

Terrestrial Biodiversity Assessment

prepared in accordance with the
"Protocol for the Specialist Assessment and minimum report content
requirements for environmental impacts on Terrestrial Animal Species,
Terrestrial Plant Species and Terrestrial Biodiversity"

Portion 4 of Farm Kellershoogte 152, near Oudtshoorn in Western
Cape Province



David Hoare Consulting (Pty) Ltd



David Hoare
Consulting (Pty) Ltd

Address:
Postnet Suite #116
Private Bag X025
Lynnwood Ridge
0040

41 Soetdoring Avenue
Lynnwood Manor
Pretoria

Telephone: 087 701 7629
Cell: 083 284 5111
Fax: 086 550 2053
Email: dhoare@lantic.net

Terrestrial Biodiversity Assessment Report for Portion 4 of Farm Kellershoogte 152, near Oudtshoorn in Western Cape Province

For: Mooiplaas Trust

21 June 2022

TABLE OF CONTENTS

TABLE OF CONTENTS	2
SPECIALIST DETAILS & DECLARATION	4
DECLARATION OF INDEPENDENCE:.....	5
DISCLOSURE:.....	5
TERMS OF REFERENCE	6
INTRODUCTION	9
SITE LOCATION	9
IDENTIFIED THEME SENSITIVITY	10
<i>Terrestrial Biodiversity theme</i>	10
ASSESSMENT METHODOLOGY	12
PROJECT AREA OF INFLUENCE (PAOI)	12
SURVEY TIMING	12
FIELD SURVEY APPROACH	13
SOURCES OF INFORMATION.....	13
<i>Regional Vegetation</i>	13
<i>Threatened Ecosystems</i>	13
<i>Regional plans</i>	13
RELEVANT LEGISLATIVE AND PERMIT REQUIREMENTS	14
CONVENTION ON BIODIVERSITY (CBD)	14
NATIONAL ENVIRONMENTAL MANAGEMENT ACT, ACT NO. 107 OF 1998 (NEMA)	14
NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (ACT NO 10 OF 2004).....	15
ALIEN AND INVASIVE SPECIES	15
GOVERNMENT NOTICE NO. 1002 OF 2011: NATIONAL LIST OF ECOSYSTEMS THAT ARE THREATENED AND IN NEED OF PROTECTION.....	17
GNR 151: CRITICALLY ENDANGERED, ENDANGERED, VULNERABLE AND PROTECTED SPECIES LIST.....	17
GNR 1187: AMENDMENT OF CRITICALLY ENDANGERED, ENDANGERED, VULNERABLE AND PROTECTED SPECIES LIST	17
GOVERNMENT NOTICE NO. 40733 OF 2017: DRAFT NATIONAL BIODIVERSITY OFFSET POLICY	17
NATIONAL FORESTS ACT (ACT NO 84 OF 1998)	18
NATIONAL WATER ACT (ACT 36 OF 1998)	18
CONSERVATION OF AGRICULTURAL RESOURCES (ACT NO. 43 OF 1983) AS AMENDED IN 2001	18
NATIONAL VELD AND FOREST FIRE ACT (ACT NO. 101 OF 1998)	18
NATURE AND ENVIRONMENTAL CONSERVATION ORDINANCE, NO. 19 OF 1974.....	18
DRAFT WESTERN CAPE BIODIVERSITY BILL, 2019.....	19
OUTCOME OF THE ASSESSMENT	20
BROAD VEGETATION PATTERNS	20
<i>Eastern Little Karoo</i>	20
CONSERVATION STATUS OF BROAD VEGETATION TYPES	21
BIODIVERSITY CONSERVATION PLANS	22
NATURAL HABITATS ON SITE.....	23
<i>Plains</i>	23
<i>Footslopes</i>	23
<i>Ridge</i>	23
<i>Kloof</i>	24
<i>Cultivation</i>	24
<i>Degraded areas</i>	24
<i>Recently cleared</i>	24

SITE ECOLOGICAL IMPORTANCE	27
IMPACT ASSESSMENT	29
PROPOSED / EXISTING DEVELOPMENT	29
LOSS OF SUCCULENT KAROO PLAINS HABITAT	29
<i>Extent of impact</i>	29
<i>Probability of occurrence</i>	29
<i>Reversibility of impact</i>	29
<i>Degree to which resources will be irreplaceably lost</i>	29
<i>Duration of impact</i>	29
<i>Intensity or magnitude of impact</i>	30
<i>Significance of impact</i>	30
<i>Possible mitigation measures</i>	30
DISCUSSION	32
CONCLUSION	33
REFERENCES	34

SPECIALIST DETAILS & DECLARATION

This report has been prepared in accordance with the "Protocol for the specialist assessment and minimum report content requirements for environmental impacts on **terrestrial biodiversity**", as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020. It has been prepared independently of influence or prejudice by any parties.

The details of Specialists are as follows –

Table 1: Details of Specialists

Specialist	Qualifications
Dr David Hoare	PhD Pr.Sci.Nat. 400221/05 (Ecological Science, Botanical Science)

Details of Author:

Dr David Hoare

PhD (Botany) – Nelson Mandela Metropolitan University, Port Elizabeth

Main areas of specialisation

- Vegetation and general ecology (grasslands, savanna, Albany thicket, fynbos, coastal systems, wetlands).
- Plant biodiversity and threatened plant species specialist.
- Alien plant identification and control / management plans.
- Remote sensing, analysis and mapping of vegetation.
- Specialist consultant for environmental management projects.

Professional Natural Scientist, South African Council for Natural Scientific Professions, Reg. no. 400221/05 (Ecology, Botany)

Member, International Association of Vegetation Scientists (IAVS)

Member, Ecological Society of America (ESA)

Member, International Association for Impact Assessment (IAIA)

Member, Herpetological Association of Africa (HAA)

Employment history

- 1 December 2004 – present, Director, David Hoare Consulting (Pty) Ltd. Consultant, specialist consultant contracted to various companies and organisations.
- 1 January 2009 – 30 June 2009, Lecturer, University of Pretoria, Botany Dept.
- 1 January 2013 – 30 June 2013, Lecturer, University of Pretoria, Botany Dept.
- 1 February 1998 – 30 November 2004, Researcher, Agricultural Research Council, Range and Forage Institute, Private Bag X05, Lynn East, 0039. Duties: project management, general vegetation ecology, remote sensing image processing.

Declaration of independence:

David Hoare Consulting (Pty) Ltd in an independent consultant and hereby declare that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by David Hoare Consulting (Pty) Ltd is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

Disclosure:

David Hoare Consulting (Pty) Ltd undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to David Hoare Consulting (Pty) Ltd by the client and in addition to information obtained during the course of this study, David Hoare Consulting (Pty) Ltd present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.



Dr David Hoare

21 June 2022

Date

TERMS OF REFERENCE

The specialist study is required to follow the published Protocols, provided in full below for the assessment of impacts on Terrestrial Biodiversity. Note that the Protocols require determination of the level of sensitivity, which then determines the level of assessment required, either a full assessment, or a Compliance Statement.

PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL BIODIVERSITY

This site sensitivity assessment follows the requirements of The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020.

General information

1.1. An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified on the screening tool as being of "**very high sensitivity**" for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment.

1.2. An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being "**low sensitivity**" for terrestrial biodiversity, must submit a Terrestrial Biodiversity Compliance Statement.

1.3. However, where the information gathered from the site sensitivity verification differs from the designation of "very high" terrestrial biodiversity sensitivity on the screening tool and it is found to be of a "low" sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted.

1.4. Similarly, where the information gathered from the site sensitivity verification differs from that identified as having a "low" terrestrial biodiversity sensitivity on the screening tool, a Terrestrial Biodiversity Specialist Assessment must be conducted.

1.5. If any part of the proposed development footprint falls within an area of "very high" sensitivity, the assessment and reporting requirements prescribed for the "very high" sensitivity apply to the entire footprint, **excluding linear activities** for which impacts on terrestrial biodiversity are temporary and the land in the opinion of the terrestrial biodiversity specialist, based on the mitigation and remedial measures, can be returned to the current state within two years of the completion of the construction phase, in which case a compliance statement applies. Development footprint in the context of this protocol means the area on which the proposed development will take place and includes any area that will be disturbed.

Terrestrial Biodiversity Specialist Assessment

2.1. The assessment must be prepared by a specialist registered with the South African Council for Natural Scientific Professionals (SACNASP) with expertise in the field of terrestrial biodiversity.

