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Terrestrial Animal Species Specialist Assessment:

Site Sensitivity Verification Report

Erf 2074, Plettenberg Bay, Western Cape

Terrestrial Animal Species Specialist Assessment:

Site Sensitivity Verification Report

Prepared For:	EcoRoute
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SACNASP:	Professional Natural Scientist (Ecological Sciences), 166055
Date:	February 2024
Version:	Draft, pending update of Site Development Plan (SDP)

DECLARATION OF SPECIALIST INDEPENDENCE

- I consider myself bound to the rules and ethics of the South African Council for Natural Scientific Professions (SACNASP);
- At the time of conducting the study and compiling this report I did not have any interest, hidden or otherwise, in the proposed development that this study has reference to, except for financial compensation for work done in a professional capacity;
- Work performed for this study was done in an objective manner. Even if this study results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being members of the general public;
- I declare that there are no circumstances that may compromise my objectivity in performing this specialist investigation. I do not necessarily object to or endorse any proposed developments, but aim to present facts, findings and recommendations based on relevant professional experience and scientific data;
- I do not have any influence over decisions made by the governing authorities;
- I undertake to disclose 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 a competent authority to such a relevant authority and the applicant;
- I have the necessary qualifications and guidance from professional experts in conducting specialist reports relevant to this application, including knowledge of the relevant Act, regulations and any guidelines that have relevance to the proposed activity;
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- All the particulars furnished by me in this document are true and correct.

Monica Leitner (MSc)

February 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

SACNASP Registration: Professional Natural Scientist (Ecological Sciences), number 166055

References

- Dr. Michelle Thompson – Former colleague on Marion Island and University of Pretoria
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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

CBA	Critical Biodiversity Area
CD:NGI	Chief Directorate: National Geo-spatial Information
DFFE	Department of Forestry, Fisheries, and the Environment
ESA	Ecological Support Area
EWT	Endangered Wildlife Trust
NEMA	National Environmental Management Act
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SDP	Site Development Plan
SSVR	Site Sensitivity Verification Report
WCBSP	Western Cape Biodiversity Spatial Plan

1. INTRODUCTION

Confluent Environmental Pty (Ltd) was appointed by EcoRoute to provide Terrestrial Animal Specialist inputs for a proposed housing development on Erf 2074, Plettenberg bay, Western Cape.

1.1 General Site Location

Erf 2074 is ca. 6.25 hectares in extent and located just east off the N2 highway within the town of Plettenberg Bay, Western Cape (Figure 1). The property is only accessible from Marine Way in the north. There are two existing houses and an old agricultural land (olive grove) in the north, with the remainder of the property largely undeveloped. There is a road running down the eastern boundary to the south of the property, where the remnants of a halted development (foundations of a building) are observed. The property provides a strip of natural/green area between residential housing developments, which are present along all borders except the south, which borders the Piesang River valley below.

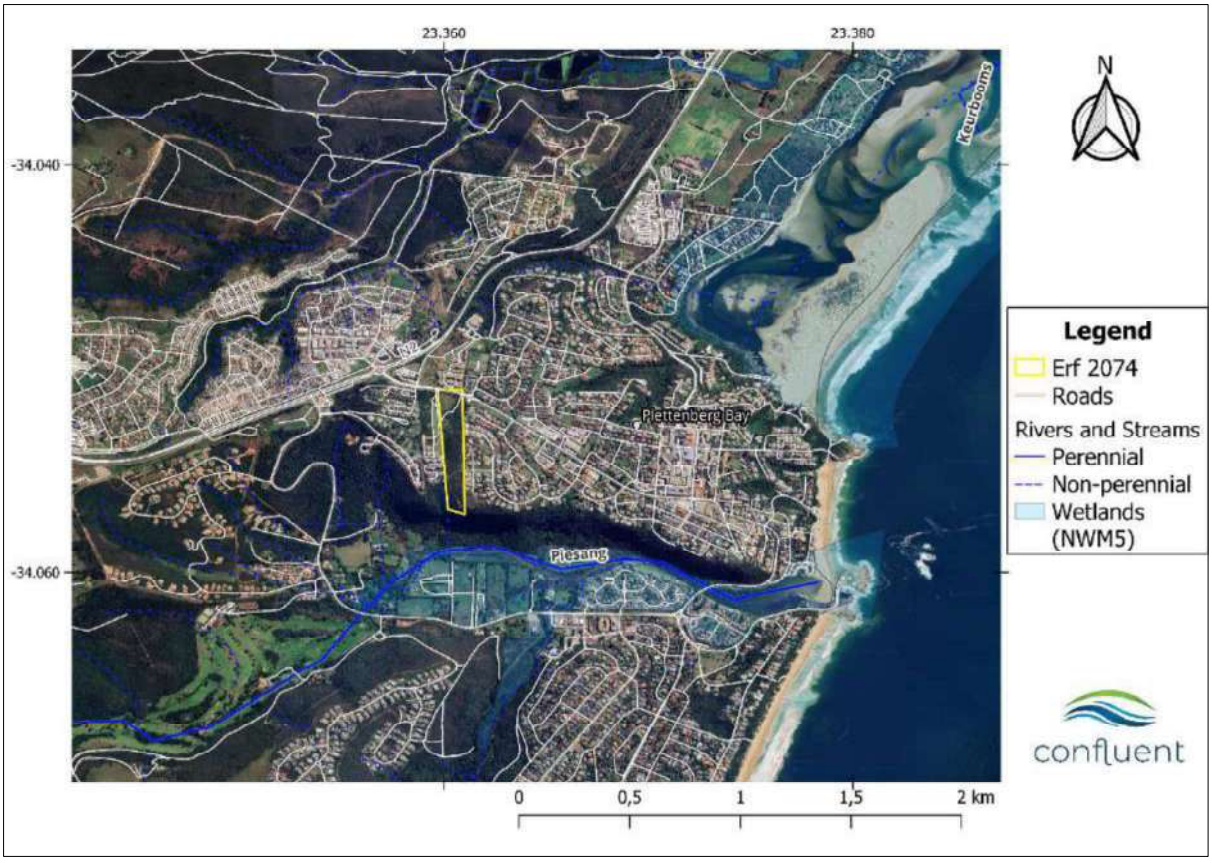

Figure 1. Erf 2074, Plettenberg Bay, Western Cape.

1.2 Development Layout

While the DFFE Screening Tool report for the environmental authorization indicates a proposed housing development, no detailed site development plan (SDP) was available at the time of writing this report. As such, the entire property of Erf 2074 was assessed for terrestrial fauna sensitivity with a view of informing the layout of a housing development.

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 revealed a HIGH and MEDIUM sensitivity for the terrestrial animal species theme across Erf 2074 (Figure 2), with several animal Species of Conservation Concern (SCC) potentially present (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.

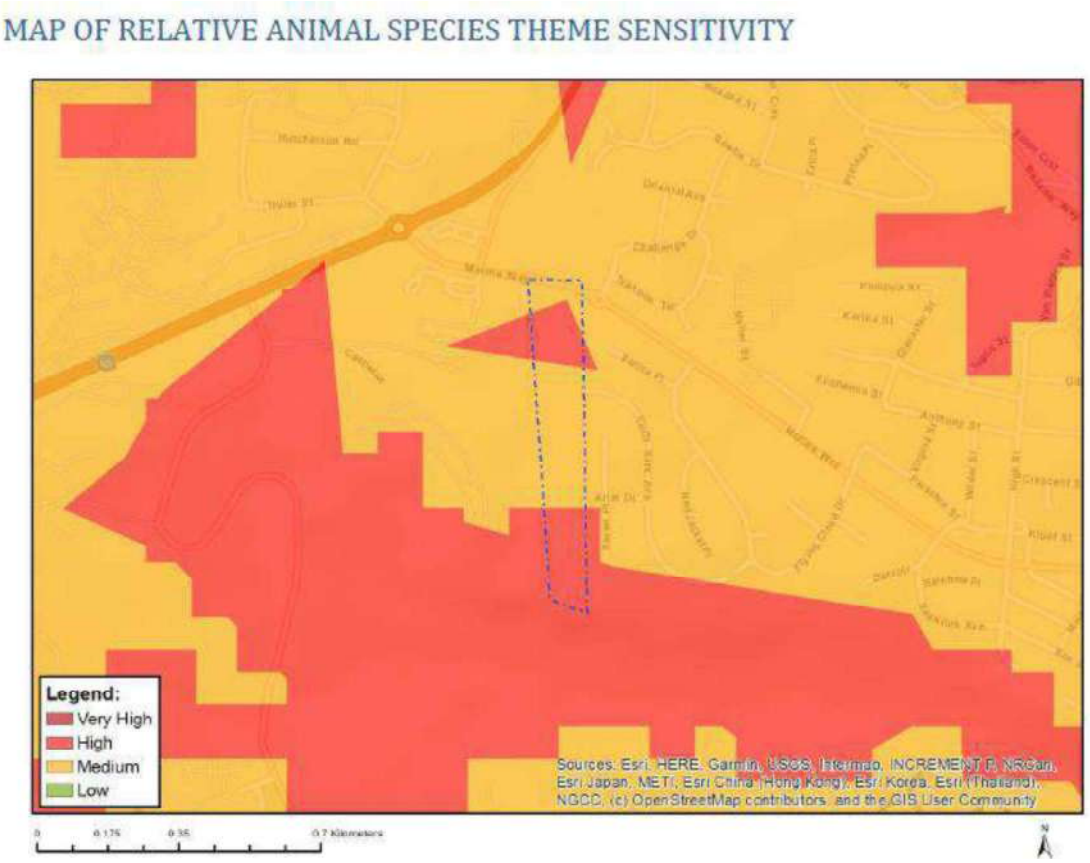

Figure 2. DFFE online Screening Tool outcome for the terrestrial animal species theme for Erf 2074. The property boundary is indicated by the blue dashed line.

Table 1. Species of Conservation Concern highlighted by the DFFE online Screening Tool for Erf 2074.

