DESTINY NATURE RESERVE

Western Cape, South Africa

Protected Area Management Plan
2024 - 2034

DATE APPROVED:

MOST RECENT UPDATE: November 2024

CapeNature

Authorisation

This management plan for the Destiny Nature Reserve was drafted and recommended by Elizabeth Maria du Plessis on behalf of the Deo Gloria Alternative Leisure Trust (IT 2426/2009) and Deo Gloria Alternative Leisure Experience (Nr. 2007/161726/23 CC).

Supported by:
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Table of Contents

LIST OF TABLES

LIST OF FIGURES

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 Destiny Nature Reserve, informing the need for specific programmes and operational procedures.
- Provide for capacity building, future thinking and continuity of management.
- Help the landowner to develop and manage Destiny Nature Reserve to protect the values and the purpose for which it was established.

1.2 Structure of the plan

Section 1: Provides an introduction and background to the management plan and Destiny 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 the reserve.

Section 6: Operational Management Framework that sets out management targets.

Section 7: Annual Plan of Operation and Review.

1.3 Adaptive management

The preparation of this management plan was 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.

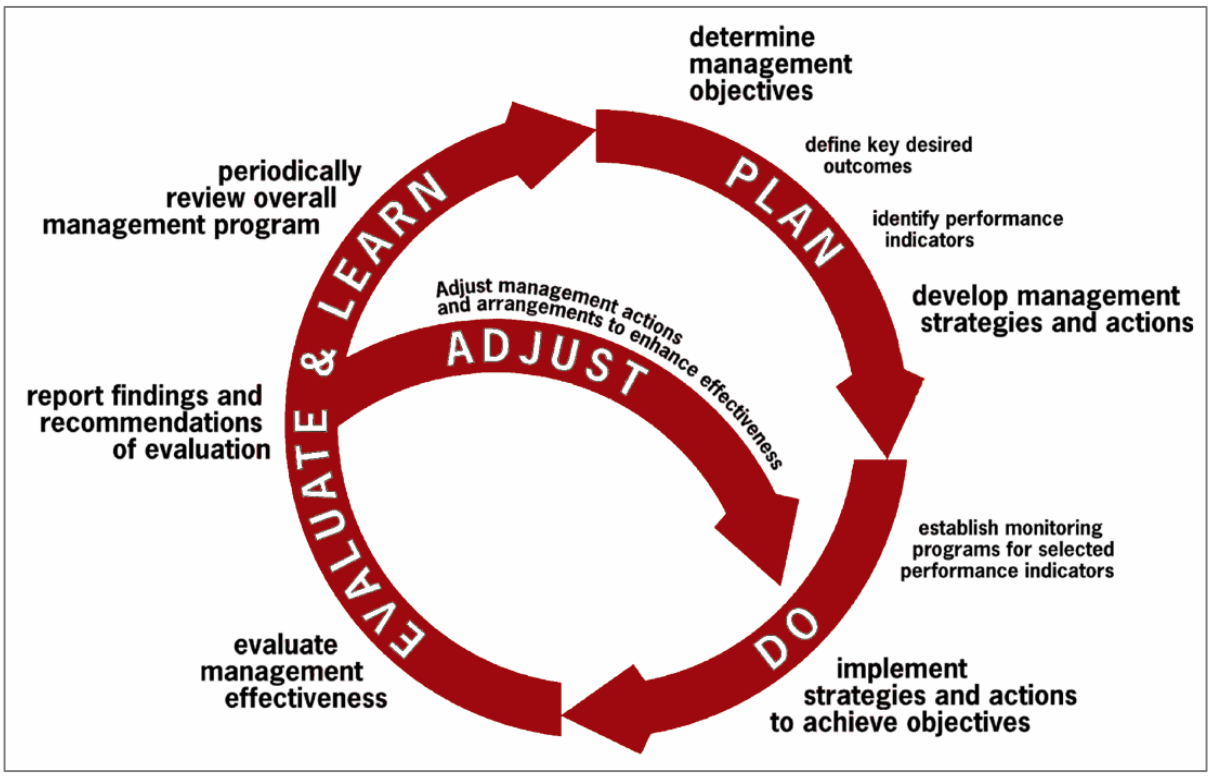

Figure 1.1. The adaptive management cycle. (*https://www.cmar.csiro.au/research/mse/images/adaptive_cycle.gif*).

Adaptive management enables landowners and managers to:

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

1.4 Introduction

Destiny Nature Reserve (NR) comprises two land portions, Remainder of the Farm Piksteelkuil No. 10 and Portion 3 (portion of Portion 1) of the Farm Piksteelkuil No. 10 and has a total area of 1699.3701 ha. It is located in the Western Cape Province about 50 km south of Laingsburg and 30 km north of Barrydale (Figure 1.2). It falls under the Garden Route District Municipality and the Kannaland Local Municipality. The property was declared as a Nature Reserve on 12 October, 2018 (Western Cape Provincial Notice 128/2018), under the National Environmental Management: Protected Areas Act NEM:PAA (Act 57 of 2003).

Destiny Nature Reserve is included in the national and provincial protected area expansion strategies. The property adjoins the Sanbona Nature Reserve in the south, and is one of a number of stewardship properties in the area whose primary land use is conservation. Through two of these (Sanbona and Klipgat), Destiny Nature Reserve is connected to Anysberg Nature Reserve and World Heritage Site (NR & WHS). Destiny NR is thus valuable in terms of expansion and buffering of Anysberg NR & WHS and as a biodiversity corridor. The property also falls within the Gouritz Cluster Biosphere Reserve and includes Critical Biodiversity Area and Ecological Support Area, in terms of the Western Cape Biodiversity Spatial Plan (Pool-Stanvliet et al., 2017) (Figure 3.1).

Destiny NR has a high diversity of local habitats, including important quartz patches and gravel habitats that support rare and endemic plants. As a result, the property has also been highlighted as a priority by the Leslie Hill Succulent Karoo Trust (Desmet et al., 2012).

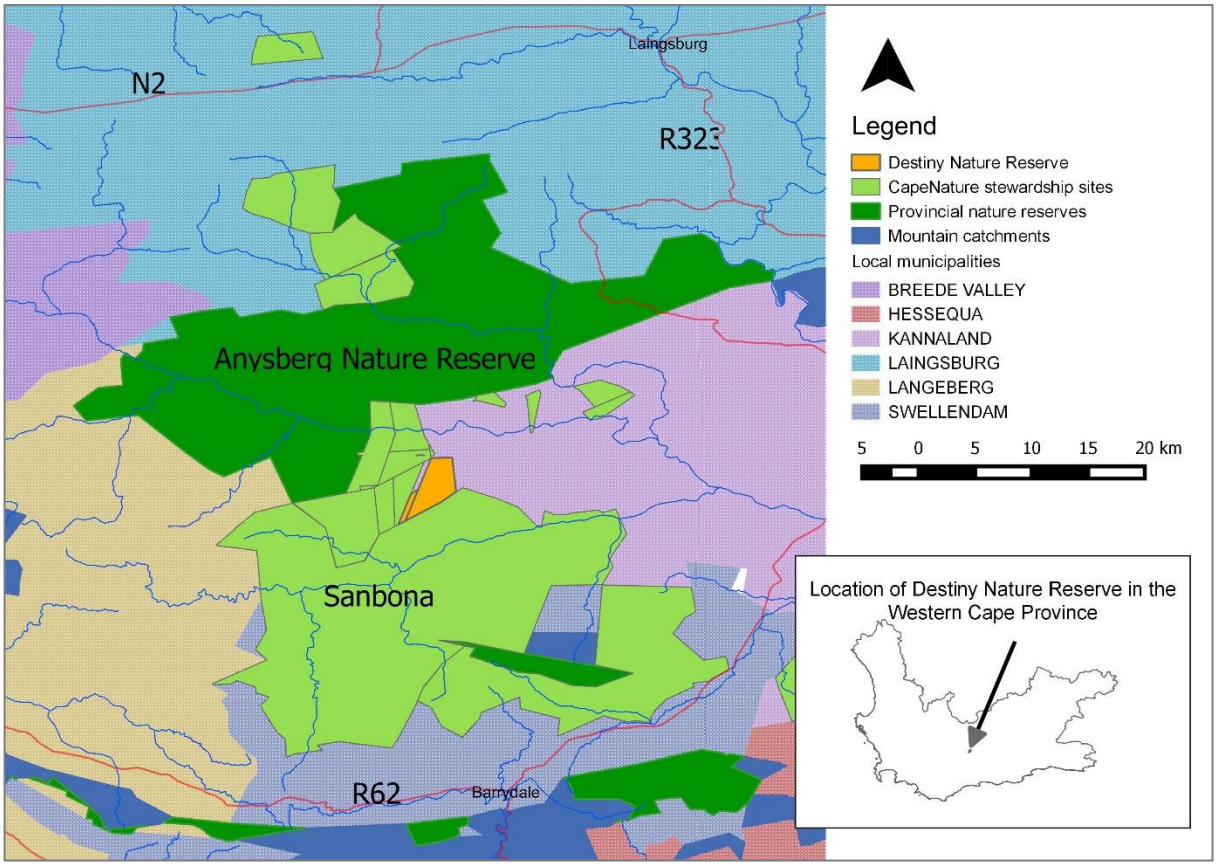

Figure 1.2. Regional location of Destiny Nature Reserve.

1.5 The values of Destiny 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 Destiny Nature Reserve include:

Natural values	• Supports unique biodiversity, with a high level of endemism. • Almost the entire property falls in Critical Biodiversity Area. • The veld is in a state of slow recovery from past overgrazing and has been allowed to rest for more than a decade. • Contains important plant populations including a population of at least one Critically Endangered species. • Contains habitat that can support important game species. • Contributes to the CapeNature Protected Area Expansion Strategy and was identified by the Leslie Hill Succulent Karoo Trust as a conservation priority.
Ecosystem service values	• Provides ecosystems services (water purification, carbon sequestration, pollination, etc.). • Is part of a link between Anysberg Nature Reserve and World Heritage Site and Sanbona Nature Reserve. • Contributes to the Protected Area network within the United Nations Educational, Scientific and Cultural Organization (UNESCO) Gouritz Cluster Biosphere Reserve.
Cultural and historic values	• Provides an environment where people off all races and creeds can experience nature and thus an opportunity to address the disconnection and alienation from the natural world that is associated with modern life.
Socio-economic values	• Encourages strong partnerships with governmental and non-governmental stakeholders. • Contributes to social development of disadvantaged people, particularly of the youth. • Provides environmental awareness and education opportunities. • Provides local economic development opportunities. • Provides research opportunities. • Contributes to the wilderness attributes of the larger landscape in which it is located.

1.6 Summary of management challenges and opportunities

The main challenges and opportunities associated with Destiny Nature Reserve are listed in Table 1.

Table 1.1. Management challenges and opportunities.

Key performance area	Challenges and Opportunities
Wildlife management	The property has not been farmed for many years. The challenge is to restore historically degraded veld and repair erosion. There is an opportunity to manage the habitat so that naturally occurring populations of wildlife are supported. There is also an opportunity to introduce and manage game for the benefit of the veld. Barriers to dispersal of wildlife can be removed and poaching of game can be prevented.
Biodiversity security	As a nature reserve, the property will have legal protection status under NEM:PAA. The biodiversity security of surrounding areas will be enhanced.
Research, monitoring and baseline data collection	There is an opportunity to improve understanding of Succulent Karoo ecological processes by facilitating data collection and research.
Social development and environmental education.	There is an opportunity to use nature to promote social development, especially of the youth. There is also an opportunity to improve understanding of and appreciation for the Succulent Karoo environment through environmental education initiatives. Existing infrastructure is available for these purposes, and the challenge is to expand this in an environmentally sensitive manner.
Recreation and tourism.	There is an opportunity to generate income from tourism businesses that make a sustainable contribution towards the conservation management costs of the reserve.
Invasive vegetation management	An alien plant control strategy should be developed for the few invasive species on the property. This is an opportunity to improve water and veld quality in the wider area.
Erosion prevention and control	The vegetation has experienced historical overgrazing and is now slowly recovering. Some low-lying areas and roads are prone to erosion and this will have to be managed. The opportunity is to improve these habitats. There is also an opportunity to use the reserve to develop erosion control skills and local employment opportunities in this field.
Management effectiveness	Management of the property will be improved through the partnership with CapeNature and the implementation of this management plan. There is an opportunity to channel CapeNature and landowner resources to facilitate compliance with the requirements of the management plan. The challenge is to find the necessary resources.
Infrastructure management	The opportunity is to develop limited infrastructure in an environmentally sensitive way. The challenge is to find funding for this.

2) STRATEGIC MANAGEMENT FRAMEWORK

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

2.1 Destiny Nature Reserve Vision and Purpose

The Vision

The vision is to ensure the long term protection of the biodiversity of Destiny Nature Reserve through sound management, and to help connect disadvantaged people with nature.

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 Section 17 of NEM:PAA, the purposes 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.

Destiny Nature Reserve was declared for a-i, k and l, and its purpose is: To conserve the natural ecosystems of the area by applying sound conservation management principles, and in particular to ensure the survival of local populations of threatened, rare and endemic plants.

2.2 Objectives

The prioritised objectives for Destiny Nature Reserve, derived from the vision and purpose, are to enhance biodiversity protection and conservation by:

1. Using the nature reserve to address the disconnection and alienation from the natural world that is associated with modern life.
2. Managing ecological processes so that indigenous populations of fauna and flora are supported.
3. Facilitating research, monitoring and the collection of baseline data that will inform effective management of the environment and participating in educational initiatives in the broader area.
4. Controlling invasive alien plants.
5. Preventing and repairing soil erosion and restoring degraded habitat.
6. Implementing effective management systems centred on an annually audited Annual Plan of Operation, APO.
7. To generate income from tourism businesses that make a sustainable contribution towards the conservation management costs of the reserve.
8. Effective waste management.

Table 2 lists the Key Performance Areas (general areas of outcome) related to these objectives, and the key deliverables for each Key Performance Area. The specific management activities stemming from these are described in the Operational Management Framework (Section 6).

Table 2.1. Objectives, Key Performance Areas and Key Deliverables for Destiny Nature Reserve.

Key Performance Area	Objective	Key Deliverable
Biodiversity Management		
Tourism, social development and environmental education.	• Use the nature reserve to address the disconnection and alienation from the natural world that is associated with modern life and participate in educational initiatives in the broader area. Generate income from tourism businesses that make a sustainable contribution towards the conservation management costs of the reserve.	• Develop and implement a strategy for social development and environmental education. • Generate income from tourism businesses that make a sustainable contribution towards the conservation management costs of the reserve.
Fire management	• Manage ecological processes so that indigenous populations of fauna and flora are supported.	• Allow natural fires to take place while ensuring human safety and protecting infrastructure.
Wildlife management	• Manage ecological processes so that indigenous populations of fauna and flora are supported.	• Monitor wildlife and their impacts and manage wildlife where necessary.
Biodiversity security	• Manage ecological processes so that indigenous populations of fauna and flora are supported.	• Ensure legal protection of Destiny Nature Reserve • Prevent poaching of plants and animals.
Research, monitoring and baseline data collection	• Facilitate research, monitoring and the collection of baseline data that will inform effective management of the environment.	• Develop and implement strategies for research, monitoring and baseline data collection. • Develop and implement access, specimen collection and data sharing policies.
Invasive vegetation management	• Control invasive alien plants.	• Control existing populations and prevent new introductions of alien plants.
Erosion prevention and control	• Prevent and repair soil erosion and restore degraded habitat.	• Maintain infrastructure to prevent soil erosion, do not exceed ecological carrying capacity of wildlife, and rehabilitate existing erosion and degraded habitat.

Operational Management		
Management effectiveness	• Implement effective management systems centred on an annually audited APO.	• Conduct annual audits. • Conduct METT assessment. • Incorporate results into management plan revisions.
Infrastructure management	• Develop and maintain infrastructure and ensure responsible waste management	• Ensure that infrastructure is maintained, and development and commercial activities have minimal impacts on the environment and ensure that waste is responsibly disposed of.

3) DESCRIPTION OF DESTINY NATURE RESERVE AND ITS CONTEXT

3.1 The legislative basis for the management of Destiny Nature Reserve

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

NEM:PAA 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 Destiny Nature Reserve

Destiny NR was proclaimed as a Nature Reserve on 12 October, 2018 (Western Cape Provincial Notice 128/2018), 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 Section 6 below.

3.2 The regional and local planning context of Destiny Nature Reserve

3.2.1 The Protected Area Expansion Strategy and Implementation Plan

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

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

3.2.2 The Succulent Karoo Ecosystem Programme (SKEP)

The Succulent Karoo Ecosystem Programme (SKEP, 2008) is a bioregional programme for the Succulent Karoo Biome. One of its priority areas is the Western Little Karoo, where Destiny NR is located. The programme's strategic focal areas are "increasing local and international awareness of the unique biodiversity of the Succulent Karoo, expanding protected areas and improving conservation management, supporting a matrix of harmonious land uses and improving institutional co-ordination."

3.2.3 Municipal Biodiversity Assessment

The Biodiversity Assessment of the Kannaland and Oudtshoorn Local Municipality and Garden Route District Management Area (Uniondale) (Skowno et al., 2010) points out that this region is unique because of its location in the Succulent Karoo Biome. Twelve habitat types in the region are threatened, and urbanization and agriculture are the main drivers of biodiversity loss. Stewardship is mentioned as a means for conserving threatened habitats outside formal protected areas (Skowno et al., 2010). According to the 2017 Western Cape Biodiversity Spatial Plan (Pool-Stanvliet et al., 2017), the south-western corner of Destiny NR falls in Critical Biodiversity Area (CBA) (Figure 3.1). CBAs are areas required to meet biodiversity pattern and/or process thresholds. The management objective for CBA is to maintain natural land or rehabilitate degraded land to a natural or near natural state, and to prevent further degradation. Drainage lines are classified as Ecological Support Area (ESA) (Figure 3.1). ESAs are areas required to prevent degradation of CBAs and Protected Areas, and the management objective for ESAs is to maintain ecological processes. The rest of the nature reserve is classified as Other Natural Area (ONA) (Figure 3.1). These are areas that retain most of their natural character and the aim for these is to maximise ecological functionality.

