TERRESTRIAL BIODIVERSITY ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF STUDENT ACCOMMODATION AND ASSOCIATED INFRASTRUCTRE IN SOSHANGUVE, BLOCK M

City of Tshwane Metropolitan Municipality, Gauteng Province, South Africa

17/11/2025

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Report Name	**TERRESTRIAL BIODIVERSITY ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF STUDENT ACCOMMODATION AND ASSOCIATED INFRASTRUCTRE IN SOSHANGUVE, BLOCK M**
Specialist Theme	Terrestrial Biodiversity, Plant and Animal Themes
Project Reference	Soshanguve Student Accommodation
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Environmental Assessment Practitioner	SELAHLE CONSULTANCY & PROJECTS
Fieldwork & Report Writer	Sarah Newman (Pr. Sci. Nat. 158474) 
Reviewer	Leigh-Ann de Wet (Pri. Sci. Nat. 400233/12) 
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, Amended. 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

1.1 Background

The Biodiversity Company was appointed to undertake a Terrestrial Biodiversity Assessment for the proposed Construction of Student Accommodation and Associated Infrastructure in Soshanguve, Block M within the jurisdiction of the City of Tshwane Metropolitan in the Gauteng Province of South Africa. The property boundary, as provided, forms the Project Area of Influence (PAOI) and is referred to as such for reporting purposes. The regional context of the PAOI can be seen presented in Figure 1-1 and the PAOI can be seen presented in Figure 1-2.

This assessment was conducted in accordance with the amendments to the Environmental Impact Assessment Regulations. 2014 (GNR 326, 7 April 2017) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The approach has taken cognisance of the published Government Notices (GN) 320 (20 March 2020) and GN 1150 (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” (Reporting Criteria).

The National Web based Environmental Screening Tool has characterised the specialist themes as follows for the PAOI:

- Terrestrial Biodiversity Theme: Very High Sensitivity;
- Plant Species Theme: Low Sensitivity; and
- Animal Species Theme: Medium 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.

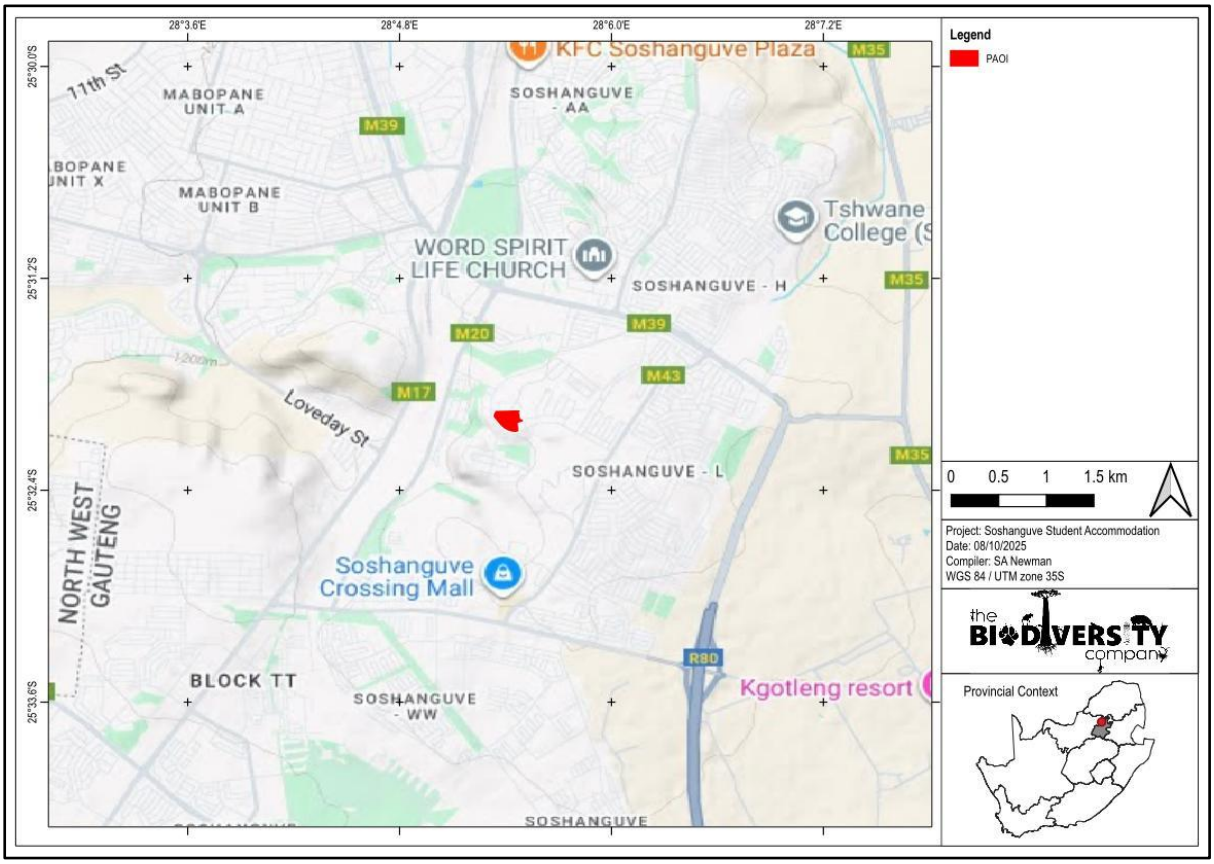


Figure 1-1 Map illustrating the regional context of the Project Area of Influence (PAOI)

1.2 Project Description

Govhani Student Accommodation (applicant) intends to construct an approximately 2000 bed Student Accommodation on ERF 1305 Soshanguve-M which will formally be known as the TUT Soshanguve Student Village in Pretoria.

1.3 Project Area of Influence

The property boundary, as provided, forms the Project Area of Influence (PAOI) and is delineated to incorporate the proposed project components (Figure 1-2).

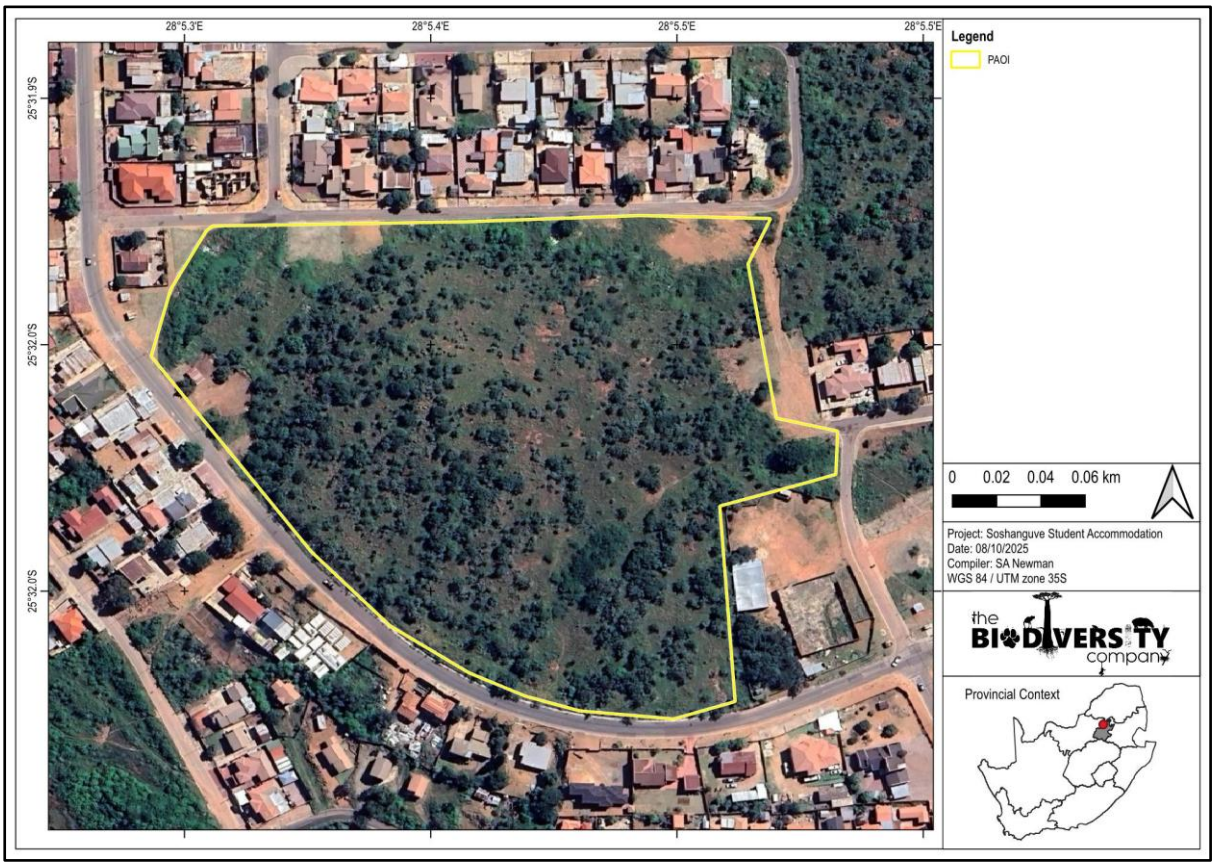


Figure 1-2 Map illustrating the local context of the Project Area of Influence (PAOI)

1.4 Scope of Work

The aim of the biodiversity assessment was to provide information to guide the risk of the proposed activity to the current state of the associated ecosystems within the development area. This was achieved through the following:

- Desktop assessment to identify the relevant ecologically important geographical features within the PAOI and surrounding landscape;
- Desktop assessment to compile an expected species list and identify possible Species of Conservation Concern (SCC) that occur within the PAOI and surrounding landscape;
- Field survey to record flora and fauna species, especially Species of Conservation Concern (SCC);
- Determination of the Site Ecological Importance (SEI), also commonly referred to as sensitivity;
- A biodiversity impact assessment; and
- The prescription of mitigation measures for identified risks, including assigning buffer areas, where necessary.

1.5 Assumptions and Limitations

The following assumptions and limitations are applicable for this assessment:

- It is assumed that all information received from the client/developer is accurate;
- The specialist was not provided with an architectural plan or any engineering drawings with regard to the planned development activities and, as such, the potential impacts arising from these activities may only be assumed based on previous experience;
- All datasets accessed and utilised for this assessment are considered to be representative of the most recent and suitable data for the intended purposes;
- The assessment area (PAOI) was based on the footprint areas as provided by the client, and any alterations to the area and/or missing GIS information pertaining to the assessment area would have affected the area surveyed and hence the results of this assessment;
- This assessment does not consider temporal trends (note that the data collected is, however, considered sufficient to derive a meaningful baseline);
- Only a single season survey was conducted which constitutes a wet season survey (6th of October 2025). Conditions were dry at the time of the field survey due to late rainfall, however, the site assessment proved to be sufficient to derive a meaningful baseline for the proposed project;
- Invertebrates were not considered as part of this assessment;
- Whilst every effort was made to cover as much of the PAOI as possible, representative sampling is completed, and by its nature, it is likely that some plant and animal species that are present on site were not recorded during the field investigations; and
- The Global Positioning System (GPS) used in the assessment has an accuracy of 5 m and consequently any spatial features may be offset by up to 5 m.

1.6 Key Legislative Requirements

The legislation, policies and guidelines listed below in Table 1-1 are applicable to the current project. The list below, although extensive, may not be complete and other legislation, policies and guidelines may apply in addition to those listed below.

Table 1-1 A list of key legislative requirements

Region	Legislation / Guideline	Comment
National	NEMA	Environmental Impact Assessment Regulations. 2014 (GNR 326, 7 April 2017), Appendix 6 requirements
	The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA), Threatened or Protected Species Regulations	The protection of species and ecosystems that warrant protection
	Assessment Protocol (March 2020)	The minimum criteria for reporting.
	Assessment Protocol (October 2020)	Protocol for the specialist assessment and minimum report content requirements.
	NEMWA;	The regulation of waste management to protect the environment.
	NWA	The regulation of water uses.
	GN 1003 of GG 43726 of 18 Sept 2020	The regulation and management of alien invasive species.
	Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA)	To provide for control over the utilisation of the natural agricultural resources, including the vegetation and the combating of weeds and invader plants.
Provincial	GDARD Requirements for Biodiversity Assessments (Version 3, 2014a)	To provide for the management and conservation of the Province's biophysical environment and protected areas. To inform land use planning, environmental assessments, land and water use authorisations, as well as natural resource management.
	Gauteng Department of Agriculture and Rural Development (GDARD): Checklist for Biodiversity Assessments	

2 Fieldwork

2.1 Biodiversity Field Assessment

One (1) wet season field survey was undertaken for the project on the 6th of October 2025 (summer) to confirm the presence of SCC, as well as any sensitive habitat features. Effort was made to cover all the different habitat types within the limits of time, access and security. During the survey, notes were made regarding current impacts, recording of dominant vegetation species and any sensitive or important features (e.g., drainage lines, rock outcrops, termite mounds etc.) The field survey tracks, and survey points can be seen presented in Figure 2-1.

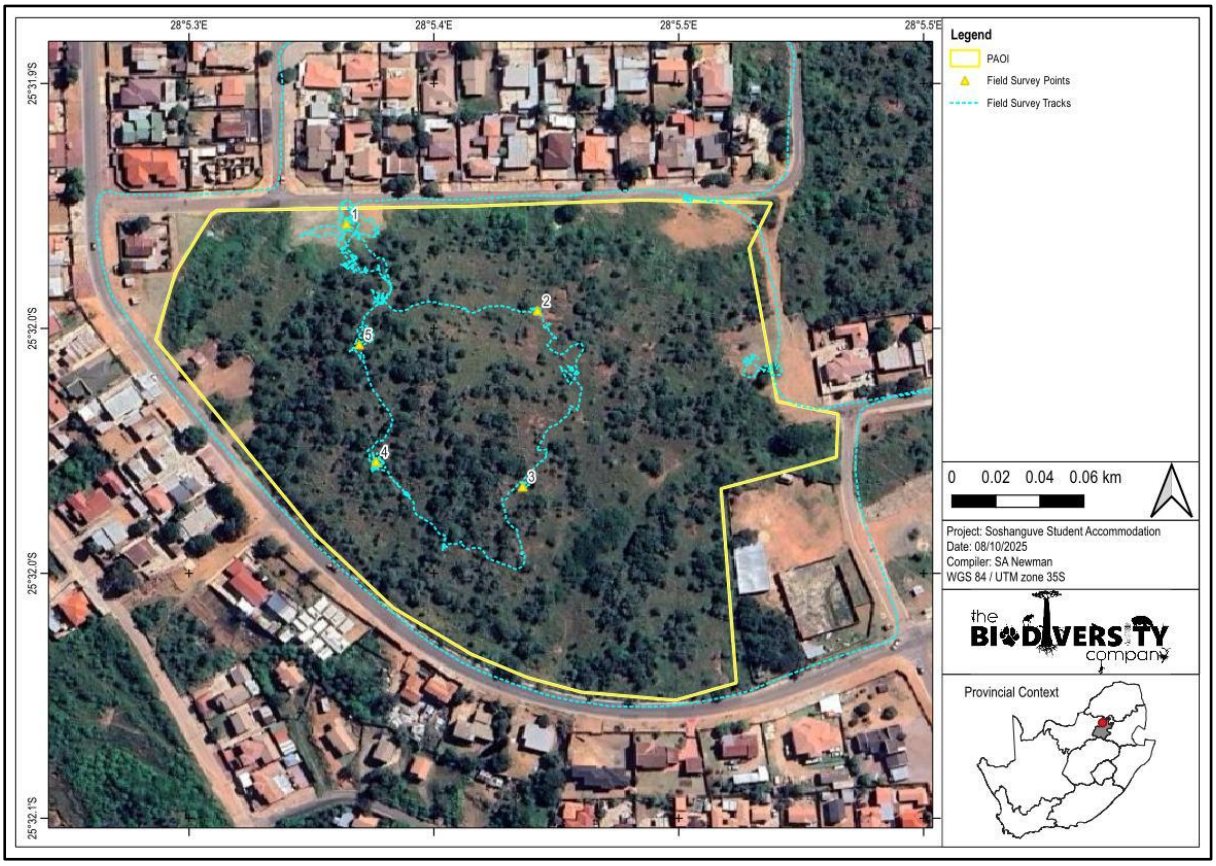


Figure 2-1 Map illustrating the field tracks and survey points of the field survey

3 Results & Discussion

3.1 Desktop Assessment

3.1.1 Ecologically Important Landscape Features

The relevance of the proposed development to ecologically important landscape features are summarised in Table 3-1.

Table 3-1 Summary of relevance of the proposed project to ecologically important landscape features

Desktop Information Considered	Relevance	Reasoning	Section
Ecosystem Threat Status – Red List of Ecosystems (RLE)	Relevant	Overlaps with a Least Concern (LC) ecosystem (RLE, 2022)	3.1.1.1
Ecosystem Protection Level	Relevant	Overlaps with a Poorly Protected (PP) Ecosystem (NBA, 2018)	3.1.1.2
Provincial Conservation Plan	Relevant	Overlaps with an Ecological Support Area (ESA) 1 (GDARD, 2023)	3.1.1.3
South Africa Protected Areas Database (SAPAD) and South Africa Conservation Areas Database (SACAD)	Irrelevant	Does not fall within 5 km of any SAPAD or within 10 km of any SACAD	-
National Protected Areas Expansion Strategy (NPAES)	Irrelevant	Does not overlap with any NPAES Priority Focus Areas (NPAES, 2018)	-
Key Biodiversity Areas (KBA)	Irrelevant	Does not fall within 10 km of any relevant areas (KBA, 2024)	-
South African Inventory of Inland Aquatic Ecosystems (SAIIAE)	Irrelevant	Does not overlap with any relevant areas	-
National Freshwater Ecosystem Priority Area (NFEPA)	Irrelevant	Does not overlap with any relevant areas	-
Strategic Water Source Areas (SWSA)	Irrelevant	Does not fall within 500 m of any relevant areas	-
Gauteng Ridges	Relevant	Overlaps with a Class 3 Gauteng Ridge (GDARD, 2024)	3.1.1.4

3.1.1.1 Red List of Ecosystems

The Ecosystem Threat Status is an indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. According to the Red List of Ecosystems dataset (Skowno & Monyeki, 2022) the proposed development overlaps with a LC ecosystem (Figure 3-1). According to the Red List of Ecosystems Remnant dataset, the project overlaps with the remaining extent of the Norite Koppies Bushveld vegetation type (Figure 3-2).

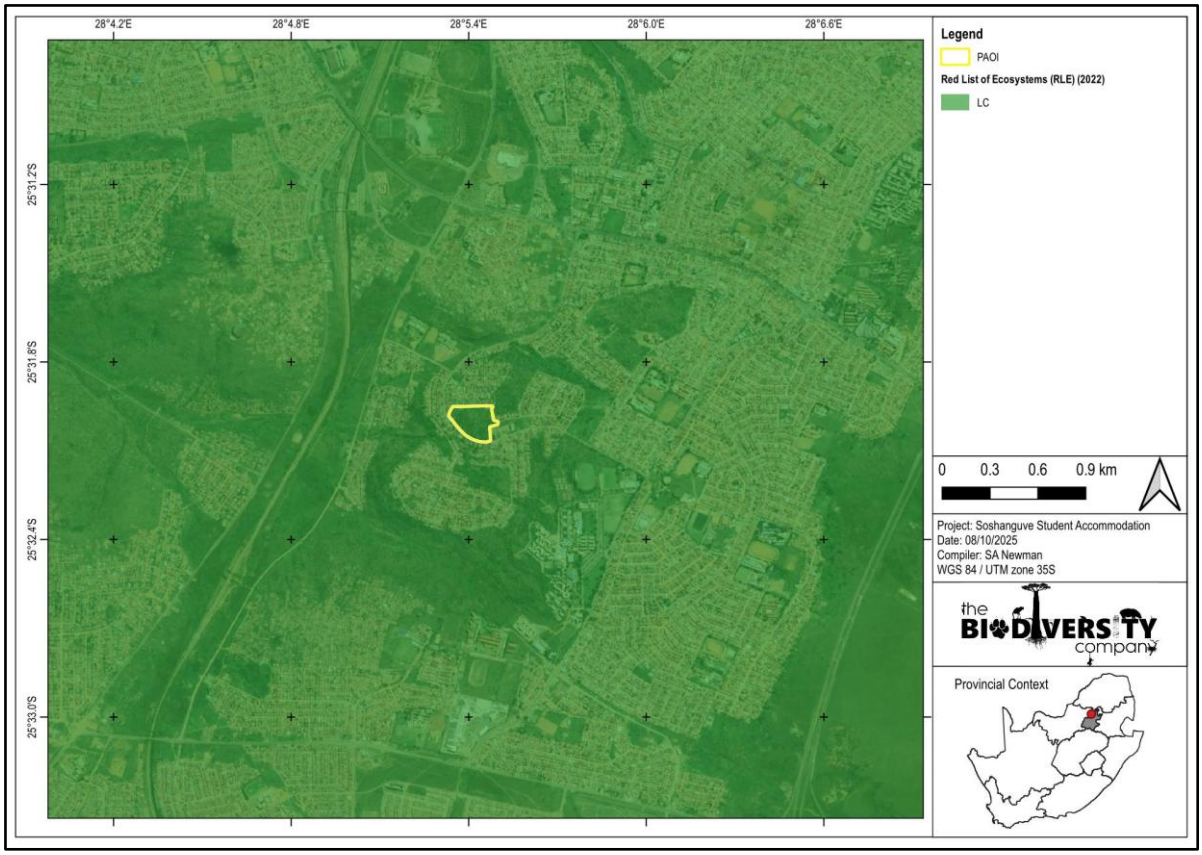


Figure 3-1 Map illustrating the ecosystem threat status associated with the PAOI

Figure 3-2 Map illustrating the Red List of Ecosystems Remnant Dataset (2021) associated with the PAOI

3.1.1.2 Ecosystem Protection Level

Indicator of the extent to which ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP), based on the proportion of the biodiversity target for each ecosystem type that is included within one or more protected areas. Not Protected, PP or MP ecosystem types are collectively referred to as under-protected ecosystems. The PAOI overlaps with a PP ecosystem (Figure 3-3).

Figure 3-3 Map illustrating the ecosystem protection level associated with the PAOI

3.1.1.3 Provincial Conservation Plan

The Gauteng Conservation Plan (Version 4) (GDARD, 2023) classifies areas within the province on the basis of its contribution to reach the conservation targets within the province. These areas are classified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) to ensure sustainability in the long term. The CBAs are classified as either 'Irreplaceable' (must be conserved), or 'Important'.

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.

According to the Gauteng Conservation Plan dataset, the PAOI overlaps with an ESA 1 (Figure 3-4).

