Specialist Terrestrial Biodiversity & Plant Species themes Site Sensitivity Verification for Farm 76 / 216, called Uitzigt, located west of Brenton on Sea.

Prepared for Cape Eco Route Environmental

Upon request from the applicant

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November 2023

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ABBREVIATIONS

BPA	Biodiversity Priority Area
BSP	Biodiversity Spatial Plan
CBA	Critical Biodiversity Area
CD:NGI	Chief Directorate: National Geo-spatial Information
DFFE	Department of Forestry, Fisheries and the Environment
EIA	Environmental Impact Assessment
EMP	Ecological Management Plan
ESA	Ecological Support Area
NEM:BA	National Environmental Management: Biodiversity Act
ONA	Other Natural Areas
PAOI	Project Area of Influence
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SDP	Site Development Plan
SEI	Site Ecological Importance
SSVR	Site Sensitivity Verification Report

DECLARATION OF SPECIALIST INDEPENDENCE

The consulting services comprise an assessment of the potential sensitivity of the ecosystems and flora that fall within the development footprint for the site. The following declaration is given by the appointed specialist:

- I consider myself bound to the rules and ethics of the South African Council for Natural Scientific Professions (SACNASP).
- At the time of conducting the field assessment and compiling this report I did not have any interest, hidden or otherwise, in the proposed development that this report has reference to, except for financial compensation for work done in a professional capacity.
- Work performed for this site was done in an objective manner. Even if this results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being members of the general public.
- I declare that there are no circumstances that may compromise my objectivity in performing this specialist investigation. I do not necessarily object to or endorse any proposed developments, but aim to present facts, findings and recommendations based on relevant professional experience and scientific data.
- I do not have any influence over decisions made by the governing authorities.
- I undertake to disclose all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by a competent authority to such a relevant authority and the applicant.
- I have the necessary qualifications and guidance from professional experts in conducting specialist reports relevant to this application, including knowledge of the relevant Act, regulations and any guidelines that have relevance to the proposed activity.
- This document and all information contained herein is and will remain the intellectual property of Confluent Environmental. This document, in its entirety or any portion thereof, may not be altered in any manner or form, for any purpose without the specific and written consent of the specialist investigators.
- All the particulars furnished by me in this document are true and correct.

Signed: 29 November 2023

BIANKE FOUCHÉ ABRIDGED CV

Qualifications

- B.Sc. Environmental Sciences,
- B.Sc. Honours (Botany),
- M.Sc. Conservation Biology 2022-2023 (currently completing at the University of Cape Town. Graduation is 15 December 2023).

SACNASP Registration No: 141757 (Candidate Botanical Scientist)

Skills and Core Competencies

- My MSc research will add to our understanding of plant community niche construction and Alternative Stable State (ASS) theory. The knowledge gained will be used to advise landscape stewardship practices, especially regarding reforestation initiatives in the Overstrand.
- I have worked closely with the conservation team of the Grootbos Foundation, where I assisted with vegetation surveys, mounting voucher specimens in the Grootbos herbarium, and taken part in controlled fynbos fires in the Overberg.
- Postgraduate studies of mine included assessing the allelopathic effects of *Eucalyptus* leaves on garden peas and leeks and assessing the accuracy of the climate leaf analysis multivariate programme (CLAMP) in predicting the climate of fynbos vegetation.
- In Cape Town I regularly took part in alien clearing activities and helped to identify relevant listed invasive plants.
- I am currently a member of the Botanical Society of South Africa and the custodians for rare and endangered wildflowers (CREW) in George.

References

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1. INTRODUCTION

1.1 Background

Confluent Environmental was contracted by the Applicant on the recommendation of Eco Route Environmental to undertake a Site Sensitivity Verification Report (SSVR) for botanical and terrestrial sensitivity of Farm 76 / 216 (called Uitzicht) located just west of Brenton on Sea. This farm portion covers a total area of 21.01 ha. according to Cape Farm Mapper. According to the Department of Forestry, Fisheries, and the Environment (DFFE) Screening Tool, the SSVR is required because the terrestrial plant species theme has been highlighted as having a **Medium and High** sensitivity over different areas of the site, and the terrestrial biodiversity has a overall **Very High** sensitivity (Fig. 1).

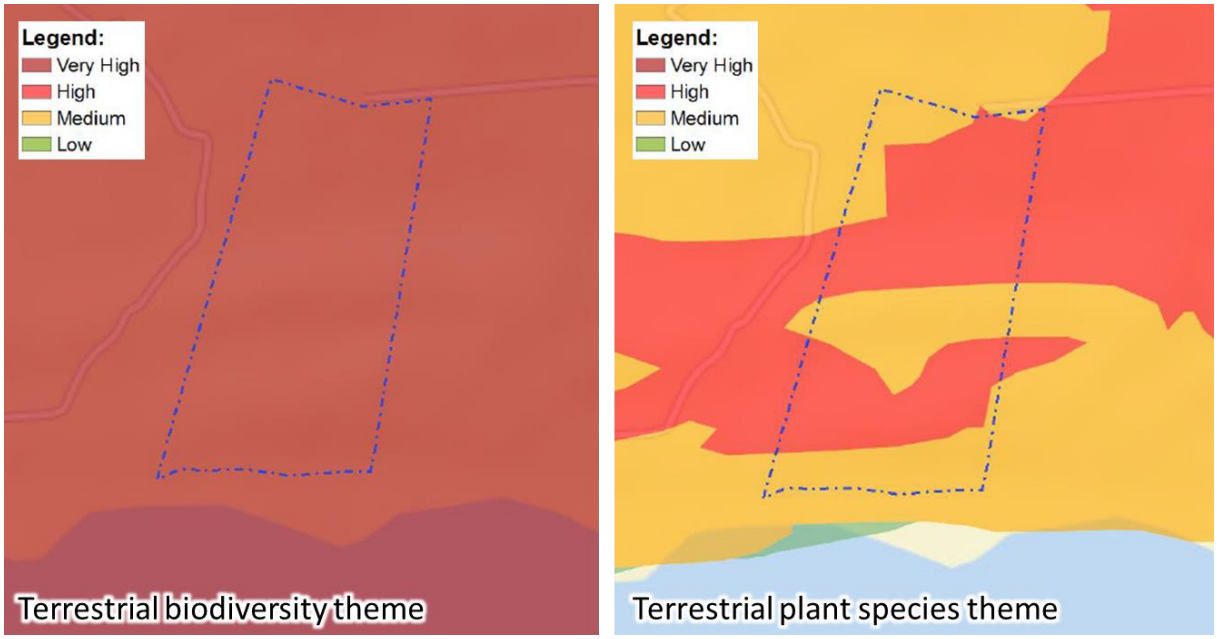


Figure 1: The screening sensitivity maps provided by the Screening Tool report for terrestrial biodiversity (left) and terrestrial plant species (right) themes.

These screening tool sensitivities apply to the entire Uitzicht Farm. The plant species theme is triggered due to several species of conservation concern (SCC) that are confirmed and that are potentially present in the area (these species are listed later in this report). The terrestrial biodiversity theme sensitivity is due to the Farm covering areas mapped as:

- Terrestrial critical biodiversity areas (CBA1)
- A SAN Parks buffer area for the Garden Route National Park
- Part of the Knysna National Lake Area
- Part of a critically endangered (CR) ecosystem, namely Knysna Sand Fynbos
- A Freshwater Ecosystem Priority Area (FEPA) sub-catchment. Assessment of this trigger falls outside of the scope of a terrestrial biodiversity and plant species report. Refer to the aquatic specialist report.
- A part of the Outeniqua strategic water source area for surface water (SWSA-sw). Assessment of this trigger falls outside of the scope of a terrestrial biodiversity and plant species report. Refer to the aquatic specialist report.

1.2 General Site Location

Farm 76 / 216 is located west of Brenton on Sea and south of the Knysna lagoon and estuary. The southern boundary of the site is against the coastline (Fig. 2). The site can be accessed via the road on the western neighbouring farm portion which splits off from C.R. Swart Drive. Currently there is minimal to no development on the surrounding farms, and the farm portion forms part of the large Garden Route Biosphere Reserve and Knysna National Lake Area. Other protected areas within approximately 5km of the site includes Skuilte Private Nature Reserve, Featherbed Private Nature Reserve, Pledge Nature Reserve, and the large coastal area west of the site forming the Goukamma Provincial Nature Reserve and its associated Marine Protected Area.

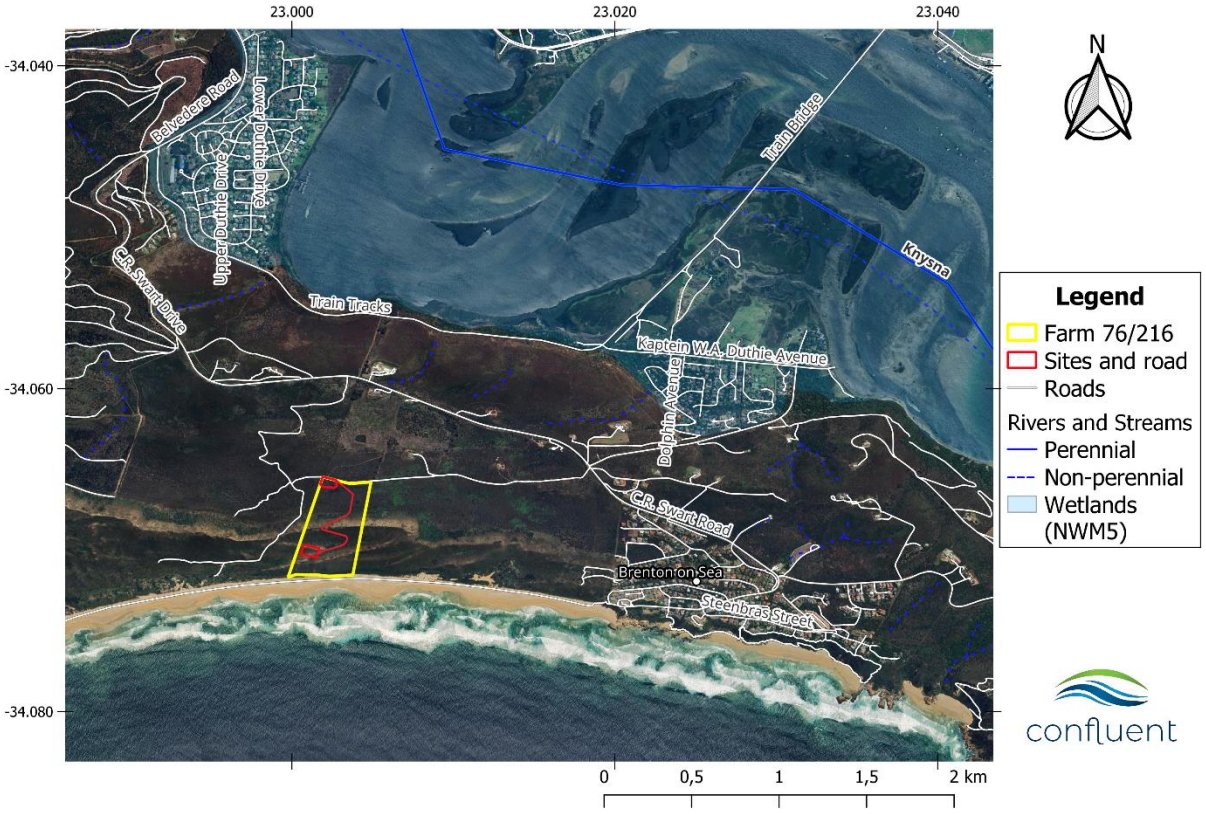


Figure 2: The general location of Farm 76 / 216, called Uitzicht.

1.3 Site Development Plan

The site development plan (SDP; Fig. 3) includes plans for a primary dwelling in the southern section of the site over the dunes, and a secondary dwelling in the north-western corner of the property. A new road is also proposed to connect these two dwellings (Fig. 3). An indication of the proposed sewer system and electricity supply to the site is not included in the site development plan provided thus far. The area of the entire Farm 76 / 216 is ca. 21 ha. Other areas of permanent disturbance will cover the following areas, as per the plans provided:

1. The preferred layout of the main dwelling in the south of the site will cover ca. 1600m^2 with a total disturbance footprint of ca. 3000m^2.
2. The alternative layout of the main dwelling in the south of the site will have a total disturbance footprint of ca. 1500m^2, and will avoid the steep slope of the large foredune.
3. The road from the main dwelling to the north of the farm will cover ca. 2500 m^2 as the current plan illustrates in Fig. 3.

4. The northern secondary dwelling as it is currently planned will cover ca. 680m^2.

The total area of disturbance on the site will amount to ca. 7680m^2, which translates to about 4% of the area of the entire farm.

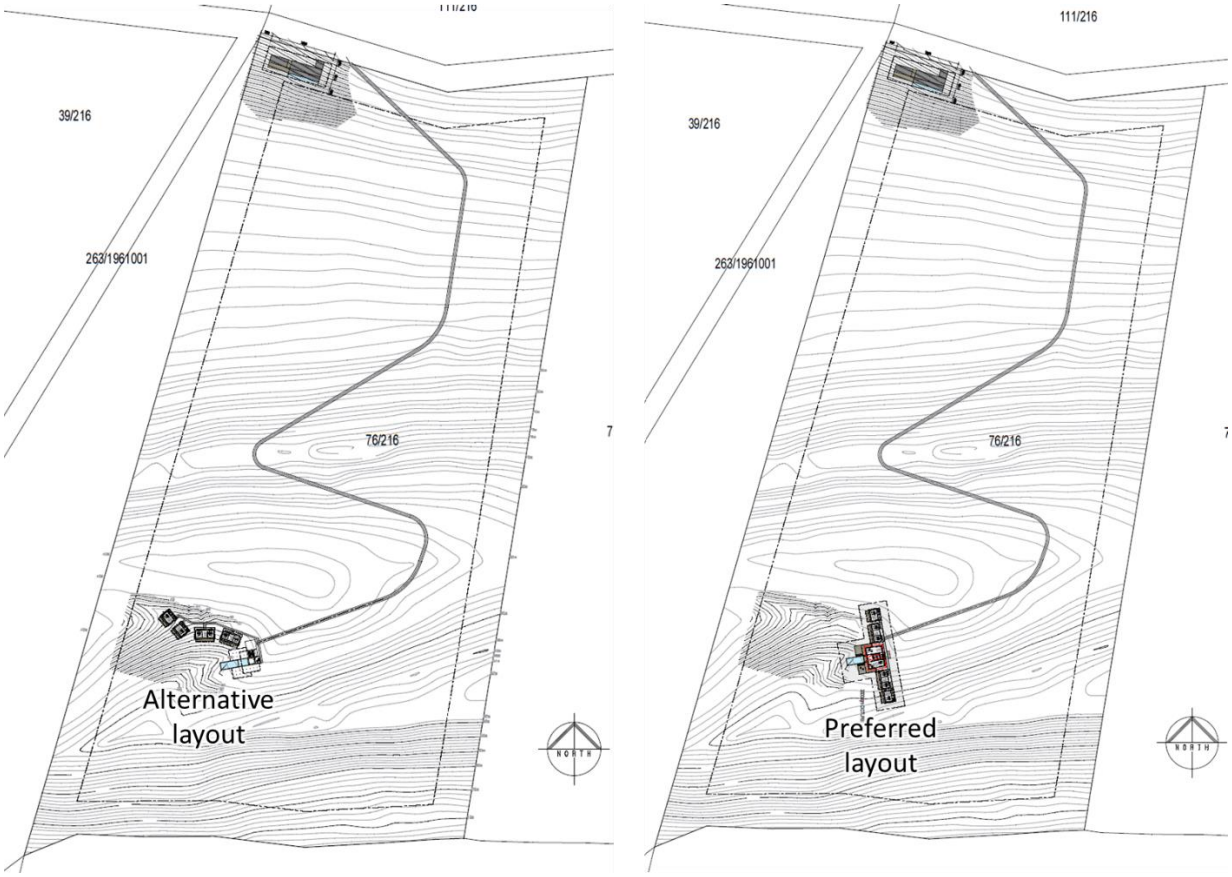


Figure 3: The layout proposed for Uitzicht farm near Brenton on Sean. The southern main dwelling has two alternative layout options proposed by the architects, with the alternative layout depicted on the left and the preferred layout depicted on the right.

