



THE TERRESTRIAL ECOLOGY & DESKTOP SOIL ASSESSMENTS FOR THE MSENGE EMOYENI PROJECT

Bedford, Eastern Cape

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CLIENT

savannah
environmental

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1 Introduction

The Biodiversity Company was commissioned to conduct a terrestrial ecology (fauna & flora) and desktop soil assessment for various components of the Msenge Emoyeni Wind Energy Facility (WEF) project (Figure 1-1).

The approach adopted for the assessments has taken cognisance of the recently published Government Notice 320 in terms of NEMA dated 20 March 2020: "Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation". The National Web based Environmental Screening Tool has characterised the terrestrial biodiversity for the project area as "very high sensitivity".

The purpose of these specialist studies is to provide relevant input into the environmental authorisation process for the proposed activities associated with the development. This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making, as to the ecological viability of the proposed project.

1.1 Project Context

The authorised Msenge Emoyeni WEF is located approximately 20 km south of the town of Bedford in the Eastern Cape Province. The addition of a Battery Energy Storage System (BESS) (The BESS will be placed within the same footprint as the authorised substation¹), new watercourse crossings, 132kV overhead powerline, new substation, and widening of the authorised access roads has been initiated by Amakhala Emoyeni Renewable Energy (Pty) Ltd in response to the procurement process initiated by the Independent Power Producer Office (IPP Office) for the procurement of up to 2000MW of dispatchable generation capacity from a range of technologies. This allocation is in accordance with the new generation capacity required as specified in the Integrated Resource Plan 2019 and accompanying ministerial determination from the Minister for the Department of Mineral Resources and Energy (DMRE) to which the National Energy Regulator of South Africa (NERSA) has concurred. The IPP Office has initiated procurement for the 2000MW of capacity under the Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP). The proposed project will entail the establishment of the following infrastructure:

- A Battery Energy Storage System (BESS) of up to a maximum of 800 MWh export capacity to be located within the authorised Msenge Wind Energy Facility substation and site compound clearance area;
- The upgrading and widening of all authorised wind farm access roads to a width of up to 9 m and a maximum of 12 m at corners for the construction phase of the Wind Energy Facility;

¹ The substation (in which the BESS falls) has been addressed in a separate application and not addressed in this report. The turbines are also not assessed in this report as they have been authorised and is only included to provide perspective on where the roads would lead

- Construction of 3 new watercourse crossings and the upgrading of existing watercourse crossings within the authorised Msenge Emoyeni Wind Energy Facility site;
- Increase the concrete foundations of each wind turbine from 20 m x 20 m x 2 m to 30 m x 30 m x 5 m;
- 132kV overhead powerline (double circuit line) approximately 4 km long in a 300 m assessment corridor, from authorized onsite substation that will loop in loop out into new onsite substation; and
- Additional onsite 132kV substation and compound clearance area (200 m x 200 m).

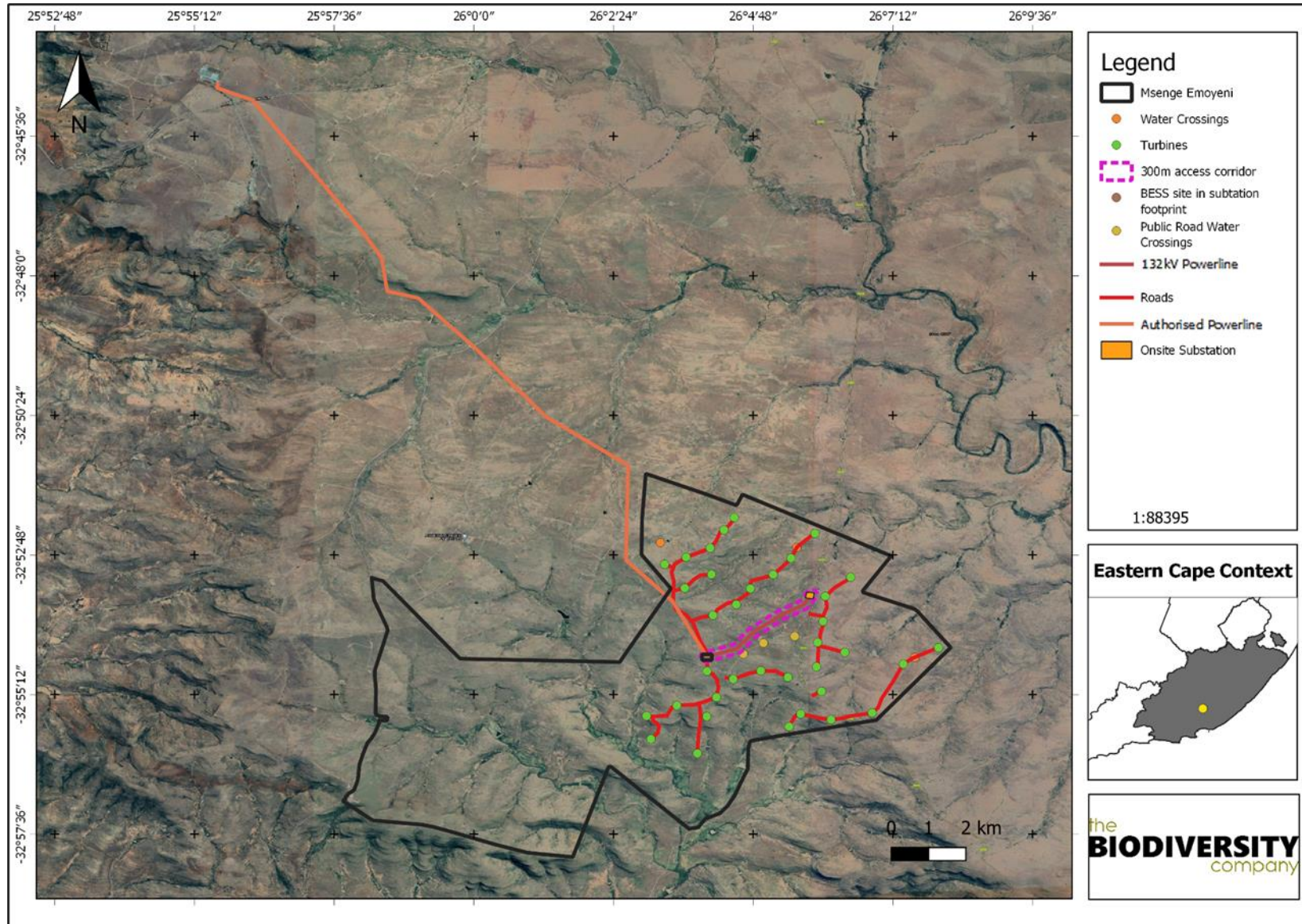




Figure 1-1 The Msenge Emoyeni project area and layout

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2 Specialist Details

Report Name	THE TERRESTRIAL ECOLOGY & DESKTOP SOIL ASSESSMENTS FOR THE MSENGE EMOYENI PROJECT	
Submitted to		
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Report Reviewer	Andrew Husted 	<p>Andrew Husted is Pr Sci Nat registered (400213/11) in the following fields of practice: Ecological Science, Environmental Science and Aquatic Science. Andrew is an Aquatic, Wetland and Biodiversity Specialist with more than 12 years' experience in the environmental consulting field. Andrew has completed numerous wetland training courses, and is an accredited wetland practitioner, recognised by the DWS, and also the Mondi Wetlands programme as a competent wetland consultant.</p>
Declaration	<p>The Biodiversity Company and its associates operate as independent consultants under the auspice of the South African Council for Natural Scientific Professions. We declare that we have no affiliation with or vested financial interests in the proponent, other than for work performed under the Environmental Impact Assessment Regulations, 2017. We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than to provide a professional service within the constraints of the project (timing, time and budget) based on the principals of science.</p>	

3 Terms of Reference

The Terms of Reference (ToR) included the following:

- Description of the baseline receiving environment specific to the field of expertise (general surrounding area as well as site specific environment);
- Identification and description of any sensitive receptors in terms of relevant specialist disciplines (fauna & flora) that occur in the project area, and the manner in which these sensitive receptors may be affected by the activity;
- A desktop description of the soil forms;
- Identify 'significant' ecological, botanical and faunal features within the proposed project areas;
- Identification of conservation significant habitats around the project area which might be impacted;
- Screening to identify any critical issues (potential fatal flaws) that may result in project delays or rejection of the application;
- Provide a map to identify sensitive receptors in the project area, based on available maps and database information;
- Conduct risk assessments relevant to the proposed activity; and
- Impact assessment and mitigation measures to address possible impacts.

4 Project Description

The Msenge Emoyeni project area is situated approximately 19 km south of Bedford and 28 km of Cookhouse. The predominant land uses surrounding the project area includes livestock farming (Marino sheep and Cattle), game farms and natural areas (Figure 4-1). A locality map of the project area is shown in Figure 4-1.

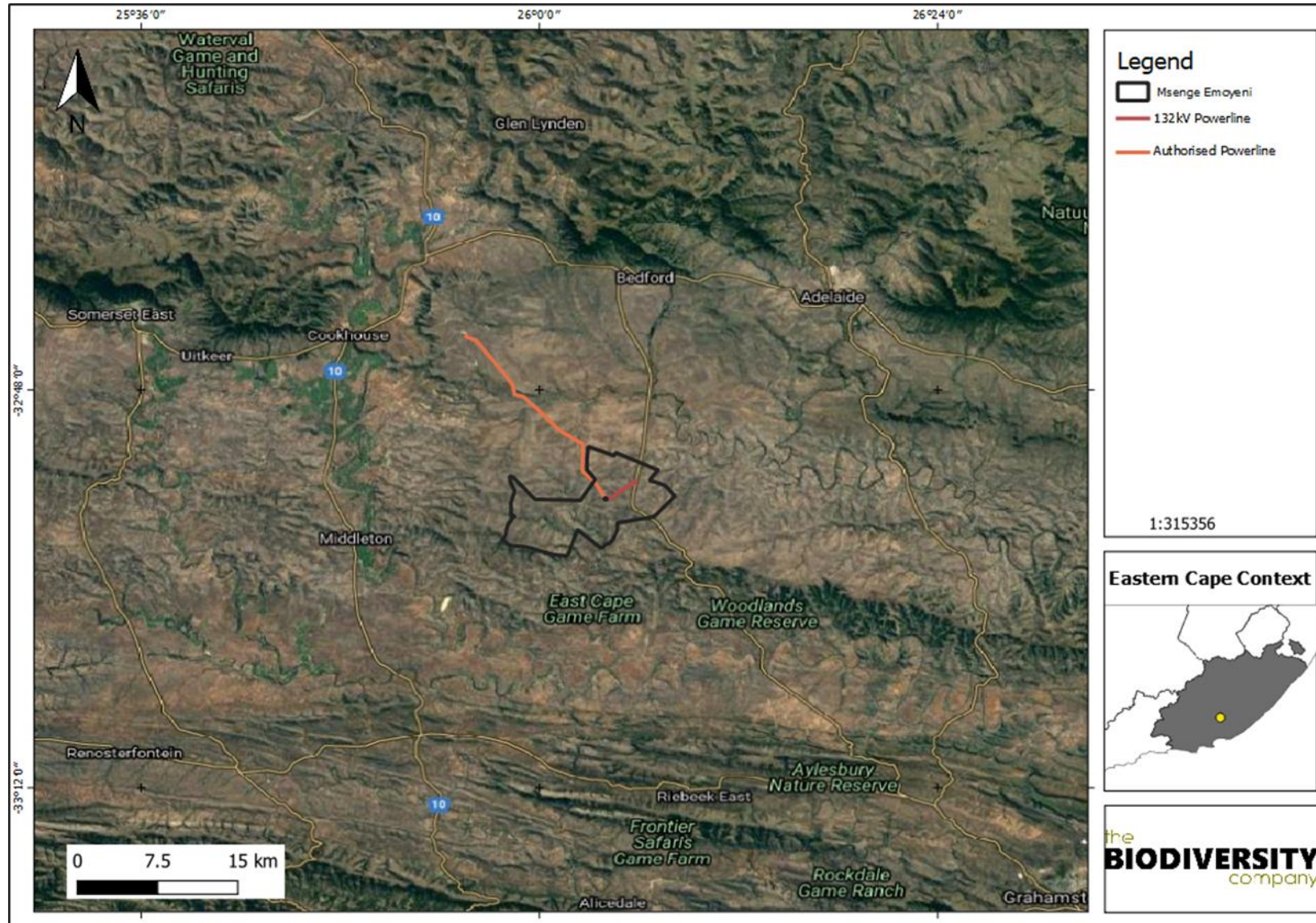


Figure 4-1 Locality of the project area

5 Key Legislative Requirements

The legislation, policies and guidelines listed below are applicable to the current project in terms of biodiversity and ecological support systems. The list below, although extensive, is not exhaustive and other legislation, policies and guidelines may apply in addition to those listed below (Table 5-1).

Table 5-1 A list of key legislative requirements relevant to these studies in the Eastern Cape

Region	Legislation
International	Convention on Biological Diversity (CBD, 1993)
	The Convention on Wetlands (RAMSAR Convention, 1971)
	The United Nations Framework Convention on Climate Change (UNFCCC, 1994)
	The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 1973)
	The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention, 1979)
	Constitution of the Republic of South Africa (Act No. 108 of 2006)
	The National Environmental Management Act (NEMA) (Act No. 107 of 1998)
	The National Environmental Management Act (NEMA) (Act No. 107 of 1998) Section 24 , No 42946 (January 2020)
	The National Environmental Management Act (NEMA) (Act No. 107 of 1998) Section 24 , No 43110 (March 2020)
	The National Environmental Management Protected Areas Act (Act No. 57 of 2003)
	The National Environmental Management Biodiversity Act (Act No. 10 of 2004)
	The National Environmental Management: Waste Act, 2008 (Act 59 of 2008);
	The Environment Conservation Act (Act No. 73 of 1989) and associated EIA Regulations
	National Environmental Management Air Quality Act (No. 39 of 2004)
	National Protected Areas Expansion Strategy (NPAES)
National	Environmental Conservation Act (Act No. 73 of 1983)
	Natural Scientific Professions Act (Act No. 27 of 2003)
	National Biodiversity Framework (NBF, 2009)
	National Forest Act (Act No. 84 of 1998)
	National Veld and Forest Fire Act (101 of 1998)
	National Spatial Biodiversity Assessment (NSBA)
	World Heritage Convention Act (Act No. 49 of 1999)
	National Heritage Resources Act, 1999 (Act 25 of 1999)
	Municipal Systems Act (Act No. 32 of 2000)
	Alien and Invasive Species Regulations, 2014
	South Africa's National Biodiversity Strategy and Action Plan (NBSAP)
	Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)
	Sustainable Utilisation of Agricultural Resources (Draft Legislation).
	White Paper on Biodiversity
National Water Act (NWA, 1998)	
Provincial	Eastern Cape Conservation Plan

 Transkei Environmental Conservation Decree 9 of 1992

 Eastern Cape Environmental Management Bill, in terms of Rule 147 (2019)

6 Methodologies

6.1 Terrestrial Assessment

6.1.1 Geographic Information Systems (GIS) Mapping

Existing data layers were incorporated into GIS software to establish how the proposed project might interact with any ecologically important entities. Emphasis was placed around the following spatial datasets:

- National Biodiversity Assessment (NBA) (Skowno *et al.*, 2019);
- Vegetation Map of South Africa, Lesotho and Swaziland (SANBI, 2018);
- National Freshwater Ecosystem Priority Area (NFEPA) database (Nel *et al.*, 2011); and
- South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (Van Deventer *et al.*, 2018).

Brief descriptions of the standardised methodologies applied in each of the specialist disciplines are provided below. More detailed descriptions of survey methodologies are available upon request.

6.1.2 Botanical Assessment

The botanical assessment encompassed an assessment of all the vegetation units and habitat types within the project area. The focus was on an ecological assessment of habitat types as well as identification of any Red Data species within the known distribution of the project area. The South African National Biodiversity Institute (SANBI) provides an electronic database system, namely the Botanical Database of Southern Africa (BODATSA), to access distribution records on southern African plants. This is a new database which replaces the old Plants of Southern Africa (POSA) database. The POSA database provided distribution data of flora at the quarter degree square (QDS) resolution. The Red List of South African Plants website (SANBI, 2017) was utilized to provide the most current account of the national status of flora. Relevant field guides and texts consulted for identification purposes in the field during the surveys included the following:

- Field Guide to the Wild Flowers of the Highveld (Van Wyk & Malan, 1997);
- A field guide to Wild flowers (Pooley, 1998);
- Guide to Grasses of Southern Africa (Van Oudtshoorn, 1999);
- Orchids of South Africa (Johnson & Bytebier, 2015);
- Guide to the Aloes of South Africa (Van Wyk & Smith, 2014);
- Mesembs of the World (Smith *et al.*, 1998);
- Medicinal Plants of South Africa (Van Wyk *et al.*, 2013);

- Freshwater Life: A field guide to the plants and animals of southern Africa (Griffiths & Day, 2016); and
- Identification guide to southern African grasses. An identification manual with keys, descriptions and distributions (Fish *et al.*, 2015).

Additional information regarding ecosystems, vegetation types, and Species of Conservation Concern (SCC) included the following sources:

- The Vegetation of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2012); and
- Red List of South African Plants (Raimondo *et al.*, 2009; SANBI, 2016).

The field work methodology included the following survey techniques:

- Timed meanders;
- Sensitivity analysis based on structural and species diversity; and
- Identification of floral red-data species.

6.1.3 Floristic Analysis

The dry season fieldwork and sample sites were placed within targeted areas (i.e. target sites) perceived as ecologically sensitive based on the preliminary interpretation of satellite imagery (Google Corporation) and GIS analysis (which included the latest applicable biodiversity datasets) available prior to the fieldwork. The focus of the fieldwork was therefore to maximise coverage and navigate to each target site in the field in order to perform a rapid vegetation and ecological assessment at each sample site. Emphasis was placed on sensitive habitats, especially those overlapping with the proposed project area.

Homogenous vegetation units were subjectively identified using satellite imagery and existing land cover maps. The floristic diversity and search for flora SCC were conducted through timed meanders within representative habitat units delineated during the scoping fieldwork. Emphasis was placed mostly on sensitive habitats overlapping with the proposed project areas.

The timed random meander method is a highly efficient method for conducting floristic analysis, specifically in detecting flora SCC and maximising floristic coverage. In addition, the method is time and cost effective and highly suited for compiling flora species lists and therefore gives a rapid indication of flora diversity. The timed meander search was performed based on the original technique described by Goff *et al.* (1982). Suitable habitat for SCC were identified according to Raimondo *et al.* (2009) and targeted as part of the timed meanders.

At each sample site notes were made regarding current impacts (e.g. livestock grazing, erosion etc.), subjective recording of dominant vegetation species and any sensitive features (e.g. wetlands, outcrops etc.). In addition, opportunistic observations were made while navigating through the project area.

6.1.4 Faunal Assessment (Mammals & Avifauna)

The faunal desktop assessment included the following:

- Compilation of expected species lists;

- Identification of any Red Data or Species of Conservation Concern (SCC) potentially occurring in the area; and
- Emphasis was placed on the probability of occurrence of species of provincial, national and international conservation importance.

Mammal distribution data were obtained from the following information sources:

- The Mammals of the Southern African Subregion (Skinner & Chimimba, 2005);
- Bats of Southern and Central Africa (Monadjem *et al.*, 2010);
- The 2016 Red List of Mammals of South Africa, Lesotho and Swaziland (www.ewt.org.za) (EWT, 2016); and
- Animal Demography Unit (ADU) - MammalMap Category (MammalMap, 2019) (mammalmap.adu.org.za).

While the Avifauna distribution and other pertinent data was obtained from:

- Southern African Bird Atlas Project 2 (SABAP2, 2019);
- Birdlife South Africa (2015);
- Birdlife. (2017). Important Bird Areas Factsheets;
- Checklist of the Birds of the World (Del Hoyo *et al.*, 1996);
- Book of birds of South Africa, Lesotho and Swaziland (Taylor *et al.*, 2015); and
- Roberts – Birds of Southern Africa (Hockey *et al.*, 2005).

The field survey component of the assessment utilised a variety of sampling techniques including, but not limited to, the following:

- Visual observations;
- Identification of tracks and signs; and
- Utilization of local knowledge.

Site selection for trapping focussed on the representative habitats within the project area. Sites were selected on the basis of GIS mapping and Google Earth imagery and then final selection was confirmed through ground truthing during the surveys. Habitat types sampled included pristine, disturbed and semi-disturbed zones, drainage lines and wetlands.

6.1.5 Herpetology (Reptiles & Amphibians)

A herpetofauna desktop assessment of the possible species in the area was undertaken and attention was paid to the SCCs, sources used included the IUCN (2017) and ADU (2019). Herpetofauna distributional data was obtained from the following information sources:

- South African Reptile Conservation Assessment (SARCA) (sarca.adu.org);
- A Guide to the Reptiles of Southern Africa (Alexander & Marais, 2007);
- Field guide to Snakes and other Reptiles of Southern Africa (Branch, 1998);

- Atlas and Red list of Reptiles of South Africa, Lesotho and Swaziland (Bates *et al.*, 2014);
- A Complete Guide to the Frogs of Southern Africa (du Preez & Carruthers, 2009);
- Animal Demography Unit (ADU) - FrogMAP (frogmap.adu.org.za);
- Atlas and Red Data Book of Frogs of South Africa, Lesotho and Swaziland (Mintner *et al.*, 2004); and
- Ensuring a future for South Africa's frogs (Measey, 2011).

A herpetofauna field assessment was conducted in each habitat or vegetation type within the project area, as identified from the desktop assessment, with a focus on those areas which will be most impacted by the proposed development (i.e. the infrastructure development and waste dumping areas). The herpetological field survey comprised the following techniques:

- Hand searching is used for reptile species that shelter in or under particular habitats. Visual searches, typically undertaken for species which activities occur on surfaces or for species that are difficult to detect by hand-searches or trap sampling.

7 Limitations

The following limitations should be noted for the assessment:

- A single season survey was conducted for the respective study, which would constitute a winter dry season survey;
- This assessment has not assessed any temporal trends for the project;
- Final project layout was provided after field work was conducted, as such habitat features and sensitivities are based sites assessed during the survey;
- The proposed increase in the concrete foundation of each wind turbine was not communicated prior to the fieldwork being undertaken and was therefore not a priority. A specific assessment for this project aspect has not been undertaken. The turbine sites are aligned with the roads and some extrapolation from the road impact assessment and supporting mitigation may be considered;
- Only a desktop assessment (or description) of the local soil forms was achieved for this project;
- The powerline and new substation were added retrospectively and is largely a desktop exercise. Information for these features were extrapolated from the previous studies completed for the wind farm;
- A separate avifaunal study was compiled for the powerline and new substation as such impacts on avifauna and mitigations are only briefly discussed in this report;
- The wind farm and turbines were previously approved; components in this project is regarded as upgrades/ alterations to the previously approved features;
- The soil impact assessment is based on a desktop study only; and

- Some sites were not accessed based on time constraints and access limitations, therefore information for these sites were extrapolated from nearby sites and Google Earth imagery.

8 Receiving Environment

8.1 Desktop Spatial Assessment

The following features describes the general area and habitat, this assessment is based on spatial data that are provided by various sources such as the provincial environmental authority and SANBI. The desktop analysis and their relevance to this project are listed in Table 8-1.

Table 8-1 Desktop spatial features examined.

Desktop Information Considered	Relevant/Not relevant	Section
Conservation Plan Terrestrial	The southern section of the project area falls across a CBA2 area	8.2
Conservation Plan Aquatic	The project area overlaps with the following Aquatic features a Farm Dam, Upper foothills river, drainage lines	8.2
Ecosystem Threat Status	The project area is situated within an ecosystem that are listed as LC	8.3.1
Ecosystem Protection Level	The terrestrial ecosystems associated with the project area is rated as poorly protected and not protected	8.3.2
Protected Areas (SAPAD & SACAD)	Irrelevant; The nearest SAPAD is 29 km away from the project area (Molweni Protected Environment)	-
Important Bird and Biodiversity Areas	Irrelevant: The project area is located 35 km from the Amathole Katberg Mountain IBA	-
National Protected Areas Expansion Strategies (NPAES)	The project area overlaps with the Amathole Tarkastad NPAES	8.4
NFEPA Rivers and Wetlands	Catchments assigned as fish support areas	8.6
Strategic Water Source Areas (SWSA)	Irrelevant: The closest SWSA classified area is 39 km from the project area (Somerset East SWSA).	-

8.1.1 Eastern Cape's Biodiversity Conservation Plan

Eastern Cape's Biodiversity Conservation Plan (ECBCP, 2018) addresses the urgent need to identify and map critical biodiversity areas and priorities for conservation in the Province. It also provides land use planning guidelines, recommending biodiversity-friendly activities in priority areas. The ECBCP is intended for use by technical users and decision-makers in the spheres of planning, development and environment. Spatial mapping information can be used both reactively and strategically to guide future development away from sensitive and priority biodiversity areas.

The key output of a systematic biodiversity plan is a map of biodiversity priority areas. The CBA map delineates Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), Other Natural Areas (ONAs), Protected Areas (PAs), and areas that have been irreversibly modified from their natural state (ECBCP, 2007). The ECBCP uses the following terms to categorise the various land used types according to their biodiversity and environmental importance:

- CBA – 1;
- CBA –2;
- CBA –3;
- ONA; and

- PA.

CBAs are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. CBAs are areas of high biodiversity value and need to be kept in a natural state, with no further loss of habitat or species. Thus, if these areas are not maintained in a natural or near natural state then biodiversity targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses (SANBI-BGIS, 2007).

The Eastern Cape Biodiversity Conservation Plan specifies two different CBA areas, Irreplaceable CBA's and Optimal CBA's. Irreplaceable CBA's include: (1) areas required to meet targets and with irreplaceability biodiversity values of more than 80%; (2) critical linkages or pinch-points in the landscape that must remain natural; or (3) critically Endangered ecosystems.

ONAs consist of all those areas in good or fair ecological condition that fall outside the protected area network and have not been identified as CBAs or ESAs. A biodiversity sector plan or bioregional plan must not specify the desired state/management objectives for ONAs or provide land-use guidelines for ONAs (SANBI-BGIS, 2017).

Figure 8-1 shows the southern portion of the project area overlaps with an area classified as CBA 2.

Figure 8-2 shows the project area overlaps with the following Aquatic features:

- Farm dams (artificial wetlands);
- Upper foothill drainage lines;
- Poorly protect status of the Oliewenboskloof and Biesiesleegte Rivers as well as an unknown tributary of the eNyara river.

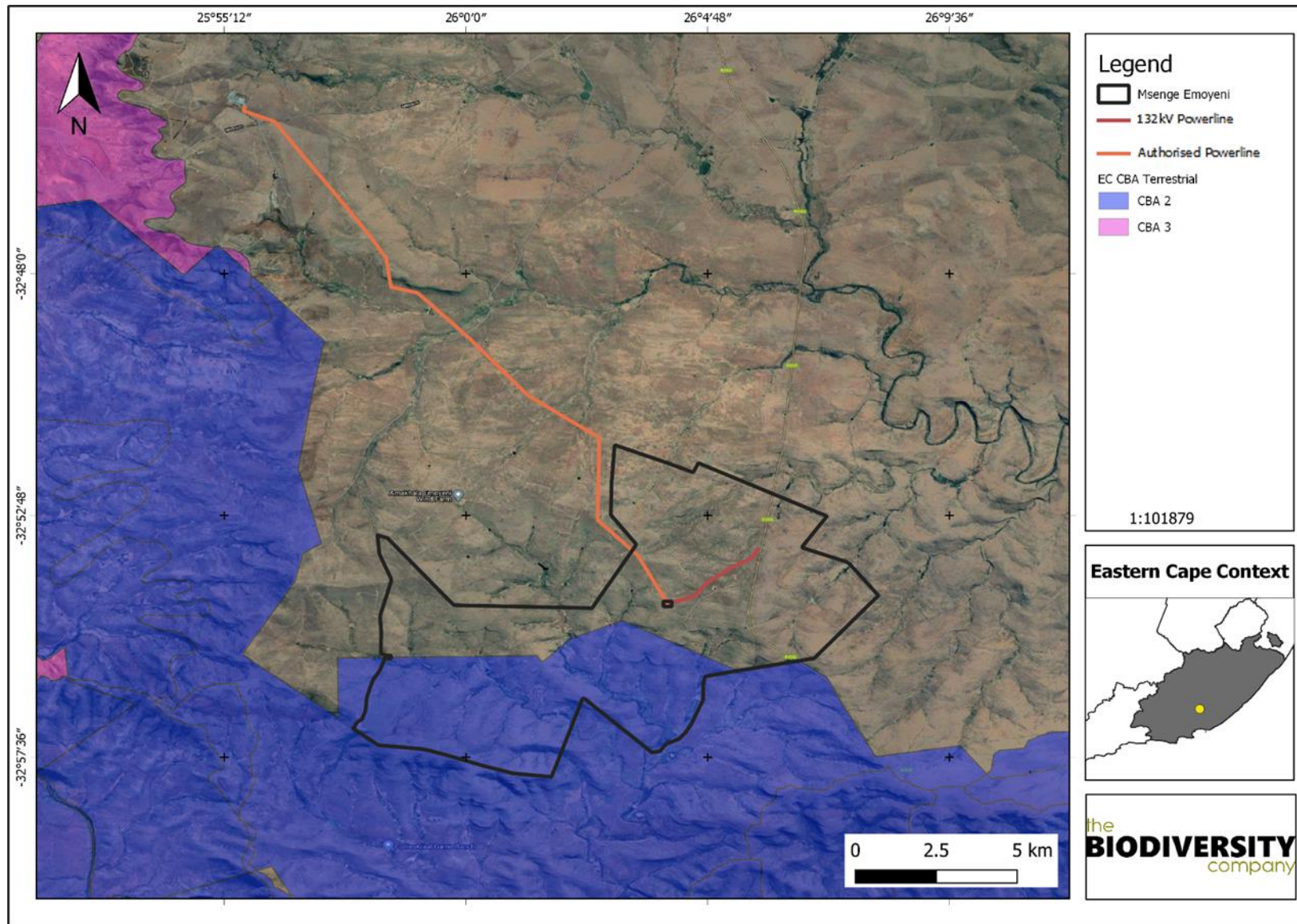


Figure 8-1 The project area superimposed on the Eastern Cape's Biodiversity Conservation Plan (ECBCP, 2007)

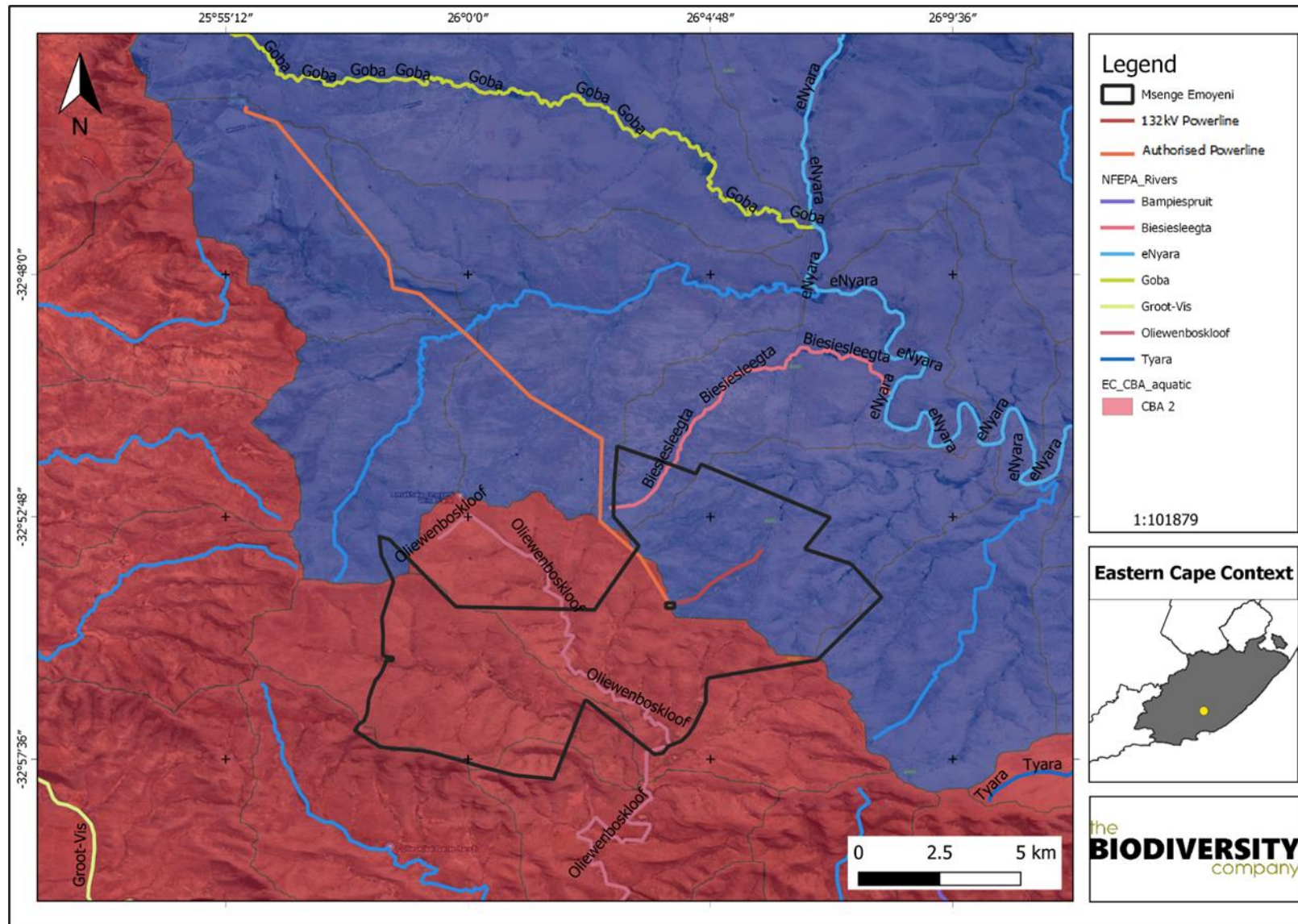


Figure 8-2 The project area superimposed on the Eastern Cape's Biodiversity Conservation Plan Aquatic CBA (ECBCP, 2007)

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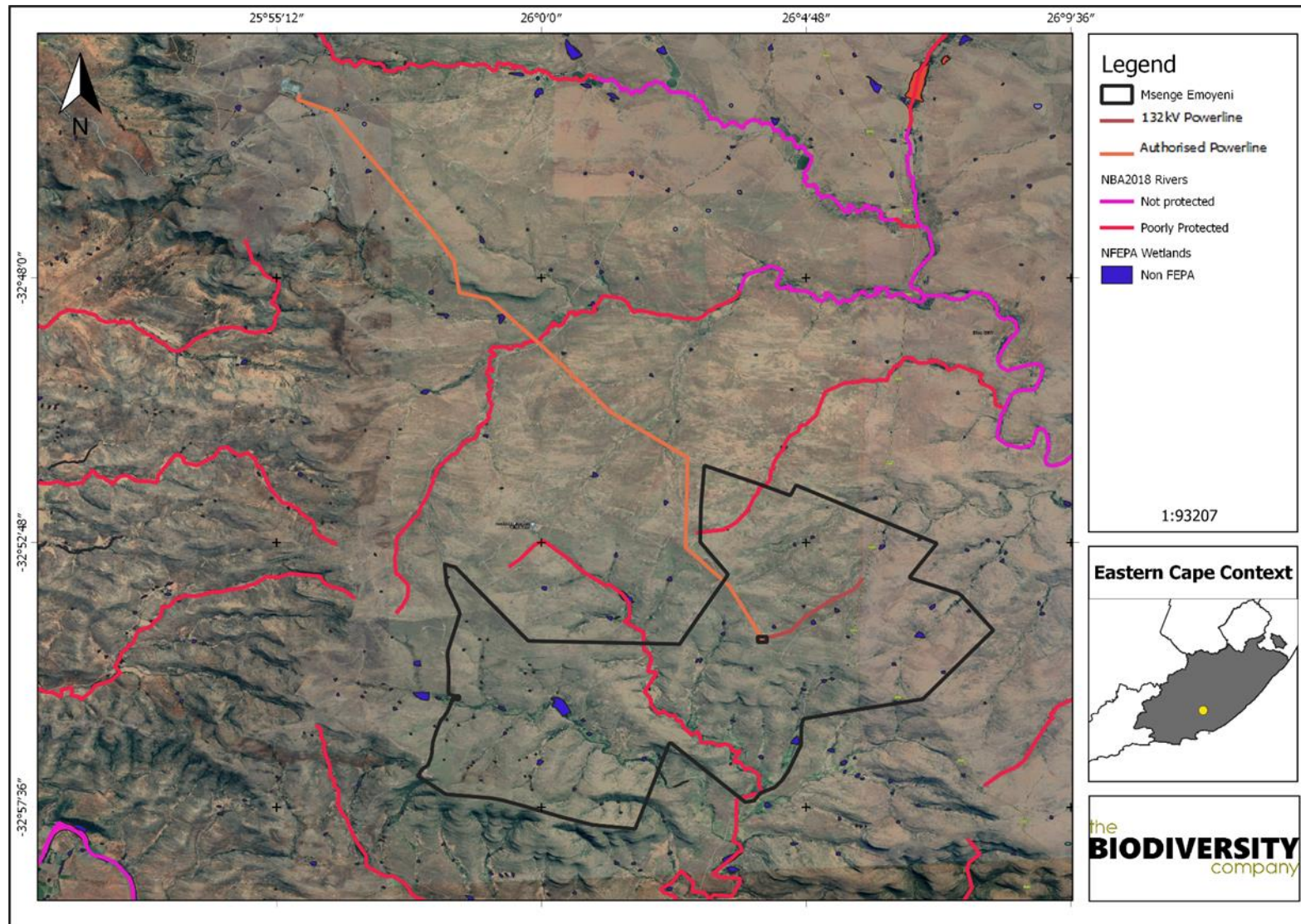


Figure 8-3 The project area superimposed on the Eastern Cape's Biodiversity Conservation Plan, highlighting dams and poorly protect rivers (NBA 2018, SAI/AE, 2018)

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8.1.2 The National Biodiversity Assessment

The National Biodiversity Assessment (NBA) was completed as a collaboration between the SANBI, the DEA and other stakeholders, including scientists and biodiversity management experts throughout the country over a three-year period (Skowno *et al.*, 2019).

The purpose of the NBA is to assess the state of South Africa's biodiversity with a view to understanding trends over time and informing policy and decision-making across a range of sectors (Skowno *et al.*, 2019).

The two headline indicators assessed in the NBA are *ecosystem threat status* and *ecosystem protection level* (Skowno *et al.*, 2019).

8.1.2.1 Ecosystem Threat Status

Ecosystem threat status outlines the degree to which ecosystems are still intact or alternatively losing vital aspects of their structure, function and composition, on which their ability to provide ecosystem services ultimately depends (Skowno *et al.*, 2019).

Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least Concerned (LC), based on the proportion of each ecosystem type that remains in good ecological condition (Skowno *et al.*, 2019).

The project area was superimposed on the terrestrial ecosystem threat status (Figure 8-4). As seen in this figure, the project area is situated within an ecosystem that are listed as LC (Figure 8-4).

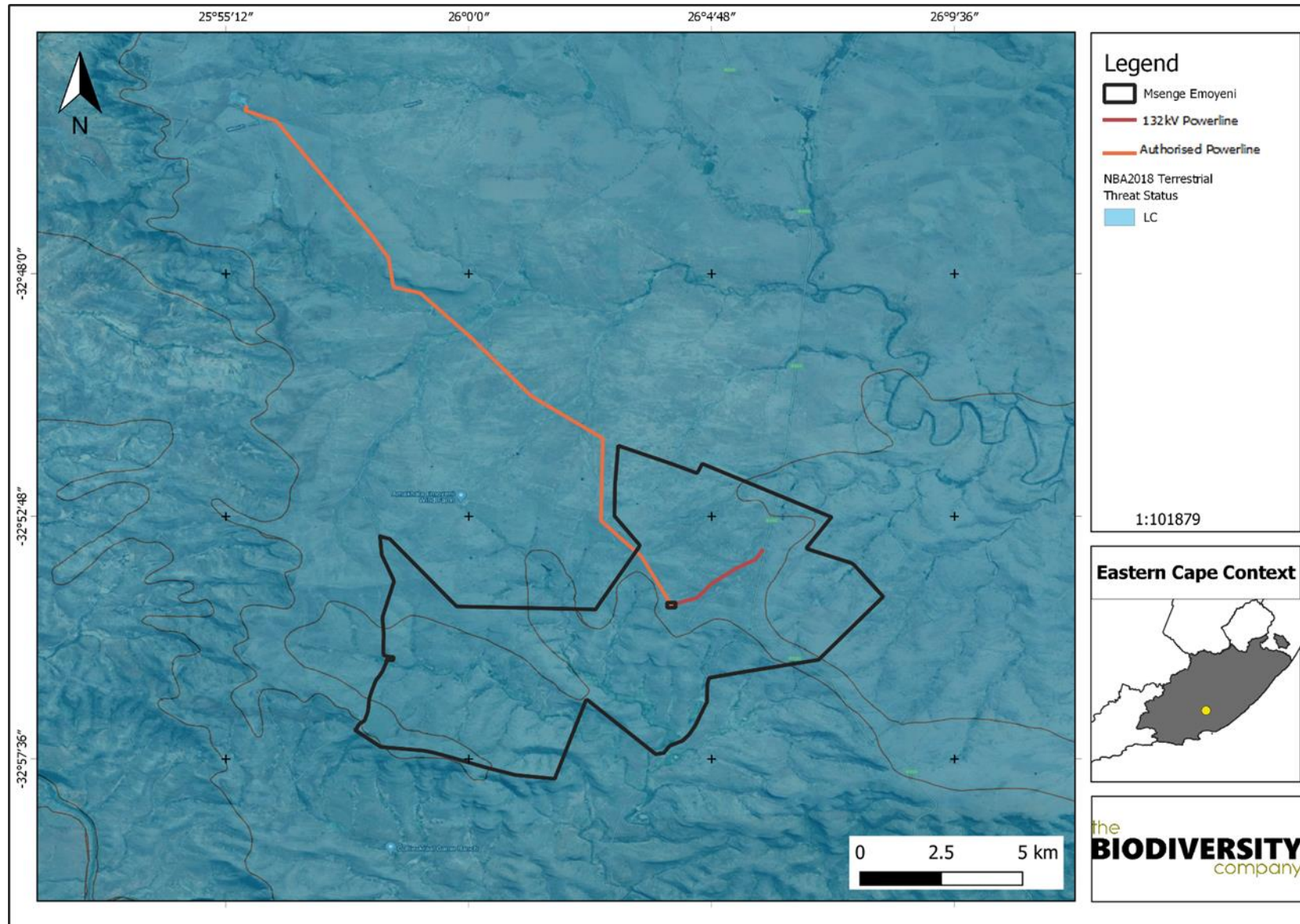


Figure 8-4 The project area showing the regional ecosystem threat status of the associated terrestrial ecosystems (NBA, 2018)

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8.1.2.2 Ecosystem Protection Level

Ecosystem protection level tells us whether ecosystems are adequately protected or under-protected. Ecosystem types are categorised as not protected, poorly protected, moderately protected or well protected, based on the proportion of each ecosystem type that occurs within a protected area recognised in the Protected Areas Act (Skowno *et al.*, 2019).

The project area was superimposed on the ecosystem protection level map to assess the protection status of terrestrial ecosystems associated with the development (Figure 8-5). Based on Figure 8-5 the terrestrial ecosystems associated with the development are rated as *Poorly Protected* and *Not Protected*. This means that these ecosystems are considered not to be adequately protected in areas such as national parks or other formally protected areas.

