TERRESTRIAL FAUNAL AND AVIFAUNAL SPECIES COMPLIANCE STATEMENT REPORT FOR THE PROPOSED PV SOLAR PLANT AND TWO 11KV CABLE ROUTES AT THE GROOT-BRAKRIVIER WASTE WATER TREATMENT WORKS (WWTW) ON PORTION 23 OF THE FARM WOLVEDANS NO. 129, MOSSEL BAY LOCAL MUNICIPALITY

March 2024

Prepared for:

Sharples Environmental Services cc (SES)

Prepared by:

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- 28 years of in-the-field naturalist experience involving all faunal groups
- Zoologist with 17 years of professional experience
- 14 Peer-reviewed publications in high impact national and international scientific journals on the patterns and processes which drive and maintain faunal biodiversity, as well as on aspects of faunal biology and ecology
- Five IUCN Red List assessments

- Involved in the Southern African Bird Atlas Project 2 (SABAP2)
- Contributor on the National Biodiversity Assessment 2018: The status of South Africa's ecosystems and biodiversity. Synthesis Report. South African National Biodiversity Institute, an entity of the Department of Environment, Forestry and Fisheries, Pretoria.

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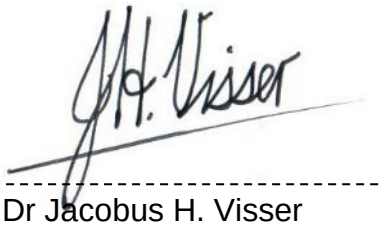
Declaration of independence by the independent person who compiled a specialist report or undertook a specialist process

I, Dr Jacobus Hendrik Visser, as the appointed independent specialist hereby declare that I:

• act/ed as the independent specialist in this application;
• regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
• do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations and any specific environmental management Act;
• have no and will not have any vested interest in the proposed activity proceeding;
• have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations and any specific environmental management Act;
• am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
• have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
• have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;

• have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process;
• have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
• am aware that a false declaration is an offence.



01 March 2024

Dr Jacobus H. Visser
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01 March 2024

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1. Introduction

The applicant is proposing the construction of a Photovoltaic (PV) Solar Plant at the Groot-Brakrivier Waste Water Treatment Works (WWTW) on portion 23 of the Farm Wolvedans No. 129, Mossel Bay, Western Cape. An area of approximately 4.7 hectares in size has been identified as the potential project footprint (hereafter referred to as the "study area" or "site"). In addition, the project will entail laying two underground 11kV power cables towards the western Kleinbrak Water Purification Plant (5.81 kilometres in length) and northern Sandhoogte Water Purification Plant (approximately 1 kilometres in length), with trenching proposed to proceed by hand over a 0.6m wide by 1m deep footprint. Given a low terrestrial biodiversity and botanical sensitivity over these small cable route footprints (Berry, 2024), very few to no impacts on faunal species are expected (Section 11).

Blue Skies Research was appointed by Sharples Environmental Services cc (SES) on behalf of the applicant to perform the required terrestrial faunal and avifaunal assessment of the study area (see Sections 2 and 3). The current report represents a Compliance Statement for the proposed development, following a terrestrial faunal and avifaunal assessment of the site in accordance with the National

Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment (EIA) Regulations 2014 (Government Notice (GN) 984), as amended.

2. Terms of Reference

2.1. General legislature pertaining to this report

This terrestrial faunal and avifaunal assessment report is compiled in accordance with the following guidelines:

- *Department of Environmental Affairs and Development Planning (DEA&DP) Guidelines for Involving Biodiversity Specialists in the EIA Process* (Brownlie, 2005).
- *Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes, Government Notice No. 320* (Gazetted 20 March 2020).
- *Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species*, *Government Notice No. 1150* (Gazetted 30 October 2020).
- South African National Biodiversity Institute (SANBI). 2020. *Species Environmental Assessment Guideline. Guidelines for the implementation of the terrestrial fauna and terrestrial flora species protocols for environmental impact assessments in South Africa*. South African National Biodiversity Institute, Pretoria. Version 2.1 2021.

2.2 Other sources consulted

Other sources pertaining to this report are as follows:

- IUCN. 2021. The IUCN Red List of Threatened Species. Version 2021-3. https://www.iucnlist.org. Accessed on 25 February 2024.

- *National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004): Publication of lists of critically endangered, endangered, vulnerable and protected species, Government Notice No. 2007* (Gazetted 14 December 2007).

3. Reporting protocol

The DFFE Screening Tool Report generated for the proposed project footprint identifies the site as being of an overall “High” sensitivity under the “Relative Animal Species Sensitivity Theme” (Figure 1). This follows from the projected and possible occurrence of two mammal, two avifaunal and one invertebrate Species of Conservation Concern (SCC). The current report therefore considers the presence or likely presence of these mammal, avifaunal and invertebrate SCC within the study area based on a field survey to detect their potential presence, as well as the availability of suitable habitat for these species (Section 9).

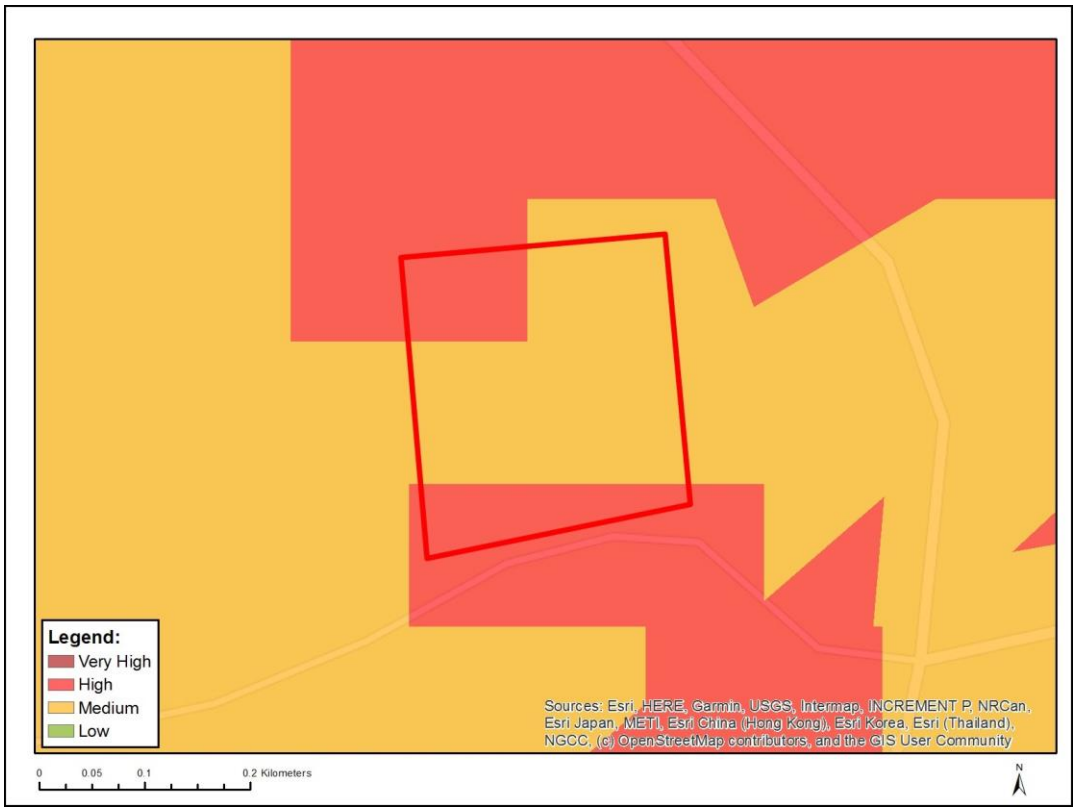

Figure 1 Relative Animal Species Sensitivity Map retrieved for the study area (Red polygon = Study area) by the DFFE Screening Tool (https://screening.environment.gov.za/screeningtool/).

Table 1 List of Species of Conservation Concern (SCC) identified in the DFFE Screening Tool Report (https://screening.environment.gov.za/screeningtool/). For each, the listed sensitivity (possibility of occurrence within the study area), scientific name and common name is shown, along with its current IUCN status. Of these, two species were assigned codes with its identity hidden for protection as these are species that are prone to illegal harvesting.

Sensitivity	Species	Common name	IUCN status
High	*Circus ranivorus*	African Marsh-harrier	Least Concern
High	*Neotis denhami*	Denham's Bustard	Near-Threatened
Medium	*Sensitive Species 5*	Sensitive Species 5	Least Concern
Medium	*Sensitive Species 8*	Sensitive Species 8	Vulnerable
Medium	*Aneuryphymus montanus*	Yellow-winged Agile Grasshopper	Vulnerable

4. Overview of the study area

4.1 Geographic location

The study area encompasses the southern part of portion 23 of the Farm Wolvedans No. 129, with the proposed project footprint around 4.7 hectares in size (Figures 2 and 3). The site is situated about 1 kilometre north of the coastal village Tergniet and is bordered by the Sandhoogte Road directly to the south, open farmland to the west and vegetated areas directly to the north and east. The Groot-Brakrivier Waste Water Treatment Works (WWTW) is located directly south of the site, just across the Sandhoogte Road. Furthermore, the Old Mossel Bay Road is located around 180 metres to the east of the site, with agricultural areas further to the north and east respectively.

The entire site appears to comprise fallow lands and old fields (also see Subsection 4.4) which has been subject to vegetation clearance practices since at least 2015 (nine years ago; Figure 4) and was presumably used for livestock grazing practices. Vegetation here has subsequently recovered to a predominantly grassland and shrubland phase with instances of woody vegetation and trees, mostly along the site margins (Section 7).

In addition, two new underground 11kV cables are proposed with one cable placed 1m within the 20m municipal servitude along the southern side of the R102, (approximately 5.81 kilometres in length) towards the western Kleinbrak Water Purification Plant and the other shorter cable route inside a municipal servitude and through a cultivated area towards the northern Sandhoogte Water Purification Plant (approximately 1 kilometres in length; Figure 2). Trenching along these cable routes will proceed by hand over a 0.6m wide by 1m deep footprint.

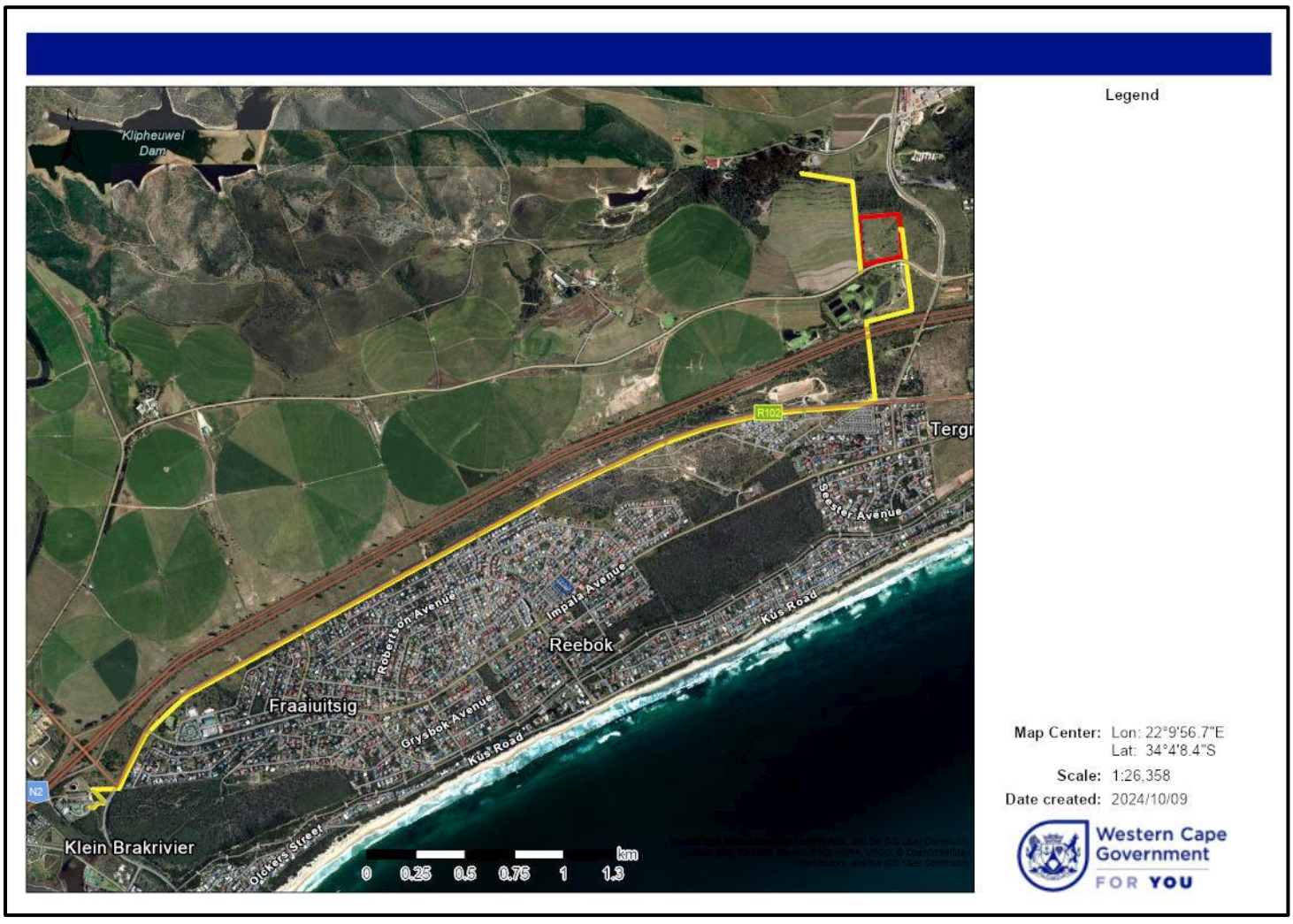

Figure 2 Spatial location of the study area and 11kV cable routes relative to surrounding residential areas and main roads on a broad scale (Red polygon = Study area; Yellow lines = proposed 11kV cable routes; map generated in Cape Farm Mapper version 3, Western Cape Department of Agriculture).

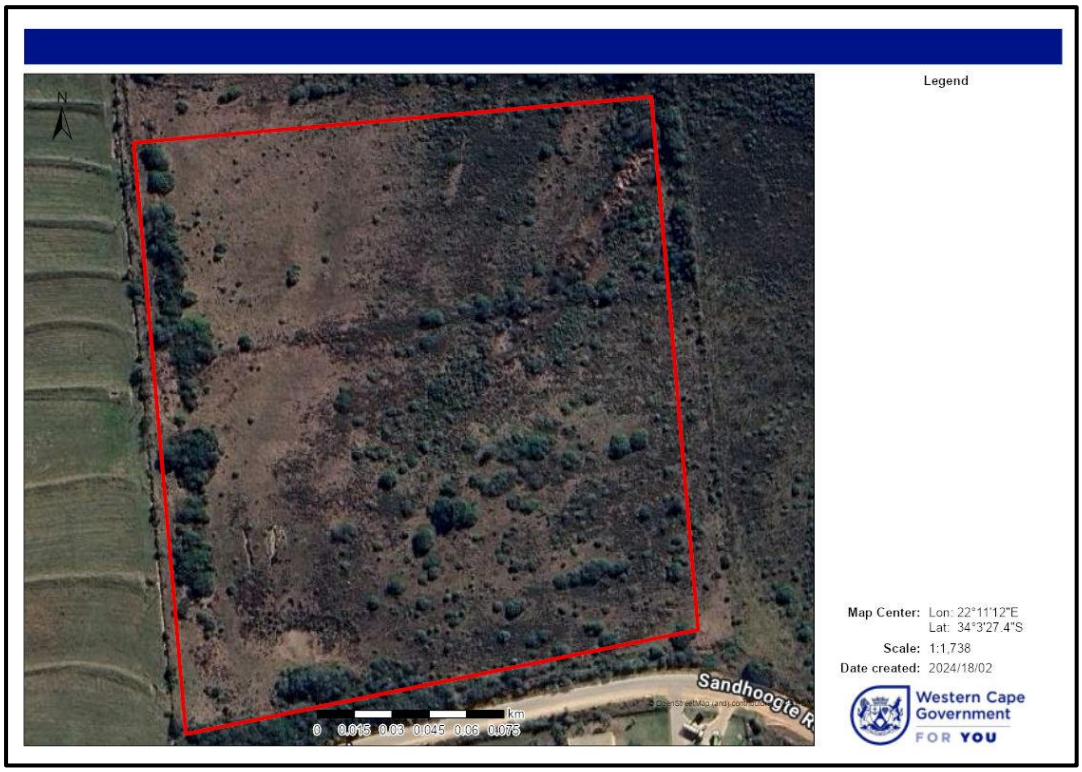

Figure 3 Spatial extent of the study area at a finer scale (Red polygon = Study area; map generated in Cape Farm Mapper version 3, Western Cape Department of Agriculture).