2. TERMS OF REFERENCE

This screening tool sensitivity verification report provides information on Terrestrial and Botanical diversity and sensitivity of the proposed development. The results presented are based on a desktop and field assessment, which includes a consideration of historical photographic records of the site. The assessment presented in this report follows the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity, and Terrestrial Plant Species themes.

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), which includes:
    - The protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial plant species (28 July 2023).
    - The protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity (20 March 2020).
- Additional guidelines for the terrestrial biodiversity theme:
    - Ecosystem Guidelines for Environmental Assessment in the Western Cape (de Villiers et al., 2016).
    - The Western Cape Biodiversity Spatial Plan Handbook and summary booklet (CapeNature, 2017; Pool-Sandvliet et al., 2017).
    - The Subtropical Thicket Ecosystem Programme Handbook: Integrating the natural environment into land-use decisions at the municipal level: towards sustainable development (Pierce & Mader, 2006). This guideline provides more information about Goukamma Dune Thicket.
- Additional guidelines for the terrestrial plant species theme:
    - Species Environmental Assessment Guideline: Guidelines for the implementation of the Terrestrial Flora (3c) & Terrestrial Fauna (3d) Species Protocols for environmental impact assessments in South Africa (Verburgt et al., 2020).

The assessment was undertaken by a specialist registered with the South African Council for Natural Scientific Professionals (SACNASP) with relevant expertise in the field of Botanical and/or Ecological science.

2.1 Online Screening Tool

The Department of Forestry, Fisheries, and the Environment (DFFE) screening tool report for the development footprint has identified the terrestrial plant species theme as having a **Medium and High sensitivity**, and the **terrestrial biodiversity theme as having a Very High sensitivity**. The reasons for the terrestrial plant sensitivity theme are the possible and confirmed occurrence of species of conservation concern (SCC) on the site. The following definitions are given in the Species environmental assessment guideline (Verburgt et al., 2020) for the High and Medium plant species theme sensitivities respectively:

Terrestrial plant species theme High sensitivity

"Recent occurrence records for all threatened (CR, EN, VU) and/or Rare endemic species are included in the high sensitivity level. Spatial polygons of suitable habitat have been produced for each species by intersecting recently collected occurrence records (those collected since the year 2002) that have a spatial confidence level of less than 250 m with segments of remaining natural habitat. For birds, species distribution models (SDMs) and SABAP2 data (http://sabap2.birdmap.africa/) were combined to delineate the 'high' sensitivity areas (Appendix 1)."

Terrestrial plant species theme Medium sensitivity

"Model-derived suitable habitat areas for threatened and/or rare species are included in the medium sensitivity level. Two types of spatial models have been included. The first is a simple rule-based habitat suitability model where habitat attributes such as vegetation type and altitude are selected for all areas where a species has been recorded to occur. The second is a species distribution model which uses species occurrence records combined with multiple environmental variables to quantify and predict areas of suitable habitat. The models provide a probability-based distribution indicating a continuous range of habitat suitability across areas that have not been previously surveyed. A probability threshold of 75% for suitable habitat has been used to convert the modelled probability surface and reduce it into a single spatial area which defines areas that fall within the medium sensitivity level."

A Very High sensitivity rating for terrestrial biodiversity according to the screening tool is triggered for all Biodiversity Priority Areas (BPAs) and other sensitive features (Stewart et al., 2021). BPAs include the various management layers of the Western Cape Biodiversity Spatial Plan (WC BSP), as well as the other sensitive features listed in Table 1 below. As discussed in the introduction, the highlighted rows of Table 1 were triggered for the proposed development on Farm 76 / 216.

Table 1: Sources of BPA data for the Terrestrial Biodiversity Theme sensitivity (Stewart et al., 2021). Red rows indicate BPAs that have been triggered for Farm 76 / 216, and these form the basis for the Very High sensitivity assigned by the screening tool.

Sensitivity layer	Data included and source
Critical Biodiversity Areas (CBAs)	Most recent terrestrial CBA spatial footprint for metros, provinces, or bioregional plans, combined to create a national data set. The entire site is a CBA 1 area.
Ecological Support Areas (ESAs)	Most recent ESA spatial footprint for metros, provinces, or bioregional plans, combined to create a national data set.
Protected Areas (PAs)	Most recent update from the DFFE's "South African Protected Area Database".
National Priority Areas for Protected Areas Expansion	The latest priority expansion areas for each province, as well as the expansion footprint for national parks as per the approved management plan for national parks.
SAN Parks Buffer Areas	A buffer area for a National Park is defined in the February 2012 schedule on Biodiversity Policy and Strategy for South Africa's Strategy on Buffer Zones of National Parks. The buffer applicable here is the 10km wide buffer for the Garden Route National Park.
Strategic Water Source Areas (SWSAs) (terrestrial)	Surface strategic water source areas, delineated by Mervyn Lotter in October 2020 with substantial input from the SWSA spatial task team as part of the SWSA spatial task team. Note that the protocol only applies to the terrestrial parts of the SWSAs.
Freshwater Ecosystem Catchments (terrestrial)	Freshwater ecosystem catchments, determined through the National Freshwater Ecosystem Priority Area (NFEPA) process. This trigger is best assessed in an aquatic specialist report for the site.
Lakes	National Lake Areas area also part of the trigger for terrestrial site sensitivity. In this case the Knysna National Lake Area applies.
Indigenous Forests	Indigenous forests or forest patches are mapped in detail by the Forestry section in the DFFE. The Forest biome makes up less than 1% of South Africa's land area and is protected in terms of the NFA. Consequently, because of their legal status and small spatial footprint, they are the only terrestrial biome that is included in the Screening Tool in its entirety. The latest available data set from the national forest inventory (NFI) is used to represent forests in the Screening Tool.
Red Listed Ecosystems	Any ecosystem that is listed as Vulnerable, Endangered, or Critically Endangered according to the "Revised National List of Ecosystems that are Threatened and in Need of Protection (NEM:BA Act no.10 of 2004, as amended in November 2022)

3. METHODOLOGY

3.1 Desktop Assessment

The desktop assessment was performed using Cape Farm Mapper and QGIS version 3.28.3 "Firenze". Plant species data was sourced from the following sources:

- The DFFE screening tool listed SCC.
- Information on plant occurrence prior to the site visit was sourced from SANBIs Botanical Research and Herbarium Management System (BRAHMS) for the Plants of Southern Africa (POSA) database.
- iNaturalist observations of the property and surrounding areas.

Ecosystem/ vegetation type data was sourced from:

- The 2018 updated South African National Vegetation Map from SANBIs Biodiversity GIS (BGIS) database, and the National Biodiversity Assessment report of 2018 (Skowno et al., 2018).
- Shapefiles for the Western Cape Biodiversity Spatial Plan (WC-BSP) i.e., information on PAs, CBAs, ESAs, and ONAs were downloaded from BGIS database (CapeNature, 2017; Pool-Sandvliet et al., 2017).
- Cape Farm Mapper for additional spatial information required for the site.
- Chief Directorate: National Geo-spatial Information (CD: NGI) Geospatial Portal and Google Earth for the acquisition of historical aerial imagery of the site.
- The conservation status of ecosystems was found in the Revised National List of Ecosystems that are Threatened and in need of protection, published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004, as revised in Nov. 2022), and also using the Vegetation of South Africa, Lesotho, and Swaziland (Mucina & Rutherford, 2006).

3.2 Field Assessment

Field work on Uitzicht was undertaken on the 11th of October 2023. The method for identifying species was similar to a BioBlitz, also described as a "timed meander", where the specialist especially keeps an eye out for rare and threatened species, as well as other dominant species or species that plan an important ecological role on the site. Some Red Listed Plant species are also more easily detected during a site survey than other species. This timed meander survey method is an attempt to account for the short and single survey period, where detection probability of some seasonal, rare and threatened species (e.g., geophytes, small succulents, small perennials etc.) are low (Garrard et al., 2008; Wintle et al., 2012). Observations of individual species and environmental characteristics were documented using an android app "Spot Lens". A provisional species list and plant species accumulation curve is provided in Appendix 9.1.

3.3 Assumptions & Limitations

This assessment is subject to a few assumptions, uncertainties, and limitations, as listed below:

- Only one survey took place during spring on the 11th of October 2023. The season of the assessment and survey timing always play a role in limiting the findings of a terrestrial habitat and plant species specialist report.
- Some rare and threatened plant species are difficult to locate and easily overlooked in the field (e.g., geophytes, small succulents, small shrubs, and cryptic spp.). The species list for the area is limited to the findings of the one field assessment, as well as past records on iNaturalist and the Plants of Southern Africa (POSA) database for the proposed development site and its

surrounding areas. It is very likely that the species list and SCC reported are not exhaustive (Perret et al., 2023). Luckily, numerous member of the custodians for rare and endangered wildflowers (CREW) have visited the site in the recent past, which adds to the data generated for this assessment.

- Some species may have been entirely "invisible" at the time of the assessment (e.g., some geophytes, annuals, plants constrained to certain successional stages in the post fire environment, and parasitic plants). Many plant species flower seasonally and are therefore difficult to identify outside of their flowering season. Environmental factors such as the prevailing fire regime and level of alien invasion influence the successional stage of the vegetation present at the site, and therefore the species visible at the time of assessment (Cowling et al., 2010; Privett et al., 2001).
- Denser vegetation always makes it hard to gain access to some sections of the site. It is possible that the impenetrable nature of the vegetation in some places caused an SCC/ several SCC to be missed on the site.

4. RESULTS: DESKTOP ASSESSMENT

4.1 Terrestrial Biodiversity

4.1.1 Climate

Knysna Sand Fynbos, which is mapped over the northern half of the site, is found in a climate where rainfall is relatively evenly spread between the four seasons. The climate of Brenton on Sea, which is close to Uitzicht, is characterised as being warm and temperate. The average annual temperature for Brenton on Sean is about 16.6 ˚C (Fig. 4). The hottest month of the year is usually February, which is also the month with the highest average humidity (ca. 78%). The coldest month of the year is usually in June, and the lowest humidity (ca. 70%) is usually recorded in July.

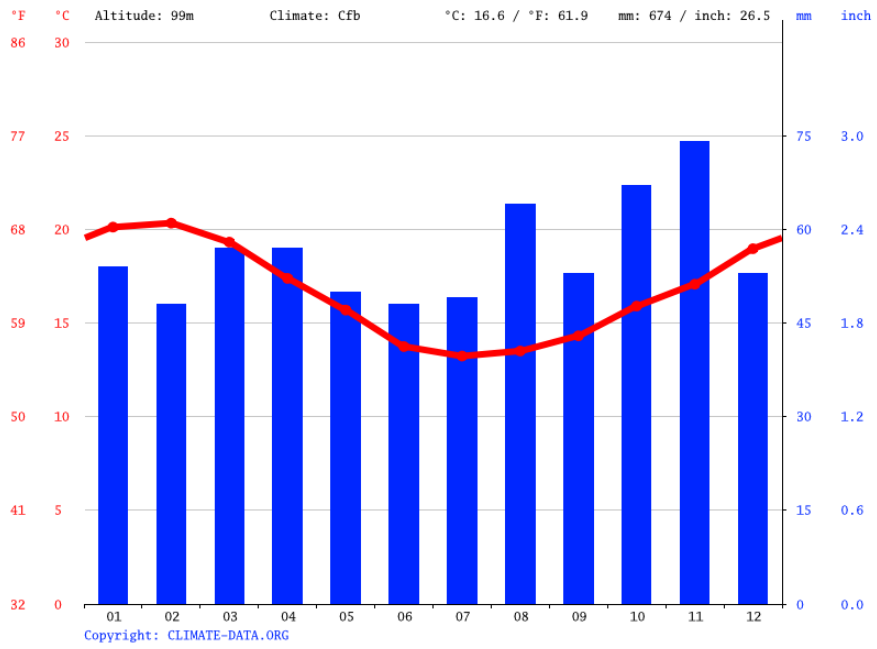


Figure 4: A summary graphic of average monthly rainfall and temperature for Brenton on Sea.

4.1.2 Geology and soil

The geology on the site forms part of the Bredasdorp group, which is characterised by calcareous sandstone and aeolianite, as well as sand dunes. The site contains a dune barrier system, which includes some interesting and complex geology (Bateman et al., 2011; Fig. 5). Due to the fact that the Wilderness area is both geologically and climatically stable, and has been for thousands of years, a complex series of sedimentary accretion processes have occurred, which can be used to reach back in time and understand some of the palaeo-history of the region (Bateman et al., 2011). The erodibility of soils here is considered High (with a Cape Farm Mapper erodibility factor of 0.62). Soils here are not well formed and are sandy, composed largely of sand and dune rock. The soils, because they are essentially sand, are very well drained and are usually very deep.