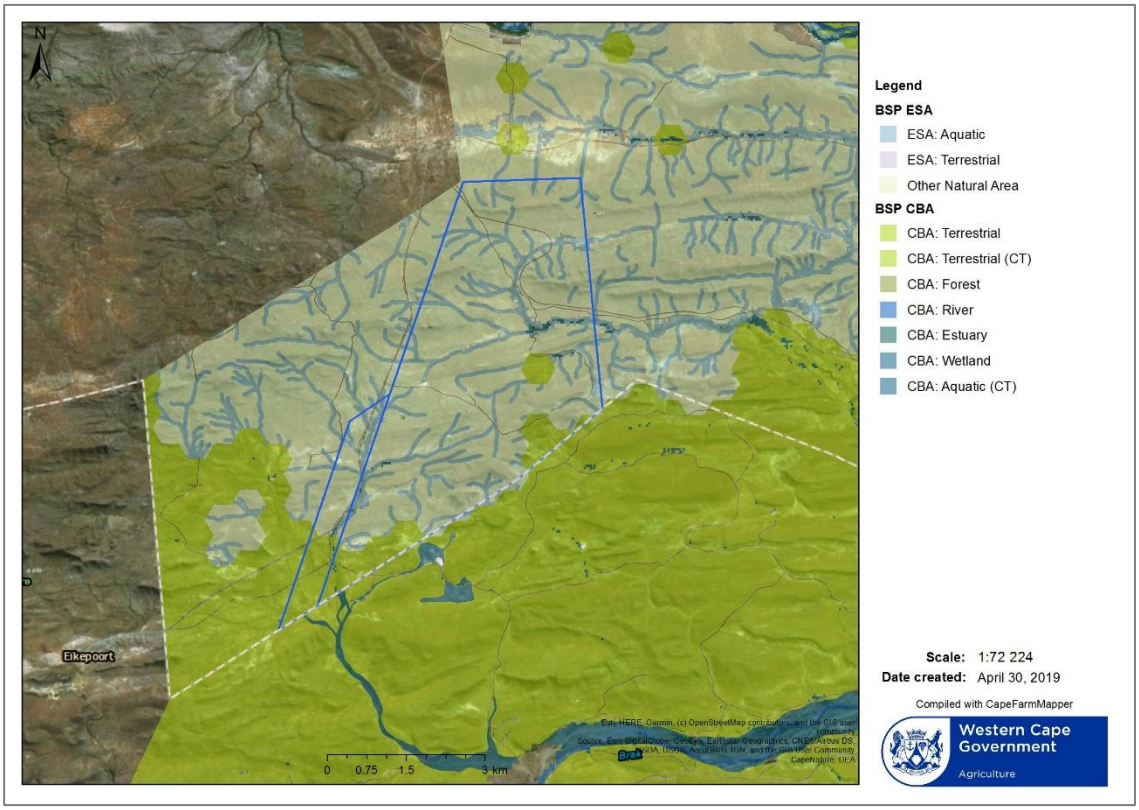

Figure 3.1. Critical Biodiversity Area map of Destiny Nature Reserve. Information from the Western Cape Biodiversity Spatial Plan (Pool-Stanvliet et al., 2017), accessed via *http://gis.elsenburg.com/apps/cfm/*.

3.2.4 Municipal Plans

The Strategic Development Framework (GRDM, 2017) and Integrated Development Plan (GRDM, 2022)

This refers to the Integrated Development Plans (IDP), Spatial Development Frameworks (SDF) and Land Use Management Systems (LUMS) of the district and local municipalities within which the protected area falls.
Garden Route District, also known as the as the “Garden Route” is situated on the southern- eastern coast of the Western Cape Province is currently the third largest district municipality within the Western Cape. With a total earth surface coverage of approximately 23 332 km², the municipality shares its borders with four other district municipalities namely Cacadu District in the Eastern Cape, Overberg and Cape Winelands in the west and to the north the boundary with the Central Karoo District Municipality runs along the Swartberg mountains. In the east, the municipality runs up to the Eastern Cape provincial boundary. Oudtshoorn is the largest inland town, located along the R62 and N12 linking smaller inland towns of Ladismith, Calitzdorp, De Rust and Uniondale.

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

coast, the dominant port industrial town of Mossel Bay is functionally linked inland with George, the services centre of the District, as well as along the N2 to the tourism and lifestyle driven settlements of Knysna and Bitou to the East. To the west of Mossel Bay, the towns of Riviersonderend and Riversdale are gateways to the Garden Route and South to the coastal towns of Witsand, Stilbaai and Gouritzmond.

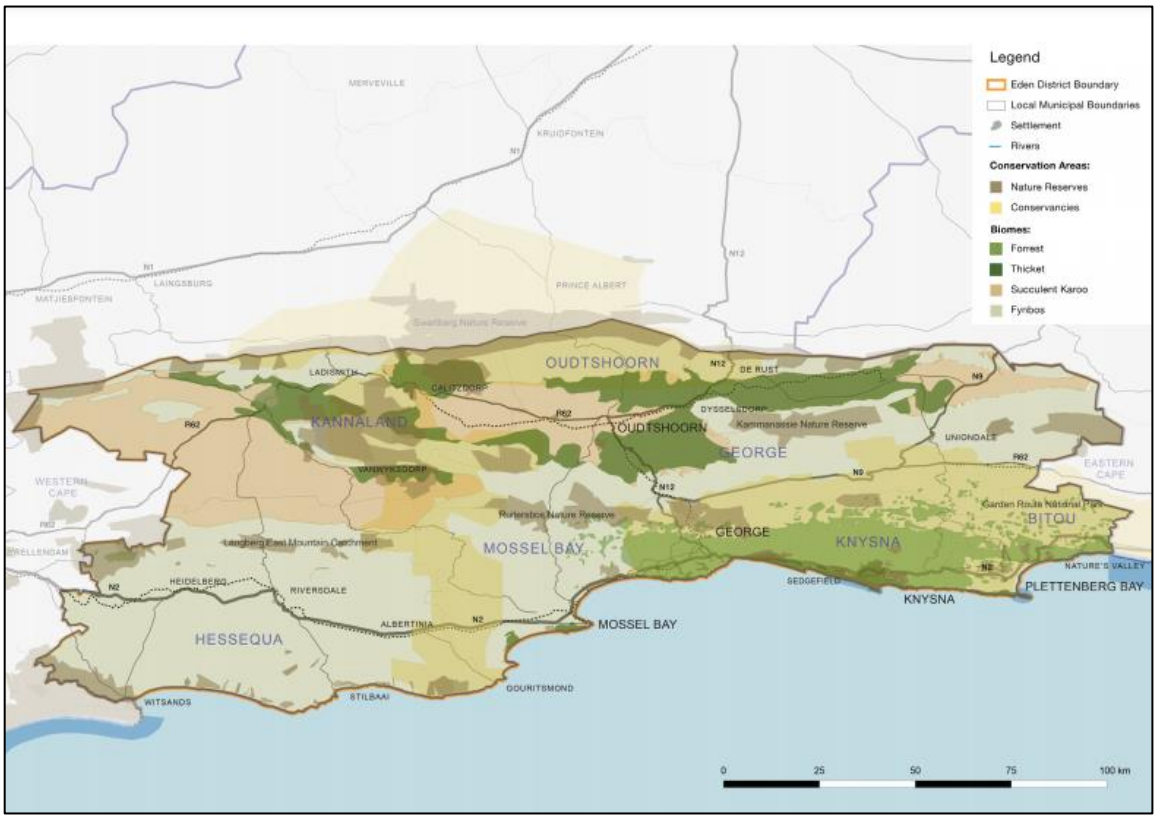

Figure 3.2 Local Spatial Development context for Garden Route Municipality

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

As a result of the natural beauty, the area is well known for its tourism. As it is stated that the Southern Cape coastal belt has been identified as a significant leisure, tourism, lifestyle and retirement economic destination, driven largely by the quality of life and climatic advantages of the region. The district's natural capital and its varied scenic and cultural resources are the attractions that make the Western Cape the country's premier tourism destination (SDF, 2020). Keeping the natural environment, wetlands, lakes and rivers in a pristine condition is key to future security in the future of the region.

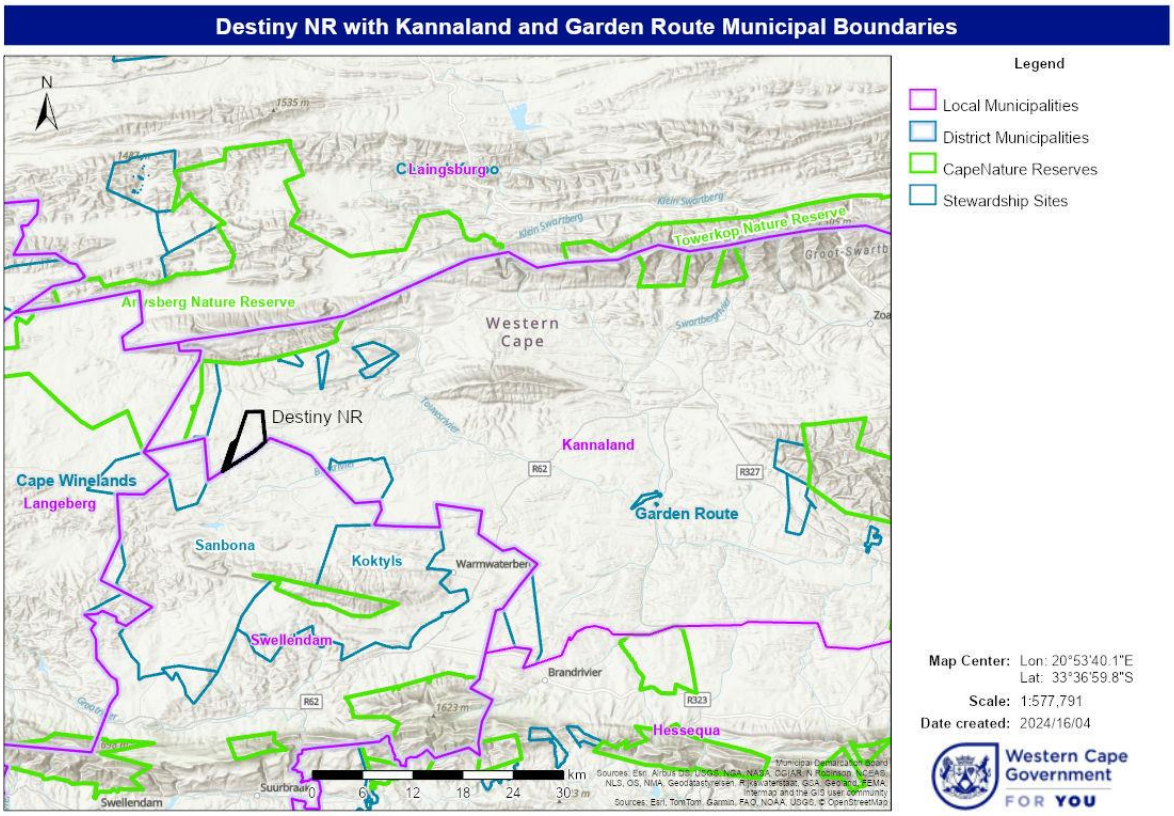

Figure 3.3 The range of protected areas recognised in the SDF with Destiny NR shown in black border, located among other natural areas.

3.2.5 Land capability

Destiny Nature Reserve's land capability, in terms of agriculture, is low – the site is classified as non-arable, low potential grazing land (Figure 3.4).

A key challenge in the western Little Karoo is the establishment of game farms, with the associated high game fences that are impermeable to most wildlife. These fences result in habitat fragmentation and are barriers across ecological corridors. Movement of indigenous small game (e.g. small antelope such as steenbok, duiker, etc.) and tortoises is hindered. These animals are important dispersers of plant seeds in the region and should be accommodated by creating suitable gaps in boundary fences.

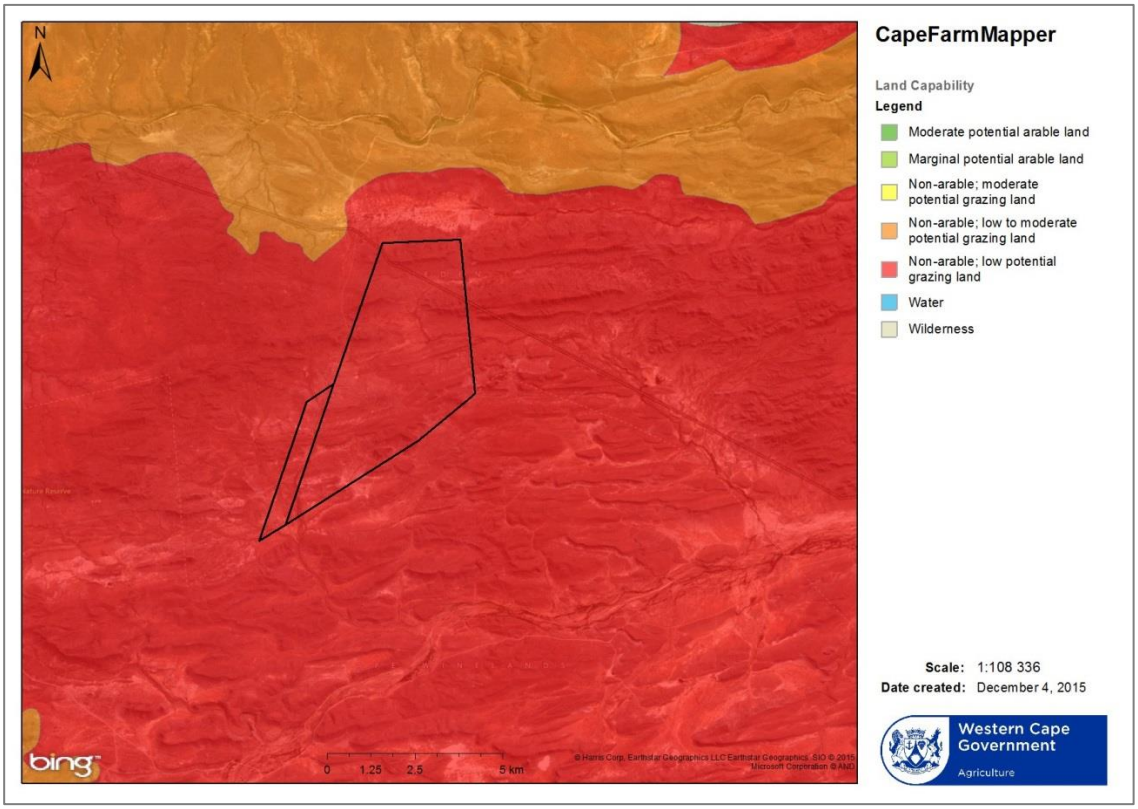

Figure 3.4. Land capability map of Destiny Nature Reserve. Land Capability is determined by the collective effects of soil, terrain and climate features, and indicates the most intensive long-term use of land for rain-fed agriculture as well as the permanent limitations associated with various land-use classes. Information from Department of Agriculture, Forestry and Fisheries (DAFF), accessed via *http://gis.elsenburg.com/apps/cfm/*.

3.3 The history of Destiny Nature Reserve

The history of Destiny NR is largely unknown but it was used for livestock grazing in the past, and erosion in places indicates a level of overgrazing. There is no evidence of past cultivation. There is a disused railway running through the northern part of the property. Under current ownership, the property has in effect been managed for conservation since 2009.

3.4 Ecological context of Destiny Nature Reserve

This section reflects the ecological conditions of Destiny Nature Reserve.

3.4.1 Climate and weather

Destiny Nature Reserve is situated in the semi-arid Western Little Karoo and the climate is hot and dry. The lowest temperatures are experienced between June and August, and the highest temperatures between December and March. Mean average rainfall is between 100 and 200 mm, with the highest

rainfall occurring just before winter. Weather characteristics of Destiny NR are summarised in Figures 3.5 to 3.8.

