TERRESTRIAL SITE SENSITIVITY VERIFICATION REPORT FOR THE PROPOSED KOPANYA SOLAR PHOTOVOLTAIC (PV) PROJECT AND ASSOCIATED INFRASTRUCTURE

Fetakgomo Tubatse Local Municipality, Sekhukhune District Municipality in the Limpopo Province, South Africa

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Report Name	**TERRESTRIAL SITE SENSITIVITY VERIFICATION REPORT FOR THE PROPOSED KOPANYA SOLAR PHOTOVOLTAIC (PV) PROJECT AND ASSOCIATED INFRASTRUCTURE**
Specialist Theme	Terrestrial Biodiversity, Plant and Animal Theme
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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 conduct a Site Sensitivity Verification (SSV) for the proposed Kopanya Solar Photovoltaic (PV) Project and associated infrastructure. The proposed project will be located on the Remaining Extent (Portion 0) of Farm Booysendal No. 43 JT and Portion 2 of the Der Brochen Farm No. 7 JT, near the Burgersfort/Mashishing town within the Fetakgomo Tubatse Local Municipality of the Sekhukhune District Municipality in the Limpopo Province, South Africa.

The field survey was conducted from the 26th to the 30th of January 2026. The boundaries of the proposed development footprint – as provided for by the client – were assessed and are referred to as the Project Area of Influence (PAOI) for reporting purposes. The PAOI consists of the Solar PV area, two overhead powerline (OHL) alternatives, each with a 200 metre (m) assessment corridor, and the access road with a 20 m assessment buffer. A map illustrating the regional locality of the PAOI is depicted in Figure 1-1, while the details of the PAOI can be seen 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 recently published Government Notices (GN) 320 (20 March 2020) and GN 1150 (30 October 2020) in terms of NEMA, dated 20 March and 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:

- Terrestrial Biodiversity Theme Sensitivity is ‘Very High’ for the proposed PAOI;
- Animal Species Theme Sensitivity is ‘High’ for the proposed PAOI; and
- Plant Species Theme Sensitivity is ‘Medium’ for the proposed PAOI.

This report, after taking into consideration the findings and recommendations provided by the specialist stipulated 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.

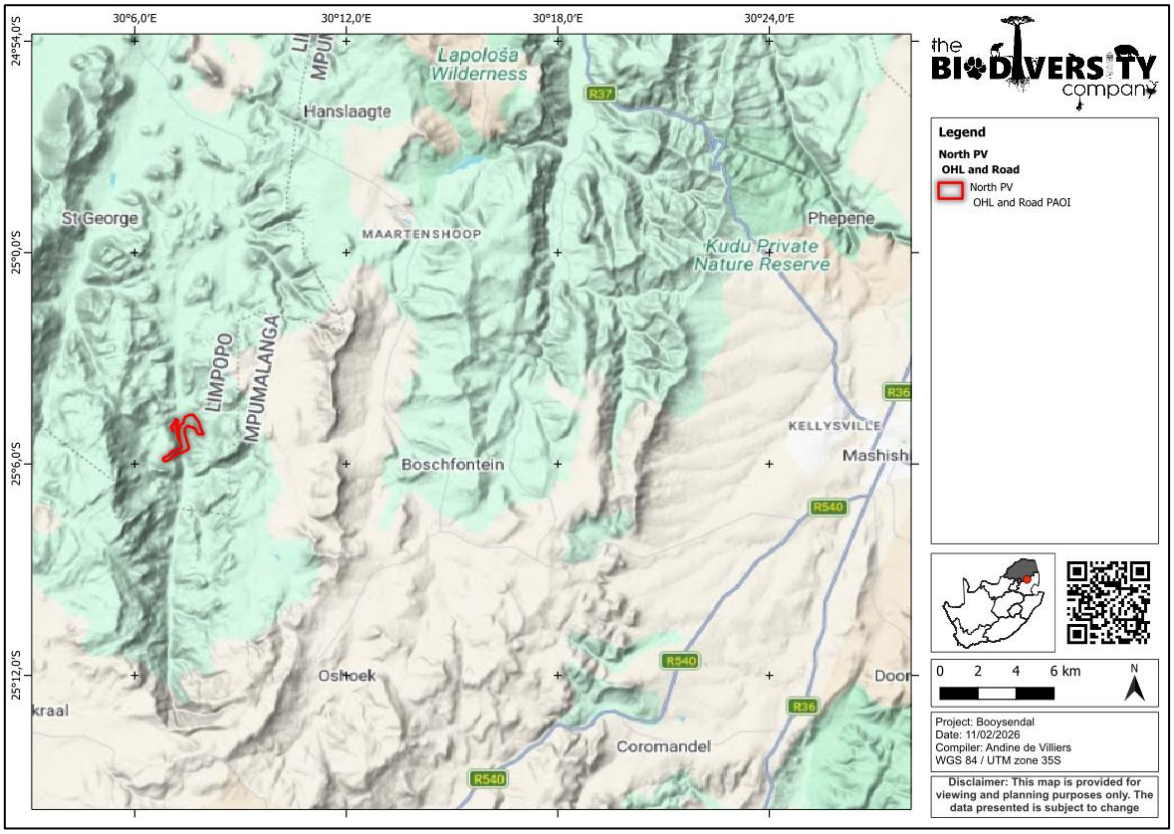


Figure 1-1 Map illustrating the regional locality of the Project Area of Influence (PAOI)

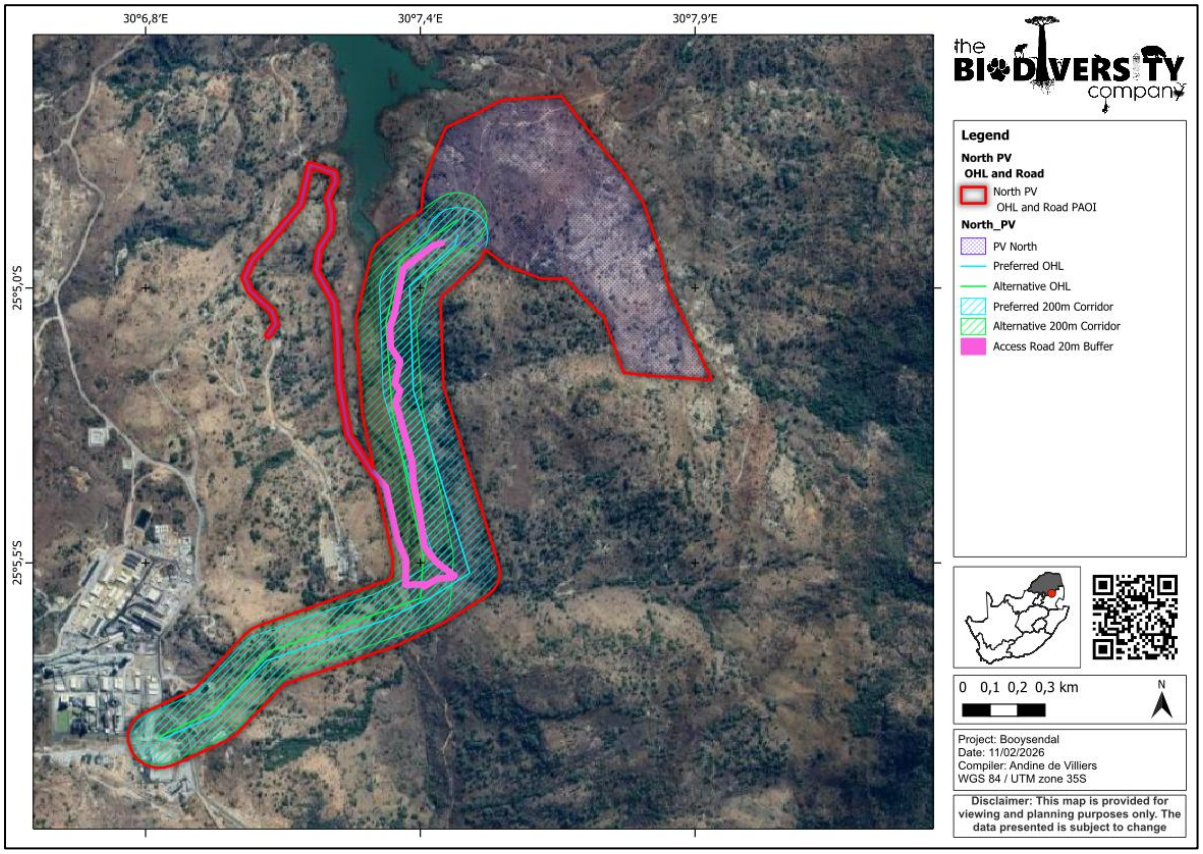


Figure 1-2 Map illustrating the PAOI and the project layout

1.2 Legal Framework

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 recently published Government Notices (GN) 320 (20 March 2020) and GN 1150 (30 October 2020) in terms of NEMA, dated 20 March and 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).