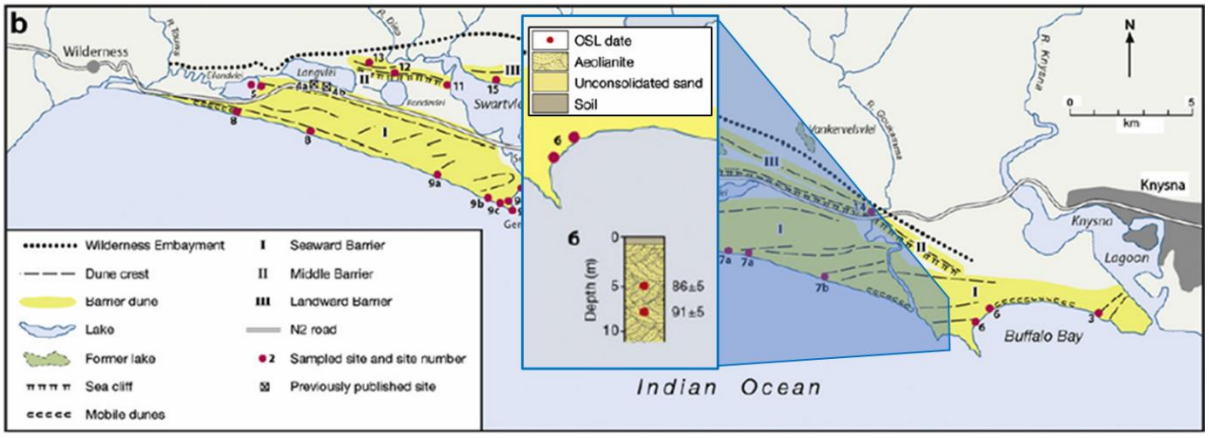


Figure 5: A modified Figure taken from (Bateman et al., 2011), which illustrates the Wilderness dune barrier system. The inset map illustrates profiles taken near Uitzicht, where aeolianite is the majority of the profile, with a thin section of sandy soil on top. The red dots in the inset map represent the approximate age of the profile at that depth in thousands of years.

4.1.3 Vegetation type(s)

According to the National Vegetation map of South Africa of 2018 (VEGMAP 2018; Dayaram et al., 2019; Grobler et al., 2018; Mucina & Rutherford, 2006), Uitzicht is mapped with two vegetation types (Fig. 6). The northern half of the site, above the large dune, is mapped as **Knysna Sand Fynbos (FFd 10)** which is a critically endangered (CR) vegetation type (NEM:BA Act, 2022). And according to the VEGMAP 2018 southern half of the site is mapped as **Goukamma Dune Thicket (AT 36)** which is not listed on the revised version of threatened ecosystems. Right against the shore the vegetation is mapped as Cape Seashore Vegetation, which will not be impacted by the development. According to the Vlok vegetation map, Farm portion 76 / 216 (Uitzicht) is mapped largely as "Sedgefield Sandplain Fynbos", with depressions in the landscape mapped as "Wilderness Forest-Thicket" (Fig. 6). The southernmost dune is mapped as "Hartenbos Primary Dune".

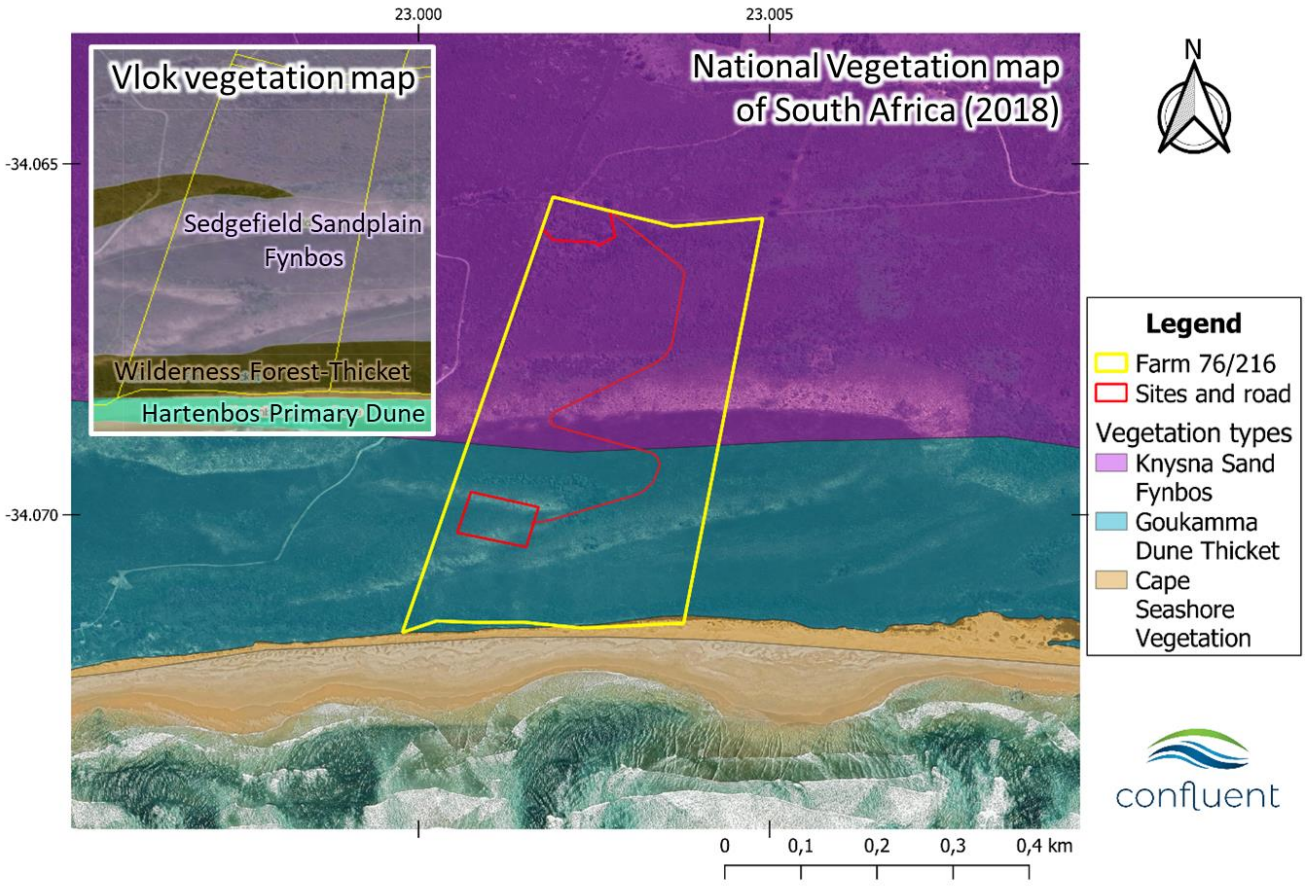


Figure 6: A) The mapped vegetation types according to the 2018 National Vegetation Map of South Africa (Dayaram et al., 2019; Mucina & Rutherford, 2006), and the Vlok vegetation map categories (inset map) for Farm 76/216 and the surrounding area.

The full extents of Knysna Sand Fynbos and Goukamma Dune Thicket is illustrated in Fig. 7 in terms of the 2020 land use land cover (LULC) dataset for South Africa. It is easy to see from the figure that both of these vegetation types cover a very small area (i.e., the total mapped original extent for Goukamma Dune Thicket is ca. 9176.48ha, and for Knysna Sand Fynbos is ca. 15206.96 ha). The majority of Knysna Sand Fynbos has been transformed due to the land being used as various planted forests. It is no wonder this vegetation type is critically endangered (CR). Both vegetation types face the most significant threat from plantations (orange areas in Fig. 7) and urban expansion (yellow areas is Fig. 7). Over 80% of Knysna Sand Fynbos is already transformed (so that less than ca. 152 ha of the mapped extent of this of this vegetation type remains). The conservation status of Goukamma Dune Thicket is not included in the revised NEM:BA list of threatened ecosystems, but in the 2nd edition STEP handbook it is listed as Vulnerable, however the assessment criteria used is uncertain in the STEP handbook (Pierce & Mader, 2006).

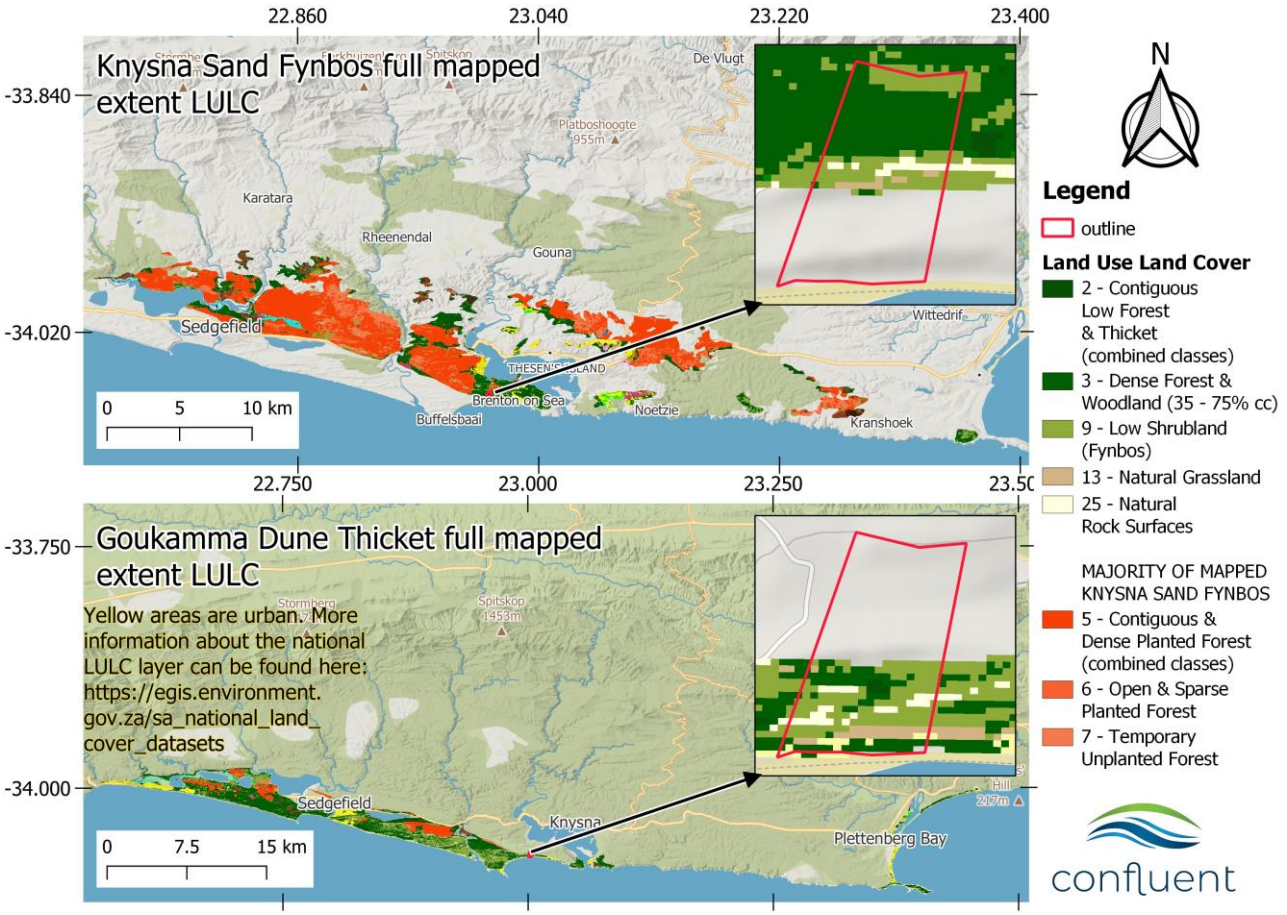


Figure 7: The extracted land use land cover (LULC) for the full extent of both of the mapped VEGMAP vegetation types on Uitzicht farm.

Knysna Sand Fynbos

This is the mapped vegetation type for the northern half of Uitzicht.

Knysna Sand Fynbos (FFd 10) is found only in the Western Cape Province in the Garden Route. It is associated with coastal areas in the Wilderness area. The majority of this vegetation type was historically found around the Knysna lagoon, with some other patches eastward toward Plettenberg Bay. The landscape home to this vegetation is characterised by undulating gentle hills at 40-300m above sea level. Some of the important taxa associated with the vegetation type includes (blue entries mean the genus was present on the site and nearby, and green indicates species that were found on the site and nearby):

Small Trees: *Widdringtonia nodiflora*.

Tall Shrubs: *Cliffortia linearifolia*, *Leucadendron eucalyptifolium*, *Metalasia densa*, *Passerina corymbosa*.

Low Shrubs: *Anthospermum aethiopicum*, *Berzelia intermedia*, *Cliffortia drepanoides*, *Clutia rubricaulis*, *Erica diaphana*, *E. glandulosa* subsp. *fourcadei*, *E. glumiflora*, *E. sessiliflora*, *Helichrysum asperum* var. *asperum (*var. *glabrum* recorded for Uitzicht*)*, *Lachnaea diosmoides*, *Leucadendron*

salignum, *Leucospermum cuneiforme*, *Lobelia coronopifolia*, *Morella quercifolia*, *Muraltia squarrosa*, *Oedera imbricata*, *Protea cynaroides*, *Stoebe plumosa*, *Tephrosia capensis*.

Herbs: *Geranium incanum*, *Helichrysum felinum*.

Graminoids: *Aristida junciformis* subsp. *galpinii*, *Brachiaria serrata*, *Cynodon dactylon*, *Eragrostis capensis*, *Ficinia bulbosa*, *Heteropogon contortus*, *Ischyrolepis eleocharis*, *Tetraria cuspidata*, *Thamnochortus cinereus*, *Themeda triandra*, *Tristachya leucothrix*.

Goukamma Dune Thicket

This is the mapped vegetation type for the southern half of Uitzicht.

