



BOTANICAL MICRO-SITING REPORT

**ALBANY WIND ENERGY FACILITY (WEF) NEAR MAKHANDA,
EASTERN CAPE PROVINCE**



ENVIRONMENTAL AND SOCIAL ADVISORY SERVICES



ALBANY WEF, MAKHANDA, EASTERN CAPE

BOTANICAL MICRO-SITING REPORT

Prepared for:

Albany Wind Power (Pty) Ltd,
a subsidiary of EDF Renewables (Pty) Ltd



Prepared by:



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CES - Environmental and Social Advisory Services

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Luc has over 13 years of experience in environmental management, ecology and GIS. He has been involved in a wide spectrum of projects including freshwater impact assessments (wetlands and riparian assessments), terrestrial biodiversity assessments, botanical surveys, and related management plans (invasive alien species management plans, biodiversity management plans and rehabilitation plans. Additionally, he has also fulfilled general EAP duties such as EIAs & ESIA's, environmental permitting and environmental auditing. Luc has a particular interest in wetland ecology and botany and is a member of the South African Wetland Society (SAWS), Botanical Society of South Africa (BotSoc), IAIA's and is an active member of the SANBI project Custodians of Rare and Endangered Wildflowers (CREW).

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ACRONYMS

ADU	Animal Demography Unit
AOO	Area Of Occupancy
BA	Basic Assessment
BI	Biodiversity Importance
CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Area
CES	Coastal and Environmental Services
CI	Conservation Importance
CR	Critically Endangered
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DFFE	Department Forestry, Fisheries and the Environment
EA	Environmental Authorisation
ECBCP	Eastern Cape Biodiversity Conservation Plan
EIA	Environmental Impact Assessment
EN	Endangered
EMPr	Environmental Management Programme
ESA	Ecological Support Area
EOO	Extent of Occupancy
FI	Functional Integrity
GIS	Geographical Information System
GN	Government Notice
IBA	Important Bird Areas
IUCN	International Union for Conservation of Nature
LC	Least Concern
NBA	National Biodiversity Assessment
NEMA	National Environmental Management Act
NEM:BA	National Environmental Management Biodiversity Act
NFEPA	National Freshwater Ecosystem Priority Areas
NPAES	National Protected Areas Expansion Strategy
NT	Near Threatened
PA	Protected Area
PNCO	Provincial Nature Conservation Ordinance
POSA	Plants of Southern Africa
PPP	Public Participation Process
RR	Receptor Resilience
SCC	Species of Conservation Concern
SOTER	Soil and Terrain
QDS	Quarter Degree Square
VU	Vulnerable
SANBI	South African National Biodiversity Institute



SAPAD	South Africa Protected Areas Database
SEI	Site Ecological Importance
TOPS	Threatened and Protected Species



DEFINITIONS

Invasive Alien Species refers to an exotic species that can spread rapidly and displace native species causing damage to the environment

Biodiversity is the term that is used to describe the variety of life on Earth and is defined as “*the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems*” (Secretariat of the Convention on Biological Diversity, 2005).

Habitat Fragmentation occurs when large expanses of habitat are transformed into smaller patches of discontinuous habitat units isolated from each other by transformed habitats such as farmland.

Natural Habitat refers to habitats composed of viable assemblages of plant and/or animal species of largely native origin and/or where human activity has not essentially modified an area’s primary ecological function and species composition.

Protected Area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values. (*IUCN Definition 2008*).

Sensitive Species are species that are sensitive to illegal harvesting. As such, their names are obscured and listed as “Sensitive species #”. As per the best practice guideline that accompanies the protocol and screening tool, the name of the sensitive species may not appear in any BAR or EIA report, nor any specialist reports released into the public domain.

Species of Conservation Concern all species that are assessed according to the IUCN Red List Criteria as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Data Deficient (DD) or Near Threatened (NT), as well as range-restricted species which are not declining and are nationally listed as Rare or Extremely Rare [also referred to in some Red Lists as Critically Rare].



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1 INTRODUCTION AND PROJECT DESCRIPTION

Albany Wind Power (Pty) Ltd. is proposing the development of the Albany WEF which will consist of up to twenty-five (25) turbines. The proposed maximum power output of the facility is up to 297 MW. The proposed turbine footprints and associated facility infrastructure (internal access roads, substations, construction compound, batching plant and operations building) will cover an area of up to 47ha (final footprint after rehabilitation).

In summary, the proposed Albany WEF includes (please see Figure 1-1):

- ✦ Up to twenty-five (25) turbines with a maximum nominal power output of up to 297MW.
- ✦ The proposed WEF will include turbines with a rotor diameter of up to 170 m, a hub height of up to 130 m and blade length of up to 85 m.
- ✦ A permanent laydown area next to the locations of the proposed wind turbines (3,900 m² for crane hardstand per turbine).
- ✦ Temporary additional laydown area next to the locations of the proposed wind turbines (3,100 m² for crane hardstand and blade laydown per turbine).
- ✦ Foundations (up to 900 m²) for each wind turbine.
- ✦ Permanent 25 m² area for switchgear and/or transformer at each turbine.
- ✦ Temporary infrastructure including a site camp and a laydown area of approximately 2,500 m² (all to be rehabilitated post construction).
- ✦ Internal access roads of between 8 m (during operation) and 14 m (during construction, to be partly rehabilitated) wide to each turbine and associated infrastructure.
- ✦ Existing roads have been used in the layout design, where possible. However, where required, new internal access roads are being proposed between the turbines.
- ✦ Medium voltage cabling between turbines and the switching stations, to be laid underground where technically feasible.
- ✦ Two short overhead line(s) of 2 km (near WTG 13) and 0.3 km (from WTG 20) to connect the turbines north of the river.
- ✦ Temporary laydown areas of a combined 90,000 m² (9 ha), consisting of:
 - West 1 (2 ha)
 - West 2 (2 ha)
 - Centre (2 ha)
 - East (3 ha)

A permanent area of up to 100,000 m² for the IPP substation, Battery Energy Storage System (BESS), Operations and Maintenance (O&M) building and a temporary site office.

The turbine footprints and associated facility infrastructure (internal access roads, substations, construction compound, batching plant and operations building) will potentially cover a total combined area of up to 90 ha during the construction phase. This footprint will be reduced, through rehabilitation, resulting in a maximum final total combined footprint of up to 47 ha.

Coastal and Environmental Services (Pty) Ltd, trading as 'CES', was appointed by EDFR to undertake a botanical micro-siting of the development footprint to identify populations of threatened Species of Conservation (SCC) which could present development constraints and/or which may require permits for removal and/or translocation.

According to the Species Environmental Assessment Guideline (SANBI, 2020), the term 'SCC' refers to all species that are assessed according to the IUCN Red List Criteria as Critically Endangered (CR),



Endangered (EN), Vulnerable (VU), Data Deficient (DD) or Near Threatened (NT), as well as range-restricted species which are not declining and are nationally listed as Rare or Extremely Rare (also referred to in some Red Lists as Critically Rare). These species may be impacted significantly by a proposed development. However, for the purpose of this report, plant species that are protected in terms of the National Environmental Management: Biodiversity Act (NEM:BA) (Act No. 10 of 2004), the Eastern Cape Nature and Environmental Conservation Ordinance (NECO) (1974), and/or the List of Protected Tree Species under the National Forest Act (Act No. 84 of 1998) are also referred to as SCC.

The following report outlines the findings of the botanical micro-siting investigation undertaken for the Albany WEF and associated infrastructure.



2 OBJECTIVES & TERMS OF REFERENCE

The main objective of this study was to identify and locate individuals and/or populations of plant SCC within the proposed development footprint of the Albany WEF and associated infrastructure. This data was required to inform the placement and/or movement of infrastructure components (if required) and the application(s) for plant removal permits. The terms of reference for this study are outlined below:

- Identify and record the location of SCC present within the development footprint.
- Summarise the findings of the micro-siting investigation in a report.
- Make recommendations regarding the refinement of the development layout, including the placement of turbines and associated infrastructure, if required.
- Provide recommendations and mitigation measures for the translocation of SCC (if required).
- Determine permitting requirements. [NB: It is not the purpose of the study to comply with or apply for any permitting requirements at this stage].



3 ASSUMPTIONS AND LIMITATIONS

Assumptions and limitations associated with the botanical micro-siting are listed below

- SCC are difficult to find and identify. Whilst every effort was made to identify and locate all SCC within the development footprint, it is possible that additional SCC could be found during vegetation clearance and construction of the development, particularly those that were not flowering at the time of the site survey.
- Due to restrictions on access, the entire development footprint was not surveyed. However, a significant portion of similar habitat within the study site was surveyed which provided sufficient information on the SCC present in the affected area in order to draw conclusions and make recommendations.
- It should be noted that the location (GPS position) of every individual SCC was not recorded as this would be very time consuming. Rather, the number of individuals per species within a given area was determined and recorded.
- Sampling could only be carried out at one stage in the annual or seasonal cycle, in this case the survey was conducted in October (Late-Spring).
- The information, as presented in this document, only has reference to the study site as indicated on the project maps. Therefore, this information cannot be applied to any other area without a detailed investigation being undertaken.



4 METHODOLOGY

Prior to the site visit, a list of plant SCC likely to occur within the development footprint (Table 5-1) was compiled based on those recorded during previous studies undertaken within the project area, the list of sensitive species identified within the Department of Forestry, Fisheries and the Environment (DFFE) Screening Report generated for the site, records obtained from the Plants of Southern Africa (POSA) website, iNaturalist, and the list of important taxa common to the vegetation type(s) occurring within the project area. The likelihood of occurrence for each species was then assessed based on the known distribution and habitat requirements.

The micro-siting investigation (site survey) was undertaken over the course of three (3) days, from 23 to 26 October 2023. The development footprint was visually surveyed on foot to identify and locate plant SCC present within the development footprint. OruxMaps was used to record survey tracks, site photographs, and the GPS position of threatened SCC (if identified on site).



5 DESKTOP REVIEW

5.1 Vegetation Types

According to SANBI's National Vegetation Map (2018), the development footprint of the Albany WEF occurs within four (4) vegetation types, namely *Bhisho Thornveld* (SVs7), *Grahamstown Grassland Thicket* (AT38), *Suurberg Quartzite Fynbos* (FFq6) and *Suurberg Shale Fynbos* (FFh10). The project area can broadly be divided into three main sections, including the municipal owned properties on the western side of the project area contained wholly within *Grahamstown Grassland Thicket* habitat, the privately owned farms within the central portion of the project area within *Bhisho Thornveld*, *Suurberg Quartzite Fynbos* and *Suurberg Shale Fynbos*, and the Community Property Association (CPA) land on the eastern portion of the project area contained wholly within *Suurberg Quartzite Fynbos*. For the sake of this assessment, wetland and riparian habitats recorded within the project area are included within these broader habitat types and it is presumed they will be individually assessed as part of the aquatic micro-siting report.

5.1.1 Bhisho Thornveld (S)

Bhisho Thornveld occurs on undulating to moderately steep slopes, sometimes in shallow, incised drainage valleys. It is described as open savanna characterised by small trees of *Vachellia natalitia* with a short to medium, dense, sour grassy understorey, usually dominated by *Themeda triandra* when in good condition. A diversity of other woody species also occur, often increasing under conditions of overgrazing. Due to the wide distribution of this vegetation type, it incorporates a wide variety of environmental conditions and borders on a number of other vegetation types and species from different vegetation types may co-occur along overlapping areas.

5.1.2 Grahamstown Grassland Thicket (AT)

Grobler et al. (2018) characterise Grahamstown Grassland Thicket as a mosaic of low thicket (2 - 3 m) consisting of small bush clumps in a matrix of short (0.1 - 1 m) grassland vegetation (*Brachiaria serrata*, *Eragrostis curvula*, *Digitaria eriantha*, *Themeda triandra*). The species present in the bush clumps are typical of AT17 Albany Mesic Thicket. Fynbos elements (*Bobartia*, *Erica*, Restionaceae) occur within the grassland matrix on moist south-facing slopes, with solitary *Vachellia karroo* trees occasionally scattered in lower lying areas.