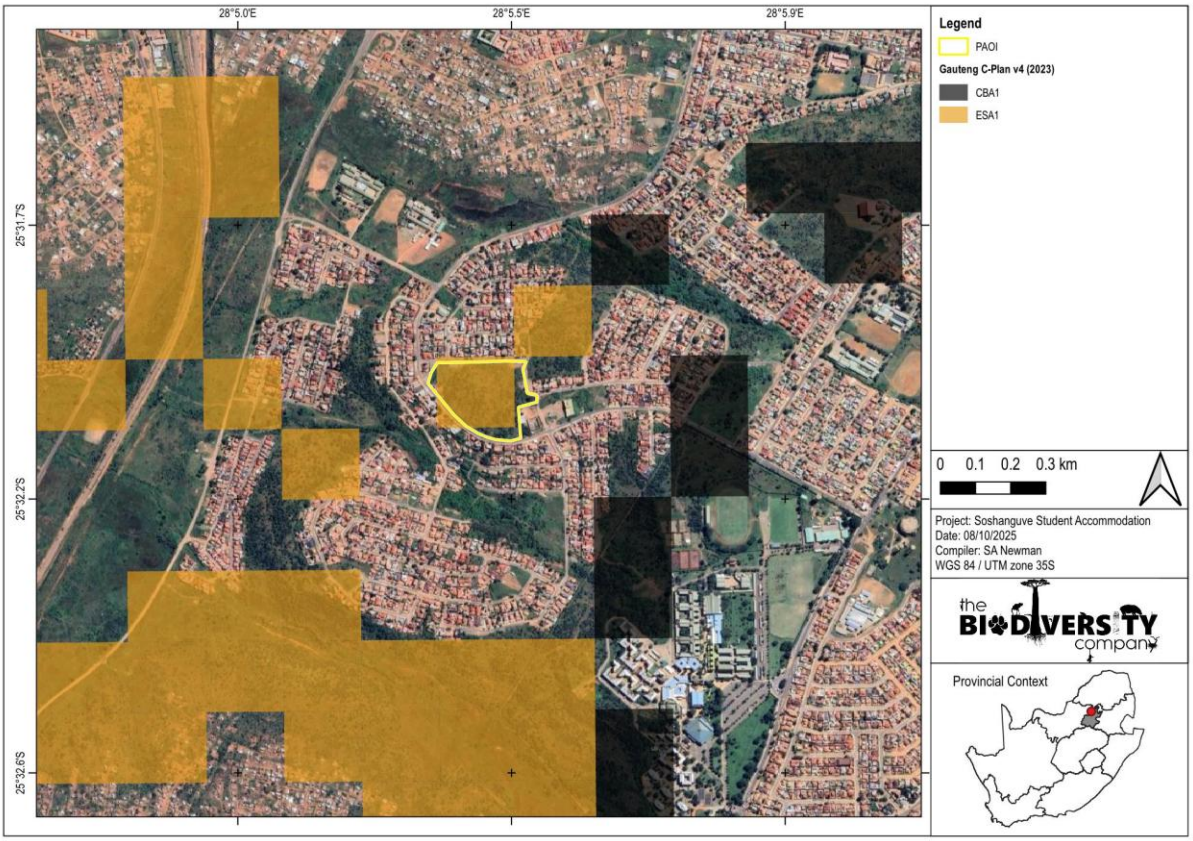


Figure 3-4 Map illustrating the PAOI in relation to the Gauteng Conservation Plan

3.1.1.4 Gauteng Ridges

The quartzite ridges of Gauteng are one of the most important natural assets in this northern province of South Africa. This is because these ridges, and the areas immediately surrounding them, provide unique habitat for a wide variety of fauna and flora, some of which are Red-Listed, rare or endemic species, or in the case of certain plant species, are found nowhere else in South Africa or around the world. Figure 3-5 indicates that the PAOI overlaps with a Class 3 Gauteng Ridge.

Class 3 ridges are those that have been transformed by 35-65%, as a result of human activity (Approximately 8% of ridges currently fall within Class 3, including the Northcliff, Roodepoort and Krugersdorp ridges).

According to the 2025 Ridges Guideline, the guidelines for Class 2 ridges will be applied to areas of the ridge that have not been significantly impacted (non-significant impact) on by human activity. The guidelines for Class 4 ridges will be applied to areas of the ridge that have been significantly impacted on by human activity. In accordance with this, the following should be applied to the natural portions of the ridge:

- Low impact development activities, such as tourism facilities, which comprise of an ecological footprint of 5% or less of the property may be supported. (The ecological footprint includes all areas directly impacted on by a development activity, including all paved surfaces, landscaping, property access and service provision).

- Low impact development activities on a ridge will not be supported where it is feasible to undertake the development on a portion of the property abutting the ridge.

The following should be applied to portions of the ridge where transformation has occurred:

- Further development activities will not be supported in areas of the ridge where the remaining contiguous extent of natural habitat is 4ha or more.

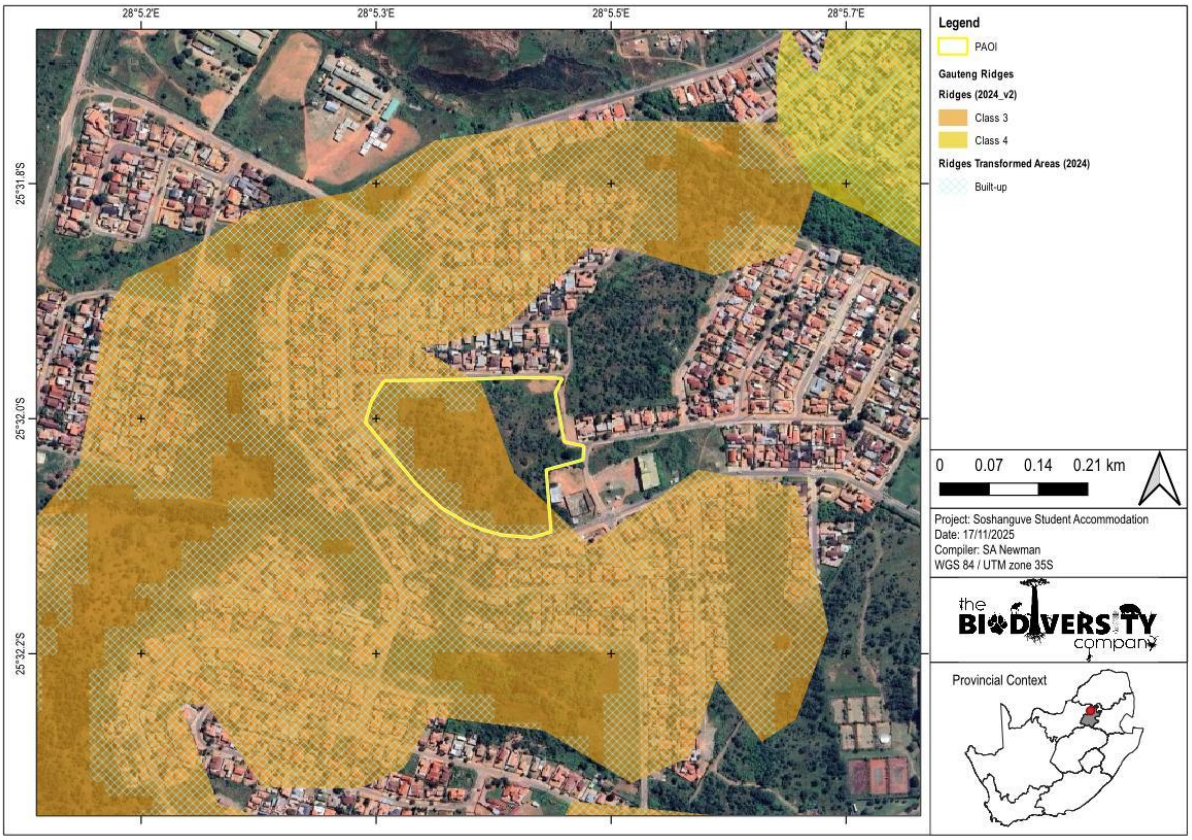


Figure 3-5 Map illustrating the PAOI in relation to the Gauteng Ridges (2024) dataset

3.1.2 Flora Assessment

This section is divided into a description of the vegetation type expected under natural conditions and the expected flora species.

3.1.2.1 Vegetation Type

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:

- Seasonal precipitation; and
- (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).

The PAOI is situated in the Norite Koppies Bushveld vegetation type according to the NBA dataset (2024) (Figure 3-6), which is a member of the Central Bushveld Bioregion.

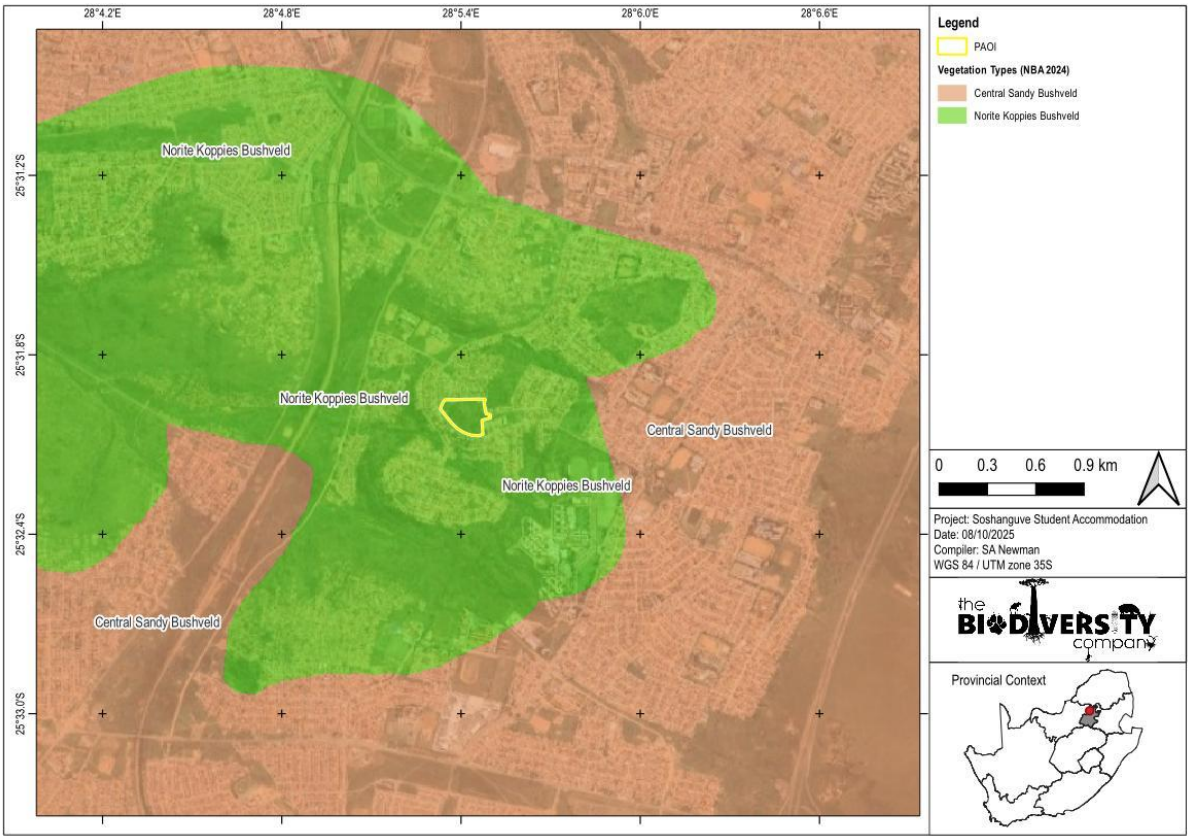


Figure 3-6 Map illustrating the vegetation types associated with the PAOI

3.1.2.1.1 Norite Koppies Bushveld

The Norite Koppies Bushveld vegetation type occurs in the North-West and Gauteng provinces, embedded in the Marikana Thornveld vegetation type. It occurs on rocky hills between Rustenburg and Pretoria. It consists of a low, semi-open to closed woodland up to 5 m tall, consisting of dense deciduous shrubs and trees with very sparse undergrowth on shallow soils, with large areas not covered by vegetation.

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 Norite Koppies Bushveld (*d = dominant*).

Tall Tree: *Sclerocarya birrea subsp. affra*.

Small Trees: *Combretum mole (d), Croton gratissimus (d), Ficus abutilifolia (d), Pappea capensis (d), Senegalia affra, Bridelia mollis, Combretum apiculatum, Cussonia paniculate, Dombeya rotundiflora, Faurea saligna, Ficus glumosa, Lannea discolor, Obetia tenax, Peltophorum africanum, Searsia leptodictya, Vangueria infausta, Ziziphus mucronata*.

Succulent Tree: *Euphorbia cooperi*.

Tall Shrubs: *Triaspis glaucophylla (d), Canthium gilfillanii, Clerodendrum glabrum, Diplorhynchus condylocarpon, Euclea natalensis, Grewia flavescens, G. monticola, Gymnosporia nemorosa, G. polyacantha, Pavetta eylesii, Pouzolzia mixta, Psydrax livida, Vitex zeyheri*.

Low Shrubs: *Jatropha latifolia var. latifolia (d), Abutilon austro-africanum, Hermannia floribunda, Hibiscus subreniformis, Searsia zeyheri*.

Succulent Shrub: *Tetradenia brevispicata*.

Semiparasitic Shrub: *Osyris lanceolata*.

Woody Climbers: *Helinus integrifolius, Rhoicissus tridentata, Turraea obtusifolia*.

Woody Succulent Climber: *Sarcostemma viminale*.

Herbaceous Climber: *Cyphostemma lanigerum*.

Graminoids: *Chrysopogon serrulatus (d), Setaria lindenbergiana (d), Aristida congesta, Bulbostylis humilis, Eustachys paspaloides, Heteropogon contortus, Loudetia simplex, Melinis nerviglumis, Panicum maximum, Themeda triandra*.

Herb: *Hibiscus sidifromis*.

Geophytic Herb: *Pellaea calomelanos, P. viridis, Scadoxus puniceus*.

Conservation Status of the Vegetation Type

This vegetation type is classified as Least Concern (RLE, 2022), but ground truthing suggests that it is susceptible. The conservation target is 24%. None conserved in statutory reserves, but 4% conserved in De Onderstepoort Nature Reserve (Mucina & Rutherford, 2006). About 10% or more transformed, especially at the unit fringes, mostly due to mining, urban and built-up developments, and cultivation.

3.1.2.2 Expected Flora Species

The Global Biodiversity Information Facility (GBIF) database lists 356 species of plants that are present in the region (10 km buffer) and could possibly occur within the PAOI (Appendix C). The GBIF database lists one (1) flora Species of Conservation Concern (SCC) that may occur within the PAOI, however, the PAOI falls outside this species indigenous range (Table 3-2). No flora SCC were listed by the Screening Tool.

Table 3-2 Flora SCC expected for the PAOI. NT = Near Threatened

Family	Scientific name	Screening Tool Designation	SANBI	Habitat	Likelihood of occurrence	Reason
Fabaceae	*Bauhinia bowkeri*	-	NT	Indian Ocean Coastal Belt, Savanna - Plants grow in river banks.	Low	Site outside of species natural range

3.1.3 Fauna Assessment

3.1.3.1 Mammals

The Global Biodiversity Information Facility (GBIF) database lists six (6) species of mammal that are present in the region and could possibly occur within the PAOI, none of which were SCC (Appendix C). Species generally restricted to protected areas such as game reserves were not expected to occur in PAOI and were removed from the list but those identified by the Screening Tool are retained. The Screening Tool lists two (2) mammal SCC that may occur within the PAOI (Table 3-3).

Table 3-3 List of mammal Species of Conservation Concern that may occur in the PAOI. LC = Least Concern, NT = Near Threatened and VU = Vulnerable

Scientific Name	Common Name	Screening Tool Designation	Conservation Status		Likelihood of Occurrence	Reason
			SANBI	IUCN		
Dasymys robertsii	Robert's Marsh Rat	Medium	VU	NE	Low	No wetland habitat on site

Neamblysomus julianae	Juliana's Golden Mole	Medium	EN	EN	Low	Outside of species known distribution

3.1.3.2 Herpetofauna

3.1.3.2.1 Reptiles

The Global Biodiversity Information Facility (GBIF) database lists 18 species of reptile that are present in the region and could possibly occur within the PAOI (Appendix C). The GBIF database and the Screening Tool list one (1) reptile SCC that may occur within the PAOI (Table 3-4).

Table 3-4 List of reptile Species of Conservation Concern that may occur in the PAOI. VU = Vulnerable

Scientific Name	Common Name	Screening Tool Designation	Conservation Status		Likelihood of Occurrence	Reason
			SANBI	IUCN		
Kinixys lobatsiana	Lobatse hinged-back Tortoise	Medium	VU	VU	Low	Suitable habitat present in the PAOI but not accessible via the surrounding natural areas

3.1.3.2.2 Amphibians

The Global Biodiversity Information Facility (GBIF) database lists three species of amphibian that are present in the region and could possibly occur within the PAOI (Appendix C). None of the expected species are SCC. No amphibian SCC were listed by the screening tool.

3.1.3.2.3 Avifauna

The SABAP2 database lists 386 avifauna species that could be expected to occur within the PAOI and surrounding landscape (Appendix C). Forty (40) of these expected species are regarded as SCC (Table 3-5). No species were listed by the Screening Tool.

Table 3-5 List of avifauna Species of Conservation Concern that may occur in the PAOI. EN = Endangered, LC = Least Concern, NT = Near Threatened and VU = Vulnerable

Scientific Name	Common Name	Screening Tool Designation	Conservation Status		Likelihood of Occurrence	Reason
			SANBI	IUCN		
Alcedo semitorquata	Half-collared Kingfisher	-	VU	LC	Low	No suitable habitat on site
Anas erythrorhyncha	Red-billed Teal	-	NT	LC	Low	No suitable habitat on site
Anas smithii	Cape Shoveler	-	NT	LC	Low	No suitable habitat on site
Anas undulata	Yellow-billed Duck	-	NT	LC	Low	No suitable habitat on site
Anhinga rufa	African Darter	-	NT	LC	Low	No suitable habitat on site
Aquila verreauxii	Verreaux's Eagle	-	VU	LC	Low	No suitable habitat on site
Ardea alba	Great Egret	-	NT	LC	Low	No suitable habitat on site
Asio capensis	Marsh Owl	-	NT	LC	Low	No suitable habitat on site
Calidris ferruginea	Curlew Sandpiper	-	VU	VU	Low	No suitable habitat on site
Charadrius pecuarius	Kittlitz's Plover	-	NT	LC	Low	No suitable habitat on site
Circus ranivorus	African Marsh Harrier	-	VU	LC	Low	No suitable habitat on site

Coracias garrulus	European Roller	-	NT	LC	Low	No suitable habitat on site
Dendrocygna bicolor	Fulvous Whistling Duck	-	NT	LC	Low	No suitable habitat on site
Elanus caeruleus	Black-winged Kite	-	NT	LC	High	Suitable habitat present on site
Falco biarmicus	Lanner Falcon	-	NT	LC	Moderate	Some suitable habitat present on site
Falco naumanni	Lesser Kestrel	-	VU	LC	Low	No suitable habitat on site
Falco vespertinus	Red-footed Falcon	-	VU	VU	Moderate	Some suitable habitat present on site
Geronticus calvus	Southern Bald Ibis	-	NT	NT	Low	No suitable habitat on site
Glareola nordmanni	Black-winged Pratincole	-	LC	NT	Low	No suitable habitat on site
Gyps africanus	White-backed Vulture	-	CR	CR	Low	No suitable habitat on site
Gyps coprotheres	Cape Vulture	-	VU	VU	Low	No suitable habitat on site
Hydroprogne caspia	Caspian Tern	-	VU	LC	Low	No suitable habitat on site
Leptoptilos crumenifer	Marabou Stork	-	NT	LC	Low	No suitable habitat on site
Macheiramphus alcinus	Bat Hawk	-	EN	LC	Low	No suitable habitat on site
Microparra capensis	Lesser Jacana	-	NA	LC	Low	No suitable habitat on site
Mirafra cheniana	Melodious Lark	-	NT	LC	Low	No suitable habitat on site
Mycteria ibis	Yellow-billed Stork	-	VU	LC	Low	No suitable habitat on site
Netta erythrophthalma	Southern Pochard	-	NT	LC	Low	No suitable habitat on site
Nycticorax nycticorax	Black-crowned Night Heron	-	NT	LC	Low	No suitable habitat on site
Oxyura maccoa	Maccoa Duck	-	VU	EN	Low	No suitable habitat on site
Pelecanus rufescens	Pink-backed Pelican	-	VU	LC	Low	No suitable habitat on site
Phoeniconaias minor	Lesser Flamingo	-	VU	NT	Low	No suitable habitat on site
Phoenicopterus roseus	Greater Flamingo	-	NT	LC	Low	No suitable habitat on site
Podica senegalensis	African Finfoot	-	VU	LC	Low	No suitable habitat on site
Podiceps cristatus	Great Crested Grebe	-	VU	LC	Low	No suitable habitat on site
Sagittarius serpentarius	Secretarybird	-	VU	EN	Low	No suitable habitat on site
Sarkidiornis melanotos	Knob-billed Duck	-	NT	LC	Low	No suitable habitat on site
Scopus umbretta	Hamerkop	-	NT	LC	Moderate	Some suitable habitat present on site
Thalassornis leuconotus	White-backed Duck	-	NT	LC	Low	No suitable habitat on site
Tyto capensis	African Grass Owl	-	VU	LC	Low	No suitable habitat on site

3.2 Fieldwork Findings

3.2.1 Flora Assessment

This section is divided into two sections:

- Indigenous flora; and
- Alien Invasive Plants (AIPs).

3.2.1.1 Indigenous Flora

Floral identifications were limited at the time of the field survey due to seasonal constraints (late rains resulting in dry conditions despite the survey falling within the correct season for the vegetation type) and security concerns on site which reduced the length of the field survey. However, the site survey is considered sufficient to draw a meaningful baseline and the dominant species associated with the habitats on site were identified. No flora SCC were recorded or are expected for the PAOI.

The Norite Koppies Bushveld habitat was composed of predominantly indigenous species, with some alien and invasive species recorded at the edges of the habitat unit. Some examples of the indigenous species recorded from the site can be seen presented in Figure 3-7.

