliium*		LC

316.	Geraniaceae	*Pelargonium patulum var. patulum*		Not evaluated
317.	Geraniaceae	*Pelargonium rapaceum*		LC
318.	Geraniaceae	*Pelargonium triste*		LC
319.	Penaeaceae	*Penaea mucronata*	Noughts-and-Crosses	Not on list
320.	Poaceae	*Pentameris thuarii*		LC
321.	Rhamnaceae	*Phylica pubescens*		LC
322.	Rhamnaceae	*Phylica pubescens pubescens*		LC
323.	Fabaceae	*Podalyria*		
324.	Fabaceae	*Podalyria calyptrata*		LC
325.	Fabaceae	*Podalyria myrtillifolia*		LC
326.	Podocarpaceae	*Podocarpus henkelii*	Henkel's yellowwood	LC
327.	Polygalaceae	*Polygala sp*		
328.	Thurniaceae	*Prionium serratum*	Palmiet	LC
329.	Campanulaceae	*Prismatocarpus brevilobus*		LC
330.	Campanulaceae	*Prismatocarpus diffusus*		LC
331.	Proteaceae	*Protea acaulos*	common ground sugarbush	LC
332.	Proteaceae	*Protea coronata*	green sugarbush	NT
333.	Proteaceae	*Protea eximia*	broad-leaved sugarbush	LC
334.	Proteaceae	*Protea laurifolia*		LC
335.	Proteaceae	*Protea lorea*		NT
336.	Proteaceae	*Protea nerrifolia*	oleander-leaf protea	LC
337.	Proteaceae	*Protea nitida*	wagon tree	LC
338.	Proteaceae	*Protea repens*	Common Sugarbush	LC
339.	Proteaceae	*Protea scabra*		NT
340.	Proteaceae	*Protea scorzonerifolia*	Channelleaf Sugarbush	VU
341.	Scrophulariaceae	*Pseudoselago spuria*		LC

342.	Fabaceae	*Psoralea affinis*		LC
343.	Fabaceae	*Psoralea aphylla*		LC
344.	Fabaceae	*Psoralea imbricata*		LC
345.	Fabaceae	*Psoralea ivumba*		
346.	Fabaceae	*Psoralea pinnata*	Dally pine	LC
347.	Fabaceae	*Psoralea usitata*	Usual Fountainbush	
348.	Orchidaceae	*Pterygodium alatum*	Winged Bonnet	LC
349.	Orchidaceae	*Pterygodium catholicum*	Cowled-friar	LC
350.	Orchidaceae	*Pterygodium orobanchoides*	Weedy Monkshood	LC
351.	Fagaceae	*Quercus palustris*	pin oak	
352.	Fabaceae	*Rafnia acuminata*		LC
353.	Fabaceae	*Rafnia perfoliata*		now acuminata
354.	Primulaceae	*Rapanea melanophloeos*	Cape beech	LC
355.	Restionaceae	*Restio capensis*		LC
356.	Restionaceae	*Restio gaudichaudianus*		LC
357.	Restionaceae	*Restio paniculatis*		LC
358.	Restionaceae	*Restio sabulosus*		EN
359.	Campanulaceae	*Roella incurva*		LC
360.	Zygophyllaceae	*Roepera flexuosum*		LC
361.	Iridaceae	*Romulea flava*		LC
362.	Iridaceae	*Romulea flava flava*		LC
363.	Lamiaceae	*Salvia chamelaeagnea*		LC
364.	Orchidaceae	*Satyrium bicorne*	Twohorn Satyre	LC
365.	Orchidaceae	*Satyrium coriifolium*	Orange Satyre	LC
366.	Schizaeaceae	*Schizaea pectinata*	Toothbrush Fern	LC
367.	Anacardiaceae	*Searsia angustifolia*		LC
368.	Anacardiaceae	*Searsia rosemarinifolia*		LC
369.	Gentianaceae	*Sebaea aurea*		LC