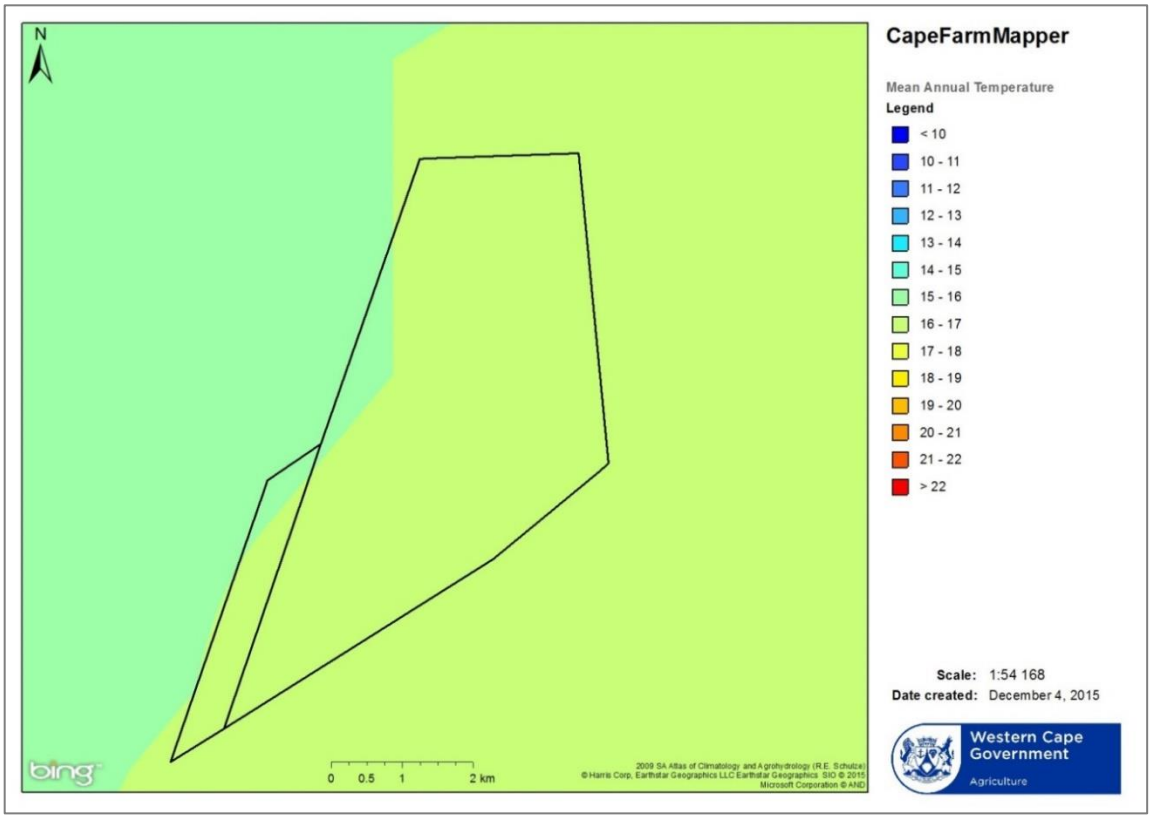

Figure 3.5. Mean annual temperature (°C), Destiny Nature Reserve. Information from SA Atlas of Climatology and Agrohydrology (2009, R.E. Schulze), accessed via *http://gis.elsenburg.com/apps/cfm/*.

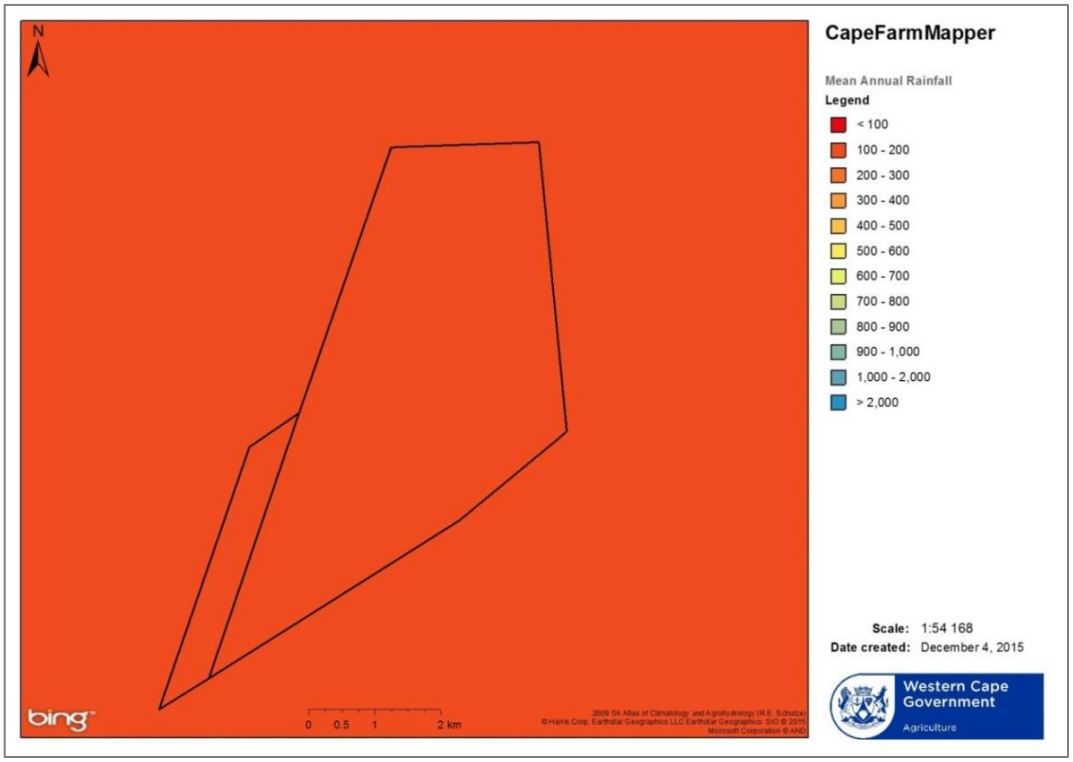

Figure 3.6. Mean annual rainfall (mm), Destiny Nature Reserve. Information from SA Atlas of Climatology and Agrohydrology (2009, R.E. Schulze), accessed via *http://gis.elsenburg.com/apps/cfm/.*

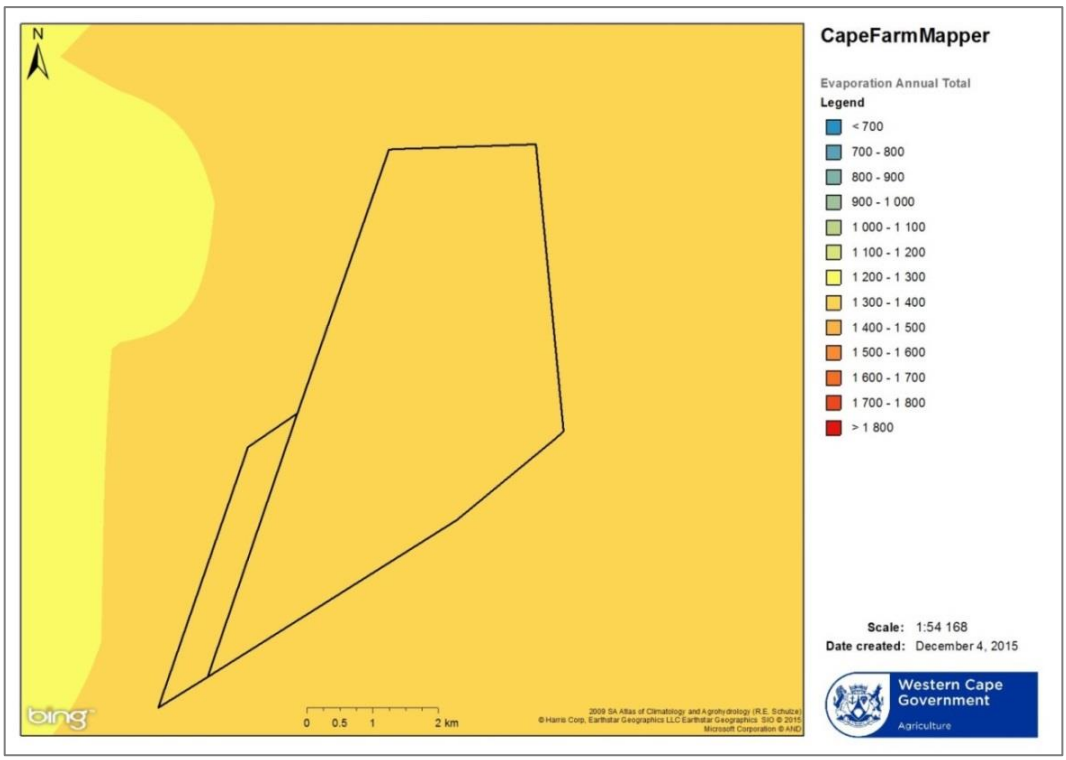

Figure 3.7. Annual total evaporation (mm), Destiny Nature Reserve. Information from SA Atlas of Climatology and Agrohydrology (2009, R.E. Schulze), accessed via *http://gis.elsenburg.com/apps/cfm/.*

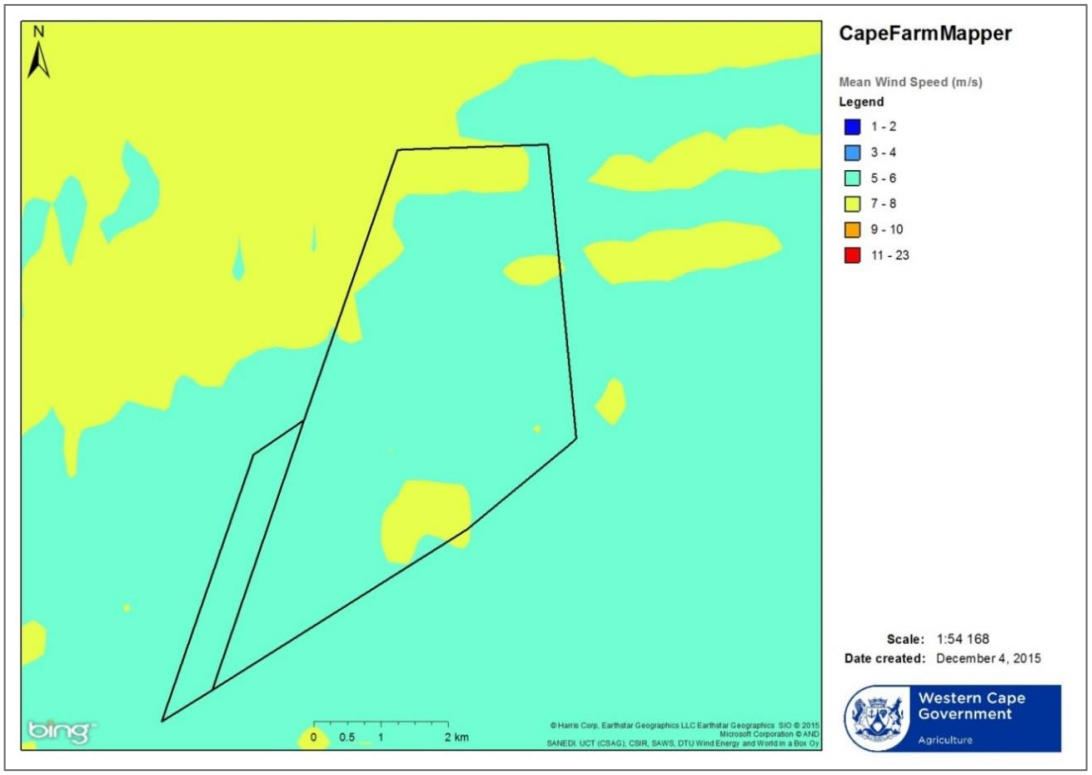

Figure 3.8. Mean wind speed (m/s), Destiny Nature Reserve. Information from SANEDI, UCT (CSAG), CSIR, SAWS, DTU Wind Energy and World in a Box Oy for Frogfoot development, accessed via *http://gis.elsenburg.com/apps/cfm/.*

3.4.2 Topography

Destiny Nature Reserve is situated in the Western Little Karoo, in a low-lying area south of the Anysberg mountain range. The topography is fairly flat and uniform, interspersed with low koppies, and ranging in altitude from 512-626 m asl (Figure 3.9).

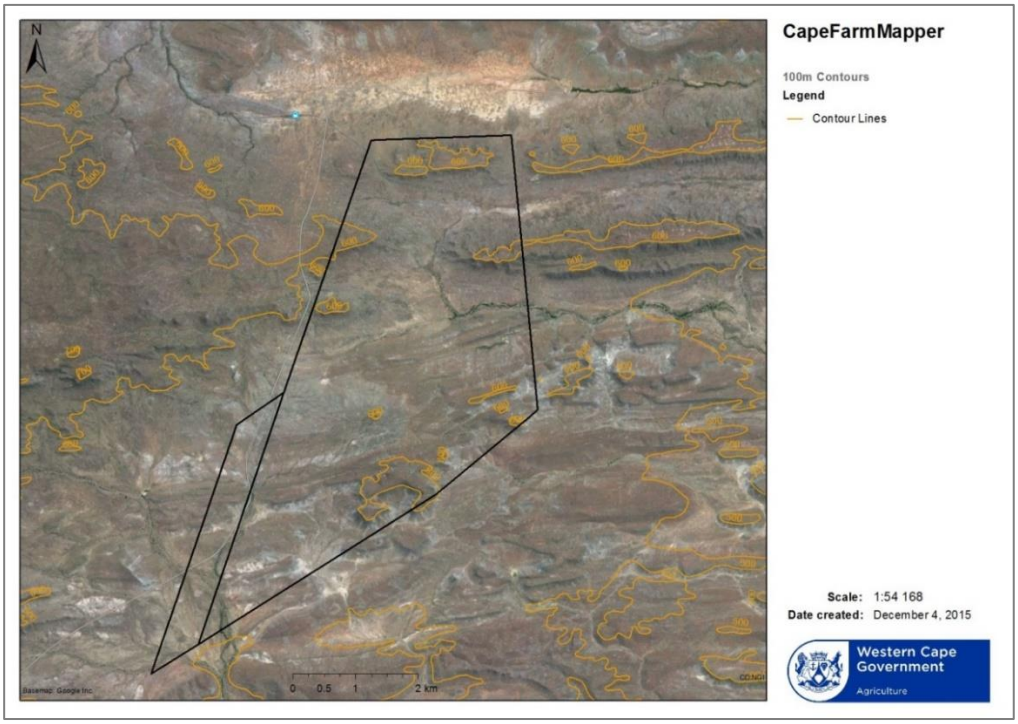

Figure 3.9. Topography of Destiny Nature Reserve. 100-m contours indicated in orange. Information from Chief Directorate, Surveys and Mapping, Mowbray, accessed via *http://gis.elsenburg.com/apps/cfm/.*

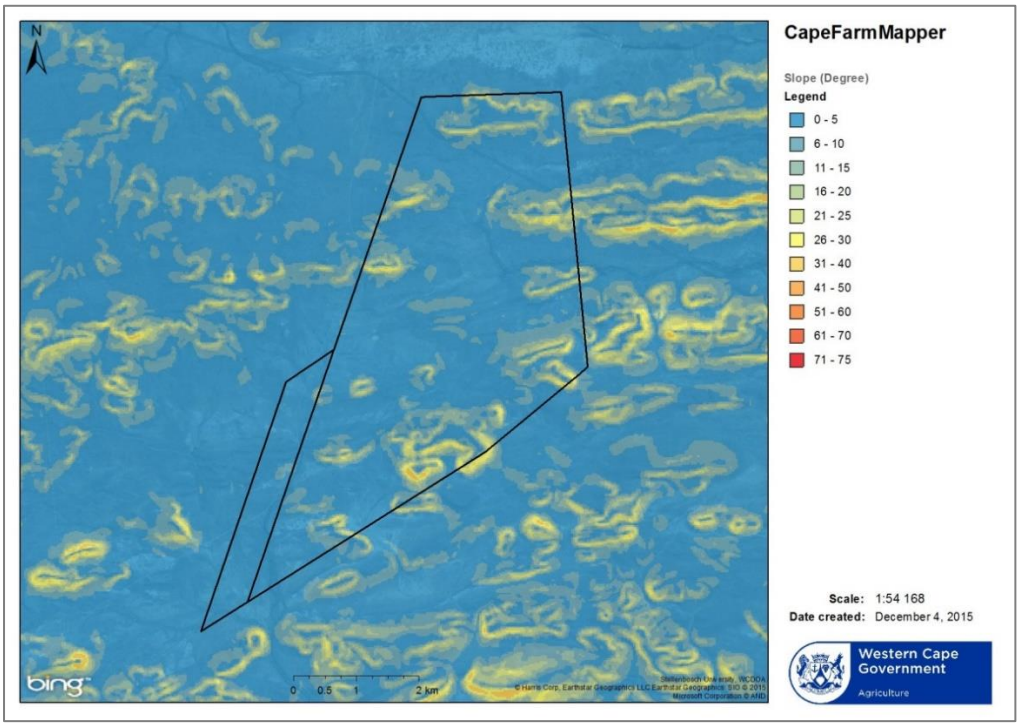

Figure 3.10. Slope, Destiny Nature Reserve.
Information from Stellenbosch University, WCDOA, accessed via *http://gis.elsenburg.com/apps/cfm/.*

3.4.3 Geology and soils

Destiny Nature Reserve's geology comprises predominantly shale rocks, with the Bokkeveld Group of the Cape Supergroup being dominant. Soils are shallow with minimal development, on hard or weathering rock, with lime present. They are predominantly Glenrosa and/or Mispah forms (Figure 3.11). Erodibility ranges from high in the north to moderate in the south (Figure 3.12).