This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the EAP and regulatory authorities, enabling informed decision-making, as to the ecological viability of the proposed project.

The SSV must be undertaken:

- For the footprint on which the proposed activities are proposed to take place;
- By specialists, registered in the field for which they are undertaking the SSV and where relevant, with demonstrated experience in the taxonomic group of the species being considered;
- Within the season which would be most relevant to identify the specific species or vegetation of interest; and
- For a period of time as necessitated by the sensitivity of the proposed site and size of the proposed facility.

1.3 Scope of Work

In accordance with the 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 NEMA, 1998, when applying for Environmental Authorisation the current use of the land and the environmental sensitivity of the site under consideration as identified by the National Web-based Environmental Screening Tool, must be confirmed by undertaking a SSV.

The outcome of this SSV is to:

- Confirm or dispute the current use of the land and the environmental sensitivity as identified by the Screening Tool; and
- Motivate and provide evidence of either the verified or different use of the land and environmental sensitivity of the site.

2 Approach

A field survey for the area was conducted from the 26th to the 30th of January 2026, which constitutes a wet season survey. The objective was to determine the presence of flora, fauna, and vegetation within the PAOI and assess the likelihood of Species of Conservation Concern (SCC) occurring within the surveyed area. (Figure 2-1). A verification report has been prepared in accordance with the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity.

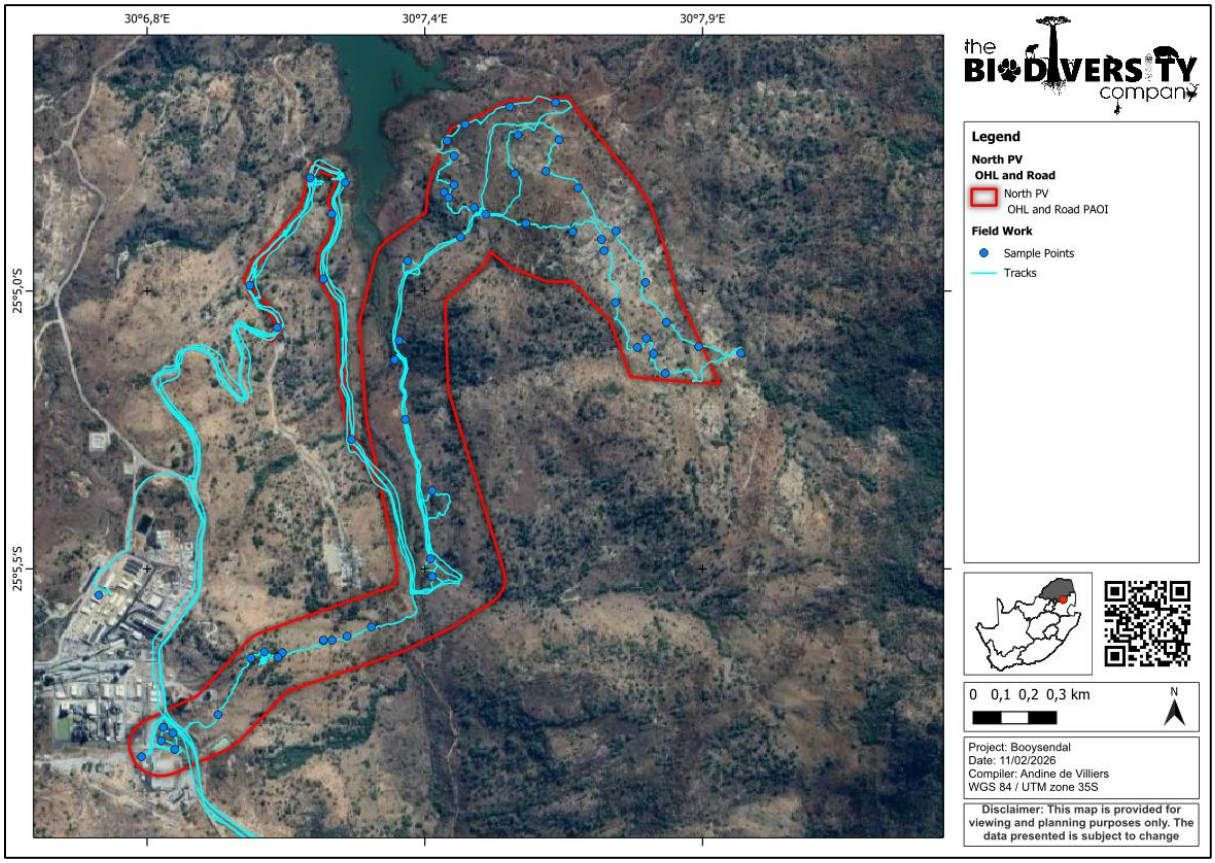


Figure 2-1 Field survey coverage

2.1 Assumptions and Limitations

The following assumptions and limitations are applicable for this assessment:

- It is assumed that all information received from the client and landowner is accurate;
- 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 area was only surveyed during a single wet season site visit and therefore, this assessment does not consider temporal trends (note that the data collected is considered sufficient to derive a meaningful baseline);
- 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;
- Whilst every effort was made to cover as much of the PAOI as possible, representative sampling is completed, and by its nature it is possible that some plant and animal species that are present within the PAOI were not recorded during the field investigations;
- This assessment only considers non-volant mammals, reptiles and amphibians. Bats and invertebrates were not assessed. Avifauna were assessed separately (TBC, 2026); and
- The GPS used in the assessment has an accuracy of 5 m and consequently any spatial features may be offset by up to 5 m.

3 Results & Discussion

3.1 Desktop Baseline

3.1.1 Ecologically Important Landscape Features

The GIS analysis pertaining to the relevance of the proposed project to ecologically important landscape features is summarised in Table 3-1.

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

Desktop Information Considered	Relevant/Irrelevant
Ecosystem Threat Status	Relevant – Overlaps with a Least Concern (LC) ecosystem.
Ecosystem Protection Level	Relevant – Overlaps with a Poorly Protected (PP) ecosystem.
Conservation Plan	Relevant – The PAOI overlaps with Critical Biodiversity Areas (CBA) 2 and No Natural Remaining.
South Africa Protected Areas Database (SAPAD) and South Africa Conservation Areas Database (SACAD)	Irrelevant – No protected or conservation areas are located within 10 km of the PAOI.
National Protected Areas Expansion Strategy (NPAES)	Relevant – The PAOI overlaps with Priority Focus Areas.
Key Biodiversity Areas (KBA)	Relevant – The PAOI overlaps with the Steelpoort KBA.
South African Inventory of Inland Aquatic Ecosystems (SAIIAE)	Relevant – The PAOI overlaps with the Critically Endangered (CR) Groot-Dwars River. The PAOI does not overlap with any SAIIAE wetlands.
National Freshwater Priority Area (NFEPA)	Relevant – The PAOI overlaps with non-priority NFEPA wetlands. The PAOI overlaps with the Class B Largely Natural Groot-Dwars River.
Strategic Water Source Areas (SWSA)	Irrelevant – The PAOI does not overlap with any SWSAs.
Renewable Energy Development Zones (REDZ)	Irrelevant – The PAOI does not overlap with any Renewable Energy Development Zones.
Strategic Transmission Corridors (EGI)	Relevant – The PAOI overlaps with the international corridor.
Renewable Energy Database	Relevant – Two approved renewable projects are located within 30 km of the PAOI.