370.	Gentianaceae	*Sebaea exacoides*		LC
371.	Proteaceae	*Serruria kraussii*	Snowball Spiderhead	VU
372.	Solanaceae	*Solanum sp*		
373.	Iridaceae	*Spiloxene capensis*		LC
374.	Stilbaceae	*Stilbe sp*		
375.	Asteraceae	*Stoebe fusca*		LC
376.	Asteraceae	*Stoebe plumbosa*		LC
377.	Amaryllidaceae	*Strumaria spiralis*		LC
378.	Thymelaeaceae	*Struthiola ciliata*		LC
379.	Thymelaeaceae	*Struthiola sp*		
380.	Thymelaeaceae	*Struthiola tomentosa*		LC
381.	Asteraceae	*Syncarpha gnaphaloides*		LC
382.	Aizoaceae	*Tetragonia fruticosa*		LC
383.	Cyperaceae	*Tetraria thermalis*	Mountain Palmiet	LC
384.	Santalaceae	*Thesium euphorbioides*		LC
385.	Santalaceae	*Thesium sp*		
386.	Asphodelaceae	*Trachyandra chlamydophylla*	Thickleaf Capespinach	VU
387.	Iridaceae	*Tritonia undulata*	Crisp Plumeiris	LC
388.	Iridaceae	*Tritoniopsis lata*		LC
389.	Iridaceae	*Tritoniopsis lata var. lata*		LC
390.	Iridaceae	*Tritoniopsis parviflora*		LC
391.	Iridaceae	*Tritoniopsis ramosa*		LC
392.	Iridaceae	*Tritoniopsis ramosa ramosa*		LC
393.	Iridaceae	*Tritoniopsis triticea*	Red Reedpipe	LC
394.	Amaryllidaceae	*Tulbaghia alliacea*		LC
395.	Asteraceae	*Ursinia paleacea*		LC
396.	Haemodoraceae	*Wachendorfia paniculata*	Common Butterflylily	LC

397.	Haemodoraceae	*Wachendorfia thyrsiflora*	Red Root	LC
398.	Campanulaceae	*Wahlenbergia capensis*	Cape Bluebell	LC
399.	Campanulaceae	*Wahlenbergia subulata*		
400.	Campanulaceae	*Wahlenbergia subulata subulata*		LC
401.	Iridaceae	*Watsonia angusta*		LC
402.	Iridaceae	*Watsonia borbonica*	Bugle-lily	LC
403.	Iridaceae	*Watsonia meriana*	Bulbil Bugle-lily	LC
404.	Iridaceae	*Watsonia spectabilis*		LC
405.	Cupressaceae	*Widdringtonia nodiflora*	mountain cypress	LC
406.	Colchicaceae	*Wurmbea marginata*		LC
407.	Colchicaceae	*Wurmbea recurva*		LC
408.	Fabaceae	*Xiphotheca lanceolata*		EN
409.	Scrophulariaceae	*Zaluzianskya divaricata*		LC
410.	Araceae	*Zantedeschia aethiopica*		LC

Mammalian fauna found in Vergelegen Nature Reserve

	Common Name	**Species Name**
1	Cape Leopard	*Panthera pardus pardus*
2	Honey badger	*Mellivora capensis*
3	Striped polecat	*Ictonyx striatus*
4	Grey Rhebok	*Pelea capreolus*
5	Spotted Gennet	*Genetta genetta*
6	Duiker	*Sylvicapra grimmia*
7	Klipspringer	*Oreotragus oreotragus*
8	Cape Chacma Baboon	*Papio ursinus*
9	Cape Grey Mongoose	*Herpestes pulverulentus*
10	Cape Hare	*Lepus capensis*
11	Porcupine	*Hystrix africaeaustralis*

12	Caracal	*Caracal caracal*
13	Bontebok	*Damaliscus pygargus*
14	Cape Grysbok	*Raphicerus melanotis*
15	Steenbok	*Raphicerus campestris*
16	Cape elephant shrew	*Elephantulus edwardii*

