THE TERRESTRIAL BIODIVERSITY ASSESSMENT FOR THE PROPOSED UPGRADE OF SANRAL NATIONAL ROAD R101 SECTION 8 FROM BELA BELA (KM 0.0) TO MODIMOLLE (KM 26.8) IN SUPPORT OF THE ENVIRONMENTAL AUTHORISATION AND WATER USE AUTHORISATION PROCESSES

Modimolle, Limpopo Province

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Report Name	**THE TERRESTRIAL BIODIVERSITY ASSESSMENT FOR THE PROPOSED UPGRADE OF SANRAL NATIONAL ROAD R101 SECTION 8 FROM BELA BELA (KM 0.0) TO MODIMOLLE (KM 26.8) IN SUPPORT OF THE ENVIRONMENTAL AUTHORISATION AND WATER USE AUTHORISATION PROCESSES**
Submitted to	GA Environment
Report Writer	**Lindi Steyn** Dr Lindi Steyn completed her PhD in Biodiversity and Conservation from the University of Johannesburg. Lindi is a terrestrial ecologist with a special interest in ornithology. She has completed numerous studies ranging from Basic Assessments to Environmental Impact Assessments following IFC standards.
Report Writer	**Rudolph Greffrath** Rudolph is a terrestrial ecology specialist with 14 years of experience in biodiversity baseline assessments, biodiversity action planning design and development, biodiversity off-set design and implementation, biodiversity strategy design, conservation management planning and implementation, IFC performance standards best practice, ecological restoration, ecosystems services and environmental impact assessments, across Africa. He is Pr Sci Nat registered (400018/17) in the following fields of practice, Conservation Science.
Report Reviewer	**Andrew Husted** 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.
Declaration	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.

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1 Introduction

The Biodiversity Company was commissioned to conduct a terrestrial baseline and impact assessment, in support of the environmental and water use authorisation processes for the proposed activities associated with the R101 road upgrade. The following project description is as per GA environmental (2021): National Road R101 Section 8 is situated within two Local Municipalities (Bela Bela and Modimolle), both of which fall under the Waterberg District Municipality in the Limpopo Province. The project extends from Bela Bela at the intersection with Voortrekker Road (km 0.0) to Modimolle at the intersection with Road R33 (km 26.8). The general objective of this project is to successfully and optimally complete improvement of the road section. The aim of this improvement is to:

- Relieve traffic congestion to acceptable level of service by providing suitable cross sections;
- Improve road geometry (alignment) to provide better road safety;
- Provide non-motorised transport (NMT) and pedestrian facilities;
- Provide adequate pavement capacity for a 20-year design period; and
- Replacement of bridges and other structures where required for hydraulic and traffic capacity.

Road R101-8 consists of a two lane, single carriageway road with gravel shoulders along most of the route. The road has an average surfaced width of 7.0 m. Climbing/passing lanes are provided from km 6.2 to km 7.5 (LHS) and km 14.4 to km 15.7 (RHS). Road R101-8 has an average road reserve width of approximately 35 meters.

In both Bela Bela (km 0.00 to km 0.10) and Modimolle (km 26.40 to km 26.80), the road widens to a four lane undivided single carriageway. A section in Modimolle (km 25.20 to km 26.40) consists of 3 lanes. Road R101-8 is defined as a mobility road, connecting development centres over long distances. It also connects other collector roads and can therefore be classified as a Class 2 rural major arterial in accordance with TRH 26 (COTO, 2012).

According to the pavement management system (PMS) information, the road was constructed in 1964 as National Road N1 joining Pretoria and Polokwane. The N1 was however realigned during 1995/1996 under a concession contract at which time this section was renumbered as R101. Road R101 serves as an alternative route to the N1 toll route.

Proposed replacement of the 2 existing bridges for capacity improvement will include the altering of the watercourse banks and thus will require a Water Use License.

This assessment was conducted in accordance with the amendments to the Environmental Impact Assessment Regulations. 2014 (No. 326, 7 April 2017) of the National Environmental Management Act, 1998 (Act No. 107 of 1998). The approach has taken cognisance of the recently published Government Notice 320 in terms of NEMA dated 30 October 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 the specialist studies is to provide relevant input into the impact assessment process and to provide a report 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.

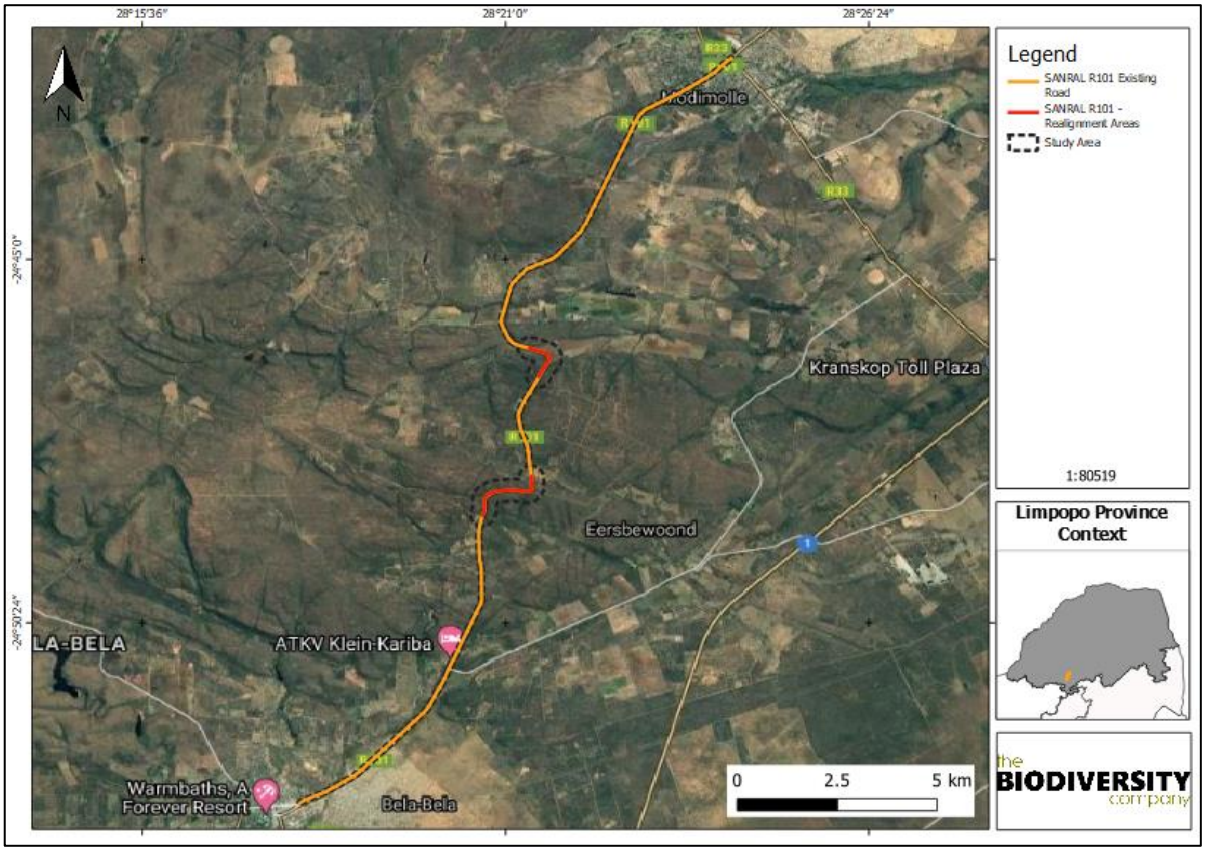

Figure 1-1 Proposed project area.

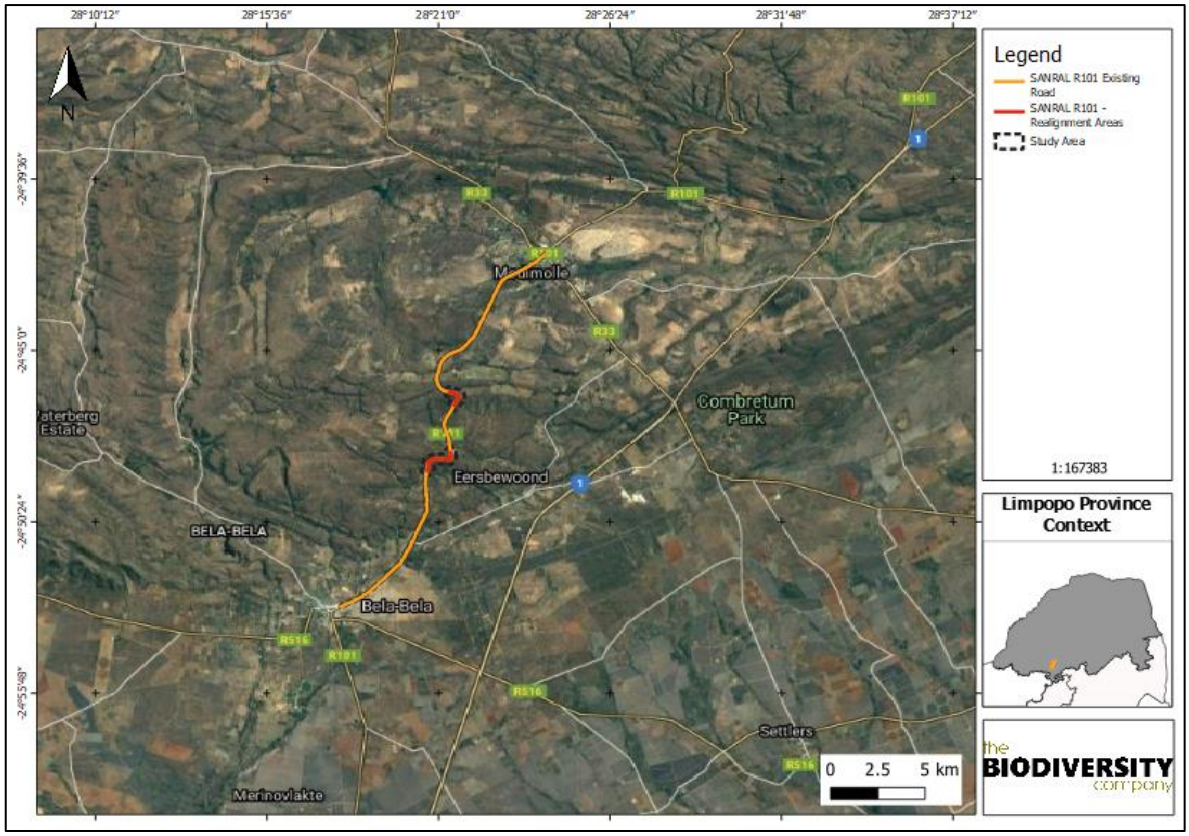

Figure 1-2 Location of the project area.

2 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 (biodiversity and wetland) that occur in the project area, and the manner in which these sensitive receptors may be affected by the activity;
- 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, mitigation and rehabilitation measures to prevent or reduce the possible impacts.

3 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 3.1).

Table 3.1 A list of key legislative requirements relevant to these studies in the Limpopo Province

Region	Legislation
International	Convention on Biological Diversity (CBD, 1993)
	The Convention on Wetlands (RAMSAR Convention, 1971)
	The United Nations Framework Convention on Climate Change (UNFCC,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)
National	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)
	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	Limpopo Conservation Plan (2018)

	Limpopo Environmental Management Act (2003)
	Waterberg District Bioregional Plan (LEDET, 2018)

4 Limitations

The following limitations should be noted for the assessment:

- Only a single season survey will be conducted for the respective studies, this would constitute a late wet season survey;
- At some farms access could not be obtained;
- Due to access and time constraints not all areas of the survey area were checked for protected trees;
- No night surveys were conducted due to safety concerns;
- New shapes were provided after the initial assessment;
- After the initial assessment it was also proposed that the watercourses associated with two Bridges and Major Culverts be diverted. The exact extent of this were not provided therefore it was assumed that it will take place within the assessment area and will not be extensive; and
- This assessment has not assessed any temporal trends for the project.

5 Methodologies

5.1 Terrestrial Assessment

5.1.1 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);
- Limpopo Conservation Plan, Version 2 (LCPv2), (Desmet *et al.,* 2018); 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.

5.1.2 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.

5.1.3 Floristic Analysis

The late wet 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 satelite 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. roads, 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.

5.1.4 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.

5.1.5 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.

5.2 Site Ecological Importance (SEI)

The different habitat types within the assessment area were delineated and identified based on observations during the field assessment as well as available satellite imagery. These habitat types were assigned Ecological Importance (EI) categories based on their ecological integrity, conservation value, the presence of species of conservation concern and their ecosystem processes.

Site Ecological Importance (SEI) is a function of the Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/fauna community or habitat type present on the site) and Receptor Resilience (RR) (its resilience to impacts) as follows.

BI is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor as follows. The criteria for the CI and FI ratings are provided in Table 5.1 and Table 5.2, respectively.

Table 5.1 Summary of Conservation Importance (CI) criteria

Conservation Importance	Fulfilling Criteria
Very High	Confirmed or highly likely occurrence of CR, EN, VU or Extremely Rare or Critically Rare species that have a global EOO of < 10 km^2. Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural habitat of an EN ecosystem type. Globally significant populations of congregatory species (> 10% of global population).
High	Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km^2. IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A. If listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining. Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type. Presence of Rare species. Globally significant populations of congregatory species (> 1% but < 10% of global population).
Medium	Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Any area of natural habitat of threatened ecosystem type with status of VU. Presence of range-restricted species. > 50% of receptor contains natural habitat with potential to support SCC.
Low	No confirmed or highly likely populations of SCC. No confirmed or highly likely populations of range-restricted species. < 50% of receptor contains natural habitat with limited potential to support SCC.
Very Low	No confirmed and highly unlikely populations of SCC. No confirmed and highly unlikely populations of range-restricted species. No natural habitat remaining.

Table 5.2 Summary of Functional Integrity (FI) criteria

Functional Integrity	Fulfilling Criteria
Very High	Very large (> 100 ha) intact area for any conservation status of ecosystem type or > 5 ha for CR ecosystem types. High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts with no signs of major past disturbance.
High	Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type or > 10 ha for EN ecosystem types. Good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches. Only minor current negative ecological impacts with no signs of major past disturbance and good rehabilitation potential.
Medium	Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types. Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches. Mostly minor current negative ecological impacts with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.
Low	Small (> 1 ha but < 5 ha) area. Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area. Low rehabilitation potential. Several minor and major current negative ecological impacts.

Functional Integrity	Fulfilling Criteria
Very Low	Very small (< 1 ha) area. No habitat connectivity except for flying species or flora with wind-dispersed seeds. Several major current negative ecological impacts.

BI can be derived from a simple matrix of CI and FI as provided in Table 5.3

Table 5.3 Matrix used to derive Biodiversity Importance (BI) from Functional Integrity (FI) and Conservation Importance (CI)

Biodiversity Importance (BI)		Conservation Importance (CI)				
		Very high	High	Medium	Low	Very low
Functional Integrity (FI)	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor as summarised in Table 5.4.

Table 5.4 Summary of Resource Resilience (RR) criteria

Resilience	Fulfilling Criteria
Very High	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.
Very Low	Habitat that is unable to recover from major impacts, or species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed.

Subsequent to the determination of the BI and RR, the SEI can be ascertained using the matrix as provided in Table 5.5.

Table 5.5 Matrix used to derive Site Ecological Importance (SEI) from Receptor Resilience (RR) and Biodiversity Importance (BI)

Site Ecological Importance (SEI)		Biodiversity Importance (BI)				
		Very high	High	Medium	Low	Very low
Receptor Resilience (RR)	Very Low	Very high	Very high	High	Medium	Low
	Low	Very high	Very high	High	Medium	Very low
	Medium	Very high	High	Medium	Low	Very low

Site Ecological Importance (SEI)		Biodiversity Importance (BI)				
		Very high	High	Medium	Low	Very low
	High	High	Medium	Low	Very low	Very low
	Very High	Medium	Low	Very low	Very low	Very low

Interpretation of the SEI in the context of the proposed development activities is provided in Table 5.6.

Table 5.6 Guidelines for interpreting Site Ecological Importance (SEI) in the context of the proposed development activities

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

The SEI evaluated for each taxon can be combined into a single multi-taxon evaluation of SEI for the assessment area. Either a combination of the maximum SEI for each receptor should be applied, or the SEI may be evaluated only once per receptor but for all necessary taxa simultaneously. For the latter, justification of the SEI for each receptor is based on the criteria that conforms to the highest CI and FI, and the lowest RR across all taxa.

6 Receiving Environment

6.1 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 6.1.

Table 6.1 Desktop spatial features examined.

Desktop Information Considered	Relevant/Not relevant	Section
Conservation Plan Terrestrial	The project area is situated across CBA1, CBA2, ESA1, ESA2, NNR and ONA areas.	6.2
Ecosystem Threat Status	Relevant: The project area falls across a Least Concerned and Vulnerable ecosystem	6.3.1
Ecosystem Protection Level	The project area are rated as *poorly protected* and *moderately protected*.	6.3.2
Protected Areas (SAPAD & SACAD)	The project area is adjacent to the J.L Moerdyk Gedenk Private Nature Reserve, is 3.1 km from the Vyeboom Private Nature Reserve and 3.8 km from the Rissik Private Nature Reserve	6.5
Important Bird and Biodiversity Areas	The project area comes within 6.4 km of the Waterberg IBA	6.6
National Protected Areas Expansion Strategies (NPAES)	Irrelevant: Closest NPAES (NW/Gauteng Bushveld) is 23 km from the project area	-
National Biodiversity Assessment (NBA) Wetlands	The project area overlaps with two CR rivers, and is close to a third CR river. No wetlands can be found close to the project area	6.3.3

Strategic Water Source Areas (SWSA)	The project area is 35 km from the closest SWSA	-

6.2 Limpopo Biodiversity Conservation Plan

The Limpopo Conservation Plan, Version 2 (LCPv2), was completed in 2018 for the Limpopo Department of Economic Development, Environment & Tourism (LEDET) (Desmet *et al.,* 2018). The purpose of the LCPv2 was to develop the spatial component of a bioregional plan (i.e. map of Critical Biodiversity Areas and associated land-use guidelines). The previous Limpopo Conservation Plan (LCPv1) was completely revised and updated (Desmet *et al.,* 2018). A Limpopo Conservation Plan map was produced as part of this plan and sites were assigned to the following CBA categories based on their biodiversity characteristics, spatial configuration and requirement for meeting targets for both biodiversity pattern and ecological processes:

- Critical Biodiversity Area 1 (CBA1);
- Critical Biodiversity Area 2 (CBA2);
- Ecological Support Area 1 (ESA1);
- Ecological Support Area 2 (ESA2);
- Other Natural Area (ONA);
- Protected Area (PA); and
- No Natural Remaining (NNR).

Critical Biodiversity Areas (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. 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 (Desmet *et al.,* 2018).

Ecological Support Areas (ESA's) are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas and/or in delivering ecosystem services (SANBI, 2017). Critical Biodiversity Areas and Ecological Support Areas may be terrestrial or aquatic.

Other Natural Areas (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 (Desmet *et al.,* 2018).

Areas with No Natural Habitat Remaining (NNR) are areas in poor ecological condition that have not been identified as CBAs or ESAs. They include all irreversibly modified areas (such as urban or industrial areas and mines), and most severely modified areas (such as cultivated fields and forestry plantations). A biodiversity sector plan or bioregional plan must not specify the desired state/management objective or provide land-use guidelines for NNR areas (Desmet *et al.,* 2018).

As shown in Figure 6-1, the project area is situated across CBA1, CBA2, ESA1, ESA2, NNR and ONA areas.

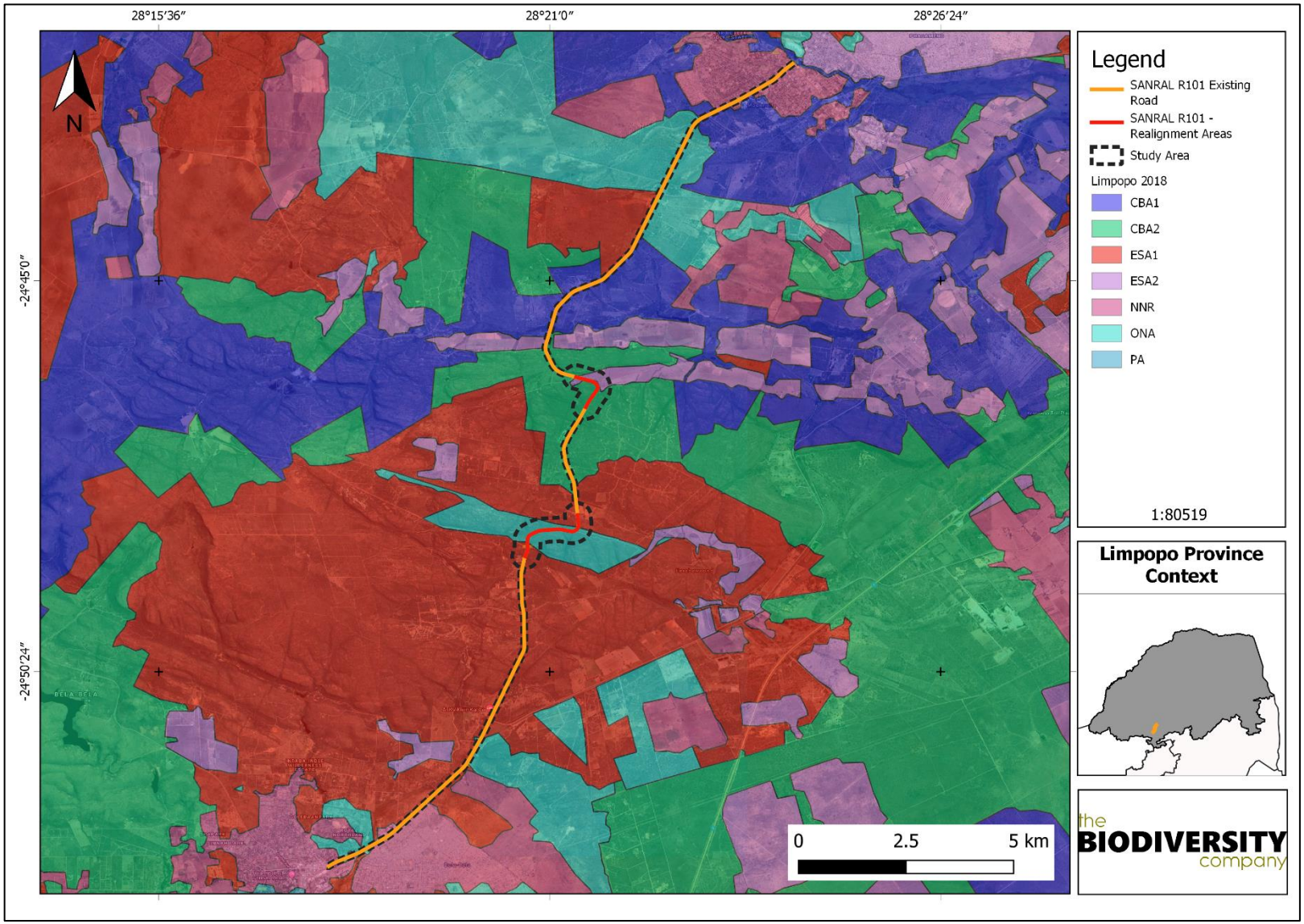

Figure 6-1 The project area superimposed on the Gauteng Conservation Plan (LEDET, 2018)

6.3 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).

6.3.1 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 Threatened (LT), 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 6-2). As seen in this figure, the project area falls across a LC and VU ecosystem (Figure 6-2).

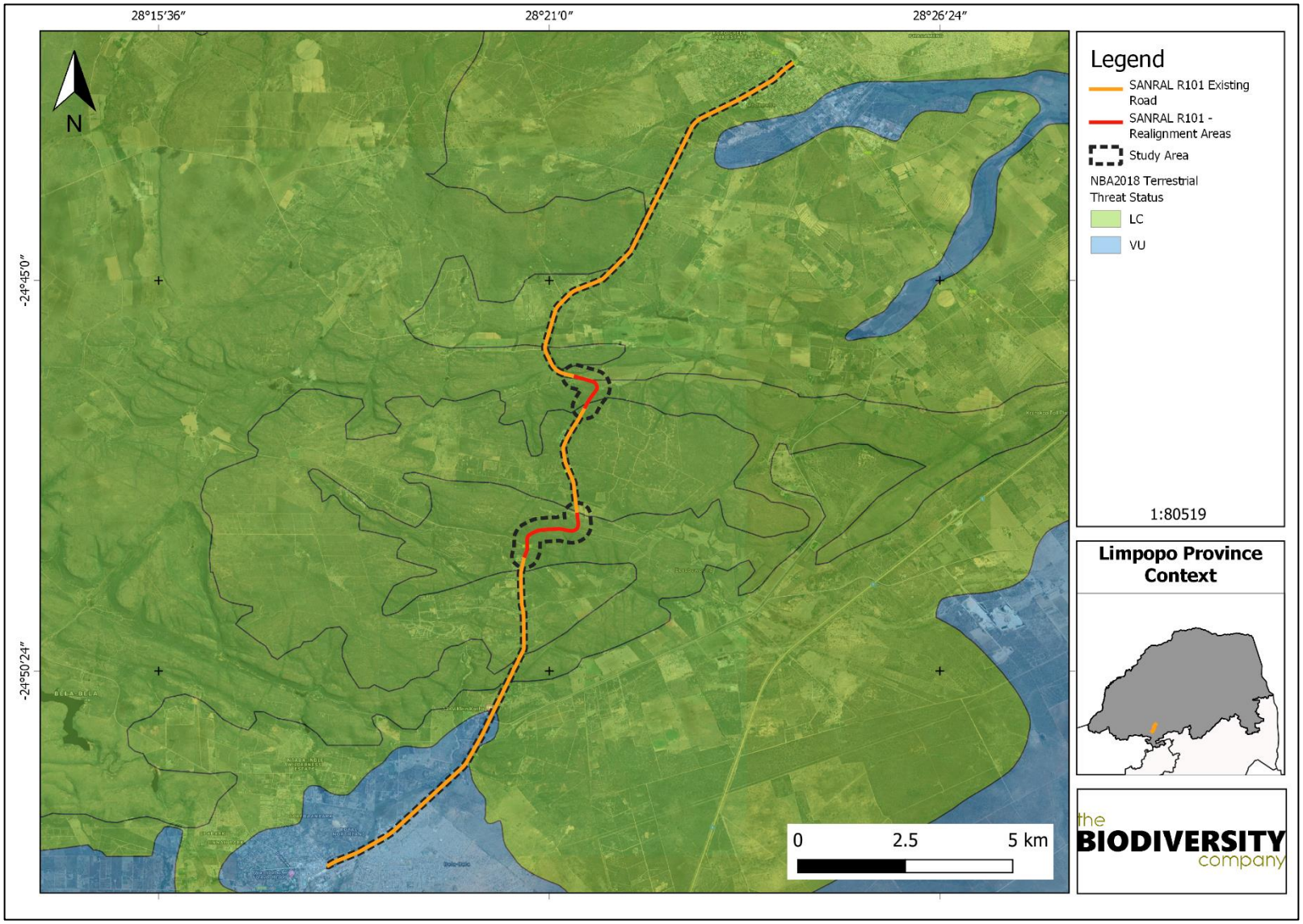

Figure 6-2 The project area showing the regional ecosystem threat status of the associated terrestrial ecosystems (NBA, 2018)

6.3.2 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 6-3). Based on Figure 6-3 the terrestrial ecosystems associated with the project area are rated as *poorly protected* and *moderately protected*.

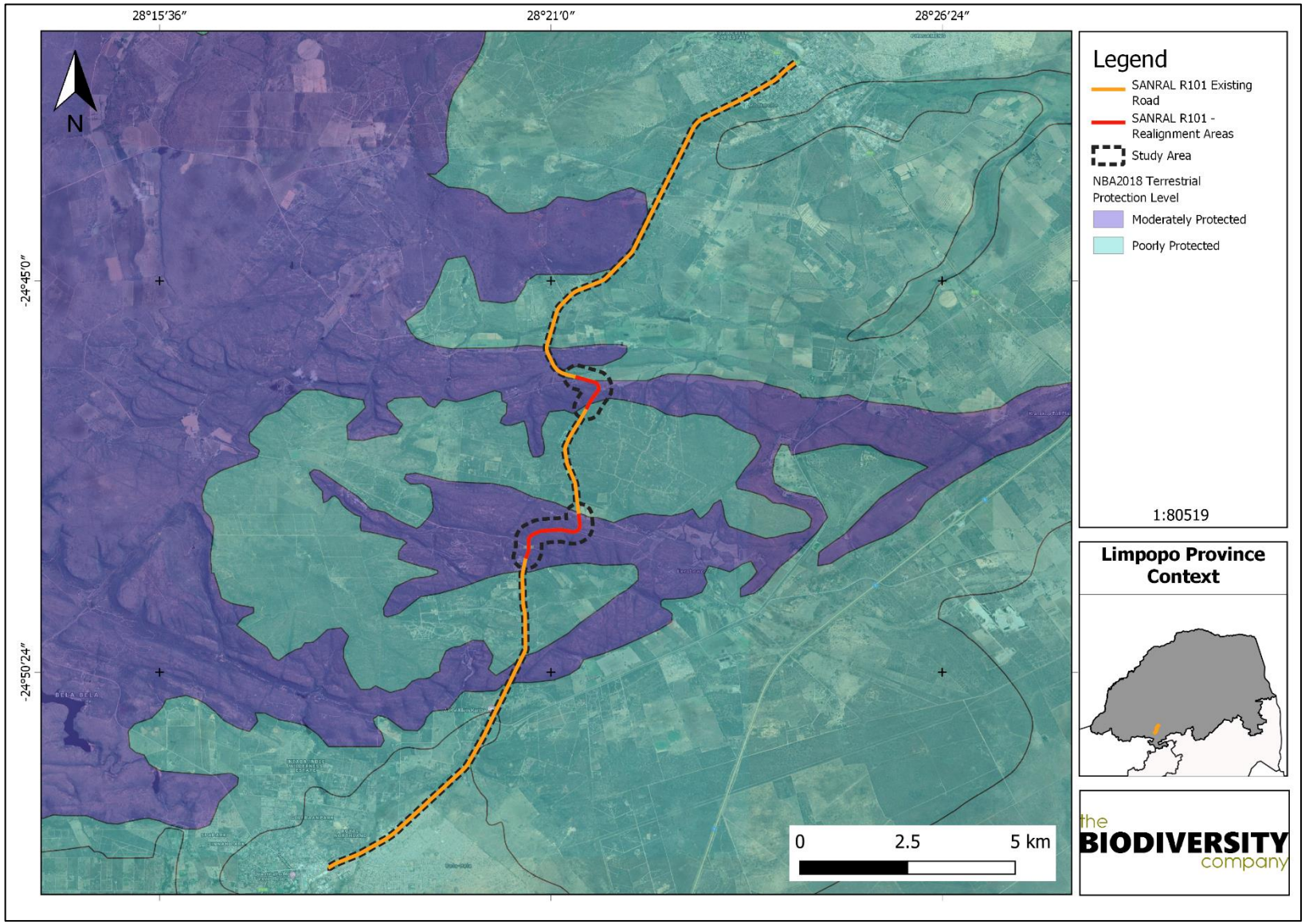

Figure 6-3 The project area showing the regional level of protection of terrestrial ecosystems (NBA, 2018)

6.3.3 Aquatic National Biodiversity Assessment

This spatial dataset is part of the South African Inventory of Inland Aquatic Ecosystems (SAIIAE) which was released as part of the National Biodiversity Assessment (NBA) 2018. National Wetland Map 5 includes inland wetlands and estuaries, associated with river line data and many other data sets within the South African Inventory of Inland Aquatic Ecosystems (SAIIAE) 2018.

The project area overlaps with two CR rivers, and is close to a third CR river. No wetlands can be found close to the project area (Figure 6-4).

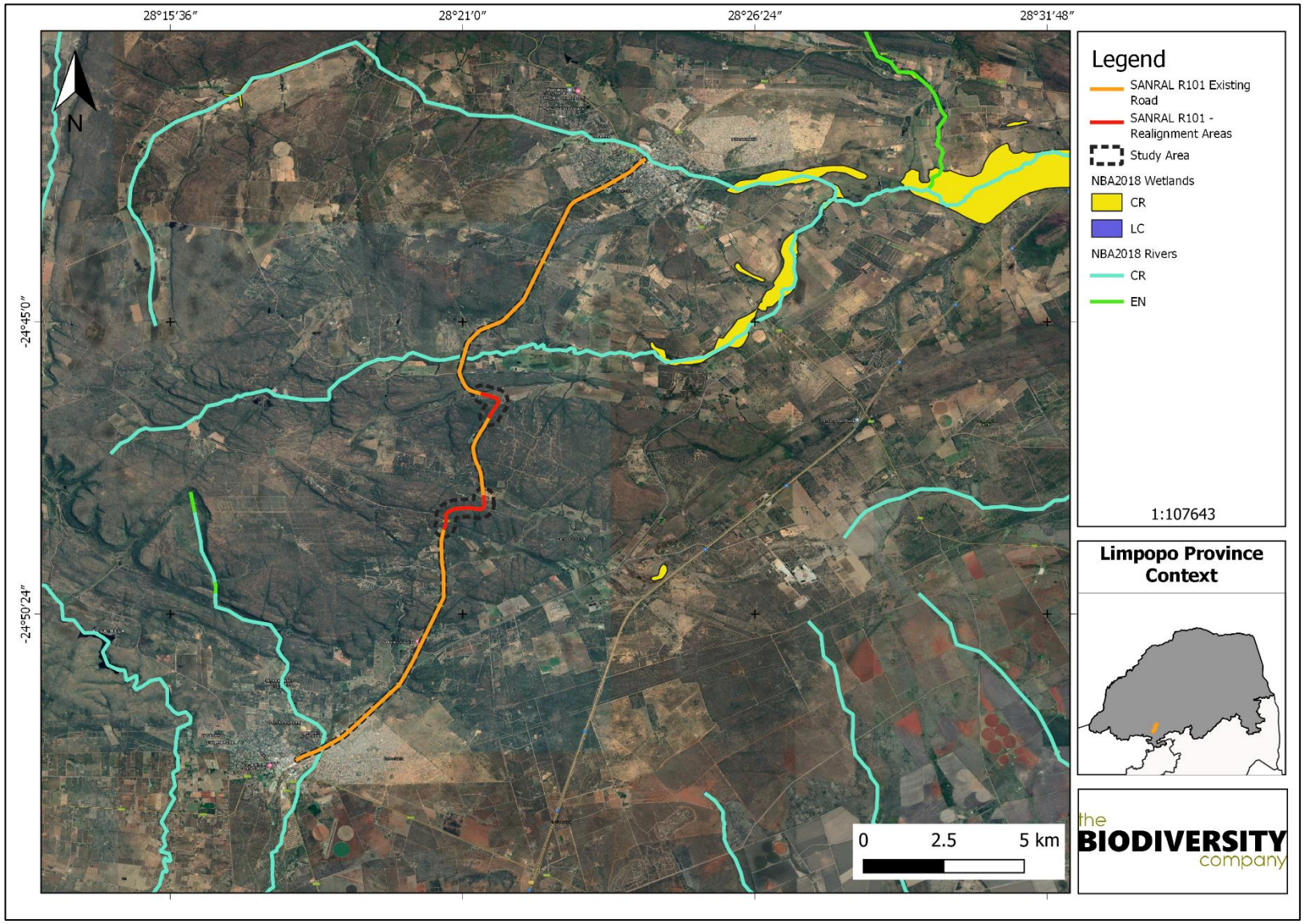

Figure 6-4 The project area in relation to the NBA wetlands.

6.4 Protected Areas

The Department of Environmental Affairs maintains a spatial database on Protected Areas and Conservation Areas. Protected Areas and Conservation Areas (PACA) Database scheme that used for classifying protected areas (South Africa Protected Areas Database-SAPAD) and conservation areas (South Africa Conservation Areas Database-SACAD) into types and sub-types in South Africa.

The definition of protected areas used in these documents follows the definition of a protected area as defined in the National Environmental Management: Protected Areas Act, (Act 57 of 2003). Chapter 2 of the National Environmental Management: Protected Areas Act, 2003 sets out the "System of Protected Areas", which consists of the following kinds of protected areas:

- Special nature reserves;
- National parks;
- Nature reserves;
- Protected environments (1-4 declared in terms of the National Environmental Management: Protected Areas Act, 2003);
- World heritage sites declared in terms of the World Heritage Convention Act;
- Marine protected areas declared in terms of the Marine Living Resources Act;
- Specially protected forest areas, forest nature reserves, and forest wilderness areas declared in terms of the National Forests Act, 1998 (Act No. 84 of 1998); and
- Mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).

The types of conservation areas that are currently included in the database are the following:

- Biosphere reserves;
- Ramsar sites;
- Stewardship agreements (other than nature reserves and protected environments);
- Botanical gardens;
- Transfrontier conservation areas;
- Transfrontier parks;
- Military conservation areas;and
- Conservancies.