3.1.2 DFFE Screening Tool-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 PAOI due to the overlap with a Critical Biodiversity Area (CBA) 2, NFEPA Subcatchment and the National Protected Area Expansion Strategy (NPAES) (Figure 3-1);

- Animal Species Theme Sensitivity is ‘High’ for the proposed PAOI due to the potential presence of six (6) avifauna species with medium and/or high sensitivity and four (4) medium sensitivity mammal species. Please note, the avifauna species are assessed separately (TBC, 2026) (Figure 3-2); and

- Plant Species Theme Sensitivity is ‘Medium’ for the proposed PAOI due to the potential occurrence of four (4) medium sensitivity flora species (Figure 3-3).

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



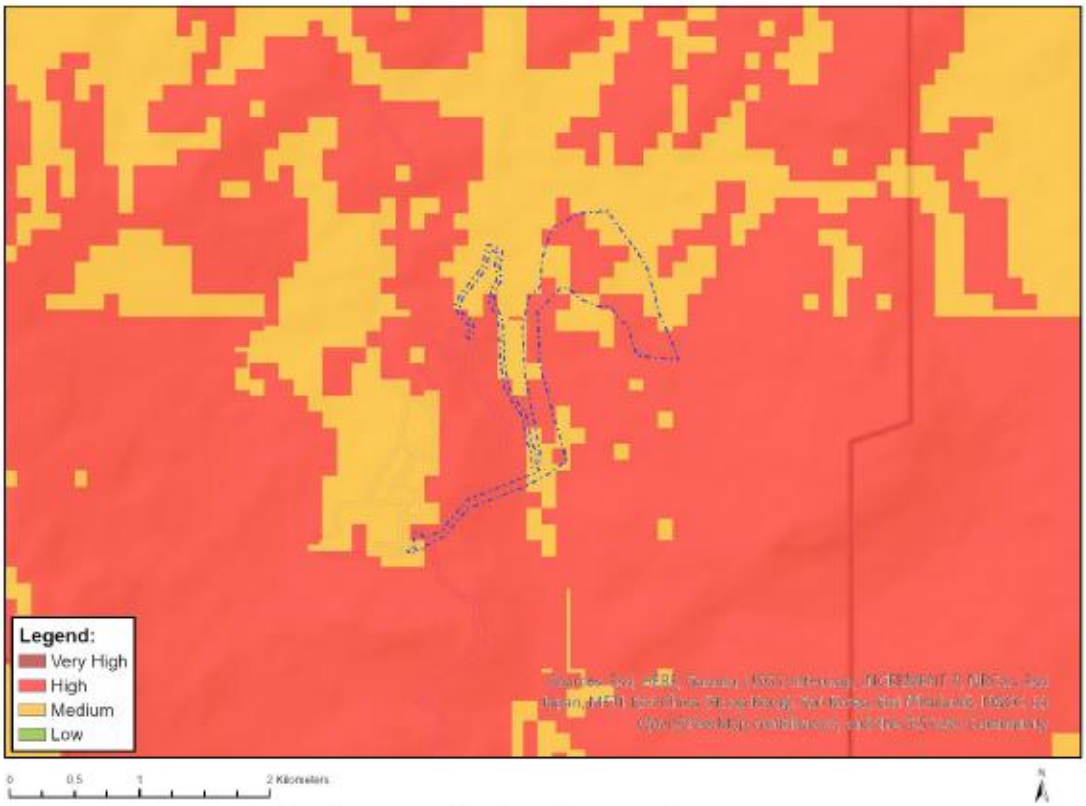
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	CBA 2
Very High	FEPA Subcatchment
Very High	National Protected Area Expansion Strategy (NPAES)

Figure 3-1 Terrestrial Biodiversity Theme Sensitivity

MAP OF RELATIVE ANIMAL 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.

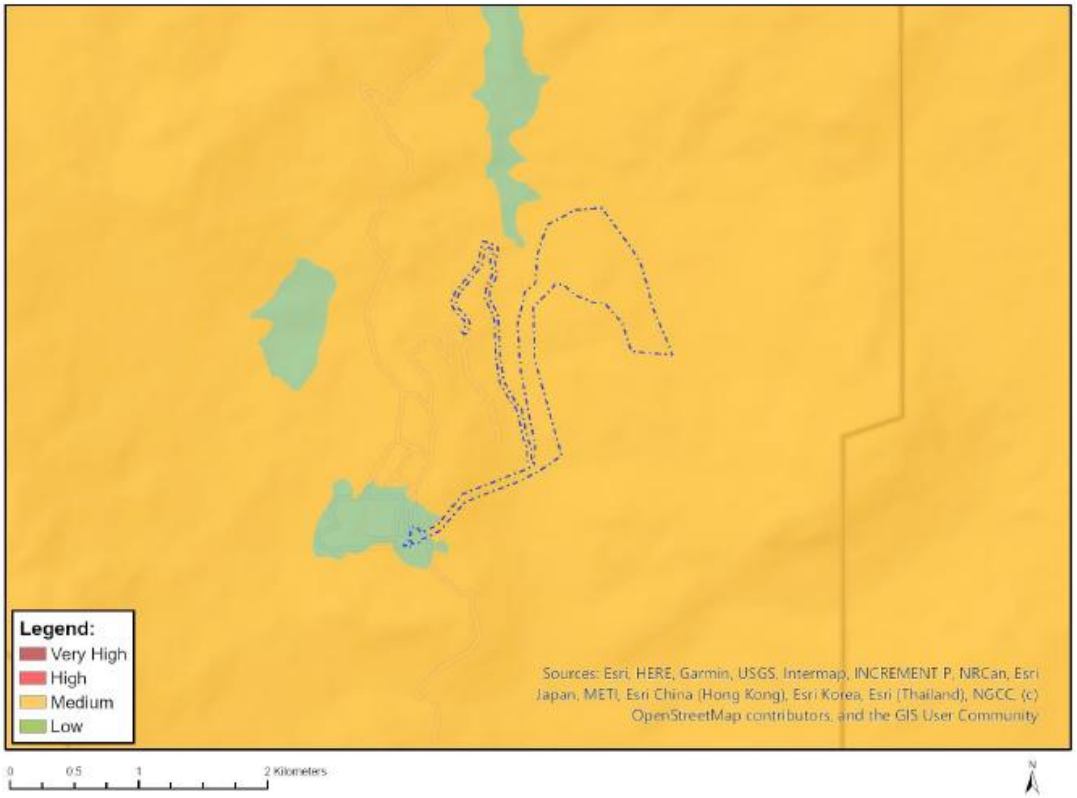
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Falco biarmicus
High	Aves-Geronticus calvus
High	Aves-Aquila rapax
Medium	Aves-Podica senegalensis
Medium	Aves-Hydroprogne caspia
Medium	Aves-Geronticus calvus
Medium	Aves-Aquila rapax
Medium	Aves-Eupodotis senegalensis
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Hydrictis maculicollis
Medium	Mammalia-Lycaon pictus

Figure 3-2 Animal Species Theme Sensitivity

MAP OF 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)
Low	Low Sensitivity
Medium	Sensitive species 587
Medium	Sensitive species 1167
Medium	Searsia sekhukhuniensis
Medium	Combretum petrophilum

Figure 3-3 Plant Species Theme Sensitivity

3.1.3 Flora Species of Conservation Concern

The DFFE Screening Tool indicates that four (4) sensitive flora species are predicted to occur within the PAOI (Table 3-1).

Note that the Screening Tool report includes a list of plant SCC known or expected to occur within the proposed development footprint. Some of these SCCs are sensitive to illegal harvesting. **Such species have had their names obscured and are listed as sensitive plant/animal with a unique number.** As per the best practice guideline that accompanies the protocol and Screening Tool, the name of the sensitive species may not appear in the final Environmental Impact Assessment report nor any of the specialist reports released into the public domain. It should be referred to as a *sensitive plant* or *sensitive animal,* and its threat status may be included therein (e.g., *Endangered (EN) sensitive plant*).