Bird species observed on Vergelegen

Nr	Common name	Species
1	Apalis Bar-throated	*Apalis thoracica*
2	Batis Cape	*Batis capensis*
3	Bishop Southern Red	*Euplectes orix*
4	Bishop Yellow	*Euplectes capensis*
5	Bokmakierie	*Telophorus zeylonus*
6	Boubou Southern	*Laniarius ferrugineus*
7	Bulbul Cape	*Pycnonotus capensis*
8	Bunting Cape	*Emberiza capensis*
9	Bunting Lark-like	*Emberiza impetuani*
10	Bustard Denham's	*Neotis denhami*
11	Buzzard Forest	*Buteo trizonatus*
12	Buzzard Jackal	*Buteo rufofuscus*
13	Buzzard Steppe	*Buteo vulpinus*
14	Canary Brimstone	*Serinus sulphuratus*
15	Canary Cape	*Serinus canicollis*
16	Canary Yellow	*Serinus flaviventris*
17	Canary White-throated	*Serinus albogularis*
18	Chat Familiar	*Cercomelo familiaris*
19	Cisticola Fan-tailed	*Cisticola juncidis*
20	Cisticola Grey-backed	*Cisticola subruficapilla*
21	Cisticola Levaillant's	*Cisticola tinniens*

22	Coot Red-knobbed	*Fulica cristata*
23	Cormorant Reed	*Phalacrocorax africanus*
24	Cormorant White-breasted	*Phalacrocorax lucidus*
25	Coucal Burchell's	*Centropus burchelli*
26	Crake Black	*Amaurornis flavirostris*
27	Crane Blue	*Anthropoides paradiseus*
28	Crow Cape	*Corvus capensis*
29	Crow Pied	*Corvus albus*
30	Cuckoo Klaas's	*Chrysococcyx klaas*
31	Cuckoo Red-chested	*Cuculus solitaries*
32	Darter African	*Anhinga rufa*
33	Dove Laughing	*Streptopelia senegalensis*
34	Dove Namaqua	*Oena capensis*
35	Dove Red-eyed	*Streptopelia semitorquata*
36	Dove Tambourine	*Turtur tympanistria*
37	Drongo Fork-tailed	*Dicrurus adsimilis*
38	Duck African Black	*Anas sparsa*
39	Duck Yellow-billed	*Anas undulata*
40	Eagle Booted	*Aquila pennatus*
41	Eagle Martial	*Polemaetus bellicosus*
42	Eagle Verreaux's	*Aquila verreauxii*
43	Eagle-Owl Spotted	*Bubo africanus*
44	Egret Cattle	*Bubulcus ibis*
45	Falcon Lanner	*Falco biarmicus*
46	Falcon Peregrine	*Falco peregrinus*
47	Fiscal Common	*Lanius collaris*
48	Fish-Eagle African	*Haliaeetus vocifer*
49	Flufftail Red-chested	*Sarothrura rufa*
50	Flufftail Striped	*Sarothrura affinis*

51	Flycatcher African Dusky	*Muscicapa adusta*
52	Flycatcher Fiscal	*Sigelus silens*
53	Goose Egyptian	*Alopochen aegyptiaca*
54	Goose Spur-winged	*Plectropterus gambensis*
55	Goshawk African	*Accipiter tachiro*
56	Grassbird Cape	*Sphenoaecus afer*
57	Grebe Great Crested	*Podiceps cristatus*
58	Grebe Little	*Tachybaptus ruficollis*
59	Greenbul Sombre	*Andropadus importunus*
60	Guineafowl Helmeted	*Numida meleagris*
61	Gull Kelp	*Larus dominicanus*
62	Hamerkop	*Scopus umbretta*
63	Harrier Black	*Circus maurus*
64	Harrier-Hawk African	*Polyboroides typus*
65	Heron Black-headed	*Ardea melanocephala*
66	Heron Grey	*Ardea cinera*
67	Heron Purple	*Ardea purpurea*
68	Honeyguide Greater	*Indicator indicator*
69	Honeyguide Lesser	*Indicator minor*
70	Hoopoe African	*Upupa* Africana
71	House-Martin Common	*Delichon urbicum*
72	Ibis African Sacred	*Threskiornis aethiopicus*
73	Ibis Hadeda	*Bostrychia hagedash*
74	Kestrel Rock	*Falco rupicolus*
75	Kingfisher Giant	*Megaceryle maxima*
76	Kingfisher Malachite	*Alcedo cristata*
77	Kite Black-shouldered	*Elanus caeruleus*
78	Kite Yellow-billed	*Milvus aegyptius*
79	Lapwing Blacksmith	*Vanellus armatus*