5.1.3 Suurberg Quartzite Fynbos (FF)

Suurberg Quartzitic Fynbos can be described as occurring on low rounded hills and mountains supporting low to medium high, closed, ericoid shrubland or grassland, with closed restioid and/or grass understorey. Grassy fynbos is the most typical structural type, with localised patches of dense proteoid and ericaceous fynbos (Mucina et al., 2018). Thicket is found on the richer soils at the base of the formation and in gullies.

Thicket clumps are generally restricted to doline karsts created through the dissolution of limestone aggregations by rainfall and groundwater creating round depression which accumulate deeper soils allowing the establishment and growth of bigger thicket shrubs (Carvalho, 2018). Succulent patches are generally located on calcrete outcrops with shallow soils and a significant gravel component. Grassy shrubland comprises the remainder of the vegetation unit.

Important endemic and/or threatened species naturally occurring in Suurberg Quartzitic Fynbos include *Oldenbergia grandis*, *Euryops hypnoides* and *Euryops polytrichoides*.



5.1.4 Suurberg Shale Fynbos (FFh10)

Suurberg Shale Fynbos occurs on low mountains or hills, supporting low to medium high, closed, ericoid shrubland or grassland, with closed restioid and/or grass understorey. It can be characterised as graminoid fynbos, with localised patches of dense proteoid fynbos also occurring.

Dominant species include *Aspalathus setacea*, *Metalasia densa*, *Selago corymbosa*, and *Themeda triandra*. No specific endemic or important taxa are noted for this vegetation unit.

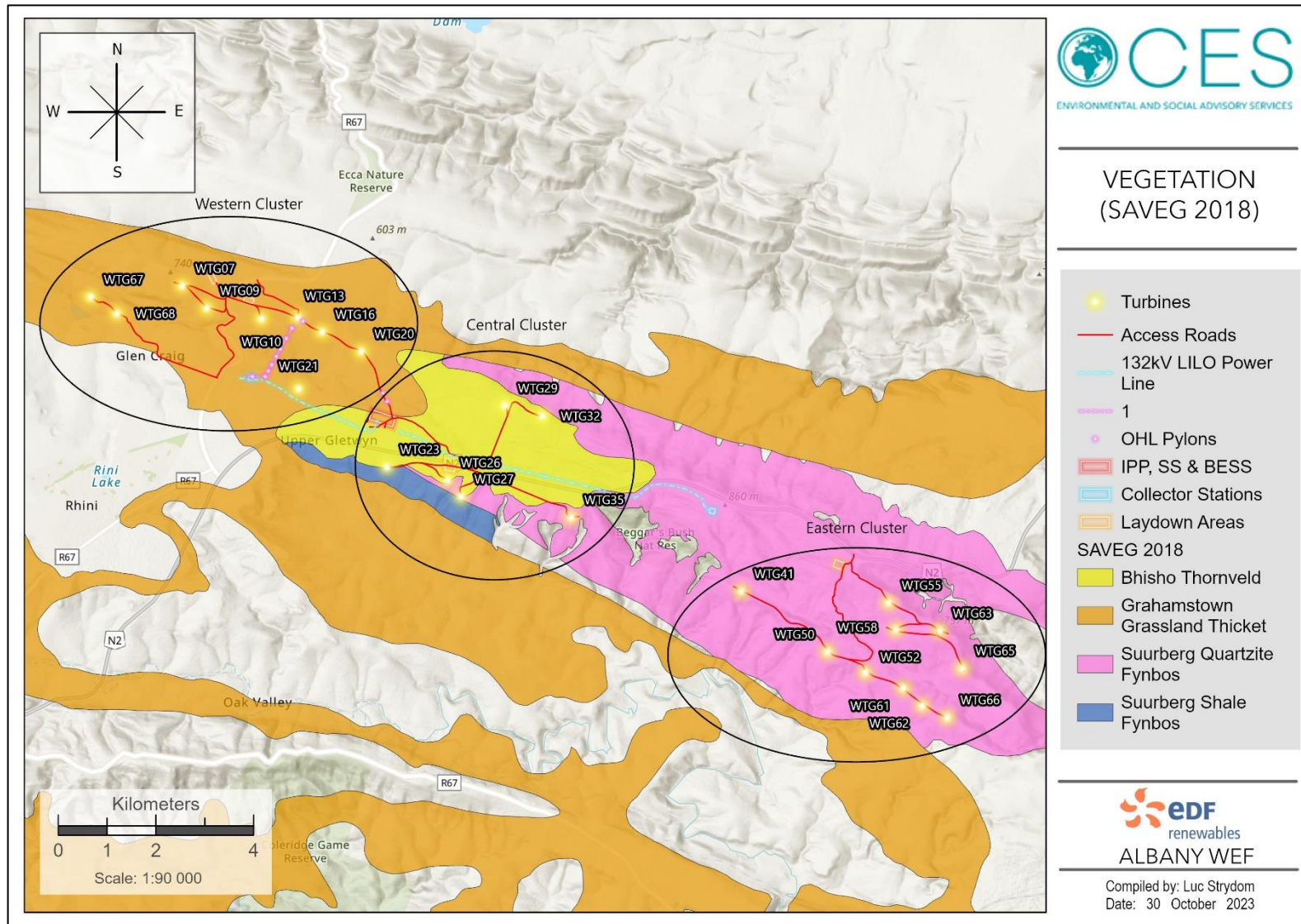


Figure 5-1: Vegetation Types and Assessment Clusters.





5.2 Potential Species of Conservation Concern (SCC)

Prior to the site visit, a list of threatened SCC was compiled using records obtained from the Plants of Southern Africa (POSA) website, iNaturalist, the National Screening Tool Report and the list of important taxa common to *Bhisho Thornveld*, *Grahamstown Grassland Thicket*, *Suurberg Quartzite Fynbos* and *Suurberg Shale Fynbos* (Mucina, Powrie, & Rutherford, 2018). The likelihood of occurrence for each species is assessed Table 5.1 below. It should be noted that none of the SCC listed in Table 5-1 below were confirmed to occur on site during the micro-siting investigation.






Table 5-1: Plant Species of Conservation Concern possibly occurring on site.

Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Aizoaceae	<i>Faucaria gratiae</i>	Rare	Schedule 4	--	--	A range-restricted species (EEO <200km ²), known to occur on two farms. Not threatened. Occurs in grassland with open patches of thicket with its range limited to Riebeeck East.	Distribution map not available	The probability of occurrence on the site is classified as Moderate-Low based on the known distribution and habitat requirements of this species, as well as considering the level of historical disturbance within the study area.
Aizoaceae	<i>Faucaria nemorosa</i>	Critically Rare (CR)	Schedule 4	--	--	One known subpopulation occurs in a protected area, on a game farm, where it is not threatened. It occurs on quartzitic hillslopes with <i>Portulacaria</i> scrub and altitudes of 300-900m within Albany Thicket.		The probability of occurrence on the site is classified as Low based on the known distribution of this species, as well as considering the level of historical disturbance within the study area.
Aizoaceae	<i>Faucaria tigrina</i>	Endangered (EN) B1ab(ii,iii,iv,v) +2ab(ii,iii,iv,v)	Schedule 4	--	--	The Extent of occurrence is less than 200km ² and only four known locations remain after many subpopulations declined due to urban expansion around Makhanda (Grahamstown). The population continues to decline due to overgrazing and urban expansion. Mainly on open, rocky patches, in a dark clayish soil with a low pH, in mountain renosterveld in Grahamstown Grassland Thicket		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species, as well as considering the level of historical disturbance within the study area.
Aizoaceae	<i>Mestoklema albanicum</i>	Near Threatened (NT) D2	Schedule 4	--	--	This species is known from eight locations and is potentially threatened by expanding human settlements and grazing by goats. It occurs in Thicket and Valley Bushveld from Kariega (Uitenhage) to Graaff-Reinet and eastwards to Makhanda (Grahamstown).	Distribution map not available	Confirmed on site in Grahamstown Grassland Thicket.






Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Aizoaceae	<i>Bergeranthus albomarginatus</i>	Vulnerable (VU) D2	Schedule 4	--	--	A range restricted species known from a single location in the vicinity of the Kat River Dam. It occurs in Fish Valley Thicket on exposed intrusive dolerite sill at approximately 800m above sea-level. Part of the population at a single known location declined when the Kat River Dam was constructed and some of the habitat was flooded. Although no longer declining, additional construction around the dam remains a potential threat.		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species, as well as considering the level of historical disturbance within the study area.
Aizoaceae	<i>Bergeranthus multiceps</i>	Data Deficient - Taxonomically Problematic (DDT)	Schedule 4	--	--	A data deficient Eastern Cape endemic species.		Confirmed on the site within <i>Grahamstown Grassland Thicket</i> habitats.
Aizoaceae	<i>Orthopterum waltoniae</i>	Near Threatened (NT) D2	Schedule 4	--	--	A rare, range-restricted Eastern Cape endemic currently known from 10 locations with an extent of occurrence of 1,815km ² . It is potentially threatened by collecting and grazing. It occurs in rocky shale soils in Fish Arid Thicket.		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements as well as the level of historical disturbance within the area.






Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Amaryllidaceae	<i>Sensitive species 354</i>	Vulnerable (VU) B1ab(iii,v)	Schedule 4	--	--	An Eastern Cape endemic species known from six (6) locations with a fairly wide EOO of 6,484km ² within the Great Fish River Valley. It occurs on sandy alluvial flats within floodplains in Fish Valley Thicket.		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.
Amaryllidaceae	<i>Sensitive species 579</i>	Vulnerable (VU) A2cd	Schedule 4	--	Vulnerable Species (Medicinal)	It occurs in coastal and inland forest patches below 600m from the Suurberg north of Paterson and Bushman's River mouth to Qora River mouth. The population has declined at least 30% in the last 120 years (generation length 40 years) due to harvesting for the medicinal plant trade, horticultural acquisitions and some habitat destruction caused by coastal development.		The probability of occurrence on the site is classified as Moderate based on the known distribution and habitat requirements of this species.
Apocynaceae	<i>Brachystelma campanulatum</i>	Near Threatened (NT) D2	Schedule 4	--	--	Eastern Cape endemic which occurs only on sand, in open grassland within Albany Thicket habitats from the Fish River to Kariega River. It has been recorded in only 7 locations with an EOO of 3,000km ² . It has lost habitat to pineapple and other crop cultivation in the past. It is not declining currently but is potentially threatened by livestock farming.	Distribution map not available	Based on the known distribution and habitat requirements of this species, the likelihood of occurrence is considered Moderate .
Apocynaceae	<i>Brachystelma comptum</i>	Vulnerable (VU) D2	Schedule 4	--	--	Eastern Cape endemic species which is known from five (5) locations between Makhanda (Grahamstown) and Kariega (Uitenhage), occurring in Grahamstown Grassland Thicket and Albany Bontveld on grassy quartzite ridges surrounded by dense thicket. Potentially threatened by invasive alien plants, crop cultivation and urban expansion.		The probability of occurrence on the site is classified as High based on the known distribution and habitat requirements of this species. The micro-habitat requirements of its stony transitional reduces the probability.





Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Apocynaceae	<i>Sensitive species 708</i>	Vulnerable (VU) B1ab(ii,iii,iv,v)	Schedule 4	--	--	Eastern Cape endemic species known from between five (5) to ten (10) locations between Makhanda (Grahamstown) and Bathurst. It is endemic to Grahamstown Grassland Thicket in coastal grassland in sand on rocky ridges. The species has declined in the past due to pineapple cultivation and is likely to currently be declining at a slow rate due to livestock overgrazing.		The probability of occurrence on the site is classified as Medium-High based on the known distribution and habitat requirements of this species, particularly rocky outcrops within grassy areas.
Apocynaceae	<i>Brachystelma minimum</i>	Rare	Schedule 4	--	--	A range-restricted species (EOO <500km ²) Eastern Cape endemic species known only from known from six sites surrounding Makhanda (Grahamstown). It is present on sandstone outcrops in Albany Thicket. It is presently not threatened as it occurs in rocky habitats not suitable for agriculture.		The probability of occurrence on the site is classified as High based on the known distribution and habitat requirements of this species, particularly sandstone outcrops along the ridge and valleys within the study area.
Apocynaceae	<i>Sensitive species 488</i>	Rare	Schedule 4	--	--	A range-restricted species (EOO 10km ²), known from only one subpopulation north of Makhanda (Grahamstown) in the Fish River Catchment within karroid scrub in Albany Thicket between 400-1200m altitude. This species has no recorded threats.		The probability of occurrence on the site is classified as Low based on the known distribution, restricted range and habitat requirements of this species.






Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Apocynaceae	<i>Sensitive species 937</i>	Vulnerable (VU) D2	Schedule 4	--	--	Eastern Cape endemic which occurs in karoo-type thicket in Fish Arid Thicket, Albany Bontveld and Albany Arid Thicket in the Great Fish River Valley. Known from three locations, potentially threatened by overgrazing and expansion of rural settlements.		The probability of occurrence on the site is classified as Moderate-Low based on the known distribution and habitat requirements of this species, particularly within Albany Arid Thicket habitats.
Apocynaceae	<i>Pachypodium succulentum</i>	Near Threatened (NT)	Schedule 4	--	Protected Species	A widespread, slow-growing South African endemic species present in Albany Thicket and Nama Karroo habitats within the Eastern, Western and Northern Cape provinces.	Distribution map not available	The probability of occurrence on the site is classified as Moderate-Low based on the known distribution and habitat requirements of this species, particularly within the arid thicket habitats.
Apocynaceae	<i>Riocreuxia flanaganii</i> var. <i>flanaganii</i>	Rare	Schedule 4	--	--	Eastern Cape endemic species occurring from Port Alfred to Komga on dolerite outcrops in coastal grassland and savanna Recorded from four collection localities, not known to be threatened.		The probability of occurrence on the site is classified as Low based on the known distribution, restricted range and habitat requirements of this species.
Asphodelaceae	<i>Sensitive species 1162</i>	Rare	--	--	--	A range-restricted, Eastern Cape endemic (EOO <500km ²) occurring on sandstone ridges in Albany Thicket and Fynbos in the Makhanda (Grahamstown) district and at Plutosvale. Not threatened due to its habitat being unsuitable for agricultural activities.		The probability of occurrence on the site is classified as Moderate-Low based on the known distribution, restricted range and habitat requirements of this species.



Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Asphodelaceae	<i>Haworthia angustifolia</i> var. <i>paucifolia</i>	Not Assessed	Schedule 4	--	--	A range-restricted species known only from Coombs Farm near Makhanda (Grahamstown).	Distribution map not available	The probability of occurrence on the site is classified as Medium-High based on the known distribution and habitat requirements of this species, particularly rocky outcrops within grassy areas.
Asphodelaceae	<i>Sensitive species 19</i>		Schedule 4	--	--	A slow growing, long-lived, range-restricted species (EOO 19,322km ²) occurring from Patensie to the Mbashe River in karroid scrub, clearings in valley bushveld and steep cliffs in mesic and valley thicket. Declined by at least 30% in the past two generations (generation length 50 years) due to unsustainable exploitation for the traditional medicinal and horticultural trade, as well as habitat loss.		The probability of occurrence on the site is classified as Low-Medium based on the known distribution and habitat requirements of this species.
Asphodelaceae	<i>Haworthiopsis coarctata</i> var. <i>tenuis</i>	Not Assessed	Schedule 4	--	--	A range restricted form of <i>Haworthiopsis coarctata</i> limited to a population present along the Bushmans River.	Distribution map not available	The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.
Asphodelaceae	<i>Haworthiopsis reinwardtii</i> var. <i>brevicula</i>	Not Assessed	Schedule 4	--	--	Range-restricted species occurring in grassy fynbos west of the Fish River in the higher-lying areas East of Makhanda (Grahamstown) near Frasers Camp.	Distribution map not available	The probability of occurrence on the site is classified as Medium-High based on the known distribution and habitat requirements of this species, particularly rocky outcrops within grassy areas.
Asteraceae	<i>Sensitive species 471</i>	Vulnerable (VU) D2	--	--	--	This species is endemic to the Fish River Valley near Makhanda (Grahamstown) in the Eastern Cape where it occurs on flats with open scrub in Fish Arid Thicket and Fish Valley Thicket. This species is only known from the type collection, dating from 1962. It is inconspicuous and flowers outside of the main flowering season for plants of the area (March) and is therefore probably overlooked.		The probability of occurrence on the site is classified as Low based on the known distribution, inconspicuous nature and habitat requirements of this species.

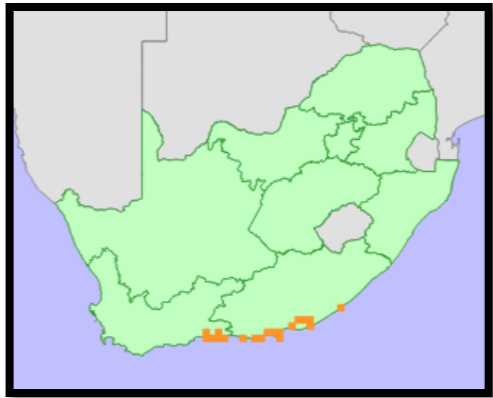
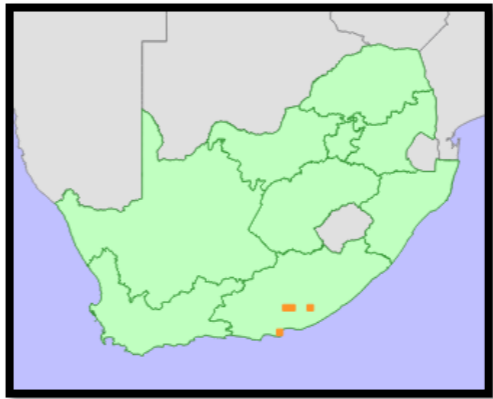



Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Asteraceae	<i>Sensitive species 1082</i>	Vulnerable (VU) D2	--	--	--	Localised endemic species known from one (1) location on moist mountain slopes in grassy Suurberg Quartzite Fynbos near Makhandla (Grahamstown). It is potentially threatened by livestock overgrazing.		The probability of occurrence on the site is classified as Medium based on the known distribution, inconspicuous nature and habitat requirements of this species.
Asteraceae	<i>Euryops polytrichoides</i>	Data Deficient - Insufficient Information (DDD)	--	--	--	Known only from the type specimen collected by MacOwan in the 1800s near Makhandla (Grahamstown).		The probability of occurrence on the site is classified as Medium-Low based on the known distribution of this species.
Asteraceae	<i>Oldenbergia grandis</i>	Near Threatened (NT) (IUCN Global)	--	--	--	Eastern Cape endemic species restricted to sandstone outcrops in grassy fynbos.		Confirmed on site in rocky outcrops in Suurberg Quartzite Fynbos.

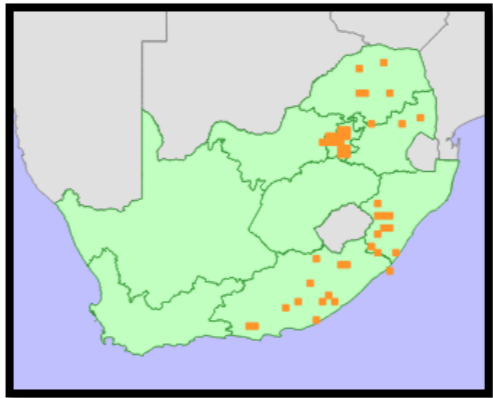
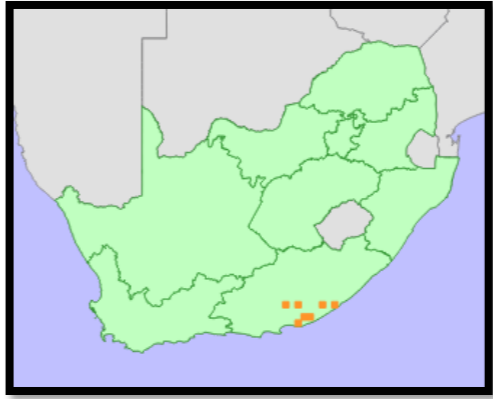


Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Convolvulaceae	<i>Merremia malvaefolia</i>	Critically Endangered (CR) (Possibly Extinct)	--	--	--	This species has not been collected for more than 100 years, and is known from only a few collections without precise locality details. Recent searches in the coastal hills around Port Alfred, where this species is presumed to occur, revealed that the habitat is excessively transformed and if it was confined to this area, it is quite likely extinct.		The probability of occurrence on the site is classified as Very Low based on the known distribution of this species.
Crassulaceae	<i>Crassula decida</i>	Near Threatened (NT) D2	--	--	--	Inconspicuous species known from four (4) locations, however as many as ten (10) locations suspected. It occurs in low karroid vegetation or in amongst succulent <i>Euphorbia</i> shrubs close to rivers from Cradock to Cookhouse.	Distribution map not available	The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.
Crassulaceae	<i>Crassula socialis</i>	Rare	--	--	--	Known from four subpopulations, but a few more are likely as this species occurs in inaccessible habitats and is likely to be under-collected. It occurs in rock crevices on cliffs, which are usually south or south-east facing between King William's Town and Kommadagga in Albany Thicket and Savanna habitats.		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.
Dioscoreaceae	<i>Sensitive species 1252</i>	Vulnerable (VU) A2cd	--	--	Vulnerable species	There was a large population decline from 1955-1960 as a result of indiscriminate commercial harvesting for diosgenin, a substance that was used to manufacture cortisone and other steroid hormones. Exploitation of tubers for the local medicinal plant trade is ongoing, and is preventing recovery. The overall decline is estimated to be >30% over the past 90 years.		The probability of occurrence on the site is classified as Medium-Low based on the known distribution and habitat requirements of this species.






Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Ericaceae	<i>Erica glumiflora</i>	Vulnerable (VU) B1ab(i,ii,iii,iv,v)	Schedule 4	--	--	This species is known from six locations with an EOO <6,740km ² . Although it is conserved in four nature reserves, these are all within the western portion of the range. In the eastern part of the range, coastal development and alien plant invasion are causing continuing declines to subpopulations. It occurs from Wilderness to East London, extending inland around Grahamstown on sandy coastal flats and dunes and low coastal hills in dune thicket, strandveld and grassy fynbos.		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.
Euphorbiaceae	<i>Euphorbia meloformis</i>	Near Threatened B1ab(i,ii,iii,iv,v)	Schedule 4	--	Protected Species	An Eastern Cape endemic species, with an EOO 4,030km ² and continuing decline due to urban expansion, removal of mature individuals from the wild by succulent collectors, and habitat degradation as a result of overgrazing and poor rangeland management. It occurs in flat areas, including coastal plains and higher lying plateaus, among scattered, broken surface limestone or calcrete in short open grasslands and openings in succulent thicket from Gqeberha to Makhanda and eastwards to Peddie.		Confirmed on site in Grahamstown Grassland Thicket habitat in the Western Cluster.
Fabaceae	<i>Aspalathus agropyphanes</i>	Rare	--	--	--	A range-restricted (EOO 266km ²) endemic Restricted to a very small area around Makhanda (Grahamstown). It occurs on rocky slopes and hillsides in Suurberg Quartzite Fynbos. This species' habitat is still 98% intact and it is unlikely to be threatened.		The probability of occurrence on the site is classified as Moderate-High based on the known distribution and habitat requirements of this species, particularly rocky outcrops on ridges of Suurberg Quartzite Fynbos habitats.
Geraniaceae	<i>Pelargonium reniforme</i>	Near Threatened (NT) A4bd	--	--	Protected Species (Medicinal)	This slow growing geophytic taxon occurs in wide variety of habitats across a fairly large area between Knysna to Umtata on dry flats and open grassland and grassy fynbos in Albany Thicket, Fynbos, Nama Karoo. <i>Pelargonium reniforme</i> is harvested for local use in traditional medicine. In addition, it is also often harvested in large	Distribution map not available	Confirmed on site within Grahamstown Grassland Thicket and Suurberg Quartzite Fynbos habitats.



Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
						volumes for large-scale commercial herbal medicine production. Between 10 and 15% of the population is suspected to have been lost since 2002 due to widespread overharvesting.		
Geraniaceae	<i>Pelargonium exhibens</i>	Near Threatened (NT) D2	--	--	--	Known from less than 10 locations and potentially threatened by harvesting for traditional medicine. It occurs in bushveld and succulent mountain scrub in Albany Thicket and Nama Karoo habitats from Makhanda (Grahamstown) to Graaff-Reinet.	Distribution map not available	The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.
Hyacinthaceae	<i>Sensitive Species 1248</i>	Vulnerable (VU) A2ad	--	--	Vulnerable species (Medicinal)	Occurs at low-medium altitudes, usually along mountain ranges and in thickly vegetated river valleys, often under bush clumps and in boulder screes, sometimes found scrambling at the margins of karroid, succulent bush in the Eastern Cape. Tolerates wet and dry conditions, growing predominantly in summer rainfall areas with an annual rainfall of 200-800 mm. This subspecies is under severe pressure from medicinal plant harvesting over the majority of its range in South Africa. Provincial authorities estimate a minimum decline of 30% nationally.		The probability of occurrence on the site is classified as Medium based on the known distribution and habitat requirements of this species.
Hyacinthaceae	<i>Drimia hyacinthoides</i>	Near Threatened (NT) B1ab(iii)	--	--	--	This species is endemic to the Eastern Cape, where it occurs between East London, Makhanda (Grahamstown) and Alexandria, with an extent of occurrence (EOO) of 9,111km ² . It is known from 10 locations, but it is highly likely that it exists at more locations as the northern and eastern parts of its distribution range remains poorly explored. Continuing decline is inferred from ongoing habitat loss and degradation. It occurs in grassland and open thicket, sometimes in the shelter of bushes in grassland and mesic thicket habitats.		The probability of occurrence on the site is classified as Medium based on the known distribution and habitat requirements of this species.



Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Iridaceae	<i>Dietes bicolor</i>	Rare	Schedule 4	--	--	A habitat specialist, that is not currently known to be declining which occurs alongside streams and vleis from Makhanda (Grahamstown) to East London.		Confirmed on site along Kat River riparian habitat near Eastern Cluster.
Isoetaceae	<i>Isoetes wormaldii</i>	Critically Endangered (CR) C2a(i); D	--	--	--	A highly localised Makhanda (Grahamstown) endemic species which occurs in temporary pools and streams or perennially submerged in slow-flowing rivers near Makhanda (Grahamstown). Its AOO is < 1km ² , known from three, possibly four locations. It occurs as small subpopulations, each with a maximum of 15 plants. Subpopulations fluctuate in response to grazing (numbers increase after temporary pools are grazed). Without grazing plants temporarily disappear. Declining due to urban development.		The probability of occurrence on the site is classified as Medium based on the known distribution, inconspicuous nature and habitat requirements of this species.
Lamiaceae	<i>Tetradenia barberae</i>	Rare	--	--	--	Eastern Cape endemic species occurring from the Mbashe River to the Fish River in Thicket in dry, rocky river valleys. Occurs as small, scattered subpopulations over a wide range. Its habitat is fairly inaccessible to livestock, therefore considered rare but not threatened.		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.



Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Lauraceae	<i>Ocotea bullata</i>	Endangered (EN) A2bd	--	Protected Tree	--	<p>A widespread South African endemic from the Cape Peninsula to the Wolkberg Mountains in Limpopo. It occurs in high, cool, evergreen afromontane forests.</p> <p>The species was heavily exploited for the timber industry in the past, and more recently for bark for the traditional medicine trade. Despite its wide, but disjunct, distribution, subpopulations in at least 53% of its range have been heavily exploited, rendering them extinct, near-extinct, rare, scarce or fragmented.</p>		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.
Podocarpaceae	<i>Afrocarpus falcatus</i>	Least Concern (LC)	--	Protected Tree	--	<p>Widespread species not endemic to South Africa, occurring along the coastal band within riverine forest habitats.</p>		Confirmed on site along the Kat River (Eastern Cluster).
Pittosporaceae	<i>Pittosporum viridifolium</i>	Least Concern (LC)	--	Protected Tree	--	<p>Widespread species, not endemic to South Africa.</p>	Not Available	Confirmed on site in Grahamstown Grassland Thicket clumps.
Ranunculaceae	<i>Sensitive Species 609</i>	Vulnerable (VU) A2d; B2ab(v)	--	--	--	<p>An Eastern Cape and KwaZulu Natal endemic species which occurs in forest understorey, edges of seeps and vleis in grassland.</p> <p>AOO <2 ,000km², severely fragmented subpopulations occur in isolated sites and continue to decline.</p> <p>This species is common in traditional medicine markets and very rare in the wild. A decline of >30% over the past 15 years is estimated as a result of heavy trade pressure.</p>		The probability of occurrence on the site is classified as Moderate based on the known distribution and habitat requirements of this species, particularly within the wetland and riparian habitats.



Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Rhizophoraceae	<i>Cassipourea flanaganii</i>	Endangered (EN) A4acd; C1+2a(i)	--	--	--	<p>A South African endemic species which occurs from King William's Town to southern KwaZulu-Natal in evergreen primary and secondary forest from coast to 900m and also in southern mistbelt forest.</p> <p>A population reduction of at least 50% in the past 100 years is suspected based on volumes of bark harvested for the local traditional medicinal plant trade, and is expected to continue at the same rate for the next 50 years due to the popularity of this species (generation length 50 years).</p>		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.
Sapotaceae	<i>Sideroxylon inerme subsp. inerme</i>	Least Concern (LC)	--	Protected Tree	--	Widespread species not endemic to South Africa, occurring along the coastal band within coastal forest and Albany Thicket habitats.		Confirmed on site in Grahamstown Grassland Thicket clumps.
Zamiaceae	<i>Sensitive Species 828</i>	Vulnerable (VU) A2acd; C1	Schedule 3	--	Vulnerable species	<p>Eastern Cape and KwaZulu Natal endemic species which occurs in open shrubland, steep, rocky slopes and forests near the coast and often along river banks within Bhisho Thornveld, Eastern Valley Bushveld, Scarp Forest, Umtiza Forest Thicket, Fish Valley Thicket, Buffels Valley Thicket and Albany Valley Thicket habitats.</p> <p>Subpopulations occur in at least ten (10) river valleys extending from the Bushmans River in the south, through the Kariega, Kowie, Riet, Fish, Kap, Biga, Buffalo, Mpetu, Kei, Keiskamma, and Mbashe Rivers. The total population of Sensitive Species 828 is estimated to be near 10,000 individuals.</p>		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.



Family	Species	SA Red List	ENCO	Protected Tree	NEMBA	Habitat, distribution and population trend (SANBI Red List)	Distribution Map	Probability of occurrence
Zamiaceae	<i>Sensitive Species 969</i>	Critically Endangered (CR) A2ad; B2ab(ii,iii,v); C1+2a(i)	Schedule 3	--	Critically endangered species	<p>Sensitive Species 969 is in a critical state of continuing decline and has no natural seed set. Based on plants in collections and studies of matched photographs, the population has declined by >80% over the past 100 years (three generations). AOO is estimated to be 9km² and the population is extremely fragmented with most individuals separated from each other by more than one kilometre. All subpopulations comprise less than 20 plants, which is non-viable for supporting pollinators and there appears to have been no recruitment for more than 50 years. The total remaining population is estimated to be between 60 and 100 mature individuals.</p> <p>It is a localised endemic species restricted to the Albany and Bathurst districts on rocky outcrops and slopes in thicket as well as open grassland in Suurberg Quartzite Fynbos and Grahamstown Grassland Thicket habitats.</p>		The probability of occurrence on the site is classified as Medium based on the known distribution and habitat requirements of this species.
Zamiaceae	<i>Sensitive Species 72</i>	Vulnerable (VU) A2cd	Schedule 3	--	Vulnerable species	<p>Eastern Cape endemic species which occurs in the Albany, Bathurst, Fort Beaufort and Peddie districts in arid low succulent shrubland on rocky ridges and slopes within Grahamstown Grassland Thicket, Fish Valley Thicket, Albany Valley Thicket, Albany Mesic Thicket, Albany Bontveld, Albany Arid Thicket habitats.</p> <p>There has been at least a 30% decline in subpopulations due to habitat alteration and collecting since the 1950s, based on repeat photographs and monitoring data. Subpopulations have declined in the Bushmans and Kariega River valleys due to collecting and land use and in the Helsepoort area, northwest of Makhanda (Grahamstown), due to heavy grazing.</p>		The probability of occurrence on the site is classified as Medium based on the known distribution and habitat requirements of this species.
Zamiaceae	<i>Sensitive Species 191</i>	Vulnerable (VU) A2acd+4cd	Schedule 3	--	Vulnerable species (medicinal)	<p>Occurs in Scarp and coastal forest, Ngongoni and coastal grassland from Bathurst to southern Mozambique.</p> <p>At least 20% of the habitat has been lost over the last three generations (150 years) and harvesting for the traditional medicine trade has caused at least a further 10-20% decline in population size.</p>		The probability of occurrence on the site is classified as Low based on the known distribution and habitat requirements of this species.

6 SURVEY RESULTS

The micro-siting investigation (site survey) was undertaken over the course of three (3) days, from 23 to 26 October 2023. A map indicating the survey tracks is presented in Figure 6-1.