2.2. The assessment must be undertaken on the preferred site and within the proposed development footprint.

2.3. The assessment must provide a baseline description of the site which includes, as a minimum, the following aspects:

2.3.1. a description of the ecological drivers or processes of the system and how the proposed development will impact these;

2.3.2. ecological functioning and ecological processes (e.g. fire, migration, pollination, etc.) that operate within the preferred site;

2.3.3. the ecological corridors that the proposed development would impede including migration and movement of flora and fauna;

2.3.4. the description of any significant terrestrial landscape features (including rare or important flora-faunal associations, presence of strategic water source areas (SWSAs) or freshwater ecosystem priority area (FEPA) sub catchments;

2.3.5. a description of terrestrial biodiversity and ecosystems on the preferred site, including:
(a) main vegetation types;
(b) threatened ecosystems, including listed ecosystems as well as locally important habitat types identified;
(c) ecological connectivity, habitat fragmentation, ecological processes and fine-scale habitats; and
(d) species, distribution, important habitats (e.g. feeding grounds, nesting sites, etc.) and movement patterns identified;

2.3.6. the assessment must identify any alternative development footprints within the preferred site which would be of a "low" sensitivity as identified by the screening tool and verified through the site sensitivity verification; and

2.3.7. the assessment must be based on the results of a site inspection undertaken on the preferred site and must identify:

2.3.7.1. terrestrial critical biodiversity areas (CBAs), including:
(a) the reasons why an area has been identified as a CBA;
(b) an indication of whether or not the proposed development is consistent with maintaining the CBA in a natural or near natural state or in achieving the goal of rehabilitation;
(c) the impact on species composition and structure of vegetation with an indication of the extent of clearing activities in proportion to the remaining extent of the ecosystem type(s);
(d) the impact on ecosystem threat status;
(e) the impact on explicit subtypes in the vegetation;
(f) the impact on overall species and ecosystem diversity of the site; and
(g) the impact on any changes to threat status of populations of species of conservation concern in the CBA;

2.3.7.2. terrestrial ecological support areas (ESAs), including:
(a) the impact on the ecological processes that operate within or across the site;
(b) the extent the proposed development will impact on the functionality of the ESA; and
(c) loss of ecological connectivity (on site, and in relation to the broader landscape) due to the degradation and severing of ecological corridors or introducing barriers that impede migration and movement of flora and fauna;

2.3.7.3. protected areas as defined by the National Environmental Management: Protected Areas Act, 2004 including-
(a) an opinion on whether the proposed development aligns with the objectives or purpose of the protected area and the zoning as per the protected area management plan;

2.3.7.4. priority areas for protected area expansion, including-

- (a) the way in which in which the proposed development will compromise or contribute to the expansion of the protected area network;
- 2.3.7.5. SWSA including:
 - (a) the impact(s) on the terrestrial habitat of a SWSA; and
 - (b) the impacts of the proposed development on the SWSA water quality and quantity (e.g. describing potential increased runoff leading to increased sediment load in water courses);
- 2.3.7.6. FEPA subcatchments, including-
 - (a) the impact of the proposed development on habitat condition and species in the FEPA sub catchment;
- 2.3.7.7 indigenous forests, including:
 - (a) impact on the ecological integrity of the forest; and
 - (b) percentage of natural or near natural indigenous forest area lost and a statement on the implications in relation to the remaining areas.

2.4. The findings of the assessment must be written up in a Terrestrial Biodiversity Specialist Assessment Report.

Terrestrial Biodiversity Specialist Assessment Report

3.1. The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:

- 3.1.1. contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;
- 3.1.2. a signed statement of independence by the specialist;
- 3.1.3. a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- 3.1.4. a description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;
- 3.1.5. a description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;
- 3.1.6. a location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);
- 3.1.7. additional environmental impacts expected from the proposed development;
- 3.1.8. any direct, indirect and cumulative impacts of the proposed development;
- 3.1.9. the degree to which impacts and risks can be mitigated;
- 3.1.10. the degree to which the impacts and risks can be reversed;
- 3.1.11. the degree to which the impacts and risks can cause loss of irreplaceable resources;
- 3.1.12. proposed impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);
- 3.1.13. a motivation must be provided if there were development footprints identified as per paragraph 2.3.6 above that were identified as having a "low" terrestrial biodiversity sensitivity and that were not considered appropriate;
- 3.1.14. a substantiated statement, based on the findings of the specialist assessment, regarding the acceptability, or not, of the proposed development, if it should receive approval or not; and
- 3.1.15. any conditions to which this statement is subjected.

3.2. The findings of the Terrestrial Biodiversity Specialist Assessment must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr where relevant.

3.3. A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

INTRODUCTION

Site location

The farm portion is located 11 km south-west of Oudtshoorn in Western Cape Province (Figure 1). The site is alongside the R328 between Oudtshoorn and Mossel Bay. It is on the lower slopes and plains on the northern side of a low ridge, which is part of a series of parallel ridges running east-west in the area south of Oudtshoorn. There is a small river valley running past the eastern side of the site, the Kandelaarsrivier, which is a small tributary of the Olifants River, a more significant valley and river system running parallel to the Swartberg Mountains past the southern side of Oudtshoorn, eventually joining the Gourits River to the west of the Gamkaberg. Refer to Figure 1 below for the general location. A recent aerial image of the site is provided in Figure 2.

The total area of the site is approximately 70 ha. A full habitat assessment undertaken on site shows that natural habitat includes fynbos, thicket and estuarine wetland vegetation.

The scope of this report is the entire property, although only part will be developed.

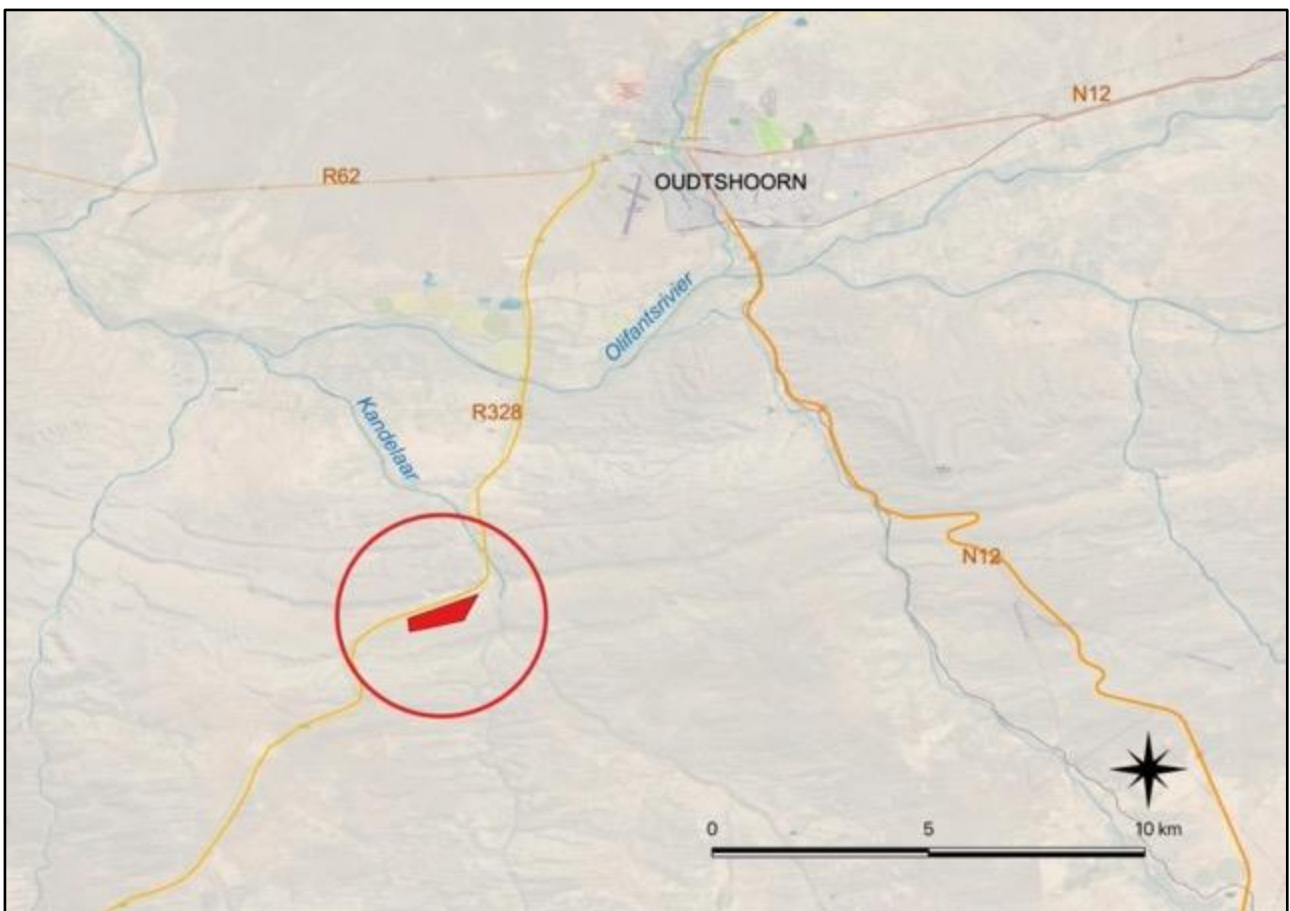


Figure 1: Location of the site.



Figure 2: Aerial image of the site and surrounding areas.

Identified Theme Sensitivity

A sensitivity screening report from the DFFE Online Screening Tool was requested in the application category: Transformation of land | Indigenous vegetation. The DFFE Screening Tool report for the area indicates the following sensitivities:

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Terrestrial Biodiversity Theme	X			

Terrestrial Biodiversity theme

Sensitivity features are indicated as follows:

Sensitivity	Feature(s)
Very High	Ecological Support Area 2
Very High	Ecological Support Area 1
Very High	Critical biodiversity area 1
Very High	Freshwater ecosystem priority area quinary catchments
Very High	Vulnerable Ecosystem

The spatial extent of the sensitive features, as extracted from the DFFE Screening Tool report output, is shown in Figure 3.

In accordance with GN 320 and GN 1150 (20 March 2020) of the NEMA EIA Regulations of 2014 (as amended), prior to commencing with a specialist assessment, a site sensitivity verification must be undertaken to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (i.e., Screening Tool).

The Site Sensitivity Verification concluded that the site has **VERY HIGH** sensitivity for the Terrestrial Biodiversity theme on the basis of the following:

1. The study area occurs within a Vulnerable Ecosystem, namely Garden Route Shale Fynbos. Therefore the site has VERY HIGH sensitivity for this component of the Terrestrial Biodiversity Theme for all remaining areas of natural fynbos habitat.
2. Most of the study area occur within Critical Biodiversity Area 1 in the Western Cape Biodiversity Spatial Plan. All remaining natural habitat on site therefore has VERY HIGH sensitivity for this component of the Terrestrial Biodiversity Theme.