80	Lapwing Crowned	*Vanellus coronatus*
81	Lark Large-billed	*Galerida magnirostris*
82	Longclaw Cape	*Macronyx capensis*
83	Marsh-Harrier African	*Circus ranivorus*
84	Martin Brown-throated	*Riparia paludicola*
85	Martin Rock	*Ptyonoprogne fuligula*
86	Masked-Weaver Southern	*Ploceus velatus*
87	Moorhen Common	*Gallinula chloropus*
88	Mousebird Red-faced	*Urocolius indicus*
89	Mousebird Speckled	*Colius striatus*
90	Neddicky / Piping Cisticola	*Cisticola fulvicapilla*
91	Nightjar Fiery-necked	*Caprimulgus pectoralis*
92	Olive-Pigeon African	*Columba arquatrix*
93	Osprey	*Pandion haliaetus*
94	Owl Barn	*Tyto alba*
95	Paradise-Flycatcher African	*Terpsiphone viridis*
96	Peacock Common	*Pavo cristatus*
97	Pelican Great White	*Pelecanus onocrotalus*
98	Pigeon Speckled	*Columba guinea*
99	Pipit African	*Anthus cinnamomeus*
100	Pipit Long-billed	*Anthus similis*
101	Pipit Plain-backed	*Anthus leucophrys*
102	Plover Three-banded	*Charadrius tricollaris*
103	Prinia Karoo	*Prinia maculosa*
104	Quail Common	*Coturnix coturnix*
105	Raven White-necked	*Corvus albicollis*
106	Robin-Chat Cape	*Cossypha caffra*
107	Rock-Thrush Cape	*Monticola rupestris*
108	Rush-Warbler Little	*Bradypterus baboecala*

109	Sandpiper Common	*Actitis hypoleucos*
110	Saw-wing Black	*Psalidoprocne pristoptera*
111	Scrub-Robin Karoo	*Cercotrichas coryphaeus*
112	Secretary bird	*Sagittarius serpentarius*
113	Siskin Cape	*Crithagra totta*
114	Snipe African	*Gallinago nigripennis*
115	Sparrow Cape	*Passer melanurus*
116	Sparrow House	*Passer domesticus*
117	Sparrow Southern Grey-headed	*Passer diffusus*
118	Sparrowhawk Black	*Accipiter melanoleucus*
119	Sparrowhawk Rufous-chested	*Accipiter rufiventris*
120	Spoonbill African	*Platalea alba*
121	Spurfowl Cape	*Pternistis capensis*
122	Starling Common	*Sturnus vulgaris*
123	Starling Red-winged	*Onychognathus morio*
124	Stonechat African	*Saxicola torquatus*
125	Stork White	*Ciconia ciconia*
126	Sugarbird Cape	*Promerops cafer*
127	Sunbird Amethyst	*Chalcomitra amethystina*
128	Sunbird Malachite	*Nectarinia famosa*
129	Sunbird Orange-breasted	*Anthobaphes violacea*
130	Sunbird Southern Double-collared	*Cinnyris chalybeus*
131	Swallow Barn	*Hirundo rustica*
132	Swallow Greater Striped	*Cecropis cucullata*
133	Swallow Pearl-breasted	*Hirundo dimidiata*
134	Swallow White-throated	*Hirundo albigularis*
135	Swamp-Warbler Lesser	*Acrocephalus gracilirostris*
136	Swift African Black	*Apus barbatus*
137	Swift Alpine	*Tachymarptis melba*

138	Swift Little	*Apus affinis*
139	Swift White-rumped	*Apus caffer*
140	Teal Red-billed	*Anas erythrorhyncha*
141	Tern Swift/Greater Crested	*Thalasseus bergii*
142	Thick-knee Spotted	*Burhinus capensis*
143	Thrush Olive	*Turdus olivaceus*
144	Turtle-Dove Cape/Ring-necked	*Streptopelia capicola*
145	Wagtail Cape	*Motacilla capensis*
146	Waxbill Common	*Estrilda astrild*
147	Waxbill Swee	*Coccopygia melanotis*
148	Weaver Cape	*Ploceus capensis*
149	Wheatear Capped	*Oenanthe pileata*
150	White-eye Cape	*Zosterops virens*
151	Whydah Pin-tailed	*Vidua macroura*
152	Woodpecker Cardinal	*Dendropicos fuscescens*
153	Woodpecker Olive	*Dendropicos griseocephalus*