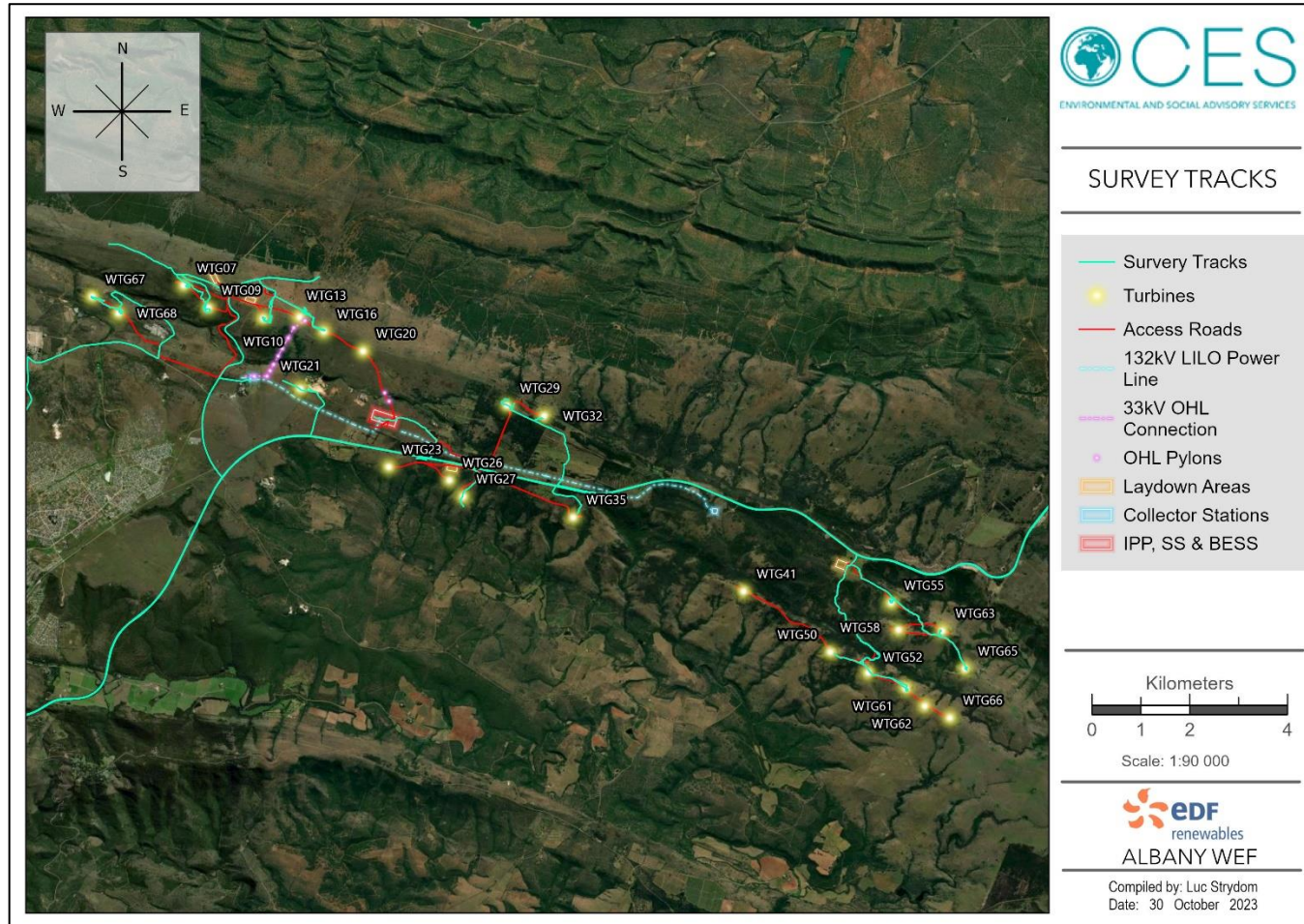


Figure 6-1: Survey Track

Nine (9) of the potential SCC listed in Table 5-1 above were identified or confirmed to occur on site during the micro-siting investigation. However, an additional 44 plant species requiring permits were recorded during the micro-siting investigation, all of which are classified as Least Concern (LC) but protected in terms of the Eastern Cape NECO (1974) and/or the List of Protected Tree Species Under the National Forests Act, 1998 (Act No. 84 Of 1998) (refer to Appendix 1).

This section provides a photograph of each turbine position or the location of the infrastructure components and a list of the SCC identified at each site. The survey results are divided into the clusters described above, as the vegetation within these clusters is relatively heterogenous and species and populations of widespread protected taxa are expected to occur fairly uniformly throughout the habitats within a cluster. The general heterogeneity of the vegetation communities within their respective habitats was considered when extrapolating for potential species in some instances (i.e. portions of access road alignments, OHL and underground transmission cabling alignments and remote turbine locations).

6.1 Western Cluster

The vegetation within the western cluster is modelled as *Grahamstown Grassland Thicket* habitat throughout and the survey confirmed this, although elements of Suurberg Quartzite Fynbos were also evident on the southern slopes and rocky ridges within these areas. The vegetation is largely within a natural to semi-natural condition and fairly heterogenous throughout. Turbines and infrastructure within this habitat include WTG07, WTG09, WTG10, WTG13, WTG16, WTG20, WTG21, WTG67 & WTG68 as well as the Road 1, Road 2, Road 3, two (2) construction laydown areas and a portion of the road to Collector West.

The vegetation can be described as open grassy shrubland mosaic with thicket clumps scattered throughout. The landscape is relatively rocky, and it is along the shallow rocky outcrops that most of the protected species were recorded. On the southern slopes, *Bobartia orientalis* is relatively abundant. Protected tree species such as Cape Cheesewood *Pittosporum viridiflorum* and White Milkwood *Sideroxylon inerme subsp. inerme* are common as individuals or small collections within the thicket clumps scattered throughout the cluster.

Alien invasive stands are tenuously limited in this cluster and seem restricted to the wetter, lower slopes where sufficient groundwater is available. These stands consist largely of *Acacia mearnsii* and *Acacia longifolia*, and to a lesser extent *Hakea sericea* and *Pinus pinaster*.

SCC recorded during the survey include *Euphorbia meloformis* (NT) recorded within the turbine footprints at WTG13 and WTG16 as well as along the approved access road alignment. In addition, *Eriospermum dregei* (NT) was recorded within the turbine footprints and access road alignment. *Pelargonium reniforme* (NT) was recorded throughout the Western Cluster area and habitats.

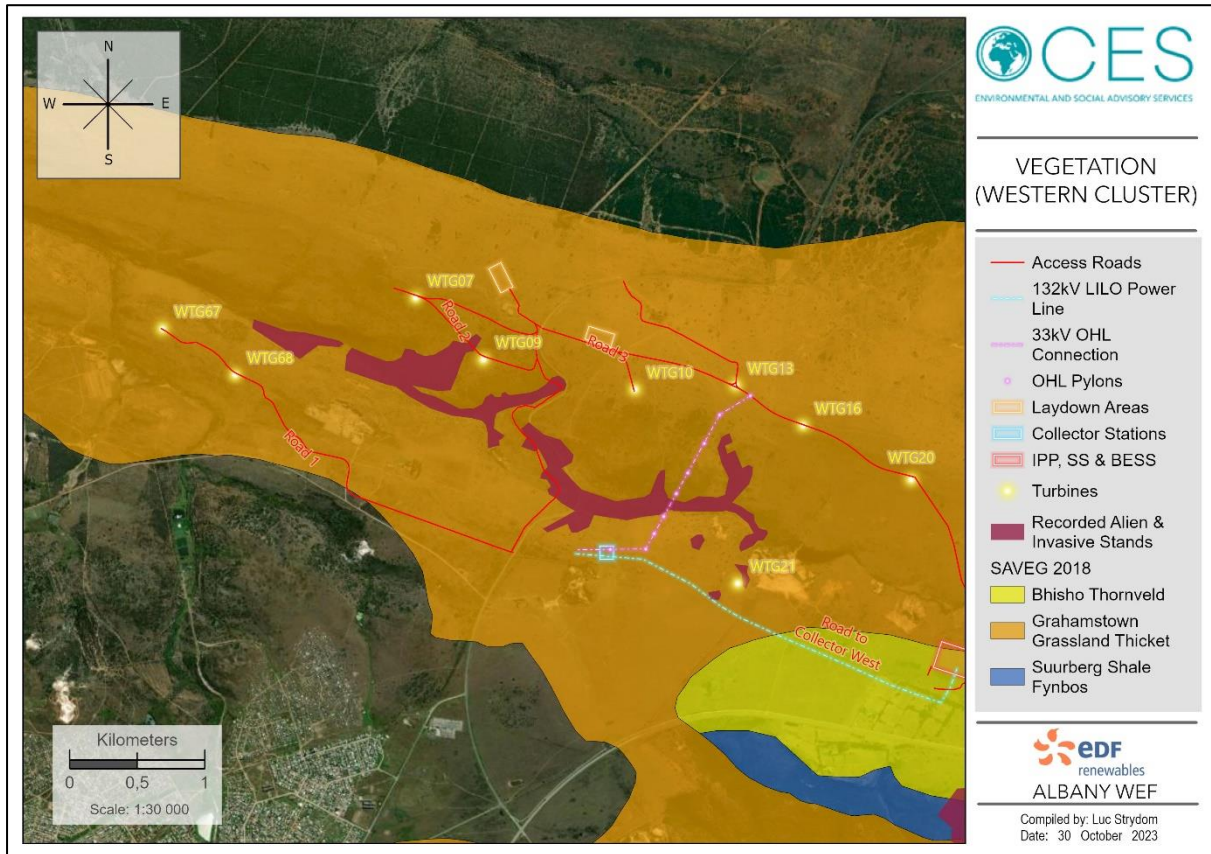

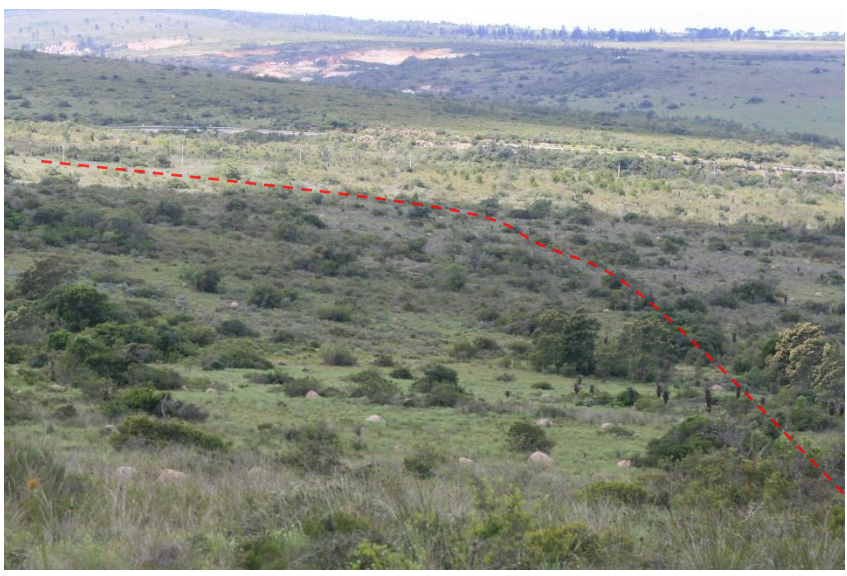




Figure 6-2: Vegetation within the Western Cluster.


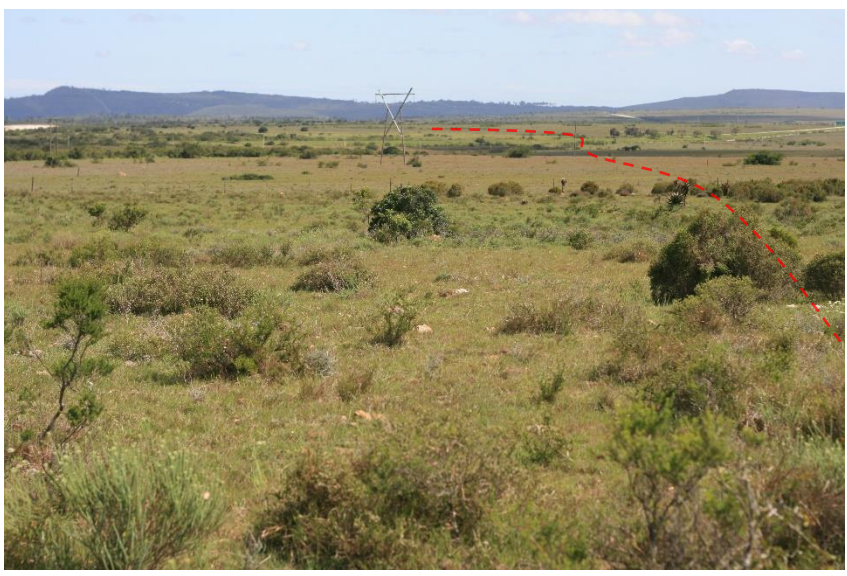
Table 6-1: Western Cluster Survey Results



WTG07	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Agathosma ovata</i> (LC) • <i>Aloe lineata</i> (LC) • <i>Bobartia orientalis</i> (LC) • <i>Boophone disticha</i> (LC) • <i>Dietes grandiflora</i> (LC) • <i>Eulophia hians</i> (LC) • <i>Harveya purpurea</i> (LC) • <i>Holothrix burchellii</i> (LC) • <i>Pelargonium reniforme</i> (NT) • <i>Watsonia pillansii</i> (LC) • <i>Zanthoxylum capense</i> (LC)