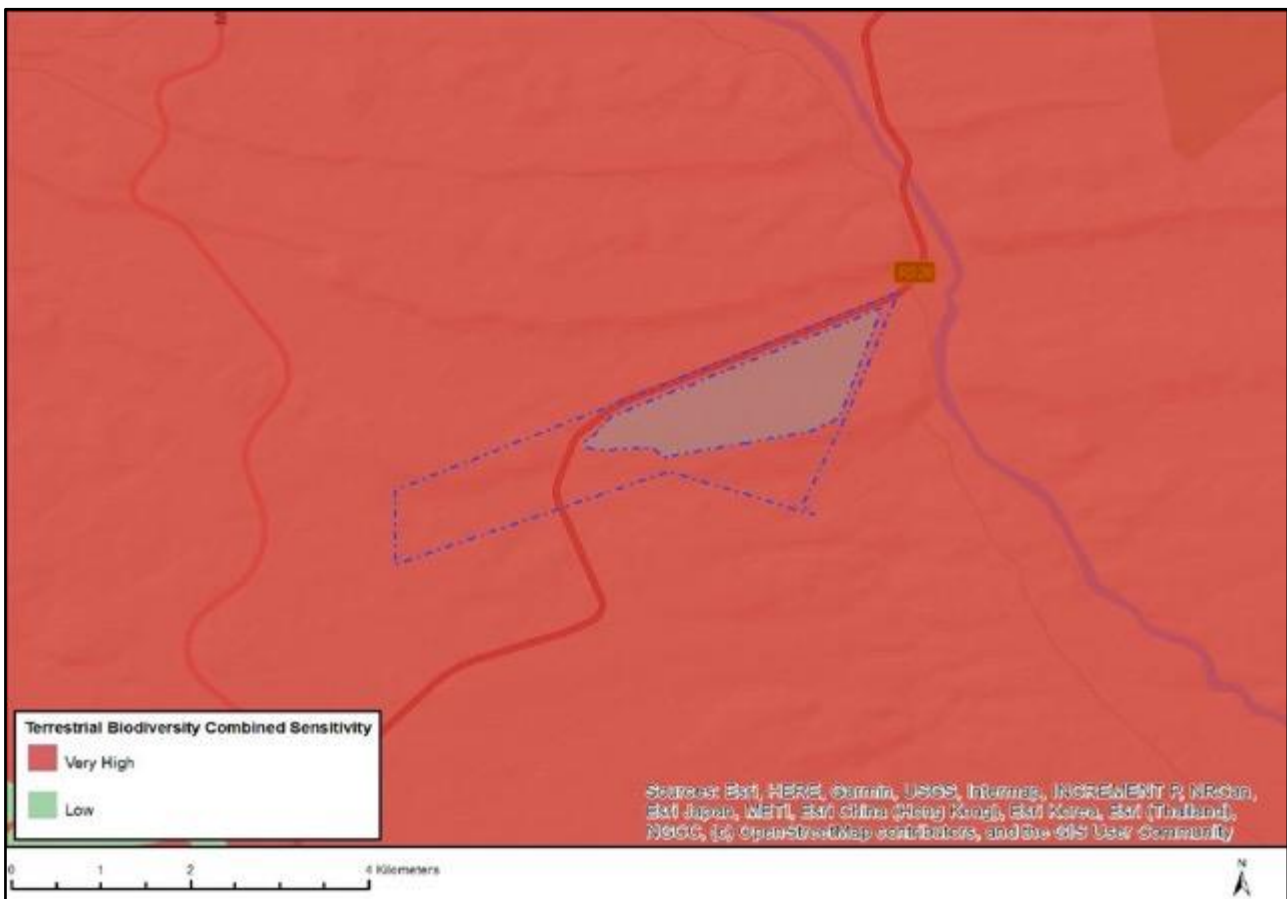


Figure 3: Screening Tool map of Terrestrial Biodiversity Theme sensitivity.

ASSESSMENT METHODOLOGY

The detailed methodology followed as well as the sources of data and information used as part of this assessment is described below.

Project Area of Influence (PAOI)

The proposal is to develop cultivated orchards within the site. Anticipated impacts will occur during the development (construction) phase, with no effects anticipated during operation. These impacts are not expected to extend beyond the boundaries of the study area. The PAOI is therefore treated here as the development footprint within which direct impacts will occur (red line shown in Figure 2).

Survey timing

The study commenced as a desktop-study followed by a site-specific field study on 25 May 2022. The site is within an area of Succulent Karoo, but embedded within the Fynbos Biome with a peak rainfall season (for the entire biome) in late winter to spring, which occurs from August to December (Figure 4). Outdshoorn itself has relatively low rainfall (ca. 300 mm per annum) and it is relatively evenly distributed across all months. Other factors influence emergence of particular plant growth forms, but for animals, the season of rainfall is relatively unimportant at this site. The date of the survey was therefore suitable for assessing the site in terms of animal species.

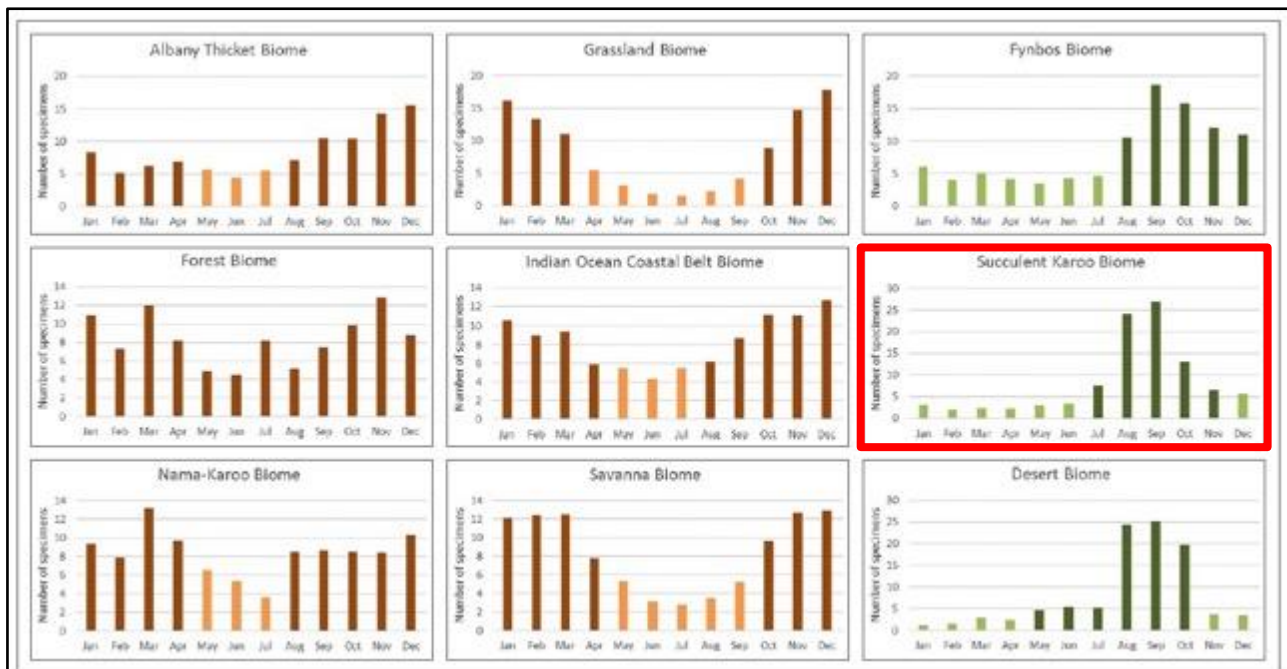


Figure 4: Recommended survey periods for different biomes (Species Environmental Assessment Guidelines).

Field survey approach

During the field survey of habitats on site, the entire site was assessed on foot. A meander approach was adopted with no time restrictions - the objective was to comprehensively examine all natural areas. A hand-held Garmin GPSMap 64s was used to record a track within which observations were made. Digital photographs were taken of features and habitats on site.

Aerial imagery from Google Earth was used to identify and assess habitats on site. This included historical imagery that may show information not visible in any single dated image. Patterns identified from satellite imagery were verified on the ground.

Sources of information

Regional Vegetation

- Broad vegetation types occurring on site were obtained from Mucina and Rutherford (2006), with updates according to the SANBI BGIS website (<http://bgis.sanbi.org>), as follows:
 - Mucina, L. and Rutherford, M.C. (editors) 2006. Vegetation map of South Africa, Lesotho and Swaziland: an illustrated guide. Strelitzia 19, South African National Biodiversity Institute, Pretoria.
 - South African National Biodiversity Institute 2018 Final Vegetation Map of South Africa, Lesotho and Swaziland [Vector] 2018. Available from the Biodiversity GIS website, downloaded on 23 September 2021.

Threatened Ecosystems

- The conservation status of the vegetation types were obtained from Mucina and Rutherford (2006) and the National List of Ecosystems that are Threatened and in need of protection (GN1002 of 2011), published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004). Updates from the National Biodiversity Assessment 2018 were taken into consideration, although these have not yet been gazetted.
- The plant species checklist of species that could potentially occur on site was compiled from a plant species checklist extracted from the NewPosa database of the South African National biodiversity Institute (SANBI) for the quarter degree grid 2821CA.
- The IUCN Red List Category for plant species, as well as supplementary information on habitats and distribution, was obtained from the SANBI Threatened Species Programme (Red List of South African Plants, <http://redlist.sanbi.org>).

Regional plans

- Information from the National Protected Areas Expansion Strategy (NPAES) was consulted for possible inclusion of the site into a protected area in future (available on <http://bgis.sanbi.org>).
- The 2017 Western Cape Biodiversity Spatial Plan (WCBSPP) Maps were consulted for inclusion of any parts of the site into any Critical Biodiversity Areas or Ecological Support Areas (CapeNature. 2017 WCBSPP Bitou [Vector] 2017. Available from the Biodiversity GIS website (biodiversityadvisor.sanbi.org)).