According to the protected area spatial datasets from SAPAD (2019), the project area is adjacent to the J.L Moerdyk Gedenk Private Nature Reserve, is 3.1 km from the Vyeboom Private Nature Reserve and 3.8 km from the Rissik Private Nature Reserve (Figure 6-5).

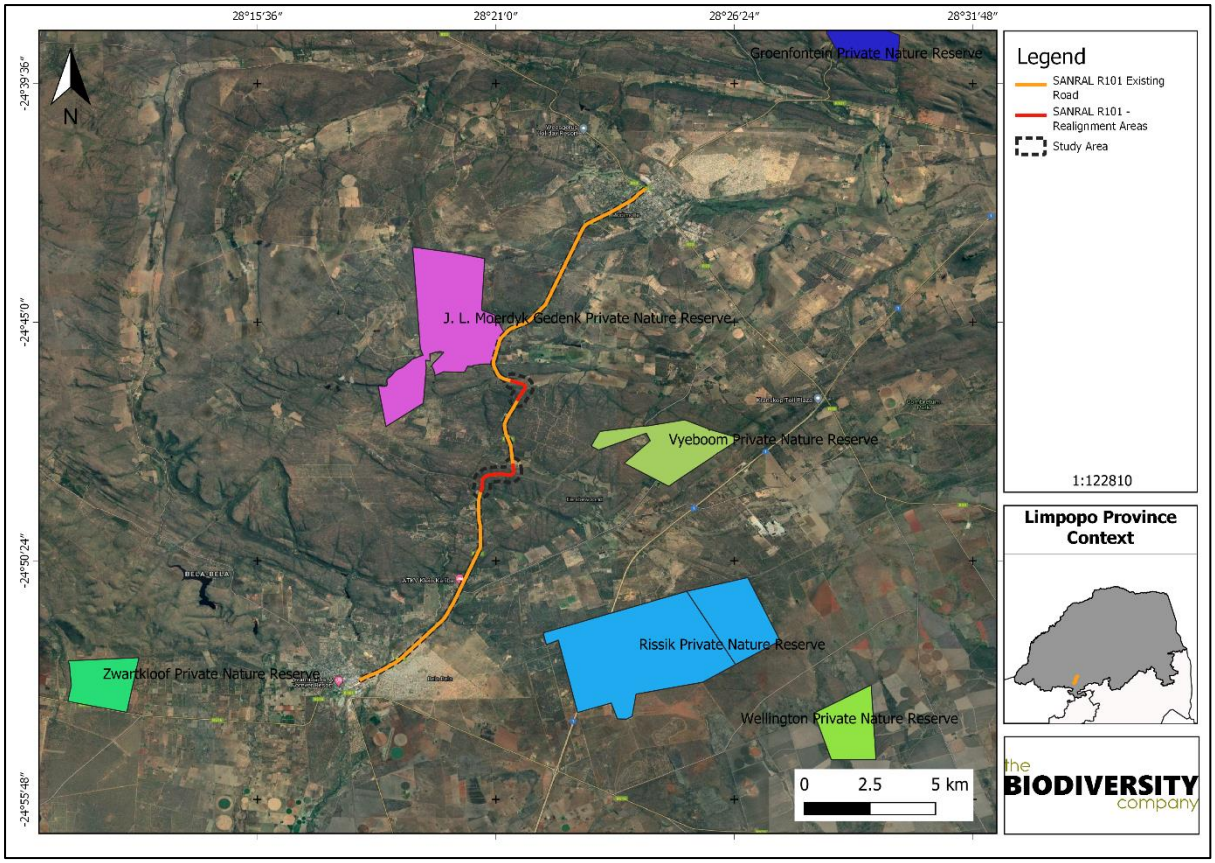

Figure 6-5 The project area in relation to the Protected Areas

6.5 Important Bird and Biodiversity Areas

Important Bird & Biodiversity Areas (IBAs) are the sites of international significance for the conservation of the world's birds and other conservation significant species as identified by BirdLife International. These sites are also all Key Biodiversity Areas; sites that contribute significantly to the global persistence of biodiversity (Birdlife, 2017).

According to Birdlife International (2017), the selection of IBAs is achieved through the application of quantitative ornithological criteria, grounded in up-to-date knowledge of the sizes and trends of bird populations. The criteria ensure that the sites selected as IBAs have true significance for the international conservation of bird populations and provide a common currency that all IBAs adhere to, thus creating consistency among, and enabling comparability between, sites at national, continental and global levels.

The project area comes within 6.4 km of the Waterberg IBA (Figure 6-3).

The Waterberg IBA consists of the whole Waterberg Plateau. The Kransberg is the western sector of the Waterberg range and falls within the Marakele National Park. The Kransberg holds a large colony of Cape vulture (*Gyps coprotheres*), approximately 800-850 pairs. The IBA also supports many other raptor species such as: Martial Eagle *Polemaetus bellicosus*, Verreauxs' Eagle *Aquila verreauxii*, Jackal Buzzard *Buteo rufofuscus* and African Harrier-Hawk *Polyboroides typus*. Breeding populations of Peregrine Falcon *Falco peregrinus*, Lanner Falcon *F. biarmicus*, Black Stork *Ciconia nigra* and Cape Eagle-Owl *Bubo capensis* occurs in this IBA.

Woodland bird species found in this IBA include Red-crested Korhaan *Lophotis ruficrista*, Monotonous Lark *Mirafra passerina*, Barred Wren-Warbler *Calamonastes fasciolatus*, Southern White-crowned Shrike *Eurocephalus anguitimens*, Scaly-feathered Finch *Sporopipes squamifrons*, Violet-eared Waxbill *Uraeginthus granatinus* and Black-faced Waxbill *Estrilda erythronotos*. Half-collared Kingfisher *Alcedo semitorquata* and Mountain Wagtail *Motacilla clara* occur along the mountain streams. Along some of the rivers White-backed Night Heron *Gorsachius leuconotus* and African Finfoot *Podica senegalensis* can be found. Buff-streaked Chat *Campicoloides bifasciata* and Cape Rock Thrush *Monticola rupestris*, which are endemic to South Africa, Lesotho and Swaziland, also occur in the IBA.

Biome-restricted species include Kurrichane Thrush *Turdus libonyanus*, White-bellied Sunbird *Cinnyris talatala*, Barred Wren-Warbler and Burchell's Starling *Lamprotornis australis*, which are common. White-throated Robin-Chat *Cossypha humeralis* is considered fairly common and Buff-streaked Chat, Kalahari Scrub Robin *Erythropygia paena* and Gurney's Sugarbird are regarded as uncommon (Birdlife South Africa, 2015A).

The Northern Thronveld IBA consists of a group of privately owned farms that forms a triangle delineated roughly by the Crocodile River in the east and the Bierspruit River in the west; the confluence of these two rivers is approximately 3 km south-west of Thabazimbi. This IBA is important as it is home to the Yellow-throated Sandgrouse *Pterocles gutturalis,* and is regarded as the core of the resident South African population (Birdlife South Africa, 2015B).

Other important birds in the IBA include Secretarybird *Sagittarius serpentarius*, Kori Bustard *Ardeotis kori*, Lanner Falcon *Falco biarmicus* and Black-winged Pratincole *Glareola nordmanni*.

Common biome-restricted species found within this IBA include Kurrichane Thrush *Turdus libonyanus*, White-throated Robin-Chat *Cossypha humeralis*, Burchell's Starling *Lamprotornis australis*, White-bellied Sunbird *Cinnyris talatala* and the fairly common Kalahari Scrub Robin *Erythropygia paena* (Birdlife South Africa, 2015B).

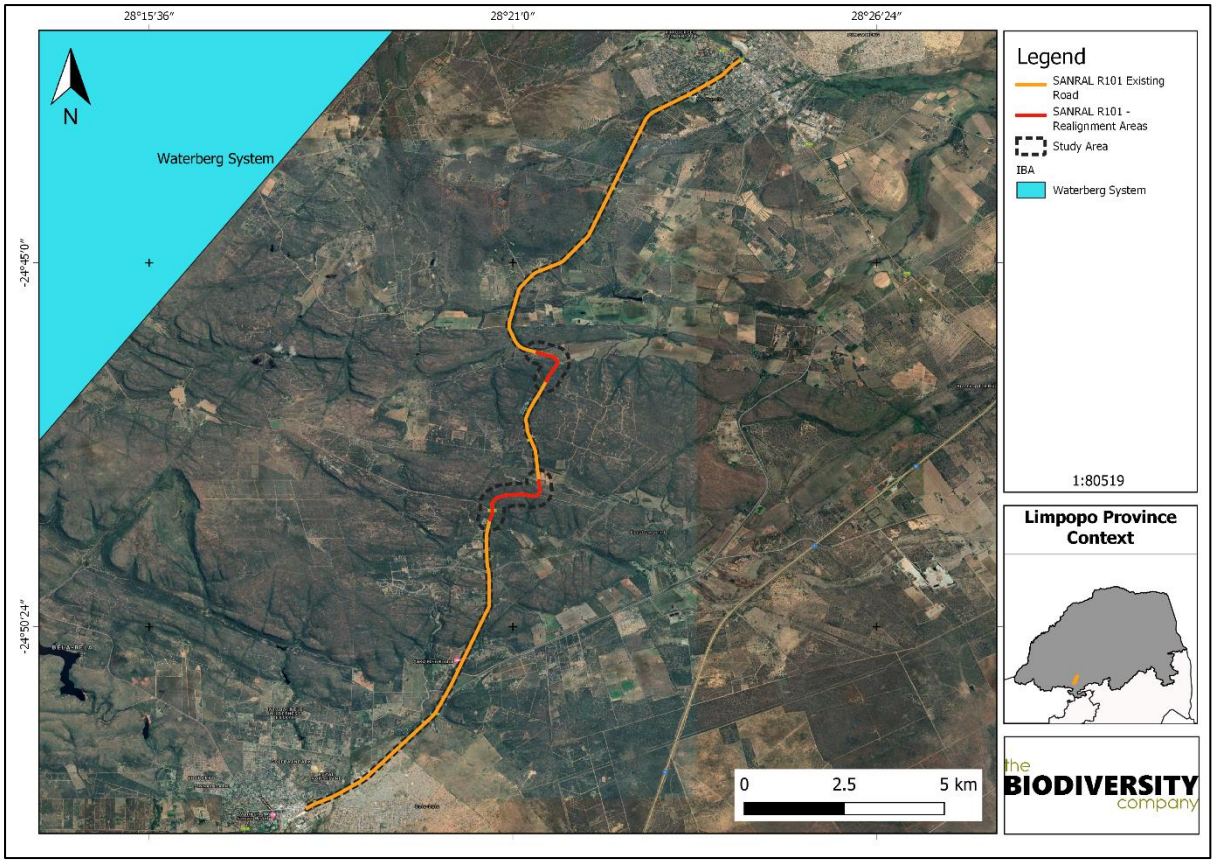

Figure 6-6 The project area proximal to the Waterberg IBA

6.6 Vegetation Assessment

The project area is situated within the savanna biome. The savanna vegetation of South Africa represents the southernmost extension of the most widespread biome in Africa (Mucina & Rutherford, 2006). Major macroclimatic traits that characterise the Savanna biome include:

a) Seasonal precipitation; and

b) (Sub) tropical thermal regime with no or usually low incidence of frost (Mucina & Rutherford, 2006).

Most savanna vegetation communities are characterised by a herbaceous layer dominated by grasses and a discontinuous to sometimes very open tree layer (Mucina & Rutherford, 2006).

The savanna biome is the largest biome in South Africa, extending throughout the east and north-eastern areas of the country. Savannas are characterised by a dominant grass layers, over-topped by a discontinuous, but distinct woody plant layer. At a structural level, Africa's savannas can be broadly categorised as either fine-leaved (microphyllous) savannas or broad-leaved savannas. Fine-leaved savannas typically occur on nutrient rich soils and are dominated by microphyllous woody plants of the Mimosaceae family (Common genera include Acacia and Albizia) and a generally dense herbaceous layer (Scholes & Walker, 1993).

6.6.1 Vegetation Types

The savanna biome comprises many different vegetation types. The project area is situated within the Central Sandy Bushveld, Springbokvlakte Thornveld and Waterberg Mountain Bushveld according to SANBI, 2018 (Figure 6-7).

6.6.1.1 Central Sandy Bushveld

Central Sandy Bushveld is undulating terrain at altitudes of 850-1450m. These areas are sometimes found between mountains, sandy plains and catenas that support tall, deciduous *Terminalia sericea* and *Burkea africana.*

Important Plant Taxa

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 (Mucina & Rutherford, 2006).

The following species are important in the **Central Sandy Bushveld** vegetation type:

Tall Trees: *Senegalia burkei*, *Vachellia robusta*, *Sclerocarya birrea* subsp. *caffra*.

Small Trees: *Burkea africana*, *Combretum apiculatum*, *C. zeyheri*, *Terminalia sericea*, *Ochna pulchra*, *Peltophorum africanum*, *Searsia leptodictya*.

Tall Shrubs: *Combretum hereroense*, *Grewia bicolor*, *G. monticola*, *Strychnos pungens*.

Low Shrubs: *Agathisanthemum bojeri*, *Indigofera filipes*, *Felicia fascicularis*, *Gnidia sericocephala*.

Geoxylic Suffrutex: *Dichapetalum cymosum*.

Woody Climber: *Asparagus buchananii*.

Graminoids: *Brachiaria nigropedata*, *Eragrostis pallens*, *E. rigidior*, *Hyperthelia dissoluta*, *Panicum maximum*, *Perotis patens*, *Anthephora pubescens*, *Aristida scabrivalvis* subsp. *scabrivalvis*, *Brachiaria serrata*, *Elionurus muticus*, *Eragrostis nindensis*, *Loudetia simplex*, *Schmidtia pappophoroides*, *Themeda triandra*, *Trachypogon spicatus*.

Herbs: *Dicerocaryum senecioides*, *Barleria macrostegia*, *Blepharis integrifolia*, *Crabbea angustifolia*, *Evolvulus alsinoides*, *Geigeria burkei*, *Hermannia lancifolia*, *Indigofera daleoides*, *Justicia anagalloides*, *Kyphocarpa angustifolia*, *Lophiocarpus tenuissimus*, *Waltheria indica*, *Xerophyta humilis*.

Geophytic Herb: *Hypoxis hemerocallidea*.

Succulent Herb: *Aloe greatheadii* var. *davyana*.

Biogeographically Important Taxa (Central Bushveld endemics)

Graminoid: *Mosdenia leptostachys*.

Herb: *Oxygonum dregeanum* subsp. *canescens* var. *dissectum*.

Conservation Status of the Vegetation Type

The conservation status of this vegetation community was listed by Mucina and Rutherford (2006) as VU. The national conservation target of 19% of which less than 3% is statutorily conserved across many nature reserves.

6.6.1.2 Springbokvlakte Thornveld

The Springbokvlakte Thornveld is found in the Limpopo, Mpumalanga, North West and Gauteng Province. This vegetation type occurs on flat to slightly undulating plains where it is comprises of open to dense, low thorn savanna dominated by *Vachellia* and *Senegalia* species or shrubby grassland with a very low shrub layer.

Important Taxa

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 (Mucina & Rutherford, 2006). The following species are important in the Springbokvlakte Thornveld.

Small Trees: *Vachellia karroo*, *V. luederitzii* var. *retinens*, *Senegalia mellifera* subsp. *detinens*, *Vachellia nilotica*, *Ziziphus mucronata*, *Vachellia tortilis* subsp. *heteracantha*, *Boscia foetida* subsp. *rehmanniana*.

Tall Shrubs: *Euclea undulata*, *Searsia engleri*, *Dichrostachys cinerea*, *Diospyros lycioides* subsp. *lycioides*, *Grewia flava*, *Tarchonanthus camphoratus*.

Low Shrubs: *Vachellia tenuispina*, *Ptycholobium plicatum*.

Succulent Shrub: *Kleinia longiflora*.

Herbaceous Climbers: *Momordica balsamina*, *Rhynchosia minima*.

Graminoids: *Aristida bipartita*, *Dichanthium annulatum* var. *papillosum*, *Ischaemum afrum*, *Setaria incrassata*, *Aristida canescens*, *Brachiaria eruciformis*.

Herbs: *Aspilia mossambicensis*, *Indigastrum parviflorum*, *Nidorella hottentotica*, *Orthosiphon suffrutescens*, *Senecio apiifolius*.

Biogeographically Important Taxon (Central Bushveld endemic)

Graminoid: *Mosdenia leptostachys*.

Conservation Status of the Vegetation Type

According to Mucina and Rutherford (2006), the Springbokvlakte Thornveld vegetation type is classified as EN. Only 1% is statutorily conserved, mainly in the Mkombo Nature Reserve. At least 49% transformed, including about 45% cultivated and 3% urban and built-up. Dense rural populations occur in parts of the southern and eastern side of the unit.

6.6.1.3 Waterberg Mountain Bushveld

The Waterberg Mountain Bushveld is found in the Limpopo province, where it is found in rugged mountains. Vegetation grading from *Faurea saligna-Protea caffra* bushveld on higher slopes through broad-leaved deciduous bushveld on rocky mid- and footslopes to *Burkea*

Africana-Terminalia sericea savanna in the lower-lying valleys as well as on deeper sands of the plateaus.

Important Plant Taxa

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 (Mucina & Rutherford, 2006). The following species are important in the Waterberg Mountain Bushveld.

Tall Tree: *Vachellia robusta*.

Small Trees: *Senegalia caffra*, *Burkea africana*, *Combretum apiculatum*, *Croton gratissimus*, *Cussonia transvaalensis*, *Faurea saligna*, *Heteropyxis natalensis*, *Ochna pulchra*, *Protea caffra*, *Albizia tanganyicensis*, *Combretum molle*, *Englerophytum magalismontanum*, *Ficus burkei*, *F. glumosa*, *Ochna pretoriensis*, *Pseudolachnostylis maprouneifolia*, *Searsia lancea*, *Terminalia sericea*, *Vangueria infausta*, *V. parvifolia*.

Tall Shrubs: *Diplorhynchus condylocarpon*, *Elephantorrhiza burkei*, *Combretum moggii*, *C. nelsonii*, *Dichrostachys cinerea, Euclea crispa* subsp. *crispa*, *Gnidia kraussiana*, *Olea capensis* subsp. *enervis*, *O. europaea* subsp. *africana*, *Searsia pyroides* var. *pyroides*, *Strychnos pungens*, *Vitex rehmannii*.

Low Shrubs: *Anthospermum rigidum* subsp. *rigidum*, *Barleria affinis*, *Felicia muricata*, *Helichrysum kraussii*, *Protea welwitschii* subsp. *welwitschii*, *Searsia rigida* var. *dentata*. Geoxylic Suffrutices: *Dichapetalum cymosum*, *Parinari capensis* subsp. *capensis*.

Succulent Shrubs: *Aloe chabaudii*, *Lopholaena coriifolia*.

Woody Climbers: *Ancylobotrys capensis*, *Rhoicissus revoilii*.

Graminoids: *Loudetia simplex*, *Schizachyrium sanguineum*, *Trachypogon spicatus*, *Brachiaria serrata*, *Digitaria eriantha* subsp. *eriantha*, *Elionurus muticus*, *Enneapogon scoparius*, *Setaria sphacelata*, *Themeda triandra*, *Tristachya leucothrix*.

Herbs: *Berkheya insignis*, *Chamaecrista mimosoides*, *Geigeria elongata*, *Hibiscus meyeri* subsp. *transvaalensis*, *Xerophyta retinervis*.

Geophytic Herbs: *Haemanthus humilis* subsp. *humilis*, *Hypoxis rigidula*.

Biogeographically Important Taxa ([CB]Central Bushveld endemic, [N]Northern Sourveld endemic)

Small Tree: *Encephalartos eugene-maraisii*[N].

Tall Shrub: *Erythrophysa transvaalensis*[CB].

Soft Shrub: *Chorisochora transvaalensis*[N].

Graminoid: *Mosdenia leptostachys*[CB].

Endemic Taxa

Tall Shrubs: *Grewia rogersii*, *Pachystigma triflorum*.

Herb: *Oxygonum dregeanum* subsp. *canescens* var. *pilosum*.

Conservation Status

According to SANBI 2018, the Waterberg Mountain Bushveld vegetation type is classified as LC. The national target for conservation protection for this vegetation type is 24%, with only 9% conserved in Marakele National Park and Moepel Nature Reserve.

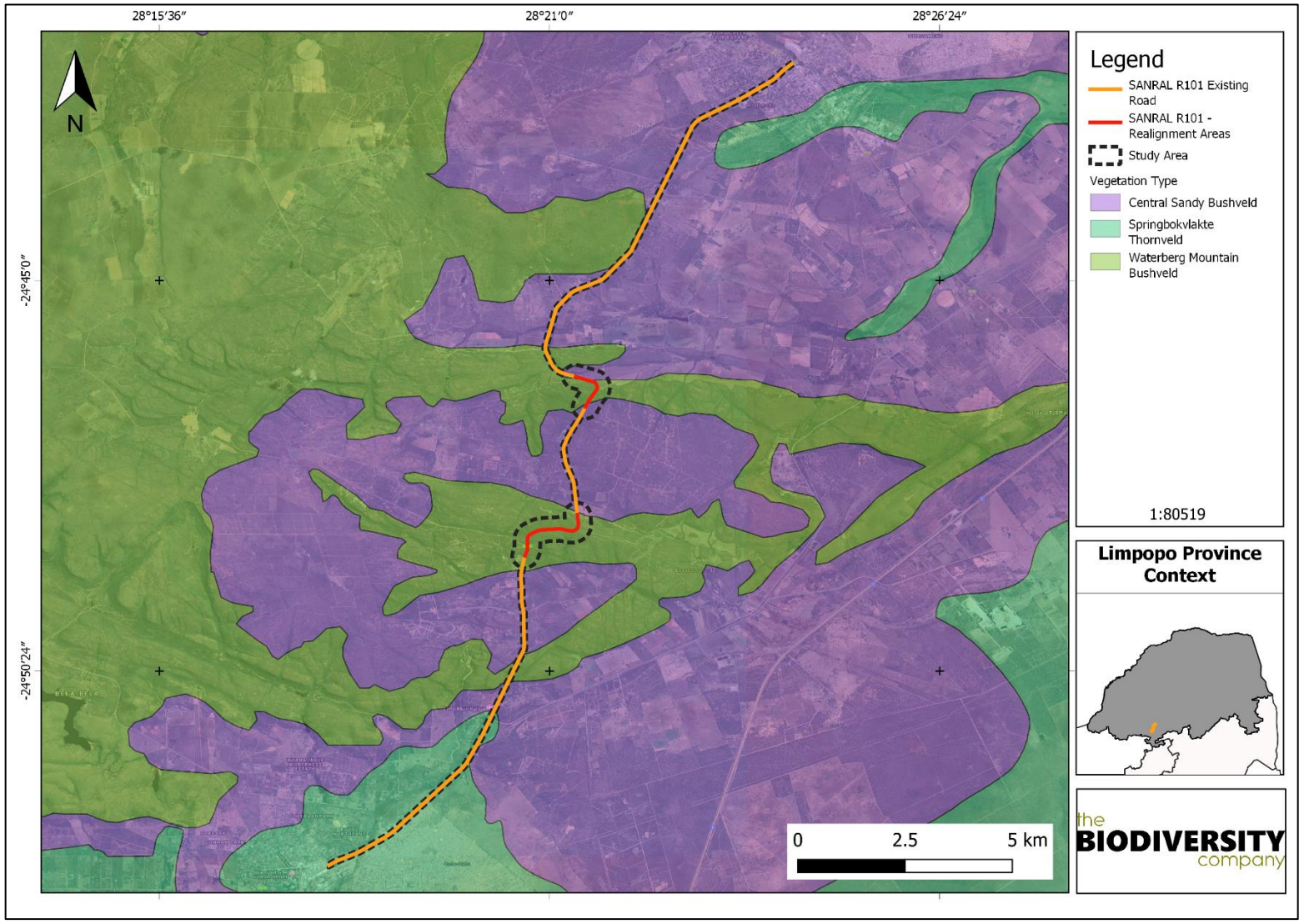

Figure 6-7 The project area showing the vegetation type based on the Vegetation map of South Africa, Lesotho and Swaziland (BGIS, 2018)

6.6.1.4 Plant Species of Conservation Concern

Based on the Plants of Southern Africa (BODATSA-POSA, 2019) database, 840 plant species have the potential to occur in the project area and its surroundings (Figure 6-8 and Table 6.2). Of these 840 plant species (Appendix B), 2 species are listed as being Species of Conservation Concern (SCC) (Figure 6-8).

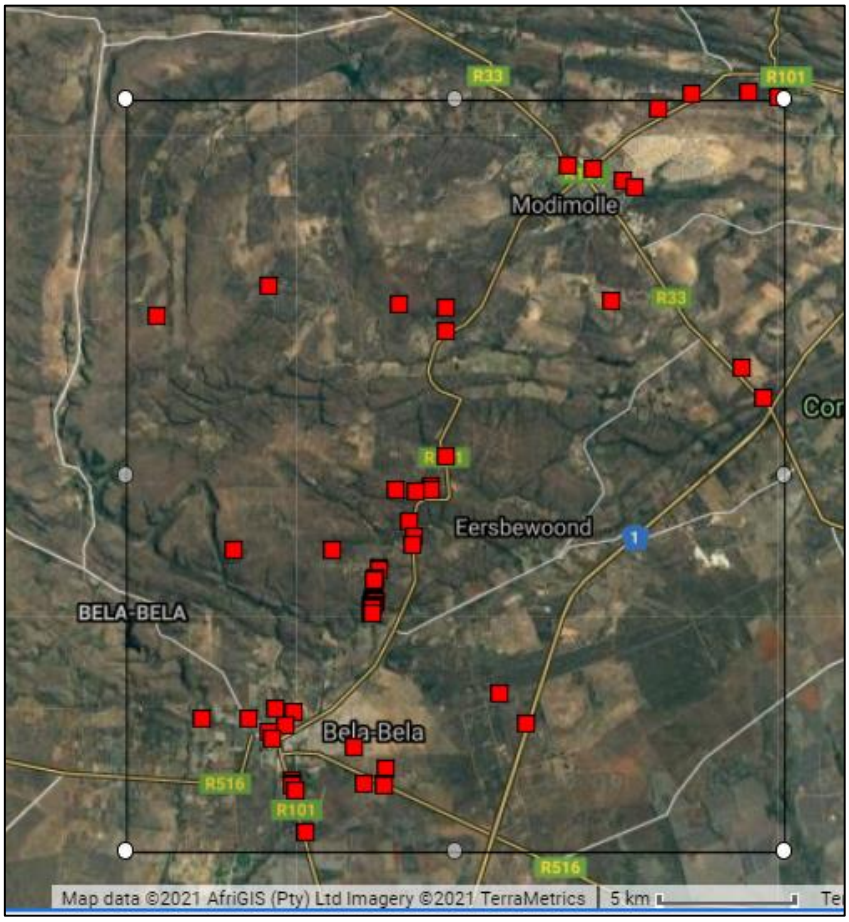

Figure 6-8 Map showing the grid drawn in order to compile an expected plant species list (BODATSA-POSA, 2019)

Table 6.2 Plant Species of Conservation Concern with the potential to occur in the project area

Family	Taxon	Author	IUCN	Ecology
Cleomaceae	Cleome conrathii	Burtt Davy	NT	Indigenous
Apocynaceae	Ceropegia turricula	E.A.Bruce	NT	Indigenous; Endemic

6.7 Faunal Assessment

6.7.1 Avifauna

Based on the South African Bird Atlas Project, Version 2 (SABAP2) database, 341 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, 13 species are listed as SCC either on a regional or global scale (Table 6.*3*). Seven species have a low likelihood of occurrence in the project area due to a lack of suitable habitat.

Table 6.3 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)	
Alcedo semitorquata	Kingfisher, Half-collared	NT	LC	**Moderate**
Aquila verreauxii	Eagle, Verreaux's	VU	LC	**Low**
Ciconia abdimii	Stork, Abdim's	NT	LC	**Low**
Ciconia nigra	Stork, Black	VU	LC	**Low**
Coracias garrulus	Roller, European	NT	LC	**High**
Falco biarmicus	Falcon, Lanner	VU	LC	**High**
Glareola nordmanni	Pratincole, Black-winged	NT	NT	**Low**
Gyps africanus	Vulture, White-backed	CR	CR	**High**
Gyps coprotheres	Vulture, Cape	EN	EN	**High**
Leptoptilos crumeniferus	Stork, Marabou	NT	LC	**Low**
Mycteria ibis	Stork, Yellow-billed	EN	LC	**Low**
Sagittarius serpentarius	Secretarybird	VU	VU	**Low**
Torgos tracheliotus	Vulture, Lappet-faced	EN	EN	**High**

Alcedo semitorquata (Half-collared Kingfisher) is listed as NT on a regional scale and occurs across a large range. This species generally prefers narrow rivers, streams, and estuaries with dense vegetation onshore, but it may also move into coastal lagoons and lakes. It mainly feeds on fish (IUCN, 2017). The possibility of occurrence is rated as moderate, as the two rivers in the project area might provide suitable habitat, these systems are however disturbed and it lowers the likelihood of occurrence.

Coracias garrulous (European Roller) is a winter migrant from most of South-central Europe and Asia occurring throughout sub-Saharan Africa (IUCN, 2017). The European Roller has a preference for bushy plains and dry savannah areas (IUCN, 2017). There is a high chance of this species occurring in the project area as the habitat is regarded as suitable.

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 presence of many bird species on which Lanner Falcons may predate.

Gyps africanus (White-backed Vulture) has a large range and only occurs throughout sub-Saharan Africa. Primarily a lowland species of open wooded savanna, particularly areas of *Acacia* (*Vachellia).* It requires tall trees for nesting. According to the IUCN (2017) this species faces similar threats to other African vultures, being susceptible to habitat conversion to agro-pastoral systems, loss of wild ungulates leading to a reduced availability of carrion, hunting for trade, persecution and poisoning. The likelihood of suitably large trees for nesting for this species is high at the project area, this combined with the large number of game farms in and around the project area leads to a high likelihood of occurrence.

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). Individuals were seen foraging within the area.

Torgos tracheliotus (Lappet-faced Vulture) is listed as EN, both on a regional and global level. Only a small, very rapidly declining population remains, owing primarily to poisoning and persecution, as well as ecosystem alterations (IUCN, 2017). The species inhabits dry savanna, arid plains, deserts and open mountain. It ranges widely when foraging and is mainly a scavenger, feeding predominantly on any large carcasses or their remains. This rare species has been recorded in the nearby Marakele National Park as such they have a high likelihood of occurrence to be foraging in the area.

6.7.2 Mammals

The IUCN Red List Spatial Data (IUCN, 2017) lists 98 mammal species that could be expected to occur within the project area. Species limited to nature reserves in South Africa was removed from the expected species list (Appendix D). Seventeen species of conservation concern have a potential to occur in the project area (Table 6.4). Seven species have a low likelihood of occurrence, mainly as a result of lack of suitable habitat.

Table 6.4 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)	
Aonyx capensis	Cape Clawless Otter	NT	NT	Low
Atelerix frontalis	South Africa Hedgehog	NT	LC	High
Cloeotis percivali	Short-eared Trident Bat	EN	LC	Moderate
Crocidura mariquensis	Swamp Musk Shrew	NT	LC	Low
Crocuta crocuta	Spotted Hyaena	NT	LC	Moderate
Dasymys incomtus	African Marsh rat	NT	LC	Low
Eidolon helvum	African Straw-colored Fruit Bat	LC	NT	Low
Felis nigripes	Black-footed Cat	VU	VU	Low
Hydrictis maculicollis	Spotted-necked Otter	VU	NT	Low
Leptailurus serval	Serval	NT	LC	High

Neamblysomus julianae	Juliana's Golden Mole	EN	EN	Low
Panthera pardus	Leopard	VU	VU	High
Parahyaena brunnea	Brown Hyaena	NT	NT	High
Pelea capreolus	Grey Rhebok	NT	NT	High
Poecilogale albinucha	African Striped Weasel	NT	LC	High
Redunca fulvorufula	Mountain Reedbuck	EN	LC	High
Rhinolophus blasii	Blasius's horseshoe bat	NT	LC	Moderate

Atelerix frontalis (South African Hedgehog) has a tolerance of a degree of habitat modification and occurs in a wide variety of semi-arid and sub-temperate habitats (IUCN, 2017). Based on the Red List of Mammals of South Africa, Lesotho and Swaziland (2016), *A. frontalis* populations are decreasing due to the threats of electrocution, veld fires, road collisions, predation from domestic pets and illegal harvesting. Although the species is cryptic and therefore not often seen, there is suitable habitat in the project area and therefore the likelihood of occurrence is rated as high.

Cloeotis percivali (Short-eared Trident Bat) occurs in savanna areas where there is sufficient cover in the form of caves and mine tunnels for day roosting (IUCN, 2017). It feeds exclusively on moths, and appears to be very sensitive to disturbance. Suitable habitat can be found around the project area, although with some level of disturbance and therefore the likelihood of finding this species is rated as moderate.

Crocuta crocuta (Spotted Hyaena) is classified as near-threatened on a national scale. This species mainly occur in protected areas but in Limpopo and the North-west Provinces they can still be found outside of protected areas. This species is predominantly found in savanna habitats, where they can occur in close association with humans. The likelihood of occurrence in this project area is moderate due to the presence of suitable prey species.

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. Portions of the project are consist of grasslands, and a large number of rodent activity were observed thus leading to a high likelihood of occurrence.

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). Although known to occur and persist outside of formally protected areas, the densities in these areas are considered to be low. A number of leopard tracks were observed in the project area, various farmers also indicated that they have seen Leopards on their properties in the last year.

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. Two farmers indicated that they have seen Brown Hyaena on their properties in the last year.

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. Their presence in the area has been confirmed by farmers.

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). Mountainous habitat makes up majority of the project area, as such the species has a high likelihood of occurrence.

Rhinolophus blasii (Blasius's Horsehoe Bat) is categorised as NT on a regional scale. It typically forages in shrubland and woodland, where it roosts in the summer in natural and artificial underground sites. This species is not very common in South Africa. Threats to the species include loss of woodlands, disturbance and loss of underground habitats, and destruction of roost sites. This species has a moderate likelihood of occurrence based on the presence of suitable roosting sites.

6.7.3 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) 100 reptile species have the potential to occur in the project area (Appendix E). Three (3) of the expected species are SCCs (IUCN, 2017). Based on the lack of large perennial rivers in the project area the Nile Crocodile were given a low likelihood of occurrence.

Table 6.5 Reptiles SCCs expected in the project area.

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Crocodylus niloticus	Nile Crocodile	VU	VU	**Low**
Lygodactylus waterbergensis	Waterberg Dwarf Gecko	NT	NT	**High**
Pseudocordylus transvaalensis	Northern Crag Lizard	NT	NT	**High**

Lygodactylus waterbergensis (Waterberg Dwarf Gecko) is classified as NT both regionally and internationally. This species is endemic to Limpopo Province, where it is found in rocky areas

of the grassland and savannas. The likelihood of occurrence is high as rocky habitat is present in the project area.

Pseudocordylus transvaalensis (Northern Crag Lizard) is categorised as NT on both a regional and a global scale. This species is threatened by the pet trade and is listed on CITES. The likelihood of occurrence in the project area is high because of the rocky habitat present for this species.

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the AmphibianMap database provided by the Animal Demography Unit (ADU, 2020) 30 amphibian species have the potential to occur in the project area (Appendix F). None of the species are species of conservation concern.

6.8 Fieldwork Findings

The field survey for the project area was conducted in beginning May 2021. During the survey the floral and faunal communities within the project development footprint were assessed. The project area was ground-truthed on foot, which included spot checks in pre-selected areas to validate desktop data. Photographs were recorded during the site visit and some are provided in this section of the report.

Figure 6-9 shows the areas that were focussed on during the survey. Priority was given to the area where the road will be realigned (Study Area). Three camera traps were set in order to increase the chance of finding cryptic and elusive species (Figure 6-10).