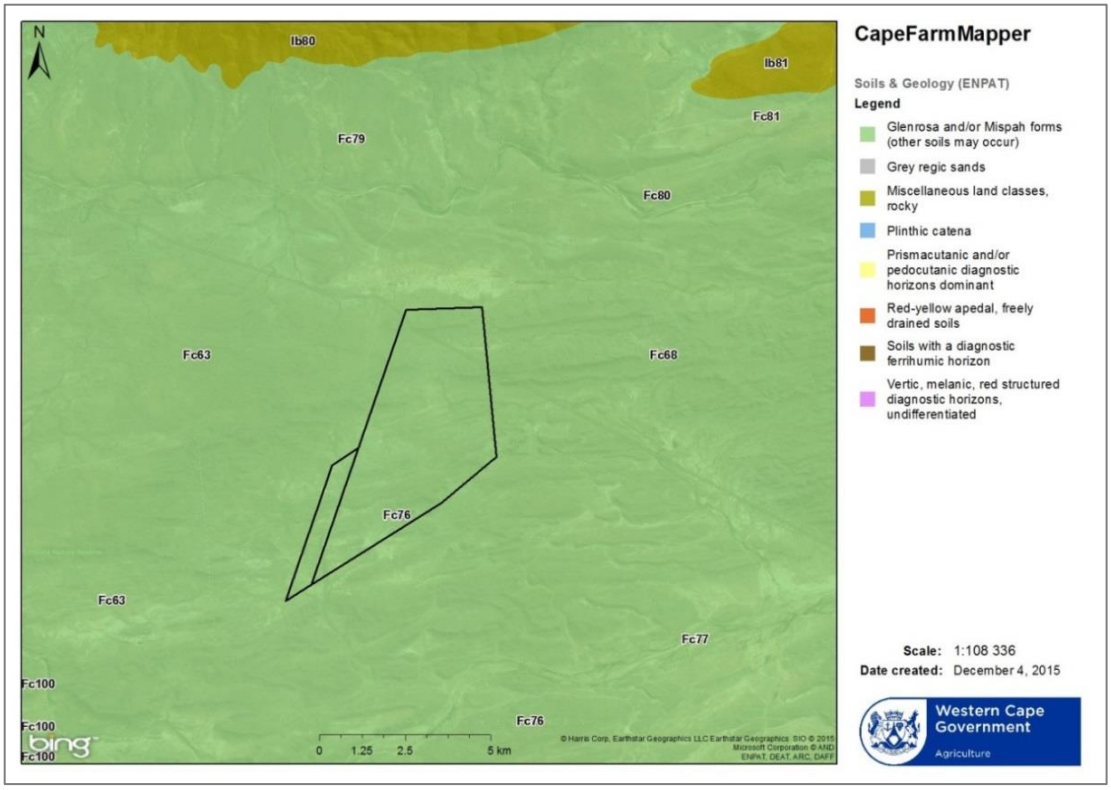

Figure 3.11. Soils and geology of Destiny Nature Reserve. Information from ENPAT, accessed via *http://gis.elsenburg.com/apps/cfm/*.

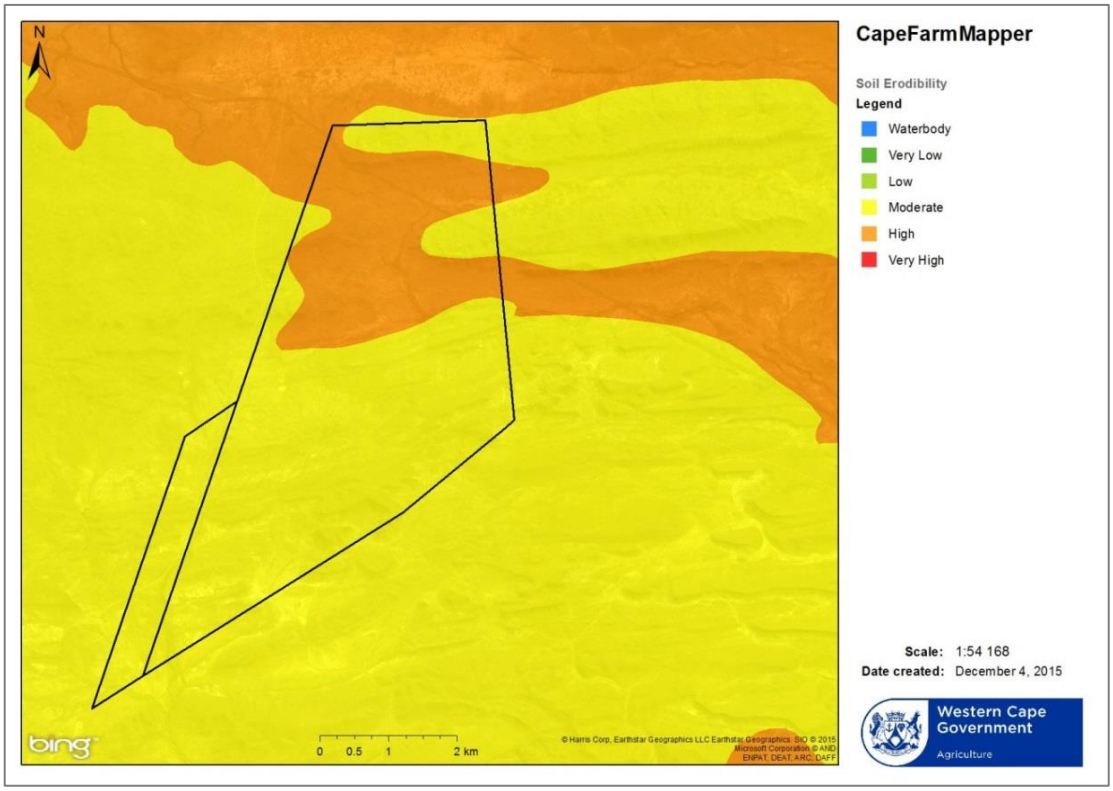

Figure 3.12. Erosion potential. Information from SA Atlas of Climatology and Agrohydrology (R.E. Schulze, 2009), accessed via http://gis.elsenburg.com/apps/cfm/. Following FarmMapper, "Soil Erodibility refers to the processes of soil detachment and transport by raindrop impact and surface flow, localised deposition due to topography and tillage induced roughness, as well as rain water infiltration into the soil profile".

Little Karoo Quartz Vygieveld is found on quartz patches. Typically, these patches have loamy-sandy, slightly alkaline soils, ranging from shallow to moderately deep. These soils are mainly derived from micaceous sandy shales and mudstones of the Devonian Ceres and Bidouw Subgroups (both belonging to Bokkeveld Group, Cape Supergroup) and, to a lesser extent, sandstones of the Silurian Nardouw Subgroup (member of the Table Mountain Group, Cape Supergroup) (Mucina & Rutherford, 2006). On these patches, the soil surface is densely covered with characteristic quartz gravel and rubble (derived from weathered quartz veins accompanying the shales) (Mucina & Rutherford, 2006). Quartz patches are recognized as important succulent plant habitat and their occurrence in the Little Karoo has been mapped through an expert process (Lombard et al., 2004).

3.4.4 Geomorphology

Destiny Nature Reserve is situated in the Little Karoo, which has spectacular and ancient landscape that is a result of the action of water and geological upheaval. The nature reserve is situated in the low-lying area to the south of the Anysberg mountain range (Figure 3.13).

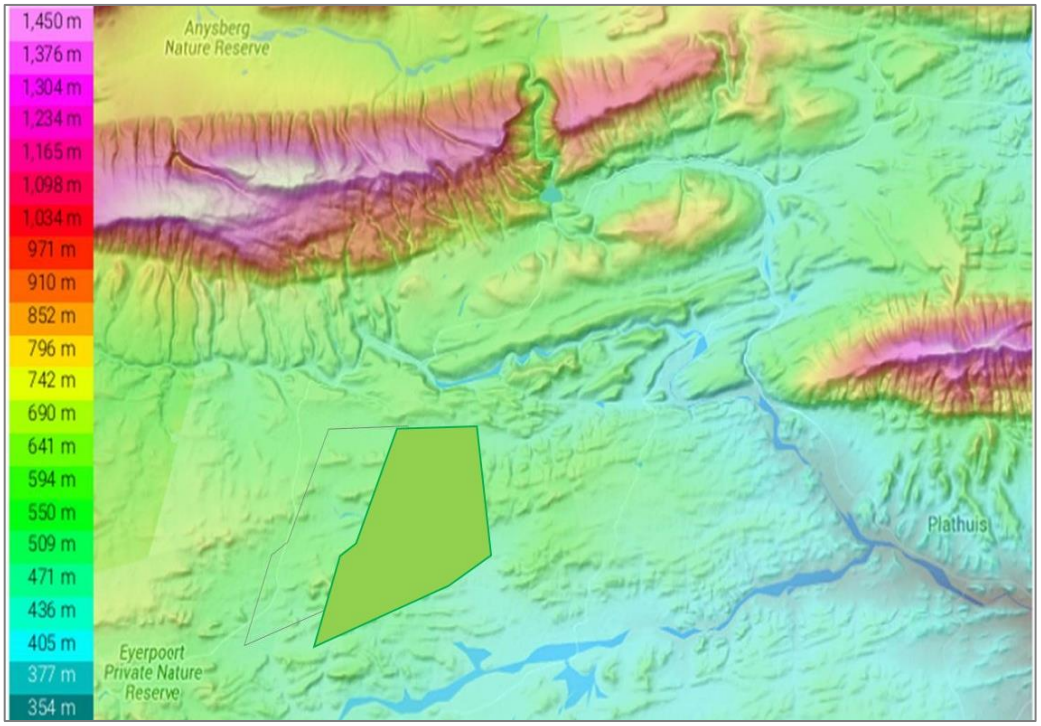

Figure 3.13. Geomorphology, Destiny Nature Reserve (grey) and surrounds. Map generated by Topographic-map.com, *http://en-za.topographic-map.com/*. Accessed 4 December 2015.

3.4.5 Hydrology

Destiny Nature Reserve falls within the Gouritz River Catchment. It lies between the Touws River to the north and the Brak River to the south (Figure 3.14). Both rivers are classified as Class 3: moderately modified (Nel et al., 2011).

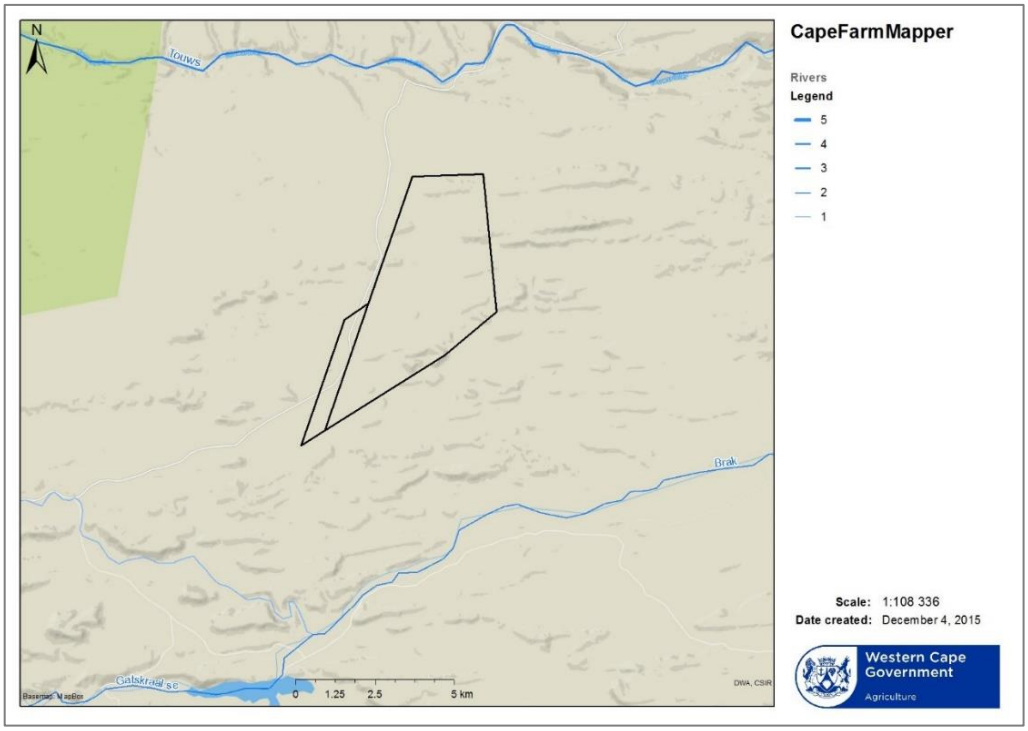

Figure 3.14. Hydrology of Destiny Nature Reserve.

3.4.6 Vegetation

Nearly half of South Africa's terrestrial ecosystems have no or very low levels of formal protection. Fourteen percent of the Western Cape Province is protected in terms of the National Environmental Management: Protected Areas Act (NEM:PAA, Act No. 57 of 2003) (CapeNature, 2021). However, not all ecosystems are protected equally well. The worst protected ecosystems are the Succulent Karoo, grasslands and fynbos lowlands (Driver et al., 2005).

A major motivation for the declaration of Destiny Nature Reserve is that it falls within the Succulent Karoo Biome. The Succulent Karoo, stretching from Namaqualand to Namibia and through the southern Karoo, has been declared a global Biodiversity Hotspot. This means that it is exceptionally rich in terms of plants and animals, but also that it faces serious threats from human activities. The Succulent Karoo hotspot supports over 6000 plant species, 40% of which are found nowhere else on earth – this is the richest succulent flora in the world (*http://www.skep.org.za/*). The hotspot is also renowned for its many and unique types of mammals, reptiles, insects and birds. Despite the global importance of the Succulent Karoo region, in 2001 less than 3.4% of it was formally protected. In 2008, expansion of protected areas in South Africa resulted in this number increasing to 6.3%. Threats to the hotspot include mining, crop agriculture, ostrich farming, overgrazing (which has badly degraded about two-thirds of the area) and illegal collection of plants and animals (*http://www.skep.org.za/*).

Destiny Nature Reserve also falls in the Ladismith Succulent Karoo biogeographic unit which is known to support many rare and endangered plant species (Lombard et al., 2004).

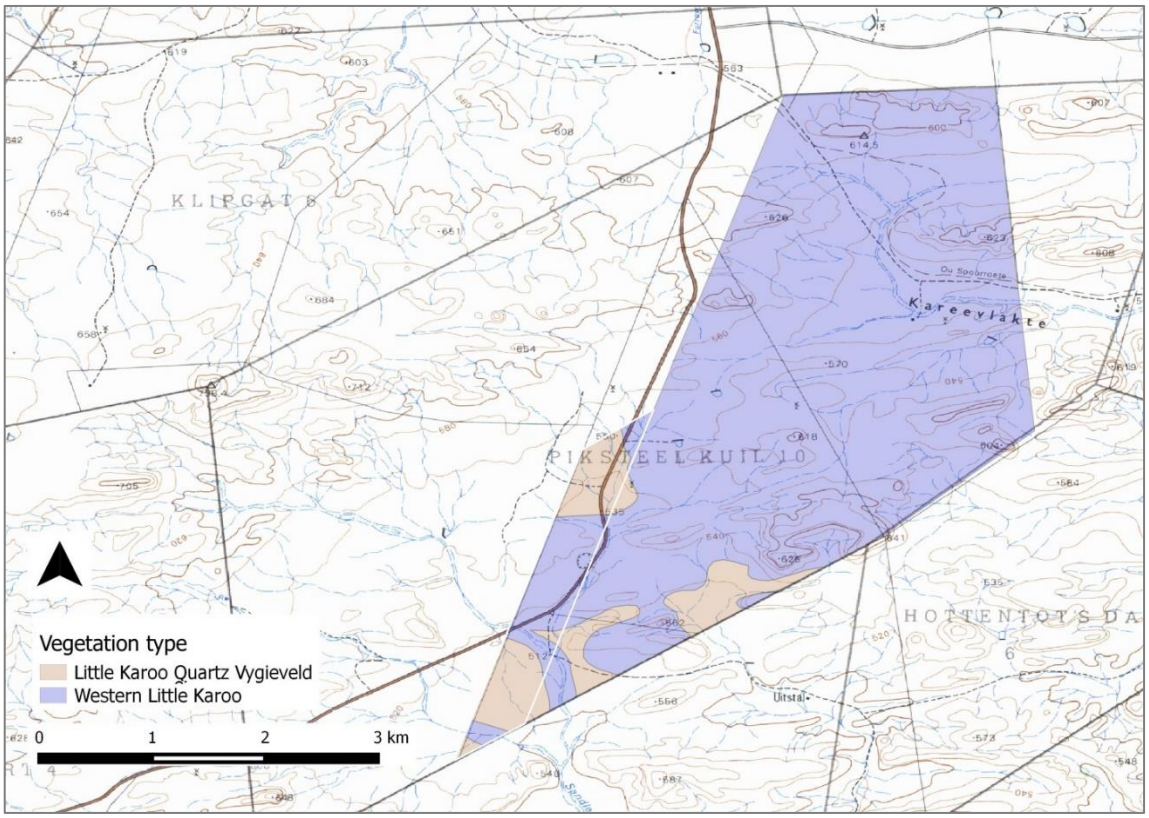

Figure 3.15. National vegetation types found on Destiny Nature Reserve (Mucina and Rutherford, 2006).

At a national level, Destiny Nature Reserve contains the following vegetation types, as defined by Mucina and Rutherford (2006) and illustrated in Figure 3.15:

- **Western Little Karoo**. Categorized nationally as Least Threatened and Moderately Protected. Thus far, 43 241 ha of the 326 639 ha that is remaining in the Western Cape is protected. The Western Cape conservation target is 65 695 ha.
    - About 3% of this vegetation type has been transformed by cultivation. Alien *Acacia cyclops* and A. *saligna* pose a threat to the vegetation locally. Invasive *Atriplex lindleyi* subsp. *inflata* is a serious local problem for grazing. Erosion is high (54%), moderate (19%) and very low (15%) (Mucina and Rutherford, 2006).
    - Mucina and Rutherford (2006) describe the vegetation and landscape features as: “flat or slightly undulating landscapes dominated by a mosaic of Karoo shrublands of low and medium height encompassing (as dominants) both non-succulent

(*Chrysocoma*, *Pentzia*, *Pteronia*, *Rhigozum*, *Tripteris*) as well as succulent (*Crassula*, *Euphorbia*, *Ruschia*, *Tylecodon*) shrubs."