This vegetation type is only found in the Western Cape along coastal areas in the Wilderness area. It follows a similar east-west extent to Knysna Sand Fynbos but covers a narrower area. It is associated with undulating coastal dunes and is composed of a mosaic of vegetation communities. Typically, thicket species are found in fire refugia, such as dune slacks or sometimes dune crests. Between the thicket mosaic, a matrix low asteraceous fynbos can be found, with succulents making an appearance in more rocky and exposed areas. Some of the most important taxa associated with this vegetation type includes (blue entries mean the genus was present on the site and nearby, and green indicates species that were found on the site and nearby):

Small trees: *Pterocelastrus tricuspidatus*, *Schotia afra*, *Sideroxylon inerme*, *Tarchonanthus littoralis*

Tall tree: *Afrocarpus falcatus*, *Calodendrum capense*, *Celtis africana*, *Ekebergia capensis*, *Olea capensis*, *Searsia chirendensis*

Succulent shrub: *Carpobrotus acinaciformis*, *Cotyledon orbiculata*, *Crassula nudicaulis*, *Euphorbia muirii*, *Gasteria acinacifolia*, *Zygophyllum morgsana*

Low shrub: *Eriocephalus paniculatus*, *Felicia echinata*, *Helichrysum patulum*, *Indigofera erecta*, *Muraltia spinosa*, *Salvia africana-lutea*, *Muraltia knysnaensis*, *Selago burchellii*

Graminoid: *Restio eleocharis*, *Stenotaphrum secundatum*, *Thamnochortus insignis*

Tall Shrub: *Azima tetracantha*, *Carissa bispinosa*, *Mystroxylon aethiopicum*, *Cassine peragua*, *Cussonia thyrsiflora*, *Erica glandulosa subsp. fourcadei*, *Euclea racemosa*, *Grewia occidentalis*, *Gymnosporia capitata*, *Lauridia tetragona*, *Maytenus procumbens*, *Metalasia muricata*, *Morella cordifolia*, *Mystroxylon aethiopicum* subsp. *aethiopicum*, *Olea exasperata*, *Osteospermum moniliferum*, *Ptaeroxylon obliquum*, *Passerina rigida*, *Putterlickia pyracantha*, *Robsonodendron maritimum*, *Scutia myrtina*, *Searsia crenata*, *Searsia glauca*, *Searsia lucida*, *Searsia pterota*, *Zanthoxylum capense*

Herb: *Indigofera erecta*

Woody Succulent Climber: *Cynanchum viminale*

Herbaceous Climber: *Cynanchum ellipticum*, *Rhoicissus digitata*, *Solanum africanum*

4.1.4 Western Cape Biodiversity Spatial Plan

The Biodiversity Spatial Plan for the Western Cape (WC BSP) contains several conservation planning layers that are used to set priority areas for conserving biodiversity. The definition and objectives of the WC BSP layer mapped on Farm 76 / 216 is given in BOX 1. Appendix 8.2 illustrates the recommended land-uses associated with the various BSP layers. The entire Farm 76 / 216 is mapped as a terrestrial and CBA 1 (i.e., natural Critical Biodiversity Area; Fig. 8). The reasons for its assignment of the BSP layers in this area are listed below (grey reasons are outside of the scope of this study to comment on):

- **Coastal Resource Protection – Eden, Foredune, & Coastal Habitat Type**. The habitats and vegetation here are important to maintain our valuable coastline. The close proximity to the coast makes this site an important for maintaining healthy beach and dune systems that provide a variety of biodiversity and physical resources.
- **Critically Endangered (CR) Knysna Sand Fynbos**. This vegetation is mapped along the northern half of Uitzicht, covering ca. 11 ha of the remaining ca. 152 ha (i.e., about 7% of the remaining vegetation type).
- **Rondevlei Sandplain Fynbos (Vlok variant- CR)**. This is the same as the Sedgefield Sandplain Fynbos that is mapped in Fig. 8.
- **Southern Cape Dune Fynbos (VU)**. This refers to the Goukamma Dune Thicket in the southern half of the Farm Uitzicht.
- **Water source protection- Knysna & Watercourse protection- South Eastern Coastal Belt**. This BSP trigger falls outside of the scope of this study. Refer to the aquatic specialist study for comment.

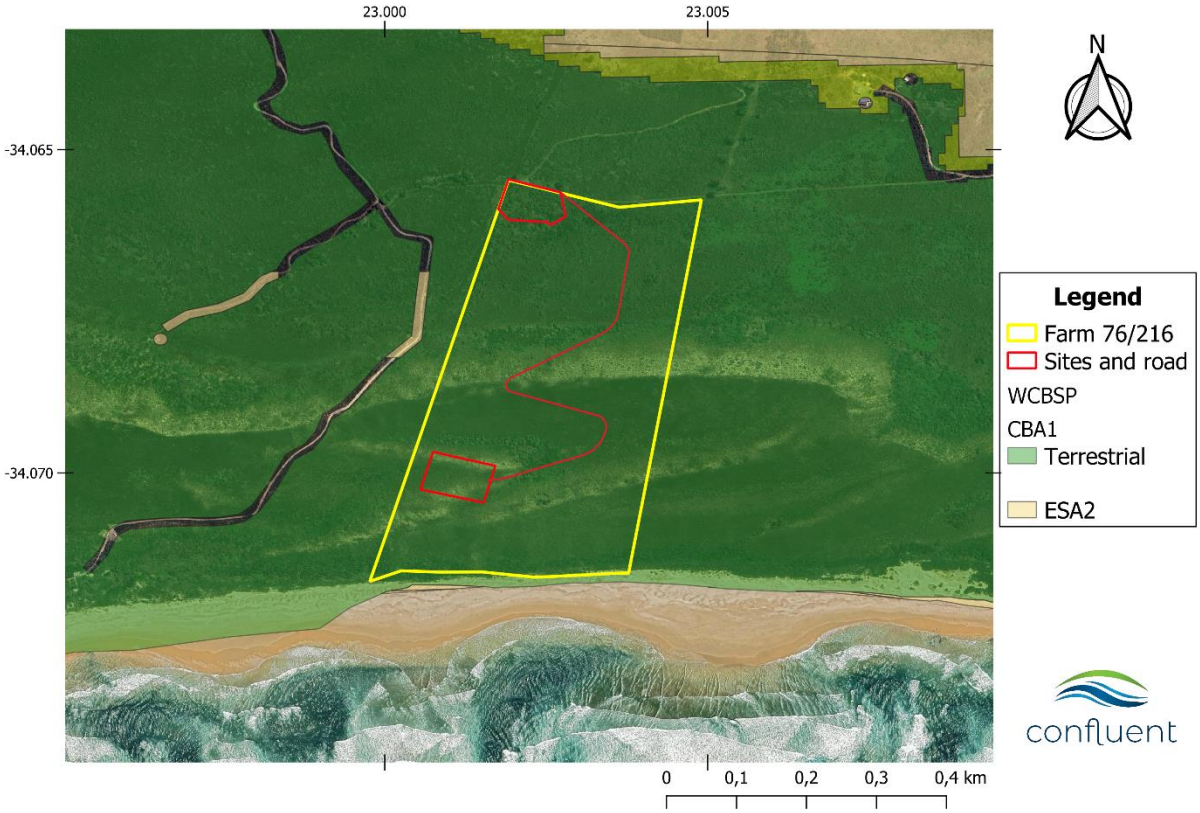


Figure 8: The mapped Western Cape Biodiversity Spatial Plan (WC BSP) categories that have been mapped for Melkhoutefontein Farm and adjacent surrounding landscape.

BOX 1: The Biodiversity Spatial Plan

Critical Biodiversity Area 1

Definition: Areas in a natural condition. Required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure.

Objective: Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

4.1.5 Historical Aerial Imagery

A summary of the historical imagery illustrated in Fig. 9 is given below:

1936

In 1936, minimal disturbance is visible on Uitzicht farm portion 76 / 216. The only strange feature in the landscape at this time is darker woody vegetation stands visible on the north-facing dune slope that divides the site into the northern and southern sections.

1958

By 1958 more anthropogenic forestry expansion is seen in the wider landscape around Uitzicht, however no forestry is visible on Uitzicht. The darker vegetation patches are still visible on the north facing dune slope. The section of land north of Uitzicht seems to be modified at this time too, with planted woody growth visible.

1973

More areas of land are being utilised as plantations west of Uitzicht, while urban densification is starting to show further east at Brenton on Sea. The planted section north of Uitzicht is also covered with a closed canopy alien forest at this time.

1989 - 1998

More disturbance from plantations, vegetation clearing, and a little bit from urban densification is observed in the landscape surrounding Uitzicht, but the farm remains undisturbed. By 1998, however, it seems as if some of the woody invasive species (likely mostly Pinus pinaster) has spread into the north-western corner of Uitzicht. This invasive patch remains the most invaded spot on Uitzicht to this day.

2014

By 2014, some of the nearby plantations have been partially harvested, and the invasion on Uitzicht is still visible.

2017 onwards

In 2017, fires moved through the landscape (May-June), burning everything south of the large dune on the site, and also causing damage to the large invasive woody stand north of Uitzicht. Some vegetation had recovered by February of 2018, but the fire path over the landscape is still visible at this time. The vegetation on Uitzicht had mostly recovered by 2019, and the space previously occupied by invasives north of the farm remained mostly open canopy and modified. The nearest plantation to the west of Uitzicht had also been cleared by 2019. In 2023 the invasive patch in the north-western corner of Uitzicht remains problematic, and old plantation areas are also becoming increasingly invaded over time. Although Uitzicht was never directly affected by forestry, it is still very susceptible to ongoing plant invasions.

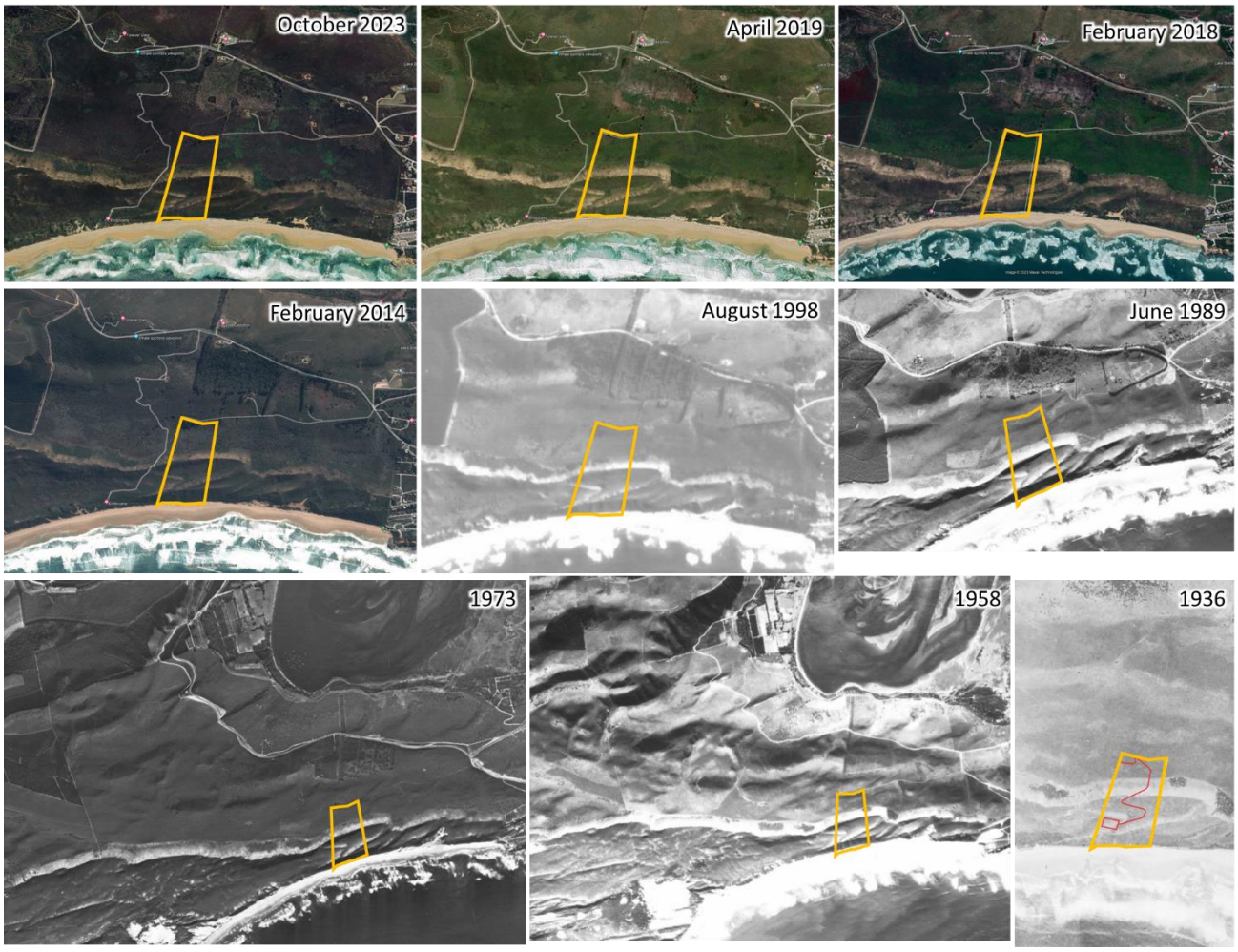


Figure 9: A series of historical imagery sourced from the CD: NGI geospatial portal (top row) and Google Earth (bottom row). The white polygons highlight the position of Farm 11 / 449.

4.2 Plant Species

The plant species theme sensitivity of Medium is dependent on the presence, or likely presence, of several plant species of conservation concern (SCC). The Red List categories are discussed later.

4.2.1 Species of conservation concern (SCC) listed in the screening tool

Several SCC have the potential to occur on the site. The SCC listed in the screening tool report are illustrated in Fig. 10 below. The SCC that were confirmed and that are likely present on the site are discussed later in the report.

Sensitivity	Feature(s)
High	Erica glandulosa subsp. fourcadei
High	Sensitive species 1032
Medium	Lampranthus fergusoniae
Medium	Lampranthus pauciflorus
Medium	Ruschia duthiae
Medium	Lebeckia gracilis
Medium	Wahlenbergia polyantha
Medium	Selago burchellii
Medium	Selago villicaulis
Medium	Pentameris barbata subsp. orientalis
Medium	Sensitive species 419
Medium	Erica chloroloma
Medium	Erica glandulosa subsp. fourcadei
Medium	Hermannia lavandulifolia
Medium	Sensitive species 657
Medium	Sensitive species 1024
Medium	Sensitive species 1032
Medium	Agathosma muirii
Medium	Acmadenia alternifolia
Medium	Muraltia knysnaensis
Medium	Nanobubon hypogaeum
Medium	Sensitive species 800
Medium	Erica glumiflora
Medium	Sensitive species 500
Medium	Sensitive species 53
Medium	Sensitive species 763
Medium	Pterygodium cleistogamum

Figure 10: The listed SCC as triggered by the Screening Tool report for Uitzicht farm.

5. RESULTS: FIELD ASSESSMENT

5.1 Refined vegetation map

A refined vegetation map for Uitzicht was made following the field assessment (Fig. 11). Vegetation on the north facing dune slopes were distinct from the vegetation on the south facing slopes. For example, sensitive species 1032 and Brunsvigia orientalis thrived on the south facing slopes, but was nearly absent on the north facing slopes. The valleys between dunes were dominated by *Euclea racemosa*, *Olea exasperata*, and in some places also by *Tarchonanthus littoralis* and *Cassine peragua peragua*. Sadly, large sections of the valley thicket was also badly invaded with large rooikrans (*Acacia cyclops*) stands. North of the last dune on the site, a relatively high plant species turnover was observed, indicating a shift toward a different vegetation type. The northern section of Uitzicht was more invaded by pine trees than the southern half of the site south of the large dune. The Pine tree (Pinus pinaster) invasion was worst in the north-western corner, which is consistent with observations from the historical imagery for the site (see the imagery of the site in Table 2).