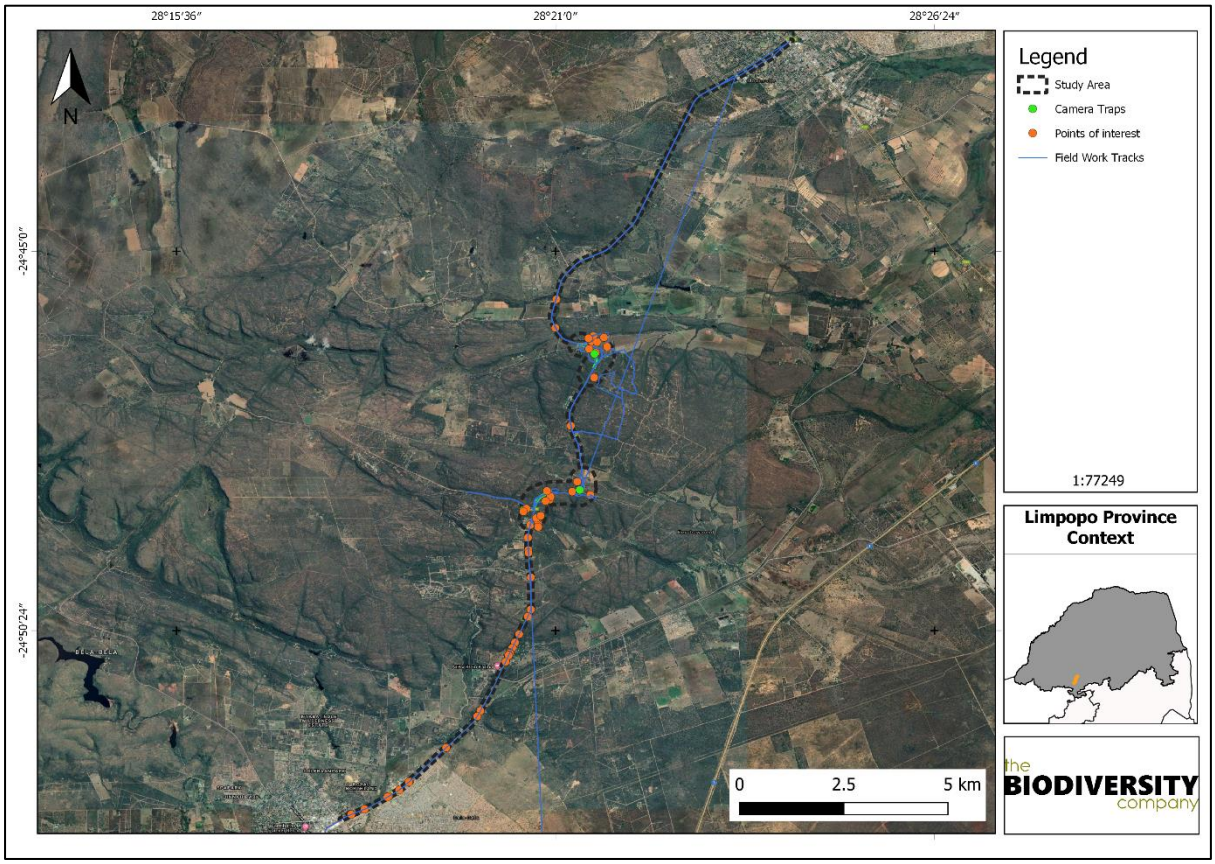

Figure 6-9 The areas covered in the field assessment.

Figure 6-10 One of the camera traps used in the field assessment.

6.8.1 Flora Assessment

The vegetation assessment was conducted throughout the extent of the project area. A total of 80 tree, shrub and herbaceous plant species were recorded in the project area during the field assessment (Table 6.6). 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.

Table 6.6 Trees, shrubs and weeds recorded at the project area.

Species	Common Name	Growth Form/Alien Category	Threat Status (SANBI, 2017)	SA Endemic
Agave sisalana	Sisal	Cat. 2		
Agrostis lachnantha	Bent Grass	Increaser 2 - Pioneer		
Albizia tanganyicensis	Paperbark albizia	Tree		
Aloe greatheadii var davyana	Spotted Aloe	Aloe	LC. Protected LEMA 2003	
Aristida congesta congesta	Tassel Tree-awn	Increaser 2 - Pioneer		
Aristida diffusa	Iron Grass	Increaser 3 - Subclimax to climax		
Asparagus laricinus	Bushveld Asparagus	Shrub		
Bidens pilosa	Common Black-jack	Alien Invasive	Herb	
Blepharus subvolubilis		Shrub		
Bolusanthus speciosus	Tree wisteria	Tree		
Brachiaria deflexa	False signal grass	Pioneer Increaser 2		

Brachiaria serrata	Velvet Signal Grass	Decreaser - Climax		
Burkea africana	Wild Syringa	Tree		
Cereus jamacaru	Queen of the Night	Cat. 1B		
Chloris gayana	Rhodes grass	Sub climax Decreaser		
Combretum apiculatum	Red Bushwillow	Tree		
Combretum imberbe	Leadwood	Tree	SA protected Tree	
Combretum molle	Velvet Bushwillow	Tree		
Cotyledon orbiculata	Pig's ears	Succulent	LC	
Croton gratissimus	Lavender fever berry	Tree		
Cussonia transvaalensis	Transvaal cabbage tree	Tree	LC	Yes
Cynodon dactylon	Couch Grass	Increaser 2 - Pioneer		
Digitaria eriantha	Common Finger Grass	Decreaser - Climax		
Digitaria eriantha	Common Finger Grass	Decreaser - Climax		
Dombeya rotundifolia	Common wild pear	Tree		
Elionurus muticus	Wire Grass	Increaser 3 - Climax		
Englerophytum magalismontanum	Transvaal milkplum	Tree		
Eragrostis gummiflua	Gum Grass	Increaser 2 - Subclimax		
Eragrostis heteromera	Bronze Love Grass	Subclimax to climax		
Eragrostis trichophora	Hairy Love Grass	Increaser 2 - Subclimax		
Erythrina lysistemon	Common Coral tree	Medicinal		
Eucalyptus camaldulensis	Red River Gum	Cat. 2B		
Faurea saligna	African beech	Tree		
Ficus abutilifolia	Large Leaved Rock Fig	Medicinal		
Ficus burkei	Burke's fig	Tree		
Ficus glumosa	Hairy rock fig	Tree		
Flaveria bidentis	Smelter's bush	Cat. 1B		
Gardenia volkensii	African tree gardenia	Tree		
Grewia bicolor	White raisin	Tree		
Grewia monticola	Grey raisin	Tree		
Haemanthus humulis subs hirsuta	Rabbit's ears	Medicinal		
Gymosporia heterophylla	Spike Thorn	Shrub		
Heteropogon contortus	Spear Grass	Increaser 2 - Subclimax		
Imperata cylindrica	Cotton Wool Grass	Increaser 1		
Lantana camara	Lantana	Cat. 1B		
Ledebouria revoluta	Common African hyacinth	Herb		
Loudetia simplex	Common Russet Grass	Increaser 2 - Climax		
Melia azedarach	Syringa	Cat. 1B		
Melinis repens	Natal Red Top	Increaser 2 - Pioneer to subclimax		
Miscanthus junceus	Wireleaf Daba Grass	Increaser 1 - Climax		

Olea europaea	Wild Olive	Tree		
Opuntia ficus-indica	Sweet Prickly Pear	Cat. 1b		
Ozoroa paniculosa	Common Resin Tree	Tree		
Paspalum dilatatum	Dallis Grass	Exotic		
Paspalum urvillei	Vasey Grass	Exotic		
Peltophorum africanum	African Wattle	Tree		
Perotis patens	Cat's Tail	Increaser 2 - Pioneer to subclimax		
Persicaria lapathifolia	Spotted Knotweed	Naturalized exotic		
Phragmites australis	Common Reed	*Phragmites australis*		
Phytolacca octandra	Inkweed	Shrub		
Pogonarthria squarrosa	Herringbone Grass	Increaser 2 - Subclimax		
Pseudolachnostylis maprouneifolia	Kudu berry	Tree		
Pteridium aquilinum	Bracken fern	Fern		
Rhoicissus tridentata	Bitter grape	Tree		
Schizachyrium sanguineum	Red Autumn Grass	Increaser 1 - Climax		
Schoenoplectus corymbosus	Common Sedgs	Sedge		
Sclerocharia berrea	Maroela	Tree	SA protected Tree	
Searsia pyroides	Common Wild current	Tree		
Solanum mauritianum	Bugweed	Cat. 2B		
Sporobolus festivus	Red Dropseed	Pioneer Sub-Climax Inreaser 2		
Strychnos cocculoides	Corky monkey-orange	Tree		
Strychnos pungens	Spine-leaved monkey-orange	Tree		
Strychnos spinosa	Green monkey-orange	Tree		
Tephrosia grandiflora	Large Pink Tephrosia	Medicinal		
Terminalia prunoides	Lowveld Cluster leaf	Tree		
Terminalia sericea	Silver Cluster-leaf	Tree		
Themeda triandra	Red Grass	Decreaser - Climax		
Trichoneura grandiglumis	Small Rolling Grass	Increaser 2 - Subclimax		
Vangueria parvifolia	Mountain medlar	Tree		
Verbena bonariensis	Tall Verbena	Cat. 1B		
Xerophyta retinervis	Black Stick Lilly	Shrub	LC	No

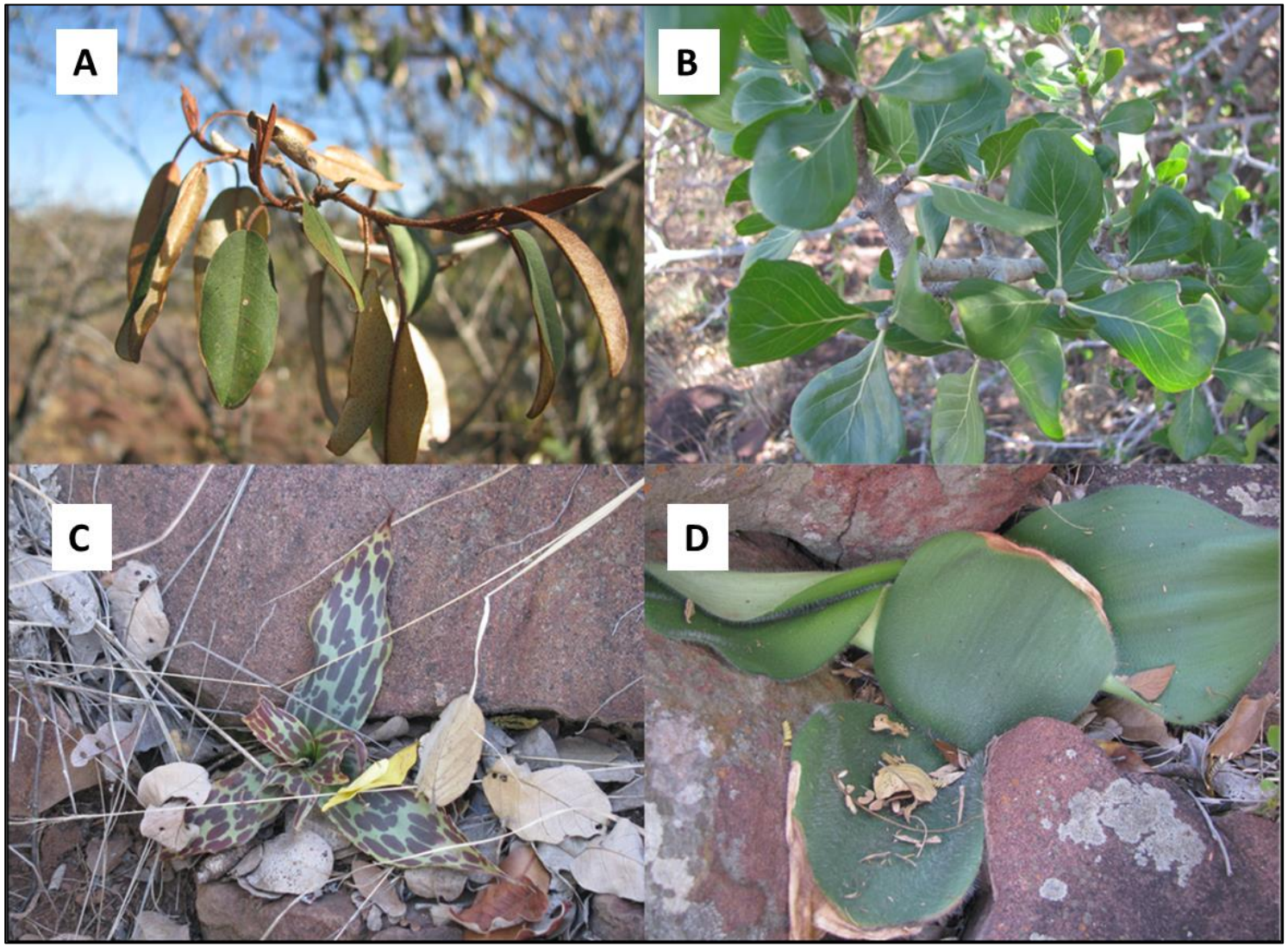

Figure 6-11 Some of the flora species observed during the field assessment: A) *Croton gratissimus*, B) *Gardenia volkensii*, C) *Ledebouria revoluta,* D) *Haemanthus humulis subs hirsuta.*

6.8.1.1 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 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). he Alien and Invasive Species Regulations were published in the Government Gazette No. 37886, 1 August 2014, and was amended in September 2020 in the Government Gazette No. 43726. 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;

- 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) Category 1b and three (3) Category 2 and 2 b invasive plant species were recorded within the project area and it is recommended that an alien invasive plant management programme be implemented in compliance of section 75 of the Act as stated above. The NEMBA listed species identified within the project area are marked in green (Table 6.6).

6.8.1.2 Protected Tree species

According to the National Forests Act, 1998 (Act No.84 of 2014) in terms of section 15 (1) of the Forests Act,1998 (DAFF,2014), 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 tree or any product derived from a protected tree, except under a license or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated. Contravention of this declaration is regarded as a first category offence. Two plant species occur within the project area:

Sclerocarya birrea subsp. caffra (Marula) is a large deciduous tree with a rounded crown. The marula is widespread throughout Africa, where it is found from Ethiopia to South Africa. It naturally occurs in woodlands in sandy soils. The fruit leaves and bark from this tree functions as a crucial part of the food chain for species such as Elephants, antelope, giraffe, zebra and African moth *Argema mimosae* (Mutshinyalo & Tshisevhe, 2003).

Combretum imberbe (Leadwood) is a medium to large, semi-deciduous tree, which grows up to 20 m in height. *Combretum imberbe* is the tallest of all the South African combretums. It has a spreading canopy and is extremely slow growing. The snakeskin-like bark is one of the main features that make identification easier throughout the season. Dead branches and shoots often remain on a matured tree. The colour of the trunk is pale grey to white. The leathery leaves are arranged opposite each other. The flowers are yellowish cream-coloured and have a sweet fragrance. They are produced from November to March. The Leadwood produces 4-winged fruit, which are yellowish green and turn pale red when mature from February to June (Mtsweni 2006).

6.8.1.3 Limpopo Environmental Management Act (LEMA)

The provincial protection status of plants as per LEMA, one plant is expected to occur that is protected under Schedule 12 of this Act. Under this act no person may pick, be on possession, sell, purchase, donate receive as a gift, import into, export or remove from the Province, or convey without a permit.

Aloe greatheadii var davyana (Spotted Aloe) is stemless and grows singularly or in groups of up to 15 plants. The succulent leaves are arranged in a basal rosette. The leaves range from triangular to lance-shaped, are often faintly striped above with oblong white spots arranged in more or less distinct bands but are unspotted below and usually a whitish green; margins are armed with sharp, dark brown teeth. In winter, the apical half of the leaf dies back and becomes twisted, leaving the remaining part almost square in shape (Van Wyk *et al,* 1996).

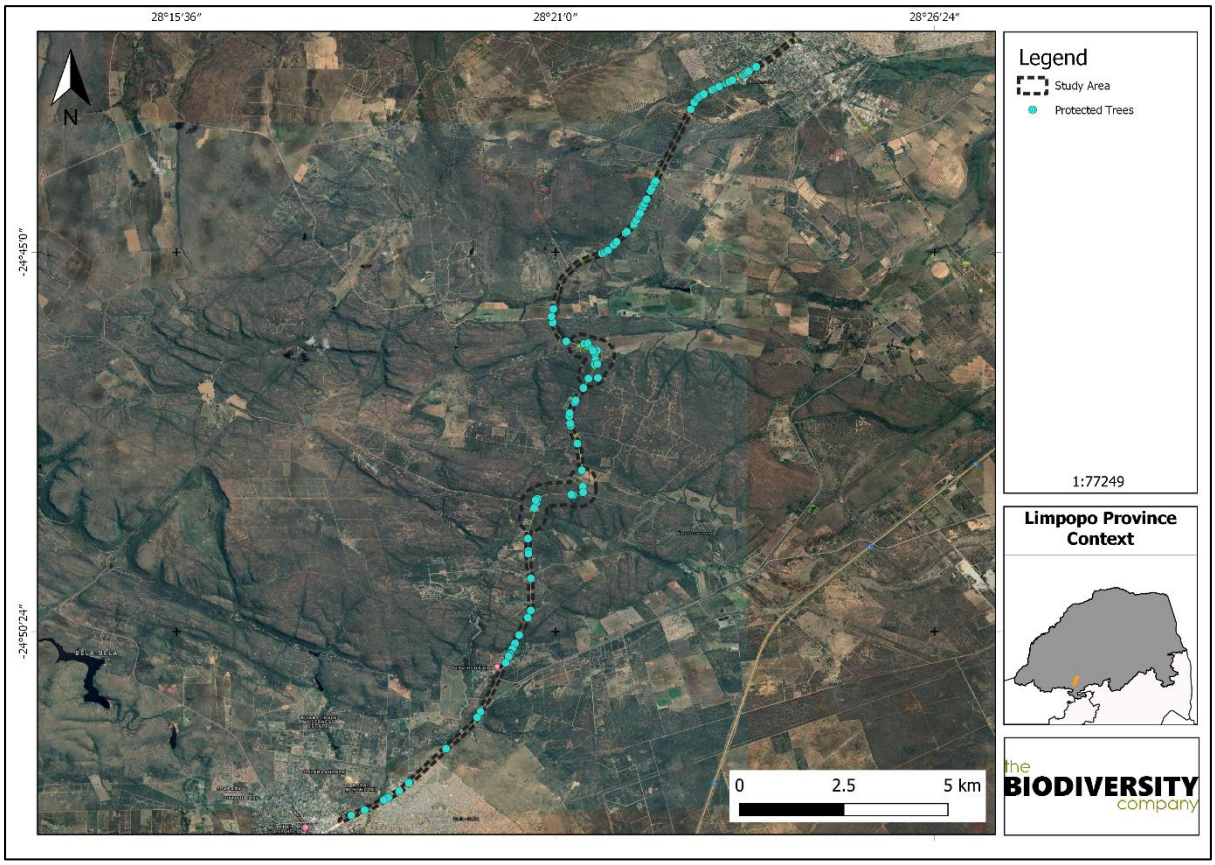

Figure 6-12 Locations of some of the protected tree species

6.8.2 Fauna

6.8.2.1 Avifauna

Sixty four (64) bird species were recorded in the project area during the survey based on either direct observations, vocalisations, or the presence of visual tracks & signs (Table 6.7) (Figure 6-13). One of the species was a SCC, the Cape Vulture.

Table 6.7 A list of avifaunal species recorded for the project area.

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Acridotheres tristis	Myna, Common	Unlisted	LC
Agapornis roseicollis	Lovebird, Rosy-faced	Unlisted	LC
Alcedo cristata	Kingfisher, Malachite	Unlisted	Unlisted
Apus apus	Swift, Common	Unlisted	LC
Batis molitor	Batis, Chinspot	Unlisted	LC
Bostrychia hagedash	Ibis, Hadeda	Unlisted	LC
Butorides striata	Heron, Green-backed	Unlisted	LC
Cercotrichas leucophrys	Scrub-robin, White-browed	Unlisted	LC
Chalcomitra amethystina	Sunbird, Amethyst	Unlisted	LC
Chlorocichla flaviventris	Greenbul, Yellow-bellied	Unlisted	LC
Cinnyris mariquensis	Sunbird, Marico	Unlisted	LC
Cinnyris talatala	Sunbird, White-bellied	Unlisted	LC
Cisticola juncidis	Cisticola, Zitting	Unlisted	LC

Colius striatus	Mousebird, Speckled	Unlisted	LC
Corvus albus	Crow, Pied	Unlisted	LC
Corythaixoides concolor	Go-away-bird, Grey	Unlisted	LC
Cossypha caffra	Robin-chat, Cape	Unlisted	LC
Crithagra mozambicus	Canary, Yellow-fronted	Unlisted	LC
Dicrurus adsimilis	Drongo, Fork-tailed	Unlisted	LC
Elanus caeruleus	Kite, Black-shouldered	Unlisted	LC
Emberiza flaviventris	Bunting, Golden-breasted	Unlisted	LC
Emberiza tahapisi	Bunting, Cinnamon-breasted	Unlisted	LC
Eremomela icteropygialis	Eremomela, Yellow-bellied	Unlisted	LC
Estrilda astrild	Waxbill, Common	Unlisted	LC
Gyps coprotheres	Vulture, Cape	EN	EN
Indicator minor	Honeyguide, Lesser	Unlisted	LC
Lagonosticta rhodopareia	Firefinch, Jameson's	Unlisted	LC
Lamprotornis nitens	Starling, Cape Glossy	Unlisted	LC
Melaenornis pammelaina	Flycatcher, Southern Black	Unlisted	LC
Motacilla capensis	Wagtail, Cape	Unlisted	LC
Numida meleagris	Guineafowl, Helmeted	Unlisted	LC
Onychognathus morio	Starling, Red-winged	Unlisted	LC
Oriolus larvatus	Oriole, Black-headed	Unlisted	LC
Parisoma subcaeruleum	Tit-babbler, Chestnut-vented	Unlisted	Unlisted
Parus niger	Tit, Southern Black	Unlisted	Unlisted
Phoeniculus purpureus	Wood-hoopoe, Green	Unlisted	LC
Plocepasser mahali	Sparrow-weaver, White-browed	Unlisted	LC
Prinia subflava	Prinia, Tawny-flanked	Unlisted	LC
Prionops plumatus	Helmet-shrike, White-crested	Unlisted	LC
Psophocichla litsipsirupa	Thrush, Groundscraper	Unlisted	Unlisted
Pternistis swainsonii	Spurfowl, Swainson's	Unlisted	LC
Pycnonotus tricolor	Bulbul, Dark-capped	Unlisted	Unlisted
Riparia paludicola	Martin, Brown-throated	Unlisted	LC
Scleroptila shelleyi	Francolin, Shelley's	Unlisted	LC
Sigelus silens	Flycatcher, Fiscal	Unlisted	LC
Spermestes cucullatus	Mannikin, Bronze	Unlisted	Unlisted
Streptopelia capicola	Turtle-dove, Cape	Unlisted	LC
Streptopelia semitorquata	Dove, Red-eyed	Unlisted	LC
Streptopelia senegalensis	Dove, Laughing	Unlisted	LC
Sylvietta rufescens	Crombec, Long-billed	Unlisted	LC
Tockus leucomelas	Hornbill, Southern Yellow-billed	Unlisted	LC
Tockus nasutus	Hornbill, African Grey	Unlisted	LC
Trachyphonus vaillantii	Barbet, Crested	Unlisted	LC
Turdoides jardineii	Babbler, Arrow-marked	Unlisted	LC
Turdus libonyanus	Thrush, Kurrichane	Unlisted	Unlisted
Turtur tympanistria	Dove, Tambourine	Unlisted	LC
Tyto alba	Owl, Barn	Unlisted	LC
Uraeginthus angolensis	Waxbill, Blue	Unlisted	LC
Urocolius indicus	Mousebird, Red-faced	Unlisted	LC

Urolestes melanoleucus	Shrike, Magpie	Unlisted	LC
Vanellus armatus	Lapwing, Blacksmith	Unlisted	LC
Vanellus coronatus	Lapwing, Crowned	Unlisted	LC
Vidua funerea	Indigobird, Dusky	Unlisted	LC
Zosterops virens	White-eye, Cape	Unlisted	LC

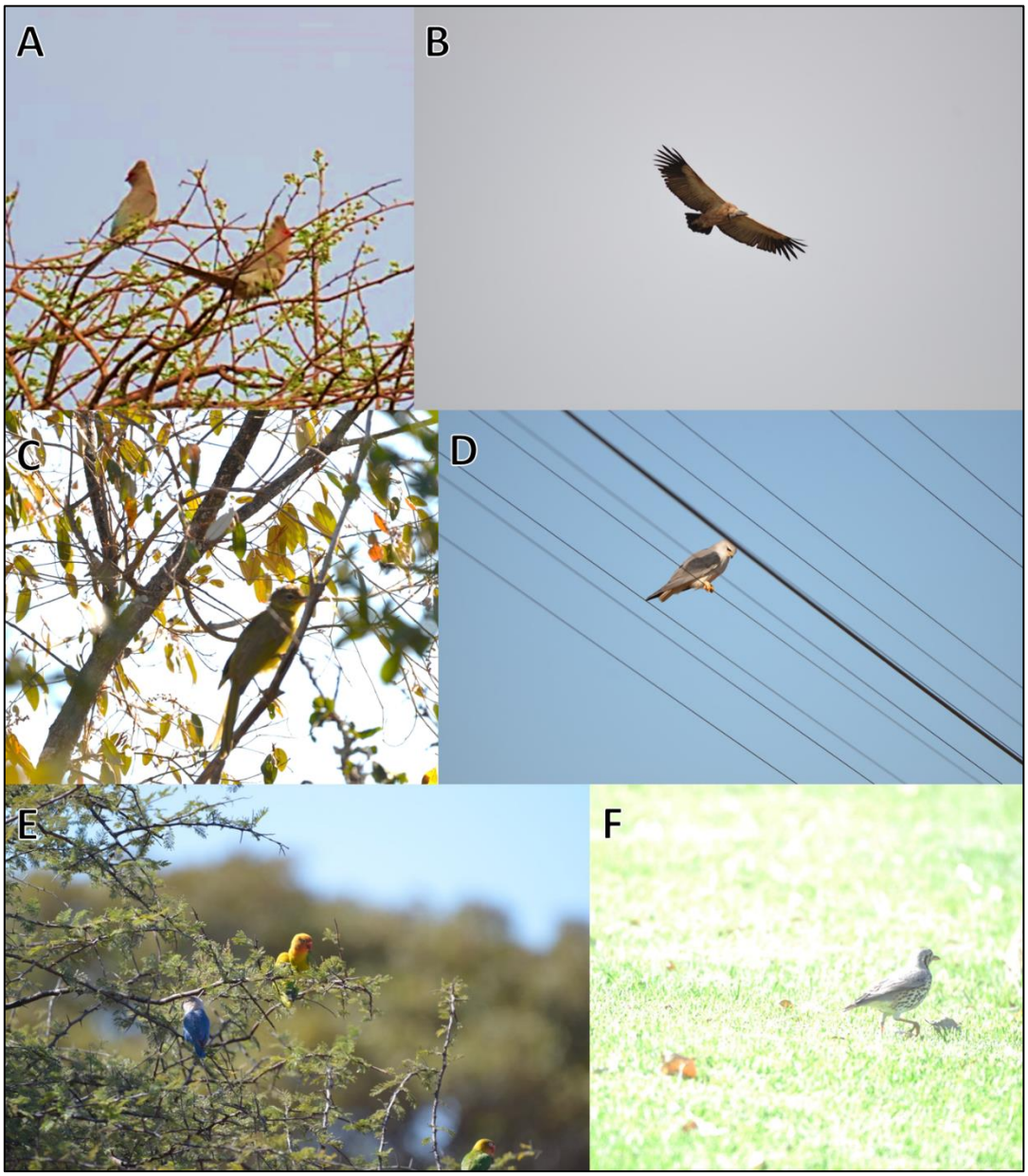

Figure 6-13 Some of the avifaunal species observed during the field assessment: A) Red-faced Mousebird (Urocolius indicus), B) Cape Vulture (Gyps coprotheres), C) Yellow bellied Greenbul (Chlorocichla flaviventris), D) Black Shouldered Kite (Elanus caeruleus), E) Rosy-faced Lovebirds (Agapornis roseicollis) and F) Ground Scraper Thrush (Psophocichla litsipsirupa)

6.8.2.2 Mammals

Fourteen mammal species were recorded in the project area during the field survey (Table 6.8), a further nine species were listed by farmers that are found in the project area (Table

6.9). One of the species recorded in the assessment was a species of conservation concern, tracks of this species were found on more than one occasion. Six of the species listed by the farmers were species of conservation concern, majority of these species would be highly sensitive to noise pollution associated with the construction process.

Table 6.8 Mammal species recorded in the project area and species indicated by farmers to be present.

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Canis mesomelas	Black-backed Jackal	LC	LC
Chlorocebus pygerythrus	Vervet Monkey	LC	LC
Cynictis penicillata	Yellow Mongoose	LC	LC
Elephantulus brachyrhynchus	Short-snouted Sengi	LC	LC
Genetta maculata	Rusty-spotted Genet	LC	LC
Hystrix africaeaustralis	Cape Porcupine	LC	LC
Oreotragus oreotragus	Klipspringer	LC	LC
Panthera pardus	Leopard	VU	VU
Papio ursinus	Chacma Baboon	LC	LC
Phacochoerus africanus	Common Warthog	LC	LC
Procavia capensis	Rock Hyrax	LC	LC
Sylvicapra grimmia	Common Duiker	LC	LC
Tragelaphus scriptus	Cape Bushbuck	LC	LC
Tragelaphus strepsiceros	Greater Kudu	LC	LC

Table 6.9 Mammal species listed by farmers that are present in the area.

Species	Common Name	Conservation Status		Farmer
		Regional (SANBI, 2016)	IUCN (2017)	
Parahyaena brunnea	Brown Hyaena	NT	NT	Mr Van der Merwe
Mellivora capensis	Honey Badger	LC	LC	Mr Van der Merwe
Hippotragus niger	Sable Antelope	VU	LC	Mr Van der Merwe
Pelea capreolus	Grey Rhebok	NT	NT	Mr Van der Merwe
Giraffa camelopardalis	Giraffe	LC	VU	Mr Van der Merwe and Mr Myburg
Aepyceros melampus	Impala	LC	LC	
Connochaetes taurinus	Blue Wildebeest	LC	LC	
Equus quagga	Plains Zebra	LC	NT	
Acinonyx jubatus	Cheetah	VU	VU	Cheetah Sanctuary

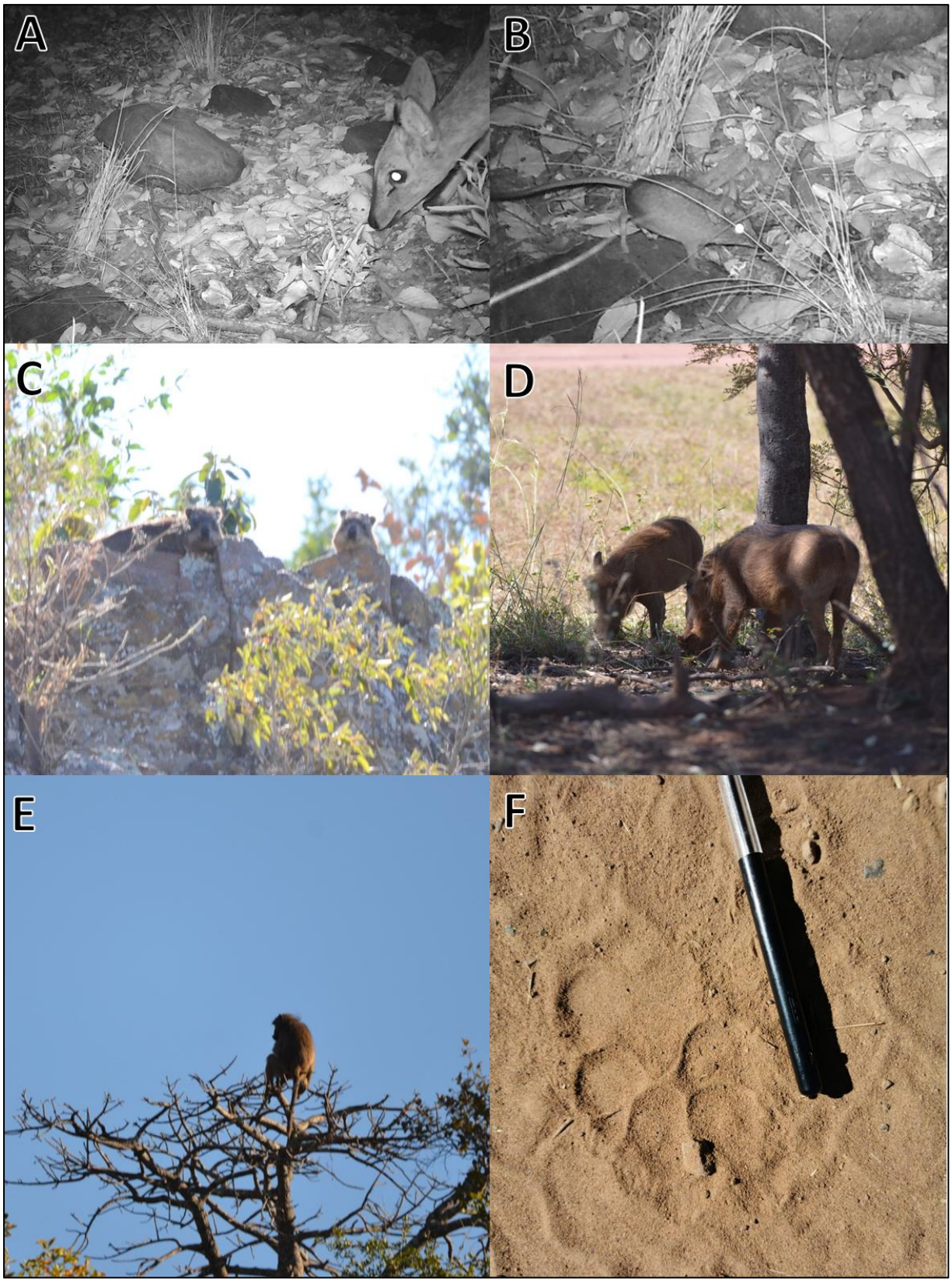

Figure 6-14 Mammal species recorded in the project area: A) Common Duiker (Sylvicapra grimmia), B) Short-snouted Sengi (Elephantulus (cf) brachyrhynchus), C) Rock Hyrax (Procavia capensis), D) Common Warthog (Phacochoerus africanus), E) Chacma Baboon (Papio ursinus), and F) Leopard (Panthera pardus)

6.8.2.3 Herpetofauna (Reptiles & Amphibians)

Five reptile species were recorded in the project area during the field assessment (Table 6.10), and an additional four species were listed by farmers in the area (Table 6.11). The Southern African Python is a species of conservation concern, both the Python and the Southern Rock Monitor are both also CITES listed species.

Table 6.10 Reptile species recorded in the project area during survey.

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Acanthocercus atricollis	Southern Tree Agama	LC	LC
Psammophis subtaeniatus	Stripe-bellied Sand Snake	LC	LC
Psammophylax tritaeniatus	Striped Grass Snake	LC	LC
Trachylepis striata	Striped Skink	LC	Unlisted
Trachylepis varia	Variable Skink	LC	LC

Table 6.11 Reptile species listed by farmers.

Species	Common Name	Conservation Status		Farmer
		Regional (SANBI, 2016)	IUCN (2017)	
Python natalensis	Southern African Python	VU	Unlisted	Mr van der Merwe, Mr Espach
Varanus albigularis	Southern Rock Monitor	LC	Unlisted	Mr van der Merwe, Mr Espach
Bitis arietans arietans	Puff Adder	LC	Unlisted	Mr van der Merwe, Mr Espach
Naja mossambica	Mozambique Spitting Cobra	LC	Unlisted	Mr van der Merwe, Mr Espach

Figure 6-15 Reptile species observed during the field assessment: Striped Skink (Trachylepis striata)

6.9 Habitat Assessment and sensitivity

6.10 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 6-18 to Figure 6-20, while Figure 6-16 and Figure 6-17 are illustrations of these habitats from the project area. Emphasis was placed on limiting timed meander searches within the natural habitats and the habitats with a higher potential of hosting SCC. Each of the habitats identified are discussed in the sub-sections below.

6.10.1 Bushveld

6.10.1.1 Mountain Bushveld

One of the two main habitat types recorded on site was a variation of Waterberg Mountain Bushveld with broad-leaved deciduous bushveld encountered in the three higher lying re-alignment arc project areas on rocky mid- and footslopes. These areas were found intact with few disturbances, mainly due to their remoteness and unsuitability for agricultural practices. From a species composition and richness perspective this habitat type exhibited a large number of expected species, indicating a more natural habitat type. Variations within this habitat type centered around rockiness and slopes, both of which created micro-environments.

6.10.1.2 Plains Open Savanna

In lower lying areas more open Savanna bushveld associated with *Burkea Africana-Terminalia sericea* on deeper sands of the plateaus were encountered. These areas were more accessible to livestock and farming activities and suffered as a result. The lower lying sandy areas were found to be impacted on by bush clearing for agricultural practices as well as grazing by livestock. Despite the impacts to it, this habitat type still exhibited a large percentage of expected species. Variations within this habitat type was mainly due to severity of land use impacts, with areas cleared of vegetation being a transformation to a grassland plans habitat type.