Figure 4 Image showing historical vegetation clearance with the study area based on the NGI Aerial 2016 map (Red polygon = Study area; map generated in Cape Farm Mapper version 3, Western Cape Department of Agriculture).

4.2 Topology

The site slopes gently south-westward over its entirety with no major depressions being evident (Figure 5).

Figure 5 Topology of the study area showing 5 meter contour lines (Red polygon = Study area; map generated in Cape Farm Mapper version 3, Western Cape Department of Agriculture).

4.3 Vegetation

Vegetation on site has been mapped as Garden Route Granite Fynbos in the northern two thirds and Hartenbos Dune Thicket in the southern third (VegMap, 2018; Figure 6). Currently, these vegetation types are listed as “Endangered” ecosystem types (Figure 7) according to *The Revised National List of Ecosystems that are Threatened and in Need of Protection* (Government Notice No. 2747 of 18 November 2022). Even so, very little of this natural vegetation remains on the site, given historical vegetation clearing practices (Section 7).

Figure 6 Vegetation type across the study area (VEGMAP, SANBI 2018; Red polygon = Study area; map generated in Cape Farm Mapper version 3, Western Cape Department of Agriculture).

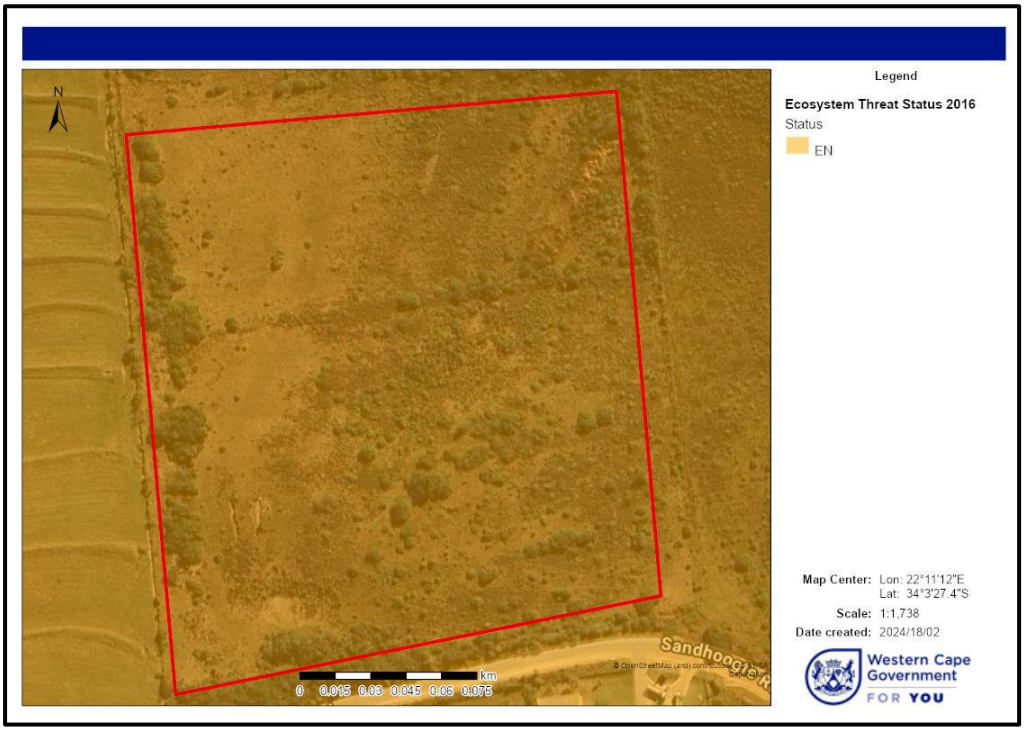

Figure 7 Spatial location of ecosystems and their threat statuses according to *The Revised National List of Ecosystems that are Threatened and in Need of Protection (Government Notice No. 2747 of 18 November 2022*, overlapping with the study area (Red polygon = Study area; information sourced from Cape Farm Mapper version 3, Western Cape Department of Agriculture).

4.4 Land cover

Land cover within the study area comprises fallow land & old fields of trees and low shrub over the entirety with a small margin of dense forest & woodland located along the western margin (Land Cover 73-class, Department of Environmental Affairs, 2020; Figure 8). Overall, these designations of land cover were found to accurately reflect the habitat conditions on the site (Section 7).

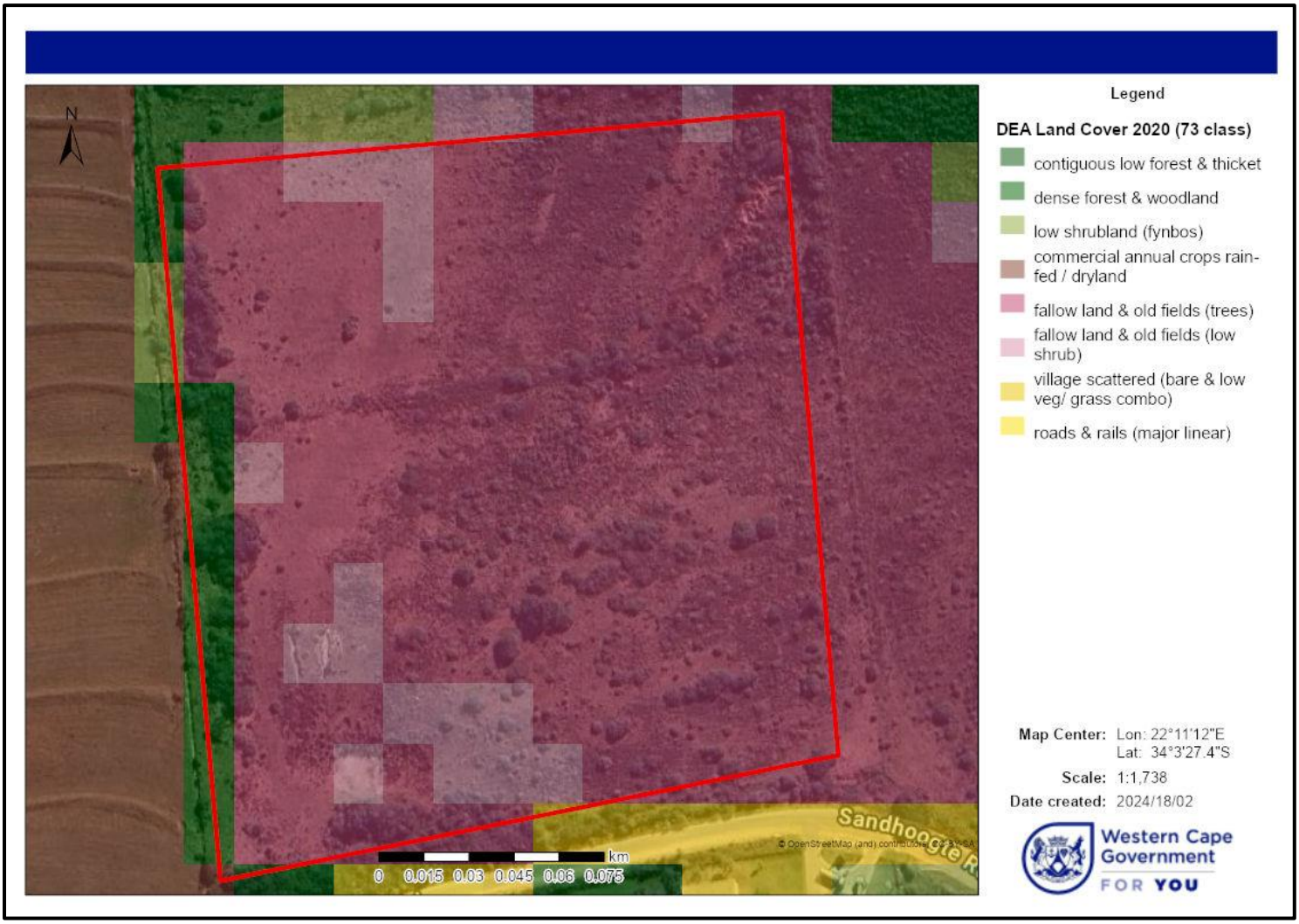

Figure 8 Land cover (Land Cover 73-class, Department of Environmental Affairs, 2020) within the study area (Red polygon = Study area; information sourced from Cape Farm Mapper version 3, Western Cape Department of Agriculture).

4.5 Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)

Critical Biodiversity Areas (CBAs) are areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan (Purves and Holmes, 2015). Ecological Support Areas (ESAs) are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of CBAs and/or in delivering ecosystem services.

The northern part of the site is mapped as a terrestrial Critical Biodiversity Area 1 (CBA1) (Figure 9) with the larger southern section overlapping a terrestrial Ecological Support Area 1 (ESA1) (Figure 10). The presence and integrity of these CBA and ESA are discussed in Section 12.

Figure 9 Spatial locations of Critical Biodiversity Areas (CBAs) overlapping with the study area (Red polygon = Study area; information sourced from Cape Farm Mapper version 3, Western Cape Department of Agriculture).

Figure 10 Spatial locations of Ecological Support Areas (ESAs) overlapping with the study area (Red polygon = Study area; information sourced from Cape Farm Mapper version 3, Western Cape Department of Agriculture).

5. Study methodology

5.1 Study aims

This study represents an assessment of the terrestrial faunal and avifaunal diversity and abundances, -habitat composition, ecosystem dynamics and potential occurrence of mammal, avifaunal and invertebrate (and other) SCC within the study area. As such, the aims of this investigation were to:

1.) Assess, define and create a spatial rendering of available faunal habitats across the study area based on information gathered during the field survey as well as through a desktop assessment using the latest satellite imagery,

2.) compile a complete faunal desktop species list (including mammals and avifauna) for the study area based on a thorough desktop assessment so as to assess the presence of any of the listed SCC (Table 1) as well as any additional SCC within these faunal groups,

3.) compile a faunal species list (including mammals, avifauna, butterflies and grasshoppers) within the study area through field surveying so as to assess the possibility of occurrence of the SCC retrieved in the desktop assessment (based on appropriate sampling methods, as well as the presence of suitable habitat for these species), or any additional SCC which are present on the site, and

4.) generate spatial occurrence maps for the recovered faunal species within the study area to assess the spatial extent of areas supporting higher levels of diversity, and SCC subpopulations and habitats which may be of conservation concern.

5.2 Desktop assessment

To assess the possible occurrence of the listed (Table 1) as well as any additional mammal and avifaunal SCC, a desktop assessment was performed to create a representative desktop species list for these faunal groups. Given the low number of records for grasshopper species, the presence or absence of the Yellow-winged Agile Grasshopper could only be evaluated during the field survey.

5.2.1 Mammals

The desktop species list for mammals (Appendix A) was constructed with reference to the distributional data available in Skinner and Chimimba (2005), as well as observational records available for the study area landscape (Quarter Degree Grid

Square, QDGS: 3422AA) on the MammalMAP (https://vmus.adu.org.za/) and iNaturalist (www.iNaturalist.org) platforms.

5.2.2 Avifauna

The desktop avifaunal species list for the study area was generated by referring to the species records of the South African Bird Atlas Project 2 (SABAP2, https://sabap2.birdmap.africa/) (Appendix B). The study area overlaps with one pentad (see below) which is well-represented in the atlassing cards:

Pentad: 3400_2210

Full protocol cards: 249
Ad-hoc protocol cards: 255
Total cards: 504

To create the avifaunal desktop species list for the study area, the species observed in this pentad was included, also noting the total number of observations (including both full and ad-hoc protocols) and the latest date that the species was recorded within this pentad (Appendix B).

5.3 Field survey

The study area was surveyed on foot over a single day on the 19th of February 2024, during the Summer season. Weather conditions during the surveying period were characterised by relatively warm daily temperatures, low to no cloud cover and low to moderate wind conditions (Figure 11).

Surveying included unconstrained point sampling through search meanders, as well active searching under rocks and debris. All tracks surveyed were recorded by GPS (Garmin eTrex® 10, Garmin International Inc, USA) and are represented in Figure 12. Terrestrial faunal species (mammals) were identified by direct visual observation, or by their tracks, burrows, remains or scat. Avifaunal species were identified by

visual observation, using a 180x zoom lens, or by auditory means. Finally, butterfly and grasshopper were identified and photographed from less than one meter away. All observations were recorded by GPS and the species or evidence of species' presence or activity were photographed using a digital camera (Canon PowerShot SX430 IS, Canon Inc, USA). A species list for all fauna recorded within the study area is given in Appendix C.

Given relatively optimal weather conditions, faunal and avifaunal species' activity was observed to be high over the surveying period, thereby resulting in 61 recorded observations across the study area (Figure 13, Appendix C), relating to one observation per every 0.08 hectares of study area (the study area is 4.7 hectares in extent). During surveying, faunal habitats were broadly identified in the field, and thereafter delineated through a desktop assessment of the study area using satellite imagery (CapeFarmMapper Version 3, Western Cape Department of Agriculture).