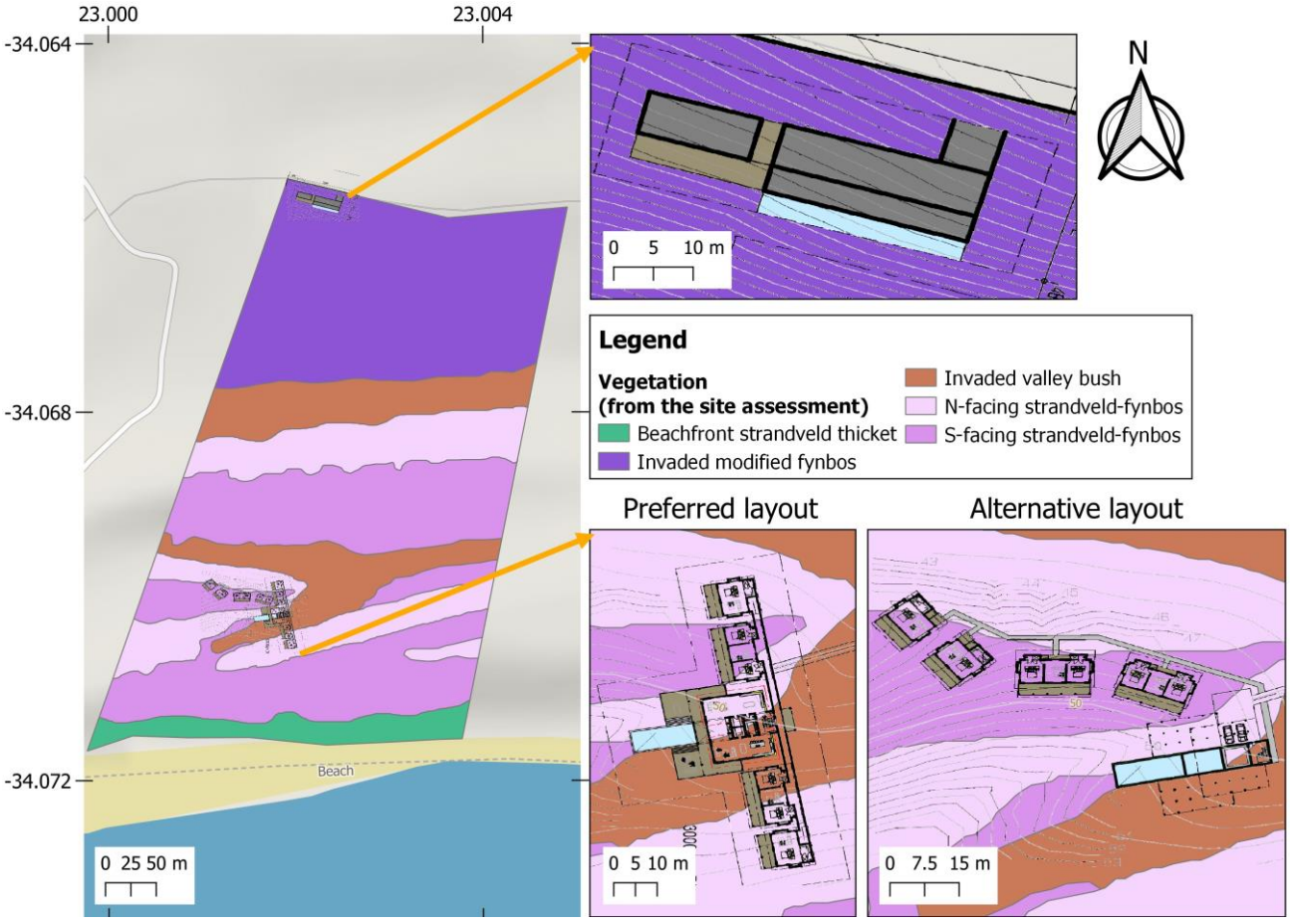
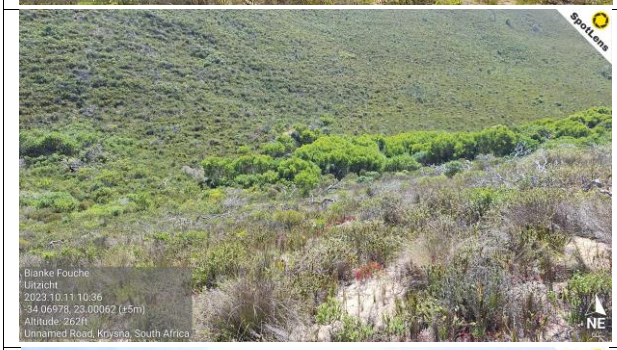


Figure 11: A revised vegetation map for the entire Farm 76 of 216 with the proposed site development plan provided by the architects overlaid.

Table 2: Images taken of the landscape and site features during the site assessment on the

Photo	GPS location	Vegetation	Notes
	-34.06915 S 22. 99912 E 5m accuracy	Existing gravel road in strandveld-fynbos.	The road is well maintained, and the roadsides are natural, with minimal observed edge effects.
	-34.06921 S 22.99872 E 4m accuracy	Visible here is “Invaded valley bush”, “N-facing strandveld-fynbos”, and “S-facing strandveld-fynbos”.	A view of the southern section of Uitzicht. It is clear that the majority of the site here is uninvaded and in a pristine state, apart from the valleys that contain rooikrans.
	-34.06978 S 23.00062 E 5m accuracy	Visible here is “Invaded valley bush” in the middle of the photo, “N-facing strandveld-fynbos” along the bottom of the photo, and “S-facing strandveld-fynbos” in the top half of the photo.	The valley vegetation is distinct from the surrounding fynbos on the dune slopes.
	-34.07024 S 23.00169 E 4m accuracy	Visible here is “Invaded valley bush” in the middle of the photo, “N-facing strandveld-fynbos” along the bottom of the photo, and “S-facing strandveld-fynbos” in the top half of the photo.	Another perspective showing the valley thicket within the fynbos mosaic

	-34.07072 S 23.00159 E 6m accuracy	Visible here is “N-facing strandveld-fynbos”	A view of the foredune and ocean. The foredune is very steep.
	-34.07072 S 23.00195 E 4m accuracy Ca. 101m elevation	Dune top thicket & fynbos / strandveld	A little section of thicket at the very top of the foredune.
	-34.06869 S 23.00201 E 5m accuracy Ca. 106m elevation	Visible here is “Invaded valley bush” in the middle of the photo, “N-facing strandveld-fynbos” along the top of the photo below the ocean, and “S-facing strandveld-fynbos” in the bottom half of the photo.	The north facing slopes are more sparsely vegetated than the south facing slopes. *Brunsvigia orientalis* and *Satyrium princeps* were not found on north facing slopes and were very common on south facing slopes.
	-34.06842 S 23.00189 E 5m accuracy Ca. 94m elevation	Visible here is “N-facing strandveld-fynbos” along the right side of the photo, and “Invaded modified fynbos” along the left side of the photo	The last steeps dune system is depicted in this photo. After this dune there was high species turnover, suggesting a different vegetation type.
	Drone image -34.065536 S 23.002616 E Ca. 137m elevation	Visible here is “N-facing strandveld-fynbos” along the top of the photo, “Invaded valley bush”, and “Invaded modified fynbos” along the south of the photo	This drone image illustrates the northern half of Uitzicht. The valley before the dune in the top of the photo has a substantial rooikrans invasion, and the invaded fynbos has a high density of Pine trees.

	-34.06769 S 23.00285 E 8m accuracy Ca. 69m elevation	Visible here is “Invaded valley bush”	The valley at the base of the last large dune was very invaded in some places, but in other areas stands of *Watsonia pillansii* was observed, suggesting a wetter area.
	-34.06575 S 23.0022 E 6m accuracy Ca. 106m elevation	Visible here is “Invaded modified fynbos”	This represents a section of densely invaded vegetation dominated by Pinus pinaster. Some pine clearing was observed in the north-western section of Uitzicht, but the invasion is still dominant.
	Drone image -34.065534 S 23.002616 E Ca. 137m elevation.	Visible here is “Invaded modified fynbos”	An aerial photo showing that although some sections of the north-western part of the site is badly invaded with pines, some sections of secondary fynbos is returning in-between in cleared and remaining open areas.

5.2 Species of conservation concern

Uitzicht is a near natural site with minimal past disturbance. Several SCC were observed on Uitzicht during the site assessment, as well as before the assessment by various members of CREW (the Custodians for Rare and Endangered Wildflowers). The parasitic cats nail’s (*Hyobanche sp*.) plant on the site could possibly be the EN species, namely *Hyobanche robusta*, however it is also likely a LC species *H. sanguinea*. The precautionary principle must be followed, assuming that the specoes on the site is the Red Listed EN *H. robusta*. Of all of the species listed in Fig. 12, the following were observed nearby but not within the development footprint (see the upcoming section on probability of occurrence): *Gladiolus vaginatus*, *Lebeckia gracilis*, and *Oxalis pendulifolia*.

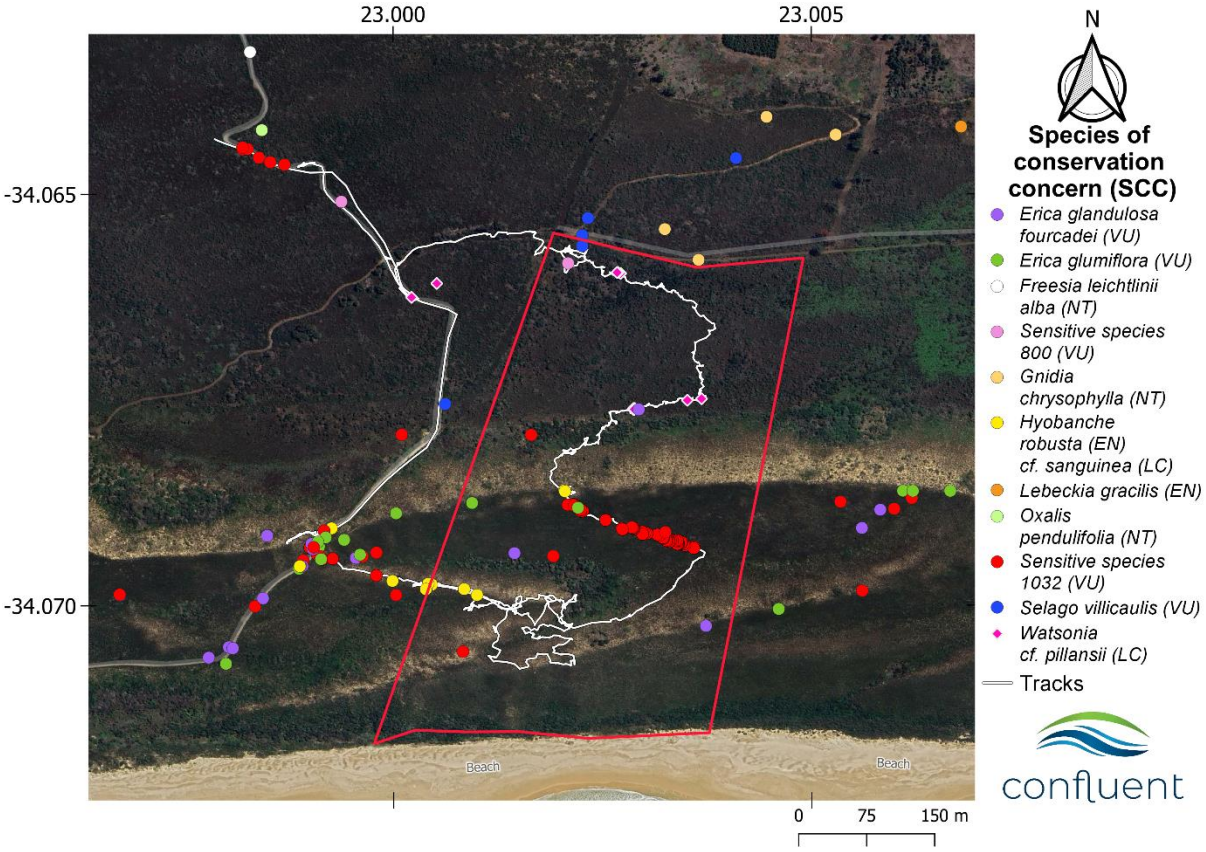


Figure 12: A map showing iNaturalist observations made of the various SCC on Melkhoutefontein during the site assessment late in September of 2023.

Some of the SCC, excluding the sensitive species observed, are also illustrated in Figure 13 below. Species that do not have a photo author name associated with the photo were taken by the author of this report. *Watsonia pillansii* is also illustrated, as this species was largely found along the base of the north facing section of the northernmost dune on the site.

Figure 13: Photos of the species of conservation concern that were observed within the proposed development footprint and in the nearby surrounding vegetation within the same vegetation types. *Watsonia pillansii* was observed in the dune slack north of the large dune on the site, likely indicating wetter conditions there.

5.3 Alien and invasive plant species

The invasive and naturalised exotic plant species that were found on Uitzicht farm are listed in the full species list for the site in Appendix 8.1. The southern section of the site contained high densities of *Acacia cyclops* (rooikrans) only in the valleys between dunes, while the surrounding vegetation on both south and north facing dune slopes was largely natural and uninvaded, save for the occasional pine tree. The northern half of the site above the large dune was very different and more invaded from the vegetation to the south. The most abundant invasive species observed in the northern half of the site was *Pinus pinaster*. A large stand of *Corymbia ficifolia* was observed to the west of Uitzicht farm, however this species was not observed within the proposed development footprint on the site. Several exotic weeds, as well as blackwood wattle (*Acacia melanoxylon*), black wattle (*Acacia mearnsii*), and oak trees (*Quercus robur*) were not observed on Uitzicht farm during the site assessment, but they are present in landscapes adjacent to the farm, and it is therefore important to ensure that they do not spread and establish here. BOX 2 below briefly summarises the different NEMBA categories for invasive species on the site and those observed in the surrounding landscape, as listed in Appendix 1.

BOX 2: NEMBA categories for listed invasive alien plants.

Category 1b

- Species which must be controlled.
- Property owners and organs of state must control the listed invasive species within their properties.
- If an Invasive Species Management Programme has been developed, a person must control the listed invasive species in accordance with such programme.
- Authorised officials must be permitted to enter properties to monitor, assist with or implement the control of listed species.
- Any Category 2 listed species (where permits are applicable) which fall outside of containment and control, revert to Category 1b and must be controlled.
- Any Category 3 listed species which occur within a Protected Area or Riparian (wetland) revert to Category 1b and must be controlled.
- The Minister may require any person to develop a Category 1b Control Plan for one or more Category 1b species occurring on a property.