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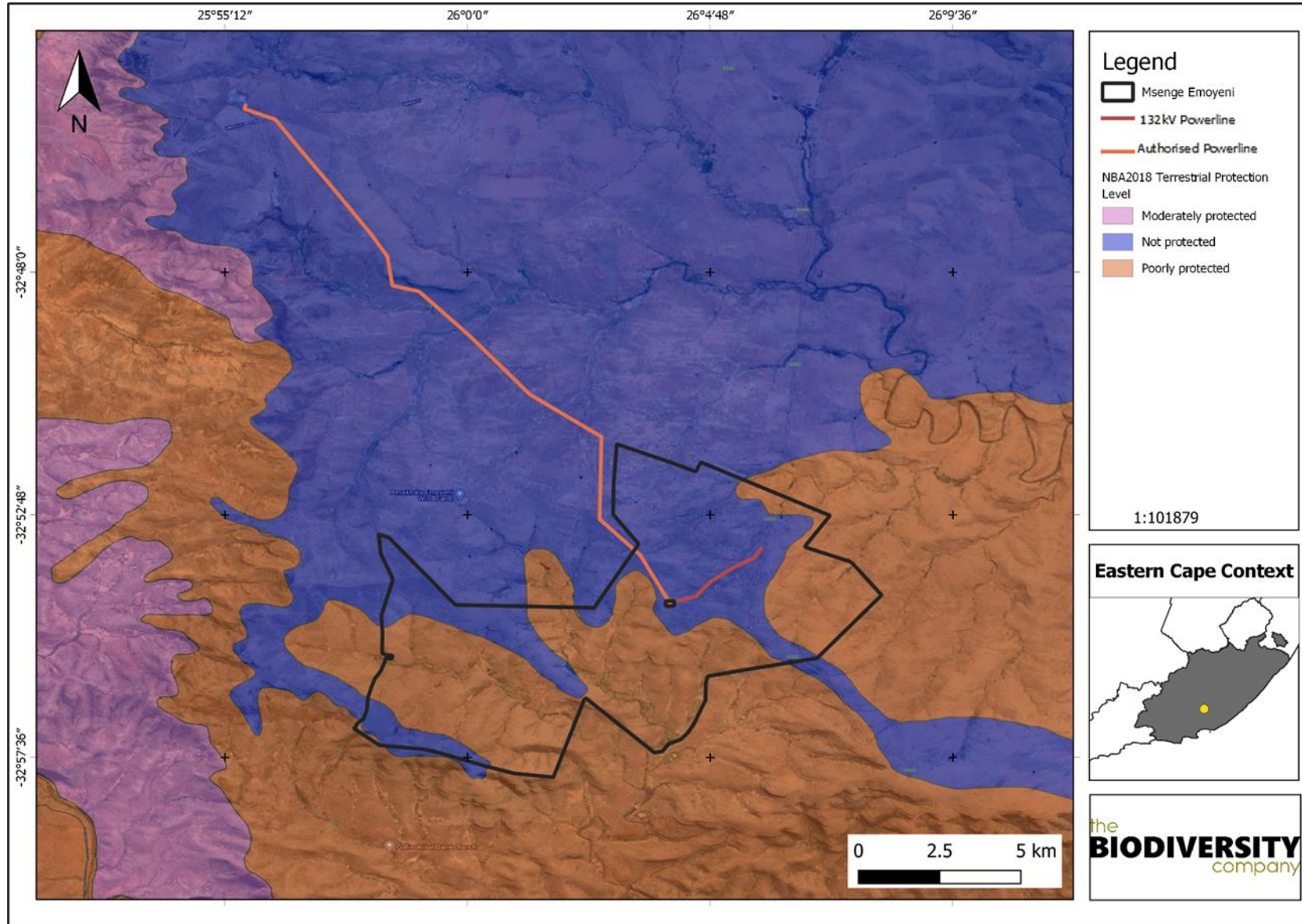


Figure 8-5 The project area showing the regional level of protection of terrestrial ecosystems (NBA, 2018)

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8.1.3 National Protected Area Expansion Strategy

The National Protected Area Expansion Strategy (NPAES) provides spatial information on areas that are suitable for terrestrial ecosystem protection. These focus areas are large, intact and unfragmented and are therefore, of high importance for biodiversity, climate resilience and freshwater protection (SANBI, 2010). The project area overlaps with the Amathole Tarkastad NPAES.

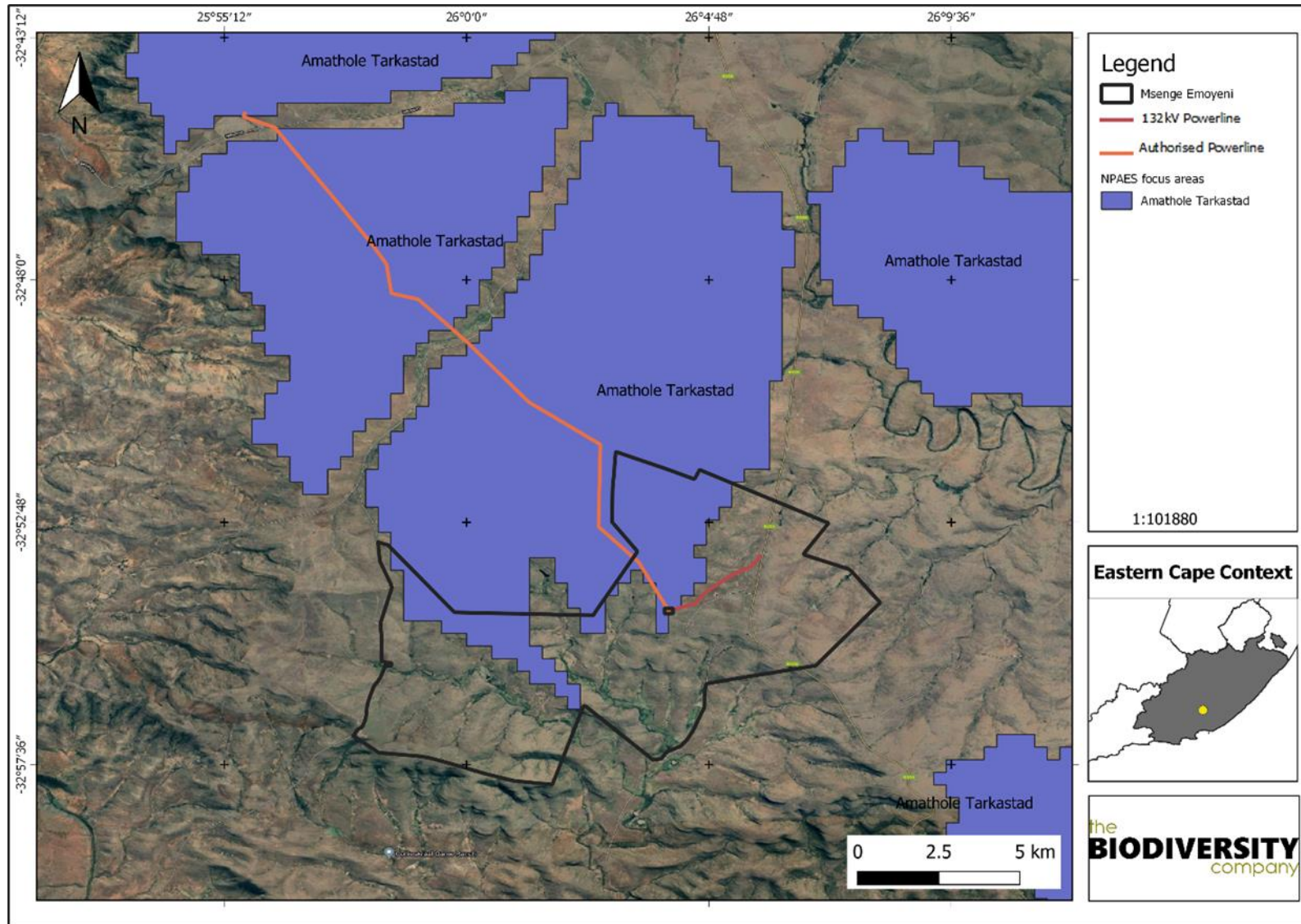


Figure 8-6 The project area overlaps with the Amathole Tarkastad NPAES

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8.1.4 Desktop Pedology

8.1.4.1 Soil and Geology

The project area is situated within Bedford Dry Grassland (Gs 18) and Double Drift Karroid Thicket (AT24) (Mucina & Rutherford, 2006) (Figure 8-15).

The geology and soils of GS18 consists of Loam or clay-loam soils typical of Fc (most of the region) as well as Db and Fb land types on the mudstones and sandstones of the Adelaide Subgroup (Beaufort Group, Karoo Supergroup) (Mucina & Rutherford, 2006). The geology & soils of AT24 consists predominantly of the Middleton and Koonap formations in the Dwyka Group with the main land types bring Fc and Fb (Vlok *et al.*, 2018).

According to the land type database (Land Type Survey Staff, 1972 - 2006) the project components are directly associated with the Fc169, Fc534, Fc537, Fc545 and Db167 land types (Figure 8-7). It is expected that, the dominant soils in the crest and midslope positions will be soils of the Glenrosa, Mispah and Swartland forms. The soils that dominated the footslopes and the valley bottoms include the Oakleaf, Dundee and Valsrivier soil forms. The geology of the area is characterised by mainly grey mudstone, shale and sandstone of the Balfour and Middleton Formations, Beaufort Group, Karoo Sequence with dolerite.

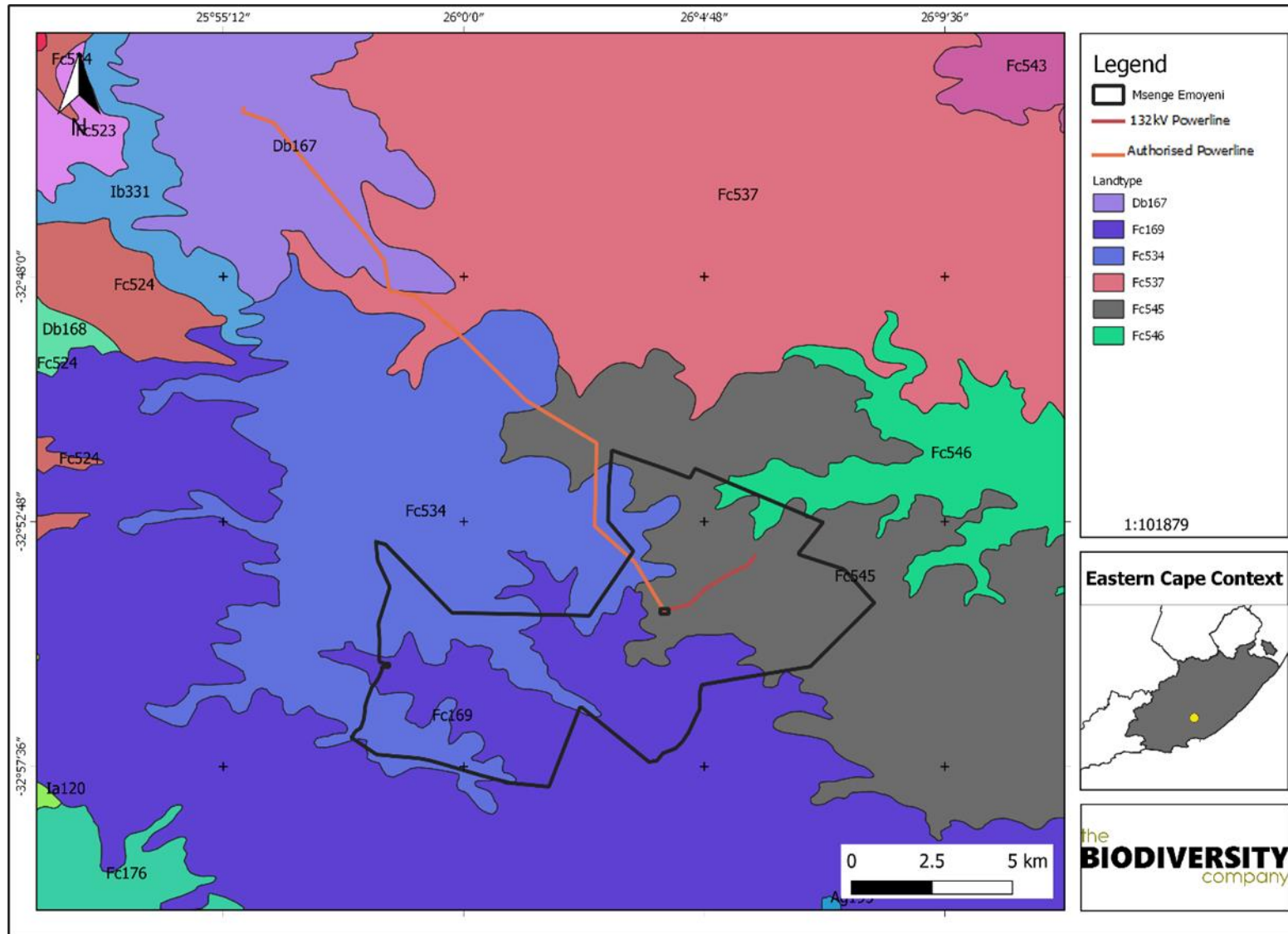


Figure 8-7 Illustration of land type associated with the local area

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According to the land type database (Land Type Survey Staff, 1972 - 2006), the project area is characterised by the FC 169, 534, 545 and 546 land types. Figure 8-8 to Figure 8-11 illustrates the respective terrain units relevant to the various land types with the expected soils illustrated in Table 8-2 to Table 8-5.

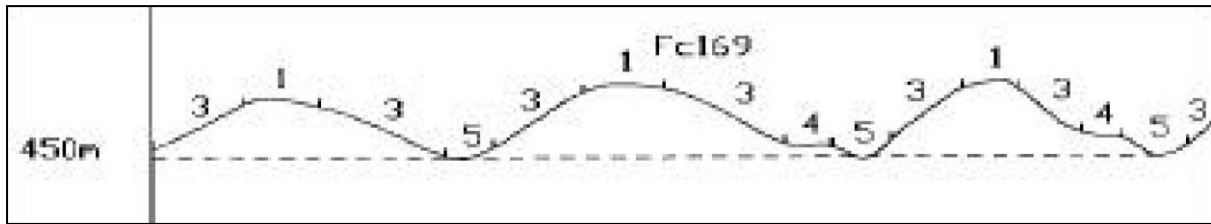


Figure 8-8 Illustration of land type Fc 169 terrain unit (Land Type Survey Staff, 1972 - 2006)

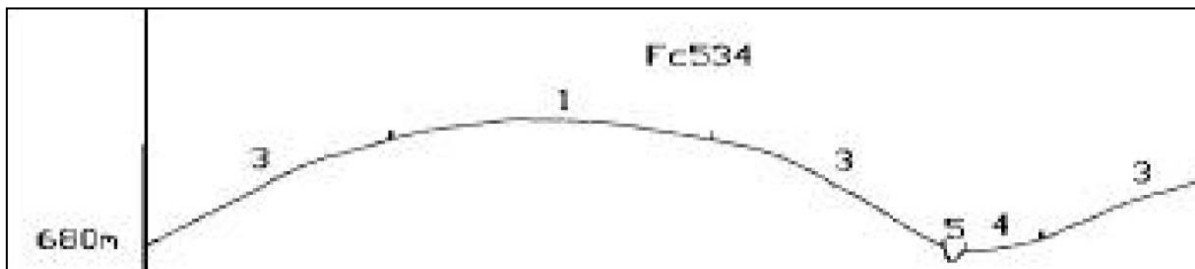


Figure 8-9 Illustration of land type Fc 534 terrain unit (Land Type Survey Staff, 1972 - 2006)

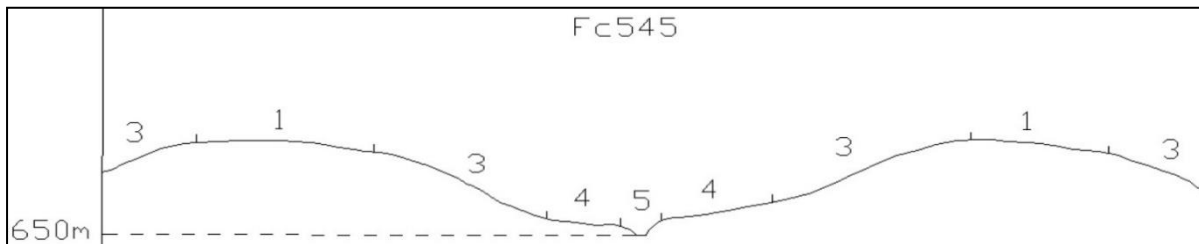


Figure 8-10 Illustration of land type Fc 545 terrain unit (Land Type Survey Staff, 1972 - 2006)

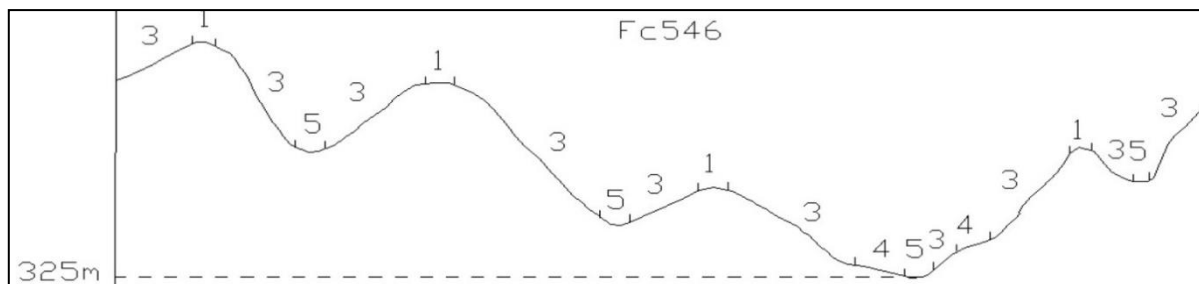


Figure 8-11 Illustration of land type Fc 546 terrain unit (Land Type Survey Staff, 1972 - 2006)

Table 8-2 Soils expected at the respective terrain units within the Fc 169 land type (Land Type Survey Staff, 1972 - 2006)

Terrain Units			
1 (15%)	3 (75%)	4 (5%)	5 (5%)

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Glenrosa	70	Glenrosa	50	Glenrosa	50	Oakleaf	50
Bare Rock	10	Mispah	20	Swartland	25	Valsrivier	40
Mispah	10	Swartland	15	Hutton	10	Dundee	10
Hutton	10	Hutton	10	Bare Rock	5		
		Valsrivier	5	Mispah	5		
				Valsrivier	5		

Table 8-3 Soils expected at the respective terrain units within the Fc 534 land type (Land Type Survey Staff, 1972 - 2006)

Terrain Units							
1 (40%)		3 (50%)		4 (5%)		5 (5%)	
Glenrosa	30	Glenrosa	60	Oakleaf	80	Oakleaf	85
Swartland	30	Mispah	15	Valsrivier	10	Dundee	10
Mispah	20	Swartland	10	Swartland	5	Valsrivier	5
Sterkspruit	15	Oakleaf	5	Sterkspruit	5		
Hutton	5	Sterkspruit	5				
		Hutton	5				

Table 8-4 Soils expected at the respective terrain units within the Fc 545 land type (Land Type Survey Staff, 1972 - 2006)

Terrain Units							
1 (5%)		3 (80%)		4 (10%)		5 (5%)	
Glenrosa	70	Glenrosa	80	Oakleaf	30	Oakleaf	40
Mispah	20	Swartland	8	Glenrosa	20	Valsrivier	30
Cartref	10	Mispah	5	Swartland	20	Swartland	20
		Cartref	5	Valsrivier	20	Glenrosa	5
		Hutton	2	Hutton	10	Hutton	5

Table 8-5 Soils expected at the respective terrain units within the Fc 546 land type (Land Type Survey Staff, 1972 - 2006)

Terrain Units							
1 (5%)		3 (85%)		4 (7%)		5 (3%)	
Glenrosa	80	Glenrosa	85	Glenrosa	30	Oakleaf	60
Mispah	10	Valsrivier	5	Oakleaf	30	Valsrivier	30
Swartland	5	Swartland	5	Swartland	20	Swartland	10
Bare Rock	5	Mispah	3	Valsrivier	20		

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8.1.4.2 Terrain

The Digital Elevation Model (DEM) indicates a range in elevation of 569 Metres Above Sea Level (MASL) to 868 MASL (see Figure 8-12). Various convex topographical features are located throughout the project area and its surrounding areas which indicate watercourses or drainage features.

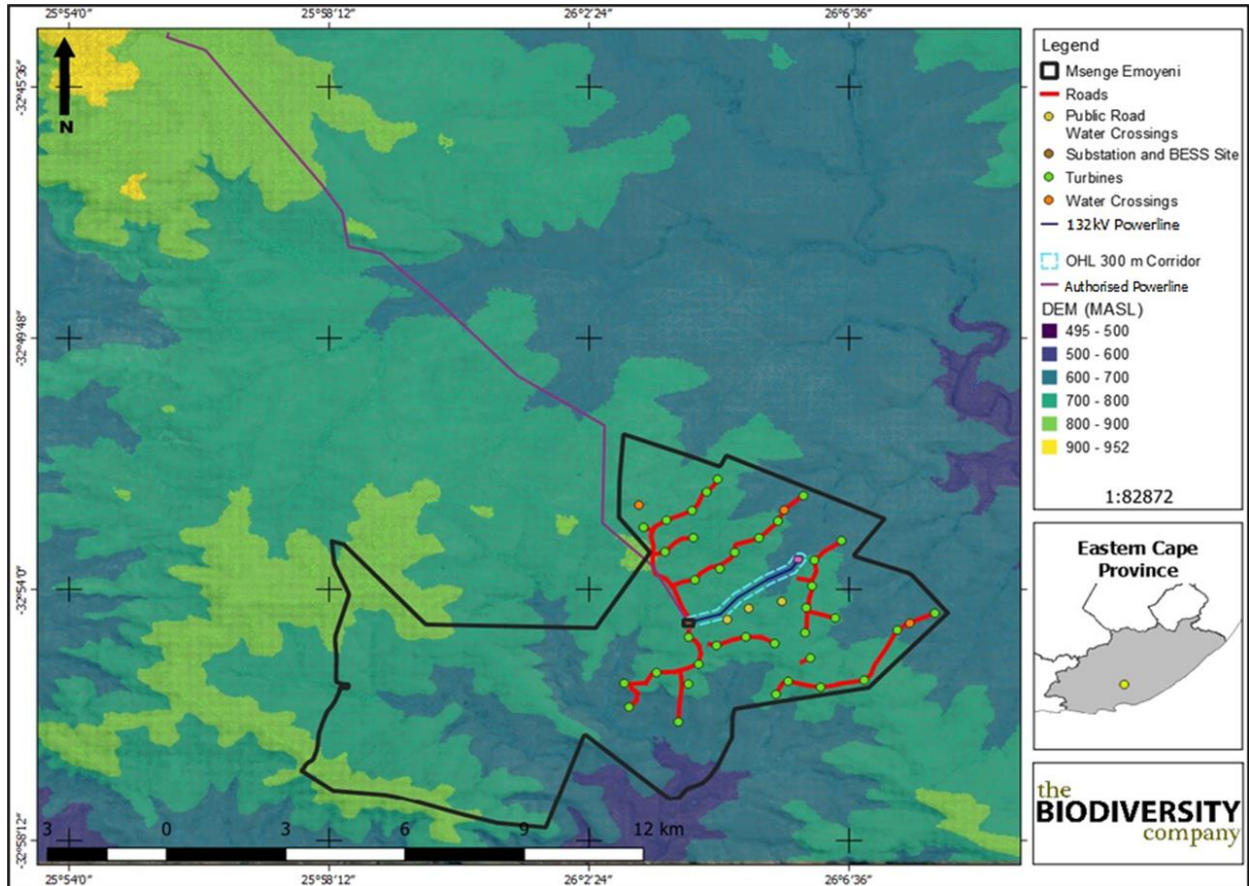


Figure 8-12 Digital elevation model (MASL)

The Msenge Emoyeni project area is characterised by a non-uniform topography, with a slope percentage ranging from 0 to 58 (see Figure 8-13). This phenomenon indicates the presence of drainage features surrounded by steeper slopes.

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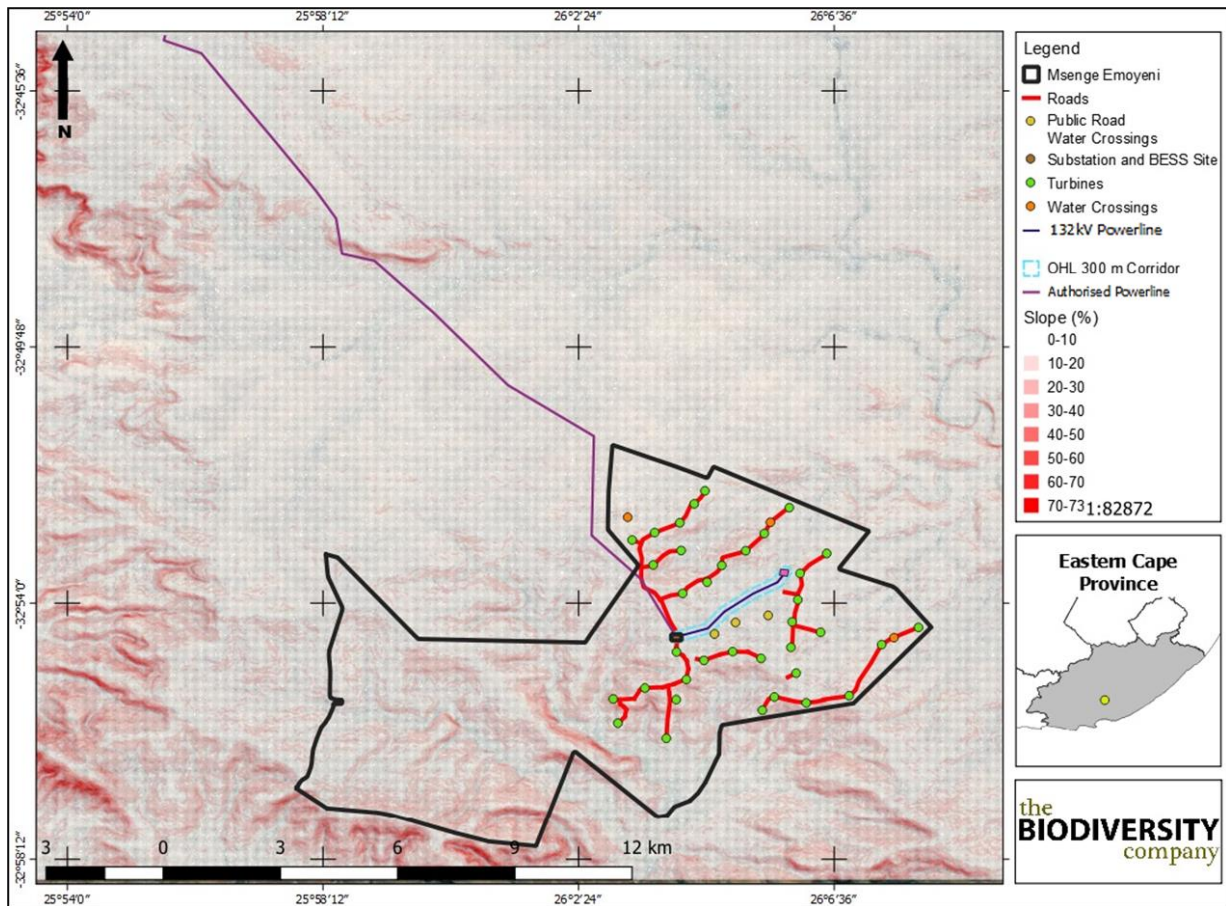


Figure 8-13 Slope percentage

8.2 Ecological Desktop Assessment

8.2.1 Vegetation Assessment

The project area is situated within the grassland and Albany thicket biomes. The grassland biome is centrally located in southern Africa, and adjoins all except the desert, fynbos and succulent Karoo biomes (Mucina & Rutherford, 2006). Major macroclimatic traits that characterise the grassland biome include:

- a) Seasonal precipitation; and
- b) The minimum temperatures in winter (Mucina & Rutherford, 2006).

The grassland biome is found chiefly on the high central plateau of South Africa, and the inland areas of KwaZulu-Natal and the Eastern Cape. The topography is mainly flat and rolling but includes the escarpment itself. Altitude varies from near sea level to 2 850 m above sea level.

Grasslands are dominated by a single layer of grasses. The amount of cover depends on rainfall and the degree of grazing. The grassland biome experiences summer rainfall and dry winters with frost (and fire), which are unfavourable for tree growth. Thus, trees are typically absent, except in a few localized habitats. Geophytes (bulbs) are often abundant. Frosts, fire and grazing maintain the grass dominance and prevent the establishment of trees.

The albania thicket biome is a closed shrubland dominated by evergreen, sclerophyllous or succulent trees, shrubs and vines. This biome is found in the Eastern Cape, in parts where the climate is dry with hot summers and cool winters. The thickets grow in well-drained sandy

soils in valleys and is vulnerable to fire and grazing. Albany thicket is easily distinguished from the complex mosaic of surrounding ecoregions as a dense, spiny shrubland rising about 2 to 2.5 m, dominated by succulents (mainly of Karroid affinity). Thickets contain a high number of endemic species including *Euphorbia* sp. and Karroid species (WWF, 2020).

8.2.1.1 Vegetation Types

The grassland biome comprises many different vegetation types. The project area is situated within the Bedford Dry Grassland and Double Drift Karroid Thicket vegetation types according to SANBI (2018) (Figure 8-15).

8.2.1.1.1 Doubledrift Karroid Thicket

This vegetation type occurs in the Eastern Cape Province, occurring on undulating plains and dissected hilltops. A mosaic of low thicket (2 - 3 m) consisting of small bush clumps in a matrix of grassy karroid shrubland, with the grass component more prominent in moister sites (eastward) and the karroid shrub component more prominent in drier sites (westward) (Vlok *et al.*, 2018).

Important Plant Taxa (d=dominant, e=South African endemic, et=possibly endemic to a vegetation type)

Important plant taxa are those species that have a high abundance, a frequent occurrence or are prominent in the landscape within a particular vegetation type. The following species are important in the **Doubledrift Karroid Thicket**:

Small tree: *Pappea capensis* (d), *Schotia afra* (d) *Vachellia karroo*

Succulent shrub: *Portulacaria afra* (d), *Aloe striata* (e), *Aloiampelos tenuior* (e), *Bulbine frutescens*, *Euphorbia curvirama* (d)

Succulent herb: *Euphorbia stellata*, *Haworthia cooperi* (e)

Succulent tree: *Euphorbia tetragona* (d, e), *Aloe ferox*, *Aloe tenuior* (d)

Geophytic herb: *Bulbine narcissifolia*, *Trachyandra giffenii* (e)

Graminoid: *Aristida congesta* (d), *Digitaria argyrograpta* (d), *Themeda triandra* (d)

Low shrub: *Ocimum burchellianum* (d), *Eriocephalus africanus* (d), *Lasiosiphon meisnerianus* (e), *Pentzia incana* (d), *Pteronia incana* (d).

Conservation Status

According to Vlok *et al.* (2018) Doubledrift Karroid Thicket is classified as Least Concerned. Although the target for conservation is 19%, only 12.07% of this vegetation type is currently under statutory conservation in the Lennox Sebe Game reserve.

8.2.1.1.2 Bedford Dry Grassland

This vegetation type occurs in the Eastern Cape Province: South of the Winterberg Mountains from Bruintjieshoogte and Somerset East in the west to Bedford and Adelaide, and to Fort Beaufort in the east. It is found on undulating plains supporting open, dry grassland interspersed with *Vachellia karroo* woodland vegetation (especially along the drainage lines). The grassland is relatively short (10–100 cm) and is dominated by *Digitaria argyrograpta*,

Tragus koelerioides, *Eragrostis curvula* and *Cymbopogon caesius*. It contains a dwarf shrubby component of karroid origin in the southern and southwestern parts of its range.

Important Taxa (d=dominant, e=South African endemic, et=possibly endemic to a vegetation type)

Important plant taxa are those species that have a high abundance, a frequent occurrence or are prominent in the landscape within a particular vegetation type. The following species are important in the **Bedford Dry Grassland**:

Graminoids: *Cynodon dactylon* (d), *C. incompletus* (d), *Cyperus usitatus* (d), *Digitaria argyrograpta* (d), *D. eriantha* (d), *Eragrostis capensis* (d), *E. chloromelas* (d), *E. curvula* (d), *E. obtusa* (d), *Heteropogon contortus* (d), *Microchloa caffra* (d), *Panicum maximum* (d), *P. stapfianum* (d), *Sporobolus fimbriatus* (d), *Themeda triandra* (d), *Tragus koelerioides* (d), *Aristida congesta*, *A. diffusa*, *Cymbopogon caesius*, *C. pospischilii*, *Eragrostis plana*, *Eustachys paspaloides*, *Melica decumbens*, *Setaria sphacelata*, *Sporobolus nitens*.

Herbs: *Cyanotis speciosa* (d), *Blepharis integrifolia* var. *clarkei*, *Chamaesyce inaequilatera*, *Commelina africana*, *Emex australis*, *Gazania krebsiana* subsp. *krebsiana*, *Helichrysum rugulosum*, *Hermannia althaeifolia*, *H. coccocarpa*, *Lepidium africanum* subsp. *africanum*.

Geophytic Herbs: *Oxalis depressa*, *Pelargonium sidoides*.

Succulent Herb: *Crassula expansa*.

Small Tree: *Vachellia karroo*.

Low Shrubs: *Atriplex semibaccata* var. *appendiculata* (d), *Helichrysum dregeanum* (d), *Nenax microphylla* (d), *Asparagus striatus*, *Chrysocoma ciliata*, *Euryops anthemoides* subsp. *anthemoides*, *Felicia muricata*, *Garuleum latifolium*, *Hermannia althaeoides*, *Indigofera sessilifolia*, *Jamesbrittenia microphylla*, *Limeum aethiopicum*, *Lycium cinereum*, *Melolobium burchelli*, *Pelargonium aridum*, *Pentzia globosa*, *Selago fruticosa*, *S. saxatilis*, *Talinum arnotii*, *Tephrosia capensis* var. *acutifolia*.

Succulent Shrubs: *Cotyledon orbiculata* var. *oblonga*, *Mestoklema tuberosum*.

Conservation Status

According to Mucina and Rutherford (2006), this vegetation type is classified as LC. The national target for conservation protection for both these vegetation types is 23%, with non-statutory conserved and only 1% conserved in private reserves (Kingsdale Game Farm, Woodlands Game Reserve, Glen Avon Falls Kloof and Kruizemuntfontein Natural Heritage Sites).

8.2.1.2 Plant Species of Conservation Concern

Based on the Plants of Southern Africa (BODATSA-POSA, 2019) database, 814 plant species have the potential to occur in the project area and its surroundings (Figure 8-14 and Table 8-6). Of these 814 plant species (Appendix B), 35 species are listed as being Species of Conservation Concern (SCC) (Figure 8-14).

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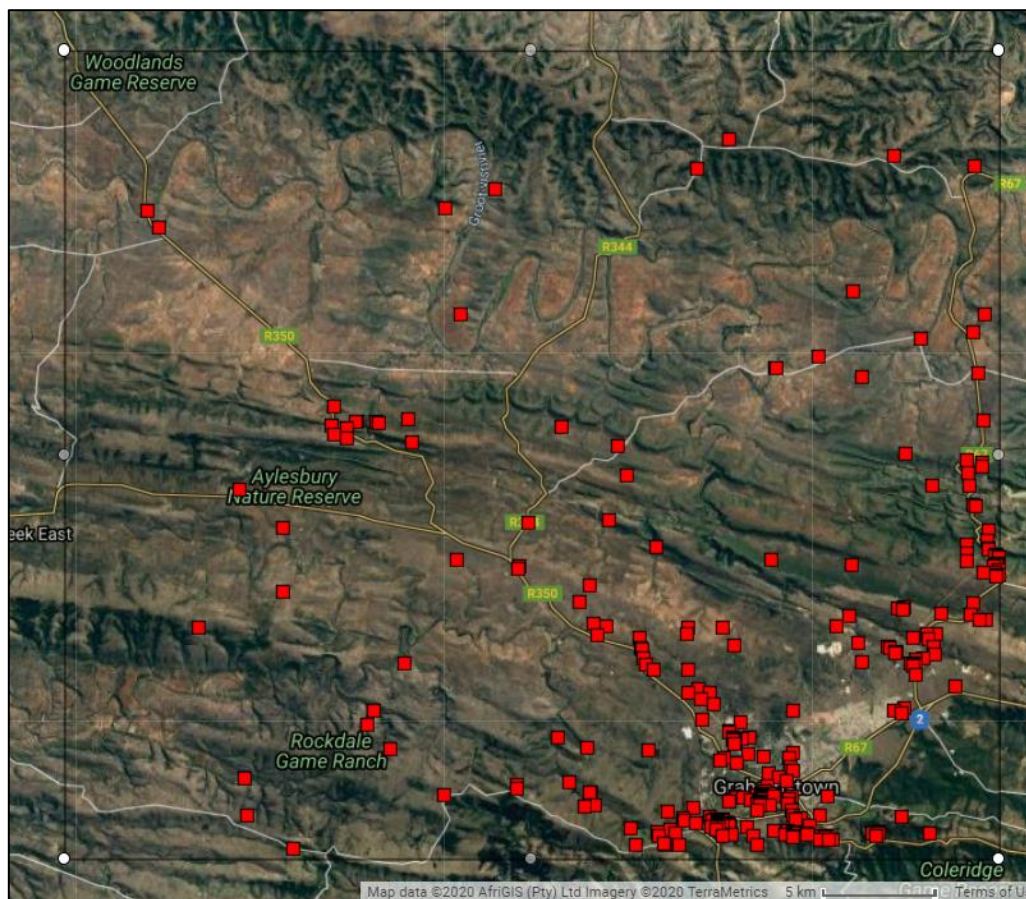


Figure 8-14 Map showing the grid drawn in order to compile an expected plant species list (BODATSA-POSA, 2019)

Table 8-6 Plant Species of Conservation Concern with the potential to occur in the project area

Family	Taxon	Author	IUCN	Ecology
Rutaceae	<i>Agathosma bicornuta</i>	R.A.Dyer	EN	Indigenous; Endemic
Rutaceae	<i>Agathosma gonaquensis</i>	Eckl. & Zeyh.	CR	Indigenous; Endemic
Rutaceae	<i>Agathosma minuta</i>	Schltld.	EN	Indigenous; Endemic
Rutaceae	<i>Agathosma pulchella</i>	(L.) Link	VU	Indigenous; Endemic
Asphodelaceae	<i>Aloe micracantha</i>	Haw.	NT	Indigenous; Endemic
Amaryllidaceae	<i>Apodolirion macowanii</i>	Baker	VU	Indigenous; Endemic
Fabaceae	<i>Aspalathus arenaria</i>	R.Dahlgren	VU	Indigenous; Endemic
Fabaceae	<i>Aspalathus gerrardii</i>	Bolus	VU	Indigenous; Endemic
Apocynaceae	<i>Brachystelma comptum</i>	N.E.Br.	VU	Indigenous; Endemic
Apocynaceae	<i>Brachystelma luteum</i>	Peckover	VU	Indigenous; Endemic
Apocynaceae	<i>Ceropegia fimbriata</i> subsp. <i>fimbriata</i>	E.Mey.	VU	Indigenous; Endemic
Aizoaceae	<i>Corpuscularia lehmannii</i>	(Eckl. & Zeyh.) Schwantes	CR	Indigenous; Endemic
Crassulaceae	<i>Cotyledon ascendens</i>	R.A.Dyer	EN	Indigenous; Endemic
Amaryllidaceae	<i>Crinum campanulatum</i>	Herb.	NT	Indigenous; Endemic
Orchidaceae	<i>Disa lugens</i> var. <i>lugens</i>	Bolus	VU	Indigenous; Endemic

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Aizoaceae	<i>Drosanthemum jamesii</i>	L.Bolus	DD	Indigenous; Endemic
Ericaceae	<i>Erica glumiflora</i>	Klotzsch ex Benth.	VU	Indigenous; Endemic
Ruscaceae	<i>Eriospermum bracteatum</i>	Archibald	VU	Indigenous; Endemic
Euphorbiaceae	<i>Euphorbia meloformis</i>	Aiton	NT	Indigenous; Endemic
Iridaceae	<i>Gladiolus huttonii</i>	(N.E.Br.) Goldblatt & M.P.de Vos	VU	Indigenous; Endemic
Isoetaceae	<i>Isoetes wormaldii</i>	Sim	CR	Indigenous; Endemic
Hyacinthaceae	<i>Lachenalia convallarioides</i>	Baker	CR	Indigenous; Endemic
Proteaceae	<i>Leucadendron argenteum</i>	(L.) R.Br.	EN	Indigenous; Endemic
Proteaceae	<i>Leucospermum cordifolium</i>	(Salisb. ex Knight) Fourc.	NT	Indigenous; Endemic
Proteaceae	<i>Leucospermum praecox</i>	Rourke	VU	Indigenous; Endemic
Proteaceae	<i>Leucospermum vestitum</i>	(Lam.) Rourke	NT	Indigenous; Endemic
Aizoaceae	<i>Mestoklema albanicum</i>	N.E.Br. ex Glen	NT	Indigenous; Endemic
Amaryllidaceae	<i>Nerine huttoniae</i>	Schonland	VU	Indigenous; Endemic
Hyacinthaceae	<i>Ornithogalum britteniae</i>	F.M.Leight. ex Oberm.	VU	Indigenous; Endemic
Aizoaceae	<i>Orthopterum waltoniae</i>	L.Bolus	NT	Indigenous; Endemic
Asteraceae	<i>Osteospermum spathulatum</i>	(DC.) Norl.	DD	Indigenous; Endemic
Geraniaceae	<i>Pelargonium campestre</i>	(Eckl. & Zeyh.) Steud.	DD	Indigenous; Endemic
Anacardiaceae	<i>Searsia albomarginata</i>	(Sond.) Moffett	CR	Indigenous; Endemic
Asteraceae	<i>Senecio hirtellus</i>	DC.	DD	Indigenous; Endemic
Strelitziaceae	<i>Strelitzia juncea</i>	(Ker Gawl.) Link	VU	Indigenous; Endemic

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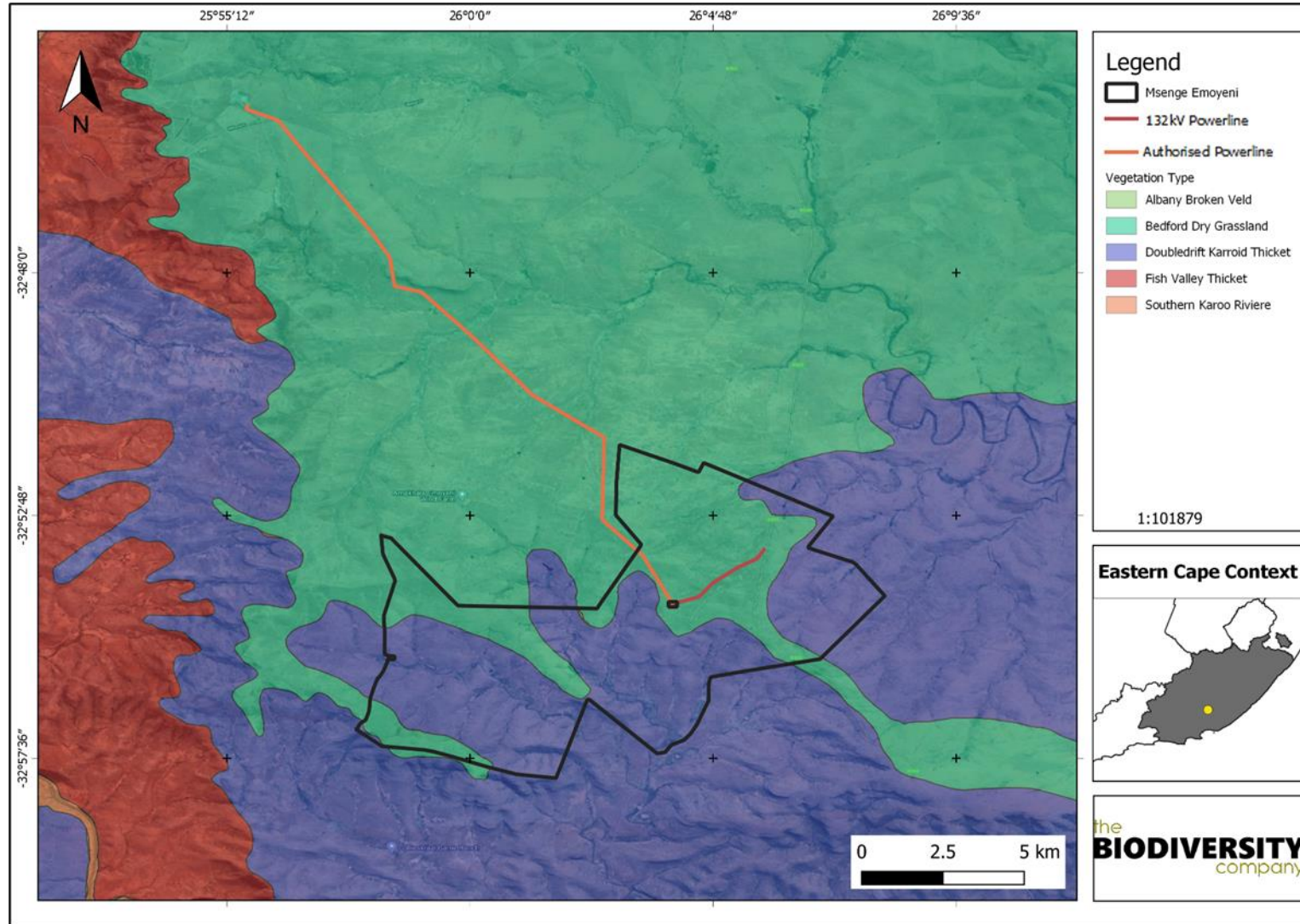


Figure 8-15 The project area showing the vegetation type based on the Vegetation Map of South Africa, Lesotho & Swaziland (BGIS, 2018)

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8.2.2 Faunal Assessment

8.2.2.1 Avifauna

Based on the South African Bird Atlas Project, Version 2 (SABAP2) database, 236 bird species have the potential to occur in the vicinity of the project area. The full list of potential bird species is provided in Appendix C.

Of the potential bird species, nineteen (19) species are listed as SCC either on a regional or global scale (Table 8-7). The SCC include the following:

- Six (6) species that are listed as EN on a regional basis;
- Nine (9) species that are listed as VU on a regional basis; and
- Three (3) species that are listed as NT on a regional basis.

On a global scale three (3) as EN, five (5) as VU and five (5) species as NT (Table 8-7). Of the 19 species seven have a low likelihood of occurrence due to the lack of suitable habitat, while the other 12 species were all given a high likelihood of occurrence.

Table 8-7 List of bird species of regional or global conservation importance that are expected to occur in close vicinity to the project area.

