

# Plett SleepOver Project, Development on RE/479 Oakhill Farm, Plettenberg bay, Western Cape

## Terrestrial Animal Species Specialist Assessment:



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- All the particulars furnished by me in this document are true and correct.



Monica Leitner (MSc)

October 2024

## SUMMARY OF EXPERIENCE AND ABRIDGED CV - MONICA LEITNER

### Core skills

- MSc. Zoology (University of Pretoria) and 5 years of work experience (project management and field work) for ecological research projects aimed at invertebrate diversity, ecological functioning, and large mammal ecology.
- Extensive ecological and field work experience (before, during and after postgraduate degrees) across a range of environments (mesic to arid savanna, grasslands and mountain terrain, sub-Antarctic) and taxa (invertebrates, avifauna, amphibians, reptiles, small mammals and large mammals).
- Two overwintering years on Marion Island, with extensive field work as Environmental Conservation Officer and seabird monitor (2018-2019), and a marine mammal ecologist (2022-2023).

### Work experience

- 2022-2023: Marine mammal field assistant on sub-Antarctic Marion Island (Marion Island Marine Mammal Programme, University of Pretoria)
- 2016-2018; 2019-2022: Project Coordinator (University of Pretoria) for international Soil Fauna in Africa consortium (funded by the United Kingdom's Royal Society and Department for International Development).
- 2019-2022: Research assistant for Marion Island Marine Mammal Programme (University of Pretoria).
- 2018-2019: Environmental Conservation Officer on sub-Antarctic Marion Island (Department of Environmental Affairs).
- 2016-2018: Research assistant for Sani Pass (Drakensburg) long term invertebrate and ecosystem monitoring project (Centre for Invasion Biology, University of Pretoria).

### Qualifications

- BSc. Environmental Sciences (2011, University of Pretoria)
- BSc. Honours Zoology (with distinction, 2012, University of Pretoria)
- MSc. Zoology (with distinction, 2015, University of Pretoria)

### Publications

- Trisos MO, Parr CL, Davies AB, Leitner M & February EC. 2021. Mammalian herbivore movement into drought refugia has cascading effects on savanna insect communities. *Journal of Animal Ecology*, <https://doi.org/10.1111/1365-2656.13494>
- Leitner M, Davies AB, Robertson MP, Parr CL & Van Rensburg BJ. 2020. Termite mounds create heterogeneity in invertebrate communities across a savanna rainfall gradient. *Biodiversity and Conservation*, 29(4), pp.1427-1441
- Leitner M, Davies AB, Parr CL, Eggleton P & Robertson MP. 2018. Woody encroachment slows decomposition and termite activity in an African savanna. *Global change biology*, 24(6), pp.2597-2606

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### References

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## TABLE OF CONTENTS

<b>DECLARATION OF SPECIALIST INDEPENDENCE .....</b>	<b>II</b>
<b>SUMMARY OF EXPERIENCE AND ABRIDGED CV .....</b>	<b>III</b>
<b>LIST OF TABLES .....</b>	<b>5</b>
<b>LIST OF FIGURES .....</b>	<b>5</b>
<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1 BACKGROUND .....	1
1.2 SITE DEVELOPMENT PLAN .....	1
<b>2. TERMS OF REFERENCE .....</b>	<b>2</b>
2.1 ONLINE SCREENING TOOL .....	2
2.2 SCOPE OF WORK .....	4
<b>3. DESKTOP ASSESSMENT .....</b>	<b>4</b>
3.1 VEGETATION, CLIMATE AND GENERAL HABITAT .....	4
3.2 WESTERN CAPE BIODIVERSITY SPATIAL PLAN .....	6
3.3 HISTORICAL ASSESSMENT OF PROJECT AREA .....	7
3.4 SPECIES OF CONSERVATION CONCERN .....	8
<b>4. FIELD ASSESSMENT .....</b>	<b>16</b>
4.1 METHODS .....	16
4.2 ASSUMPTIONS AND LIMITATIONS .....	16
4.3 SITE INSPECTION DETAILS .....	17
4.4 RESULTS .....	19
4.4.1 Avifauna .....	19
4.4.2 Mammals .....	19
4.4.3 Terrestrial Invertebrates .....	19
4.4.4 Amphibians .....	20
4.4.5 Likelihood of Occurrence for SCC .....	20
<b>5. SITE ECOLOGICAL IMPORTANCE .....</b>	<b>23</b>
<b>6. COMPLIANCE STATEMENT .....</b>	<b>26</b>
<b>7. REFERENCES .....</b>	<b>27</b>
<b>APPENDIX 1: SCC IDENTIFIED FROM PUBLIC PLATFORMS FOR THE PROJECT AREA. ....</b>	<b>29</b>
<b>APPENDIX 2: AVIFAUNA SPECIES OBSERVED DURING SITE VISIT TO PLETT SLEEPOVER PROPERTY .....</b>	<b>30</b>
<b>APPENDIX 3: MAMMAL SPECIES OBSERVED DURING SITE VISITS TO PLETT SLEEPOVER .....</b>	<b>30</b>
<b>APPENDIX 4: INVERTEBRATE SPECIES OBSERVED DURING SITE VISITS TO PLETT SLEEPOVER SITE .....</b>	<b>30</b>
<b>APPENDIX 5: AMPHIBIAN SPECIES OBSERVED DURING SITE VISITS TO PLETT SLEEPOVER SITE .....</b>	<b>31</b>
<b>APPENDIX 6: SITE ECOLOGICAL IMPORTANCE METHODS .....</b>	<b>31</b>

## LIST OF TABLES

Table 1: Species of Conservation Concern highlighted by the DFFE Online Screening Tool for RE/479 Oakhill Farm.....	3
Table 2: Definitions and objectives for conservation categories identified in the Western Cape Biodiversity Spatial Plan (CapeNature 2017).....	7
Table 3: Summary of habitat, breeding and feeding requirements for animal SCC potentially occurring on RE/479 Oakhill Farm. Bold text indicated SCC identified by the DFFE online Screening Tool. ....	10
Table 4. Sampling techniques conducted for potential SCC occurring on the site. ....	16
Table 5. Likelihood of occurrence for terrestrial fauna SCC on Plett Sleep Over property. ....	21
Table 6. Site Ecological Importance assessment for Plett SleepOver site. Conservation status for SCC is abbreviated to indicate Critically Rare/Endangered (CR), Endangered (EN), Vulnerable (VU) or Near Threatened (NT). When relevant, the extent of occurrence (EOO) is indicated as part of the justification for the conservation importance (CI) metric. ....	24
Table 7. Guidelines for interpreting Site Ecological Importance for proposed developments (SANBI 2020). ....	26
Table 8. Matrix to calculate the biodiversity importance (BI) of a given habitat type identified from desktop and field assessments. ....	31
Table 9. Matrix to calculate site ecological importance (SEI) of a given habitat type identified from desktop and field assessments. ....	32

## LIST OF FIGURES

Figure 1: The general location of Farm RE/479 (yellow outline) and the proposed development footprint within the farm portion boundaries (red outline). Perennial and non-perennial drainage lines are also indicated in the map. ....	1
Figure 2: The site development plan (SDP) for the proposed sleep over facility on Farm RE/479.....	2
Figure 3: DFFE Online Screening Tool outcome for the terrestrial animal species theme for development area on RE/479 Oakhill Farm. The property boundary is indicated by the blue dashed.....	3
<a href="http://www.meteoblue.com">Figure 4: Summary of historical climate (modelled) for Brenton on Sea (www.meteoblue.com)</a> .....	5
Figure 5: The proposed development site on Farm RE/479 in relation to mapped watercourses and vegetation types.....	5
Figure 6: Site map with site boundary and layers for the Western Cape Biodiversity Spatial Plan's Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA). ....	6
Figure 7: Historical imagery of development area sourced from the CD: NGI geospatial portal and Google Earth. The property boundary is indicated by the yellow line. ....	8
Figure 9. Habitat types relevant to fauna species identified on the Plett SleepOver site. ....	18
Figure 10. Habitat types, GPS track and field work for Plett SleepOver following site visit in April 2024.....	19
Figure 11. Dung beetle ( <i>Copris</i> sp.; left) and Gnashing Crickets ( <i>Henicus brevimucronatus</i> ; right) caught in live pitfall traps on Plett SleepOver site during field visit in April 2024.....	20
Figure 12. Site Ecological Importance map with regards to fauna on Plett SleepOver site.....	26

## 1. INTRODUCTION

### 1.1 Background

Confluent Environmental was contracted by Cape EAPrac to undertake a specialist assessment for botanical and terrestrial sensitivity of Farm RE/479 north of Keurboomstrand. According to the Department of Forestry, Fisheries, and the Environment (DFFE) Screening Tool, this SSVR is required because the terrestrial plant species theme has been highlighted as having a Medium sensitivity, and the terrestrial biodiversity has a Very High sensitivity. The farm portion is located directly east of the N2 highway, as presented in Figure 1.