Category 2

Any species listed under Category 2 requires a permit issued by the Department of Forestry, Fisheries and the Environment (DFFE) to carry out a restricted activity (See Permit Applications.)

- A person in control of a Category 2 listed species must take all necessary measures to ensure that specimens of the species do not spread outside of the land or area, such as an aviary) specified in the permit.
- A permit is required to carry out any restricted activity.
- No person may carry out a restricted activity in respect of a Category 2 listed invasive species without a permit.
- A person in control of a Category 2 listed species must take all necessary measures to ensure that specimens of the species do not spread outside of the land or area, such as an aviary) specified in the permit.

Category 3

- Category 3 listed invasive species are subject to certain exemptions in terms of section 70(1)(a) of the NEMBA Act, which applies to the listing of alien invasive species.
- Any category 3 listed plant species that occurs in riparian areas must be considered as category 1b and the appropriate control measures instituted.

5.4 Additional SCC that may be found

All SCC that may be present on the site have been identified using the screening tool report for the site, iNaturalist nearby observations, and the POSA database (Table 3). It is always possible that a species assessed as having a low probability of occurrence (meaning the habitat seems unsuitable for the species to occur there) can still occur on the site, and therefore the list of species in Table 3 below must only be used as a guideline only.

Table 3: Plant SCC probability of occurrence within the disturbance footprints on Uitzicht.

Species	Common name	Family	Growth form	Source	SANBI Red List status	Probability of occurrence
Erica glandulosa subsp. fourcadei	Ridges glandular heath	Ericaceae	Shrub	Screening Tool	Vulnerable B1ab(ii,iii,iv,v)	**Confirmed** This species was found on the site, and is relatively abundant south of the large dune. It was more common on south facing slopes.
Erica glumiflora	Gloomy heath	Ericaceae	Shrub	Screening Tool	Vulnerable B1ab(i,ii,iii,iv,v)	**Confirmed** This species was found on the site, especially in the dune system nearer to the coast
Gnidia chrysophylla	Gold capesaffron	Thymelaeaceae	Perennial	iNaturalist	Near Threatened B1ab(i,ii,iii,iv,v)	**Confirmed** This species was found in the northern half of the site, i.e., above the last large dune.
Selago villicaulis	Dune bitterbush	Scrophulariaceae	Herbaceous perennial	Screening Tool	Vulnerable B1ab(ii,iii,iv,v)	**Confirmed** This species was found in the northern half of the site, i.e., above the last large dune.
Sensitive species 1032	-	Orchidaceae	Tuberous geophyte	iNaturalist	Vulnerable C2a(i)	**Confirmed** This species was found in high densities along south facing dune slopes.
Sensitive species 800	-	Iridaceae	Geophyte	Screening Tool	Vulnerable B1ab(iii)	**Confirmed** This species was found
Hyobanche robusta	Cat's nails plant	Orobanchaceae	Root parasite	iNaturalist	Endangered B1ab(ii,iii,v)	**Likely confirmed.** The species observed was given a preliminary ID of *H. sanguinea*, but it could be *H. robusta.* This genus is currently undergoing a revision.
Freesia leichtlinii	Dune kammetjie	Iridaceae	Geophyte	iNaturalist	Near Threatened B1ab(ii,iii,iv,v)	**Very High** Found nearby in the recent past
Sensitive species 1081	-	Iridaceae	Geophyte	iNaturalist	Endangered B1ab(i,ii,iii,iv,v)	**Very High** Found nearby in the recent past
Lebeckia gracilis	Slender ganna	Fabaceae	Shrub	Screening Tool	Endangered A2bc; B1ab(ii,iii,iv,v)	**Very High** Found nearby in the recent past
Acmadenia alternifolia	Harkerville porcelainflower	Rutaceae	Shrub	Screening Tool	Vulnerable B1ab(ii,iii,iv)+2ab(ii,iii,iv)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas.
Disa procera	Orchid species	Orchidaceae	Geophyte	iNaturalist	Endangered B2ab(i,ii,iii,iv,v); C2a(i); D	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas.

Erica chloroloma	Greensepal heath	Ericaceae	Shrub	Screening Tool	Vulnerable B1ab(ii,iii,iv,v)+2ab(ii, iii,iv,v)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas.
Hermannia lavandulifolia	Lavender dollrose	Malvaceae	Herbaceous perennial	Screening Tool	Vulnerable A2c	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.
Lampranthus pauciflorus	Beach brightfig	Aizoaceae	Succulent	Screening Tool	Endangered B1ab(ii,iii,iv,v)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.
Muraltia knysnaensis	Knysna butterflybush	Polygalaceae	Perennial	Screening Tool	Endangered B1ab(ii,iii,iv,v)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.
Nanobubon hypogaeum	Rubber-root firecarrot	Apiaceae	Herbaceous annual	Screening Tool	Endangered B1ab(i,ii,iii,iv,v)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.
Oxalis pendulifolia	Hangleaf sorrel	Oxalidaceae	Herbaceous perennial	iNaturalist	Near Threatened B1ab(ii,iii,iv,v)+2ab(ii, iii,iv,v)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.
Pterygodium cleistogamum	Blind bonnet	Orchidaceae	Geophyte	Screening Tool	Vulnerable B1ab(ii,iii)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.
Ruschia duthiae	Tentfigs	Aizoaceae	Succulent	Screening Tool	Vulnerable B1ab(ii,iii,iv,v)+2ab(ii, iii,iv,v)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.
Selago burchellii	Garden Route tentfig	Scrophulariaceae	Herbaceous perennial	Screening Tool	Vulnerable B1ab(ii,iii,iv,v)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.
Sensitive species 1024	-	Orchidaceae	Tuberous geophyte	Screening Tool	Endangered B1ab(iii,v)+2ab(iii,v); C2a(ii)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.

Sensitive species 419	-	Dioscoraceae	Climbing tuberous geophyte	Screening Tool	Vulnerable B1ab(iii,v)+2ab(iii,v)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.
Sensitive species 500	-	Orchidaceae	Geophyte	Screening Tool	Endangered C2a(i)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas. Observed nearby on iNaturalist.
Sensitive species 763	-	Orchidaceae	Rhizomatous geophyte	Screening Tool	Vulnerable A2c	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas.
Wahlenbergia polyantha	Capebells	Campanulaceae	Herbaceous perennial	Screening Tool	Vulnerable B1ab(ii,iii,iv,v)	**High** Following the precautionary approach, it is highly likely that this species could be present on the site and within the proposed development areas.
Agathosma muirii	Heart buchu	Rutaceae	Shrub	Screening Tool	Vulnerable A4abc	**Medium** It is conceivable that this species may be present on the site.
Lampranthus fergusoniae	Limestone brightfig	Aizoaceae	Succulent	Screening Tool	Vulnerable B1ab(ii,iii,iv,v)	**Medium** It is conceivable that this species may be present on the site.
Leucadendron conicum	Garden Route Conebush	Proteaceae	Shrub	iNaturalist	Near Threatened A4c	**Medium** It is conceivable that this species may be present on the site.
Leucospermum glabrum	Outeniqua pincushion	Proteaceae	Shrub	iNaturalist		**Medium** It is conceivable that this species may be present on the site.
Merwilla plumbea	Blue squill	Hyacinthaceae	Geophyte	iNaturalist	Near Threatened A2bd	**Medium** It is conceivable that this species may be present on the site.
Pentameris barbata subsp. orientalis	Grass	Poaceae	Graminoid	Screening Tool	Critically Endangered B1ab(i,ii,iii,iv,v)+2ab(i,ii,iii,iv,v); D	**Medium** It is conceivable that this species may be present on the site.
Protea susannae	Stink-leaf sugarbush	Proteaceae	Shrub	iNaturalist	Near Threatened A2c+3c+4c	**Medium** It is conceivable that this species may be present on the site.
Selago ramosissima	Bitterbushes	Scrophulariaceae	Herbaceous perennial	iNaturalist	Endangered B1ab(iii)	**Medium** It is conceivable that this species may be present on the site.
Sensitive species 53	-	Orchidaceae	Geophyte	Screening Tool	Vulnerable B2ab(ii,iii,iv,v)	**Medium** It is conceivable that this species may be present on the site.
Sensitive species 657	-	Amaryllidaceae	Geophyte	Screening Tool	Endangered B2ab(iii,v)	**Medium** It is conceivable that this species may be present on the site.
Watsonia aletroides	Renoster watsonia	Iridaceae	Geophyte	iNaturalist	Near Threatened A2cb	**Medium** It is conceivable that this species may be present on the site.

Curtisia dentata	Assegai tree	Curtisiaceae	Tree	iNaturalist	Near Threatened A2d	**Low** This species is found in forest habitats, which is not consistent with the vegetation of the proposed development footprint.
Dioscorea mundii	Elephantsfoot species	Dioscoreaceae	Climer	iNaturalist	Near Threatened B1ab(ii,iii,iv,v)	**Low** This species is found in forest habitats, which is not consistent with the vegetation of the proposed development footprint.
Dioscorea sylvatica	Forest Elephantsfoot	Dioscoreaceae	Climber	iNaturalist	Vulnerable A2cd	**Low** This species is found in forest habitats, which is not consistent with the vegetation of the proposed development footprint.
Limonium linifolium	Line leaf Sea lavender	Plumbaginaceae	Perennial	iNaturalist	Near Threatened B2b(ii,iii)	**Low** Habitat requirements not met.
Ocotea bullata	Stinkwood	Lauraceae	Tree	iNaturalist	Protected tree 118; Endangered A2bd	**Low** Habitat requirements not met.
Agathosma acutissima	Buchu species	Rutaceae	Shrub	iNaturalist	Vulnerable D2	**Very Low** This species is not found nearby.
Watsonia borbonica	Bugle lily	Iridaceae	Geophyte	iNaturalist	Endangered B1ab(ii,iii,iv)+2ab(ii,iii,iv)	**Very Low** This species is not found nearby.

6. SITE SENSITIVITY VERIFICATION

6.1 Terrestrial Biodiversity

The sensitivity of the terrestrial biodiversity theme for the site is confirmed as **Very High** as the site contains a significant area of remaining natural vegetation of a CR vegetation type (Knysna Sand Fynbos) north of the large barrier dune on the site, which is threatened by invasive plants, especially pines. The southern section of the site is also sensitive habitat, characterised by a strandveld-fynbos mosaic with thicket patches in fire refugia on the site (i.e., the dune slacks, and some sections on the dune crests). Furthermore the whole site is a CBA1, and forms part of an area that served an important corridor function along the coastline.

6.2 Botanical diversity

The site sensitivity in terms of the terrestrial plant species theme is confirmed as **High**, as the site is home to several SCC, and there is some spatial heterogeneity over the site in terms of the distribution of the SCC found.

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8. APPENDIX

8.1 Provisional plant species list

A species accumulation curve for all the species recorded on the site during the assessment are presented in Fig. 14. All species that were observed during the site visit are in Table 4. The site assessment species list is not exhaustive.

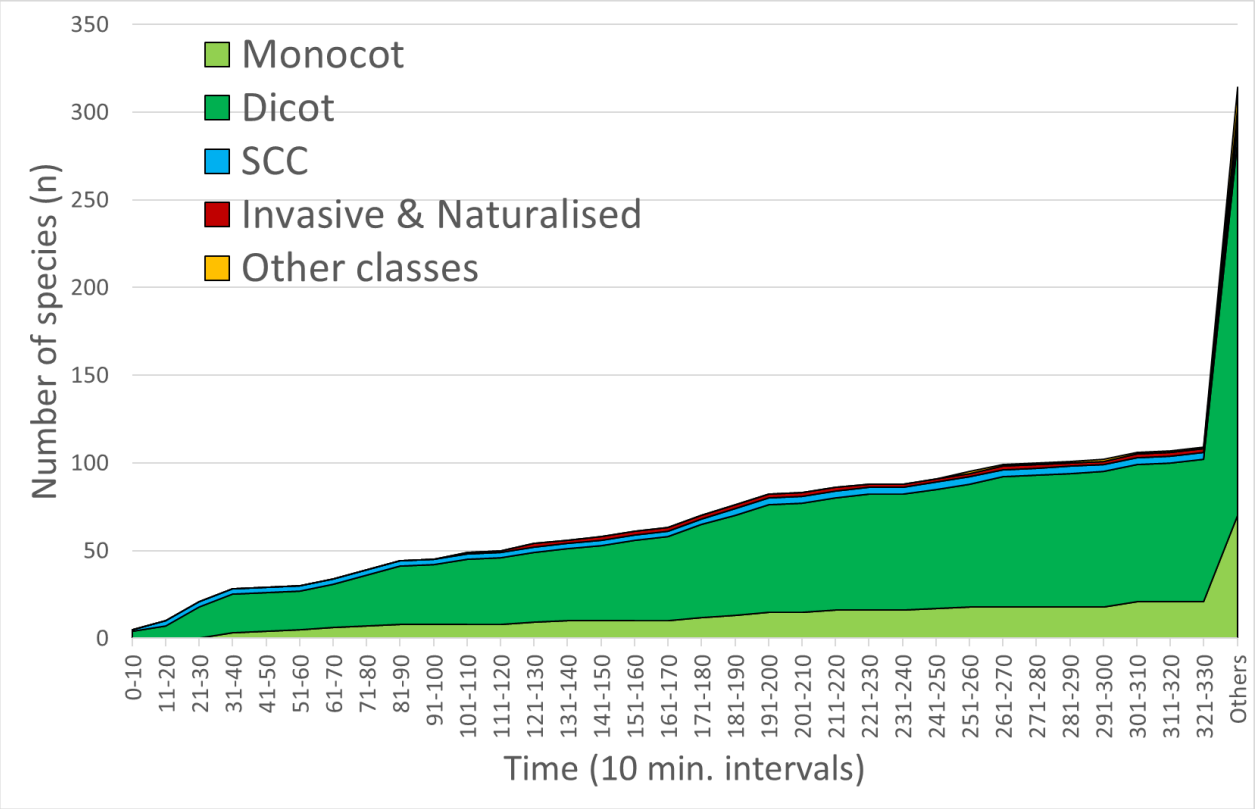

Figure 14: A plant species accumulation curve for the site assessment, as well as observations made by other observers on iNaturalist ("others" on the right-hand side of the curve). The survey included only the development footprint and immediate surrounding areas, where observations made by other iNaturalist users covered the entire site and nearby surrounding natural vegetation. Species not found in the development footprint during the site assessment are **not** assumed to be absent.