Sensitivity	Classification	Scientific name	Common name	Red list status*
High	Avifauna	*Circus ranivorus*	Marsh Harrier	Endangered
High	Avifauna	*Stephanoaetus coronatus*	Crowned Eagle	Vulnerable
High	Avifauna	*Bradypterus sylvaticus*	Knysna Warbler	Vulnerable
Medium	Amphibian	*Afrixalus knysnae*	Knysna Leaf-folding Frog	Endangered
Medium	Invertebrate	*Aloeides thyra orientis*	Red Copper Butterfly	Endangered
Medium	Mammal	*Chlorotalpa duthieae*	Duthie's Golden Mole	Vulnerable
Medium	Mammal	*Sensitive species 8*	-	Vulnerable
Medium	Invertebrate	*Sarophorus punctatus*	-	Endangered
Medium	Invertebrate	*Aneuryphymus montanus*	Yellow-winged Agile Grasshopper	Vulnerable

* Red list status as per SANBI's Red List of South African Species http://speciesstatus.sanbi.org except *S. punctatus* which is listed as endangered in 'Conservation assessment of Scarabaeine dung beetles in South Africa, Botswana and Namibia: IUCN Red List categories, atlas and ecological notes' (Davis, Deschodt and Scholtz 2020)

2.2 Scope of work

The purpose of this report is to verify the site sensitivity of Erf 2074 for the terrestrial animal species theme in accordance with the protocols specified 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 from
    - Discussions with landowners/neighbours.
    - Previous report findings for the property or surrounding areas.

Should the site sensitivity verification indicate a **LOW** sensitivity for all SCC, 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 will be conducted.

3. DESKTOP ASSESSMENT

3.1 Vegetation, Climate and General Habitat

Plettenberg Bay, Western Cape falls within the Fynbos biome and experiences a temperate climate year-round (Mucina and Rutherford 2006, Rebelo, et al. 2006). The mapped vegetation type for the property is South Outeniqua Sandstone Fynbos (Vulnerable), and a detailed botanical specialist assessment is available (B. Fouche, Confluent Environmental). Average temperatures range between 27℃ and 8℃, with the hottest days experienced from

December to March peaking around 38℃ and the coldest days experienced from June-August not falling below 2℃. Rain occurs throughout the year in a bimodal pattern with peaks in autumn (April) and spring (October-November) (Figure 3).

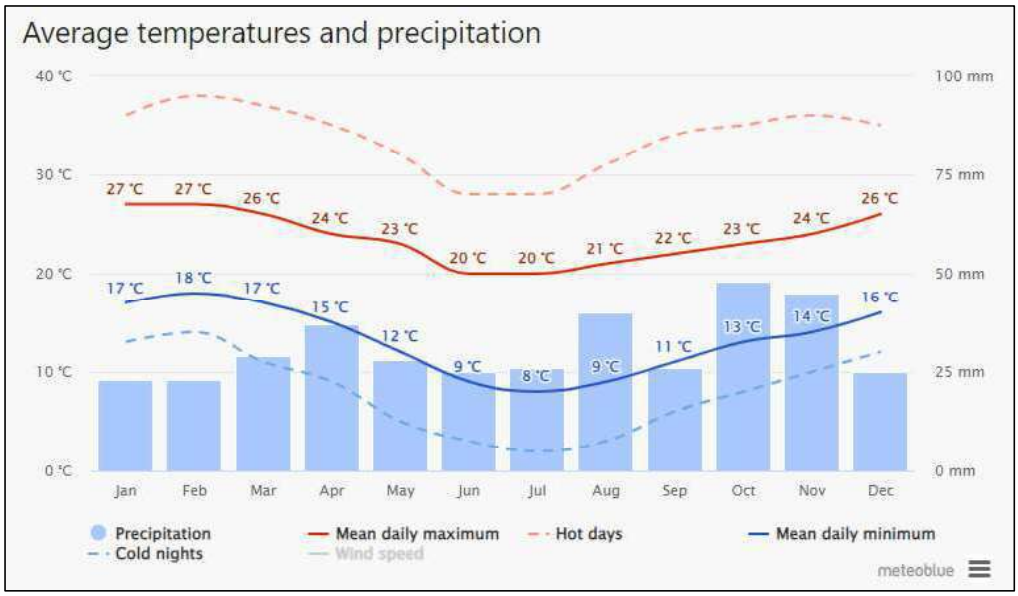

Figure 3. Summary of historical climate (modelled) for Plettenberg Bay (www.meteoblue.com).

Satellite imagery from Google Earth and Cape Farm Mapper was used to assess general vegetation structure, elevational gradients and water bodies on the property (Figure 4). The property is well vegetated, except for a patch of cleared agricultural land and around the houses in the northern portion of the property. There is also some clearing noted along the road against the eastern boundary, which splits into two in the south. Vegetation appears thickest in the middle to northern regions, with more trees (possibly alien plants), while the southern half of the property appears more fynbos in structure. Elevation is quite uniform (flat) across the majority of the property, except in the far south where a steep drop is observed towards the Piesang River valley. There are no mapped watercourses or waterbodies on the property, however a drainage line is present along the south-western boundary.

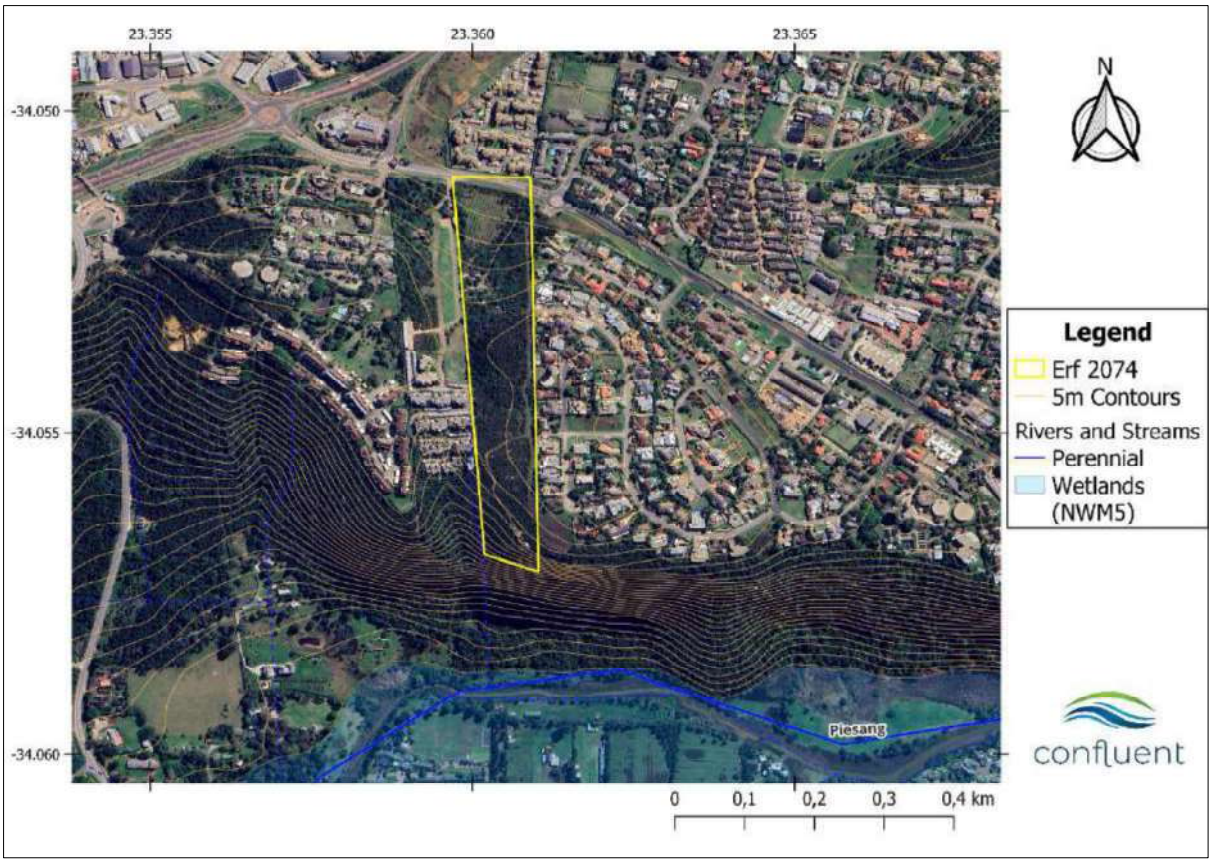

Figure 4.Satellite imagery of Erf 2074 showing topography (5m contours) and vegetation structure. There are no mapped watercourses or waterbodies on the property (NWM5).

3.2 Western Cape Biodiversity Spatial Plan

Additional mapping layers were applied to Erf 2074 to include the Western Cape Biodiversity Spatial Plan (CapeNature 2017) and to visualize Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) (Figure 5, Table 2). The southern section of the property falls within a CBA1 area, with marginal inclusions of a ESA1 and ESA2 along the southwestern boundary. The reasons for these CBA and ESA designations are due to the presence of the following mapping features:

- FEPA (Freshwater Ecosystem Priority Areas) River Corridor
- Piesang (Core) Estuary
- South Eastern Coastal Belt Permanent Lower Foothill River
- South Outeniqua Sandstone Fynbos (VU)
- Watercourse protection- South Eastern Coastal Belt