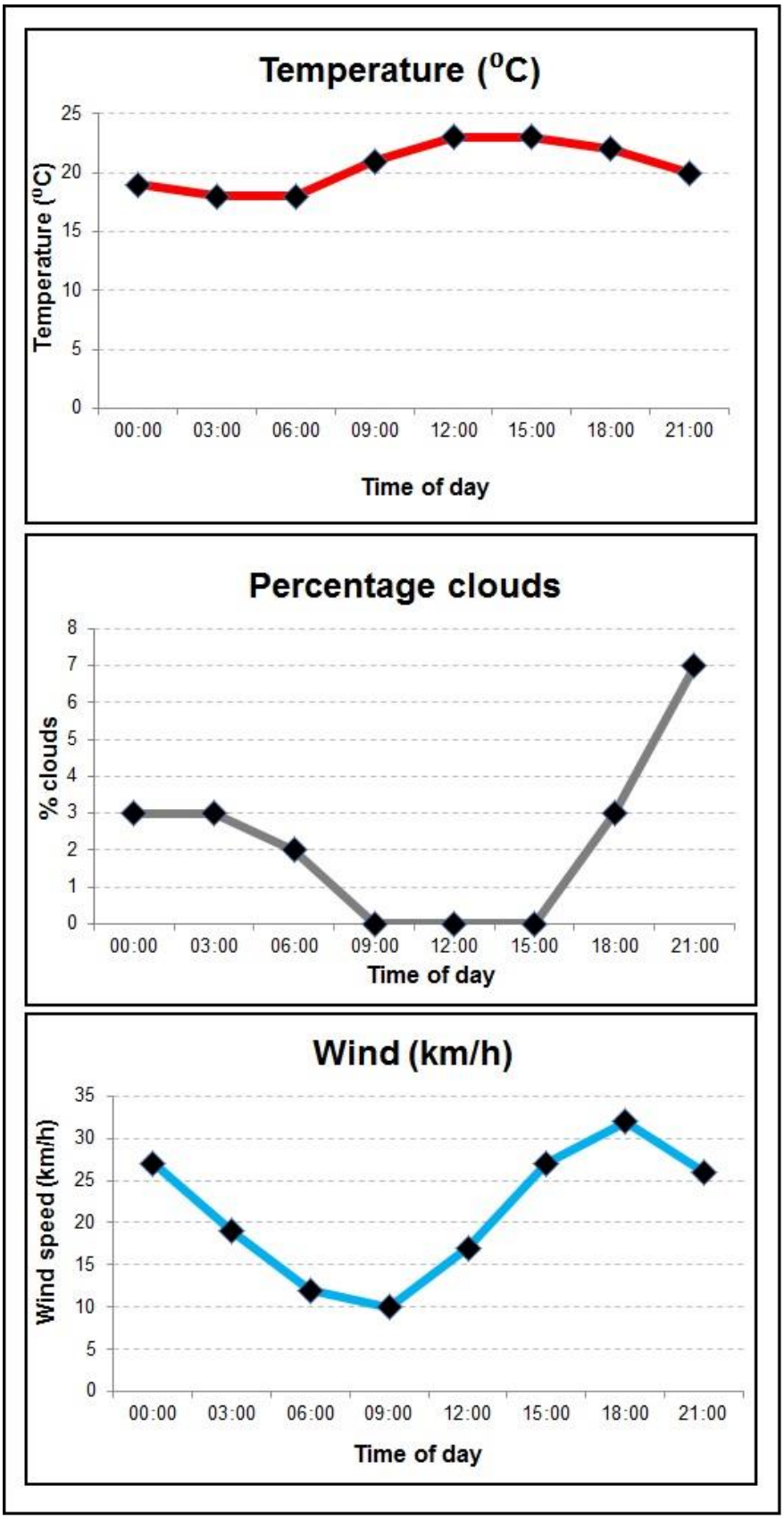

Figure 11 Weather conditions in the study area over the surveying period (19 February 2024). The time of day is indicated, along with the temperature (in °C), percentage cloud cover and wind speed (in km/h) (weather data sourced from https://www.worldweatheronline.com).

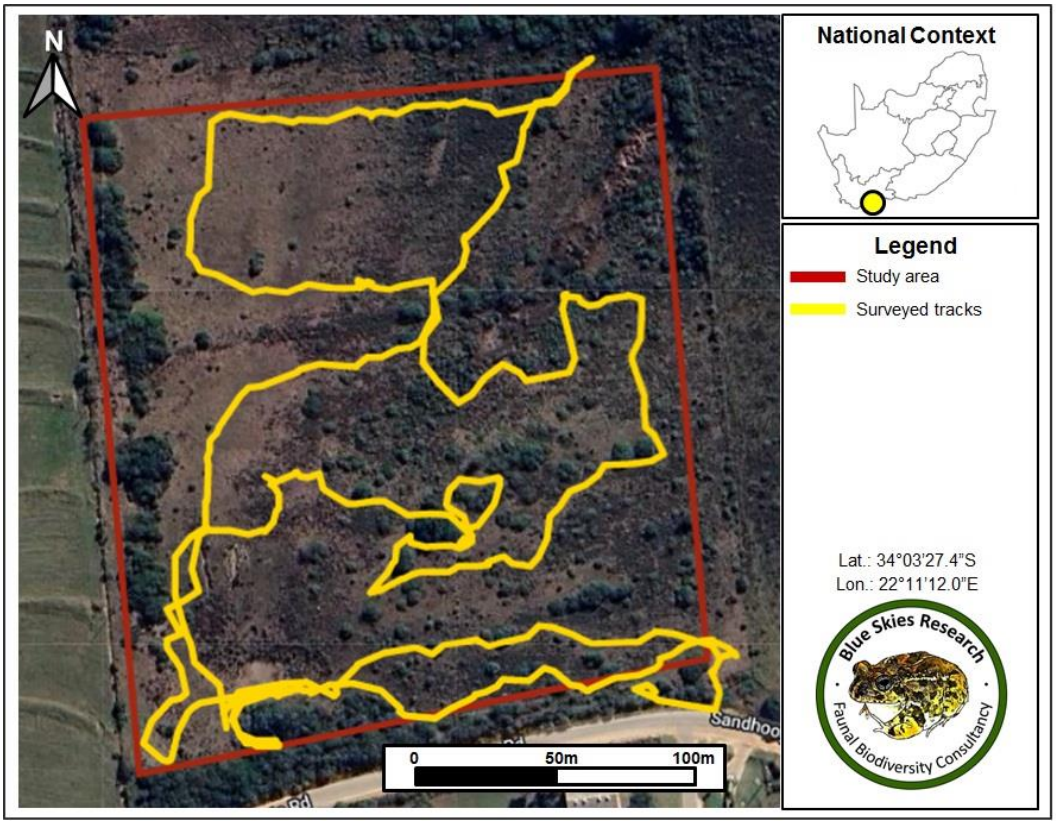

Figure 12 Spatial tracks recorded by GPS for all the search meanders across the study area over the surveying period.

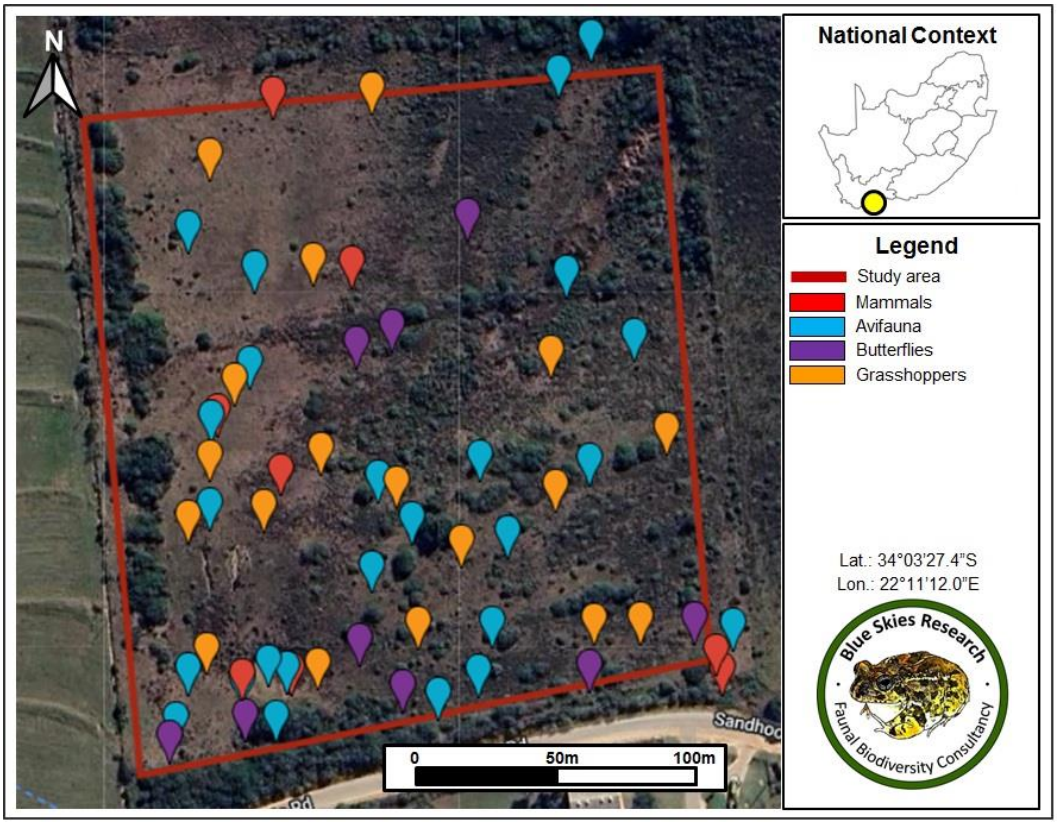

Figure 13 Spatial locations of all the faunal observations across the study area over the surveying period.

6. Assumptions and limitations

Weather conditions during the surveying period combined with an open habitat structure over most of the site were relatively optimal for detecting a representative sample of the terrestrial faunal and avifaunal species diversity across the study area. Even so, not all species could be observed (e.g., cryptic species), especially given the thick nature of the shrubland vegetation on the site. It is further possible that the surveying period did not correspond to the activity period or activity season of some species. Although the observed faunal composition of the study area therefore only partly reflects the species richness of, and faunal abundances within the study area (Appendix C), the inclusion and consideration of SCC was further based on a thorough desktop assessment for the included faunal groups, meaning that the majority of possibly occurring SCC were considered in the current assessment (Section 9).

7. Faunal habitat types within the study area

The study area is comprised of four broadly identified habitat features based on habitat composition and habitat integrity (Figure 14, Table 2). The natural vegetation on the site was transformed through clearing practices before at least 2015 (nine years ago), with evidence of subsequent recovery to predominantly shrubland and grassland phases over the eastern and western parts of the site respectively. Evidence of some remaining woody vegetation and trees (predominantly alien and invasive species) are also evident along the western and southern margins, and in the central parts of the site. Finally, a small artificial dam is located in the south-west corner of the site, with an apparent drainage line (with some reed vegetation) characterising the north-eastern corner. This drainage line is absent from historical maps (also see Subsection 4.1) and appears to be the result of soil erosion from storm water run-off originating from the eastern Old Mossel Bay Road. Taken together, habitats on the site exist in a modified and secondary state with little of the natural profile remaining.

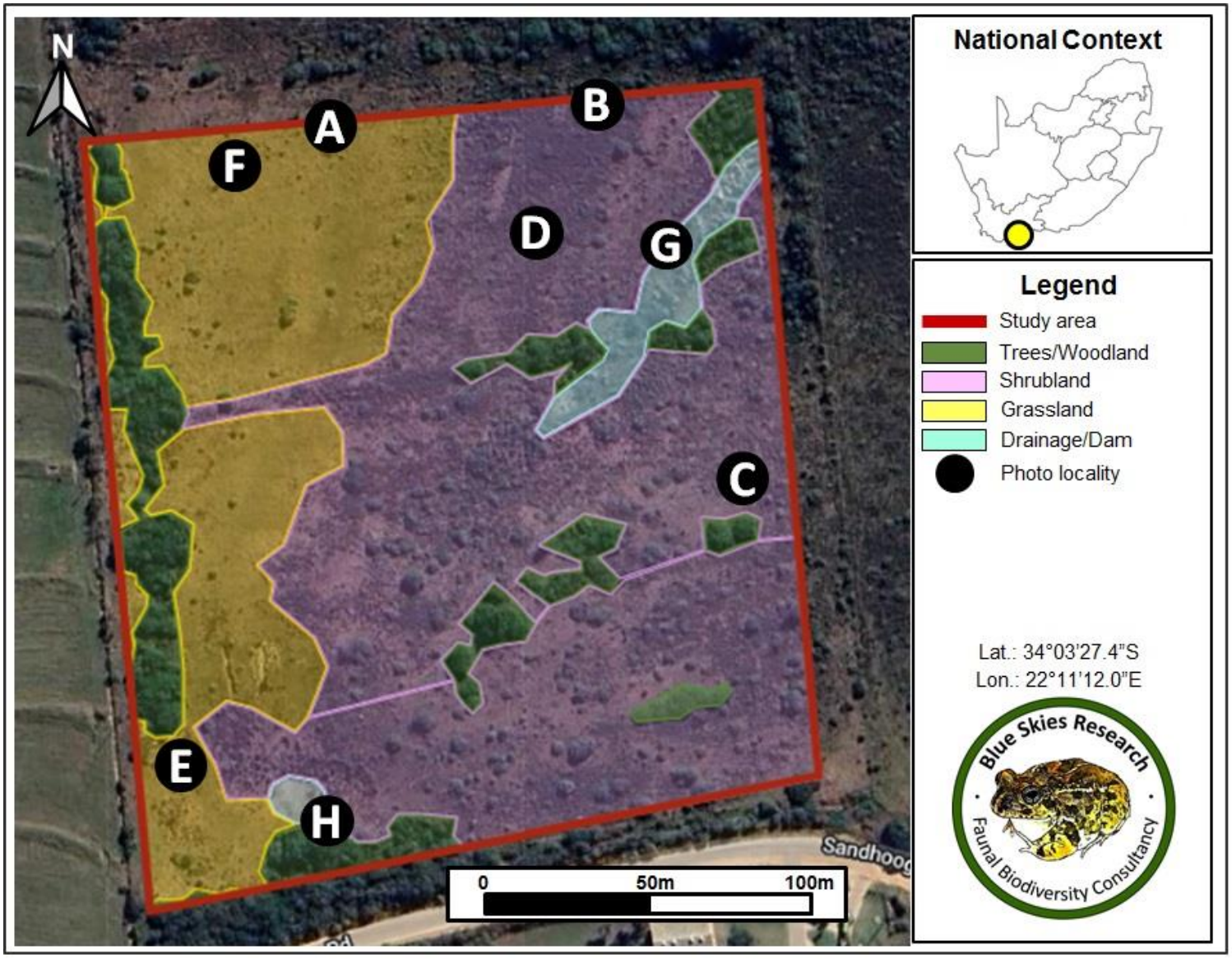

Figure 14 A broad indication of the spatial extent of habitat types overlapping the study area. Photo localities (A to H) correspond to the habitat photos in Table 2.

Table 2 Habitat locations, habitat descriptions and visual representations of the different habitat types within the study area. Location designations (A to H) correspond to the photo locations in Figure 14.

Location	Habitat description	Photo 1	Photo 2
A -34.05661, 22.18625 **B** -34.05654, 22.18712	**Trees/Woodland** This habitat comprises woody vegetation and trees (predominantly alien and invasive species) along the western and southern margins, and in the central parts of the site.		

C -34.05756, 22.18761 **D** -34.0569, 22.18694	**Shrubland** This habitat encompasses the larger eastern part of the site and comprises thick stands of shrubland vegetation.		
E -34.05835, 22.18576 **F** -34.05671, 22.18592	**Grassland** This habitat encompasses the western part of the site and comprises open grassland vegetation. .		

G -34.05692, 22.18733 **H** -34.05852, 22.18622	**Drainage/Dam** This habitat encompasses a small artificial dam is in the south-west corner of the site (H), with an apparent drainage line with some reed vegetation characterising the north-eastern corner, likely resulting from soil erosion (G).		

8. Faunal and avifaunal composition within the study area

8.1 Mammals

8.1.1 Desktop assessment

The distribution of 65 mammal species overlap with the study area, 58 of which are currently classified as “Least concern” by the IUCN Red List of Threatened Species (IUCN, 2021; Appendix A). The seven remaining species represent mammal SCC, and include the following:

- The Duthie's Golden Mole (*Chlorotalpa duthieae*) classified as “Vulnerable”,
- Fynbos Golden Mole (*Amblysomus corriae*) classified as “Near-Threatened”,
- Leopard (*Panthera pardus*) classified as “Vulnerable”,
- African Clawless Otter (*Aonyx capensis*) classified as “Near-Threatened”,
- Grey Rhebok (*Pelea capreolus*) classified as “Near-Threatened”,
- Long-tailed Forest Shrew (*Myosorex longicaudatus*)classified as “Endangered”, and
- White-tailed Rat (*Mystromys albicaudatus*) classified as “Vulnerable” by the IUCN Red List of Threatened Species.