Table 3-2 Threatened flora species that are expected to occur within the PAOI. EN = Endangered

Scientific Name	Regional Conservation Status	Screening Tool Sensitivity	Likelihood of Occurrence	Habitat (from SANBI)	Reason
Sensitive Species 587	Rare	Medium	Medium	-	Some suitable habitat
Sensitive Species 1167	EN	Medium	High	-	Suitable habitat
Searsia sekhukhuniensis	Rare	Medium	High	Rocky hillsides in bushveld	Suitable habitat
Combretum petrophilum	Rare	Medium	High	Rocky outcrops in mountain bushveld	Suitable habitat

3.1.4 Faunal Species of Conservation Concern

The DFFE Screening Tool indicates that four (4) mammalian SCC could occur within the PAOI. No amphibian or reptile species are listed. The listed avifauna species are assessed separately (TBC, 2026). The likelihood of the species occurring within the PAOI is indicated in Table 3-3.

Table 3-3 Threatened fauna species that are expected to occur within the PAOI. LC = Least Concern, NT = Near Threatened, VU = Vulnerable, and EN = Endangered

Scientific Name	Common name	Regional Conservation Status	Global Conservation Status	Screening Tool Sensitivity	Likelihood of Occurrence	Habitat (from SANBI)	Reason
Crocidura maquassiensis	Makwassie Musk Shrew	VU	LC	Medium	Low	May tolerate a wide range of habitats, including urban and rural landscapes	Lack of suitable habitat
Dasymys robertsii	Robert's Shaggy Rat	NT	LC	Medium	Medium	Wide variety of habitats, including forest and savannah, swampland and grasslands, but they rely on intact wetlands in these areas	Some suitable habitat
Hydrictis maculicollis	Spotted-necked Otter	VU	NT	Medium	High	Inhabit freshwater habitats where water is not silt-laden, and is unpolluted	Suitable habitat

Lycaon pictus	African Wild Dog	EN	EN	Medium	Low	Most habitat types as long as the habitat is large enough, contains sufficient suitable prey and is free from direct threats such as accidental and	Restricted to game reserves

3.2 Field Survey Results

The following sections discuss the results from the field survey that was conducted for the proposed project.

3.2.1 Habitats

The main habitat types across the PAOI were initially identified largely based on aerial imagery. These habitat types were then refined based on the field coverage and data collected during the field survey. The description and condition, ecosystem services provided, and corresponding photographs of each habitat type can be seen in Table 3-4.

In total, three (3) terrestrial habitats and a set (1) of water resource habitats were identified in the PAOI. The water resource habitat consists of a river, artificial water resources, a drainage area and natural drainage lines, further described in the associated wetland assessment (TBC, 2026). Each of the habitats identified are shown mapped in Figure 3-4. The PAOI is not shown to improve visibility of the habitats. The extent of the habitat delineations indicates the PAOI.

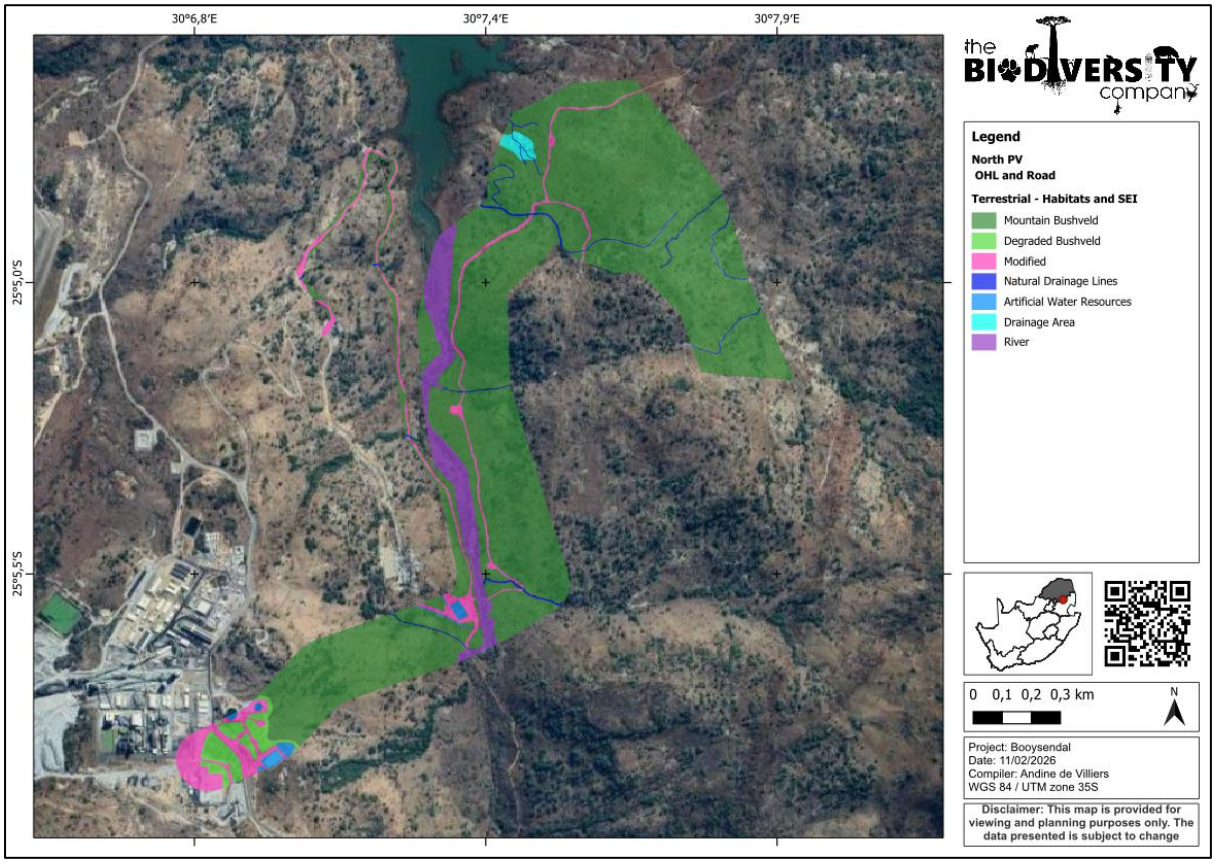


Figure 3-4 Map of the habitat types delineated within the boundaries of the PAOI

Table 3-4 Habitat types delineated within the PAOI

Habitat	Description and condition	Ecosystem Processes and Services
Mountain Bushveld	The Mountain Bushveld habitat is considered natural Sekhukhune Mountain Bushveld, which is characterised by open to closed broadleaf savanna on hills and mountain slopes. Some of the indigenous species recorded include *Combretum apiculatum, Faurea saligna, Searsia pyroides, Rhoicissus sekhukhuniensis, Kirkia wilmsii, Themeda triandra, Ledebouria marginata, Gladiolus crassifolius, Hypoxis rigidula,* and *Crassula vaginata.* Importantly, this habitat exists of mountain slopes with varying levels of rocky cover. These rocky areas are especially important for cryptic species, specifically reptiles, as well as flora requiring specific microhabitats. It is important to note that this habitat hosts multiple protected and threatened species, namely *Sclerocarya birrea* subsp. *caffra, Aloe barbara-jeppeae, Lydenburgia cassinoides, Scadoxus puniceus,* and *Sensitive Species 1167.* More information is provided in Section 3.2.2. Fauna SCC are also expected, although none were observed. The most common impacts on this bushveld habitat are grazing, hunting (snare-setting) and historical roads. This habitat is largely natural and disturbances are very few. Some alien and invasive flora species are present, although at low numbers.	The Mountain Bushveld habitat provides essential ecosystem processes and services. Its diverse vegetation and topography help regulate water flow, promote groundwater recharge, and prevent soil erosion. The bushveld supports rich biodiversity by offering habitat and food for wildlife, including species of conservation concern. It supplies local communities with resources such as firewood, wild fruits, medicinal plants, and grazing for livestock. The vegetation also sequesters carbon, contributing to climate regulation. Additionally, the landscape supports cultural and recreational activities.



25° 5'40.87"S 30° 7'4.08"E

Habitat	Description and condition	Ecosystem Processes and Services
		
25° 4'51.87"S 30° 7'40.07"E		
Degraded Bushveld	This habitat consists of bushveld that has become degraded over time due to ongoing disturbances from the mining operations, edge effects, the spread of alien and invasive species, and fragmentation. Some common indigenous species remains. No flora or fauna SCC observed, and none are expected.	Has significantly reduced ecosystem processes and services compared to healthier bushveld habitats. Due to recent clearing and poor recovery, soil stabilisation is compromised, leading to increased erosion and loss of soil fertility. Water infiltration and groundwater recharge are diminished because of sparse vegetation cover, which can result in more surface runoff and less water retention. The habitat's ability to support wildlife and maintain biodiversity is greatly reduced, offering limited food and shelter for native species. Provisioning services, such as grazing and the collection of natural resources, are also less reliable.