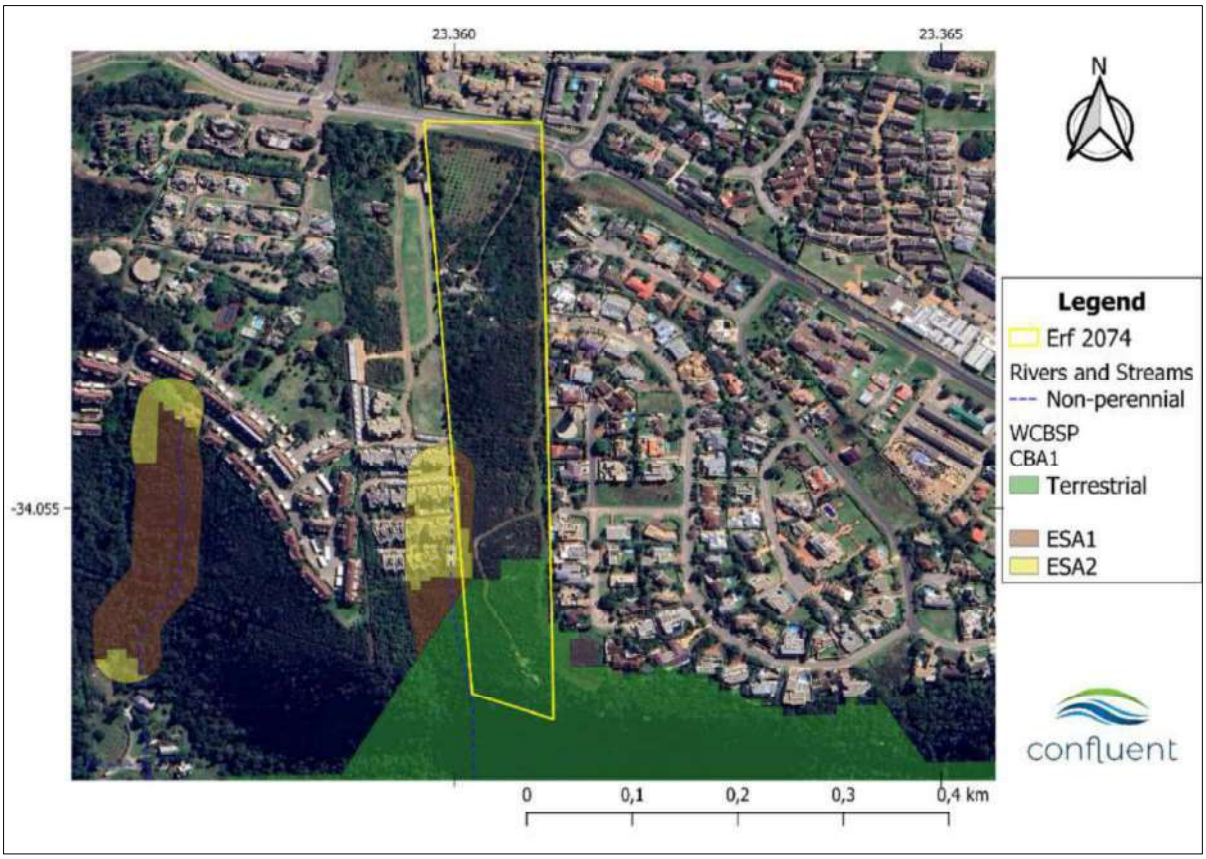

Figure 5. Erf 2074 with layers for the Western Cape Biodiversity Spatial Plan's Critical Biodiversity Areas (CBA1) and Ecological Support Areas (ESA2).

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)	Areas vital for ecosystem services. Not essential for meeting biodiversity targets but support the functioning of Protected Areas or CBAs.	Maintain in a function, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and 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.

3.3 Historical Assessment of Project Area

1938: Majority of the property and surrounding area is in a natural state with limited development restricted to the northern region. Clearing of vegetation evident in the northwest corner, likely for agriculture. An access road is visible from the northeast corner, with two small structures and cleared land on the neighbouring property, leading towards the only house on Erf 2074 situated on the along the western border just south of the agricultural lands. The access road extends beyond the house, with less vegetation clearing or maintenance evident, and meanders towards the middle of the property where it ends.

1960: A lot of vegetation clearing observed along the western boundary, extending into the neighbouring property which also experienced vegetation clearing and the development of houses and roads. The original access road in the northeast splits into two soon after entering the property, one road still running to the house on the western boundary, and a new road running down the middle of the property along the edge of the cleared area and further south towards a circular structure, likely a small dam/reservoir along the western edge. The agricultural land in the northwest is still visible and a row of trees (windbreak) formed a dense straight line along the western boundary.

1974: Extensive road networks have been developed on the neighbouring property to the east of Erf 2074. A new road extends from the existing house on the property towards the eastern neighbour's road network, and similarly, another new road runs from the cleared area in the middle of the property towards the south and then to the neighbouring property in the east. The agricultural field in the northeast has been cleared again and shows signs of active agriculture. The road running towards the round dam in the south of the property has been revegetated and is no longer visible.

1990: Many trees are present across the property, particularly in the middle section, and indicates the presence of alien species. The cleared and disturbed area in the middle-west of Erf 2074 has been completely revegetated, mostly with trees. A new road extends straight across the middle of the property, connecting the western and eastern neighbours. The agricultural field in the northwest appears inactive/unmaintained although some vegetation clearing is taking place.

2004: Many trees in the north of the property have been cleared, including the straight line of trees (windbreak) along the northwestern boundary that was evident until 1974. Trees are only present in the middle region, to the south of the house. The southern portion of the property appears to be natural fynbos in structure. All roads across the south of the property (linking the neighbouring properties) have been revegetated. The round structure/dam in the south of the property has been removed. The western neighbour is experiencing new vegetation clearing and road networks are expanding further south, while the housing development on the eastern neighbouring property is well established. The agricultural land in the northwest appears inactive/unmaintained, but all trees previously there have been cleared. The house on the property has expanded, with a few more buildings observed and vegetation cleared.

2010: Vegetation thickening occurred along the access road in the northeast of Erf 2074 and around the houses. The agricultural land in the northwest has been cleared, with thick vegetation observed around its borders. Overall, tree density in the middle of the property increased. A newly cleared area in the south, across the width of the property, is observed.

The housing developments on both western and eastern neighbouring properties are well established now.

2013: The agricultural land in the northeast is actively being farmed (an orchard is observed) and is surrounded by dense vegetation/trees. Vegetation thickening is also observed along the access road and around the houses. Many of the trees in the middle of the property have been cleared, and some revegetation of the previously bare patch in the south has occurred, however, a lot of bare soil remains. Clearing (a road) is now seen along the entire length of the eastern boundary.

2016: Vegetation thickening is noted throughout the property, notably around the access road, agricultural land and houses in the north. Trees and dense vegetation are expanding in the middle region, and the southern area is experiencing revegetation with shrubs/fynbos such that the previously bare areas mostly entirely revegetated now. A new road branches off from the eastern boundary road, leading to a small clearing and new structure on the southern boundary.

2021: Increased vegetation cover is seen across the whole property, with little to no bare patches remaining. The only roads visible on the property are the access roads to the houses in the north, the eastern boundary clearing/road and the road to the structure on the southern boundary. No progress has occurred with the development/structure in the south of the property, with no change in size or shape since 2016.

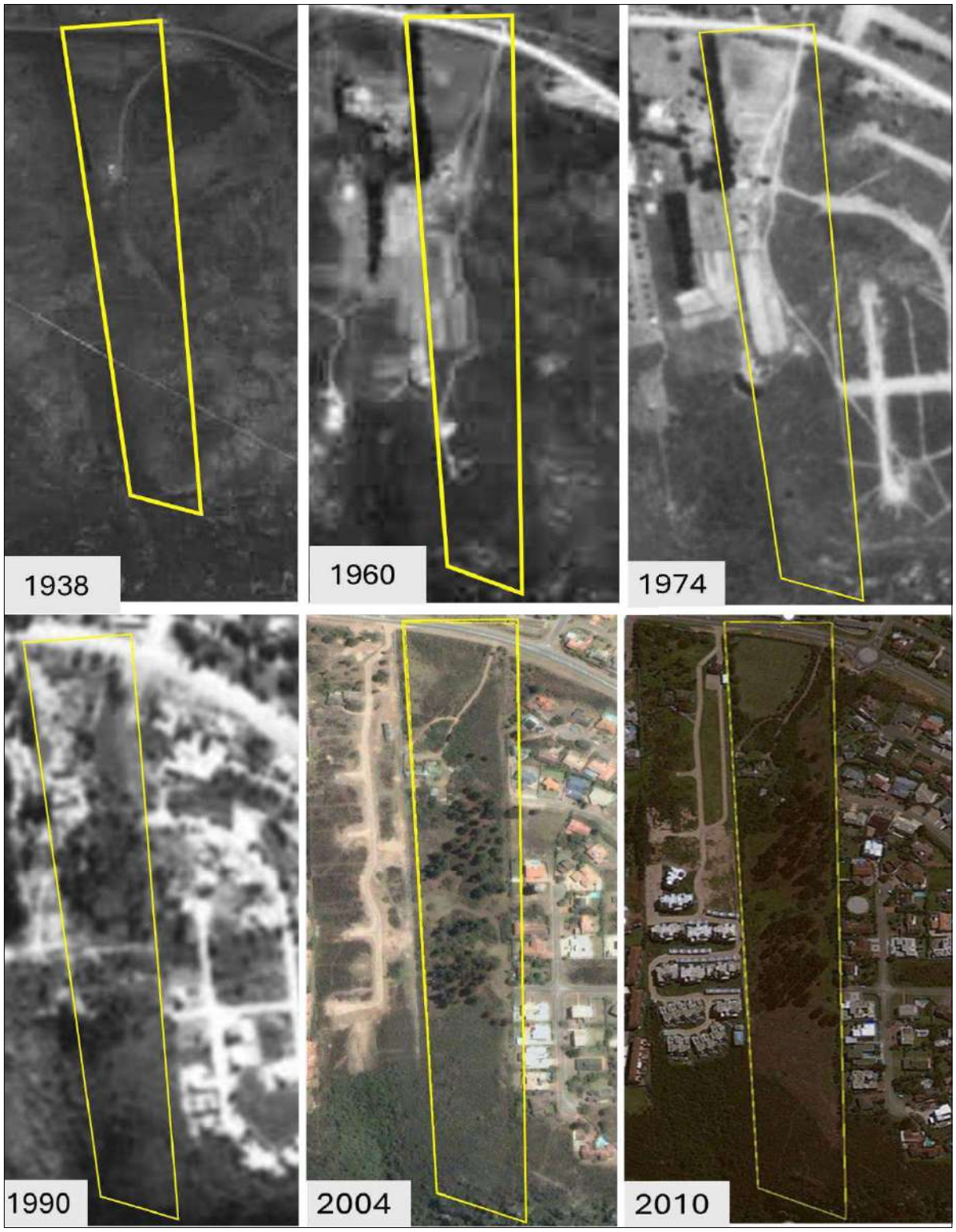

Figure 6. Historical imagery of Erf 2074 from 1938-2010 sourced from the CD: NGI geospatial portal and Google Earth. The property boundary is indicated by the yellow line.

Figure 7. Historical imagery of Erf 2074 from 2013-2021 sourced from 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 Erf 2074 and its immediate surroundings:

1. iNaturalist (all taxa) within 3 km x 2 km of the project area (URL for iNaturalist search area).
2. Virtual Museum for herpetofauna, mammals, reptiles and invertebrate taxa within the Quarter Degree Squares (QDS) 3423AB: DungBeetleMAP, FrogMAP, LacewingMAP, LepiMAP, MammalMAP, OdonataMAP, ReptileMAP, ScorpionMAP, SpiderMAP.
3. South African Bird Atlas Project (SABAP2) for pentad 3400_2320.