6.10.2 Riparian Vegetation

This habitat has been identified specifically at the river crossings where bridge upgrades are planned. Even though disturbed, the ecological integrity, importance and functioning of these areas play a crucial role as a water resource system and an important habitat for various fauna and flora. The preservation of this system is a crucial aspect to consider for the proposed development, even more so due to the scarcity of water in the area. This habitat needs to be protected and improved due to the role of this habitat as a water resource.

6.10.3 Transformed

This habitat unit represents all areas of urban development, homesteads, agricultural areas and the associated tar and secondary roads and road reserves. This habitat is regarded as transformed due to the nature of the modification of the area to an extent where it would not be able to return to its previous state. Due to the transformed nature of this habitat, it is regarded as having a low concern sensitivity. The road reserves did exhibit a number of *Sclerocarya birrea* protected tree species, which were left intact during road construction.

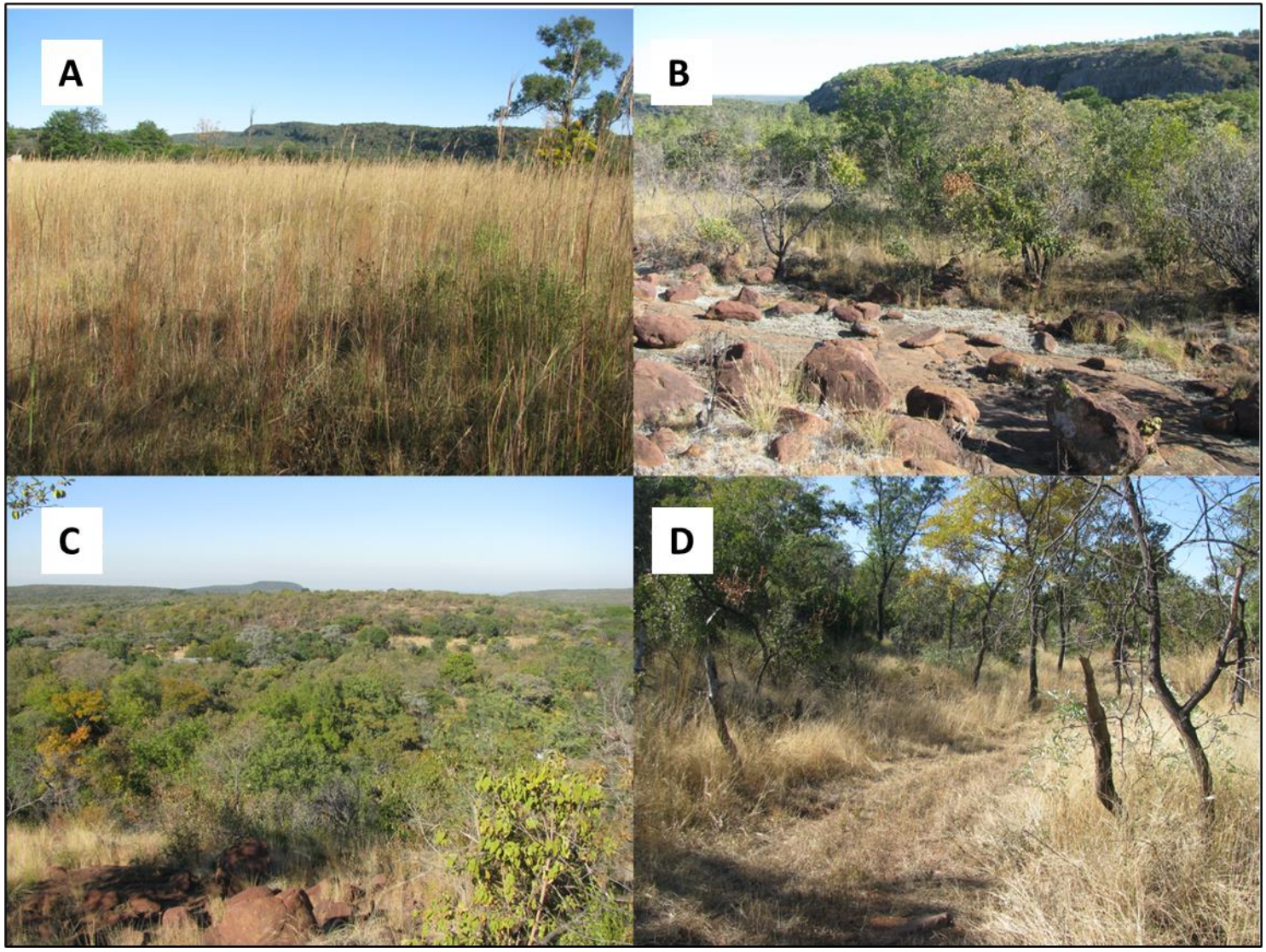

Figure 6-16 Habitats identified in the project area, A & D) Plains Savanna Bushveld, B & C) Mountainous Bushveld.

Figure 6-17 Riparian habitats common at the River Crossing in the project area

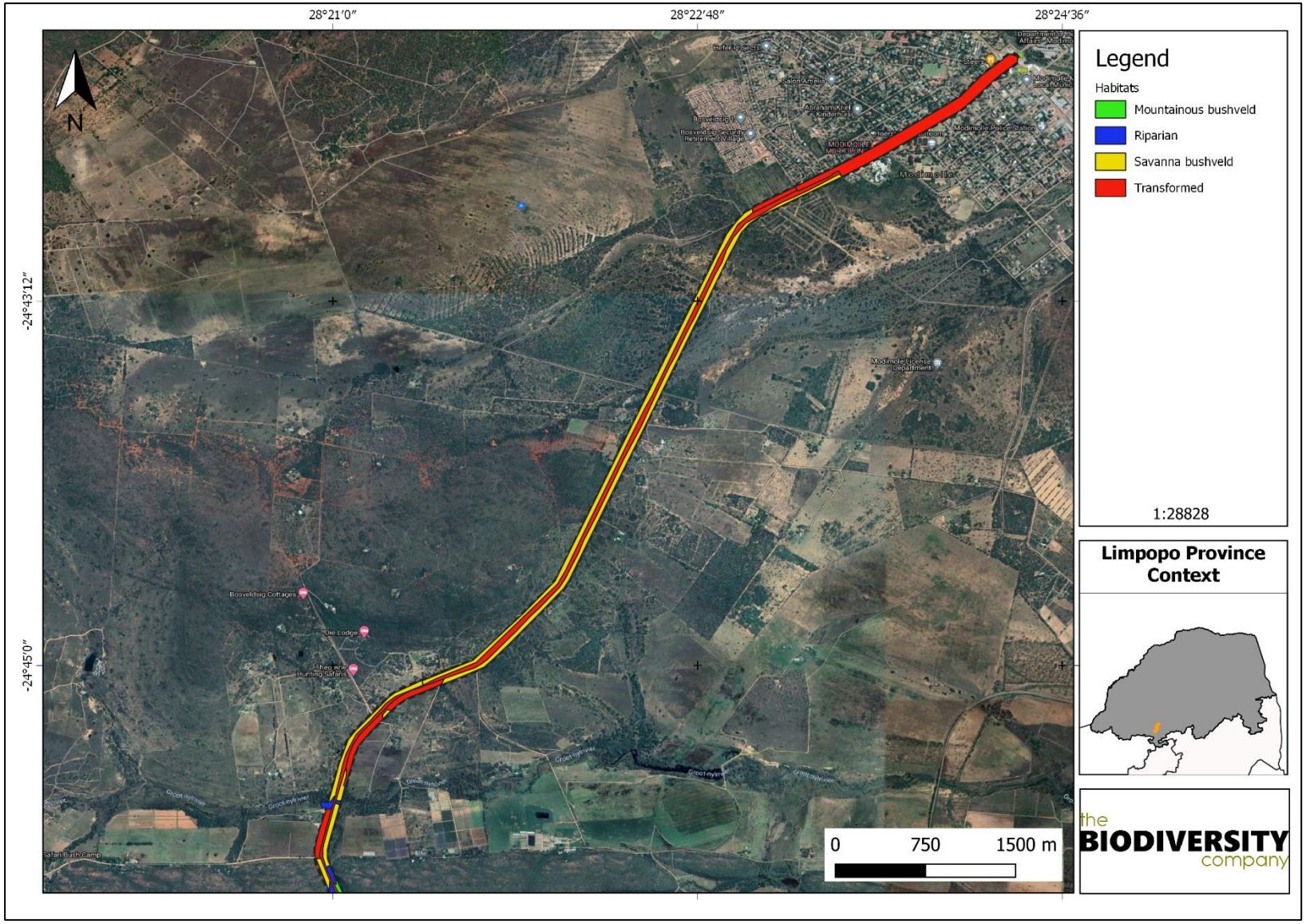

Figure 6-18 Habitats delineated in the Modimolle Area/ Northern Section project area.

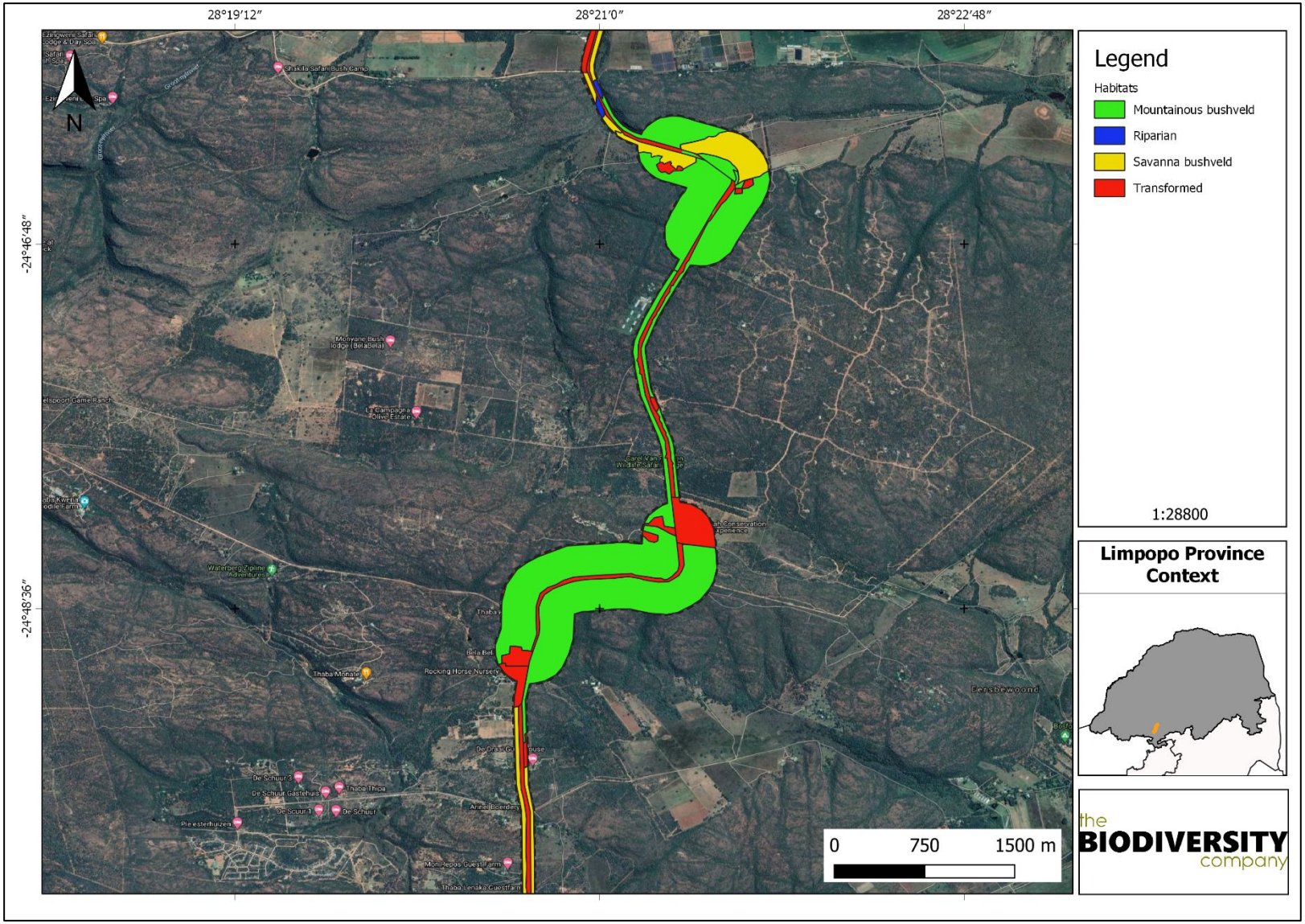

Figure 6-19 Habitats delineated at the realignment areas / central section of the project area

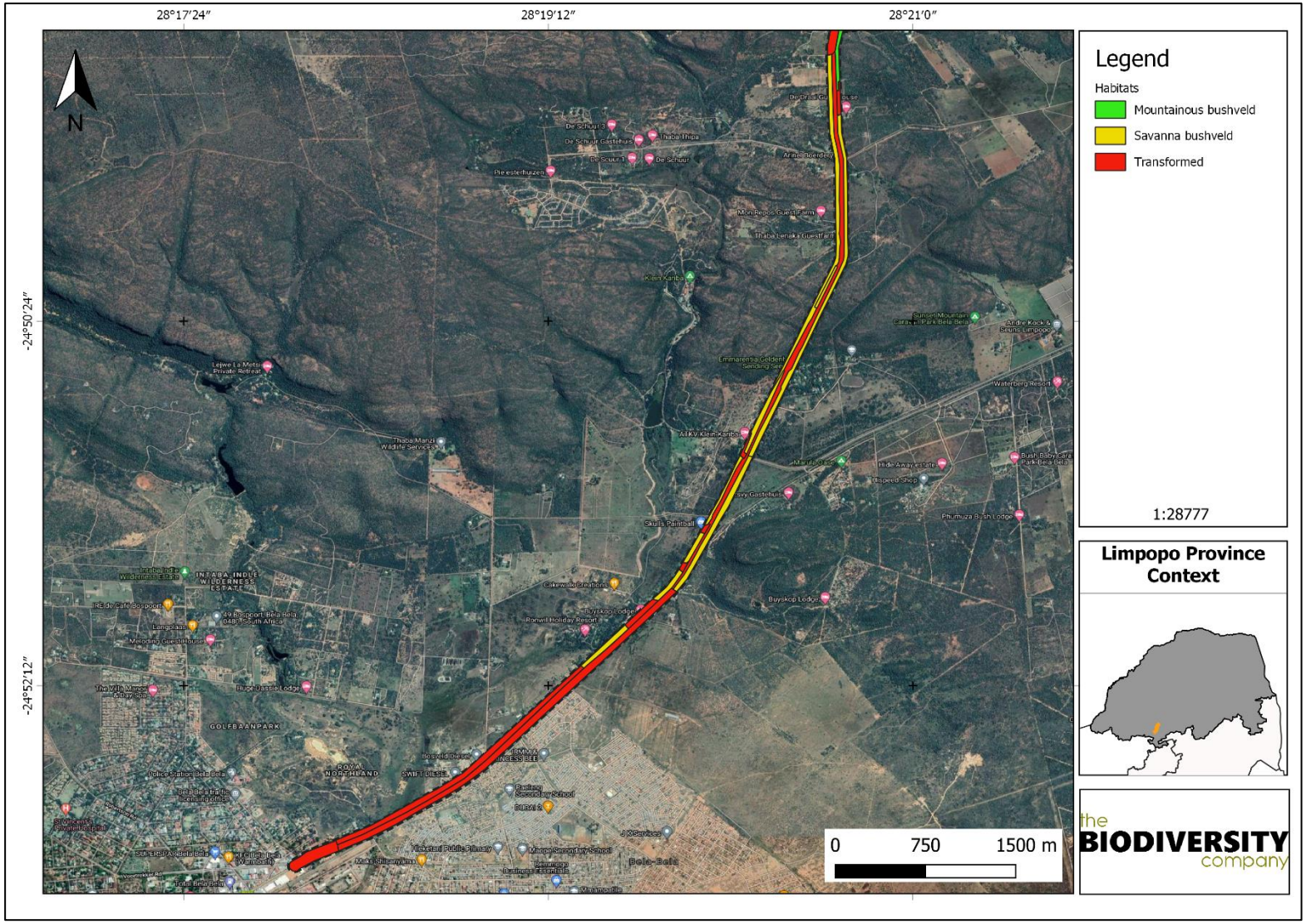

Figure 6-20 Habitats delineated in the Bela Bela Local municipality area/southern section of the project area

6.11 Site Ecological Importance (SEI)

The biodiversity theme sensitivity as indicated in the screening report was derived to be Very High (Figure 6-21). Some areas are classified as Very High and some small portions as Low.

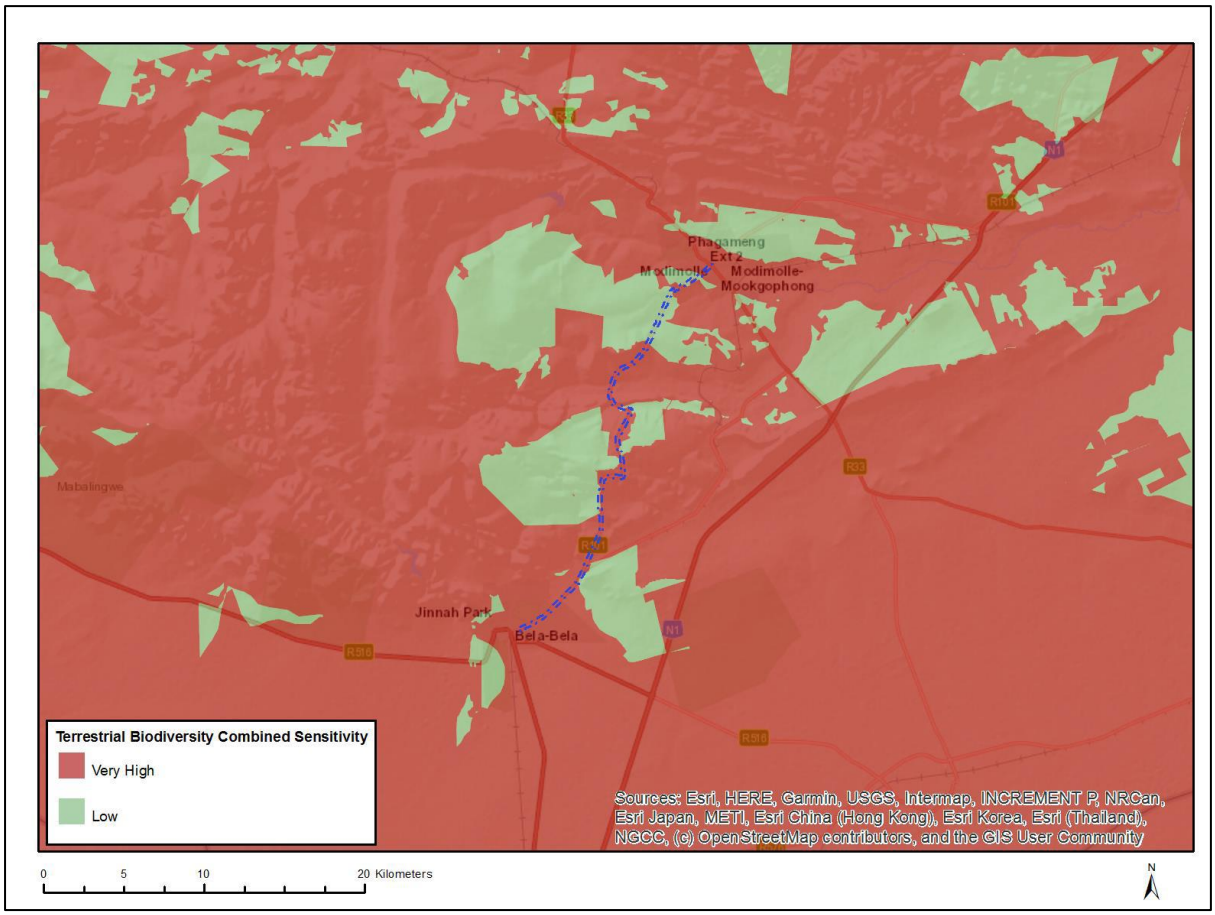

Figure 6-21 Biodiversity Sensitivity of the project area

The completion of the terrestrial biodiversity assessment confirmed the very high sensitivity of the terrestrial habitats that overlap with the screening report and therefore corroborates the screening report in that regard. The low area does not necessarily correspond to what was found in field.

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 study area. The sensitivity scores identified during the field survey for each terrestrial habitat are mapped.

Four (4) different habitat types were delineated within the assessment areas. These habitats were found within the project area. The location and extent of these habitats are illustrated in Figure 6-21. Based on the criteria provided in Section 5.2 of this report, all habitats within the assessment area of the proposed development were allocated a sensitivity category (Figure 6-9). The sensitivities of the habitat types delineated are illustrated in Figure 6-22 to Figure 6-24.

Table 6.12 Summary of habitat types delineated within the project area.

Habitat	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance
Riparian	Medium	High	Medium	Low	High
Mountain Bushveld	Medium	High	Medium	Low	High
Savanna Bushveld	Medium	Medium	Medium	Medium	Medium
Transformed	Low	Low	Low	High	Low

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.

6.11.1 Guidelines for interpreting Site Ecological Importance (SEI) in the context of the proposed development activities

High: Avoidance mitigation wherever possible. Minimisation mitigation:

- Changes to project infrastructure design to limit the amount of habitat impacted;
- Limited development activities of low impact acceptable;
- Offset mitigation may be required for high impact activities.

Medium: Minimisation and restoration mitigation

- Development activities of medium impact acceptable followed by appropriate restoration activities.

Low: Minimisation and restoration mitigation

- Development activities of medium to high impact acceptable followed by appropriate restoration activities**.**

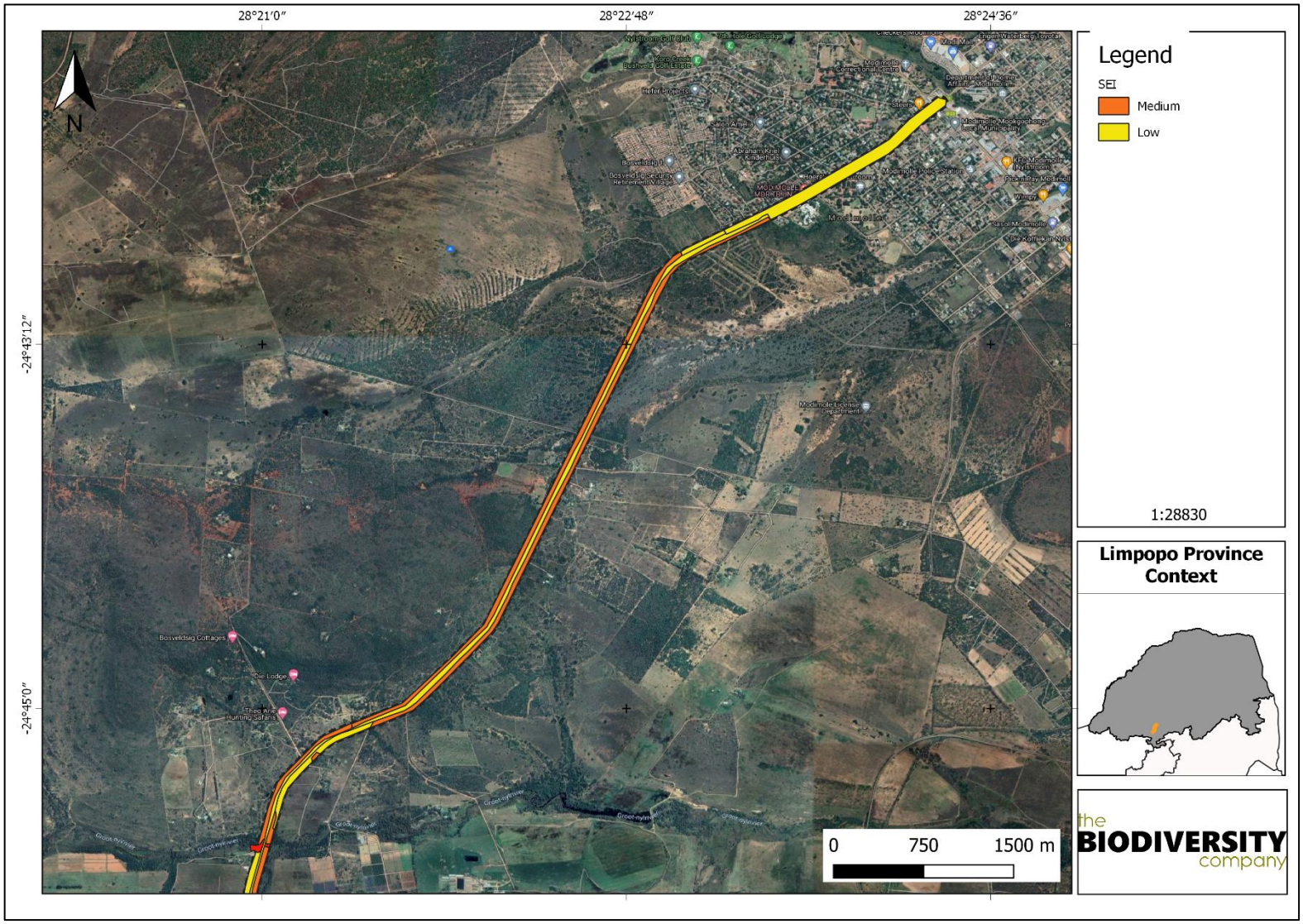

Figure 6-22 Biodiversity SEI relevant to the Modimolle Area / Northern Section of the project area

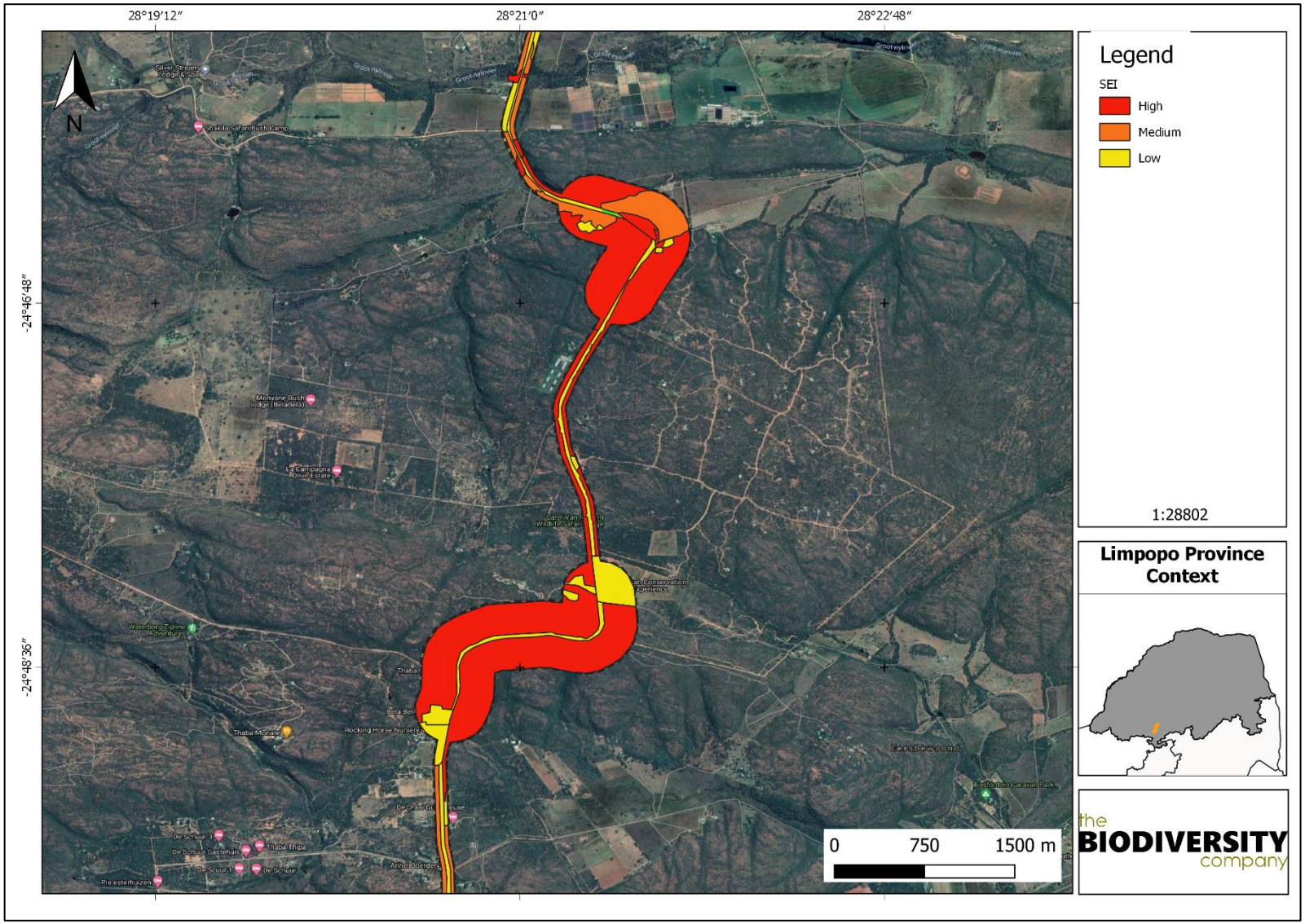

Figure 6-23 Biodiversity SEI relevant to the realignment areas / central section of the project area

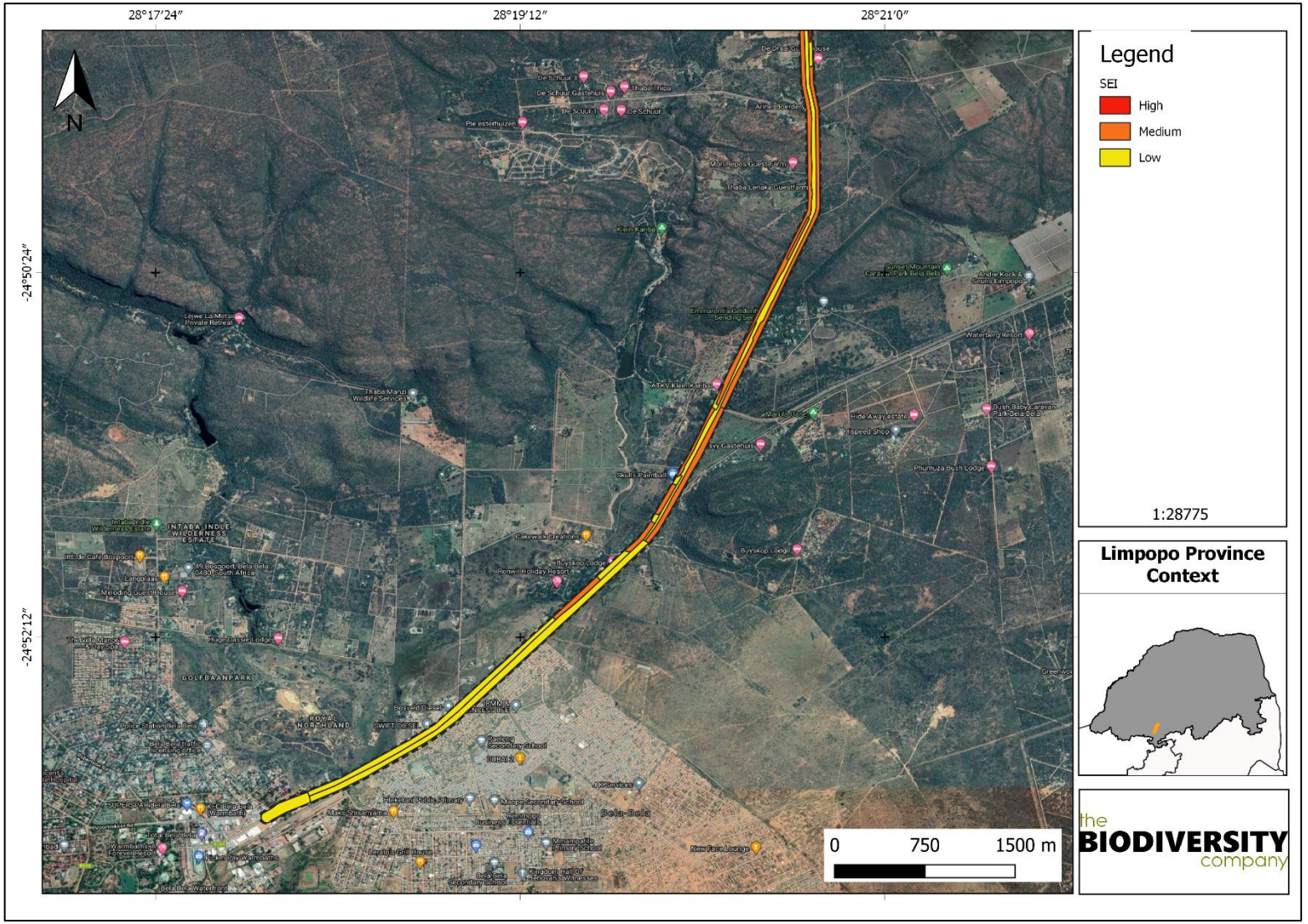

Figure 6-24 Biodiversity SEI relevant in the Bela Bela Local municipality area/southern section of the project area

6.12 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 area. The relevant impacts were then subjected to a prescribed impact assessment methodology. The details of this methodology can be provided on request.

6.12.1 Current Impacts

The current impacts observed during surveys are listed below. Photographic evidence of a selection of these impacts is shown in Figure 6-25.

- Powerlines;
- Dumping and litter;
- Roads (and associated traffic and wildlife road mortalities);
- Footpaths and litter associated with the human infringement;
- Alien and/or Invasive Plants (AIP);
- Water contamination; and
- Vegetation removal (Mechanical and burning).

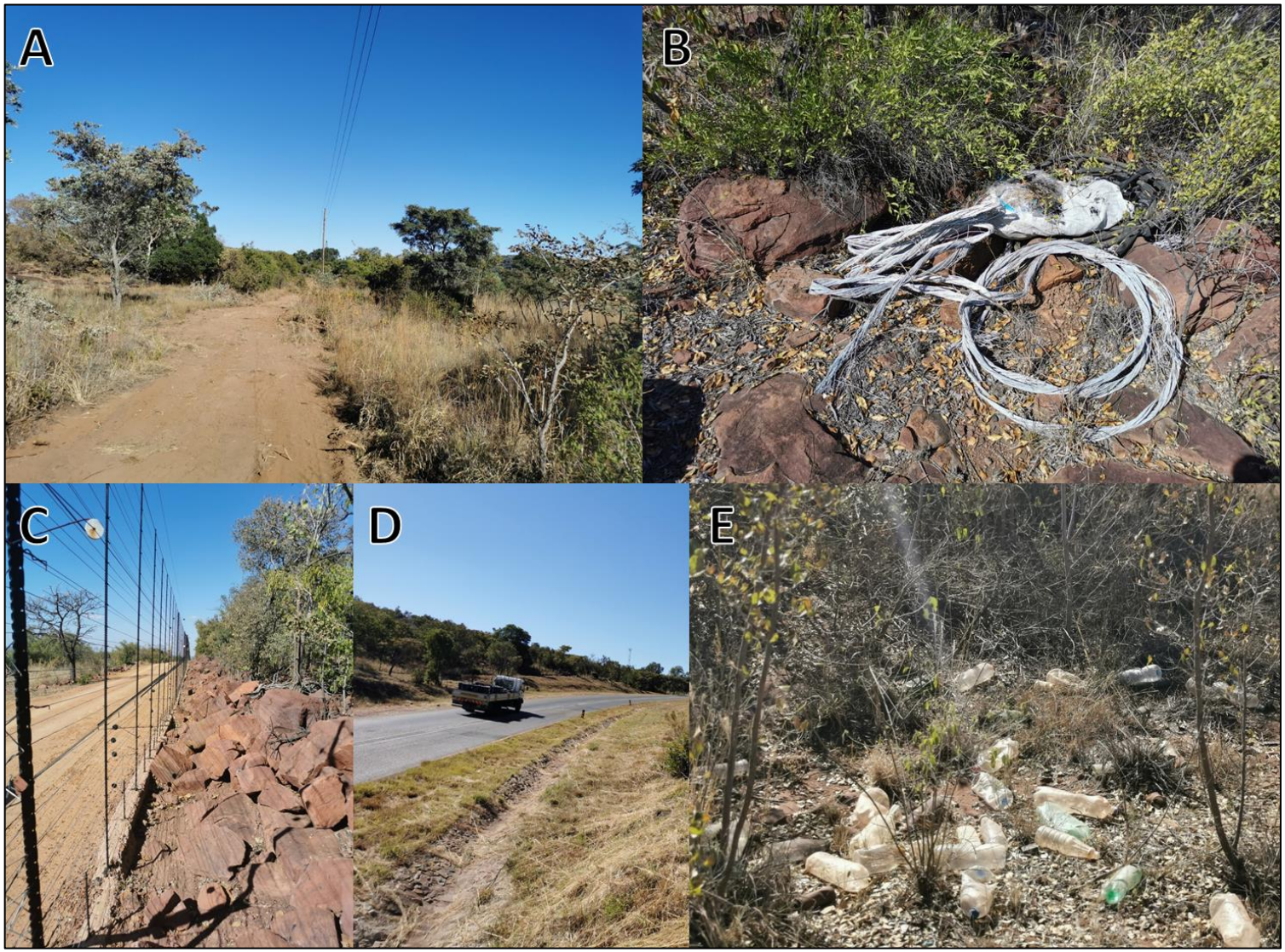

Figure 6-25 Some of the identified impacts within the project area; A) Gravel roads and powerlines B) Copper stripping, C) Electric fences, D) Existing Tar road and E) Dumping and litter

During the survey, two major impacts were observed, road killings (Figure 6-26) and removal of vegetation for the drilling of geological samples. New roads were also constructed outside of the proposed footprint resulting in the destruction of more vegetation and habitat (Figure 6-27). This destruction of sensitive habitat is a major impact and has been included in the impact rating pre-construction.