Habitat	Description and condition	Ecosystem Processes and Services
		
	25° 5'50.35"S 30° 6'53.39"E	
		
	25° 5'51.26"S 30° 6'52.04"E	
Water Resources	The Water Resource Habitat consists of artificial water resources, natural Drainage Areas, Natural Drainage Lines, and the River. These areas store and channel water, more so during rainfall, supporting unique microhabitats and enhancing overall biodiversity. The Natural Drainage Lines and Drainage Area both provide vital microhabitats, which could support flora SCC, within the Mountain Bushveld habitat. Importantly, the River is largely natural and provides critical functions within the direct and	Water resources, including drainage lines, drainage areas, and healthy river systems, play a crucial ecological role by facilitating groundwater recharge, providing wildlife corridors, and supporting a diverse range of plant and animal life, particularly during wet periods. These features help stabilise soils and reduce erosion, with well-vegetated banks and riparian zones in healthy rivers and drainage lines acting as natural filters that improve water

Habitat	Description and condition	Ecosystem Processes and Services
	broader environment. This perennial river system areas represent natural wetlands and river systems, which significantly contribute to the overall ecological value and hydrological regime of the landscape by providing habitat and corridors due to connectivity in the broader landscape setting. Fauna SCC are expected to occur within and near the river.	quality and regulate flow. Drainage areas and lines also enhance landscape connectivity, enabling the movement of species and the dispersal of seeds, while healthy rivers sustain aquatic habitats and maintain ecological processes essential for biodiversity. Collectively, these water resources offer essential water supplies for both wildlife and local communities, underpinning the resilience and productivity of the bushveld ecosystem.
	 **25° 5'30.24"S 30° 7'20.99"E**	
	 **25° 4'54.11"S 30° 7'43.70"E**	
Modified	The Modified Habitat has little to no remaining natural vegetation due to land transformation by historic and current mining-related practices. No flora or fauna SCC were observed or are expected.	The Modified Habitat provides very limited ecosystem processes and services compared to natural bushveld areas. Due to extensive clearing, natural vegetation cover is greatly reduced, leading to poor soil stabilisation and increased risk of erosion. Water infiltration and groundwater recharge are also diminished, as much of the land is compacted or covered by invasive species rather than native plants. Biodiversity is low, with few indigenous species able to persist, and the habitat offers minimal food or shelter for wildlife. Provisioning services,

Habitat	Description and condition	Ecosystem Processes and Services
		such as grazing or the collection of natural resources, are largely replaced by agricultural production and human use. Overall, the Modified Habitat is dominated by human activities and invasive species, resulting in a landscape with greatly diminished ecological function and resilience.



25° 5'30.04"S 30° 7'23.47"E



25° 5'53.11"S 30° 6'49.75"E

3.2.2 Protected and Threatened Flora Species

Four (4) protected flora species were observed within the PAOI. Three (3) of these are provincially protected under Schedule 12 of the Limpopo Environmental Management Act No. 7 of 2003. One (1) is a nationally protected tree species, protected under the National Forests Act No. 84 of 1998. Moreover, three (3) flora SCC were observed within Mountain Bushveld habitat within the PAOI.

These details of these species are provided in Table 3-5 and some photographic evidence is provided in Figure 3-5.

Table 3-5 Protected and threatened flora observed within the PAOI. LC = Least Concern, NT = Near Threatened, and EN = Endangered

Family	Scientific Name	Regional Threat Status (SANBI)	Protection
Amaryllidaceae	*Scadoxus puniceus*	LC	Provincially Protected
Anacardiaceae	*Sclerocarya birrea* subsp. *caffra*	LC	Nationally Protected Tree
Asphodelaceae	*Aloe barbara-jeppeae*	NT	Provincially Protected
Celastraceae	*Lydenburgia cassinoides*	NT	
	Sensitive species 1167	EN	Provincially Protected

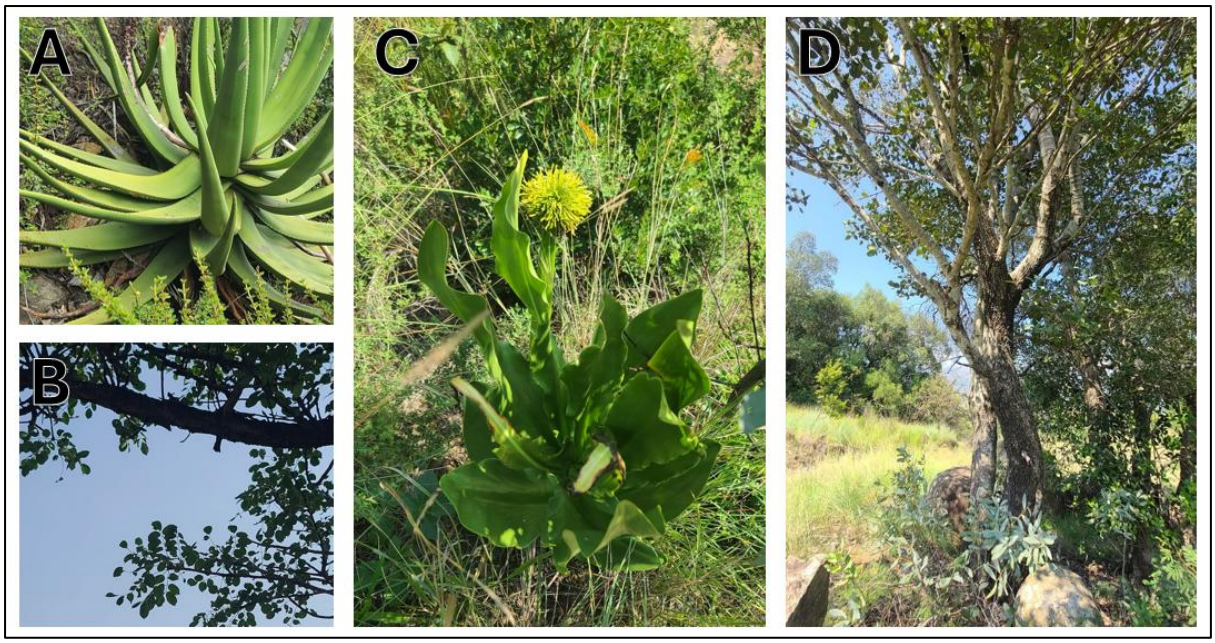


Figure 3-5 Photographic evidence of some of the protected and threatened flora species. A – Aloe barbara-jeppeae, B – Sclerocarya birrea subsp. caffra, C – Scadoxus puniceus, and D – Lydenburgia cassinoides

Note, according to the Species Environmental Assessment Guidelines (SANBI, 2020), all populations of any threatened species, such as *Sensitive Species 1167* (EN regionally), require a 200 m no-go buffer.

3.3 Site Ecological Importance

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

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

All habitats within the assessment area of the proposed PAOI were allocated a sensitivity (i.e., Site Ecological Importance (SEI)) category (Table 3-6). The delineated sensitivities per habitat type are illustrated in Figure 3-6.

Table 3-6 Summary of the habitat types and their associated combined sensitivities (SEI) delineated within the PAOI

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance[1]	Project Component	Receptor Resilience	Site Ecological Importance[2]
Mountain Bushveld	**High** Confirmed or highly likely occurrence of CR, EN, VU species that have a global extent of occurrence (EOO) of > 10 km^2.	**High** Large (> 20 ha but < 100 ha) intact area for any conservation status. 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.	**High**	Solar PV Array	**Very Low** Habitat that is unable to recover from major impacts.	**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.
				Upgrade of the existing road and overhead powerlines[3] **(NB: See footnote*)**	**Medium** Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality	**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.
Degraded Bushveld	**Low** < 50% of receptor contains natural habitat with limited potential to support SCC.	**Low** Several minor and major current negative ecological impacts.	**Low**		**Low** Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to	**Medium** Minimisation and restoration mitigation – development activities of medium impact acceptable followed by

[1] Considered as the 'sensitivity'.