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. 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 Erf 2074, along with their habitat, breeding and feeding requirements are listed in Table 3. The information for each SCC 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 text.

Table 3. Summary of habitat, breeding and feeding requirements for faunal SCC potentially occurring on Erf 2074.

Species	Red list status	Habitat	Breeding	Feeding
AVIFAUNA				
Circus ranivorus African Marsh Harrier[1]	Endangered	- Considered a waterbird. - Roosts on taller trees around wetland edges from where it has a good vantage point. - Can adapt to novel wetland habitats such as wastewater treatment works	- Breeding occurs between September and December. - Egg-laying is from August to November in South Africa. - Nests made of grass, reed stems or sticks in reedbeds, short sedge areas or in trees along the water's edge. - The same nest is often reused by the same pair in following years.	- Dietary assessment (Simmons *et al.*, 1991) of pellets and prey deliveries to nests includes birds, frogs, fish, eggs and micromammals (*Rhabdomys, Otomys*, and Shrews). - Hunts primarily in wetland habitats using various flight methods including soaring, hovering and low flight over wetlands and along the water's edge. - May hunt in open grasslands or pastures near wetland areas.
Bradypterus sylvaticus Knysna warbler[1]	Vulnerable	- 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. *Rubus*) (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.
Stephanoaetus coronatus Crowned eagle[1]	Vulnerable	-Forest (including gallery forest), dense woodlands and forested gorges in savannas and grasslands. -Also in *Eucalyptus* and Pine plantations.	-Monogamous, possibly long-term pair bond. -Territorial (at least 10 km^2), solitary nester. -Tallest trees used to build large stick platform nest (sticks/branches	-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 Hadeda Ibis, Egyptian

[1] SCC identified by the DFFE Screening Tool

Species	Red list status	Habitat	Breeding	Feeding
		-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.	up to 1.5m long, 3cm thick). Nest copiously lined with beachwood (*Faurea saligna*), 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 (*Celtis africana*), yellowwoods (*Podocarpus* spp.), Cabbage tree (*Cussonia spicata*) but also *Eucalytus* and Pine species. -Incubation 49-51 days.	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.
Tyto capensis African Grass Owl[2]	Vulnerable	-Most common in areas of 700-800mm p.a. rainfall. - Only a few pairs persist in Western Cape, with occasional records from near Wilderness and Bredasdorp. - Largely nocturnal, returning to roost near dawn. - Resident in suitable habitat, nomadic in areas temporarily suitable,	- Monogamous, probably territorial. - Solitary nester, but nests can be 150m apart and often in close proximity to African Marsh Harrier or Marsh Owl nests. - Nest is unlined hollow on the ground within a 'cave' at the roost site, at the end of 1-2 m long tunnel through tall grass/sedges. Nests sometimes reused.	- Emerges after dark to fly low and slow over hunting grounds. Stops to rest on low perches or ground, and periodically returns to roosting site. - Solitary hunter. Hunts from flight and less often from a perch. Strikes prey fast on the ground, snatches from foliage or sometimes in flight. - Favours vlei rats (*Otomys* spp.). Diet mainly rodents (76-98%) but also takes shrews and birds. In Western Cape, diet

[2] SCC identified by SABAP2 platform for pentad 3400_2320

Species	Red list status	Habitat	Breeding	Feeding
		or unsuitable habitats after a fire/heavy grazing. - Mainly in marshes or vleis, favours patches of tall rank grass, sedges or weeds. Not exclusively linked to wetlands but needs long grass to be concealed from above. - Also found in areas of dense ground cover within scattered thorn scrub, low fynbos and renosterveld, but usually close to water and in areas of thick stands of grass (*Stenotaphrum* sp.)/sedges (*Juncus* sp.) -Roost is a series of tunnels through tall grass leading to 'caves'. Roost area also has open landing platforms where pellets are deposited and later removed.	- Laying dates in Eastern and Western Cape: Jan-Jul and Oct-Dec. Peaks in Jan-Mar. - Incubation 32 days, with 2-6 eggs laid. - After hatching, female eats the eggs shells. Female broods the young for 10 days, with male provisioning. - Chicks wander into surrounding areas from day 28-35, hiding in tunnels. Fledging happens from 49-55 days old. - Adults sometimes perform distracting displays (calling and dropping into grass near intruder/threat) to protect chicks.	can include Cape Mole Rats (*Georychus capensis*) and Duthies Golden Mole (*Chlorotalpa duthiae*), but rodents still preferred. -Will hunt in most available habitats, but strong preference for tall grass areas.
Buteo trizonatus Forest Buzzard[2]	Least Concern (Regional), Near Threatened (Global)	-Afromontane forests and plantations (mainly Pine, but also *Eucalyptus*). -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.

Species	Red list status	Habitat	Breeding	Feeding
Campethera notata Knysna Woodpecker[2]	Near Threatened Near Threatened	-Territorial, occurring in thornveld, Euphorbia thickets, riparian and montane evergreen forests. -Marginal occurrence in Protea communities, coastal white Milkwood (*Sideroxylon inerme*) 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.
Grus paradisea Blue Crane[2]	Near Threatened TOPS: Protected (2023 DRAFT) CITES: Appendix II	-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.
MAMMALS				
Chlorotalpa duthieae Duthie's Golden Mole[1]	Vulnerable	- Occur on alluvial sands and sandy loams in southern Cape Afrotemperate forests - 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.	- Little is known but a female was recorded with a litter of two young in November.	-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.

Species	Red list status	Habitat	Breeding	Feeding
		- Mainly active at night.		
Panthera pardus Leopard[3]	Vulnerable	-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.	-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 12months after which siblings remain together for a further 2-3 months.	-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.
Sensitive Species 8[1]	Vulnerable	- Specialised habitat requirements within a home range of approximately 0.75 ha - 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.	- 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.

[3] SCC identified by Virtual Museum platform for QDS 3423AB

Species	Red list status	Habitat	Breeding	Feeding
		- Requires 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.		
Amblysomus corriae Fynbos Golden Mole[4]	Near Threatened	-Sandy soils and soft loams in Mountain Fynbos, Grassy Fynbos and Renosterveld of South West Cape. Also Afromontane forest and southern African moist savanna along the southern Cape coast. -Favours richer and wetter soils preferring forest fringes and associated fynbos. -Thrives in gardens, cultivated lands, golf courses and livestock paddocks. Can be present in exotic plantations, but at lower densities.	-Fynbos Golden Moles probably breed a seasonally because pregnant females have been captured in August, May, and December. -Mean litter size is two; young are altricial and hairless at birth	-Insectivorous, mainly feeding on earthworms and insects.
Leptailurus serval Serval[3]	Near Threatened TOPS: Protected (2023 DRAFT)	-Widespread throughout sub-Saharan Africa. Mostly found in and around marshland, well-watered savannah and long-grass environments. Particularly associated with reedbeds and other riparian vegetation types. Proximity to water seems essential.	-Gestation estimated 73 days. Pregnant females found between November-March, with young usually born early-mid warm/wet season. Young seen with females between July-October.	-Feeds mainly on small mammals (preference for rodents) but also birds, reptiles and frogs occasionally. Preference shown for vlei rats. - Usually solitary hunters, but pairs and young families are occasionally reported to hunt together.

[4] SCC identified by iNaturalist platform

Species	Red list status	Habitat	Breeding	Feeding
	CITES: Appendix II	-Habitats can be natural or man-made habitat (Child *et al*. 2016). - Adaptable to agricultural and industrial areas where appropriate wetland habitat is conserved or waterbodies created in combination with an abundance of prey (Child *et al*. 2016). -Predominantly nocturnal. -Previously extinct in Eastern and Western Cape province but reintroduced in EC and range expansions evident into W, although rare.		
TERRESTRIAL INVERTEBRATES				
Aloeides thyra orientis Red Copper Butterfly[1]	Endangered	- Restricted range taxon endemic to the Western Cape from Witsand to Gouritsmond in the west, to the Brenton Peninsula near Knysna in the east. - Declining because of alien plant encroachment and lack of regular burning of the fynbos. - Coastal fynbos on flat sandy ground (either naturally occurring or from anthropogenic disturbances such as footpaths or unsurfaced track) between 40 m to 240 m above sea level.	- Adults are on wing from July to April with peaks in October and February. - Several generations per year through the warmer months.	- Larvae feed on *Aspalathus acuminata, A. laricifolia* and *A. cymbiformis*. -The larvae are attended to by *Lepisiota capensis* ants.

Species	Red list status	Habitat	Breeding	Feeding
Sarophorus punctatus[1]	Endangered* Davis *et al*. 2020 Checklist	-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
Aneuryphymus montanus Yellow-winged Agile Grasshopper[1]	Vulnerable	- Very low area of occupancy between 100 and 1 000 km^2. 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.	- Little is known about the feeding requirements of this species.	- Little is known about the reproductive habits or requirements for this species.
Aloeides pallida littoralis	Near Threatened	- Endemic taxon to the Western Cape Province. -Relatively flat terrain near the coast, coastal fynbos.	-Little known, but *Lepisiota capensis* ants are hosts for subspecies *A. p. grandis*.	-Little is known, but larval food for the subspecies *A. p. pallida* and *A. p. jonathani* feed on *Aspalathus* species. The larvae of subspecies *A. p. grandis*

Species	Red list status	Habitat	Breeding	Feeding
Knysna Pale Copper Butterfly[3]				are fed by trophallaxis by *Lepisiota capensis* ants and feed on these ant eggs.
HERPETOFAUNA				
Afrixalus knysnae Knysna Leaf-folding Frog[1]	Endangered	- Typically inhabit endorheic (inward draining) wetlands with shallow water (< 50cm), high clarity, and sufficient vegetation suitable for breeding. - 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 (*Persicaria decipiens*) and kikuyu grass (*Pennisetum clandestinum*). -It requires a habitat with diverse plant species, including shrubs, grasses, and ferns, providing shelter and breeding sites (De Lange and Du Preez 2018).	- Females lay eggs on leaves which are folded and sealed by males, creating a protected environment. - Breeding occurs during warmer wetter months of September to November (F. De Lange 2019). - Breeding takes place near deeper parts of the waterbody, but still close to the water's edge.	- Insectivorous, 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. - Uses its sticky, projectile tongue to capture and quickly ingest prey. - 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 Erf 2074.