WTG09	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Bobartia orientalis</i> (LC) • <i>Boophone disticha</i> (LC) • <i>Lampranthus spectabilis</i> (LC) • <i>Pelargonium reniforme</i> (NT) • <i>Pittosporum viridifolium</i> (LC) • <i>Sideroxylon inerme</i> subsp. <i>inerme</i> (LC) • <i>Trichodiadema orientale</i> (DDT) • <i>Watsonia pillansii</i> (LC)
Access Road between WTG07 & WTG09	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Aloe lineata</i> (LC) • <i>Bobartia orientalis</i> (LC) • <i>Boophone disticha</i> (LC) • <i>Carpobrotus deliciosus</i> (LC) • <i>Corpuscularia gracillimum</i> (LC) • <i>Cyrtanthus obliquus</i> (LC) • <i>Harveya purpurea</i> (LC) • <i>Lampranthus spectabilis</i> (LC) • <i>Pelargonium reniforme</i> (NT) • <i>Pittosporum viridifolium</i> (LC) • <i>Sideroxylon inerme</i> subsp. <i>inerme</i> (LC) • <i>Trichodiadema orientale</i> (DDT) • <i>Watsonia pillansii</i> (LC) • <i>Zanthoxylum capense</i> (LC)

WTG10	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Aristea anceps</i> (LC) • <i>Bobartia orientalis</i> (LC) • <i>Corpuscularia gracillimum</i> (LC) • <i>Harveya purpurea</i> (LC) • <i>Lampranthus spectabilis</i> (LC)
WTG13	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Aclepias albens</i> (LC) • <i>Aristea schizolaena</i> (LC) • <i>Bergeranthus multiceps</i> (DDT) • <i>Brunsvigia gregaria</i> (LC) • <i>Euphorbia meloformis</i> (NT) • <i>Freesia corymbosa</i> (LC) • <i>Gladiolus wilsoni</i> (LC) • <i>Pelargonium reniforme</i> (NT) • <i>Trichodiadema orientale</i> (DDT)

WTG16	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Aclepias albens</i> (LC) • <i>Agathosma ovata</i> (LC) • <i>Aristea schizolaena</i> (LC) • <i>Bergeranthus multiceps</i> (DDT) • <i>Brunsvigia gregaria</i> (LC) • <i>Carpobrotus deliciosus</i> (LC) • <i>Corpuscularia gracillimum</i> (LC) • <i>Pelargonium reniforme</i> (NT) • <i>Trichodiadema orientale</i> (DDT)
WTG20	Protected plant species expected
<p style="text-align: center;">Not available (data extrapolated from WTG16)</p>	<ul style="list-style-type: none"> • <i>Aclepias albens</i> (LC) • <i>Agathosma ovata</i> (LC) • <i>Aristea schizolaena</i> (LC) • <i>Bergeranthus multiceps</i> (DDT) • <i>Brunsvigia gregaria</i> (LC) • <i>Carpobrotus deliciosus</i> (LC) • <i>Corpuscularia gracillimum</i> (LC) • <i>Pelargonium reniforme</i> (NT) • <i>Trichodiadema orientale</i> (DDT)
Road 3 (Access road between WTG10 & WTG20)	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Aclepias albens</i> (LC) • <i>Aristea anceps</i> (LC) • <i>Agathosma ovata</i> (LC) • <i>Aristea schizolaena</i> (LC) • <i>Bergeranthus multiceps</i> (DDT) • <i>Brunsvigia gregaria</i> (LC) • <i>Carpobrotus deliciosus</i> (LC) • <i>Corpuscularia gracillimum</i> (LC) • <i>Euphorbia meloformis</i> (NT) • <i>Freesia corymbosa</i> (LC) • <i>Gladiolus wilsonii</i> (LC) • <i>Pelargonium reniforme</i> (NT) • <i>Pittosporum virifolium</i> (LC) • <i>Sideroxylon inerme</i> subsp. <i>inerme</i> (LC) • <i>Trichodiadema orientale</i> (DDT)

WTG21	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Aloe lineata</i> (LC) • <i>Aristea anceps</i> (LC) • <i>Asclepias albens</i> (LC) • <i>Brunsvigia gregaria</i> (LC) • <i>Euphorbia meloformis</i> (NT) • <i>Holothrix burchellii</i> (LC) • <i>Pelargonium reniforme</i> (NT) • <i>Tritonia gladiolaris</i> (LC)
Access Road to Collector West (Switching Station to WTG21)	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Aloe lineata</i> (LC) • <i>Aristea anceps</i> (LC) • <i>Asclepias albens</i> (LC) • <i>Brunsvigia gregaria</i> (LC) • <i>Euphorbia meloformis</i> (NT) • <i>Gladiolus wilsonii</i> (LC) • <i>Holothrix burchellii</i> (LC) • <i>Moraea elliotii</i> (LC) • <i>Pelargonium reniforme</i> (LNT) • <i>Sideroxylon inerme subsp. inerme</i> (LC) • <i>Tritonia gladiolaris</i> (LC)

WTG67	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Asclepias albens</i> (LC) • <i>Carpobrotus deliciosus</i> (LC) • <i>Corpuscularia gracillimum</i> (LC) • <i>Cyrtanthus obliquus</i> (LC) • <i>Eriospermum dregei</i> (NT) • <i>Eulophia tuberculata</i> (LC) • <i>Freesia corymbosa</i> (LC) • <i>Gladiolus wilsoni</i> (LC) • <i>Lampranthus spectabilis</i> (LC) • <i>Mestoklema albanicum</i> (NT) • <i>Pelargonium reniforme</i> (NT) • <i>Ruschia complanata</i> (DDT)
WTG68	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Asclepias albens</i> (LC) • <i>Carpobrotus deliciosus</i> (LC) • <i>Corpuscularia gracillimum</i> (LC) • <i>Cyrtanthus obliquus</i> (LC) • <i>Eriospermum dregei</i> (NT) • <i>Erica orientalis</i> (DDT) • <i>Eulophia tuberculata</i> (LC) • <i>Freesia corymbosa</i> (LC) • <i>Gladiolus wilsoni</i> (LC) • <i>Holothrix burchellii</i> (LC) • <i>Lampranthus spectabilis</i> (LC) • <i>Mestoklema albanicum</i> (NT) • <i>Pelargonium reniforme</i> (NT) • <i>Ruschia complanata</i> (DDT)

Access Road 1 (WTG67 and WTG68 and to R67)	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Aloe lineata</i> (LC) • <i>Asclepias albens</i> (LC) • <i>Carpobrotus deliciosus</i> (LC) • <i>Corpuscularia gracillimum</i> (LC) • <i>Cyrtanthus obliquus</i> (LC) • <i>Delosperma laxipetalum</i> (LC) • <i>Delosperma verecundum</i> (LC) • <i>Drosanthemum hispidum</i> (LC) • <i>Eriospermum dregei</i> (NT) • <i>Erica orientalis</i> (DDT) • <i>Eulophia tuberculata</i> (LC) • <i>Freesia corymbosa</i> (LC) • <i>Gladiolus wilsoni</i> (LC) • <i>Holothrix burchellii</i> (LC) • <i>Lampranthus spectabilis</i> (LC) • <i>Mesembryanthemum aitonis</i> (LC) • <i>Mesembryanthemum haeckelianum</i> (LC) • <i>Mestoklema albanicum</i> (NT) • <i>Pelargonium reniforme</i> (NT) • <i>Ruschia complanata</i> (DDT) • <i>Sideroxylon inerme subsp. inerme</i> (LC)

6.2 Central Cluster

The vegetation within the central cluster is dominated by *Bhisho Thornveld* and is flanked to the north and south by *Suurberg Quartzite Fynbos* on the adjacent valley ridges, with a band of *Suurberg Shale Fynbos* towards the south of the cluster. The area within the cluster has seen an extensive historical invasion of *Acacia mearnsii* and *Hakea sericea* (in the fynbos habitats). Clearing efforts within the cluster are evident in many large areas, however the basal layer within these areas is still fairly sparse and dominated by pioneer grasses and forbs.

The main, central portion of the cluster consists of largely degraded and/or transformed *Bhisho Thornveld*. Turbines and infrastructure within this habitat include the IPP-SS-BESS, WTG23, WTG26, WTG29 & WTG32 as well as one (1) construction laydown area. The tree clump component is largely gone and the habitat surveyed was dominated by pioneer species, and sparse secondary species distributions. The access road (Road 5) alignment between WTG29 & WTG32 includes overlapping fynbos and thicket elements, including *Agathosma ovata*, *Bergeranthus multiceps* and *Pelargonium reniforme*.

Road 6 as well as WTG27 & WTG35 are proposed in fynbos habitats, namely *Suurberg Quartzite Fynbos* and *Suurberg Shale Fynbos*. The vegetation within these areas can be described as grassy fynbos, often dominated by *Bobartia orientalis* and low ericoid shrubs. Large sections of this habitat have been invaded by *Hakea sericea* and *Acacia mearnsii* and significant stands are present throughout.

SCC recorded during the survey include *Pelargonium reniforme* (NT) and *Bergeranthus multiceps* (DDT) recorded within the access road alignment between WTG29 & WTG32 (Road 5).

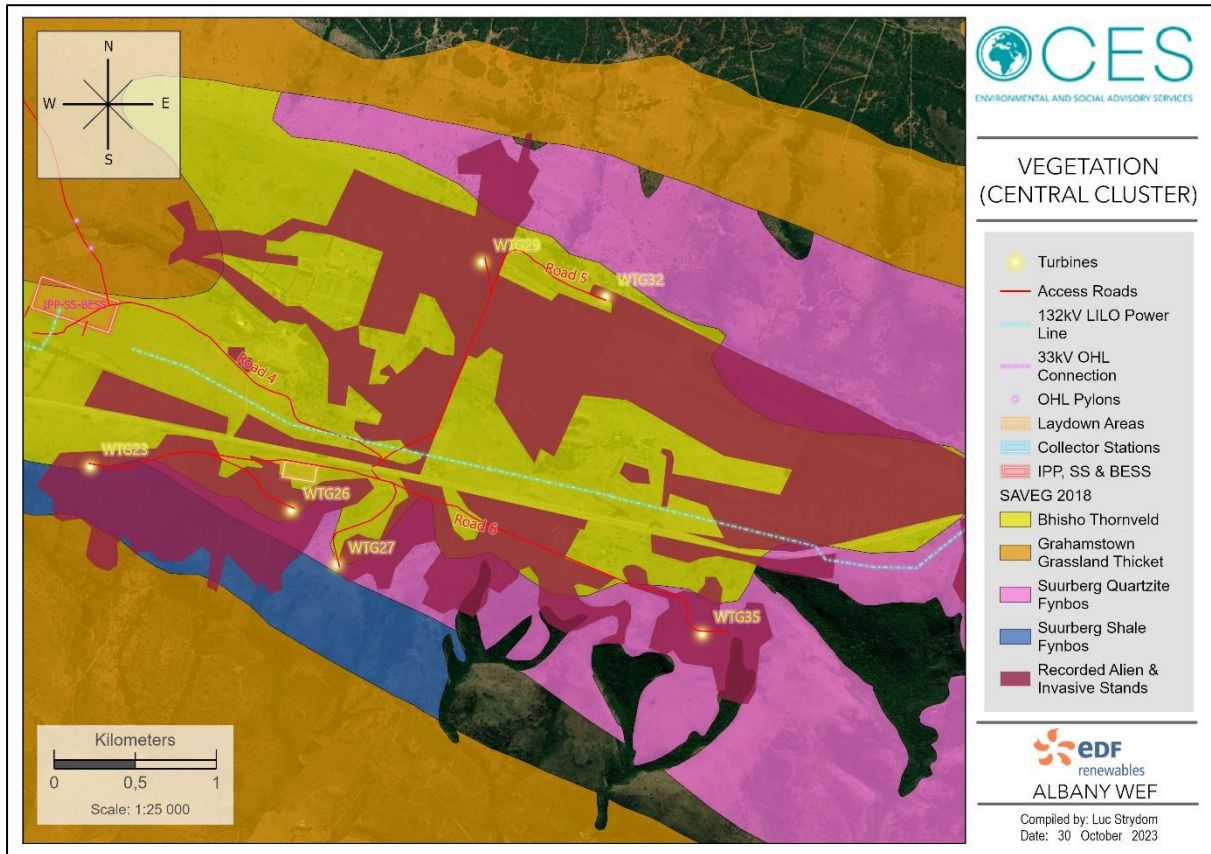



Figure 6-3: Vegetation within the Central Cluster.