  - Endemic taxa listed by Mucina and Rutherford (2006) are: "Succulent Shrubs: *Cotyledon tomentosa* subsp. *ladismithiensis*, *Crassula atropurpurea var. muirii*, *Drosanthemum bicolor*, *D. crassum*, *D. globosum, D. splendens, Gibbaeum nebrownii, Glottiphyllum cruciatum, G. suave, Lampranthus egregius, Octopoma octojuge, O. quadrisepalum*. Low Shrub: *Dicoma fruticosa*. Herb: *Diascia hexensis*. Geophytic Herb: *Ornithogalum synadelphicum*. Succulent Herb: *Haworthia pulchella*."

- **Little Karoo Quartz Vygieveld.** Categorized nationally as Least Threatened but Poorly Protected. Thus far, 3 839 ha of the 17 215 ha that is remaining is protected. The Western Cape conservation target is 3 839 ha (Mucina and Rutherford, 2006).
  - About 8% of the area has experienced transformation, but most of the quartz field plant communities in the Little Karoo are under increasing pressure from the rangeland farming with game, sheep, goats and ostrich. Erosion ranges from high (84%) to moderate (12%)" (Mucina and Rutherford 2006).
  - Mucina and Rutherford (2006) describe the vegetation and landscape features as "Irregularly flat plains and undulating piedmont hills covered by dense succulent shrubland dominated by Aizoaceae (*Ruschia, Drosanthemum*) and Crassulaceae (*Cotyledon, Crassula, Tylecodon*) and non-succulent, mainly shrubs such as *Nymania, Pteronia* and *Rhus*."
  - Endemic taxa listed by Mucina and Rutherford (2006) are: "Succulent Shrubs: *Gibbaeum album, G. dispar, G. heathii, G. petrense, G. pubescens, Muiria hortenseae, Zeuktophyllum suppositum, Cerochlamys pachyphylla, Drosanthemum albiflorum, Euphorbia susannae, Gibbaeum pachypodium, G. pilosulum, G. shandii, Hereroa muirii, Rhinephyllum muirii, Salsola verdoorniae, Zeuktophyllum calycinum*. Succulent Herbs: *Conophytum joubertii, C. piluliforme, Crassula congesta, Quaqua ramosa*."

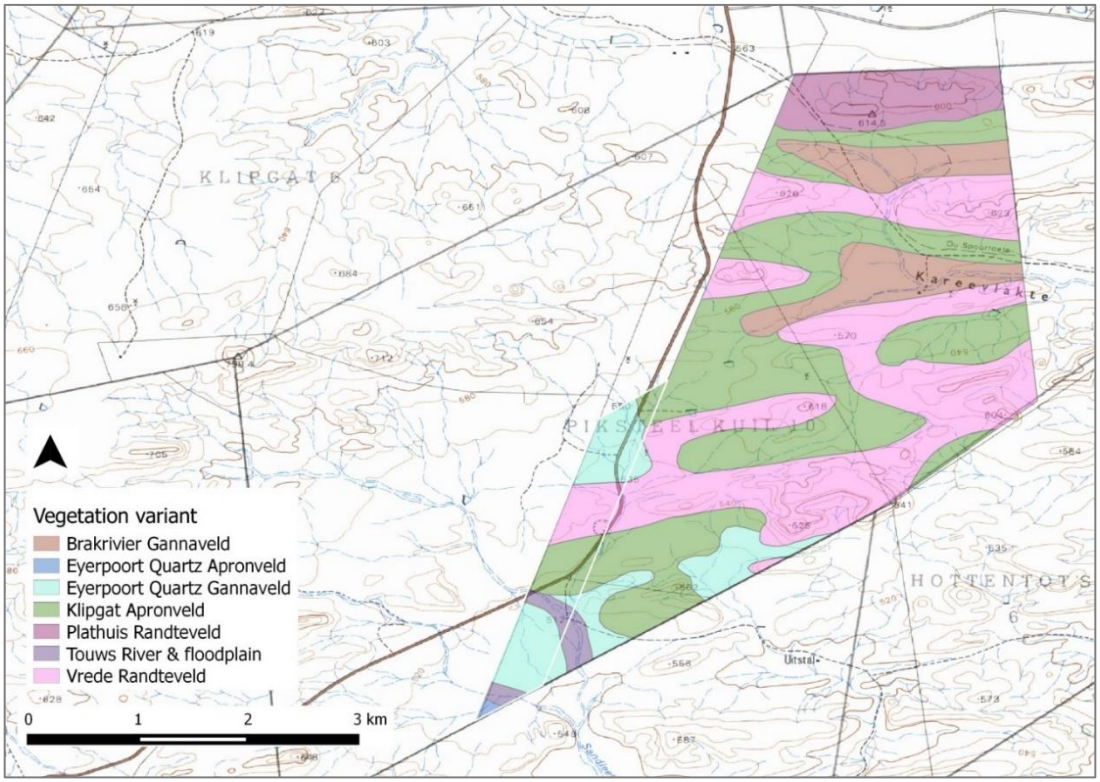

Figure 3.16. Fine-scale vegetation variants found on Destiny Nature Reserve (Vlok et al., 2005).

Regionally the vegetation consists of the following types, from Vlok et al. (2005) and is illustrated in Figure 3.16:

- **Brakrivier Gannaveld (Least Threatened, completely unprotected, low urgency).** "Ganna (*Salsola aphylla*) is also the most prominent and dominant shrub in the Brakrivier Gannaveld, but succulents are prominent in the sparse quartz gravel patches that are occasionally present. Distinctive succulents present include the local endemic *Gibbaeum geminum* and an unidentified *Peersia* species that may also be endemic. Kruidjie-roer-my-niet (*Melianthus comosus*) and some trees (*Euclea undulata* and *Schotia afra*) are present along the drainage lines. Heuweltjies are absent or very rare."
- **Eyerpoort Quartz Apronveld (Least Threatened, partially unprotected, low urgency).** "Many distinct patches of quartz gravels occur in the matrix Apronveld, where asteraceous shrubs typical of the Apronveld of the Touws region (e.g. Vrede Apronveld) are dominant and woody trees rare. The local quartz patches have many small shrubs, e.g. *Aizoon karooicum, Anthospermum comptonii, Berkheya cuneata, Eriocephalus grandiflorus, Euryops subcarnosus, Hirpicium alienatum, Plumbago triste, Pteronia empetrifolia, Pteronia paniculata, Pteronia succulenta* and *Salsola verdoorniae* present. Succulents are also prominent, with *Gibbaeum pubescence* usually the most abundant and conspicuous succulent on the quartz patches, but many other succulent species (e.g. *Adromischus filicaulis, Antegibbaeum fissoides, Conophytum piluliforme, Conophytum*

truncatum, Crassula columnaris, Crassula congesta, Crassula tecta, Gibbaeum heathii, Glottiphyllum suave, Octopoma octojuge, Octopoma quadrisepala, Sceletium tortuosum, Trichodiadema densum, Zeuktophyllum calycinum, etc.) are also present. Most of these small shrubs and succulents are endemic to the quartz outcrops of the western Little Karoo. The vegetation on these quartz patches somehow seems to be more resilient to impacts of grazing by domestic stock than those of game species (especially Ostrich and Springbok). Domestic stock may have a negative impact by establishing many footpaths, but the game species often also browse and trample these special quartz plants to the point where they are killed and then these sites are invaded by alien (*Atriplex lindleyi* ssp. *inflata*) and weedy indigenous species (e.g. *Augea capensis* and *Galenia africana*). All these weeds are a serious threat as they have the ability to increase the sodium content of the topsoil. They alter the edaphic conditions of these highly specialized microhabitats, which can prevent the re-establishment of the original species."

- **Eyerpoort Quartz Gannaveld (Least Threatened, completely unprotected, low urgency).** "Ganna (*Salsola aphylla*) is also the most prominent shrub in the matrix vegetation of the Eyerpoort Quartz Gannaveld, but Scholtzbos (*Pteronia pallens*) is often prominent in arid sites. The quartz gravels that occur in patches here are often diffuse with not a very rich succulent flora, with mostly only *Gibbaeum cryptopodium* [*nuciforme*] present. Where the gravels are denser several succulents including *Antegibbaeum fissoides*, *Gibbaeum pubescence* and a few *Gibbaeum shandii* are present.
- **Klipgat Apronveld (Least Threatened, poorly protected, low urgency).** "The Klipgat Apronveld unit also consists of a diverse group of often quite clearly delimitated plant communities. Here small patches of Scholtzbosveld (with *Pteronia pallens* prominent) are not uncommon, but these patches are too small to map as individual units. The same is true for small patches of Gannaveld (with *Salsola aphylla* locally abundant) that are mostly prominent along drainage lines here. Perhaps furthermore confusing is the fact that this Apronveld unit tends to occur on the higher hill tops (highlands) of the local landscape, but the local terrain must be viewed in a larger context, with the nearby upper mountains and lower river areas setting the scene. Here the matrix vegetation is still dominated by small asteraceous shrubs with species of *Eriocephalus, Felicia, Euryops, Pentzia* and *Pteronia* locally dominant, but the best way to recognize this unit is the presence and often-local abundance of the local endemic leaf succulent *Gibbaeum shandii*. Tall woody trees, shrubs and grasses are rare in this unit, but some geophytes (e.g. *Eriospermum* and *Oxalis* spp.) are present."
- **Plathuis Randteveld (Least Threatened, completely unprotected, low urgency).** "The Plathuis Randteveld unit occurs in a very arid environment where only a few Gwarrie trees (*Euclea undulata*) are present on south facing slopes, while drought resilient shrubs such as Granaat (*Rhigozum obovatum*) and succulents like Sosaties (*Crassula rupestris*) and *Cylindrophyllum comptonii* are the most abundant succulents on the north facing slopes. The lack of species richness in this unit may be due to severe

grazing pressure in the past, but it is hard to tell, as no common indicators of disturbance are present."

- **Touws River & floodplain (Least Threatened, target met, fully protected).** "Woody trees such as *Acacia karoo, Rhus lancea* and *Tamarix usneoides* are often abundant on the river banks, while reeds such as *Phragmitis australis* and *Typha capensis* are occasionally abundant along the edges of pools and in the riverbed. Grasses are uncommon, but *Agrostis lachnantha* occurs in moist sites in the riverbed and *Stipagrostis namaquensis* often form prominent clumps higher up in the floodplain. This unit has been invaded by several alien species, including *Arundo donax, Prosopis glandulosa, Schinus molle, Tamarix chinensis* and *Tamarix ramosissima*, with *Atriplex nummularia* occasionally also present in the floodplain zone. No rare or localized endemic species are known to occur in this unit."
- **Vrede Randteveld (Least Threatened, target met, fully protected).** "Occurs mostly on shallow clayey soils derived from the siltstone and shales of the Tra-Tra and Waboomsberg formations. It is most similar to the Touwsfontein Randteveld, but it differs in its species composition, as it is a less arid habitat. Small trees and shrubs such as *Euclea undulata* and *Nymania capensis* are occasionally present even on north facing slopes. Some of the succulents typical of the Touwsfontein Randteveld (e.g. *Cylindrophyllum tugwelliae*) are absent or rare, but *Crassula arborescens* remains abundant on north facing slopes. The shrub component is similar to those of the Touwsfontein Randteveld, but tall shrubs are more abundant and species such as *Pteronia incana* and *Elytropappus rhinocerotis* occurs on the south-facing slopes. There seems to be nothing unique to this unit, except the combination of abundant species on the north and south slopes. In all respects a true intermediate unit, with no known rare on endemic units known to occur here."

3.4.7 Fire regime

There is no fire history available for the property, and Destiny Nature Reserve's veld is classified as being largely non-flammable (Regalis, 2008) (Figure 3.17). Any fires that occur in future are likely to be part of natural ecosystem functioning.

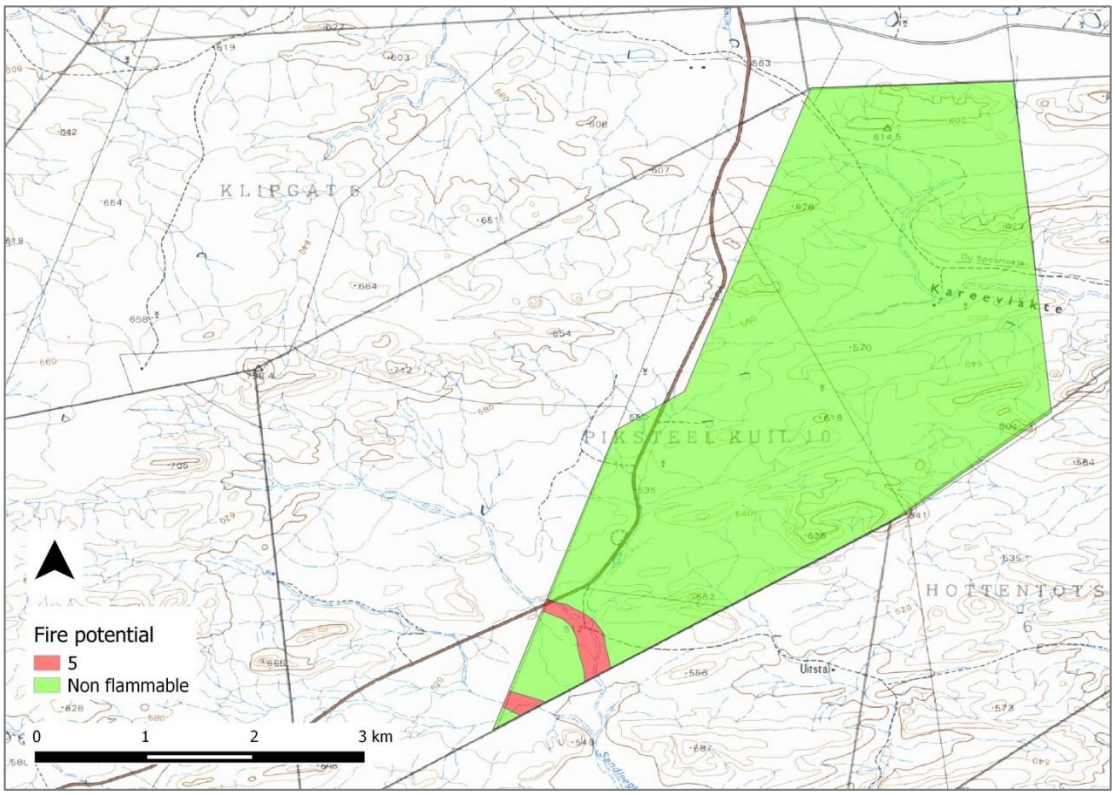

Figure 3.17. Map of fire potential (minimum fire return interval) for Destiny Nature Reserve. Information from Regalis, 2008.

3.4.8 Invasive species

Densities of alien plants at Destiny Nature Reserve are low. Species present are:

Species	Common name	Status	Extent
Atriplex lindleyi	Sponge-fruit salt bush	Category 1b	Scattered plants
Atriplex nummularia	Oumansoutbos	Category 2	Scattered plants
Nicotiana glauca	Wild tobacco	Category 1b	Concentrated along watercourse north of main dam
Agave species	Sisal	Category 2	Isolated plants at wind pump

3.4.9 Mammalian fauna

Succulent Karoo is prone to degradation by overstocking of game or livestock, which will cause loss of plant diversity and soil erosion. No game has been deliberately introduced to Destiny Nature Reserve, but eland *Tragelaphus oryx* and gemsbok *Oryx gazella* are common in the area, and the presence and effect of these species on the environment should be monitored. Kudu *Tragelaphus strepsiceros,* common duiker *Sylvicapra grimmia* and steenbok *Raphicerus campestris* are also likely to occur. Antelope species that could be considered for introduction, provided that recommended stocking rates are adhered to, include Burchell's zebra *Equus quagga burchellii* or Cape mountain zebra *Equus zebra*, red hartebeest *Alcelaphus buselaphus caama* and springbok *Antidorcas marsupialis*.

A list of all mammal species recorded by the online Virtual Museum (http://vmus.adu.org.za/) in the broader area (the quarter degree grid cell, 3320DA, in which Destiny Nature Reserve falls) is included in Appendix C. Species of particular conservation interest include Cape mountain zebra (Vulnerable), brown hyaena *Hyaena brunnea* (Near Threatened), as well as cheetah *Acinonyx jubata* (Vulnerable) and lion *Panthera leo* (Vulnerable) (both introduced into Sanbona Wildlife Reserve). Of the 24 species, 21 are endemic to the region South Africa, Lesotho and Swaziland.

3.4.10 Avifauna

Destiny Nature Reserve lies to the south-east of Anysberg NR & WHS Important Bird Area SA 108.

A list of bird species recorded in the quarter degree grid cell (3320DA) in which Destiny Nature Reserve falls is included in Appendix C (from SABAP2, 2015). This consists of 162 species, of which nine are endemic to the region South Africa, Lesotho and Swaziland, and a further 18 are near-endemic. Regionally, one species is Endangered (Ludwig's bustard *Neotis ludwigii*), four are Vulnerable (Verreaux's eagle *Aquila verreauxii*, Southern black korhaan *Afrotis afra*, secretary bird *Sagittarius serpentarius* and black stork *Ciconia nigra*) and two are Near Threatened (maccoa duck *Oxyura maccoa* and Karoo korhaan *Eupodotis vigorsii*) (Birdlife South Africa, 2015).

3.4.11 Herpetofauna (reptiles and amphibians)

Destiny Nature Reserve falls in the Anysberg-Towerkop complex, which has been identified by the Gouritz Initiative as an important area for reptile biodiversity (Lombard et al., 2004). Species lists for reptiles and amphibians recorded in the quarter degree grid cell (3320DA) in which Destiny Nature Reserve falls are included in Appendix C. The list of 22 reptile species includes 10 that are endemic to the region South Africa, Lesotho and Swaziland. Five amphibian species have been recorded in the grid cell.