Taxa	Field methods	Public platform where observations were reported
Avifauna	• Meander* across site for direct observations. • 8 point counts (5-minute bird counts).	Birdlasser (species lists), iNaturalist (photos)
Mammals	• Meander* across site for direct observations, tracks, scats and signs. • Camera trapping for 16 hours (overnight). • Sherman traps (baited) left active for 16 hours (overnight).	iNaturalist (photos)
Amphibia	• Meander* across site for direct observations. • Active searching.	iNaturalist (photos)
Invertebrates	• Meander* across site for direct observations. • Active searching. • Baited (dung and chicken livers) pitfall trapping for 20 hours. • Sweep netting.	iNaturalist (photos)

* Meandering involved 4.7 km of slow walking across the property 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

1. 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 expert interpretation to determine which of the SCC are relevant to include in the faunal assessment of the project area. For example, the course spatial scale of reporting within the Virtual Museum platforms (Quarter Degree Square level (27km x 27km) or SABAP2 pentad level (9km x 7km)) can result in species records from habitats very different to those present on the property. 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 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 represent those which may reasonably occur on site. However, there is always the possibility that some SCC (although highly unlikely to occur) are overlooked in this process.

2. Three field visits took place to the property for the faunal assessment. This increased the likelihood of detecting animal species, but 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 for the property.
3. Field visits took place during daylight hours so the likelihood of encountering nocturnal species was limited. Baited camera traps and Sherman traps were however used to assist in detecting nocturnal (and diurnal) animals over a 16-hour (overnight) period.
4. Field visits coincided with summer months at the property. This is of consequence for species showing seasonal variation in breeding and activity patterns. While still during summer, this timing was just after the breeding season of the frog SCC (*Afrixalus knysnae*, Sep-Nov), decreasing its likelihood of detection. Conversely, this was the optimal time of year to detect the presence of golden mole SCC (*Chlorotalpa duthieae* and *Amblysomus corriae*), which are generally most active in warmer and wetter conditions.
5. 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.
6. Due to time constraints, baited pitfall trapping for the dung beetle SCC (*Sarophorus punctatus*) was limited to one site visit (Jan 2024) and was done over a 20-hour period. This limited sampling period placed constraints on the invertebrates caught by this method and this data should be interpreted as a minimum estimate.

4.3 Site Inspection Details

Three site visits took place to Erf 2074, conducted on 8 December, 16 January and 17 January. Weather on all days was partly cloudy and warm to hot. Habitat types found included a small, old agricultural field (olive grove); dense vegetation (trees/shrubs) in the north around the houses; modified fynbos with some Pine and Black Wattle (*Acacia mearnsii*) invasions in the middle of the property; heavily invaded areas of Blackwood (*A. melanoxylon*) in the middle of the property; and natural fynbos in the south (Figure 8). An effort was made to cover the property with the meander and to conduct taxa specific sampling techniques across a range of suitable habitats for potential SCC (Figure 9).

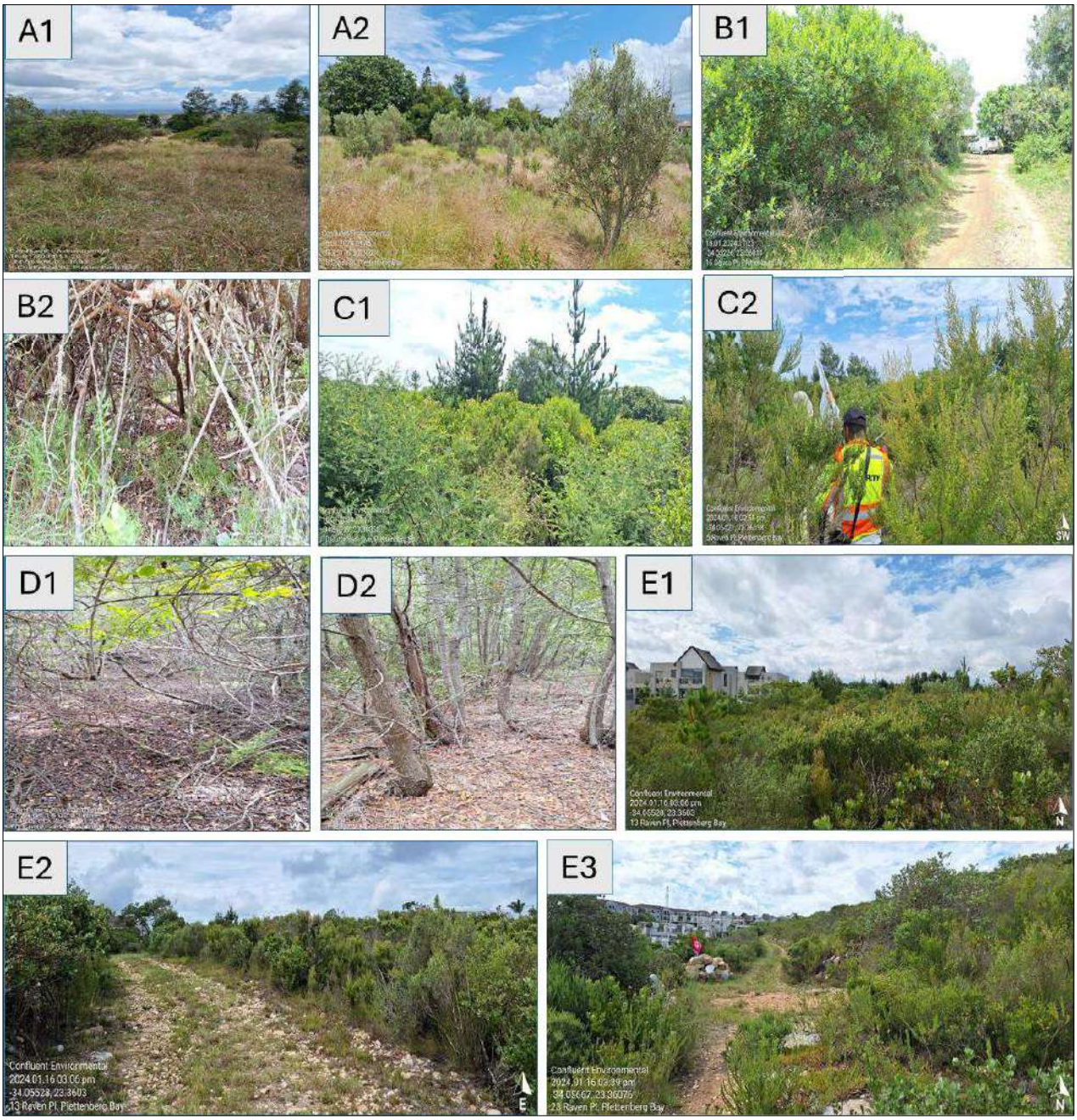

Figure 8. Habitat types identified on Erf 2074. Old agricultural field (olive grove) (A), Mixture of dense vegetation in north and around houses (B), Modified fynbos with Pine and Acacia mearnsii invasions in the middle of the property(C), Heavily invaded areas of A. melanoxylon (D) in the middle of the property, and natural fynbos (E) in the south.

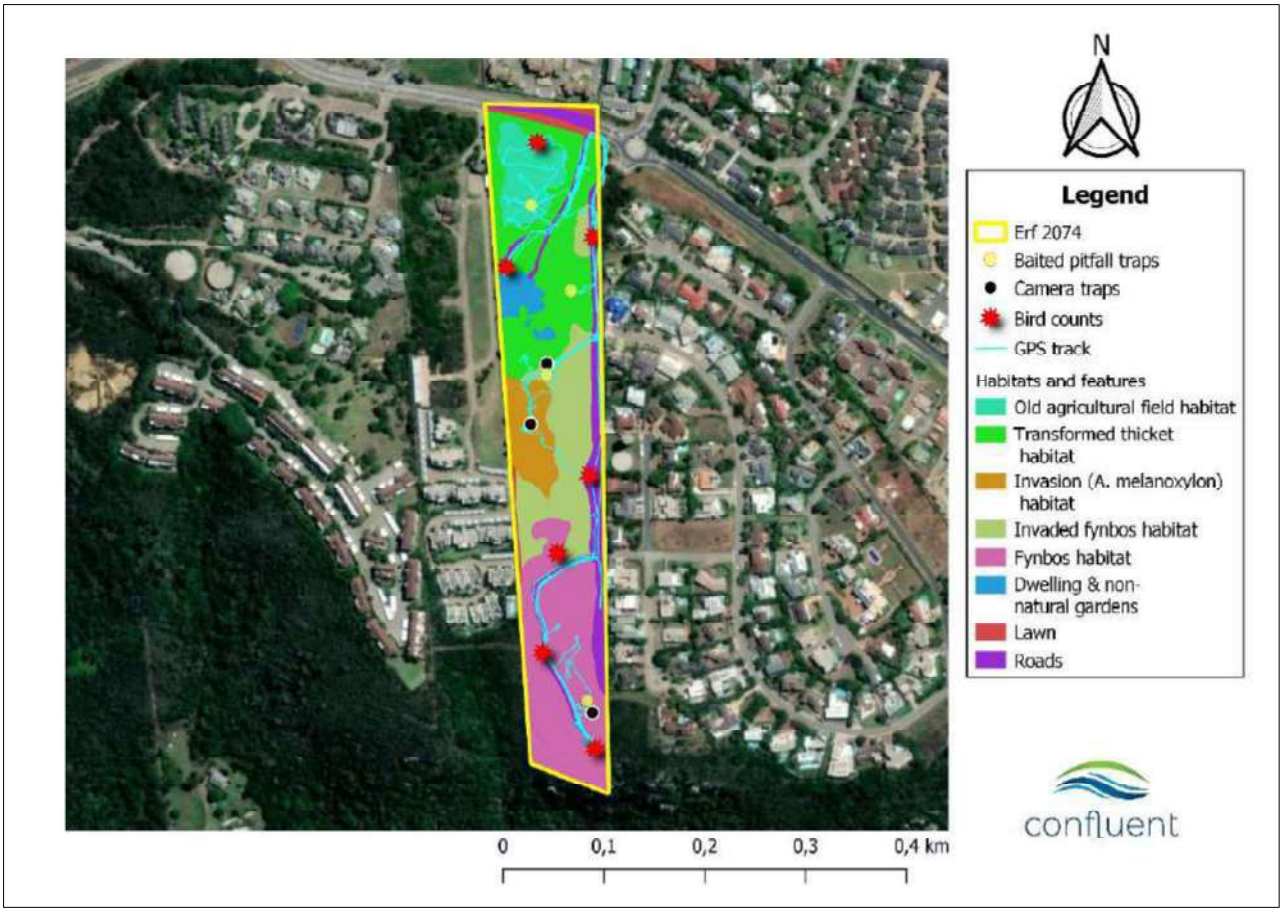

Figure 9. Taxa-specific sampling locations and GPS tracks for site visits to Erf 2074 in December 2023 and January 2024.