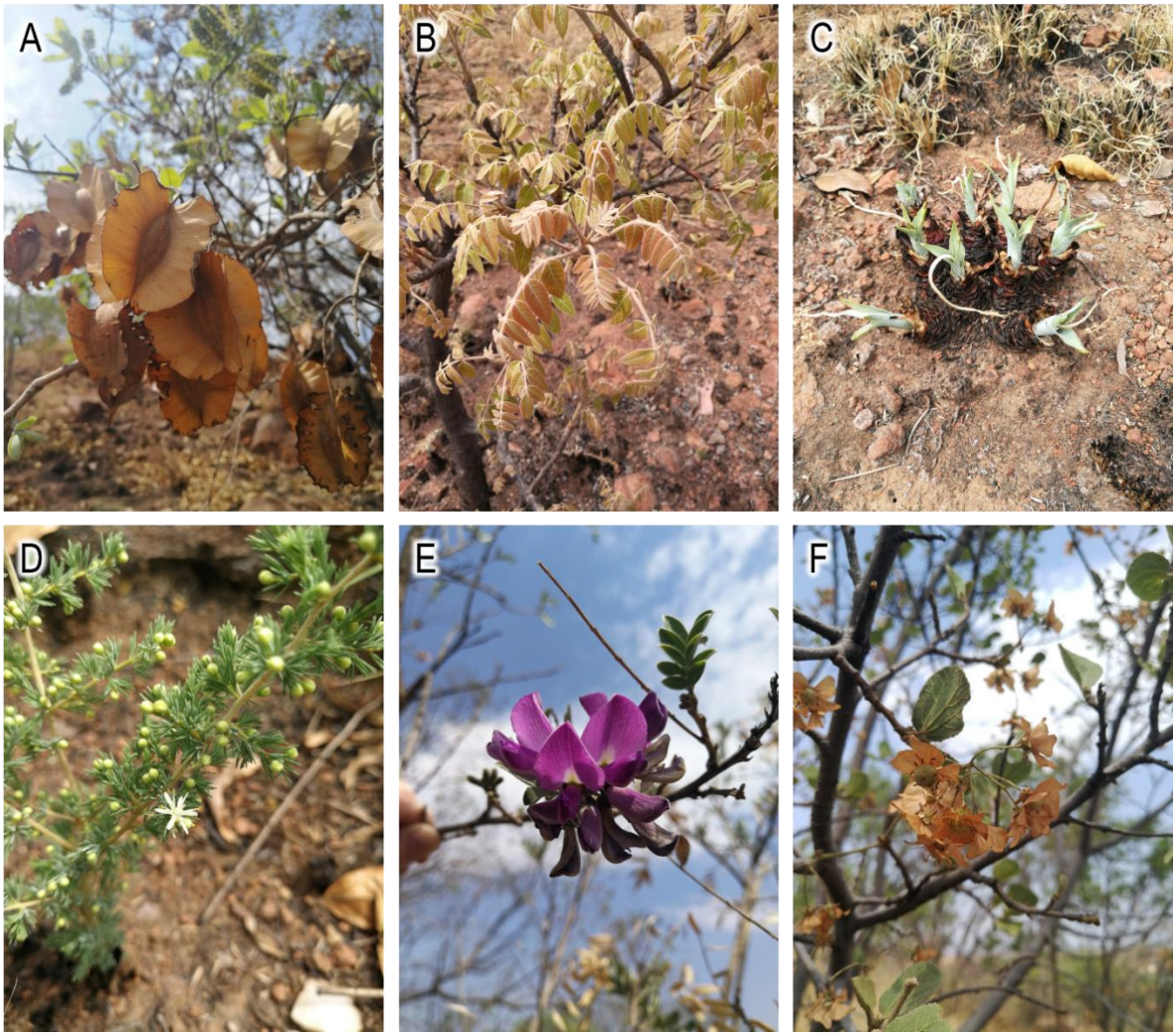


Figure 3-7 Photos illustrating some indigenous flora species recorded for the PAOI; A) Combretum zeyheri, B) Lannea discolor, C) Ledebouria confusa, D) Asparagus flavicaulis, E) Mundulea sericea and F) Dombeya rotundifolia

3.2.1.2 Alien Invasive Plants

Alien Invasive Plants (AIPs) tend to dominate or replace indigenous flora, thereby transforming the structure, composition and functioning of ecosystems. Therefore, it is important that these plants are controlled by means of an eradication and monitoring programme. Some invader plants may also degrade ecosystems through superior competitive capabilities to exclude native plant species.

The National Environmental Management: Biodiversity Act (NEMBA) is the most recent legislation pertaining to alien invasive plant species. In August 2014, the list of Alien Invasive Species was published in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) (Government Gazette No 78 of 2014). The Alien and Invasive Species Regulations were published in the Government Gazette No. 44182, 24 February 2021. 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.

Seven (7) alien species of plant were recorded from the PAOI, three (3) of which are NEMBA category 1b AIP species (Table 3-6 and Figure 3-8).

Table 3-6 Table presenting the alien and invasive species recorded for the PAOI

Family	Species	Common Name	Category
Asteraceae	*Tagetes minuta*	Kakiebos	Naturalised Exotic
Bignoniaceae	*Jacaranda mimosifolia*	Jacaranda	1b (Not listed for Urban areas in Gauteng)
Euphorbiaceae	*Ricinus communis*	Castor-Oil Plant	2
Fabaceae	*Tipuana tipu*	Tipu Tree	3
Meliaceae	*Melia azedarach*	Syringa	3
Papaveraceae	*Argemone ochroleuca*	White-flowered Mexican Poppy	1b
Solanaceae	*Datura stramonium*	Common Thorn Apple	1b

Considering that the PAOI includes bushveld habitat which likely supports a variety of indigenous species, it is recommended that any AIP species that may colonise the area in the future be controlled by implementing an AIP Management Programme in compliance of section 75 of the Act as stated above. This is also pertinent to the development as invasive species are linked to enhanced fire effects and risk (Aslan & Dickson, 2020). The AIP Management Programme must implement the following monitoring framework to ensure that AIPs are continually monitored, and progress pertaining to their control is recorded (Table 3-7). The monitoring of the PAOI throughout the process is crucial in order to prevent AIPs growing and spreading out of control, thereby threatening the wellbeing of indigenous flora and fauna. It is also important to note that while herbicide application has been recommended for control, herbicides should not be applied adjacent to the aquatic ecosystems within the site area and herbicide application should not be used during windy days to prevent drift.

Table 3-7 Proposed monitoring framework for the control of alien invasive plants within the PAOI

Metric	Frequency	Method	Response
How effective are the control methods?	4-6 months after every operation	Survey the cleared areas and look for regrowth. Before and after photographs are effective for this. Observe for non-target effects of herbicide application.	If the survey reveals that the control methods are effective, e.g., low levels of re-sprouting, continue following the herbicide mixtures and control methods. If non-target plants are dying off where herbicides were applied, ensure appropriate training for herbicide applicators, demonstrate the off-target effects to herbicide applicators to ensure they are using the correct methods and herbicides. (If the results show that the control methods are not effective, adapt by e.g., cutting lower above ground or changing herbicides or timing of herbicide application.
Do the infestation levels decrease?	Annually	Survey the cleared areas and record species, densities and size. Before and after pictures are very effective.	If the infestation levels are not decreasing, reconsider clearing intervals and look at clearing methods. If infestation levels are decreasing, then continue current control method.
Quantity of herbicides used	During every operation	Keep track of cost and ensure no wastage. Record herbicide usage	Track usage over time, it will reveal a certain trend in quantities for different infestation levels. Less herbicides should be used

			when the infestation levels are lower. Record herbicide cost.
Does the indigenous vegetation recover in the cleared areas?	Annually	Survey the cleared areas and look out for indigenous species variety and presence. Before and after pictures are effective.	If there is recovery of indigenous vegetation, then continue current control method. If there is no recovery, consider rehabilitation with local indigenous species.
How many jobs were created?	After every operation	Timesheets	Job creation figures are useful when asking for landowner assistance from WFW or to demonstrate contributions to jobs and socio-economic conditions
How many person days (PD) were spent per operations?	After every operation	Timesheets	Keep track of cost and assist with planning and budgeting. Determine cost per person per day (PD)

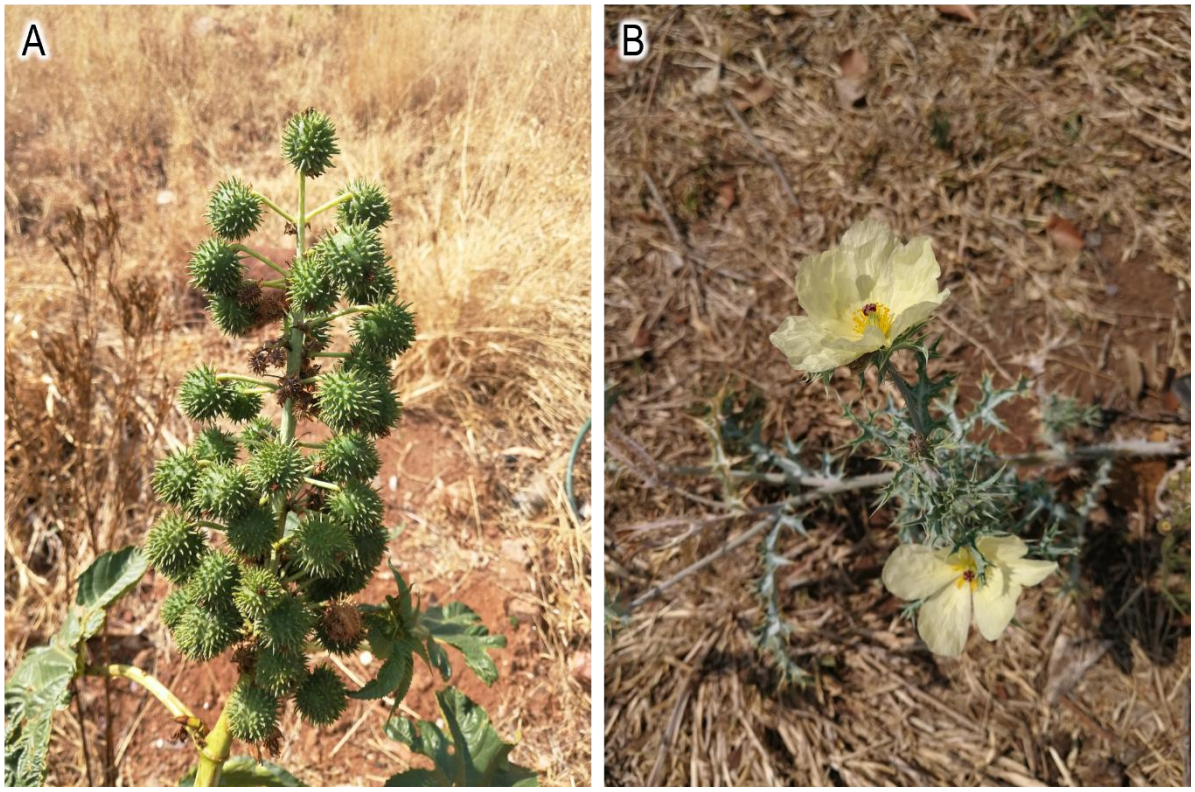


Figure 3-8 Photographs illustrating some of the alien and invasive plant species recorded from the PAOI: A) Ricinus communis and B) Argemone ochroleuca

3.2.2 Fauna Assessment

Non-volant mammal, avifauna and herpetofauna observations and recordings fall under this section.

One reptile species was recorded from the PAOI during the survey, *Trachylepis* sp. No mammal or amphibian species were recorded from the PAOI during the field survey, although common species are expected to occur. This is likely due to the small size of the site and the inherently secretive nature of these species. Fauna will most likely use broader area and PAOI as movement corridor for general habitat (refuge, hunting/feeding, etc). To yield a higher species count, long-term surveys over multiple temporal periods would be required.

Common avifauna species were recorded from the PAOI during the survey, including *Spilopelia senegalensis* (Laughing Dove), *Bostrychia hagedash* (Hadeda Ibis), *Acridotheres tristis* (Common Myna) and *Corvus albus* (Pied Crow). Additional common species are expected for the PAOI.

3.3 Habitat Assessment

Two (2) main habitat types were identified across the PAOI and include:

- Norite Koppies Bushveld; and
- Modified.

The habitat units for the PAOI can be seen delineated in Figure 3-9 and descriptions of the habitat units can be found in Table 3-8.

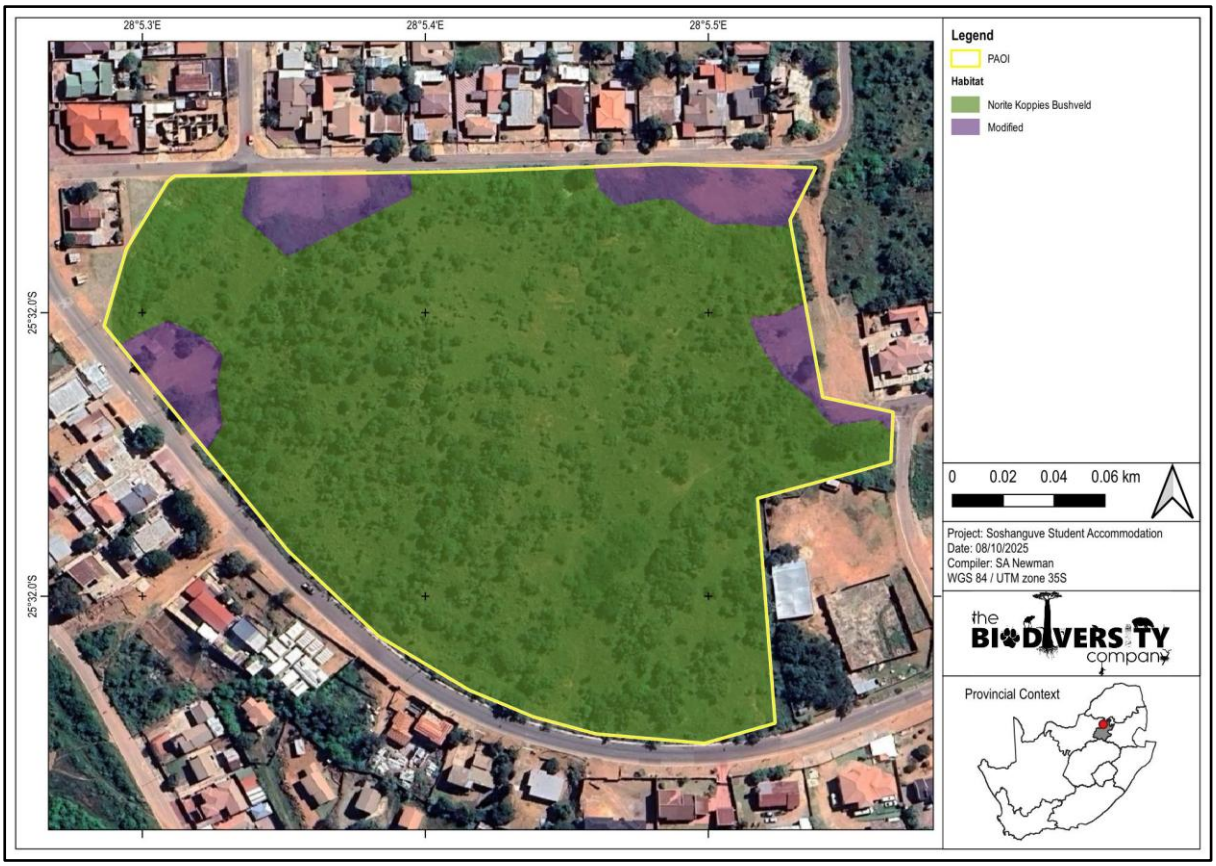


Figure 3-9 Map of the habitats delineated for the PAOI

Table 3-8 Table providing descriptions of the habitat types delineated for the PAOI

Habitat	Description and condition	Ecosystem Processes and Services
Norite Koppies Bushveld	The majority of the PAOI is made up of this habitat unit. It is characterised by semi-open woodland composed of deciduous trees and shrubs atop a rocky hill, with sparse undergrowth. The habitat unit exhibits some signs of disturbance, predominantly along its fringe. Impacts are attributed to the edge effects associated with the surrounding suburb, and include human and vehicle ingress, littering and dumping of waste, and invasions by alien and invasive plant species. Dominant tree species recorded from the PAOI include, *Combretum zeyheri, Lannea discolor, Ozoroa paniculosa, Mundulea sericea, Dombeya rotundifolia* and *Senegalia afra*. Dominant shrubs include, *Entada burkei, Asparagus flavicaulis*, and *Gymnosporia buxifolia*. Dominant herbs and succulents include, *Aloe davyana, A. marlothii, Xerophyta retinervis, Ledebouria confusa*, and *Nidorella hottentotica*. Although small, that habitat offers an important 'green space' for fauna passing through this suburban area between the other ESAs in the area. This habitat unit overlaps with a Class 3 Gauteng Ridge and an ESA 1. No fauna or flora SCC were recorded from this habitat, and none are expected.	Provides refuge, grazing and foraging resources for indigenous fauna. Aids in the filtration of water permeating through the soil into the drainage areas. Rocky areas support soil formation and stabilisation by reducing erosion. These rocky areas also offer unique microclimates and refuge for specialised plants and animals, contributing to biodiversity. This habitat acts as an important carbon sink through the growth of hardy, slow-growing vegetation. This habitat serves as an important rest point for fauna dispersing within the landscape. Habitat is used by faunal species and is important for several life stages.
		
Modified	This habitat unit includes all areas that maintain little to no native vegetation and/or where anthropogenic activity has substantially modified an area's primary ecological functions and species composition. This habitat unit no longer maintains its functional integrity and does not contribute significantly to ecosystem services. This habitat unit is predominantly composed of areas of bare ground, likely attributed to the parking of vehicles.	The ecological services provided by this habitat are limited due to the extent of land transformation and the large amount of bare ground.

	No fauna or flora SCC were recorded for this habitat unit, and none are expected.

3.4 Site Ecological Importance

Based on the criteria provided in Appendix B of this report, all habitats within the PAOI were assigned a sensitivity category, i.e., a SEI category. The PAOI was categorised as possessing habitats with areas ranging from 'Very Low' to 'Medium' SEI (Table 3-9). This indicates that the findings of this assessment are contrary to the Screening Tool with respect to the Combined Terrestrial, Plant and Animal Species Theme sensitivity. The SEI of the PAOI with mitigations applied is illustrated in Figure 3-10.

Table 3-9 Summary of habitat types delineated within field assessment area

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
Norite Koppies Bushveld	**Medium**	**Low**	**Low**	**Low**	**Medium**
	> 50% of receptor contains natural habitat with potential to support SCC	Small (> 1 ha but < 5 ha) area		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	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Modified	**Very Low**	**Very Low**	**Very Low**	**High**	**Very Low**
	No natural habitat remaining.	Several major current negative ecological impacts.		Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

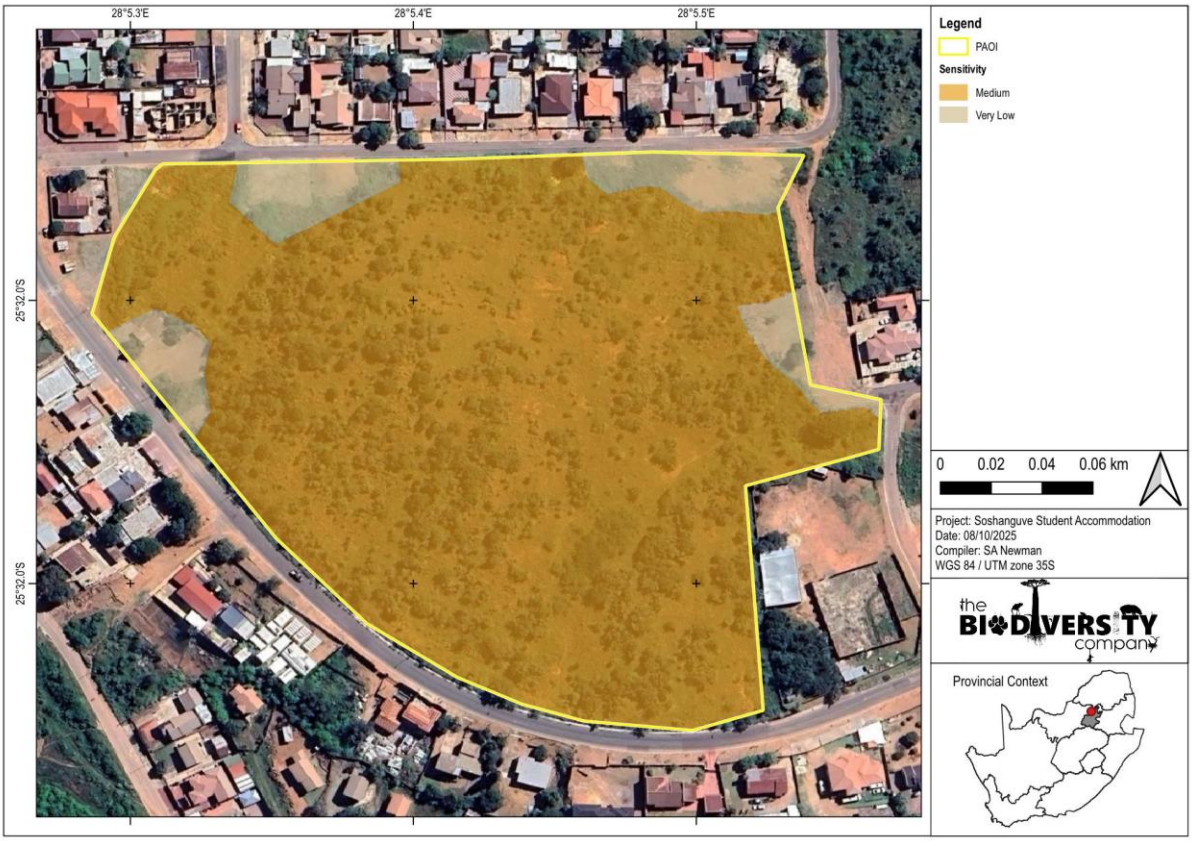


Figure 3-10 Site Ecological Importance of the PAOI

3.4.1 Desktop Ecological Sensitivity

The following is deduced from the National Web-based Environmental Screening Tool Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended):

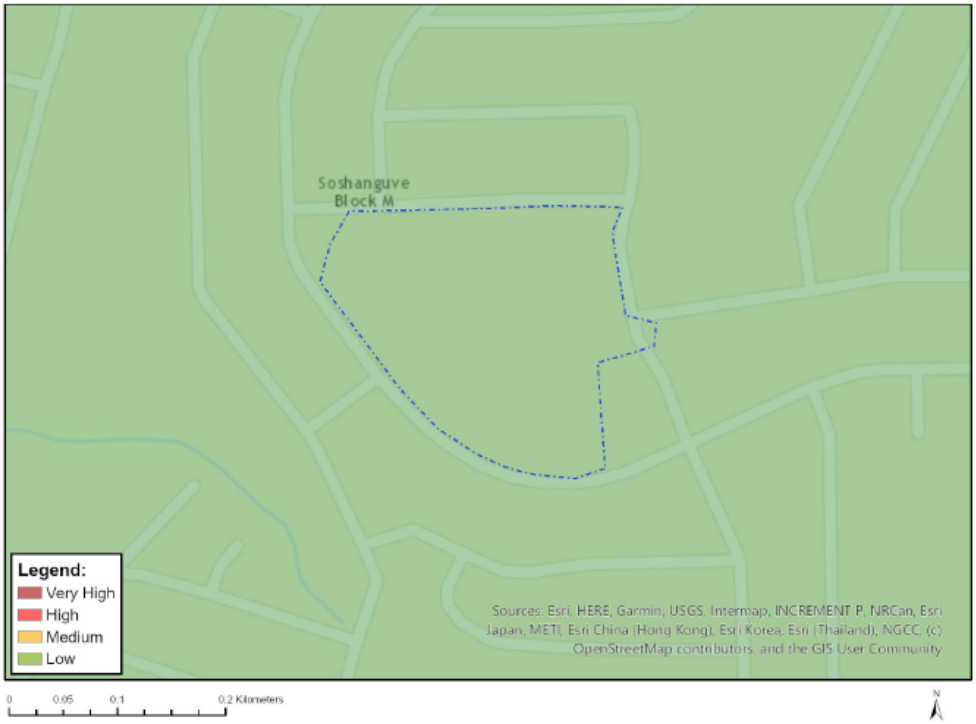
- Terrestrial Biodiversity Theme sensitivity is Very High for the proposed development area, due to it overlapping with an ESA 1 (Figure 3-11);
- Plant Species Theme sensitivity is Low due the unlikely presence of plant SCC (Figure 3-12); and
- Animal Species Theme sensitivity is Medium due to the possible presence of two (2) medium sensitivity mammal species and one (1) medium sensitivity reptile species (Figure 3-13).