RELEVANT LEGISLATIVE AND PERMIT REQUIREMENTS

Relevant legislation is provided in this section to provide a description of the key legal considerations of importance to the proposed project. The applicable legislation is listed below.

Convention on Biodiversity (CBD)

South Africa became a signatory to the United Nations Convention on Biological Diversity (CBD) in 1993, which was ratified in 1995. The CBD requires signatory states to implement objectives of the Convention, which are the conservation of biodiversity; the sustainable use of biological resources and the fair and equitable sharing of benefits arising from the use of genetic resources. According to Article 14 (a) of the CBD, each Contracting Party, as far as possible and as appropriate, must introduce appropriate procedures, such as environmental impact assessments of its proposed projects that are likely to have significant adverse effects on biological diversity, to avoid or minimize these effects and, where appropriate, to allow for public participation in such procedures.

National Environmental Management Act, Act No. 107 of 1998 (NEMA)

NEMA is the framework environmental management legislation, enacted as part of the government's mandate to ensure every person's constitutional right to an environment that is not harmful to his or her health or wellbeing. It is administered by DEA but several functions have been delegated to the provincial environment departments. One of the purposes of NEMA is to provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment. The Act further aims to provide for institutions that will promote cooperative governance and procedures for coordinating environmental functions exercised by organs of state and to provide for the administration and enforcement of other environmental management laws.

NEMA requires, *inter alia*, that:

- “development must be socially, environmentally, and economically sustainable”,
- “disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied.” ,
- “a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions”.

NEMA states that “the environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.”

This report considers the Environmental Impact Assessment (EIA) Regulations of 2014 (NEMA, 2014) as amended in 2017 (NEMA, 2017), under the National Environmental Management Act, (Act No. 107 of 1998). According to these Regulations under Listing Notice 1 (GRN No. 327), Listing Notice 2 (GRN No 325) and Listing Notice 3 (GRN No 324), the activities listed are identified as activities that may require Environmental Authorisation prior to commencement of that activity and to identify competent authorities in terms of sections 24(2) and 24D of the Act.

National Environmental Management: Biodiversity Act (Act No 10 of 2004)

As the principal national act regulating biodiversity protection, NEM:BA, which is administered by DEA, is concerned with the management and conservation of biological diversity, as well as the use of indigenous biological resources in a sustainable manner. The term biodiversity according to the Convention on Biodiversity (CBD) refers to the variability among living organisms from all sources including, inter alia terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity in genes, species and ecosystems.

In terms of the Biodiversity Act, the developer has a responsibility for:

- The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations).
- Promote the application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all development within the area are in line with ecological sustainable development and protection of biodiversity.
- Limit further loss of biodiversity and conserve endangered ecosystems.

Chapter 4 of the Act relates to threatened or protected ecosystems or species. According to Section 57 of the Act, "Restricted activities involving listed threatened or protected species":

- (1) A person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7.

Such activities include any that are "of a nature that may negatively impact on the survival of a listed threatened or protected species".

Alien and Invasive Species

Chapter 5 of NEM:BA relates to species and organisms posing a potential threat to biodiversity. The Act defines alien species and provides lists of invasive species in regulations. The Alien and Invasive Species (AIS) Regulations, in terms of Section 97(1) of NEM:BA, was published in Government Notice R598 in Government Gazette 37885 in 2014 (NEM:BA, 2014). The Alien and Invasive Species (AIS) lists were subsequently published in Government Notice R 864 of 29 July 2016 (NEM:BA, 2016).

According to Section 75 of the Act, "Control and eradication of listed invasive species":

- (1) Control and eradication of a listed invasive species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs.
- (2) Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment.
- (3) The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.

The National Environmental Management: Biodiversity Act (NEMBA) regulates all invasive organisms in South Africa, including a wide range of fauna and flora. Chapter 5 of the Act relates to species and organisms posing a potential threat to biodiversity. The purpose of Chapter 5 is:

- a) to prevent the unauthorized introduction and spread of alien species and invasive species to ecosystems and habitats where they do not naturally occur;
- b) to manage and control alien species and invasive species to prevent or minimize harm to the environment and to biodiversity in particular;
- c) to eradicate alien species and invasive species from ecosystems and habitats where they may harm such ecosystems or habitats;

According to Section 65 of the Act, "Restricted activities involving alien species":

- 1) A person may not carry out a restricted activity involving a specimen of an alien species without a permit issued in terms of Chapter 7. Restricted activities include the following:
 - a. Importing into the Republic, including introducing from the sea, any specimen of a listed invasive species.
 - b. Having in possession or exercising physical control over any specimen of a listed invasive species.
 - c. Growing, breeding or in any other way propagating any specimen of a listed invasive species, or causing it to multiply.
 - d. Conveying, moving or otherwise translocating any specimen of a listed invasive species.
 - e. Selling or otherwise trading in, buying, receiving, giving, donating or accepting as a gift, or in any other way acquiring or disposing of any specimen of a listed invasive species.
 - f. Spreading or allowing the spread of any specimen of a listed invasive species.
 - g. Releasing any specimen of a listed invasive species.
 - h. Additional activities that apply to aquatic species.
- 2) A permit referred to in subsection (1) may be issued only after a prescribed assessment of risks and potential impacts on biodiversity is carried out.

An "**alien species**" is defined in the Act as:

- a) a species that is not an indigenous species; or
- b) an indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by means of migration or dispersal without human intervention.

According to Section 71 of the Act, "Restricted activities involving listed invasive species":

- 1) A person may not carry out a restricted activity involving a specimen of a listed invasive species without a permit issued in terms of Chapter 7.
- 2) A permit referred to in subsection (1) may be issued only after a prescribed assessment of risks and potential impacts on biodiversity is carried out.

An "**invasive species**" is defined in the Act as any species whose establishment and spread outside of its natural distribution range:

- a) threaten ecosystems, habitats or other species or have demonstrable potential to threaten ecosystems, habitats or other species; and
- b) may result in economic or environmental harm or harm to human health.

A "**listed invasive species**" is defined in the Act as any invasive species listed in terms of section 70(1).

According to Section 73 of the Act, "Duty of care relating to listed invasive species":

- 2) A person who is the owner of land on which a listed invasive species occurs must-
 - a) notify any relevant competent authority, in writing, of the listed invasive species occurring on that land;
 - b) take steps to control and eradicate the listed invasive species and to prevent it from spreading; and
 - c) take all the required steps to prevent or minimize harm to biodiversity.

According to Section 75 of the Act, "Control and eradication of listed invasive species":

- (1) Control and eradication of a listed invasive species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs.
- (2) Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment.
- (3) The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.

Government Notice No. 1002 of 2011: National List of Ecosystems that are Threatened and in need of protection

Published under Section 52(1)(a) of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004). This Act provides for the listing of threatened or protected ecosystems based on national criteria. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the National Spatial Biodiversity Assessment (2004).

The EIA Regulations (2014, as amended) include three lists of activities that require environmental authorisation:

- Listing Notice 1: activities that require a basic assessment (GNR. 327 of 2014, as amended),
- Listing Notice 2: activities that require a full environmental impact assessment report (EIR) (GNR. 325 of 2014, as amended),
- Listing Notice 3: activities that require a basic assessment in specific identified geographical areas only (GNR. 324 of 2014, as amended).

GNR 151: Critically Endangered, Endangered, Vulnerable and Protected Species List

Published under Section 56(1) of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004).

GNR 1187: Amendment of Critically Endangered, Endangered, Vulnerable and Protected Species List

Published under Section 56(1) of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004).

Government Notice No. 40733 of 2017: Draft National Biodiversity Offset Policy

Published under the National Environmental Management Act (Act No. 107 of 1998). The aim of the Policy is to ensure that significant residual impacts of developments are remedied as required by NEMA, thereby ensuring sustainable development as required by section 24 of the Constitution of the Republic of South Africa, 1996. This policy should be taken into consideration with every development application that still has significant residual impact after the Mitigation Sequence has been followed. The mitigation sequence entails the consecutive application of avoiding or preventing loss, then at minimizing or mitigating what cannot be avoided, rehabilitating where possible and, as a last resort, offsetting the residual impact. The Policy specifies that one impact that has come across consistently as unmitigatable is the rapid and consistent transformation of certain ecosystems and vegetation types, leading to the loss of ecosystems and extinction of species. The Policy specifically targets ecosystems where the ability to reach protected area targets is lost or close to being lost. However, the Policy states that “[w]here ecosystems remain largely untransformed, intact and functional, an offset would not be required for developments that lead to transformation, provided they have not been identified as a biodiversity priority”. Biodiversity offsets should be considered to remedy residual negative impacts on biodiversity of ‘medium’ to ‘high’ significance. Residual impacts of ‘very high’ significance are a fatal flaw for development and residual biodiversity impacts of ‘low’ significance would usually not require offsets. The Policy indicates that impacts should preferably be avoided in protected areas, CBAs, verified wetland and river features and areas earmarked for protected area expansion.

National Forests Act (Act no 84 of 1998)

Protected trees

According to this act, the Minister may declare a tree, group of trees, woodland or a species of trees as protected. The prohibitions provide that 'no person may cut, damage, disturb, destroy or remove any *protected tree*, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister'.

Forests

Prohibits the destruction of indigenous trees in any natural forest without a licence.