Within the study area landscape, observational records for 20 mammal species currently exist (Appendix A), with one of these species (the African Clawless Otter) representing a mammal SCC.

8.1.2 Field survey

Evidence of only three mammal species were recovered within the study area (Figures 15 and 16), all of which are currently classified as “Least concern” by the IUCN (Appendix C). The Four-striped Grass Mouse (*Rhabdomys pumilio* is by far the most abundant mammal species on the site, given the thick and tangled nature of the shrubland and grassland habitats which provide suitable cover. Other rodent species which are also present include the Cape Porcupine (*Hystrix africaeaustralis*)

and Hairy-footed Gerbil (*Gerbillurus paeba*). Overall, the site appears depauparate in mammal diversity.

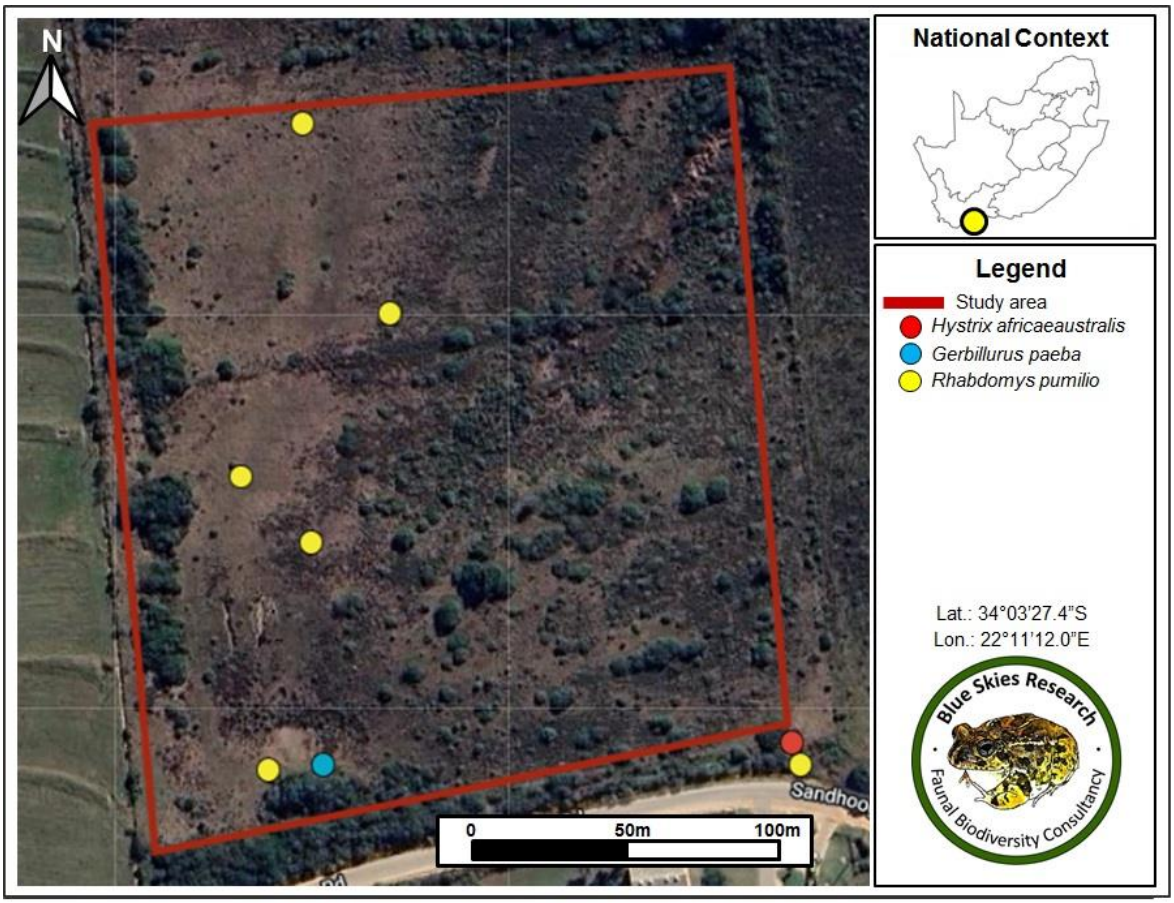

Figure 15 Spatial locations of the different mammal species recorded within the study area.

Figure 16 Photographic evidence of the different mammal species recorded in the study area. A) Feeding hole of the Cape Porcupine (*Hystrix africaeaustralis*). B) Burrow of the Hairy-footed Gerbil (*Gerbillurus paeba*). C) Run of the Four-striped Grass Mouse (*Rhabdomys pumilio*).

8.2 Avifauna

8.2.1 Desktop assessment

According to the SABAP2 records, 261 bird species have been recorded from the pentad overlapping the study area with 245 species classified as “Least Concern” by the IUCN, and 16 species which constitute avifaunal SCC (Appendix A). These avifaunal SCC includes the:

1. Forest Buzzard (*Buteo trizonatus*) classified as “Near-Threatened”,
2. Black Harrier (*Circus maurus*) classified as “Endangered”,
3. African Marsh Harrier (*Circus ranivorus*) classified as “Least Concern”,
4. Martial Eagle (*Polemaetus bellicosus*) classified as “Endangered”,
5. Secretarybird (*Sagittarius serpentarius*) classified as “Endangered”,
6. Curlew Sandpiper (*Calidris ferruginea*) classified as “Near-Threatened”,
7. Bar-tailed Godwit (*Limosa lapponica*) classified as “Near-Threatened”,
8. Eurasian Curlew (*Numenius arquata*) classified as “Near-Threatened”,
9. Blue Crane (*Anthropoides paradiseus*) classified as “Vulnerable”,
10. Denham's Bustard (*Neotis denhami*) classified as “Near-Threatened”
11. Knysna Warbler (*Bradypterus sylvaticus*) classified as “Vulnerable”,
12. Lesser Flamingo (*Phoeniconaias minor*) classified as “Near-Threatened”,
13. Knysna Woodpecker (*Campethera notate*) classified as “Near-Threatened”,
14. White-chinned Petrel (*Procellaria aequinoctialis*) classified as “Vulnerable”,
15. Cape Cormorant (*Phalacrocorax capensis*) classified as “Endangered”, and
16. Cape Gannet (Morus capensis) classified as “Endangered” by the IUCN.

8.2.2 Field survey

In total, only 20 bird species were recorded within the study area (Figures 17 and 18), all of which are currently classified as “Least concern” by the IUCN (Appendix C). All avifauna on the site constitute common species which are frequently encountered in a peri-urban grassland and shrubland setting, and overall avifaunal diversity on the site appears relatively impaired.

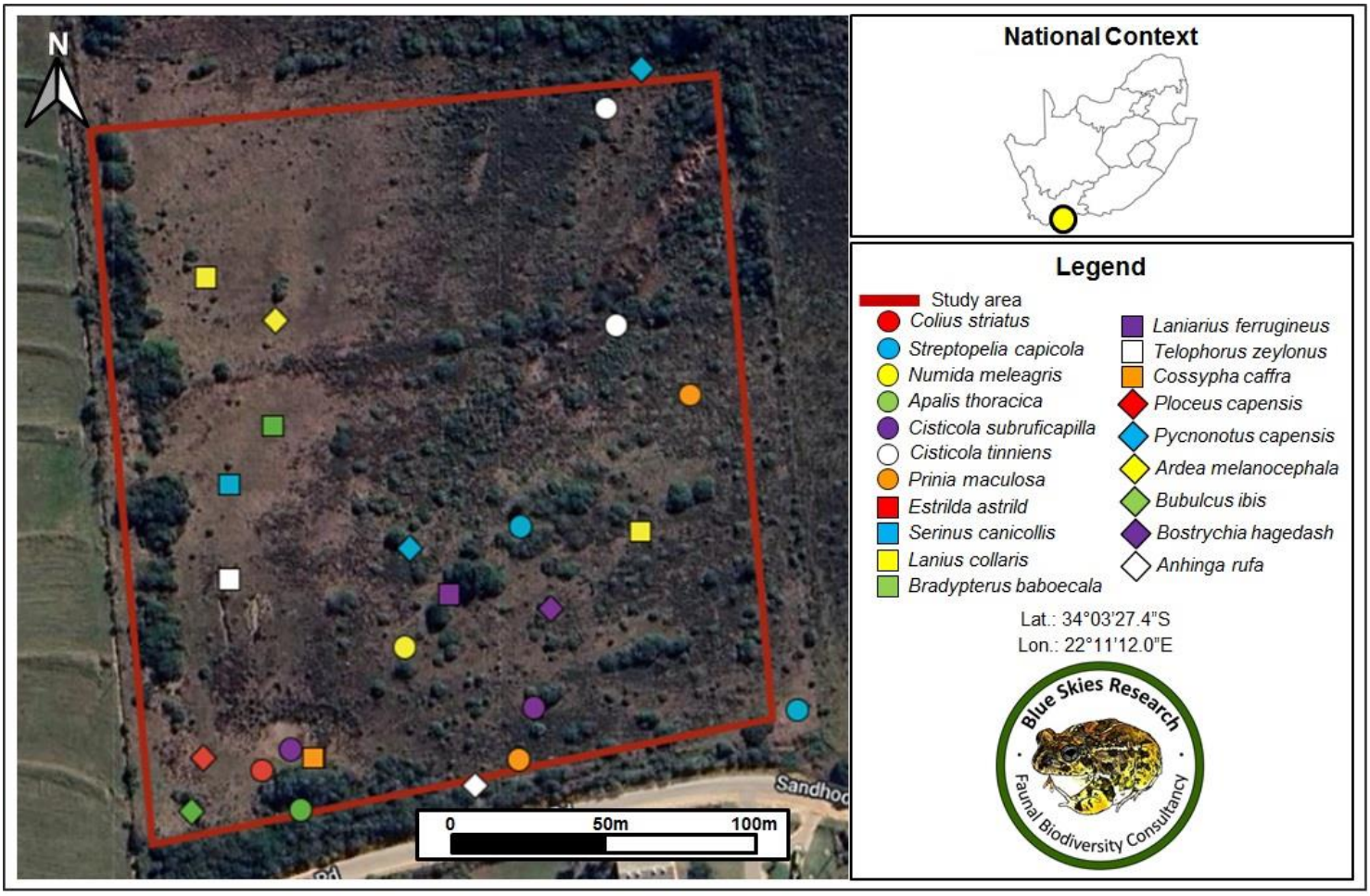

Figure 17 Spatial locations of the different avifaunal species recorded within the study area.

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13 Dennelaan, Stilbaai, 6674

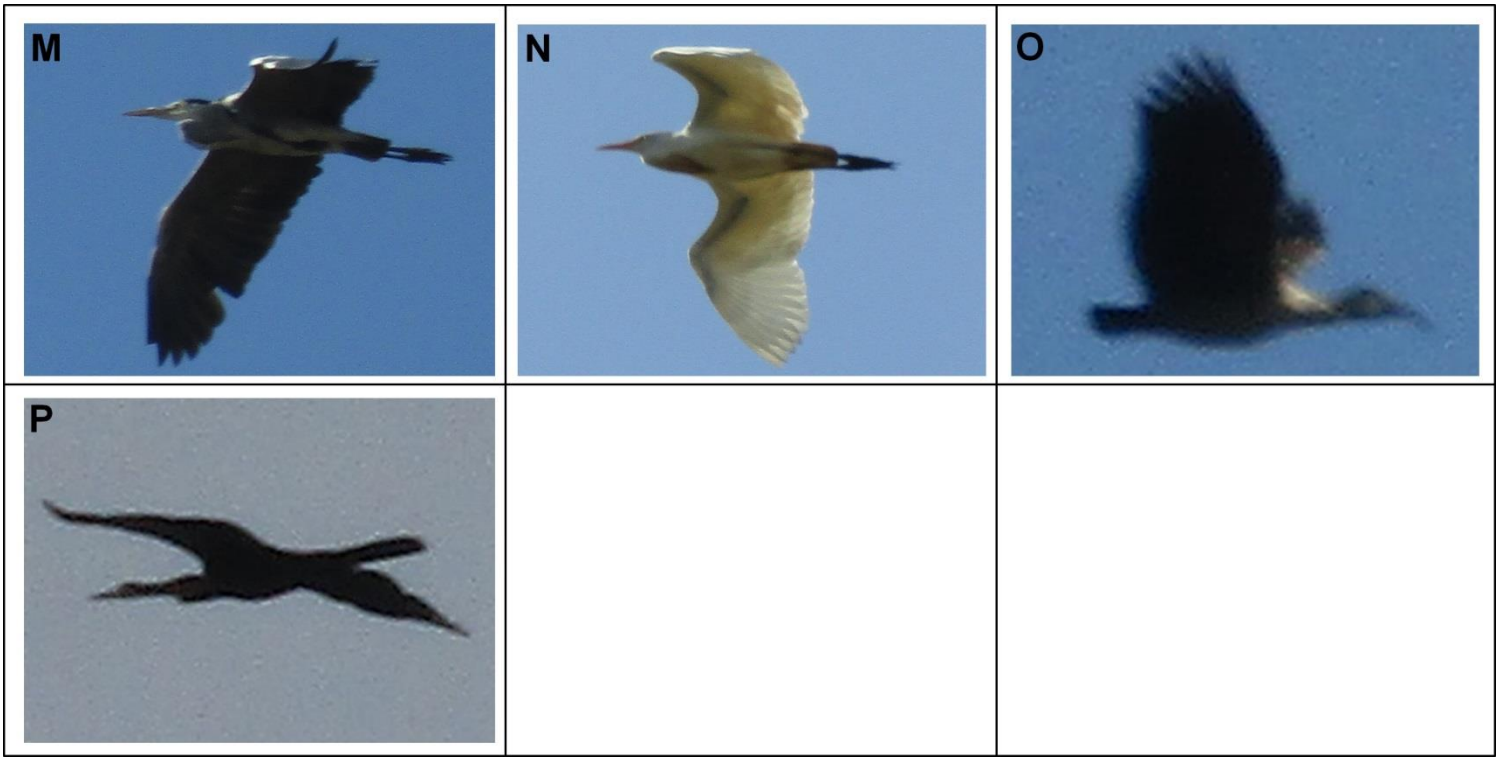


Figure 18 Photographic evidence of different avifaunal species recorded in the study area. A) Cape Turtle Dove (*Streptopelia capicola*). B) Helmeted Guineafowl (*Numida meleagris*). C) Grey-backed Cisticola (*Cisticola subruficapilla*). D) Levaillant's Cisticola (*Cisticola tinniens*). E) Karoo Prinia (*Prinia maculosa*). F) Common Waxbill (*Estrilda astrild*). G) Cape Canary (*Serinus canicollis*). H) Southern Fiscal (*Lanius collaris*). I) Bokmakierie (*Telophorus zeylonus*). J) Cape Robin-Chat (*Cossypha caffra*). K) Cape Weaver (*Ploceus capensis*). L) Cape Bulbul (*Pycnonotus capensis*).

M) Black-headed Heron (*Ardea melanocephala*). N) Western Cattle Egret (*Bubulcus ibis*). O) Hadada Ibis (*Bostrychia hagedash*). P) African Darter (*Anhinga rufa*).