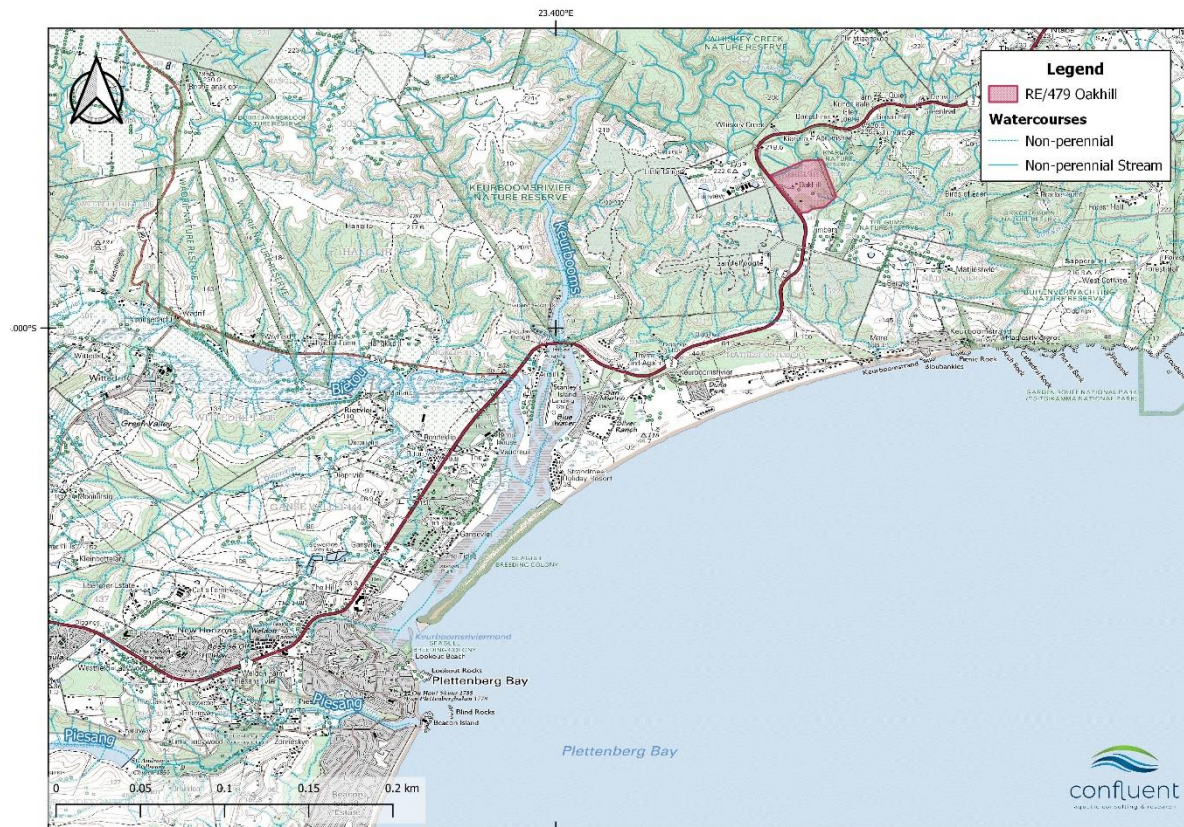


Figure 1: Project location.

### 1.2 Site Development Plan

The SDP is illustrated in Figure 2 and comprises of approximately 50 accommodation units, internal roads, parking and administrative and recreational (e.g. braai area/entertainment area and clubhouse) buildings. A sewage package plant will be included in the design as there is no existing municipal sewer infrastructure in the vicinity of the site. The package plant will have a treatment capacity for 20m<sup>3</sup> per day and will use a combination of conventional treatment (natural bacteria) and membrane technology (microfiltration) to treat sewage effluent to comply with the general water quality limits as stipulated by the Department of Water and Sanitation.



Figure 2: The site development plan (SDP) for the proposed sleep over facility on Farm RE/479.

## 2. TERMS OF REFERENCE

### 2.1 Online Screening Tool

The scope of work for this report is guided by the legislative requirements of the National Environmental Management Act (NEMA; Act 107 of 1998).

The Department of Forestry, Fisheries and the Environment (DFFE) Screening Tool determined a HIGH and MEDIUM sensitivity for the terrestrial animal species theme across the development area (Figure 3), with several animal Species of Conservation Concern (SCC) highlighted (Table 1).

As per Published Government Notice No. 1150 of the Government Gazette 43855 (30 October 2020):

A **HIGH** sensitivity rating indicates:

1. Confirmed habitat for SCC.
2. SCC, listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable, according the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare.

These areas are unsuitable for development due to a very likely impact on SCC.

A **MEDIUM** sensitivity rating indicates:

1. Suspected habitat for SCC based either on historical records (prior to 2002) or being a natural area included in a habitat suitability model for this species.
2. SCC listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare.

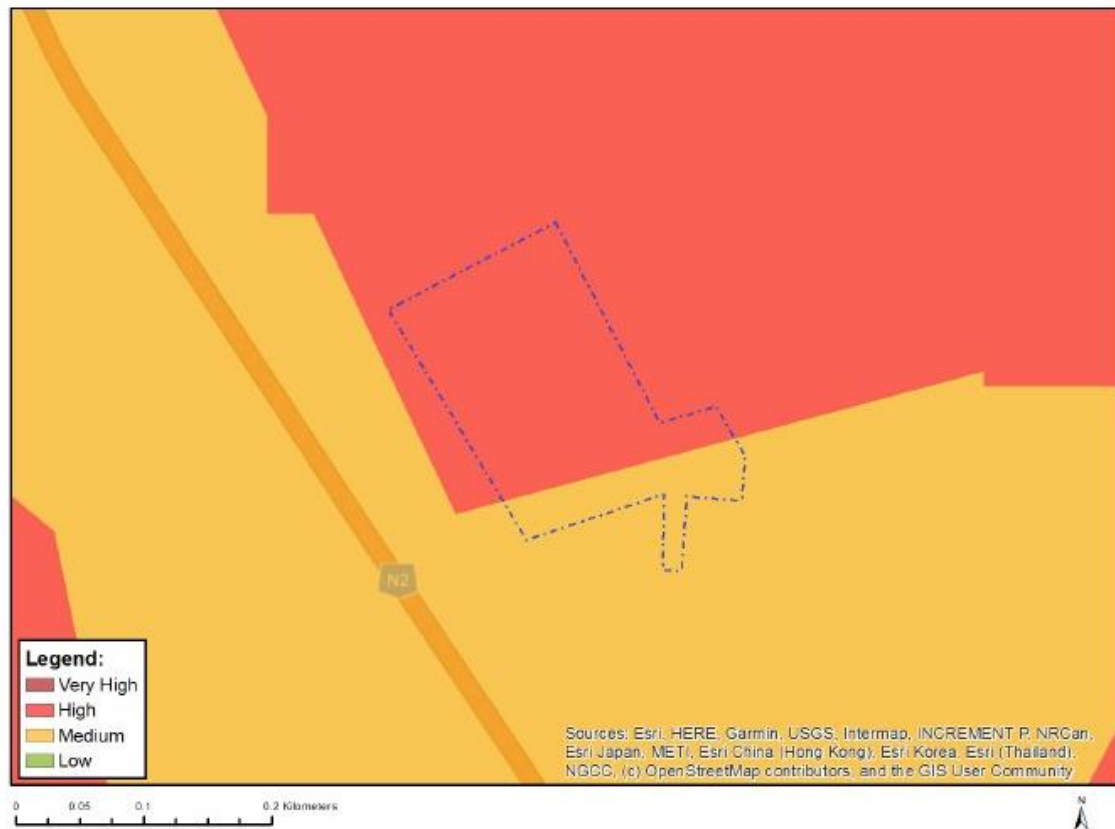


Figure 3: DFFE Online Screening Tool outcome for the terrestrial animal species theme for development area on RE/479 Oakhill Farm. The property boundary is indicated by the blue dashed line.

Table 1: Species of Conservation Concern highlighted by the DFFE Online Screening Tool for RE/479 Oakhill Farm.

Sensitivity	Classification	Scientific name	Common name	Red list status*
High	Avifauna	<i>Circus maurus</i>	Black Harrier	Endangered
High	Avifauna	<i>Bradypterus sylvaticus</i>	Knysna Warbler	Vulnerable
Medium	Amphibian	<i>Afrixalus knysnae</i>	Knysna Leaf-folding Frog	Endangered
Medium	Avifauna	<i>Stephanoaetus coronatus</i>	Crowned Eagle	Vulnerable
Medium	Mammal	<i>Chlorotalpa duthieae</i>	Duthie's Golden Mole	Vulnerable
Medium	Mammal	<i>Sensitive species 8</i>	-	Vulnerable
Medium	Invertebrate	Forest invertebrates	Range restricted species	-
Medium	Invertebrate	<i>Sarophorus punctatus</i>	Dung beetle	Endangered
Medium	Invertebrate	<i>Aneuryphymus montanus</i>	Yellow-winged Agile Grasshopper	Vulnerable

## 2.2 Scope of Work

The purpose of this report is to verify the site sensitivity and establish the Site Ecological Importance of habitats on RE/479 Oakhill Farm for the terrestrial animal species theme in accordance with the protocols specified in the Published Government Notice No. 1150, Government Gazette 43855 (30 October 2020).

The site sensitivity verification includes:

- A desktop assessment, to:
  - Characterize the vegetation, climate, general habitat features and topography of the property.
  - Assess the property's location within the context of the Western Cape Biodiversity Spatial Plan (WCBSP).
  - Conduct a historical assessment of the property and immediate surroundings for any disturbances, development and changes in land use or habitat characteristics over time.
  - Provide information on the habitat requirements for Species of Conservation concern highlighted by the DFFE online screening tool, in addition to other SCC indicated through online resources (e.g. Virtual Museum, iNaturalist) for the property and surrounding areas.
- On-site inspection(s) and field assessments to:
  - Verify the current land use and identify current impacts or disturbances on the property.
  - Characterize faunal habitats, determine the habitat suitability and the likelihood of SCC occurring on the property.
  - Conduct taxa-specific sampling for SCC in suitable habitats.
- Any other available and relevant information

Should the site sensitivity verification indicate a **LOW** sensitivity, then a Terrestrial Animal Species Compliance Statement will be issued.

Should the site sensitivity verification indicate a **HIGH** sensitivity, then a Terrestrial Animal Species Specialist Assessment including an Impact Assessment will be compiled.

## 3. DESKTOP ASSESSMENT

### 3.1 Vegetation, Climate and General Habitat

Keurboomstrand near Plettenberg Bay, Western Cape experiences a temperate climate with average temperatures ranging between 27°C and 8°C, with the hottest days experienced from December to March peaking around 38°C and the coldest days experienced from June-August not falling below 2°C. Rain occurs throughout the year in a bimodal pattern with peaks in autumn (April) and spring (October-November) (Figure 4). The mapped vegetation type at the site includes Southern Afrotemperate Forest and a section of South Outeniqua Sandstone Fynbos - a detailed botanical specialist assessment is available (B. Fouche, Confluent Environmental).