National Water Act (Act 36 of 1998)

Wetlands, riparian zones and watercourses are defined in the Water Act as a water resource and any activities that are contemplated that could affect the wetlands requires authorisation (Section 21 of the National Water Act of 1998). A "watercourse" in terms of the National Water Act (Act 36 of 1998) means:

- River or spring;
- A natural channel in which water flows regularly or intermittently;
- A wetland, lake or dam into which, or from which, water flows; and

Any collection of water which the Minister may, by notice in the gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

Conservation of Agricultural Resources (Act No. 43 of 1983) as amended in 2001

Declared Weeds and Invaders in South Africa are categorised according to one of the following categories:

- Category 1 plants: are prohibited and must be controlled.
- Category 2 plants: (commercially used plants) may be grown in demarcated areas providing that there is a permit and that steps are taken to prevent their spread.
- Category 3 plants: (ornamentally used plants) may no longer be planted; existing plants may remain, as long as all reasonable steps are taken to prevent the spreading thereof, except within the floodline of watercourses and wetlands.

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

Provides requirements for veldfire prevention through firebreaks and required measures for fire-fighting. Chapter 4 of the Act places a duty on landowners to prepare and maintain firebreaks. Chapter 5 of the Act places a duty on all landowners to acquire equipment and have available personnel to fight fires.

Nature and Environmental Conservation Ordinance, No. 19 of 1974

This Ordinance provides for the protection of nature and matters relating to environmental conservation. It originally covered the geographical areas of the Western Cape Province, Eastern Cape Province (excluding the former Ciskei and Transkei) and parts of North West Province (excluding the former Boputhatswana) but is being repealed by Provincial Acts. It is proposed in the Western Cape Biodiversity Draft Bill, 2019, that the Ordinance is repealed in so far as it relates to the Western Cape Province. It is currently still in force and includes a list of protected species.

Draft Western Cape Biodiversity Bill, 2019

The stated purpose of the Draft Western Cape Biodiversity Bill, 2019 is to provide for the framework and institutions for nature conservation and the protection, management and sustainable use of biodiversity and ecosystems in the Province; and for matters incidental thereto. If passed, the Bill will repeal various pieces of legislation to the extent set out in the below:

- Sea Shore Act, 1935 (21 of 1935): the whole
- Mountain Catchment Areas Act, 1970 (63 of 1970): The whole in so far as it has been assigned to the Province by Proclamation R28 of 1995
- Nature Conservation Ordinance, 1974 (19 of 1974): The whole
- Nature Reserves Validation Ordinance, 1982 (23 of 1982): The whole
- Western Cape Nature Conservation Board Act, 1998 (15 of 1998): The whole
- Western Cape Nature and Environmental Conservation Ordinance Amendment Act, 1999 (8 of 1999): The whole
- Western Cape Conservation Laws Amendment Act, 2000 (3 of 2000): The whole
- Western Cape Biosphere Reserves Act, 2011 (6 of 2011): The whole

OUTCOME OF THE ASSESSMENT

Broad vegetation patterns

There is one regional vegetation type in the study area, namely Eastern Little Karoo SKv11 (distribution relative to the site shown in Figure 5). The national vegetation map is, however, not mapped at a fine scale and it is probable that local topography could support other habitat types, such as thicket. The vegetation type that occurs on site and nearby areas, according to the national map, is briefly described below (as taken from Rebelo et al. 2006, Mucina et al. 2006).

Eastern Little Karoo

Distribution

Western Cape Province: Eastern basin of the Little Karoo from Calitzdorp in the west as far as Oudtshoorn in the east. The unit continues in a series of narrow belts (alternating with the Willowmore Gwarrieveld unit from the surrounds of Dysseisdorp as far west as the N2 road. A narrow belt of the Eastern Little Karoo fringes the southern flanks of the Kammanassie Mountains along the Kammanassie River as far west as Uniondale. Altitude 320–960 (most of area at 320–550 m).

Vegetation & Landscape Features

Irregularly flat plains and undulating piedmont hills covered by dense succulent shrubland dominated by Aizoaceae (*Ruschia*, *Drosanthemum*) and Crassulaceae (*Cotyledon*, *Crassula*,

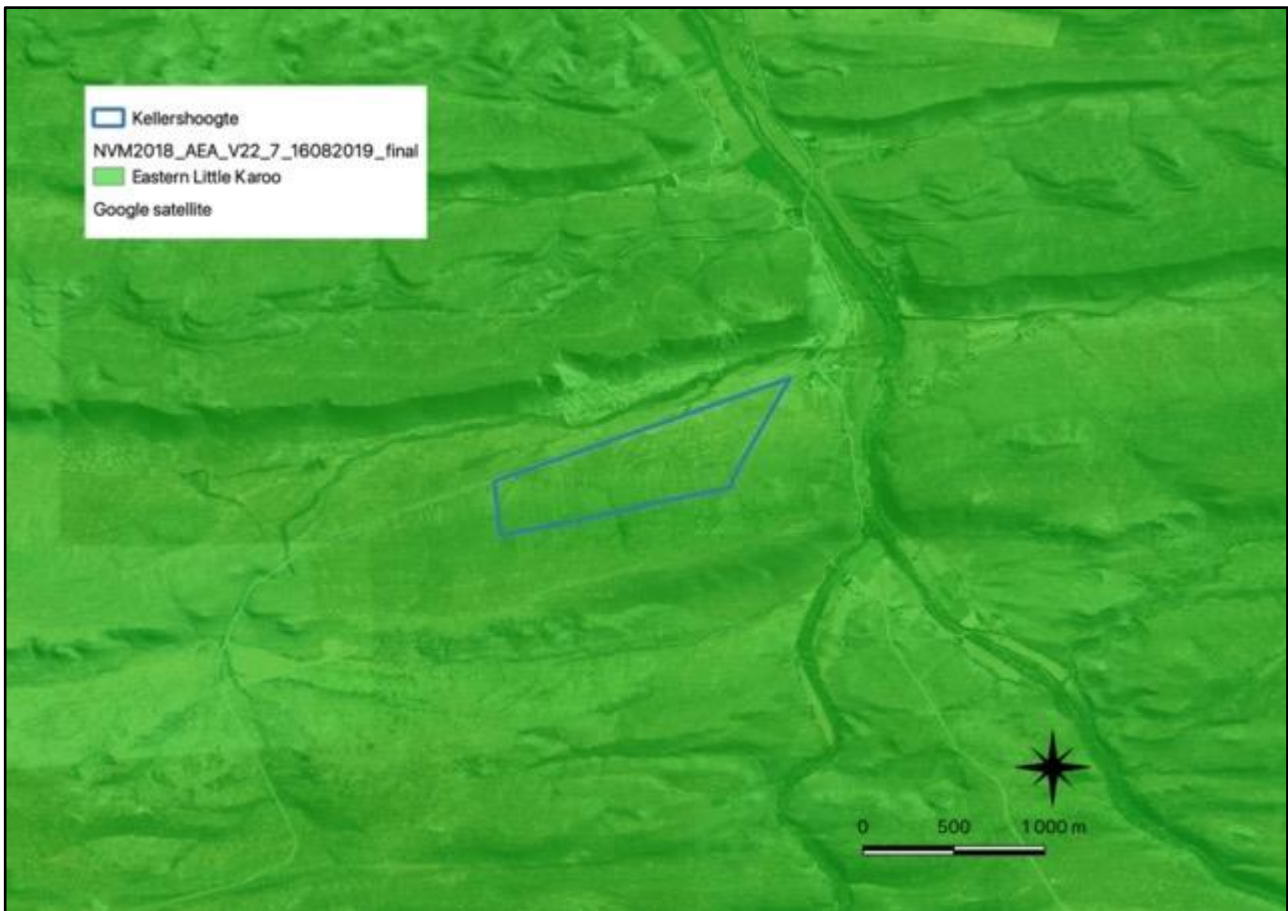


Figure 5: Regional vegetation types of the site and surrounding areas.

Tylecodon,) and nonsucculent, mainly shrubs such as Nymania, Pteronia and Rhus. The spring displays of annual and geophyte flora are spectacular in years with good rain.

Geology & Soils

Fossiliferous shales, mudstones and siltstones of the Devonian Bokkeveld Group (Ceres and Traka Subgroups). Also present are mudstones and sandstones as well as subordinate shale of the Kirkwood Formation together with conglomerates of the Enon Formation (both of the Mesozoic Uitenhage Group). Soils developing over these substrates are of varied structure and texture, but mainly loamy-silty and deep in places. Ag and Fc land types are equally important (and dominant) in the region.

Climate

Aseasonal rainfall (MAP almost 290 mm) with slight optimum in March and pronounced dip in December to January (summer). MAT is about 17°C and frost occurs only 9 days per year.

Conservation status of broad vegetation types

According to scientific literature (Driver *et al.*, 2005; Mucina *et al.*, 2006), as shown in Table 3, the vegetation type is listed as Least Threatened.

The National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011), published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004), lists national vegetation types that are afforded protection on the basis of rates of transformation. The vegetation type is listed as Vulnerable in the National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011).

Table 2: Conservation status of different vegetation types occurring in the study area.

Vegetation Type	Conservation status		
	Driver <i>et al.</i> 2005; Mucina <i>et al.</i> , 2006	National Ecosystem List (NEMBA) (GN1002 of 2011)	NSBA 2018
Eastern Little Karoo	Least threatened	Vulnerable	Least concern

It is therefore verified that the site occurs within a mapped Listed Ecosystem, as listed in The National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011). However, the characteristics of the on-site vegetation, as described in the on-site habitat assessment below, determine whether vegetation of a listed ecosystem occurs on site or not – if there is no natural habitat remaining on site then the sensitivity is LOW with respect to this attribute, or, if natural habitat occurs on site then those areas would have VERY HIGH sensitivity with respect to this attribute.

Biodiversity Conservation Plans

The Western Cape Biodiversity Spatial Plan (WCBSP) classifies the habitats of the province according to conservation value in decreasing value, as follows:

1. Protected Areas (PA);
2. Critical Biodiversity Areas 1 (CBA1);
3. Critical Biodiversity Areas 2 (CBA2);
4. Ecological Support Area 1 (ESA1);
5. Ecological Support Area 2 (ESA2);

The WCBSP map for Oudtshoorn (Cape Nature 2017) shows that a small part of the site is within a CBA1 area and drainage lines are ESA1 and ESA2 areas (Figure 6). The CBA1 area continues beyond the boundaries of the site.