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
<i>Afrotis afra</i>	Korhaan, Southern Black	VU	VU	High
<i>Anthropoides paradiseus</i>	Crane, Blue	NT	VU	High
<i>Aquila verreauxii</i>	Eagle, Verreaux's	VU	LC	High
<i>Ardeotis kori</i>	Bustard, Kori	NT	NT	High
<i>Balearica regulorum</i>	Crane, Grey Crowned	EN	EN	High
<i>Calidris ferruginea</i>	Sandpiper, Curlew	LC	NT	Low
<i>Campethera notata</i>	Woodpecker, Knysna	NT	NT	Low
<i>Circus maurus</i>	Harrier, Black	EN	VU	Low
<i>Circus ranivorus</i>	Marsh-harrier, African	EN	LC	Low
<i>Cursorius rufus</i>	Cursorer, Burchell's	VU	LC	Low
<i>Eupodotis senegalensis</i>	Korhaan, White-bellied	VU	LC	High
<i>Falco biarmicus</i>	Falcon, Lanner	VU	LC	High
<i>Gyps coprotheres</i>	Vulture, Cape	EN	EN	High
<i>Neotis denhami</i>	Bustard, Denham's	VU	NT	High
<i>Neotis ludwigii</i>	Bustard, Ludwig's	EN	EN	High
<i>Polemaetus bellicosus</i>	Eagle, Martial	EN	VU	High
<i>Sagittarius serpentarius</i>	Secretarybird	VU	VU	High
<i>Stephanoaetus coronatus</i>	Eagle, African Crowned	VU	NT	Low
<i>Sterna caspia</i>	Tern, Caspian	VU	LC	Low

Afrotis afra (Southern Black Korhaan) is listed as VU on a regional and global scale (IUCN, 2017). They are endemic to the South-Western side of South Africa. Their habitat varies from

non-grassy areas to the Fynbos biome, Karoo biome and the western coastline of South Africa. The main threat to them is habitat loss, in an eight year span they loss 80% of their range due to agricultural developments. Their diet consists of insects, small reptiles and plant material, including seeds and green shoots (Hockey *et al.* 2005). This species were observed in the project area.

Anthropoides paradiseus (Blue Crane) is listed as NT on a regional scale and as VU on a global scale. This species has declined, largely owing to direct poisoning, power-line collisions and loss of its grassland breeding habitat owing to afforestation, mining, agriculture and development (IUCN, 2017). This species breeds in natural grass- and sedge-dominated habitats, preferring secluded grasslands at high elevations where the vegetation is thick and short. Numerous breeding pairs of this species were observed in the project area.

Aquila verreauxii (Verreaux's Eagle) is listed as VU on a regional scale and LC on a global scale. This species is locally persecuted in southern Africa where it coincides with livestock farms, but because the species does not take carrion, is little threatened by poisoned carcasses. Where hyraxes are hunted for food and skins, eagle populations have declined (IUCN, 2017). Habitat and preferred prey species can be found in and around the project area. Personal communications with one of the landowners confirmed the presence of this species.

Ardeotis kori (Kori Bustard) is listed as NT both on a regional and global scale. It occurs in flat, arid, mostly open country such as grassland, karoo, bushveld, thornveld, scrubland and savanna but also including modified habitats such as wheat fields and firebreaks. Collisions with high voltage powerlines are a major threat to this species in the Karoo of South Africa (IUCN, 2007). The grassland habitat in the project area provide suitable habitat for this species.

Balearica regulorum (Crane, Grey Crowned) is listed as EN on a regional scale as well as global scale. The species inhabits wetlands such as marshes, pans and dams with tall emergent vegetation, open riverine woodland, shallowly flooded plains and temporary pools with adjacent grasslands, open savannas, croplands and breeds within or at the edges of wetlands. Based on the presence of the Blue crane, this species was given a high likelihood of occurrence.

Eupodotis senegalensis (White-bellied Korhaan) is Near-endemic to South Africa, occurring from the Limpopo Province and adjacent provinces, south through Swaziland to KwaZulu-Natal and the Eastern Cape. It generally prefers tall, dense sour or mixed grassland, either open or lightly wooded, occasionally moving into cultivated or burnt land, which is present in the project area thus likelihood of occurrence was rated as high.

Falco biarmicus (Lanner Falcon) is native to South Africa and inhabits a wide variety of habitats, from lowland deserts to forested mountains (IUCN, 2017). They may occur in groups up to 20 individuals but have also been observed solitary. Their diet is mainly composed of small birds such as pigeons and francolins. The likelihood of incidental records of this species in the project area is rated as high due to the natural veld condition and the presence of many bird species on which Lanner Falcons may predate.

Gyps coprotheres (Cape Vulture) is listed as EN on both a regional and global scale. Cape Vultures are long-lived carrion-feeders specialising on large carcasses, they fly long distances over open country, although they are usually found near steep terrain, where they breed and roost on cliffs (IUCN, 2017). The presence of Vultures was confirmed by the landowner.

Neotis denhami (Denhams Bustard) is listed as VU on a regional scale and NT on a global scale. It occurs in flat, arid, mostly open country such as grassland, karoo, bushveld, thornveld, scrubland and savanna but also including modified habitats such as wheat fields and firebreaks. Collisions with powerlines may be a significant threat in parts of the range, particularly South Africa (IUCN, 2007). The habitat at the project site does provide suitable habitat for this species and therefore its likelihood of occurrence is rated as high.

Neotis ludwigii (Ludwig's Bustard) is listed as EN both locally and internationally. This species is found in the desert, grassland and shrubland specifically in rocky areas such as mountains and cliffs. The main reason for the decline in the numbers are ascribed to the collisions with powerlines. This species has a high likelihood of occurrence based on the highly suitable habitat found in the project area.

Polemaetus bellicosus (Martial Eagle) is listed as EN on a regional scale and VU on a global scale. This species has an extensive range across much of sub-Saharan Africa, but populations are declining due to deliberate and incidental poisoning, habitat loss, reduction in available prey, pollution and collisions with powerlines (IUCN, 2017). It inhabits open woodland, wooded savanna, bushy grassland, thornbush and, in southern Africa, more open country and even sub-desert (IUCN, 2017). With the presence of good grassland habitat in the project area but an absence of large trees for roosting and nesting this species may only use the site for foraging.

Sagittarius serpentarius (Secretarybird) occurs in sub-Saharan Africa and inhabits grasslands, open plains, and lightly wooded savanna. It is also found in agricultural areas and sub-desert (IUCN, 2017). The likelihood of occurrence is rated as high due to the extensive grasslands areas present in the project area.

8.2.2.2 Mammals

The IUCN Red List Spatial Data (IUCN, 2017) lists 81 mammal species that could be expected to occur within the project area. Species generally restricted to protected areas such as game reserves were not expected to occur in the project area and were removed from the list (Appendix D).

Of the 81 mammal species, twelve (12) are listed as being of conservation concern on a regional or global basis (Table 8-8). The list of potential species includes:

- One (1) that is listed as EN on a regional basis;
- Four (4) that are listed as VU on a regional basis; and
- Six (6) that are listed as NT on a regional scale.

On a global scale, 1 species is listed as EN, 2 are listed as VU and 5 as NT (Table 8-8). Two of the species are expected to have a low likelihood of occurrence due to a lack of suitable habitat, nine species have a high likelihood and one a moderate likelihood.

Table 8-8 List of mammal Species of Conservation Concern that may occur in the project area as well as their global and regional conservation statuses.

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
<i>Aonyx capensis</i>	Cape Clawless Otter	NT	NT	High
<i>Eidolon helvum</i>	African Straw-colored Fruit Bat	LC	NT	Low
<i>Felis nigripes</i>	Black-footed Cat	VU	VU	High
<i>Graphiurus ocularis</i>	Spectacular Dormouse	NT	LC	Moderate
<i>Hydricteis maculicollis</i>	Spotted-necked Otter	VU	NT	High
<i>Leptailurus serval</i>	Serval	NT	LC	High
<i>Mystromys albicaudatus</i>	White-tailed Rat	VU	EN	Low
<i>Panthera pardus</i>	Leopard	VU	VU	High
<i>Parahyaena brunnea</i>	Brown Hyaena	NT	NT	High
<i>Pelea capreolus</i>	Grey Rhebok	NT	NT	High
<i>Poecilogale albinucha</i>	African Striped Weasel	NT	LC	High
<i>Redunca fulvorufula</i>	Mountain Reedbuck	EN	LC	High

Aonyx capensis (Cape Clawless Otter) is the most widely distributed otter species in Africa (IUCN, 2017). This species is predominantly aquatic, and it is seldom found far from water. Based on the presence of dams within the project area the likelihood of occurrence of this species occurring in the project area is considered to be high. Personal communications with the landowner confirmed the presence of this species.

Felis nigripes (Black-footed cat) is endemic to the arid regions of southern Africa. This species is naturally rare, has cryptic colouring is small in size and is nocturnal. These factors have contributed to a lack of information on this species. Given that the highest densities of this species have been recorded in the more arid Karoo region of South Africa, the habitat in the project area can be considered to be optimal for the species and the likelihood of occurrence is rated as high.

Graphiurus ocularis (Spectacular Dormouse) is categorised as NT on a regional scale. This species is endemic to South Africa, where it occurs widely in Northern Cape, Eastern Cape, and Western Cape provinces, with a single record from the North West province. The species is associated with the sandstone formations of the Cape, which have many vertical and horizontal cracks and crevices in which to shelter and nest. The likelihood of occurrence is rated as high.

Hydricteis maculicollis (Spotted-necked Otter) inhabits freshwater habitats where water is un-silted, unpolluted, and rich in small to medium sized fishes (IUCN, 2017). Suitable habitat can be found in the dams on site and based on the known presence of the cape clawless otter this species were given a high likelihood of occurrence.

Leptailurus serval (Serval) occurs widely through sub-Saharan Africa and is commonly recorded from most major national parks and reserves (IUCN, 2017). The Serval's status outside reserves is not certain, but they are inconspicuous and may be common in suitable habitat as they are tolerant of farming practices provided there is cover and food available. In sub-Saharan Africa, they are found in habitat with well-watered savanna long-grass

environments and are particularly associated with reedbeds and other riparian vegetation types. Large areas of natural grasslands are present in the project area and as such the likelihood of occurrence is rated as high.

Panthera pardus (Leopard) has a wide distributional range across Africa and Asia, but populations have become reduced and isolated, and they are now extirpated from large portions of their historic range (IUCN, 2017). Impacts that have contributed to the decline in populations of this species include continued persecution by farmers, habitat fragmentation, increased illegal wildlife trade, excessive harvesting for ceremonial use of skins, prey base declines and poorly managed trophy hunting (IUCN, 2017). Prey species can be found in the project area, tracks of this species were also found in the project area confirming their presence.

Parahyaena brunnea (Brown Hyaena) is endemic to southern Africa. This species occurs in dry areas, generally with annual rainfall less than 100 mm, particularly along the coast, semi-desert, open scrub and open woodland savanna. Given its known ability to persist outside of formally protected areas the likelihood of occurrence of this species in the project area is moderate to good. The presence of moderate to large herbivores on the property and adjacent farms increases the likelihood of occurrence of this species.

Pelea capreolus (Grey Rhebok) is endemic to a small region in southern Africa, inhabiting montane and plateau grasslands of South Africa, Swaziland, and Lesotho. In South Africa, their distribution is irregular and patchy, and they no longer occur north of the Orange River in the Northern Cape, or in parts of the North-West Province (IUCN, 2017). Grey Rhebok can be found in suitable habitat which has rocky hills, grassy mountain slopes, and montane and plateau grasslands in southern Africa. They are predominantly browsers, and largely water independent, obtaining most of their water requirements from their food. The habitat in the project area is regarded as suitable as such they have a high likelihood of occurrence.

Poecilogale albinucha (African Striped Weasel) is usually associated with savanna habitats, although it probably has a wider habitat tolerance (IUCN, 2017). Due to its secretive nature, it is often overlooked in many areas where it does occur. There is sufficient habitat for this species in the project area and the likelihood of occurrence of this species is therefore considered to be high.

Redunca fulvorufula (Mountain Reedbuck) is listed as EN both regionally and globally. The South African population has undergone a decline of 61-73% in the last three generations (15 years) (IUCN, 2017). Mountain Reedbuck live on ridges and hillsides in broken rocky country and high-altitude grasslands (often with some tree or bush cover). This species was observed in the project area.

8.2.2.3 Herpetofauna (Reptiles & Amphibians)

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the ReptileMap database provided by the Animal Demography Unit (ADU, 2019) 8 reptile species have the potential to occur in the project area (Appendix E). none of the expected species are SCCs (IUCN, 2017).

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the AmphibianMap database provided by the Animal Demography Unit (ADU, 2020) 25 amphibian species have the potential to occur in the project area (Appendix F). Three amphibian SCCs are expected to occur in the project area.

Table 8-9 Amphibian SCCs expected in the project area

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
<i>Anhydrophryne rattrayi</i>	Hogsback frog	VU	VU	Low
<i>Cacosternum thorini</i>	Hogsback caco	EN	EN	Low
<i>Vandijkophrynus amatolicus</i>	Amatola Toad	EN	CR	Low

The project area is not regarded as suitable habitat for any of the three species and as such they were all given a low likelihood of occurrence.

9 Field Survey

9.1 Terrestrial Assessment

The field survey for flora and fauna (mammals, avifauna, amphibians and reptiles) was conducted from the 17th to the 18th of September 2020. During the survey the floral and faunal communities in the project area were assessed. The project area was ground-truthed on foot, which included spot checks and meanders in pre-selected areas to validate desktop data. Photographs were recorded during the site visits and some are provided under the results section in this report. All site photographs are available on request. Figure 9-1 shows some of the species of interest and the locations recorded during the site assessment.

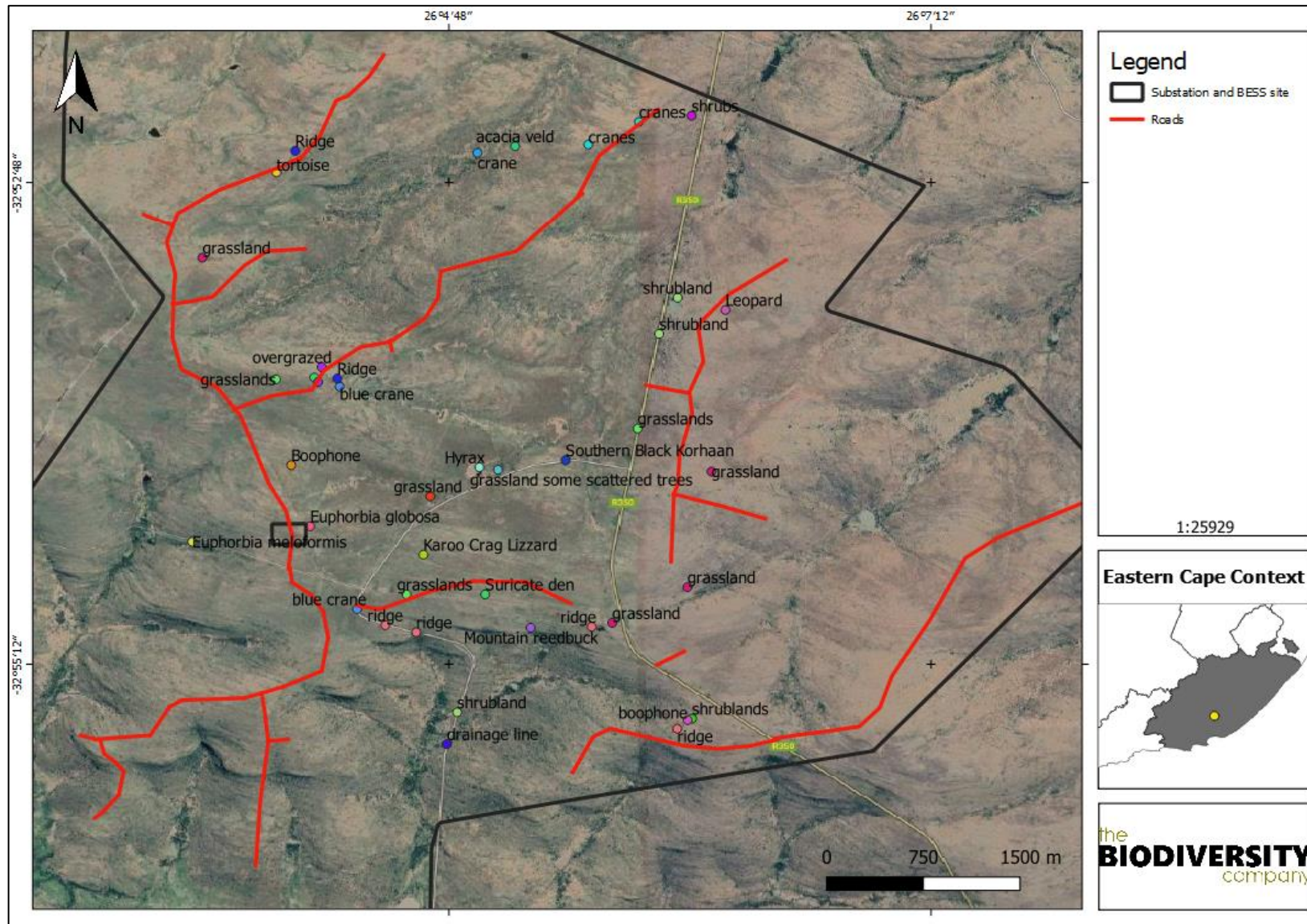


Figure 9-1 Map showing the localities of species of interest and the main habitat features in the project area.

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9.1.1 Vegetation Assessment

The vegetation assessment was conducted throughout the extent of the project area excluding the footprint of the powerline. A total of 52 tree, shrub and herbaceous plant species were recorded in the project area during the field assessment (Table 9-1). Plants listed as Category 1 alien or invasive species under the National Environmental Management: Biodiversity Act (NEMBA) appear in green text. Plants listed in Category 2 or as 'not indigenous' or 'naturalised' according to NEMBA, appear in blue text. Some of the plant species recorded can be seen in Figure 9-2.

The list of plant species recorded to date is therefore by no means comprehensive, and the report needs to be read in alongside with the Hoare (2010) and Savannah (2014) reports. One of the approaches of the flora field survey was to determine if the protected species listed in those reports could be still be found. However, floristic analysis conducted to date is however regarded as a sound representation of the local flora for the project area.

9.1.1.1 Protected plant species

Several individuals of fifteen protected plant species that are protected by the Eastern Cape Nature Conservation Ordinance No. 19 of 1974 were observed in various parts of the project area (Table 9-1). According to the list of protected species under Schedule 4 of the ordinance; no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate, or in any other manner acquire or dispose of any protected plant unless he or she is the holder of a permit which authorises him or her to do, and the locations mapped can be seen in Figure 9-2. *Euphorbia globosa* (EN) and *Euphorbia meloformis* (NT) were also observed in the project area.

Table 9-1 Trees, shrubs and weeds recorded in the project area

Family	Scientific Name	Common Name	Threat Status (SANBI, 2017)	EC Nature Conservation Ordinance No. 19 of 1974
ACANTHACEAE	<i>Blepharis sp</i>			
AIZOACEAE	<i>Drosanthemum hispidum</i>	Fyn T'houroeboos	LC	Schedule 4: Protected
AIZOACEAE	<i>Ruschia sp.</i>			Schedule 4: Protected
AMARYLLIDACEAE	<i>Boophone disticha</i>	Poison Bulb	LC	Schedule 4: Protected
AMARYLLIDACEAE	<i>Cyrtanthus contractus</i>	Fire Lily	LC	Schedule 4: Protected
AMARYLLIDACEAE	<i>Haemanthus sp</i>			Schedule 4: Protected
ANACARDIACEAE	<i>Searsia glauca</i>	Blue kuni-bush	LC-Endemic to SA	
APOCYNACEAE	<i>Carissa bispinosa</i>	Num-num	LC	Schedule 4: Protected
APOCYNACEAE	<i>Duvalia sp (Stapelioid)</i>			Schedule 4: Protected
APOCYNACEAE	<i>Gomphocarpus physocarpus</i>	Balloonplant	LC	Schedule 4: Protected
ARALIACEAE	<i>Cussonia paniculata</i>	Highveld Cabagge tree	LC	
ARALIACEAE	<i>Cussonia spicata</i>	Cabbage Tree	LC	
ASPARAGACEAE	<i>Agave americana</i>	Century Plant		
ASPARAGACEAE	<i>Asparagus setaceus</i>	Feathery Asparagus	LC	
ASPARAGACEAE	<i>Asparagus striatus</i>	Bergappel	LC-Endemic to SA	
ASPHODELACEAE	<i>Aloe ferox</i>	Bitter Aloe	LC	
ASPHODELACEAE	<i>Aloe striata</i>	Coral aloe	LC	Schedule 4: Protected
ASTERACEAE	<i>Arctotis arctotoides</i>	Bittergousblom	LC	
ASTERACEAE	<i>Cirsium vulgare</i>	Spear Thistle		
ASTERACEAE	<i>Tagetes minuta</i>	Khaki-weed		
ASTERACEAE	<i>Xanthium sp</i>	Cocklebur		
BORAGINACEAE	<i>Ehretia rigida</i>	Puzzlebush	LC-Endemic to SA	
CACTACEAE	<i>Echinopsis spachiana</i>	Torch Cactus		

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CACTACEAE	<i>Opuntia aurantiaca</i>	Jointed cactus		
CACTACEAE	<i>Opuntia ficus indica</i>	Prickly Pear		
CELASTRACEAE	<i>Gymnosporia buxifolia</i>	Common Spike-thorn	LC	
CRASSULACEAE	<i>Cotyledon cf velutina</i>	Velvet Cotyledon	LC	
CRASSULACEAE	<i>Crassula capitella</i>	Campfire	LC	
CRASSULACEAE	<i>Crassula sp</i>			
EBENACEAE	<i>Euclea undulata</i>	Common Guarri	LC	
EUPHORBIACEAE	<i>Euphorbia globosa</i>	Eierpol	EN	
EUPHORBIACEAE	<i>Euphorbia mauritanica</i>	Beesmelkbos	LC	
EUPHORBIACEAE	<i>Euphorbia meloformis</i>	Skilpadkos	NT	
EUPHORBIACEAE	<i>Euphorbia micrantha</i>			Schedule 4: Protected
FABACEAE	<i>Schotia afra var. afra</i>	Karoo Boer-bean	LC-Endemic to SA	
FABACEAE	<i>Vachellia karoo</i>	Sweethorn	LC	
GERANIACEAE	<i>Pelargonium cf sidoides</i>	Black pelargonium	LC	Schedule 4: Protected
HYACINTHACEAE	<i>Albuca sp</i>			
HYACINTHACEAE	<i>Ledebouria revoluta</i>		LC	
IRIDACEAE	<i>Moraea sp</i>			Schedule 4: Protected (All IRIDACEAE)
IRIDACEAE	<i>Tritonia sp</i>		LC	Schedule 4: Protected (All IRIDACEAE)
OLEACEAE	<i>Olea europaea subsp. africana</i>	Wild Olive	LC	
ORCHIDACEAE	<i>Holothrix/Satyrium (Single Leaf)</i>			Schedule 4: Protected
PAPAVERACEAE	<i>Argemone ochroleuca</i>	Mexican poppy		
POACEAE	<i>Digitaria eriantha</i>	Woolly Finger Grass	LC	
POACEAE	<i>Eragrostis capensis</i>	Hartjiegras	LC	
POACEAE	<i>Eragrostis curvula</i>	Berg-Soetgras	LC	
POACEAE	<i>Eragrostis x pseud-obtusa</i>		NE	
RUSCACEAE	<i>Sansevieria hyacinthoides</i>	Wildedatel	LC	

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SAPINDACEAE	<i>Pappea capensis</i>	Jacket Plum	LC	Schedule 4: Protected
SOLANACEAE	<i>Datura stramonium</i>	Jimsonweed		



Figure 9-2 Some of the flora species recorded in the project area: A) *Boophone disticha*, B) *Cyrtanthus contractus*, C) *Euphorbia meloformis*, D) *Pappia capensis*, E) *Cussonia paniculata*, F) *Schotia afra* var. *afra*

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9.1.1.2 Alien and Invasive Plants

Declared weeds and invader plant species have the tendency to dominate or replace the canopy or herbaceous layer of natural ecosystems, thereby transforming the structure, composition, and function of these systems. Therefore, it is important that these plants are controlled and eradicated by means of an eradication and monitoring programme. Some invader plants may also degrade ecosystems through superior competitive capabilities to exclude native plant species.

The National Environmental Management: Biodiversity Act (NEMBA) is the most recent legislation pertaining to alien invasive plant species. In August 2014, the list of Alien Invasive Species was published in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) (Government Gazette No 78 of 2014). The Alien and Invasive Species Regulations were published in the Government Gazette No. 37886, 1 August 2014, and was amended in February 2018 in the Government Gazette No. 41445. The legislation calls for the removal and / or control of alien invasive plant species (Category 1 species). In addition, unless authorised thereto in terms of the National Water Act, 1998 (Act No. 36 of 1998), no land user shall allow Category 2 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland. Category 3 plants are also prohibited from occurring within proximity to a watercourse.

Below is a brief explanation of the three categories in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA):

- Category 1a: Invasive species requiring compulsory control. Remove and destroy. Any specimens of Category 1a listed species need, by law, to be eradicated from the environment. No permits will be issued.
- Category 1b: Invasive species requiring compulsory control as part of an invasive species control programme. Remove and destroy. These plants are deemed to have such a high invasive potential that infestations can qualify to be placed under a government sponsored invasive species management programme. No permits will be issued.
- Category 2: Invasive species regulated by area. A demarcation permit is required to import, possess, grow, breed, move, sell, buy or accept as a gift any plants listed as Category 2 plants. No permits will be issued for Category 2 plants to exist in riparian zones.
- Category 3: Invasive species regulated by activity. An individual plant permit is required to undertake any of the following restricted activities (import, possess, grow, breed, move, sell, buy or accept as a gift) involving a Category 3 species. No permits will be issued for Category 3 plants to exist in riparian zones.

Note that according to the regulations, a person who has under his or her control a category 1b listed invasive species must immediately:

- Notify the competent authority in writing
- Take steps to manage the listed invasive species in compliance with:
 - Section 75 of the Act;

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- The relevant invasive species management programme developed in terms of regulation 4; and
- Any directive issued in terms of section 73(3) of the Act.

Six (6) alien and/or invasive plants were recorded during the field survey within the project area. It is recommended that an Alien Plant Species Management Plan be implemented within the project areas and as part of the EMPr in order to prevent the prospecting activities and movement exacerbating the infestation.

9.1.2 Faunal Assessment

The faunal assessment was completed based on the desktop review and infield biodiversity surveys which were conducted across the project area excluding the powerline northern section.

9.1.2.1 Avifauna

Seventy one (71) bird species were recorded in the project area. The Southern Black Korhaan (*Afrotis afra*) were observed in the project area. It is likely that these species are using the project area for breeding as a juvenile was recorded along with the male and female. Approximately 10 breeding pairs of Blue Cranes (*Anthropoides paradiseus*) were observed in the project area, and it is likely that these species are local residents. Sixty-five of the species are also protected under schedule 2 of the EC Nature Conservation Ordinance No. 19 of 1974. The species recorded in the project area is shown in *Table 9-2* and some of the species recorded is shown in *Figure 9-3*.

Table 9-2 Avifaunal species recorded in the project area

Species	Common Name	Conservation Status		EC Nature Conservation Ordinance No. 19 of 1974
		Regional (SANBI, 2016)	IUCN (2017)	
<i>Afrotis afra</i>	Korhaan, Southern Black	VU	VU	Schedule 2
<i>Alopochen aegyptiacus</i>	Goose, Egyptian	Unlisted	LC	Schedule 2
<i>Amadina erythrocephala</i>	Finch, Red-headed	Unlisted	LC	Schedule 2
<i>Anas capensis</i>	Teal, Cape	Unlisted	LC	Schedule 2
<i>Anas undulata</i>	Duck, Yellow-billed	Unlisted	LC	Schedule 2
<i>Andropadus importunus</i>	Greenbul, Sombre	Unlisted	LC	Schedule 2
<i>Anthropoides paradiseus</i>	Crane, Blue	NT	VU	Schedule 2
<i>Anthus cinnamomeus</i>	Pipit, African	Unlisted	LC	Schedule 2
<i>Anthus leucophrys</i>	Pipit, Plain-backed	Unlisted	LC	Schedule 2
<i>Apalis thoracica</i>	Apalis, Bar-throated	Unlisted	LC	Schedule 2
<i>Apus apus</i>	Swift, Common	Unlisted	LC	Schedule 2
<i>Apus caffer</i>	Swift, White-rumped	Unlisted	LC	Schedule 2
<i>Ardea cinerea</i>	Heron, Grey	Unlisted	LC	Schedule 2
<i>Ardea melanocephala</i>	Heron, Black-headed	Unlisted	LC	Schedule 2
<i>Batis molitor</i>	Batis, Chinspot	Unlisted	LC	Schedule 2
<i>Bostrychia hagedash</i>	Ibis, Hadedda	Unlisted	LC	Schedule 2
<i>Calandrella cinerea</i>	Lark, Red-capped	Unlisted	LC	Schedule 2

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<i>Caprimulgus pectoralis</i>	Nightjar, Fiery-necked	Unlisted	LC	Schedule 2
<i>Cercotrichas coryphoeus</i>	Scrub-robin, Karoo	Unlisted	LC	Schedule 2
<i>Cercotrichas leucophrys</i>	Scrub-robin, White-browed	Unlisted	LC	Schedule 2
<i>Certhilauda semitorquata</i>	Lark, Eastern Long-billed	Unlisted	LC	Schedule 2
<i>Chalcomitra amethystina</i>	Sunbird, Amethyst	Unlisted	LC	Schedule 2
<i>Charadrius tricollaris</i>	Plover, Three-banded	Unlisted	LC	Schedule 2
<i>Cisticola juncidis</i>	Cisticola, Zitting	Unlisted	LC	Schedule 2
<i>Cisticola textrix</i>	Cisticola, Cloud	Unlisted	LC	Schedule 2
<i>Coccyzygia melanotis</i>	Waxbill, Swee	Unlisted	LC	Schedule 2
<i>Columba livia</i>	Dove, Rock	Unlisted	LC	Schedule 2
<i>Corvus albus</i>	Crow, Pied	Unlisted	LC	
<i>Corvus capensis</i>	Crow, Cape	Unlisted	LC	
<i>Coturnix coturnix</i>	Quail, Common	Unlisted	LC	Schedule 2
<i>Crithagra sulphuratus</i>	Canary, Brimstone	Unlisted	LC	Schedule 2
<i>Emberiza capensis</i>	Bunting, Cape	Unlisted	LC	Schedule 2
<i>Emberiza tahapisi</i>	Bunting, Cinnamon-breasted	Unlisted	LC	Schedule 2
<i>Estrilda astrild</i>	Waxbill, Common	Unlisted	LC	Schedule 2
<i>Euplectes capensis</i>	Bishop, Yellow	Unlisted	LC	Schedule 2
<i>Falco rupicolus</i>	Kestrel, Rock	Unlisted	LC	Schedule 2
<i>Hirundo rustica</i>	Swallow, Barn	Unlisted	LC	Schedule 2
<i>Lagonosticta rubricata</i>	Firefinch, African	Unlisted	LC	Schedule 2
<i>Lamprotornis nitens</i>	Starling, Cape Glossy	Unlisted	LC	Schedule 2
<i>Laniarius ferrugineus</i>	Boubou, Southern	Unlisted	LC	Schedule 2
<i>Lanius collaris</i>	Fiscal, Common (Southern)	Unlisted	LC	Schedule 2
<i>Melaenornis pammelaina</i>	Flycatcher, Southern Black	Unlisted	LC	Schedule 2
<i>Melierax canorus</i>	Goshawk, Southern Pale Chanting	Unlisted	LC	Schedule 2
<i>Mirafra africana</i>	Lark, Rufous-naped	Unlisted	LC	Schedule 2
<i>Motacilla aguimp</i>	Wagtail, African Pied	Unlisted	LC	Schedule 2
<i>Motacilla capensis</i>	Wagtail, Cape	Unlisted	LC	Schedule 2
<i>Muscicapa striata</i>	Flycatcher, Spotted	Unlisted	LC	Schedule 2
<i>Myrmecocichla formicivora</i>	Chat, Anteating	Unlisted	LC	Schedule 2
<i>Numida meleagris</i>	Guineafowl, Helmeted	Unlisted	LC	Schedule 2
<i>Oena capensis</i>	Dove, Namaqua	Unlisted	LC	Schedule 2
<i>Oenanthe monticola</i>	Wheatear, Mountain	Unlisted	LC	Schedule 2
<i>Onychognathus morio</i>	Starling, Red-winged	Unlisted	LC	
<i>Phylloscopus trochilus</i>	Warbler, Willow	Unlisted	LC	Schedule 2
<i>Plectropterus gambensis</i>	Goose, Spur-winged	Unlisted	LC	Schedule 2
<i>Ploceus capensis</i>	Weaver, Cape	Unlisted	LC	
<i>Pogoniulus pusillus</i>	Tinkerbird, Red-fronted	Unlisted	LC	Schedule 2
<i>Prinia maculosa</i>	Prinia, Karoo	Unlisted	LC	Schedule 2

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<i>Pternistis swainsonii</i>	Spurfowl, Swainson's	Unlisted	LC	Schedule 2
<i>Pycnonotus tricolor</i>	Bulbul, Dark-capped	Unlisted	Unlisted	
<i>Quelea quelea</i>	Quelea, Red-billed	Unlisted	LC	
<i>Saxicola torquatus</i>	Stonechat, African	Unlisted	LC	Schedule 2
<i>Spreo bicolor</i>	Starling, Pied	Unlisted	LC	Schedule 2
<i>Streptopelia capicola</i>	Turtle-dove, Cape	Unlisted	LC	Schedule 2
<i>Streptopelia senegalensis</i>	Dove, Laughing	Unlisted	LC	Schedule 2
<i>Thamnoleae cinnamomeiventris</i>	Cliff-chat, Mocking	Unlisted	LC	Schedule 2
<i>Upupa africana</i>	Hoopoe, African	Unlisted	LC	Schedule 2
<i>Uraeginthus angolensis</i>	Waxbill, Blue	Unlisted	LC	Schedule 2
<i>Urocolius indicus</i>	Mousebird, Red-faced	Unlisted	LC	Schedule 2
<i>Vanellus armatus</i>	Lapwing, Blacksmith	Unlisted	LC	Schedule 2
<i>Vanellus coronatus</i>	Lapwing, Crowned	Unlisted	LC	Schedule 2
<i>Zosterops virens</i>	White-eye, Cape	Unlisted	LC	Schedule 2

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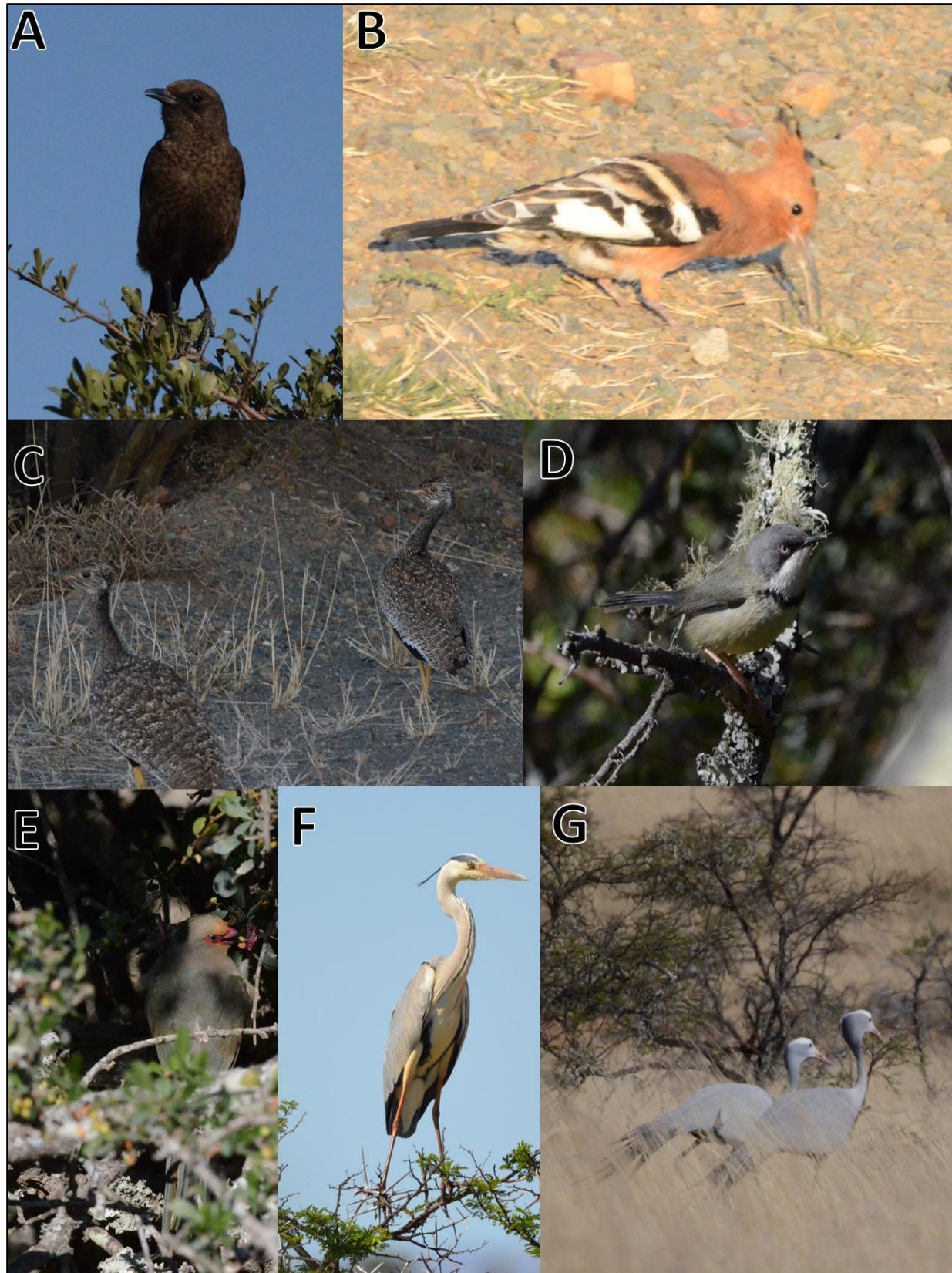


Figure 9-3 A) Ant eating Chat (*Myrmecocichla formicivora*), B) African Hoopoe (*Upupa africana*), C) Southern Black Korhaan (*Afrotis afra*), D) Bar Throated Apalis (*Apalis thoracica*), E) Red faced Mouse Bird (*Urocolius indicus*), F) Grey Heron (*Ardea cinerea*) and G) Bleu Crane (*Anthropoides paradiseus*)

9.1.2.2 Mammals

Seventeen (17) mammal species were recorded in the project area during the survey; based on either direct observation or the presence of visual tracks & signs (Table 9-3 and Figure 9-4).

Five of these species are considered as SCC, all five are protected provincially. One species, Leopard (*Panthera pardus*), is classified as VU both nationally and internationally, while the Mountain Reedbuck (*Redunca fulvorufula*) is classified as EN both nationally and internationally.

Table 9-3 Mammal species recorded in the project area

Species	Common Name	Conservation Status		EC Nature Conservation Ordinance No. 19 of 1974
		Regional (SANBI, 2016)	IUCN (2017)	
<i>Aepyceros melampus</i>	Impala	LC	LC	Schedule 2
<i>Antidorcas marsupialis</i>	Springbok	LC	LC	
<i>Chlorocebus pygerythrus</i>	Vervet Monkey	LC	LC	
<i>Cynictis penicillata</i>	Yellow Mongoose	LC	LC	
<i>Genetta genetta</i>	Small-spotted Genet	LC	LC	
<i>Hystrix africaeaustralis</i>	Cape Porcupine	LC	LC	
<i>Lepus saxatilis</i>	Scrub Hare	LC	LC	
<i>Orycteropus afer</i>	Aardvark	LC	LC	
<i>Panthera pardus</i>	Leopard	VU	VU	
<i>Papio ursinus</i>	Chacma Baboon	LC	LC	
<i>Pedetes capensis</i>	Springhare	LC	LC	
<i>Phacochoerus africanus</i>	Common Warthog	LC	LC	Schedule 2
<i>Procavia capensis</i>	Rock Hyrax	LC	LC	
<i>Raphicerus campestris</i>	Steenbok	LC	LC	Schedule 2
<i>Redunca fulvorufula</i>	Mountain Reedbuck	EN	EN	Schedule 2
<i>Suricata suricatta</i>	Suricate	LC	LC	
<i>Sylvicapra grimmia</i>	Common Duiker	LC	LC	Schedule 2

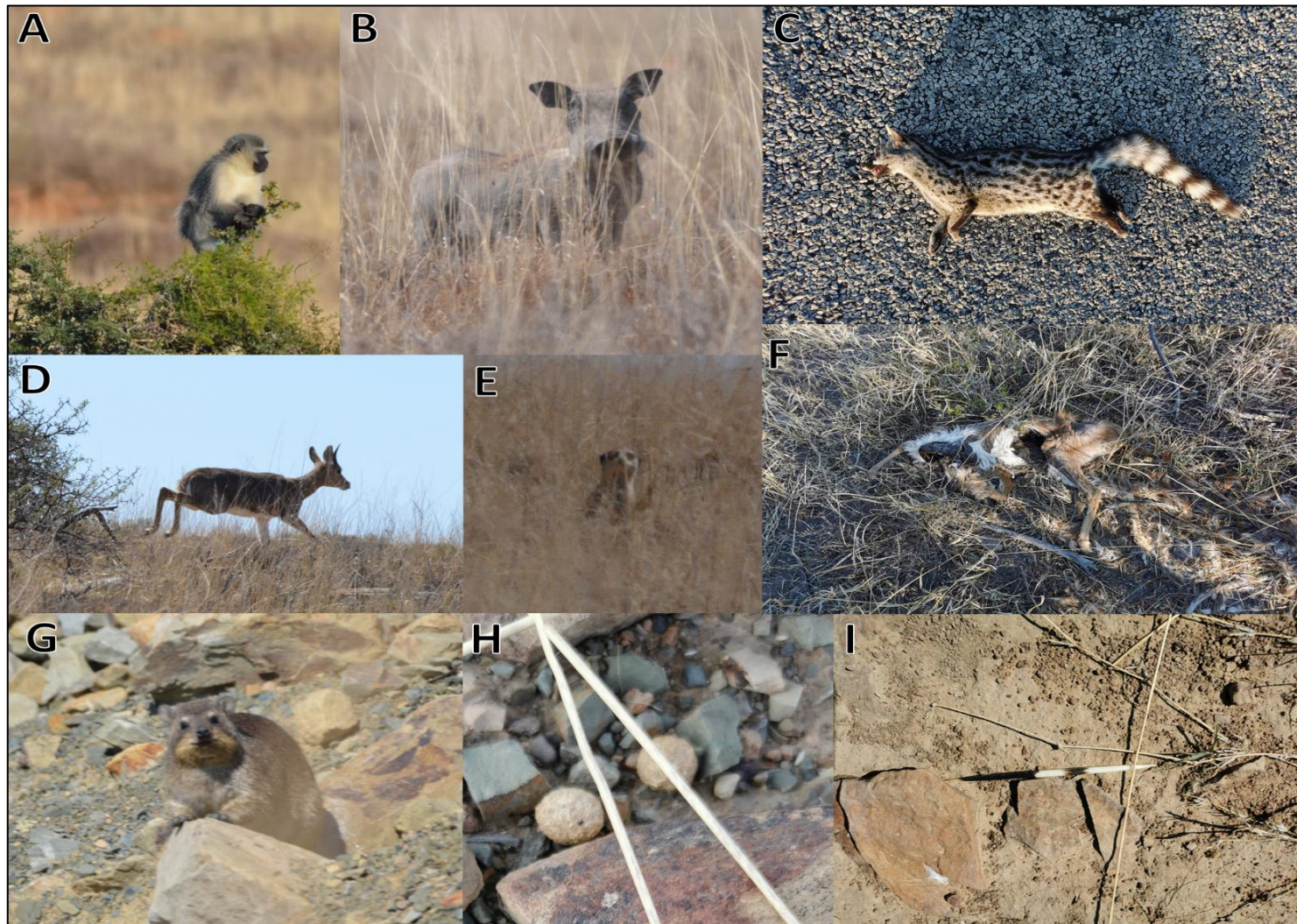


Figure 9-4 Some of the small mammal species recorded in the project area: A) Vervet monkey (*Chlorocebus pygerythrus*), B) Common Warthog (*Phacochoerus africanus*), C) Small spotted Genet (*Genetta genetta*), D) Mountain Reedbuck (*Redunca fulvorufula*), E) Suricate (*Suricata suricatta*), F) Steenbok (*Raphicerus campestris*), G) Rock Hyrax (*Procavia capensis*), H) Scrub Hare (*Lepus saxatilis*) and I) Cape Porcupine (*Hystrix africaeausralis*)

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9.1.2.3 Herpetofauna

Seven (7) reptile species, and no amphibian species were recorded in the project area during the surveys (Table 9-4 and Figure 9-5). Five of the species are protected under Schedule 2 of the EC Nature Conservation Ordinance No. 19 of 1974. The amphibian activity may have been low due to the seasonality of the survey being in the dry season, resulting in a low number of species recorded.