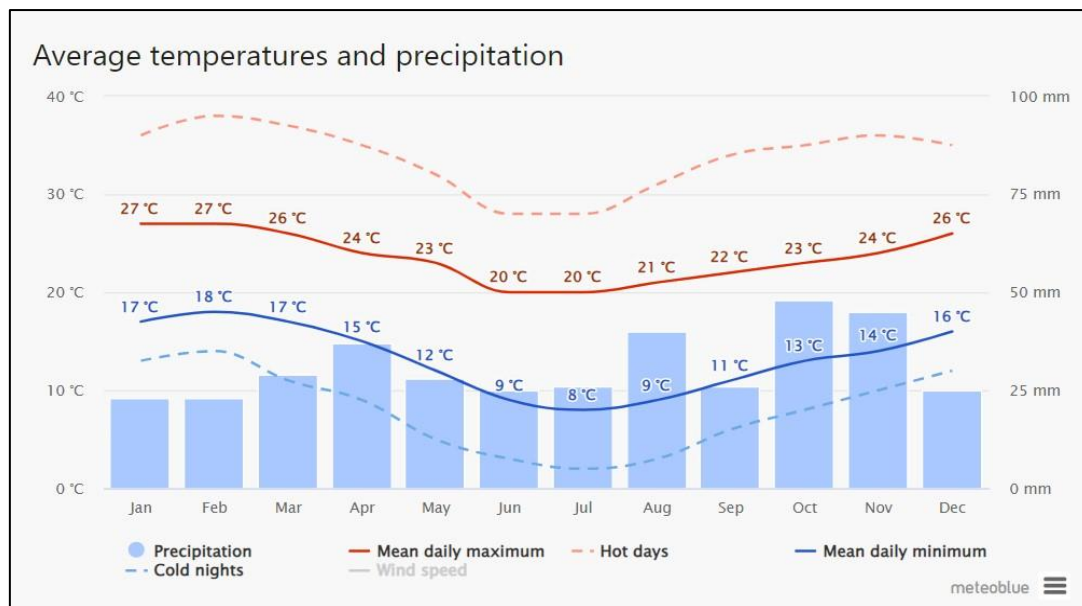


Figure 4: Summary of historical climate (modelled) for Brenton on Sea ([www.meteoblue.com](http://www.meteoblue.com)).

Satellite imagery shows the majority of the site (northern section) to be densely vegetated with a mix of exotic and indigenous vegetation. The southern section is likely disturbed being more open and grassy in nature. Mapped contours indicate that the site slopes downhill towards the north, where non-perennial stream is mapped within the dense vegetation (Figure 5).

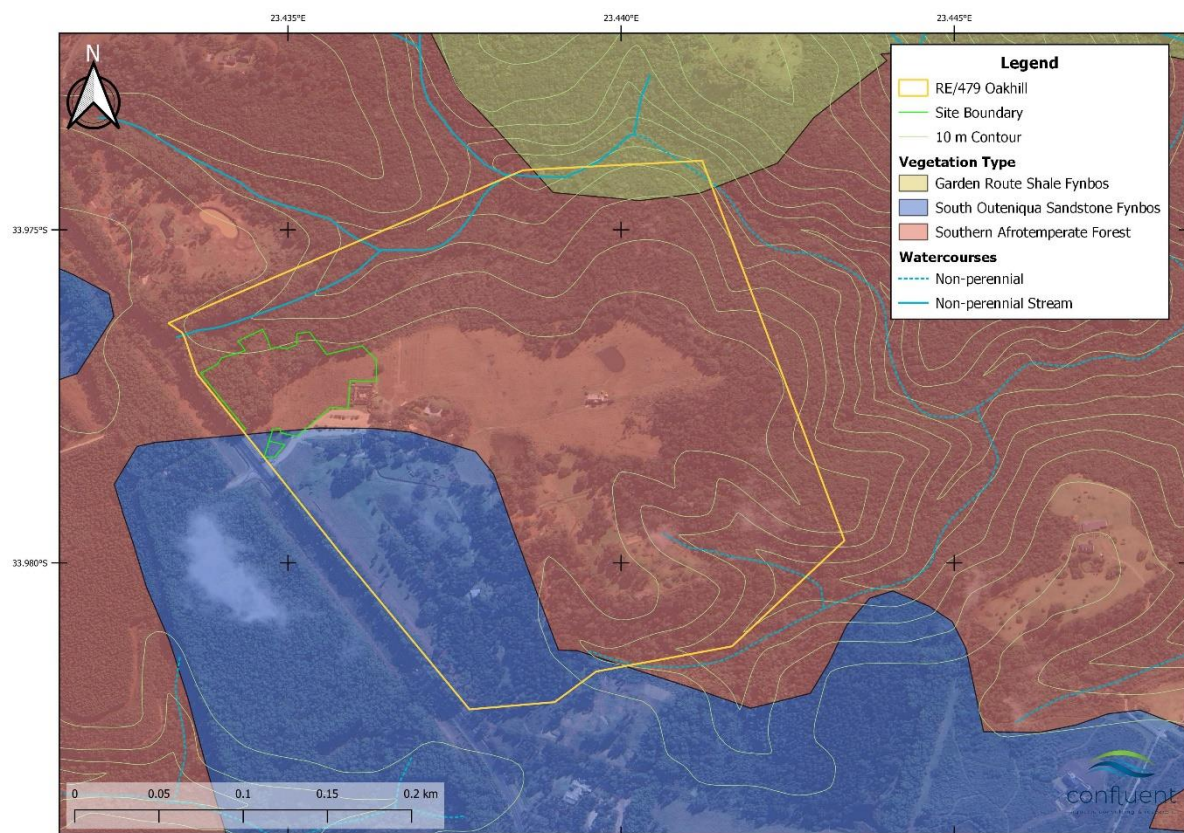


Figure 5: The proposed development site on Farm RE/479 in relation to mapped watercourses and vegetation types

### 3.2 Western Cape Biodiversity Spatial Plan

Additional mapping layers were applied to the study site to include the Western Cape Biodiversity Spatial Plan (CapeNature 2017), with Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs) and Other Natural Areas (ONAs) assessed in Figure 6 and Table 2. The majority of the site to the north falls within an ONA and there is an aquatic ESA around the stream in the north (Figure 6). To the north-east of the site there is also a CBA mapped. The reason for these assignments is due to the site containing key vegetation and aquatic zones flagged for protection:

- Indigenous Forest Type: The National Vegetation map of 2018
- Watercourse protection- South-Eastern Coastal Belt: This trigger applies as the Afrotemperate forest did have a stream, and this stream represents a habitat that should be protected on the site. Refer to the aquatic report for more detail on the forest non-perennial stream and any other watercourses on the site

See also the Botanical Specialist Report by B. Fouche (Confluent Environmental) and Aquatic Specialist Report by J. Dabrowski (Confluent Environmental) for additional information on these mapped layers.

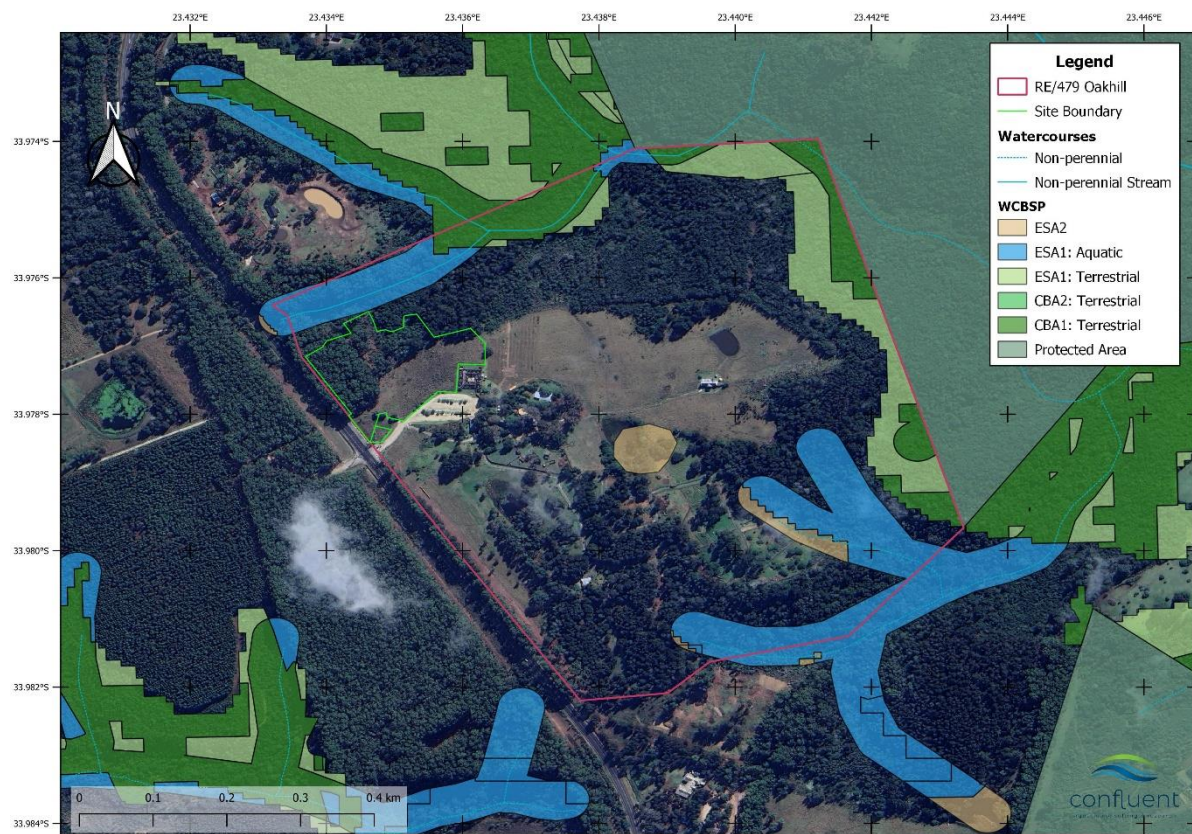


Figure 6: Site map with site boundary and layers for the Western Cape Biodiversity Spatial Plan's Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA).

*Table 2: Definitions and objectives for conservation categories identified in the Western Cape Biodiversity Spatial Plan (CapeNature 2017).*

WCBSP Category	Definition	Management Objective
Critical Biodiversity Area 1 (CBA1)	Areas in a natural condition. Required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.
Ecological Support Area 1 (ESA 1)	Not essential for meeting biodiversity targets. An important role in supporting the functioning of PAs or CBAs. Often vital for ecosystem services.	Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided underlying biodiversity objectives/ecological functioning are not compromised
Ecological Support Area 2 (ESA 2)	Areas severely degraded or have no natural cover and ecological functioning severely impaired. Not essential for meeting biodiversity targets but support ecological functioning and delivering ecosystem services.	Restoration required to return ecological functioning. Some limited habitat loss may be acceptable. A greater range of land uses over wider areas is appropriate but ensures the underlying biodiversity objectives and ecological functioning are not compromised.
Other Natural Area (ONA)	These areas retain most of their natural character and perform biodiversity and ecological infrastructure functions but have not been prioritised in the current Western Cape Biodiversity Spatial Plan	Minimise habitat and species loss to ensure ecosystem functionality through strategic landscape planning. Some flexibility in permissible land uses, but authorisation may still be required for high-impact uses.