Table 6-2: Central Cluster Survey Results

WTG23	Protected plant species recorded
Not available (data extrapolated from WTG26)	<i>None</i>
WTG26	Protected plant species recorded
	<i>None</i>

WTG27	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Agathosma ovata</i> (LC) • <i>Alepidea capensis</i> (LC) • <i>Aristea schizolaena</i> (LC) • <i>Bobartia orientalis</i> (LC) • <i>Harveya purpurea</i> (LC) • <i>Watsonia knysnana</i> (LC)
WTG35	Protected plant species recorded
	None

Access road for WTG23 to WTG35	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Agathosma ovata</i> (LC) • <i>Alepidea capensis</i> (LC) • <i>Aristea schizolaena</i> (LC) • <i>Bobartia orientalis</i> (LC) • <i>Corpuscularia gracillimum</i> (LC) • <i>Erica orientalis</i> (LC) • <i>Harveya purpurea</i> (LC) • <i>Leucadendron salignum</i> (LC)
IPP-SS-BESS	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Aclepias albens</i> (LC)

WTG29	Protected plant species expected
	None
WTG32	Protected plant species recorded
	None
Access Road 5 (WTG 29 to WTG 32)	Protected plant species recorded
None available	<ul style="list-style-type: none"> • <i>Agathosma ovata</i> • <i>Bergeranthus multiceps</i> (DDT) • <i>Brunsvigia gregaria</i> (LC) • <i>Pelargonium reniforme</i> (NT)

6.3 Eastern Cluster

The vegetation within the eastern cluster is modelled entirely as *Suurberg Quartzite Fynbos* habitat throughout and the survey confirmed this, although large areas of this habitat area have been transformed through the historical infestations leading to large portions of monodominant stands of *Acacia mearnsii* and *Hakea sericea*.

The portions of semi-intact and degraded vegetation can be described as open grassy fynbos on rocky slopes with small, occasional tree clumps. The Grand Cushionbush *Oldenburgia grandis* (NT) is relatively common along the rocky ridge in open areas where alien stands are limited. Within the open grassy fynbos elements, particularly around WTG61, WTG62 & WTG66, species such as *Bobartia orientalis*, *Dierama pendulum*, *Erica orientalis*, *Pelargonium reniforme* and *Tritoniopsis caffra* are scattered throughout. Additionally, along the shallow rocky outcrops along the ridges on the southern ridge, small populations of *Corpuscularia gracillimum* and *Crassula perfoliata* var. *falcata* are present.

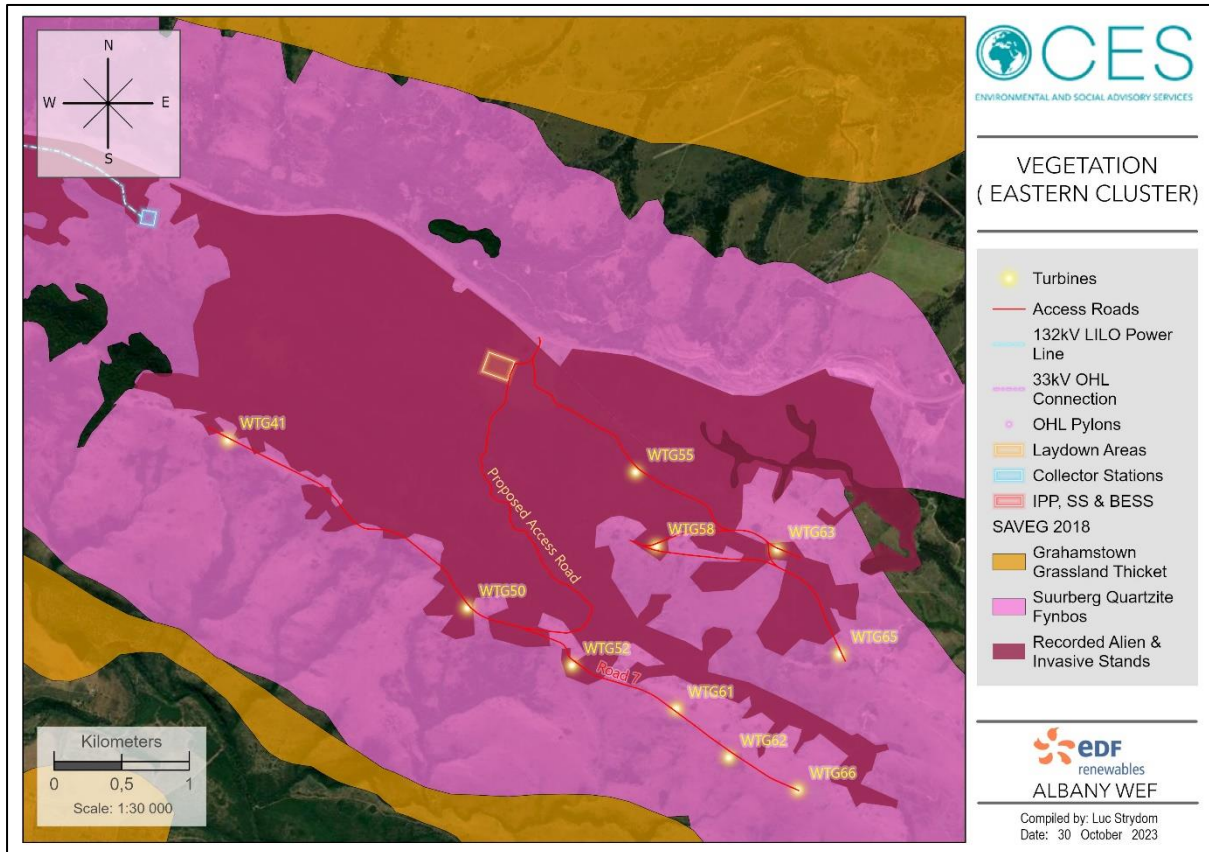




Figure 6-4: Vegetation within the Central Cluster.

Table 6-3: Eastern Cluster Survey Results

Proposed 132kV Powerline between Central and Eastern Cluster (north of N2)	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Bobartia orientalis</i> (LC) • <i>Erica chamissonis</i> (LC) • <i>Erica nemorsa</i> (LC)
WTG41	Protected plant species recorded
<p>Not available (data extrapolated from WTG50, WTG52 and WTG61)</p>	<ul style="list-style-type: none"> • <i>Bobartia orientalis</i> (LC) • <i>Dierama pendulum</i> (LC) • <i>Erica orientalis</i> (DDT) • <i>Oldenburgia grandis</i> (NT) • <i>Tritoniopsis caffra</i> (LC) • <i>Watsonia knysnana</i> (LC)
WTG50	Protected plant species recorded
	<p>None</p>

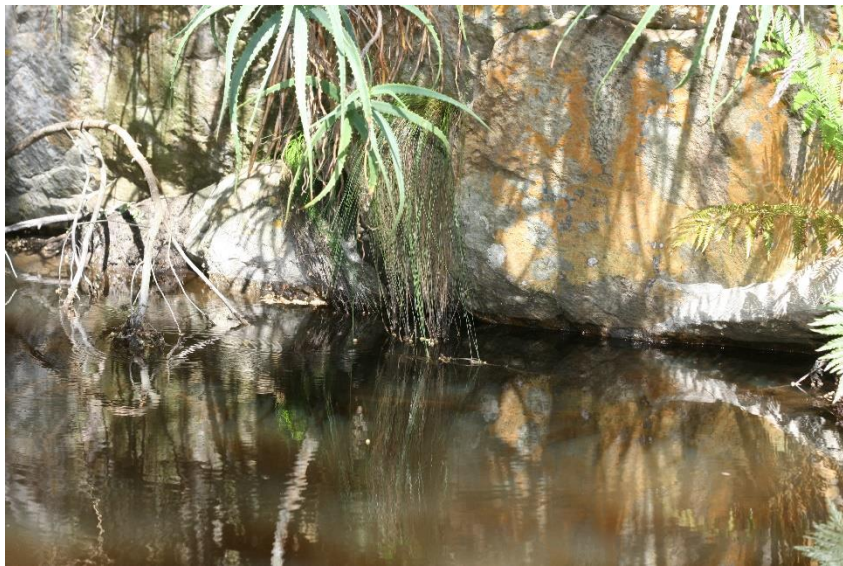
WTG52	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Bobartia orientalis</i> (LC) • <i>Oldenburgia grandis</i> (NT) • <i>Watsonia knysnana</i> (LC)
WTG61	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Dierama pendulum</i> (LC) • <i>Erica orientalis</i> (DDT) • <i>Oldenburgia grandis</i> (NT) • <i>Tritoniopsis caffra</i> (LC)
WTG62 & WTG66	Protected plant species recorded
Not available (data extrapolated from WTG61)	<ul style="list-style-type: none"> • <i>Dierama pendulum</i> (LC) • <i>Erica orientalis</i> (DDT) • <i>Oldenburgia grandis</i> (NT) • <i>Tritoniopsis caffra</i> (LC)
Access Road 7 (between WTG41 & WTG66)	Protected plant species expected



- *Bobartia orientalis* (LC)
- *Corpuscularia gracillimum* (LC)
- *Crassula perfoliata* var. *falcata* (LC)
- *Dierama pendulum* (LC)
- ***Erica orientalis* (DDT)**
- ***Oldenburgia grandis* (NT)**
- *Tritoniopsis caffra* (LC)
- *Watsonia knysnana* (LC)

Access Road 7 (Kat River crossings)



Protected plant species expected



- *Aloe arborescens* (LC)
- *Afrocarpus falcatus* (LC)
- *Carpobrotus edulis* (LC)
- ***Dietes bicolor* (Rare)**
- *Gomphocarpus physocarpus* (LC)

WTG55

Protected plant species recorded

	<ul style="list-style-type: none"> • <i>Alepidea capensis</i> (LC) • <i>Anisotoma cordifolia</i> (LC) • <i>Bobartia orientalis</i> (LC) • <i>Pelargonium reniforme</i> (NT) • <i>Oldenburgia grandis</i> (NT)
WTG58	Protected plant species recorded
Not available (data extrapolated from WTG55 & WTG63)	<ul style="list-style-type: none"> • <i>Alepidea capensis</i> (LC) • <i>Anisotoma cordifolia</i> (LC) • <i>Bobartia orientalis</i> (LC) • <i>Gomphocarpus physocarpus</i> (LC) • <i>Pelargonium reniforme</i> (NT) • <i>Oldenburgia grandis</i> (NT)
WTG63	Protected plant species recorded
	<ul style="list-style-type: none"> • <i>Alepidea capensis</i> (LC) • <i>Bobartia orientalis</i> (LC) • <i>Gomphocarpus physocarpus</i> (LC)
WTG65	Protected plant species recorded



None

Access road 7 (between WTG55 to WTG65)

Protected plant species recorded



- *Afrocarpus falcatus* (LC)
- *Alepidea capensis* (LC)
- *Anisotoma cordifolia* (LC)
- *Bobartia orientalis* (DDT)
- *Carpobrotus deliciosus* (LC)
- ***Pelargonium reniforme* (NT)**
- ***Oldenburgia grandis* (NT)**

7 CONCLUSIONS AND RECOMMENDATIONS

A total of nine (9) listed SCC were recorded in the project area during the micro-siting investigation. However, an additional 44 plant species requiring permits were recorded during the micro-siting investigation, all of which are classified as Least Concern (LC) but protected in terms of the Eastern Cape NECO (1974) and/or the List of Protected Tree Species Under the National Forests Act, 1998 (Act No. 84 Of 1998).