This desktop description verifies that the site is partially included in conservation zones and that an on-site assessment is required to verify the sensitivity of the site with respect to this attribute.

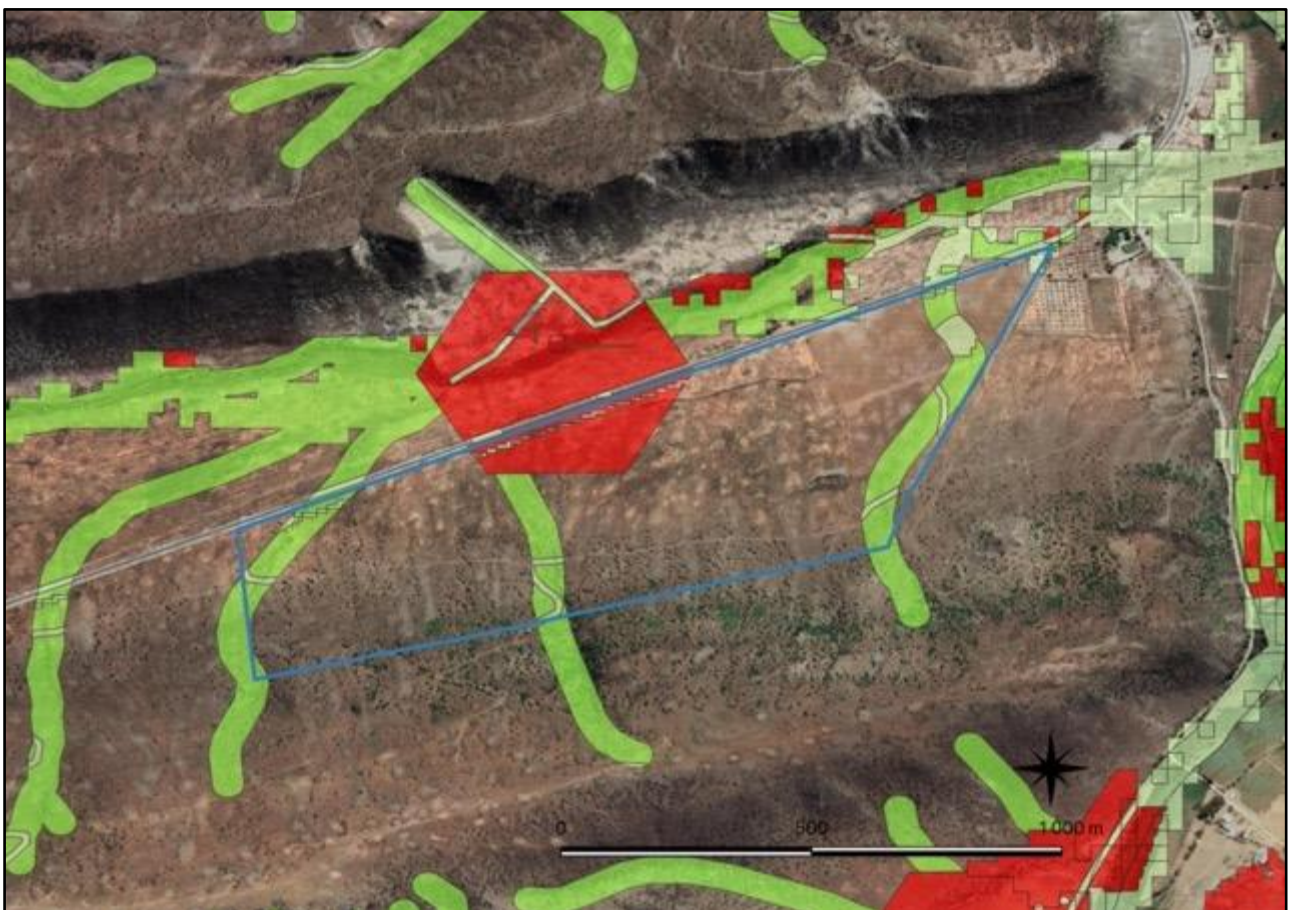


Figure 6: Western Cape Biodiversity Spatial Plan of the site and surrounding areas.

Natural habitats on site

A landcover and habitat mapping exercise was undertaken for the site. This identified various natural habitats that occur on site, shown in Figure 7. A general view from the north of the site looking southwards is shown in Figure 8. The habitat assessment is important for understanding the suitability of habitat on site for various plant and animal species of concern, which usually have very specific habitat requirements.

Plains

These are the low-lying, flatter parts of the site between the main road and the base of the hills on the southern side of the site. They are the most extensive habitat within the assessed area and include the areas earmarked for agriculture. A typical view is shown in the photograph in Figure 9. The vegetation consists of a relatively uniform sparse cover of succulent and karroid dwarf shrubs.

Footslopes

This is a transitional area between the plains and the ridge. The topography is intermediate between the two, but also includes periodic drainage areas that cut through it where the topography is more incised. The vegetation is similar to the plains, but also includes a scattering of woody shrubs. A typical view is shown in the photograph in Figure 10.

Ridge

The ridge is characterized by the dominance of spekboom, *Portulacaria afra*, along with a diversity of other shrubs. It is moderately steep and has a relatively high cover of surface rock. Soils are mostly

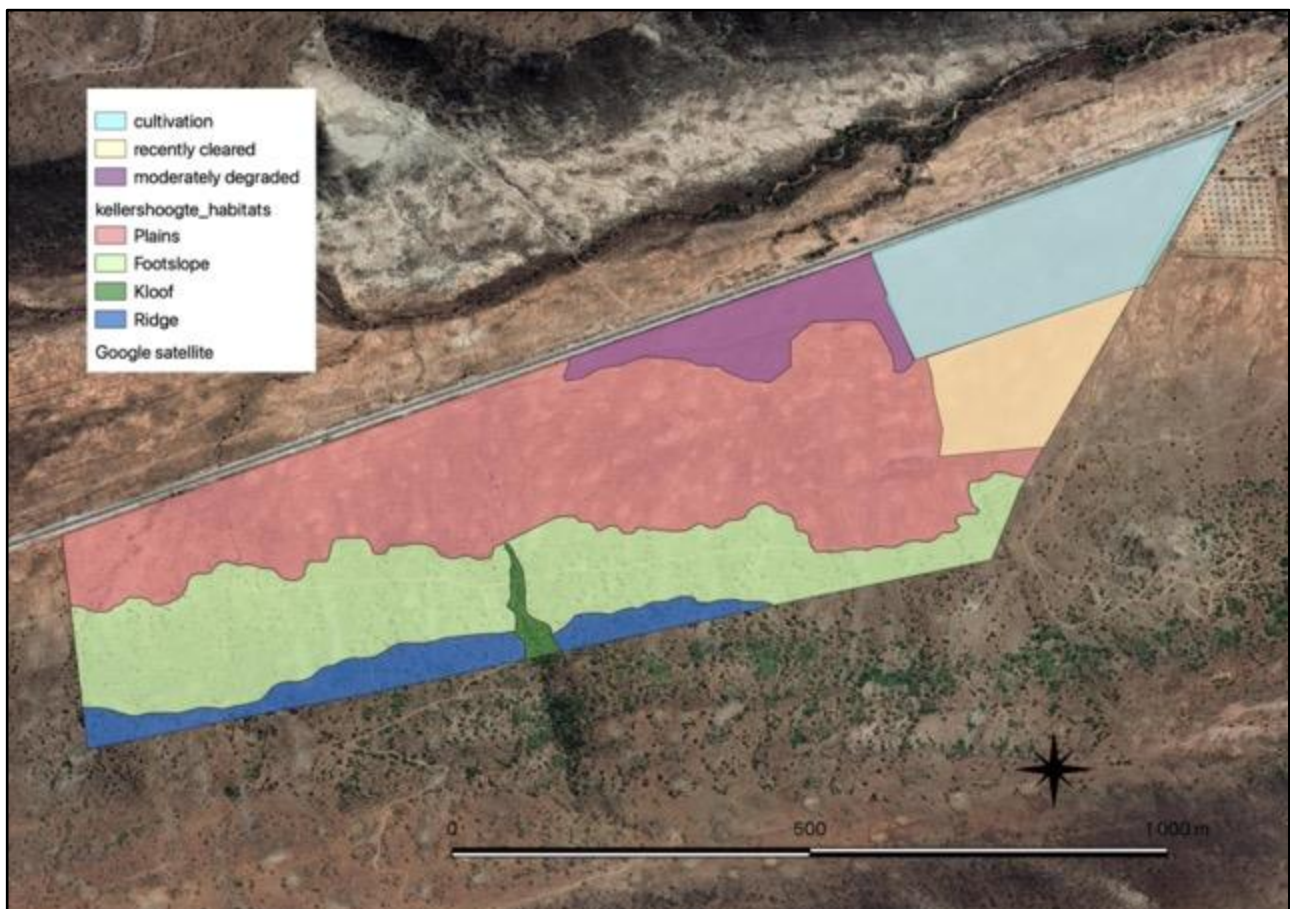


Figure 7: Map of habitats on site.

shallow and rocky. A typical view is shown in the photograph in Figure 11. The ridge area extends further south than the assessed area, where it drops off steeply into a valley south of the site.

Kloof

This is a single valley cutting into the ridge with relatively steep topography. It is the source of the one drainage line on site, and includes a dry, non-perennial stream. The kloof is a local refuge for animals and it was observed that most animals flushed during the walk-through ran towards this kloof area to escape. A view of it is shown in Figure 12.