Table 9-4 A list of herpetofauna recorded in the project area

Species	Common Name	Conservation Status		EC Nature Conservation Ordinance No. 19 of 1974
		Regional (SANBI, 2016)	IUCN (2017)	
<i>Agama atra</i>	Southern Rock Agama	LC	LC	
<i>Boaedon capensis</i>	Brown House Snake	LC	LC	Schedule 2
<i>Cordylus cordylus</i>	Cape Girdles Lizard	LC	LC	Schedule 2
<i>Pachydactylus maculatus</i>	Spotted Gecko	LC	LC	
<i>Pedioplanis lineocellata pulchella</i>	Common sand lizard	LC	LC	Schedule 2
<i>Pseudocordylus microlepidotus fasciatus</i>	Karoo Crag Lizard	LC	LC	Schedule 2
<i>Stigmochelys pardalis</i>	Leopard Tortoise	LC	LC	Schedule 2

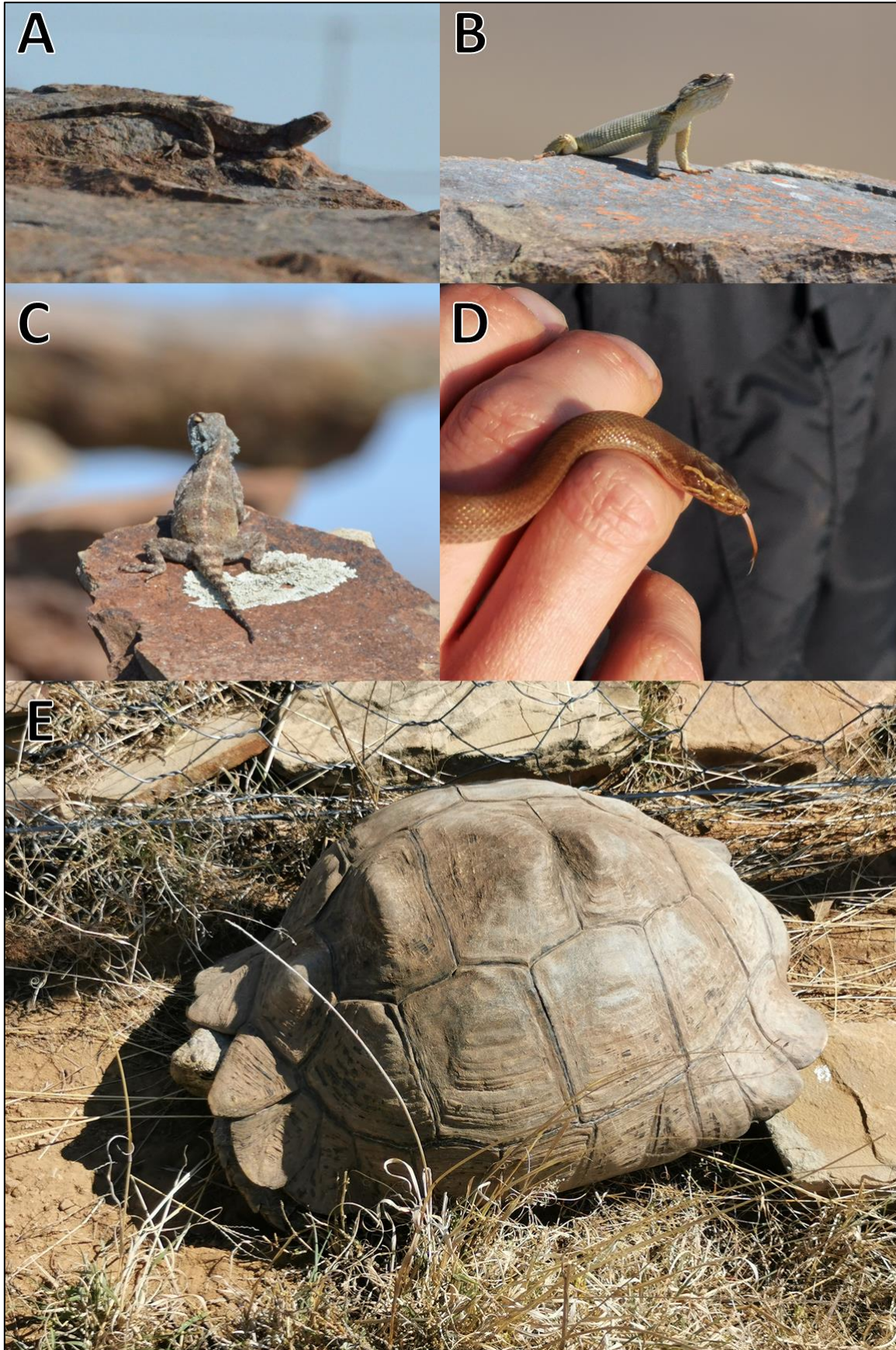


Figure 9-5 The herpetofauna species recorded in the project area: A & C) Southern Rock Agama (*Agama atra*), B) Karroo Crag Lizard (*Pseudocordylus microlepidotus fasciatus*), D) Brown House Snake (*Boaedon capensis*) and E) Leopard Tortoise (*Stigmochelys pardalis*)

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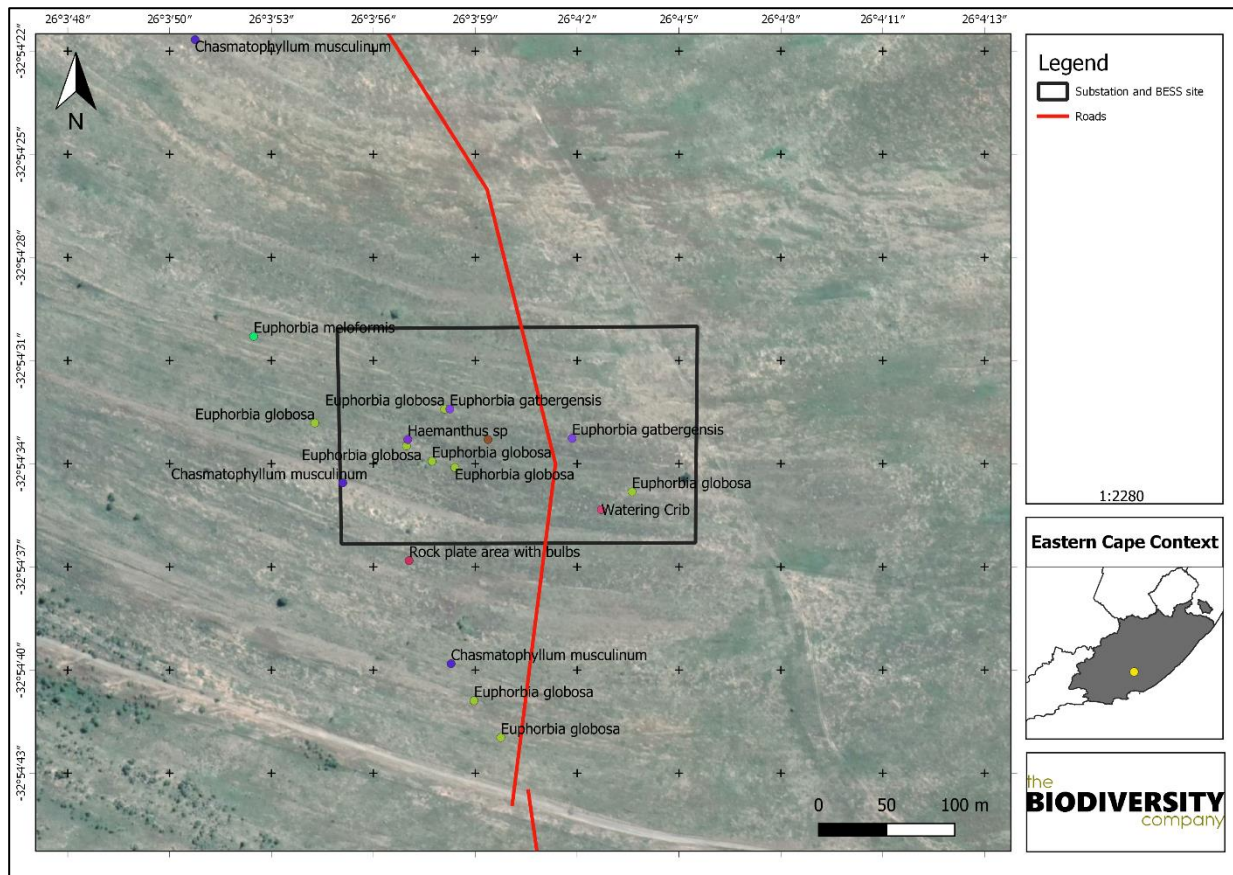


Figure 9-7 Locations of protected species and important habitat features in the BESS footprint as per the Savannah (2014) report

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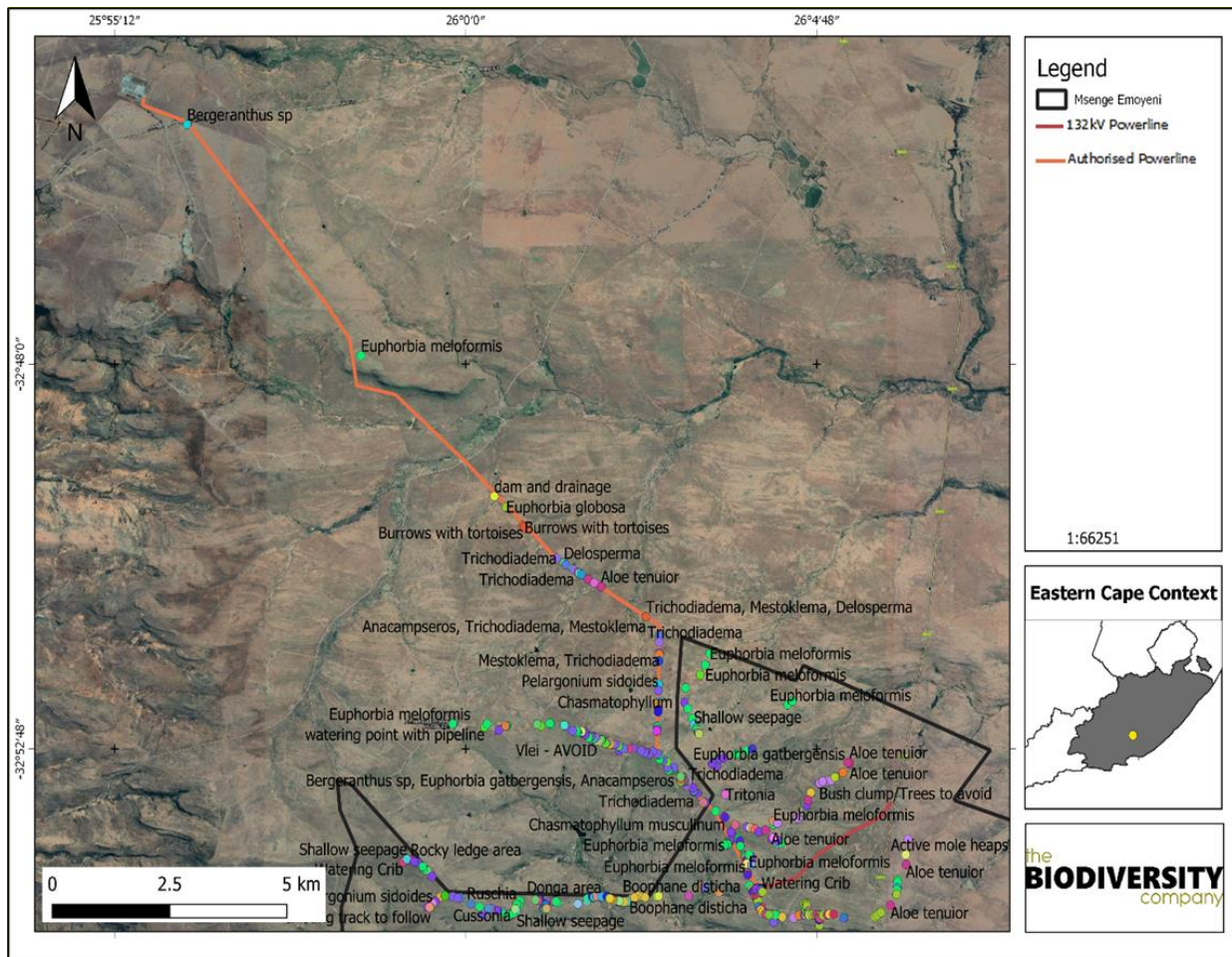


Figure 9-8 Locations of protected species and important habitat features in the powerline footprint (authorised and new 132kV line) as per the Savannah (2014) report

9.1.4 Habitat Assessment

The main habitat types identified across the project area were initially identified largely based on aerial imagery. These main habitat types were refined based on the field coverage and data collected during the survey. The delineated habitats can be seen in Figure 9-9 till Figure 9-11 and Figure 9-12 are illustrations of these habitats from the project area. Emphasis was placed on limiting timed meander searches within the natural habitats and therefore habitats with a higher potential of hosting SCC. Each of the habitats identified are discussed in the sub-sections below.

Grassland

The grassland habitat was in near pristine condition, with a high diversity of grasses, forbs and herbaceous species. The veld management of these areas were done very successfully as very few to no open overgrazed patches and erosion were observed. In this habitat high numbers of anthills, we observed. These anthills were often exposed by Aardvark (*Orycteropus afer*) and has become inhabited by other species such as the Leopard Tortoise (*Stigmochelys pardalis*). This habitat was given a high sensitivity based on its high diversity and low disturbance level.

The main ecological characteristics of these grasslands are still intact and include (SANBI, 2013):

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- Climate; warm, wet summers and cool, dry winters that result in a long growing season creating high primary productivity, frost plays an important role in reducing the grazing which enables suitability for burning; which promotes diversity and rejuvenation
- Fire is the most important ecosystem process to maintain biodiversity and productivity in this ecosystem. These Grasslands have a high natural incidence and frequency of fire;
- Grazing, these grasslands are not well adapted to manage high intensity grazing pressure, constantly;
- Soils are well drained and are in general deeper than in the escarpment areas; and
- Life-history strategies; the vegetation that dominate, are long lived perennial species, which reproduces sporadically through seeds and vegetatively, thus any impact where areas are cleared, these areas are colonised by annual weeds as there are little seed in the topsoil or indigenous annual species. Fire and frost adapted species which store energy in their root systems.

The spatial guidelines for land use for these grasslands that are relevant to this project area include (SANBI, 2013);

- Natural and near-natural areas should be linked by means of corridors.
- Establish and respect buffers around sensitive habitats and SCC;
- Avoid any further fragmentation of primary grassland;
- Maintain connectivity between natural areas across the landscape; and
- Manage wetland systems, rivers, ridges and valleys for biodiversity.

Shrubland/Thicket

This habitat unit was dominated by shrubs up to a height of 1m-1.5m. Species that were found in this habitat includes Num-Num (*Carissa bispinosa*), Puzzelbush (*Ehretia rigida*), Common Guarri (*Euclea undulata*), Sweet thorn (*Vachellia karoo*) and Karroo Boer Bean (*Schotia afra* var. *afra*). In some areas, drainage lines ran through this habitat and the density of the shrubs increased. This area supports a high diversity of fauna and flora. The drainage lines in this habitat function as animal corridors between the denser areas. This habitat was given a high sensitivity rating as it has not been historically altered from its natural state and is seen as an imperative part of the whole ecosystem.

Drainage lines/wetlands

These habitats were delineated as per Google Earth, the characteristic vegetation often associated with these wet systems were not prevalent in this dry season survey. This habitat unit is an important corridor for faunal species. It was given a high sensitivity based on its importance's as a water source for species. For a more detailed description of this habitat unit refer to the aquatic section. The drainage lines were delineated based on spatial data and might not be accurate, it is recommended that a wetland study be used to determine the exact footprints of the areas.

Transformed/Degraded

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This habitat unit represents areas such as the two borrow pits found in the project area and the area in the grassland that has been overgrazed by livestock. Invasive plant species were found to be the highest in these disturbed habitats. These areas do still support some generalist fauna species and has in certain part recovered to a semi natural state. This habitat was given a low-moderate sensitivity as it does still contribute to the overall biodiversity in the area.

Ridges

The ridge habitat is regarded as a niche habitat with a high level of endemism. High numbers of succulents were observed in these areas along with some shrubs on the sides of steep slopes. Some of the flora SCCs were exclusively found in this habitat, this includes the EN (*Euphorbia globosa*) and NT (*Euphorbia meloformis*) species. From a faunal perspective this habitat is important to support a high number of reptile species, in this study six of the seven species were found here with the exception of the Karoo crag lizard that were seen in the grasslands. The Savannah Environmental (2014) report highlights the importance of this habitat for the rock monitor. The Mountain Reedbuck (*Redunca fulvorufula*) (EN) were also observed in this habitat unit.

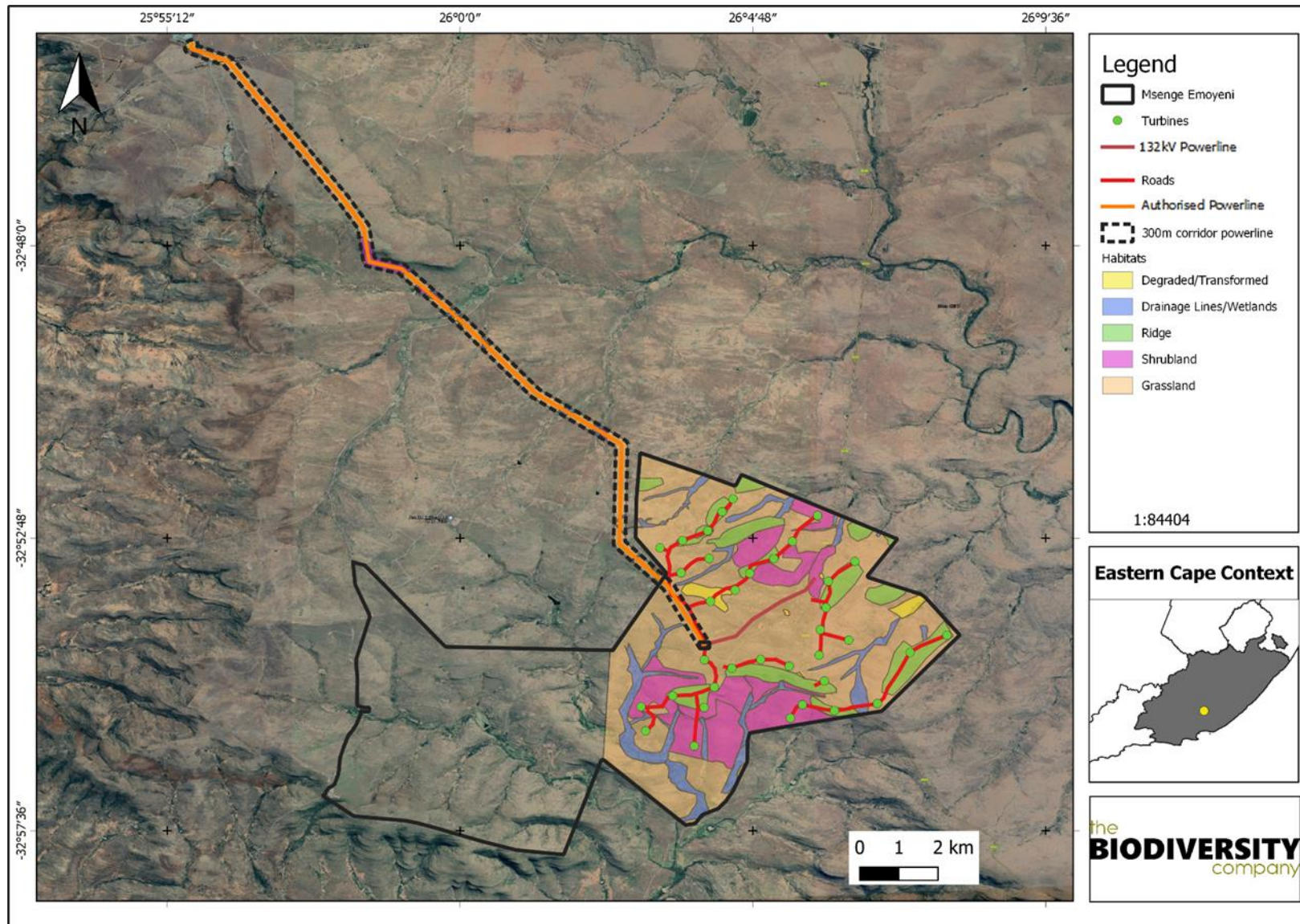


Figure 9-9 Habitats identified and delineated within the project area

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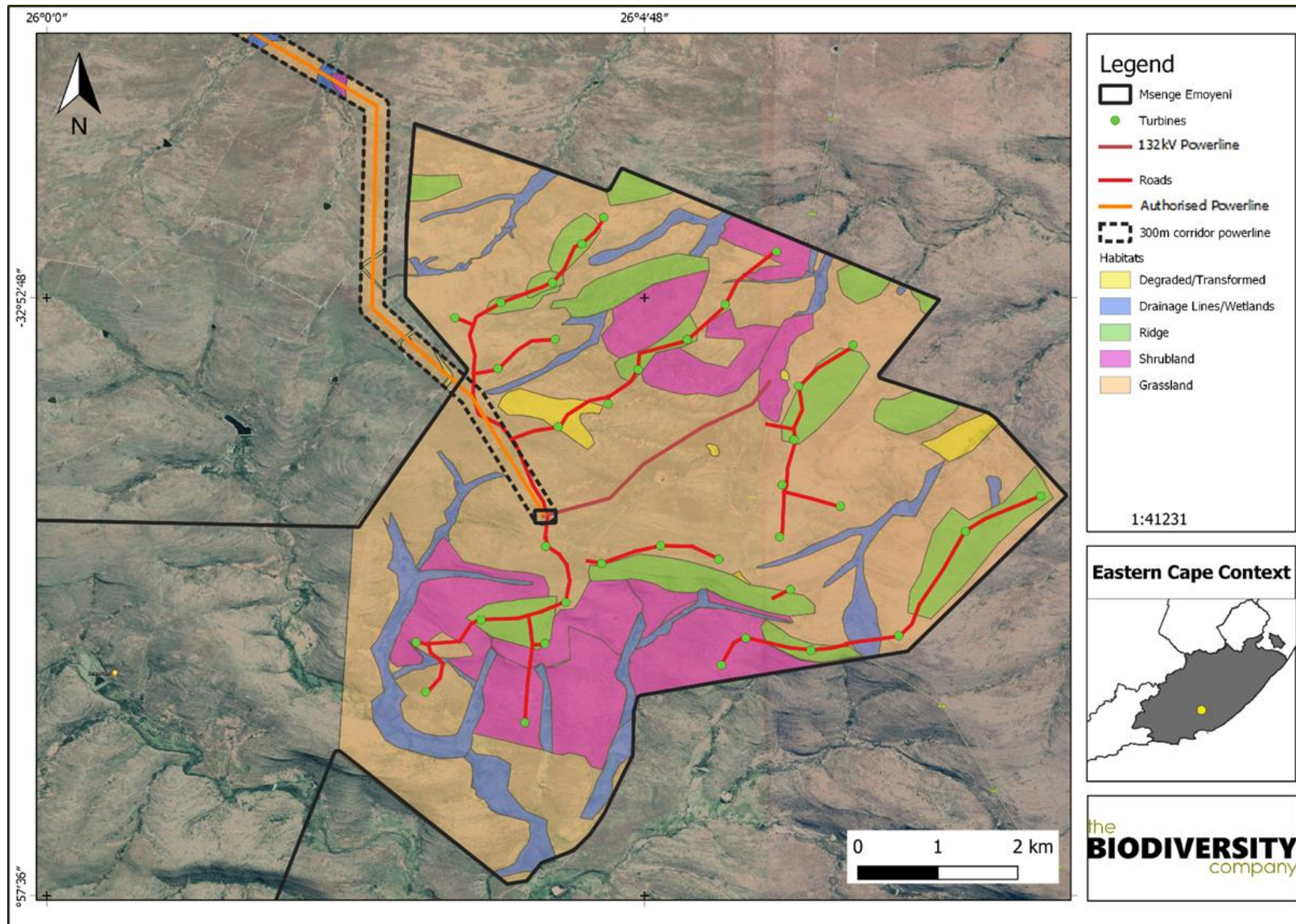


Figure 9-10 Habitats identified and delineated within the project area

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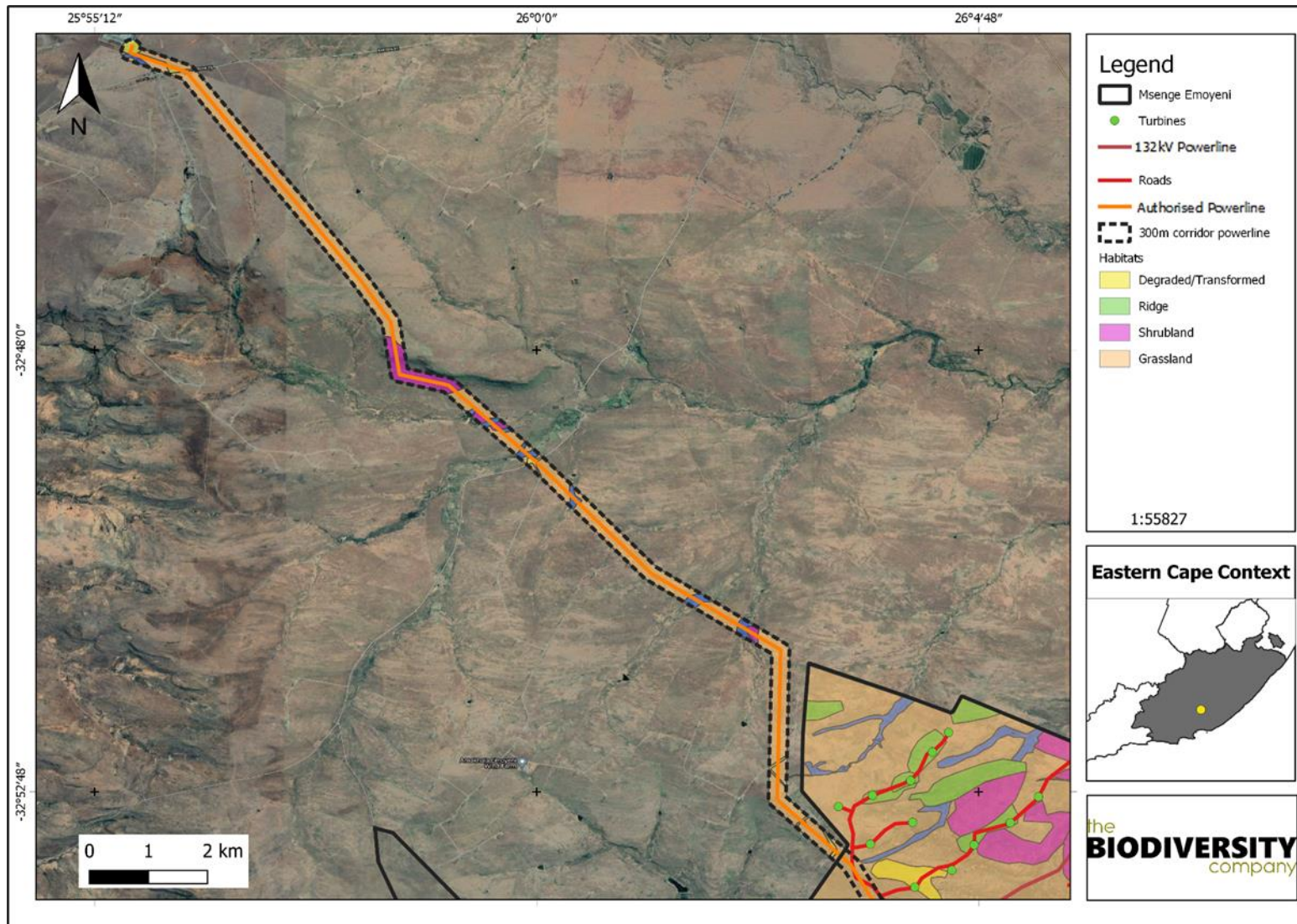


Figure 9-11 Habitats identified and delineated within the project area

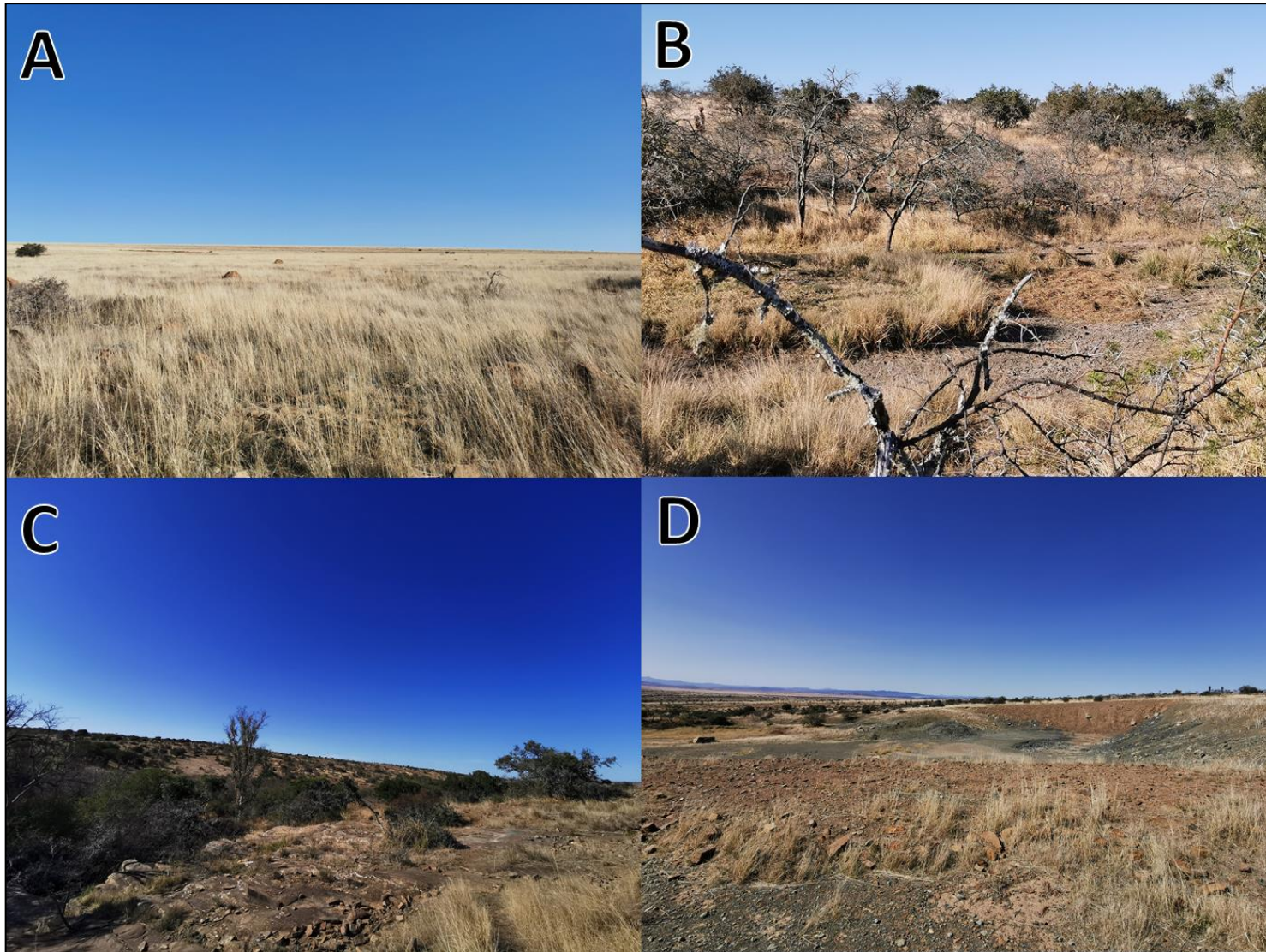


Figure 9-12 Photographs of the habitats identified in the project area: A) Grasslands, B) Shrubland/thicket and drainage line, C) Ridges and D) Transformed/Degraded

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10 Sensitivity Analysis

10.1 Terrestrial Theme Sensitivity

The biodiversity theme sensitivity as indicated in the screening report was derived to be Very High and Low (Figure 10-1 and Figure 10-2).

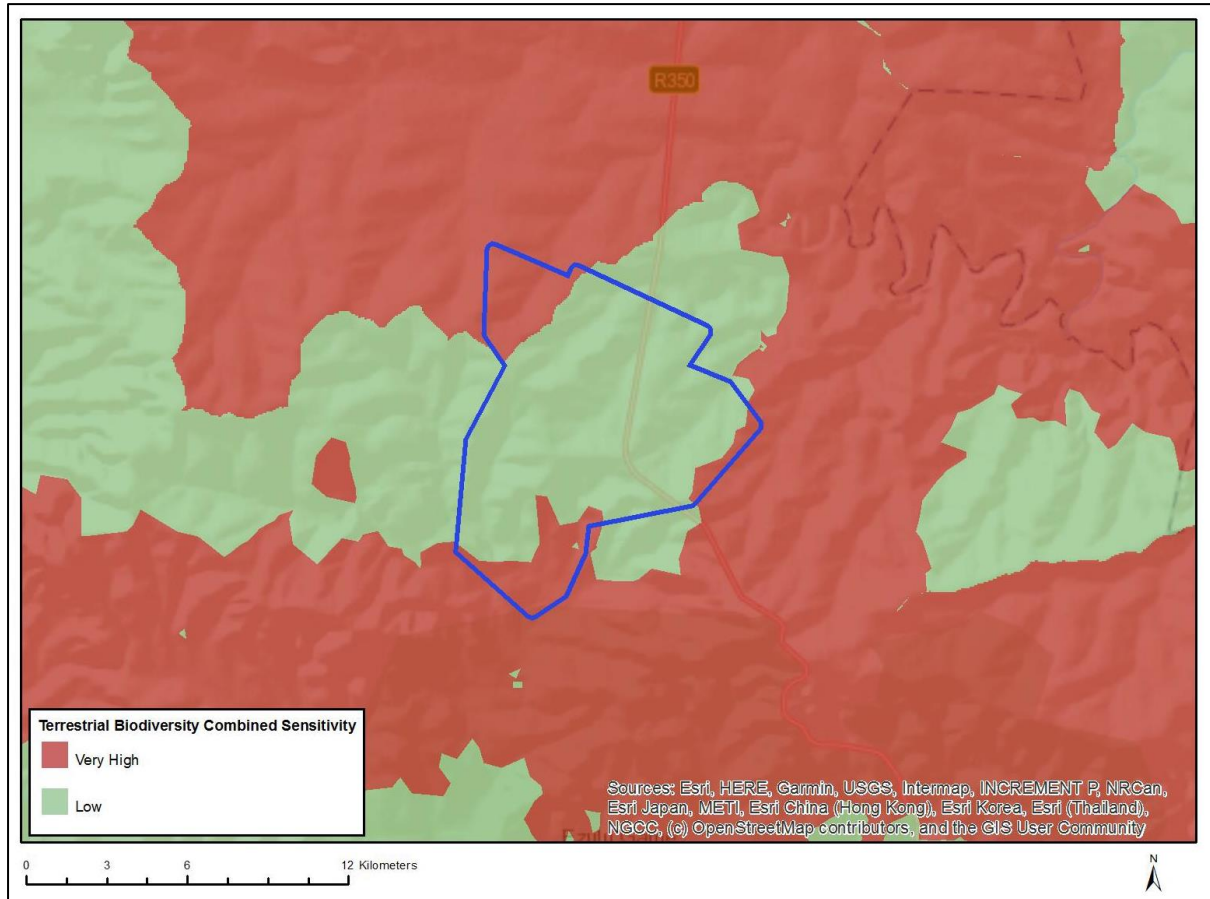


Figure 10-1 Terrestrial Biodiversity Theme Sensitivity, TBC Screening Report

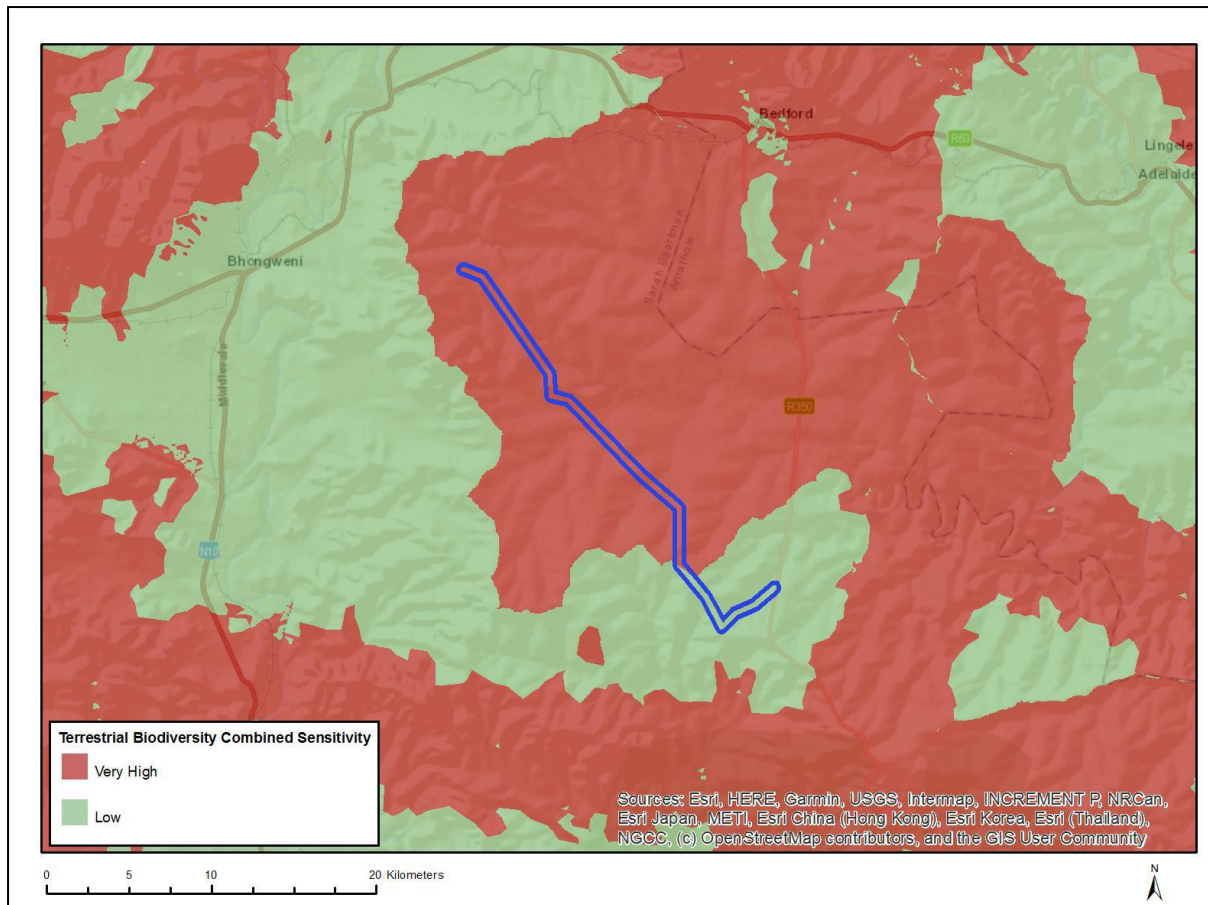


Figure 10-2 Terrestrial Biodiversity Theme Sensitivity, TBC Screening Report

The completion of the terrestrial biodiversity assessment confirmed the areas classified as very high sensitivity of the project area, however the assessment disagrees with the low sensitivity and believes it should also be classified as predominantly high (at least) to very high sensitivity. Hoare (2010) classified the sensitivity of the area from medium to medium-high, which is again in contrast to the low sensitivity classification depicted in Figure 10-1 and Figure 10-2.

As per the terms of reference for the project, GIS sensitivity maps are required in order to identify sensitive features in terms of the relevant specialist discipline/s within the project area. The sensitivity scores identified during the field survey for each terrestrial habitat are mapped in Figure 10-3 to Figure 10-5.

In terms of terrestrial habitats, areas that were classified as having a low-moderate sensitivity are those areas which were deemed by the specialists to have been impacted upon and/or were modified from their original condition due to factors such as clearing of vegetation and removing topsoil.

The habitats rated as very high are habitats that still;

- Serve as and represent CBA, as identified by the ECBCP (2007 and 2018);
- Area that form part of the Amathole Tarkastad NPAES;
- Serve as crucial habitat for SCCs; and

- Support various faunal and floral species as habitat and a movement corridor.

It is important to note that this map does not replace any local, provincial or government legislation relating to these areas or the land use capabilities or sensitivities of these environments but is done in relation to the legislation.

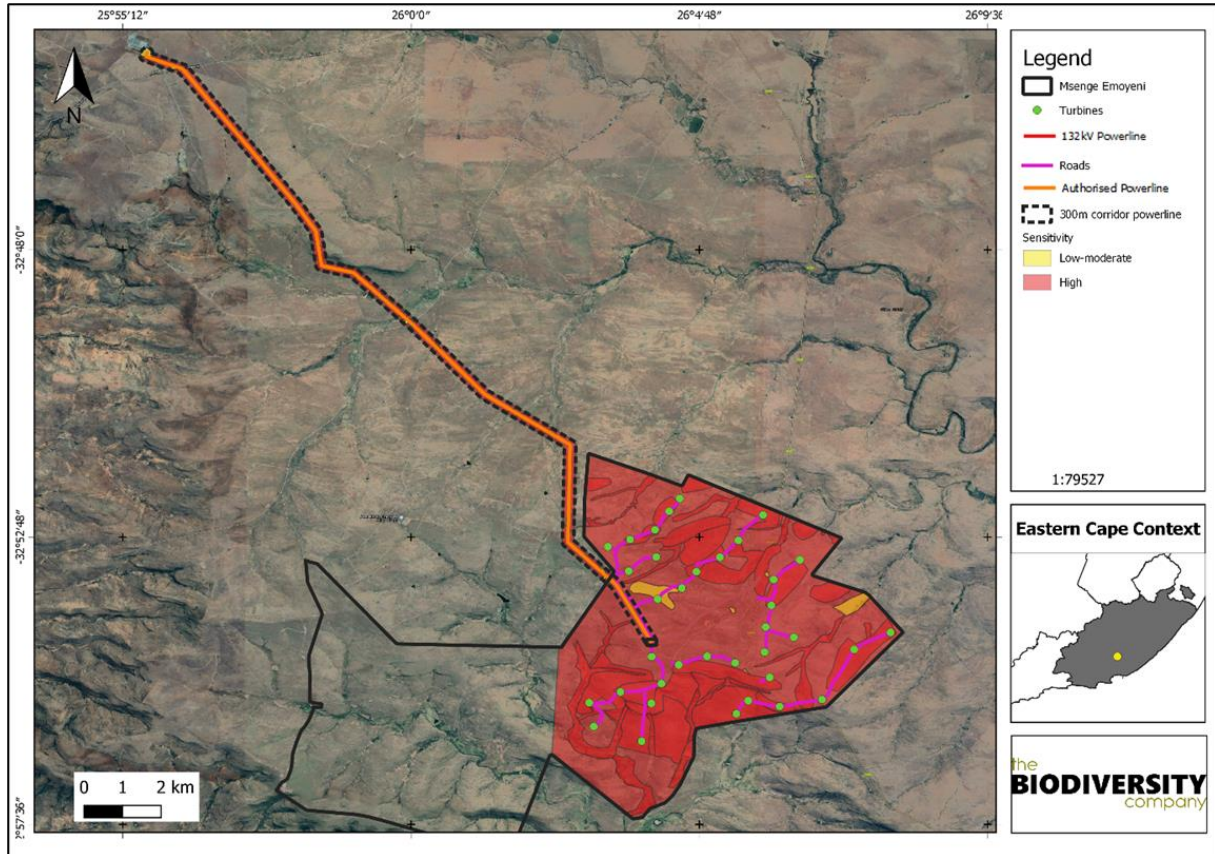


Figure 10-3 Terrestrial biodiversity sensitivity of the project area

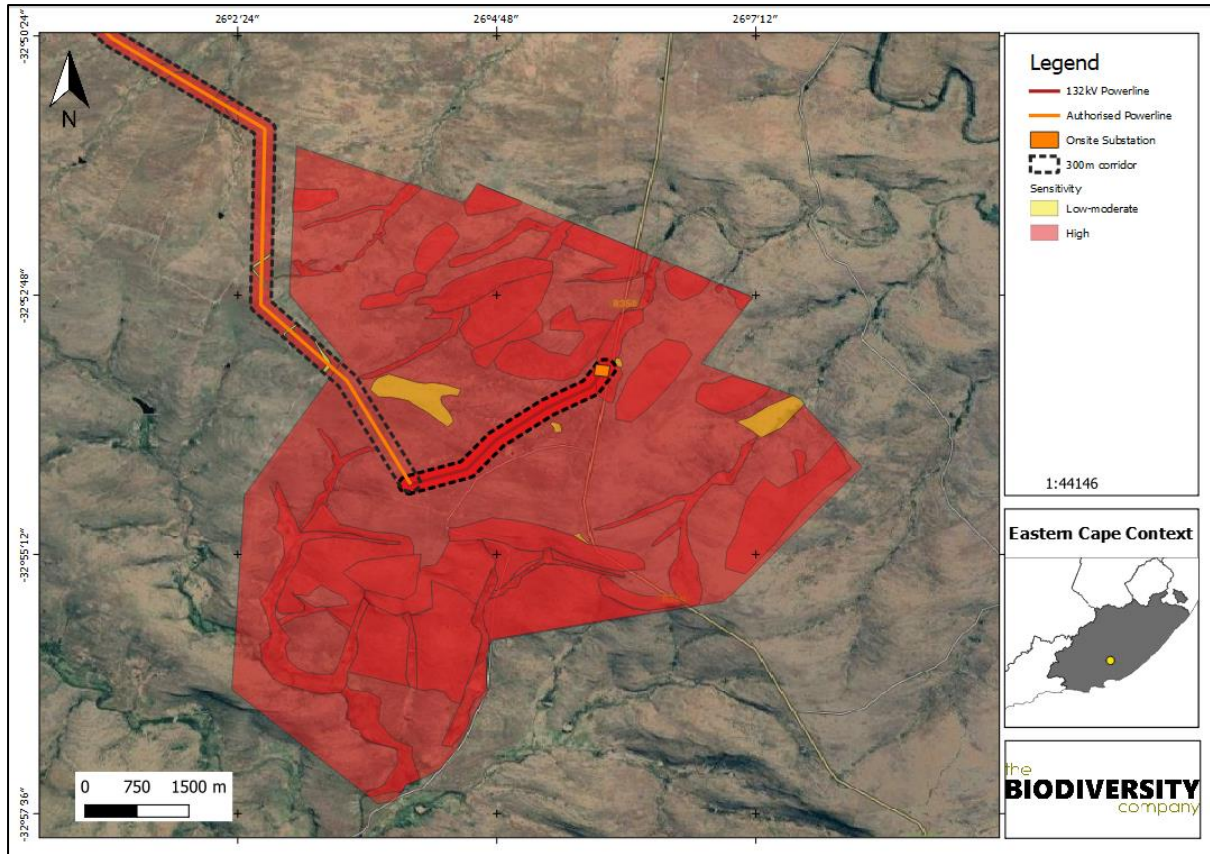


Figure 10-4 Terrestrial biodiversity sensitivity of the project area

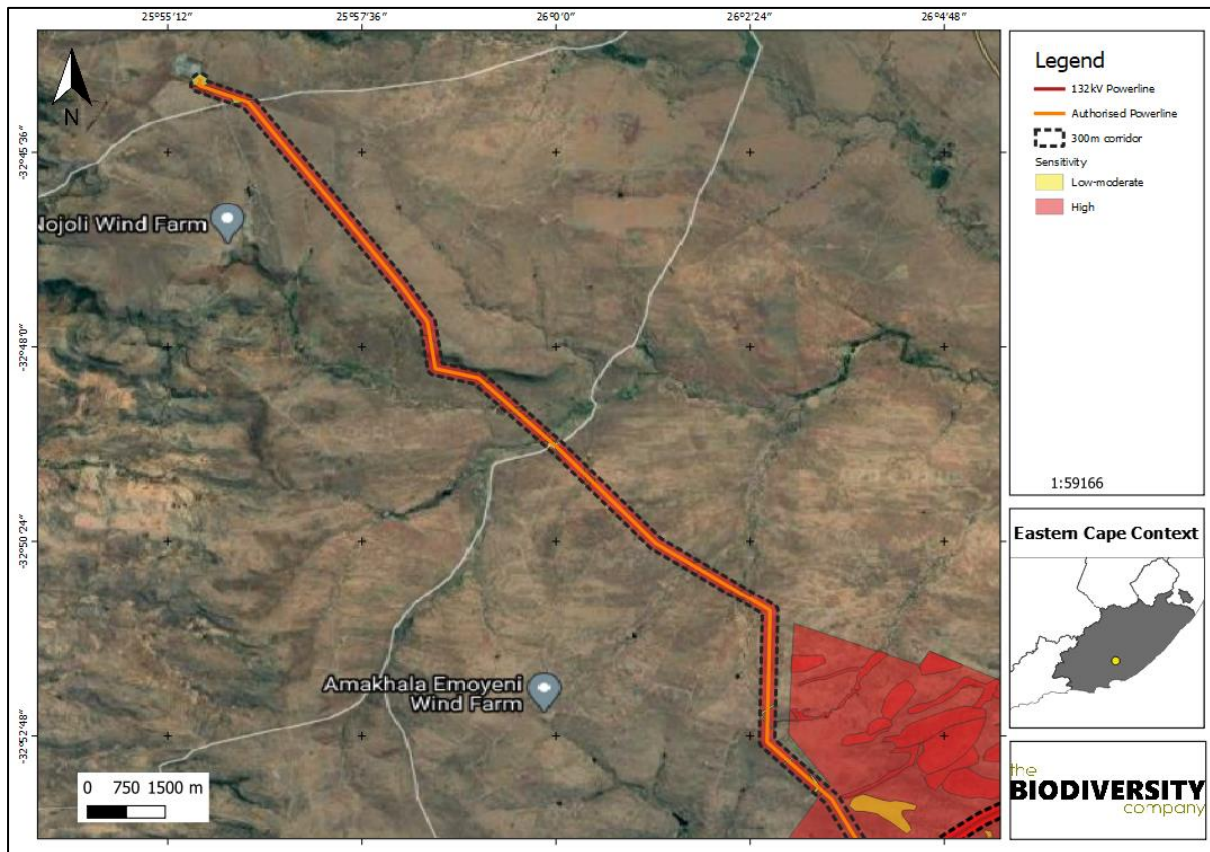


Figure 10-5 Terrestrial biodiversity sensitivity of the project area

10.2 Agricultural Theme Sensitivity

The agricultural theme sensitivity as indicated in the screening report was derived to be predominantly Low to Medium (Figure 10-6 and Figure 10-7). Only three isolated areas were depicted to present a High sensitivity for the area. However, in consideration of the land type data there remains the possibility of sensitive soils (i.e. Swartland and Valsrivier) occurring within the lower lying areas as depicted in Figure 8-12. Depending on the depth and physical parameters of identified soil forms, the land capability of sensitive soils could range from a land capability 2 to 4. It is worth noting that taking into consideration local climatic conditions these land capabilities could be adjusted to a land potential of L3 to L5. By way of example L3 would be classified as high sensitivity.