### 3.3 Historical Assessment of Project Area

1936: It is not easy to make out what the land cover and likely use was for the site during although it seems as if the proposed development site was covered in closed canopy woody vegetation, which could have been partly forest and partly plantation (Figure 7).

1974: The southern section of the proposed development site was an open field. The remaining woody vegetation was disturbed, and canopy cover was not continuous (Figure 7).

1990: An open section is visible along the eastern boundary of the proposed development area, and the woody vegetation seems to have been cut down over the majority of the site, apart from the northernmost section (where indigenous forest was found during the site assessment). The southern section of the site is still an open field (Figure 7).

2004: The open field in the south is still present. The woody vegetation (forest) is present on the site towards the north, however there is a stark difference in tree heights visible along the northernmost section of the site vs. the rest of the woody vegetation, indicating disturbance. The eastern open section is once more covered by trees, which today is a large eucalyptus stand likely planted at this time (Figure 7).

2013: The disturbed mid-section of the site had densified with alien tree cover to form a closed canopy. It is likely that this returning woody vegetation was heavily invaded and was not representative of indigenous forest, where the indigenous forest persisted in less previously disturbed areas along the northern section of the site. The field along the south was still present (Figure 7).

2022: The disturbed section in the middle of the site is cleared once again, and slash material is visible. The forest section in the northern section of the site is still intact (Figure 7).

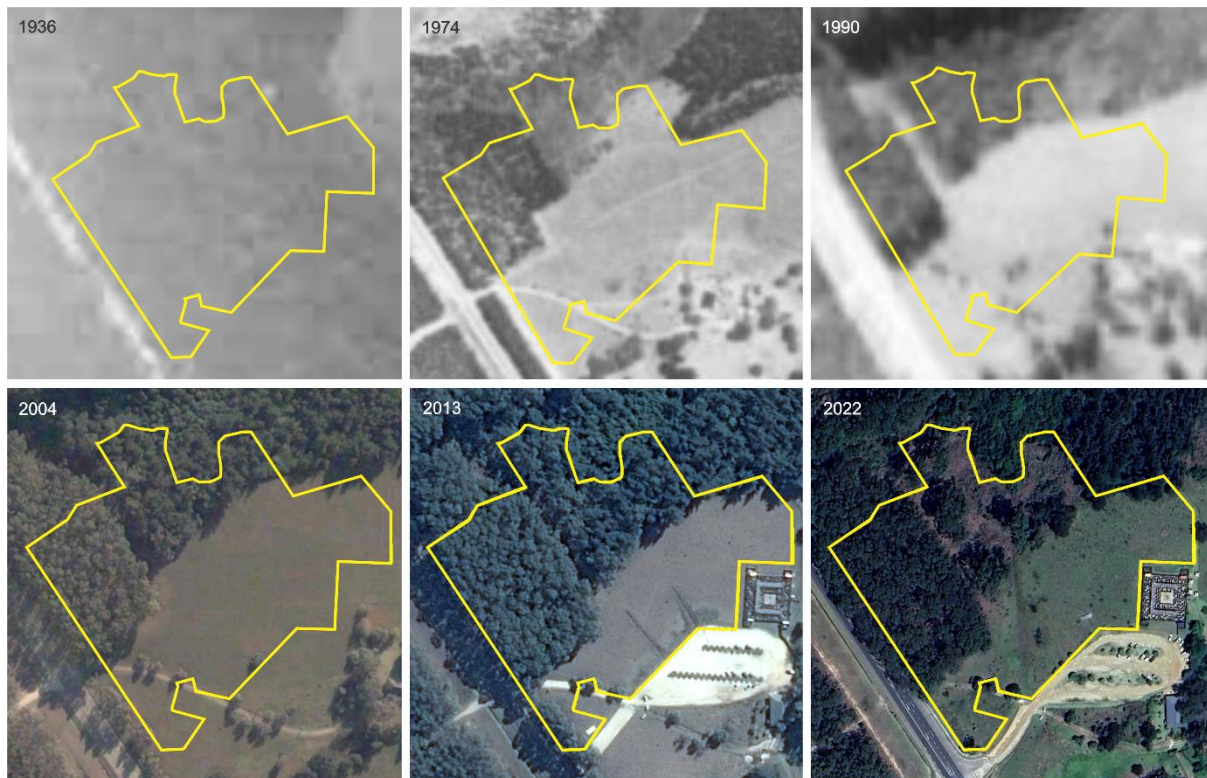


Figure 7: Historical imagery of development area sourced from the CD: NGI geospatial portal and Google Earth. The property boundary is indicated by the yellow line.

### 3.4 Species of Conservation Concern

In addition to the SCC highlighted by the DFFE screening tool (Table 1), the following public resources were consulted to provide additional SCC for RE/479 Oakhill Farm and its immediate surroundings:

1. iNaturalist (all taxa) within a 2 km x 2 km radius of the project area.
2. Virtual Museum for herpetofauna, mammals and invertebrate taxa within the Quarter Degree Squares (QDS) 3323CD: DungBeetleMAP, FrogMAP, LacewingMAP, LepiMAP, MammalMAP, OdonataMAP, ReptileMAP, ScorpionMAP, SpiderMAP.
3. South African Bird Atlas Project (SABAP2) for pentad 3355\_2325.

Some SCC reported on the platforms were highly unlikely to occur the site given either clearly unsuitable habitat or being deemed a vagrant/transient animal. For example, given that the property does not contain any waterbodies, all animals reliant on such habitat features for their existence are highly unlikely to occur on site. For the purposes of this report these animals were excluded from further assessment (see also Section 4.2 and Appendix 1 for additional information).

The combined list of SCC (from DFFE Screening Tool and public resources) possibly occurring on the site, along with their habitat, breeding and feeding requirements are listed in Table 3. The information for each SCC presented in Table 3 stems largely from the online SANBI Red List of South African Species (<http://speciesstatus.sanbi.org>) in addition to a few key resources for each taxa:

1. Avifauna: Roberts Birds of Southern Africa VII (Roberts, et al. 2005)

2. Mammals: The Mammals of the Southern African Subregion (Skinner 2005)
3. Invertebrates:
  - Field guide to the insects of South Africa (Picker, Griffiths and Weaving 2019)
  - Field guide to the butterflies of South Africa (Woodhall 2005)
  - Field guide to the spiders of South Africa (Dippenaar-Schoeman 2023)
4. Amphibians: A complete guide to the frogs of Southern Africa (Du Preez and Carruthers 2015)
5. Reptiles: A guide to the reptiles of Southern Africa (Alexander 2013) Any information presented from different sources is cited in the text.

Table 3: Summary of habitat, breeding and feeding requirements for animal SCC potentially occurring on RE/479 Oakhill Farm. Bold text indicated SCC identified by the DFFE online Screening Tool.

Red list status	Species	Habitat	Breeding	Feeding
<b>AVIFAUNA</b>				
<b>Endangered C1+2a(ii)</b>	<b><i>Circus maurus</i> Black Harrier</b>	In Western Cape, mostly found in Fynbos, especially montane Fynbos and strandveld. Less common in dry restios and renosterveld. Elsewhere, occurs in dry grassland, Karoo scrub, crop fields (wheat) and grasslands (sometime >3000m elevation). Many move from Fynbos to Karoo and grasslands during the winter, likely to follow rodent numbers (e.g. capitalise on late summer litter of Sloggett's ice rats in Free State and Lesotho). Birds move away following fires and don't return for several years.	Mainly monogamous but some polygamy observed. Mate fidelity is low. Usually solitary nester and territorial, but in Western Cape some semi-colonial nesting observed with less territorial behaviour. Nest is a small structure of grass, stems and small twigs. Usually on or just above ground, in rank marsh grasses or near Fynbos bushes and sedges ( <i>Juncus spp.</i> ) Nests most often in marshes or next to small streams, but also on damp soil or dry ground. Nest areas reused in successive years (one observation of nest site used for 26 years).	Specialist predator of mice and birds. Predominantly rodents (vlei rats, mice) eaten by birds in Fynbos areas and small birds (Common Quail) dominate diet of birds in mountain areas. Also takes reptiles, frogs, insects too lesser extent. Sometimes caches prey. Forages most actively on blustery days (windy and rainy), hovers 1-3m above vegetation with boyant flight. Flashes into vegetation, hits prey hard and eats on ground. Perch hunting rare.
<b>Vulnerable A3c; B2b(ii,iii,v); C1+2a(i)</b>	<b><i>Bradypterus sylvaticus</i> Knysna warbler</b>	Inhabits dense understorey vegetation along riverbanks in fynbos forest patches, riverine woodland and afromontane forest and has even adapted to thickets of non-native brambles (e.g. <i>Rubus</i> ). (BirdLife International, 2016).	Breeds from August and December coinciding with the greatest abundance of invertebrate species. (BirdLife International, 2016).	Mostly on ground, creeping through dense, matted vegetation and scratches in humus. Eats mostly grasshoppers, insect larvae, spiders, slugs, worms
<b>Vulnerable A2bc; C1</b>	<b><i>Falco biarmicus</i> Lanner Falcon</b>	Most frequently in open grassland or cleared woodlands and agricultural lands. Breeding pairs favour habitat close to cliffs, but will also be found near alternative roosting sites like electricity pylons, buildings, large trees.	Monogamous, long-term pair bond, territorial. Nest is typically a simple scrape on cliffs, buildings or bird boxes, but will occasionally use stick nests from other species (including Whitenecked raven, Verreaux's eagle, Bateleur) in trees or electricity pylons.	Hunts from high perch or from air, using speed to surprise and catch prey but also adept at using cover. Prey taken in air and on ground. Pairs can hunt cooperatively. Prey mostly birds (>80%) but will also take reptiles and insects.