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Very High	ESA 1

Figure 3-11 Terrestrial Biodiversity Theme sensitivity



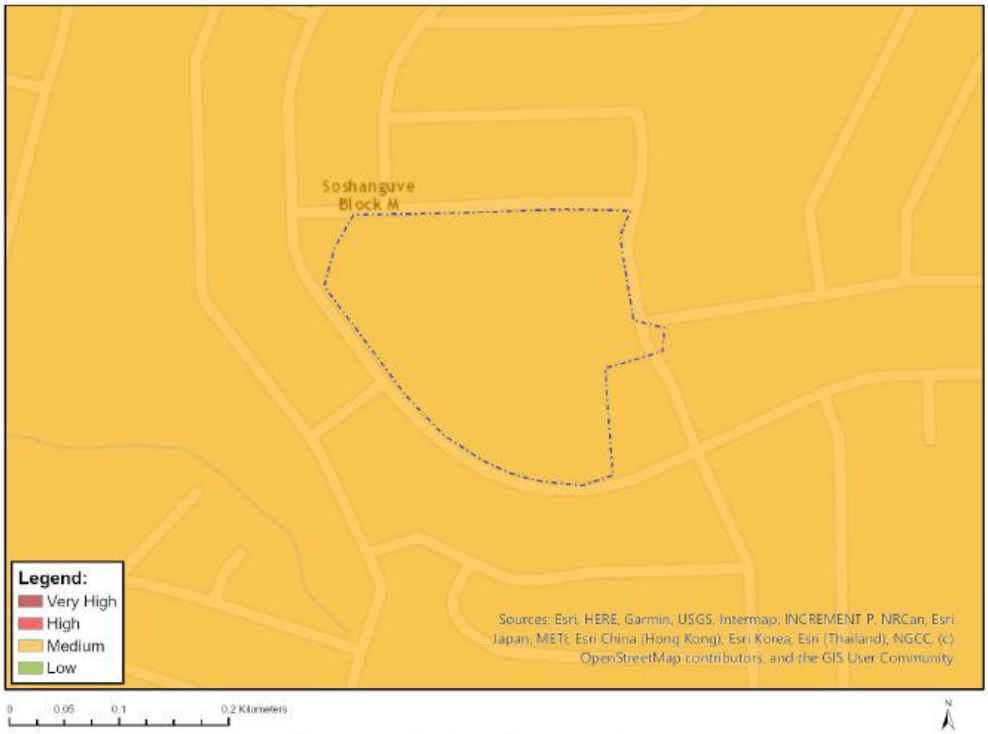
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

Figure 3-12 Relative Plant Species Theme Sensitivity



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Neamblysomus julianae
Medium	Reptilia-Kinixys lobatsiana

Figure 3-13 Relative Animal Species Theme Sensitivity

3.4.2 Screening Tool Comparison

The allocated sensitivities for each of the relevant themes are either disputed or validated for the assessed areas in Table 3-10 below. A summative explanation for each result is provided as relevant. The specialist-assigned sensitivity ratings are based largely on the SEI process followed in the previous section, and consideration is given to any observed or likely presence of SCC or protected species.

Table 3-10 Summary of the screening tool vs specialist assigned sensitivities

Screening Tool Theme	Screening Tool	Habitat	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Animal Theme	**Medium**	**-**	**Low**	Disputed – No fauna SCC observed, and none expected for the PAOI.
Plant Theme	**Low**	**-**	**Low**	Validated – No flora SCC recorded and none are expected for the PAOI.
Terrestrial Theme	**Very High**	**Norite Koppies Bushveld**	**Medium**	Disputed – Habitat is largely intact with some disturbance associated with the surrounding suburb and high levels of human presence, but due to its small size and isolation from the surrounding landscape, it offers only limited ecosystem services. However, it offers a valuable contribution to urban 'green spaces' when considered in conjunction with the other green belts in the area.
		Modified	**Very Low**	Disputed – Areas have been modified and have lost most of their ecological functionality.

4 Impact Risk Assessment

4.1 Biodiversity Risk Assessment

Anthropogenic activities drive habitat destruction causing displacement of fauna and flora, and possibly direct mortality. Land clearing destroys local wildlife habitat and can lead to the loss of local breeding grounds, nesting sites and wildlife movement corridors, such as rivers, streams and drainage lines, or other locally important features. The removal of natural vegetation may reduce the habitat available for fauna species and may reduce animal populations and species compositions within the area.

Potential impacts were evaluated against the data captured during the desktop and field assessment to identify relevance to the PAOI. The relevant impacts associated with the proposed construction and operation of the development were then subjected to a prescribed impact assessment method. Impacts were assessed in terms of the construction and operational phases. The operational phase refers to that phase of the project where the construction has been completed. The project activities are set to be long lasting, and a closure phase was not assessed for that reason. It should be noted that the impacts described are not exhaustive, and more impacts may be identified at a later stage. Mitigation measures were only applied to impacts deemed relevant based on the impact analysis.

Impacts were assessed for the following activities:

- Construction Phase; and
- Operational Phase.

4.2 Present Impacts to Biodiversity

Considering the anthropogenic activities and influences within the landscape, several negative impacts to biodiversity were observed within the PAOI (Figure 4-1). These include:

- Human and vehicle ingress;
- Invasions and infestations by alien and invasive plants;
- Littering and dumping of waste; and
- Edge effects associated with the surrounding suburb.

Figure 4-1 Photographs illustrating current negative impacts associated within the PAOI: A) Dumping of waste, B) Littering (broken glass) and C) Edge effects associated with surrounding suburb and roads

4.3 Alternatives Considered

No alternatives were considered.

4.4 Irreplaceable Loss

Any development of the PAOI could result in the irreplaceable loss of:

- Class 3 Gauteng Ridge;
- ESA 1;
- Potential protected species; and
- Indigenous vegetation.

4.5 Identification of Additional Potential Impacts

The following potential activities and potential impacts are expected. A summary of the potential impacts during the construction and operational phases of the proposed activity are presented in Figure 4-1.

Table 4-1 Summary of potential impacts to biodiversity associated with the proposed activity

Main Impact	Project Activities	Secondary Impacts Anticipated
Loss of indigenous habitat	• Direct loss as a result of construction and operation of the proposed development. • Secondary impacts associated with noise, dust and influx of AIPs into these areas. • Prevention of fires or incorrect fire regimes. • Improper solid waste disposal • Dust precipitation.	• Habitat fragmentation. • Loss of ecosystem services. • Emigration of fauna species, potentially including SCC. • Increased potential for soil erosion. • Habitat fragmentation. • Increased potential for establishment of alien invasive vegetation.
Encroachment of AIP species in disturbed areas.	• Vegetation removal. • Soil disturbance. • Vehicles potentially spreading seed. • Unsanitary conditions surrounding infrastructure promoting the establishment of alien and/or invasive rodents.	• Habitat loss for native flora & fauna (including potential SCC). • Alteration of fauna assemblages due to habitat modification. • Reduced forage quality of grazing habitat. • Spreading of potentially dangerous diseases.
Direct mortality of fauna species.	• Clearing of vegetation. • Roadkill due to vehicle collision. • Preparation of soil with heavy machinery • Soil excavations and soil transportation. • Intentional killing of fauna for food (hunting) or persecution (especially with regard to herpetofauna). • Pollution of water resources due to spilling of hazardous chemicals from heavy machinery during construction. • Collisions of volant fauna with overhead powerlines.	• Loss of ecosystem services. • Explosion of rodent populations and associated disease risk.
Emigration of fauna	• Disturbance from construction activities. • Loss of habitat and degradation of surrounding habitats.	• Reduced population of protected species, and potentially SCC • Loss of ecosystem services.
Reduced dispersal/migration of fauna	• Removal of vegetation	• Loss of ecosystem services • Reduced plant seed dispersal.
Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise, light and dust	• Operation of machinery (generators, crushers, vehicles). • Vehicles operating at night. • Large, intense fluorescent and mercury vapor lighting.	• Loss of ecosystem services.
Loss of SCCs and/or protected species	• All unregulated/unsupervised activities outdoors. • Poaching and trapping • Staff and others interacting directly with fauna (potentially dangerous), or flora.	• Loss of SCC. • Harm to people (dangerous fauna).

4.6 Quantitative Impact Assessment

The standard impact assessment methodology may be used in the capture of generic anticipated impacts and potential mitigation measures for Basic Assessment Reports and Environmental Impact Assessment (EIA) Reports. The methodology described herein complies with the requirements of the EIA Regulations (2014), promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998). The impacts assessed here as assessed based on the loss of the full area of the site as well as all habitats present.

The purpose of the impact assessment is to:

- Assess impacts of proposed activities on biodiversity of the proposed development area;
- Assess whether proposed activities are likely to have significant impacts on biodiversity and specifically species of conservation concern; and
- Identify practical, implementable mitigation measures to reduce the significance of proposed activities on biodiversity.

It is important to note that the ratings applied within the risk assessment model, considered impacts to open space or natural habitats within the development area and not for areas already transformed. Overhead powerlines and access roads were not assessed as part of this impact assessment. Should new access roads and overhead powerlines be proposed, they must be assessed separately.

4.6.1 Construction Phase

The following potential main impacts on the biodiversity (based on the framework above) were considered for the construction phase of the proposed development (Table 4-2). This phase refers to the period during construction when the proposed features are constructed; and is considered to have the largest direct impact on biodiversity. The following potential impacts to terrestrial biodiversity were considered:

- Degradation, destruction and fragmentation of portions of sensitive habitats;
- Displacement of faunal community due to habitat loss direct mortalities and disturbance (road collisions, noise, dust, vibration and poaching); and
- Introduction of AIP species and invasive fauna.

The mitigation measures required to lower the significance of these impacts are also provided in section 4.7 of this report.

Table 4-2 Impacts to biodiversity associated with the proposed construction phase

Impact	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
			Prior to mitigation			
Degradation, destruction and fragmentation of portions of sensitive habitats	5	2	4	3	5	**Moderately High**
	Permanent	Development specific/ within the site boundary / < 100 ha impacted	Great / harmful/ ecosystem structure and function largely altered	Ecology moderately sensitive/ /important	Definite	
			Post mitigation			
	5	1	4	3	5	**Moderately High**
	Permanent	Activity specific/ < 5 ha impacted / Linear features	Great / harmful/ ecosystem structure and function	Ecology moderately sensitive/ /important	Definite	

Impact	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
		affected < 100m	largely altered			
Displacement of faunal community due to habitat loss direct mortalities and disturbance (road collisions, noise, dust, vibration and poaching)	**Prior to mitigation**					
	5	2	4	3	5	**Moderately High**
	Permanent	Development specific/ within the site boundary / < 100 ha impacted	Great / harmful/ ecosystem structure and function largely altered	Ecology moderately sensitive/ /important	Definite	
	Post mitigation					
	5	1	3	3	4	**Moderate**
	Permanent	Activity specific/ < 5 ha impacted / Linear features affected < 100m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Highly likely	
Introduction of AIP species and invasive fauna	**Prior to mitigation**					
	5	2	3	3	4	**Moderate**
	Permanent	Development specific/ within the site boundary / < 100 ha impacted	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Highly likely	
	Post mitigation					
	3	1	2	3	2	**Low**
	One year to five years: Medium Term	Activity specific/ < 5 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Possible	

4.6.2 Operational Phase

It is anticipated that daily activities associated with the operation phase will lead to further spread the AIP, as well as the deterioration of the habitats due to the increase of foot traffic, dust and edge effect impacts (Table 4-3). Dust reduces the ability of plants to photosynthesise and thus leads to degradation/retrogression of the veld. Moving maintenance vehicles do not only cause sensory disturbances to fauna, affecting their life cycles and movement, but will lead to direct mortalities due to collisions. Operation will continue to have an effect on erosion of the site with continued disturbance of natural water flow regimes, resulting in a further loss of habitats.

The following potential impacts were considered:

- Continued fragmentation and degradation of ecosystems;
- Ongoing displacement and direct mortalities of faunal community due to disturbance (road collisions, noise, light, dust and vibration); and
- Spread of alien invasive species and reduction of habitat integrity.

The mitigation measures required to lower the significance of these impacts are also provided in section 4.7 of this report.

Table 4-3 Impacts to biodiversity associated with the proposed operational phase

Impact	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Continued fragmentation and degradation of ecosystems	**Prior to mitigation**					
	5	2	2	2	5	**Moderate**
	Permanent	Development specific/ within the site boundary / < 100 ha impacted	Small / ecosystem structure and function largely unchanged	Ecology with limited sensitivity/importance	Definite	
	Post mitigation					
	5	1	2	2	3	**Low**
	Permanent	Activity specific/ < 5 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology with limited sensitivity/importance	Likely	
Ongoing displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, noise, light, dust and vibration)	**Prior to mitigation**					
	5	2	2	2	4	**Moderate**
	Permanent	Development specific/ within the site boundary / < 100 ha impacted	Small / ecosystem structure and function largely unchanged	Ecology with limited sensitivity/importance	Highly likely	
	Post mitigation					
	5	1	2	2	3	**Low**
	Permanent	Activity specific/ < 5 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology with limited sensitivity/importance	Likely	
Spread of alien invasive species and reduction of habitat integrity	**Prior to mitigation**					
	5	3	3	2	4	**Moderate**
	Permanent	Local area/ within 1 km of the site	Significant / ecosystem structure	Ecology with limited	Highly likely	

Impact	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
		boundary / < 5000ha impacted	and function moderately altered	sensitivity/importance		
	Post mitigation					
	3	1	2	2	2	
	One year to five years: Medium Term	Activity specific/ < 5 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology with limited sensitivity/importance	Possible	**Absent**

4.6.3 Cumulative Impacts

The impacts of projects are often assessed by comparing the post-project situation to a pre-existing baseline. Where projects can be considered in isolation this provides a good method of assessing a project's impact. However, in areas where baselines have already been affected, or where future development will continue to add to the impacts pre-existing in an area or region, it is appropriate to consider the cumulative effects of development or disturbance activities. This is similar to the concept of shifting baselines, which describes how the environmental baseline at a specific point in time may actually represent a significant change from the original state of the system. This section describes the potential cumulative impacts of the project on local fauna and flora specifically.

Cumulative impacts are assessed within the context of the extent of the proposed PAOI, other similar developments and activities in the area (existing and in-process), and general habitat loss and transformation resulting from any other activities in the area. Localised cumulative impacts include those from operations that are close enough (within 30 km) to potentially cause additive effects on the local environment or any sensitive receptors. Relevant impacts include the overall reduction of foraging and habitat where reproduction takes place, dust deposition, noise and vibration, disruption of functional corridors of habitat important for movement and migration, disruption of waterways, groundwater drawdown, increase risk of collisions; and groundwater and surface water quality depletion.

Long-term cumulative impacts associated with the site development activities can lead to the loss of endemic and threatened species, including natural habitat and vegetation types, and these impacts can even lead to the degradation of conserved areas such as the adjacent game parks and reserves. In order to spatially quantify the cumulative effects of the proposed development, the project in isolation is compared with the overall effects of surrounding developments.

A total area of 30 km surrounding the PAOI was used to assess the total habitat loss in the area and subsequently the cumulative impact. To determine the intact remnant habitat the RLE (2021) remnant spatial data was utilised. To remove any duplication, only the areas that overlap with the remnant areas were considered. The total cumulative loss was found to be 57.26% Table 4-4 outlines the calculation procedure for the spatial assessment of cumulative impacts and Figure 4-2 presents the cumulative habitat loss.

Table 4-4 The cumulative impacts considered

Total Area of 30 km²	Intact Remnant Habitat	Total Disturbed/Transformed habitat	Percentage area lost
281 025.54 ha	120 096.31 ha	160 929.23 ha	57.26%

The proposed project in isolation has a Negative Low impact significance (Table 4-5). In consideration of the aforementioned information, the cumulative impact was determined to be of a Negative Moderate significance.

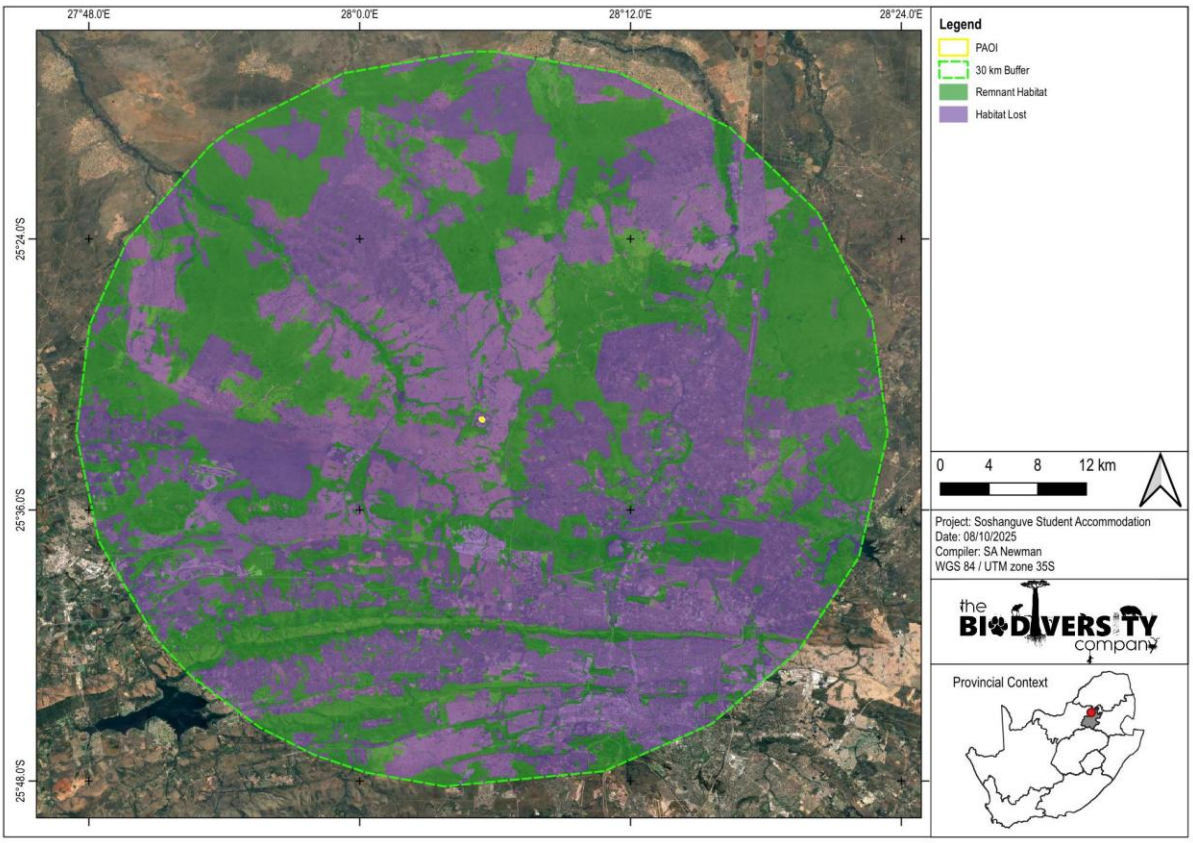


Figure 4-2 Cumulative habitat loss in 30 km surrounding the PAOI

Table 4-5 Cumulative impact assessment for the project

Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Project in Isolation					
5	1	2	3	3	**Low**
Permanent	Activity specific/ < 5 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Likely	
Project and Surrounding Impacts					
5	4	2	3	3	**Moderate**
Permanent	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Likely	

4.7 Biodiversity Management Objectives

The purpose of the management objectives is to inform on the mitigations required to lower the risk of the impacts associated with the proposed activity, provide measures for improving the conservation value of the property and to be able to be inserted into the Environmental Management Programme (EMPr).

4.7.1 Construction Phase

The mitigation actions required to reduce the significance of the impacts associated with the development during the Construction Phase are provided below. Table 4-6 provides the management objectives pertaining to habitats and vegetation, Table 4-7 provides the management objectives pertaining to alien and invasive vegetation and Table 4-8 provides the management objectives pertaining to fauna.

Table 4-6 Summary of management objectives pertaining to impacts to habitats and vegetation associated with the proposed development during the construction phase

Anticipated Impact	**Destruction, further loss and fragmentation of the of habitats, ecosystems and vegetation community**
Mitigation Objective	**Avoidance / minimisation of the disturbance and degradation of vegetation and ecosystems**
Mitigation	**Action/control**
• According to the 2025 Ridges Guideline, the guidelines for Class 2 ridges will be applied to areas of the Class 3 Ridge that have not been significantly impacted (non-significant impact) on by human activity. The guidelines for Class 4 ridges will be applied to areas of the ridge that have been significantly impacted on by human activity. In accordance with this, the following should be applied to the natural portions of the ridge: o Low impact development activities, such as tourism facilities, which comprise of an ecological footprint of 5% or less of the property may be supported. (The ecological footprint includes all areas directly impacted on by a development activity, including all paved surfaces, landscaping, property access and service provision). o Low impact development activities on a ridge will not be supported where it is feasible to undertake the development on a portion of the property abutting the ridge. The following should be applied to portions of the ridge where transformation has occurred: o Further development activities will not be supported in areas of the ridge where the remaining contiguous extent of natural habitat is 4ha or more. • Vehicles and personnel must make use of authorised access routes only. • Roads and road edges should be designed to facilitate faunal movement. These movement corridors must be in the designated areas, and well sign-posted with speed controls enforced.	

Table 4-7 Summary of management objectives pertaining to impacts caused by alien and invasive vegetation associated with the proposed development during the construction phase

Anticipated Impact	**Introduction of alien and invasive species, especially plants**
Activity/risk source	**Land clearing, fire and dust.**
Mitigation Objective	**Avoidance / minimisation of the disturbance and degradation of vegetation and ecosystems**
Mitigation	**Action/control**
• Compile and implement an alien vegetation management plan from the onset of construction. The plan must identify areas for action (if any) and prescribe the necessary removal methods and frequencies to be applied. This plan must also include a monitoring plan and be updated as/when new data is collated. • Implement a stormwater management plan for all developable areas. • Implementation of a waste management plan. • Temporary storage of domestic waste shall be in covered waste skips.	