[2] Considered as the sensitivity in relation to the project component. Subject to change depending on layout.

[3] The increased resilience (Medium) is **only** relevant to the sensitivity of the receiving environment in relation to the upgrading of the existing road and the overhead powerline. This assumes that mitigation measures are prescribed and adhered to for these components.

				restore ~ less than 50% of the original species composition and functionality of the receptor functionality.	appropriate restoration activities.
Water Resources: River	**Medium** > 50% of receptor contains natural habitat with potential to support SCC.	**High** Good habitat connectivity, with potentially functional ecological corridors and a regularly used road network between intact habitat patches.	**Medium**	**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	**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.
Water Resources: Drainage Area and Natural Drainage Lines	**Medium** > 50% of receptor contains natural habitat with potential to support SCC.	**Low** Small (> 1 ha but < 5 ha) area.	**Low**	**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	**Medium** Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Water Resources: Artificial	**Low** < 50% of receptor contains natural habitat with limited potential to support SCC.	**Low** Small (> 1 ha but < 5 ha) area.	**Low**	**Medium** Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality	**Low** Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Modified	**Low** < 50% of receptor contains natural habitat with limited potential to support SCC.	**Very Low** Several major current negative ecological impacts.	**Very Low**	**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	**Very Low** Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

	species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.	

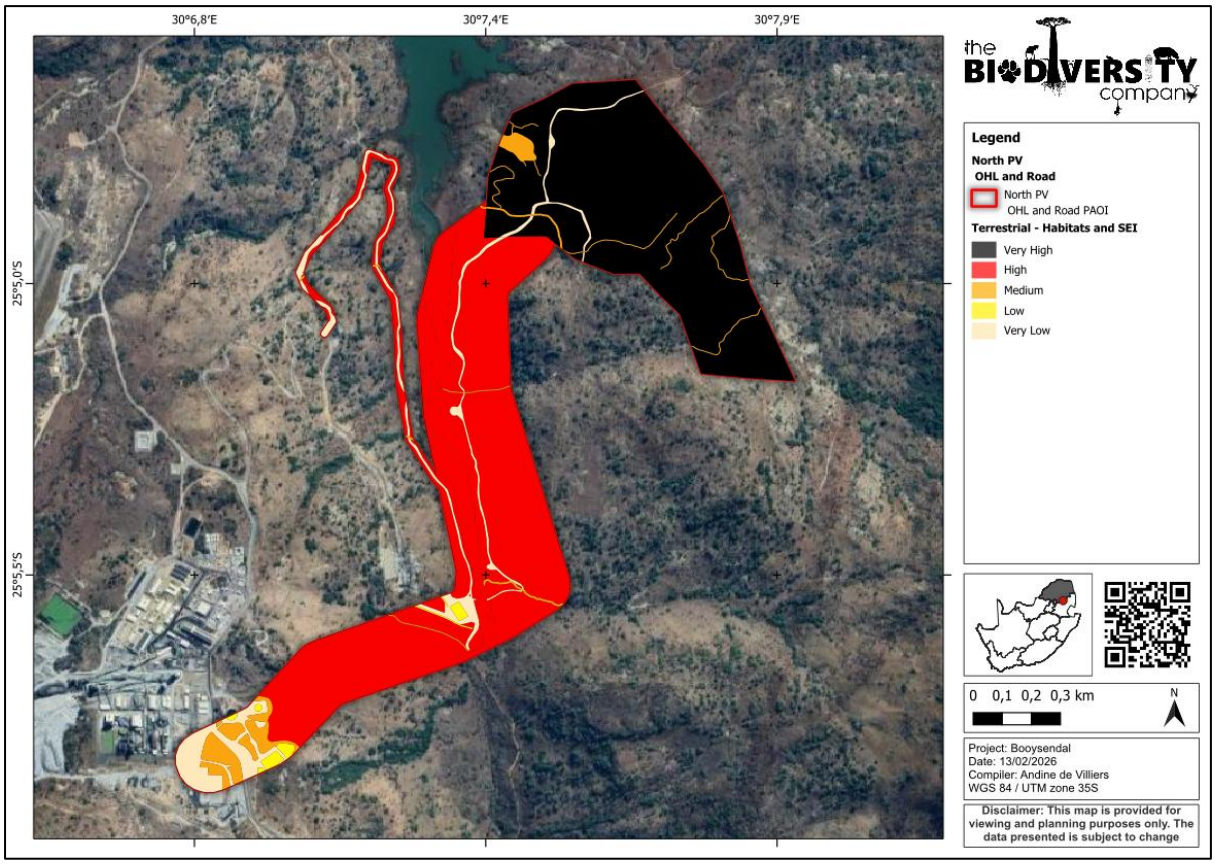


Figure 3-6 Site Ecological Importance (SEI) of habitats associated with the PAOI

3.4 Screening Tool Comparison

The allocated sensitivities for each of the relevant themes are either disputed or validated for the assessed areas in Table 3-7 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 3-7 Summary of The Screening Tool vs Specialist Assigned sensitivities.

Screening Tool Theme	Screening Tool	Habitat	Specialist	Tool Validated or Disputed by Specialist - Reasoning

Terrestrial Biodiversity Theme	**Very High**	**Mountain Bushveld (Solar PV Array)**	**Very High**	Validated – These habitats represent intact, sensitive and ecologically functioning habitats capable of supporting range-restricted flora SCC, as well as fauna SCC. Moreover, the river is representative of a CR river.
		River and Mountain Bushveld (Road and OHL)	**High**	Disputed – These habitats represent intact, sensitive habitats, along linear developments.
		Degraded Bushveld, Drainage Area and Natural Drainage Lines	**Medium**	Disputed – These Drainage Areas and Natural Drainage Lines are largely intact and ecologically functioning, with few disturbances. However, these habitats are small in size. The degraded bushveld has been disturbed over time, and there are ongoing disturbances, but it still provides habitat for indigenous fauna and flora.
		Artificial Water Resources	**Low**	Disputed – These habitats are small and artificial, providing limited functioning as a water source in the environment.
		Modified	**Very Low**	Disputed – Highly modified habitat.
Plant Theme	**Medium**		**High**	Disputed – Multiple threatened flora species observed, specifically within the Mountain Bushveld habitat.
Animal Theme	**High**		**High**	Validated – Although no fauna SCC were observed, the majority of the PAOI consists of sensitive, intact habitat, capable of supporting fauna SCC. Moreover, fauna SCC may also occur within the area sporadically while using the area for foraging or a migration corridor.

4 Impact Screening

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

The development of a Solar PV facility in a bushveld ecosystem can have several impacts on biodiversity and the natural environment. Here are some expected impacts:

1. Habitat Loss and Fragmentation

   - Construction of solar panel arrays, access roads, substations, and associated infrastructure can lead to the direct loss of bushveld habitat, affecting plant communities and the animals that depend on them.

   - The physical footprint of solar arrays may fragment habitats, potentially disrupting animal movement patterns, breeding, and foraging, especially for species with large home ranges or specific habitat requirements.

2. Disturbance to Wildlife

   - Noise and human activity during construction and operation can disturb sensitive species, potentially causing them to avoid the area.

   - Glare and reflection from solar panels may affect certain fauna potentially leading to disorientation or avoidance behaviour.

   - Lighting may disrupt nocturnal animals and insects.

3. Changes to Vegetation

- Glare and reflection from solar panels may affect certain fauna, including birds and insects, potentially leading to disorientation or avoidance behaviour.
- Soil compaction and erosion from construction activities can further degrade vegetation and soil health.
- Shading from panels may change microclimates, affecting the growth and composition of underlying vegetation.

4. Indirect Ecological Effects

- Altered predator-prey dynamics if key species are displaced or populations decline.
- Disruption of ecosystem services such as pollination, seed dispersal, and nutrient cycling if affected species play important ecological roles.
- Potential impacts on water resources due to changes in runoff, infiltration, and possible contamination from construction materials.

5. Cumulative Impacts

- Potential impacts on water resources due to changes in runoff, infiltration, and possible contamination from construction materials.
- Cumulative loss of habitat and ecological connectivity may have long-term consequences for species persistence and ecosystem resilience.