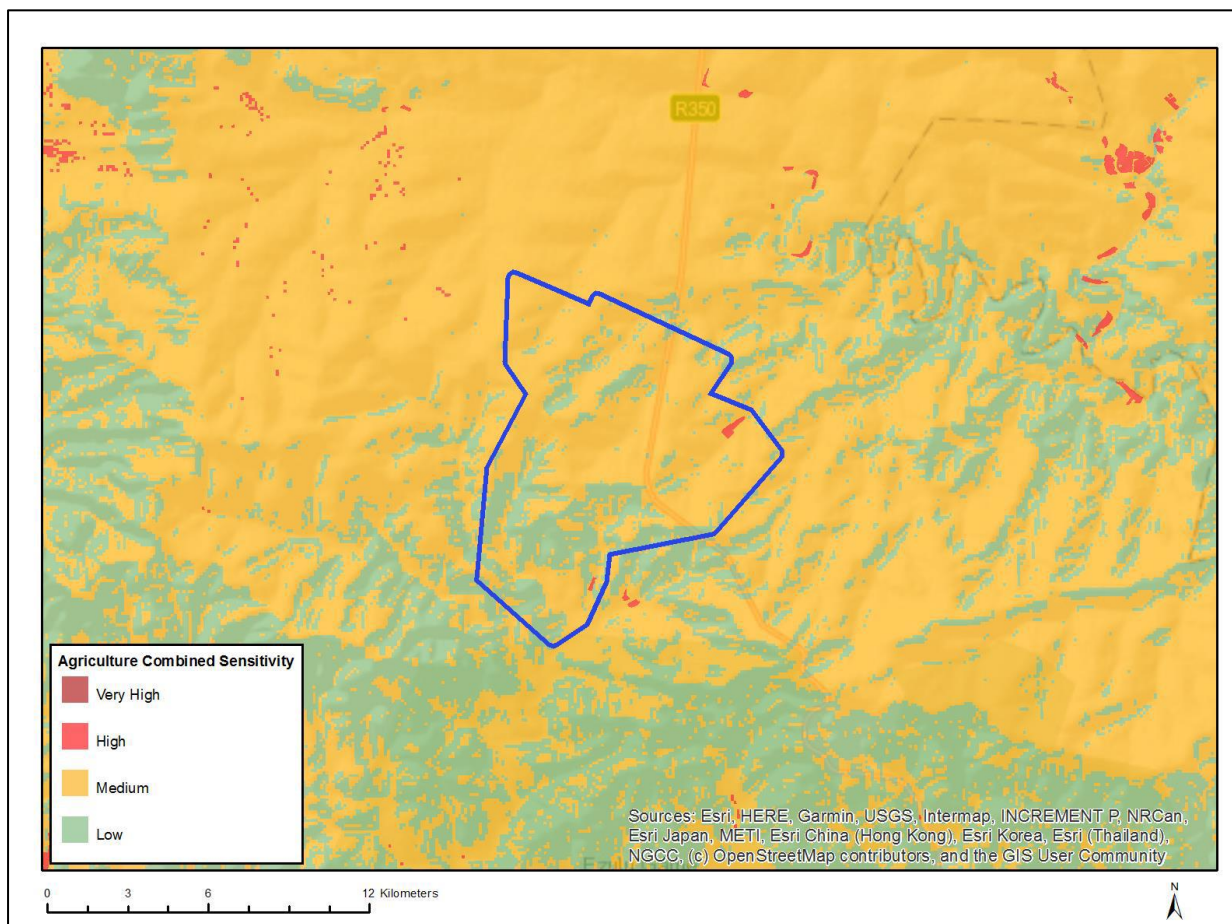


Figure 10-6 Agricultural Theme Sensitivity, TBC Screening Report

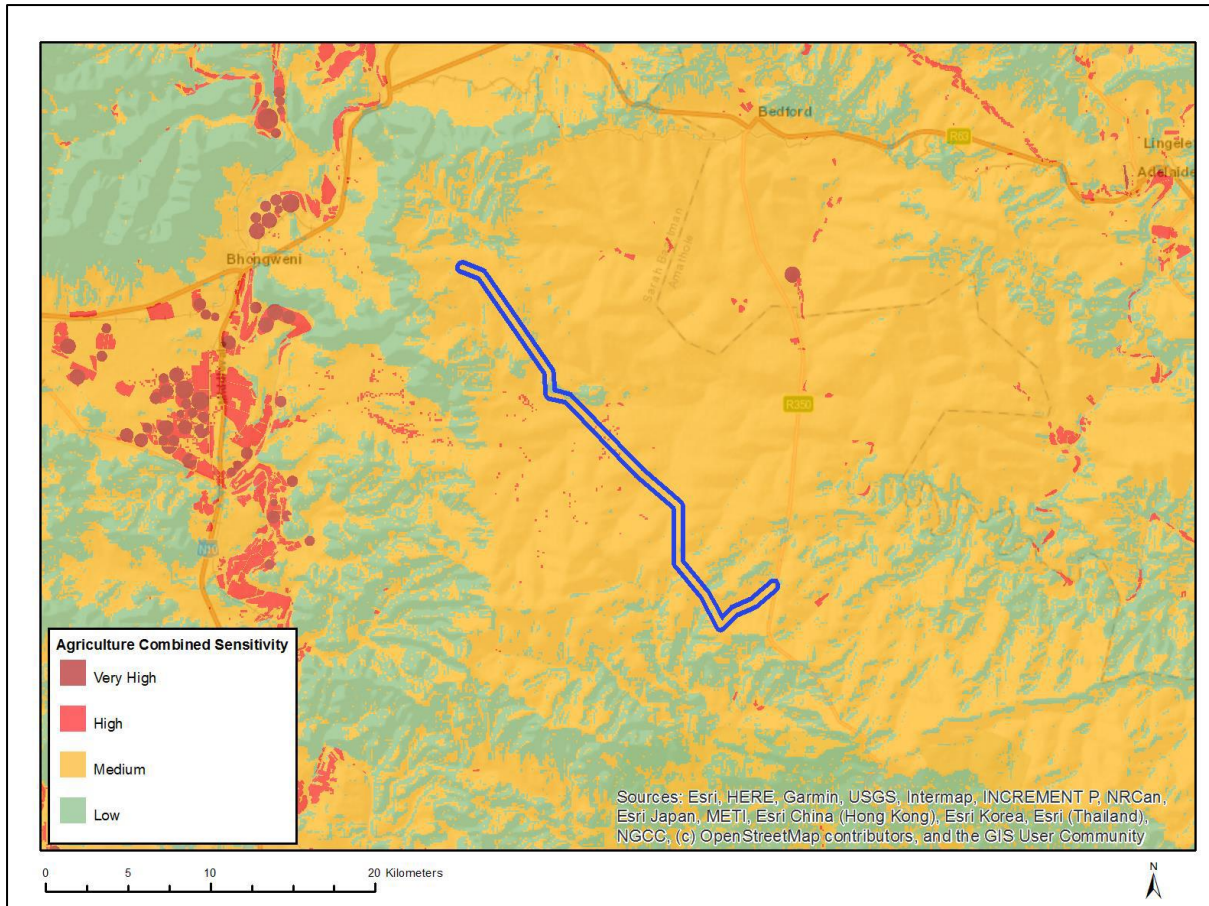


Figure 10-7 Agricultural Theme Sensitivity of the powerline, TBC Screening Report

11 Impact Assessment

Potential impacts were evaluated against the data captured during the fieldwork to identify relevance to the project area, specifically the proposed development footprint areas. The relevant impacts were then subjected to a prescribed impact assessment methodology provided by Savannah Environmental. The details of this methodology can be provided on request.

11.1 Alternatives Considered

No alternatives were considered in this assessment as the locations of the turbines had been assessed in a separate report (Assessed and authorised).

11.2 Impact Assessment

11.2.1 Current impacts

The current impacts observed during surveys are listed below. Photographic evidence of a selection of these impacts is shown in Figure 11-1.

- Existing wind turbines;
- Borrow pits;
- Fencing;
- Grazing and trampling of natural vegetation by livestock in certain areas;
- Farm roads and main roads (and associated traffic and wildlife road mortalities);
- Erosion surrounding borrow pits and dams; and
- Alien and/or Invasive Plants (AIP).

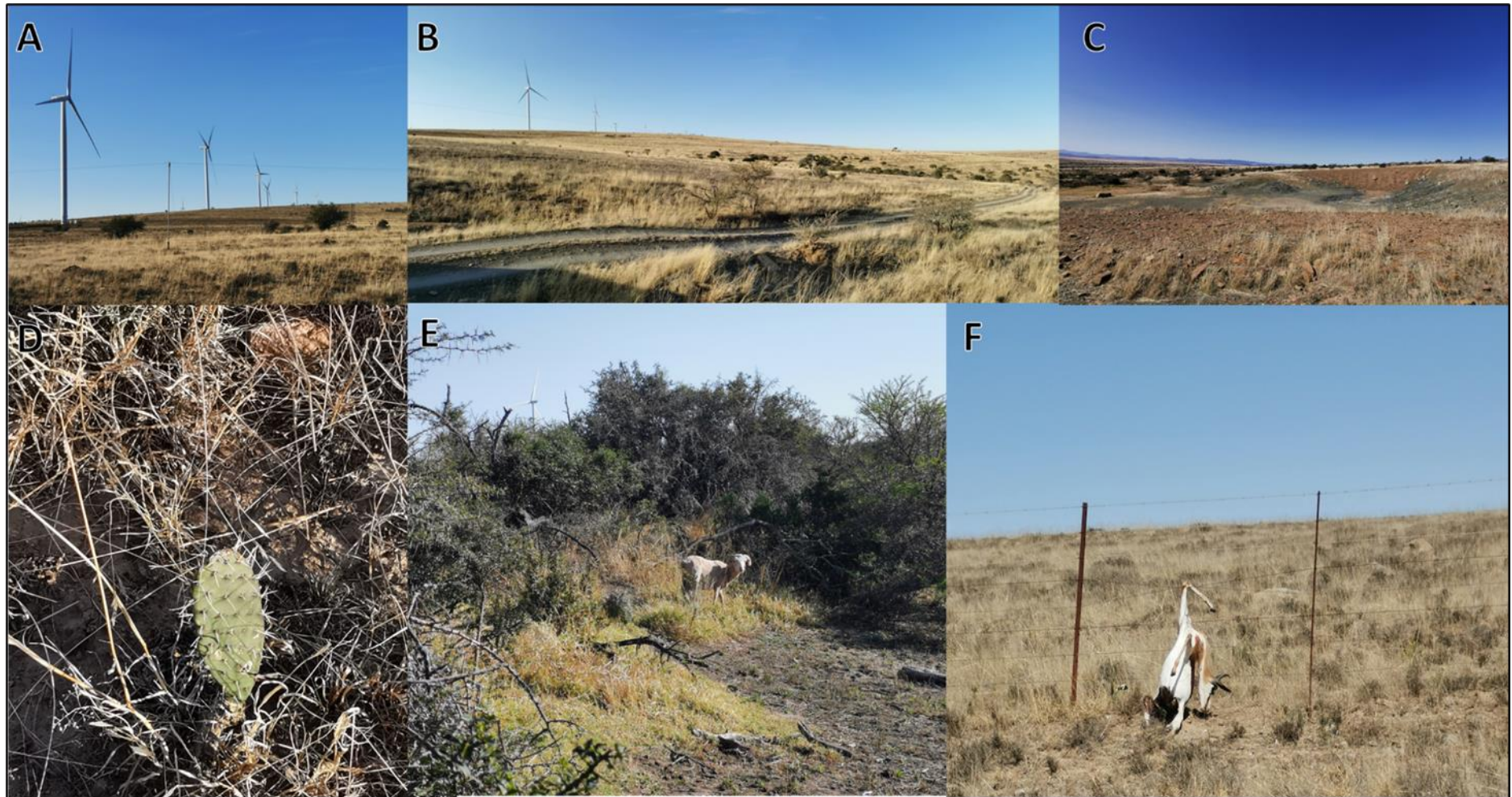


Figure 11-1 Current impacts observed during the field survey: A) wind turbines and powerline, B) Farm roads, C) Borrow pits, D) Invasive plant species, E) Livestock and F) Fencing

11.2.2 Initial Impact – No-go Scenario

The baseline assessment completed in this report indicates that the current turbines on the adjacent property have had a negative impact on the terrestrial ecology and local soil of the project area. The “indirect” impacts of light and noise pollution has more than likely already affected the local biodiversity, especially the fauna. It is likely that the species that were disturbed by the construction of the existing turbines have moved away or were relocated into the current project area.

Based on the no-go scenario further declines in the status and diversity of terrestrial ecology and soils associated with the project area are anticipated to occur.

11.2.2.1 Anticipated Impacts

Table 11-1 presents the aspects anticipated for the proposed road expansions, river crossing upgrades, BESS, powerline and substation are considered in order to predict and quantify these impacts, and assess & evaluate the magnitude on the identified terrestrial biodiversity.

Table 11-1 Anticipated impacts for the proposed development on terrestrial biodiversity

Main Impact	Project activities that can cause loss/impacts to habitat (especially with regard to the proposed infrastructure areas):	Secondary impacts anticipated
1. Destruction, fragmentation and degradation of habitats and ecosystems	Physical removal of vegetation, including protected species.	Displacement/loss of flora & fauna (including possible SCC)
	Access roads and servitudes	Increased potential for soil erosion
	Soil dust precipitation	Habitat fragmentation
	Water leakages	Increased potential for establishment of alien & invasive vegetation
	Dumping of waste products	Erosion
	Random events such as fire (cooking fires or cigarettes)	
Main Impact	Project activities that can cause the spread and/or establishment of alien and/or invasive species	Secondary impacts anticipated
2. Spread and/or establishment of alien and/or invasive species	Vegetation removal	Habitat loss for native flora & fauna (including SCC)
	Vehicles potentially spreading seed	Spreading of potentially dangerous diseases due to invasive and pest species
	Unsanitary conditions surrounding infrastructure promoting the establishment of alien and/or invasive rodents	Alteration of fauna assemblages due to habitat modification
	Creation of infrastructure suitable for breeding activities of alien and/or invasive birds	
Main Impact	Project activities that can cause direct mortality of fauna	Secondary impacts anticipated
3. Direct mortality of fauna	Clearing of vegetation	Loss of habitat
	Roadkill due to vehicle collision	Loss of ecosystem services
	Pollution of water resources due to dust effects, chemical spills, etc.	Increase in rodent populations and associated disease risk
	Intentional killing of fauna for food (hunting)	
	Bird collisions with electrical lines from the BESS as well as from the powerline	
Main Impact	Project activities that can cause reduced dispersal/migration of fauna	Secondary impacts anticipated

4. Reduced dispersal/migration of fauna	Loss of landscape used as corridor	Reduced dispersal/migration of fauna Loss of ecosystem services
	Compacted roads	Reduced plant seed dispersal
	Removal of vegetation	
Main Impact	Project activities that can cause pollution in watercourses and the surrounding environment	Secondary impacts anticipated
5. Environmental pollution due to water runoff, spills from vehicles and erosion	Chemical (organic/inorganic) spills	Pollution in watercourses and the surrounding environment Faunal mortality (direct and indirectly)
	Erosion	Groundwater pollution Loss of ecosystem services
Main Impact	Project activities that can cause disruption/alteration of ecological life cycles due to sensory disturbance.	Secondary impacts anticipated
6. Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise, dust and light pollution.	Operation of machinery (Large earth moving machinery, vehicles)	Disruption/alteration of ecological life cycles due to noise Loss of ecosystem services
	Project activities that can cause disruption/alteration of ecological life cycles due to dust	Secondary impacts associated with disruption/alteration of ecological life cycles due to dust
	Vehicles	Loss of ecosystem services
Main Impact	Project activities that can cause staff to interact directly with potentially dangerous fauna	Secondary impacts anticipated
8. Staff and others interacting directly with fauna (potentially dangerous) or poaching of animals	All unregulated/supervised activities outdoors	Loss of SCCs

11.2.3 Impacts

The current layout of the proposed road expansions indicates that the spatial extent of the road network layout will result in crossing through grassland, ridge and thicket habitats.

11.2.3.1 Construction Phase

During this phase the road expansions, BESS site area, powerline corridor (300m) and substation will be constructed, and the main anticipated impacts include the clearing of vegetation and loss of high sensitivity agricultural soils. These will ultimately lead to the proliferation of alien plant species and altered land uses in these disturbed area as well as the severing of movement corridors for fauna, loss of fauna and flora SCCs and the fragmentation of habitat.

The following potential impacts were considered:

- Destruction, fragmentation and degradation of habitats, ecosystems and loss of CBA2;
- Spread and/or establishment of alien and/or invasive species;
- Displacement of faunal community (Including several SCC) due to habitat loss, direct mortalities and disturbance (road collisions, noise, light, dust, vibration);
- Mortalities and displacements of fauna and flora SCCs; and

- Loss of agricultural soils.

11.2.3.1.1 Mitigation

The following specific mitigation actions are recommended for the construction phase, all mitigation can be seen in the specialist management plan:

- Implementation of a rehabilitation plan, for the areas such as laydown and office areas used for the construction phase. The plan should also address edge effects stemming from the constructed footprint areas;
- Relocation of SCC flora species with appropriate specialist input and permitting;
- Prioritise and incorporate existing roads and routes before new roads are constructed;
- Road width must be kept to the prescribed widths;
- Appropriate speed humps on light vehicle routes, enforcing of speed limits and mitre drains must be constructed along the access roads (every three metres of elevation) in order to slow the flow of water run-off from the road surface, if this does not already exist;
- Signs must be put up to warn drivers of the presence of tortoises and other smaller species;
- Reducing the dust generated by the listed activities above, especially the earth moving machinery, through wetting the soil surface and putting up signs to enforce speed limit as well as speed bumps built to force slow speeds;
- Rocks removed in the construction phased may not be simply dumped next to the road footprint or any highly sensitive areas. These rocks can be used to manage stormwater, or could be placed in low/moderate sensitive areas to create habitat;
- The BESS storage container and substation may not have reflective surfaces which can lead to veld fires;
- Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood and strong winds events. This will also reduce the likelihood of encroachment by alien invasive plant species;
- Avoid high sensitivity agricultural areas, and also apply a 50 m buffer width;
- Ensure that proper stormwater management designs are set in place;
- Prevent any spills from occurring. Machines must be parked within hard park areas and must be checked daily for fluid leaks;
- All excess soil (soil that are stripped and stockpiled to make way for foundations) must be stored, continuously rehabilitated to be used for rehabilitation of eroded areas; and
- If a spill occurs, it is to be cleaned up immediately and reported to the appropriate authorities.

11.2.3.1.2 Impact Matrix

Table 11-2 till Table 11-6 presents the impact matrices that were considered for the construction phase, some of the mitigations are presented in the various tables, however a full list of the mitigations can be seen in the specialist management plan (section 12).

Table 11-2 Construction activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Destruction, fragmentation and degradation of habitats, ecosystems and loss of CBA2. The project area overlaps with the Amathole Tarkastad NPAES.		
	Without mitigation	With mitigation
Extent	Regional (2)	Local area (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very high (10)	High (8)
Probability	Definite (5)	Highly probable (4)
Significance	High	Medium
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?		Yes
Mitigation:		
<ul style="list-style-type: none"> • Implementation of a rehabilitation plan, for the areas such as laydown and office areas used for the construction phase. The plan should also address edge effects stemming from the constructed footprint areas; • Relocation of SCC flora species with appropriate specialist input and permitting; • Prioritise and incorporate existing roads and routes before new roads are constructed; and • Road width must be kept to the prescribed widths. 		
Residual Impacts:		
Will result in the loss of:		
<ul style="list-style-type: none"> • CBA2; • Endemic species; • SCC fauna and flora species; • Portions of the Amathole Tarkastad NPAES; and • Niche habitats. 		

Table 11-3 Construction activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Spread and/or establishment of alien and/or invasive species. Deterioration or loss of CBA2. The project area overlaps with the Amathole Tarkastad NPAES.		
	Without mitigation	With mitigation
Extent	Regional (2)	Local area (1)
Duration	Permanent (5)	Short term (2)
Magnitude	High (8)	Low (4)
Probability	Highly probable (4)	Probable (3)
Significance	Medium	Low
Status (positive or negative)	Negative	Negative
Reversibility	None	Moderate

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Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> • Implementation of a rehabilitation plan, for the areas such as laydown and office areas used for the construction phase. The plan should also address edge effects stemming from the constructed footprint areas; • Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood and strong winds events. This will also reduce the likelihood of encroachment by alien invasive plant species; and • Ongoing implementation of an alien vegetation management plan. 		
Residual Impacts:		
Displacement and loss of endemic and SCC flora species.		

Table 11-4 Construction activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Displacement of faunal community (Including several SCC) due to habitat loss, direct mortalities and disturbance (road collisions, noise, light, dust, vibration). Deterioration or loss of CBA2. The project area overlaps with the Amathole Tarkastad NPAES.		
	Without mitigation	With mitigation
Extent	Regional (2)	Local area (1)
Duration	Permanent (5)	Long term (4)
Magnitude	Moderate (6)	Low (4)
Probability	Highly probable (4)	Probable (3)
Significance	Medium	Low
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> • Appropriate speed humps on light vehicle routes, enforcing of speed limits and mitre drains must be constructed along the access roads (every three metres of elevation) in order to slow the flow of water run-off from the road surface, if this does not already exist; • Signs must be put up to warn drivers of the presence of tortoises and other smaller species; • Reducing the dust generated by the listed activities above, especially the earth moving machinery, through wetting the soil surface and putting up signs to enforce speed limit as well as speed bumps built to force slow speeds; • Rocks removed in the construction phased may not be simply dumped next to the road footprint or any highly sensitive areas. These rocks can be used to manage stormwater, or could be placed in low/moderate sensitive areas to create habitat; • Compile and implement a management and monitoring plan for all the internationally and nationally protected SCCs; and • All areas to be developed must be walked through prior to any activity to ensure no nests or fauna species are found in the area. Should any Species of Conservation Concern not move out of the area or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken. 		
Residual Impacts:		
<ul style="list-style-type: none"> • Habitat will be altered and the ecosystems functioning would have changed, this will result in a different species composition with more adaptable and general species becoming dominant; and • Less migratory species will be found in the area 		

Table 11-5 Construction activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Mortalities and displacements of fauna and flora SCCs. Deterioration or loss of CBA2. The project area overlaps with the Amathole Tarkastad NPAES.		

	Without mitigation	With mitigation
Extent	Local area (1)	Local area (1)
Duration	Permanent (5)	Long term (4)
Magnitude	Very high (10)	High (8)
Probability	Definite (5)	Highly probable (4)
Significance	High	Medium
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> • Compile and implement a management and monitoring plan for all the internationally and nationally protected SCCs; • All areas to be developed must be walked through prior to any activity to ensure no nests or fauna species are found in the area. Should any Species of Conservation Concern not move out of the area or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken; • The duration of the construction should be minimized to as short term as possible, to reduce the period of disturbance on fauna; and • SCCs must be relocated to appropriate locations with the assistance of a specialist after obtaining the necessary permits 		
Residual Impacts:		
<ul style="list-style-type: none"> • Habitat will be altered and the ecosystems functioning would have changed, this will result in a different species composition with more adaptable and general species becoming more common; • Less migratory species will be found in the area, SCC species will likely not breed in the area anymore; and • Relocation of plant species can be done but it does not guarantee that it will be successful. 		

Table 11-6 Construction activities impacts to the agricultural potential

Nature:		
Loss of high sensitivity agricultural soils, potential high agricultural potential soils.		
	Without mitigation	With mitigation
Extent	Local area (1)	Local area (1)
Duration	Permanent (5)	Long term (4)
Magnitude	High (8)	Moderate (6)
Probability	Highly probable (4)	Probable (3)
Significance	Medium	Medium
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> • Avoid high sensitivity area, apply a 50 m buffer width; • Strip, stockpile and manage soils. These can be used for rehabilitation elsewhere; • Implement a stormwater management plan; and • Avoid soil contamination by leaks, spills etc, and have actions plans to contain and remove contaminated soils in the event of an incident. 		
Residual Impacts:		
<ul style="list-style-type: none"> • Loss of high sensitivity agricultural potential soils 		

11.2.3.2 Operational Phase

The operational phase of the impact of daily activities is anticipated to further spread the alien invasive plants, as well as the deterioration of the habitats due to the increase of dust and edge effect impacts. Dust reduces the ability of plants to photosynthesize and thus leads to degradation/retrogression of the veld. Moving vehicles don't only cause sensory disturbances to fauna, affecting their life cycles and movement, but will lead to direct mortalities due to collisions.

The following potential impacts were considered:

- Continued fragmentation and degradation of habitats, ecosystems and CBA2 areas;
- Spread of alien and/or invasive species;
- Displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with 6m high BESS and substation, noise, light, dust, vibration);
- Reduced dispersal/migration of fauna;
- Collisions with powerlines;
- Electrocutions with powerlines; and
- Loss of agricultural soils.

11.2.3.2.1 Mitigation

The following specific mitigation actions are recommended for the operational phase, all mitigation can be seen in the specialist management plan:

- Compilation of and implementation of an alien vegetation management plan;
- Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads;
- Edge of the road that were disturbed during construction must be rehabilitated with indigenous vegetation to reduce the erosion of the road from wind;
- The use of flood lights should be limited. Nocturnal lighting to be kept to a minimum to protect bats and avoid attracting birds;
- Try incorporate motion detection lights as much as possible to reduce the duration of illumination. Heights of light columns to be minimised to reduce light spill. Baffles, hoods or louvres to also be used to reduce light spill;
- No hunting, trapping or poaching of faunal species or collection of flora species may be permitted by employees or contractors, this should be included in the site induction;
- Heat generated from the BESS and substation must be monitored to ensure it does not negatively affect the local fauna;

- BESS container and substation may not have reflective surfaces that could lead to veld fires;
- The design of the proposed powerline must be of a type or similar structure as endorsed by the Eskom-EWT Strategic Partnership on Birds and Energy, considering the mitigation guidelines recommended by Birdlife South Africa;
- Ensure that proper stormwater management designs are set in place;
- Prevent any spills from occurring. Machines must be parked within hard park areas and must be checked daily for fluid leaks; and
- If a spill occurs, it is to be cleaned up immediately and reported to the appropriate authorities.

11.2.3.2.2 Impact Matrix

Table 11-7 till Table 11-12 presents the impact matrices that were considered for the operational phase, some of the mitigations are presented in the various tables, however a full list of the mitigations can be seen in the specialist management plan (section 12).

Table 11-7 Operational activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Continued fragmentation and degradation of habitats, ecosystems and CBA2 areas.		
	Without mitigation	With mitigation
Extent	Regional (2)	Local area (1)
Duration	Long term (4)	Moderate term (3)
Magnitude	Very high (10)	Moderate (6)
Probability	Highly probable (4)	Probable (3)
Significance	High	Medium
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> • Edge of the road that were disturbed during construction must be rehabilitated with indigenous vegetation to reduce the erosion of the road from wind; • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further; • Clearing of vegetation should be minimized and avoided where possible; and • Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood and wind events. This will also reduce the likelihood of encroachment by alien invasive plant species. 		
Residual Impacts:		
The development will change the overall ecosystem, and the footprint of the CBA area is decreased.		

Table 11-8 Operational activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Spread of alien and/or invasive species.		
	Without mitigation	With mitigation
Extent	Local area (1)	Local area (1)
Duration	Long term (4)	Short term (2)
Magnitude	High (8)	Low (4)
Probability	Highly probable (4)	Probable (3)
Significance	Medium	Low
Status (positive or negative)	Negative	Negative
Reversibility	Low	Moderate
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> • Implementation of an alien vegetation management plan; • The footprint area of the construction should be kept to a minimum; • The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Footprint of the roads must be kept to prescribed widths. Waste management must be a priority and all waste must be collected and stored adequately; • It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. • Refuse bins will be emptied and secured; • Temporary storage of domestic waste shall be in covered waste skips; and • Maximum domestic waste storage period will be 10 days. 		
Residual Impacts:		
If this is mitigated successfully, there would be no residual impacts		

Table 11-9 Operational activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, collisions with 6m high BESS, noise, light, dust, vibration); Reduced dispersal/migration of fauna.		
	Without mitigation	With mitigation
Extent	Local area (1)	Local area (1)
Duration	Long term (4)	Moderate term (3)
Magnitude	High (8)	Moderate (6)
Probability	Highly probable (4)	Probable (3)
Significance	Medium	Medium
Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> • Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads; • Edge of the road that were disturbed during construction must be rehabilitated with indigenous vegetation to reduce the erosion of the road from wind; • The use of flood lights should be limited. Nocturnal lighting to be kept to a minimum to protect bats and avoid attracting birds; 		

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- Try incorporate motion detection lights as much as possible to reduce the duration of illumination. Heights of light columns to be minimised to reduce light spill. Baffles, hoods or louvres to also be used to reduce light spill;
- No hunting, trapping or poaching of faunal species or collection of flora species may be permitted by employees or contractors, this should be included in the site induction;
- Heat generated from the BESS must be monitored to ensure it does not negatively affect the local fauna; and
- BESS container may not have reflective surfaces that could lead to veld fires.

Residual Impacts:

Migratory routes of fauna will change, fauna and flora species composition will change.

Table 11-10 Operational activities impacts to the terrestrial biodiversity for the powerline

Impact Nature: Collisions with powerlines

Several priority species occur within the assessment area that exhibit a high probability of colliding with powerlines.

	Without mitigation	With mitigation
Extent	Local area (1)	Local area (1)
Duration	Long term (4)	Long term (4)
Magnitude	High (8)	Low (4)
Probability	Definite (5)	Highly probable (4)
Significance	High	Medium
Status (positive or negative)	Negative	Negative
Reversibility	Low	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	

Mitigation:

- The design of the proposed powerline must be of a type or similar structure as endorsed by the Eskom-EWT Strategic Partnership on Birds and Energy, considering the mitigation guidelines recommended by Birdlife South Africa.
- Infrastructure should be consolidated where possible in order to minimise the amount of ground and air space used. This would involve using existing/approved pylons and associated infrastructure for different lines.
- Bird flappers must be installed on the lines at 10m intervals. The must specifically be placed over the area that crosses the drainage and wetland habitats.
- If lights are to be used at night for ensuring that infrastructure on site is lit, this should be done with downward-directed low-UV type lights (such as most HPS bulbs), which do not attract insects and their avian predators., so as to minimise disturbance to birds flying over the site at night.
- A recommended option (but not a requirement) is that Bird Strike Indicators could be installed to alert about collisions.
- Ensure that monitoring is sufficiently frequent to detect collisions reliably and that any areas where regular collisions occur are fitted with flight diverters.
- During the first year of operation quarterly reports, summarising interim findings should be compiled and submitted to BirdLife South Africa. If the findings indicate that collisions have not occurred or are minimal with no red-listed species, an annual report can be submitted.

Residual Impacts:

There is still a risk of collision for species such as the Southern Black Korhaan and Blue Crane which will result in a loss of species of conservation concern.

Table 11-11 Operational activities impacts to the terrestrial biodiversity for the powerline

Impact Nature: Electrocution with powerlines

Several priority species occur within the assessment that exhibit a high probability of electrocution by powerlines. These are typically the raptor species that use the powerlines as perching spots.

	Without mitigation	With mitigation
Extent	Local area (3)	Project area (2)
Duration	Long term (4)	Moderate term (3)
Magnitude	High (8)	Low (4)

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Probability	Definite (5)	Probable (3)
Significance	High	Low
Status (positive or negative)	Negative	Negative
Reversibility	Low	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> The design of the proposed powerline must be of a type or similar structure as endorsed by the Eskom-EWT Strategic Partnership on Birds and Energy, considering the mitigation guidelines recommended by Birdlife South Africa. Perch structures must be installed. South African standards state 270cm above the cross arm (Prinsen <i>et al.</i>, 2012). Ensure that the phase cables are spaced far enough apart to reduce the risk of large birds touching both simultaneously (1.4 m for large raptors) (Prinsen <i>et al.</i>, 2012). If such separation (isolation) cannot be provided, exposed parts must be covered (insulated) to reduce electrocution risk. Infrastructure should be consolidated where possible/practical in order to minimise the amount of ground and air space used. This would involve using the existing/approved pylons and associated infrastructure for different lines. Ensure that monitoring is sufficiently frequent to detect electrocutions reliably and that any areas where regular collisions occur are fitted with flight diverters. During the first year of operation quarterly reports, summarising interim findings should be compiled and submitted to BirdLife South Africa. If the findings indicate that electrocutions have not occurred or are minimal with no red-listed species, an annual report can be submitted. 		
Residual Impacts:		
There may still be the possibility of electrocution although the severity of the impact is minimised if the appropriate mitigation measures are implemented.		

Table 11-12 Operational activities impacts to the agricultural potential

Nature:		
Loss of high sensitivity agricultural soils		
	Without mitigation	With mitigation
Extent	Local area (1)	Local area (1)
Duration	Long term (4)	Moderate term (3)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium	Low
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> Implement a stormwater management plan; and Avoid soil contamination by leaks, spills etc, and have actions plans to contain and remove contaminated soils in the event of an incident. 		
Residual Impacts:		
<ul style="list-style-type: none"> Loss of high sensitivity agricultural potential soils 		

11.2.3.3 Decommissioning Phase

This phase is when the scaling down of activities ahead of temporary or permanent closure is initiated. During this phase, the operational phase impacts will persist until of the activity reduces and the rehabilitation measures are implemented.

The following potential impacts were considered:

- Continued fragmentation and degradation of habitats, ecosystems and CBA2 areas;
- Spread of alien and/or invasive species;
- Displacement of faunal community (including SCC) due to habitat loss, direct mortalities and disturbance (road collisions, noise, light, dust, vibration); and
- Loss of agricultural soils.

11.2.3.3.1 Mitigation

The following specific mitigation actions are recommended for the decommissioning phase, all mitigation can be seen in the specialist management plan:

- Implementation of a closure / rehabilitation plan;
- Once BESS has reached its end of life, it must be decommissioned and recycled (as much is feasible) off site;
- Footprint of the infrastructure must be rehabilitated, and indigenous vegetation must be planted;
- The rehabilitation must be reviewed annually for a 5 year period and amended accordingly;
- Ongoing implementation of an alien vegetation management plan as well as the monitoring of the plants used in the rehabilitation;
- Ensure that proper stormwater management designs are set in place;
- Prevent any spills from occurring. Machines must be parked within hard park areas and must be checked daily for fluid leaks; and
- If a spill occurs, it is to be cleaned up immediately and reported to the appropriate authorities.

11.2.3.3.2 Impact Matrix

Table 11-13 till Table 11-16 presents the impact matrices that were considered for the decommissioning phase, some of the mitigations are presented in the various tables, however a full list of the mitigations can be seen in the specialist management plan (section 12).

Table 11-13 Decommissioning activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Continued fragmentation and degradation of habitats, ecosystems and CBA2 areas. The project area overlaps with the Amathole Tarkastad NPAES.		
	Without mitigation	With mitigation
Extent	Regional (2)	Local area (1)
Duration	Long term (4)	Moderate term (3)
Magnitude	High (8)	Moderate (6)
Probability	Highly probable (4)	Probable (3)
Significance	Medium	Medium

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Status (positive or negative)	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> • Implementation of a closure / rehabilitation plan; • Once BESS has reached its end of life, it must be decommissioned and recycled (as much is feasible) off site; • Footprint of the infrastructure must be rehabilitated, and indigenous vegetation must be planted; and • The rehabilitation must be reviewed annually for a 5 year period and amended accordingly. 		
Residual Impacts:		
The removal of the infrastructure would improve the overall impacts, the area will however not return to its original condition and the habitat will still be lost.		

Table 11-14 Decommissioning activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Spread of alien and/or invasive species		
	Without mitigation	With mitigation
Extent	Regional (2)	Local area (1)
Duration	Long term (4)	Moderate term (3)
Magnitude	High (8)	Low (4)
Probability	Highly probable (4)	Probable (3)
Significance	Medium	Low
Status (positive or negative)	Negative	Negative
Reversibility	Low	Moderate
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	
Mitigation:		
Ongoing implementation of an alien vegetation management plan as well as the monitoring of the plants used in the rehabilitation.		
Residual Impacts:		
If this is mitigated and monitored correctly no residual impacts should be present		

Table 11-15 Decommissioning activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Displacement of faunal community (including SCC) due to habitat loss, direct mortalities and disturbance (road collisions, noise, light, dust, vibration).		
	Without mitigation	With mitigation
Extent	Local area (1)	Local area (1)
Duration	Long term (4)	Short term (2)
Magnitude	High (8)	Low (4)
Probability	Highly probable (4)	Probable (3)
Significance	Medium	Low
Status (positive or negative)	Negative	Negative

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Reversibility	Low	Low
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> All areas to be developed must be walked through prior to any activity to ensure no nests or fauna species are found in the area. Should any Species of Conservation Concern not move out of the area or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken; and Compile and implement a management and monitoring plan for all the internationally and nationally protected SCCs 		
Residual Impacts:		
It is unlikely that the diversity in the area would return to normal, the residual impact is that a loss of diversity		

Table 11-16 Decommissioning activities impacts to the agricultural potential

Nature:		
Loss of high sensitivity agricultural soils		
	Without mitigation	With mitigation
Extent	Local area (1)	Local area (1)
Duration	Long term (4)	Moderate term (3)
Magnitude	Moderate (6)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium	Low
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> Implement a stormwater management plan; and Avoid soil contamination by leaks, spills etc, and have actions plans to contain and remove contaminated soils in the event of an incident. 		
Residual Impacts:		
<ul style="list-style-type: none"> Loss of high sensitivity agricultural potential soils 		

11.2.3.4 Post Closure Phase

During this phase most activities have halted, and the completion of rehabilitation goals have been reached. The following potential impacts were considered

- Spread of alien and/or invasive species.

11.2.3.4.1 Mitigation

The following specific mitigation actions are recommended for the post closure phase, all mitigation can be seen in the specialist management plan:

- Ongoing implementation of an alien vegetation management plan as well as the monitoring of the plants; and
- Monitoring of rehabilitation implementation on an annual basis for 5 years post-closure. The plan and interventions must be amended accordingly.

11.2.3.4.2 Impact Matrix

Table 11-17 presents the impact matrices that were considered for the post closure phase, some of the mitigations are presented in the various tables, however a full list of the mitigations can be seen in the specialist management plan (section 12).

Table 11-17 Post Closure activities impacts to the terrestrial biodiversity for road expansions, BESS, powerline, substation and river crossings

Nature:		
Spread of alien and/or invasive species.		
	Without mitigation	With mitigation
Extent	Regional (2)	Local area (1)
Duration	Long term (4)	Moderate term (3)
Magnitude	High (8)	Low (4)
Probability	Highly probable (4)	Probable (3)
Significance	Medium	Low
Status (positive or negative)	Negative	Negative
Reversibility	Low	Moderate
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated?	Yes	
Mitigation:		
<ul style="list-style-type: none"> Ongoing implementation of an alien vegetation management plan as well as the monitoring of the plants; and Monitoring of rehabilitation implementation on an annual basis for 5 years post-closure. The plan and interventions must be amended accordingly. 		
Residual Impacts:		
If implemented correctly no residual impacts would be present		

11.2.4 Unplanned Events

The planned activities will have anticipated impacts as discussed; however, unplanned events may occur on any project and may have potential impacts which will need management.

Table 11-18 is a summary of the findings of an unplanned event assessment from a terrestrial ecology perspective. Note, not all potential unplanned events may be captured herein, and this must therefore be managed throughout all phases according to recorded events.

Table 11-18 Summary of unplanned events for terrestrial biodiversity

Unplanned Event	Potential Impact	Mitigation
Hydrocarbon spills into the surrounding environment	Contamination of habitat as well as water resources associated with the spillage.	A spill response kit must be available at all times. The incident must be reported on and if necessary a biodiversity specialist must investigate the extent of the impact and provide rehabilitation recommendations.
Fire	Uncontrolled/unmanaged fire that spreads to the surrounding natural grassland and ridges	Appropriate/Adequate fire management plan need to be implemented.
Wind erosion	Reduce habitat and remove topsoil layer	Rehabilitation and erosion monitoring plan

11.2.5 Cumulative Impact

The impacts of projects are often assessed by comparing the post-project situation to a pre-existing baseline. Where projects can be considered in isolation this provides a good method of assessing a project's impact. However, in areas where baselines have already been

affected, or where future development will continue to add to the impacts in an area or region, it is appropriate to consider the cumulative effects of development. This is similar to the concept of shifting baselines, which describes how the environmental baseline at a point in time may represent a significant change from the original state of the system. This section describes the potential impacts of the project that are cumulative for terrestrial fauna and flora.