- Removal of domestic waste on a regular basis, no overspill is permitted

Table 4-8 Summary of management objectives pertaining to impacts to fauna associated with the proposed development during the construction phase

Anticipated Impact	**Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, dust, vibration and poaching)**
Activity/risk source	**Land clearing, Fire and human presence as well as roads.**
Mitigation Objective	**Avoidance / minimisation of the disturbance and mortality of fauna**
Mitigation	**Action/control**

- Clearly mark construction zones to prevent impact on surrounding areas, using physical barriers like safety tape and signs instead of painted lines.
- Prior to vegetation clearing activities, the area to be cleared should be walked on foot by 1-2 individuals to create a disturbance in order for fauna to move off. Disturbance must occur as soon before vegetation clearing as possible and no unnecessary disturbance to the area is permitted
    - Any tortoises present should be removed from the affected areas before the start of site clearing/ construction and relocated to safe areas of natural habitat outside the PAOI.
    - Any fauna threatened by the construction activities should be removed safely by an appropriately qualified environmental officer or removal specialist.
- Construction should take place during the dry season (May -July) as much as feasible, especially considering the fauna and their movement.
- Safely relocate any wildlife at risk from construction activities with the help of a qualified environmental officer or specialist.
- Limit construction vehicle speeds to 40 km/h or the national speed limit to prevent accidents, and install appropriate speed control measures and signage.
    - Driving on access roads at night should be restricted to maximum 20 km/h or the national speed limit to reduce or prevent wildlife road mortalities which occur more frequently during this period.
- Wildlife-permeable fencing with holes large enough for mongoose and other smaller mammals should be installed, the holes must not be placed in the fence where it is next to a major road as this will increase road killings in the area.
    - ClearVu fencing should be used, with markers placed on the fence to enhance visibility. Additionally, 30 cm by 30 cm openings must be incorporated at the bottom of the fence to facilitate the free movement of ground-dwelling species.
- Minimise the time between clearing an area and starting development to prevent wildlife from returning to disturbed sites.
- Conduct excavations progressively and cover any open holes overnight to prevent wildlife from falling in. Inspect these areas before backfilling.
- Focus work on one area at a time to reduce the extent of on-site activities, allowing wildlife to relocate as the project progresses. This helps smaller animals find refuge in nearby undisturbed areas.
- Implement noise and light mitigation measures for any nighttime construction activities to minimise disturbances to nocturnal species expected in the area.
- Require all personnel and contractors to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions The training must include.
    - All personnel should undergo environmental induction with regards to avifauna and in particular awareness about not harming, collecting, or hunting terrestrial species, and owls, which are often persecuted out of superstition. Signs must be put up to enforce this.
- Where possible, instead of clearing the entire area at once, work on specific sections as needed. This approach involves focusing on one area at a time and following a systematic process. By doing so, the amount and scope of on-site activities are minimised, which allows wildlife to gradually relocate as the project advances. This method provides smaller birds, mammals, and reptiles the opportunity to cope with the disturbance by staying in nearby undisturbed areas that are close to their natural habitats.

4.7.2 Operational Phase

The mitigation actions required to reduce the significance of the impacts associated with the development during the Operational Phase are provided below. Table 4-9 provides the management objectives pertaining to habitats and vegetation, Table 4-10 provides the management objectives

pertaining to alien and invasive vegetation and Table 4-11 provides the management objectives pertaining to fauna.

Table 4-9 Summary of management objectives pertaining to impacts to habitats and vegetation associated with the proposed development during the operational phase

Anticipated Impact	**Continued fragmentation and degradation of habitats and ecosystems**
Activity/risk source	**Dust, unregulated clearing, IAP plant proliferation and edge effects**
Mitigation Objective	**Avoidance / minimisation of the disturbance and degradation of vegetation and ecosystems**
Mitigation	**Action/control**
• The natural portions of the Class 3 Gauteng Ridge that overlaps the property must be maintained as a natural 'green space' and controlled for alien and invasive plant species. • Restrict all activities to authorised footprint areas only. • Implement stormwater management plan. • Address any observed erosion promptly using suitable erosion control structures and revegetation methods. • Conduct follow-up rehabilitation and re-vegetation of any bare areas with local indigenous grasses, shrubs, and trees.	

Table 4-10 Summary of management objectives pertaining to impacts caused by alien and invasive vegetation associated with the proposed development during the operational phase

Anticipated Impact	**Spread of alien and/or invasive species**
Activity/risk source	**Cleared Areas, laydown areas, fire and dust.**
Mitigation Objective	**Avoidance / minimisation of the disturbance and degradation of vegetation and ecosystems**
Mitigation	**Action/control**

• Develop and execute a plan for managing alien vegetation.
  ○ Conduct regular checks for alien invasive plant (AIP) encroachment during the operational phase to prevent alien invasion issues due to disturbances. Monitoring should occur every three months for the first two years and every six months thereafter for the project's duration.
  ○ Remove or control all AIP species using the appropriate methods outlined in the AIP management plan.
• Create and implement a Solid Waste Management Plan. Prioritise waste management by ensuring all waste is collected, stored, and disposed of properly. It is recommended to remove waste from the site at least weekly.
• Implement a pest control plan, ensuring that no poisons are used.	

Table 4-11 Summary of management objectives pertaining to impacts to fauna associated with the proposed development during the operational phase

Anticipated Impact	**Ongoing displacement and direct mortalities of faunal community (including SCC) due to disturbance (road collisions, noise, light, dust, vibration)**
Activity/risk source	**Human presence as well as roads**
Mitigation Objective	**Avoidance / minimisation of the disturbance and mortality of fauna**
Mitigation	**Action/control**
• Design and limit outdoor lighting to reduce its impact on wildlife. Use fixtures with baffles, hoods, or louvres, directing light downward and away from sensitive areas like wetlands. Avoid fluorescent and mercury vapor lights, opting for sodium vapor (yellow) lights whenever possible. • Utilise motion detection lighting where feasible to minimise unnecessary illumination. • Keep noise levels low from dusk to dawn to avoid disturbing amphibians and nocturnal mammals. • Safely relocate any wildlife threatened by maintenance and operational activities with the help of a qualified individual.	

4.7.3 Generic Management Actions

The generic mitigation actions required to reduce the significance of the impacts associated with the development can be seen presented in Table 4-12.

Table 4-12 Summary of the generic management objectives associated with the proposed development

Mitigation: Action/control

• Demarcate work areas during the construction phase to avoid affecting outside areas. Use physical barriers e.g., safety tape, not painted lines, and use signage.
• All activities must make use of existing roads and tracks as far as practically and feasibly possible. No new roads or servitudes should be constructed where existing infrastructure can be used.
• Do not clear areas of indigenous vegetation outside of the direct project footprint.
• Minimise vegetation clearing to the minimum required.
• Compile and implement a revegetation plan from the onset of the project.
• Revegetate areas as soon as they are no longer impacted by construction.
  o The rehabilitated areas must be revegetated with indigenous vegetation.
• Progressive revegetation will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank. Surplus rehabilitation material can be applied to other others in need of stabilisation and vegetation cover.
• Environmental Officer (EO) to provide supervision and oversight of vegetation clearing activities.
• Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and bare (unvegetated) areas.
  o Reduce the dust generated by operational vehicles and earth moving machinery, through wetting the soil surface and putting up signs to enforce speed limits to enforce reduced speeds.
  o No non-environmentally friendly suppressants may be used as this could result in pollution of water sources
• Implementation of a waste management plan, this plan must also prescribe a monitoring plan and be updated as/when new data is collated. Waste management must be a priority and all waste must be collected, stored and disposed of adequately. It is recommended that all waste be removed from site on a weekly basis (as a minimum) to prevent rodents and pests entering the site.
  o Refuse bins will be emptied and secured.
  o Temporary storage of domestic waste shall be in covered waste skips.
  o Maximum domestic waste storage period will be 7 days.
• A pest control plan must be put in place and implemented; it is imperative that poisons not be used.
• Prohibit staff from bringing any alien plant species into the PAOI or taking any indigenous species out of the PAOI outside of revegetation and landscaping activities. This includes both indigenous and exotic plants to prevent the spread of invasive species and illegal plant collection.
• Develop and strictly adhere to a Revegetation Plan for the development area that incorporates indigenous vegetation. This may be compiled by a landscaper.
• Cement must be mixed in a designated area on a liner away from water sources and buffers and that successful rehabilitation of the construction areas can take place.
• Leaking equipment and vehicles must be repaired immediately or be removed from project area to facilitate repair.
• 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.
  o Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.
  o No servicing of equipment on site unless necessary.
  o All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers.
  o Appropriately contain any generator diesel storage tanks, machinery spills (e.g., accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them from leaking and entering the environment.
  o Construction activities and vehicles could cause spillages of lubricants, fuels and waste material negatively affecting the functioning of the ecosystem.
  o All vehicles and equipment must be maintained, and all re-fuelling and servicing of equipment is to take place in demarcated areas outside of the PAOI.

5 Conclusion

The completion of a comprehensive desktop study, in conjunction with the results from the field survey, suggests there is a medium-high confidence in the information provided. The survey ensured that there was suitable ground-truth coverage of the open-spaces and natural habitats, and ecosystems were assessed to obtain a general species (fauna and flora) overview and the major current impacts were observed.

Most of the PAOI is made up of Norite Koppies Bushveld habitat which has experienced varying degrees of disturbance, mainly attributed to invasions and infestations by alien and invasive species, human ingress, littering and the dumping of waste. No flora or fauna SCC were confirmed for the PAOI during the assessment, and none are expected for the site.

The PAOI was identified with the screening tool as possessing a 'Very High' sensitivity within a Terrestrial Biodiversity context, with the PAOI made up of ESA 1 areas, as well as overlapping with a Class 3 Gauteng Ridge. However, the outcome of the SEI assessment suggests that the following sensitivities should be applied, as outlined in Table 5-1.

Table 5-1 Table presenting the habitats within the PAOI and their respective sensitivities

Habitat	SEI	Developability
Norite Koppies Bushveld	Medium	Avoidance mitigation on the natural portions of the Class 3 Ridge, and mitigated development permitted outside the ridge.
Modified	Very Low	Mitigated development permitted, with concurrent revegetation.

The ecological integrity, importance and functioning of the Norite Koppies Bushveld habitat plays a crucial role and is an important habitat for various fauna and flora. The preservation of this system is the most important aspect to consider for the proposed project. This habitat need to be protected and improved due to the role they play in a fragmented landscape.

Development in 'Medium' sensitivity areas for the project footprint must demonstrate minimisation and restoration mitigation as much as possible (retain vegetation, limited development of these areas, etc.). According to the 2025 Ridges Guidelines (GDARD), the guidelines for Class 2 ridges will be applied to areas of the ridge that have not been significantly impacted (non-significant impact) on by human activity. The guidelines for Class 4 ridges will be applied to areas of the ridge that have been significantly impacted on by human activity. In accordance with this, the following should be applied to the natural portions of the Ridge:

- Low impact development activities, such as tourism facilities, which comprise of an ecological footprint of 5% or less of the property may be supported. (The ecological footprint includes all areas directly impacted on by a development activity, including all paved surfaces, landscaping, property access and service provision).

- Low impact development activities on a ridge will not be supported where it is feasible to undertake the development on a portion of the property abutting the ridge.

The following should be applied to portions of the ridge where transformation has occurred:

- Further development activities will not be supported in areas of the ridge where the remaining contiguous extent of natural habitat is 4ha or more.

A map illustrating the PAOI in relation to the Gauteng Ridges can be seen in Figure 5-1.

5.1 Impact Statement

No fatal flaws were identified for the project. The overall residual impact was determined to be moderately high-low during the construction phase and low during the operational phase (provided that the natural portions of the Class 3 Gauteng Ridge are avoided). It is the opinion of the specialist that the proposed development is favourable for authorisation provided the mitigation measures outlined in this report are implemented correctly, as well as the recommendations listed below. The Competent Authority must consider all mitigation measures provided in this report for the authorisation.

5.2 Specialist Opinion

The overall low cumulative residual impact does not present a fatal flaw for the development. Considering the above-mentioned information, no fatal flaws are evident for the proposed project. The following conditions may be considered by the Competent Authority for the authorisation:

1) Low impact development activities, such as tourism facilities, which comprise of an ecological footprint of 5% or less of the property may be supported on portions of the Class 3 Ridge that have not been significantly impacted on by human activity. Low impact development activities on a ridge will not be supported where it is feasible to undertake the development on a portion of the property abutting the ridge;

2) Minimisation and restoration mitigation must be applied. Development activities of medium impact acceptable followed by appropriate restoration activities.

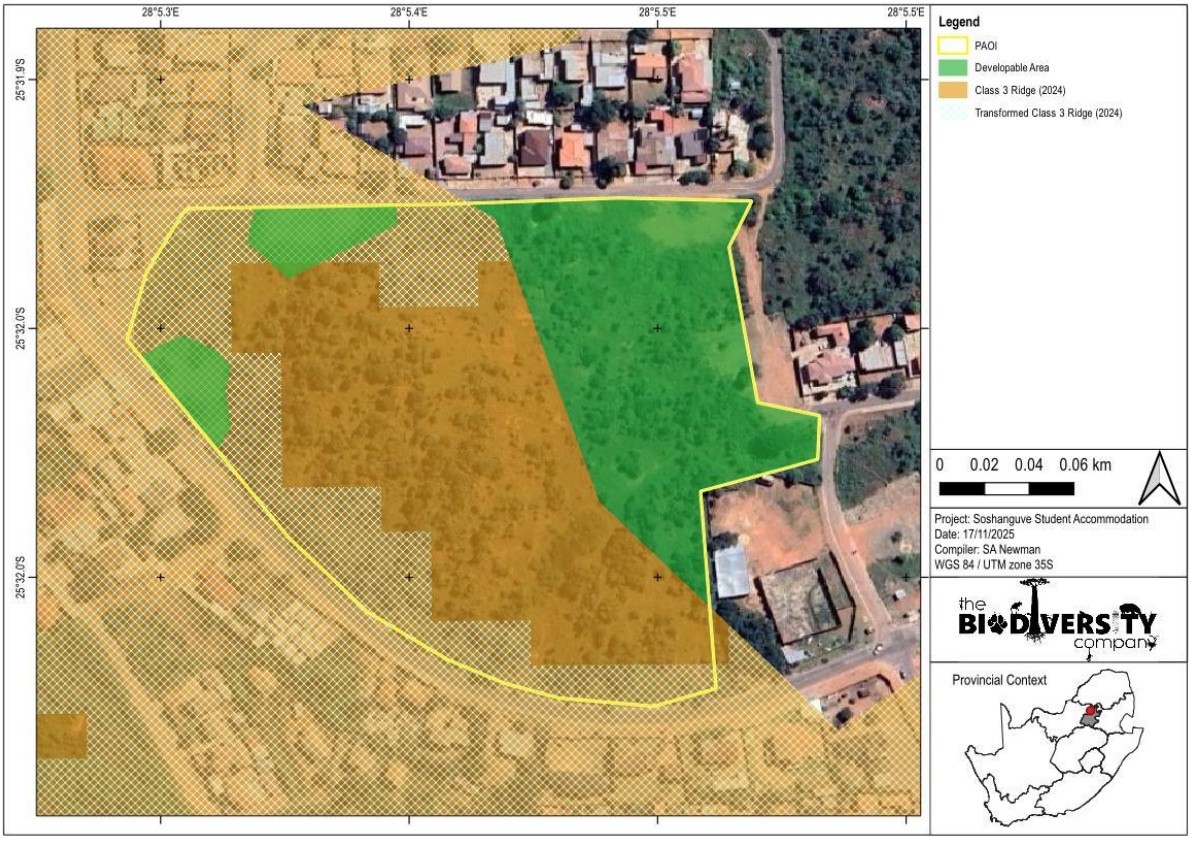


Figure 5-1 Map illustrating the PAOI in relation to the Class 3 Gauteng Ridge (2024) with which it overlaps and the recommended developable area within the PAOI

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7 Appendix Items

7.1 Appendix A: Methods

7.1.1 Desktop Dataset Assessment

7.1.1.1 Ecologically Important Landscape Features

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

- National Biodiversity Assessment 2018 (Skowno *et al,* 2019) - The purpose of the National Biodiversity Assessment (NBA) is to assess the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors. The NBA deals with all three components of biodiversity: genes, species and ecosystems; and assesses biodiversity and ecosystems across terrestrial, freshwater, estuarine and marine environments. The two headline indicators assessed in the NBA are:
    - Red List of Ecosystems (RLE) 2022 – The list was first published in 2011 and has since been substantially revised by authors Dr Andrew Skowno and Mrs Maphale Monyeki (SANBI, 2022). This list is based on assessments that followed the International Union for Conservation of Nature (IUCN) Red List of Ecosystems Framework (version 1.1) and covers all 456 terrestrial ecosystem types described in South Africa by Mucina and Rutherford (2006). A total of 120 of the 456 terrestrial ecosystem types assessed are categorised as threatened and together make up approximately 10% of the remaining natural habitat in the country. Of these 120 ecosystem types, 55 are Critically Endangered (CR), 51 Endangered (EN) and 14 are Vulnerable (VU). The remainder are categorised as Least Concern (LC) (SANBI, 2022; Skowno & Monyeki, 2021).
    - Ecosystem Protection Level – indicator of the extent to which ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP), based on the proportion of the biodiversity target for each ecosystem type that is included within one or more protected areas. Not Protected, Poorly Protected or Moderately Protected ecosystem types are collectively referred to as under-protected ecosystems.
- Protected areas:
    - South Africa Protected Areas Database (SAPAD) and South Africa Conservation Areas Database (SACAD) (DFFE, 2024a) – The South African Protected Areas Database (SAPAD) and South Africa Conservation Areas Database (SACAD) contains spatial data for the conservation of South Africa. It includes spatial and attribute information for both formally protected areas and areas that have less formal protection. The database is updated on a continuous basis and forms the basis for the Register of Protected Areas which is a legislative requirement under the National Environmental Management: Protected Areas Act, Act 57 of 2003.
    - National Protected Areas Expansion Strategy (NPAES) (DFFE, 2022b) – The National Protected Area Expansion Strategy (NPAES) provides spatial information on areas that are suitable for terrestrial ecosystem protection. These focus areas are large, intact

and unfragmented and are therefore, of high importance for biodiversity, climate resilience and freshwater protection.

- Conservation/Biodiversity Sector Plans:

  The Gauteng C-Plan has been developed using a systematic conservation planning approach. Systematic conservation planning has become the standard approach to conservation planning in South Africa, due to its robust scientific approach and internationally recognized principles and methodologies. The map is designed to be used at approximately 1:50 000 scale as the integrated biodiversity input into land use planning and decision making. Gauteng C-Plan v4 should be used as the key biodiversity informant in the compilation of bioregional plans, Environmental Management Frameworks and Municipal Spatial Development Frameworks, and should be a primary biodiversity consideration in Environmental Impact Assessments. The Gauteng C-Plan v4 delineates biodiversity priority areas called Critical Biodiversity Areas and Ecological Support Areas.

  Critical Biodiversity Areas (CBAs) – Critical Biodiversity Areas (CBAs) include irreplaceable sites where no other options exist for meeting targets for biodiversity features, as well as best-design sites which represent an efficient configuration of sites to meet targets in an ecologically sustainable way that is least conflicting with other land uses and activities. CBAs include both terrestrial and aquatic habitats, including threatened species and their habitat requirements, as well as important ecological process that ensure the persistence of biodiversity.

  Ecological Support Areas (ESAs) - Areas are required to support and sustain the ecological functioning of Critical Biodiversity Areas (CBAs). For terrestrial and aquatic environments, these areas are functional but are not necessarily pristine natural areas. They are however required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the CBAs, and which also contributes significantly to the maintenance of Ecological Infrastructure.

- A new set of Key Biodiversity Areas (KBA) specific to South Africa has been identified using the Global Standard for the Identification of Key Biodiversity Areas version 1.2 (IUCN 2016), applied to South African species and ecosystems. KBAs are critical sites that play a vital role in maintaining global biodiversity by serving as essential habitats for species. The identification of KBAs enables governments and civil society to pinpoint key locations crucial for species and their habitats worldwide. This understanding facilitates collaborative efforts to manage and conserve these areas, thereby safeguarding global biological diversity and supporting international biodiversity objectives.Unlike the Important Bird Areas (IBAs), which primarily focus on birds, the KBA framework encompasses a broader spectrum of biodiversity, including mammals, amphibians, plants, and other taxa. BirdLife South Africa (BLSA), in consultation with the KBA National Coordination Group, has opted to retire IBAs and integrate KBAs into its conservation strategy. This strategic shift acknowledges the necessity of investing resources effectively to protect avian and other macroecological elements at the site level within a comprehensive framework of biodiversity conservation (KBA NCG, 2024).; and

- Freshwater Ecology:

  - Strategic Water Source Areas (SWSAs) (Le Maitre *et al,* 2018) – SWSAs are defined as areas of land that supply a quantity of mean annual surface water runoff in relation to their size and therefore, contribute considerably to the overall water supply of the country. These are key ecological infrastructure assets and the effective protection of surface water SWSAs areas is vital for national security because a lack of water security will compromise national security and human wellbeing.

- South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (Van Deventer *et al*, 2018) – A South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was established during the National Biodiversity Assessment of 2018. It is a collection of data layers that represent the extent of river and inland wetland ecosystem types as well as pressures on these systems.

- National Freshwater Ecosystem Priority Area (NFEPA) (Nel *et al.,* 2011) – The NFEPA database provides strategic spatial priorities for conserving the country's freshwater ecosystems and associated biodiversity as well as supporting sustainable use of water resources.

- Gauteng Ridges:

  The quartzite ridges of Gauteng are one of the most important natural assets in this northern province of South Africa. This is because these ridges, and the areas immediately surrounding them, provide unique habitat for a wide variety of fauna and flora, some of which are Red-Listed, rare or endemic species, or in the case of certain plant species, are found nowhere else in South Africa or around the world.

  In order to give practical effect to this policy, the Gauteng Department of Agriculture and Rural Development (GDARD) has classified all ridges in Gauteng into one of four classes, based on the existing extent and percentage of area converted by urban development or disturbed by other human activities. According to GDARD (2025), the ridges within Gauteng may be classified as follows:

  - Class 1 ridges are those in respect of which 5% or less of the area has been transformed by human activity. (Approximately 58% of ridges currently fall within Class 1, including the Suikerbosrand and parts of the Magaliesberg).

  - Class 2 ridges are those in respect of which 5-34% of the ridge area has been irreversibly transformed by human activity. (Approximately 23% of ridges currently fall within Class 2, including parts of the Magaliesberg, ridges falling within the Cradle of Humankind World Heritage Site, the Klipriviersberg, the Bronberg and the Skurweberg).

  - Class 3 ridges are those that have been transformed by 35-65%, as a result of human activity (Approximately 8% of ridges currently fall within Class 3, including the Northcliff, Roodepoort and Krugersdorp ridges).