8.3 Butterflies

Seven butterfly species were recorded within the study area (Figures 19 and 20), all of which are currently classified as “Least Concern” by the IUCN (Appendix C). These include the Common Dodger (*Afrogegenes letterstedti*), Green-marbled Skipper (*Gomalia elma*), Cupreous Blue (*Eicochrysops messapus*), Rainforest Brown (*Cassionympha cassius*), Plain Tiger (*Danaus chrysippus*), Yellow Pansy (*Junonia hierta*) and Green-eyed Vagrant (*Nepheronia buquetii*). Butterfly diversity on the site appears relatively high, likely owing to the blooming shrubland vegetation.

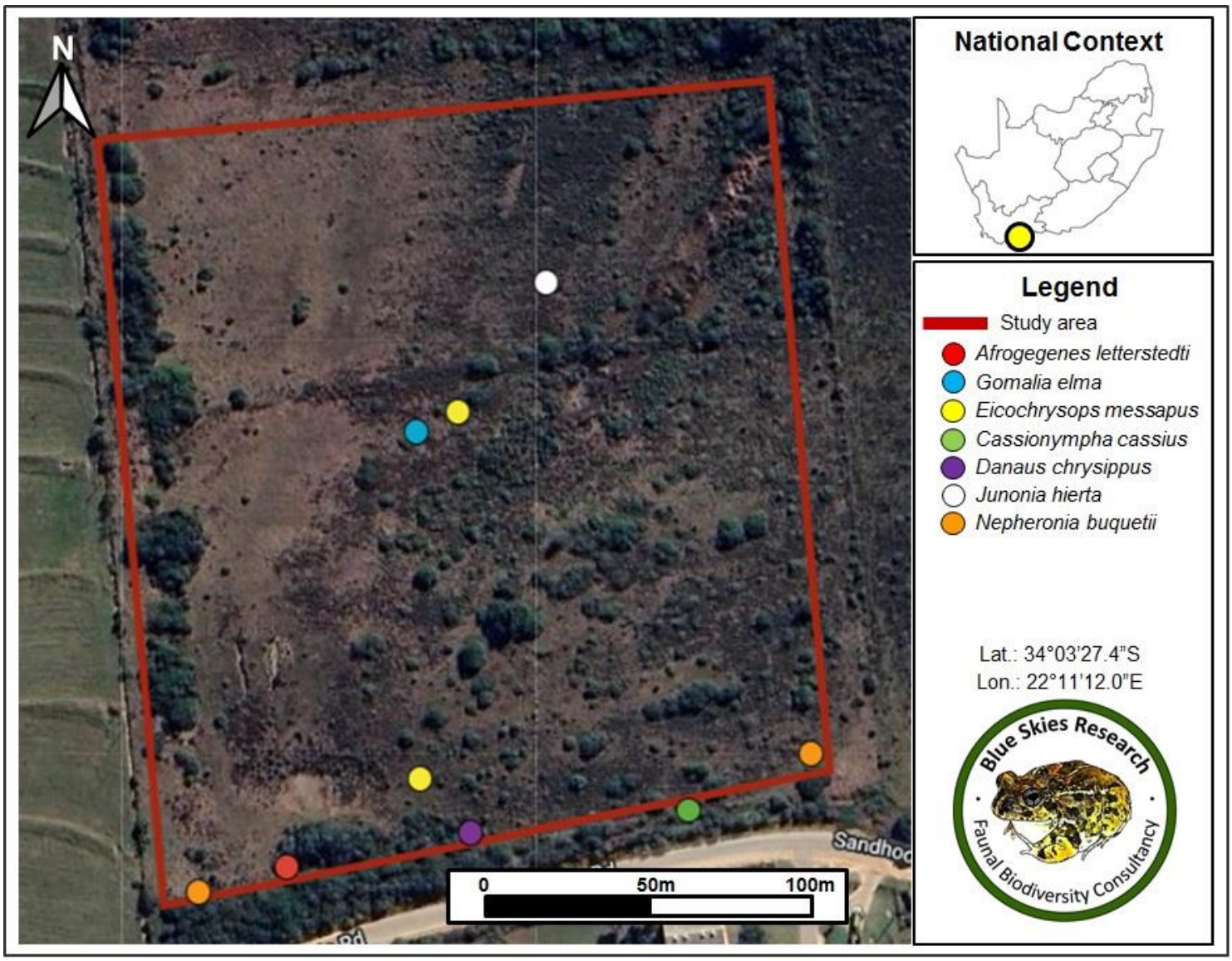


Figure 19 Spatial locations of the different butterfly species recorded within the study area.

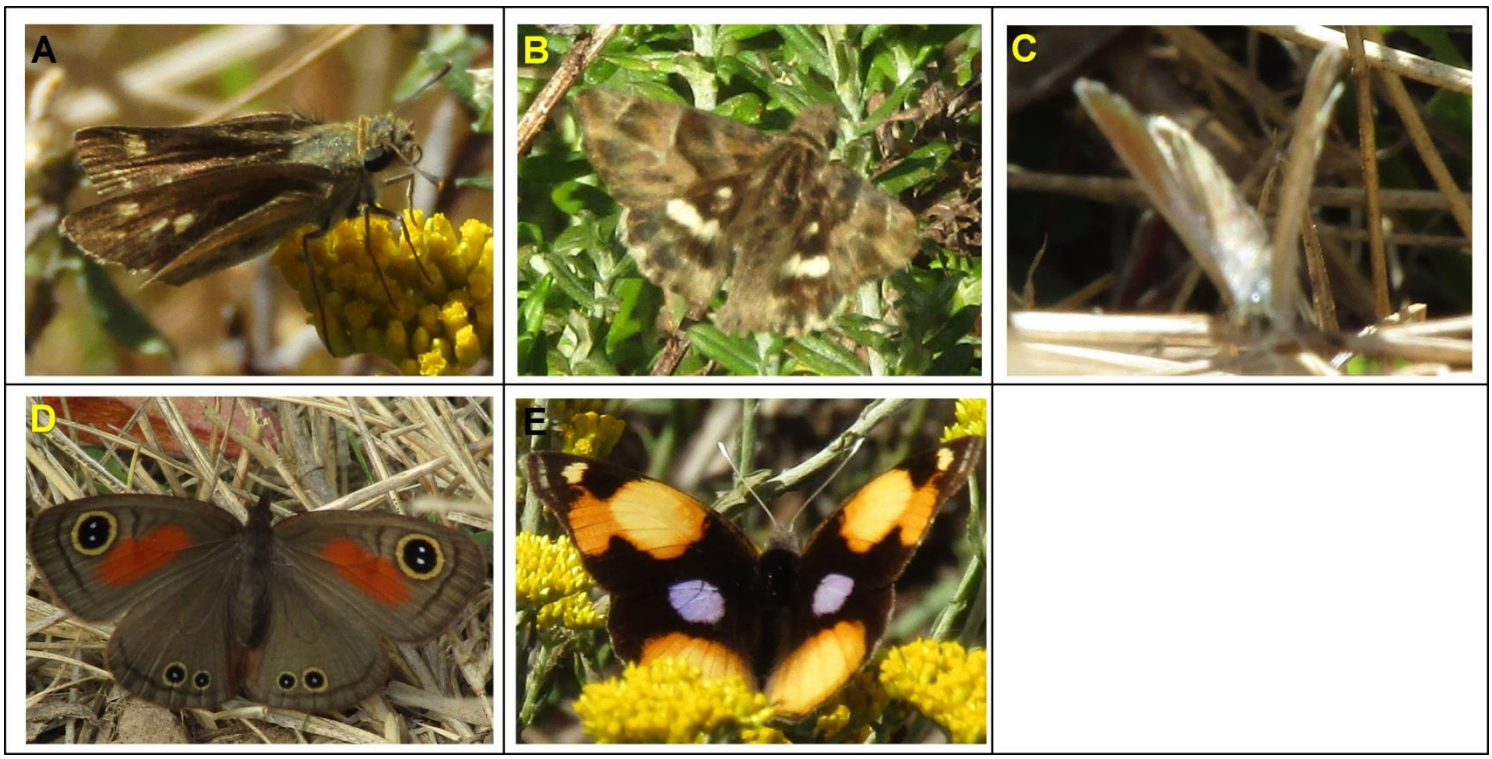


Figure 20 Photographic evidence of the different butterfly species recorded in the study area. A) Common Dodger (*Afrogegenes letterstedti*). B) Green-marbled Skipper (*Gomalia elma*). C) Cupreous Blue (*Eicochrysops messapus*). D) Rainforest Brown (*Cassionympha cassius*). E) Yellow Pansy (*Junonia hierta*).

8.4 Grasshoppers

Three grasshopper species were recorded within the study area (Figures 21 and 22), two of which are currently not assessed and one classified as “Least Concern” by the IUCN (Appendix C). The Lamenting Grasshopper (*Eyprepocnemis plorans*) is the most abundant species on the site and occurs in all Shrubland and Grassland habitats. Individuals of the Common Stick Grasshopper (*Acrida acuminata*) and Slender Green-winged Grasshopper (*Aiolopus thalassinus*) were also noted.

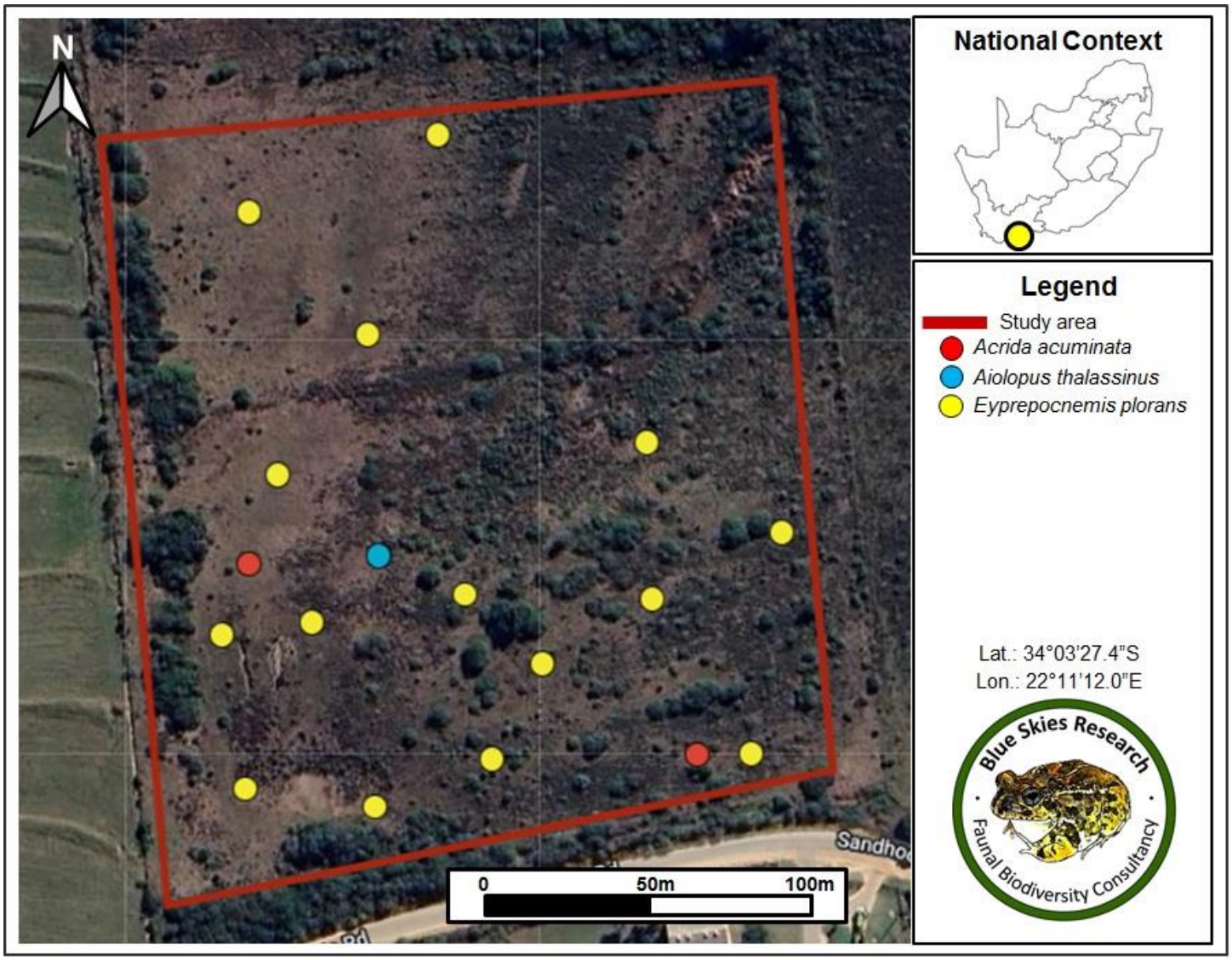


Figure 21 Spatial locations of the different grasshopper species recorded within the study area.

Figure 22 Photographic evidence of the different grasshopper species recorded in the study area. A) Common Stick Grasshopper (*Acrida acuminata*). B) Slender Green-winged Grasshopper (*Aiolopus thalassinus*). C) Lamenting Grasshopper (*Eyprepocnemis plorans*).

8.5 Faunal and avifaunal diversity within the study area

Overall, terrestrial faunal and avifaunal diversity and abundances appears relatively low and is comprised of relatively common species of “Least Concern” (IUCN, 2021). This impaired faunal diversity is likely a result of the modified and relatively isolated nature of the site. The site existed in an open state from radical clearing practices that took place before at least 2015 (nine years ago), with the subsequent recovery to a predominantly and secondary shrubland and grassland phase (Section 7). Furthermore, the site is situated among busy roads to the south and east, the Groot-Brakrivier WWTW to the south, and agricultural farmlands to the west and further to the north and east which render daily disturbances (through noise and vibration) on the site itself, and also isolates it from surrounding natural areas in the broader landscape.

Taken together, and along with the compromised biodiversity patterns, there appears to be very few intact predator-prey dynamics on the site, with ecosystem dynamics also appearing compromised. To this end, the study area does not appear to function as an important ecological link and faunal dispersal corridor in the study area landscape, rendering it of a lower sensitivity in a biodiversity and ecological context.

9. Species of Conservation Concern

Along with the five (two mammal, two avifaunal and one invertebrate) SCC listed in the DFFE Screening Tool (Table 1), the potential occurrence of 16 other (mammal and avifaunal) SCC within the study area was assessed (Table 3), given their recovery in the desktop assessment (see Section 8). Because of strictly marine habits, coupled to a lack of this habitat type on the site, the potential presence of the Curlew Sandpiper (*Calidris ferruginea*), Bar-tailed Godwit (*Limosa lapponica*), Eurasian Curlew (*Numenius arquata*), White-chinned Petrel (*Procellaria aequinoctialis*) and Cape Gannet (*Morus capensis*) was not considered in the current assessment. The probability of occurrence of each remaining SCC within the study area landscape was assessed based on the following criteria:

Confirmed - The species was confirmed as present within the study area during the field survey.

High - The species was not confirmed as present within the study area during the field survey but has been recorded in the overlapped QDGS in the case of mammals. In the case of avifauna, the species has been recorded in the overlapped pentad recently (less than 2 years ago) and in high number (>10 times) and is therefore likely to also occur in the study area, given suitable habitat characteristics.

Medium - The species was not confirmed as present within the study area during the field survey, and has not been recorded in the overlapped QDGS in the case of mammals. In the case of avifauna, the species has been recorded a number of times (<10 times) in the overlapped pentad recently (less than 2 years ago). Suitable habitat for the species is also present in the study area.

Low - No suitable habitat for the species is present in the study area. In the case of avifauna, the species has been recorded a low number of times (<10 times) or more than five years ago in the overlapped pentad.