Localised cumulative impacts include the cumulative effects from operations that are close enough to potentially cause additive effects on the environment or sensitive receivers (such as nearby wind farm activities within the area). These include dust deposition, noise and vibration, disruption of wildlife corridors or habitat, groundwater drawdown, groundwater and surface water quality, and transport.

Long-term cumulative impacts due to extensive wind farm footprint, associated roads, BESS, powerlines and substations can lead to the loss of endemic species and threatened species, loss of habitat and vegetation types and even degradation of well conserved areas. In the light of all above, the expected cumulative impact is expected to be highly detrimental.

The increase of the 4 m approved road width (~12.06 Ha) to a 9 m road, will result in a further loss of 14.65 Ha of highly sensitive habitat. The cumulative loss of habitat for the roads is thus ~ 26.71 Ha. This number does not take into account the corners that will be increased to a width of 12 m as the locations of these areas were not provided. The impact of the size increase will result in exponential damage to the ecosystem. The 300 m corridor for the powerline (4km) to the substation will further result in a loss of 120 Ha. (Table 11-19). These are just some of the changes and it shows that the cumulative impact of the development will be extensive.

A desktop soil assessment was undertaken, and in consideration of the land type data there remains the possibility of sensitive soils occurring within the project area. It is possible (and likely) that the areas of land potential would be classified as high sensitivity. A precautionary approach has been adopted, based on the fact that the areas and extent of these high sensitivity soils are unknown. Thus, the cumulative impact assessment has assumed that high sensitivity areas are at risk, but there is a possibility to avoid these areas to some extent (which is also unknown for a desktop study). The overall cumulative impact to the local soils is expected to be high (Table 11-20).

Table 11-19 Cumulative impacts associated with the roads

Nature:		
Loss of habitat. Deterioration or loss of CBA2. The project area overlaps with the Amathole Tarkastad NPAES.		
	Without mitigation	With mitigation
Extent	Regional (2)	Local area (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Very high (10)	Very high (10)
Probability	Highly probable (4)	Definite (5)
Significance	High	High
Status (positive or negative)	Negative	Negative
Reversibility	None	None
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	No	
Mitigation:		

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Should the vegetation be removed the impact cannot be mitigated. A total of 14.65 Ha additional habitat (apart from already approved) will be lost due to the increase in the footprint.

Residual Impacts:

Will result in the loss of:

- CBA2;
- Endemic species;
- SCC fauna and flora species;
- Portions of the Amathole Tarkastad NPAES; and
- Niche habitats.

Table 11-20 Cumulative impacts to the agricultural potential

Nature:

Loss of high sensitivity agricultural soils

	Without mitigation	With mitigation
Extent	Local area (1)	Local area (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	High (8)	High (8)
Probability	Highly probable (4)	Highly probable (4)
Significance	Medium	Medium
Status (positive or negative)	Negative	Negative
Reversibility	None	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	

Mitigation:

- The loss of high sensitivity (or potential) agricultural soils is unlikely to be effectively mitigated.

Residual Impacts:

- Loss of high sensitivity agricultural potential soils

11.2.6 Irreplaceable Loss

The current proposed layout of the roads, BESS and crossing upgrades will result in the irreplaceable loss of;

- CBA2;
- Endemic species;
- SCC fauna and flora species;
- Portions of the Amathole Tarkastad NPAES;
- Niche habitats; and
- High sensitivity agricultural soils.

11.3 Recommendations

The following are recommendations made in support of the terrestrial ecology assessment. It is possible that some of these recommendations are already being achieved for the existing authorisations and may only need to be expanded on to accommodate this project. These recommendations include:

- A comprehensive avifaunal assessment (or walkthrough) must be conducted based on the presence of the Southern Black Korhaan and the Blue Crane to determine if these species use the area as nesting sites. This must be undertaken prior to construction is initiated;
- A vegetation alien invasive management plan should be implemented. This plan must be initiated from the onset of the construction phase of the project, and continued for the life of the project;
- A fire management plan needs to be compiled and implemented for the project;
- An adaptive rehabilitation plan needs to be implemented from the onset of the project. This must be compiled with input from independent ecological specialists. The plan must prioritise the restoration of disturbed areas, but also the creation / maintenance of corridors;
- A competent Environmental Control Officer (ECO) must oversee the construction and rehabilitation phase of the project, with watercourse areas as a priority;
- An infrastructure monitoring and service plan must be compiled and implemented during the operational phase. This will include the monitoring of all stormwater discharge points, energy dissipation structures, and stability of watercourses in the project footprint;
- An annual terrestrial monitoring programme is recommended to establish biological trends and monitor the impacts of the proposed project for a period of one year post construction; and
- A soil assessment should be undertaken to improve the confidence of the soil descriptions and impact assessment.

12 Specialist Management Plan

The aim of this section is present mitigation actions which may be incorporated into the Environmental Management Programme (EMPr) which will allow for the successful implementation and auditing of mitigation and monitoring actions. The proposed summarised mitigation actions are presented in Table 12-1.

Table 12-1 Mitigation measures including requirements for timeframes, roles and responsibilities for this report

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
Management outcome: Vegetation and Habitats				
Development within Very High sensitivity areas must be limited. The areas to be developed must be specifically demarcated to prevent unnecessary encroachment into highly sensitive surrounding environments. The infrastructure should be realigned to prioritise development within low sensitivity areas.	Life of operation	Project manager, Environmental Officer	Development footprint	Ongoing
Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. Clearing of vegetation should be minimized and avoided where possible.	Life of operation	Project manager, Environmental Officer	Areas of indigenous vegetation	Ongoing
Where possible, existing access routes and walking paths must be made use of.	Construction/Operational Phase	Environmental Officer & Design Engineer	Roads and paths used	Ongoing
All laydown, chemical toilets etc. should be restricted to low sensitivity areas. Any materials may not be stored for extended periods of time and must be removed from the project area once the construction/closure phase has been concluded. No storage of vehicles or equipment will be allowed outside of the designated project areas.	Construction/Operational Phase	Environmental Officer & Design Engineer	Laydown areas	Ongoing
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood and wind events. This will also reduce the likelihood of encroachment by alien invasive plant species.	Closure Phase/Rehabilitation phase	Environmental Officer & Contractor	Assess the state of rehabilitation and encroachment of alien vegetation	Quarterly for up to two years after the closure
Rehabilitation of the disturbed areas existing in the project area must be made a priority. Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are endemic to this vegetation type.	Operational/Closure Phase/ Post Closure Phase	Environmental Officer & Contractor	Road edges and BESS footprint	Ongoing
Any woody material removed can be shredded and used in conjunction with the topsoil to augment soil moisture and prevent further erosion.	Closure Phase/ Post Closure Phase	Environmental Officer & Contractor	Road edges and BESS footprint	During Phase
A spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. No servicing of equipment on site unless necessary. All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers. Appropriately contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of	Life of operation	Environmental Officer & Contractor	Spill events, Vehicles dripping.	Ongoing

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hydrocarbons oils, diesel etc.) in such a way as to prevent them leaking and entering the environment.				
Stormwater run-off	Life of operation	Environmental Officer & Design Engineer	Erosion	Ongoing
It should be made an offence for any staff to take/ bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants.	Life of operation	Project manager, Environmental Officer	Any instances	Ongoing
Appropriate speed humps, enforcing of speed limits and mitre drains must be constructed along the roads (every three metres of elevation) in order to slow the flow of water run-off from the road surface, if this does not already exist. Reducing the dust generated by the listed activities above, especially the earth moving machinery, through wetting the soil surface and putting up signs to enforce speed limit as well as speed bumps built to force slow speeds.	Life of operation	Project manager, Environmental Officer	Speed limit of vehicles	Ongoing
Signs must be put up indicating the presence of tortoise and other small animals	Life of operation	Project manager, Environmental Officer	Fauna	Ongoing
A fire management plan needs to be compiled and implemented to restrict the impact fire might have on the surrounding areas.	Life of operation	Environmental Officer & Contractor	Fire Management	During Phase
Rocks removed in the construction phased may not be dumped next to the road footprint or any highly sensitive areas and must be removed from site	Operational phase	Environmental Officer & Contractor	Rock piles	During Phase
SCCs must be relocated to appropriate locations with the assistance of a specialist after obtaining the necessary permits	Operational phase	Environmental Officer & Contractor	Presence of protected species	During Phase
The BESS storage container may not have reflective surfaces which can lead to veld fires	Operational phase	Environmental Officer & Contractor	Fire Management	During Phase
Compile and implement a management and monitoring plan for all the internationally and nationally protected SCCs	Life of operation	Project manager, Environmental Officer	Management and Monitoring of SCC	Life of project

Management outcome: Fauna

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
The areas to be developed must be specifically demarcated to prevent movement of staff or any individual into the surrounding environments, <ul style="list-style-type: none"> Signs must be put up to enforce this 	Construction/Operational Phase	Project manager, Environmental Officer	Infringement into these areas	Ongoing
Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals	Construction/Operational Phase	Environmental Officer	Noise levels	Ongoing
No trapping, killing, or poisoning of any wildlife is to be allowed <ul style="list-style-type: none"> Signs must be put up to enforce this; 	Life of operation	Environmental Officer	Evidence of trapping etc	Ongoing

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The duration of the construction should be minimized to as short term as possible, to reduce the period of disturbance on fauna	Construction/Operational Phase	Project manager, Environmental Officer & Design Engineer	Construction/Closure Phase	Ongoing
Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away from highly sensitive areas. Fluorescent and mercury vapor lighting should be avoided and sodium vapor (gree/red) lights should be used wherever possible.	Construction/Operational Phase	Project manager, Environmental Officer & Design Engineer	Light pollution and period of light.	Ongoing
All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must still be enforced to ensure that road killings and erosion is limited.	Life of operation	Health and Safety Officer	Compliance to the training.	Ongoing
Schedule activities and operations during least sensitive periods, to avoid migration, nesting and breeding seasons.	Life of operation	Project manager, Environmental Officer & Design Engineer	Activities should take place during the day in the case.	Ongoing
Edge of the road that were disturbed during construction must be rehabilitated with indigenous vegetation to reduce the erosion of the road from wind.	Life of operation	Environmental Officer & Contractor	Erosion	Ongoing
Heat generated from the BESS and substation must be monitored to ensure it does not negatively affect the local fauna	Life of operation	Environmental Officer & Contractor	Heat generated by BESS and substation	Ongoing
BESS container and substation may not have reflective surfaces that could lead to veld fires.	Life of operation	Environmental Officer & Contractor, Engineer	Reflective surfaces on BESS and substation	Ongoing
All areas to be developed must be walked through prior to any activity to ensure no nests or fauna species are found in the area. Should any Species of Conservation Concern not move out of the area or their nest be found in the area a suitably qualified specialist must be consulted to advise on the correct actions to be taken.	Planning, Construction and Decommissioning	Project manager, Environmental Officer	Presence of Nests and faunal species	Planning, Construction and Decommissioning
Compile and implement a management and monitoring plan for all the internationally and nationally protected SCCs	Life of operation	Project manager, Environmental Officer	Management and Monitoring of SCC	Life of project
The design of the proposed powerline must be of a type or similar structure as endorsed by the Eskom-EWT Strategic Partnership on Birds and Energy, considering the mitigation guidelines recommended by Birdlife South Africa.	Planning and construction	Environmental Officer & Contractor, Engineer	Presence of electrocuted birds or bird strikes	Ongoing
Infrastructure should be consolidated where possible in order to minimise the amount of ground and air space used. This would involve using existing/approved pylons and associated infrastructure for different lines.	Planning and construction	Environmental Officer & Contractor, Engineer	Presence of electrocuted birds	Ongoing
Bird flappers must be installed on the lines at 10m intervals. The must done for the whole powerline.	Planning and construction	Environmental Officer & Contractor, Engineer	Presence of bird strikes	Ongoing
Perch structures must be installed. South African standards state 270cm above the cross arm (Prinsen <i>et al.</i> , 2012).	Planning and construction	Environmental Officer & Contractor, Engineer	Presence of electrocuted birds	Ongoing
Ensure that the phase cables are spaced far enough apart to reduce the risk of large birds touching both simultaneously (1.4 m for large raptors)	Planning and construction	Environmental Officer & Contractor, Engineer	Presence of electrocuted birds	Ongoing

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(Prinsen <i>et al.</i> , 2012). If such separation (isolation) cannot be provided, exposed parts must be covered (insulated) to reduce electrocution risk.				
Management outcome: Alien species				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
Implementation of an alien vegetation management plan.	Life of operation	Project manager, Environmental Officer & Contractor	Assess presence and encroachment of alien vegetation	Quarterly monitoring
The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Footprint of the roads must be kept to prescribed widths.	Construction/Operational Phase	Project manager, Environmental Officer & Contractor	Footprint Area	Life of operation
Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. <ul style="list-style-type: none"> • Refuse bins will be emptied and secured; • Temporary storage of domestic waste shall be in covered waste skips; and • Maximum domestic waste storage period will be 10 days. 	Life of operation	Environmental Officer & Health and Safety Officer	Presence of waste	Life of operation
Management outcome: Dust				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and dumps especially. This includes wetting of exposed soft soil surfaces.	Life of operation	Contractor	Dustfall	Dust monitoring program.
Management outcome: Waste management				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
Waste management must be a priority and all waste must be collected and stored effectively.	Life of operation	Environmental Officer & Contractor	Waste Removal	Weekly
Litter, spills, fuels, chemicals and human waste in and around the project area.	Construction/Closure Phase	Environmental Officer & Health and Safety Officer	Presence of Waste	Daily
A minimum of one toilet must be provided per 10 persons. Portable toilets must be pumped dry to ensure the system does not degrade over time and spill into the surrounding area.	Life of operation	Environmental Officer & Health and Safety Officer	Number of toilets per staff member. Waste levels	Daily

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The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility	Life of operation	Environmental Officer & Health and Safety Officer	Availability of bins and the collection of the waste.	Ongoing
Where a registered disposal facility is not available close to the project area, the Contractor shall provide a method statement with regard to waste management. Under no circumstances may domestic waste be burned on site	Life of operation	Environmental Officer, Contractor & Health and Safety Officer	Collection/handling of the waste.	Ongoing
Refuse bins will be emptied and secured Temporary storage of domestic waste shall be in covered waste skips. Maximum domestic waste storage period will be 10 days.	Life of operation	Environmental Officer, Contractor & Health and Safety Officer	Management of bins and collection of waste	Ongoing, every 10 days
Sewage system must be pumped dry to ensure the system does not degrade over time and spill into the surrounding area.	Closure Phase/ Post Closure Phase	Environmental Officer, Contractor & Health and Safety Officer	Removal of all sewerage	Till completed

Management outcome: Environmental awareness training

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
All personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within the project area to inform contractors and site staff of the presence of Red / Orange List species, their identification, conservation status and importance, biology, habitat requirements and management requirements the Environmental Authorisation and within the EMP. The avoidance and protection of the wetland areas must be included into a site induction. Contractors and employees must all undergo the induction and made aware of the “no-go” to be avoided.	Life of operation	Health and Safety Officer	Compliance to the training.	Ongoing

Management outcome: Erosion

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
Appropriate speed humps, enforcing of speed limits and mitre drains must be constructed along the access roads (every three metres of elevation) in order to slow the flow of water run-off from the road surface, if this does not already exist; <ul style="list-style-type: none"> Reducing the dust generated by the listed activities above, especially the earth moving machinery, through wetting the soil surface and putting up signs to enforce speed limit as well as speed bumps built to force slow speeds; Signs must be put up to enforce this. 	Life of operation	Project manager, Environmental Officer	Water Runoff from road surfaces	Ongoing

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Where possible, existing access routes and walking paths must be made use of.	Life of operation	Project manager, Environmental Officer	Routes used within the area	Ongoing
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events and strong winds.	Life of operation	Project manager, Environmental Officer	Re-establishment of indigenous vegetation	Progressively
A stormwater management plan must be compiled and implemented.	Life of operation	Project manager, Environmental Officer	Management plan	Before construction phase: Ongoing

13 Conclusion

The project area is mostly in a near natural condition and has not been extensively altered by local activities such as livestock farming. The sensitivity rating of the screening tool is not corroborated in this study as portions were said to be low sensitivity. During the field survey it was found that the habitat as a whole support high numbers of both protected fauna and flora. They are:

- Fifteen flora species were found that are provincially protected under schedule 4 of the EC Nature Conservation Ordinance No. 19 of 1974;
- Two plant species (*Euphorbia globosa* and *Euphorbia meloformis*) were found that are EN and NT respectively;
- Two mammal species that are nationally and internationally protected: Leopard (*Panthera pardus*) (VU) and Mountain Reedbuck (*Redunca fulvorufula*) (EN);
- Five mammal species that are provincially protected under schedule 2 of the above-mentioned ordinance;
- Five reptile species that are provincially protected under schedule 2 of the above-mentioned ordinance;
- Two avifauna species that are nationally and internationally protected: Blue crane (*Anthropoides paradiseus*) (NT, VU) and Southern Black Korhaan (*Afrotis afra*) (VU); and
- Sixty-five provincially protected avifaunal species (Schedule 2 of the ordinance).

The habitat that will be lost is also regarded as a niche habitat with a high level of endemic species. Portions of a CBA2 and a NPAES (Amathole Tarkastad) will also be lost. Based on the above-mentioned factors majority of the project area was classified as high sensitivity.

A desktop soil assessment was undertaken, and in consideration of the land type data there remains the possibility of sensitive soils occurring within the project area. It is possible (and likely) that the areas of land potential would be classified as high sensitivity. A precautionary approach has been adopted, based on the fact that the areas and extent of these high sensitivity soils are unknown.

14 Impact Statement

An impact statement is required as per the NEMA regulations with regards to the proposed development.

Considering the above-mentioned information, a number of sensitive features were identified for the project. It is the opinion of the specialist that the project may be cautiously considered for approval, but all prescribed mitigation measures and recommendations must be considered by the issuing authority.

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16 Appendices

Appendix A Specialist declarations

DECLARATION

I, Martinus Erasmus, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority 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 the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Martinus Erasmus

Terrestrial Ecologist

The Biodiversity Company

September 2020

DECLARATION

I Lindi Steyn, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority 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 the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Lindi Steyn

Terrestrial Ecologist

The Biodiversity Company

September 2020

Msenge Emoyeni

I, Andrew Husted, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority 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 the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Andrew Husted

Terrestrial Ecologist

The Biodiversity Company

September 2020

Appendix B Flora species expected in the project area and surrounds

Family	Taxon	Author	IUCN	Ecology
Apiaceae	<i>Alepidea capensis</i>	(P.J.Bergius) R.A.Dyer		Indigenous
Asphodelaceae	<i>Aloe sp.</i>			
Amaranthaceae	<i>Alternanthera pungens</i>	Kunth		Not indigenous; Naturalised
Malvaceae	<i>Anisodonteia sp.</i>			
Apiaceae	<i>Apium graveolens</i>	L.		Not indigenous; Naturalised; Invasive
Papaveraceae	<i>Argemone mexicana forma mexicana</i>	L.		Not indigenous; Naturalised; Invasive
Papaveraceae	<i>Argemone ochroleuca subsp. ochroleuca</i>	Sweet		Not indigenous; Naturalised; Invasive
Fabaceae	<i>Argyrolobium sp.</i>			
Asphodelaceae	<i>Astroloba sp.</i>			
Amaranthaceae	<i>Atriplex semibaccata</i>	R.Br.		Not indigenous; Naturalised; Invasive
Poaceae	<i>Bromus sp.</i>			
Bryaceae	<i>Bryum argenteum</i>	Hedw.		Indigenous
Bryaceae	<i>Bryum canariense</i>	Brid.		Indigenous
Asphodelaceae	<i>Bulbine latifolia</i>	(L.f.) Schult. & J.H.Schult.		Indigenous
Asteraceae	<i>Caputia scaposa</i>	(DC.) B.Nord. & Pelser		
Amaranthaceae	<i>Chenopodium album</i>	L.		Not indigenous; Naturalised; Invasive
Thelypteridaceae	<i>Christella gueinziana</i>	(Mett.) Holttum		Indigenous
Asteraceae	<i>Conyza pinnata</i>	(L.f.) Kuntze		Indigenous
Asteraceae	<i>Conyza scabrada</i>	DC.		Indigenous
Asteraceae	<i>Conyza ulmifolia</i>	(Burm.f.) Kuntze		Indigenous
Aizoaceae	<i>Corpuscularia gracillima</i>	(L.Bolus) Niederle		Indigenous; Endemic
Crassulaceae	<i>Crassula vaillantii</i>	(Willd.) Roth		Not indigenous; Naturalised
Convolvulaceae	<i>Cuscuta campestris</i>	Yunck.		Not indigenous; Naturalised; Invasive
Cyperaceae	<i>Cyperus sp.</i>			
Lobeliaceae	<i>Cyphia sylvatica</i>	Eckl. & Zeyh.		Indigenous; Endemic
Aizoaceae	<i>Delosperma sp.</i>			
Scrophulariaceae	<i>Diascia sp.</i>			
Asteraceae	<i>Dicrothamnus rhinocerotis</i>	(L.f.) Koekemoer		Indigenous; Endemic
Poaceae	<i>Digitaria sp.</i>			
Fabaceae	<i>Dolichos sp.</i>			
Aizoaceae	<i>Drosanthemum sp.</i>			
Amaranthaceae	<i>Dysphania carinata</i>	(R.Br.) Mosyakin & Clemants		Not indigenous; Naturalised; Invasive
Amaranthaceae	<i>Dysphania pumilio</i>	(R.Br.) Mosyakin & Clemants		Not indigenous; Naturalised; Invasive

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Asteraceae	<i>Erigeron bonariensis</i>	L.	Not indigenous; Naturalised; Invasive
Ruscaceae	<i>Eriosperrum sp.</i>		
Euphorbiaceae	<i>Euphorbia patula subsp. patula</i>	Mill.	Indigenous; Endemic
Euphorbiaceae	<i>Euphorbia sp.</i>		
Cyperaceae	<i>Ficinia sp.</i>		
Moraceae	<i>Ficus thonningii</i>	Blume	Indigenous
Aizoaceae	<i>Galenia sp.</i>		
Asphodelaceae	<i>Gasteria bicolor</i>	Haw.	Indigenous
Verbenaceae	<i>Glandularia aristigera</i>	(S.Moore) Tronc.	Not indigenous; Naturalised; Invasive
Thymelaeaceae	<i>Gnidia sp.</i>		
Asphodelaceae	<i>Haworthia cooperi var. tenera</i>	Baker	Indigenous; Endemic
Asphodelaceae	<i>Haworthia sp.</i>		
Asphodelaceae	<i>Haworthiopsis attenuata var. attenuata</i>	(Haw.) G.D.Rowley	Indigenous; Endemic
Asphodelaceae	<i>Haworthiopsis coarctata var. adelaidensis</i>	(Haw.) G.D.Rowley	Indigenous; Endemic
Asteraceae	<i>Helichrysum foetidum var. foetidum</i>	(L.) Moench	Indigenous; Endemic
Boraginaceae	<i>Heliotropium curassavicum</i>	L.	Not indigenous; Naturalised
Malvaceae	<i>Hermannia sp.</i>		
Apiaceae	<i>Heteromorpha arborescens</i>	(Spreng.) Cham. & Schltdl.	Indigenous
Asteraceae	<i>Hilliardiella capensis</i>	(Houtt.) H.Rob., Skvarla & V.A.Funk	Indigenous
Cactaceae	<i>Hylocereus undatus</i>	(Haw.) Britton & Rose	Not indigenous; Naturalised; Invasive
Hypnaceae	<i>Hypnum cupressiforme</i>	Hedw.	Indigenous
Asteraceae	<i>Hypochaeris microcephala var. albiflora</i>	(Sch.Bip.) Cabrera	Not indigenous; Naturalised
Hypodontiaceae	<i>Hypodontium dregei</i>	(Hornsch.) Mull.Hal.	Indigenous
Hypoxidaceae	<i>Hypoxis sp.</i>		
Fabaceae	<i>Indigastrum niveum</i>	(Willd. ex Spreng.) Schrire & Callm.	Indigenous
Scrophulariaceae	<i>Jamesbrittenia sp.</i>		
Acanthaceae	<i>Justicia protracta</i>	(Nees) T.Anderson	Indigenous
Asphodelaceae	<i>Kniphofia sp.</i>		
Hyacinthaceae	<i>Lachenalia sp.</i>		
Phyllanthaceae	<i>Lachnostylis sp.</i>		
Asteraceae	<i>Lactuca serriola</i>	L.	Not indigenous; Naturalised
Orthotrichaceae	<i>Macrocoma lycopodioides</i>	(Schwagr.) Vitt	Indigenous
Orthotrichaceae	<i>Macrocoma tenuis subsp. tenuis</i>	(Hook. & Grev.) Vitt	Indigenous
Myrtaceae	<i>Melaleuca hypericifolia</i>	Sm.	Not indigenous; Cultivated; Naturalised; Invasive
Myrtaceae	<i>Melaleuca linearis var. linearis</i>	Schrad. & J.C.Wendl.	Not indigenous; Cultivated; Naturalised; Invasive

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Myrtaceae	<i>Melaleuca viminalis</i> subsp. <i>viminalis</i>	(Sol. ex Gaertn.) Byrnes	Not indigenous; Cultivated; Naturalised; Invasive
Aizoaceae	<i>Mesembryanthemum cordifolium</i>	L.f.	Indigenous; Endemic
Aizoaceae	<i>Mesembryanthemum granulicaule</i>	Haw.	Indigenous
Aizoaceae	<i>Mesembryanthemum haeckelianum</i>	A.Berger	Indigenous; Endemic
Aizoaceae	<i>Mesembryanthemum splendens</i> subsp. <i>pentagonum</i>	L.	Indigenous; Endemic
Solanaceae	<i>Nicotiana glauca</i>	Graham	Not indigenous; Naturalised; Invasive
Asteraceae	<i>Nidorella</i> sp.		
Asteraceae	<i>Oedera humilis</i>	(Less.) N.G.Bergh	Indigenous
Onagraceae	<i>Oenothera indecora</i>	Cambess.	Not indigenous; Naturalised
Onagraceae	<i>Oenothera stricta</i> subsp. <i>stricta</i>	Ledeb. ex Link	Not indigenous; Naturalised; Invasive
Oleaceae	<i>Olea europaea</i> subsp. <i>cuspidata</i>	L.	Indigenous
Poaceae	<i>Oplismenus</i> sp.		
Hyacinthaceae	<i>Ornithogalum bolusianum</i>	Baker	Indigenous; Endemic
Poaceae	<i>Panicum</i> sp.		
Passifloraceae	<i>Passiflora caerulea</i>	L.	Not indigenous; Naturalised; Invasive
Geraniaceae	<i>Pelargonium</i> sp.		
Poaceae	<i>Pentaschistis</i> sp.		
Pinaceae	<i>Pinus halepensis</i> var. <i>halepensis</i>	Mill.	Not indigenous; Naturalised; Invasive
Aytoniaceae	<i>Plagiochasma rupestre</i> var. <i>rupestre</i>	(J.R.Forst. & G.Forst.) Steph.	Indigenous
Plantaginaceae	<i>Plantago virginica</i>	L.	Not indigenous; Naturalised
Verbenaceae	<i>Priva meyeri</i>	Jaub. & Spach	Indigenous
Pottiaceae	<i>Pseudocrossidium crinitum</i>	(Schultz) R.H.Zander	Indigenous
Aizoaceae	<i>Psilocaulon</i> sp.		
Ricciaceae	<i>Riccia albovestita</i>	O.H.Volk	Indigenous
Ricciaceae	<i>Riccia okahandjana</i>	S.W.Arnell	Indigenous
Zygophyllaceae	<i>Roepera debilis</i>	(Cham.) Beier & Thulin	Indigenous
Zygophyllaceae	<i>Roepera maritima</i>	(Eckl. & Zeyh.) Beier & Thulin	Indigenous
Aizoaceae	<i>Ruschia</i> sp.		
Amaranthaceae	<i>Salsola kali</i>	L.	Not indigenous; Naturalised; Invasive
Asteraceae	<i>Schkuhria pinnata</i>	(Lam.) Kuntze ex Thell.	Not indigenous; Naturalised
Scrophulariaceae	<i>Selago</i> sp.		
Asteraceae	<i>Senecio</i> sp.		
Poaceae	<i>Setaria</i> sp.		
Sapotaceae	<i>Sideroxylon inerme</i>	L.	Indigenous
Caryophyllaceae	<i>Silene burchellii</i> subsp. <i>pilosellifolia</i>	Oth ex DC.	Indigenous
Caryophyllaceae	<i>Silene gallica</i>	L.	Not indigenous; Naturalised

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Caryophyllaceae	<i>Silene gallica var. gallica</i>	L.		Not indigenous; Naturalised
Asteraceae	<i>Silybum marianum</i>	(L.) Gaertn.		Not indigenous; Naturalised
Brassicaceae	<i>Sinapis arvensis</i>	L.		Not indigenous; Naturalised
Solanaceae	<i>Solanum tomentosum</i>	L.		Indigenous
Hypoxidaceae	<i>Spiloxene sp.</i>			
Poaceae	<i>Sporobolus sp.</i>			
Strelitziaceae	<i>Strelitzia reginae</i>	Banks		Indigenous
Thymelaeaceae	<i>Struthiola sp.</i>			
Asteraceae	<i>Tarchonanthus sp.</i>			
Bignoniaceae	<i>Tecoma fulva subsp. garrocha</i>	(Cav.) D.Don		Not indigenous; Cultivated; Naturalised
Poaceae	<i>Tenaxia disticha</i>	(Nees) N.P.Barker & H.P.Linder		Indigenous
Pottiaceae	<i>Trichostomum brachydontium</i>	Bruch		Indigenous
Poaceae	<i>Triraphis sp.</i>			
Verbenaceae	<i>Verbena rigida</i>	Spreng.		Not indigenous; Naturalised; Invasive
Asteraceae	<i>Verbesina encelioides subsp. exauriculata</i>	(Cav.) Benth. & Hook.f. ex A.Gray		Not indigenous; Naturalised
Scrophulariaceae	<i>Zaluzianskya sp.</i>			
Rutaceae	<i>Agathosma gonaquensis</i>	Eckl. & Zeyh.	CR	Indigenous; Endemic
Aizoaceae	<i>Corpuscularia lehmannii</i>	(Eckl. & Zeyh.) Schwantes	CR	Indigenous; Endemic
Isoetaceae	<i>Isoetes wormaldii</i>	Sim	CR	Indigenous; Endemic
Hyacinthaceae	<i>Lachenalia convallarioides</i>	Baker	CR	Indigenous; Endemic
Anacardiaceae	<i>Searsia albomarginata</i>	(Sond.) Moffett	CR	Indigenous; Endemic
Aizoaceae	<i>Drosantherum jamesii</i>	L.Bolus	DD	Indigenous; Endemic
Asteraceae	<i>Osteospermum spathulatum</i>	(DC.) Norl.	DD	Indigenous; Endemic
Geraniaceae	<i>Pelargonium campestre</i>	(Eckl. & Zeyh.) Steud.	DD	Indigenous; Endemic
Asteraceae	<i>Senecio hirtellus</i>	DC.	DD	Indigenous; Endemic
Rutaceae	<i>Agathosma bicornuta</i>	R.A.Dyer	EN	Indigenous; Endemic
Rutaceae	<i>Agathosma minuta</i>	Schltdl.	EN	Indigenous; Endemic
Crassulaceae	<i>Cotyledon adscendens</i>	R.A.Dyer	EN	Indigenous; Endemic
Proteaceae	<i>Leucadendron argenteum</i>	(L.) R.Br.	EN	Indigenous; Endemic
Malvaceae	<i>Abutilon sonneratianum</i>	(Cav.) Sweet	LC	Indigenous
Euphorbiaceae	<i>Acalypha glabrata var. pilosa</i>	Thunb.	LC	Indigenous
Amaranthaceae	<i>Achyropsis leptostachya</i>	(E.Mey. ex Meisn.) Baker & C.B.Clarke	LC	Indigenous
Orchidaceae	<i>Acrolophia cochlearis</i>	(Lindl.) Schltr. & Bolus	LC	Indigenous; Endemic
Lamiaceae	<i>Acrotome inflata</i>	Benth.	LC	Indigenous
Crassulaceae	<i>Adromischus sphenophyllus</i>	C.A.Sm.	LC	Indigenous; Endemic

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Lamiaceae	<i>Aeollanthus parvifolius</i>	Benth.	LC	Indigenous
Asteraceae	<i>Afroaster hispidus</i>	(Thunb.) J.C.Mannin g & Goldblatt	LC	Indigenous
Rutaceae	<i>Agathosma apiculata</i>	G.Mey.	LC	Indigenous; Endemic
Rutaceae	<i>Agathosma ovata</i>	(Thunb.) Pillans	LC	Indigenous
Rutaceae	<i>Agathosma peglerae</i>	Dummer	LC	Indigenous; Endemic
Rutaceae	<i>Agathosma puberula</i>	(Steud.) Fourc.	LC	Indigenous; Endemic
Aizoaceae	<i>Aizoon glinoides</i>	L.f.	LC	Indigenous; Endemic
Hyacinthaceae	<i>Albica cooperi</i>	Baker	LC	Indigenous
Hyacinthaceae	<i>Albica shawii</i>	Baker	LC	Indigenous
Hyacinthaceae	<i>Albica tortuosa</i>	Baker	LC	Indigenous; Endemic
Hyacinthaceae	<i>Albica unifolia</i>	(Retz.) J.C.Mannin g & Goldblatt	LC	Indigenous
Rosaceae	<i>Alchemilla capensis</i>	Thunb.	LC	Indigenous; Endemic
Poaceae	<i>Alloteropsis semialata subsp. eckloniana</i>	(R.Br.) Hitc.	LC	Indigenous
Asphodelaceae	<i>Aloe speciosa</i>	Baker	LC	Indigenous; Endemic
Asphodelaceae	<i>Aloiampelos tenuior</i>	(Haw.) Klopper & Gideon F.Sm.	LC	Indigenous; Endemic
Cyatheaceae	<i>Alsophila capensis</i>	(L.f.) J.Sm.	LC	Indigenous
Amaranthaceae	<i>Amaranthus capensis subsp. capensis</i>	Thell.	LC	Indigenous; Endemic
Asteraceae	<i>Amellus strigosus subsp. pseudoscabridus</i>	(Thunb.) Less.	LC	Indigenous; Endemic
Asteraceae	<i>Amellus strigosus subsp. strigosus</i>	(Thunb.) Less.	LC	Indigenous; Endemic
Amaryllidaceae	<i>Ammocharis coranica</i>	(Ker Gawl.) Herb.	LC	Indigenous
Fabaceae	<i>Amphithalea williamsonii</i>	Harv.	LC	Indigenous; Endemic
Anacampserotaceae	<i>Anacampseros arachnoides</i>	(Haw.) Sims	LC	Indigenous; Endemic
Apiaceae	<i>Anginon difforme</i>	(L.) B.L.Burt	LC	Indigenous; Endemic
Apocynaceae	<i>Anisotoma cordifolia</i>	Fenzl	LC	Indigenous; Endemic
Icacinaceae	<i>Apodytes dimidiata subsp. dimidiata</i>	E.Mey. ex Arn.	LC	Indigenous
Scrophulariaceae	<i>Aptosimum procumbens</i>	(Lehm.) Steud.	LC	Indigenous
Asteraceae	<i>Arctotis microcephala</i>	(DC.) Beauverd	LC	Indigenous
Asteraceae	<i>Arctotis pinnatifida</i>	Thunb.	LC	Indigenous; Endemic
Fabaceae	<i>Argyrolobium collinum</i>	Eckl. & Zeyh.	LC	Indigenous
Fabaceae	<i>Argyrolobium incanum</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Iridaceae	<i>Aristea anceps</i>	Eckl. ex Klatt	LC	Indigenous; Endemic
Poaceae	<i>Aristida congesta subsp. barbicollis</i>	Roem. & Schult.	LC	Indigenous
Poaceae	<i>Aristida diffusa subsp. burkei</i>	Trin.	LC	Indigenous
Asteraceae	<i>Artemisia afra var. afra</i>	Jacq. ex Willd.	LC	Indigenous

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Fabaceae	<i>Aspalathus argyrophanes</i>	R.Dahlgren	LC	Indigenous; Endemic
Fabaceae	<i>Aspalathus cinerascens</i>	E.Mey.	LC	Indigenous; Endemic
Fabaceae	<i>Aspalathus frankenioides</i>	DC.	LC	Indigenous; Endemic
Fabaceae	<i>Aspalathus kougaensis</i>	(Garab. ex R.Dahlgren) R.Dahlgren	LC	Indigenous; Endemic
Fabaceae	<i>Aspalathus setacea</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Fabaceae	<i>Aspalathus subtingens</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Fabaceae	<i>Aspalathus teres</i> subsp. <i>teres</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Asparagaceae	<i>Asparagus aethiopicus</i>	L.	LC	Indigenous
Asparagaceae	<i>Asparagus asparagoides</i>	(L.) Druce	LC	Indigenous
Asparagaceae	<i>Asparagus burchellii</i>	Baker	LC	Indigenous; Endemic
Asparagaceae	<i>Asparagus capensis</i> var. <i>capensis</i>	L.	LC	Indigenous
Asparagaceae	<i>Asparagus crassicaudus</i>	Jessop	LC	Indigenous; Endemic
Asparagaceae	<i>Asparagus densiflorus</i>	(Kunth) Jessop	LC	Indigenous
Asparagaceae	<i>Asparagus mariae</i>	(Oberm.) Fellingham & N.L.Mey.	LC	Indigenous; Endemic
Asparagaceae	<i>Asparagus mucronatus</i>	Jessop	LC	Indigenous; Endemic
Asparagaceae	<i>Asparagus retrofractus</i>	L.	LC	Indigenous
Asparagaceae	<i>Asparagus setaceus</i>	(Kunth) Jessop	LC	Indigenous
Asparagaceae	<i>Asparagus striatus</i>	(L.f.) Thunb.	LC	Indigenous; Endemic
Apocynaceae	<i>Aspidoglossum gracile</i>	(E.Mey.) Kupicha	LC	Indigenous; Endemic
Apocynaceae	<i>Aspidoglossum heterophyllum</i>	E.Mey.	LC	Indigenous; Endemic
Aspleniaceae	<i>Asplenium aethiopicum</i>	(Burm.f.) Bech.	LC	Indigenous
Aspleniaceae	<i>Asplenium lunulatum</i>	Sw.	LC	Indigenous
Aspleniaceae	<i>Asplenium phillipsianum</i>	(Kummerle) Bir, Fraser-Jenk. & Lovis	LC	Indigenous
Asphodelaceae	<i>Astroloba congesta</i>	(Salm-Dyck) Uitewaal	LC	Indigenous; Endemic
Asphodelaceae	<i>Astroloba foliolosa</i>	(Haw.) Uitewaal	LC	Indigenous; Endemic
Asteraceae	<i>Athanasia dentata</i>	(L.) L.	LC	Indigenous; Endemic
Asteraceae	<i>Athanasia pinnata</i>	L.f.	LC	Indigenous; Endemic
Salvadoraceae	<i>Azima tetracantha</i>	Lam.	LC	Indigenous
Acanthaceae	<i>Barleria pungens</i>	L.f.	LC	Indigenous; Endemic
Aizoaceae	<i>Bergeranthus scapiger</i>	(Haw.) Schwantes	LC	Indigenous; Endemic
Aizoaceae	<i>Bergeranthus vespertinus</i>	(A.Berger) Schwantes	LC	Indigenous; Endemic
Elatinaceae	<i>Bergia glomerata</i>	L.f.	LC	Indigenous; Endemic
Asteraceae	<i>Berkheya angustifolia</i>	(Houtt.) Merr.	LC	Indigenous
Asteraceae	<i>Berkheya bergiana</i>	Soderb.	LC	Indigenous; Endemic
Asteraceae	<i>Berkheya carduoides</i>	(Less.) Hutch.	LC	Indigenous; Endemic
Melanthaceae	<i>Bersama lucens</i>	(Hochst.) Szyszyl.	LC	Indigenous

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Blechnaceae	<i>Blechnum punctulatum</i> var. <i>punctulatum</i>	Sw.	LC	Indigenous
Acanthaceae	<i>Blepharis capensis</i>	(L.f.) Pers.	LC	Indigenous; Endemic
Acanthaceae	<i>Blepharis sinuata</i>	(Nees) C.B.Clarke	LC	Indigenous; Endemic
Iridaceae	<i>Bobartia orientalis</i> subsp. <i>occidentalis</i>	J.B.Gillett	LC	Indigenous; Endemic
Iridaceae	<i>Bobartia orientalis</i> subsp. <i>orientalis</i>	J.B.Gillett	LC	Indigenous; Endemic
Amaryllidaceae	<i>Boophone disticha</i>	(L.f.) Herb.	LC	Indigenous
Capparaceae	<i>Boscia oleoides</i>	(Burch. ex DC.) Toelken	LC	Indigenous; Endemic
Poaceae	<i>Bothriochloa insculpta</i>	(Hochst. ex A.Rich.) A.Camus	LC	Indigenous
Asteraceae	<i>Brachylaena elliptica</i>	(Thunb.) DC.	LC	Indigenous; Endemic
Asteraceae	<i>Brachylaena ilicifolia</i>	(Lam.) E.Phillips & Schweick.	LC	Indigenous
Scrophulariaceae	<i>Buddleja dysophylla</i>	(Benth.) Radlk.	LC	Indigenous
Scrophulariaceae	<i>Buddleja saligna</i>	Willd.	LC	Indigenous
Asphodelaceae	<i>Bulbine abyssinica</i>	A.Rich.	LC	Indigenous
Asphodelaceae	<i>Bulbine frutescens</i>	(L.) Willd.	LC	Indigenous
Asphodelaceae	<i>Bulbine inamarxiae</i>	G.Will. & A.P.Dold	LC	Indigenous; Endemic
Asphodelaceae	<i>Bulbine latifolia</i> var. <i>latifolia</i>	(L.f.) Schult. & J.H.Schult.	LC	Indigenous; Endemic
Asphodelaceae	<i>Bulbine mesembryanthoides</i> subsp. <i>mesembryanthoides</i>	Haw.	LC	Indigenous; Endemic
Asphodelaceae	<i>Bulbine narcissifolia</i>	Salm-Dyck	LC	Indigenous
Rubiaceae	<i>Burchellia bubalina</i>	(L.f.) Sims	LC	Indigenous
Capparaceae	<i>Cadaba aphylla</i>	(Thunb.) Wild	LC	Indigenous
Fabaceae	<i>Calpurnia aurea</i> subsp. <i>aurea</i>	(Aiton) Benth.	LC	Indigenous
Rubiaceae	<i>Canthium inerme</i>	(L.f.) Kuntze	LC	Indigenous
Capparaceae	<i>Capparis sepiaria</i> var. <i>citrifolia</i>	L.	LC	Indigenous
Apocynaceae	<i>Carissa bispinosa</i>	(L.) Desf. ex Brenan	LC	Indigenous
Aizoaceae	<i>Carpobrotus deliciosus</i>	(L.Bolus) L.Bolus	LC	Indigenous; Endemic
Celastraceae	<i>Cassine peragua</i> subsp. <i>peragua</i>	L.	LC	Indigenous
Achariaceae	<i>Ceratosicyos laevis</i>	(Thunb.) A.Meeuse	LC	Indigenous
Apocynaceae	<i>Ceropegia africana</i> subsp. <i>africana</i>	R.Br.	LC	Indigenous; Endemic
Apocynaceae	<i>Ceropegia ampliata</i> var. <i>ampliata</i>	E.Mey.	LC	Indigenous
Apocynaceae	<i>Ceropegia cancellata</i>	Rchb.	LC	Indigenous; Endemic
Scrophulariaceae	<i>Chaenostoma campanulatum</i>	Benth.	LC	Indigenous; Endemic
Scrophulariaceae	<i>Chaenostoma polyanthum</i>	Benth.	LC	Indigenous; Endemic
Apiaceae	<i>Chamarea capensis</i>	(Thunb.) Eckl. & Zeyh.	LC	Indigenous; Endemic
Verbenaceae	<i>Chascanum cuneifolium</i>	(L.f.) E.Mey.	LC	Indigenous; Endemic
Gentianaceae	<i>Chironia baccifera</i>	L.	LC	Indigenous; Endemic