  - Class 4 ridges are those that have been transformed as a result of human activity by 65% or more. (Approximately 11% of ridges currently fall within Class 4, including the Melville Koppies and the Linksfield Ridge).

  The 2025 Ridges Guideline has defined general guidelines that must be followed with regard to the amount of development that should be permitted on different ridges according to their class. GDARD (2025) stipulates that no development is to be permitted on any class 1 ridge, and varying levels of development may be permissible with regards to the higher ridge classes – depending on the impact level of the proposed activity and the corresponding spatial scale. Buffers and permitted developments are as follows (GDARD, 2019):

  - Class 1 Ridges: No development within the 200 m buffer zone is preferred by the Department, although, low impact activities with an ecological footprint of 5% or less in

the 200 m buffer zone of the ridge may be considered to deter edge-effect. No development will be permitted on the ridge itself.

- Class 2 Ridges: Development activities and uses that have significant environmental impact on a Class 2 ridge will not be permitted. Only low impact activities might be permitted. Low impact development activities, such as tourism facilities, which comprise of an ecological footprint of 5% or less of the property may be supported. (The ecological footprint includes all areas directly impacted on by a development activity, including all paved surfaces, landscaping, property access and service provision). Low impact development activities on a ridge will not be supported where it is feasible to undertake the development on a portion of the property abutting the ridge.;

- Class 3 Ridges: The guidelines for Class 2 ridges will be applied to areas of the ridge that have not been significantly impacted (non-significant impact) on by human activity. The guidelines for Class 4 ridges will be applied to areas of the ridge that have been significantly impacted on by human activity.; and

- Class 4 Ridges: Further development activities will not be supported in areas of the ridge where the remaining contiguous extent of natural habitat is 4 ha or more..

7.1.2 Desktop Flora Assessment

The desktop flora assessment encompassed an assessment of all the vegetation units and habitat types within the PAOI, as well as the identification of expected plant species and any locally occurring flora SCC.

The Vegetation of South Africa, Lesotho, and Swaziland (Mucina & Rutherford, 2006) and the 2018 Terrestrial & Freshwater Assessment by SANBI (2018) was used to identify the vegetation types that would have occurred under natural or pre-anthropogenically altered conditions. Furthermore, The Global Biodiversity Information Facility (GBIF) database was accessed to compile a list of expected flora species within the PAOI based on a 10 km buffer (GBIF.org (13 October 2025) GBIF Occurrence Download https://doi.org/10.15468/dl.8esaz2) (Figure 7-1). The Red List of South African Plants website (SANBI, 2016) was used to provide the most current account of the national conservation status of flora.

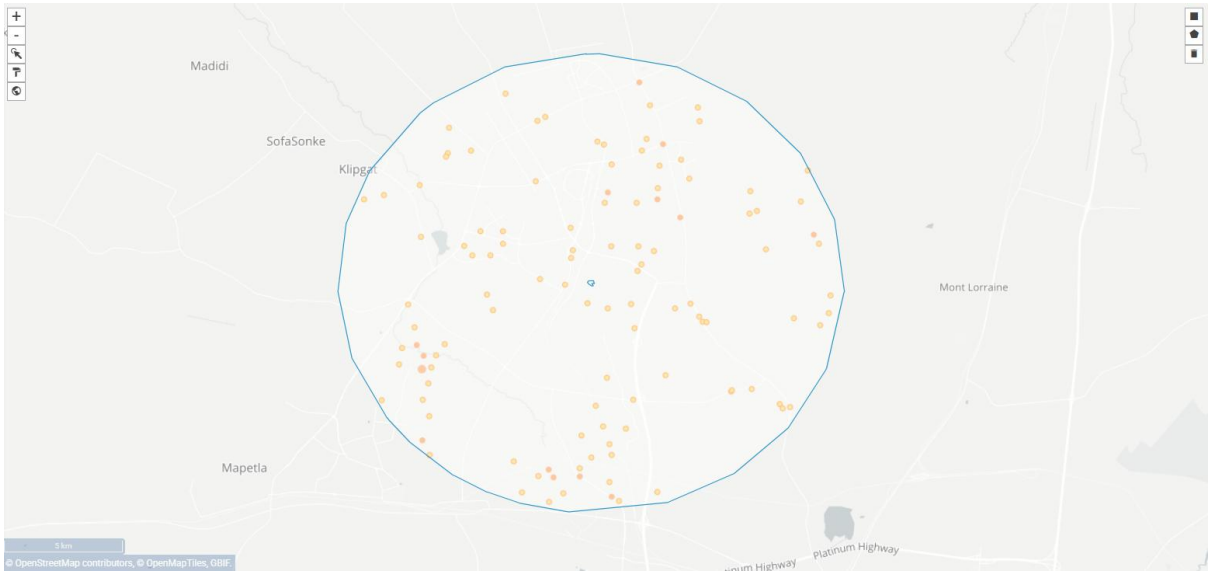

Figure 7-1 Map illustrating extent of area used to obtain the expected flora species list from the GBIF database

The latest information regarding provincially, and nationally protected flora was obtained from the following published legislative sources:

- Provincially Protected Plant Species (Schedules 11 and 12 of the Transvaal Nature Conservation Ordinance No. 12 of 1983);
- Nationally Protected plant species (The 2007 lists of Threatened or Protected Species (TOPS), published in terms of Section 56(1) of the NEM:BA No. 10 of 2004); and
- List of Nationally Protected Tree Species (DEFF, 2022).

7.1.3 Desktop Fauna Assessment

The Global Biodiversity Information Facility (GBIF) database was accessed to compile a list of expected fauna species (mammals, reptiles and amphibians) within the PAOI based on a 10 km buffer (GBIF.org (08 October 2025) GBIF Occurrence Download https://doi.org/10.15468/dl.9snkht) (Figure 7-2).

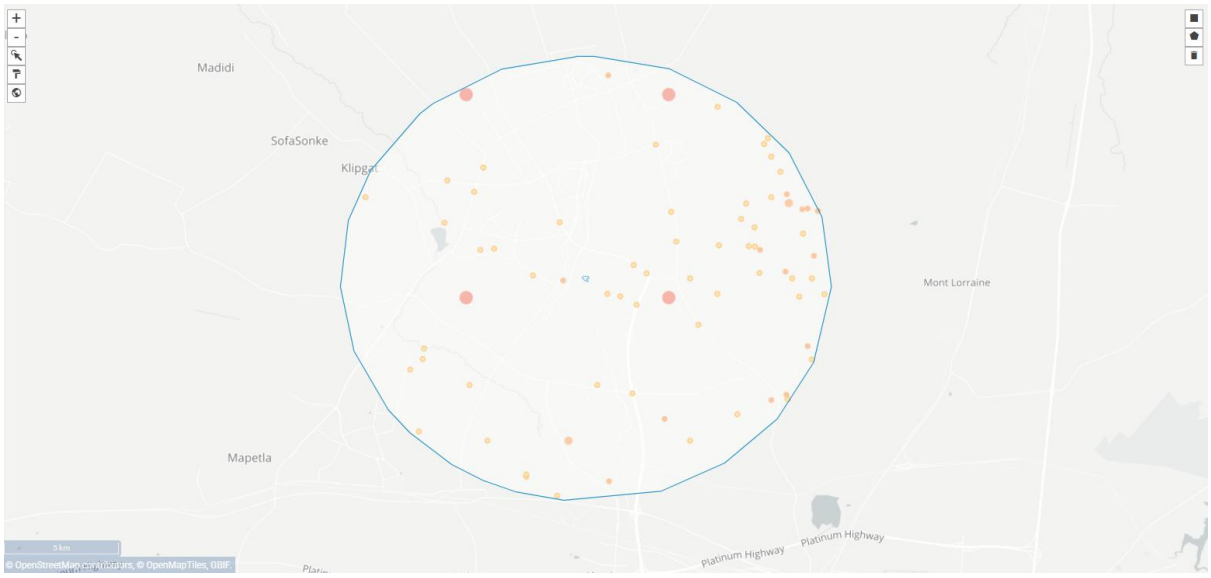

Figure 7-2 Map illustrating extent of area used to obtain the expected fauna species list from the GBIF database

Compiling an expected avifauna list generated from the South African Bird Atlas 2 (SABAP2) database using the 2525_2800, 2525_2805, 2525_2810, 2530_2800, 2530_2805, 2530_2810, 2535_2800, 2535_2805, and 2535_2810 pentads.

South Africa's official site for Species Information and National Red Lists (SANBI, 2022) was used to provide the most current national Red-List status of fauna. The latest information regarding provincially, and nationally protected fauna was obtained from the following published legislative lists:

- Provincially Protected Wildlife Species (Schedule 4 of the Transvaal Nature Conservation Ordinance No. 12 of 1983); and
- Nationally Protected Wildlife species (The 2007 lists of Threatened or Protected Species (TOPS), published in terms of Section 56(1) of the NEM:BA No. 10 of 2004).

7.1.4 Vegetation & Flora Survey

The 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.

Homogenous vegetation units were subjectively identified using satellite imagery and existing land cover maps (confirmed during the field survey). The floristic diversity and search for protected plants and flora SCC were conducted through timed meanders within representative habitat units delineated during the desktop assessment. Emphasis was placed on sensitive habitats, especially those overlapping with the PAOI.

The timed random meander method is a highly efficient method for conducting floristic analysis, specifically in detecting protected plants and flora SCC and maximising floristic coverage. In addition, the method is time and cost effective and highly suited for compiling observed 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.), and this included the subjective recording of dominant vegetation species and any sensitive features (e.g., wetlands, rock outcrops etc.). In addition, opportunistic observations were made while navigating through the area.

Species were identified in field wherever possible. If they could not be identified in the field, field guides and texts were used. Relevant field guides and texts consulted for identification purposes included, but was not limited, to the following:

- Identification Guide to Southern African Grasses: An Identification Manual with Keys, Descriptions, and Distributions (Fish *et al.*, 2015);
- A Field Guide to Wild Flowers (Pooley, 1998);
- Problem Plants and Alien Weeds of South Africa (Bromilow, 2018);
- Field Guide to Succulents in Southern Africa (Smith *et al.*, 2017);
- Field Guide to Wildflowers of South Africa (Manning, 2009); and
- iNaturalist. Available at https://www.inaturalist.org/home

7.1.4.1 Fauna Survey

The faunal component of this report pertains only to mammals and herpetofauna (reptiles and amphibians), as a separate avifauna assessment was conducted and can be found in the accompanying avifauna assessment report (TBC, 2024). The faunal field survey utilised a variety of sampling techniques, including but not limited to:

- Visual and auditory searches: This involves strategic meandering and the use of binoculars and specialist camera equipment to view species from a distance without them being disturbed;
- Active hand-searches: Used for species that shelter in or under particular micro-habitats (typically rocks, exfoliating rock outcrops, fallen trees, leaf litter, bark etc.); and
- The identification of tracks and signs, and listening to species calls.

Relevant field guides and texts consulted for identification purposes included the following:

- The Mammals of the Southern African Subregion (Skinner & Chimimba, 2005);
- Field Guide to Snakes and other Reptiles of Southern Africa (Branch, 1998);
- A Complete Guide to the Snakes of Southern Africa (Marais, 2004);
- Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland (Bates et al, 2014);
- A Complete Guide to the Frogs of Southern Africa (du Preez and Carruthers, 2009);
- Stuarts' Field Guide to Mammals of Southern Africa including Angola, Zambia & Malawi (Stuart and Stuart, 2015); and
- A Field Guide to the Tracks and Signs of Southern and East African Wildlife (Stuart and Stuart, 2000).

7.1.5 Impact / Risk Assessment

Duration of impact	**Rating**
One day to one month: Temporary	1
One month to one year: Short Term	2
One year to five years: Medium Term	3
Life of operation or less than 20 years: Long Term	4
Permanent	5
Spatial scope of impact	Rating
Activity specific/ < 5 ha impacted / Linear features affected < 100m	1
Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	2
Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	3
Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	4
Entire habitat unit / Entire system/ > 2000ha impacted / Linear features affected > 3000m	5
Severity of impact	Rating
Insignificant / ecosystem structure and function unchanged	1
Small / ecosystem structure and function largely unchanged	2
Significant / ecosystem structure and function moderately altered	3
Great / harmful/ ecosystem structure and function largely altered	4
Disastrous / ecosystem structure and function seriously to critically altered	5
Sensitivity of receiving environment	Rating
Ecology not sensitive/important	1
Ecology with limited sensitivity/importance	2
Ecology moderately sensitive/ /important	3
Ecology highly sensitive /important	4
Ecology critically sensitive /important	5
Probability of impact	Rating
Highly unlikely	1
Possible	2
Likely	3

Highly likely	4
Definite	5

	CONSEQUENCE (Severity + Spatial Scope + Duration)															
LIKELIHOOD (Frequency of activity + Frequency of impact)	0	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Absent
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	Low
	3	6	9	12	15	18	21	24	27	301	33	36	39	42	45	
	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	Moderate
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	Moderately High
	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	High
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	
	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	Critical
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	

7.2 Appendix B: Terrestrial Site Ecological Importance

The different habitat types within the PAOI were delineated and identified based on observations made during the field survey, and information from available satellite imagery. These habitat types were assigned Ecological Importance (EI) categories based on their ecological integrity, conservation value, the presence of SCC 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 in the PAOI) and Receptor Resilience (RR) (its resilience to impacts).

BI is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor. The criteria for the CI and FI ratings are provided in Table 7-1 and Table 7-2 respectively.

Table 7-1 Summary of Conservation Importance (CI) criteria

Conservation Importance	Fulfilling Criteria
Very High	Confirmed or highly likely occurrence of Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Extremely Rare or CR species that have a global extent of occurrence (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 Near Threatened (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 7-2 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.
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 7-3.

Table 7-3 Matrix used to derive Biodiversity Importance (BI) from Functional Integrity (FI) and Conservation Importance (CI)

Biodiversity Importance		Conservation Importance				
		Very High	**High**	**Medium**	**Low**	**Very Low**
Functional Integrity	**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 7-4.

Table 7-4 Summary of Receptor 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: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) 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: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) 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: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) 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: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) 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: (i) remain at a site even when a disturbance or impact is occurring, or (ii) return to a site once the disturbance or impact has been removed.

After the determination of BI and RR, the SEI can be ascertained using the matrix as provided in Table 7-5.

Table 7-5 Matrix used to derive Site Ecological Importance from Receptor Resilience (RR) and Biodiversity Importance (BI)

Site Ecological Importance		Biodiversity Importance				
		Very High	**High**	**Medium**	**Low**	**Very Low**
Receptor Resilience	**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
	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 project is provided in Table 7-6.

Table 7-6 Guideline for interpreting Site Ecological Importance in the context of proposed activities

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

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.

7.3 Appendix C: Expected Species Lists

7.3.1 Expected Flora Species

Family	Species	SANBI	IUCN	Ecology
Acanthaceae	*Thunbergia atriplicifolia*	LC		Indigenous
Acanthaceae	*Barleria obtusa*	LC		Indigenous
Acanthaceae	*Ruellia cordata*	LC		Indigenous
Acanthaceae	*Odontonema tubaeforme*			
Amaranthaceae	*Alternanthera pungens*			Not indigenous; Naturalised
Amaranthaceae	*Achyranthes aspera*			Not indigenous; Naturalised
Amaranthaceae	*Gomphrena celosioides*			Not indigenous; Naturalised
Amaranthaceae	*Amaranthus hybridus*			Not indigenous; Cultivated; Naturalised; Invasive
Amaranthaceae	*Chenopodium album*			Not indigenous; Naturalised; Invasive
Amaranthaceae	*Guilleminea densa*			Not indigenous; Naturalised; Invasive
Amaranthaceae	*Amaranthus cruentus*	NE		
Amaranthaceae	*Ouret leucura*			
Amaryllidaceae	*Tulbaghia cernua*	LC		Indigenous
Amaryllidaceae	*Crinum macowanii*	LC		Indigenous
Amaryllidaceae	*Scadoxus puniceus*	LC		Indigenous
Amaryllidaceae	*Haemanthus humilis*	LC		Indigenous; Endemic
Anacardiaceae	*Sclerocarya birrea*		LC	Indigenous
Anacardiaceae	*Searsia pyroides*	LC		Indigenous
Anacardiaceae	*Harpephyllum caffrum*	LC	LC	Indigenous
Anacardiaceae	*Searsia leptodictya*	LC	LC	Indigenous
Anacardiaceae	*Searsia lancea*	LC	LC	Indigenous
Anacardiaceae	*Mangifera indica*	NE	DD	Not indigenous; Naturalised
Anacardiaceae	*Schinus terebinthifolia*			
Apiaceae	*Coriandrum sativum*			Not indigenous; Naturalised
Apocynaceae	*Cynanchum viminale*			Indigenous
Apocynaceae	*Carissa bispinosa*		LC	Indigenous
Apocynaceae	*Araujia sericifera*			Not indigenous; Naturalised; Invasive
Apocynaceae	*Asclepias adscendens*	LC		Indigenous
Apocynaceae	*Raphionacme hirsuta*	LC		Indigenous
Apocynaceae	*Pachycarpus schinzianus*	LC		Indigenous
Apocynaceae	*Raphionacme galpinii*	LC		Indigenous
Apocynaceae	*Ceropegia rendallii*	LC		Indigenous
Apocynaceae	*Xysmalobium involucratum*	LC		Indigenous
Apocynaceae	*Stenostelma corniculatum*	LC		Indigenous
Apocynaceae	*Xysmalobium undulatum*	LC		Indigenous

Apocynaceae	*Gomphocarpus fruticosus*	LC		Indigenous
Apocynaceae	*Catharanthus roseus*	NE		Not indigenous; Naturalised; Invasive
Apocynaceae	*Cynanchum insipidum*			
Apocynaceae	*Plumeria rubra*		LC	
Araceae	*Colocasia esculenta*		LC	Not indigenous; Cultivated; Naturalised; Invasive
Araceae	*Lemna minor*	LC	LC	Indigenous
Araliaceae	*Hedera helix*			Not indigenous; Naturalised; Invasive
Asparagaceae	*Drimia elata*			
Asparagaceae	*Drimiopsis burkei*			Indigenous
Asparagaceae	*Eriospermum abyssinicum*			Indigenous
Asparagaceae	*Ledebouria ovatifolia*			Indigenous; Endemic
Asparagaceae	*Agave angustifolia*		LC	Not indigenous; Naturalised; Invasive
Asparagaceae	*Agave americana*		LC	Not indigenous; Naturalised; Invasive
Asparagaceae	*Agave sisalana*			Not indigenous; Naturalised; Invasive
Asparagaceae	*Albuca glauca*	LC		Indigenous; Endemic
Asparagaceae	*Ledebouria leptophylla*	LC		Indigenous
Asparagaceae	*Dipcadi viride*	LC		Indigenous
Asparagaceae	*Eriospermum porphyrium*	LC		Indigenous
Asparagaceae	*Albuca setosa*	LC		Indigenous
Asparagaceae	*Asparagus laricinus*	LC		Indigenous
Asparagaceae	*Ledebouria confusa*	LC		Indigenous
Asparagaceae	*Ledebouria luteola*	LC		Indigenous
Asparagaceae	*Asparagus suaveolens*	LC		Indigenous
Asparagaceae	*Ledebouria inquinata*	LC		Indigenous
Asparagaceae	*Eriospermum cooperi*	LC		Indigenous
Asparagaceae	*Dipcadi marlothii*	LC		Indigenous
Asparagaceae	*Dracaena trifasciata*			
Asparagaceae	*Agave attenuata*		LC	Not indigenous; Naturalised
Asparagaceae	*Beaucarnea recurvata*		CR	Not indigenous; Naturalised
Asphodelaceae	*Aloe davyana*			Indigenous; Endemic
Asphodelaceae	*Aloe arborescens*		LC	Indigenous
Asphodelaceae	*Bulbine narcissifolia*	LC		Indigenous
Asphodelaceae	*Aloe marlothii*	LC	LC	Indigenous
Asteraceae	*Parapolydora fastigiata*			Indigenous
Asteraceae	*Schkuhria pinnata*			Not indigenous; Naturalised
Asteraceae	*Zinnia peruviana*			Not indigenous; Naturalised; Invasive
Asteraceae	*Pseudopegolettia tenella*			Indigenous

Asteraceae	*Flaveria bidentis*			Not indigenous; Naturalised; Invasive
Asteraceae	*Tagetes minuta*			Not indigenous; Naturalised; Invasive
Asteraceae	*Xanthium strumarium*			Not indigenous; Naturalised; Invasive
Asteraceae	*Campuloclinium macrocephalum*			Not indigenous; Naturalised; Invasive
Asteraceae	*Tithonia rotundifolia*			Not indigenous; Naturalised; Invasive
Asteraceae	*Bidens pilosa*			Not indigenous; Naturalised
Asteraceae	*Erigeron sumatrensis*			Not indigenous; Naturalised; Invasive
Asteraceae	*Nidorella resedifolia*			Indigenous
Asteraceae	*Parthenium hysterophorus*			Not indigenous; Naturalised; Invasive
Asteraceae	*Sonchus oleraceus*			Not indigenous; Naturalised; Invasive
Asteraceae	*Erigeron bonariensis*			Not indigenous; Naturalised; Invasive
Asteraceae	*Dicoma anomala*	LC		Indigenous
Asteraceae	*Dimorphotheca spectabilis*	LC		Indigenous; Endemic
Asteraceae	*Geigeria burkei*	LC		Indigenous
Asteraceae	*Felicia muricata*	LC		Indigenous; Endemic
Asteraceae	*Berkheya radula*	LC		Indigenous
Asteraceae	*Psiadia punctulata*	LC		Indigenous
Asteraceae	*Hilliardiella oligocephala*	LC		Indigenous
Asteraceae	*Tarchonanthus camphoratus*	LC	LC	Indigenous
Asteraceae	*Nolletia jeanettae*	LC		Indigenous; Endemic
Asteraceae	*Lopholaena coriifolia*	LC		Indigenous
Asteraceae	*Nidorella hottentotica*	LC		Indigenous
Bignoniaceae	*Tecoma stans*		LC	Not indigenous; Naturalised; Invasive
Bignoniaceae	*Spathodea campanulata*		LC	Not indigenous; Cultivated; Naturalised; Invasive
Bignoniaceae	*Jacaranda mimosifolia*	NE	VU	Not indigenous; Naturalised; Invasive
Boraginaceae	*Trichodesma angustifolium*			Indigenous
Brassicaceae	*Lepidium didymum*			Not indigenous; Naturalised; Invasive
Brassicaceae	*Nasturtium officinale*		LC	Not indigenous; Naturalised; Invasive
Brassicaceae	*Lobularia maritima*			Not indigenous; Naturalised
Burseraceae	*Commiphora neglecta*	LC	LC	Indigenous
Cactaceae	*Cereus jamacaru*	NE	LC	Not indigenous; Naturalised; Invasive
Cactaceae	*Opuntia ficus-indica*	NE	DD	Not indigenous; Cultivated; Naturalised; Invasive
Cactaceae	*Opuntia humifusa*			
Campanulaceae	*Lobelia thermalis*			
Cannabaceae	*Celtis africana*	LC	LC	Indigenous
Cannabaceae	*Cannabis sativa*	NE		Not indigenous; Naturalised