Figure 6-26 A Cape Porcupine (Hystrix africaeaustralis) observed next to the road that was killed by a motor vehicle.

Figure 6-27 The drilling of geological samples and the new roads that were constructed on two different farm portions.

6.12.2 Terrestrial Impact Assessment

Potential impacts were evaluated against the data captured during the desktop and field assessments to identify relevance to the project area. The relevant impacts associated with the proposed development were then subjected to a prescribed impact assessment methodology which is available on request. No decommissioning phase was considered based on the nature of the development.

6.12.3 Alternatives considered.

Two main alternatives were provided:

Bridge alternatives are:

1. Rehabilitation.
2. New Deck.
3. Raise the deck / additional spans.
4. Replace the entire bridge (preferred).

Route Alternatives for the reassignment are:

1. 100km/hr design (preferred),
2. 90km/hr design.
3. 80km/hr design

The route alternatives all follow a similar pattern as the green line indicated on Figure 6-28, only differ by the curve angle.

The bridge alternatives would not have an effect on the terrestrial survey as all of them involve some construction process and this has been accounted for in the form of fauna and flora disturbances.

The route realignment is however a concern as it crosses a sensitive ridge. It is suggested that the turn 3 be redesigned to avoid the sensitive ridge and rather move into the old agricultural fields on the opposite side of the road (Blue Arrow). If a larger sloping corner is created, it will also reduce the sharpness of the road.

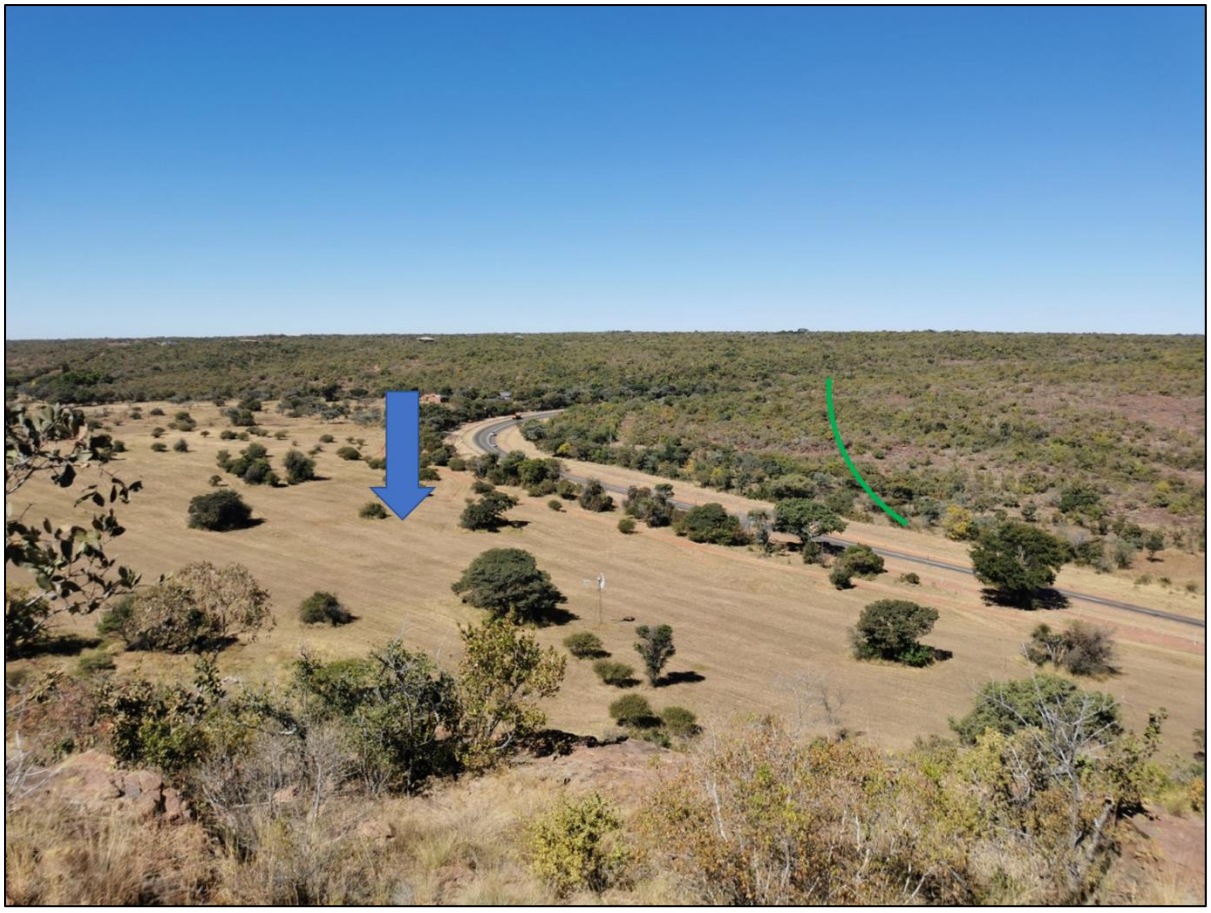

Figure 6-28 The blue arrow indicates the current approximate position of the alternative corner proposed by TBC (exact curve must be determined by engineers, the blue arrow only indicates the location of the alternative proposed), while the green line is an approximate location of the realignment route provided. Adjacent to the green line the 3 alternatives provided by GA environmental as listed above are found.

6.12.4 Loss of Irreplaceable Resources

A CBA area will be lost, a number of SCCs could be displaced or killed. Protected trees will also be destroyed.

6.12.5 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 6.13 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 6.13 Summary of unplanned events for terrestrial biodiversity

Unplanned Event	Potential Impact	Mitigation
Spills into the surrounding environment	Contamination of habitat as well as water resources associated with a 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 Bushveld and ridge.	Appropriate/Adequate fire management plan need to be implemented.
Erosion caused by water runoff from the surface	Erosion on the side of the road	Storm water management plan must be compiled and implemented.
Loss of water	Based on the age of the road, farmers have started becoming reliant on the previous water runoff this could now be lost	The new storm water runoff must be incorporated into the old system.

6.12.6 Identification of Additional Potential Impacts

The project area still provides ample habitat and shelter for faunal species, and supports floral communities. Although it is assumed that fauna species will move to different areas as a result of disturbance, many fauna species have very specific habitat requirements, and the destruction of their habitats may result in their displacement to less optimal habitats.

6.12.6.1 Pre-Construction Phase

This phase includes all the activities prior to the commencement of construction. It involves the specialist studies and planning of the development. During the field assessment some new roads have been developed for the movement of geological drills. This has impacted the habitat as well as the fauna and flora. The following impacts were considered:

Destruction, further loss and fragmentation of the vegetation community;

Sensory disturbances, more specifically noise, dust and vibration; and

Temporary disturbance due to presence of some specialists.

6.12.6.2 Construction Phase

The following potential impacts on the biodiversity were considered for the construction phase. This phase refers to the period during construction when the proposed infrastructure is constructed or upgraded. This phase usually has the largest direct impact on biodiversity. The following potential impacts to terrestrial biodiversity were considered:

- Destruction, further loss and fragmentation of the vegetation community including sensitive ridge habitat;
- Destruction, further loss and fragmentation of the vegetation community of area on corner 3 - alternative;
- Destruction of protected tree species;
- Introduction of alien species, especially plants;
- Displacement of faunal community (Including SCCs) due to habitat loss, direct mortalities;
- Disturbance of fauna species (road collisions, noise, dust, vibration and possible poaching); and
- Disturbance and mortalities of fauna species including SCCs due to blasting.

6.12.6.3 Operational Phase

This phase refers to when construction has been completed and the proposed infrastructure has been built and is functional. The following potential impacts were considered:

- Continued encroachment and displacement of the natural vegetation community due to alien invasive plant species and erosion;
- Continued encroachment and displacement of the natural vegetation community due to alien invasive plant species and erosion at corner 3 - alternative;
- Continued displacement and fragmentation of the faunal community, particularly the disruption of natural faunal movement corridors;

Increased anthropogenic disturbances (noise, human presence, litter and poaching/snaring); and

Loss of faunal species due to road mortalities and vehicle collisions.

6.12.6.4 Additional infrastructure and development

An additional service road were included after the initial assessment, the road is however still in the assessment footprint as shown in Figure 6-29. It is also proposed that the watercourses associated with two Bridges and Major Culverts be diverted. The exact extent of this were not provided therefore it was assumed that it will take place within the assessment area and will not be extensive. The impact of the service road were included (Table 6.15) but were found to be moderately-high pre mitigation mainly as a result of the protected trees present, should this be mitigated successfully, this impact can be reduced to Low. The realignment of the watercourses associated with the bridges and culverts were rated as moderately high pre-mitigation and low post mitigation (Table 6.15). It was rated in this way as the edges of the water courses were already disturbed by alien invasive species and some erosion. However, based on the importance of the watercourses as both water sources and habitat the mitigations must strictly be implemented.

Figure 6-29 New service road.

6.12.7 Assessment of Impact Significance

The assessment of impact significance considers pre-mitigation as well as implemented of post-mitigation scenarios. The mitigation actions required to lower the risk of the impact are provided in Section 7 of this report.

6.12.7.1 Pre-construction Phase

The destruction of the habitat for the geological drilling and associated road creation was rated as “High” pre-mitigation, should the area outside of the footprint be rehabilitated and restored to as close to its previous state as possible the impact can be lowered to “Moderately High” (Table 6.14). The sensory disturbance of this process was rated as Moderately High”, and as it is already under way it cannot be mitigated.

6.12.7.2 Construction Phase

Table 6.15 summarises the significance of potential impacts associated with the development on biodiversity before and after implementation of mitigation measures. Prior to implementation of mitigation measures the significance of impact to habitat were rated as “High”, due to the portion intact CBA that will be lost. Implementation of mitigation measures did not significantly reduce the potential impact significance on the biodiversity community. If the realignment on corner 3 is moved to the alternative location the impact on the habitat and biodiversity could be rated as “Moderately High” prior to mitigation and “Moderate” post mitigation. The significance of the displacement of fauna due to disturbance and/or direct

mortalities was rated as “High” prior to implementation of mitigation measures. The implementation of mitigation measures reduced the impact to “Moderate”.

6.12.7.3 Operational Phase

Table 6.16 summarises the significance of the operational phase impacts on biodiversity before and after implementation of mitigation measures. The impact significance of road killings is rated as “High” pre-mitigations, should average speed prosecution cameras be installed along with speed control this could be reduced to “Absent”.

Table 6.14 Assessment of significance of potential impacts on terrestrial biodiversity associated with the pre-construction phase of the project.

Impact	Prior to mitigation						Post mitigation					
	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Destruction, further loss and fragmentation of the vegetation community	5	4	4	4	5		4	4	4	4	4	
	Permanent	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Definite	**High**	Life of operation or less than 20 years: Long Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Highly likely	**Moderately High**
Sensory disturbances, more specifically noise, dust and vibration	3	3	4	5	5		3	3	4	4	4	
	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Great / harmful/ ecosystem structure and function largely altered	Ecology critically sensitive /important	Definite	**Moderately High**	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Highly likely	**Moderately High**
Temporary disturbance due to presence of	2	3	2	4	2		2	2	2	2	2	
	One month to one year: Short Term	Local area/ within 1 km of the	Small / ecosystem structure and	Ecology highly sensitive /important	Possible	**Low**	One month to one year:	Development specific/ within the site boundary / <	Small / ecosystem structure and	Ecology with limited sensitivity/importance	Possible	**Absent**

some specialists.		site boundary / < 5000ha impacted / Linear features affected < 1000m	function largely unchanged				Short Term	100 ha impacted / Linear features affected < 100m	function largely unchanged	

Table 6.15 Assessment of significance of potential impacts on terrestrial biodiversity associated with the construction phase of the project.

Impact	Prior to mitigation						Post mitigation					
	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Destruction, further loss and fragmentation of the vegetation community including sensitive ridge habitat	5	4	4	4	5		5	4	4	4	4	
	Permanent	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Definite	**High**	Permanent	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Definite	**High**
Destruction, further loss and fragmentation of the vegetation community of area on corner 3-alternative	5	4	3	3	4		5	3	3	3	3	
	Permanent	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Highly likely	**Moderately High**	Permanent	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Likely	**Moderate**
Destruction of protected tree species	5	4	4	4	4		4	4	4	3	3	
	Permanent	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Highly likely	**High**	Life of operation or less than 20 years: Long Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology moderately sensitive/ /important	Likely	**Moderate**

		affected < 3000m										
	4	3	4	4	4		3	3	3	4	2	
Introduction of alien species, especially plants	Life of operation or less than 20 years: Long Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology highly sensitive /important	Possible	**Moderate**
	4	4	4	5	4		3	3	3	4	3	
Displacement of faunal community (Including SCCs) due to habitat loss, direct mortalities	Life of operation or less than 20 years: Long Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology critically sensitive /important	Highly likely	**High**	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology highly sensitive /important	Likely	**Moderate**
	4	4	4	4	4		3	2	2	4	3	
Disturbance of fauna species (road collisions, noise, dust, vibration and possible poaching)	Life of operation or less than 20 years: Long Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology highly sensitive /important	Likely	**Low**

		affected < 3000m										
	4	4	4	4	4		3	2	2	4	3	
Disturbance and mortalities of fauna species including SCCs due to blasting	Life of operation or less than 20 years: Long Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology highly sensitive /important	Likely	**Low**
	4	3	4	3	4		3	2	4	2	2	
Disruption and loss of fauna and flora including protected trees associated with the service road	Life of operation or less than 20 years: Long Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Great / harmful/ ecosystem structure and function largely altered	Ecology moderately sensitive/ /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Great / harmful/ ecosystem structure and function largely altered	Ecology with limited sensitivity/importance	Possible	**Low**
	4	4	3	4	4		3	2	2	4	3	
Disruption and loss of fauna and flora associated with the realignment of the rivers and culverts	Life of operation or less than 20 years: Long Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Significant / ecosystem structure and function moderately altered	Ecology highly sensitive /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology highly sensitive /important	Likely	**Low**

Table 6.16 Assessment of significance of potential impacts on terrestrial biodiversity associated with the operational phase of the project.

Impact	Prior to mitigation						Post mitigation					
	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Continued encroachment and displacement of the natural vegetation community due to alien invasive plant species and erosion	4 Life of operation or less than 20 years: Long Term	4 Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	4 Great / harmful/ ecosystem structure and function largely altered	4 Ecology highly sensitive /important	4 Highly likely	**Moderately High**	3 One year to five years: Medium Term	2 Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	2 Small / ecosystem structure and function largely unchanged	3 Ecology moderately sensitive/ /important	2 Possible	**Low**
Continued encroachment and displacement of the natural vegetation community due to alien invasive plant species and erosion at corner 3- alternative	4 Life of operation or less than 20 years: Long Term	4 Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	4 Great / harmful/ ecosystem structure and function largely altered	3 Ecology moderately sensitive/ /important	4 Highly likely	**Moderately High**	3 One year to five years: Medium Term	2 Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	2 Small / ecosystem structure and function largely unchanged	3 Ecology moderately sensitive/ /important	2 Possible	**Low**
Continued displacement and fragmentation of the faunal community, particularly the disruption of	4 Life of operation or less than 20 years: Long Term	4 Regional within 5 km of the site boundary / <	4 Great / harmful/ ecosystem structure and function	4 Ecology highly sensitive /important	4 Highly likely	**Moderately High**	3 One year to five years: Medium Term	3 Local area/ within 1 km of the site boundary / < 5000ha impacted /	3 Significant / ecosystem structure and function	3 Ecology moderately sensitive/ /important	3 Likely	**Moderate**

natural faunal movement corridors		2000ha impacted / Linear features affected < 3000m	largely altered					Linear features affected < 1000m	moderately altered			
	4	4	4	4	4		3	3	2	3	2	
Increased anthropogenic disturbances (noise, human presence, litter and poaching/snaring);	Life of operation or less than 20 years: Long Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Possible	**Low**
	5	4	4	4	5		2	2	2	2	2	
Loss of faunal species due to road mortalities and vehicle collisions	Permanent	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology highly sensitive /important	Definite	**High**	One month to one year: Short Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology with limited sensitivity/importance	Possible	**Absent**

7 Specialist Management Plan

The aim of the management outcomes is to present the mitigations in such a way that the can be incorporated into the Environmental Management Programme (EMPr), allowing for more successful implementation and auditing of the mitigations and monitoring guidelines Table 7.1 presents the recommended mitigation measures and the respective timeframes, targets and performance indicators for the terrestrial study.

The focus of mitigation measures is to reduce the significance of potential impacts associated with the development and thereby to:

- Prevent the further loss and fragmentation of vegetation communities and the CBA areas in the vicinity of the project area (including wetland and watercourse areas);
- As far as possible, reduce the negative fragmentation effects of the development and enable safe movement of faunal species; and
- Prevent the direct and indirect loss and disturbance of faunal species and community (including occurring and potentially occurring species of conservation concern).

Table 7.1 Mitigation measures including requirements for timeframes, roles and responsibilities for the terrestrial study

Management outcome: Vegetation and Habitats				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further.	Life of operation	Project manager, Environmental Officer	Areas of indigenous vegetation	Ongoing
All areas outside of the direct footprint that were disturbed by the geological sampling must be rehabilitated and restored to a natural state. Rehabilitation of the disturbed areas must be made a priority. Any disturbed area must be re-vegetated with plant and grass species which are endemic to this vegetation type.	Life of operation	Project manager, Environmental Officer	Disturbed Area	Ongoing
All activities must be restricted to within the low/medium sensitivity areas as far as possible. No unnecessary loss of high sensitivity areas should be permitted. It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon (including fencing off the defined project area).	Construction Phase	Project manager, Environmental Officer	Development within demarcated areas	During phase
All construction/operational and access must make use of the existing roads.	Construction/Operational Phase	Environmental Officer & Design Engineer	Roads and paths used	During phase
All laydown, chemical toilets etc. should be restricted to low/medium 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 and material storage & placement.	During phase
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood 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
A qualified ECO/Ecologist must mark protected trees in the area to ensure that none of the trees that are not covered by the destruction permit is harmed.	Construction Phase	Environmental Officer	Protected trees	During phase
A hydrocarbon 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	Life of operation	Environmental Officer & Contractor	Spill events, Vehicles dripping.	Ongoing

Leaking equipment and vehicles must be repaired immediately or be removed from project area to facilitate repair.	Life of operation	Environmental Officer & Contractor	Leaks and spills	Ongoing
Storm Water run-off & Discharge Water Quality	Life of operation	Environmental Officer & Design Engineer	Water Quality	Monthly
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
A fire management plan needs to be complied and implemented to restrict the impact fire might have on the rehabilitated areas.	Closure Phase/Rehabilitation phase	Environmental Officer & Contractor	Fire Management	During Phase
For the construction of the bridge: **No cement may be mixed on site and be spilled into the systems;** **All rubble must be removed from site once construction has been completed;** **The river bed and edge must be rehabilitated and revegetated with indigenous vegetation to prevent erosion;** **Flow analysis as per the aquatic report must be conducted to ensure the flow of the rivers have not been affected.**	Construction Phase and operational phase	Environmental Officer & Contractor	Bridge construction	During Phase
Areas that are disrupted during the realignment of the rivers and culverts must be rehabilitated with indigenous vegetation.	Operational phase, Closure Phase/Rehabilitation phase	Environmental Officer & Contractor	River and culvert realignment	During Phase
Storm water management plan must be put in place for the river and culvert realignment areas to ensure alien vegetation and erosion does not lead to further vegetation loss .	Operational phase, Closure Phase/Rehabilitation phase	Environmental Officer & Contractor	River and culvert realignment	During Phase
Blasting can lead to: Ground vibrations, ground deformation (resulting in trees falling and habitat loss) and fly rock. **Watch For/Monitor Ground Heave, Block Movement;** **Closer Hole Spacing, Smaller Diameter Holes;** **Good perimeter control blasting to minimize overbreak;** **Use Blasting Mats and weigh down the mats with rocks and soil from the blasting;** **Observe Geology, look for open seams.**	Construction Phase	Environmental Officer & Contractor	Blasting	During Phase
Rocks may not be piled in sensitive areas and must be removed from site. It is recommended that they be used to back fill the borrow pits.	Construction and operational phase	Environmental Officer & Contractor	Roack Piles	During Phase

Management outcome: Fauna				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
A qualified environmental control officer must be on site when construction begins. The area must be walked though prior to construction to ensure no faunal species remain in the habitat and get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated.	Construction Phase	Environmental Officer, Contractor	Presence of any floral or faunal species.	During phase
The areas to be developed must be specifically demarcated to prevent movement of staff or any individual into highly sensitive areas and the surrounding environment; • Signs must be put up to enforce this	Construction/Operational Phase	Project manager, Environmental Officer	Infringement into these areas	During phase
No trapping, killing, or poisoning of any wildlife is to be allowed. • Signs must be put up to enforce this;	Life of operation	Environmental Officer	Evidence of trapping etc	Ongoing
The duration of the construction should be minimized to as short term as possible, to reduce the period of disturbance on fauna. Construction are also not allowed to take place at night	Construction/Operational Phase	Project manager, Environmental Officer & Design Engineer	Construction timeframe	During phase
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.	Construction Phase	Health and Safety Officer	Compliance to the training.	During phase
Any holes/excavations need to be sealed to ensure that no fauna species can fall in.	Construction/Operational Phase	Environmental Officer & Design Engineer	Sealing holes/excavations	Daily.
Blasting can lead to vibration and noise disturbance: **Notify nearby landowners of blasting schedule so they can move sensitive animals out of the nearby areas;** **Mechanical ripping should be used, where possible, to avoid or minimize the use of explosives;** **Ground vibration at sensitive sites should be below 5 mm/s (ppv) for 95 per cent of all blasts;** **Airblast at sensitive sites should be below 115dB for 95 per cent of all blasts; and** **Blasting noise must be monitored.**	Construction Phase	Environmental Officer, Contractor	Blasting	During phase
Install average speed prosecuting cameras to reduce the speed travelled along the whole route and not just at short locations. This will decrease the road killings significantly.	Operational Phase	Environmental Officer, Contractor	Road killings	During phase
Management outcome: Alien Vegetation and fauna				
Impact Management Actions	Implementation		Monitoring	

	Phase	Responsible Party	Aspect	Frequency
Compilation of and 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	Construction/Operational Phase	Project manager, Environmental Officer & Contractor	Footprint Area	During phase
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.	Life of operation	Environmental Officer & Health and Safety Officer	Presence of waste	Life of operation
A pest control plan must be put in place and implemented for the construction camp; it is imperative that poisons not be used due to the presence of SCCs	Life of operation	Environmental Officer & Health and Safety Officer	Evidence or presence of pests	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 and not conducting activities on windy days which will increase the likelihood of dust being generated.	Construction Phase	Contractor	Dustfall	As per the air quality report and the dust monitoring program.
Blasting can only take place in times of low wind conditions	Construction Phase	Contractor	Dustfall	As per the air quality report and the 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 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.	Life of operation	Environmental Officer & Health and Safety Officer	Presence of waste	Life of operation
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.	Construction Phase	Environmental Officer & Health and Safety Officer	Number of toilets per staff member. Waste levels	Daily

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
All rubble must be removed from site and dumped at a waste management facility	Construction Phase	Contractor	Rubble	During phase

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 EMPr.	Life of operation	Health and Safety Officer	Compliance to the training.	Ongoing
All staff to receive Environmental Awareness programme of the surrounding area and wetlands to inform of importance of these areas and their conservation	Life of operation	Estate manager	Environmental Awareness	Ongoing

8 Conclusion

The road is surrounded by a number of game farms and a protected area. In these areas including the areas of the realignments one avifauna and seven mammal species of conservation concern are known to occur. This habitat is mostly mountain bushveld that is in pristine condition. Two different types of protected trees were also observed in the area. The ecological integrity, importance and functioning of the ecosystem is still intact. The preservation of this habitat and associated species of conservation concern is of utmost importance.

The development will lead to the destruction and loss of portions of functional CBA, ESA and a VU ecosystem. The faunal species that are expected to utilise this habitat will also be lost. Thus, if these areas are not maintained in a natural or near natural state, destroyed or fragmented, then meeting targets for biodiversity features will not be achieved. The mitigations, management and associated monitoring regarding these operational impacts will be the most important factor of this project and must be considered by the issuing authority.

Impact Statement

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

Considering the above-mentioned information, the development will result in the destruction and fragmentation of intact and functional CBA areas, areas rated “Very High” by the screening report. It is the opinion of the specialist that the project may be cautiously considered, should all mitigation measures be implemented.

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10 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.

Rudolph Greffrath

Terrestrial Ecologist

The Biodiversity Company

May 2021

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

May 2021

Appendix B Flora species expected in the project area and surrounds

Family	Taxon	Author	IUCN	Ecology
Fabaceae	*Abrus laevigatus*	E.Mey.	LC	Indigenous
Malvaceae	*Abutilon austro-africanum*	Hochr.	LC	Indigenous
Malvaceae	*Abutilon ramosum*	(Cav.) Guill. & Perr.	LC	Indigenous
Euphorbiaceae	*Acalypha indica var. indica*	L.	LC	Indigenous
Euphorbiaceae	*Acalypha villicaulis*	Hochst.	LC	Indigenous
Asteraceae	*Acanthospermum hispidum*	DC.		Not indigenous; Naturalised
Amaranthaceae	*Achyranthes aspera var. sicula*	L.		Indigenous
Pteridaceae	*Actiniopteris dimorpha subsp. dimorpha*	Pic.Serm.	LC	Indigenous
Pteridaceae	*Actiniopteris radiata*	(J.Koenig ex Sw.) Link	LC	Indigenous
Passifloraceae	*Adenia digitata*	(Harv.) Engl.	LC	Indigenous
Passifloraceae	*Adenia glauca*	Schinz	LC	Indigenous
Asteraceae	*Adenostemma caffrum*	DC.	LC	Indigenous
Lamiaceae	*Aeollanthus buchnerianus*	Briq.	LC	Indigenous
Turneraceae	*Afroqueta capensis*	(Harv.) Thulin & Razafim.	LC	Indigenous
Cyperaceae	*Afroscirpoides dioeca*	(Kunth) Garcia-Madr.		Indigenous
Rubiaceae	*Agathisanthemum bojeri subsp. bojeri*	Klotzsch	LC	Indigenous
Loranthaceae	*Agelanthus natalitius subsp. zeyheri*	(Meisn.) Polhill & Wiens	LC	Indigenous
Fabaceae	*Albizia tanganyicensis subsp. tanganyicensis*	Baker f.	LC	Indigenous
Hyacinthaceae	*Albuca prasina*	(Ker Gawl.) J.C.Manning & Goldblatt		Indigenous
Hyacinthaceae	*Albuca sp.*			
Hyacinthaceae	*Albuca virens subsp. virens*	(Ker Gawl.) J.C.Manning & Goldblatt	LC	Indigenous
Orobanchaceae	*Alectra pumila*	Benth.	LC	Indigenous
Orobanchaceae	*Alectra vogelii*	Benth.	LC	Indigenous
Asphodelaceae	*Aloe subspicata*	(Baker) Boatwr. & J.C.Manning		Indigenous
Asphodelaceae	*Aloe zebrina*	Baker	LC	Indigenous
Fabaceae	*Alysicarpus zeyheri*	Harv.	LC	Indigenous
Amaranthaceae	*Amaranthus hybridus subsp. hybridus*	L.		Not indigenous; Naturalised
Amaryllidaceae	*Ammocharis coranica*	(Ker Gawl.) Herb.	LC	Indigenous
Apocynaceae	*Ancylobothrys capensis*	(Oliv.) Pichon	LC	Indigenous
Poaceae	*Andropogon huillensis*	Rendle	LC	Indigenous
Poaceae	*Andropogon schirensis*	Hochst. ex A.Rich.	LC	Indigenous
Poaceae	*Anthephora pubescens*	Nees	LC	Indigenous
Rubiaceae	*Anthospermum rigidum subsp. pumilum*	Eckl. & Zeyh.	LC	Indigenous
Rubiaceae	*Anthospermum rigidum subsp. rigidum*	Eckl. & Zeyh.	LC	Indigenous
Icacinaceae	*Apodytes dimidiata subsp. dimidiata*	E.Mey. ex Arn.	LC	Indigenous

Aponogetonaceae	*Aponogeton junceus*	Lehm.	LC	Indigenous
Scrophulariaceae	*Aptosimum elongatum*	(Hiern) Engl.	LC	Indigenous
Scrophulariaceae	*Aptosimum indivisum*	Burch. ex Benth.	LC	Indigenous
Fabaceae	*Argyrolobium transvaalense*	Schinz	LC	Indigenous
Iridaceae	*Aristea torulosa*	Klatt	LC	Indigenous
Poaceae	*Aristida adscensionis*	L.	LC	Indigenous
Poaceae	*Aristida canescens subsp. canescens*	Henrard	LC	Indigenous
Poaceae	*Aristida congesta subsp. barbicollis*	Roem. & Schult.	LC	Indigenous
Poaceae	*Aristida congesta subsp. congesta*	Roem. & Schult.	LC	Indigenous
Poaceae	*Aristida diffusa subsp. burkei*	Trin.	LC	Indigenous
Poaceae	*Aristida junciformis subsp. junciformis*	Trin. & Rupr.	LC	Indigenous
Poaceae	*Aristida meridionalis*	Henrard	LC	Indigenous
Poaceae	*Aristida mollissima subsp. argentea*	Pilg.	LC	Indigenous
Poaceae	*Aristida scabrivalvis subsp. scabrivalvis*	Hack.	LC	Indigenous
Poaceae	*Aristida sp.*			
Poaceae	*Aristida stipitata subsp. graciliflora*	Hack.	LC	Indigenous
Poaceae	*Aristida stipitata subsp. stipitata*	Hack.	LC	Indigenous
Apocynaceae	*Asclepias aurea*	(Schltr.) Schltr.	LC	Indigenous
Apocynaceae	*Asclepias brevipes*	(Schltr.) Schltr.	LC	Indigenous; Endemic
Apocynaceae	*Asclepias densiflora*	N.E.Br.	LC	Indigenous
Apocynaceae	*Asclepias gibba var. media*	(E.Mey.) Schltr.	LC	Indigenous
Asparagaceae	*Asparagus buchananii*	Baker	LC	Indigenous
Asparagaceae	*Asparagus cooperi*	Baker	LC	Indigenous
Asparagaceae	*Asparagus flavicaulis subsp. setulosus*	(Oberm.) Fellingham & N.L.Mey.	LC	Indigenous; Endemic
Asparagaceae	*Asparagus laricinus*	Burch.	LC	Indigenous
Asparagaceae	*Asparagus suaveolens*	Burch.	LC	Indigenous
Asteraceae	*Aspilia mossambicensis*	(Oliv.) Wild	LC	Indigenous
Aytoniaceae	*Asterella muscicola*	(Steph.) S.W.Arnell		Indigenous
Acanthaceae	*Asystasia mysorensis*	(Roth) T.Anderson		Indigenous
Pottiaceae	*Barbula eubryum*	Mull.Hal.		Indigenous
Acanthaceae	*Barleria bremekampii*	Oberm.	LC	Indigenous
Acanthaceae	*Barleria macrostegia*	Nees	LC	Indigenous
Acanthaceae	*Barleria pretoriensis*	C.B.Clarke	LC	Indigenous
Passifloraceae	*Basananthe pedata*	(Baker f.) W.J.de Wilde	LC	Indigenous
Fabaceae	*Bauhinia variegata var. variegata*	L.	NE	Not indigenous; Naturalised; Invasive
Rhamnaceae	*Berchemia zeyheri*	(Sond.) Grubov	LC	Indigenous
Elatinaceae	*Bergia decumbens*	Planch. ex Harv.	LC	Indigenous
Asteraceae	*Berkheya zeyheri subsp. zeyheri*	Oliv. & Hiern	LC	Indigenous
Acanthaceae	*Blepharis integrifolia var. clarkei*	(L.f.) E.Mey. ex Schinz	LC	Indigenous

Acanthaceae	*Blepharis integrifolia var. integrifolia*	(L.f.) E.Mey. ex Schinz	LC	Indigenous
Acanthaceae	*Blepharis subvolubilis*	C.B.Clarke	LC	Indigenous
Acanthaceae	*Blepharis transvaalensis*	Schinz	LC	Indigenous
Nyctaginaceae	*Boerhavia diffusa var. diffusa*	L.		Not indigenous; Naturalised
Orchidaceae	*Bonatea antennifera*	Rolfe	LC	Indigenous
Amaryllidaceae	*Boophone disticha*	(L.f.) Herb.	LC	Indigenous
Poaceae	*Bothriochloa insculpta*	(Hochst. ex A.Rich.) A.Camus	LC	Indigenous
Poaceae	*Brachiaria brizantha*	(A.Rich.) Stapf	LC	Indigenous
Poaceae	*Brachiaria nigropedata*	(Ficalho & Hiern) Stapf	LC	Indigenous
Poaceae	*Brachiaria serrata*	(Thunb.) Stapf	LC	Indigenous
Asteraceae	*Brachylaena rotundata*	S.Moore	LC	Indigenous
Asteraceae	*Brachylaena transvaalensis*	E.Phillips & Schweick.	LC	Indigenous
Bryaceae	*Brachymenium acuminatum*	Harv.		Indigenous
Phyllanthaceae	*Bridelia mollis*	Hutch.	LC	Indigenous
Poaceae	*Bromus catharticus*	Vahl	NE	Not indigenous; Naturalised; Invasive
Bryaceae	*Bryum argenteum*	Hedw.		Indigenous
Bryaceae	*Bryum dichotomum*	Hedw.		Indigenous
Bryaceae	*Bryum pycnophyllum*	(Dixon) Mohamed		Indigenous
Orobanchaceae	*Buchnera reducta*	Hiern	LC	Indigenous
Orobanchaceae	*Buchnera sp.*			
Asphodelaceae	*Bulbine angustifolia*	Poelln.	LC	Indigenous
Asphodelaceae	*Bulbine capitata*	Poelln.	LC	Indigenous
Asphodelaceae	*Bulbine narcissifolia*	Salm-Dyck	LC	Indigenous
Asphodelaceae	*Bulbine sp.*			
Cyperaceae	*Bulbostylis boeckeleriana*	(Schweinf.) Beetle	LC	Indigenous
Cyperaceae	*Bulbostylis hispidula subsp. pyriformis*	(Vahl) R.W.Haines	LC	Indigenous
Fabaceae	*Burkea africana*	Hook.	LC	Indigenous
Asteraceae	*Callilepis leptophylla*	Harv.	LC	Indigenous
Leucobryaceae	*Campylopus introflexus*	(Hedw.) Brid.		Indigenous
Leucobryaceae	*Campylopus robillardei*	Besch.		Indigenous
Cannaceae	*Canna generalis*	L.H.Bailey	NE	Not indigenous; Naturalised; Invasive
Sapindaceae	*Cardiospermum corindum*	L.	LC	Indigenous
Cyperaceae	*Carex cognata*	Kunth	LC	Indigenous
Apocynaceae	*Carissa bispinosa*	(L.) Desf. ex Brenan	LC	Indigenous
Apocynaceae	*Cascabela thevetia*	(L.) Lippold		Not indigenous; Cultivated; Naturalised; Invasive
Poaceae	*Cenchrus ciliaris*	L.	LC	Indigenous
Caryophyllaceae	*Cerastium arabidis*	E.Mey. ex Fenzl	LC	Indigenous
Ceratophyllaceae	*Ceratophyllum demersum*	L.		Indigenous
Pedaliaceae	*Ceratotheca triloba*	(Bernh.) Hook.f.	LC	Indigenous