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Gentianaceae	<i>Chironia melampyrifolia</i>	Lam.	LC	Indigenous; Endemic
Agavaceae	<i>Chlorophytum capense</i>	(L.) Voss	LC	Indigenous; Endemic
Agavaceae	<i>Chlorophytum crispum</i>	(Thunb.) Baker	LC	Indigenous; Endemic
Asteraceae	<i>Chrysocoma ciliata</i>	L.	LC	Indigenous
Asteraceae	<i>Cineraria lobata subsp. lobata</i>	L'Her.	LC	Indigenous
Asteraceae	<i>Cineraria saxifraga</i>	DC.	LC	Indigenous; Endemic
Rutaceae	<i>Clausena anisata var. anisata</i>	(Willd.) Hook.f. ex Benth.	LC	Indigenous
Ranunculaceae	<i>Clematis brachiata</i>	Thunb.	LC	Indigenous
Peraceae	<i>Clutia pulchella var. pulchella</i>	L.	LC	Indigenous
Colchicaceae	<i>Colchicum albanense</i>	(Schonland) J.C.Mannin g & Vinn.	LC	Indigenous; Endemic
Colchicaceae	<i>Colchicum orienticapense</i>	(U.Mull.- Doblies & D.Mull.- Doblies) J.C.Mannin g & Vinn.	LC	Indigenous; Endemic
Santalaceae	<i>Colpoon compressum</i>	P.J.Bergius	LC	Indigenous
Commelinaceae	<i>Commelina africana var. africana</i>	L.	LC	Indigenous
Burseraceae	<i>Commiphora harveyi</i>	(Engl.) Engl.	LC	Indigenous
Convolvulaceae	<i>Convolvulus bidentatus</i>	Bernh. ex C.Krauss	LC	Indigenous; Endemic
Convolvulaceae	<i>Convolvulus farinosus</i>	L.	LC	Indigenous
Convolvulaceae	<i>Convolvulus sagittatus</i>	Thunb.	LC	Indigenous
Convolvulaceae	<i>Convolvulus thunbergii</i>	Roem. & Schult.	LC	Indigenous
Aizoaceae	<i>Corpuscularia appressa</i>	(L.Bolus) H.E.K.Hart mann	LC	Indigenous; Endemic
Aizoaceae	<i>Corpuscularia britteniae</i>	(L.Bolus) H.E.K.Hart mann	LC	Indigenous; Endemic
Aizoaceae	<i>Corpuscularia taylori</i>	(N.E.Br.) Schwantes	LC	Indigenous; Endemic
Crassulaceae	<i>Cotyledon campanulata</i>	Marloth	LC	Indigenous; Endemic
Crassulaceae	<i>Cotyledon orbiculata var. oblonga</i>	L.	LC	Indigenous
Crassulaceae	<i>Cotyledon orbiculata var. orbiculata</i>	L.	LC	Indigenous
Crassulaceae	<i>Cotyledon papillaris</i>	L.f.	LC	Indigenous
Crassulaceae	<i>Cotyledon velutina</i>	Hook.f.	LC	Indigenous; Endemic
Crassulaceae	<i>Cotyledon woodii</i>	Schonland & Baker f.	LC	Indigenous; Endemic
Asteraceae	<i>Crassothonna cacalioides</i>	(L.f.) B.Nord.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula capitella subsp. capitella</i>	Thunb.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula capitella subsp. thyrsoiflora</i>	Thunb.	LC	Indigenous
Crassulaceae	<i>Crassula cordata</i>	Thunb.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula cultrata</i>	L.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula ericoides subsp. ericoides</i>	Haw.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula ericoides subsp. tortuosa</i>	Haw.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula expansa subsp. expansa</i>	Aiton	LC	Indigenous
Crassulaceae	<i>Crassula intermedia</i>	Schonland	LC	Indigenous; Endemic

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Crassulaceae	<i>Crassula lactea</i>	Sol.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula latibracteata</i>	Toelken	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula mesembryanthemoides subsp. hispida</i>	(Haw.) D.Dietr.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula mesembryanthemoides subsp. mesembryanthemoides</i>	(Haw.) D.Dietr.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula multicava subsp. multicava</i>	Lem.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula nemorosa</i>	(Eckl. & Zeyh.) Endl. ex Walp.	LC	Indigenous
Crassulaceae	<i>Crassula orbicularis</i>	L.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula ovata</i>	(Mill.) Druce	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula perfoliata var. minor</i>	L.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula perfoliata var. perfoliata</i>	L.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula perforata subsp. perforata</i>	Thunb.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula rupestris subsp. rupestris</i>	Thunb.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula socialis</i>	Schonland	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula spathulata</i>	Thunb.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula tetragona subsp. acutifolia</i>	L.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula tetragona subsp. robusta</i>	L.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula tetragona subsp. tetragona</i>	L.	LC	Indigenous; Endemic
Crassulaceae	<i>Crassula thunbergiana subsp. thunbergiana</i>	Schult.	LC	Indigenous; Endemic
Amaryllidaceae	<i>Crinum macowanii</i>	Baker	LC	Indigenous
Fabaceae	<i>Crotalaria capensis</i>	Jacq.	LC	Indigenous
Euphorbiaceae	<i>Croton rivularis</i>	Mull.Arg.	LC	Indigenous; Endemic
Asteraceae	<i>Cuspidia cernua subsp. cernua</i>	(L.f.) B.L.Burtt	LC	Indigenous; Endemic
Araliaceae	<i>Cussonia paniculata subsp. paniculata</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Araliaceae	<i>Cussonia spicata</i>	Thunb.	LC	Indigenous
Commelinaceae	<i>Cyanotis speciosa</i>	(L.f.) Hassk.	LC	Indigenous
Apocynaceae	<i>Cynanchum ellipticum</i>	(Harv.) R.A.Dyer	LC	Indigenous
Cyperaceae	<i>Cyperus capensis</i>	(Steud.) Endl.	LC	Indigenous; Endemic
Cyperaceae	<i>Cyperus congestus</i>	Vahl	LC	Indigenous
Cyperaceae	<i>Cyperus difformis</i>	L.	LC	Indigenous
Cyperaceae	<i>Cyperus rubicundus</i>	Vahl	LC	Indigenous
Cyperaceae	<i>Cyperus squarrosus</i>	L.	LC	Indigenous
Cyperaceae	<i>Cyperus tabularis</i>	Schrad.	LC	Indigenous; Endemic
Cyperaceae	<i>Cyperus textilis</i>	Thunb.	LC	Indigenous; Endemic
Cyperaceae	<i>Cyperus uitenhagensis</i>	(Steud.) C.Archer & Goetgh.	LC	Indigenous
Lobeliaceae	<i>Cyphia undulata</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Vitaceae	<i>Cyphostemma cirrhosum subsp. cirrhosum</i>	(Thunb.) Desc. ex Wild & R.B.Drumm	LC	Indigenous
Vitaceae	<i>Cyphostemma natalitium</i>	(Szyszyl.) J.J.M.van der Merwe	LC	Indigenous; Endemic

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Vitaceae	<i>Cyphostemma quinatum</i>	(Dryand.) Desc. ex Wild & R.B.Drumm	LC	Indigenous
Amaryllidaceae	<i>Cyrtanthus brachyscyphus</i>	Baker	LC	Indigenous; Endemic
Amaryllidaceae	<i>Cyrtanthus contractus</i>	N.E.Br.	LC	Indigenous
Amaryllidaceae	<i>Cyrtanthus obliquus</i>	(L.f.) Aiton	LC	Indigenous; Endemic
Amaryllidaceae	<i>Cyrtanthus smithiae</i>	Watt ex Harv.	LC	Indigenous; Endemic
Apiaceae	<i>Dasispermum humile</i>	(Meisn.) Magee & B.-E.van Wyk	LC	Indigenous; Endemic
Asteraceae	<i>Delairea odorata</i>	Lem.	LC	Indigenous
Aizoaceae	<i>Delosperma adelaidense</i>	Lavis	LC	Indigenous; Endemic
Aizoaceae	<i>Delosperma affine</i>	Lavis	LC	Indigenous
Aizoaceae	<i>Delosperma robustum</i>	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	<i>Delosperma verecundum</i>	L.Bolus	LC	Indigenous; Endemic
Apiaceae	<i>Deverra denudata subsp. aphylla</i>	(Viv.) Pfisterer & Podlech	LC	Indigenous
Caryophyllaceae	<i>Dianthus micropetalus</i>	Ser.	LC	Indigenous
Scrophulariaceae	<i>Diascia capsularis</i>	Benth.	LC	Indigenous
Scrophulariaceae	<i>Diascia cuneata</i>	E.Mey. ex Benth.	LC	Indigenous; Endemic
Acanthaceae	<i>Dicliptera capensis</i>	Nees	LC	Indigenous; Endemic
Acanthaceae	<i>Dicliptera cernua</i>	(Hook.f. ex Nees) J.C.Mannin g & Goldblatt	LC	Indigenous
Scrophulariaceae	<i>Diclis reptans</i>	Benth.	LC	Indigenous
Poaceae	<i>Digitaria eriantha</i>	Steud.	LC	Indigenous
Asteraceae	<i>Dimorphotheca cuneata</i>	(Thunb.) Less.	LC	Indigenous
Dioscoreaceae	<i>Dioscorea elephantipes</i>	(L'Her.) Engl.	LC	Indigenous; Endemic
Ebenaceae	<i>Diospyros dichrophylla</i>	(Gand.) De Winter	LC	Indigenous
Ebenaceae	<i>Diospyros lycioides subsp. lycioides</i>	Desf.	LC	Indigenous
Ebenaceae	<i>Diospyros scabrida var. cordata</i>	(Harv. ex Hiern) De Winter	LC	Indigenous; Endemic
Ebenaceae	<i>Diospyros whyteana</i>	(Hiern) F.White	LC	Indigenous
Orchidaceae	<i>Disa sagittalis</i>	(L.f.) Sw.	LC	Indigenous; Endemic
Asteraceae	<i>Disparago ericoides</i>	(P.J.Bergius) Gaertn.	LC	Indigenous; Endemic
Asteraceae	<i>Disparago tortilis</i>	(DC.) Sch.Bip.	LC	Indigenous; Endemic
Fabaceae	<i>Dolichos hastaeformis</i>	E.Mey.	LC	Indigenous; Endemic
Salicaceae	<i>Dovyalis rotundifolia</i>	(Thunb.) Thunb. & Harv.	LC	Indigenous; Endemic
Ruscaceae	<i>Dracaena aletriformis</i>	(Haw.) Bos	LC	Indigenous

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Hyacinthaceae	<i>Drimia anomala</i>	(Baker) Baker	LC	Indigenous; Endemic
Aizoaceae	<i>Drosanthemum floribundum</i>	(Haw.) Schwantes	LC	Indigenous; Endemic
Aizoaceae	<i>Drosanthemum hispidum</i>	(L.) Schwantes	LC	Indigenous
Dryopteridaceae	<i>Dryopteris inaequalis</i>	(Schtdl.) Kuntze	LC	Indigenous
Acanthaceae	<i>Dyschoriste burchellii</i>	(Nees) Kuntze	LC	Indigenous
Acanthaceae	<i>Dyschoriste setigera</i>	(Pers.) J.C.Manning & Goldblatt	LC	Indigenous
Boraginaceae	<i>Ehretia rigida subsp. rigida</i>	(Thunb.) Druce	LC	Indigenous; Endemic
Boraginaceae	<i>Ehretia rigida subsp. silvatica</i>	(Thunb.) Druce	LC	Indigenous; Endemic
Poaceae	<i>Ehrharta erecta var. erecta</i>	Lam.	LC	Indigenous
Celastraceae	<i>Elaeodendron zeyheri</i>	Spreng. ex Turcz.	LC	Indigenous
Cyperaceae	<i>Eleocharis limosa</i>	(Schrad.) Schult.	LC	Indigenous
Poaceae	<i>Elionurus muticus</i>	(Spreng.) Kunth	LC	Indigenous
Polygonaceae	<i>Emex australis</i>	Steinh.	LC	Indigenous
Poaceae	<i>Enneapogon scoparius</i>	Stapf	LC	Indigenous
Poaceae	<i>Eragrostis capensis</i>	(Thunb.) Trin.	LC	Indigenous
Poaceae	<i>Eragrostis curvula</i>	(Schrad.) Nees	LC	Indigenous
Poaceae	<i>Eragrostis lehmanniana var. lehmanniana</i>	Nees	LC	Indigenous
Poaceae	<i>Eragrostis obtusa</i>	Munro ex Ficalho & Hiern	LC	Indigenous
Loranthaceae	<i>Erianthemum dregei</i>	(Eckl. & Zeyh.) Tiegh.	LC	Indigenous
Ericaceae	<i>Erica caffra var. caffra</i>	L.	LC	Indigenous
Ericaceae	<i>Erica nemorosa</i>	Klotzsch ex Benth.	LC	Indigenous; Endemic
Asteraceae	<i>Eriocephalus punctulatus</i>	DC.	LC	Indigenous
Fabaceae	<i>Eriosema salignum</i>	E.Mey.	LC	Indigenous
Ruscaceae	<i>Eriospermum capense subsp. capense</i>	(L.) Thunb.	LC	Indigenous; Endemic
Ruscaceae	<i>Eriospermum dissitiflorum</i>	Schltr.	LC	Indigenous; Endemic
Ruscaceae	<i>Eriospermum dregei</i>	Schonland	LC	Indigenous; Endemic
Ruscaceae	<i>Eriospermum porphyrium</i>	Archibald	LC	Indigenous
Ebenaceae	<i>Euclea undulata</i>	Thunb.	LC	Indigenous
Orchidaceae	<i>Eulophia tuberculata</i>	Bolus	LC	Indigenous
Euphorbiaceae	<i>Euphorbia burmannii</i>	(Klotzsch ex Garcke) E.Mey. ex Boiss.	LC	Indigenous
Euphorbiaceae	<i>Euphorbia caerulea</i>	Haw.	LC	Indigenous; Endemic
Euphorbiaceae	<i>Euphorbia cumulata</i>	R.A.Dyer	LC	Indigenous; Endemic
Euphorbiaceae	<i>Euphorbia erythrina</i>	Link	LC	Indigenous; Endemic
Euphorbiaceae	<i>Euphorbia inconstans</i>	R.A.Dyer	LC	Indigenous; Endemic
Euphorbiaceae	<i>Euphorbia mauritanica</i>	L.	LC	Indigenous

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Euphorbiaceae	<i>Euphorbia natalensis</i>	Bernh. ex Krauss	LC	Indigenous
Euphorbiaceae	<i>Euphorbia pentagona</i>	Haw.	LC	Indigenous; Endemic
Euphorbiaceae	<i>Euphorbia procumbens</i>	Mill.	LC	Indigenous; Endemic
Euphorbiaceae	<i>Euphorbia rhombifolia</i>	Boiss.	LC	Indigenous
Euphorbiaceae	<i>Euphorbia silenifolia</i>	(Haw.) Sweet	LC	Indigenous; Endemic
Euphorbiaceae	<i>Euphorbia spartaria</i>	N.E.Br.	LC	Indigenous
Euphorbiaceae	<i>Euphorbia stellata</i>	Willd.	LC	Indigenous; Endemic
Asteraceae	<i>Euryops algoensis</i>	DC.	LC	Indigenous; Endemic
Asteraceae	<i>Euryops anthemoides subsp. anthemoides</i>	B.Nord.	LC	Indigenous; Endemic
Asteraceae	<i>Euryops brachypodus</i>	(DC.) B.Nord.	LC	Indigenous; Endemic
Asteraceae	<i>Euryops spathaceus</i>	DC.	LC	Indigenous; Endemic
Asteraceae	<i>Euryops subcarnosus subsp. vulgaris</i>	DC.	LC	Indigenous
Poaceae	<i>Eustachys paspaloides</i>	(Vahl) Lanza & Mattei	LC	Indigenous
Convolvulaceae	<i>Falkia repens</i>	Thunb.	LC	Indigenous; Endemic
Aizoaceae	<i>Faucaria britteniae</i>	L.Bolus	LC	Indigenous; Endemic
Aizoaceae	<i>Faucaria felina</i>	(L.) Schwantes	LC	Indigenous; Endemic
Asteraceae	<i>Felicia fascicularis</i>	DC.	LC	Indigenous
Asteraceae	<i>Felicia filifolia subsp. filifolia</i>	(Vent.) Burt Davy	LC	Indigenous
Asteraceae	<i>Felicia filifolia subsp. schlechteri</i>	(Vent.) Burt Davy	LC	Indigenous; Endemic
Poaceae	<i>Festuca costata</i>	Nees	LC	Indigenous
Poaceae	<i>Festuca scabra</i>	Vahl	LC	Indigenous
Cyperaceae	<i>Ficinia gracilis</i>	Schrad.	LC	Indigenous
Cyperaceae	<i>Ficinia ramosissima</i>	Kunth	LC	Indigenous; Endemic
Phyllanthaceae	<i>Flueggea verrucosa</i>	(Thunb.) G.L.Webster	LC	Indigenous; Endemic
Apocynaceae	<i>Fockea edulis</i>	(Thunb.) K.Schum.	LC	Indigenous
Iridaceae	<i>Freesia corymbosa</i>	(Burm.f.) N.E.Br.	LC	Indigenous; Endemic
Aizoaceae	<i>Galenia pubescens</i>	(Eckl. & Zeyh.) Druce	LC	Indigenous; Endemic
Aizoaceae	<i>Galenia secunda</i>	(L.f.) Sond.	LC	Indigenous
Rubiaceae	<i>Galium tomentosum</i>	Thunb.	LC	Indigenous
Asphodelaceae	<i>Gasteria bicolor var. bicolor</i>	Haw.	LC	Indigenous; Endemic
Asphodelaceae	<i>Gasteria pulchra</i>	(Aiton) Haw.	LC	Indigenous; Endemic
Asteraceae	<i>Gazania krebsiana subsp. serrulata</i>	Less.	LC	Indigenous
Geraniaceae	<i>Geranium cafferum</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Iridaceae	<i>Gladiolus albens</i>	Goldblatt & J.C.Manning	LC	Indigenous; Endemic
Iridaceae	<i>Gladiolus wilsonii</i>	(Baker) Goldblatt & J.C.Manning	LC	Indigenous; Endemic

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Aizoaceae	<i>Glottiphyllum longum</i>	(Haw.) N.E.Br.	LC	Indigenous; Endemic
Asteraceae	<i>Gnaphalium confine</i>	Harv.	LC	Indigenous
Thymelaeaceae	<i>Gnidia nodiflora</i>	Meisn.	LC	Indigenous; Endemic
Apocynaceae	<i>Gomphocarpus physocarpus</i>	E.Mey.	LC	Indigenous
Malvaceae	<i>Grewia occidentalis var. occidentalis</i>	L.	LC	Indigenous
Malvaceae	<i>Grewia robusta</i>	Burch.	LC	Indigenous; Endemic
Gunneraceae	<i>Gunnera perpensa</i>	L.	LC	Indigenous
Celastraceae	<i>Gymnosporia buxifolia</i>	(L.) Szyszyl.	LC	Indigenous
Celastraceae	<i>Gymnosporia capitata</i>	(E.Mey. ex Sond.) Loes.	LC	Indigenous; Endemic
Celastraceae	<i>Gymnosporia linearis subsp. linearis</i>	(L.f.) Loes.	LC	Indigenous; Endemic
Celastraceae	<i>Gymnosporia polyacantha subsp. polyacantha</i>	(Sond.) Szyszyl.	LC	Indigenous; Endemic
Amaryllidaceae	<i>Haemanthus albiflos</i>	Jacq.	LC	Indigenous; Endemic
Amaryllidaceae	<i>Haemanthus carneus</i>	Ker Gawl.	LC	Indigenous; Endemic
Asteraceae	<i>Haplocarpha lyrata</i>	Harv.	LC	Indigenous; Endemic
Poaceae	<i>Harpochloa falx</i>	(L.f.) Kuntze	LC	Indigenous
Orobanchaceae	<i>Harveya pumila</i>	Schltr.	LC	Indigenous
Scrophulariaceae	<i>Hebenstretia integrifolia</i>	L.	LC	Indigenous
Asteraceae	<i>Helichrysum anomalum</i>	Less.	LC	Indigenous
Asteraceae	<i>Helichrysum appendiculatum</i>	(L.f.) Less.	LC	Indigenous
Asteraceae	<i>Helichrysum asperum var. appressifolium</i>	(Thunb.) Hilliard & B.L.Burt	LC	Indigenous; Endemic
Asteraceae	<i>Helichrysum catipes</i>	(DC.) Harv.	LC	Indigenous; Endemic
Asteraceae	<i>Helichrysum cephaloideum</i>	DC.	LC	Indigenous
Asteraceae	<i>Helichrysum cymosum subsp. cymosum</i>	(L.) D.Don	LC	Indigenous; Endemic
Asteraceae	<i>Helichrysum felinum</i>	Less.	LC	Indigenous; Endemic
Asteraceae	<i>Helichrysum herbaceum</i>	(Andrews) Sweet	LC	Indigenous
Asteraceae	<i>Helichrysum miconiifolium</i>	DC.	LC	Indigenous
Asteraceae	<i>Helichrysum nudifolium var. oxyphyllum</i>	(L.) Less.	LC	Indigenous
Asteraceae	<i>Helichrysum odoratissimum</i>	(L.) Sweet	LC	Indigenous
Asteraceae	<i>Helichrysum petiolare</i>	Hilliard & B.L.Burt	LC	Indigenous; Endemic
Asteraceae	<i>Helichrysum rosum var. arcuatum</i>	(P.J.Bergius) Less.	LC	Indigenous; Endemic
Asteraceae	<i>Helichrysum rosum var. rosum</i>	(P.J.Bergius) Less.	LC	Indigenous; Endemic
Asteraceae	<i>Helichrysum rutilans</i>	(L.) D.Don	LC	Indigenous; Endemic
Brassicaceae	<i>Heliophila elongata</i>	(Thunb.) DC.	LC	Indigenous; Endemic
Brassicaceae	<i>Heliophila subulata</i>	Burch. ex DC.	LC	Indigenous; Endemic
Malvaceae	<i>Hermannia althaeifolia</i>	L.	LC	Indigenous; Endemic
Malvaceae	<i>Hermannia althaeoides</i>	Link	LC	Indigenous; Endemic
Malvaceae	<i>Hermannia cernua</i>	Thunb.	LC	Indigenous
Malvaceae	<i>Hermannia coccocarpa</i>	(Eckl. & Zeyh.) Kuntze	LC	Indigenous
Malvaceae	<i>Hermannia conglomerata</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic

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Malvaceae	<i>Hermannia cuneifolia</i> var. <i>cuneifolia</i>	Jacq.	LC	Indigenous
Malvaceae	<i>Hermannia depressa</i>	N.E.Br.	LC	Indigenous
Malvaceae	<i>Hermannia flammea</i>	Jacq.	LC	Indigenous; Endemic
Malvaceae	<i>Hermannia gracilis</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Malvaceae	<i>Hermannia stellulata</i>	(Harv.) K.Schum.	LC	Indigenous
Malvaceae	<i>Hermannia sulcata</i>	Harv.	LC	Indigenous; Endemic
Malvaceae	<i>Hermannia velutina</i>	DC.	LC	Indigenous
Apiaceae	<i>Heteromorpha arborescens</i> var. <i>arborescens</i>	(Spreng.) Cham. & Schltl.	LC	Indigenous; Endemic
Apiaceae	<i>Heteromorpha arborescens</i> var. <i>frutescens</i>	(Spreng.) Cham. & Schltl.	LC	Indigenous
Poaceae	<i>Heteropogon contortus</i>	(L.) Roem. & Schult.	LC	Indigenous
Malvaceae	<i>Hibiscus aridus</i>	R.A.Dyer	LC	Indigenous; Endemic
Malvaceae	<i>Hibiscus pusillus</i>	Thunb.	LC	Indigenous
Asteraceae	<i>Hilliardiella nudicaulis</i>	(DC.) H.Rob.	LC	Indigenous; Endemic
Orchidaceae	<i>Holothrix burchellii</i>	(Lindl.) Rchb.f.	LC	Indigenous; Endemic
Orchidaceae	<i>Holothrix orthoceras</i>	(Harv.) Rchb.f.	LC	Indigenous
Orchidaceae	<i>Holothrix parviflora</i>	(Lindl.) Rchb.f.	LC	Indigenous; Endemic
Asteraceae	<i>Hymenolepis indivisa</i>	(Harv.) Kallersjo	LC	Indigenous; Endemic
Orobanchaceae	<i>Hyobanche sanguinea</i>	L.	LC	Indigenous
Acanthaceae	<i>Hypoestes aristata</i> var. <i>aristata</i>	(Vahl) Sol. ex Roem. & Schult.	LC	Indigenous
Hypoxidaceae	<i>Hypoxis argentea</i> var. <i>argentea</i>	Harv. ex Baker	LC	Indigenous
Hypoxidaceae	<i>Hypoxis hemerocallidea</i>	Fisch., C.A.Mey. & Ave-Lall.	LC	Indigenous
Hypoxidaceae	<i>Hypoxis setosa</i>	Baker	LC	Indigenous; Endemic
Hypoxidaceae	<i>Hypoxis stellipilis</i>	Ker Gawl.	LC	Indigenous; Endemic
Asteraceae	<i>Ifloga glomerata</i>	(Harv.) Schltr.	LC	Indigenous
Fabaceae	<i>Indigofera angustata</i>	E.Mey.	LC	Indigenous; Endemic
Fabaceae	<i>Indigofera disticha</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Fabaceae	<i>Indigofera evansiana</i>	Burt Davy	LC	Indigenous
Fabaceae	<i>Indigofera heterophylla</i>	Thunb.	LC	Indigenous; Endemic
Fabaceae	<i>Indigofera ormocarpoides</i>	Baker	LC	Indigenous
Fabaceae	<i>Indigofera torulosa</i> var. <i>torulosa</i>	E.Mey.	LC	Indigenous
Fabaceae	<i>Indigofera verrucosa</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Convolvulaceae	<i>Ipomoea crispa</i>	(Thunb.) Hallier f.	LC	Indigenous; Endemic
Convolvulaceae	<i>Ipomoea oenotheroides</i>	(L.f.) Raf. ex Hallier f.	LC	Indigenous
Iridaceae	<i>Ixia orientalis</i>	L.Bolus	LC	Indigenous; Endemic
Scrophulariaceae	<i>Jamesbrittenia albanensis</i>	Hilliard	LC	Indigenous; Endemic

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Scrophulariaceae	<i>Jamesbrittenia foliolosa</i>	(Benth.) Hilliard	LC	Indigenous; Endemic
Scrophulariaceae	<i>Jamesbrittenia pinnatifida</i>	(L.f.) Hilliard	LC	Indigenous; Endemic
Oleaceae	<i>Jasminum breviflorum</i>	Harv. ex C.H.Wright	LC	Indigenous
Oleaceae	<i>Jasminum multipartitum</i>	Hochst.	LC	Indigenous
Euphorbiaceae	<i>Jatropha capensis</i>	(L.f.) Sond.	LC	Indigenous; Endemic
Acanthaceae	<i>Justicia capensis</i>	Thunb.	LC	Indigenous
Acanthaceae	<i>Justicia orchioides subsp. glabrata</i>	L.f.	LC	Indigenous; Endemic
Crassulaceae	<i>Kalanchoe rotundifolia</i>	(Haw.) Haw.	LC	Indigenous
Asphodelaceae	<i>Kniphofia linearifolia</i>	Baker	LC	Indigenous
Asphodelaceae	<i>Kniphofia tysonii subsp. tysonii</i>	Baker	LC	Indigenous; Endemic
Rubiaceae	<i>Kohautia amatymbica</i>	Eckl. & Zeyh.	LC	Indigenous
Cyperaceae	<i>Kyllinga alata</i>	Nees	LC	Indigenous
Hyacinthaceae	<i>Lachenalia bowkeri</i>	Baker	LC	Indigenous; Endemic
Hydrocharitaceae	<i>Lagarosiphon muscoides</i>	Harv.	LC	Indigenous
Aizoaceae	<i>Lampranthus stayneri</i>	(L.Bolus) N.E.Br.	LC	Indigenous; Endemic
Aizoaceae	<i>Lampranthus stipulaceus</i>	(L.) N.E.Br.	LC	Indigenous; Endemic
Verbenaceae	<i>Lantana rugosa</i>	Thunb.	LC	Indigenous
Asteraceae	<i>Lasiopogon glomerulatus</i>	(Harv.) Hilliard	LC	Indigenous
Thymelaeaceae	<i>Lasiosiphon capitatus</i>	(L.f.) Burtt Davy	LC	Indigenous
Thymelaeaceae	<i>Lasiosiphon meisnerianus</i>	Endl.	LC	Indigenous; Endemic
Asteraceae	<i>Lasiospermum pedunculare</i>	Lag.	LC	Indigenous; Endemic
Celastraceae	<i>Lauridia reticulata</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Celastraceae	<i>Lauridia tetragona</i>	(L.f.) R.H.Archer	LC	Indigenous
Hyacinthaceae	<i>Ledebouria revoluta</i>	(L.f.) Jessop	LC	Indigenous
Fabaceae	<i>Leobordea decumbens subsp. decumbens</i>	(B.-E.van Wyk) B.-E.van Wyk & Boatwr.	LC	Indigenous; Endemic
Lamiaceae	<i>Leonotis ocymifolia</i>	(Burm.f.) Iwarsson	LC	Indigenous
Lamiaceae	<i>Leonotis pentadentata</i>	J.C.Manning & Goldblatt	LC	Indigenous
Poaceae	<i>Leptochloa fusca</i>	(L.) Kunth	LC	Indigenous
Fabaceae	<i>Lessertia annularis</i>	Burch.	LC	Indigenous
Fabaceae	<i>Lessertia frutescens subsp. frutescens</i>	(L.) Goldblatt & J.C.Manning	LC	Indigenous
Fabaceae	<i>Lessertia frutescens subsp. microphylla</i>	(L.) Goldblatt & J.C.Manning	LC	Indigenous
Fabaceae	<i>Lessertia pauciflora var. pauciflora</i>	Harv.	LC	Indigenous
Fabaceae	<i>Lessertia prostata</i>	DC.	LC	Indigenous
Proteaceae	<i>Leucospermum cuneiforme</i>	(Burm.f.) Rourke	LC	Indigenous; Endemic

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Limeaceae	<i>Limeum telephioides var. telephioides</i>	E.Mey. ex Fenzl	LC	Indigenous; Endemic
Linaceae	<i>Linum thunbergii</i>	Eckl. & Zeyh.	LC	Indigenous
Verbenaceae	<i>Lippia javanica</i>	(Burm.f.) Spreng.	LC	Indigenous
Lobeliaceae	<i>Lobelia erinus</i>	L.	LC	Indigenous
Lobeliaceae	<i>Lobelia tomentosa</i>	L.f.	LC	Indigenous
Fabaceae	<i>Lotononis pungens</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Solanaceae	<i>Lycium acutifolium</i>	E.Mey. ex Dunal	LC	Indigenous; Endemic
Solanaceae	<i>Lycium cinereum</i>	Thunb.	LC	Indigenous
Solanaceae	<i>Lycium ferocissimum</i>	Miers	LC	Indigenous
Solanaceae	<i>Lycium horridum</i>	Thunb.	LC	Indigenous
Solanaceae	<i>Lycium oxycarpum</i>	Dunal	LC	Indigenous; Endemic
Capparaceae	<i>Maerua cafra</i>	(DC.) Pax	LC	Indigenous
Hyacinthaceae	<i>Massonia echinata</i>	L.f.	LC	Indigenous; Endemic
Celastraceae	<i>Maytenus peduncularis</i>	(Sond.) Loes.	LC	Indigenous
Malvaceae	<i>Melhania didyma</i>	Eckl. & Zeyh.	LC	Indigenous
Poaceae	<i>Melinis nerviglumis</i>	(Franch.) Zizka	LC	Indigenous
Poaceae	<i>Melinis repens subsp. repens</i>	(Willd.) Zizka	LC	Indigenous
Fabaceae	<i>Melolobium candicans</i>	(E.Mey.) Eckl. & Zeyh.	LC	Indigenous
Aizoaceae	<i>Mesembryanthemum aitonis</i>	Jacq.	LC	Indigenous; Endemic
Aizoaceae	<i>Mestoklema elatum</i>	N.E.Br. ex Glen	LC	Indigenous; Endemic
Asteraceae	<i>Metalasia densa</i>	(Lam.) P.O.Karis	LC	Indigenous
Asteraceae	<i>Metalasia pungens</i>	D.Don	LC	Indigenous; Endemic
Poaceae	<i>Microchloa caffra</i>	Nees	LC	Indigenous
Asteraceae	<i>Microglossa mespilifolia</i>	(Less.) B.L.Rob.	LC	Indigenous; Endemic
Lobeliaceae	<i>Monopsis unidentata subsp. intermedia</i>	(W.T.Aiton) E.Wimm.	LC	Indigenous; Endemic
Geraniaceae	<i>Monsonia camdeboensis</i>	(Moffett) F.Albers	LC	Indigenous; Endemic
Geraniaceae	<i>Monsonia emarginata</i>	(L.f.) L'Her.	LC	Indigenous; Endemic
Geraniaceae	<i>Monsonia vanderietiae</i>	(L.Bolus) F.Albers	LC	Indigenous; Endemic
Montiniaceae	<i>Montinia caryophyllacea</i>	Thunb.	LC	Indigenous
Loranthaceae	<i>Moquiiniella rubra</i>	(A.Spreng.) Balle	LC	Indigenous
Iridaceae	<i>Moraea elliotii</i>	Baker	LC	Indigenous
Polygalaceae	<i>Muraltia alticola</i>	Schltr.	LC	Indigenous
Polygalaceae	<i>Muraltia macowanii</i>	Levyns	LC	Indigenous; Endemic
Polygalaceae	<i>Muraltia oxysepala</i>	Schltr.	LC	Indigenous; Endemic
Polygalaceae	<i>Muraltia squarrosa</i>	(L.f.) DC.	LC	Indigenous; Endemic
Orchidaceae	<i>Mystacidium capense</i>	(L.f.) Schltr.	LC	Indigenous
Celastraceae	<i>Mystroxydon aethiopicum subsp. aethiopicum</i>	(Thunb.) Loes.	LC	Indigenous; Endemic
Scrophulariaceae	<i>Nemesia floribunda</i>	Lehm.	LC	Indigenous

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Scrophulariaceae	<i>Nemesia fruticans</i>	(Thunb.) Benth.	LC	Indigenous
Amaryllidaceae	<i>Nerine undulata</i>	(L.) Herb.	LC	Indigenous; Endemic
Asteraceae	<i>Nidorella auriculata</i>	DC.	LC	Indigenous
Apiaceae	<i>Notobubon laevigatum</i>	(Aiton) Magee	LC	Indigenous
Menyanthaceae	<i>Nymphoides thunbergiana</i>	(Griseb.) Kuntze	LC	Indigenous
Ochnaceae	<i>Ochna serrulata</i>	(Hochst.) Walp.	LC	Indigenous
Lamiaceae	<i>Ocimum burchellianum</i>	Benth.	LC	Indigenous; Endemic
Asteraceae	<i>Oedera genistifolia</i>	(L.) Anderb. & K.Bremer	LC	Indigenous; Endemic
Asteraceae	<i>Oldenburgia grandis</i>	(Thunb.) Baill.	LC	Indigenous; Endemic
Oleaceae	<i>Olea capensis subsp. capensis</i>	L.	LC	Indigenous; Endemic
Asteraceae	<i>Oncosiphon piluliferus</i>	(L.f.) Kallersjo	LC	Indigenous
Ophioglossaceae	<i>Ophioglossum nudicaule</i>	L.f.	LC	Indigenous; Endemic
Ophioglossaceae	<i>Ophioglossum polyphyllum var. polyphyllum</i>	A.Braun	LC	Indigenous
Apocynaceae	<i>Orbea verrucosa</i>	(Masson) L.C.Leach	LC	Indigenous; Endemic
Hyacinthaceae	<i>Ornithogalum dubium</i>	Houtt.	LC	Indigenous; Endemic
Hyacinthaceae	<i>Ornithogalum graminifolium</i>	Thunb.	LC	Indigenous
Orchidaceae	<i>Orthochilus ensatus</i>	(Lindl.) Bytebier	LC	Indigenous
Asteraceae	<i>Osteospermum calendulaceum</i>	L.f.	LC	Indigenous; Endemic
Asteraceae	<i>Osteospermum junceum</i>	P.J.Bergius	LC	Indigenous; Endemic
Santalaceae	<i>Osyridicarpos schimperianus</i>	(Hochst. ex A.Rich.) A.DC.	LC	Indigenous
Oxalidaceae	<i>Oxalis bifurca var. angustiloba</i>	Lodd.	LC	Indigenous; Endemic
Anacardiaceae	<i>Ozoroa mucronata</i>	(Bernh.) R.Fern. & A.Fern.	LC	Indigenous; Endemic
Apocynaceae	<i>Pachycarpus dealbatus</i>	E.Mey.	LC	Indigenous
Apocynaceae	<i>Pachycarpus grandiflorus subsp. grandiflorus</i>	(L.f.) E.Mey.	LC	Indigenous; Endemic
Apocynaceae	<i>Pachypodium bispinosum</i>	(L.f.) A.DC.	LC	Indigenous; Endemic
Poaceae	<i>Panicum deustum</i>	Thunb.	LC	Indigenous
Poaceae	<i>Panicum maximum</i>	Jacq.	LC	Indigenous
Poaceae	<i>Panicum stapfianum</i>	Fourc.	LC	Indigenous
Sapindaceae	<i>Pappea capensis</i>	Eckl. & Zeyh.	LC	Indigenous
Thymelaeaceae	<i>Passerina corymbosa</i>	Eckl. ex C.H.Wright	LC	Indigenous; Endemic
Thymelaeaceae	<i>Passerina obtusifolia</i>	Thoday	LC	Indigenous; Endemic
Hypoxidaceae	<i>Pauridia trifurcillata</i>	(Nel) Snijman & Kocyan	LC	Indigenous; Endemic
Rubiaceae	<i>Pavetta revoluta</i>	Hochst.	LC	Indigenous
Asteraceae	<i>Pegolettia retrofracta</i>	(Thunb.) Kies	LC	Indigenous
Geraniaceae	<i>Pelargonium abrotanifolium</i>	(L.f.) Jacq.	LC	Indigenous; Endemic
Geraniaceae	<i>Pelargonium alchemilloides</i>	(L.) L'Her.	LC	Indigenous
Geraniaceae	<i>Pelargonium capitatum</i>	(L.) L'Her.	LC	Indigenous

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Geraniaceae	<i>Pelargonium inquinans</i>	(L.) L'Her.	LC	Indigenous; Endemic
Geraniaceae	<i>Pelargonium ionidiflorum</i>	(Eckl. & Zeyh.) Steud.	LC	Indigenous; Endemic
Geraniaceae	<i>Pelargonium odoratissimum</i>	(L.) L'Her.	LC	Indigenous
Geraniaceae	<i>Pelargonium peltatum</i>	(L.) L'Her.	LC	Indigenous; Endemic
Geraniaceae	<i>Pelargonium radens</i>	H.E.Moore	LC	Indigenous; Endemic
Geraniaceae	<i>Pelargonium ribifolium</i>	Jacq.	LC	Indigenous; Endemic
Geraniaceae	<i>Pelargonium sidoides</i>	DC.	LC	Indigenous
Geraniaceae	<i>Pelargonium worcesterae</i>	R.Knuth	LC	Indigenous; Endemic
Geraniaceae	<i>Pelargonium zonale</i>	(L.) L'Her.	LC	Indigenous; Endemic
Scrophulariaceae	<i>Peliostomum origanoides</i>	E.Mey. ex Benth.	LC	Indigenous; Endemic
Poaceae	<i>Pentameris eriostoma</i>	(Nees) Steud.	LC	Indigenous
Poaceae	<i>Pentameris pallida</i>	(Thunb.) Galley & H.P.Linder	LC	Indigenous
Asteraceae	<i>Pentzia incana</i>	(Thunb.) Kuntze	LC	Indigenous
Asteraceae	<i>Pentzia sphaerocephala</i>	DC.	LC	Indigenous
Poaceae	<i>Phragmites australis</i>	(Cav.) Steud.	LC	Indigenous
Rhamnaceae	<i>Phylica gnidioides</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Rhamnaceae	<i>Phylica paniculata</i>	Willd.	LC	Indigenous
Phyllanthaceae	<i>Phyllanthus incurvus</i>	Thunb.	LC	Indigenous
Phyllanthaceae	<i>Phyllanthus maderaspatensis</i>	L.	LC	Indigenous
Asteraceae	<i>Phymaspermum parvifolium</i>	(DC.) Benth. & Hook. ex B.D.Jacks.	LC	Indigenous; Endemic
Apocynaceae	<i>Piaranthus geminatus subsp. geminatus</i>	(Masson) N.E.Br.	LC	Indigenous; Endemic
Pittosporaceae	<i>Pittosporum viridiflorum</i>	Sims	LC	Indigenous
Plumbaginaceae	<i>Plumbago auriculata</i>	Lam.	LC	Indigenous
Caryophyllaceae	<i>Pollichia campestris</i>	Aiton	LC	Indigenous
Polygalaceae	<i>Polygala asbestina</i>	Burch.	LC	Indigenous; Endemic
Polygalaceae	<i>Polygala ericaefolia</i>	DC.	LC	Indigenous; Endemic
Polygalaceae	<i>Polygala illepidia</i>	E.Mey. ex Harv.	LC	Indigenous; Endemic
Polygalaceae	<i>Polygala microlopha var. microlopha</i>	DC.	LC	Indigenous; Endemic
Polygalaceae	<i>Polygala myrtifolia var. myrtifolia</i>	L.	LC	Indigenous
Polygalaceae	<i>Polygala rehmannii</i>	Chodat	LC	Indigenous
Polygalaceae	<i>Polygala virgata var. virgata</i>	Thunb.	LC	Indigenous
Didiereaceae	<i>Portulacaria afra</i>	Jacq.	LC	Indigenous
Proteaceae	<i>Protea cynaroides</i>	(L.) L.	LC	Indigenous; Endemic
Proteaceae	<i>Protea lorifolia</i>	(Salisb. ex Knight) Fourc.	LC	Indigenous; Endemic
Proteaceae	<i>Protea repens</i>	(L.) L.	LC	Indigenous; Endemic
Asteraceae	<i>Pseudognaphalium undulatum</i>	(L.) Hilliard & B.L.Burt	LC	Indigenous
Fabaceae	<i>Psoralea glabra</i>	E.Mey.	LC	Indigenous

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Fabaceae	<i>Psoralea oligophylla</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Rubiaceae	<i>Psydrax obovata subsp. obovata</i>	(Eckl. & Zeyh.) Bridson	LC	Indigenous
Rutaceae	<i>Ptaeroxylon obliquum</i>	(Thunb.) Radlk.	LC	Indigenous
Celastraceae	<i>Pterocelastrus tricuspidatus</i>	(Lam.) Walp.	LC	Indigenous; Endemic
Asteraceae	<i>Pteronia adenocarpa</i>	Harv.	LC	Indigenous; Endemic
Asteraceae	<i>Pteronia incana</i>	(Burm.) DC.	LC	Indigenous; Endemic
Asteraceae	<i>Pulicaria scabra</i>	(Thunb.) Druce	LC	Indigenous
Celastraceae	<i>Putterlickia pyracantha</i>	(L.) Endl.	LC	Indigenous; Endemic
Fabaceae	<i>Rafnia elliptica</i>	Thunb.	LC	Indigenous; Endemic
Apocynaceae	<i>Raphionacme zeyheri</i>	Harv.	LC	Indigenous; Endemic
Restionaceae	<i>Restio paniculatus</i>	Rottb.	LC	Indigenous; Endemic
Bignoniaceae	<i>Rhizozum obovatum</i>	Burch.	LC	Indigenous
Restionaceae	<i>Rhodocoma fruticosa</i>	(Thunb.) H.P.Linder	LC	Indigenous; Endemic
Aizoaceae	<i>Rhombophyllum albanense</i>	(L.Bolus) H.E.K.Hart mann	LC	Indigenous; Endemic
Fabaceae	<i>Rhynchosia calvescens</i>	Meikle	LC	Indigenous; Endemic
Fabaceae	<i>Rhynchosia caribaea</i>	(Jacq.) DC.	LC	Indigenous
Fabaceae	<i>Rhynchosia ciliata</i>	(Thunb.) Schinz	LC	Indigenous; Endemic
Acanthaceae	<i>Ruellia cordata</i>	Thunb.	LC	Indigenous
Polygonaceae	<i>Rumex lanceolatus</i>	Thunb.	LC	Indigenous
Aizoaceae	<i>Ruschia multiflora</i>	(Haw.) Schwantes	LC	Indigenous; Endemic
Aizoaceae	<i>Ruschia uncinata</i>	(L.) Schwantes	LC	Indigenous; Endemic
Lamiaceae	<i>Salvia runcinata</i>	L.f.	LC	Indigenous
Lamiaceae	<i>Salvia verbenaca</i>	L.	LC	Not indigenous; Naturalised; Invasive
Ruscaceae	<i>Sansevieria aethiopica</i>	Thunb.	LC	Indigenous
Ruscaceae	<i>Sansevieria hyacinthoides</i>	(L.) Druce	LC	Indigenous
Orchidaceae	<i>Satyrium parviflorum</i>	Sw.	LC	Indigenous
Orchidaceae	<i>Satyrium sphaerocarpum</i>	Lindl.	LC	Indigenous
Dipsacaceae	<i>Scabiosa albanensis</i>	R.A.Dyer	LC	Indigenous; Endemic
Asteraceae	<i>Schistostephium crataegifolium</i>	(DC.) Fenzl ex Harv.	LC	Indigenous
Asteraceae	<i>Schistostephium flabelliforme</i>	Less.	LC	Indigenous; Endemic
Apocynaceae	<i>Schizoglossum cordifolium</i>	E.Mey.	LC	Indigenous
Cyperaceae	<i>Schoenoplectus decipiens</i>	(Nees) J.Raynal	LC	Indigenous
Fabaceae	<i>Schotia afra var. afra</i>	(L.) Thunb.	LC	Indigenous; Endemic
Fabaceae	<i>Schotia afra var. angustifolia</i>	(L.) Thunb.	LC	Indigenous
Salicaceae	<i>Scolopia zeyheri</i>	(Nees) Harv.	LC	Indigenous
Rhamnaceae	<i>Scutia myrtina</i>	(Burm.f.) Kurz	LC	Indigenous
Anacardiaceae	<i>Searsia dentata</i>	(Thunb.) F.A.Barkley	LC	Indigenous
Anacardiaceae	<i>Searsia glauca</i>	(Thunb.) Moffett	LC	Indigenous; Endemic