Cannaceae	*Canna indica*	NE		Not indigenous; Naturalised; Invasive
Caryophyllaceae	*Saponaria officinalis*			
Celastraceae	*Gymnosporia buxifolia*	LC	LC	Indigenous
Chrysobalanaceae	*Parinari capensis*	LC		Indigenous
Cleomaceae	*Sieruela monophylla*			
Combretaceae	*Combretum molle*	LC	LC	Indigenous
Combretaceae	*Terminalia sericea*	LC	LC	Indigenous
Combretaceae	*Combretum erythrophyllum*	LC	LC	Indigenous
Commelinaceae	*Commelina erecta*	LC		Indigenous
Commelinaceae	*Cyanotis speciosa*	LC		Indigenous
Commelinaceae	*Commelina africana*	LC		Indigenous
Convolvulaceae	*Ipomoea purpurea*			Not indigenous; Naturalised; Invasive
Convolvulaceae	*Ipomoea bolusiana*	LC		Indigenous
Convolvulaceae	*Ipomoea cairica*	LC		Indigenous
Convolvulaceae	*Ipomoea crassipes*	LC		Indigenous
Convolvulaceae	*Xenostegia tridentata*	LC		Indigenous
Corbichoniaceae	*Corbichonia decumbens*	LC		Indigenous
Crassulaceae	*Kalanchoe rotundifolia*			Indigenous
Crassulaceae	*Kalanchoe paniculata*	LC		Indigenous
Crassulaceae	*Kalanchoe brachyloba*	LC		Indigenous
Crassulaceae	*Kalanchoe lanceolata*	LC		Indigenous
Crassulaceae	*Kalanchoe delagoensis*			
Cucurbitaceae	*Trochomeria macrocarpa*	LC		Indigenous
Cucurbitaceae	*Coccinia adoensis*	LC		Indigenous
Cucurbitaceae	*Momordica balsamina*	LC		Indigenous
Cucurbitaceae	*Cucumis zeyheri*	LC		Indigenous
Cyperaceae	*Fuirena pubescens*		LC	Indigenous
Cyperaceae	*Cyperus denudatus*		DD	Indigenous
Cyperaceae	*Cyperus esculentus*		LC	Present
Cyperaceae	*Cyperus eragrostis*		LC	Not indigenous; Naturalised
Cyperaceae	*Cyperus polystachyos*			Indigenous
Cyperaceae	*Cyperus sexangularis*	LC		Indigenous
Cyperaceae	*Fimbristylis dichotoma*	LC	LC	Indigenous
Cyperaceae	*Schoenoplectiella muricinux*	LC		Indigenous
Ebenaceae	*Euclea crispa*	LC		Indigenous
Ebenaceae	*Diospyros lycioides*	LC	LC	Indigenous; Endemic
Ehretiaceae	*Ehretia rigida*	LC	LC	Indigenous
Euphorbiaceae	*Ricinus communis*			Not indigenous; Naturalised; Invasive

Euphorbiaceae	*Euphorbia pseudotuberosa*	LC		Indigenous
Euphorbiaceae	*Croton gratissimus*	LC		Indigenous
Euphorbiaceae	*Jatropha schlechteri*	LC		Indigenous
Euphorbiaceae	*Euphorbia ingens*	LC	LC	Indigenous
Euphorbiaceae	*Euphorbia schinzii*	LC		Indigenous
Euphorbiaceae	*Euphorbia tirucalli*	LC	LC	Indigenous
Euphorbiaceae	*Euphorbia heterophylla*	NE	LC	Not indigenous; Naturalised
Euphorbiaceae	*Euphorbia serpens*	NE		Not indigenous; Naturalised
Euphorbiaceae	*Euphorbia hirta*	NE		Not indigenous; Naturalised
Euphorbiaceae	*Vernicia fordii*	NE	LC	Not indigenous; Naturalised
Euphorbiaceae	*Acalypha petiolaris*	LC		Indigenous
Fabaceae	*Vachellia nilotica*		LC	Indigenous
Fabaceae	*Burkea africana*		LC	Indigenous
Fabaceae	*Medicago sativa*		LC	Not indigenous; Cultivated; Naturalised; Invasive
Fabaceae	*Rhynchosia totta*		LC	Indigenous
Fabaceae	*Leucaena leucocephala*			Not indigenous; Naturalised; Invasive
Fabaceae	*Senna italica*			Indigenous
Fabaceae	*Vachellia sieberiana*		LC	Indigenous
Fabaceae	*Tipuana tipu*		LC	Not indigenous; Naturalised; Invasive
Fabaceae	*Vachellia tortilis*	LC		Indigenous
Fabaceae	*Crotalaria sphaerocarpa*	LC		Indigenous
Fabaceae	*Listia bainesii*	LC		Indigenous
Fabaceae	*Vachellia hebeclada*	LC		Indigenous
Fabaceae	*Vigna vexillata*	LC		Indigenous
Fabaceae	*Vachellia tenuispina*	LC		Indigenous
Fabaceae	*Senegalia ataxacantha*	LC	LC	Indigenous
Fabaceae	*Abrus laevigatus*	LC		Indigenous
Fabaceae	*Rhynchosia caribaea*	LC		Indigenous
Fabaceae	*Pterocarpus rotundifolius*	LC		Indigenous
Fabaceae	*Calpurnia aurea*	LC		Indigenous
Fabaceae	*Crotalaria virgulata*	LC		Indigenous
Fabaceae	*Crotalaria distans*	LC		Indigenous
Fabaceae	*Dolichos angustifolius*	LC		Indigenous
Fabaceae	*Ptycholobium contortum*	LC		Indigenous
Fabaceae	*Sesbania transvaalensis*	LC	LC	Indigenous
Fabaceae	*Crotalaria monteiroi*	LC		Indigenous
Fabaceae	*Rhynchosia nitens*	LC		Indigenous
Fabaceae	*Peltophorum africanum*	LC	LC	Indigenous

Fabaceae	*Crotalaria lotoides*	LC		Indigenous
Fabaceae	*Senegalia caffra*	LC	LC	Indigenous
Fabaceae	*Indigastrum burkeanum*	LC		Indigenous
Fabaceae	*Schotia brachypetala*	LC	LC	Indigenous
Fabaceae	*Vachellia karroo*	LC	LC	Indigenous
Fabaceae	*Mundulea sericea*	LC		Indigenous
Fabaceae	*Eriosema psoraleoides*	LC		Indigenous
Fabaceae	*Zornia linearis*	LC		Indigenous
Fabaceae	*Neorautanenia ficifolia*	LC		Indigenous
Fabaceae	*Eriosema cordatum*	LC		Indigenous
Fabaceae	*Vachellia xanthophloea*	LC	LC	Indigenous
Fabaceae	*Ptycholobium plicatum*	LC		Indigenous
Fabaceae	*Indigofera heterotricha*	LC		Indigenous
Fabaceae	*Rhynchosia albissima*	LC		Indigenous
Fabaceae	*Vigna unguiculata*	LC		Indigenous
Fabaceae	*Rhynchosia minima*	NE		Indigenous
Fabaceae	*Senna septemtrionalis*	NE	LC	Not indigenous; Naturalised; Invasive
Fabaceae	*Acacia podalyriifolia*	NE	LC	Not indigenous; Naturalised; Invasive
Fabaceae	*Dichrostachys cinerea*	NE	LC	Indigenous
Fabaceae	*Senna occidentalis*	NE	LC	Not indigenous; Naturalised; Invasive
Fabaceae	*Bauhinia bowkeri*	NT	VU	Indigenous; Endemic
Francoaceae	*Greyia radlkoferi*	LC	LC	Indigenous
Gentianaceae	*Chironia purpurascens*			Indigenous
Heliotropiaceae	*Heliotropium amplexicaule*			Not indigenous; Naturalised; Invasive
Heliotropiaceae	*Heliotropium ciliatum*	LC		Indigenous
Hypoxidaceae	*Hypoxis hemerocallidea*	LC		Indigenous
Iridaceae	*Afrosolen sandersonii*			Indigenous; Endemic
Iridaceae	*Gladiolus sericeovillosus*			Indigenous
Iridaceae	*Tritonia nelsonii*	LC		Indigenous
Iridaceae	*Freesia grandiflora*	LC		Indigenous
Iridaceae	*Gladiolus permeabilis*	LC		Indigenous; Endemic
Juncaceae	*Juncus effusus*	LC	LC	Indigenous
Juncaginaceae	*Triglochin maritima*	LC	LC	Indigenous
Kirkiaceae	*Kirkia wilmsii*	LC	LC	Indigenous
Lamiaceae	*Leonotis ocymifolia*			Indigenous
Lamiaceae	*Salvia tiliifolia*			Not indigenous; Naturalised; Invasive
Lamiaceae	*Salvia coccinea*			Not indigenous; Naturalised
Lamiaceae	*Orthosiphon thymiflorus*			Indigenous

Lamiaceae	*Leucas martinicensis*			Indigenous
Lamiaceae	*Syncolostemon pretoriae*	LC		Indigenous
Lamiaceae	*Vitex zeyheri*	LC		Indigenous
Lamiaceae	*Plectranthus oertendahlii*	LC		Indigenous; Endemic
Lamiaceae	*Leonotis nepetifolia*	LC		Indigenous
Lamiaceae	*Leonotis leonurus*	LC		Indigenous
Lamiaceae	*Teucrium trifidum*	LC		Indigenous
Lamiaceae	*Rotheca louwalbertsii*	LC		Indigenous
Lamiaceae	*Coleus scutellarioides*			
Lamiaceae	*Coleus neochilus*			
Linderniaceae	*Craterostigma plantagineum*	LC		Indigenous
Loranthaceae	*Agelanthus natalitius*	LC		Indigenous
Loranthaceae	*Tapinanthus quequensis*	LC		Indigenous
Lythraceae	*Lagerstroemia indica*		LC	Not indigenous; Cultivated; Naturalised; Invasive
Malpighiaceae	*Sphedamnocarpus pruriens*	LC		Indigenous
Malvaceae	*Dombeya rotundifolia*		LC	Indigenous
Malvaceae	*Hibiscus trionum*			Not indigenous; Naturalised
Malvaceae	*Sida cordifolia*			Indigenous
Malvaceae	*Hermannia parvula*	LC		Indigenous
Malvaceae	*Hermannia coccocarpa*	LC		Indigenous
Malvaceae	*Grewia flava*	LC	LC	Indigenous
Malvaceae	*Triumfetta sonderi*	LC		Indigenous; Endemic
Malvaceae	*Brachychiton discolor*		LC	
Malvaceae	*Brachychiton acerifolius*		LC	
Meliaceae	*Turraea obtusifolia*	LC	LC	Indigenous
Meliaceae	*Melia azedarach*	NE	LC	Not indigenous; Naturalised; Invasive
Molluginaceae	*Hypertelis cerviana*			Indigenous
Moraceae	*Morus alba*		LC	Not indigenous; Naturalised
Myrtaceae	*Eucalyptus camaldulensis*		NT	Not indigenous; Cultivated; Naturalised
Myrtaceae	*Psidium guajava*		LC	Not indigenous; Naturalised; Invasive
Myrtaceae	*Eucalyptus globulus*			Not indigenous; Cultivated; Naturalised; Invasive
Myrtaceae	*Heteropyxis natalensis*	LC	LC	Indigenous
Nyctaginaceae	*Mirabilis jalapa*			Not indigenous; Naturalised; Invasive
Ochnaceae	*Ochna pulchra*	LC	LC	Indigenous
Oleaceae	*Ligustrum lucidum*		LC	Not indigenous; Cultivated; Naturalised; Invasive
Oleaceae	*Menodora africana*	LC		Indigenous
Oleaceae	*Noronhia foveolata*			

Onagraceae	*Oenothera rosea*			Not indigenous; Naturalised; Invasive
Orchidaceae	*Habenaria nyikana*			Indigenous
Orchidaceae	*Eulophia hians*			Indigenous
Orchidaceae	*Eulophia clitellifera*	LC		Indigenous
Orchidaceae	*Bonatea antennifera*	LC		Indigenous
Orchidaceae	*Eulophia ovalis*	LC		Indigenous
Orobanchaceae	*Alectra orobanchoides*	LC		Indigenous
Orobanchaceae	*Striga bilabiata*	LC		Indigenous
Orobanchaceae	*Striga gesnerioides*	LC		Indigenous
Orobanchaceae	*Alectra sessiliflora*	LC		Indigenous
Orobanchaceae	*Striga forbesii*	LC		Indigenous
Orobanchaceae	*Cycnium tubulosum*	LC		Indigenous
Orobanchaceae	*Striga elegans*	LC		Indigenous
Papaveraceae	*Argemone ochroleuca*			Not indigenous; Naturalised; Invasive
Passifloraceae	*Passiflora edulis*			Not indigenous; Naturalised; Invasive
Pedaliaceae	*Sesamum triphyllum*	LC		Indigenous
Pedaliaceae	*Sesamum trilobum*			
Phyllanthaceae	*Phyllanthus parvulus*			Indigenous
Phytolaccaceae	*Phytolacca dioica*		LC	Not indigenous; Naturalised; Invasive
Plantaginaceae	*Plantago lanceolata*	LC		Indigenous
Plantaginaceae	*Veronica anagallis-aquatica*	LC	LC	Indigenous
Poaceae	*Melinis repens*			Indigenous
Poaceae	*Imperata cylindrica*			Indigenous
Poaceae	*Melinis nerviglumis*	LC		Indigenous
Poaceae	*Eragrostis curvula*	LC		Indigenous
Poaceae	*Urochloa panicoides*	LC	LC	Indigenous
Poaceae	*Eragrostis echinochloidea*	LC		Indigenous
Poaceae	*Alloteropsis semialata*	LC		Indigenous
Poaceae	*Heteropogon contortus*	LC		Indigenous
Poaceae	*Phragmites australis*	LC		Indigenous
Poaceae	*Chloris gayana*	LC		Indigenous
Poaceae	*Eragrostis superba*	LC		Indigenous
Poaceae	*Cenchrus ciliaris*	LC	LC	Indigenous
Poaceae	*Setaria sphacelata*	LC	LC	Indigenous
Poaceae	*Hyparrhenia hirta*	LC		Indigenous
Poaceae	*Eragrostis barrelieri*	NE		Not indigenous; Naturalised
Poaceae	*Arundo donax*	NE	LC	Not indigenous; Naturalised; Invasive
Poaceae	*Cenchrus setaceus*	NE	LC	Not indigenous; Cultivated; Naturalised; Invasive

Poaceae	*Urochloa serrata*			
Polygalaceae	*Polygala hottentotta*	LC		Indigenous
Polygalaceae	*Polygala amatymbica*	LC		Indigenous
Polygonaceae	*Persicaria lapathifolia*		LC	Not indigenous; Naturalised; Invasive
Polygonaceae	*Persicaria madagascariensis*			Indigenous
Polygonaceae	*Rumex crispus*			Not indigenous; Naturalised; Invasive
Pontederiaceae	*Pontederia crassipes*			Not indigenous; Cultivated; Naturalised; Invasive
Portulacaceae	*Portulaca obtusa*			
Potamogetonaceae	*Potamogeton pusillus*	LC	LC	Indigenous
Pteridaceae	*Cheilanthes viridis*	LC		Indigenous
Ranunculaceae	*Clematis brachiata*			Indigenous
Ranunculaceae	*Ranunculus multifidus*	LC	LC	Indigenous
Resedaceae	*Reseda lutea*			Not indigenous; Cultivated; Naturalised
Rhamnaceae	*Ziziphus mucronata*	LC		Indigenous
Rosaceae	*Prunus persica*			Not indigenous; Naturalised; Invasive
Rubiaceae	*Gardenia volkensii*			Indigenous
Rubiaceae	*Rubia horrida*	LC		Indigenous
Rubiaceae	*Vangueria infausta*	LC	LC	Indigenous
Rubiaceae	*Kohautia caespitosa*	LC		Indigenous
Rubiaceae	*Pavetta gardeniifolia*	LC		Indigenous
Rubiaceae	*Richardia brasiliensis*	NE		Not indigenous; Naturalised
Rutaceae	*Ptaeroxylon obliquum*	LC	LC	Indigenous
Salicaceae	*Salix babylonica*		DD	Not indigenous; Naturalised; Invasive
Salicaceae	*Populus nigra*		DD	Not indigenous; Naturalised
Salicaceae	*Dovyalis zeyheri*	LC	LC	Indigenous
Sapindaceae	*Pappea capensis*	LC	LC	Indigenous
Sapindaceae	*Dodonaea viscosa*	LC	LC	Indigenous
Scrophulariaceae	*Aptosimum procumbens*			Indigenous
Scrophulariaceae	*Aptosimum elongatum*	LC		Indigenous
Scrophulariaceae	*Jamesbrittenia aurantiaca*	LC		Indigenous
Selaginellaceae	*Selaginella dregei*	LC		Indigenous
Solanaceae	*Nicotiana glauca*			Not indigenous; Naturalised; Invasive
Solanaceae	*Physalis angulata*		LC	Not indigenous; Naturalised; Invasive
Solanaceae	*Cestrum parqui*		LC	Not indigenous; Naturalised; Invasive
Solanaceae	*Solanum elaeagnifolium*			Not indigenous; Naturalised; Invasive
Solanaceae	*Solanum campylacanthum*		LC	Indigenous
Solanaceae	*Solanum mauritianum*			Not indigenous; Naturalised; Invasive

Solanaceae	*Datura stramonium*			Not indigenous; Naturalised; Invasive
Solanaceae	*Datura innoxia*			Not indigenous; Naturalised; Invasive
Solanaceae	*Solanum seaforthianum*			Not indigenous; Naturalised; Invasive
Solanaceae	*Solanum lichtensteinii*	LC	LC	Indigenous
Solanaceae	*Solanum catombelense*	LC	LC	Indigenous
Thesiaceae	*Thesium goetzeanum*	LC		Indigenous
Thymelaeaceae	*Dais cotinifolia*	LC	LC	Indigenous
Typhaceae	*Typha domingensis*		LC	cryptogenic
Typhaceae	*Typha capensis*	LC	LC	Indigenous
Urticaceae	*Pouzolzia mixta*		LC	Indigenous
Vahliaceae	*Vahlia capensis*	NE		Indigenous
Verbenaceae	*Verbena incompta*			Not indigenous; Naturalised; Invasive
Verbenaceae	*Verbena aristigera*			Not indigenous; Naturalised
Verbenaceae	*Verbena bonariensis*			Not indigenous; Naturalised; Invasive
Verbenaceae	*Lantana camara*			Not indigenous; Cultivated; Naturalised; Invasive
Verbenaceae	*Verbena brasiliensis*			Not indigenous; Naturalised; Invasive
Verbenaceae	*Lantana rugosa*	LC		Indigenous
Verbenaceae	*Lippia javanica*	LC		Indigenous
Violaceae	*Pigea serrata*			
Viscaceae	*Viscum rotundifolium*	LC		Indigenous
Vitaceae	*Rhoicissus tridentata*	NE		Indigenous
Zygophyllaceae	*Tribulus terrestris*	LC	LC	Indigenous

7.3.2 Expected Mammal Species

Family	Scientific Name	Common Name	SANBI	IUCN
Bovidae	*Tragelaphus angasii*	Nyala	LC	LC
Bovidae	*Aepyceros melampus*	Impala	LC	LC
Bovidae	*Damaliscus pygargus*	Bontebok	LC	LC
Chrysochloridae	*Neamblysomus julianae*	Juliana's Golden Mole	EN	EN
Equidae	*Equus quagga*	Plains Zebra	LC	NT
Herpestidae	*Atilax paludinosus*	Water Mongoose	LC	LC
Muridae	*Dasymys robertsii*	Robert's Marsh Rat	VU	NE

7.3.3 Expected Reptile Species

Family	Scientific Name	Common Name	SANBI	IUCN
Agamidae	*Agama aculeata*	Ground Agama	LC	LC
Agamidae	*Agama atra*	Southern Rock Agama	LC	LC
Colubridae	*Dispholidus typus*	Boomslang	LC	LC

Colubridae	*Philothamnus semivariegatus*	Spotted Bush Snake	LC	LC
Colubridae	*Dasypeltis scabra*	Rhombic Egg-eater	LC	LC
Elapidae	*Naja annulifera*	Snouted Cobra	LC	LC
Gekkonidae	*Pachydactylus capensis*	Cape Gecko	LC	LC
Lacertidae	*Nucras holubi*	Holub's Sandveld Lizard	LC	LC
Lacertidae	*Pedioplanis lineoocellata*	Spotted Sand Lizard	LC	LC
Lamprophiidae	*Lycophidion capense*	Cape Wolf Snake	LC	LC
Pythonidae	*Python natalensis*	Southern African Python	LC	LC
Scincidae	*Mochlus sundevallii*	Sundevall's Writhing Skink	LC	LC
Scincidae	*Trachylepis punctatissima*	Speckled Rock Skink	LC	LC
Scincidae	*Trachylepis striata*	Striped Skink	LC	LC
Scincidae	*Trachylepis punctatissima*	Speckled Rock Skink	LC	LC
Scincidae	*Trachylepis varia*	Variable Skink	LC	LC
Testudinidae	*Kinixys lobatsiana*	Lobatse hinged-back Tortoise	VU	VU
Varanidae	*Varanus niloticus*	Water Monitor	LC	LC

7.3.4 Expected Amphibian Species

Family	Scientific Name	Common Name	SANBI	IUCN
Microhylidae	*Phrynomantis bifasciatus*	Banded Rubber Frog	LC	LC
Phrynobatrachidae	*Phrynobatrachus natalensis*	Natal Dwarf Puddle Frog	LC	LC
Ptychadenidae	*Ptychadena anchietae*	Anchieta's Ridged Frog	LC	LC

7.3.5 Expected Avifauna Species

Scientific Name	Common Name	Regional (SANBI, 2023)	Global (BirdLife, 2023)
Accipiter badius	Shikra		
Accipiter melanoleucus	Black Sparrowhawk		
Accipiter minullus	Little Sparrowhawk		
Accipiter ovampensis	Ovambo Sparrowhawk		
Acridotheres tristis	Common Myna		
Acrocephalus arundinaceus	Great Reed Warbler		
Acrocephalus baeticatus	Common Reed Warbler		
Acrocephalus gracilirostris	Lesser Swamp Warbler		
Acrocephalus palustris	Marsh Warbler		
Acrocephalus schoenobaenus	Sedge Warbler		
Acrocephalus scirpaceus	Eurasian Reed Warbler		
Actitis hypoleucos	Common Sandpiper		
Actophilornis africanus	African Jacana		
Afrotis afraoides	Northern Black Korhaan		
Alcedo semitorquata	Half-collared Kingfisher	VU	LC
Alopochen aegyptiaca	Egyptian Goose		