Apocynaceae	*Ceropegia pachystelma subsp. pachystelma*	Schltr.	LC	Indigenous
Apocynaceae	*Ceropegia turricula*	E.A.Bruce	NT	Indigenous; Endemic
Cannabaceae	*Chaetachme aristata*	Planch.	LC	Indigenous
Fabaceae	*Chamaecrista absus*	(L.) H.S.Irwin & Barneby	LC	Indigenous
Fabaceae	*Chamaecrista biensis*	(Steyaert) Lock	LC	Indigenous
Fabaceae	*Chamaecrista capensis var. capensis*	(Thunb.) E.Mey.	LC	Indigenous
Fabaceae	*Chamaecrista comosa var. capricornia*	E.Mey.	LC	Indigenous
Fabaceae	*Chamaecrista stricta*	E.Mey.	LC	Indigenous
Verbenaceae	*Chascanum hederaceum var. hederaceum*	(Sond.) Moldenke	LC	Indigenous
Verbenaceae	*Chascanum pinnatifidum var. pinnatifidum*	(L.f.) E.Mey.	LC	Indigenous
Pteridaceae	*Cheilanthes viridis var. glauca*	(Forssk.) Sw.	LC	Indigenous
Pteridaceae	*Cheilanthes viridis var. viridis*	(Forssk.) Sw.	LC	Indigenous
Amaranthaceae	*Chenopodium album*	L.		Not indigenous; Naturalised; Invasive
Amaranthaceae	*Chenopodium hederiforme var. undulatum*	(Murr) Aellen	LC	Indigenous
Gentianaceae	*Chironia palustris subsp. transvaalensis*	Burch.	LC	Indigenous
Agavaceae	*Chlorophytum aridum*	Oberm.	LC	Indigenous
Agavaceae	*Chlorophytum fasciculatum*	(Baker) Kativu	LC	Indigenous
Agavaceae	*Chlorophytum recurvifolium*	(Baker) C.Archer & Kativu	LC	Indigenous
Poaceae	*Chrysopogon serrulatus*	Trin.	LC	Indigenous
Cucurbitaceae	*Citrullus lanatus*	(Thunb.) Matsum. & Nakai	LC	Indigenous
Ranunculaceae	*Clematis villosa subsp. stanleyi*	DC.	LC	Indigenous
Cleomaceae	*Cleome conrathii*	Burtt Davy	NT	Indigenous
Cleomaceae	*Cleome gynandra*	L.	LC	Indigenous
Cleomaceae	*Cleome monophylla*	L.	LC	Indigenous
Cleomaceae	*Cleome rubella*	Burch.	LC	Indigenous
Lamiaceae	*Clerodendrum ternatum*	Schinz	LC	Indigenous
Peraceae	*Clutia pulchella var. pulchella*	L.	LC	Indigenous
Cucurbitaceae	*Coccinia adoensis*	(A.Rich.) Cogn.	LC	Indigenous
Cucurbitaceae	*Coccinia rehmannii*	Cogn.	LC	Indigenous
Cucurbitaceae	*Coccinia sessilifolia*	(Sond.) Cogn.	LC	Indigenous
Cucurbitaceae	*Coccinia variifolia*	A.Meeuse	LC	Indigenous; Endemic
Combretaceae	*Combretum apiculatum subsp. apiculatum*	Sond.	LC	Indigenous
Combretaceae	*Combretum erythrophyllum*	(Burch.) Sond.	LC	Indigenous
Combretaceae	*Combretum hereroense*	Schinz		Indigenous
Combretaceae	*Combretum imberbe*	Wawra	LC	Indigenous
Combretaceae	*Combretum kraussii*	Hochst.	LC	Indigenous
Combretaceae	*Combretum microphyllum*	Klotzsch	LC	Indigenous

Combretaceae	*Combretum molle*	R.Br. ex G.Don	LC	Indigenous
Combretaceae	*Combretum nelsonii*	Dummer	LC	Indigenous; Endemic
Combretaceae	*Combretum sp.*			
Combretaceae	*Combretum zeyheri*	Sond.	LC	Indigenous
Commelinaceae	*Commelina africana var. lancispatha*	L.	LC	Indigenous
Commelinaceae	*Commelina bella*	Oberm.	DD	Indigenous; Endemic
Commelinaceae	*Commelina benghalensis*	L.	LC	Indigenous
Commelinaceae	*Commelina eckloniana*	Kunth	LC	Indigenous
Commelinaceae	*Commelina forskaolii*	Vahl	LC	Indigenous
Commelinaceae	*Commelina imberbis*	Ehrenb. ex Hassk.	LC	Indigenous
Commelinaceae	*Commelina livingstonii*	C.B.Clarke	LC	Indigenous
Commelinaceae	*Commelina subulata*	Roth	LC	Indigenous
Nyctaginaceae	*Commicarpus pentandrus*	(Burch.) Heimerl	LC	Indigenous
Rubiaceae	*Coptosperma supra-axillare*	(Hemsl.) Degreef	LC	Indigenous
Corbichoniaceae	*Corbichonia decumbens*	(Forssk.) Exell	LC	Indigenous
Malvaceae	*Corchorus asplenifolius*	Burch.	LC	Indigenous
Malvaceae	*Corchorus kirkii*	N.E.Br.	LC	Indigenous
Malvaceae	*Corchorus schimperi*	Cufod.	LC	Indigenous
Rubiaceae	*Cordylostigma virgatum*	(Willd.) Groeninckx & Dessein		Indigenous
Crassulaceae	*Cotyledon barbeyi*	Schweinf. ex Baker	LC	Indigenous
Acanthaceae	*Crabbea angustifolia*	Nees	LC	Indigenous; Endemic
Acanthaceae	*Crabbea hirsuta*	Harv.	LC	Indigenous
Crassulaceae	*Crassula capitella subsp. nodulosa*	Thunb.	LC	Indigenous
Crassulaceae	*Crassula lanceolata subsp. transvaalensis*	(Eckl. & Zeyh.) Endl. ex Walp.	LC	Indigenous
Linderniaceae	*Craterostigma plantagineum*	Hochst.	LC	Indigenous
Amaryllidaceae	*Crinum macowanii*	Baker	LC	Indigenous
Fabaceae	*Crotalaria eremicola subsp. eremicola*	Baker f.	LC	Indigenous
Fabaceae	*Crotalaria lotoides*	Benth.	LC	Indigenous
Fabaceae	*Crotalaria magaliesbergensis*	A.S.Flores & Sch.Rodr.	LC	Indigenous; Endemic
Fabaceae	*Crotalaria podocarpa*	DC.	LC	Indigenous
Fabaceae	*Crotalaria sphaerocarpa subsp. sphaerocarpa*	Perr. ex DC.	LC	Indigenous
Euphorbiaceae	*Croton gratissimus var. gratissimus*	Burch.	LC	Indigenous
Euphorbiaceae	*Croton gratissimus var. subgratissimus*	Burch.	LC	Indigenous
Apocynaceae	*Cryptolepis oblongifolia*	(Meisn.) Schltr.	LC	Indigenous
Cucurbitaceae	*Cucumis cinereus*	(Cogn.) Ghebret. & Thulin	LC	Indigenous

Cucurbitaceae	*Cucumis myriocarpus subsp. myriocarpus*	Naudin	LC	Indigenous
Araliaceae	*Cussonia transvaalensis*	Reyneke	LC	Indigenous; Endemic
Commelinaceae	*Cyanotis speciosa*	(L.f.) Hassk.	LC	Indigenous
Amaranthaceae	*Cyathula lanceolata*	Schinz	LC	Indigenous
Orobanchaceae	*Cycnium adonense*	E.Mey. ex Benth.	LC	Indigenous
Orobanchaceae	*Cycnium tubulosum subsp. tubulosum*	(L.f.) Engl.	LC	Indigenous
Poaceae	*Cymbopogon caesius*	(Hook. & Arn.) Stapf	LC	Indigenous
Poaceae	*Cymbopogon pospischilii*	(K.Schum.) C.E.Hubb.	NE	Indigenous
Apocynaceae	*Cynanchum viminale subsp. viminale*	(L.) L.		Indigenous
Poaceae	*Cynodon dactylon*	(L.) Pers.	LC	Indigenous
Poaceae	*Cynodon sp.*			
Cyperaceae	*Cyperus austro-africanus*	C.Archer & Goetgh.	LC	Indigenous
Cyperaceae	*Cyperus capensis*	(Steud.) Endl.	LC	Indigenous; Endemic
Cyperaceae	*Cyperus congestus*	Vahl	LC	Indigenous
Cyperaceae	*Cyperus decurvatus*	(C.B.Clarke) C.Archer & Goetgh.	LC	Indigenous
Cyperaceae	*Cyperus difformis*	L.	LC	Indigenous
Cyperaceae	*Cyperus eragrostis*	Lam.		Not indigenous; Naturalised
Cyperaceae	*Cyperus esculentus var. esculentus*	L.	LC	Indigenous
Cyperaceae	*Cyperus margaritaceus var. margaritaceus*	Vahl	LC	Indigenous
Cyperaceae	*Cyperus obtusiflorus var. obtusiflorus*	Vahl	LC	Indigenous
Cyperaceae	*Cyperus pseudovestitus*	(C.B.Clarke) Kuk.	LC	Indigenous
Cyperaceae	*Cyperus rupestris var. rupestris*	Kunth	LC	Indigenous
Cyperaceae	*Cyperus sexangularis*	Nees	LC	Indigenous
Cyperaceae	*Cyperus sphaerospermus*	Schrad.	LC	Indigenous
Cyperaceae	*Cyperus squarrosus*	L.	LC	Indigenous
Cyperaceae	*Cyperus turrillii*	Kuk.	LC	Indigenous
Cyperaceae	*Cyperus uitenhagensis*	(Steud.) C.Archer & Goetgh.	LC	Indigenous
Amaranthaceae	*Cyphocarpa angustifolia*	(Moq.) Lopr.	LC	Indigenous
Amaranthaceae	*Cyphocarpa cruciata*	(Schinz) Schinz	LC	Indigenous
Vitaceae	*Cyphostemma puberulum*	(C.A.Sm.) Wild & R.B.Drumm.	LC	Indigenous
Poaceae	*Dactyloctenium aegyptium*	(L.) Willd.	LC	Indigenous
Poaceae	*Dactyloctenium giganteum*	Fisher & Schweick.	LC	Indigenous
Euphorbiaceae	*Dalechampia capensis*	A.Spreng.	LC	Indigenous
Aizoaceae	*Delosperma cooperi*	(Hook.f.) L.Bolus	LC	Indigenous
Aizoaceae	*Delosperma sp.*	L.Bolus		
Asteraceae	*Denekia capensis*	Thunb.	LC	Indigenous
Pedaliaceae	*Dicerocaryum senecioides*	(Klotzsch) Abels	LC	Indigenous
Poaceae	*Dichanthium annulatum var. papillosum*	(Forssk.) Stapf	LC	Indigenous
Poaceae	*Dichanthium aristatum*	(Poir.) C.E.Hubb.	NE	Not indigenous; Naturalised
Dichapetalaceae	*Dichapetalum cymosum*	(Hook.) Engl.	LC	Indigenous

Fabaceae	*Dichrostachys cinerea subsp. africana*	(L.) Wight & Arn.	NE	Indigenous
Acanthaceae	*Dicliptera decorticans*	(K.Balkwill) I.Darbysh.		Indigenous
Acanthaceae	*Dicliptera transvaalensis*	C.B.Clarke	LC	Indigenous
Asteraceae	*Dicoma macrocephala*	DC.	LC	Indigenous
Iridaceae	*Dierama mossii*	(N.E.Br.) Hilliard	LC	Indigenous
Poaceae	*Digitaria argyrograpta*	(Nees) Stapf	LC	Indigenous
Poaceae	*Digitaria debilis*	(Desf.) Willd.	LC	Indigenous
Poaceae	*Digitaria eriantha*	Steud.	LC	Indigenous
Poaceae	*Digitaria sp.*			
Poaceae	*Digitaria velutina*	(Forssk.) P.Beauv.	LC	Indigenous
Poaceae	*Diheteropogon amplectens var. amplectens*	(Nees) Clayton	LC	Indigenous
Asteraceae	*Dimorphotheca spectabilis*	Schltr.	LC	Indigenous; Endemic
Poaceae	*Dinebra retroflexa var. condensata*	(Vahl) Panz.	LC	Indigenous
Ebenaceae	*Diospyros lycioides subsp. guerkei*	Desf.	LC	Indigenous
Ebenaceae	*Diospyros lycioides subsp. lycioides*	Desf.	LC	Indigenous
Hyacinthaceae	*Dipcadi gracillimum*	Baker	LC	Indigenous
Hyacinthaceae	*Dipcadi marlothii*	Engl.	LC	Indigenous
Hyacinthaceae	*Dipcadi viride*	(L.) Moench	LC	Indigenous
Apocynaceae	*Diplorhynchus condylocarpon*	(Mull.Arg.) Pichon	LC	Indigenous
Orchidaceae	*Disa welwitschii subsp. welwitschii*	Rchb.f.	LC	Indigenous
Asteraceae	*Doellia cafra*	(DC.) Anderb.	LC	Indigenous
Fabaceae	*Dolichos sp.*			
Fabaceae	*Dolichos trilobus subsp. transvaalicus*	L.	LC	Indigenous
Malvaceae	*Dombeya rotundifolia var. rotundifolia*	(Hochst.) Planch.	LC	Indigenous
Hyacinthaceae	*Drimia altissima*	(L.f.) Ker Gawl.	LC	Indigenous
Hyacinthaceae	*Drimia depressa*	(Baker) Jessop	LC	Indigenous
Verbenaceae	*Duranta erecta*	L.		Not indigenous; Naturalised; Invasive
Apocynaceae	*Duvalia polita*	N.E.Br.	LC	Indigenous
Acanthaceae	*Dyschoriste costata*	(Nees) Kuntze	LC	Indigenous; Endemic
Poaceae	*Echinochloa holubii*	(Stapf) Stapf	LC	Indigenous
Poaceae	*Echinochloa jubata*	Stapf	LC	Indigenous
Poaceae	*Echinochloa sp.*			
Poaceae	*Echinochloa stagnina*	(Retz.) P.Beauv.	LC	Indigenous
Poaceae	*Echinochloa ugandensis*	Snowden & C.E.Hubb.	LC	Indigenous
Boraginaceae	*Ehretia obtusifolia*	Hochst. ex A.DC.	LC	Indigenous
Boraginaceae	*Ehretia rigida subsp. nervifolia*	(Thunb.) Druce	LC	Indigenous
Fabaceae	*Elephantorrhiza burkei*	Benth.	LC	Indigenous
Fabaceae	*Elephantorrhiza obliqua var. glabra*	Burtt Davy	LC	Indigenous; Endemic
Poaceae	*Eleusine coracana subsp. africana*	(L.) Gaertn.	LC	Indigenous
Poaceae	*Elionurus muticus*	(Spreng.) Kunth	LC	Indigenous

Asteraceae	*Emilia transvaalensis*	(Bolus) C.Jeffrey	LC	Indigenous
Sapotaceae	*Englerophytum magalismontanum*	(Sond.) T.D.Penn.	LC	Indigenous
Poaceae	*Enneapogon cenchroides*	(Licht. ex Roem. & Schult.) C.E.Hubb.	LC	Indigenous
Poaceae	*Enneapogon pretoriensis*	Stent	LC	Indigenous
Poaceae	*Enneapogon scoparius*	Stapf	LC	Indigenous
Onagraceae	*Epilobium hirsutum*	L.	LC	Indigenous
Poaceae	*Eragrostis capensis*	(Thunb.) Trin.	LC	Indigenous
Poaceae	*Eragrostis chapelieri*	(Kunth) Nees	LC	Indigenous
Poaceae	*Eragrostis chloromelas*	Steud.	LC	Indigenous
Poaceae	*Eragrostis cilianensis*	(All.) Vignolo ex Janch.	LC	Indigenous
Poaceae	*Eragrostis curvula*	(Schrad.) Nees	LC	Indigenous
Poaceae	*Eragrostis gummiflua*	Nees	LC	Indigenous
Poaceae	*Eragrostis heteromera*	Stapf	LC	Indigenous
Poaceae	*Eragrostis inamoena*	K.Schum.	LC	Indigenous
Poaceae	*Eragrostis lappula*	Nees	LC	Indigenous
Poaceae	*Eragrostis nindensis*	Ficalho & Hiern	LC	Indigenous
Poaceae	*Eragrostis obtusa*	Munro ex Ficalho & Hiern	LC	Indigenous
Poaceae	*Eragrostis pallens*	Hack.	LC	Indigenous
Poaceae	*Eragrostis plana*	Nees	LC	Indigenous
Poaceae	*Eragrostis planiculmis*	Nees	LC	Indigenous
Poaceae	*Eragrostis racemosa*	(Thunb.) Steud.	LC	Indigenous
Poaceae	*Eragrostis rigidior*	Pilg.	LC	Indigenous
Poaceae	*Eragrostis sclerantha subsp. villosipes*	Nees	LC	Indigenous
Poaceae	*Eragrostis sp.*			
Poaceae	*Eragrostis superba*	Peyr.	LC	Indigenous
Poaceae	*Eragrostis trichophora*	Coss. & Durieu	LC	Indigenous
Loranthaceae	*Erianthemum ngamicum*	(Sprague) Danser	LC	Indigenous
Ericaceae	*Erica woodii var. woodii*	Bolus	LC	Indigenous
Asteraceae	*Erigeron bonariensis*	L.		Not indigenous; Naturalised; Invasive
Eriocaulaceae	*Eriocaulon transvaalicum subsp. transvaalicum*	N.E.Br.	LC	Indigenous
Poaceae	*Eriochloa meyeriana subsp. meyeriana*	(Nees) Pilg.	LC	Indigenous
Fabaceae	*Eriosema pauciflorum var. pauciflorum*	Klotzsch	LC	Indigenous
Fabaceae	*Eriosema psoraleoides*	(Lam.) G.Don	LC	Indigenous
Ruscaceae	*Eriospermum cooperi var. cooperi*	Baker	LC	Indigenous
Ruscaceae	*Eriospermum flagelliforme*	(Baker) J.C.Manning	LC	Indigenous
Ruscaceae	*Eriospermum porphyrium*	Archibald	LC	Indigenous
Ruscaceae	*Eriospermum porphyrovalve*	Baker	LC	Indigenous
Ruscaceae	*Eriospermum sp.*			
Erpodiaceae	*Erpodium coronatum subsp. transvaaliense*	(Hook.f. & Wilson) Mitt.		Indigenous
Fabaceae	*Erythrina lysistemon*	Hutch.	LC	Indigenous
Euphorbiaceae	*Erythrococca menyharthii*	(Pax) Prain	LC	Indigenous
Euphorbiaceae	*Erythrococca sp.*			

Ebenaceae	*Euclea crispa subsp. crispa*	(Thunb.) Gurke	LC	Indigenous
Ebenaceae	*Euclea linearis*	Zeyh. ex Hiern	LC	Indigenous
Ebenaceae	*Euclea natalensis subsp. angustifolia*	A.DC.	LC	Indigenous
Ebenaceae	*Euclea undulata*	Thunb.	LC	Indigenous
Orchidaceae	*Eulophia angolensis*	(Rchb.f.) Summerh.	LC	Indigenous
Orchidaceae	*Eulophia clitellifera*	(Rchb.f.) Bolus	LC	Indigenous
Orchidaceae	*Eulophia hereroensis*	Schltr.	LC	Indigenous
Orchidaceae	*Eulophia sp.*			
Euphorbiaceae	*Euphorbia davyi*	N.E.Br.	LC	Indigenous
Euphorbiaceae	*Euphorbia inaequilatera*	Sond.	LC	Indigenous
Euphorbiaceae	*Euphorbia indica*	Lam.	NE	Not indigenous; Naturalised
Euphorbiaceae	*Euphorbia neopolycnemoides*	Pax & K.Hoffm.	LC	Indigenous
Euphorbiaceae	*Euphorbia pseudotuberosa*	Pax	LC	Indigenous
Euphorbiaceae	*Euphorbia trichadenia*	Pax		Indigenous
Poaceae	*Eustachys paspaloides*	(Vahl) Lanza & Mattei	LC	Indigenous
Convolvulaceae	*Evolvulus alsinoides*	(L.) L.	LC	Indigenous
Exormothecaceae	*Exormotheca holstii*	Steph.		Indigenous
Rubiaceae	*Fadogia homblei*	De Wild.	LC	Indigenous
Proteaceae	*Faurea saligna*	Harv.	LC	Indigenous
Asteraceae	*Felicia mossamedensis*	(Hiern) Mendonça	LC	Indigenous
Asteraceae	*Felicia muricata subsp. muricata*	(Thunb.) Nees	LC	Indigenous
Moraceae	*Ficus glumosa*	Delile	LC	Indigenous
Moraceae	*Ficus ingens var. ingens*	(Miq.) Miq.		Indigenous
Moraceae	*Ficus thonningii*	Blume		Indigenous
Poaceae	*Fingerhuthia africana*	Lehm.	LC	Indigenous
Fissidentaceae	*Fissidens submarginatus*	Bruch		Indigenous
Salicaceae	*Flacourtia indica*	(Burm.f.) Merr.	LC	Indigenous
Asteraceae	*Flaveria bidentis*	(L.) Kuntze		Not indigenous; Naturalised; Invasive
Commelinaceae	*Floscopa glomerata*	(Willd. ex Schult. & Schult.f.) Hassk.	LC	Indigenous
Fossombroniaceae	*Fossombronia crispa*	Nees		Indigenous
Fossombroniaceae	*Fossombronia straussiana*	Perold		Indigenous
Iridaceae	*Freesia grandiflora subsp. grandiflora*	(Baker) Klatt	LC	Indigenous
Cyperaceae	*Fuirena pubescens var. pubescens*	(Poir.) Kunth	LC	Indigenous
Funariaceae	*Funaria rottleri*	(Schwagr.) Broth.		Indigenous
Rubiaceae	*Gardenia sp.*			
Rubiaceae	*Gardenia volkensii subsp. spatulifolia*	K.Schum.	LC	Indigenous
Rubiaceae	*Gardenia volkensii subsp. volkensii*	K.Schum.	NE	Indigenous
Asteraceae	*Gazania krebsiana subsp. serrulata*	Less.	LC	Indigenous
Asteraceae	*Geigeria burkei subsp. burkei*	Harv.	NE	Indigenous
Asteraceae	*Geigeria burkei subsp. burkei*	Harv.	NE	Indigenous

Asteraceae	*Geigeria elongata*	Alston	LC	Indigenous; Endemic
Asteraceae	*Gerbera piloselloides*	(L.) Cass.	LC	Indigenous
Asteraceae	*Gerbera viridifolia*	(DC.) Sch.Bip.	LC	Indigenous
Gisekiaceae	*Gisekia africana var. decagyna*	(Lour.) Kuntze	LC	Indigenous
Gisekiaceae	*Gisekia pharnaceoides var. pharnaceoides*	L.	LC	Indigenous
Iridaceae	*Gladiolus elliotii*	Baker	LC	Indigenous
Iridaceae	*Gladiolus oatesii*	Rolfe	LC	Indigenous
Iridaceae	*Gladiolus permeabilis subsp. edulis*	D.Delaroche	LC	Indigenous
Iridaceae	*Gladiolus rehmannii*	Baker	LC	Indigenous
Iridaceae	*Gladiolus sericeovillosus subsp. calvatus*	Hook.f.	LC	Indigenous
Iridaceae	*Gladiolus sp.*			
Colchicaceae	*Gloriosa modesta*	(Hook.) J.C.Manning & Vinn.	LC	Indigenous
Apocynaceae	*Gomphocarpus tomentosus subsp. tomentosus*	Burch.	LC	Indigenous
Amaranthaceae	*Gomphrena celosioides*	Mart.		Not indigenous; Naturalised
Malvaceae	*Grewia flava*	DC.	LC	Indigenous
Malvaceae	*Grewia flavescens*	Juss.	LC	Indigenous
Malvaceae	*Grewia monticola*	Sond.	LC	Indigenous
Malvaceae	*Grewia occidentalis var. occidentalis*	L.	LC	Indigenous
Malvaceae	*Grewia retinervis*	Burret	LC	Indigenous
Malvaceae	*Grewia rogersii*	Burtt Davy & Greenway	LC	Indigenous; Endemic
Malvaceae	*Grewia subspathulata*	N.E.Br.	LC	Indigenous
Amaranthaceae	*Guilleminea densa*	(Humb. & Bonpl. ex Schult.) Moq.		Not indigenous; Naturalised; Invasive
Celastraceae	*Gymnosporia polyacantha subsp. vaccinifolia*	Szyszyl.	LC	Indigenous; Endemic
Celastraceae	*Gymnosporia tenuispina*	(Sond.) Szyszyl.	LC	Indigenous
Amaryllidaceae	*Haemanthus humilis subsp. humilis*	Jacq.	LC	Indigenous; Endemic
Asteraceae	*Haplocarpha scaposa*	Harv.	LC	Indigenous
Pedaliaceae	*Harpagophytum zeyheri subsp. zeyheri*	Decne.	LC	Indigenous
Cactaceae	*Harrisia bonplandii*	(J.Parm. ex Pfeiff.) Britton & Rose		Not indigenous; Naturalised; Invasive
Cactaceae	*Harrisia martinii*	(Labour.) Britton	NE	Not indigenous; Naturalised; Invasive
Asteraceae	*Helichrysum harveyanum*	Wild	LC	Indigenous
Asteraceae	*Helichrysum lineare*	DC.	LC	Indigenous
Asteraceae	*Helichrysum nudifolium var. nudifolium*	(L.) Less.	LC	Indigenous
Asteraceae	*Helichrysum paronychioides*	DC.	LC	Indigenous
Asteraceae	*Helichrysum stenopterum*	DC.	LC	Indigenous
Boraginaceae	*Heliotropium ciliatum*	Kaplan	LC	Indigenous
Boraginaceae	*Heliotropium nelsonii*	C.H.Wright	LC	Indigenous
Boraginaceae	*Heliotropium strigosum*	Willd.	LC	Indigenous
Malvaceae	*Hermannia boraginiflora*	Hook.	LC	Indigenous
Malvaceae	*Hermannia burkei*	Burtt Davy	LC	Indigenous
Malvaceae	*Hermannia grisea*	Schinz	LC	Indigenous; Endemic

Malvaceae	*Hermannia stellulata*	(Harv.) K.Schum.	LC	Indigenous
Malvaceae	*Hermannia tomentosa*	(Turcz.) Schinz ex Engl.	LC	Indigenous
Amaranthaceae	*Hermbstaedtia capitata*	Schinz	LC	Indigenous; Endemic
Amaranthaceae	*Hermbstaedtia odorata var. aurantiaca*	(Burch.) T.Cooke	NE	Indigenous
Amaranthaceae	*Hermbstaedtia odorata var. odorata*	(Burch.) T.Cooke	NE	Indigenous
Poaceae	*Heteropogon contortus*	(L.) Roem. & Schult.	LC	Indigenous
Heteropyxidaceae	*Heteropyxis natalensis*	Harv.	LC	Indigenous
Annonaceae	*Hexalobus monopetalus var. monopetalus*	(A.Rich.) Engl. & Diels	LC	Indigenous
Malvaceae	*Hibiscus aethiopicus var. ovatus*	L.	LC	Indigenous
Malvaceae	*Hibiscus cannabinus*	L.	LC	Indigenous
Malvaceae	*Hibiscus engleri*	K.Schum.	LC	Indigenous
Malvaceae	*Hibiscus microcarpus*	Garcke	LC	Indigenous
Malvaceae	*Hibiscus nigricaulis*	Baker f.	LC	Indigenous
Malvaceae	*Hibiscus pusillus*	Thunb.	LC	Indigenous
Malvaceae	*Hibiscus schinzii*	Gurke	LC	Indigenous
Asteraceae	*Hilliardiella elaeagnoides*	(DC.) Swelank. & J.C.Manning		Indigenous
Asteraceae	*Hilliardiella sutherlandii*	(Harv.) H.Rob.		Indigenous
Apocynaceae	*Huernia loeseneriana*	Schltr.	LC	Indigenous
Poaceae	*Hyparrhenia anamesa*	Clayton	LC	Indigenous
Poaceae	*Hyparrhenia filipendula var. pilosa*	(Hochst.) Stapf	LC	Indigenous
Poaceae	*Hyparrhenia hirta*	(L.) Stapf	LC	Indigenous
Poaceae	*Hyparrhenia nyassae*	(Rendle) Stapf	LC	Indigenous
Poaceae	*Hyparrhenia sp.*			
Hypericaceae	*Hypericum lalandii*	Choisy	LC	Indigenous
Poaceae	*Hyperthelia dissoluta*	(Nees ex Steud.) Clayton	LC	Indigenous
Acanthaceae	*Hypoestes forskaolii*	(Vahl) R.Br.	LC	Indigenous
Hypoxidaceae	*Hypoxis costata*	Baker	LC	Indigenous
Hypoxidaceae	*Hypoxis iridifolia*	Baker	LC	Indigenous
Hypoxidaceae	*Hypoxis rigidula var. pilosissima*	Baker	LC	Indigenous
Poaceae	*Imperata cylindrica*	(L.) P.Beauv.		Indigenous
Fabaceae	*Indigastrum burkeanum*	(Benth. ex Harv.) Schrire	LC	Indigenous
Fabaceae	*Indigastrum niveum*	(Willd. ex Spreng.) Schrire & Callm.		Indigenous
Fabaceae	*Indigastrum parviflorum subsp. parviflorum*	(B.Heyne ex Wight & Arn.) Schrire	NE	Indigenous
Fabaceae	*Indigofera charlieriana subsp. sessilis*	Schinz		Indigenous
Fabaceae	*Indigofera comosa*	N.E.Br.	LC	Indigenous
Fabaceae	*Indigofera daleoides var. daleoides*	Benth. ex Harv.	NE	Indigenous
Fabaceae	*Indigofera filipes*	Benth. ex Harv.	LC	Indigenous
Fabaceae	*Indigofera hedyantha*	Eckl. & Zeyh.	LC	Indigenous
Fabaceae	*Indigofera heterotricha*	DC.	LC	Indigenous
Fabaceae	*Indigofera holubii*	N.E.Br.	LC	Indigenous
Fabaceae	*Indigofera lupatana*	Baker f.	LC	Indigenous

Fabaceae	*Indigofera melanadenia*	Benth. ex Harv.	LC	Indigenous
Fabaceae	*Indigofera mollicoma*	N.E.Br.	LC	Indigenous
Fabaceae	*Indigofera reducta*	N.E.Br.	LC	Indigenous
Fabaceae	*Indigofera rhytidocarpa subsp. rhytidocarpa*	Benth. ex Harv.	LC	Indigenous
Fabaceae	*Indigofera schimperi var. schimperi*	Jaub. & Spach	LC	Indigenous
Fabaceae	*Indigofera sordida*	Benth. ex Harv.	LC	Indigenous
Fabaceae	*Indigofera sp.*			
Fabaceae	*Indigofera torulosa var. torulosa*	E.Mey.	LC	Indigenous
Convolvulaceae	*Ipomoea bolusiana*	Schinz	LC	Indigenous
Convolvulaceae	*Ipomoea coptica*	(L.) Roth ex Roem. & Schult.	LC	Indigenous
Convolvulaceae	*Ipomoea coscinosperma*	Hochst. ex Choisy	LC	Indigenous
Convolvulaceae	*Ipomoea crassipes var. crassipes*	Hook.	LC	Indigenous
Convolvulaceae	*Ipomoea dichroa*	Choisy	LC	Indigenous
Convolvulaceae	*Ipomoea gracilisepala*	Rendle	LC	Indigenous
Convolvulaceae	*Ipomoea hochstetteri*	House	LC	Indigenous
Convolvulaceae	*Ipomoea magnusiana*	Schinz	LC	Indigenous
Convolvulaceae	*Ipomoea oblongata*	E.Mey. ex Choisy	LC	Indigenous
Convolvulaceae	*Ipomoea obscura var. obscura*	(L.) Ker Gawl.	LC	Indigenous
Convolvulaceae	*Ipomoea purpurea*	(L.) Roth		Not indigenous; Naturalised; Invasive
Convolvulaceae	*Ipomoea sinensis subsp. blepharosepala*	(Desr.) Choisy	LC	Indigenous
Convolvulaceae	*Ipomoea transvaalensis*	A.Meeuse	LC	Indigenous
Iridaceae	*Iris pseudacorus*	L.		Not indigenous; Cultivated; Naturalised; Invasive
Poaceae	*Ischaemum afrum*	(J.F.Gmel.) Dandy	LC	Indigenous
Poaceae	*Ischaemum fasciculatum*	Brongn.	LC	Indigenous
Bignoniaceae	*Jacaranda mimosifolia*	D.Don	NE	Not indigenous; Naturalised; Invasive
Scrophulariaceae	*Jamesbrittenia montana*	(Diels) Hilliard	LC	Indigenous
Oleaceae	*Jasminum breviflorum*	Harv. ex C.H.Wright	LC	Indigenous
Oleaceae	*Jasminum multipartitum*	Hochst.	LC	Indigenous
Euphorbiaceae	*Jatropha hirsuta var. hirsuta*	Hochst. ex Krauss	LC	Indigenous; Endemic
Euphorbiaceae	*Jatropha hirsuta var. oblongifolia*	Hochst. ex Krauss	LC	Indigenous
Euphorbiaceae	*Jatropha schlechteri subsp. schlechteri*	Pax	LC	Indigenous
Euphorbiaceae	*Jatropha sp.*			
Euphorbiaceae	*Jatropha zeyheri*	Sond.	LC	Indigenous
Juncaceae	*Juncus oxycarpus*	E.Mey. ex Kunth	LC	Indigenous
Juncaceae	*Juncus punctorius*	L.f.	LC	Indigenous
Acanthaceae	*Justicia anagalloides*	(Nees) T.Anderson	LC	Indigenous
Acanthaceae	*Justicia betonica*	L.	LC	Indigenous

Acanthaceae	*Justicia exigua*	S.Moore	LC	Indigenous
Acanthaceae	*Justicia flava*	(Vahl) Vahl	LC	Indigenous
Acanthaceae	*Justicia minima*	A.Meeuse	LC	Indigenous; Endemic
Acanthaceae	*Justicia petiolaris subsp. petiolaris*	(Nees) T.Anderson	LC	Indigenous
Crassulacea e	*Kalanchoe lanceolata*	(Forssk.) Pers.	LC	Indigenous
Kirkiaceae	*Kirkia wilmsii*	Engl.	LC	Indigenous
Asteraceae	*Kleinia fulgens*	Hook.f.	LC	Indigenous
Asphodelace ae	*Kniphofia ensifolia subsp. ensifolia*	Baker	LC	Indigenous
Rubiaceae	*Kohautia aspera*	(Roth) Bremek.	LC	Indigenous
Rubiaceae	*Kohautia caespitosa subsp. brachyloba*	Schnizl.	LC	Indigenous
Cyperaceae	*Kyllinga alba*	Nees	LC	Indigenous
Cyperaceae	*Kyllinga erecta var. erecta*	Schumach.	LC	Indigenous
Cyperaceae	*Kyllinga melanosperma*	Nees	LC	Indigenous
Asteraceae	*Lactuca inermis*	Forssk.	LC	Indigenous
Asteraceae	*Laggera decurrens*	(Vahl) Hepper & J.R.I.Wood	LC	Indigenous
Anacardiace ae	*Lannea discolor*	(Sond.) Engl.	LC	Indigenous
Anacardiace ae	*Lannea edulis var. edulis*	(Sond.) Engl.	LC	Indigenous
Verbenaceae	*Lantana rugosa*	Thunb.	LC	Indigenous
Thymelaeace ae	*Lasiosiphon capitatus*	(L.f.) Burtt Davy	LC	Indigenous
Thymelaeace ae	*Lasiosiphon sericocephalus*	(Meisn.) J.C.Manning & Boatwr.	LC	Indigenous
Hyacinthace ae	*Ledebouria apertiflora*	(Baker) Jessop	LC	Indigenous
Hyacinthace ae	*Ledebouria inquinata*	(C.A.Sm.) Jessop	LC	Indigenous
Hyacinthace ae	*Ledebouria leptophylla*	(Baker) S.Venter	LC	Indigenous
Hyacinthace ae	*Ledebouria marginata*	(Baker) Jessop	LC	Indigenous
Hyacinthace ae	*Ledebouria revoluta*	(L.f.) Jessop	LC	Indigenous
Poaceae	*Leersia hexandra*	Sw.	LC	Indigenous
Lamiaceae	*Leonotis neuflizeana*	(Courbon) J.C.Manning & Goldblatt	LC	Indigenous
Dicranaceae	*Leptotrichella minuta*	(Hampe) Ochyra		Indigenous
Limeaceae	*Limeum fenestratum var. fenestratum*	(Fenzl) Heimerl	LC	Indigenous
Limeaceae	*Limeum sulcatum var. sulcatum*	(Klotzsch) Hutch.	LC	Indigenous
Limeaceae	*Limeum viscosum subsp. viscosum*	(J.Gay) Fenzl	NE	Indigenous
Scrophularia ceae	*Limosella africana var. africana*	Gluck	LC	Indigenous
Scrophularia ceae	*Limosella maior*	Diels	LC	Indigenous
Cyperaceae	*Lipocarpha chinensis*	(Osbeck) J.Kern	LC	Indigenous
Verbenaceae	*Lippia javanica*	(Burm.f.) Spreng.	LC	Indigenous
Verbenaceae	*Lippia wilmsii*	H.Pearson	LC	Indigenous
Fabaceae	*Listia bainesii*	(Baker) B.-E.van Wyk & Boatwr.	LC	Indigenous
Fabaceae	*Listia heterophylla*	E.Mey.	LC	Indigenous
Asteraceae	*Litogyne gariepina*	(DC.) Anderb.	LC	Indigenous
Lobeliaceae	*Lobelia erinus*	L.	LC	Indigenous