Reptiles found on Vergelegen Nature Reserve

	Common name	**Species name**
1	Puff adder	*Bitis arietans*
2	Cape Cobra	*Naja nivea*
3	Boomslang	*Dispholidus typus*
4	Mole snake	*Pseudaspis cana*
5	Rhombic Skaapsteker	*Psammophylax rhombeatus*
6	Cape girdled lizard	*Cordylus cordylus*
7	Southern rock agama	*Agama atra*

8	Leopard Tortoise / Bergskilpad	*Stigmochelys pardalis*
9	Cross-marked Sand Snake	*Psammophis crucifer*
10	Parrot-beaked Tortoise	*Homopus areolatus*

Amphibians found on Vergelegen Nature Reserve

	Common name	**Species name**
1	Mountain Rain Frog	*Breviceps montanus*
2	Cape River Frog	*Amietia fuscigula*
3	Painted Reed Frog	*Hyperolius marmoratus*

Invertebrates found on Vergelegen Nature Reserve

	Common name	**Species name**
1	Painted Lady	*Vanessa cardui*
2	Cotton Bollworm Moth	*Helicoverpa armigera*
3	Goldtail	*Allocnemis leucosticta*
4	Scar bank gem	*Ctenoplusia limbirena*
5	Cherry Spot	*Diaphone eumela*
6	Cape Honey Bee	*Apis mellifera capensis*
7	Southern Harvester Termite	*Microhodotermes viator*
8		*Physemacris variolosa*
9	Spotted Veldlion	*Palpares speciosus*
10	Western Honey Bee	*Apis mellifera*
11	Navy Dropwing	*Trithemis furva*
12	Spotted Sugar Ant	*Camponotus maculatus*
13	Emperor Dragonfly	*Anax imperator*
14	Common Citril	*Ceriagrion glabrum*
15	Maasai Sprite	*Pseudagrion massaicum*

16	Red-veined Dropwing	*Trithemis arteriosa*
17	Scarlet Darter	*Crocothemis erythraea*
18	Kersten's Sprite	*Pseudagrion kersteni*
19	Rock Hooktail	*Paragomphus cognatus*
20	European Paper Wasp	*Polistes dominula*
21		*Antestiopsis thunbergii*
22		*Polistes marginalis*
23	Little Scarlet	*Crocothemis sanguinolenta*
24	Common Milkweed Locust	*Phymateus morbillosus*
25	Boland Brown	*Melampias huebneri*

Annual Management Report Schedule for Vergelegen Nature Reserve

Management target	2018/19 Actions & Comments	Yes No NA	Quality H/M/L	2019/2020 Actions	Completion date	Responsibility
1. FIRE MANAGEMENT						
1.1 Reduce/Prevent the Spread of Fires:						
1.1.1 Construct Priority Firebreaks according to Schedule.	This is done when required.	Yes	H	Maintain firebreak maintenance according to schedule.	Ongoing	Landowner
1.1.2 Negotiate and maintain Firebreak Agreement with Neighbours.	Firebreak agreement in place with CapeNature. The other firebreaks are on the border of the property, thus no firebreak agreements required for them.	**Yes**	**H**	Maintain firebreak agreement according to schedule.	Ongoing	Landowner and neighbours
1.1.3 Fuel Reduction around Infrastructure to Minimise Risk.	The Mountain Club of South Africa has a hut on the property. They have to maintain the firebreak around the hut and the jeep track leading to the hut. Further, there is only roads in the nature reserve.	**NA**	**NA**		NA	Landowner
1.1.4 Conduct Pre-Fire Season Fire Audit. • Acquire and maintain the necessary infrastructure and equipment for fire management. • Implement fire protection measures for the Nature Reserve in cooperation with the fire department.	Fire equipment gets checked regularly.	**Yes**	**H**		Ongoing	Landowner
1.1.5 Mapping of all Fires and Capture on GIS.	Last fire occurred in January 2017, this was mapped.	**Yes**	**H**		When required	Landowner & CapeNature
1.2 Maintain Partnership to Improve Fire Management:						
1.2.1 Attend Local FPA Meetings.	Eben attends the meetings on a regular basis.	**Yes**	**H**		Ongoing	Landowner
1.3 Determine and Implement Thresholds of Potential Concern:						
1.3.1 Establish a series of Fixed Point Photography (FPP) Monitoring Plots.	There is a FPP in every management block. Photographs taken on a monthly basis.	**Yes**	**H**		Ongoing	Landowner & CapeNature
1.3.2 Conduct Permanent *Protea* spp. Plot Monitoring.		**NA**		Monitoring of *Protea neriifolia* once they first flower. (These plants are generally about four or five years old	NA this year	Landowner & CapeNature