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Anacardiaceae	<i>Searsia incisa var. effusa</i>	(L.f.) F.A.Barkley	LC	Indigenous; Endemic
Anacardiaceae	<i>Searsia incisa var. incisa</i>	(L.f.) F.A.Barkley	LC	Indigenous; Endemic
Anacardiaceae	<i>Searsia lancea</i>	(L.f.) F.A.Barkley	LC	Indigenous
Anacardiaceae	<i>Searsia longispina</i>	(Eckl. & Zeyh.) Moffett	LC	Indigenous; Endemic
Anacardiaceae	<i>Searsia magalismsontana subsp. trifoliolata</i>	(Sond.) Moffett	LC	Indigenous
Anacardiaceae	<i>Searsia pallens</i>	(Eckl. & Zeyh.) Moffett	LC	Indigenous
Anacardiaceae	<i>Searsia refracta</i>	(Eckl. & Zeyh.) Moffett	LC	Indigenous; Endemic
Anacardiaceae	<i>Searsia rehmanniana var. glabrata</i>	(Engl.) Moffett	LC	Indigenous
Anacardiaceae	<i>Searsia undulata</i>	(Jacq.) T.S.Yi, A.J.Mill. & J.Wen	LC	Indigenous
Gentianaceae	<i>Sebaea ramosissima</i>	Gilg	LC	Indigenous; Endemic
Scrophulariaceae	<i>Selago confusa</i>	Hilliard	LC	Indigenous; Endemic
Scrophulariaceae	<i>Selago decipiens</i>	E.Mey.	LC	Indigenous; Endemic
Scrophulariaceae	<i>Selago dolosa</i>	Hilliard	LC	Indigenous; Endemic
Scrophulariaceae	<i>Selago geniculata</i>	L.f.	LC	Indigenous; Endemic
Scrophulariaceae	<i>Selago recurva</i>	E.Mey.	LC	Indigenous; Endemic
Asteraceae	<i>Senecio arenarius</i>	Thunb.	LC	Indigenous
Asteraceae	<i>Senecio asperulus</i>	DC.	LC	Indigenous
Asteraceae	<i>Senecio brachypodus</i>	DC.	LC	Indigenous
Asteraceae	<i>Senecio bupleuroides</i>	DC.	LC	Indigenous
Asteraceae	<i>Senecio chrysocoma</i>	Meerb.	LC	Indigenous; Endemic
Asteraceae	<i>Senecio deltoideus</i>	Less.	LC	Indigenous
Asteraceae	<i>Senecio junceus</i>	(DC.) Harv.	LC	Indigenous
Asteraceae	<i>Senecio lineatus</i>	(L.f.) DC.	LC	Indigenous; Endemic
Asteraceae	<i>Senecio linifolius</i>	L.	LC	Indigenous
Asteraceae	<i>Senecio madagascariensis</i>	Poir.	LC	Indigenous
Asteraceae	<i>Senecio oederiifolius</i>	DC.	LC	Indigenous; Endemic
Asteraceae	<i>Senecio speciosus</i>	Willd.	LC	Indigenous
Fabaceae	<i>Senegalia kraussiana</i>	(Meisn. ex Benth.) Kyal. & Boatwr.	LC	Indigenous
Poaceae	<i>Setaria sphacelata var. sphacelata</i>	(Schumach.) Stapf & C.E.Hubb. ex M.B.Moss	LC	Indigenous
Poaceae	<i>Setaria sphacelata var. torta</i>	(Schumach.) Stapf & C.E.Hubb. ex M.B.Moss	LC	Indigenous

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Malvaceae	<i>Sida rhombifolia</i> subsp. <i>rhombifolia</i>	L.	LC	Indigenous
Malvaceae	<i>Sida ternata</i>	L.f.	LC	Indigenous
Sapotaceae	<i>Sideroxylon inerme</i> subsp. <i>inerme</i>	L.	LC	Indigenous
Solanaceae	<i>Solanum linnaeanum</i>	Hepper & P.-M.L.Jaeger	LC	Indigenous
Solanaceae	<i>Solanum retroflexum</i>	Dunal	LC	Indigenous
Poaceae	<i>Sporobolus africanus</i>	(Poir.) Robyns & Tournay	LC	Indigenous
Poaceae	<i>Sporobolus nitens</i>	Stent	LC	Indigenous
Lamiaceae	<i>Stachys aethiopica</i>	L.	LC	Indigenous
Apocynaceae	<i>Stapelia grandiflora</i> var. <i>conformis</i>	Masson	LC	Indigenous; Endemic
Apiaceae	<i>Stenosemis caffra</i>	(Eckl. & Zeyh.) Sond.	LC	Indigenous; Endemic
Strelitziaceae	<i>Strelitzia reginae</i> subsp. <i>reginae</i>	Banks	LC	Indigenous
Gesneriaceae	<i>Streptocarpus rexii</i>	(Bowie ex Hook.) Lindl.	LC	Indigenous; Endemic
Orobanchaceae	<i>Striga gesnerioides</i>	(Willd.) Vatke	LC	Indigenous
Thymelaeaceae	<i>Struthiola argentea</i>	Lehm.	LC	Indigenous; Endemic
Thymelaeaceae	<i>Struthiola macowanii</i>	C.H.Wright	LC	Indigenous; Endemic
Thymelaeaceae	<i>Struthiola parviflora</i>	Bartl. ex Meisn.	LC	Indigenous; Endemic
Asteraceae	<i>Syncarpha milleflora</i>	(L.f.) B.Nord.	LC	Indigenous; Endemic
Scrophulariaceae	<i>Teedia lucida</i>	(Sol.) Rudolphi	LC	Indigenous
Fabaceae	<i>Tephrosia capensis</i> var. <i>angustifolia</i>	(Jacq.) Pers.	LC	Indigenous; Endemic
Fabaceae	<i>Tephrosia grandiflora</i>	(Aiton) Pers.	LC	Indigenous; Endemic
Lamiaceae	<i>Teucrium africanum</i>	Thunb.	LC	Indigenous; Endemic
Lamiaceae	<i>Teucrium trifidum</i>	Retz.	LC	Indigenous
Poaceae	<i>Themeda triandra</i>	Forssk.	LC	Indigenous
Santalaceae	<i>Thesium fruticosum</i>	A.W.Hill	LC	Indigenous; Endemic
Santalaceae	<i>Thesium galioides</i>	A.DC.	LC	Indigenous; Endemic
Santalaceae	<i>Thesium pallidum</i>	A.DC.	LC	Indigenous
Santalaceae	<i>Thesium scandens</i>	E.Mey. ex Sond.	LC	Indigenous; Endemic
Santalaceae	<i>Thesium triflorum</i>	Thunb. ex L.f.	LC	Indigenous
Acanthaceae	<i>Thunbergia capensis</i>	Retz.	LC	Indigenous; Endemic
Asphodelaceae	<i>Trachyandra affinis</i>	Kunth	LC	Indigenous; Endemic
Asphodelaceae	<i>Trachyandra giffenii</i>	(F.M.Leight.) Oberm.	LC	Indigenous; Endemic
Poaceae	<i>Tragus berteronianus</i>	Schult.	LC	Indigenous
Poaceae	<i>Tragus koelerioides</i>	Asch.	LC	Indigenous
Zygophyllaceae	<i>Tribulus terrestris</i>	L.	LC	Indigenous
Aizoaceae	<i>Trichodiadema decorum</i>	(N.E.Br.) Stearn ex H.Jacobsen	LC	Indigenous; Endemic
Aizoaceae	<i>Trichodiadema mirabile</i>	(N.E.Br.) Schwantes	LC	Indigenous; Endemic
Fabaceae	<i>Trifolium burchellianum</i> subsp. <i>burchellianum</i>	Ser.	LC	Indigenous

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Iridaceae	<i>Tritonia disticha</i> subsp. <i>rubrolucens</i>	(Klatt) Baker	LC	Indigenous
Iridaceae	<i>Tritonia strictifolia</i>	(Klatt) Benth. & Hook.f. ex B.D.Jacks.	LC	Indigenous; Endemic
Asteraceae	<i>Ursinia anethoides</i>	(DC.) N.E.Br.	LC	Indigenous; Endemic
Asteraceae	<i>Ursinia nana</i> subsp. <i>nana</i>	DC.	LC	Indigenous
Fabaceae	<i>Vachellia karroo</i>	(Hayne) Banfi & Galasso	LC	Indigenous
Santalaceae	<i>Viscum continuum</i>	E.Mey. ex Sprague	LC	Indigenous; Endemic
Santalaceae	<i>Viscum crassulae</i>	Eckl. & Zeyh.	LC	Indigenous; Endemic
Santalaceae	<i>Viscum obscurum</i>	Thunb.	LC	Indigenous
Santalaceae	<i>Viscum rotundifolium</i>	L.f.	LC	Indigenous
Pteridaceae	<i>Vittaria isoetifolia</i>	Bory	LC	Indigenous
Campanulaceae	<i>Wahlenbergia androsacea</i>	A.DC.	LC	Indigenous
Campanulaceae	<i>Wahlenbergia undulata</i>	(L.f.) A.DC.	LC	Indigenous
Solanaceae	<i>Withania somnifera</i>	(L.) Dunal	LC	Indigenous
Scrophulariaceae	<i>Zaluzianskya capensis</i>	(L.) Walp.	LC	Indigenous; Endemic
Fabaceae	<i>Acacia cyclops</i>	A.Cunn. ex G.Don	NE	Not indigenous; Naturalised; Invasive
Fabaceae	<i>Acacia implexa</i>	Benth.	NE	Not indigenous; Naturalised; Invasive
Fabaceae	<i>Acacia saligna</i>	(Labill.) H.L.Wendl.	NE	Not indigenous; Naturalised; Invasive
Lauraceae	<i>Cassytha filiformis</i>	L.	NE	Indigenous
Crassulaceae	<i>Crassula muscosa</i> var. <i>muscosa</i>	L.	NE	Indigenous
Crassulaceae	<i>Crassula muscosa</i> var. <i>polpodacea</i>	L.	NE	Indigenous; Endemic
Poaceae	<i>Cymbopogon pospischilii</i>	(K.Schum.) C.E.Hubb.	NE	Indigenous
Cyperaceae	<i>Cyperus longus</i> var. <i>tenuiflorus</i>	L.	NE	Indigenous
Caryophyllaceae	<i>Dianthus thunbergii</i> forma <i>thunbergii</i>	S.S.Hooper	NE	Indigenous; Endemic
Ericaceae	<i>Erica cerinthoides</i> var. <i>cerinthoides</i>	L.	NE	Indigenous
Euphorbiaceae	<i>Euphorbia bothae</i>	Lotsy & Goddijn	NE	Indigenous; Endemic
Asphodelaceae	<i>Haworthia cooperi</i> var. <i>gracilis</i>	Baker	NE	Indigenous; Endemic
Asphodelaceae	<i>Haworthia cooperi</i> var. <i>pilifera</i>	Baker	NE	Indigenous; Endemic
Asphodelaceae	<i>Haworthia cymbiformis</i> var. <i>cymbiformis</i>	(Haw.) Duval	NE	Indigenous; Endemic
Asphodelaceae	<i>Haworthia cymbiformis</i> var. <i>incurvula</i>	(Haw.) Duval	NE	Indigenous; Endemic
Hypoxidaceae	<i>Hypoxis villosa</i> var. <i>villosa</i>	L.f.	NE	Indigenous
Limeaceae	<i>Limeum aethiopicum</i> var. <i>intermedium</i>	Burm.f.	NE	Indigenous; Endemic
Ochnaceae	<i>Ochna arborea</i> var. <i>arborea</i>	Burch. ex DC.	NE	Indigenous
Cactaceae	<i>Opuntia ficus-indica</i>	(L.) Mill.	NE	Not indigenous; Cultivated; Naturalised; Invasive
Cactaceae	<i>Opuntia stricta</i>	(Haw.) Haw.	NE	Not indigenous; Naturalised; Invasive
Hyacinthaceae	<i>Ornithogalum juncifolium</i> var. <i>emmsii</i>	Jacq.	NE	Indigenous; Endemic
Hyacinthaceae	<i>Ornithogalum juncifolium</i> var. <i>juncifolium</i>	Jacq.	NE	Indigenous

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Poaceae	<i>Paspalum dilatatum</i>	Poir.	NE	Not indigenous; Naturalised; Invasive
Poaceae	<i>Pennisetum setaceum</i>	(Forssk.) Chiov.	NE	Not indigenous; Naturalised; Invasive
Rhamnaceae	<i>Phylica axillaris var. cooperi</i>	Lam.	NE	Indigenous; Endemic
Rhamnaceae	<i>Phylica axillaris var. lutescens</i>	Lam.	NE	Indigenous; Endemic
Phyllanthaceae	<i>Phyllanthus fraternus</i>	G.L.Webster	NE	Not indigenous; Naturalised
Poaceae	<i>Poa annua</i>	L.	NE	Not indigenous; Naturalised
Poaceae	<i>Polypogon monspeliensis</i>	(L.) Desf.	NE	Not indigenous; Naturalised
Vitaceae	<i>Rhoicissus tridentata subsp. cuneifolia</i>	(L.f.) Wild & R.B.Drumm	NE	Indigenous
Vitaceae	<i>Rhoicissus tridentata subsp. tridentata</i>	(L.f.) Wild & R.B.Drumm	NE	Indigenous; Endemic
Anacardiaceae	<i>Searsia lucida forma lucida</i>	(L.) F.A.Barkley	NE	Indigenous
Fabaceae	<i>Sesbania punicea</i>	(Cav.) Benth.	NE	Not indigenous; Naturalised; Invasive
Fabaceae	<i>Vicia hirsuta</i>	(L.) Gray	NE	Not indigenous; Naturalised
Poaceae	<i>Vulpia bromoides</i>	(L.) Gray	NE	Not indigenous; Naturalised; Invasive
Asphodelaceae	<i>Aloe micracantha</i>	Haw.	NT	Indigenous; Endemic
Amaryllidaceae	<i>Crinum campanulatum</i>	Herb.	NT	Indigenous; Endemic
Euphorbiaceae	<i>Euphorbia meloformis</i>	Aiton	NT	Indigenous; Endemic
Proteaceae	<i>Leucospermum cordifolium</i>	(Salisb. ex Knight) Fourc.	NT	Indigenous; Endemic
Proteaceae	<i>Leucospermum vestitum</i>	(Lam.) Rourke	NT	Indigenous; Endemic
Aizoaceae	<i>Mestoklema albanicum</i>	N.E.Br. ex Glen	NT	Indigenous; Endemic
Aizoaceae	<i>Orthopterum waltoniae</i>	L.Bolus	NT	Indigenous; Endemic
Rutaceae	<i>Agathosma pulchella</i>	(L.) Link	VU	Indigenous; Endemic
Amaryllidaceae	<i>Apodolirion macowanii</i>	Baker	VU	Indigenous; Endemic
Fabaceae	<i>Aspalathus arenaria</i>	R.Dahlgren	VU	Indigenous; Endemic
Fabaceae	<i>Aspalathus gerrardii</i>	Bolus	VU	Indigenous; Endemic
Apocynaceae	<i>Brachystelma comptum</i>	N.E.Br.	VU	Indigenous; Endemic
Apocynaceae	<i>Brachystelma luteum</i>	Peckover	VU	Indigenous; Endemic
Apocynaceae	<i>Ceropegia fimbriata subsp. fimbriata</i>	E.Mey.	VU	Indigenous; Endemic
Orchidaceae	<i>Disa lugens var. lugens</i>	Bolus	VU	Indigenous; Endemic
Ericaceae	<i>Erica glumiflora</i>	Klotzsch ex Benth.	VU	Indigenous; Endemic
Ruscaceae	<i>Eriospermum bracteatum</i>	Archibald	VU	Indigenous; Endemic
Iridaceae	<i>Gladiolus huttonii</i>	(N.E.Br.) Goldblatt & M.P.de Vos	VU	Indigenous; Endemic
Proteaceae	<i>Leucospermum praecox</i>	Rourke	VU	Indigenous; Endemic
Amaryllidaceae	<i>Nerine huttoniae</i>	Schonland	VU	Indigenous; Endemic
Hyacinthaceae	<i>Ornithogalum britteniae</i>	F.M.Leight. ex Oberm.	VU	Indigenous; Endemic
Strelitziaceae	<i>Strelitzia juncea</i>	(Ker Gawl.) Link	VU	Indigenous; Endemic

Appendix C Avifauna species expected in the project area

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
<i>Accipiter minullus</i>	Sparrowhawk, Little	Unlisted	LC
<i>Accipiter tachiro</i>	Goshawk, African	Unlisted	LC
<i>Acrocephalus baeticatus</i>	Reed-warbler, African	Unlisted	Unlisted
<i>Acrocephalus gracilirostris</i>	Swamp-warbler, Lesser	Unlisted	LC
<i>Actitis hypoleucos</i>	Sandpiper, Common	Unlisted	LC
<i>Afrotis afra</i>	Korhaan, Southern Black	VU	VU
<i>Alcedo cristata</i>	Kingfisher, Malachite	Unlisted	Unlisted
<i>Alopochen aegyptiacus</i>	Goose, Egyptian	Unlisted	LC
<i>Amadina erythrocephala</i>	Finch, Red-headed	Unlisted	LC
<i>Amblyospiza albifrons</i>	Weaver, Thick-billed	Unlisted	LC
<i>Anas capensis</i>	Teal, Cape	Unlisted	LC
<i>Anas erythrorhyncha</i>	Teal, Red-billed	Unlisted	LC
<i>Anas smithii</i>	Shoveler, Cape	Unlisted	LC
<i>Anas sparsa</i>	Duck, African Black	Unlisted	LC
<i>Anas undulata</i>	Duck, Yellow-billed	Unlisted	LC
<i>Andropadus importunus</i>	Greenbul, Sombre	Unlisted	LC
<i>Anhinga rufa</i>	Darter, African	Unlisted	LC
<i>Anthoscopus minutus</i>	Penduline-tit, Cape	Unlisted	LC
<i>Anthropoides paradiseus</i>	Crane, Blue	NT	VU
<i>Anthus cinnamomeus</i>	Pipit, African	Unlisted	LC
<i>Anthus leucophrys</i>	Pipit, Plain-backed	Unlisted	LC
<i>Anthus nicholsoni</i>	Nicholson's pipit	Unlisted	Unlisted
<i>Apalis thoracica</i>	Apalis, Bar-throated	Unlisted	LC
<i>Apus affinis</i>	Swift, Little	Unlisted	LC
<i>Apus barbatus</i>	Swift, African Black	Unlisted	LC
<i>Apus caffer</i>	Swift, White-rumped	Unlisted	LC
<i>Aquila verreauxii</i>	Eagle, Verreaux's	VU	LC
<i>Ardea cinerea</i>	Heron, Grey	Unlisted	LC
<i>Ardea melanocephala</i>	Heron, Black-headed	Unlisted	LC
<i>Ardeotis kori</i>	Bustard, Kori	NT	NT
<i>Balearica regulorum</i>	Crane, Grey Crowned	EN	EN
<i>Batis capensis</i>	Batis, Cape	Unlisted	LC
<i>Batis molitor</i>	Batis, Chinspot	Unlisted	LC
<i>Bostrychia hagedash</i>	Ibis, Hadedda	Unlisted	LC
<i>Bradypterus baboecala</i>	Rush-warbler, Little	Unlisted	LC
<i>Bubo africanus</i>	Eagle-owl, Spotted	Unlisted	LC
<i>Bubulcus ibis</i>	Egret, Cattle	Unlisted	LC
<i>Burhinus capensis</i>	Thick-knee, Spotted	Unlisted	LC
<i>Buteo rufofuscus</i>	Buzzard, Jackal	Unlisted	LC
<i>Buteo vulpinus</i>	Buzzard, Common	Unlisted	Unlisted
<i>Calandrella cinerea</i>	Lark, Red-capped	Unlisted	LC
<i>Calidris ferruginea</i>	Sandpiper, Curlew	LC	NT
<i>Calidris minuta</i>	Stint, Little	LC	LC

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<i>Camaroptera brachyura</i>	Camaroptera, Green-backed	Unlisted	LC
<i>Campephaga flava</i>	Cuckoo-shrike, Black	Unlisted	LC
<i>Campethera notata</i>	Woodpecker, Knysna	NT	NT
<i>Caprimulgus pectoralis</i>	Nightjar, Fiery-necked	Unlisted	LC
<i>Cercomela familiaris</i>	Chat, Familiar	Unlisted	LC
<i>Cercomela sinuata</i>	Chat, Sickle-winged	Unlisted	LC
<i>Cercotrichas coryphoeus</i>	Scrub-robin, Karoo	Unlisted	LC
<i>Cercotrichas leucophrys</i>	Scrub-robin, White-browed	Unlisted	LC
<i>Certhilauda semitorquata</i>	Lark, Eastern Long-billed	Unlisted	LC
<i>Ceryle rudis</i>	Kingfisher, Pied	Unlisted	LC
<i>Chalcomitra amethystina</i>	Sunbird, Amethyst	Unlisted	LC
<i>Charadrius hiaticula</i>	Plover, Common Ringed	Unlisted	LC
<i>Charadrius pecuarius</i>	Plover, Kittlitz's	Unlisted	LC
<i>Charadrius tricollaris</i>	Plover, Three-banded	Unlisted	LC
<i>Chersomanes albofasciata</i>	Lark, Spike-heeled	Unlisted	LC
<i>Chlidonias hybrida</i>	Tern, Whiskered	Unlisted	LC
<i>Chrysococcyx caprius</i>	Cuckoo, Diderick	Unlisted	LC
<i>Chrysococcyx klaas</i>	Cuckoo, Klaas's	Unlisted	LC
<i>Ciconia ciconia</i>	Stork, White	Unlisted	LC
<i>Cinnyris afer</i>	Sunbird, Greater Double-collared	Unlisted	LC
<i>Cinnyris chalybeus</i>	Sunbird, Southern Double-collared	Unlisted	LC
<i>Circus maurus</i>	Harrier, Black	EN	VU
<i>Circus ranivorus</i>	Marsh-harrier, African	EN	LC
<i>Cisticola aberrans</i>	Cisticola, Lazy	Unlisted	LC
<i>Cisticola ayresii</i>	Cisticola, Wing-snapping	Unlisted	LC
<i>Cisticola fulvicapilla</i>	Neddicky, Neddicky	Unlisted	LC
<i>Cisticola juncidis</i>	Cisticola, Zitting	Unlisted	LC
<i>Cisticola lais</i>	Cisticola, Wailing	Unlisted	LC
<i>Cisticola subruficapilla</i>	Cisticola, Grey-backed	Unlisted	LC
<i>Cisticola textrix</i>	Cisticola, Cloud	Unlisted	LC
<i>Cisticola tinniens</i>	Cisticola, Levillant's	Unlisted	LC
<i>Clamator glandarius</i>	Cuckoo, Great Spotted	Unlisted	LC
<i>Clamator jacobinus</i>	Cuckoo, Jacobin	Unlisted	LC
<i>Coccyzygia melanotis</i>	Waxbill, Swee	Unlisted	LC
<i>Colius striatus</i>	Mousebird, Speckled	Unlisted	LC
<i>Columba guinea</i>	Pigeon, Speckled	Unlisted	LC
<i>Columba livia</i>	Dove, Rock	Unlisted	LC
<i>Corvus albicollis</i>	Raven, White-necked	Unlisted	LC
<i>Corvus albus</i>	Crow, Pied	Unlisted	LC
<i>Corvus capensis</i>	Crow, Cape	Unlisted	LC
<i>Cossypha caffra</i>	Robin-chat, Cape	Unlisted	LC
<i>Coturnix coturnix</i>	Quail, Common	Unlisted	LC
<i>Creatophora cinerea</i>	Starling, Wattled	Unlisted	LC
<i>Crithagra albogularis</i>	White-throated Canary	LC	LC
<i>Crithagra atrogularis</i>	Canary, Black-throated	Unlisted	LC
<i>Crithagra gularis</i>	Seed-eater, Streaky-headed	Unlisted	LC

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<i>Crithagra mozambicus</i>	Canary, Yellow-fronted	Unlisted	LC
<i>Crithagra sulphuratus</i>	Canary, Brimstone	Unlisted	LC
<i>Cuculus clamosus</i>	Cuckoo, Black	Unlisted	LC
<i>Cuculus solitarius</i>	Cuckoo, Red-chested	Unlisted	LC
<i>Cursorius rufus</i>	Courser, Burchell's	VU	LC
<i>Cypsiurus parvus</i>	Palm-swift, African	Unlisted	LC
<i>Dendropicos fuscescens</i>	Woodpecker, Cardinal	Unlisted	LC
<i>Dendropicos griseocephalus</i>	Woodpecker, Olive	Unlisted	LC
<i>Dicrurus adsimilis</i>	Drongo, Fork-tailed	Unlisted	LC
<i>Dryoscopus cubla</i>	Puffback, Black-backed	Unlisted	LC
<i>Egretta garzetta</i>	Egret, Little	Unlisted	LC
<i>Elanus caeruleus</i>	Kite, Black-shouldered	Unlisted	LC
<i>Emberiza capensis</i>	Bunting, Cape	Unlisted	LC
<i>Emberiza flaviventris</i>	Bunting, Golden-breasted	Unlisted	LC
<i>Emberiza impetواني</i>	Bunting, Lark-like	Unlisted	LC
<i>Emberiza tahapisi</i>	Bunting, Cinnamon-breasted	Unlisted	LC
<i>Eremomela icteropygialis</i>	Eremomela, Yellow-bellied	Unlisted	LC
<i>Eremopterix verticalis</i>	Sparrowlark, Grey-backed	Unlisted	LC
<i>Estrilda astrild</i>	Waxbill, Common	Unlisted	LC
<i>Euplectes ardens</i>	Widowbird, Red-collared	Unlisted	LC
<i>Euplectes orix</i>	Bishop, Southern Red	Unlisted	LC
<i>Euplectes progne</i>	Widowbird, Long-tailed	Unlisted	LC
<i>Eupodotis senegalensis</i>	Korhaan, White-bellied	VU	LC
<i>Falco amurensis</i>	Falcon, Amur	Unlisted	LC
<i>Falco biarmicus</i>	Falcon, Lanner	VU	LC
<i>Falco naumanni</i>	Kestrel, Lesser	Unlisted	LC
<i>Falco rupicolus</i>	Kestrel, Rock	Unlisted	LC
<i>Fulica cristata</i>	Coot, Red-knobbed	Unlisted	LC
<i>Galerida magnirostris</i>	Lark, Large-billed	Unlisted	LC
<i>Gallinago nigripennis</i>	Snipe, African	Unlisted	LC
<i>Gallinula chloropus</i>	Moorhen, Common	Unlisted	LC
<i>Gyps coprotheres</i>	Vulture, Cape	EN	EN
<i>Halcyon albiventris</i>	Kingfisher, Brown-hooded	Unlisted	LC
<i>Haliaeetus vocifer</i>	Fish-eagle, African	Unlisted	LC
<i>Himantopus himantopus</i>	Stilt, Black-winged	Unlisted	LC
<i>Hirundo abyssinica</i>	Swallow, Lesser Striped	Unlisted	LC
<i>Hirundo albigularis</i>	Swallow, White-throated	Unlisted	LC
<i>Hirundo cucullata</i>	Swallow, Greater Striped	Unlisted	LC
<i>Hirundo dimidiata</i>	Swallow, Pearl-breasted	Unlisted	LC
<i>Hirundo fuligula</i>	Martin, Rock	Unlisted	Unlisted
<i>Hirundo rustica</i>	Swallow, Barn	Unlisted	LC
<i>Indicator indicator</i>	Honeyguide, Greater	Unlisted	LC
<i>Indicator minor</i>	Honeyguide, Lesser	Unlisted	LC
<i>Jynx ruficollis</i>	Wryneck, Red-throated	Unlisted	LC
<i>Lagonosticta rubricata</i>	Firefinch, African	Unlisted	LC
<i>Lamprotornis nitens</i>	Starling, Cape Glossy	Unlisted	LC

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<i>Laniarius ferrugineus</i>	Boubou, Southern	Unlisted	LC
<i>Lanius collaris</i>	Fiscal, Common (Southern)	Unlisted	LC
<i>Lanius collurio</i>	Shrike, Red-backed	Unlisted	LC
<i>Lybius torquatus</i>	Barbet, Black-collared	Unlisted	LC
<i>Macronyx capensis</i>	Longclaw, Cape	Unlisted	LC
<i>Malcorus pectoralis</i>	Warbler, Rufous-eared	Unlisted	LC
<i>Megaceryle maximus</i>	Kingfisher, Giant	Unlisted	Unlisted
<i>Melaenornis pammelaina</i>	Flycatcher, Southern Black	Unlisted	LC
<i>Melierax canorus</i>	Goshawk, Southern Pale Chanting	Unlisted	LC
<i>Melierax gabar</i>	Goshawk, Gabar	Unlisted	LC
<i>Milvus aegyptius</i>	Kite, Yellow-billed	Unlisted	Unlisted
<i>Mirafra africana</i>	Lark, Rufous-naped	Unlisted	LC
<i>Mirafra cheniana</i>	Lark, Melodious	LC	LC
<i>Mirafra fasciolata</i>	Lark, Eastern Clapper	Unlisted	LC
<i>Monticola rupestris</i>	Rock-thrush, Cape	Unlisted	LC
<i>Motacilla capensis</i>	Wagtail, Cape	Unlisted	LC
<i>Muscicapa adusta</i>	Flycatcher, African Dusky	Unlisted	LC
<i>Myrmecocichla formicivora</i>	Chat, Anteating	Unlisted	LC
<i>Nectarinia famosa</i>	Sunbird, Malachite	Unlisted	LC
<i>Neotis denhami</i>	Bustard, Denham's	VU	NT
<i>Neotis ludwigii</i>	Bustard, Ludwig's	EN	EN
<i>Netta erythrophthalma</i>	Pochard, Southern	Unlisted	LC
<i>Numida meleagris</i>	Guineafowl, Helmeted	Unlisted	LC
<i>Oena capensis</i>	Dove, Namaqua	Unlisted	LC
<i>Oenanthe monticola</i>	Wheatear, Mountain	Unlisted	LC
<i>Oenanthe pileata</i>	Wheatear, Capped	Unlisted	LC
<i>Onychognathus morio</i>	Starling, Red-winged	Unlisted	LC
<i>Oriolus larvatus</i>	Oriole, Black-headed	Unlisted	LC
<i>Ortygospiza atricollis</i>	Quailfinch, African	Unlisted	LC
<i>Otus senegalensis</i>	Scops-owl, African	Unlisted	LC
<i>Parisoma subcaeruleum</i>	Tit-babbler, Chestnut-vented	Unlisted	Unlisted
<i>Parus afer</i>	Tit, Grey	Unlisted	Unlisted
<i>Parus niger</i>	Tit, Southern Black	Unlisted	Unlisted
<i>Passer diffusus</i>	Sparrow, Southern Grey-headed	Unlisted	LC
<i>Passer domesticus</i>	Sparrow, House	Unlisted	LC
<i>Passer melanurus</i>	Sparrow, Cape	Unlisted	LC
<i>Petronia superciljaris</i>	Petronia, Yellow-throated	Unlisted	LC
<i>Phalacrocorax africanus</i>	Cormorant, Reed	Unlisted	LC
<i>Phalacrocorax carbo</i>	Cormorant, White-breasted	LC	LC
<i>Philomachus pugnax</i>	Ruff	Unlisted	LC
<i>Phoeniculus purpureus</i>	Wood-hoopoe, Green	Unlisted	LC
<i>Phyllastrephus terrestris</i>	Brownbul, Terrestrial	Unlisted	LC
<i>Phylloscopus trochilus</i>	Warbler, Willow	Unlisted	LC
<i>Platalea alba</i>	Spoonbill, African	Unlisted	LC
<i>Plectropterus gambensis</i>	Goose, Spur-winged	Unlisted	LC
<i>Ploceus capensis</i>	Weaver, Cape	Unlisted	LC

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<i>Ploceus cucullatus</i>	Weaver, Village	Unlisted	LC
<i>Ploceus ocularis</i>	Weaver, Spectacled	Unlisted	LC
<i>Ploceus velatus</i>	Masked-weaver, Southern	Unlisted	LC
<i>Podiceps nigricollis</i>	Grebe, Black-necked	Unlisted	LC
<i>Pogoniulus pusillus</i>	Tinkerbird, Red-fronted	Unlisted	LC
<i>Polemaetus bellicosus</i>	Eagle, Martial	EN	VU
<i>Polyboroides typus</i>	Harrier-Hawk, African	Unlisted	LC
<i>Prinia maculosa</i>	Prinia, Karoo	Unlisted	LC
<i>Prinia subflava</i>	Prinia, Tawny-flanked	Unlisted	LC
<i>Pternistis afer</i>	Spurfowl, Red-necked	Unlisted	LC
<i>Pycnonotus nigricans</i>	Bulbul, African Red-eyed	Unlisted	LC
<i>Pycnonotus tricolor</i>	Bulbul, Dark-capped	Unlisted	Unlisted
<i>Quelea quelea</i>	Quelea, Red-billed	Unlisted	LC
<i>Riparia paludicola</i>	Martin, Brown-throated	Unlisted	LC
<i>Sagittarius serpentarius</i>	Secretarybird	VU	VU
<i>Saxicola torquatus</i>	Stonechat, African	Unlisted	LC
<i>Scopus umbretta</i>	Hamerkop	Unlisted	LC
<i>Serinus alario</i>	Canary, Black-headed	Unlisted	LC
<i>Serinus canicollis</i>	Canary, Cape	Unlisted	LC
<i>Sigelus silens</i>	Flycatcher, Fiscal	Unlisted	LC
<i>Spreo bicolor</i>	Starling, Pied	Unlisted	LC
<i>Stephanoaetus coronatus</i>	Eagle, African Crowned	VU	NT
<i>Sterna caspia</i>	Tern, Caspian	VU	LC
<i>Streptopelia capicola</i>	Turtle-dove, Cape	Unlisted	LC
<i>Streptopelia semitorquata</i>	Dove, Red-eyed	Unlisted	LC
<i>Streptopelia senegalensis</i>	Dove, Laughing	Unlisted	LC
<i>Struthio camelus</i>	Ostrich, Common	Unlisted	LC
<i>Sturnus vulgaris</i>	Starling, Common	Unlisted	LC
<i>Sylvietta rufescens</i>	Crombec, Long-billed	Unlisted	LC
<i>Tachybaptus ruficollis</i>	Grebe, Little	Unlisted	LC
<i>Tachymarptis melba</i>	Swift, Alpine	Unlisted	LC
<i>Tadorna cana</i>	Shelduck, South African	Unlisted	LC
<i>Tchagra senegalus</i>	Tchagra, Black-crowned	Unlisted	LC
<i>Telophorus olivaceus</i>	Bush-shrike, Olive	Unlisted	LC
<i>Telophorus sulfureopectus</i>	Bush-shrike, Orange-breasted	Unlisted	LC
<i>Telophorus zeylonus</i>	Bokmakierie, Bokmakierie	Unlisted	LC
<i>Terpsiphone viridis</i>	Paradise-flycatcher, African	Unlisted	LC
<i>Thalassornis leuconotus</i>	Duck, White-backed	Unlisted	LC
<i>Thamnolaea cinnamomeiventris</i>	Cliff-chat, Mocking	Unlisted	LC
<i>Threskiornis aethiopicus</i>	Ibis, African Sacred	Unlisted	LC
<i>Tockus alboterminatus</i>	Hornbill, Crowned	Unlisted	LC
<i>Tricholaema leucomelas</i>	Barbet, Acacia Pied	Unlisted	LC
<i>Tringa glareola</i>	Sandpiper, Wood	Unlisted	LC
<i>Tringa nebularia</i>	Greenshank, Common	Unlisted	LC
<i>Turdus olivaceus</i>	Thrush, Olive	Unlisted	LC
<i>Turdus smithi</i>	Thrush, Karoo	Unlisted	LC

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<i>Turnix sylvaticus</i>	Buttonquail, Kurrichane	Unlisted	LC
<i>Turtur chalcospilos</i>	Wood-dove, Emerald-spotted	Unlisted	LC
<i>Upupa africana</i>	Hoopoe, African	Unlisted	LC
<i>Urocolius indicus</i>	Mousebird, Red-faced	Unlisted	LC
<i>Vanellus armatus</i>	Lapwing, Blacksmith	Unlisted	LC
<i>Vanellus coronatus</i>	Lapwing, Crowned	Unlisted	LC
<i>Vidua funerea</i>	Indigobird, Dusky	Unlisted	LC
<i>Vidua macroura</i>	Whydah, Pin-tailed	Unlisted	LC
<i>Zosterops virens</i>	White-eye, Cape	Unlisted	LC

Appendix D Mammals expected in the project area

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
<i>Aethomys namaquensis</i>	Namaqua rock rat	LC	LC
<i>Amblysomus hottentotus</i>	Hottentot's Golden Mole	LC	LC
<i>Antidorcas marsupialis</i>	Springbok	LC	LC
<i>Aonyx capensis</i>	Cape Clawless Otter	NT	NT
<i>Atilax paludinosus</i>	Water Mongoose	LC	LC
<i>Canis mesomelas</i>	Black-backed Jackal	LC	LC
<i>Caracal caracal</i>	Caracal	LC	LC
<i>Chlorocebus pygerythrus</i>	Vervet Monkey	LC	LC
<i>Crocidura cyanea</i>	Reddish-grey Musk Shrew	LC	LC
<i>Cryptomys hottentotus</i>	Common Mole-rat	LC	LC
<i>Cynictis penicillata</i>	Yellow Mongoose	LC	LC
<i>Dendrohyrax arboreus</i>	Southern Tree Hyrax	LC	LC
<i>Dendromus melanotis</i>	Grey Climbing Mouse	LC	LC
<i>Dendromus mesomelas</i>	Brant's Climbing Mouse	LC	LC
<i>Desmodillus auricularis</i>	Short-tailed Gerbil	LC	LC
<i>Eidolon helvum</i>	African Straw-colored Fruit Bat	LC	NT
<i>Elephantulus rupestris</i>	Western rock sengi	LC	LC
<i>Felis nigripes</i>	Black-footed Cat	VU	VU
<i>Felis silvestris</i>	African Wildcat	LC	LC
<i>Genetta genetta</i>	Small-spotted Genet	LC	LC
<i>Genetta tigrina</i>	Cape Genet	LC	LC
<i>Grammomys cometes</i>	Mozambique Woodland Mouse	LC	LC
<i>Graphiurus murinus</i>	Woodland Dormouse	LC	LC
<i>Graphiurus ocellatus</i>	Spectacular Dormouse	NT	LC
<i>Herpestes ichneumon</i>	Large Grey Mongoose	LC	LC
<i>Herpestes pulverulentus</i>	Cape Grey Mongoose	LC	LC

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<i>Hydricitis maculicollis</i>	Spotted-necked Otter	VU	NT
<i>Hystrix africaeaustralis</i>	Cape Porcupine	LC	LC
<i>Ichneumia albicauda</i>	White-tailed Mongoose	LC	LC
<i>Ictonyx striatus</i>	Striped Polecat	LC	LC
<i>Kerivoula lanosa</i>	Lesser Woolly Bat	LC	LC
<i>Leptailurus serval</i>	Serval	NT	LC
<i>Lepus saxatilis</i>	Scrub Hare	LC	LC
<i>Macroselides proboscideus</i>	Karoo Round-eared Sengi	LC	LC
<i>Mastomys natalensis</i>	Natal Multimammate Mouse	LC	LC
<i>Mellivora capensis</i>	Honey Badger	LC	LC
<i>Mus minutoides</i>	Pygmy Mouse	LC	LC
<i>Mus musculus</i>	House Mouse	Unlisted	LC
<i>Myosorex varius</i>	Forest Shrew	LC	LC
<i>Myotis tricolor</i>	Temminck's Hairy Bat	LC	LC
<i>Mystromys albicaudatus</i>	White-tailed Rat	VU	EN
<i>Neoromicia capensis</i>	Cape Serotine Bat	LC	LC
<i>Neoromicia zuluensis</i>	Aloe Bat	LC	LC
<i>Nycteris thebaica</i>	Egyptian Slit-faced Bat	LC	LC
<i>Oreotragus oreotragus</i>	Klipspringer	LC	LC
<i>Orycteropus afer</i>	Aardvark	LC	LC
<i>Otocyon megalotis</i>	Bat-eared Fox	LC	LC
<i>Otomys irroratus</i>	Vlei Rat (Fynbos type)	LC	LC
<i>Otomys saundersiae</i>	Saunder's vlei rat	LC	LC
<i>Otomys unisulcatus</i>	Karoo Bush Rat	LC	LC
<i>Panthera pardus</i>	Leopard	VU	VU
<i>Papio ursinus</i>	Chacma Baboon	LC	LC
<i>Parahyaena brunnea</i>	Brown Hyaena	NT	NT
<i>Pedetes capensis</i>	Springhare	LC	LC
<i>Pelea capreolus</i>	Grey Rhebok	NT	NT
<i>Phacochoerus africanus</i>	Common Warthog	LC	LC
<i>Philantomba monticola</i>	Blue Duiker	VU	LC
<i>Poecilogale albinucha</i>	African Striped Weasel	NT	LC
<i>Potamochoerus larvatus</i>	Bushpig	LC	LC
<i>Procavia capensis</i>	Rock Hyrax	LC	LC
<i>Pronolagus saundersiae</i>	Natal Red Rock Rabbit	LC	LC
<i>Proteles cristata</i>	Aardwolf	LC	LC
<i>Raphicerus campestris</i>	Steenbok	LC	LC
<i>Raphicerus melanotis</i>	Southern grysbok	LC	LC
<i>Rattus rattus</i>	House Rat	Exotic (Not listed)	LC
<i>Redunca fulvorufula</i>	Mountain Reedbuck	EN	LC
<i>Rhodomys pumilio</i>	Xeric Four-striped Mouse	LC	LC
<i>Rhinolophus capensis</i>	Cape Horseshoe Bat	LC	LC
<i>Rhinolophus clivosus</i>	Geoffroy's Horseshoe Bat	LC	LC
<i>Rousettus aegyptiacus</i>	Egyptian Fruit Bat	LC	LC
<i>Saccostomus campestris</i>	Pouched Mouse	LC	LC
<i>Scotophilus dinganii</i>	Yellow House Bat	LC	LC

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<i>Suncus varilla</i>	Lesser Dwarf Shrew	LC	LC
<i>Suricata suricatta</i>	Suricate	LC	LC
<i>Sylvicapra grimmia</i>	Common Duiker	LC	LC
<i>Syncerus caffer</i>	African Buffalo	LC	LC
<i>Tadarida aegyptiaca</i>	Egyptian Free-tailed Bat	LC	LC
<i>Thryonomys swinderianus</i>	Greater Cane Rat	LC	LC
<i>Tragelaphus oryx</i>	Common Eland	LC	LC
<i>Tragelaphus strepsiceros</i>	Greater Kudu	LC	LC
<i>Vulpes chama</i>	Cape Fox	LC	LC

Appendix E Reptiles species expected in the project area

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
<i>Acontias gracilicauda</i>	Thin-tailed Legless Skink	LC	LC
<i>Afroedura nivaria</i>	Drankensberg Flat Gecko	LC	LC
<i>Bradypodion ventrale</i>	Eastern Cape Dwarf Chameleon	LC	LC
<i>Dasypeltis scabra</i>	Rhombic Egg-eater	LC	LC
<i>Duberria lutrix</i>	Common Slug-eater	LC	LC
<i>Hemachatus haemachatus</i>	Rinkhals	LC	LC
<i>Lamprophis aurora</i>	Aurora House Snake	LC	LC
<i>Pachydactylus maculatus</i>	Spotted Gecko	LC	LC

Appendix F Amphibians expected in the project area

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
<i>Amietia delalandii</i>	Delalande's River Frog	LC	Unlisted
<i>Amietia fuscigula</i>	Cape River Frog	LC	LC
<i>Amietia poyntoni</i>	Poynton's River Frog	LC	LC
<i>Anhydrophryne rattrayi</i>	Hogsback frog	VU	VU
<i>Breviceps adspersus</i>	Bushveld Rain Frog	LC	LC
<i>Breviceps verrucosus</i>	Plaintive Rain Frog	LC	LC
<i>Cacosternum boettgeri</i>	Common Caco	LC	LC
<i>Cacosternum nanum nanum</i>	Bronze Caco	LC	LC
<i>Cacosternum thorini</i>	Hogsback caco	EN	EN
<i>Hemisis marmoratus</i>	Mottled Shovel-nosed Frog	LC	LC
<i>Hyperolius semidiscus</i>	Yellowstriped Reed Frog	LC	LC
<i>Kassina senegalensis</i>	Bubbling Kassina	LC	LC
<i>Phrynobatrachus natalensis</i>	Snoring Puddle Frog	LC	LC
<i>Poyntonophrynus vertebralis</i>	Southern Pygmy Toad	LC	LC
<i>Pyxicephalus adspersus</i>	Giant Bullfrog	LC	LC
<i>Sclerophrys capensis</i>	Raucous Toad	LC	LC
<i>Sclerophrys pardalis</i>	Leopard Toad	Unlisted	LC
<i>Semnodactylus wealii</i>	Rattling Frog	LC	LC
<i>Strongylopus fasciatus</i>	Striped Stream Frog	LC	LC
<i>Strongylopus grayii</i>	Clicking Stream Frog	LC	LC
<i>Tomopterna natalensis</i>	Natal Sand Frog	LC	LC
<i>Tomopterna tandyi</i>	Tandy's Sand Frog	LC	LC
<i>Vandijkophrynus amatolicus</i>	Amatola Toad	EN	CR
<i>Vandijkophrynus gariensis gariensis</i>	Karoo Toad	Not listed	Not listed
<i>Xenopus laevis</i>	Common Platanna	LC	LC