Lobeliaceae	*Lobelia thermalis*	Thunb.	LC	Indigenous
Lophiocarpaceae	*Lophiocarpus tenuissimus*	Hook.f.	LC	Indigenous
Poaceae	*Loudetia pedicellata*	(Stent) Chippind.	LC	Indigenous; Endemic
Onagraceae	*Ludwigia octovalvis*	(Jacq.) P.H.Raven	LC	Indigenous
Solanaceae	*Lycium cinereum*	Thunb.	LC	Indigenous
Capparaceae	*Maerua juncea subsp. crustata*	Pax	LC	Indigenous
Capparaceae	*Maerua parvifolia*	Pax	LC	Indigenous
Scrophulariaceae	*Manulea parviflora var. parviflora*	Benth.	LC	Indigenous
Phyllanthaceae	*Margaritaria discoidea var. nitida*	(Baill.) G.L.Webster	NE	Indigenous
Asteraceae	*Melanthera scandens subsp. dregei*	(Schumach. & Thonn.) Roberty		Not indigenous; Naturalised
Malvaceae	*Melhania prostrata*	DC.	LC	Indigenous
Poaceae	*Melinis minutiflora*	P.Beauv.	LC	Indigenous
Poaceae	*Melinis repens subsp. grandiflora*	(Willd.) Zizka	LC	Indigenous
Poaceae	*Melinis repens subsp. repens*	(Willd.) Zizka	LC	Indigenous
Oleaceae	*Menodora africana*	Hook.	LC	Indigenous
Convolvulaceae	*Merremia palmata*	Hallier f.	LC	Indigenous
Aizoaceae	*Mesembryanthemum sp.*			
Asteraceae	*Mesogramma apiifolium*	DC.	LC	Indigenous
Poaceae	*Microchloa caffra*	Nees	LC	Indigenous
Phrymaceae	*Mimulus gracilis*	R.Br.	LC	Indigenous
Sapotaceae	*Mimusops zeyheri*	Sond.	LC	Indigenous
Poaceae	*Miscanthus junceus*	(Stapf) Pilg.	LC	Indigenous
Cucurbitaceae	*Momordica balsamina*	L.	LC	Indigenous
Cucurbitaceae	*Momordica cardiospermoides*	Klotzsch	LC	Indigenous
Lobeliaceae	*Monopsis decipiens*	(Sond.) Thulin	LC	Indigenous
Geraniaceae	*Monsonia angustifolia*	E.Mey. ex A.Rich.	LC	Indigenous
Fabaceae	*Mundulea sericea subsp. sericea*	(Willd.) A.Chev.	LC	Indigenous
Myrothamnaceae	*Myrothamnus flabellifolius*	Welw.	DD	Indigenous
Fabaceae	*Neorautanenia mitis*	(A.Rich.) Verdc.	LC	Indigenous
Apocynaceae	*Nerium oleander*	L.	NE	Not indigenous; Naturalised; Invasive
Lythraceae	*Nesaea cordata*	Hiern	LC	Indigenous
Lythraceae	*Nesaea rigidula*	(Sond.) Koehne	LC	Indigenous
Asteraceae	*Nicolasia nitens var. nitens*	(O.Hoffm.) Eyles	LC	Indigenous
Asteraceae	*Nidorella hottentotica*	DC.	LC	Indigenous
Asteraceae	*Nidorella resedifolia subsp. resedifolia*	DC.	LC	Indigenous
Asteraceae	*Nolletia sp.*			
Ochnaceae	*Ochna pulchra*	Hook.f.	LC	Indigenous
Lamiaceae	*Ocimum americanum var. americanum*	L.	LC	Indigenous
Lamiaceae	*Ocimum angustifolium*	Benth.	LC	Indigenous
Lamiaceae	*Ocimum gratissimum subsp. gratissimum*	L.	NE	Indigenous
Lamiaceae	*Ocimum obovatum subsp. obovatum*	E.Mey. ex Benth.	NE	Indigenous
Lamiaceae	*Ocimum obovatum subsp. obovatum*	E.Mey. ex Benth.	NE	Indigenous

Rubiaceae	*Oldenlandia herbacea var. herbacea*	(L.) Roxb.	LC	Indigenous
Rubiaceae	*Oldenlandia lancifolia var. scabridula*	(Schumach.) DC.	LC	Indigenous
Oleaceae	*Olea europaea subsp. cuspidata*	L.		Indigenous
Asteraceae	*Oocephala staehelinoides*	(Harv.) H.Rob. & Skvarla		Indigenous; Endemic
Ophioglossaceae	*Ophioglossum gomezianum*	Welw. ex A.Braun	LC	Indigenous
Cactaceae	*Opuntia ficus-indica*	(L.) Mill.	NE	Not indigenous; Cultivated; Naturalised; Invasive
Santalaceae	*Osyris lanceolata*	Hochst. & Steud.	LC	Indigenous
Oxalidaceae	*Oxalis depressa*	Eckl. & Zeyh.	LC	Indigenous
Oxalidaceae	*Oxalis semiloba subsp. semiloba*	Sond.	LC	Indigenous
Polygonaceae	*Oxygonum sinuatum*	(Hochst. & Steud. ex Meisn.) Dammer		Indigenous
Anacardiaceae	*Ozoroa albicans*	R.Fern. & A.Fern.	LC	Indigenous; Endemic
Anacardiaceae	*Ozoroa paniculosa var. paniculosa*	(Sond.) R.Fern. & A.Fern.	LC	Indigenous
Apocynaceae	*Pachycarpus concolor subsp. concolor*	E.Mey.	LC	Indigenous
Poaceae	*Panicum coloratum*	L.	LC	Indigenous
Poaceae	*Panicum hygrocharis*	Steud.	LC	Indigenous
Poaceae	*Panicum maximum*	Jacq.	LC	Indigenous
Poaceae	*Panicum repens*	L.	LC	Indigenous
Poaceae	*Panicum schinzii*	Hack.	LC	Indigenous
Poaceae	*Panicum stapfianum*	Fourc.	LC	Indigenous
Poaceae	*Panicum subalbidum*	Kunth	LC	Indigenous
Poaceae	*Panicum volutans*	J.G.Anderson	LC	Indigenous; Endemic
Sapindaceae	*Pappea capensis*	Eckl. & Zeyh.	LC	Indigenous
Molluginaceae	*Paramollugo nudicaulis*	(Lam.) Thulin		Indigenous
Apocynaceae	*Parapodium costatum*	E.Mey.	LC	Indigenous
Asteraceae	*Parapolydora fastigiata*	(Oliv. & Hiern) H.Rob.		Indigenous
Chrysobalanaceae	*Parinari capensis subsp. capensis*	Harv.	LC	Indigenous
Rubiaceae	*Pavetta eylesii*	S.Moore	LC	Indigenous
Rubiaceae	*Pavetta sp.*			
Rubiaceae	*Pavetta zeyheri subsp. zeyheri*	Sond.	LC	Indigenous
Malvaceae	*Pavonia burchellii*	(DC.) R.A.Dyer	LC	Indigenous
Malvaceae	*Pavonia transvaalensis*	(Ulbr.) A.Meeuse	LC	Indigenous; Endemic
Fabaceae	*Pearsonia uniflora*	(Kensit) Polhill	LC	Indigenous
Asteraceae	*Pegolettia tenuifolia*	Bolus	LC	Indigenous; Endemic
Geraniaceae	*Pelargonium luridum*	(Andrews) Sweet	LC	Indigenous
Pteridaceae	*Pellaea calomelanos var. calomelanos*	(Sw.) Link	LC	Indigenous
Fabaceae	*Peltophorum africanum*	Sond.	LC	Indigenous
Poaceae	*Pennisetum sp.*			
Apocynaceae	*Pentarrhinum insipidum*	E.Mey.	LC	Indigenous
Asteraceae	*Pentzia lanata*	Hutch.	LC	Indigenous
Poaceae	*Perotis patens*	Gand.	LC	Indigenous
Polygonaceae	*Persicaria lapathifolia*	(L.) Delarbre		Not indigenous; Naturalised; Invasive

Polygonaceae	*Persicaria madagascariensis*	(Meisn.) S.Ortiz & Paiva		Indigenous
Bartramiaceae	*Philonotis africana*	(Mull.Hal.) Rehmann ex Paris		Indigenous
Bartramiaceae	*Philonotis dregeana*	(Mull.Hal.) A.Jaeger		Indigenous
Bartramiaceae	*Philonotis hastata*	(Duby) Wijk & Margad.		Indigenous
Asteraceae	*Philyrophyllum schinzii*	O.Hoffm.	LC	Indigenous
Poaceae	*Phragmites australis*	(Cav.) Steud.	LC	Indigenous
Phyllanthaceae	*Phyllanthus incurvus*	Thunb.	LC	Indigenous
Phyllanthaceae	*Phyllanthus maderaspatensis*	L.	LC	Indigenous
Phyllanthaceae	*Phyllanthus parvulus var. parvulus*	Sond.	LC	Indigenous
Aytoniaceae	*Plagiochasma rupestre var. rupestre*	(J.R.Forst. & G.Forst.) Steph.		Indigenous
Aytoniaceae	*Plagiochasma rupestre var. volkii*	(J.R.Forst. & G.Forst.) Steph.		Indigenous
Lamiaceae	*Plectranthus neochilus*	Schltr.	LC	Indigenous
Plumbaginaceae	*Plumbago zeylanica*	L.		Not indigenous; Naturalised
Poaceae	*Pogonarthria squarrosa*	(Roem. & Schult.) Pilg.	LC	Indigenous
Caryophyllaceae	*Pollichia campestris*	Aiton	LC	Indigenous
Caryophyllaceae	*Polycarpaea corymbosa var. corymbosa*	(L.) Lam.		Not indigenous; Naturalised
Asteraceae	*Polydora angustifolia*	(Steetz) H.Rob.	LC	Indigenous
Polygalaceae	*Polygala gracilenta*	Burtt Davy	LC	Indigenous
Polygalaceae	*Polygala hottentotta*	C.Presl	LC	Indigenous
Polygalaceae	*Polygala krumanina*	Burch. ex Ficalho & Hiern	LC	Indigenous; Endemic
Polygalaceae	*Polygala leptophylla var. leptophylla*	Burch.	LC	Indigenous
Polygalaceae	*Polygala producta*	N.E.Br.	LC	Indigenous
Polygalaceae	*Polygala sphenoptera var. sphenoptera*	Fresen.	LC	Indigenous
Polygalaceae	*Polygala transvaalensis subsp. transvaalensis*	Chodat	LC	Indigenous
Polygalaceae	*Polygala uncinata*	E.Mey. ex Meisn.	LC	Indigenous
Portulacaceae	*Portulaca hereroensis*	Schinz	LC	Indigenous
Portulacaceae	*Portulaca kermesina*	N.E.Br.	LC	Indigenous
Urticaceae	*Pouzolzia mixta var. mixta*	Solms	LC	Indigenous
Verbenaceae	*Priva meyeri var. meyeri*	Jaub. & Spach	LC	Indigenous
Proteaceae	*Protea roupelliae subsp. roupelliae*	Meisn.	LC	Indigenous
Proteaceae	*Protea welwitschii*	Engl.	LC	Indigenous
Asteraceae	*Pseudognaphalium luteoalbum*	(L.) Hilliard & B.L.Burtt	LC	Not indigenous; Cryptogenic
Asteraceae	*Pseudognaphalium oligandrum*	(DC.) Hilliard & B.L.Burtt	LC	Indigenous
Asteraceae	*Psiadia punctulata*	(DC.) Vatke	LC	Indigenous
Rubiaceae	*Psydrax livida*	(Hiern) Bridson	LC	Indigenous
Fabaceae	*Pterocarpus rotundifolius subsp. rotundifolius*	(Sond.) Druce	LC	Indigenous
Pedaliaceae	*Pterodiscus ngamicus*	N.E.Br. ex Stapf	LC	Indigenous
Pedaliaceae	*Pterodiscus speciosus*	Hook.	LC	Indigenous
Fabaceae	*Ptycholobium biflorum subsp. biflorum*	(E.Mey.) Brummitt	LC	Indigenous

Fabaceae	*Ptycholobium plicatum subsp. plicatum*	(Oliv.) Harms	LC	Indigenous
Amaranthaceae	*Pupalia lappacea var. lappacea*	(L.) A.Juss.	LC	Indigenous
Rubiaceae	*Pygmaeothamnus zeyheri var. rogersii*	(Sond.) Robyns	LC	Indigenous; Endemic
Rubiaceae	*Pygmaeothamnus zeyheri var. zeyheri*	(Sond.) Robyns	LC	Indigenous
Racopilaceae	*Racopilum capense*	Mull.Hal. ex Broth.		Indigenous
Ranunculaceae	*Ranunculus multifidus*	Forssk.	LC	Indigenous
Apocynaceae	*Raphionacme galpinii*	Schltr.	LC	Indigenous
Apocynaceae	*Raphionacme hirsuta*	(E.Mey.) R.A.Dyer	LC	Indigenous
Apocynaceae	*Raphionacme velutina*	Schltr.	LC	Indigenous
Orobanchaceae	*Rhamphicarpa brevipedicellata*	O.J.Hansen	LC	Indigenous
Orobanchaceae	*Rhamphicarpa fistulosa*	(Hochst.) Benth.	LC	Indigenous
Vitaceae	*Rhoicissus tridentata subsp. cuneifolia*	(L.f.) Wild & R.B.Drumm.	NE	Indigenous
Vitaceae	*Rhoicissus tridentata subsp. tridentata*	(L.f.) Wild & R.B.Drumm.	NE	Indigenous; Endemic
Fabaceae	*Rhynchosia confusa*	Burtt Davy	NE	Indigenous
Fabaceae	*Rhynchosia densiflora subsp. chrysadenia*	(Roth) DC.	LC	Indigenous
Fabaceae	*Rhynchosia minima var. prostrata*	(L.) DC.	NE	Indigenous
Fabaceae	*Rhynchosia monophylla*	Schltr.	LC	Indigenous
Fabaceae	*Rhynchosia nitens*	Benth. ex Harv.	LC	Indigenous
Fabaceae	*Rhynchosia sp.*			
Fabaceae	*Rhynchosia spectabilis*	Schinz	LC	Indigenous; Endemic
Fabaceae	*Rhynchosia totta var. rigidula*	(Thunb.) DC.		Indigenous
Ricciaceae	*Riccia atropurpurea*	Sim		Indigenous
Ricciaceae	*Riccia congoana*	Steph.		Indigenous
Ricciaceae	*Riccia okahandjana*	S.W.Arnell		Indigenous
Rubiaceae	*Richardia scabra*	L.	NE	Not indigenous; Naturalised
Petiveriaceae	*Rivina humilis*	L.		Not indigenous; Naturalised; Invasive
Brassicaceae	*Rorippa nudiuscula*	Thell.	LC	Indigenous
Bryaceae	*Rosulabryum capillare*	(Hedw.) J.R.Spence		Indigenous
Lamiaceae	*Rotheca louwalbertsii*	(P.P.J.Herman) P.P.J.Herman & Retief	LC	Indigenous
Acanthaceae	*Ruellia cordata*	Thunb.	LC	Indigenous
Acanthaceae	*Ruellia patula*	Jacq.	LC	Indigenous
Acanthaceae	*Ruellia sp.*			
Polygonaceae	*Rumex crispus*	L.		Not indigenous; Naturalised; Invasive
Aizoaceae	*Ruschia sp.*			
Poaceae	*Sacciolepis typhura*	(Stapf) Stapf	LC	Indigenous
Celastraceae	*Salacia rehmannii*	Schinz	LC	Indigenous; Endemic
Salicaceae	*Salix mucronata subsp. woodii*	Thunb.	LC	Indigenous
Lamiaceae	*Salvia runcinata*	L.f.	LC	Indigenous
Ruscaceae	*Sansevieria aethiopica*	Thunb.	LC	Indigenous

Orchidaceae	*Satyrium longicauda var. longicauda*	Lindl.	NE	Indigenous
Dipsacaceae	*Scabiosa columbaria*	L.	LC	Indigenous
Amaryllidaceae	*Scadoxus puniceus*	(L.) Friis & Nordal	LC	Indigenous
Poaceae	*Schizachyrium jeffreysii*	(Hack.) Stapf	LC	Indigenous
Hyacinthaceae	*Schizocarphus nervosus*	(Burch.) Van der Merwe	LC	Indigenous
Poaceae	*Schmidtia pappophoroides*	Steud.	LC	Indigenous
Cyperaceae	*Schoenoplectus muriculatus*	(Kuk.) Browning	LC	Indigenous
Fabaceae	*Schotia afra var. angustifolia*	(L.) Thunb.	LC	Indigenous
Fabaceae	*Schotia brachypetala*	Sond.	LC	Indigenous
Oleaceae	*Schrebera alata*	(Hochst.) Welw.	LC	Indigenous
Cyperaceae	*Scirpoides burkei*	(C.B.Clarke) Goetgh., Muasya & D.A.Simpson	LC	Indigenous
Anacardiaceae	*Sclerocarya birrea subsp. caffra*	(A.Rich.) Hochst.	LC	Indigenous
Anacardiaceae	*Searsia lancea*	(L.f.) F.A.Barkley	LC	Indigenous
Anacardiaceae	*Searsia leptodictya forma leptodictya*	(Diels) T.S.Yi, A.J.Mill. & J.Wen	NE	Indigenous
Anacardiaceae	*Searsia magalismontana subsp. magalismontana*	(Sond.) Moffett	LC	Indigenous
Anacardiaceae	*Searsia pyroides var. pyroides*	(Burch.) Moffett	LC	Indigenous
Anacardiaceae	*Searsia rigida var. dentata*	(Mill.) F.A.Barkley	LC	Indigenous; Endemic
Anacardiaceae	*Searsia zeyheri*	(Sond.) Moffett	LC	Indigenous; Endemic
Gentianaceae	*Sebaea sedoides var. confertiflora*	Gilg	LC	Indigenous
Polygalaceae	*Securidaca longepedunculata var. longepedunculata*	Fresen.	LC	Indigenous
Poaceae	*Sehima galpinii*	Stent	LC	Indigenous
Selaginellaceae	*Selaginella dregei*	(C.Presl) Hieron.	LC	Indigenous
Asteraceae	*Senecio albanensis var. albanensis*	DC.	LC	Indigenous
Asteraceae	*Senecio latifolius*	DC.	LC	Indigenous
Asteraceae	*Senecio oxyriifolius subsp. oxyriifolius*	DC.	LC	Indigenous
Asteraceae	*Senecio subcoriaceus*	Schltr.	LC	Indigenous
Asteraceae	*Senecio venosus*	Harv.	LC	Indigenous
Fabaceae	*Senegalia burkei*	(Benth.) Kyal. & Boatwr.	LC	Indigenous
Fabaceae	*Senegalia caffra*	(Thunb.) P.J.H.Hurter & Mabb.	LC	Indigenous
Fabaceae	*Senegalia galpinii*	(Burtt Davy) Seigler & Ebinger	LC	Indigenous
Fabaceae	*Senegalia hereroensis*	(Engl.) Kyal. & Boatwr.	LC	Indigenous
Fabaceae	*Senna italica subsp. arachoides*	Mill.	LC	Indigenous
Fabaceae	*Senna pendula var. glabrata*	(Willd.) H.S.Irwin & Barneby	NE	Not indigenous; Naturalised; Invasive
Amaranthaceae	*Sericorema remotiflora*	(Hook.f.) Lopr.	LC	Indigenous
Asteraceae	*Seriphium plumosum*	L.		Indigenous
Pedaliaceae	*Sesamum alatum*	Thonn.	LC	Indigenous
Pedaliaceae	*Sesamum capense*	Burm.f.	LC	Indigenous
Fabaceae	*Sesbania brevipedunculata*	J.B.Gillett	LC	Indigenous
Fabaceae	*Sesbania punicea*	(Cav.) Benth.	NE	Not indigenous; Naturalised; Invasive

Fabaceae	*Sesbania transvaalensis*	J.B.Gillett	LC	Indigenous
Poaceae	*Setaria incrassata*	(Hochst.) Hack.	LC	Indigenous
Poaceae	*Setaria italica*	(L.) P.Beauv.	NE	Not indigenous; Naturalised
Poaceae	*Setaria lindenbergiana*	(Nees) Stapf	LC	Indigenous
Poaceae	*Setaria sp.*			
Poaceae	*Setaria sphacelata var. sericea*	(Schumach.) Stapf & C.E.Hubb. ex M.B.Moss	LC	Indigenous
Poaceae	*Setaria sphacelata var. sphacelata*	(Schumach.) Stapf & C.E.Hubb. ex M.B.Moss	LC	Indigenous
Poaceae	*Setaria sphacelata var. torta*	(Schumach.) Stapf & C.E.Hubb. ex M.B.Moss	LC	Indigenous
Malvaceae	*Sida chrysantha*	Ulbr.	LC	Indigenous
Malvaceae	*Sida cordifolia subsp. cordifolia*	L.	LC	Indigenous
Malvaceae	*Sida rhombifolia*	L.		Indigenous
Malvaceae	*Sida sp.*			
Caryophyllaceae	*Silene burchellii subsp. modesta*	Otth ex DC.	LC	Indigenous
Solanaceae	*Solanum campylacanthum*	Hochst. ex A.Rich.		Indigenous
Solanaceae	*Solanum catombelense*	Peyr.	LC	Indigenous
Solanaceae	*Solanum elaeagnifolium*	Cav.		Not indigenous; Naturalised; Invasive
Solanaceae	*Solanum tomentosum*	L.		Indigenous
Asteraceae	*Sonchus asper subsp. asper*	(L.) Hill		Not indigenous; Naturalised; Invasive
Orobanchaceae	*Sopubia cana var. cana*	Harv.	LC	Indigenous
Poaceae	*Sorghum versicolor*	Andersson	LC	Indigenous
Malpighiaceae	*Sphedamnocarpus pruriens subsp. galphimiifolius*	(A.Juss.) Szyszyl.	LC	Indigenous
Malpighiaceae	*Sphedamnocarpus pruriens subsp. pruriens*	(A.Juss.) Szyszyl.	LC	Indigenous
Fabaceae	*Sphenostylis angustifolia*	Sond.	LC	Indigenous
Fabaceae	*Sphenostylis marginata subsp. marginata*	E.Mey.	LC	Indigenous
Poaceae	*Sporobolus africanus*	(Poir.) Robyns & Tournay	LC	Indigenous
Poaceae	*Sporobolus albicans*	(Nees ex Trin.) Nees	LC	Indigenous
Poaceae	*Sporobolus festivus*	Hochst. ex A.Rich.	LC	Indigenous
Poaceae	*Sporobolus fimbriatus*	(Trin.) Nees	LC	Indigenous
Poaceae	*Sporobolus ioclados*	(Trin.) Nees	LC	Indigenous
Poaceae	*Sporobolus nitens*	Stent	LC	Indigenous
Poaceae	*Sporobolus panicoides*	A.Rich.	LC	Indigenous
Poaceae	*Sporobolus pyramidalis*	P.Beauv.	LC	Indigenous
Poaceae	*Sporobolus stapfianus*	Gand.	LC	Indigenous
Lamiaceae	*Stachys aethiopica*	L.	LC	Indigenous
Lamiaceae	*Stachys natalensis var. natalensis*	Hochst.	LC	Indigenous
Caryophyllaceae	*Stellaria apetala*	Ucria		Not indigenous; Naturalised; Invasive
Apocynaceae	*Stenostelma ligulatum*	Bester & Nicholas		Indigenous; Endemic
Poaceae	*Stipagrostis uniplumis var. uniplumis*	(Licht.) De Winter	LC	Indigenous
Apocynaceae	*Stomatostemma monteiroae*	(Oliv.) N.E.Br.	LC	Indigenous
Orobanchaceae	*Striga asiatica*	(L.) Kuntze	LC	Indigenous

Orobanchaceae	*Striga forbesii*	Benth.	LC	Indigenous
Orobanchaceae	*Striga gesnerioides*	(Willd.) Vatke	LC	Indigenous
Loganiaceae	*Strychnos cocculoides*	Baker	LC	Indigenous
Loganiaceae	*Strychnos madagascariensis*	Poir.	LC	Indigenous
Loganiaceae	*Strychnos pungens*	Soler.	LC	Indigenous
Araceae	*Stylochaeton natalensis*	Schott	LC	Indigenous
Fabaceae	*Stylosanthes fruticosa*	(Retz.) Alston	LC	Indigenous
Lamiaceae	*Syncolostemon canescens*	(Gurke) D.F.Otieno	LC	Indigenous
Lamiaceae	*Syncolostemon elliottii*	(Baker) D.F.Otieno	LC	Indigenous
Talinaceae	*Talinum caffrum*	(Thunb.) Eckl. & Zeyh.	LC	Indigenous
Loranthaceae	*Tapinanthus quequensis*	(Weim.) Polhill & Wiens	LC	Indigenous
Asteraceae	*Tarchonanthus camphoratus*	L.	LC	Indigenous
Fabaceae	*Tephrosia burchellii*	Burtt Davy	LC	Indigenous
Fabaceae	*Tephrosia capensis var. capensis*	(Jacq.) Pers.	LC	Indigenous
Fabaceae	*Tephrosia elongata var. elongata*	E.Mey.	LC	Indigenous
Fabaceae	*Tephrosia linearis*	(Willd.) Pers.	LC	Indigenous
Fabaceae	*Tephrosia lupinifolia*	DC.	LC	Indigenous
Fabaceae	*Tephrosia polystachya var. hirta*	E.Mey.	LC	Indigenous
Fabaceae	*Tephrosia purpurea subsp. leptostachya*	(L.) Pers.	NE	Indigenous
Combretaceae	*Terminalia brachystemma subsp. brachystemma*	Welw. ex Hiern	LC	Indigenous
Combretaceae	*Terminalia sericea*	Burch. ex DC.	LC	Indigenous
Lamiaceae	*Teucrium trifidum*	Retz.	LC	Indigenous
Poaceae	*Themeda triandra*	Forssk.	LC	Indigenous
Santalaceae	*Thesium goetzeanum*	Engl.	LC	Indigenous
Santalaceae	*Thesium magalismontanum*	Sond.	LC	Indigenous
Santalaceae	*Thesium resedoides*	A.W.Hill	LC	Indigenous
Santalaceae	*Thesium sp.*			
Acanthaceae	*Thunbergia atriplicifolia*	E.Mey. ex Nees	LC	Indigenous
Acanthaceae	*Thunbergia neglecta*	Sond.	LC	Indigenous
Rutaceae	*Toddalia asiatica*	(L.) Lam.	LC	Indigenous
Asphodelaceae	*Trachyandra saltii var. saltii*	(Baker) Oberm.	LC	Indigenous
Euphorbiaceae	*Tragia rupestris*	Sond.	LC	Indigenous
Poaceae	*Tragus berteronianus*	Schult.	LC	Indigenous
Poaceae	*Tragus racemosus*	(L.) All.	LC	Indigenous
Zygophyllaceae	*Tribulus terrestris*	L.	LC	Indigenous
Boraginaceae	*Trichodesma angustifolium subsp. angustifolium*	Harv.	LC	Indigenous
Boraginaceae	*Trichodesma physaloides*	(Fenzl) A.DC.	LC	Indigenous
Poaceae	*Tricholaena monachne*	(Trin.) Stapf & C.E.Hubb.	LC	Indigenous
Poaceae	*Trichoneura grandiglumis*	(Nees) Ekman	LC	Indigenous
Pottiaceae	*Trichostomum brachydontium*	Bruch		Indigenous
Fabaceae	*Trifolium africanum var. africanum*	Ser.	NE	Indigenous

Malvaceae	*Triumfetta rhomboidea var. rhomboidea*	Jacq.	LC	Indigenous
Malvaceae	*Triumfetta sonderi*	Ficalho & Hiern	LC	Indigenous; Endemic
Cucurbitaceae	*Trochomeria debilis*	(Sond.) Hook.f.	LC	Indigenous
Cucurbitaceae	*Trochomeria macrocarpa subsp. macrocarpa*	(Sond.) Hook.f.	LC	Indigenous
Alliaceae	*Tulbaghia leucantha*	Baker	LC	Indigenous
Meliaceae	*Turraea obtusifolia*	Hochst.	LC	Indigenous
Typhaceae	*Typha capensis*	(Rohrb.) N.E.Br.	LC	Indigenous
Poaceae	*Urochloa brachyura*	(Hack.) Stapf	LC	Indigenous
Poaceae	*Urochloa mosambicensis*	(Hack.) Dandy	LC	Indigenous
Poaceae	*Urochloa trichopus*	(Hochst.) Stapf	LC	Indigenous
Lentibulariaceae	*Utricularia gibba*	L.	LC	Indigenous
Fabaceae	*Vachellia gerrardii subsp. gerrardii*	(Benth.) P.J.H.Hurter		Indigenous
Fabaceae	*Vachellia hebeclada subsp. hebeclada*	(DC.) Kyal. & Boatwr.	LC	Indigenous
Fabaceae	*Vachellia karroo*	(Hayne) Banfi & Galasso	LC	Indigenous
Fabaceae	*Vachellia luederitzii var. retinens*	(Engl.) Kyal. & Boatwr.	LC	Indigenous
Fabaceae	*Vachellia robusta subsp. clavigera*	(Burch.) Kyal. & Boatwr.	LC	Indigenous
Fabaceae	*Vachellia robusta subsp. robusta*	(Burch.) Kyal. & Boatwr.	LC	Indigenous
Rubiaceae	*Vangueria infausta subsp. infausta*	Burch.	LC	Indigenous
Rubiaceae	*Vangueria parvifolia*	Sond.	LC	Indigenous
Rubiaceae	*Vangueria triflora*	(Robyns) Lantz	LC	Indigenous; Endemic
Verbenaceae	*Verbena bonariensis*	L.		Not indigenous; Naturalised; Invasive
Verbenaceae	*Verbena officinalis*	L.		Not indigenous; Naturalised
Fabaceae	*Vigna vexillata var. vexillata*	(L.) A.Rich.	LC	Indigenous
Santalaceae	*Viscum combreticola*	Engl.	LC	Indigenous
Santalaceae	*Viscum rotundifolium*	L.f.	LC	Indigenous
Santalaceae	*Viscum subserratum*	Schltr.	LC	Indigenous
Santalaceae	*Viscum tuberculatum*	A.Rich.	LC	Indigenous
Lamiaceae	*Vitex pooara*	Corbishley	LC	Indigenous; Endemic
Lamiaceae	*Vitex rehmannii*	Gurke	LC	Indigenous
Lamiaceae	*Volkameria glabra*	(E.Mey.) Mabb. & Y.W.Yuan	LC	Indigenous
Campanulaceae	*Wahlenbergia denticulata var. transvaalensis*	(Burch.) A.DC.	LC	Indigenous; Endemic
Campanulaceae	*Wahlenbergia rhytidosperma*	Thulin	LC	Indigenous; Endemic
Campanulaceae	*Wahlenbergia sp.*			
Tecophilaeaceae	*Walleria nutans*	J.Kirk	LC	Indigenous
Malvaceae	*Waltheria indica*	L.	LC	Indigenous
Pottiaceae	*Weissia sp.*			
Asteraceae	*Xanthium strumarium*	L.		Not indigenous; Naturalised; Invasive
Convolvulaceae	*Xenostegia tridentata*	(L.) D.F.Austin & Staples		Indigenous
Convolvulaceae	*Xenostegia tridentata subsp. angustifolia*	(L.) D.F.Austin & Staples	LC	Indigenous
Velloziaceae	*Xerophyta viscosa*	Baker	LC	Indigenous
Olacaceae	*Ximenia caffra var. caffra*	Sond.	LC	Indigenous

Xyridaceae	*Xyris capensis*	Thunb.	LC	Indigenous
Xyridaceae	*Xyris congensis*	Buttner	LC	Indigenous
Apocynaceae	*Xysmalobium asperum*	N.E.Br.	LC	Indigenous
Apocynaceae	*Xysmalobium brownianum*	S.Moore	LC	Indigenous
Aizoaceae	*Zaleya pentandra*	(L.) C.Jeffrey	LC	Indigenous
Rutaceae	*Zanthoxylum capense*	(Thunb.) Harv.	LC	Indigenous
Rutaceae	*Zanthoxylum thorncroftii*	(I.Verd.) P.G.Waterman	LC	Indigenous; Endemic
Asteraceae	*Zinnia peruviana*	(L.) L.		Not indigenous; Naturalised; Invasive
Rhamnaceae	*Ziziphus mucronata*	Willd.		Indigenous
Rhamnaceae	*Ziziphus mucronata subsp. mucronata*	Willd.	LC	Indigenous
Rhamnaceae	*Ziziphus zeyheriana*	Sond.	LC	Indigenous
Fabaceae	*Zornia linearis*	E.Mey.	LC	Indigenous
Fabaceae	*Zornia milneana*	Mohlenbr.	LC	Indigenous

Appendix C Avifauna species expected in the project area

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Accipiter badius	Shikra	Unlisted	LC
Accipiter melanoleucus	Sparrowhawk, Black	Unlisted	LC
Accipiter minullus	Sparrowhawk, Little	Unlisted	LC
Accipiter ovampensis	Sparrowhawk, Ovambo	Unlisted	LC
Accipiter tachiro	Goshawk, African	Unlisted	LC
Acridotheres tristis	Myna, Common	Unlisted	LC
Acrocephalus arundinaceus	Reed-warbler, Great	Unlisted	LC
Acrocephalus baeticatus	Reed-warbler, African	Unlisted	Unlisted
Acrocephalus gracilirostris	Swamp-warbler, Lesser	Unlisted	LC
Acrocephalus palustris	Warbler, Marsh	Unlisted	LC
Actitis hypoleucos	Sandpiper, Common	Unlisted	LC
Actophilornis africanus	Jacana, African	Unlisted	LC
Afrotis afraoides	Korhaan, Northern Black	Unlisted	LC
Alcedo cristata	Kingfisher, Malachite	Unlisted	Unlisted
Alcedo semitorquata	Kingfisher, Half-collared	NT	LC
Alopochen aegyptiacus	Goose, Egyptian	Unlisted	LC
Amadina erythrocephala	Finch, Red-headed	Unlisted	LC
Amadina fasciata	Finch, Cut-throat	Unlisted	Unlisted
Amandava subflava	Waxbill, Orange-breasted	Unlisted	Unlisted
Amaurornis flavirostris	Crake, Black	Unlisted	LC
Amblyospiza albifrons	Weaver, Thick-billed	Unlisted	LC
Anaplectes rubriceps	Weaver, Red-headed	Unlisted	LC
Anas erythrorhyncha	Teal, Red-billed	Unlisted	LC
Anas sparsa	Duck, African Black	Unlisted	LC
Anas undulata	Duck, Yellow-billed	Unlisted	LC
Anhinga rufa	Darter, African	Unlisted	LC
Anomalospiza imberbis	Finch, Cuckoo	Unlisted	LC
Anthoscopus caroli	Penduline-tit, Grey	Unlisted	LC
Anthoscopus minutus	Penduline-tit, Cape	Unlisted	LC
Anthus caffer	Pipit, Bushveld	Unlisted	LC
Anthus cinnamomeus	Pipit, African	Unlisted	LC
Anthus leucophrys	Pipit, Plain-backed	Unlisted	LC
Anthus lineiventris	Pipit, Striped	Unlisted	LC
Anthus nicholsoni	Nicholson's pipit	Unlisted	Unlisted
Anthus vaalensis	Pipit, Buffy	Unlisted	LC
Apalis thoracica	Apalis, Bar-throated	Unlisted	LC
Apus affinis	Swift, Little	Unlisted	LC
Apus apus	Swift, Common	Unlisted	LC
Apus barbatus	Swift, African Black	Unlisted	LC
Apus caffer	Swift, White-rumped	Unlisted	LC
Apus horus	Swift, Horus	Unlisted	LC
Aquila spilogaster	Hawk-eagle, African	Unlisted	LC
Aquila verreauxii	Eagle, Verreaux's	VU	LC