Mitigation Measures

- Careful site selection to avoid sensitive habitats and migration corridors, especially the water resources.
- Monitoring and adaptive management to address unforeseen impacts.
- Restoration of disturbed areas post-construction.
- Minimising the development footprint by optimising panel layout and infrastructure placement to retain as much natural vegetation as possible.
- Implementing buffer zones around sensitive features.

Table 4-1 Potential impacts to biodiversity associated with the proposed activity.

Impact	Project activities that can cause loss/impacts to habitat (especially regarding the proposed infrastructure areas):	Secondary impacts anticipated
1. Destruction, fragmentation and degradation of habitats and ecosystems	Physical removal of vegetation, including potential SCCs and protected species.	Displacement/loss of flora & fauna (including potential SCCs) Increased potential for soil erosion Habitat fragmentation Increased potential for establishment of alien & invasive vegetation
	Access roads and servitudes	
	Soil dust precipitation	
	Water leakages	
	Dumping of waste products	
	Random events such as fire (cooking fires or cigarettes)	
Main Impact	**Project activities that can cause the spread and/or establishment of alien and/or invasive species**	**Secondary impacts anticipated**
2. Spread and/or establishment of alien and/or invasive species	Vegetation removal	Habitat loss for native flora & fauna (including SCC) Spreading of potentially dangerous diseases due to invasive and pest species Alteration of fauna assemblages due to habitat modification
	Vehicles potentially spreading seeds	
	Unsanitary conditions surrounding infrastructure promoting the establishment of alien and/or invasive rodents	
	Creation of infrastructure suitable for breeding activities of alien and/or invasive birds	
Main Impact	**Project activities that can cause direct mortality of fauna**	**Secondary impacts anticipated**
3. Direct mortality of fauna	Clearing of areas	Secondary impacts anticipated. Loss of ecosystem services Increase in rodent populations and associated disease risk
	Roadkill due to vehicle collision	
	Pollution of water resources due to dust effects, chemical spills etc.	
	Intentional killing of fauna for food (hunting)	
Main Impact	**Project activities that can cause reduced dispersal/migration of fauna**	**Secondary impacts anticipated**
4. Reduced dispersal/migration of fauna	Loss of landscape used as corridor	Secondary impacts associated with reduced dispersal/migration of fauna. Loss of ecosystem services Reduced plant seed dispersal
	Roads	
	Removal of vegetation	
Main Impact	**Project activities that can cause pollution in water courses and the surrounding environment**	**Secondary impacts anticipated**
5. Environmental pollution due to water/ mine drainage runoff	Project activities that can cause pollution in water courses and the surrounding environment	Secondary impacts associated with pollution in water courses and the surrounding environment. Faunal mortality (direct and indirectly) Groundwater pollution Loss of ecosystem services
	Chemical (organic/inorganic) spills	
	Erosion	
Main Impact	**Project activities that can cause disruption/alteration of ecological life cycles due to sensory disturbance.**	**Secondary impacts anticipated**
6.Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise, heat radiation, dust, and light pollution.	Operation of machinery (Large earth moving machinery, generators, vehicles)	Secondary impacts associated with disruption/alteration of ecological life cycles due to noise Loss of ecosystem services Secondary impacts associated with disruption/alteration of ecological life cycles due to dust Loss of ecosystem services
	Project activities that can cause disruption/alteration of ecological life cycles due to dust	

5 Conclusion

The aim of this SSV was to provide information to guide the risk of the proposed activity to the ecosystems and the associated fauna and flora. Based on the latest available ecologically relevant spatial datasets and the results of the site survey, the following information is pertinent, especially with regards to the Very High SEI areas (Bushveld and Water Resources habitats):

- Large areas within the PAOI are recognised as CBA 2 according to the conservation plan;
- Indigenous vegetation is still present throughout all habitats (excluding the Modified habitat) within the PAOI. The habitats remain intact and ecologically functioning, and continues to support fauna and flora effectively;
- The Mountain Bushveld (Very High SEI) supports flora SCC (3 confirmed threatened species);
- The River (Water Resources; High SEI) habitat is capable of supporting fauna SCC; and
- Protected flora species were observed within the Mountain Bushveld habitat.

The ecological integrity, importance, and functioning of these terrestrial biodiversity areas provide a variety of ecological services that are considered beneficial, with one key service being the maintenance of biodiversity. The preservation of these systems is the most important aspect to consider for the proposed project. Thus, if these areas are not maintained in a natural or near-natural state, destroyed or fragmented, then meeting targets for biodiversity features will not be achieved. Multiple flora SCC were observed, and fauna SCC are expected. Moreover, multiple protected flora species were observed. It is important to remember that all populations of threatened flora species (i.e. *Sensitive Species 1167*) require a 200 m no-go buffer zone.

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

The developer is urged to provide a layout or design which represents a compromise between the needs of the development and the environmental concerns at the site, especially in regard to the very high and high sensitivity areas. The existence and importance of these habitats is regarded as crucial, due to the fauna species recorded as well as the role of this intact habitat to biodiversity, not to mention the sensitivity according to various ecological datasets. It is suggested that alternative sites for the PV array be investigated instead.

Completion of the terrestrial biodiversity assessment led to the validation of ‘Very High’ Terrestrial Biodiversity Theme for the Mountain Bushveld habitat in relation to the proposed development of a Solar PV array. The Mountain Bushveld habitat is disputed as ‘High’ in relation to the upgrading of the existing road and development of overhead powerlines, assuming mitigation measures are prescribed and adhered to. The Terrestrial Biodiversity Theme was disputed as ‘High’ for the River (Water Resources), ‘Medium’ for the Drainage Areas and Natural Drainage Lines, ‘Low’ for the Artificial Water Resources, and ‘Very Low’ for the Modified habitat. The SEI is subject to change with consideration of a provided layout. The Animal Species Theme Sensitivity is validated as ‘High’ overall, while the Plant Species Theme Sensitivity was disputed as ‘High’, instead of the Screening Tool assigned ‘Medium’.

It is the specialist's opinion that the proposed developability of the PAOI is as outlined in Table 5-1.

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

Habitat	SEI	Developability	Footprint Recommendation
Mountain Bushveld (in relation to the PV development)	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.	Alternatives must be considered.
River (Water Resource) and Mountain Bushveld (in relation to the Upgrading of the existing road and development of the OHL)	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.	Avoidance as far as feasible. Reduced footprint and strict adherence to mitigations. Restoration. Water resources must be avoided (See the associated freshwater assessment for details. TBC, 2026). No new developments are permitted. Upgrading of the existing road is permitted. Powerlines must span this habitat. No pylons may be placed within this habitat.
Degraded Bushveld	Medium	Any development activities of medium impact acceptable followed by appropriate restoration activities.	Reduced footprint. Preferred area for PV in comparison to the Very High SEI areas.
Artificial Water Resources	Low	Development activities of medium to high impact acceptable followed by appropriate restoration activities.	PV Area. Operations and Maintenance (O&M) buildings, substations, internal electrical reticulation, road infrastructure
Modified	Very Low	Development activities of medium to high impact acceptable and restoration activities may not be required.	

6 Appendix Items

6.1 Appendix A: Methods

6.1.1 Desktop Assessment: Landscapes

The following information sources were consulted to compile this report:

- 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:
    - Ecosystem Threat Status – 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), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. Red List of Ecosystems (RLE) 2021 – 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. NP, PP or MP 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, 2025) – The South African Protected Areas Database (SAPAD) and 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) (SANBI, 2018) – 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 Limpopo Conservation Plan, Version 2 (LCPv2), was completed in 2013 for the Limpopo Department of Economic Development, Environment & Tourism (LEDET) (Desmet *et al.*, 2013). The purpose of the LCPv2 was to develop the spatial component of a bioregional plan (i.e. map of Critical Biodiversity Areas and associated land-use guidelines). The previous Limpopo Conservation Plan (LCPv1) was completely revised and updated (Desmet *et al.*, 2013). A Limpopo Conservation Plan map was produced as part of this plan and sites were assigned to the following CBA categories based on their biodiversity characteristics, spatial configuration and requirement for meeting targets for both biodiversity pattern and ecological processes:

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

CBAs are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. Thus, if these areas are not maintained in a natural or near-natural state then biodiversity targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses (Desmet *et al.*, 2013).