Red list status	Species	Habitat	Breeding	Feeding
<b>Vulnerable C1; D1</b>	<b><i>Stephanoaetus coronatus</i></b> <b>Crowned eagle</b>	Forest (including gallery forest), dense woodlands and forested gorges in savannas and grasslands. Also in Eucalyptus and Pine plantations. Perches for long periods, resting in canopy. Sometimes soars high over territory, then descends vertically to perch. Manoeuvres agilely through thick forest, can take off vertically from forest floor.	Monogamous, possibly long-term pair bond. Territorial (at least 10 km <sup>2</sup> ), solitary nester. Tallest trees used to build large stick platform nest (sticks/branches up to 1.5m long, 3cm thick). Nest copiously lined with beachwood ( <i>Faurea saligna</i> ), Pine or Eucalyptus leaves/needles. Nest often reused and added to in consecutive years, can reach up 2-3m diameter, 3m high. Nest trees often at the base of cliff/ravine or at the edge of plantation. Nest trees usually White-stinkwood ( <i>Celtis africana</i> ), yellowwoods ( <i>Podocarpus spp.</i> ), Cabbage tree ( <i>Cussonia spicata</i> ) but also Eucalyptus and Pine species. Incubation 49-51 days.	Predominantly feeds on mammals (96% diet) and mostly on hyrax, antelope and primates. Will also take porcupine, hares, mongoose, sometimes domestic stock and domestic cats/dogs. Avian prey includes Hadedda Ibis, Egyptian geese and domestic chickens. Reptile prey mainly monitor lizards. Most prey taken on ground, but occasionally crashes into dense foliage in pursuit. Frequently still-hunts (stalks prey) and hunts from concealed perches frequently above waterholes in evening waiting for antelope to drink. Pair sometimes hunt monkeys cooperatively. Prey struck with downward blow of open foot, massive hind claw penetrates the skull killing instantly. Large prey that cannot be lifted are partly eaten and dismembered on the ground and then cached in trees.
<b>Near Threatened C1</b>	<i>Campethera notata</i> Knysna Woodpecker	Territorial, occurring in thornveld, Euphorbia thickets, riparian and montane evergreen forests. Marginal occurrence in Protea communities, coastal white Milkwood ( <i>Sideroxylon inerme</i> ) thickets and alien trees	Monogamous, solitary nester Hole in trunk/branch of tree, usually in a dead stem 1.2-6m off the ground. Holes infrequently reused in successive years, but a new hole can be excavated in the same branch. Laying from August-November	Forages at all levels of trees, especially mid-canopy. Pecks and probes for ants and termites on dead branches, but occasionally forages on ground.

Red list status	Species	Habitat	Breeding	Feeding
Near Threatened A2acde	<i>Grus paradiseus</i> Blue Crane	Open grassland, grassland/Karoo, wetlands. Habitats with >300mm per year annual rainfall. Adapted to crop lands and pastures and tolerant of intense grazing or burnt grasslands.	Monogamous, solitary nester. Nests on wet ground (on a pad of vegetation) or dry ground (small layer of stones, dung, vegetation). Often reuses same nesting site for several years.	Pecking and digging with bill. Omnivorous, feeds on small bulbs, seeds, roots, insects, crabs, amphibians, fish and small mammals. Eats crops (maize, lucerne, wheat) and sometimes noted as causing damage, but also eats insect pests. Commonly feeds at small stock feedlots
Least Concern (Regional), Near Threatened (Global)	<i>Buteo trizonatus</i> Forest Buzzard	Afromontane forests and plantations (mainly Pine, but also <i>Eucalyptus</i> ). Generally unobtrusive, perching on large branches partially concealed under canopy, sometimes perching in open at the edge of forest edge.	Monogamous, territorial, solitary nester. Nest is platform of sticks, cup-lined with green leaves. Nests in plantations are smaller than in native forests. Laying dates from August-November. Breeding is confined to the Western Cape and Eastern Cape Provinces.	Forages along forest edges and within (also plantations). Hunts mainly from perch. Diet consists of small mammals (mice and moles), small birds, snakes, lizards, frogs and invertebrates.
<b>MAMMALS</b>				
Vulnerable B1ab(iii)+2ab(iii)	<i>Chlorotalpa duthieae</i> Duthie's Golden Mole	Occur on alluvial sands and sandy loams in southern Cape Afrotropical forests (Bronner, 2014). Preference for forest vegetation over fynbos. Narrow coastal band 275 km long between Wilderness and Port Elizabeth with fairly disjunct populations. Can occur in gardens and pastures adjoining forests. Mainly active at night.	Little is known but a female was recorded with a litter of two young in November (Bronner, 2014).	Shallow subsurface foraging tunnels radiate outwards from beneath the roots of trees. Forages at night in tunnels and through the leaf litter. Diet includes earthworms.

Red list status	Species	Habitat	Breeding	Feeding
Vulnerable C1	<i>Panthera pardus</i> Leopard	Wide habitat tolerance, but generally associated with rocky outcrops, hills, mountains and forests. Manage to persist in areas of development provided there is adjacent cover of rocky hills or forest (Skinner & Chimimba, 2005).	Solitary animals with males and females holding territories and defend against same sex. No specific breeding season but has been found to peak in unison with some ungulate prey species births in certain regions (i.e. impala in Kruger National Park). Oestrous lasts 7 days during which male and female copulate frequently. Gestation 106 days and cubs remain with mother for 12 months after which siblings remain together for a further 2-3 months. (Skinner & Chimimba, 2005).	Nocturnal, solitary hunter. Small to medium animals, usually ungulates < 70kg (Impala, Klipspringer, Grey Rhebuck, Cape Grysbok, Duiker) but also take Baboons, Hyrax, hares, rodents, reptile, livestock or domestic cats/dogs. Usually drags larger prey items into cover (dense shrubs) or up trees (Skinner & Chimimba, 2005).
Vulnerable B2ab(ii,iii,v)+C2a(i)	Sensitive Species 8	Specialised habitat requirements within a home range of approximately 0.75 ha (Skinner & Chimimba, 2005). Strong habitat preference for dense vegetation with good undergrowth providing good cover in which to retreat. Forest, thicket, dense coastal bush, independent of water. Can inhabit forest edges and transitional zones. Requires diverse diverse plant community with variety of tree and shrub species. Can adapt to fragmented habitat given sufficient cover and food availability. Actively avoids open grasslands, and areas with human disturbance.	This species can breed throughout the year. Males establish territories and exhibit aggressive behaviours towards other males and to attract females.	Highly selective feeders, often feeding on food below troops of monkeys or frugivorous birds which drop lots of material. Preference for fruit, but also fallen leaves, flowers and insects. Seldom actively browse. Active in the early morning and late afternoon, foraging for around 8 hours a day within their territory.
INVERTEBRATES				

Red list status	Species	Habitat	Breeding	Feeding
<b>Endangered*</b> <b>Davis et al. 2020</b> <b>Checklist</b>	<b><i>Sarophorus punctatus</i> Dung beetle</b>	Known only from the type locality on the coastline of Keurboom Strand (Western Cape). No adequate quantitative assessment; sampled using ground traps set from the edge into disturbed podocarp forest. Sampled from Southern Afrotemperate Forest (FOz 1) (Forest Biome) although grid reference coincides with adjoining South Outeniqua Sandstone Fynbos (FFs 19) (Fynbos Biome) (Davis et al. 2020).	Not known	Not known
<b>Vulnerable</b> <b>B2ab(iii,v)</b> <b>CITES: No</b>	<b><i>Aneuryphymus montanus</i> Yellow-winged Agile Grasshopper</b>	Very low area of occupancy between 100 and 1 000 km <sup>2</sup> . Threatened by declining habitat due to invasion by aliens and habitat transformation. Strong association with sclerophyllous fynbos vegetation on the southern slopes of the Outeniqua mountains, post-fire. Threats to the species include habitat transformation and invasion by alien plants.	Not known	Not known
<b>Near Threatened</b>	<b><i>Ceratogomphus triceraticus</i> Cape Thorntail Dragonfly</b>	Wide range throughout the Western Cape. Pools in streams, and occasionally in reservoirs. Rocky, shallow rivers, with deposition pools, and possibly farm dams. Usually in fairly open or hilly country side. Main threat is invasive alien trees, loss of habitat, water pollution and to lesser extent agriculture. Clearing of alien trees greatly benefits species.	Not known.	Little is known, but taxon is insectivorous.

Red list status	Species	Habitat	Breeding	Feeding
Near Threatened	<i>Ecchlorolestes nylephtha</i> Queen Malachite Damselfly	Known from streams near Storms River and in the Tsitsikamma Forest (Western Cape and Eastern Cape) (Samways 2006 in press). Endemic to South Africa. Occupies a very specific micro-habitat inhabits small, fern fringed streams in the deep shade of the forest at relatively southerly latitudes (ca 34°S).	Little known, but the Genus typically lays eggs on tender green shoots of vegetation overhanging streams	Little is known, but taxon is insectivorous.
Not assessed against IUCN criteria Short-range endemic	Forest Invertebrates	Invertebrates confined to forests that are short-range endemics, ground-dwelling taxa that have limited mobility, and that have limited mechanisms to control water loss. Groups include millipedes (Myriapoda, Diplopoda), velvet worms (Onychophora), terrestrial molluscs (Mollusca, Gastropoda), and harvestmen (Arachnida, Opilionida).	Multiple	Multiple
AMPHIBIANS				
Endangered B1ab(i,ii,iii,v)+ 2ab(i,ii,iii,v)	<i>Afrixalus knysnae</i> Knysna Leaf-folding Frog	Typically inhabit endorheic (inward draining) wetlands with shallow water (< 50cm), high clarity, and sufficient vegetation suitable for breeding (De Lange & Du Preez, 2018). No streaming or running water recorded at any of the sites where they've been recorded. The frog is associated with vegetation it can use for breeding which includes indigenous and exotic species. For example, slender knotweed ( <i>Persicaria decipiens</i> ) and kikuyu grass ( <i>Pennisetum clandestinum</i> ). It requires a habitat with diverse plant species, including shrubs, grasses, and ferns, providing shelter and breeding sites (Lange and Preez, 2018).	Females lay eggs on leaves which are folded and sealed by males, creating a protected environment (Du Preez & Carruthers, 2017). Breeding occurs during warmer wetter months such as September to November (De Lange, 2019). Breeding takes place near deeper parts of the waterbody, but still close to the water's edge.	The Knysna Leaf-folding Frog is an insectivorous amphibian feeding on small invertebrates found in its habitat (e.g. insects and spiders). Foraging behaviour includes actively searching for prey on the forest/fynbos floor and in the leaf litter. The frog uses its sticky, projectile tongue to capture and quickly ingest prey. It is primarily active at night, relying on its vision to locate and capture prey in the darkness.

## 4. FIELD ASSESSMENT

### 4.1 Methods

Following the Species Environmental Assessment Guidelines (SANBI 2020) and Table 3, taxa-specific sampling techniques were conducted in habitats where SCC were likely to occur. Taxa-specific sampling was interspersed with a meander across the project area to collect additional opportunistic data for all fauna and inspect all habitat types (Table 4).