Aquila wahlbergi	Eagle, Wahlberg's	Unlisted	LC
Ardea cinerea	Heron, Grey	Unlisted	LC
Ardea goliath	Heron, Goliath	Unlisted	LC
Ardea melanocephala	Heron, Black-headed	Unlisted	LC
Ardea purpurea	Heron, Purple	Unlisted	LC
Ardeola ralloides	Heron, Squacco	Unlisted	LC
Asio capensis	Owl, Marsh	Unlisted	LC
Aviceda cuculoides	Hawk, African Cuckoo	Unlisted	LC
Batis molitor	Batis, Chinspot	Unlisted	LC
Bostrychia hagedash	Ibis, Hadeda	Unlisted	LC
Bradornis mariquensis	Flycatcher, Marico	Unlisted	LC
Bradornis pallidus	Flycatcher, Pale	Unlisted	LC
Bradypterus baboecala	Rush-warbler, Little	Unlisted	LC
Bubalornis niger	Buffalo-weaver, Red-billed	Unlisted	LC
Bubo africanus	Eagle-owl, Spotted	Unlisted	LC
Bubo lacteus	Eagle-owl, Verreaux's	Unlisted	LC
Bubulcus ibis	Egret, Cattle	Unlisted	LC
Buphagus erythrorhynchus	Oxpecker, Red-billed	Unlisted	Unlisted
Burhinus capensis	Thick-knee, Spotted	Unlisted	LC
Burhinus vermiculatus	Thick-knee, Water	Unlisted	LC
Buteo rufofuscus	Buzzard, Jackal	Unlisted	LC
Buteo vulpinus	Buzzard, Common	Unlisted	Unlisted
Butorides striata	Heron, Green-backed	Unlisted	LC
Calamonastes fasciolatus	Wren-warbler, Barred	Unlisted	LC
Calendulauda sabota	Lark, Sabota	Unlisted	LC
Camaroptera brevicaudata	Camaroptera, Grey-backed	Unlisted	Unlisted
Campephaga flava	Cuckoo-shrike, Black	Unlisted	LC
Campethera abingoni	Woodpecker, Golden-tailed	Unlisted	LC
Campethera bennettii	Woodpecker, Bennett's	Unlisted	LC
Caprimulgus europaeus	Nightjar, European	Unlisted	LC
Caprimulgus pectoralis	Nightjar, Fiery-necked	Unlisted	LC
Caprimulgus rufigena	Nightjar, Rufous-cheeked	Unlisted	LC
Caprimulgus tristigma	Nightjar, Freckled	Unlisted	LC
Centropus burchellii	Coucal, Burchell's	Unlisted	Unlisted
Cercomela familiaris	Chat, Familiar	Unlisted	LC
Cercotrichas leucophrys	Scrub-robin, White-browed	Unlisted	LC
Cercotrichas paena	Scrub-robin, Kalahari	Unlisted	LC
Ceryle rudis	Kingfisher, Pied	Unlisted	LC
Chalcomitra amethystina	Sunbird, Amethyst	Unlisted	LC
Charadrius tricollaris	Plover, Three-banded	Unlisted	LC
Chlorocichla flaviventris	Greenbul, Yellow-bellied	Unlisted	LC
Chrysococcyx caprius	Cuckoo, Diderick	Unlisted	LC
Chrysococcyx klaas	Cuckoo, Klaas's	Unlisted	LC
Ciconia abdimii	Stork, Abdim's	NT	LC
Ciconia ciconia	Stork, White	Unlisted	LC
Ciconia nigra	Stork, Black	VU	LC

Cinnyricinclus leucogaster	Starling, Violet-backed	Unlisted	LC
Cinnyris afer	Sunbird, Greater Double-collared	Unlisted	LC
Cinnyris mariquensis	Sunbird, Marico	Unlisted	LC
Cinnyris talatala	Sunbird, White-bellied	Unlisted	LC
Circaetus cinereus	Snake-eagle, Brown	Unlisted	LC
Circaetus pectoralis	Snake-eagle, Black-chested	Unlisted	LC
Cisticola aberrans	Cisticola, Lazy	Unlisted	LC
Cisticola aridulus	Cisticola, Desert	Unlisted	LC
Cisticola ayresii	Cisticola, Wing-snapping	Unlisted	LC
Cisticola chiniana	Cisticola, Rattling	Unlisted	LC
Cisticola fulvicapilla	Neddicky, Neddicky	Unlisted	LC
Cisticola juncidis	Cisticola, Zitting	Unlisted	LC
Cisticola textrix	Cisticola, Cloud	Unlisted	LC
Cisticola tinniens	Cisticola, Levaillant's	Unlisted	LC
Clamator glandarius	Cuckoo, Great Spotted	Unlisted	LC
Clamator jacobinus	Cuckoo, Jacobin	Unlisted	LC
Clamator levaillantii	Cuckoo, Levaillant's	Unlisted	LC
Colius colius	Mousebird, White-backed	Unlisted	LC
Colius striatus	Mousebird, Speckled	Unlisted	LC
Columba arquatrix	Olive-pigeon, African	Unlisted	LC
Columba guinea	Pigeon, Speckled	Unlisted	LC
Columba livia	Dove, Rock	Unlisted	LC
Coracias caudatus	Roller, Lilac-breasted	Unlisted	LC
Coracias garrulus	Roller, European	NT	LC
Coracias naevius	Roller, Purple	Unlisted	LC
Corvus albus	Crow, Pied	Unlisted	LC
Corythaixoides concolor	Go-away-bird, Grey	Unlisted	LC
Cossypha caffra	Robin-chat, Cape	Unlisted	LC
Cossypha humeralis	Robin-chat, White-throated	Unlisted	LC
Coturnix coturnix	Quail, Common	Unlisted	LC
Creatophora cinerea	Starling, Wattled	Unlisted	LC
Crithagra atrogularis	Canary, Black-throated	Unlisted	LC
Crithagra flaviventris	Canary, Yellow	Unlisted	LC
Crithagra gularis	Seedeater, Streaky-headed	Unlisted	LC
Crithagra mozambicus	Canary, Yellow-fronted	Unlisted	LC
Cuculus clamosus	Cuckoo, Black	Unlisted	LC
Cuculus gularis	Cuckoo, African	Unlisted	LC
Cuculus solitarius	Cuckoo, Red-chested	Unlisted	LC
Cursorius temminckii	Courser, Temminck's	Unlisted	LC
Cypsiurus parvus	Palm-swift, African	Unlisted	LC
Delichon urbicum	House-martin, Common	Unlisted	LC
Dendrocygna bicolor	Duck, Fulvous	Unlisted	LC
Dendrocygna viduata	Duck, White-faced Whistling	Unlisted	LC
Dendroperdix sephaena	Francolin, Crested	Unlisted	LC
Dendropicos fuscescens	Woodpecker, Cardinal	Unlisted	LC
Dendropicos namaquus	Woodpecker, Bearded	Unlisted	LC

Dicrurus adsimilis	Drongo, Fork-tailed	Unlisted	LC
Dryoscopus cubla	Puffback, Black-backed	Unlisted	LC
Egretta alba	Egret, Great	Unlisted	LC
Egretta ardesiaca	Heron, Black	Unlisted	LC
Egretta garzetta	Egret, Little	Unlisted	LC
Egretta intermedia	Egret, Yellow-billed	Unlisted	LC
Elanus caeruleus	Kite, Black-shouldered	Unlisted	LC
Emberiza capensis	Bunting, Cape	Unlisted	LC
Emberiza flaviventris	Bunting, Golden-breasted	Unlisted	LC
Emberiza tahapisi	Bunting, Cinnamon-breasted	Unlisted	LC
Eremomela icteropygialis	Eremomela, Yellow-bellied	Unlisted	LC
Eremomela scotops	Eremomela, Green-capped	Unlisted	LC
Eremomela usticollis	Eremomela, Burnt-necked	Unlisted	LC
Eremopterix leucotis	Sparrowlark, Chestnut-backed	Unlisted	LC
Estrilda astrild	Waxbill, Common	Unlisted	LC
Estrilda erythronotos	Waxbill, Black-faced	Unlisted	LC
Euplectes afer	Bishop, Yellow-crowned	Unlisted	LC
Euplectes albonotatus	Widowbird, White-winged	Unlisted	LC
Euplectes ardens	Widowbird, Red-collared	Unlisted	LC
Euplectes orix	Bishop, Southern Red	Unlisted	LC
Euplectes progne	Widowbird, Long-tailed	Unlisted	LC
Eurocephalus anguitimens	Shrike, Southern White-crowned	Unlisted	LC
Falco amurensis	Falcon, Amur	Unlisted	LC
Falco biarmicus	Falcon, Lanner	VU	LC
Falco naumanni	Kestrel, Lesser	Unlisted	LC
Falco rupicoloides	Kestrel, Greater	Unlisted	LC
Falco subbuteo	Hobby, Eurasian	Unlisted	LC
Fulica cristata	Coot, Red-knobbed	Unlisted	LC
Gallinago nigripennis	Snipe, African	Unlisted	LC
Gallinula angulata	Moorhen, Lesser	Unlisted	LC
Gallinula chloropus	Moorhen, Common	Unlisted	LC
Glareola nordmanni	Pratincole, Black-winged	NT	NT
Glaucidium perlatum	Owlet, Pearl-spotted	Unlisted	LC
Granatina granatina	Waxbill, Violet-eared	Unlisted	LC
Gyps africanus	Vulture, White-backed	CR	CR
Gyps coprotheres	Vulture, Cape	EN	EN
Halcyon albiventris	Kingfisher, Brown-hooded	Unlisted	LC
Halcyon chelicuti	Kingfisher, Striped	Unlisted	LC
Halcyon leucocephala	Kingfisher, Grey-headed	Unlisted	LC
Halcyon senegalensis	Kingfisher, Woodland	Unlisted	LC
Haliaeetus vocifer	Fish-eagle, African	Unlisted	LC
Himantopus himantopus	Stilt, Black-winged	Unlisted	LC
Hippolais icterina	Warbler, Icterine	Unlisted	LC
Hirundo abyssinica	Swallow, Lesser Striped	Unlisted	LC
Hirundo albigularis	Swallow, White-throated	Unlisted	LC
Hirundo cucullata	Swallow, Greater Striped	Unlisted	LC

Hirundo dimidiata	Swallow, Pearl-breasted	Unlisted	LC
Hirundo fuligula	Martin, Rock	Unlisted	Unlisted
Hirundo rustica	Swallow, Barn	Unlisted	LC
Hirundo semirufa	Swallow, Red-breasted	Unlisted	LC
Indicator indicator	Honeyguide, Greater	Unlisted	LC
Indicator minor	Honeyguide, Lesser	Unlisted	LC
Ispidina picta	Pygmy-Kingfisher, African	Unlisted	LC
Ixobrychus minutus	Bittern, Little	Unlisted	LC
Jynx ruficollis	Wryneck, Red-throated	Unlisted	LC
Kaupifalco monogrammicus	Buzzard, Lizard	Unlisted	LC
Lagonosticta rhodopareia	Firefinch, Jameson's	Unlisted	LC
Lagonosticta rubricata	Firefinch, African	Unlisted	LC
Lagonosticta senegala	Firefinch, Red-billed	Unlisted	LC
Lamprotornis australis	Starling, Burchell's	Unlisted	LC
Lamprotornis nitens	Starling, Cape Glossy	Unlisted	LC
Laniarius atrococcineus	Shrike, Crimson-breasted	Unlisted	LC
Laniarius ferrugineus	Boubou, Southern	Unlisted	LC
Lanius collaris	Fiscal, Common (Southern)	Unlisted	LC
Lanius collurio	Shrike, Red-backed	Unlisted	LC
Lanius minor	Shrike, Lesser Grey	Unlisted	LC
Leptoptilos crumeniferus	Stork, Marabou	NT	LC
Lophaetus occipitalis	Eagle, Long-crested	Unlisted	LC
Lophotis ruficrista	Korhaan, Red-crested	Unlisted	LC
Lybius torquatus	Barbet, Black-collared	Unlisted	LC
Macronyx capensis	Longclaw, Cape	Unlisted	LC
Malaconotus blanchoti	Bush-shrike, Grey-headed	Unlisted	LC
Megaceryle maximus	Kingfisher, Giant	Unlisted	Unlisted
Melaenornis pammelaina	Flycatcher, Southern Black	Unlisted	LC
Melierax canorus	Goshawk, Southern Pale Chanting	Unlisted	LC
Melierax gabar	Goshawk, Gabar	Unlisted	LC
Merops apiaster	Bee-eater, European	Unlisted	LC
Merops bullockoides	Bee-eater, White-fronted	Unlisted	LC
Merops nubicoides	Bee-eater, Southern Carmine	Unlisted	LC
Merops pusillus	Bee-eater, Little	Unlisted	LC
Milvus aegyptius	Kite, Yellow-billed	Unlisted	Unlisted
Milvus migrans	Kite, Black	Unlisted	LC
Mirafra africana	Lark, Rufous-naped	Unlisted	LC
Mirafra passerina	Lark, Monotonous	Unlisted	LC
Mirafra rufocinnamomea	Lark, Flappet	Unlisted	LC
Motacilla aguimp	Wagtail, African Pied	Unlisted	LC
Motacilla capensis	Wagtail, Cape	Unlisted	LC
Muscicapa caerulescens	Flycatcher, Ashy	Unlisted	LC
Muscicapa striata	Flycatcher, Spotted	Unlisted	LC
Mycteria ibis	Stork, Yellow-billed	EN	LC
Myioparus plumbeus	Tit-flycatcher, Grey	Unlisted	LC
Myrmecocichla formicivora	Chat, Anteating	Unlisted	LC

Nectarinia famosa	Sunbird, Malachite	Unlisted	LC
Netta erythrophthalma	Pochard, Southern	Unlisted	LC
Nilaus afer	Brubru	Unlisted	LC
Numida meleagris	Guineafowl, Helmeted	Unlisted	LC
Nycticorax nycticorax	Night-Heron, Black-crowned	Unlisted	LC
Oena capensis	Dove, Namaqua	Unlisted	LC
Oenanthe pileata	Wheatear, Capped	Unlisted	LC
Onychognathus morio	Starling, Red-winged	Unlisted	LC
Oriolus larvatus	Oriole, Black-headed	Unlisted	LC
Ortygospiza atricollis	Quailfinch, African	Unlisted	LC
Otus senegalensis	Scops-owl, African	Unlisted	LC
Parisoma subcaeruleum	Tit-babbler, Chestnut-vented	Unlisted	Unlisted
Parus cinerascens	Tit, Ashy	Unlisted	LC
Parus niger	Tit, Southern Black	Unlisted	Unlisted
Passer diffusus	Sparrow, Southern Grey-headed	Unlisted	LC
Passer domesticus	Sparrow, House	Unlisted	LC
Passer melanurus	Sparrow, Cape	Unlisted	LC
Passer motitensis	Sparrow, Great	Unlisted	LC
Pavo cristatus	Peacock, Common	Unlisted	LC
Peliperdix coqui	Francolin, Coqui	Unlisted	LC
Pernis apivorus	Honey-buzzard, European	Unlisted	LC
Petronia superciliaris	Petronia, Yellow-throated	Unlisted	LC
Phalacrocorax africanus	Cormorant, Reed	Unlisted	LC
Phalacrocorax carbo	Cormorant, White-breasted	LC	LC
Phoeniculus purpureus	Wood-hoopoe, Green	Unlisted	LC
Phyllastrephus terrestris	Brownbul, Terrestrial	Unlisted	LC
Phylloscopus trochilus	Warbler, Willow	Unlisted	LC
Platalea alba	Spoonbill, African	Unlisted	LC
Plectropterus gambensis	Goose, Spur-winged	Unlisted	LC
Plegadis falcinellus	Ibis, Glossy	Unlisted	LC
Plocepasser mahali	Sparrow-weaver, White-browed	Unlisted	LC
Ploceus capensis	Weaver, Cape	Unlisted	LC
Ploceus cucullatus	Weaver, Village	Unlisted	LC
Ploceus intermedius	Masked-weaver, Lesser	Unlisted	LC
Ploceus velatus	Masked-weaver, Southern	Unlisted	LC
Podiceps cristatus	Grebe, Great Crested	Unlisted	LC
Pogoniulus chrysoconus	Tinkerbird, Yellow-fronted	Unlisted	LC
Poicephalus meyeri	Parrot, Meyer's	Unlisted	LC
Polyboroides typus	Harrier-Hawk, African	Unlisted	LC
Porphyrio alleni	Gallinule, Allen's	Unlisted	LC
Porphyrio madagascariensis	Swamphen, African Purple	Unlisted	Unlisted
Prinia flavicans	Prinia, Black-chested	Unlisted	LC
Prinia subflava	Prinia, Tawny-flanked	Unlisted	LC
Prionops plumatus	Helmet-shrike, White-crested	Unlisted	LC
Prodotiscus regulus	Honeybird, Brown-backed	Unlisted	LC
Psophocichla litsipsirupa	Thrush, Groundscraper	Unlisted	Unlisted

Pternistis natalensis	Spurfowl, Natal	Unlisted	LC
Pternistis swainsonii	Spurfowl, Swainson's	Unlisted	LC
Ptilopsis granti	Scops-owl, Southern White-faced	Unlisted	Unlisted
Pycnonotus nigricans	Bulbul, African Red-eyed	Unlisted	LC
Pycnonotus tricolor	Bulbul, Dark-capped	Unlisted	Unlisted
Pytilia melba	Pytilia, Green-winged	Unlisted	LC
Quelea quelea	Quelea, Red-billed	Unlisted	LC
Rhinopomastus cyanomelas	Scimitarbill, Common	Unlisted	LC
Riparia cincta	Martin, Banded	Unlisted	LC
Riparia paludicola	Martin, Brown-throated	Unlisted	LC
Riparia riparia	Martin, Sand	Unlisted	LC
Sagittarius serpentarius	Secretarybird	VU	VU
Sarkidiornis melanotos	Duck, Comb	Unlisted	LC
Sarothrura rufa	Flufftail, Red-chested	Unlisted	LC
Saxicola torquatus	Stonechat, African	Unlisted	LC
Scleroptila shelleyi	Francolin, Shelley's	Unlisted	LC
Scopus umbretta	Hamerkop	Unlisted	LC
Sigelus silens	Flycatcher, Fiscal	Unlisted	LC
Spermestes cucullatus	Mannikin, Bronze	Unlisted	Unlisted
Sphenoeacus afer	Grassbird, Cape	Unlisted	LC
Sporopipes squamifrons	Finch, Scaly-feathered	Unlisted	LC
Stenostira scita	Flycatcher, Fairy	Unlisted	LC
Streptopelia capicola	Turtle-dove, Cape	Unlisted	LC
Streptopelia semitorquata	Dove, Red-eyed	Unlisted	LC
Streptopelia senegalensis	Dove, Laughing	Unlisted	LC
Struthio camelus	Ostrich, Common	Unlisted	LC
Sylvia borin	Warbler, Garden	Unlisted	LC
Sylvia communis	Whitethroat, Common	Unlisted	LC
Sylvietta rufescens	Crombec, Long-billed	Unlisted	LC
Tachybaptus ruficollis	Grebe, Little	Unlisted	LC
Tachymarptis melba	Swift, Alpine	Unlisted	LC
Tadorna cana	Shelduck, South African	Unlisted	LC
Tchagra australis	Tchagra, Brown-crowned	Unlisted	LC
Tchagra senegalus	Tchagra, Black-crowned	Unlisted	LC
Telophorus sulfureopectus	Bush-shrike, Orange-breasted	Unlisted	LC
Terpsiphone viridis	Paradise-flycatcher, African	Unlisted	LC
Thalassornis leuconotus	Duck, White-backed	Unlisted	LC
Thamnolaea cinnamomeiventris	Cliff-chat, Mocking	Unlisted	LC
Threskiornis aethiopicus	Ibis, African Sacred	Unlisted	LC
Tockus leucomelas	Hornbill, Southern Yellow-billed	Unlisted	LC
Tockus nasutus	Hornbill, African Grey	Unlisted	LC
Tockus rufirostris	Hornbill, Southern Red-billed	Unlisted	Unlisted
Torgos tracheliotus	Vulture, Lappet-faced	EN	EN
Trachyphonus vaillantii	Barbet, Crested	Unlisted	LC
Treron calvus	Green-pigeon, African	Unlisted	LC
Tricholaema leucomelas	Barbet, Acacia Pied	Unlisted	LC

Tringa glareola	Sandpiper, Wood	Unlisted	LC
Turdoides bicolor	Babbler, Southern Pied	Unlisted	LC
Turdoides jardineii	Babbler, Arrow-marked	Unlisted	LC
Turdus libonyanus	Thrush, Kurrichane	Unlisted	Unlisted
Turdus smithi	Thrush, Karoo	Unlisted	LC
Turnix sylvaticus	Buttonquail, Kurrichane	Unlisted	LC
Turtur chalcospilos	Wood-dove, Emerald-spotted	Unlisted	LC
Tyto alba	Owl, Barn	Unlisted	LC
Upupa africana	Hoopoe, African	Unlisted	LC
Uraeginthus angolensis	Waxbill, Blue	Unlisted	LC
Urocolius indicus	Mousebird, Red-faced	Unlisted	LC
Urolestes melanoleucus	Shrike, Magpie	Unlisted	LC
Vanellus armatus	Lapwing, Blacksmith	Unlisted	LC
Vanellus coronatus	Lapwing, Crowned	Unlisted	LC
Vanellus senegallus	Lapwing, African Wattled	Unlisted	LC
Vidua chalybeata	Indigobird, Village	Unlisted	LC
Vidua funerea	Indigobird, Dusky	Unlisted	LC
Vidua macroura	Whydah, Pin-tailed	Unlisted	LC
Vidua paradisaea	Paradise-whydah, Long-tailed	Unlisted	LC
Vidua purpurascens	Indigobird, Purple	Unlisted	LC
Vidua regia	Whydah, Shaft-tailed	Unlisted	LC
Zosterops virens	White-eye, Cape	Unlisted	LC

Appendix D Mammals expected in the project area

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Acomys spinosissimus	Spiny Mouse	LC	LC
Aethomys ineptus	Tete Veld Rat	LC	LC
Aethomys namaquensis	Namaqua rock rat	LC	LC
Aonyx capensis	Cape Clawless Otter	NT	NT
Atelerix frontalis	South Africa Hedgehog	NT	LC
Atilax paludinosus	Water Mongoose	LC	LC
Canis mesomelas	Black-backed Jackal	LC	LC
Caracal caracal	Caracal	LC	LC
Chlorocebus pygerythrus	Vervet Monkey	LC	LC
Civettictis civetta	African Civet	LC	LC
Cloeotis percivali	Short-eared Trident Bat	EN	LC
Crocidura cyanea	Reddish-grey Musk Shrew	LC	LC
Crocidura fuscomurina	Tiny Musk Shrew	LC	LC
Crocidura hirta	Lesser Red Musk Shrew	LC	LC
Crocidura mariquensis	Swamp Musk Shrew	NT	LC
Crocidura silacea	Lesser Grey-brown Musk Shrew	LC	LC
Crocuta crocuta	Spotted Hyaena	NT	LC
Cynictis penicillata	Yellow Mongoose	LC	LC
Dasymys incomtus	African Marsh rat	NT	LC
Dendromus melanotis	Grey Climbing Mouse	LC	LC
Dendromus mystacalis	Chestnut Climbing Mouse	LC	LC
Eidolon helvum	African Straw-colored Fruit Bat	LC	NT
Elephantulus brachyrhynchus	Short-snouted Sengi	LC	LC
Elephantulus myurus	Eastern Rock Sengi	LC	LC
Epomophorus wahlbergi	Wahlberg's epauletted fruit bat	LC	LC
Eptesicus hottentotus	Long-tailed Serotine Bat	LC	LC
Felis nigripes	Black-footed Cat	VU	VU
Felis silvestris	African Wildcat	LC	LC
Galago moholi	Southern Lesser Galago	LC	LC
Genetta genetta	Small-spotted Genet	LC	LC
Gerbilliscus brantsii	Highveld Gerbil	LC	LC
Gerbilliscus leucogaster	Bushveld Gerbil	LC	LC
Graphiurus microtis	Large Savanna African Dormouse	LC	LC
Graphiurus platyops	Rock Dormouse	LC	LC
Herpestes sanguineus	Slender Mongoose	LC	LC
Hipposideros caffer	Sundevall's Leaf-nosed Bat	LC	LC
Hydrictis maculicollis	Spotted-necked Otter	VU	NT
Hystrix africaeaustralis	Cape Porcupine	LC	LC
Ichneumia albicauda	White-tailed Mongoose	LC	LC
Ictonyx striatus	Striped Polecat	LC	LC
Kerivoula lanosa	Lesser Woolly Bat	LC	LC
Kobus ellipsiprymnus	Common Waterbuck	LC	LC
Lemniscomys rosalia	Single-striped Mouse	LC	LC

Leptailurus serval	Serval	NT	LC
Lepus saxatilis	Scrub Hare	LC	LC
Lepus victoriae	African Savanna Hare	LC	LC
Mastomys coucha	Multimammate Mouse	LC	LC
Mastomys natalensis	Natal Multimammate Mouse	LC	LC
Mellivora capensis	Honey Badger	LC	LC
Mungos mungo	Banded Mongoose	LC	LC
Mus indutus	Desert Pygmy Mouse	LC	LC
Myotis tricolor	Temminck's Hairy Bat	LC	LC
Myotis welwitschii	Welwitsch's Hairy Bat	LC	LC
Neamblysomus julianae	Juliana's Golden Mole	EN	EN
Neoromicia capensis	Cape Serotine Bat	LC	LC
Neoromicia nana	Banana Bat	LC	LC
Neoromicia zuluensis	Aloe Bat	LC	LC
Nycteris thebaica	Egyptian Slit-faced Bat	LC	LC
Oreotragus oreotragus	Klipspringer	LC	LC
Orycteropus afer	Aardvark	LC	LC
Otolemur crassicaudatus	Thick-tailed Bushbaby	LC	LC
Otomys angoniensis	Angoni Vlei Rat	LC	LC
Panthera pardus	Leopard	VU	VU
Papio ursinus	Chacma Baboon	LC	LC
Parahyaena brunnea	Brown Hyaena	NT	NT
Paraxerus cepapi	Tree Squirrel	LC	LC
Pedetes capensis	Springhare	LC	LC
Pelea capreolus	Grey Rhebok	NT	NT
Phacochoerus africanus	Common Warthog	LC	LC
Pipistrellus rusticus	Rusty Bat	LC	LC
Poecilogale albinucha	African Striped Weasel	NT	LC
Procavia capensis	Rock Hyrax	LC	LC
Pronolagus randensis	Jameson's Red Rock Rabbit	LC	LC
Proteles cristata	Aardwolf	LC	LC
Raphicerus campestris	Steenbok	LC	LC
Rattus rattus	House Rat	Exotic (Not listed)	LC
Redunca arundinum	Southern Reedbuck	LC	LC
Redunca fulvorufula	Mountain Reedbuck	EN	LC
Rhabdomys pumilio	Xeric Four-striped Mouse	LC	LC
Rhinolophus blasii	Blasius's horseshoe bat	NT	LC
Rhinolophus darlingi	Darling's Horseshoe Bat	LC	LC
Rhinolophus simulator	Bushveld Horseshoe Bat	LC	LC
Saccostomus campestris	Pouched Mouse	LC	LC
Sauromys petrophilus	Flat-headed Free-tail Bat	LC	LC
Scotophilus dinganii	Yellow House Bat	LC	LC
Steatomys pratensis	Fat Mouse	LC	LC
Suncus lixus	Greater Dwarf Shrew	LC	LC
Suncus varilla	Lesser Dwarf Shrew	LC	LC
Sylvicapra grimmia	Common Duiker	LC	LC

Tadarida aegyptiaca	Egyptian Free-tailed Bat	LC	LC
Taphozous mauritianus	Mauritian Tomb Bat	LC	LC
Thallomys paedulcus	Tree Rat	LC	LC
Thryonomys swinderianus	Greater Cane Rat	LC	LC
Tragelaphus scriptus	Cape Bushbuck	LC	LC
Tragelaphus strepsiceros	Greater Kudu	LC	LC
Vulpes chama	Cape Fox	LC	LC

Appendix E Reptiles species expected in the project area

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Acanthocercus atricollis	Southern Tree Agama	LC	LC
Acontias occidentalis	Savanna Legless Skink	LC	LC
Afroedura nivaria	Drankensberg Flat Gecko	LC	LC
Afroedura waterbergensis	Waterberg Rock Gecko	Unlisted	Unlisted
Afrotyphlops bibronii	Bibron's Blind Snake	LC	LC
Afrotyphlops schlegelii	Schlegel's Beaked Blind Snake	LC	LC
Agama aculeata distanti	Eastern Ground Agama	LC	LC
Agama atra	Southern Rock Agama	LC	LC
Amblyodipsas polylepis	Purple Gloss Snake	Unlisted	Unlisted
Amblyodipsas ventrimaculata	Kalahari purple-glossed snake	Unlisted	Unlisted
Aparallactus capensis	Black-headed Centipede-eater	LC	LC
Aspidelaps scutatus scutatus	Common Shield Snake	LC	LC
Atractaspis bibronii	Bibron's Stiletto Snake	LC	LC
Atractaspis duerdeni	Duerden's Stilleto Snake	LC	LC
Bitis arietans arietans	Puff Adder	LC	LC
Boaedon capensis	Brown House Snake	LC	LC
Causus defilippii	Snouted Night Adder	LC	LC
Causus rhombeatus	Rhombic Night Adder	LC	LC
Chamaeleo dilepis	Common Flap-neck Chameleon	LC	LC
Chondrodactylus turneri	Turner's Gecko	LC	LC
Cordylus jonesii	Jones' Girdled Lizard	LC	LC
Cordylus vittifer	Common Girdled Lizard	LC	LC
Crocodylus niloticus	Nile Crocodile	VU	VU
Crotaphopeltis hotamboeia	Red-lipped Snake	LC	LC
Dalophia pistillum	Pestle-tailed Worm Lizard	LC	LC
Dasypeltis scabra	Rhombic Egg-eater	LC	LC
Dendroaspis polylepis	Black Mamba	LC	LC
Dispholidus typus	Boomslang	LC	LC
Elapsoidea sundevallii	Sundevall's Garter Snake	LC	LC
Gerrhosaurus flavigularis	Yellow-throated Plated Lizard	LC	LC
Gonionotophis capensis	Common File Snake	LC	LC
Gracililima nyassae	Black File Snake	LC	LC
Hemidactylus mabouia	Common Tropical House Gecko	LC	LC
Homopholis wahlbergii	Wahlberg's Velvet Gecko	LC	LC
Ichnotropis capensis	Ornate Rough-scaled Lizard	LC	LC
Kinixys lobatsiana	Lobatse hinged-back Tortoise	LC	LC
Kinixys spekii	Speke's Hinged-Back Tortoise	LC	LC
Lamprophis aurora	Aurora House Snake	LC	LC
Leptotyphlops distanti	Distant's Tread Snake	LC	LC
Leptotyphlops incognitus	Incognito Thread Snake	LC	LC
Leptotyphlops scutifrons	Peters' Thread Snake	LC	LC
Limaformosa capensis	Common File Snake	LC	LC
Lycodonomorphus inornatus	Olive House Snake	LC	LC

Lycodonomorphus rufulus	Brown Water Snake	LC	LC
Lycophidion capense capense	Cape Wolf Snake	LC	LC
Lycophidion variegatum	Variegated Wolf Snake	LC	LC
Lygodactylus capensis	Cape dwarf gecko	LC	LC
Lygodactylus waterbergensis	Waterberg Dwarf Gecko	NT	NT
Matobosaurus validus	Common Giant Plated Lizard	LC	LC
Meroles squamulosus	Common Rough-scaled Lizard	LC	LC
Mochlus sundevallii	Sundevall's Writhing Skink	LC	LC
Monopeltis capensis	Cape Worm Lizard	LC	LC
Monopeltis infuscata	Dusky Worm Lizard	LC	LC
Naja annulifera	Snouted Cobra	LC	LC
Naja mossambica	Mozambique Spitting Cobra	LC	LC
Nucras holubi	Holub's Sandveld Lizard	LC	LC
Nucras intertexta	Spotted Sandveld Lizard	LC	LC
Pachydactylus affinis	Transvaal Gecko	LC	LC
Pachydactylus capensis	Cape Gecko	LC	LC
Pachydactylus vansoni	VAN Son's Gecko	LC	LC
Panaspis wahlbergii	Wahlberg's Snake-eyed Skink	LC	LC
Pedioplanis lineoocellata lineoocellata	Spotted Sand Lizard	LC	LC
Pedioplanis lineoocellata pulchella	Common sand lizard	LC	LC
Pelomedusa galeata	South African Marsh Terrapin	Not evaluated	Not evaluated
Pelusios sinuatus	Serrated Hinged Terrapin	LC	LC
Philothamnus hoplogaster	South Eastern Green Snake	LC	LC
Philothamnus occidentalis	Western Nalal Green Snake	Unlisted	Unlisted
Philothamnus semivariegatus	Spotted Bush Snake	LC	LC
Platysaurus guttatus	Dwarf Flat Lizard	LC	LC
Platysaurus minor	Waterberg Flat Lizard	LC	LC
Prosymna ambigua	Angolan Shovel-snout	Unlisted	Unlisted
Prosymna bivittata	Two-Striped Shovel-Snout	LC	LC
Prosymna sundevallii	Sundevall's Shovel-snout	LC	LC
Psammobates oculifer	Serrated Tent Tortoise	LC	LC
Psammophis angolensis	Dwarf Sand Snake	LC	LC
Psammophis brevirostris	Short-snouted Grass Snake	LC	LC
Psammophis jallae	Jalla's Sand Snake	LC	LC
Psammophis subtaeniatus	Stripe-bellied Sand Snake	LC	LC
Psammophylax rhombeatus	Spotted Grass Snake	LC	LC
Psammophylax tritaeniatus	Striped Grass Snake	LC	LC
Pseudaspis cana	Mole Snake	LC	LC
Pseudocordylus transvaalensis	Nothern Crag Lizard	NT	NT
Python natalensis	Southern African Python	LC	LC
Rhinotyphlops lalandei	Delalande's Beaked Blind Snake	LC	LC
Smaug breyeri	Waterberg Dragon Lizard	LC	LC
Smaug vandami	Van Dam's Dragon Lizard	LC	LC
Stigmochelys pardalis	Leopard Tortoise	LC	LC
Telescopus semiannulatus semiannulatus	Eastern Tiger Snake	LC	LC
Thelotornis capensis	Southern Twig Snake	LC	LC

Trachylepis capensis	Cape Skink	LC	LC
Trachylepis damarana	Damara skink	Unlisted	Unlisted
Trachylepis laevigata	Variable Skink	DD	DD
Trachylepis margaritifera	Rainbow Skink	LC	LC
Trachylepis punctatissima	Speckled Rock Skink	LC	LC
Trachylepis striata	Striped Skink	LC	LC
Trachylepis varia	Variable Skink	LC	LC
Varanus albigularis albigularis	Southern Rock Monitor	LC	LC
Varanus niloticus	Water Monitor	LC	LC
Xenocalamus bicolor australis	Waterberg Quill-snouted Snake	LC	LC
Zygaspis quadrifrons	Kalahari Dwarf Worm Lizard	LC	LC

Appendix F Amphibians expected in the project area

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Amietia delalandii	Delalande's River Frog	LC	Unlisted
Amietia poyntoni	Poynton's River Frog	LC	LC
Breviceps adspersus	Bushveld Rain Frog	LC	LC
Cacosternum boettgeri	Common Caco	LC	LC
Chiromantis xerampelina	Southern Foam Nest Frog	LC	LC
Hyperolius marmoratus	Painted Reed Frog	LC	LC
Kassina senegalensis	Bubbling Kassina	LC	LC
Phrynobatrachus mababiensis	Dwarf Puddle Frog	LC	LC
Phrynobatrachus natalensis	Snoring Puddle Frog	LC	LC
Phrynomantis bifasciatus	Banded Rubber Frog	LC	LC
Poyntonophrynus fenoulheti	Northern Pygmy Toad	LC	LC
Poyntonophrynus vertebralis	Southern Pygmy Toad	LC	LC
Ptychadena anchietae	Plain Grass Frog	LC	LC
Ptychadena mossambica	Mozambique Ridged Frog	LC	LC
Ptychadena porosissima	Striped Grass Frog	LC	LC
Pyxicephalus adspersus	Giant Bullfrog	LC	LC
Pyxicephalus edulis	African Bullfrog	LC	LC
Schismaderma carens	African Red Toad	LC	LC
Sclerophrys capensis	Raucous Toad	LC	LC
Sclerophrys garmani	Olive Toad	LC	LC
Sclerophrys gutturalis	Guttural Toad	LC	LC
Sclerophrys poweri	Power's Toad	LC	LC
Sclerophrys pusilla	Flatbacked Toad	LC	LC
Strongylopus fasciatus	Striped Stream Frog	LC	LC
Strongylopus grayii	Clicking Stream Frog	LC	LC
Tomopterna cryptotis	Tremelo Sand Frog	LC	LC
Tomopterna krugerensis	Knocking Sand Frog	LC	LC
Tomopterna natalensis	Natal Sand Frog	LC	LC
Tomopterna tandyi	Tandy's Sand Frog	LC	LC
Xenopus laevis	Common Platanna	LC	LC