Considering the modified and secondary nature of habitats on the site along with its spatially limited nature (4.7 hectares) and a high level of daily disturbances (noise and vibration from surrounding roads, the Groot-Brakrivier WWTW and agricultural areas), the study area does not support subpopulations of any of the considered mammal, avifaunal or invertebrate SCC, or offer any suitable habitat for significant permanent subpopulations of these species. To this end, all SCC are retrieved as having either a medium or low likelihood of occurring on the site (Table 3) and are therefore not further considered during this assessment.

Table 3 Probability of occurrence of specific SCC in the study area. For each species, the taxonomic Family, scientific name and common name is shown, along with its current classification under the IUCN Red List of Threatened Species (IUCN, 2021). In addition, the species' preferred habitat and the probability that the species occurs within the study area is given, along with a justification for listing this probability.

Order	Family	Species	Common name	Status	Habitat	Probability of occurrence in the study area	Justification of probability
Sensitive Species 5	Sensitive Species 5	*Sensitive Species 5*	*Sensitive Species 5*	Least Concern	-	Low	The species was not confirmed during the field survey, but has been recorded once in the study area landscape. Even so, suitable forest and woodland habitat on the site is too spatially protracted and of a too isolated nature to support a subpopulation of this species. To this end, it is unlikely that this species will be present on the site
Sensitive Species 8	Sensitive Species 8	*Sensitive Species 8*	Sensitive Species 8	Vulnerable		Low	This species occurs only in protected areas and is therefore certain that the species will be present on the site.
Afrosoricida	Chrysochloridae	*Chlorotalpa duthieae*	Duthie's Golden Mole	Vulnerable	The species occurs on alluvial sands and sandy loams in Southern Cape Afrotemperate forests (especially coastal platform and scarp forest patches) in the Fynbos and Moist Savanna biomes (Bronner, 2015). The species also thrives in cultivated areas and gardens.	Low	The species was not confirmed during the field survey, and it has not been recorded in the study area landscape. Furthermore, suitable forest and woodland habitat on the site is too spatially protracted and of a too isolated nature to support a subpopulation of this species. To this end, it is unlikely that this species will be present on the site.
Afrosoricida	Chrysochloridae	*Amblysomus corriae*	Fynbos Golden Mole	Near-Threatened	The species prefers sandy soils and soft loams in Mountain Fynbos, Grassy Fynbos and Renosterveld of South West Cape (Bronner and Mynhardt, 2015). Also in Afromontane forest and southern African moist savanna along the southern Cape coast. The species furthermore thrives in gardens, cultivated lands, golf courses and livestock paddocks, and is also present in exotic plantations, but apparently at lower densities (Bronner, 2013).	Low	The species was not confirmed during the field survey, and it has not been recorded in the study area landscape. Furthermore, the proposed project footprint is devoid of the deep and loose soils (sandy soils or soft loams) preferred by this species. To this end, it is unlikely that this species will be present on the site.

Carnivora	Felidae	*Panthera pardus*	Leopard	Vulnerable	The species occurs in the widest range of habitats among any of the Old World Cats, including the larger part of Africa and Asia (Nowell and Jackson 1996). Generally, Leopards prefer medium-sized ungulate prey (10-40kg) where available (Hayward et al. 2006). They have a highly varied diet, however, feeding on insects, reptiles, birds and small mammals up to large ungulates.	Low	The species was not confirmed during the field survey, and it has not been recorded in the study area landscape. Furthermore, the study area is located adjacent to busy used road networks with daily disturbance, does not harbour a suitable ungulate prey base and is of a spatially isolated nature. To this end, it is unlikely that this species will be present on the site.
Carnivora	Mustelidae	*Aonyx capensis*	African Clawless Otter	Near-Threatened	The species occupies aquatic freshwater areas and is seldom found far from water. It may occur in many seasonal or episodic rivers provided suitable-sized pools persist (Nel and Somers, 2007, Somers and Nel, 2013).	Low	The species was not confirmed during the field survey, but has been recorded in the study area landscape (Appendix A). Even so, the site is devoid of any of the open freshwater environments required by this species. To this end, it is unlikely that this species will be present on the site.
Cetartiodactyla	Bovidae	*Pelea capreolus*	Grey Rhebok	Near-Threatened	The species is associated with the rocky hills of mountain fynbos. They are predominantly browsers, often feeding on ground-hugging forbs, and largely water independent, obtaining most of their water requirements from their food (Avenant 2013). Forbs constitute the majority of their diet, especially the flowers and leaves of the plants (Esser 1973, Rowe-Rowe 1983a, Beukes 1988). They require good grass cover within their home ranges for shelter and to hide from predators, but often use steep open areas with little cover when feeding. In the Western Cape, they are often observed on agricultural lands (Radloff 2008, C. Birss pers. obs. 2016).	Low	The species was not confirmed during the field survey, and it has not been recorded in the study area landscape. Furthermore, the proposed project footprint does not overlap with rocky hills or mountain habitat, is subjected to daily disturbance and is of a spatially isolated nature. To this end, it is unlikely that this species will be present on the site.
Eulipotyphla	Soricidae	*Myosorex longicaudatus*	Long-tailed Forest Shrew	Endangered	The species is found in forests, forests edges, fynbos and boggy grassland, and depends on moist microhabitats (typically above the 800 mm isohyet). It is restricted to pristine primary habitat that has not been degraded (Baxter et al. 2020).	Low	The species was not confirmed during the field survey, and it has not been recorded in the study area landscape. The site furthermore exists in a modified state with none of the pristine Fynbos habitat required by this species. To this end, it is unlikely that this species will be present on the site.
Rodentia	Nesomyidae	*Mystromys albicaudatus*	White-tailed Rat	Vulnerable	The species' habitat requirements are not well known, but it appears associated with calcrete soils within grasslands. The species can occur in disturbed areas (heavily grazed, D. MacFadyen pers. obs.) and in sparse grasslands (Kuyler, 2000; Kaiser, 2006; Avenant and Cavallini, 2007; Avenant and Schulze, 2012; Morwe 2013), but does not occur in transformed habitat (croplands, fallow fields, or old fields). In the Blaauwberg Conservation Area (BCA), Western Cape Province it may occur in Dune Thicket on sloped clay soils.	Low	The species was not confirmed during the field survey, and it has not been recorded in the study area landscape. The site furthermore does not contain any of the calcrete soils or Dune Thicket vegetation on sloped clay soils required by this species. To this end, it is unlikely that this species will be present on the site.

Accipitriformes	Accipitridae	*Buteo trizonatus*	Forest Buzzard	Near-Threatened	This species inhabits native temperate forests from sea level up to 1,000 m, and rarely to 1,500 m (Ferguson-Lees and Christie 2001). It can also be found in plantations, though usually near to areas of native forest (Ferguson-Lees and Christie 2001).	Low	The species was not confirmed during the field survey, but has been recorded a high number of times (18 times) in the study area landscape recently (December 2023, Appendix B). Even so, suitable forest and woodland habitat on the site is too spatially protracted and of a too isolated nature to support a subpopulation of this species. To this end, it is unlikely that this species will be present on the site.
Accipitriformes	Accipitridae	*Circus maurus*	Black Harrier	Endangered	The species occurs in coastal and montane Fynbos, highland grasslands, Karoo subdesert scrub, open plains with low shrubs and croplands (Curtis *et al*. 2004). In the Western Cape of South Africa it is most abundant in coastal and montane fynbos (Curtis *et al*. 2004), and loose colonies may aggregate around wetland areas. The Black Harrier prefers open ground with low vegetation for hunting, where it feeds mainly on small mammals, especially *Otomys* and *Rhabdomys* species, although its diet may also include birds and reptiles (Garcia-Heras *et al*. 2017). The main diet of the Black Harrier however constitutes the Four-striped Grass Mouse, *Rhabdomys pumilio* (Garcia-Heras *et al*. 2017). The species breeds close to coastal and upland marshes (damp sites, near vleis, marshes or streams are preferred for breeding), but may also nest in montane habitats, preferring south-facing slopes (Brown *et al*. 1982; Curtis *et al*. 2004). Nests are built on the ground in tall vegetation such as shrubs or reeds (Brown *et al*. 1982, Curtis *et al*. 2004). The species does not breed in transformed and cultivated lands, although it may forage in these environments (Curtis *et al*. 2004).	Medium	The species was not confirmed during the field survey, but has been recorded a number of times (seven times) in the study area landscape recently (July 2022, Appendix B). The site does offer suitable hunting conditions (open grassland habitat) as well as a suitable prey base (an abundance of *Rhabdomys pumilio*) but it is highly unlikely that this species will breed here, given the modified nature of the shrubland vegetation. To this end, the presence of this species on the site is likely to be ephemeral.
Accipitriformes	Accipitridae	*Circus ranivorus*	African Marsh Harrier	Least Concern	The species breeds in wetlands, foraging primarily over reeds and lake margins (Harrison *et al*. 1997). Its diet consists largely of small mammals, particularly striped mouse *Rhabdomys pumilio* (Kemp and Dean, 1988).	Low	The species was not confirmed during the field survey, and has been recorded only once in the study area landscape more than ten years ago (April 2012, Appendix B). Furthermore, the site does not harbour any of the large reedbeds required by this species for breeding and hunting. It is therefore unlikely that this species will be present on the site.

Accipitriformes	Accipitridae	*Polemaetus bellicosus*	Martial Eagle	Endangered	The species inhabits open woodland, wooded savanna, bushy grassland, thornbush and, in southern Africa, more open country and even subdesert, from sea level to 3,000 m but mainly below 1,500 m (Ferguson-Lees and Christie, 2001). The main prey is sizeable mammals, birds and reptiles (Ferguson-Lees and Christie, 2001).	Low	The species was not confirmed during the field survey, but has been recorded a number of times (five times) in the study area landscape more than seven years ago (December 2016, Appendix B). The site furthermore does no offer the suitable savannah conditions or sizeable prey items required by this species. To this end, it is unlikely that this species will be present on the site.
Accipitriformes	Sagittariidae	*Sagittarius serpentarius*	Secretarybird	Endangered	The species inhabits open landscapes, ranging from open plains and grasslands, to lightly wooded savanna, but is also found in agricultural areas and sub-desert (Ferguson-Lees and Christie, 2001), with up to 50% of recorded individuals in the Fynbos biome in winter being found in transformed environments (Hofmeyr *et al*. 2014). The species avoids areas of >20% wood cover (Loftie-Eaton, 2017). Although the species is nomadic, individuals which inhabit moist grassland tend to be less nomadic but may travel 20-30 km per day while foraging (Kemp and Kemp, 1977; Whitecross *et al*. 2019). The species preys on a variety of invertebrates (insects form 86% of the diet, Whitecross *et al*. 2019) and vertebrates (rodents, other mammals, lizards, snakes, eggs, young birds and amphibians, Kemp and Kemp, 1977; Ferguson-Lees and Christie, 2001). Breeding occurs throughout the year and the species typically nests in a flat-topped Acacia or other thorny tree (Ferguson-Lees and Christie, 2001).	Low	The species was not confirmed during the field survey, and has been recorded only once in the study area landscape recently (November 2022, Appendix B). Furthermore, the site harbours dense shrubland vegetation and does not overlap with a large amount of the lighlty wooded or open habitats preferred by this species. To this end, it is unlikely that this species will be present on the site.
Galliformes	Gruidae	*Anthropoides paradiseus*	Blue Crane	Vulnerable	This species breeds in natural grass- and sedge-dominated habitats, preferring secluded grasslands at high elevations where the vegetation is thick and short (Barnes, 2000). Occasionally it will breed in or near wetland areas (Barnes, 2000), in pans or on islands in dams (Hockey *et al*. 2005). Particularly in the Western Cape of South Africa, it also uses lowland agricultural areas, particularly pasture, fallow fields and cereal crop fields as stubble becomes available after harvest (Barnes, 2000, Hockey *et al*. 2005). During the non-breeding season the species inhabits short, dry, natural grasslands, as well as the Karoo and fynbos biomes (Barnes, 2000). In fynbos it occurs almost exclusively in cultivated habitats, largely avoiding the natural vegetation (Barnes, 2000), although this habitat may provide important cover	Low	The species was not confirmed during the field survey, but has been recorded a high number of times (81 times) in the study area landscape recently (December 2023, Appendix B). Even so, the site harbours dense shrubland vegetation and does not overlap with a large amount of the open habitats preferred by this species for feeding, an none of the wetland areas preferred for breeding. To this end, it is unlikely that this species will be present on the site.

					for juveniles (Bidwell *et al*. 2006). The agricultural habitats that it uses include pastures, croplands, particularly where cereal crops are grown (Barnes, 2000), and fallow fields. It is intolerant of intensively grazed and burnt grassland (Hockey *et al*. 2005). It roosts in shallow wetlands (Barnes, 2000, Hockey *et al*. 2005).		
Otidiformes	Otididae	*Neotis denhami*	Denham's Bustard	Near-Threatened	The species inhabits grasslands, grassy *Acacia*-studded dunes, fairly dense shrubland, light woodland, farmland, crops, dried marsh and arid scrub plains, also grass-covered ironstone pans and burnt savanna woodland in Sierra Leone and high rainfall sour grassveld, planted pastures and cereal croplands in fynbos in South Africa (del Hoyo et al. 1996). It feeds on insects, small vertebrates and plant material (Collar, 1996).	Low	The species was not confirmed during the field survey, but has been recorded a high number of times (31 times) in the study area landscape recently (October 2023, Appendix B). Even so, the site harbours dense shrubland vegetation and does not overlap with a large amount of the open habitats preferred by this species. To this end, it is unlikely that this species will be present on the site.
Passeriformes	Locustellidae	*Bradypterus sylvaticus*	Knysna Warbler	Vulnerable	The species occurs in thick, tangled vegetation along the banks of watercourses, or covering drainage lines in fynbos forest patches, or on the edges of afromontane forest. It breeds in dense understorey vegetation (Pryke et al. 2010).	Low	The species was not confirmed during the field survey, but has been recorded a high number of times (87 times) in the study area landscape recently (December 2023, Appendix B). Even so, the site does not contain the thick, tangeld vegetation with a dense understory or drainage lines in forest patches required by this species. To this end, it is unlikely that this species will be present on the site.
Phoenicopteriformes	Phoenicopteridae	*Phoeniconaias minor*	Lesser Flamingo	Near-Threatened	The species breeds on large undisturbed alkaline and saline lakes, salt pans or coastal lagoons, usually far out from the shore, after seasonal rains have provided the flooding necessary to isolate remote breeding sites from terrestrial predators and the soft muddy material for nest building (Brown and Root 1971, del Hoyo et al. 1992, McCulloch and Irvine 2004).	Low	The species was not confirmed during the field survey, and has been recorded only four times in the study area landscape more than three years ago (December 2020, Appendix A). In addition, the site supports none of the coastal open water conditions required by this species. To this end, it is unlikely that this species will be present on the site.
Piciformes	Picidae	*Campethera notata*	Knysna Woodpecker	Near-Threatened	The species is confined to coastal areas of forest, woodland, dense bush, Euphorbia scrub, or open country with large trees.	Low	The species was not confirmed during the field survey, but has been recorded a number of times (seven times) in the study area landscape recently (December 2021, Appendix B). Even so, suitable forest and woodland habitat on the site is too spatially protracted and of a too isolated nature to support a subpopulation of this species. To this end, it is unlikely that this species will be present on the site

Suliformes	Phalacrocoracidae	*Phalacrocorax capensis*	Cape Cormorant	Endangered	This species is usually found in the Benguela Current less than 10 km from the coast (del Hoyo *et al*. 1992), although it does occasionally range as far as 70km offshore. During both the breeding and the non-breeding seasons it inhabits cliffs and ledges on the mainland and on offshore islands (Nelson, 2005). It is occasionally found in the brackish waters of coastal lagoons, estuaries and harbours (del Hoyo *et al*. 1992), but does not use these habitats for breeding. It occurs in highest densities in areas of suitable habitat near the recruitment grounds for pilchards (Clupeidae) and anchovies (Engraulidae.) (Crawford and Shelton, 1978).	Low	The species was not confirmed during the field survey, but has been recorded a high number of times (46 times) in the study area landscape recently (October 2023, Appendix B). Even so, this species is associated with open water bodies - habitat which is not present on the site. To this end, it is unlikely that this species will be present on the site
Orthoptera	Acrididae	*Aneuryphymus montanus*	Yellow-winged Agile Grasshopper	Vulnerable	The species is associated with fynbos vegetation, where it has been collected "amongst partly burnt stands of evergreen Sclerophyll in rocky foothills" (Brown 1960). It prefers south-facing cool slopes (Kinvig 2005).	Low	The species was not confirmed during the field survey. Furthermore, suitable habitat (recently burnt Schlerophyll on south-facing slopes) for this species is not present on the site. To this end, it is highly unlikely that this species will occur here.