3.4.12 Invertebrates

Traditionally, invertebrates have been ignored in biodiversity surveys and as a result, information on their occurrence and distribution is limited. Currently, information on potential invertebrates occurring at Destiny Nature Reserve is limited to butterflies.

A list of butterflies recorded in the quarter degree grid cell (3320BC) in which Destiny Nature Reserve falls is included in Appendix C. Five of the seven species are endemic to the region South Africa, Lesotho and Swaziland.

3.5 Cultural Heritage context of Destiny Nature Reserve

The Karoo region, ancient and rich in fossils, is of interest to paleontologists and archaeologists. No archaeological sites are known from Destiny Nature Reserve but the property borders on an area which was identified as important archaeologically by the Gouritz Initiative (Lombard et al., 2004) (Figure 3.18).

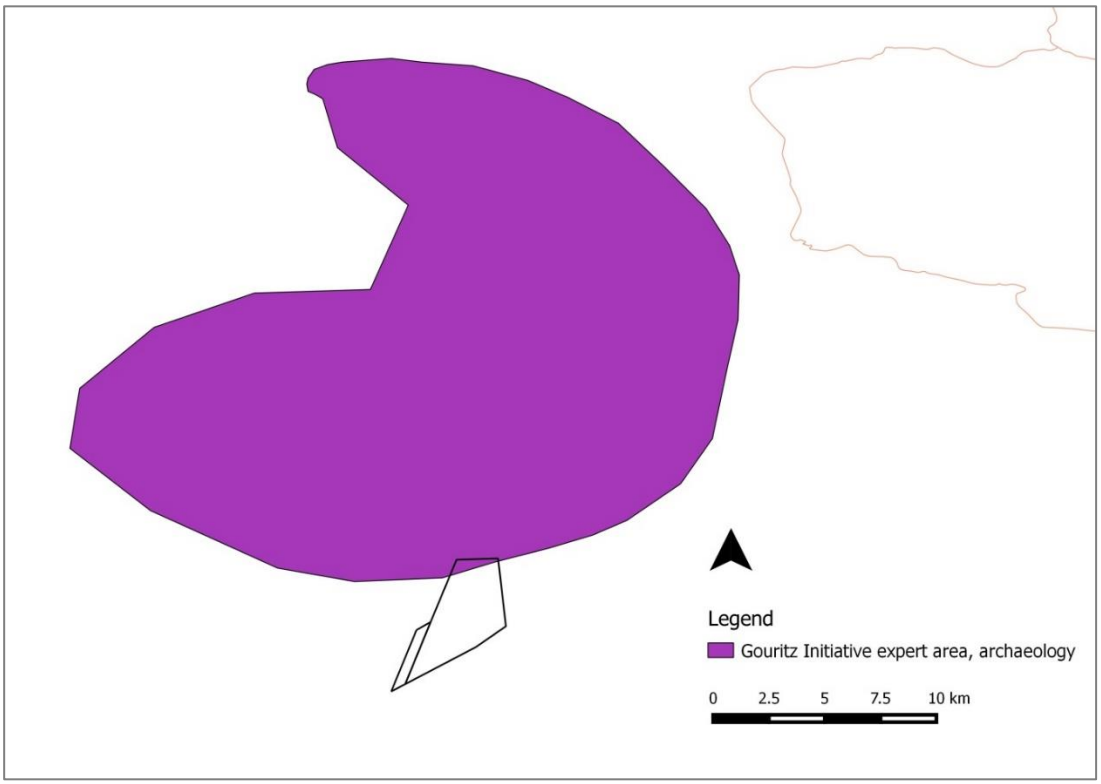

Figure 3.18. Location of Destiny Nature Reserve relative to Gouritz Initiative expert area: archaeology (Lombard et al., 2004).

3.6 Socio-economic context

The Garden Route District currently has a population of 622 664, meaning it is the Third most populous municipal district in the Cape, after the Cape

Winelands' and City of Cape Town. The total population is estimated to increase to 643 134 by 2023 which equates to 0.8 per cent average annual growth.

In 2017, the Garden Route District economy was dominated by the finance, insurance, real estate and business services (R10.733 billion; 24.9 per cent), wholesale and retail trade, catering and accommodation (R7.811 billion; 18.1 per cent) and manufacturing sectors (R6.312 billion; 14.6 per cent). Combined, these top three sectors contributed R24.856 billion (or 57.6 per cent) to the Garden Route District's economy, estimated to be worth R43.153 billion in 2017.

The wholesale and retail trade, catering and accommodation sector contributed the most jobs to the area in 2017 (55 985; 24.7 per cent), followed by the finance, insurance, real estate and business services sector (39 233; 17.3 per cent) and the community, social and personal services (35 255; 15.5 per cent) sector. Combined, these three sectors contributed 130 473 or 57.5 per cent of the 226 789 jobs in 2017.The unemployment rate in the Garden Route District has been rising steadily since 2015, falling back slightly to 15.2 per cent in 2018. This is slightly lower than the Provincial rate of 17.7 per cent.

Unemployment remains a key challenge for the Garden Route District area, with rising population numbers. Income inequality in the Garden Route District has worsened between 2012 and 2018, with the gini coefficient increasing from 0.585 in 2012 to 0.614 in 2018. There are 140 informal settlements in the District, together amounting to 15% of all households and the housing waiting list amounts to 65 000 households. Roughly, 80% of the district's population lives in urban areas along the coast.

4) ZONATION PLAN

The purpose of the zonation of Destiny Nature Reserve is to control the intensity and type of land use within it, in efforts to ensure the main goal of biodiversity conservation is met.

Almost all of Destiny Nature Reserve is zoned as **Primitive Zone**. These are near-pristine areas where nature-based activities are allowed (hiking, biking and 4x4 routes) but there is minimal infrastructure apart from non-permanent huts ("Wendy houses") and necessary service roads. A small number of livestock, including sheep and boerbokke, can be kept in existing livestock camps in this zone for their historical and cultural value. If livestock are free-ranging, their numbers will not exceed ecological carrying capacity. The landowner's domestic pets are allowed in this area, and limited quantities of firewood may be collected in the veld by the landowners, for personal use. Note that if required for visiting groups, fast growing species such as Soetdoring (Vachellia karroo) can be harvested sustainably from the river courses where it tends to form impenetrable thickets.

Excluded from the Primitive Zone is an area of about 15 ha which is zoned as **Development: Low Intensity** (Figure 4.1). This includes a camp site and associated infrastructure, including a storage area, office, chapel, accommodation units, reception building and a horse stable and paddock.

Overlaid on the Primitive and Development zones is a **Sensitive Areas Zone** (Figure 4.1). This is based on the presence of sensitive habitats and sensitive plant populations. Any activities or developments in this zone must be take into account these features.

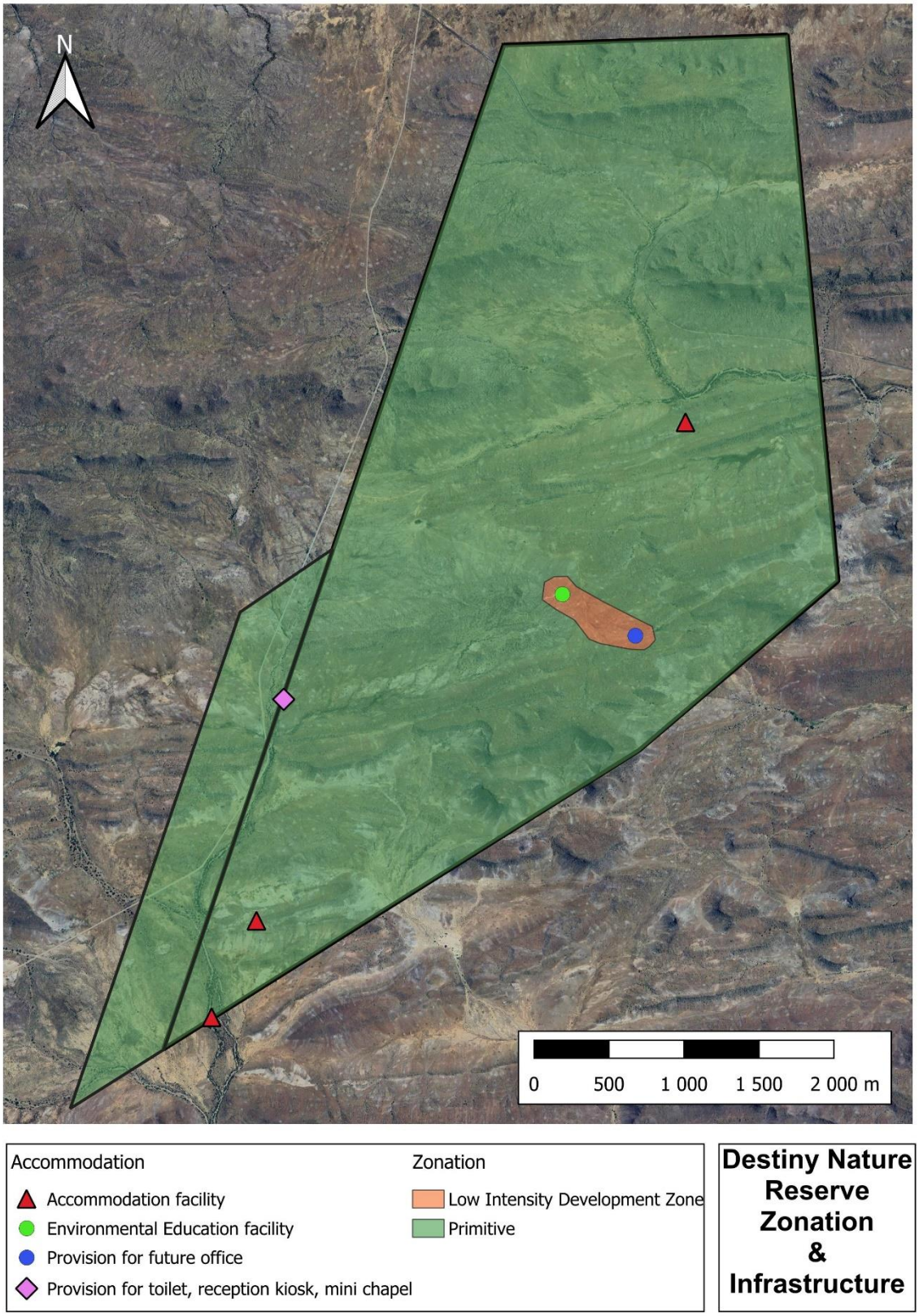

Figure 4.1. Zonation map of Destiny Nature Reserve.

5) ADMINISTRATIVE STRUCTURE

Mrs Elizabeth Maria du Plessis is appointed as the Management Authority for the Nature Reserve as agreed to in the Protected Area Management Agreement concluded between CapeNature and Elizabeth Maria de Plessis.

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

The role of CapeNature is to provide support, advice and assistance with the implementation of the management plan of the Nature Reserve as agreed upon.

CapeNature is also responsible for conducting an annual audit as well as a Management Effectiveness Tracking Tool (METT) evaluation of the Nature Reserve and assisting with the update of 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 the APO and the resources required to implement them. The Management Activities will form the basis for monitoring of performance in implementing the plan and are thus measurable.

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

6.1 Biodiversity management

6.1.1 Fire management

The guiding principle for fire management at Destiny Nature Reserve is to allow natural fire processes to occur while ensuring human safety and protecting infrastructure. Figure 6.1.1 shows the locations of vehicle tracks and water points on and near the property.

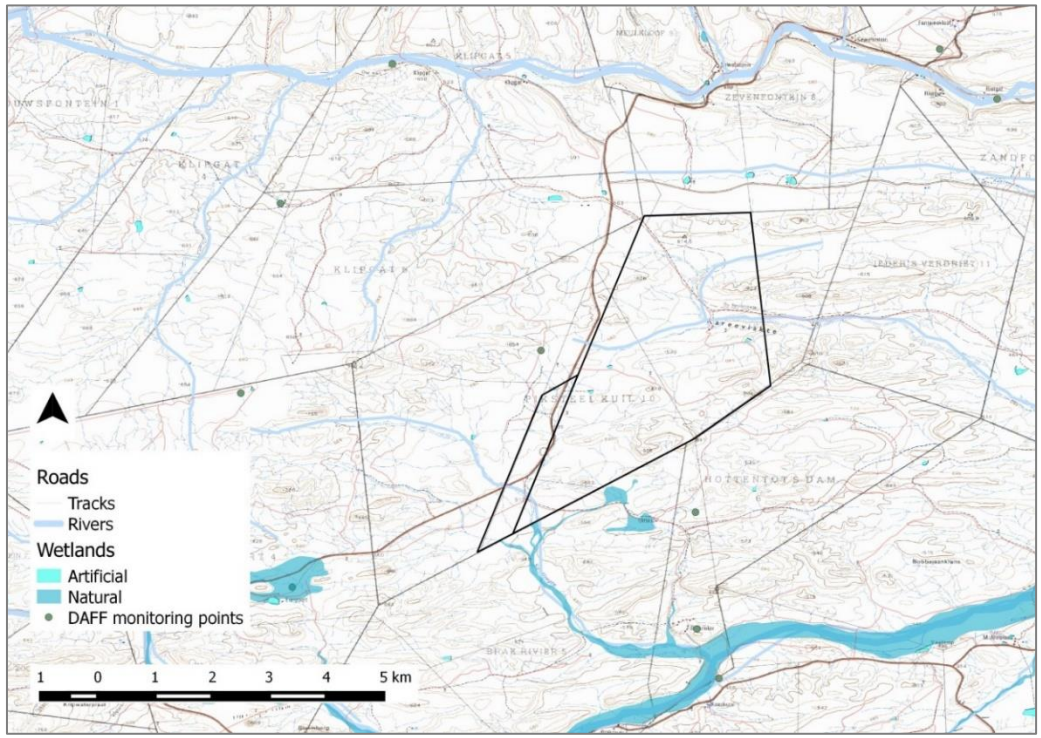

Figure 6.1. Fire Management Map for Destiny Nature Reserve.

Table 6.1. Operational Management Framework: Fire management.

FIRE MANAGEMENT			
Objectives	Manage ecological processes so that indigenous populations of fauna and flora are supported.		
Key Deliverable	**Management Activities**	**Responsibility**	**Timeframe**
Allow natural fires take place while ensuring human safety and protecting infrastructure.	Ground-truth maps of fire potential and fire management map.	MA & CN	Once-off
	Coordinate with neighbours (Sanbona) and with Anysberg NR & WHS regarding fire belt agreements and management actions to take in the event of a fire.	MA & CN	Review every five years

6.1.2 Invasive vegetation management

The density of alien plants on Destiny Nature Reserve is low. The presence of *Atriplex lindleyi* (sponge-fruit salt bush) is an indicator of past overgrazing. The disturbance associated with removal of these plants stimulates germination and is not recommended. Resting the veld will eventually (over decades) allow indigenous species to establish and outcompete *A. lindleyi* through competitive interaction (AnneLise Vlok, pers. comm.). *Atriplex nummularia* (oumansoutbos) can be removed manually and then burnt. Nicotiana glauca (wild tobacco) is confined to watercourses and can also be removed by hand.

Table 6.2. Operational Management Framework: Invasive vegetation management.

INVASIVE VEGETATION MANAGEMENT			
Objectives	Control invasive alien plants.		
Key Deliverable	**Management Activities**	**Responsibility**	**Timeframe**
Control existing populations and prevent new introductions of alien plants.	Identify and map all alien invasive plants in the reserve and prioritize sites for alien eradication/control.	MA & CN	Once-off
	Implement the necessary eradication/control methods.	MA & CN	As resources allow.

6.1.3 Wildlife Management

Game species which may require management are gemsbok, eland and ostrich, which may affect succulent plants through trampling. The careful reintroduction of species can enhance the conservation value of the area and marketability of the Nature Reserve. However, all reintroductions must be based on sound ecological principles and CapeNature must be consulted on translocations and reintroductions. If reintroductions are to take place, the following must be borne in mind: (a) Was the species naturally resident in the area? (b) Why did the species vanish from in the area? (c) Is that threat still present? (d) Is the habitat still suitable for the species? (e) What are the potential negative effects of reintroduction? (f) Where is the nearest existing population?

Table 6.3. Operational Management Framework: Wildlife management.

WILDLIFE MANAGEMENT			
Objectives	Manage ecological processes so that indigenous populations of fauna and flora are supported.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Monitor wildlife and their impacts and manage wildlife where necessary.	Compile animal and plant lists for the reserve.	MA & CN	Ongoing
	Monitor the number and movements of mammals and determine ecological carrying capacity.	MA & CN	Ongoing
	Evaluate the perimeter fence in terms of permeability to wildlife, and modify if necessary.	MA	Once-off
	Control game and ostrich numbers through hunting, if necessary.	MA	As arises
	Remove internal fences.	MA	As resources allow
	Maintain perimeter fences.	MA	As arises
	Investigate wildlife-friendly methods of baboon-proofing infrastructure.	MA & CN	Once-off
	Discuss whether or not game should be introduced into the nature reserve. If yes, then draw up a reintroduction policy and plan for species that used to occur in the area and determine ecological carrying capacities.	MA & CN	As required

6.1.4 Erosion Prevention and Control

Overgrazing and poorly planned or maintained infrastructure can cause or exacerbate soil erosion. Erosion results in topsoil loss and increased rain runoff, with increased sedimentation in watercourses and a loss of fish and other aquatic species. Sedimentation can cause changes in watercourses and thus increased flooding. Erosion at Destiny Nature Reserve is the result of historical overgrazing by livestock and is to some extent caused by the road network on the property.