4.4 Results

4.4.1 Avifauna

No SCC were encountered during the site visits. Eight 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 27 bird species were identified during the site visits (See Appendix 2). Some eggs were found in the old agricultural field (broken and whole, although none were in a nest) and these are attributed to the Helmeted Guineafowl seen on the property (Figure 10). Tenants on the property also revealed that their dogs sometimes carry and eat Guineafowl eggs on the property. A Black-headed Heron was seen hunting and catching a snake along the cleared road along the eastern border road (Figure 10). Unfortunately, identifying the snake was not possible.

Figure 10. Black-headed Heron (Ardea melanocephala) (above) and the eggs and feather of Helmeted Guineafowl (Numida meleagris) (below) seen on Erf 2074 during site visits.

4.4.2 Mammals

No SCC were found during the site visits. A Cape Grey Mongoose was recorded on the camera trap placed within the natural fynbos region in the south and the tenant's dogs were also seen on the two camera traps in the middle of the property (Figure 11). Caracal was suspected to occur, due the presence of dung which resembled that typical of the species including lots of fur (Figure 11). Mole-rat activity was observed in the old agricultural field in the north (Figure 11) but no Golden Mole activity was seen on the property. No small mammals were caught in the Sherman traps placed overnight in any of the habitats and very few traps were even triggered. However, evidence of rodent activity was observed in the agricultural field during the meander (Figure 11). Cape Porcupine diggings and dung were also observed in the middle to north of the property. See Appendix 3 for the list of mammals observed/suspected on Erf 2074 during the site visits. In conversation with the tenants residing on site, it was established that both mongoose and porcupine have been observed on the property, as well as domestic dogs and cats. It was also conveyed that the tenant's three dogs roam the property widely and unsupervised causing disturbance to wildlife by frequently chasing animals and eating Guineafowl eggs.

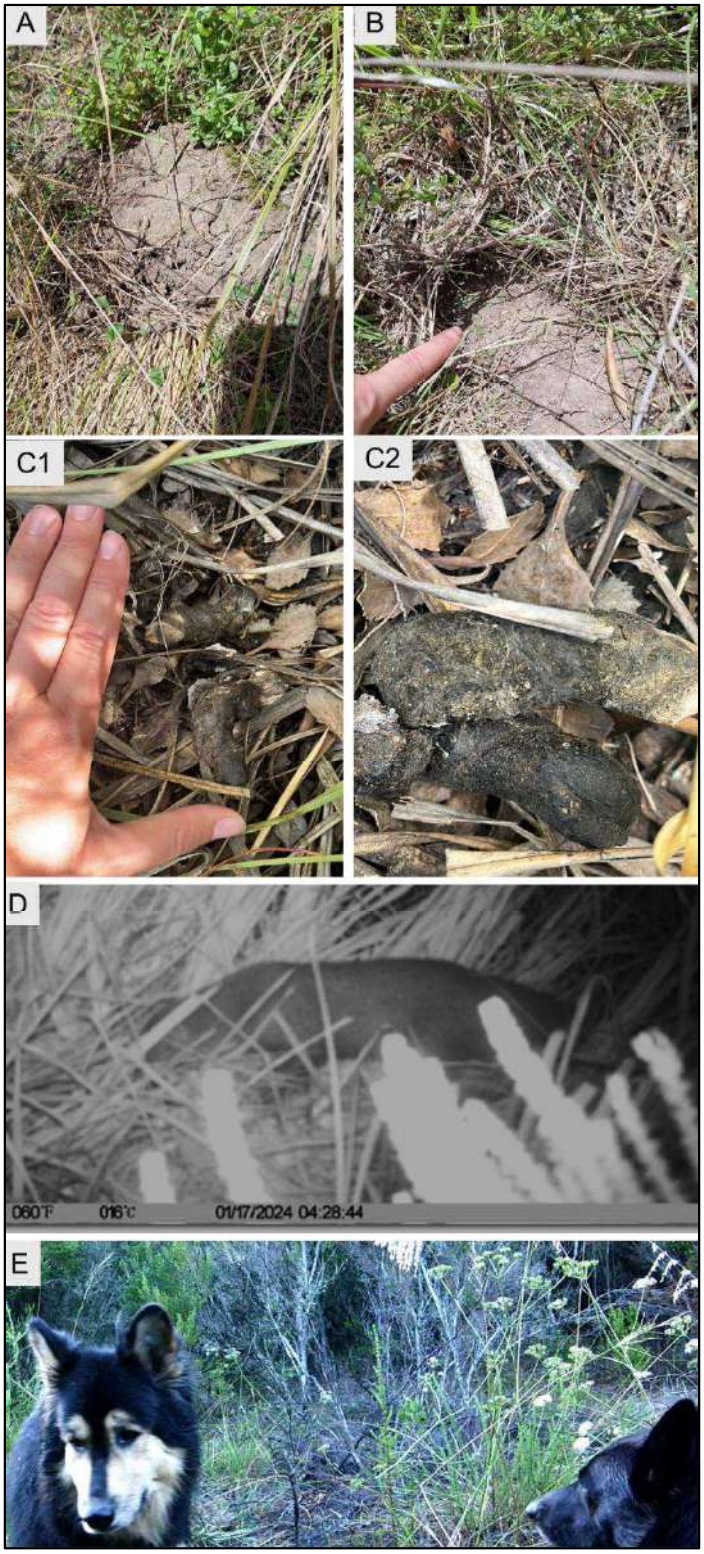

Figure 11. Mammal species identified during site visits to Erf 2074. Mole rat activity (mole hills, Family: Bathyergidae) (A) and rodent runways/tunnels (B) through the grass in agricultural field. Suspected caracal dung (Caracal caracal) (C). Cape Grey Mongoose (Galerella pulverulenta) (D) and the tenant's dogs (E) seen on camera traps.

4.4.3 Terrestrial invertebrates

No SCC were found during the site inspections. Four baited pitfall traps (with dung) were set throughout the site, which yielded only one dung beetle in the agricultural field. The dung beetle was similar in size to the SCC, but it clearly differed in morphology from the SCC by being rounder in overall shape, clearly lacking the distinct bumps/ridges on the thorax and abdomen, and the shape of the clypeus (front edge of the head) having a narrow and shallow indentation compared to the SCC with a wider open indentation (Figure 12). It is acknowledged that the trapping duration (20 hours) may have limited these results, and while caution is applied to these findings, they indicate a low overall abundance of dung beetles within the area.

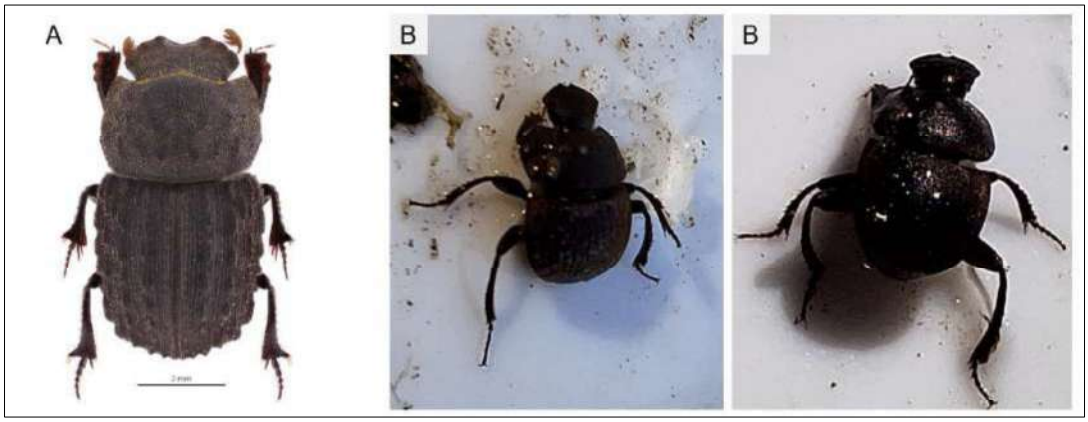

Figure 12. Dung beetle SCC Sarophorus punctatus (A) compared to the only dung beetle found on Erf 2074 (B).

During the site visits in January 2024, a lot of butterfly activity was noted, particularly in the north of the site around the agricultural field and surrounds near the houses. While no butterfly SCC was observed or sampled, some plants of the genus *Aspalathus* (*Aspalathus alopecurus*) were found. This plant species is not specifically known to be a larval host for the butterfly SCC, but it is in the same genus of plants utilized by the Red Copper butterfly (*Aloeides thyra orientis*) and the suspected genus for lesser-known breeding habits of the Knysna Pale Copper butterfly (*Aloeides pallida littoralis).* In total, invertebrates from 17 Families were photographed and identified from site (Figure 13, see also Appendix 4).

Figure 13. Invertebrates photographed on Erf 2074 during the site visits in December 2023 and January 2024.

4.4.4 Amphibians

No SCC were encountered during the site visits. No amphibians were found on the property, which was not surprising given the lack of any waterbodies/watercourses. Consequently, there was no suitable habitat for the Knysna Leaf-folding Frog (*A. knysnae*). Although not possible to confirm, in conversation with the tenants on the property they indicated the presence of Clicking Stream Frogs (*Strongylopus grayii*) and Raucous Toads (*Sclerophrys capensis*) in their artificial garden pond.

4.4.5 Reptiles

No reptile SCC were highlighted for the property by the DFFE Screening Tool or the online platforms. As such, no targeted sampling took place for this group. However, a Black-headed Heron was seen hunting and eating a snake along the eastern border road, but unfortunately no identification of the snake was possible. Although not possible to confirm, in conversation with the tenants on the property the following reptiles have been observed on the property: Puff Adder (*Bitis arietans*), Red-lipped Herald (*Crotaphopeltis hotamboeia*), Spotted Bush Snake (*Philothamnus semivariegatus*), Common Egg-eater (*Dasypeltis scabra*), Night Adder (*Causus rhombeatus*), Natal Green Snake (*Philothamnus natalensis*).