10. Evaluation of Site Ecological Importance (SEI)

10.1 Evaluating SEI for habitats in the study area

Evaluation of the Site Ecological Importance (SEI) for habitats in the study area was performed following the methods and criteria outlined in the Species Environmental Assessment Guideline (SANBI, 2020). Evaluation of SEI was performed for mammals, avifauna and invertebrates combined (given the low likelihood of SCC within any of these faunal groups being present on the site, Table 3). In short, SEI is a function of the Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/faunal community or habitat type present on the site) and its resilience to impacts (Receptor Resilience, RR) as follows: SEI = BI + RR. Biodiversity Importance (BI) is in turn a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor as follows: BI = CI + FI.

To calculate the Conservation Importance (CI) and Functional Integrity (FI) of each habitat within the study area, the criteria outlined in Table 4 and Table 5 were respectively used.

According to the Species Environmental Assessment Guideline, Conservation Importance (CI) may defined as follows:

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.*"

Table 4 Conservation importance (CI) criteria (table adapted from the Species Environmental Assessment Guideline, SANBI, 2020).

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

According to the guideline, Functional Integrity (FI) is defined as:

Functional integrity (FI): "*The receptors' current ability to maintain the structure and functions that define it, compared to its known or predicted state under ideal conditions. Simply stated, FI is: 'A measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.*"

Table 5 Functional integrity (FI) criteria (table adapted from the Species Environmental Assessment Guideline, SANBI, 2020).

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

Based on assessments of CI and FI for habitats within the study area, the Biodiversity Importance (BI) of each habitat was calculated using the matrix in Table 6 (based on the formula: BI = CI + FI). As Biodiversity Importance (BI) is a function of Conservation Importance (CI) and the Functional Integrity (FI) of a receptor, BI can be derived from a simple matrix of CI and FI as follows:

Table 6 Matrix for calculating Biodiversity Importance (BI) (table adapted from the Species Environmental Assessment Guideline, SANBI, 2020).

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

Finally, the Receptor Resilience for each habitat was evaluated following the criteria listed in Table 7. According to the Species Assessment Guidelines, Receptor resilience (RR) may defined as follows:

Receptor resilience (RR): "*The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.*"

Table 7 Receptor Resilience (RR) criteria (table adapted from the Species Environmental Assessment Guideline, SANBI, 2020).

Receptor Resilience (RR)	**Fulfilling Criteria**
Very high	Habitat that can recover rapidly (~ less than 5 years) to restore > 75%28 of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.
Very low	Habitat that is unable to recover from major impacts, or species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed.

Taken together, the Site Ecological Importance (SEI) was calculated for each habitat within the study area using the formula: SEI = BI + RR, and following the matrix outlined in Table 8. The interpretation of the development actions allowed for each SEI category are outlined in Table 9.

Table 9 Matrix for calculating Site Ecological Importance (SEI) (table adapted from the Species Environmental Assessment Guideline, SANBI, 2020).

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

Table 9 Guidelines for interpreting SEI in the context of the proposed development activities (table adapted from the Species Environmental Assessment Guideline, SANBI, 2020).

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

10.2 SEI for habitats in the study area

The SEI results for habitats within the study area are given in Table 10 with the spatial representation for each habitat and its concomitant SEI category portrayed in Figure 23. Because all habitats on the site do not constitute suitable habitat for any of the SCC considered, and further exist in a modified, secondary and isolated state, these habitats are retrieved as having a “Very low” SEI, allowing for development activities of medium to high impact without restoration activities being required (Table 9). To this end, this renders the entire site as less sensitive from a faunal perspective.

Table 10 Evaluation of SEI for habitats within the study area. BI = Biodiversity Importance, RR = Receptor Resilience.

Habitat type	Conservation Importance	Functional Integrity	Receptor Resilience	Site Ecological Importance
TreesWoodland	**Very low** - No confirmed and a highly unlikely presence of populations of terrestrial faunal and avifaunal SCC.	**Very low** - Very small area (<1 ha) with several major current negative ecological impacts (most of the larger trees represent alien and invasive species).	**Very high** - Because this habitat harbours an incidence of alien and invasive vegetation, it already exists in a modified state. Given the limited spatial extent of this habitat, it is of limited value to the persistence of large subpopulations of faunal species and will be able to recover relatively quickly (less than 5 years).	**Very low** - BI = Very low; RR = Very high
Shrubland	**Very low** - No confirmed and a highly unlikely presence of populations of terrestrial faunal and avifaunal SCC.	**Low** - Small area (>1 ha but <5 ha) with several minor and major current negative ecological impacts (this habitat exists in a modified and secondary state comprising recovered shrubland vegetation subjected to a high level of daily disturbances and exists in and is of an isolated nature in the landscape).	**Very high** - Because this habitat exists in a modified and secondary state, the faunal species diversity on the site already appears reduced, with only common species present. As such, this species diversity can recover relatively quickly (less than 5 years).	**Very low** - BI = Very low; RR = Very high
Grassland	**Very low** - No confirmed and a highly unlikely presence of populations of terrestrial faunal and avifaunal SCC.	**Low** - Small area (>1 ha but <5 ha) with several minor and major current negative ecological impacts (this habitat exists in a modified and secondary state comprising recovered grassland vegetation subjected to a high level of daily disturbances and is of an isolated nature in the landscape).	**Very high** - Because this habitat exists in a modified and secondary state, the faunal species diversity on the site already appears reduced, with only common species present. As such, this species diversity can recover relatively quickly (less than 5 years).	**Very low** - BI = Very low; RR = Very high
Drainage/Dam	**Very low** - No confirmed and a highly unlikely presence of populations of terrestrial faunal and avifaunal SCC.	**Very low** - Very small area (<1 ha) with several major current negative ecological impacts (the dam is of an artificial nature, with the drainage line likely following soil erosion from storm water run-off originating from the eastern Old Mossel Bay Road).	**Very high** - This habitat comprises an artificial dam and a drainage line following soil erosion, and can only recover to this modified state.	**Very low** - BI = Very low; RR = Very high

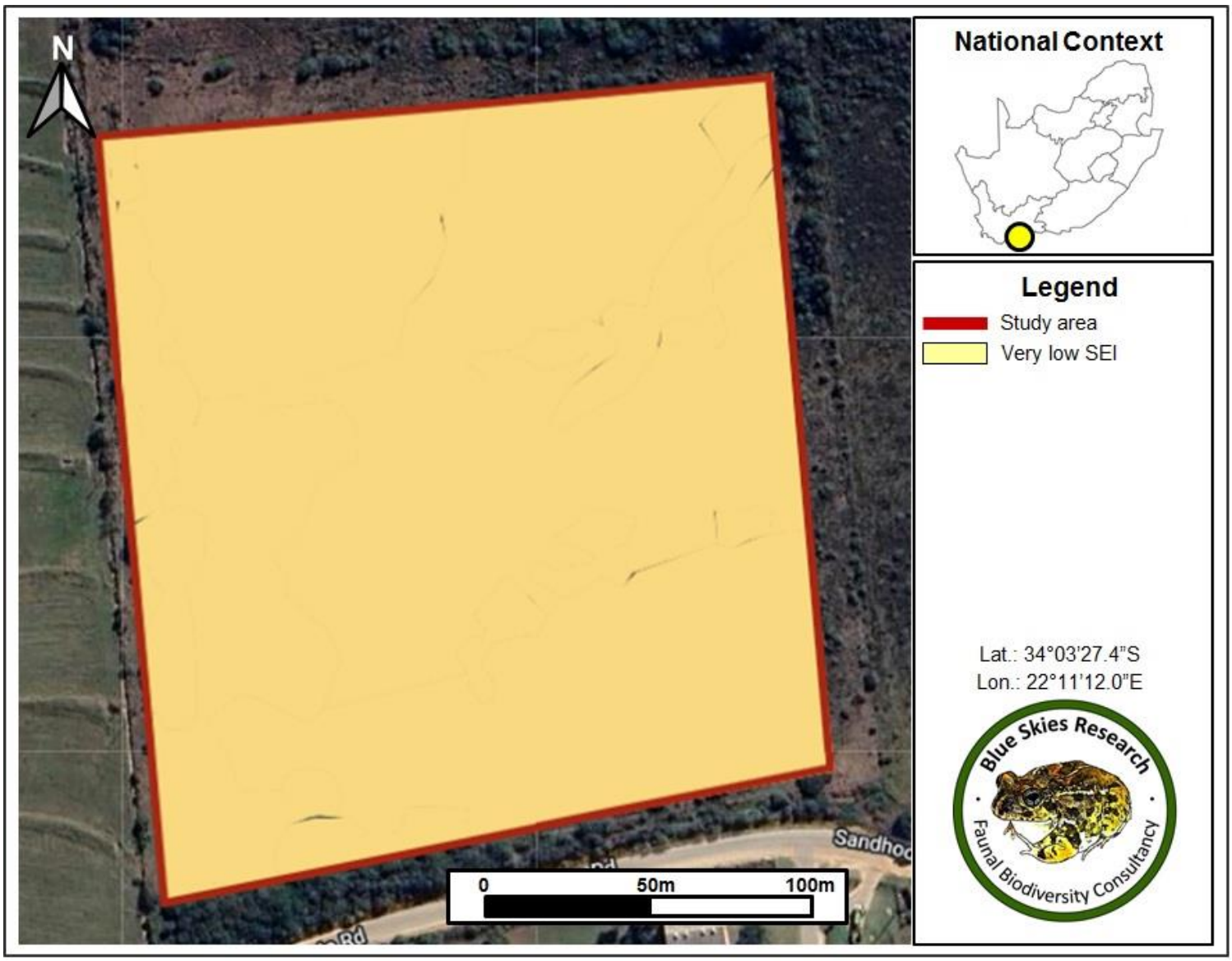


Figure 23 Spatial representation of the SEI for habitats within the study area.

11. Current impacts, project-related impacts and mitigation measures

11.1 Current impacts

Current impacts within the study area include the following:

- The study area has been subjected to past vegetation clearance (before 2015), thereby modifying the habitat structure, with a subsequent recovery to predominantly and secondary shrubland and grassland phases.
- Although woody vegetation is present on the site, the larger trees generally represent alien and invasive vegetation.
- The site is situated next to the very busy Sandhoogte Road to the south and the Old Mossel Bay Road around 180 m to the east from where significant daily noise and vibration is evident (through vehicles and people).
- The Groot-Brakrivier WWTW is located directly south of the site from where significant daily noise and vibration is evident (through vehicles, machinery and people).
- The site is bordered by open farmland directly to the west and farmlands further to the north and east respectively (i.e., in the broader landscape), thereby effectively isolating the site in a broader context.
- A non-perennial man-made dam is situated on the south-western corner of the property which is currently dry.
- An apparent drainage line characterises the north-eastern corner of the site, likely following soil erosion from storm water run-off originating from the eastern Old Mossel Bay Road.
- The site does not harbour suitable habitat for any of the terrestrial faunal or avifaunal SCC considered.

Currently, these impacts appear severe to the point where the ecological integrity of the site has been compromised to such a degree that only a low number of common terrestrial faunal and avifaunal species are present.

Aside from the proposed PV solar plant footprint, current impacts along the two proposed 11kV cable routes include the following:

- Placement of the 11kV cable towards the western Kleinbrak Water Purification Plant (approximately 5.81 kilometres in length) will proceed
  - inside the fenced-off Groot-Brakrivier WWTW which is degraded with only a few common species present,
  - 1m within the 20m municipal servitude along the southern side of the R102 from where daily noise and vibration is evident,
  - in an area of low botanical diversity of regrowth inside the road reserve subjected to regular bush-cutting or mowing activities associated with road maintenance (see Berry, 2024), and
  - beneath an existing 11kV overhead powerline.

- Placement of the 11kV cable towards the northern Sandhoogte Water Purification Plant (approximately 1 kilometres in length) will further proceed
  - inside a municipal servitude,
  - and through a cultivated area.

Given these current negative ecological impacts over the proposed 11kV cable routes along their small and linear spatial extent and placement in a peri-urban setting, the faunal integrity of these footprints are expected to be low to very low.

11.2 Anticipated project impacts

Planned development activities for the proposed development footprint will include soil preparation, installation of roads, construction and installation of the ground-mounted photovoltaic tables, construction and installation of the solar transformer stations and battery energy storage systems, and connection of these storage systems to the Groot-Brakrivier WWTW via an AC cable. In addition, two new underground 11kV power cables will be installed towards the western Kleinbrak Water Purification Plant (5.81 kilometres in length) and northern Sandhoogte Water

Purification Plant (approximately 1 kilometres in length), with trenching proceeding by hand over a 0.6m wide by 1m deep footprint.

Impacts from these activities during the construction phase will include:

- Destruction of habitat,
- direct mortality of fauna, and
- vibration and noise (from machinery and people).

The placement of the proposed project footprint currently overlaps a relatively small area (4.7 hectares) of modified habitat which harbours a low faunal diversity, is retrieved as having a “Very low” SEI and does not serve as an important ecological link in the broader landscape. Furthermore, the duration of the project is expected to be of a very short term (one to two years). To this end, impacts from the proposed development are expected to lead to the loss of only a relatively small area of already modified habitats during the construction phase (i.e., over the short term). From a broader conservation perspective, this loss of habitat is acceptable given that this should not compromise biodiversity targets on either a local, regional or national scale.

Similar to the proposed Groot-Brakrivier WWTW, the two proposed 11kV cable routes are highly unlikely to impacts on faunal biodiversity and processes on either a local, regional or national scales given the following considerations:

- Trenching will proceed by hand over a 0.6m wide by 1m deep footprint and therefore the respective cable route footprints will be highly spatially limited (0.35 hectares for the southern cable towards the western Kleinbrak Water Purification Plant and 0.06 hectares for the cable towards the northern Sandhoogte Water Purification Plant).
- Habitats over both cable footprints are relatively degraded from a botanical and ecological perspective (also see Berry, 2024).
- The southern cable towards the western Kleinbrak Water Purification Plant will be placed 1m within the 20m municipal servitude along the southern side of the

R102 and beneath an existing 11kV overhead powerline where regular disturbances are evident (e.g., brush cutting and road maintenance as well as daily noise and vibration for the adjacent R102).

- Placement of the 11kV cable towards the northern Sandhoogte Water Purification Plant (approximately 1 kilometres in length) will also be inside a municipal servitude and follow a cultivated area of low faunal sensitivity.