Amadina erythrocephala	Red-headed Finch		
Amadina fasciata	Cut-throat Finch		
Amandava subflava	Orange-breasted Waxbill		
Amblyospiza albifrons	Thick-billed Weaver		
Anaplectes rubriceps	Red-headed Weaver		
Anas capensis	Cape Teal		
Anas erythrorhyncha	Red-billed Teal	NT	LC
Anas hottentota	Blue-billed Teal		
Anas hybrid	Hybrid Mallard		
Anas platyrhynchos	Mallard		
Anas platyrhynchos domesticus	Domestic Duck		
Anas smithii	Cape Shoveler	NT	LC
Anas sparsa	African Black Duck		
Anas undulata	Yellow-billed Duck	NT	LC
Anhinga rufa	African Darter	NT	LC
Anomalospiza imberbis	Cuckoo Finch		
Anser anser domesticus	Domestic Goose		
Anthoscopus caroli	Grey Penduline Tit		
Anthoscopus minutus	Cape Penduline Tit		
Anthus caffer	Bushveld Pipit		
Anthus cinnamomeus	African Pipit		
Anthus leucophrys	Plain-backed Pipit		
Anthus lineiventris	Striped Pipit		
Anthus nicholsoni	Nicholson's Pipit		
Anthus vaalensis	Buffy Pipit		
Apalis thoracica	Bar-throated Apalis		
Apus affinis	Little Swift		
Apus apus	Common Swift		
Apus barbatus	African Black Swift		
Apus caffer	White-rumped Swift		
Apus horus	Horus Swift		
Aquila spilogaster	African Hawk-eagle		
Aquila verreauxii	Verreaux's Eagle	VU	LC
Ardea alba	Great Egret	NT	LC
Ardea cinerea	Grey Heron		
Ardea goliath	Goliath Heron		
Ardea intermedia	Intermediate Egret		
Ardea melanocephala	Black-headed Heron		
Ardea purpurea	Purple Heron		

Ardeola ralloides	Squacco Heron		
Asio capensis	Marsh Owl	NT	LC
Aviceda cuculoides	African Cuckoo-Hawk		
Batis molitor	Chinspot Batis		
Bostrychia hagedash	Hadada Ibis		
Bradypterus baboecala	Little Rush Warbler		
Brunhilda erythronotos	Black-faced Waxbill		
Bubo africanus	Spotted Eagle-Owl		
Bubulcus ibis	Western Cattle Egret		
Buphagus erythrorynchus	Red-billed Oxpecker		
Burhinus capensis	Spotted Thick-knee		
Buteo buteo	Common Buzzard		
Butorides striata	Striated Heron		
Calamonastes fasciolatus	Barred Wren-Warbler		
Calandrella cinerea	Red-capped Lark		
Calendulauda africanoides	Fawn-colored Lark		
Calendulauda sabota	Sabota Lark		
Calidris ferruginea	Curlew Sandpiper	VU	VU
Calidris minuta	Little Stint		
Calidris pugnax	Ruff		
Callonetta leucophrys	Ringed Teal		
Camaroptera brachyura brevicaudata	Grey-backed Camaroptera		
Campephaga flava	Black Cuckooshrike		
Campethera abingoni	Golden-tailed Woodpecker		
Campethera bennettii	Bennett's Woodpecker		
Campocolinus coqui	Coqui Francolin		
Caprimulgus pectoralis	Fiery-necked Nightjar		
Caprimulgus rufigena	Rufous-cheeked Nightjar		
Caprimulgus tristigma	Freckled Nightjar		
Cecropis abyssinica	Lesser Striped Swallow		
Cecropis cucullata	Greater Striped Swallow		
Cecropis semirufa	Red-breasted Swallow		
Centropus burchellii	Burchell's Coucal		
Cercotrichas leucophrys	White-browed Scrub Robin		
Cercotrichas paena	Kalahari Scrub Robin		
Ceryle rudis	Pied Kingfisher		
Chalcomitra amethystina	Amethyst Sunbird		
Charadrius hiaticula	Common Ringed Plover		
Charadrius pecuarius	Kittlitz's Plover	NT	LC

Charadrius tricollaris	Three-banded Plover		
Chersomanes albofasciata	Spike-heeled Lark		
Chlidonias hybrida	Whiskered Tern		
Chlidonias leucopterus	White-winged Tern		
Chlorocichla flaviventris	Yellow-bellied Greenbul		
Chlorophoneus sulfureopectus	Orange-breasted Bushshrike		
Chloropicus namaquus	Bearded Woodpecker		
Chroicocephalus cirrocephalus	Grey-headed Gull		
Chrysococcyx caprius	Diederik Cuckoo		
Chrysococcyx klaas	Klaas's Cuckoo		
Ciconia abdimii	Abdim's Stork		
Ciconia ciconia	White Stork		
Cinnyricinclus leucogaster	Violet-backed Starling		
Cinnyris afer	Greater Double-collared Sunbird		
Cinnyris mariquensis	Marico Sunbird		
Cinnyris talatala	White-bellied Sunbird		
Circaetus cinereus	Brown Snake Eagle		
Circaetus pectoralis	Black-chested Snake Eagle		
Circus ranivorus	African Marsh Harrier	VU	LC
Cisticola aberrans	Lazy Cisticola		
Cisticola aridulus	Desert Cisticola		
Cisticola ayresii	Wing-snapping Cisticola		
Cisticola chiniana	Rattling Cisticola		
Cisticola fulvicapilla	Neddicky		
Cisticola juncidis	Zitting Cisticola		
Cisticola textrix	Cloud Cisticola		
Cisticola tinniens	Levaillant's Cisticola		
Clamator glandarius	Great Spotted Cuckoo		
Clamator jacobinus	Jacobin Cuckoo		
Clamator levaillantii	Levaillant's Cuckoo		
Clanga pomarina	Lesser Spotted Eagle		
Colius colius	White-backed Mousebird		
Colius striatus	Speckled Mousebird		
Columba arquatrix	African Olive Pigeon		
Columba guinea	Speckled Pigeon		
Columba livia	Rock Dove		
Coracias caudatus	Lilac-breasted Roller		
Coracias garrulus	European Roller	NT	LC
Coracias naevius	Purple Roller		

Corvus albus	Pied Crow		
Corythornis cristatus	Malachite Kingfisher		
Cossypha caffra	Cape Robin-chat		
Cossypha humeralis	White-throated Robin-chat		
Coturnix coturnix	Common Quail		
Coturnix delegorguei	Harlequin Quail		
Creatophora cinerea	Wattled Starling		
Crex crex	Corn Crake		
Crex egregia	African Crake		
Crinifer concolor	Grey Go-away-bird		
Crithagra atrogularis	Black-throated Canary		
Crithagra flaviventris	Yellow Canary		
Crithagra gularis	Streaky-headed Seedeater		
Crithagra mozambica	Yellow-fronted Canary		
Cuculus clamosus	Black Cuckoo		
Cuculus gularis	African Cuckoo		
Cuculus solitarius	Red-chested Cuckoo		
Curruca borin	Garden Warbler		
Curruca communis	Common Whitethroat		
Curruca subcoerulea	Chestnut-vented Warbler		
Cursorius temminckii	Temminck's Courser		
Cypsiurus parvus	African Palm Swift		
Delichon urbicum	Common House Martin		
Dendrocygna bicolor	Fulvous Whistling Duck	NT	LC
Dendrocygna viduata	White-faced Whistling Duck		
Dendropicos fuscescens	Cardinal Woodpecker		
Dicrurus adsimilis	Fork-tailed Drongo		
Dryoscopus cubla	Black-backed Puffback		
Egretta ardesiaca	Black Heron		
Egretta brachyrhyncha	Yellow-billed Egret		
Egretta garzetta	Little Egret		
Elanus caeruleus	Black-winged Kite	NT	LC
Emberiza capensis	Cape Bunting		
Emberiza flaviventris	Golden-breasted Bunting		
Emberiza tahapisi	Cinnamon-breasted Bunting		
Eremomela icteropygialis	Yellow-bellied Eremomela		
Eremomela scotops	Green-capped Eremomela		
Eremomela usticollis	Burnt-necked Eremomela		
Estrilda astrild	Common Waxbill		

Euplectes afer	Yellow-crowned Bishop		
Euplectes albonotatus	White-winged Widowbird		
Euplectes ardens	Red-collared Widowbird		
Euplectes capensis	Yellow Bishop		
Euplectes orix	Southern Red Bishop		
Euplectes progne	Long-tailed Widowbird		
Eurocephalus anguitimens	Southern White-crowned Shrike		
Falco amurensis	Amur Falcon		
Falco biarmicus	Lanner Falcon	NT	LC
Falco naumanni	Lesser Kestrel	VU	LC
Falco peregrinus	Peregrine Falcon		
Falco rupicoloides	Greater Kestrel		
Falco rupicolus	Rock Kestrel		
Falco subbuteo	Eurasian Hobby		
Falco vespertinus	Red-footed Falcon	VU	VU
Fulica cristata	Red-knobbed coot		
Gallinago nigripennis	African Snipe		
Gallinula chloropus	Common Moorhen		
Geronticus calvus	Southern Bald Ibis	NT	NT
Glareola nordmanni	Black-winged Pratincole	LC	NT
Glaucidium perlatum	Pearl-spotted Owlet		
Gymnoris superciliaris	Yellow-throated Bush Sparrow		
Gyps africanus	White-backed Vulture	CR	CR
Gyps coprotheres	Cape Vulture	VU	VU
Halcyon albiventris	Brown-hooded Kingfisher		
Halcyon chelicuti	Striped Kingfisher		
Halcyon senegalensis	Woodland Kingfisher		
Haliaeetus vocifer	African Fish Eagle		
Hieraaetus pennatus	Booted Eagle		
Hieraaetus wahlbergi	Wahlberg's Eagle		
Himantopus himantopus	Black-winged Stilt		
Hippolais icterina	Icterine Warbler		
Hirundo albigularis	White-throated Swallow		
Hirundo dimidiata	Pearl-breasted Swallow		
Hirundo rustica	Barn Swallow		
Hirundo smithii	Wire-tailed Swallow		
Hydroprogne caspia	Caspian Tern	VU	LC
Iduna natalensis	African Yellow Warbler		
Indicator indicator	Greater Honeyguide		

Indicator minor	Lesser Honeyguide		
Ixobrychus minutus	Little Bittern		
Jynx ruficollis	Red-throated Wryneck		
Kaupifalco monogrammicus	Lizard Buzzard		
Lagonosticta rhodopareia	Jameson's Firefinch		
Lagonosticta rubricata	African Firefinch		
Lagonosticta senegala	Red-billed Firefinch		
Lamprotornis australis	Burchell's Starling		
Lamprotornis bicolor	Pied Starling		
Lamprotornis nitens	Cape Starling		
Laniarius atrococcineus	Crimson-breasted Shrike		
Laniarius ferrugineus	Southern Boubou		
Lanius collaris	Southern Fiscal		
Lanius collurio	Red-backed Shrike		
Lanius minor	Lesser Grey Shrike		
Leptoptilos crumenifer	Marabou Stork	NT	LC
Lonchura cucullata	Bronze Mannikin		
Lophaetus occipitalis	Long-crested Eagle		
Lophoceros nasutus	African Grey Hornbill		
Lophotis ruficrista	Red-crested Korhaan		
Lybius torquatus	Black-collared Barbet		
Macheiramphus alcinus	Bat Hawk	EN	LC
Macronyx capensis	Cape Longclaw		
Malaconotus blanchoti	Grey-headed Bushshrike		
Megaceryle maxima	Giant Kingfisher		
Melaenornis mariquensis	Marico flycatcher		
Melaenornis pammelaina	Southern Black flycatcher		
Melaenornis silens	Fiscal Flycatcher		
Melaniparus cinerascens	Ashy Tit		
Melaniparus niger	Southern Black Tit		
Merops apiaster	European Bee-eater		
Merops bullockoides	White-fronted Bee-eater		
Merops hirundineus	Swallow-tailed Bee-eater		
Merops nubicoides	Southern Carmine Bee-eater		
Merops persicus	Blue-cheeked Bee-eater		
Merops pusillus	Little Bee-eater		
Microcarbo africanus	Reed Cormorant		
Micronisus gabar	Gabar Goshawk		
Microparra capensis	Lesser Jacana	NA	LC

Milvus aegyptius	Yellow-billed Kite		
Milvus migrans	Black Kite		
Mirafra africana	Rufous-naped Lark		
Mirafra cheniana	Melodious Lark	NT	LC
Mirafra fasciolata	Eastern Clapper Lark		
Mirafra passerina	Monotonous Lark		
Mirafra rufocinnamomea	Flappet Lark		
Motacilla aguimp	African Pied Wagtail		
Motacilla capensis	Cape Wagtail		
Motacilla flava	Western Yellow Wagtail		
Muscicapa striata	Spotted flycatcher		
Mycteria ibis	Yellow-billed Stork	VU	LC
Myioparus plumbeus	Grey Tit-flycatcher		
Myrmecocichla formicivora	Ant-eating Chat		
Myrmecocichla monticola	Mountain Wheatear		
Nectarinia famosa	Malachite Sunbird		
Neophedina cincta	Banded Martin		
Netta erythrophthalma	Southern Pochard	NT	LC
Netta rufina	Red-crested Pochard		
Nilaus afer	Brubru		
Numida meleagris	Helmeted Guineafowl		
Nycticorax nycticorax	Black-crowned Night Heron	NT	LC
Oena capensis	Namaqua Dove		
Oenanthe familiaris	Familiar Chat		
Oenanthe pileata	Capped Wheatear		
Onychognathus morio	Red-winged Starling		
Oriolus larvatus	Black-headed Oriole		
Ortygornis sephaena	Crested Francolin		
Ortygospiza atricollis	Quailfinch		
Otus senegalensis	African Scops Owl		
Oxyura maccoa	Maccoa Duck	VU	EN
Pandion haliaetus	Western Osprey		
Paragallinula angulata	Lesser Moorhen		
Passer diffusus	Southern Grey-headed Sparrow		
Passer domesticus	House Sparrow		
Passer melanurus	Cape Sparrow		
Passer motitensis	Great Sparrow		
Pavo cristatus	Indian Peafowl		
Pelecanus rufescens	Pink-backed Pelican	VU	LC

Pernis apivorus	European Honey buzzard		
Petrochelidon spilodera	South African Cliff Swallow		
Phalacrocorax lucidus	White-breasted Cormorant		
Phoeniconaias minor	Lesser Flamingo	VU	NT
Phoenicopterus roseus	Greater Flamingo	NT	LC
Phoeniculus purpureus	Green Wood Hoopoe		
Phylloscopus trochilus	Willow Warbler		
Pinarocorys nigricans	Dusky Lark		
Platalea alba	African Spoonbill		
Plectropterus gambensis	Spur-winged Goose		
Plegadis falcinellus	Glossy Ibis		
Plocepasser mahali	White-browed Sparrow-Weaver		
Ploceus capensis	Cape Weaver		
Ploceus cucullatus	Village Weaver		
Ploceus intermedius	Lesser Masked Weaver		
Ploceus velatus	Southern Masked Weaver		
Podica senegalensis	African Finfoot	VU	LC
Podiceps cristatus	Great Crested Grebe	VU	LC
Pogoniulus chrysoconus	Yellow-fronted Tinkerbird		
Polyboroides typus	African Harrier-Hawk		
Porphyrio madagascariensis	African Swamphen		
Prinia flavicans	Black-chested Prinia		
Prinia subflava	Tawny-flanked Prinia		
Prionops plumatus	White-crested Helmetshrike		
Prodotiscus regulus	Brown-backed Honeybird		
Psittacula krameri	Rose-ringed Parakeet		
Pternistis natalensis	Natal Spurfowl		
Pternistis swainsonii	Swainson's Spurfowl		
Ptilopsis granti	Southern White-faced Owl		
Ptyonoprogne fuligula	Rock Martin		
Pycnonotus barbatus	Common Bulbul		
Pycnonotus tricolor	Dark-capped Bulbul		
Pytilia melba	Green-winged Pytilia		
Quelea quelea	Red-billed Quelea		
Rallus caerulescens	African Rail		
Recurvirostra avosetta	Pied Avocet		
Rhinopomastus cyanomelas	Common Scimitarbill		
Riparia paludicola	Brown-throated Martin		
Riparia riparia	Sand Martin		

Rostratula benghalensis	Greater Painted-snipe		
Sagittarius serpentarius	Secretarybird	VU	EN
Sarkidiornis melanotos	Knob-billed Duck	NT	LC
Sarothrura rufa	Red-chested Flufftail		
Saxicola torquatus	African Stonechat		
Scopus umbretta	Hamerkop	NT	LC
Sphenoeacus afer	Cape Grassbird		
Spilopelia senegalensis	Laughing Dove		
Sporopipes squamifrons	Scaly-feathered Weaver		
Stenostira scita	Fairy Flycatcher		
Streptopelia capicola	Ring-necked Dove		
Streptopelia semitorquata	Red-eyed Dove		
Struthio camelus	Common Ostrich		
Sylvietta rufescens	Long-billed crombec		
Tachybaptus ruficollis	Little Grebe		
Tachymarptis melba	Alpine Swift		
Tadorna cana	South African Shelduck		
Tchagra australis	Brown-crowned Tchagra		
Tchagra senegalus	Black-crowned Tchagra		
Telophorus zeylonus	Bokmakierie		
Terpsiphone viridis	African Paradise Flycatcher		
Thalassornis leuconotus	White-backed Duck	NT	LC
Thamnolaea cinnamomeiventris	Mocking Cliff Chat		
Threskiornis aethiopicus	African Sacred Ibis		
Tockus leucomelas	Southern Yellow-billed Hornbill		
Tockus rufirostris	Southern Red-billed Hornbill		
Trachyphonus vaillantii	Crested Barbet		
Treron calvus	African Green Pigeon		
Tricholaema leucomelas	Acacia Pied Barbet		
Tringa glareola	Wood Sandpiper		
Tringa nebularia	Common Greenshank		
Tringa stagnatilis	Marsh Sandpiper		
Turdoides bicolor	Southern Pied Babbler		
Turdoides jardineii	Arrow-marked Babbler		
Turdus libonyana	Kurrichane Thrush		
Turdus litsitsirupa	Groundscraper Thrush		
Turdus smithi	Karoo Thrush		
Turnix sylvaticus	Common Buttonquail		
Turtur chalcospilos	Emerald-spotted Wood Dove		

Tyto alba	Western Barn Owl		
Tyto capensis	African Grass Owl	VU	LC
Upupa africana	African Hoopoe		
Uraeginthus angolensis	Blue Waxbill		
Uraeginthus granatinus	Violet-eared Waxbill		
Urocolius indicus	Red-faced Mousebird		
Urolestes melanoleucus	Magpie Shrike		
Vanellus armatus	Blacksmith Lapwing		
Vanellus coronatus	Crowned Lapwing		
Vanellus senegallus	African Wattled Lapwing		
Vidua chalybeata	Village Indigobird		
Vidua funerea	Dusky Indigobird		
Vidua macroura	Pin-tailed Whydah		
Vidua paradisaea	Long-tailed Paradise Whydah		
Vidua purpurascens	Purple Indigobird		
Vidua regia	Shaft-tailed Whydah		
Zaporina flavirostra	Black Crake		
Zosterops pallidus	Orange River White-eye		
Zosterops virens	Cape White-eye		

7.4 Appendix D: Specialist Declaration of Independence

I, Sarah Newman, 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.

Sarah Newman

Terrestrial Ecologist

The Biodiversity Company

October 2025

I, Leigh-Ann de Wet, 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.

Leigh-Ann de Wet

Terrestrial Ecologist

The Biodiversity Company

October 2025

7.5 Appendix E: Specialist CVs

Sarah Newman

M.Sc. Entomology (*Pr Sci Nat*)

Cell: +27 73 391 6933
Email: sarah@thebiodiversitycompany.com
Identity Number: 9312170034086
Date of birth: 17 December 1993

Profile Summary

Work experience throughout South Africa, as well as Lesotho, Angola, Mauritius and Costa Rica.

Extensive experience working in the Sani Pass region of southern Africa investigating the patterns and drivers of ant diversity across an elevation gradient.

Experience with sea turtle monitoring and conservation in Costa Rica.

Experience conducting terrestrial biodiversity specialist assessments throughout South Africa.

Areas of Interest

Entomology, Zoology, Biodiversity, Conservation and Community Ecology.

Key Experience

- Terrestrial Ecological Assessments
- Rehabilitation plans and monitoring
- Field work and research
- Taxonomic classification of insects

Country Experience

South Africa
Lesotho
Angola
Zambia
Mauritius
Costa Rica

Nationality

South African

Languages

English – Proficient
Afrikaans – Conversational
Spanish – Conversational

Qualifications

- MSc Entomology (*Distinction*), University of Pretoria
- BSc (Hons) Zoology, University of Pretoria
- BSc Zoology, University of Pretoria
- Pr Sci Nat (158474)

Signed:

Sarah Newman

CURRICULUM VITAE: Sarah Newman

Leigh-Ann de Wet

M.Sc. Botany (*Pr Sci Nat*)

Cell: +27 83 352 1936
Email: leigh-ann@thebiodiversitycompany.com
Identity Number: 8209010127081
Date of birth: 1 September 1982

Profile Summary

Working experience throughout South Africa, Southern Africa West and Central Africa and also Madagascar.

Specialist experience in exploration, mining, engineering, hydropower, private sector and renewable energy.

Experience with project management for national and international biodiversity projects.

Experience with IFC Performance Standards, Critical Habitat and High Conservation Value Assessments. Experience in numerous vegetation and habitat types throughout Africa,

Specialist expertise includes botany, forest ecology, and terrestrial fauna. Methodology development, conservation management and terrestrial monitoring.

Areas of Interest

Forest ecology and ecosystem functionality.

Ecology and plant identification.

Field methodology.

Publication of scientific journals and articles.

Key Experience

- World Bank, Equator Principles and the International Finance Corporation requirements
- Familiar with High Conservation Value assessments as per ProForest guidelines.
- Conservation Management Plans.
- Flora assessments.
- Terrestrial fauna assessments.
- Monitoring.
- Ecosystem services
- Rehabilitation Plans.
- Alien Invasive Plant Management Plans.
- Permitting.

Country Experience

Mozambique,

Botswana;

Malawi,

Zambia,

Madagascar,

Liberia,

Guinea'

Democratic Republic of the Congo,

South Africa

Nationality

South African

Languages

English – Proficient

Afrikaans – Conversational

Qualifications

- MSc (Rhodes University) – Botany.
- BSc Honours (Rhodes University) – Botany
- BSc Natural Science (Botany and Entomology)
- Pr Sci Nat (400233/12)
- Certificate of Competence: UFS Introduction to wetland delineation.
- Certificate of Competence: UFS Introduction to wetland law
- Certificate of competence: Africa Land Use Training Grass Identification (long and short course)
- Certificate of Competence: ASI Snake Awareness, first aid for snake bite and venomous snake handling.

Signed:

CURRICULUM VITAE: Leigh-Ann de Wet