Table 4: A provisional species list made for the site assessment on Farm 76 / 216. Light red entries indicate the invasive and naturalised exotic species that were observed. The green entries indicate the species of conservation concern (SCC) that were found on the site.

Family	Species	Common name	Comment	Observer
Class Bryopsida				
Bartramiaceae	*Bartramia hampeana*	Moss species		Others
Bryaceae	*Ptychostomum capillare*	Capillary Thread-moss		Others
Bryaceae	*Ptychostomum torquescens*	Moss species		Others
Ditrichaceae	*Ceratodon purpureus*	Redshank		Others
Funariaceae	*Funaria hygrometrica*	Bonfire moss		Others
Pottiaceae	*Trichostomum brachydontium*	Moss specoes		Others
Class Liliopsida (Monocots)				
Amaryllidaceae	*Apodolirion lanceolatum*	Crocus species		Others
Amaryllidaceae	*Brunsvigia orientalis*	candelabra lily		Bianke Fouche, others
Amaryllidaceae	*Haemanthus sanguineus*	Smooth Bloodlily		Bianke Fouche, others
Asparagaceae	*Albuca cooperi*	Dainty Soldier-in-a-Box		Bianke Fouche
Asparagaceae	*Albuca flaccida*	Slime Soldier-in-a-Box		Others
Asparagaceae	*Asparagus africanus*	Bush Asparagus		Others
Asparagaceae	*Asparagus asparagoides*	Cape Smilax		Others
Asparagaceae	*Asparagus rubicundus*	Redstem Asparagus		Bianke Fouche, others
Asparagaceae	*Asparagus suaveolens*	Catthorn Asparagus		Others
Asparagaceae	*Eriospermum dielsianum molle*	Woolseed species		Others
Asparagaceae	*Ornithogalum dubium*	Yellow Chincherinchee		Others
Asparagaceae	*Ornithogalum graminifolium*	Grass Chink		Others
Asphodelaceae	*Kniphofia uvaria*	Red Hot Poker		Others
Colchicaceae	*Colchicum capense*	White Men-in-a-Boat		Others
Colchicaceae	*Colchicum eucomoides*	Green Men-in-a-Boat		Bianke Fouche, others
Colchicaceae	*Colchicum longipes*	Men-in-a-Longboat		Others
Commelinaceae	*Commelina africana*	African Yellow Dayflower		Others
Cyperaceae	*Chrysitrix sp.*	Sedge species		Others

Cyperaceae	*Cyperus brevis*	Sedge species		Others
Cyperaceae	*Cyperus polystachyos*	Bunchy flat-sedge		Others
Cyperaceae	*Ficinia acuminata*	Long Clubrush		Others
Cyperaceae	*Ficinia albicans*	Clubrush species.		Others
Cyperaceae	*Ficinia bulbosa*	Bulbous Sedge		Bianke Fouche, others
Cyperaceae	*Ficinia deusta*	Fire Clubrush		Others
Cyperaceae	*Ficinia laciniata*	Clubrush species.		Others
Cyperaceae	*Ficinia nigrescens*	Black Clubrush		Others
Cyperaceae	*Ficinia oligantha*	Clubrush species.		Others
Cyperaceae	*Ficinia ramosissima*	Branch Clubrush		Bianke Fouche, others
Cyperaceae	*Ficinia secunda*	Comb Clubrush		Others
Cyperaceae	*Hellmuthia membranacea*	Helmet Sedge		Bianke Fouche, others
Cyperaceae	*Schoenus adnatus*	Flat Veldrush		Others
Cyperaceae	*Schoenus graciliculmis*	Delicate Veldrush		Others
Cyperaceae	*Schoenus sp.*	Bogrushes		Bianke Fouche
Cyperaceae	*Tetraria robusta*	Massive Tetrar		Others
Haemodoraceae	*Wachendorfia paniculata*	Common Butterflylily		Bianke Fouche, others
Hypoxidaceae	*Hypoxis sobolifera sobolifera*	Hypoxis species		Others
Hypoxidaceae	*Hypoxis villosa*	Shaggy Stargrass		Bianke Fouche, others
Iridaceae	*Aristea pusilla*	Capeblue species		Bianke Fouche, others
Iridaceae	*Bobartia aphylla*	Garden Route Rushiris		Others
Iridaceae	*Chasmanthe aethiopica*	Cobra Lily		Others
Iridaceae	*Freesia leichtlinii alba*	White Kammetjie	Near Threatened B1ab(ii,iii,iv,v)	Others
Iridaceae	*Gladiolus carinatus*	Blue Afrikaner		Others
Iridaceae	*Gladiolus rogersii*	Riversdale Bluebell		Others
Iridaceae	*Gladiolus vaginatus*	White Afrikaner	Vulnerable B1ab(iii)	Others
Iridaceae	*Hesperantha falcata*	Sickle Eveninglily		Others
Iridaceae	*Ixia orientalis*	Eastern Kalossie		Bianke Fouche, others
Iridaceae	*Moraea polyanthos*	Manyflower Tulp		Bianke Fouche
Iridaceae	*Romulea dichotoma*	Froetang species		Others
Iridaceae	*Romulea flava viridiflora*	Thinleaf Greenbract Froetang		Others
Iridaceae	*Romulea rosea*	Rosy sandcrocus		Others

Iridaceae	*Romulea rosea rosea*	Common Rosy Froetang		Others
Iridaceae	*Romulea setifolia*	Palerim Froetang		Others
Iridaceae	*Watsonia pillansii*	Orange Watsonia		Bianke Fouche, others
Orchidaceae	*Disa bracteata*	Bract Disa		Others
Orchidaceae	*Eulophia speciosa*	Golden Harlequin		Others
Orchidaceae	*Holothrix*	Hair Orchids		Others
Orchidaceae	*Holothrix villosa*	Hairy Thread Orchid		Others
Orchidaceae	*Satyrium princeps*	Red Satyre	Vulnerable C2a(i)	Bianke Fouche, others
Poaceae	*Ehrharta calycina*	Perennial Veldtgrass		Bianke Fouche
Poaceae	*Eragrostis*	Lovegrasses		Others
Poaceae	*Eragrostis plana*	Fan Love Grass		Others
Poaceae	*Imperata cylindrica*	Cogon Grass		Bianke Fouche, others
Poaceae	*Pentameris calcicola*	Grass species		Others
Poaceae	*Stipagrostis zeyheri*	Grass species		Others
Poaceae	*Themeda triandra*	Kangaroo Grass		Others
Restionaceae	Restio	True Capereeds		Others
Restionaceae	*Restio eleocharis*	Beach Pegreed		Bianke Fouche
Restionaceae	*Restio leptoclados*	Whorl Pegreed		Bianke Fouche, others
Restionaceae	*Thamnochortus glaber*	Thatching Reeds		Bianke Fouche, others
Restionaceae	*Thamnochortus insignis*	True Thatchreed		Bianke Fouche, others
Class Magnoliopsida (Dicots)				
Aizoaceae	Acrodon bellidiflorus	Common Tiptoothfig		Others
Aizoaceae	Aizoaceae	Stone plants		Bianke Fouche
Aizoaceae	Carpobrotus deliciosus	Delicious Sourfig		Bianke Fouche, others
Aizoaceae	Carpobrotus edulis edulis	Common Sourfig		Others
Aizoaceae	Delosperma inconspicuum	White Gardenroute Sheepfig		Others
Aizoaceae	Delosperma litorale	White Trailing Iceplant		Bianke Fouche
Aizoaceae	Tetragonia fruticosa	Sprawling Seacoral		Others
Anacardiaceae	Schinus terebinthifolia	Brazilian pepper	Invasive. NEMBA & CARA cat. 3 in the Western Cape	Others
Anacardiaceae	Searsia crenata	Crowberry		Bianke Fouche, others
Anacardiaceae	Searsia glauca	Blue Kunibush		Bianke Fouche, others
Anacardiaceae	Searsia laevigata	Dune Currantrhus		Others

Anacardiaceae	Searsia lucida	Glossy Currantrhus		Bianke Fouche, others
Anacardiaceae	Searsia pyroides	Common currant-rhus		Bianke Fouche, others
Anacardiaceae	Searsia tomentosa	Wild currant		Bianke Fouche, others
Apiaceae	Anginon difforme	Common Finkel		Others
Apiaceae	Annesorhiza macrocarpa	Wild Aniseroot		Others
Apiaceae	Centella tridentata litoralis			Others
Apiaceae	Notobubon ferulaceum	Wild Blisterbush		Others
Apocynaceae	Astephanus triflorus	Western Klimop		Others
Apocynaceae	Astephanus zeyheri	Garden Route Klimop		Others
Apocynaceae	Carissa bispinosa	num-num		Bianke Fouche, others
Apocynaceae	Carissa bispinosa bispinosa	Forest Num-num		Others
Apocynaceae	Cynanchum obtusifolium	Roundleaf Buckhorn		Bianke Fouche
Araliaceae	Cussonia thyrsiflora	Cape Coast Cabbagetree		Others
Asteraceae	Arctotheca prostrata	Prostrate Capeweed		Others
Asteraceae	Artemisia afra	African wormwood		Others
Asteraceae	Athanasia dentata	Tooth Kanniedood		Others
Asteraceae	Athanasia quinquedentata	Fivetooth Kanniedood		Others
Asteraceae	Athanasia trifurcata	Three-tooth Kanniedood		Others
Asteraceae	Crassothonna			Bianke Fouche
Asteraceae	Crassothonna cacalioides			Others
Asteraceae	Crassothonna capensis	Little Pickles		Others
Asteraceae	Cullumia decurrens	Sprawling Snakethistle		Bianke Fouche, others
Asteraceae	Cullumia setosa	Bristly Snakethistle		Others
Asteraceae	Disparago anomala	Strange Desperado		Bianke Fouche, others
Asteraceae	Erigeron sumatrensis	tropical horseweed	Naturalised exotic	Others
Asteraceae	Eriocephalus	Kapokbushes		Others
Asteraceae	Eriocephalus africanus	Cape Snow Bush		Others
Asteraceae	Eriocephalus racemosus racemosus	Kapkap Kapok		Bianke Fouche, others
Asteraceae	Felicia amoena	Soft Felicia		Bianke Fouche, others
Asteraceae	Felicia echinata	Dune Felicia		Bianke Fouche, others
Asteraceae	Gerbera piloselloides	Blacktea Gerbera		Others
Asteraceae	Helichrysum asperum glabrum			Others

Asteraceae	Helichrysum cymosum cymosum	Fume Everlasting		Bianke Fouche, others
Asteraceae	Helichrysum dasyanthum	Fynbos Everlasting		Bianke Fouche, others
Asteraceae	Helichrysum foetidum foetidum	Stinking Everlasting		Bianke Fouche, others
Asteraceae	Helichrysum litorale	Dune Everlasting		Bianke Fouche
Asteraceae	Helichrysum niveum	Sand Everlasting		Bianke Fouche
Asteraceae	Helichrysum patulum	Honey Everlasting		Others
Asteraceae	Helichrysum petiolare	Licorice plant		Bianke Fouche, others
Asteraceae	Helichrysum teretifolium	Needle Everlasting		Bianke Fouche, others
Asteraceae	Metalasia muricata	White bristle bush		Bianke Fouche, others
Asteraceae	Osteospermum moniliferum moniliferum	Bietou		Bianke Fouche, others
Asteraceae	Osteospermum polygaloides	Common Boneseed		Others
Asteraceae	Othonna undulosa	Clambering Babooncabbage		Bianke Fouche, others
Asteraceae	Printzia polifolia			Others
Asteraceae	Senecio burchellii	Kill Ragwort		Others
Asteraceae	Senecio coronatus	Woolly Grassveld Ragwort		Others
Asteraceae	Senecio elegans	Red-purple Ragwort		Others
Asteraceae	Senecio glastifolius	Woad-leaved ragwort		Others
Asteraceae	Senecio purpureus	Purple Ragwort		Others
Asteraceae	Seriphium plumosum	Bankrupt Bush		Bianke Fouche, others
Asteraceae	Sonchus oleraceus	Common Sow-thistle	Naturalised exotic	Others
Asteraceae	Tarchonanthus littoralis	Coastal Camphorbush		Bianke Fouche, others
Asteraceae	Ursinia chrysanthemoides	Creeping Paraseed		Bianke Fouche, others
Asteraceae	Ursinia scariosa	Paper Paraseed		Others
Asteraceae	Ursinia scariosa scariosa			Others
Brassicaceae	Heliophila linearis	Sunsorrels		Bianke Fouche, others
Brassicaceae	Heliophila subulata subulata	Common Sunspurge		Bianke Fouche, others
Campanulaceae	Lobelia	Lobelias		Others
Campanulaceae	Lobelia neglecta	Rough Lobelia		Others
Campanulaceae	Wahlenbergia androsacea	Hare-Bell		Others
Campanulaceae	Wahlenbergia desmantha			Others
Campanulaceae	Wahlenbergia thunbergii			Bianke Fouche, others
Caprifoliaceae	Scabiosa columbaria	Small Scabious		Others
Caryophyllaceae	Dianthus albens	White Pink		Others

Caryophyllaceae	Silene crassifolia primuliflora	Eastern Beach Catchfly		Others
Celastraceae	Cassine peragua peragua	Forest spoonwood		Bianke Fouche, others
Celastraceae	Maytenus procumbens	Dune Koko Tree		Bianke Fouche, others
Celastraceae	Mystroxylon aethiopicum aethiopicum	Cape Koobooberry		Others
Celastraceae	Pterocelastrus tricuspidatus	Candlewood		Bianke Fouche, others
Convolvulaceae	Convolvulus sagittatus	arrow bindweed		Others
Convolvulaceae	Cuscuta appendiculata	Warty Dodder		Others
Crassulaceae	Crassula atropurpurea	purple crassula		Others
Crassulaceae	Crassula expansa filicaulis	Fine Stonecrop		Bianke Fouche, others
Crassulaceae	Crassula nudicaulis	Karoo Stonecrop		Others
Crassulaceae	Crassula subulata	Bihair Stonecrop		Bianke Fouche, others
Crassulaceae	Crassula subulata fastigiata			Others
Crassulaceae	Crassula subulata subulata			Others
Cucurbitaceae	Zehneria scabra	Wild Cucumber		Others
Droseraceae	Drosera natalensis	Natal Sundew		Others
Ebenaceae	Diospyros dichrophylla	Poison Starapple		Bianke Fouche, others
Ebenaceae	Euclea racemosa racemosa	Dune Gwarrie		Bianke Fouche, others
Ebenaceae	Euclea undulata	Gwarrie		Bianke Fouche
Ericaceae	Erica discolor discolor	Garden Route Discolorous Heath		Bianke Fouche, others
Ericaceae	Erica glandulosa	Glandular Heath		Others
Ericaceae	Erica glandulosa fourcadei	Ridged Glandular Heath	Vulnerable B1ab(ii,iii,iv,v)	Bianke Fouche, others
Ericaceae	Erica glumiflora	Gloomy Heath	Vulnerable B1ab(i,ii,iii,iv,v)	Bianke Fouche, others
Ericaceae	Erica leucopelta leucopelta			Others
Ericaceae	Erica scabriuscula	Grit Heath		Bianke Fouche
Ericaceae	Erica sessiliflora	Bottle Green Heath		Others
Euphorbiaceae	Adenocline pauciflora			Others
Fabaceae	Acacia cyclops	western coastal wattle	Invasive. NEMBA cat. 1b; CARA cat. 2	Bianke Fouche, others
Fabaceae	Acacia mearnsii	black wattle	Invasive. NEMBA & CARA cat. 2	Others
Fabaceae	Acacia melanoxylon	blackwood	Invasive. NEMBA & CARA cat. 2	Others
Fabaceae	Aspalathus alopecurus	Foxtail Capegorse		Bianke Fouche, others