				before they flower, thus only about 2021/2022)		
1.3.3 Conduct Post-Fire Regeneration Monitoring.	Monitoring was done on the 31st of May 2018 (*Protea neriifolia*).	**Yes**	**H**	Andrie to forward data to Leslie and Eben.	Completed	Landowner & CapeNature

Management target	**2018/19 Actions & Comments**	**Yes No NA**	**Quality H/M/L**	**2019/20 Actions**	**Completion date**	**Responsibility**
2. INVASIVE ALIEN MANAGEMENT						
2.1 Eradicate Alien and Invasive Species:						
2.1.1 Identify and Map all Alien Invasive Flora Within or Threatening the Reserve.	All invasive flora is mapped. The whole Nature Reserve is in maintenance phase.	**Yes**	**H**		Ongoing	Landowner & CapeNature
2.1.2 Compile a Management Unit Clearing Plan.	This is done annually by reserve managers and includes the budget.	**Yes**	**H**		Ongoing	Landowner

Management target	**2018/19 Actions & Comments**	**Yes No NA**	**Quality H/M/L**	**2019/20 Actions**	**Completion date**	**Responsibility**
3. WILDLIFE MANAGEMENT						
3.1 Prevent the Introduction of Alien Species:						
3.1.1 Formulate Policy regarding Domestic Animals in the Reserve.	Habitat assessment was done for the Nguni Cattle in 2015.	**Yes**	**H**		Completed	CapeNature & landowner
3.1.2 No Introduction of Alien Fish Species into River Systems.	No alien fish species are introduced into the river systems.	**NA**			NA	CapeNature & landowner
3.2 Control Alien and Invasive Species:						
3.2.1 Identify the Occurrence of Alien Fauna on Nature Reserve. **3.2.2 Monitor Populations of Alien Fauna on the Reserve.** **3.2.3 Implement Control Measures where appropriate.** **3.2.4 Measure Success of Control Methods utilised.**	One male bush pig was captured on a trip camera late March 2019.	**Yes**	**H**	Bush pigs are not a problem on this property yet, but in case they do multiply, Andrie will find out different ways to eradicate them. Trip cameras are checked every two weeks.	Ongoing	Landowner & CapeNature
3.3 Manage the introduction of fauna on the Reserve:						

3.3.1 All possible introductions of game needs to be in accordance with all the necessary permits and permissions of CapeNature. This includes the construction of and maintenance of a fence according to the CapeNature policy, after which a Certificate of Adequate Enclosure (CoAE) certificate will be issued	Everything is in place.	**Yes**	**H**		When required	Landowner; CapeNature will provide advice and assistance where appropriate and required
3.4 Evaluate and monitor the impact of fauna on the Reserve:						
3.4.1 Monitoring to be carried out to determine when management interventions will be necessary.	All management units are being monitored on a monthly basis by fixed-point photography.	**Yes**	**H**	Continue monitoring management units through fixed-point photography.	Ongoing	Landowner with assistance from CapeNature
3.4.2 Hunting of game is permitted under the hunting proclamation and rights obtained from the CoAE in the Contract Reserve provided it is to manage the game population and remove surplus game	No hunting is permitted on the property.	**NA**			NA	Landowner