Cultivation

These are the areas that have recently been planted as orchards. Note that historical aerial imagery shows that these areas were occupied by a small farm dam, and were otherwise degraded, as per the next category described below ("Degraded areas").

Degraded areas

Historical aerial imagery shows that there is a wedge of habitat close to the main road, which gets wider towards the east, in which there are long-term over-grazing effects, including being reduced to bare ground. On-site observations show that these areas are dominated by weedy species, such as *Mesembryanthemum guerichianum* and *M. junceum*, and absence of the common flora of other plains areas.

Recently cleared

There is a small area on the eastern boundary that appears to have been lightly cleared, although no soil disturbance appears to have taken place and the original vegetation is re-appearing.



Figure 8: View towards ridge from plains area.



Figure 10: Typical view of plains on site.



Figure 9: Footslope areas with scattered shrubs.



Figure 11: Typical ridge vegetation with spekboom dominant.



Figure 12: Kloof area.

SITE ECOLOGICAL IMPORTANCE

The Species Environmental Assessment Guidelines require that a Site Ecological Importance is calculated for each habitat on site, and provides methodology for making this calculation. The calculation here is made for all natural areas together because they are variations of a single vegetation type. As per the Species Environmental Assessment Guidelines, Site Ecological Importance (SEI) is calculated as a function of the Biodiversity Importance (BI) of the receptor and its resilience to impacts ($SEI = BI + RR$). The Biodiversity Importance (BI) in turn is a function of Conservation Importance (CI) and Functional Integrity (FI), i.e. $BI = CI + FI$.

Less than 50% of receptor contains natural habitat with limited potential to support Species of Conservation Concern (SCC).

Table 3: Site ecological importance for habitats found on site.

Habitat	Conservation importance	Functional integrity	Receptor resilience	Site Ecological Importance (BI)
Ridge, Foothlope, Kloof	Low No confirmed or highly likely populations of SCC. (Current status of vegetation type is LC)	High > 20 ha for VU ecosystem types. Only minor current negative ecological impacts (e.g. few livestock utilising area) with no signs of major past disturbance (e.g. ploughing) and good rehabilitation potential.	Low Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor	High (BI = Medium)
Plains	Low No confirmed or highly likely populations of SCC. (Current status of vegetation type is LC)	Medium > 20 ha for VU ecosystem types. Mostly minor current negative ecological impacts with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.	Low Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor	Medium (BI = Low)
Degraded areas	Low < 50% of receptor contains natural habitat with limited potential to support SCC.	Very low Several major current negative ecological impacts.	Very high Habitat that can recover rapidly	Very low (BI = Very low)
Transformed (cultivated area)	Very low No natural habitat remaining.	Very low Several major current negative ecological impacts.	Very high Habitat that can recover rapidly	Very low (BI = Very low)

Table 2: Guidelines for interpreting SEI in the context of the proposed development activities.

Site ecological importance	Interpretation in relation to proposed development activities
Very high	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/ not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/ unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities
Very low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

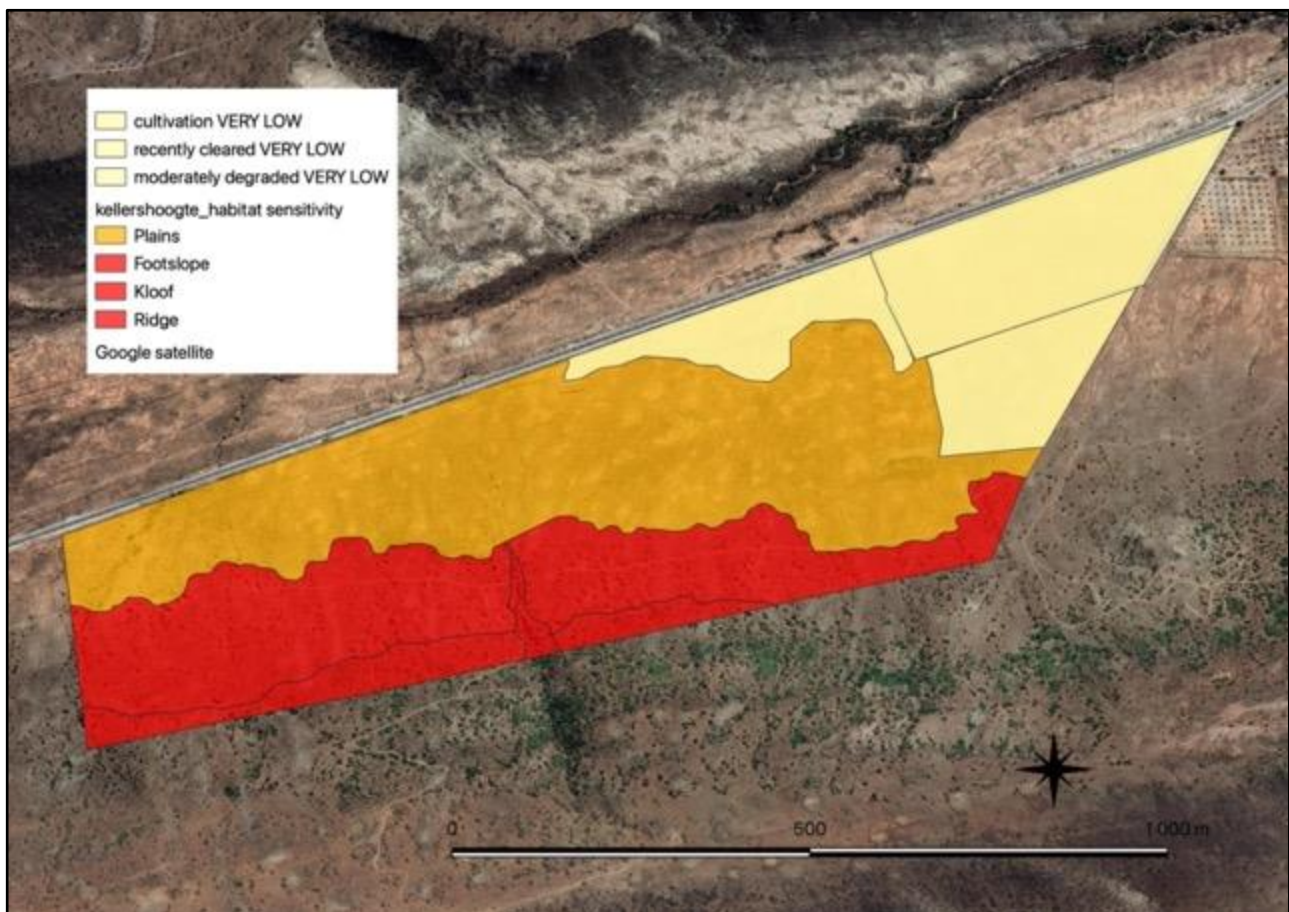


Figure 13: Map of habitat sensitivity / site ecological importance (SEI).

IMPACT ASSESSMENT

Proposed / existing development

The proposal is to develop orchards on site, which have been planned according to the suitability of soils on site. These will be located entirely within areas mapped as "Plains" – no other natural habitat types will be affected.

There are existing orchards on site for which retrospective authorization is being applied (top in Figure 14). These are in areas where historical imagery shows that there was previously a small farm dam, and there was degradation associated with overgrazing that is visible on historical aerial photographs going back to before 1974 (bottom in Figure 14). It can be seen from these images that the orchards have been placed within areas that would mostly have been categorized as having low sensitivity. An impact assessment is undertaken below that assumes that the original condition existed prior to the orchards being developed, and which would apply for any additional orchard development beyond the current footprint within the same plains habitat areas.

The only impact assessed here is therefore as follows:

1. LOSS OF PLAINS HABITAT AS A RESULT OF CLEARING FOR AGRICULTURAL ACTIVITIES.

Loss of succulent karoo plains habitat

Extent of impact

The impact will occur at the local scale. It is estimated that the existing orchards for which authorization is being applied are a total of 13 hectares of mostly degraded plains vegetation.

Probability of occurrence

Based on existence of the orchards and the known location of the habitats found on site, the impact is DEFINITE.

Reversibility of impact

Loss of habitat on site is probably IRREVERSIBLE - secondary vegetation seldom recovers to its original species composition. However, the affected habitat had already been impacted and was not in good condition. The majority was therefore probably reversible to a state similar to its condition at the time that the orchards were started.

Degree to which resources will be irreplaceably lost

The resource assessed here is Eastern Little Karoo, listed as Vulnerable in the National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011), although recently re-assessed as Least Concern (Skowno et al. 2019). In terms of the known extent of this habitat type, the loss of 8 ha is a MARGINAL loss of resources at a global scale.

Duration of impact

Loss of the habitat on site is assessed as being Permanent for any additional loss of plains vegetation. However, given the original condition of the area that has already been developed, it would be possible to restore this to the condition at the time of development within a period of a few years, therefore the impact of the existing development is scored as Medium Term.

Intensity or magnitude of impact

At a global scale, the impact is of LOW magnitude, since it would affect the global extent of the vegetation type imperceptibly.

Significance of impact

The calculation of the significance of an impact uses the following formula:

$$\text{Significance} = (\text{Extent} + \text{probability} + \text{reversibility} + \text{irreplaceability} + \text{duration}) \times \text{magnitude/intensity.}$$

On this basis, the impact is calculated as [(Extent = 1) + (Probability = 5) + (Reversibility = 2) + (Irreplaceability = 2) + (Duration = 3)] x (Intensity = 2)

Score = 26 = **LOW** significance

IMPACT SIGNIFICANCE RATING					
Total Score	4 to 15	16 to 30	31 to 45	46 to 60	61 to 75
Environmental Significance Rating (Negative (-))	Very low	Low	Moderate	High	Very High
Environmental Significance Rating (Positive (+))	Very low	Low	Moderate	High	Very High

Possible mitigation measures

According to the Species Environmental Assessment Guidelines, the guideline for interpreting Site Ecological Importance (SEI) in the context of proposed development activities depends on the SEI. For areas with a Medium SEI, the following is recommended:

“Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.”