Table 6.4. Operational Management Framework: Erosion prevention and control.

EROSION PREVENTION AND CONTROL			
Objectives	Prevent and repair soil erosion and restore degraded habitat.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Maintain infrastructure to prevent soil erosion, do not exceed ecological carrying capacity of wildlife, and rehabilitate existing erosion and degraded habitat.	Conduct a soil erosion assessment, map erosion sites and document with photographs.	CN	Completed
	Compile an erosion management strategy that prioritizes soil erosion systems for treatment in terms of type and severity, with appropriate erosion control methodology specific to each priority treatment area.	MA & CN	Review every five years
	Implement the erosion control strategy according to priorities.	MA & CN	Ongoing as resources allow
	Monitor the effectivity of the erosion control mitigation.	MA	Ongoing

6.1.5 Research, monitoring and baseline data collection

Conservation management is only as good as the information that it is based on. Effective conservation management is informed by good baseline data, information on environmental trends over time and in response to management interventions such as alien plant control (monitoring), and the answers provided by targeted and applied research. An objective for Destiny Nature Reserve is thus to contribute towards the biological knowledge-base for conservation.

Table 6.5. Operational Management Framework: Research, monitoring and baseline data collection.

RESEARCH, MONITORING AND BASELINE DATA COLLECTION			
Objectives	Facilitate research, monitoring and collection of baseline data that will inform effective management of the environment.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Develop and implement strategies for research, monitoring and baseline data collection.	Identify monitoring and research needs for the reserve.	MA & CN	Years 1-5
Develop and implement access, specimen collection and data sharing policies.	Develop and implement policies.	MA & CN	Once-off

6.1.6 Tourism, Social development and environmental education

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

Social development involves learning the values, knowledge and skills needed to be able to relate effectively to other people and to make positive contributions in the family, school and community environments. Furthermore, in the current

era of technology and social media, people are increasingly disconnected from nature. An investment in social development, environmental education and outdoor learning helps to engage people of all ages but especially learners, improve school results, improve health, and encourage youth to be stewards of biodiversity and to follow careers in environmental and natural resources (American Forest Foundation, 2016).

In developing tourism within the protected area, the following guiding principles should be adhered to:

- Tourism products must be appropriate to the site's values and must not threaten its biodiversity or ecological function.

In developing tourism products, requirements for environmental authorisation must be considered and adhered to:

- Tourism products should be designed to capitalise on the unique beauty and biodiversity features of the site.
- Tourism products should be developed in response to tourism market demands and opportunities within the site and should be carefully assessed to determine their viability.

Table 6.6. Operational Management Framework: Tourism, social development and environmental education.

TOURISM, SOCIAL DEVELOPMENT AND ENVIRONMENTAL EDUCATION			
Objectives	Use the nature reserve to address the disconnection and alienation from the natural world that is associated with modern life and participate in educational initiatives in the broader area. Generate income from tourism businesses that make a sustainable contribution towards the conservation management costs of the reserve.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Develop and implement a strategy for social	Identify social development and environmental education projects at Destiny Nature Reserve, and identify potential partner organizations.	MA & CN	Ongoing

development and environmental *education*.	Develop environmental education strategy.	MA	Review every 5 years
	Implement social development and environmental education strategy.	MA	As resources allow
To generate income from tourism businesses that make a sustainable contribution towards the conservation management costs of the reserve.	Viable tourism business model to guide tourism development and operations.	MA	As resources allow and as needed
	A range of appropriate eco-tourism products and services are offered.	MA	Existing products and as resources allow
	Tourism infrastructure and operations do not have a negative impact on any of the conservation objectives of the reserve.	MA	Ongoing
	Tourism infrastructure design and construction complies with development planning requirements.	MA	As resources allow and as needed
	Profits from tourism operations make a meaningful contribution towards conservation management costs.	MA	Ongoing

6.1.7 Biodiversity and security

Poaching is one of the biggest threats to many of South Africa's succulent plant species. There is a lucrative illegal trade in succulent plants and this makes it tempting to all kinds of people – from poaching syndicates to professional traders to hobbyists and even researchers. It is therefore important to ensure biodiversity security at Destiny Nature Reserve (de Villiers, 2016).

Table 6.7. Operational Management Framework: Biodiversity security.

BIODIVERSITY SECURITY			
Objectives	Manage ecological processes so that indigenous populations of fauna and flora are supported.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Ensure legal protection of Destiny Nature Reserve.	Registration of title deed endorsements by a Notary through a Notarial Deed and Notary to register it with the Deeds Office.	MA & CN	Once-off
	Destiny Nature Reserve is rezoned to appropriate conservation zoning.	MA & CN	Completed
Prevent poaching of plants and animals.	Erect signage for the conservation area, and secure access points.	MA & CN	Completed
	Educate staff and visitors about the consequences of illegal collection of plants and animals.	MA & CN	Ongoing
	Carry out patrols and observations in collaboration with neighbours and report details of trespassing and/or poaching to CN.	MA	Ongoing
	Maintain the necessary boundary fences.	MA	Ongoing

6.2 Operational Management

6.2.1 Management effectiveness

Under the Protected Area Management Agreement for Destiny Nature Reserve, an annual management meeting (audit) between the Management Authority and CapeNature must be held.

Table 6.8. Operational Management Framework: Management effectiveness.

MANAGEMENT EFFECTIVENESS			
Objectives	Implement effective management systems centred on an annually audited Management Plan.		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Conduct annual audits and compile annual report.	Develop and implement Annual Plan of Operation.	MA & CN	Annually
	Conduct annual audits and compile annual report.	MA & CN	Annually
Conduct METT evaluations	Conduct METT assessments.	MA & CN	As needed
Incorporate audit results into management revisions.	Incorporate results of audits and METT into management plan revision.	MA & CN	As needed
	Review and update management plan.	MA & CN	As needed

6.2.2 Infrastructure management

Infrastructure maintenance and development on Destiny Nature Reserve (Figure 6.2) should have minimal negative impacts on the environment and should ensure the safety of staff and visitors.

No waste disposal site is available on Destiny NR. General household waste must be separated at source and non-organic recyclable waste must be taken to the nearest suitable deposit site. Organic waste such as food remains, and enviro loo solids (non-flushing toilets) can be composted on site (Primitive Area) in a suitable composting enclosure situated away from human activity and it must not be in or near a watercourse. Note that if food waste is composted, then the structure will need to be covered by a baboon and porcupine-proof wire mesh, and it will need to be monitored for effectiveness. Once waste is sufficiently composted it can be used for mulch in the erosion control hollows where restoration of degraded areas is being implemented.

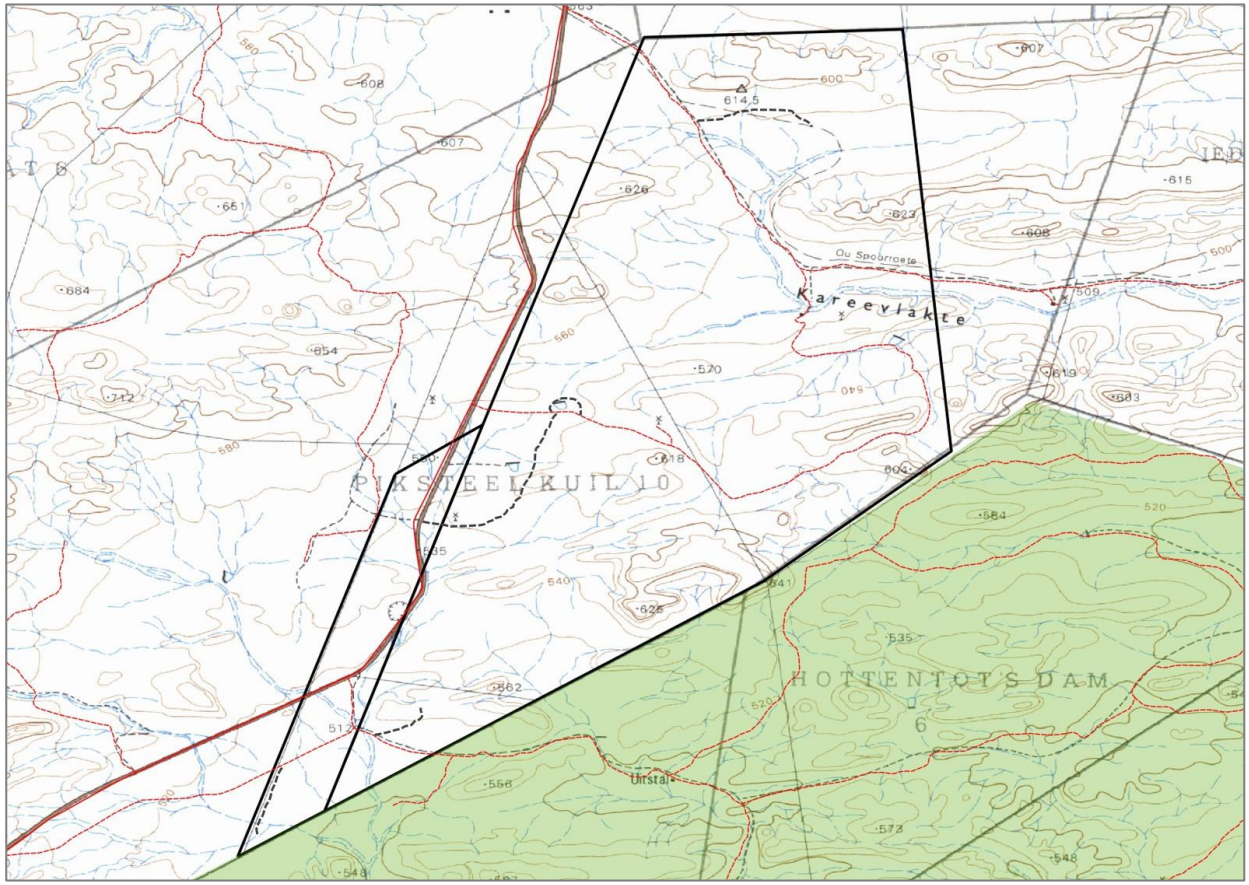

Figure 6.2. Infrastructure on Destiny Nature Reserve.
Active vehicle tracks are indicated by dotted red and black lines. There are no permanent buildings on the reserve.

Table 6.9. Operational Management Framework: Infrastructure management.

INFRASTRUCTURE MANAGEMENT			
Objectives	Develop and maintain infrastructure and ensure responsible waste management		
Key Deliverables	**Management Activities**	**Responsibility**	**Timeframe**
Infrastructure is maintained and development and commercial activities have minimal impacts on the environment. And ensure waste is responsibly disposed of.	Maintain existing infrastructure according to available resources.	MA	Ongoing
	Inform CapeNature timeously of all new planned developments or upgrading of infrastructure.	MA & CN	Ongoing
	Develop according to National Environmental Management Act (NEMA) principles and follow the applicable legislation and procedures of all relevant stakeholders.	MA &CN	Ongoing
	Ensure that activities on the property have no detrimental effect on the flora and fauna of the area.	MA	Ongoing
	Monitor the environmental impacts of infrastructure (e.g. erosion associated with the road network).	MA	Ongoing
	Ensure waste is responsibly disposed of.	MA	Ongoing

7) ANNUAL PLAN OF OPERATIONS AND REVIEW

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

7.1 Five-year Costing Plan

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

Table Error! No text of specified style in document..3 Estimated annual management cost breakdown.

Management objectives	2024	2025	2026	2027	2028
1. Fire management	R1 200	R1 320	R1 450	R1 600	R1 930
2. Invasive vegetation management	R0	R0	R0	R0	R0
3. Wildlife management	R0	R0	R0	R0	R0
4. Erosion prevention and control	R0	R0	R0	R0	R0
5. Research, monitoring and Baseline data collection	R0	R0	R0	R0	R0
6. Tourism, Social development and Environmental Education	R58 000	R64 000	R70 000	R77 200	R85 000
7. Biodiversity security	R9 000	R9 900	R10 900	R12 000	R13 200
8. Management effectiveness	R 14 000	R15 400	R17 000	R18 600	R20 500
9. Infrastructure management	R117 000	R129 000	R141 500	R155 700	R171 300
Estimated Annual Management Cost:	**R 199 200**	**R219 620**	**R240 850**	**R265 100**	**R291 930**

7.2 Annual Plan of Operation

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

7.3 Management Plan Review

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

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

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

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APPENDIX A. LIST OF STATUTES TO WHICH DESTINY 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 Destiny 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)
- National Environmental Management Act Environmental Impact Assessment Regulations (2017)
- Standard Operating Guideline Damage Causing Leopards
- Biodiversity Management Plan for Cape Mountain Zebra
- 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)
- 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 Western Cape Nature Conservation Laws Amendment Act 3 of 2000
- Land Use Planning Ordinance 15/1985 (section 29)

APPENDIX B. COPY OF DESTINY 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. 128/2018 12 October 2018

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING

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

DECLARATION OF DESTINY 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:

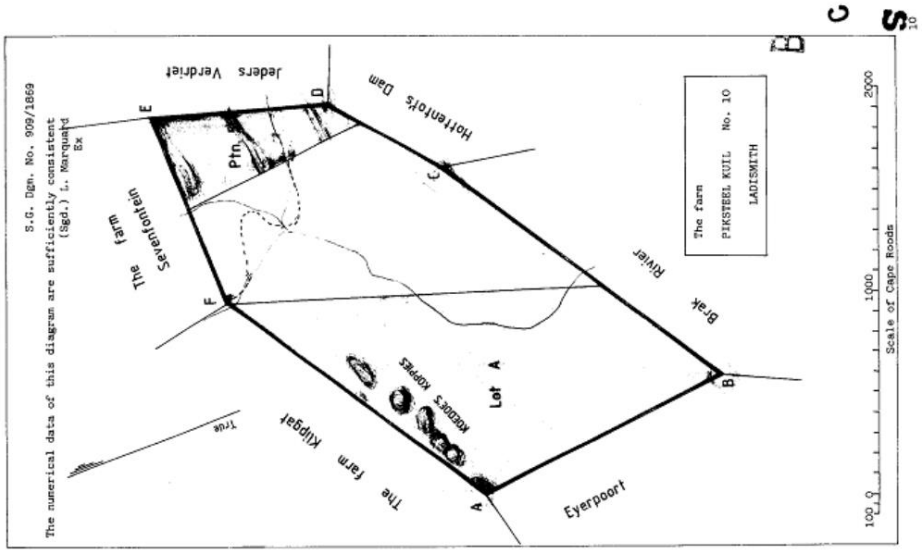
- Remainder of the Farm Piksteel Kuil No. 10, situated in the Kannaland Municipality, Division Ladismith, Western Cape Province;
  In extent: 1536, 9446 (One Thousand Five Hundred and Thirty-Six comma Nine Four Four Six) hectares;
  Held by Deed of Transfer No. T55187/2009; and
- Portion 3 (portion of Portion 1) of the Farm Piksteel Kuil No. 10, situated in the Kannaland Municipality, Division Ladismith, Western Cape Province;
  In extent: 162, 4255 (One Hundred and Sixty-Two comma Four Two Five Five) hectares;
  Held by Deed of Transfer No. T102161/2007.

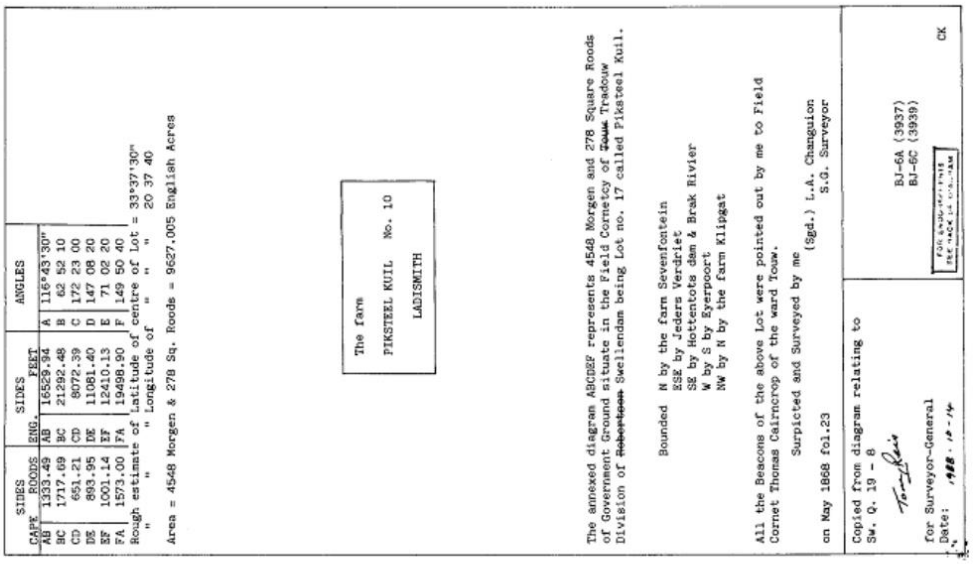
I assign the name **"Destiny Nature Reserve"** to the reserve, of which the boundaries are reflected on Surveyor-General Diagram Nos. 909/1869 and 1672/1900, as set out in the Schedule.

Signed at Cape Town this 3rd day of October 2018.