Management target	**2018/19 Actions & Comments**	**Yes No NA**	**Quality H/M/L**	**2019/20 Actions**	**Completion date**	**Responsibility**
4. EROSION PREVENTION AND CONTROL						
4.1 Prevent and Mitigate Soil Erosion:						
4.1.1 Conduct a Soil Erosion Assessment	Soil erosion assessment has been done. with DEA&DP for authorisation to proceed with the rehabilitation of these sites.	**Yes**	**H**	Consultant to do a report on behalf of Vergelegen Wines to apply for authorisation from DEA&DP to proceed with the rehabilitation and mitigation of these sites.	Ongoing	Landowner; CapeNature provide assistance
4.1.2 Map Erosion Sites and Ensure Photographs are available.	Erosion sites have been mapped and photographed.	**Yes**	**H**		Completed	Landowner; CapeNature provide assistance where appropriate and required
4.1.3 Compile an Erosion Maintenance Plan.		**NA**		To be done by consultant.	Ongoing	Landowner; CapeNature

						provide assistance
4.1.4 Monitor the effectivity of the Erosion Control Mitigation.		**NA**		To be done once rehabilitation of these sites have been done.	NA	Landowner; CapeNature will provide assistance where appropriate & required
4.1.5 Monitor Cost Effectiveness of Maintenance.		**NA**			NA	Landowner; CapeNature provide assistance
4.1.6 Monitor Site Recovery		**NA**			NA	Landowner; CapeNature will provide assistance where appropriate and required
4.1.7 Conduct a roads assessment.	This is done seasonally and gets fixed/repaired when required.	**Yes**	**H**		Ongoing	Landowner; CapeNature provide assistance

Management target	**2018/19 Actions & Comments**	**Yes No NA**	**Quality H/M/L**	**2019/20 Actions**	**Completion date**	**Responsibility**
5. MONITORING AND BASELINE DATA COLLECTION						
5.1 Compile Ecological Plan of Operations and Ecological Matrix:						
• Compile an Ecological Plan of Operations. • Collate all relevant Monitoring and Research Protocols and Data Sheets. • Develop and Implement an Approved Ecological Matrix.	Ecological Matrix gets done annually and included when Conservation Services – Central Region meet and update the list.	**Yes**	**H**	Andrie to forward ecological matrix to Vergelegen management.	Annually	CapeNature and Landowner
5.2 Create a Biodiversity Resource Inventory:						

• Prioritise Species for inclusion on the Ecological Matrix. • Compile and Implement the Ecological Matrix. • Collect Specimens and Submit to CapeNature Scientific Services. • Analyse data, re-assess and implement Adaptive Management Strategies.	CREW regularly visits the farm for botanical surveys. Monthly bird counts are also conducted on the farm.	**Yes**	**H**		Ongoing	CapeNature and Landowner
5.3 Implement Monitoring Programme:						
5.3.1 Review Monitoring Protocols. See individual management targets		**NA**		No monitoring to be carried out by CapeNature this coming year.	NA	CapeNature and Landowner

Management target	**2018/19 Actions & Comments**	**Yes No NA**	**Quality H/M/L**	**2019/20 Actions**	**Completion date**	**Responsibility**
6. BIODIVERSITY SECURITY						
6.1 Improved security and safety of the biodiversity assets on the Nature Reserve:						
6.1.1 Ensure Notarial Deed with surveyor diagram and title deed restrictions are registered with the Notary and Surveyor General against the property	*Comment:* Ellané van Wyk was appointed as a Tax Extension Officer for Birdlife SA's Fiscal Benefits Project. They have placed the very first biodiversity tax incentive in a landowner's tax return. She will be assisting landowners who qualify for this with the application. For more information visit https://www.birdlife.org.za/conservation/important-bird-areas/iba-projects/biodiversity-stewardship-fiscal-benefits-project	**No**		Ellané is available to meet with Vergelegen management (including person who does their tax) from the 30th of April for a meeting. She will then explain this tax incentive, answer any questions regarding this, provide a legal tax opinion and do a calculation of the section 37D deduction for the Nature Reserve and she will also be available to interact with SARS in case they have any questions regarding these deductions. Vergelegen Wines are already receiving a 10 year tax break. Leslie will enquire whether a meeting is necessary for this. Isabella is busy with the notarisation, this should happen within the next week or 3.	June 2019	Landowner with support and advice from CapeNature