Figure 14. Black-headed Heron seen catching and eating a snake on Erf 2074.

4.4.6 Likelihood of Occurrence for SCC

Following the terrestrial fauna surveys and site inspection, the SCC highlighted for Erf 2074 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 Mole species which are listed as having a low likelihood of detection (SANBI 2020). Therefore, Table 5 should only be used as a guideline.

Table 5. Likelihood of occurrence for terrestrial fauna SCC on Erf 2074.

Species	Red list status	Observed on site	Suitable habitat	Likelihood of occurrence	Reason
AVIFAUNA					
Circus ranivorus Marsh Harrier	Endangered	No	Low	Low	The site itself does not contain suitable marshland vegetation that the SCC has a strong association with for breeding and hunting. Despite the proximity of possible habitat in the Piesang River valley to the immediate south of the property, it is unlikely that the SCC will leave the valley to utilise the unsuitable habitat present on the property.
Bradypterus sylvaticus Knysna Warbler	Vulnerable	No	No	Low	No suitable habitat given the lack of rivers or other waterbodies on property.
Stephanoaetus coronatus Crowned Eagle	Vulnerable	No	No	Low	No suitable habitat. Property lacks dense forest vegetation and has limited stands of large trees with dense foliage. Despite small forest-like vegetation patches in the valleys to the south of the property, it is unlikely that the SCC occurs there (given its small habitat size and proximity to human disturbance) and even less likely that the SCC would utilise the property itself given the mostly unsuitable habitat.
Tyto capensis African Grass Owl	Vulnerable	No	No	Low	Very limited suitable habitat on property. While the agricultural field superficially resembles grassy habitat, it is not dense or long enough to support breeding habits (tunnels through dense grass) and is likely too disturbed by the presence of humans/vehicles (busy road with pedestrians bordering the site along the north) and domestic dogs on the property to be utilised by SCC. The fynbos in the south may be marginally suitable for the SCC, however it lacks thick stands of grass (for which SCC has a strong preference for breeding and hunting) and the nearest waterbodies (to which SCC usually occurs in close proximity) are in the bottom of the valley to the south making it unlikely that the SCC will occur on the property.

Species	Red list status	Observed on site	Suitable habitat	Likelihood of occurrence	Reason
Buteo trizonatus Forest Buzzard	Least Concern (Regional), Near Threatened (Global)	No	Possible	Low	Limited suitable habitat. Property has no forests or plantations required by SCC. There are some stands alien trees *(Acacia melanoxylon*) in the middle of the property, but this habitat size is limited and unlikely to be utilised by SCC. The dense vegetation in the north of the property, including some taller trees, is also unlikely to be suitable habitat given the levels of human disturbance from the busy road to the north, and tenants (and their dogs) utilising this area (close proximity to the houses).
Campethera notata Knysna Woodpecker	Near Threatened	No	Possible	Medium	Small amount of suitable habitat in the north of the property around the houses and the fringes of the agricultural fields. This area is quite disturbed in terms of human activity and noise, but this dense vegetation and tall trees may be marginally suitable habitat, The SCC is known to occur in gardens and is therefore given a medium likelihood of occurrence as this habitat is disconnected from other suitable habitat.
Grus paradisea Blue Crane	Near Threatened TOPS: Protected (2023 DRAFT) CITES: Appendix II	No	No	Low	No suitable open grassland vegetation.
MAMMALS					
Chlorotalpa duthieae Duthie's Golden Mole	Vulnerable	No	No	Low	No suitable habitat. Property has no suitable forest habitat and there is none present in the surrounding/adjoining areas. Soils in the south are very shallow, rocky and compact and are unsuitable for SCC that needs alluvial sands and sandy loams for tunnelling.
Panthera pardus Leopard	Vulnerable	No	Yes	Low	Property is not sufficiently connected to large natural areas and has little to no prey availability to attract or sustain SCC.

Species	Red list status	Observed on site	Suitable habitat	Likelihood of occurrence	Reason
Sensitive Species 8	Vulnerable	No	No	Low	No suitable habitat. No forest or sufficient thicket habitat for SCC. High levels of human disturbance which SCC is known to avoid, and the dogs roaming the property are likely to deter SCC.
Amblysomus corriae Fynbos Golden Mole	Near Threatened	No	Possible	Medium	Suspected suitable habitat in north where soils are less compact and rocky. This area has been disturbed by cultivation (agricultural field/olive grove) and infrastructure (houses, roads), but SCC is known to thrive in gardens and cultivated lands and therefore can adapt and tolerate such habitat modification. The habitat is largely disconnected from surrounding suitable areas, with urban development on all surrounding properties, and the south of the site having shallow, rocky, compact soils unsuitable for the SCC. Given that this SCC has a low likelihood of detection (SANBI 2020), the precautionary principle is applied and it is given a medium likelihood of occurrence.
Leptailurus serval Serval	Near Threatened TOPS: Protected (2023 DRAFT) CITES: Appendix II	No	No	No	No suitable habitat. Proximity to water essential for SCC (none present on property) and preference for marshland/wetland vegetation (not present on property).
TERRESTRIAL INVERTEBRATES					
Aloeides thyra orientis Red Copper Butterfly	Endangered	No	Possible	Medium	Possible habitat given the open patches of ground in the fynbos habitat towards the south of the property. However, the soil in this fynbos area is very compact and rocky, not sandy as a described preference by SCC (nor is the vegetation mapped as Knysna Sand Fynbos where SCC is known to occur), and the host plant species was not observed on site. However, given that plants in the same genus as the host plant were

Species	Red list status	Observed on site	Suitable habitat	Likelihood of occurrence	Reason
					observed on site, in addition to potentially suitable habitat mapped by the DFFE screening tool and the site representing some of the only remaining fynbos habitat in the area, the precautionary approach is applied and the SCC is given a medium likelihood of occurence.
Sarophorus punctatus	Endangered	No	No	Low	While little is known about the distribution or biology of the SCC, the only specimens collected were associated with forest-edge habitats. The property has no forest habitat, nor is there any in the immediate vicinity. The property is also surrounded by urban development and therefore is unlikely to be suitable habitat for the SCC.
Aneuryphymus montanus Yellow-winged Agile Grasshopper	Vulnerable	No	No	Low	No suitable sclerophyllous fynbos habitat on site.
Aloeides pallida littoralis Knysna Pale Copper	Near Threatened	No	Possible	Medium	Property has coastal fynbos and flat terrain as preferred by SCC. Larval host plants in the correct genus was observed on the property. Therefore, the precautionary principle is applied due to suspected habitat on site and the SCC is given a medium likelihood of occurrence.
HERPETOFAUNA					
Afrixalus knysnae Knysna Leaf-folding Frog	Endangered	No	No	Low	No suitable habitat (waterbodies, wetlands) on property.

5. SITE SENSITIVITY VERIFICATION

After the site visit and faunal surveys, it was determined **likely that some SCC occur** on Erf 2074, and therefore a **HIGH** sensitivity rating is applied to the whole property for the Terrestrial Animal Species Theme.

Based on the information in this report during the desktop and field assessment, the following reasons support this finding:

- The property contains marginally suitable habitat characteristics for bird (*Campethera notata*), butterfly (*Aloeides thyra orientis; Aloeides pallida littoralis*) and golden mole (*Amblysomus* corriae) SCC. Despite suitable habitat on site being relatively small in size and disconnected from other suitable areas in the surrounding landscape, the precautionary principle is applied, and it is deemed likely that the SCC occur on the property despite these limitations.
- The likely occurrence of some SCC is supported by their ability to adapt to semi-urban/modified environments (i.e. Knysna Woodpecker seen in gardens; Fynbos Golden Moles occur in agricultural fields/gardens) and the high likelihood that they would evade disturbance or predation by the dogs on site. The property also represents some of the last natural remaining fynbos fragments and natural space in an otherwise developed urban area, thereby providing a refuge for most animal species, and likely also the SCC.
- The genus of host plant for both butterfly SCC was observed on the property, and the DFFE Screening Tool modelled suitable habitat for *Aloeides thyra orientis* given the medium sensitivity output (Table 1). The precautionary principle is therefore applied and the area deemed marginally suitable habitat for both butterfly SCC.
- While no evidence of Golden Mole activity was seen on site, this SCC has a low likelihood of detection (SANBI 2020). The precautionary principle is therefore applied and the Fynbos Golden Mole (*A.* corriae) SCC deemed likely to occur.

As per the Published Government Notice No. 1150, Government Gazette 43855 (30 October 2020), when SCC are deemed likely to occur on site, a **Terrestrial Animal Species Specialist Assessment** must be compiled.

6. RECOMMENDATIONS

- The property should implement the removal of alien plants in accordance with an alien management plan, best practices guidelines and legal requirements. Particular attention should be given to the dense stands of Blackwood (*A. melanoxylon*) in the middle of the property, in addition to the Pine and Black Wattle (*A. mearnsii*) observed throughout the site. This will prevent the loss/transformation of natural fynbos habitat, greatly reduce the risk of fires (frequency and intensity) causing damage to infrastructure and changing habitat structure, and promote indigenous biodiversity of the area. These benefits extend beyond the property boundaries and can have cumulative benefits for the surrounding area (reduced fire risks, reduced spreading of alien plants) and biodiversity in general that benefit from indigenous habitat.

- Given that this property is one of only a few natural spaces in an urban area, it likely serves as a refuge for many animal and plant species. Strong consideration should be given to limiting the developmental footprint on the property (restrict number of houses, leaving open natural spaces, limit road network expansion), thereby limiting the amount of habitat loss for species currently reliant of this area. Furthermore, the southern portion of the site is mapped as a CBA1 area within the WCBSP (see Figure 5), indicating a management objective of maintaining a natural or near-natural state, with no further loss of habitat, and only low-impact, biodiversity-sensitive land uses considered appropriate.
- Tenants on the property should be encouraged to keep their pets within enclosed areas around the houses. Currently, dogs roam the entire property and cause disturbance to wildlife (chasing and catching animals) and reducing their reproductive success (e.g. eating Guineafowl eggs). This can have major negative impacts on the abundance and diversity of wildlife making use of the property and in some cases reduces their survival.
- The property is not currently fenced, thus allowing stray animals and vagrant people to enter and cause disturbances to wildlife (and posing a security threat). Consideration should be given to fencing the northern boundary adjacent to Marine Way, the predominant access point.
- The south of the property has the most natural habitat (fynbos), greatest connectivity to adjacent natural/semi-natural areas along the Piesang River valley and access to water in the drainage line along the south-western boundary. This section of the property is therefore most likely to be utilised by many animal species in the surrounding areas and it is strongly recommended that the southern boundaries of the property not be fenced in order to maximize connectivity within the surrounding landscape and allow animals to continue using this natural space. Additionally, this southern area is unlikely to pose a significant security threat to residents as the property borders a steep slope/cliff acting as a natural barrier for criminals.