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

SCHEDULE





SIDES CAPE	SIDES ROODS	ENG.	SIDES FEET	ANGLES	
AB	1333.49	AB	16529.94	A	116°43'30"
BC	1717.69	BC	21292.48	B	62 52 10
CD	651.21	CD	8072.39	C	172 23 00
DE	893.95	DE	11081.40	D	147 08 20
EF	1001.14	EF	12410.13	E	71 02 20
FA	1573.00	FA	19498.90	F	149 50 40

Rough estimate of Latitude of centre of Lot = 33°37'30"
" " Longitude of " " " 20 37 40

Area = 4548 Morgen & 278 Sq. Roods = 9627.005 English Acres

The farm
PIKSTEEL KUIL No. 10
LADISMITH

The annexed diagram ABCDEF represents 4548 Morgen and 278 Square Roods of Government Ground situate in the Field Cornetcy of ~~Touw~~ Tradouw Division of ~~Robertson~~ Swellendam being Lot no. 17 called Pikasteel Kuil.

Bounded N by the farm Sevenfontein
ESE by Jeders Verdriet
SE by Hottentots dam & Brak Rivier
W by S by Eyerpoort
NW by N by the farm Klipgat

All the Beacons of the above Lot were pointed out by me to Field Cornet Thomas Cairncrop of the ward Touw.

Surpicted and Surveyed by me
(Sgd.) L.A. Changuion
S.G. Surveyor
on May 1868 fol.23

Copied from diagram relating to
Sw. Q. 19 - 8

for Surveyor-General
Date: 1888 : 12 - 14

BJ-6A (3937)
BJ-6C (3939)

FOR GENERAL PURPOSES
SEE PAGE OF DIAGRAM

CK

THE FOLLOWING DEDUCTIONS HAVE BEEN MADE FROM THIS DIAGRAM.

Survey Records.	Diag. No.	Subdivision.	Area. Morg.	Sq.Rds.	Deed.
	1724/1897	~~Lot A~~ 10/1	2275	345	1897-68-5769
E2471/51	10066/51	~~Ptn. 5~~ 10/5	478.5075	-	14856/1954

SERVITUDES/LEASEHOLD AREAS

SURVEY RECORD	DIAGRAM NO.	DESCRIPTION	DEED	INITIALS
E1371/2008	~~3772~~/2008 3701		WITHDRAWN	
SR410/2011	813/2011	The curved line AC represents the centre line and the line BC represents the eastern edge of a Right of Way Servitude 6.00m wide		

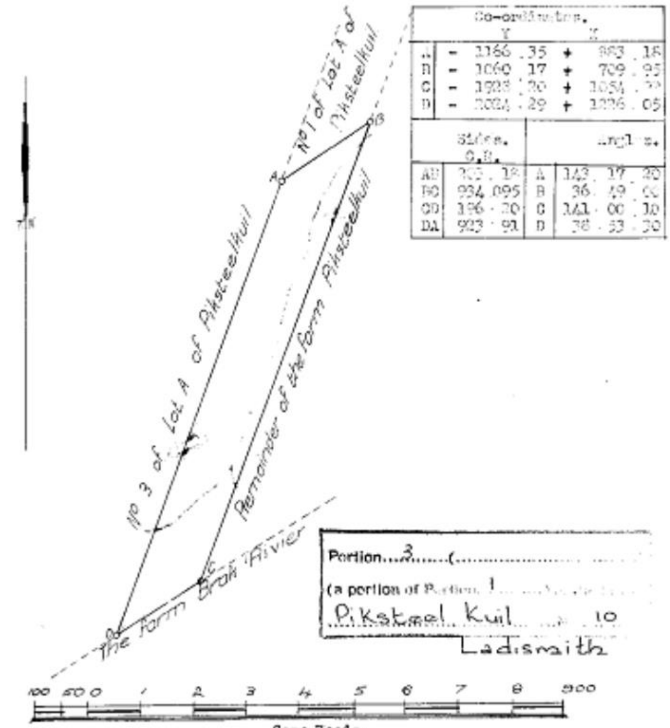
S.G. Dgm. No.1672/1900.

S.G. Dgm. No. 1672/1900.

The numerical data of this diagram are sufficiently consistent.

(Sgd) J.J. Bosman.

Examiner.



	Co-ordinates. Y		X
A	- 1166 . 35	+	983 . 18
B	- 1060 . 17	+	709 . 95
C	- 1923 . 20	+	1054 . [illegible]
D	- 2024 . 29	+	1236 . 05

Sides. C.R.		Angles.	
AB	293 . 18	A	143 . 17 . 20
BC	934.095	B	36 . 49 . 00
CD	196 . 20	C	141 . 00 . 10
DA	923 . 91	D	38 . 53 . 30

The above diagram A B C D represents 189 Morgen and 379 Square Roods of land in Cape measure situate in the Fieldcornetcy of Tradouw in the Division of Swellendam.

Bounded NNW by No.1 of Lot A of Piksteelkuil.
ESE " the remainder of the farm Piksteelkuil.
SSE " the farm Brak Rivier.
WSW " No.3 of Lot A of Piksteelkuil.

being No.2 of Lot A of the farm Piksteelkuil transferred to the Estate of the late Frederick Jacobus van Zyl senior on the 12th July, 1897, lastly transferred to F.J. van Zyl J.S. son and 8 others on 12th July, 1897, to R.J. Goussard and another on 19th July, 1898, and to J.S.C. Coetzee on 19th February, 1898 and 2nd December, 1897.

Surveyed and Subdivided by me,

(Sgd) L.A. Champion.
Govt. Land Surveyor.
November, 1897.

Copied from the diagram relating to
Transfer Title Deed No. 7758
30th July 1902. in favour of
Frederick J. van Zyl, A.J. son.
for SURVEYOR-GENERAL,
CAPE TOWN.

Sheet BJ.6 A
Sheet BJ.6 C

B
C
S
10/3
H.J.

APPENDIX C. SPECIES LISTS (POSSIBLE OCCURRENCE) FOR DESTINY NATURE RESERVE

Mammal species recorded in quarter-degree grid cell 3320DA (Animal Demography Unit, 2015). Citation: ADU MammalMAP Virtual Museum. Accessed at *http://vmus.adu.org.za/?vm=MammalMAP* on 2016-01-013. Atlas region is South Africa, Lesotho and Swaziland.

Genus	Species	Subspecies	Common name	Red list category	Atlas region endemic
Antidorcas	*marsupialis*		Springbok	Least Concern	Yes
Oreotragus	*oreotragus*		Klipspringer	Least Concern	Yes
Oryx	*gazella*		Gemsbok	Least Concern	Yes
Sylvicapra	*grimmia*		Bush Duiker	Least Concern	Yes
Tragelaphus	*oryx*		Common Eland	Least Concern	Yes
Tragelaphus	*strepsiceros*		Greater Kudu	Least Concern	Yes
Canis	*mesomelas*		Black-backed Jackal	Least Concern	Yes
Papio	*ursinus*		Chacma Baboon	Least Concern	Yes
Loxodonta	*africana*		African Bush Elephant	Least Concern	Yes
Equus	*quagga*		Plains Zebra	Not listed	Yes
Equus	*zebra*	*zebra*	Cape Mountain Zebra	Vulnerable	
Acinonyx	*jubatus*		Cheetah	Vulnerable	Yes
Caracal	*caracal*		Caracal	Least Concern	Yes
Panthera	*leo*		Lion	Vulnerable	Yes
Panthera	*pardus*		Leopard	Least Concern	Yes
Giraffa	*camelopardalis*	*camelopardalis*	Nubian Giraffe	Least Concern	
Giraffa	*camelopardalis*	*giraffa*	The South African Giraffe	Least Concern	
Hippopotamus	*amphibius*		Common Hippopotamus	Least Concern	Yes
Hyaena	*brunnea*		Brown Hyena	Near Threatened	Yes
Lepus	*saxatilis*		Scrub Hare	Least Concern	Yes
Desmodillus	*auricularis*		Cape Short-tailed Gerbil	Least Concern	Yes
Parotomys	*brantsii*		Brants's Whistling Rat	Least Concern	Yes

Genus	Species	Subspecies	Common name	Red list category	Atlas region endemic
Procavia	*capensis*		Rock Hyrax	Least Concern	Yes
Potamochoerus	*porcus*		Red River Hog	Not listed	Yes

Bird species recorded in quarter-degree grid cell 3320DA (SABAP2, 2015). Regional refers to South Africa, Lesotho and Swaziland and red-listing follows BirdLife (2015).

Common name	Endemism	Red list-regional	Red list-global
Apalis, Bar-throated			
Avocet, Pied			
Barbet, Acacia Pied			
Batis, Pririt			
Bishop, Southern Red			
Bishop, Yellow			
Bokmakierie			
Boubou, Southern			
Bulbul, Cape	Endemic		
Bunting, Cape			
Bunting, Lark-like			
Bustard, Ludwig's		Endangered	Endangered
Buzzard, Jackal	Near-endemic		
Buzzard, Steppe			
Canary, Black-headed	Near-endemic		
Canary, Cape			
Canary, White-throated			
Canary, Yellow			
Chat, Familiar			
Chat, Karoo			
Chat, Sickle-winged	Near-endemic		
Chat, Tractrac			
Cisticola, Grey-backed			
Cisticola, Levaillant's			
Cisticola, Zitting			
Coot, Red-knobbed			
Cormorant, Reed			
Cormorant, White-breasted			
Crombec, Long-billed			
Crow, Cape			
Crow, Pied			
Cuckoo, Diderick			
Cuckoo, Klaas's			
Darter, African			
Dove, Laughing			
Dove, Namaqua			
Dove, Red-eyed			
Drongo, Fork-tailed			
Duck, African Black			

Common name	Endemism	Red list-regional	Red list-global
Duck, Maccoa		Near Threatened	Near Threatened
Duck, White-backed			
Duck, Yellow-billed			
Eagle, Booted			
Eagle, Verreaux's		Vulnerable	
Eagle-owl, Spotted			
Egret, Cattle			
Egret, Little			
Eremomela, Karoo	Near-endemic		
Eremomela, Yellow-bellied			
Fiscal, Common (Southern)			
Fish-eagle, African			
Flycatcher, Fairy	Near-endemic		
Flycatcher, Fiscal	Near-endemic		
Francolin, Grey-winged	SLS		
Goose, Egyptian			
Goose, Spur-winged			
Goshawk, Gabar			
Goshawk, Southern Pale Chanting			
Grassbird, Cape	Near-endemic		
Grebe, Black-necked			
Grebe, Great Crested			
Grebe, Little			
Greenshank, Common			
Guineafowl, Helmeted			
Hamerkop			
Harrier-Hawk, African			
Heron, Black-headed			
Heron, Grey			
Honeyguide, Greater			
Hoopoe, African			
House-martin, Common			
Ibis, African Sacred			
Ibis, Hadeda			
Jacana, African			
Kestrel, Lesser			
Kestrel, Rock			
Kingfisher, Brown-hooded			
Kingfisher, Giant			
Kingfisher, Malachite			
Kite, Black-shouldered			
Korhaan, Karoo		Near Threatened	

Common name	Endemism	Red list-regional	Red list-global
Korhaan, Southern Black	Endemic	Vulnerable	Vulnerable
Lapwing, Blacksmith			
Lapwing, Crowned			
Lark, Karoo	Near-endemic		
Lark, Karoo Long-billed			
Lark, Red-capped			
Lark, Spike-heeled			
Martin, Brown-throated			
Martin, Rock			
Masked-weaver, Southern			
Moorhen, Common			
Mousebird, Red-faced			
Mousebird, Speckled			
Mousebird, White-backed			
Neddicky, Neddicky			
Night-Heron, Black-crowned			
Nightjar, Fiery-necked			
Ostrich, Common			
Penduline-tit, Cape			
Pigeon, Speckled			
Pipit, African			
Plover, Kittlitz's			
Plover, Three-banded			
Pochard, Southern			
Prinia, Karoo	Near-endemic		
Quelea, Red-billed			
Raven, White-necked			
Robin-chat, Cape			
Rock-thrush, Cape	SLS		
Sandgrouse, Namaqua			
Sandpiper, Common			
Sandpiper, Marsh			
Scrub-robin, Karoo			
Secretarybird		Vulnerable	Vulnerable
Seedeater, Streaky-headed			
Shelduck, South African			
Shoveler, Cape			
Siskin, Cape	Endemic		
Sparrow, Cape			
Sparrow, House			
Sparrow, Southern Grey-headed	Introduced		
Sparrowhawk, Black			
Spoonbill, African			

Common name	Endemism	Red list-regional	Red list-global
Spurfowl, Cape	Near-endemic		
Starling, Common	Introduced		
Starling, Pale-winged			
Starling, Pied	SLS		
Starling, Red-winged			
Starling, Wattled			
Stilt, Black-winged			
Stork, Black		Vulnerable	
Sugarbird, Cape	Endemic		
Sunbird, Dusky			
Sunbird, Malachite			
Sunbird, Orange-breasted	Endemic		
Sunbird, Southern Double-collared	Near-endemic		
Swallow, Barn			
Swallow, Greater Striped			
Swallow, Pearl-breasted			
Swallow, White-throated			
Swamp-warbler, Lesser			
Swift, White-rumped			
Tchagra, Southern	Near-endemic		
Teal, Cape			
Teal, Red-billed			
Thrush, Karoo	Near-endemic		
Thrush, Olive			
Tit, Grey	Near-endemic		
Tit-babbler, Chestnut-vented			
Tit-babbler, Layard's	Near-endemic		
Turtle-dove, Cape			
Wagtail, Cape			
Warbler, Namaqua	Near-endemic		
Warbler, Rufous-eared			
Warbler, Victorin's	Endemic		
Waxbill, Common			
Weaver, Cape	Near-endemic		
Wheatear, Mountain			
White-eye, Cape	Near-endemic		
Whydah, Pin-tailed			
Woodpecker, Cardinal			

Reptile species recorded in quarter-degree grid cell 3320DA. (Animal Demography Unit, 2015). Atlas region is South Africa, Lesotho and Swaziland and red list category is from Bates et al. (2014). ADU ReptileMAP Virtual Museum. Accessed at h*ttp://vmus.adu.org.za/?vm=ReptileMAP on 2016-01-12.*

Genus	Species	Subspecies	Common name	Red list category	Atlas region endemic
Agama	*atra*		Southern Rock Agama	Least Concern	
Bradypodion	*gutturale*		Little Karoo Dwarf Chameleon	Least Concern	Yes
Chamaesaura	*anguina*	*anguina*	Cape Grass Lizard	Least Concern	Yes
Cordylus	*cordylus*		Cape Girdled Lizard	Least Concern	Yes
Pseudocordylus	*microlepidotus*	*microlepidotus*	Cape Crag Lizard	Least Concern	Yes
Aspidelaps	*lubricus*	*lubricus*	Coral Shield Cobra	Not listed	
Chondrodactylus	*bibronii*		Bibron's Gecko	Least Concern	
Goggia	*hewitti*		Hewitt's Pygmy Gecko	Least Concern	Yes
Pachydactylus	*geitje*		Ocellated Gecko	Least Concern	Yes
Pachydactylus	*oculatus*		Golden Spotted Gecko	Least Concern	Yes
Pachydactylus	*purcelli*		Purcell's Gecko	Least Concern	
Meroles	*knoxii*		Knox's Desert Lizard	Least Concern	
Pedioplanis	*burchelli*		Burchell's Sand Lizard	Least Concern	Yes
Pedioplanis	*laticeps*		Karoo Sand Lizard	Least Concern	Yes
Pedioplanis	*lineoocellata*	*pulchella*	Common Sand Lizard	Least Concern	
Lamprophis	*guttatus*		Spotted House Snake	Least Concern	
Psammophis	*notostictus*		Karoo Sand Snake	Least Concern	
Psammophylax	*rhombeatus*	*rhombeatus*	Spotted Grass Snake	Least Concern	
Trachylepis	*homalocephala*		Red-sided Skink	Least Concern	Yes
Trachylepis	*sulcata*	*sulcata*	Western Rock Skink	Least Concern	
Trachylepis	*variegata*		Variegated Skink	Least Concern	
Chersina	*angulata*		Angulate Tortoise	Least Concern	

Amphibian species recorded in quarter-degree grid cell 3320DA. (Animal Demography Unit, 2015). Atlas region is South Africa, Lesotho and Swaziland and red list category is from Minter et al. (2004). ADU FrogMAP. Virtual Museum. Accessed at *http://vmus.adu.org.za/?vm=FrogMAP* on 2016-01-12.

Genus	Species	Subspecies	Common name	Red list category	Atlas region endemic
Amietophrynus	*rangeri*		Raucous Toad	Least Concern	
Vandijkophrynus	*gariepensis*	*gariepensis*	Karoo Toad	Not listed	
Xenopus	*laevis*		Common Platanna	Least Concern	
Amietia	*fuscigula*		Cape River Frog	Least Concern	
Strongylopus	*grayii*		Clicking Stream Frog	Least Concern	

Butterfly species recorded in quarter-degree grid cell 3320DA. (Animal Demography Unit, 2015). Atlas region is South Africa, Lesotho and Swaziland and red list category is from Mecenero et al. (2013). LepiMAP Virtual Museum. Accessed at *http://vmus.adu.org.za/?vm=LepiMAP* on 2016-01-12. Red list category from Mecenero et al. (2013).

Genus	Species	Subspecies	Common name	Red list category	Atlas region endemic
Chrysoritis	*chrysaor*		Burnished opal	Least Concern	Yes
Chrysoritis	*pan*	*lysander*	Lysander opal	Least Concern	Yes
Lepidochrysops	*robertsoni*		Robertson's blue	Least Concern	Yes
Leptomyrina	*lara*		Cape black-eye	Least Concern	
Thestor	*penningtoni*		Pennington's skolly	Least Concern	Yes
Thestor	*petra*	*tempe*	Tempe skolly	Least Concern	Yes
Pontia	*helice*	*helice*	Common meadow white	Least Concern	

APPENDIX D. ANNUAL PLAN OF OPERATIONS TEMPLATE DESTINY NATURE RESERVE