*Table 4. Sampling techniques conducted for potential SCC occurring on the site.*

Taxa	Field methods	Public platform where observations were reported
Avifauna	<ul style="list-style-type: none"> <li>Meander* across site for direct observations.</li> <li>4 point counts (5-minute bird counts).</li> </ul>	Birdlasser (species lists), iNaturalist (photos)
Mammals	<ul style="list-style-type: none"> <li>Meander* across site for direct observations, tracks, scats and signs.</li> <li>Camera trapping (2 cameras active for 20 hours, spanning one nights).</li> </ul>	iNaturalist (photos)
Amphibia	<ul style="list-style-type: none"> <li>Meander* across site for direct observations.</li> <li>Active searching.</li> </ul>	iNaturalist (photos)
Invertebrates	<ul style="list-style-type: none"> <li>Meander* across site for direct observations.</li> <li>Active searching.</li> <li>Pitfall trapping (baited, 4 traps active for 20 hours).</li> <li>Sweep netting.</li> </ul>	iNaturalist (photos)

\* Meandering involved slow walking across the site through various habitat types and key landscape features. Active observations took place for all fauna throughout this walk which was then supplemented by taxa specific sampling methods in habitats deemed most suitable for SCC.

### 4.2 Assumptions and Limitations

- While the public platforms mentioned in Section 3.4 are excellent sources of additional information for animal species occurring within an area, these results require some expert interpretation to determine which of the SCC are relevant to include in the faunal assessment of the project area. For example, the coarse spatial scale of reporting within the Virtual Museum platforms (Quarter Degree Square level (27km x 27km) or SABAP2 pentad level (9km x 7 km)) can result in species records from habitats quite different to those present on site. Additionally, these platforms include sightings of vagrant or transient animals upon which an assessment cannot reasonably be based. Expert interpretation is therefore applied to the full list of SCC identified by the various public platforms (see Appendix 1) and some species are then excluded from further assessment due to the project area clearly lacking suitable habitat or the species clearly representing a vagrant or transient animal outside its normal range. The SCC assessed in this report therefore represents those which may reasonably occur on site. However, there is always the possibility that some SCC (although highly unlikely to occur on site) are overlooked in this process.

2. Two field visits took place to the site for the faunal assessment. While this increased the likelihood of detecting animal species, this still only represents a few “snap-shots” in time and it is possible that SCC occurring on site were not observed during these visits. These results should therefore be interpreted with this in mind and not be treated as an exhaustive list of species occurring on site.
3. Site visits took place during daylight hours so the likelihood of encountering nocturnal species was limited. Camera traps and pitfall traps were however used to assist in detecting nocturnal (and diurnal) animals over a 20-hour period.
4. Weather during both field visit days was cool and overcast, with some rain showers occurring on the first day. This likely reduced the activity levels and therefore the detectability of invertebrate and avifauna SCC on site. However, habitat assessments were conducted as per best practice (regardless of whether SCC was observed or not) and remain informative to determine the likely or unlikely occurrence of all SCC on site. Where relevant, the precautionary principle is applied when suitable habitat is present and the SCC is suspected.
5. The site visit coincided with autumn months for the site. This may be of consequence for detecting some species showing seasonal variation in breeding and activity patterns. For the frog SCC this time falls outside its breeding season and decreases the likelihood of detection. This is the optimal time of year to detect the presence golden moles, which are generally most active in warmer and wetter conditions.
6. Evidence of animals in the form of tracks, scats and signs always brings with it a level of uncertainty, but best efforts were made in this regard and uncertainties are highlighted in the report.
7. Due to time constraints, pitfall trapping was limited to one overnight trapping event spanning a 20-hour period (14h00 – 10h00). This limited sampling period placed constraints on invertebrates caught by this method and this data should be interpreted as a minimum estimate.

### 4.3 Site Inspection Details

Two site visits took place to the property on the 5<sup>th</sup> and 6<sup>th</sup> of April 2024. Weather on all days was partly cloudy, with rain in the afternoon, which reducing the effectiveness of sweep netting and photographing invertebrates. Habitat types found on the site included: 1) Grass field; 2) Alien invasive thickets; 3) *Eucalyptus* stands; 4) Afrotemperate forest (Figure 8). An effort was made to cover the project area with the meander and to conduct taxa specific sampling techniques across a range of suitable habitats for potential SCC (Figure 9).

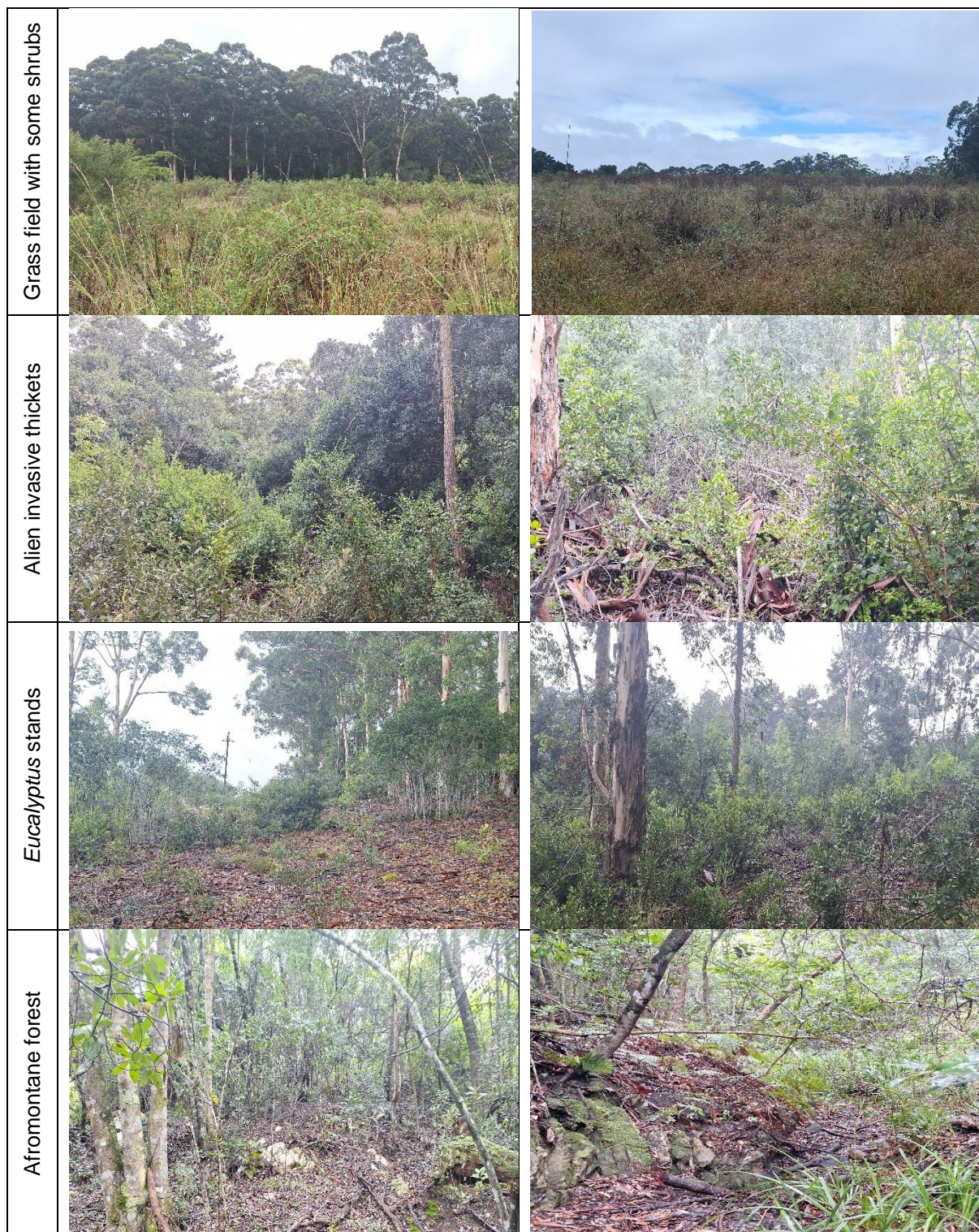


Figure 8. Habitat types relevant to fauna species identified on the Plett SleepOver site.

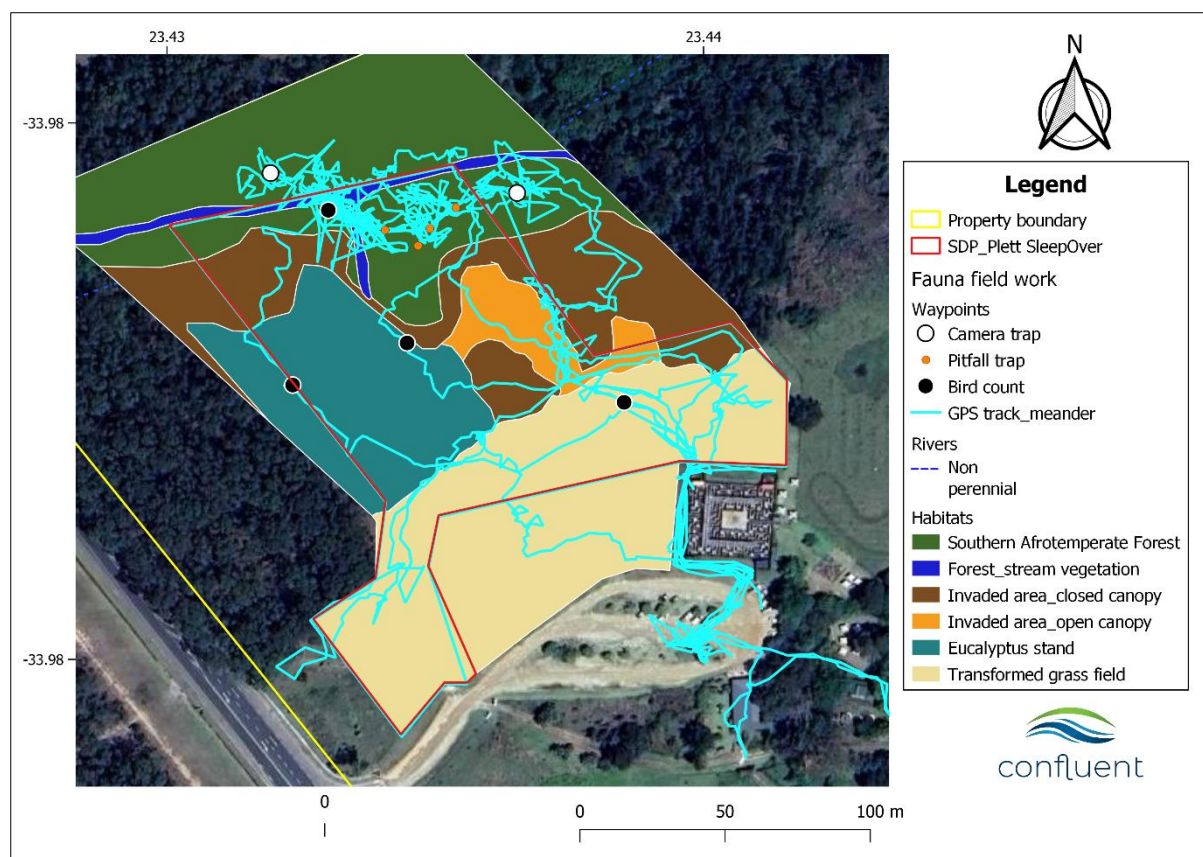


Figure 9. Habitat types, GPS track and field work for Plett SleepOver following site visit in April 2024.