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APPENDIX 1: SCC IDENTIFIED FROM PUBLIC PLATFORMS FOR ERF 2074 AND THE SURROUNDING AREA

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

Species	Common name	Regional assessment	Source	Assessed (Y/N)	Reason not assessed
Avifauna					
Alcedo semitorquata	Half-collared Kingfisher	NT, LC	SABAP2	N	No River/Waterbody
Aquila verreauxii	Verreaux's Eagle	VU, LC	SABAP2	N	Last seen in 2013, not predicted in Screening Tool
Ardenna grisea	Sooty Shearwater	NT, NT	SABAP2	N	Pelagic/Ocean/Shore bird
Bradypterus sylvaticus	Knysna Warbler	VU, VU	SABAP2	Y	
Buteo trizonatus	Forest Buzzard	LC, NT	SABAP2	Y	
Calidris canutus	Red Knot	LC, NT	SABAP2	N	No River/Waterbody
Calidris ferruginea	Curlew Sandpiper	LC, NT	SABAP2	N	No River/Waterbody
Campethera notata	Knysna Woodpecker	NT, NT	SABAP2	Y	
Ciconia nigra	Black Stork	VU, LC	SABAP2	N	Last seen in 2008, not predicted up in Screening Tool
Circus maurus	Black Harrier	EN, EN	SABAP2	N	Last seen in 2022, not predicted by Screening Tool
Circus ranivorus	African Marsh Harrier	EN, LC	SABAP2	Y	
Coracias garrulus	European Roller	NT, LC	SABAP2	N	Last seen in 2022, long distance migrant
Crithagra leucoptera	Protea Canary	NT, NT	SABAP2	N	Last seen in 2015
Falco biarmicus	Lanner Falcon	VU, LC	SABAP2	N	Last seen in 2022, not predicted by Screening Tool
Falco concolor	Sooty Falcon	NA, VU	SABAP2	N	Last seen in 2020
Grus paradisea	Blue Crane	NT, VU	SABAP2	Y	
Haematopus ostralegus	Eurasian Oystercatcher	NA, NT	SABAP2	N	Pelagic/Ocean/Shore bird
Hydroprogne caspia	Caspian Tern	VU, LC	SABAP2	N	No River/Waterbody

Species	Common name	Regional assessment	Source	Assessed (Y/N)	Reason not assessed
Limosa lapponica	Bar-tailed Godwit	LC, NT	SABAP2	N	No River/Waterbody
Macronectes giganteus	Southern Giant Petrel	NT, LC	SABAP2	N	Pelagic/Ocean/Shore bird
Morus capensis	Cape Gannet	VU, EN	SABAP2	N	Pelagic/Ocean/Shore bird
Neotis denhami	Denham's Bustard	VU, NT	SABAP2	N	Last seen in 2008, not predicted up in Screening Tool
Numenius arquata	Eurasian Curlew	NT, NT	SABAP2	N	No River/Waterbody
Oxyura maccoa	Maccoa Duck	NT, EN	SABAP2	N	No River/Waterbody
Phalacrocorax capensis	Cape Cormorant	EN, EN	SABAP2	N	Pelagic/Ocean/Shore bird
Phoeniconaias minor	Lesser Flamingo	NT, NT	SABAP2	N	No River/Waterbody
Phoenicopterus roseus	Greater Flamingo	NT, LC	SABAP2	N	No River/Waterbody
Polemaetus bellicosus	Martial Eagle	EN, EN	SABAP2	N	Last seen in 2009, not predicted by ST
Procellaria aequinoctialis	White-chinned Petrel	VU, VU	SABAP2	N	Pelagic/Ocean/Shore bird
Rostratula benghalensis	Greater Painted-snipe	NT, LC	SABAP2	N	No River/Waterbody
Spheniscus demersus	African Penguin	EN, EN	SABAP2	N	Pelagic/Ocean/Shore bird
Stephanoaetus coronatus	Crowned Eagle	VU, NT	SABAP2	Y	
Stercorarius antarcticus	Brown Skua	EN, LC	SABAP2	N	Pelagic/Ocean/Shore bird
Thalassarche cauta	Shy Albatross	NT, NT	SABAP2	N	Pelagic/Ocean/Shore bird
Tyto capensis	African Grass Owl	VU, LC	SABAP2	Y	
Mammals					
Amblysomus corriae	Fynbos Golden Mole	NT	iNaturalist	Y	
Aonyx capensis	African Clawless Otter	NT	Virtual Museum	N	No River/Waterbody
Chlorotalpa duthieae	Duthie's Golden Mole	VU	Virtual Museum	Y	

Species	Common name	Regional assessment	Source	Assessed (Y/N)	Reason not assessed
Kogia breviceps	Pygmy Sperm Whale	DD	Virtual Museum	N	Marine mammal
Leptailurus serval	Serval	NT	Virtual Museum	Y	
Mesoplodon layardii	Strap-toothed Whale	DD	Virtual Museum	N	Marine mammal
Mirounga leonina	Southern Elephant Seal	NT	Virtual Museum	N	Marine mammal
Panthera pardus	Leopard	VU	Virtual Museum	Y	
Philantomba monticola	Blue Duiker	VU	Virtual Museum	Y	
Physeter macrocephalus	Sperm Whale	VU	Virtual Museum	N	Marine mammal
Sousa plumbea	Indian Humpback Dolphin	EN	Virtual Museum	N	Marine mammal
Invertebrates					
Aloeides pallida littoralis	Knysna Pale Copper	NT	Virtual Museum	Y	
Ecchlorolestes nylephtha	Queen Malachite	NT	Virtual Museum	N	No River/Waterbody
Sarophorus punctatus	-	EN	Virtual Museum	Y	

APPENDIX 2: AVIFAUNA SPECIES OBSERVED DURING SITE VISITS TO ERF 2074

Common name	Scientific name
African Sacred Ibis	*Threskiornis aethiopicus*
Bar-throated Apalis	*Apalis thoracica*
Black-headed Heron	*Ardea melanocephala*
Black-headed Oriole	*Oriolus larvatus*
Cape Robin-Chat	*Cossypha caffra*
Cape White-eye	*Zosterops virens*
Common Starling	*Sturnus vulgaris*
Fork-tailed Drongo	*Dicrurus adsimilis*
Greater Double-collared Sunbird	*Cinnyris afer*
Hadada Ibis	*Bostrychia hagedash*
Helmeted Guineafowl	*Numida meleagris*
Jackal Buzzard	*Buteo rufofuscus*
Karoo Prinia	*Prinia maculosa*
Kelp Gull	*Larus dominicanus*
Laughing Dove	*Spilopelia senegalensis*
Neddicky	*Cisticola fulvicapilla*
Pied Crow	*Corvus albus*
Pin-tailed Whydah	*Vidua macroura*
Red-eyed Dove	*Streptopelia semitorquata*
Red-winged Starling	*Onychognathus morio*
Ring-necked Dove	*Streptopelia capicola*
Sombre Greenbul	*Andropadus importunus*
Southern Fiscal	*Lanius collaris*
Speckled Mousebird	*Colius striatus*
Western Cattle Egret	*Bubulcus ibis*
White-necked Raven	*Corvus albicollis*
White-rumped Swift	*Apus caffer*

APPENDIX 3: MAMMAL SPECIES OBSERVED DURING SITE VISITS TO ERF 2074

Order	Family	Common name	Scientific name	Notes
Carnivora	Canidae	Domestic dog	*Canis familiaris*	Camera trap picture and video
Carnivora	Felidae	Caracal	*Caracal caracal*	Suspected from dung
Carnivora	Herpestidae	Cape Grey Mongoose	*Galerella pulverulenta*	Camera trap picture and video
Rodentia	Bathyergidae	Mole rats	-	Suspected species from mole hills
Rodentia	Hystricidae	Cape Porcupine	*Hystrix africaeaustralis*	Suspected from diggings

APPENDIX 4: INVERTEBRATE SPECIES OBSERVED DURING SITE VISITS TO ERF 2074

Order	Family	Common name	Scientific name
Blattodea	Blaberidae	Cape Mountain Cockroach	*Aptera fusca*
Blattodea	Blattidae	Redhead black velvet cockroach	*Deropeltis erythrocephala*
Blattodea	Ectobiidae	Wood cockroach	-
Coleoptera	Scarabaeidae	Common White-spotted Fruit Chafer	*Mausoleopsis amabilis*
Coleoptera	Scarabaeidae	African Black Beetle	*Heteronychus arator*
Coleoptera	Scarabaeidae	-	-
Diptera	Calliphoridae	Bluebottle	*Chrysoma sp*
Diptera	Muscidae	House fly	*Musca domestica*
Hemiptera	Cicadidae	Karoo Cicadas	*Quintilia sp.*
Hemiptera	Coreidae	Leaf-footed Bug	-
Hymenoptera	Formicidae	Black cocktail ants	*Crematogaster peringueyi*
Hymenoptera	Formicidae	Carpenter ants	*Camponotus sp.*
Lepidoptera	Geometridae	Oblique Peacock	*Chiasmia simplicilinea*
Lepidoptera	Lycaenidae	Bronze butterfly	*Cacyreus sp*
Lepidoptera	Nymphalidae	Acara Acraea	*Acraea acara acara*
Lepidoptera	Nymphalidae	Pearl Emporer	*Cheraxes varanes varanes*
Lepidoptera	Papilionidae	Green banded swallowtail	*Papilio nireus*
Lepidoptera	Pieridae	Common dotted border	*Mylothris agathina*
Mantodea	Mantidae	Delicate mantid	*Miomantis sp.*
Odonata	Libellulidae	Long Skimmer	*Orthetrum trinacria*
Orthoptera	Acrididae	Short horned grasshopper	-