Fabaceae	Aspalathus biflora longicarpa	Longpod Twin Capegorse		Others
Fabaceae	Aspalathus hirta	Eina Capegorse		Others
Fabaceae	Aspalathus hispida albiflora	White Bristle Capegorse		Others
Fabaceae	Aspalathus kougaensis	Misunderstood Capegorse		Others
Fabaceae	Aspalathus spinosa	Spiny Capegorse		Others
Fabaceae	Aspalathus spinosa spinosa	Common Spiny Capegorse		Others
Fabaceae	Bolusafra bituminosa	Tar Pea		Bianke Fouche
Fabaceae	Dipogon lignosus	Okie bean		Bianke Fouche, others
Fabaceae	Indigofera candicans	Canary Indigo		Bianke Fouche, others
Fabaceae	Indigofera erecta	Moertjie Indigo		Bianke Fouche, others
Fabaceae	Indigofera priorii	Squashed Indigo		Others
Fabaceae	Indigofera verrucosa	Warty Indigo		Bianke Fouche, others
Fabaceae	Lebeckia gracilis	Slender Ganna	Endangered A2bc; B1ab(ii,iii,iv,v)	Others
Fabaceae	Lessertia carnosa			Others
Fabaceae	Lessertia stenoloba	Longstalk Bubblepod		Bianke Fouche
Fabaceae	Lotononis sp.	Lotononises		Others
Fabaceae	Ornithopus pinnatus	Orange Bird's-foot		Others
Fabaceae	Rhynchosia caribaea	Caribbean snoutbean		Others
Fabaceae	Rhynchosia chrysoscias	Goldhair Snoutbean		Others
Fabaceae	Rhynchosia leucoscias	Shiny Snoutbean		Bianke Fouche, others
Fabaceae	Tephrosia capensis	Cape Hoarypea		Others
Fabaceae	Vicia hirsuta	Hairy tare		Others
Fabaceae	Virgilia divaricata	Gardenroute Keurboom		Others
Fagaceae	Quercus robur	English oak	Naturalised exotic	Others
Gentianaceae	Chironia baccifera	Christmas Berry		Bianke Fouche, others
Gentianaceae	Chironia tetragona	Coastal Chiron		Others
Geraniaceae	Geranium incanum	carpet crane's-bill		Bianke Fouche, others
Geraniaceae	Geranium incanum incanum	Pale Carpet Cranes-bill		Others
Geraniaceae	Pelargonium betulinum	Camphor Storksbill		Bianke Fouche, others
Geraniaceae	Pelargonium caffrum	Storkbill species		Others
Geraniaceae	Pelargonium capitatum	rose-scented geranium		Bianke Fouche, others
Geraniaceae	Pelargonium cordifolium	Heartleaf Storksbill		Others
Geraniaceae	Pelargonium dipetalum dipetalum	Storkbill species		Others
Geraniaceae	Pelargonium lobatum	Vineleaf Storksbill		Bianke Fouche, others

Goodeniaceae	Scaevola plumieri	coastal inkberry		Others
Lamiaceae	Salvia aurea	Sages		Bianke Fouche, others
Lamiaceae	Stachys aethiopica	African Stachys		Others
Lauraceae	Cassytha ciliolata	devil's tresses		Others
Lauraceae	Ocotea bullata	Stinkwood		Others
Linaceae	Linum africanum	Half-mast Flax		Bianke Fouche, others
Malvaceae	Grewia occidentalis occidentalis	Bowwood		Others
Malvaceae	Hermannia diffusa	Dollsrose species		Others
Malvaceae	Hermannia hyssopifolia	Fat Dollsrose		Others
Malvaceae	Hermannia salviifolia salvifolia	Sage Dollsrose		Bianke Fouche, others
Malvaceae	Hibiscus aethiopicus	Cape Hibiscus		Others
Malvaceae	Hibiscus aethiopicus aethiopicus	African HIbiscus		Others
Menispermaceae	Cissampelos capensis	Cape Moonseed Vine		Others
Montiniaceae	Montinia caryophyllacea	Pepperbush		Others
Myricaceae	Morella cordifolia	Dune Waxberry		Bianke Fouche, others
Myricaceae	Morella quercifolia	Oak Waxberry		Bianke Fouche, others
Myrtaceae	Corymbia ficifolia	Red-flowering gum	Naturalised exotic	Others
Oleaceae	Olea exasperata	Dune olive		Bianke Fouche, others
Onagraceae	Oenothera sp.	Primrose species		Others
Orobanchaceae	Hyobanche sanguinea cf. robusta	Inkblom	H. sanguinea is LC, H. robusta is Endangered B1ab(ii,iii,v)	Bianke Fouche, others
Oxalidaceae	Oxalis ciliaris ciliaris	Woodsorrel species		Others
Oxalidaceae	Oxalis depressa	Early Sorrel		Others
Oxalidaceae	Oxalis imbricata	Tile Sorrel		Bianke Fouche
Oxalidaceae	Oxalis pendulifolia	Hangleaf Sorrel		Others
Oxalidaceae	Oxalis stellata	Star Sorrel		Others
Peraceae	Clutia laxa	Twiggy Clut		Others
Peraceae	Clutia pulchella	Warty Clut		Others
Phyllanthaceae	Phyllanthus heterophyllus	Leafflower species		Others
Phytolaccaceae	Phytolacca octandra	Inkweed	Invasive. NEMBA category 1b; not on CARA	Others
Plumbaginaceae	Limonium scabrum	Cape Sea-Lavender		Bianke Fouche, others
Polygalaceae	Muraltia alopecuroides	Foxy Purplegorse		Others
Polygalaceae	Muraltia satureioides	Sand Purplegorse		Others
Polygalaceae	Muraltia squarrosa	Hornless Purplegorse		Others

Polygalaceae	Polygala fruticosa	Heartleaf Falsepea	Bianke Fouche, others
Polygalaceae	Polygala myrtifolia	Sweet Pea Shrub	Bianke Fouche
Proteaceae	Leucadendron salignum	Common Sunshine Conebush	Bianke Fouche, others
Proteaceae	Leucospermum cuneiforme	Wartstem Pincushion	Bianke Fouche, others
Proteaceae	Protea cynaroides	King Protea	Bianke Fouche, others
Proteaceae	Protea neriifolia	Oleander-leaf Protea	Others
Ranunculaceae	Knowltonia vesicatoria humilis	Common Burnleaf	Bianke Fouche, others
Rhamnaceae	Phylica axillaris	Axil Hardleaf	Bianke Fouche, others
Rhamnaceae	Phylica litoralis	Beach Hardleaf	Others
Rhamnaceae	Phylica purpurea	Purple Hardleaf	Others
Rhamnaceae	Trichocephalus stipularis	Dogsface	Others
Rosaceae	Cliffortia falcata	Curly Caperose	Others
Rosaceae	Cliffortia filifolia	Thread Caperose	Others
Rosaceae	Rubus rigidus	White Bramble	Others
Rubiaceae	Anthospermum aethiopicum	Tall Flowerseed	Bianke Fouche, others
Rubiaceae	Carpacoce spermacocea	Stinky Poepgras	Others
Rubiaceae	Rubia petiolaris	Madder species	Others
Rutaceae	Agathosma apiculata	Garlic Buchu	Bianke Fouche, others
Rutaceae	Agathosma capensis	Cape Buchu	Bianke Fouche, others
Rutaceae	Agathosma imbricata	Tile Buchu	Others
Rutaceae	Agathosma sp.	Buchus	Others
Rutaceae	Clausena anisata anisata	Clausena	Others
Rutaceae	Zanthoxylum capense	Small knobwood	Bianke Fouche
Santalaceae	Colpoon compressum	Cape Sumach	Others
Santalaceae	Thesium fragile	Beach Rootthug	Others
Santalaceae	Thesium virgatum	Branched Rootthug	Others
Sapotaceae	Sideroxylon inerme	white milkwood	Others
Sapotaceae	Sideroxylon inerme inerme	Southern White Milkwood	Others
Scrophulariaceae	Chaenostoma caeruleum	Blue Skunkbush	Others
Scrophulariaceae	Chaenostoma campanulatum	Short Skunkbush	Others
Scrophulariaceae	Chaenostoma cordatum	Bacopa	Others
Scrophulariaceae	Chaenostoma integrifolium	Skunkbush species	Others
Scrophulariaceae	Chaenostoma polyanthum	Skunkbush species	Others
Scrophulariaceae	Dischisma ciliatum	Fringe Falseslugwort	Bianke Fouche, others

Scrophulariaceae	Dischisma ciliatum erinoides	Toothy Fringe Falseslugwort		Others
Scrophulariaceae	Hebenstretia integrifolia	Summer Slugwort		Bianke Fouche, others
Scrophulariaceae	Nemesia	Lionfaces		Others
Scrophulariaceae	Selago corymbosa	Stiff Bitterbush		Others
Scrophulariaceae	Selago villicaulis	Dune Bitterbush	Vulnerable B1ab(ii,iii,iv,v)	Others
Scrophulariaceae	Zaluzianskya capensis	Cape Drumsticks		Bianke Fouche, others
Solanaceae	Solanum africanum	drunken berry		Bianke Fouche, others
Solanaceae	Solanum linnaeanum	Yellow Bitter-apple		Bianke Fouche, others
Solanaceae	Solanum retroflexum	Wonderberry		Others
Stilbaceae	Halleria lucida	African honeysuckle		Others
Thymelaeaceae	Gnidia chrysophylla	Gold Capesaffron	Near Threatened B1ab(i,ii,iii,iv,v)	Others
Thymelaeaceae	Gnidia juniperifolia	Yellow Capesaffron		Others
Thymelaeaceae	Passerina corymbosa	Common Gonna		Bianke Fouche, others
Thymelaeaceae	Passerina rigida	Beach Gonna		Others
Thymelaeaceae	Struthiola argentea	Evening Capespray		Bianke Fouche, others
Thymelaeaceae	Struthiola hirsuta	Shaggy Capespray		Others
Class Magnoliopsida (Dicots)				
Pinaceae	Pinus pinaster	Maritime pine	Invasive 2 (plantations & wind-rows); 1b elsewhere	Bianke Fouche, others
Class Polypodiopsida (Dicots)				
Aspleniaceae	Asplenium adiantum-nigrum	Black spleenwort		Others
Dennstaedtiaceae	Pteridium aquilinum capense	Southern bracken		Bianke Fouche, others
Dryopteridaceae	Rumohra adiantiformis	Leatherleaf fern		Others
Pteridaceae	Cheilanthes viridis viridis	Common lip fern		Others
Schizaeaceae	Schizaea pectinata	Toothbrush fern		Others

8.2 Land use recommendations according to the WC BSP

Recommended acceptable land-uses for each BSP layer is outlined and summarised in Table 5 below.

Table 5: The land-use planning proposed by the Western Cape Biodiversity Spatial Plan

LAND USE CATEGORIES		Conservation		Agriculture		Tourism and Recreational Facilities		Rural Accomodation		Urban			Business & Industrial				Infrastructure Installations			
LAND USE SUB-CATEGORIES (Refer to table 4.7 for descriptions)		Proclaimed Protected Areas	Other Nature Areas	Intensive Agriculture	Extensive Agriculture	Low Impact Facilities	High Impact Facilities	Agri-worker Accommodation	Small holdings	Urban Development & Expansion	Community Facilities & Institutions	New Settlements	Rural Business	Non-place-bound Industry (low-moderate impact)	Non-place-bound Industry (high impact)	Extractive Industry (incl. Prospecting)	Linear - roads & rail	Linear - pipelines & canals	Linear - powerlines	Other Utilities
MAP CATEGORY	DESIRED MANAGEMENT OBJECTIVE	Y = Yes: Permissible land uses that are not likely to compromise the biodiversity objective						R = Restricted: Land uses that may compromise the biodiversity objective are only permissible under certain conditions (refer to Table 4.7 for conditions)					N = No: Land uses that will compromise the biodiversity objective and are not permissible							
Protected Area	Must be kept in a natural state, with a management plan focused on maintaining or improving the state of biodiversity.	Land use within proclaimed protected areas are subject to management plan drawn up for that specific protected area.																		
Critical Biodiversity Area 1	Keep natural, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.	Y	Y	N	R	N	N	N	N	N	N	N	N	N	N	N	N	N	R	N
Critical Biodiversity Area 2	Keep natural, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.	Y	Y	N	R	R	N	N	N	N	N	N	N	N	N	N	R	R	R	N
Ecological Support Area 1: Terrestrial	Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.	Y	Y	N	R	R	N	N	N	N	N	N	R	R	N	N	R	R	R	R
Ecological Support Area 1: Aquatic	Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.	Y	Y	N	R	R	N	N	N	N	N	N	N	N	N	N	R	R	R	N
Ecological Support Area 2	Restore and/or manage to minimise impact on ecological infrastructure functioning; especially soil and water-related services.	Y	Y	N	R	R	N	N	R	N	N	N	N	N	N	N	R	R	R	R
ONA: Natural to Near-Natural	Minimise habitat and species loss and ensure ecosystem functionality through strategic landscape planning. Offers flexibility in permissible land uses, but some authorisation may still be required for high impact land uses.	Y	Y	R	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
ONA: Degraded	Minimise habitat and species loss and ensure ecosystem functionality through strategic landscape planning. Offers flexibility in permissible land uses, but some authorisation may still be required for high impact land uses.	R	R	R	Y	Y	R	R	Y	R	R	R	R	R	R	R	Y	Y	Y	Y
No Natural Remaining	These areas are suitable for development but may still provide limited biodiversity and ecological infrastructure functions and should be managed in a way that minimises impacts on biodiversity and ecological infrastructure.	R	R	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y