## 4.4 Results

### 4.4.1 Avifauna

One SCC, a Forest Buzzard (*Buteo trizonatus*), was seen on site flying over the *Eucalyptus* stands. No nests were observed on site, and it is likely that this SCC uses the site for occasional foraging or perching in the tall *Eucalyptus* trees. Four bird counts were conducted across the property, in addition to opportunistic sightings noted throughout the meander and searching for nests/roosting sites in suspected habitat. A total of 11 bird species were identified during the site visit (See Appendix 2).

### 4.4.2 Mammals

No SCC were found during the site visits, and the only mammals found were mole-rats, which were identified by the presence of their molehills (Appendix 3). No animals were detected by the camera traps that were baited with tinned fish left overnight on the property.

### 4.4.3 Terrestrial Invertebrates

No SCC was found during the site visit. Four live pitfall traps (baited with pig dung and chicken livers) were set overnight (active for 20 hours) to sample for the dung beetle SCC. The traps attracted dung beetles (Genus: *Copris*) and Gnashing Crickets (*Henicus brevimucronatus*), but the SCC was not found (Figure 10). Sweep netting and active searching was also conducted across the site, although the cool and rainy weather likely reduced insect activity. In total, invertebrates from 10 families were found across the site (Appendix 4).



Figure 10. Dung beetle (*Coprins* sp.; left) and Gnashing Crickets (*Henicus brevimucronatus*; right) caught in live pitfall traps on Plett SleepOver site during field visit in April 2024.

#### 4.4.4 Amphibians

The SCC was not found during the site visit, and no suitable endorheic habitat/waterbodies were identified. In total, two frog species were identified by their calls heard on site (Appendix 5).

#### 4.4.5 Likelihood of Occurrence for SCC

Following the terrestrial fauna surveys and site inspection, the possible SCC occurring on the Plett SleepOver site were evaluated according to their likelihood of occurrence. It is always possible that a species assessed as having a low probability of occurrence can still occur on the site, especially for the golden moles species which are listed as having a low likelihood of detection (SANBI 2020), and therefore this table should only be used as a guideline.

Table 5. Likelihood of occurrence for terrestrial fauna SCC on Plett Sleep Over property.

Taxon	Red list status	Species	Observed on site	Suitable habitat	Likelihood of occurrence. Reason
Avifauna	Endangered C1+2a(ii)	<i>Circus maurus</i> Black Harrier	No	No	<b>Low</b> No suitable fynbos habitat on site.
	Vulnerable A3c; B2b(ii,iii,v); C1+2a(i)	<i>Bradypterus sylvaticus</i> Knysna warbler	No	No	<b>Low</b> No suitable river habitat on site. Only one non-perennial river was present on site and was dry at the time of the site visit. This is deemed to have intermittent flow and unlikely to support or attract the SCC.
	Vulnerable A2bc; C1	<i>Falco biarmicus</i> Lanner Falcon	No	Limited	<b>Low</b> Very limited open grassy habitat on site. Nearest sighting on iNaturalist is ca. 40km away, last seen in SABAP2 pentad in March 2023.
	Vulnerable C1; D1	<i>Stephanoaetus coronatus</i> Crowned eagle	No	Yes	<b>Medium</b> Suitable tall trees on site (native and exotic) to allow for SCC hunting, continuous habitat connectivity with Afrotropical forest habitat in greater landscape. Site is close to human activity (N2 highway), but this is not likely to affect SCC within the denser sections of the habitat on site. Sightings are uncommon in surrounding areas, last reported in SABAP2 pentad in Dec 2022.
	Near Threatened C1	<i>Campepthera notata</i> Knysna Woodpecker	No	Yes	<b>High</b> Suitable large trees on site (native and exotic), continuous habitat connectivity with Afrotropical forest habitat. Site is close to human activity (N2 highway) but this is not likely to affect SCC that can adapt to gardens and human activity.
	Near Threatened A2acde	<i>Grus paradiseus</i> Blue Crane	No	No	<b>Low</b> No sufficient/extensive grassland and wetland habitat on site to support or attract SCC. Human disturbance is likely to deter SCC.
	Least Concern (Regional), Near Threatened (Global)	<i>Buteo trizonatus</i> Forest Buzzard	Yes	Yes	<b>Confirmed</b> SCC seen on site flying over the <i>Eucalyptus</i> stands near the N2 highway. Highly likely to occasionally occur on site.
Mammals	Vulnerable B1ab(iii)+2ab(iii)	<i>Chlorotalpa duthieae</i> Duthie's Golden Mole	No	Yes	<b>Medium</b> While no evidence of subterranean tunnels were seen on site, given the low detection probability of SCC and suitable forest habitat present on site, the precautionary principle is applied.
	Vulnerable C1	<i>Panthera pardus</i> Leopard	No	Yes	<b>Medium</b> Suitable dense habitat is present on site and given the connectivity to other natural forest/thicket areas within the greater landscape the SCC could occur on site. The SCC is however rare across its range and likely deterred by human presence on site, although this is unlikely to affect it within thicker habitats on site.

Taxon	Red list status	Species	Observed on site	Suitable habitat	Likelihood of occurrence. Reason
	Vulnerable B2ab(ii,iii,v)+C2a(i)	Sensitive Species 8	No	Yes	<b>Medium-High</b> Suitable forest habitat on site, with high connectivity to other forest areas in greater landscape. No evidence of SCC was detected on site, but given cryptic nature and suitable habitat, the precautionary approach is applied.
Invertebrates	Endangered* Davis et al. 2020 Checklist	<i>Sarophorus punctatus</i> Dung beetle	No	Yes	<b>Medium-High</b> SCC is known from the Keurboomstrand area close to the site and forest habitat is present. While not found on site, the precautionary approach is followed given suitable habitat.
	Vulnerable B2ab(iii,v)	<i>Aneuryphymus montanus</i> <i>Yellow-winged Agile Grasshopper</i>	No	No	<b>Low</b> No suitable fynbos habitat on site.
	Near Threatened	<i>Ceratogomphus triceraticus</i> Cape Thorntail Dragonfly	No	No	<b>Low</b> No suitable water bodies on site. The non-perennial river on site only has intermittent flow and is unlikely to support SCC.
	Near Threatened	<i>Ecchlorolestes nylephtha</i> Queen Malachite Damselfly	No	No	<b>Low</b> No suitable water bodies or rivers on site. The non-perennial river on site only has intermittent flow and is unlikely to support SCC
	Not assessed against IUCN criteria Short-range endemics	Forest Invertebrates	No	Yes	<b>High</b> Suitable indigenous forest habitat on site likely to host SCC.

## 5. SITE ECOLOGICAL IMPORTANCE

The Site Ecological Importance (SEI) is determined for habitats within the property, taking associated fauna SCC scored with a medium or high likelihood of occurrence or confirmed presence on site (see Table 5). Table 6 provides the SEI calculations for each habitat type and Figure 11 illustrates the SEI results for the site (see Appendix 6 for SEI methods).

It is important to note that the SEI reported here is specific to the proposed development and associated activities of this report and can only be used to compare multiple layouts and/or locations for the development.

The modified habitats on the property (alien tree/plant habitats and the grassy field) have a low and very low SEI rating (Figure 11). These areas are suitable for development with a medium to high impact, but should be followed by appropriate restoration activities where relevant (Table 4, (SANBI 2020)). In contrast, the Afrotemperate forest section in the north of the property has a very high SEI (Figure 11), and according to the guidelines for interpreting SEI ratings these areas are unsuitable for development and should be avoided (Table 4).

Table 6. Site Ecological Importance assessment for Plett SleepOver site. Conservation status for SCC is abbreviated to indicate Critically Rare/Endangered (CR), Endangered (EN), Vulnerable (VU) or Near Threatened (NT). When relevant, the extent of occurrence (EOO) is indicated as part of the justification for the conservation importance (CI) metric.