Avoidance mitigation has already been applied in the sense that the project design has followed the habitat sensitivity, and retained areas with the highest biodiversity value.

Additional measures that can be applied are as follows:

1. Retain natural habitat within the High SEI class, namely Ridge, Foothlope and Kloof, as well as a buffer of 30 m. The No-Go area should also include the main drainage line that runs from the Kloof towards the north (see Figure 14 for proposed No-Go area).
2. Ensure all possible steps are taken to limit erosion of surfaces, including proper management of storm-water runoff, so that downslope areas are protected from runoff and erosion.
3. Attempt to position any additional cultivation adjacent to the main road, which would include areas already (historically) degraded.
4. Compile and implement an alien management plan, which highlights control priorities and areas and provides a programme for long-term control.
5. Undertake regular monitoring to detect alien invasions early so that they can be controlled, as per the Alien Management Plan.

Due to the relatively small area of vegetation proposed to be affected, and the poor condition of that vegetation, no further measures are proposed here.

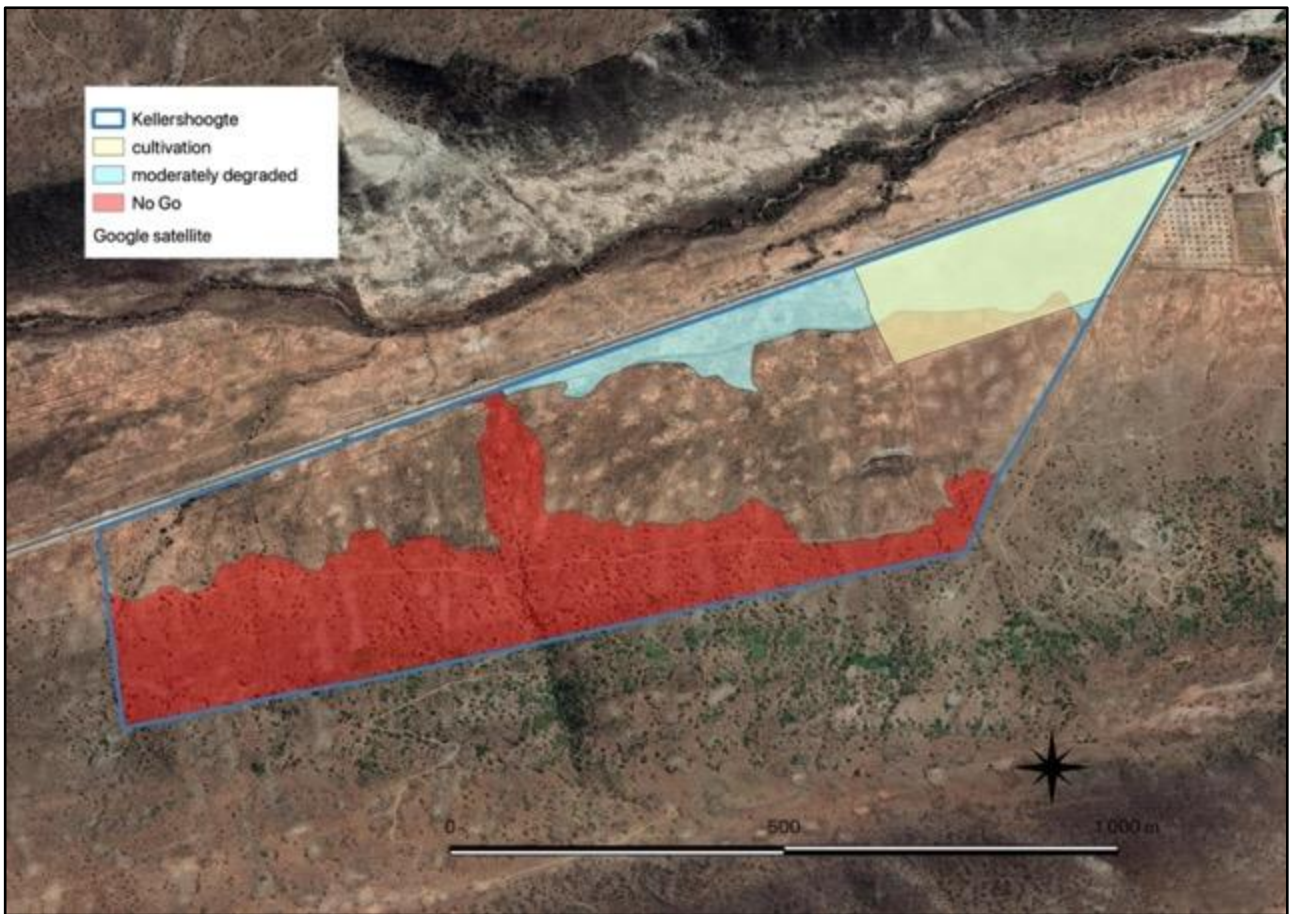


Figure 14: Proposed exclusion zones, as well as preferred areas within degraded zones.

DISCUSSION

This Terrestrial Biodiversity Assessment was undertaken as a result of the Site Sensitivity Verification confirming the site as having HIGH sensitivity with respect to Terrestrial Biodiversity. This is due to the presence on site of areas legally defined as natural vegetation, and occurring within a Listed Ecosystem (Eastern Little Karoo – Vulnerable), and partly within Ecological Support Areas (ESA) 1 and 2, and a Critical Biodiversity Area (CBA1). A recent assessment (Skowno et al. 2019) indicates that Eastern Little Karoo has been re-assessed as Least Concern, although it is still included in the National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011). In terms of the conservation planning zones (ESAs and CBA), only small parts of the site fall within these areas (see Figure 6 on page 22).

An assessment was undertaken that confirmed the presence of natural habitat on site, as well as a small area of cultivation in the north-eastern corner of the site. The natural habitats on site are variations on succulent karoo vegetation, with the plains and ridge having different vegetation structure, and an intermediate zone occurring between them. A Site Ecological Importance was determined, which shows that the ridge vegetation on site (Ridge, Kloof and Footslope) has a score of High, whereas the Plains have a score of Medium. Degraded areas and currently cultivated areas both have a score of Very Low.

An impact assessment was undertaken for the loss of natural habitat within the footprint of the existing cultivation. This impact was assessed as having Low significance, primarily due to the fact that the majority of the area within this footprint was already degraded and/or transformed. The retrospective authorisation is supported on the basis that degradation of the site had already occurred, and that the amount of habitat that was lost is very limited in extent. Future expansion of agriculture on site should be positioned adjacent to the existing road and should avoid areas that have been mapped as sensitive (see Figure 14).

CONCLUSION

The following conclusions can be made regarding the outcomes of the Terrestrial Biodiversity Assessment on site:

1. Most of the site is in a natural state and therefore has Very High sensitivity, according to the DFFE Screening Tool criteria. However, based on a recent national re-assessment (Skowno et al. 2019), the vegetation on site is now categorized as Least Concern (although still listed as Vulnerable in the National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011)). Other conservation zones (ESAs and CBAs) only occur in limited parts of the site – one small area of ESA1 is within the existing development.
2. The amount of habitat that falls within the development footprint is 9 ha, most of which is degraded from heavy grazing over time, as well as including a previous small farm dam.
3. The loss of a small area of low-quality habitat was assessed as being of low significance.
4. Exclusion zones are proposed within which future development should not occur.

REFERENCES

- CapeNature. 2017 WC BSP Oudtshoorn [Vector] 2017. Available from the Biodiversity GIS website, downloaded on 20 June 2022
- Germishuizen, G., Meyer, N.L., Steenkamp, Y And Keith, M. (eds.) (2006). A checklist of South African plants. Southern African Botanical Diversity Network Report No. 41, SABONET, Pretoria.
- IUCN (2001). *IUCN Red Data List categories and criteria: Version 3.1*. IUCN Species Survival Commission: Gland, Switzerland.
- Mucina, L. And Rutherford, M.C. (editors) 2006. Vegetation map of South Africa, Lesotho and Swaziland: an illustrated guide. *Strelitzia* 19, South African National Biodiversity Institute, Pretoria.
- National Biodiversity Assessment 2018: The status of South Africa's ecosystems and biodiversity. Synthesis Report. Synthesis Report. South African National Biodiversity Institute.
- Rebelo, A.G., Boucher, C., Helme, N., Mucina, L., Rutherford, M.C., Smit, W.J., Powrie, L.W., Ellis, F., Lambrechts, J.J., Scott, L., Radloff, F.G.T., Johnson, S.D., Richardson, D.M., Ward, R.A., Procheş, S.M., Oliver, E.G.H., Manning, J.C., Jürgens, N., McDonald, D.J., Janssen, J.A.M., Walton, B.A., Le Roux, A., Skowno, A.L., Todd, S.W. & Hoare, D.B. 2006. Fynbos Biome. In: Mucina, L. & Rutherford, M.C. (eds), *The vegetation of South Africa, Lesotho and Swaziland*: 52-219. SANBI, Pretoria.
- Skowno AL, Matlala M, Slingsby J, Kirkwood D, Raimondo DC, von Staden L, Holness SD, Lotter M, Pence G, Daniels F, Driver A, Desmet PG, Dayaram A (2019). Terrestrial ecosystem threat status assessment 2018 - comparison with 2011 assessment for provincial agencies. National Biodiversity Assessment 2018 Technical Report. South African National Biodiversity Institute, Pretoria.
- Van Wyk, A.E. And Smith, G.F. (Eds) 2001. *Regions of Floristic Endemism in Southern Africa: A review with emphasis on succulents*, pp. 1-199. Umdaus Press, Pretoria.