Permits must be obtained from the relevant Competent Authority prior to the damage, removal and/or translocation of these protected species. A list of species for which permits from the local district office of DEDEAT (Sarah Baartman) must be obtained prior to construction is included in Table 7-1. Additionally, a list of protected tree species for which permits are required from DFFE is included in Table 7-2.

Where possible, SCC should be translocated to the nearest appropriate habitat and/or utilised during rehabilitation of impacted areas during the construction of the Albany WEF and associated infrastructure.

Table 7-1: List of plant species within the Albany WEF footprint which require permits from DEDEAT (Sarah Baartman District)

Family	Species	Common Name	IUCN Red List Status
Aizoaceae	Bergeranthus multiceps	-	DDT
Aizoaceae	Bergeranthus scapiger	-	LC
Aizoaceae	Carpobrotus deliciosus	<i>Delicious sourfig</i>	LC
Aizoaceae	Carpobrotus edulis subsp. edulis	<i>Edible sourfig</i>	LC
Aizoaceae	Corpuscularia gracillimum	<i>Slender hardfig</i>	LC
Aizoaceae	Delosperma laxipetalum	-	LC
Aizoaceae	Delosperma verecundum	-	LC
Aizoaceae	Drosanthemum hispidum	<i>Hairy Dewfig</i>	LC
Aizoaceae	Lampranthus spectabilis	<i>Spectacular Brightfig</i>	LC
Aizoaceae	Mesembryanthemum aitonis	<i>Coastal Solfig</i>	LC
Aizoaceae	Mesembryanthemum haeckelianum	<i>Eastern Sunfig</i>	LC
Aizoaceae	Mestoklema albanicum	<i>Albany Donkeyfig</i>	NT
Aizoaceae	Ruschia complanata	-	DDT
Aizoaceae	Trichodiadema orientale	<i>Eastern Crownfig</i>	DDT
Amaryllidaceae	Boophone disticha	Common Oxbane	LC
Amaryllidaceae	Brunsvigea gregaria	-	LC
Amaryllidaceae	Cyrtanthus obliquus	Knysna Lily	LC
Apocynaceae	Anisotoma cordifolia	-	LC
Apocynaceae	Asclepias albens	Cartwheels	LC

Family	Species	Common Name	IUCN Red List Status
Apocynaceae	Gomphocarpus cancellatus	Mountain Cottonbush	LC
Apocynaceae	Gomphocarpus physocarpus	Balloon Cottonbush	LC
Asphodelaceae	Aloe arborescens	Krantz Aloe	LC
Asphodelaceae	Aloe lineata	Red-spined Aloe	LC
Asteraceae	Oldenbergia grandis	Suurberg Cushion Bush	NT
Crassulaceae	Crassula perfoliata var. falcata	Propellor Plant	LC
Ericaceae	Erica caffra	Water Heath	LC
Ericaceae	Erica chamissonis	Suede Heath	LC
Ericaceae	Erica nemorosa	-	LC
Ericaceae	Erica orientalis	Eastern Heath	DDT
Euphorbiaceae	Euphorbia meloformis	Zebra Milkball	NT
Iridaceae	Aristea anceps	Blue bell	LC
Iridaceae	Aristea schizolaena	Blue bell	LC
Iridaceae	Bobartia macrocarpa	Grassveld Rushiris	LC
Iridaceae	Bobartia orientalis	Eastern Rushiris	LC
Iridaceae	Dierama pendulum		LC
Iridaceae	Diets bicolor	Peacock Flower	Rare
Iridaceae	Diets grandiflora	Large fortnight lily	LC
Iridaceae	Freesia corymbosa	Common Kammetjie	LC
Iridaceae	Gladiolus wilsonii	Winter pypie	LC
Iridaceae	Moraea ellioti	Blue Tulp	LC
Iridaceae	Tritonia gladiolaris	Line Triton	LC
Iridaceae	Tritoniopsis caffra	Mountain Reedpipe	LC
Iridaceae	Watsonia knysnana	Pink Garden-route Watsonia	LC
Iridaceae	Watsonia pillansii	Orange Watsonia	LC
Orchidaceae	Eulophia hians	Yawning Harlequin	LC
Orchidaceae	Eulophia tuberculata	Knobby Harlequin	LC
Orchidaceae	Holothrix burchellii	Tryphia Hair Orchid	LC
Orobanchaceae	Harveya purpurea	Purple Inkflower	LC
Proteaceae	Leucadendron salignum	Sunshine Conebush	LC
Ruscaceae	Eriospermum dregei	Mini Antler Woolseed	NT
Rutaceae	Agathosma ovata	False Buchu	LC

Family	Species	Common Name	IUCN Red List Status
Rutaceae	<i>Zanthoxylum capense</i>	Small Knobwood	LC

Table 7-2: List of tree species within the Albany WEF footprint which require permits from DFFE (Forestry)

Family	Species	Common Name	IUCN Red List Status
Pittosporaceae	<i>Pittosporum viridifolium</i>	Cape Cheesewood	LC
Podocarpaceae	<i>Afrocarpus falcatus</i>	Outiniqua Yellowwood	LC
Sapotaceae	<i>Sideroxylon inerme subsp. inerme</i>	White Milkwood	LC

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9 APPENDICES

9.1 Appendix 1: List of protected plant species recorded

Table 9-1: Protected plant species recorded within the proposed layout



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Aizoaceae	<i>Bergeranthus multiceps</i>	-	DDT	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (<u>Mesembryanthemaceae</u>)
	Aizoaceae	<i>Bergeranthus scapiger</i>	-	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (<u>Mesembryanthemaceae</u>)



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Aizoaceae	<i>Carpobrotus deliciosus</i>	Delicious sourfig	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>
	Aizoaceae	<i>Carpobrotus edulis subsp. edulis</i>	Edible sourfig	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Aizoaceae	<i>Corpuscularia gracillimum</i>	Slender hardfig	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>
	Aizoaceae	<i>Delosperma laxipetalum</i>	-	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Aizoaceae	<i>Delosperma verecundum</i>	-	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>
	Aizoaceae	<i>Drosanthemum hispidum</i>	Hairy Dewfig	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Aizoaceae	<i>Lampranthus spectabilis</i>	Spectacular Brightfig	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>
	Aizoaceae	<i>Mesembryanthemum aitonis</i>	Coastal Solfig	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Aizoaceae	<i>Mesembryanthemum haeckelianum</i>	Eastern Sunfig	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>
	Aizoaceae	<i>Mestoklema albanicum</i>	Albany Donkeyfig	NT	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Aizoaceae	<i>Ruschia complanata</i>	-	DDT	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>
	Aizoaceae	<i>Trichodiadema orientale</i>	Eastern Crownfig	DDT	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Mesembryanthemaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Amaryllidaceae	<i>Boophone disticha</i>	Common Oxbane	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Amaryllidaceae)</u>
	Amaryllidaceae	<i>Brunsvigia gregaria</i>	-	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Amaryllidaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Amaryllidaceae	<i>Cyrтанthus obliquus</i>	Knysna Lily	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Amaryllidaceae)</u>
	Apocynaceae	<i>Anisotoma cordifolia</i>	-	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Asclepidaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Apocynaceae	<i>Asclepias albens</i>	Cartwheels	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Asclepidaceae)</u>
	Apocynaceae	<i>Gomphocarpus cancellatus</i>	Mountain Cottonbush	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Asclepidaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Apocynaceae	<i>Gomphocarpus physocarpus</i>	Balloon Cottonbush	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Asclepidaceae)</u>
	Asphodelaceae	<i>Aloe arborescens</i>	Krantz Aloe	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Genus Aloe)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Asphodelaceae	<i>Aloe lineata</i>	Red-spined Aloe	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Genus Aloe)</u>
	Asteraceae	<i>Oldenbergia grandis</i>	Suurberg Bush Cushion	NT	-



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Crassulaceae	<i>Crassula perfoliata</i> var. <i>falcata</i>	Propellor Plant	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u>
	Ericaceae	<i>Erica caffra</i>	Water Heath	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Ericaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Ericaceae	<i>Erica chamissonis</i>	Suede Heath	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Ericaceae)</u>
	Ericaceae	<i>Erica nemorosa</i>	-	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Ericaceae)</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Ericaceae	<i>Erica orientalis</i>	Eastern Heath	DDT	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> <u>(Ericaceae)</u>
	Euphorbiaceae	<i>Euphorbia meloformis</i>	Zebra Milkball	NT	NEMBA TOPS <u>Protected Species</u> & Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Iridaceae	<i>Aristea anceps</i>	Blue bell	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)
	Iridaceae	<i>Aristea schizolaena</i>	Blue bell	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Iridaceae	<i>Bobartia macrocarpa</i>	Grassveld Rushiris	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)
	Iridaceae	<i>Bobartia orientalis</i>	Eastern Rushiris	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Iridaceae	<i>Dierama pendulum</i>		LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)
	Iridaceae	<i>Dietes bicolor</i>	Peacock Flower	Rare	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Iridaceae	<i>Dietes grandiflora</i>	Large fortnight lily	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)
	Iridaceae	<i>Freesia corymbosa</i>	Common Kammetjie	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)


PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Iridaceae	<i>Gladiolus wilsonii</i>	Winter pypie	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)
	Iridaceae	<i>Moraea ellioti</i>	Blue Tulp	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Iridaceae	<i>Tritonia gladiolaris</i>	Line Triton	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)
	Iridaceae	<i>Tritoniopsis caffra</i>	Mountain Reedpipe	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Iridaceae	<i>Watsonia knysnana</i>	Pink Garden-route Watsonia	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)
	Iridaceae	<i>Watsonia pillansii</i>	Orange Watsonia	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Iridaceae)



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Orchidaceae	<i>Eulophia hians</i>	Yawning Harlequin	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Orchidaceae)
	Orchidaceae	<i>Eulophia tuberculata</i>	Knobby Harlequin	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Orchidaceae)



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Orchidaceae	<i>Holothrix burchellii</i>	Tryphia Hair Orchid	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Orchidaceae)
	Orobanchaceae	<i>Harveya purpurea</i>	Purple Inkflower	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Genus <i>Harveya</i>)



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Pittosporaceae	<i>Pittosporum viridifolium</i>	Cape Cheesewood	LC	National Forest Act <u>Schedule A</u> <u>Protected Tree Species</u>
	Podocarpaceae	<i>Afrocarpus falcatus</i>	Outiniqua Yellowwood	LC	National Forest Act <u>Schedule A</u> <u>Protected Tree Species</u>



PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Proteaceae	<i>Leucadendron salignum</i>	Sunshine Conebush	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Proteaceae)
	Ruscaceae	<i>Eriospermum dregei</i>	Mini Antler Woolseed	NT	-




PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Rutaceae	<i>Agathosma ovata</i>	False Buchu	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Rutaceae)
	Rutaceae	<i>Zanthoxylum capense</i>	Small Knobwood	LC	Provincial Nature and Environment Conservation Ordinance (1974) <u>Schedule 4</u> (Rutaceae)

PHOTO	FAMILY	SPECIES	Common Name	Red List	Protected in terms of
	Sapotaceae	<i>Sideroxylon inerme subsp. inerme</i>	White Milkwood	LC	National Forest Act <u>Schedule A</u> <u>Protected Tree Species</u>