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

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

Areas with NNR are areas in poor ecological condition that have not been identified as CBAs or ESAs. They include all irreversibly modified areas (such as urban or industrial areas and mines), and most severely modified areas (such as cultivated fields and forestry plantations). A biodiversity sector plan or bioregional plan must not specify the desired state/management objective or provide land-use guidelines for NNR areas (Driver *et al.*, 2017).

- 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 SAIIAE was established during the NBA 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.
    - Mpumalanga Highveld Grassland Wetlands - The purpose of the Mpumalanga Highveld Grasslands (MPHG) Wetlands project was to: Ground-truth and refine the current data layers of the extent, distribution, condition and type of freshwater ecosystems in the Mpumalanga Highveld coal belt, to support informed and consistent decision-making by regulators in relation to the water and biodiversity (SANBI, 2012). The MPHG dataset, has several classes. From a terrestrial biodiversity perspective, the Present Ecological State (PES) is indicated, whereas from a wetland perspective (TBC,2021) the Hydrogeomorphic (HGM) units were indicated.

6.1.2 Desktop Assessment: Species

6.1.3 Flora

Flora was briefly assessed as a separate Flora Assessment will be conducted. The flora desktop assessment comprised the following:

- Expected floral SCC taken from the Screening Tool report from the site.

Additional species, including SCC could potentially occur on site however, this level of detail is pertinent to a full specialist assessment and not needed at this stage, which either confirms or refutes the Screening Tool outcomes.

6.1.4 Field Assessment

Sampling consisted of an a-priori classification of vegetation of the site based on Google Earth imagery as well as various mapping tools associated with the vegetation and conservation importance of the site. Meanders were then conducted within each of these vegetation community types and adaptive field techniques employed where the site differed from what was expected.

Individual species of flora were noted and photographed. Any potential SCC were noted and photographed. Photographs were taken of all habitat types within the PAOI. Important points or species locations were taken on a GPS device.

Relevant field guides and texts consulted for identification purposes included 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 Wildflowers of South Africa (Manning, 2009);
- iNaturalist (available at https://www.inaturalist.org/home).

6.1.5 Site Ecological Importance

The different habitat types within the study area were delineated and identified, based on observations during the field assessment, and available satellite imagery. These habitat types were assigned EI categories, based on their ecological integrity, conservation value, the presence of SCC and their ecosystem processes.

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

BI is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor as follows. The criteria for the CI and FI ratings are provided in Table 6-1 and Table 6-2, respectively.

Table 6-1 Summary of Conservation Importance (CI) criteria

Conservation Importance	Fulfilling Criteria
Very High	Confirmed or highly likely occurrence of CR, EN, VU or Extremely Rare or 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 6-2 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 6-3.

Table 6-3 Matrix used to derive Biodiversity Importance (BI) from Functional Integrity (FI) and Conservation Importance (CI).

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

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor, as summarised in Table 6-4.

Table 6-4 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.

Subsequent to the determination of the BI and RR, the SEI can be ascertained using the matrix as provided in Table 6-5.

Table 6-5 Matrix used to derive Site Ecological Importance from Receptor Resilience (RR) and Biodiversity Importance (BI).

Site Ecological Importance		Biodiversity Importance (BI)				
		Very high	High	Medium	Low	Very low
Receptor Resilience (RR)	Very Low	Very high	Very high	High	Medium	Low
	Low	Very high	Very high	High	Medium	Very low
	Medium	Very high	High	Medium	Low	Very low
	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 6-6.

Table 6-6 Guidelines for interpreting Site Ecological Importance in the context of the proposed development 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.

6.2 Appendix B: Specialist Declaration of Independence

DECLARATION

I, Andine de Villiers, 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.



Andine de Villiers

Ecologist

The Biodiversity Company

February 2026

DECLARATION

I, Carami Burger, 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.



Carami Burger

Ecologist

The Biodiversity Company

February 2026

6.3 Appendix C: Specialist CVs

Andine DE VILLIERS



Pr Sci Nat 164894 | +27 64 417 6320 | andine@thebiodiversitycompany.com

PROFILE SUMMARY

Environmental and ecological specialist with more than two years of consulting experience within South Africa and internationally. Specialist expertise as a terrestrial ecologist and project manager in various sectors including mining, engineering, renewable energy, and private sector developments. Experienced in delivering field surveys, technical reports and specialist guidance for compliance with in-country legislative requirements and international lender standards. Registered Pr Sci Nat with the South African Council for Natural Scientific Professions.

PERSONAL INFO

Nationality: South African

Date of birth: 8 April 1995

EXPERIENCE

Environmental Impact Assessments (EIA)

Environmental Management Programmes (EMP)

Project Management

Mammal Assessments

SKILLS

- ✓ Terrestrial Biodiversity, Fauna and Flora (Ecology) Assessments
- ✓ GIS
- ✓ Golden Mole and Riverine Rabbit Assessment
- ✓ Rehabilitation
- ✓ Monitoring & Management Plans

LANGUAGES

English – Proficient

Afrikaans – Proficient



Signed: Andine de Villiers

ACADEMIC QUALIFICATIONS

University of Pretoria (2020): MAGISTER SCIENTIAE (MSc) – Zoology *with distinction*:
Thesis title: *Playing with rats: The effect of a social companion, environmental enrichment and human interactions on the plasma oxytocin and faecal corticosterone metabolite concentration of Sprague Dawley rats.*

University of Pretoria (2018): BACCALAREUS SCIENTIAE CUM HONORIBUS (BSc Hons) – Zoology:
Research project title: Research project: Locomotor activity of individual Damaraland mole-rats (*Fukomys damarensis*) in intact colonies.

University of Pretoria (2017): BACCALAREUS SCIENTIAE (BSc) – Zoology:
Majors: Zoology

PROFESSIONAL EXPERIENCE

June 2023 – Present	**The Biodiversity Company** Terrestrial Ecologist

INTERNATIONAL EXPERIENCE

South Africa, Mauritius, Zambia

Carami Burger



Pr Sci Nat 121757 +27 83 630 9077 carami@thebiodiversitycompany.com

PROFILE SUMMARY

Environmental and ecological specialist with 7 years' consulting experience and international exposure across multiple African countries. Specialist in project exploration, mining, engineering, hydropower, renewable energy, infrastructure, and private sector developments. Experienced in terrestrial ecology, wetland resources, rehabilitation, environmental compliance, and monitoring. Skilled in managing multi-disciplinary projects and providing technical guidance for compliance with legislative and international lender standards. Registered Pr Sci Nat with the South African Council for Natural Scientific Professions.

PERSONAL INFO

Nationality: South African

Date of birth: 25 June 1996

EXPERIENCE

Environmental and basic impact assessments

Terrestrial and wetland ecological studies

Critical habitat evaluations

Environmental management and rehabilitation planning

Invasive species and search and rescue plans

Environmental compliance audits

Water use license applications

Dust fallout and water quality monitoring

SKILLS

- ✓ Environmental Assessment
- ✓ Ecology
- ✓ Habitat Assessment
- ✓ Rehabilitation
- ✓ Compliance Auditing
- ✓ Water Use Licensing
- ✓ Monitoring & Management Plans

CBurger

Signed: Carami Burger

ACADEMIC QUALIFICATIONS

North-West University (2017): Baccalaureus Scientiae Honoribus (Hons) – Ecological Interactions and Ecosystem Resilience (Cum Laude)
Mini-Dissertation on ecological information in Environmental Impact Assessments (EIA) at Mooi River Mall

North-West University (2016): Baccalaureus Scientiae in Natural and Environmental Sciences
Majors: Botany and Zoology

PROFESSIONAL EXPERIENCE

May 2022 – Present	**The Biodiversity Company** Ecologist
June 2019 – April 2022	**EP3 Environmental** Senior Consultant and Ecologist
November 2018 – June 2019	**Scientific Aquatic Services (SAS)** Intern

INTERNATIONAL EXPERIENCE

South Africa, Mozambique, Zambia, Angola, Sierra Leone, Botswana.

LANGUAGES

English – Proficient

Afrikaans – Proficient