Habitat and associated SCC	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance	Receptor Resilience (RR)	Site Ecological Importance (SEI)
<b>Grass field</b> <u>SCC:</u> <i>Sarophorus punctatus</i> (EN) <i>Chlorotalpa duthieae</i> (VU)	<b>HIGH</b> Possible occurrence of <i>C. duthieae</i> (VU, EOO > 10km <sup>2</sup> ) and <i>S. punctatus</i> (EN) in this modified habitat.	<b>LOW</b> Little natural habitat, although possible occurrence and functioning for SCC which can adapt to some habitat modifications and dispersal is possible from core areas in vicinity. Some connectivity to other similar modified habitat on adjacent property.	<b>MEDIUM</b>	<b>HIGH</b> Modified habitat can recover to its modified state relatively quickly < 10 years and by association most fauna can be expected to return soon as well. Although golden mole SCC has limited mobility, this habitat is connected to natural core areas and SCC is likely to recolonize after disturbance.	<b>LOW</b> BI = Medium RR = High
<b>Alien invasive thicket</b> <u>SCC:</u> <i>Sarophorus punctatus</i> (EN) <i>Chlorotalpa duthieae</i> (VU)	<b>HIGH</b> Possible occurrence of <i>S. punctatus</i> (EN, EOO unknown) and <i>C. duthieae</i> (VU, EOO > 10km <sup>2</sup> ) in this modified habitat. While the SCC might occur here it is not natural habitat and occurrence is marginal.	<b>LOW</b> Little natural habitat, although possible occurrence and functioning for SCC which can adapt to some habitat modifications and dispersal is possible from adjacent core forest areas in vicinity. Major current negative ecological impacts from alien plant invasion.	<b>MEDIUM</b>	<b>HIGH</b> Highly invaded habitat can recover to its modified state very quickly < 10 years and by association most fauna can be expected to return soon as well. Although golden mole SCC has limited mobility, this habitat is connected to natural core areas and SCC is likely to recolonize after disturbance.	<b>LOW</b> BI = Medium RR = High
<b>Eucalyptus stands</b> <u>SCC:</u> <i>Stephanoaetus coronatus</i> (VU) <i>Campethera notata</i> (NT) <i>Buteo trizonatus</i> (NT)	<b>MEDIUM</b> Possible occurrence of <i>S. coronatus</i> (VU, EOO > 10km <sup>2</sup> ) in this highly modified habitat, but SCC unlikely to rely on it for their survival on site.	<b>VERY LOW</b> Habitat consists only of alien plants imposing major current negative ecological impacts.	<b>VERY LOW</b>	<b>VERY HIGH</b> Given the high levels of alien plant invasion, this habitat can recover rapidly back its modified state.	<b>VERY LOW</b> BI = Very low RR = Very low

Habitat and associated SCC	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance	Receptor Resilience (RR)	Site Ecological Importance (SEI)
<b>Afromontane forest</b>  <u>SCC:</u> <i>Stephanoaetus coronatus</i> (VU) <i>Campethera notata</i> (NT) <i>Buteo trizonatus</i> (NT) <i>Sarophorus punctatus</i> (EN) Forest Invertebrates (Range restricted) <i>Chlorotalpa duthieae</i> (VU) <i>Panthera pardus</i> (VU) Sensitive Species 8 (VU)	<b>VERY HIGH</b> Afromontane forest is highly likely to host short-range endemic invertebrate species triggered by the 'forest invertebrate' layer. While no SCC were found on site, the precautionary approach is applied given the suitable forest habitat and the sensitivities of these SCC.	<b>VERY HIGH</b> High habitat connectivity between forest on site and within greater landscape. Functional habitat corridors and minimal negative impacts.	<b>VERY HIGH</b>	<b>MEDIUM</b> Forest habitat will recover slowly (>10 years to recover 75% original species). Given the good connectivity to forest habitat in greater landscape, most SCC are likely to return after disturbance, however any range-restricted invertebrates have a moderate-low likelihood of returning after disturbance.	<b>VERY HIGH</b>



Figure 11. Site Ecological Importance map with regards to fauna on Plett SleepOver site.

Table 7. Guidelines for interpreting Site Ecological Importance for proposed developments (SANBI 2020).

Site ecological importance	Interpretation in relation to proposed development activities
<b>Very high</b>	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.
<b>High</b>	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.
<b>Medium</b>	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
<b>Low</b>	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
<b>Very low</b>	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

## 6. COMPLIANCE STATEMENT

SCC likely to occur on the property are all heavily associated with the Afromontane forest habitat that occurs along the northern section of the property. This section of forest is well connected to other similar habitat across the greater landscape, which increases the likelihood of SCC moving across the landscape and occurring on the property. The SDP has however been optimized to avoid all sensitive habitats on the property and there is thus a low likelihood that SCC will be affected by the development. Furthermore, it is unlikely that SDP will utilize any habitat within the SDP. For this reason, the sensitivity of the proposed development footprint is considered to be Low and the development is considered acceptable from an animal species perspective.

## 7. REFERENCES

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## APPENDIX 1: SCC IDENTIFIED FROM PUBLIC PLATFORMS FOR THE PROJECT AREA.

SCC were included or excluded from further analysis in this report based on expert interpretation for the presence/absence of key landscape and habitat features on site. See Section 4.2 Assumptions and Limitations for more information.

Taxa	Species	Common name	Regional Assessment	Source	Assessed?
<b>Avifauna</b>	<i>Buteo trizonatus</i>	Forest Buzzard	LC, NT	SABAP2	Y
	<i>Phalacrocorax capensis</i>	Cape Cormorant	EN, EN	SABAP2	N
	<i>Grus paradisea</i>	Blue Crane	NT, VU	SABAP2	Y
	<i>Numenius arquata</i>	Eurasian Curlew	NT, NT	SABAP2	N
	<i>Oxyura maccoa</i>	Maccoa Duck	NT, EN	SABAP2	N
	<i>Stephanoaetus coronatus</i>	Crowned Eagle	VU, NT	SABAP2	Y
	<i>Falco biarmicus</i>	Lanner Falcon	VU, LC	SABAP2	Y
	<i>Morus capensis</i>	Cape Gannet	VU, EN	SABAP2	N
	<i>Circus maurus</i>	Black Harrier	EN, EN	SABAP2	Y
	<i>Coracias garrulus</i>	European Roller	NT, LC	SABAP2	N
	<i>Bradypterus sylvaticus</i>	Knysna Warbler	VU, VU	SABAP2	Y
	<i>Campethera notata</i>	Knysna Woodpecker	NT, NT	SABAP2	Y
<b>Amphibian</b>	<i>Afrixalus knysnae</i>	Knysna Leaf-folding Frog	EN	Virtual Museum	Y
<b>Mammal</b>	<i>Damaliscus pygargus pygargus</i>	Bontebok	VU	Virtual Museum	N
	<i>Philantomba monticola</i>	Blue Duiker	VU	Virtual Museum	Y
	<i>Panthera pardus</i>	Leopard	VU	Virtual Museum	Y
	<i>Aonyx capensis</i>	African Clawless Otter	NT	Virtual Museum	N
<b>Invertebrate</b>	<i>Ceratogomphus triceraticus</i>	Cape Thorntail	NT	Virtual Museum	Y
	<i>Ecchlorolestes nylephtha</i>	Queen Malachite	NT	Virtual Museum	Y

## APPENDIX 2: AVIFAUNA SPECIES OBSERVED DURING SITE VISIT TO PLETT SLEEPOVER PROPERTY

SCC are indicated in red text.

Common name	Scientific name
Black-headed Oriole	<i>Oriolus larvatus</i>
Cape Batis	<i>Batis capensis</i>
Cape Robin-Chat	<i>Cossypha caffra</i>
Cape White-eye	<i>Zosterops virens</i>
Forest Buzzard	<i>Buteo trizonatus</i>
Fork-tailed Drongo	<i>Dicrurus adsimilis</i>
Green Wood Hoopoe	<i>Phoeniculus purpureus</i>
Pied Crow	<i>Corvus albus</i>
Sombre Greenbul	<i>Andropadus importunus</i>
Southern Boubou	<i>Laniarius ferrugineus</i>
White-necked Raven	<i>Corvus albicollis</i>

## APPENDIX 3: MAMMAL SPECIES OBSERVED DURING SITE VISITS TO PLETT SLEEPOVER

Order	Family	Common name	Scientific name	Notes
Rodentia	Bathyergidae	Mole-rat	-	Suspected species from mole hills

## APPENDIX 4: INVERTEBRATE SPECIES OBSERVED DURING SITE VISITS TO PLETT SLEEPOVER SITE

Species of Conservation Concern are indicated in red text.

Order	Family	Common name	Scientific name
Araneae	Philodromidae	Slender Crab Spiders	<i>Tibellus sp.</i>
Araneae	Tetragnathidae	Masked Vlei Spider	<i>Leucauge festiva</i>
Araneae	Thomisidae	Crab Spiders	<i>Synema imitatrix</i>
Araneae	Thomisidae	Crab Spiders	<i>Runcinia sp.</i>
Blattodea	Infraorder: Isoptera	Termites	-
Coleoptera	Scarabaeidae	Rhinoceros Beetles	<i>Copris sp.</i>
Coleoptera	Staphylinidae	Rove Beetles	-
Diptera	Syrphidae	Drone Flies and Allies	<i>Mesembrius sp.</i>
Hymenoptera	Formicidae	Carpenter Ant	<i>Camponotus sp.</i>
Lepidoptera	Nymphalidae	Silver-bottom Brown	<i>Pseudonympha magus</i>
Orthoptera	Anostostomatidae	Peninsula Gnashing Cricket	<i>Henicus brevimucronatus</i>

## APPENDIX 5: AMPHIBIAN SPECIES OBSERVED DURING SITE VISITS TO PLETT SLEEPOVER SITE

Family	Common name	Scientific name
Brevicipitidae	Plain Rain Frog	<i>Breviceps fuscus</i>
Pyxicephalidae	Clicking Stream Frog	<i>Strongylopus grayii</i>

## APPENDIX 6: SITE ECOLOGICAL IMPORTANCE METHODS

The site ecological importance (SEI) is defined and calculated as highlighted as per the Species Environmental Assessment Guideline (SANBI 2020), where SEI is a function of biodiversity importance (BI) and receptor resilience (RR) such that:  $SEI = BI + RR$ .

BI is further defined as a function of conservation importance (CI) and habitat functional integrity (FI), with  $BI = CI + FI$ , and is determined by means of a matrix (Table 8).

SEI can therefore be fully understood as  $SEI = (CI + FI) + RR$ , where:

**Conservation Importance (CI):** The importance of a site for supporting biodiversity features of conservation concern present, e.g., populations of IUCN threatened and Near Threatened species (CR, EN, VU and NT), Rare species, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes. \*Most features included in CI are provided by the screening tool but are evaluated at a finer scale following field work at the site.

**Functional Integrity (FI):** A measure of the ecological condition of the impact receptor (i.e., habitat type) as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.

**Receptor Resilience (RR):** The intrinsic capacity of the receptor (i.e., habitat type or SCC) to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.

Table 8. Matrix to calculate the biodiversity importance (BI) of a given habitat type identified from desktop and field assessments.

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 SEI is derived for each habitat type or SCC within a project site by making use of two matrixes: first to calculate the BI (using Table 8) and then the SEI (Table 9).

SEI is therefore specific to the proposed development and can only be compared between alternative layouts for the same proposed development, but not between different developments.

*Table 9. Matrix to calculate site ecological importance (SEI) of a given habitat type identified from desktop and field assessments.*

Site Ecological Importance		Biodiversity Importance				
		Very High	High	Medium	Low	Very Low
Receptor Resilience	Very High	Very High	Very High	High	Medium	Low
	High	Very High	Very High	High	Medium	Very Low
	Medium	Very High	High	Medium	Low	Very Low
	Low	High	Medium	Low	Very Low	Very Low
	Very Low	Medium	Low	Very Low	Very Low	Very Low