6.1.2 Ensure Conservation Area is rezoned to appropriate conservation zoning, e.g. Open Space III	Waiting for the Nature Reserve to be registered on the title deed as this is needed for the rezoning process.	**No**		Once the Nature Reserve is registered on the Title Deeds, Andrie to arrange for pre-consultation meeting with the City of Cape Town for rezoning of the Nature Reserve.	June 2020	Landowner with support from CapeNature
6.1.3 Ensure appropriate signage at access points.	CapeNature provided a new stewardship sign in 2017. Vergelegen Wines also purchased their own sign in 2017.	**Yes**	**H**		Completed	Landowner & CapeNature

Management target	**2018/19 Actions & Comments**	**Yes No NA**	**Quality H/M/L**	**2019/20 Actions**	**Completion date**	**Responsibility**
7. DEVELOPMENT OF TOURISM OPPORTUNITIES						
7.1 Development of tourism opportunities that generate revenue for the Nature Reserve: Should any business opportunities arise it will be done in accordance with Management Agreement and other relevant legislation - Indicate on a map any potential business opportunity as it may become available and/or considered		**NA**		Vergelegen Wines would like to look into tourism opportunities, not necessarily to generate an income, but for possibly environmental education and to showcase the beauty of the natural vegetation and importance of the Nature Reserve in the landscape.	Ongoing	Landowner
7.2 Planning and development of hiking routes, mountain bike trails, and basic facilities to cater for visitors to the nature Reserve: a) The management authority is to ensure they have a proper understanding of what the law requires. b) Copies of relevant legislation, for example, Environmental Impact Assessment (EIA) requirements, are available.		**NA**				Landowner; CapeNature will provide advice and assistance where appropriate and required
7.3 Development of a business plan for tourism accommodation facilities.		**NA**				Landowner

Management target	2018/19 Actions & Comments	Yes No NA	Quality H/M/L	2019/20 Actions	Completion date	Responsibility
8. LEGAL COMPLIANCE						
8.1 Ensure that all legal requirements are met:						
8.1.1 All development needs to be done according to the NEMA principles and follow the applicable legislation and procedures of all relevant stakeholders.	All activities on the farm are done in accordance with the law. In the process of getting a consultant to put in a report for erosion rehabilitation in the Nature Reserve to DEA&DP.	**Yes**	**H**		N/A	Landowner with advice and guidance from CapeNature where needed
8.1.2 All water management within the Reserve must comply with the National Water Act (No 36 of 1998).	Vergelegen Wines are complying.	**Yes**	**H**		Ongoing	Landowner
8.1.3 Abstraction of water from water sources originating in the Reserve must not affect the biodiversity of the Reserve	No water abstraction is affecting the biodiversity in the reserve.	**Yes**	**H**		Ongoing	Landowner
8.1.4 Creation of cooperative structures with law enforcement officials. **Regular patrols covering the full extent of the nature reserve.** **Prosecution of any offender caught committing an offence.**	The staff conduct patrols when they are working in the nature reserve. No illegal activities have been observed in the reserve.	**Yes**	**H**		Ongoing	Landowner and CapeNature

Management target	2018/19 Actions & Comments	Yes No NA	Quality H/M/L	2019/20 Actions	Completion date	Responsibility
9. MANAGEMENT EFFECTIVENESS						
9.1 Annual management reports completed:						
Conduct annual management report		**NA**		First Annual Management Report conducted on 16 April 2019.	Annually	CapeNature and landowner
9.2 Auditing systems inform management:						
Implementation, annual review and update of management plan.	Management Plan has been drafted.	**Yes**	**M**	Management of Vergelegen Wines, CapeNature and Minister to sign	June 2019	CapeNature and landowner

Compile detailed work plan identifying specific targets for achieving management				once they are satisfied with the content.		

Management target	2018/19 Actions & Comments	Yes No NA	Quality H/M/L	2019/20 Actions	Completion date	Responsibility
10. INFRASTRUCTURE						
10.1 All infrastructures on the Reserve is adequately maintained	An assessment of the roads are being done seasonally and gets fixed/repaired when required.	**Yes**	**H**			Landowner
10.2 Develop and implement a scheduled maintenance programme to maintain facilities and infrastructure in a condition that meet relevant environmental, health and safety requirements.	All maintenance programmes in place.	**Yes**	**H**			Landowner with advice and guidance from CapeNature where needed