Taken together therefore, these spatially limited cable footprints are of low habitat integrity, are subjected to daily disturbances, do not server as functional dispersal corridors in the surrounding landscape (given their placement largely along existing roads and within cultivated areas) and are highly unlikely to represent suitable habitat for any terrestrial faunal or avifaunal SCC. Because the proposed trenching will also proceed by hand over the construction phase, this will further act to reduce impacts of habitat disturbance or the direct mortality and displacement of fauna.

Furthermore, no additional impacts on the receiving environment are expected during the operational phase of the project. According to BirdLife South Africa (Jenkins et al. 2017), the major threat by Solar PV facilities to birds is the complete removal of vegetation from the inclusive footprint of the installed plant which may destroy, degrade, fragment or otherwise displace birds from large areas of natural habitat. As such, the location of the proposed project footprint and cable footprints within modified ecological areas should not affect the avifauna on the site, or biodiversity and ecological patterns either on the site or in the broader landscape over the long term.

11.3 Potential development layout and proposed mitigation measures

Currently, the planned development layout includes the installation of ground-mounted photovoltaic tables, solar transformer stations and battery energy storage systems over two phases. Phase 1 will include an area of 1.34 hectares in the south of the site, with Phase 2 encompassing 1.26 hectares directly to the north of the Phase 1 installation (2.6 hectares in total; Figure 24). An area of 1.55 hectares to the north of these installations will be reserved for possible future expansion of the

project. Considering the compromised biodiversity and ecological characteristics and ecosystem dynamics of the site, its isolated nature, the modified and secondary state of habitats and their retrieval as having a “Very low” SEI, this renders the entire site is developable from a faunal perspective (Figure 25). In addition, the project will entail two new underground 11kV cables underneath an existing 11kV overhead line inside an existing registered servitude and over current agricultural areas. These spatially limited cable footprints (0.35 hectares and 0.06 hectares respectively) also display compromised biodiversity and ecological characteristics within environments of significant and regular disturbance and are therefore also of low faunal sensitivity, and developable from a faunal perspective (Figure 26).

It is, however, recommend that the development footprints be kept at the provided minimum to minimise disturbance of surrounding natural habitats. It is further advocated that vegetation clearing proceed from the south towards the north to allow for fauna to move naturally into the habitats to the north of the project footprint (as is expected to occur under Phases 1 and 2 of the project). Although already indicated, it is also important that trenching for the proposed 11kV cables proceed by hand so as to minimise possible impacts to, and disturbance of the resident fauna and small remaining habitat patches along these routes. Trenches should be in-filled with removed topsoil as soon as possible to not allow smaller species to become trapped.

Furthermore, every effort should be made to save and relocate any mammal, reptile, amphibian, bird, or invertebrate that cannot flee of its own accord, encountered during site preparation (i.e., to avoid and minimise the direct mortality of faunal species). These animals should be relocated to a suitable habitat area immediately outside the project footprint (preferably to the patch of vegetation to the north), but under no circumstance to an area further away.

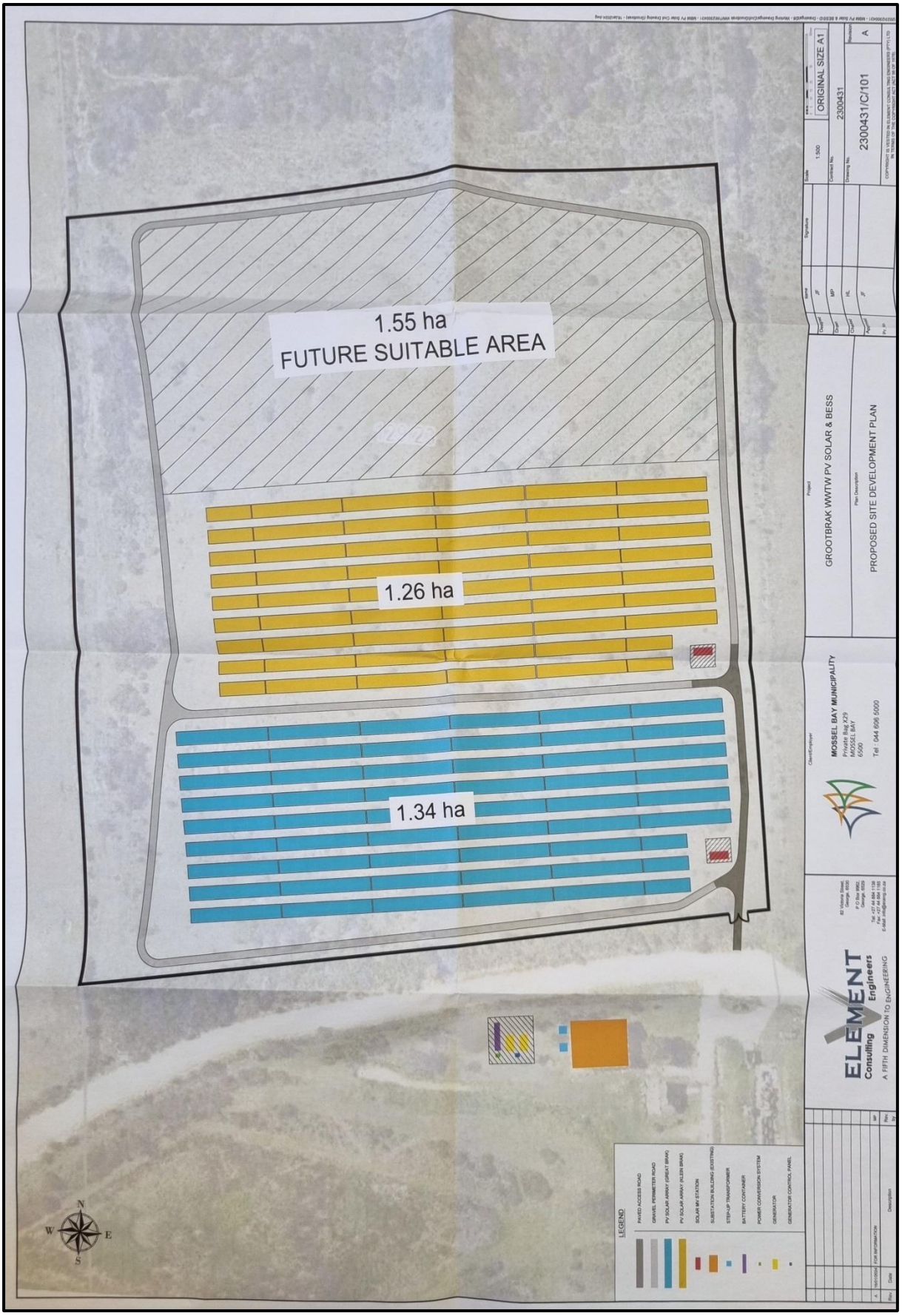


Figure 24 Proposed site development plan (SDP) for the study area.

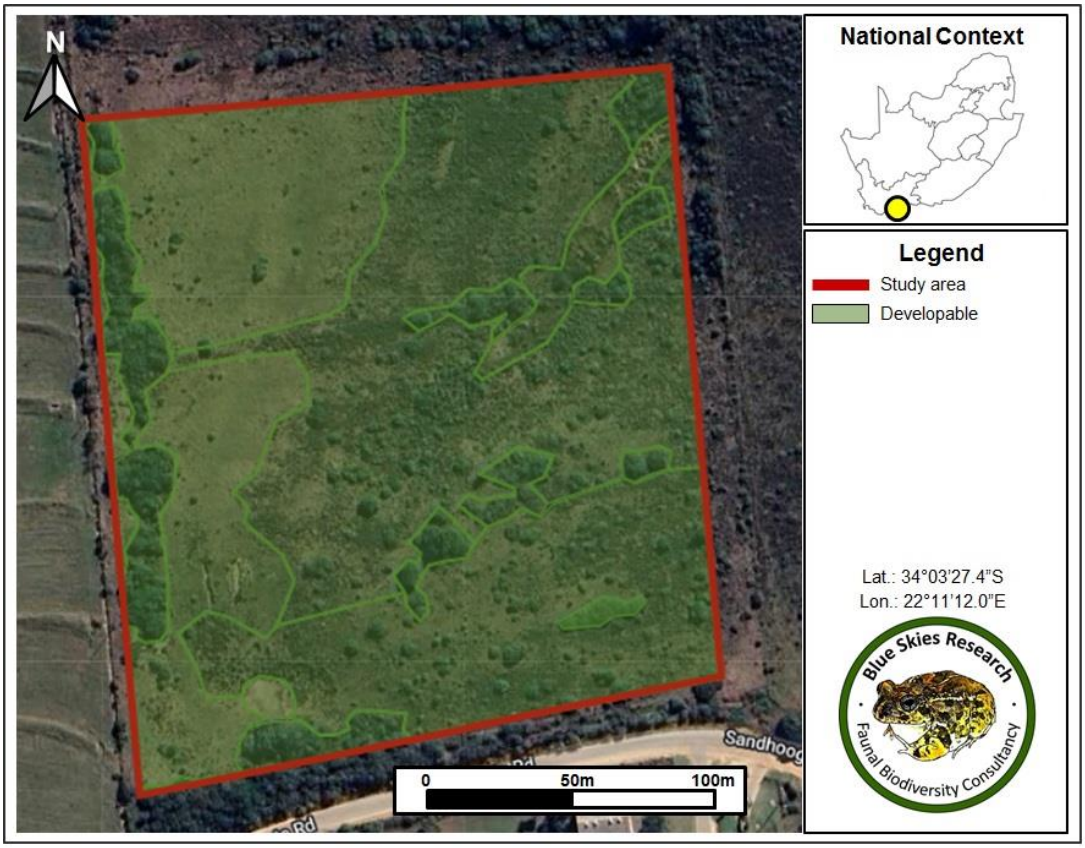


Figure 25 "Constraints and Opportunities" map of the study area showing the spatial overlap with areas which are suitable for potential development without considering mitigation.

Figure 26 "Constraints and Opportunities" map of the study area and 11kV cable routes showing the spatial overlap with areas which are suitable for potential development.

12. Conclusion

12.1 Listed sensitivity in the DFFE Screening Tool Report

The results from this report confirm the site sensitivity of the proposed project footprint to be “Low” rather than “High” as identified in the DFFE Screening Tool Report (Section 3). This follows from modified and secondary nature of the on-site habitats which offers little in the way of preferred habitat for any terrestrial faunal or avifaunal SCC, harbours a relatively impaired terrestrial faunal and avifaunal community and does not provide a highly functional link in providing ecosystem services to the broader landscape (Section 9).

12.2 Overlap with Critical Biodiversity Area (CBAs) and Ecological Support Area (ESAs)

The northern part of the site is mapped as a terrestrial CBA1 with the larger southern section overlapping a terrestrial ESA1(Subsection 4.5). Notwithstanding these designations, and following the ground-truthing phase, the following conclusions may be drawn:

- The site harbours modified and secondary habitats retrieved as having a “Very low” SEI.
- The site harbours an impaired terrestrial faunal and avifaunal diversity.
- The site displays compromised biodiversity and ecological characteristics and ecosystem dynamics.
- The site is small and does not serve as an important or highly functional ecological corridor in the broader study area landscape.

To this end, the study area fails to meet the criteria of either a CBA1 or ESA1 defined as:

CBA 1: “*Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure*.”

Or

ESA 1: "*Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.*"

Taken together, the study area is not in a natural condition and will likely not be required to meet biodiversity targets. Furthermore, the site will likely not be essential in supporting the functioning of surrounding CBAs, is not vital in delivering ecosystem services and does not perform a range of biodiversity and ecological infrastructure functions. To this end, this further indicates that the site is of a lower sensitivity, and is therefore developable from a faunal sensitivity perspective.

12.3 Conclusion

This report provides a representative faunal and avifaunal assessment of the study area considering facets of:

- Terrestrial faunal and avifaunal habitat composition (Section 7),
- terrestrial faunal and avifaunal components (Section 8),
- the presence of any terrestrial faunal and avifaunal SCC on the site (Section 9),
- the SEI of habitats within the study area, with associated acceptable development activities (Section 10), and
- a "Constraints and opportunities" map of the site (Section 11).

Taken together, the results of the report indicate the following:

- The study area is comprised of four broadly identified habitat types which exist in a modified and secondary state with little remaining of the natural profile (Section 7).
- Terrestrial faunal and avifaunal diversity and abundances appears relatively low and is comprised of relatively common species, likely given the modified and isolated nature of the site along with daily disturbances (Section 8). Predator-

prey and ecosystem dynamics also appear compromised and the study area does not appear to function as an important ecological link and faunal dispersal corridor in the study area landscape.

- The study area does not support subpopulations of any of the considered mammal, avifaunal or invertebrate SCC, or offer any suitable habitat for significant permanent subpopulations of these species (Section 9).
- All habitats on the site are retrieved as having a “Very low” SEI, allowing for development activities of medium to high impact without restoration activities being required (Section 10).
- Currently, existing impacts on the site appear severe to the point where the ecological integrity has been compromised to such a degree that only a low number of common terrestrial faunal and avifaunal species are present (Section 11).
- Given these current negative ecological impacts over the proposed 11kV cable routes along their small and linear spatial extent and placement in a peri-urban setting, the faunal integrity of these footprints are expected to be low to very low (Section 11).
- Planned development activities along with associated impacts are expected to lead to the loss of only a relatively small area of already modified and secondary habitats during the construction phase of both the PV solar plant and 11kV cable routes with no additional impacts on the receiving environment expected during the operational phase (Section 11). From a broader conservation perspective, this loss of habitat is acceptable given that this should not compromise biodiversity targets on either a local, regional or national scale.
- Considering the compromised biodiversity and ecological characteristics and ecosystem dynamics of the site, its isolated nature, the degraded state of habitats and their retrieval as having a “Very low” SEI, this renders the entire site is developable from a faunal perspective (Section 11).
- Similarly, the spatially limited cable footprints are of low habitat integrity, are subjected to daily disturbances, do not server as functional dispersal corridors in the surrounding landscape and are highly unlikely to represent suitable habitat for any terrestrial faunal or avifaunal SCC. To this end, both the development of

both cable routes are acceptable from a faunal sensitivity perspective (Section 11).

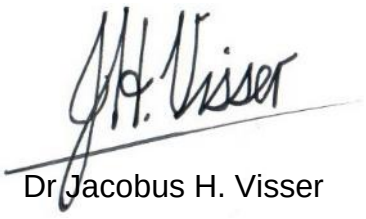
- The results from this report confirm the site sensitivity of the proposed project footprint to be “Low” rather than “High” as identified in the DFFE Screening Tool Report (Subsection 12.1).
- The study area fails to meet the criteria of either a CBA1 or ESA1, further indicating that the site is of a lower sensitivity and is developable from a faunal sensitivity perspective (Subsection 12.2).

Taken together, the relatively limited spatial extent of the proposed project footprints (both the PV solar plant and 11kV cable routes) along with the limited impact of these developments on the receiving environment are therefore acceptable from a faunal conservation perspective. Also considering the socio-economic benefits of sustainable energy generation in the Western Cape, these developments are therefore supported from a faunal biodiversity perspective.

13. Conditions to which this statement is subjected

The content of this report is based on the author's best scientific and professional knowledge as well as available information. Since environmental impact studies deal with dynamic natural systems, additional information may come to light at a later stage which is not listed in this report. As such, the conclusions and recommendations made in this report are done in good faith based on information gathered at the time of the investigation.

This report must not be altered or added to without the prior written consent of the author. This also refers to electronic copies of the report, which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.



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Appendix A

Appendix A Desktop species list of the mammal species which have a distribution overlapping with the study area (constructed with reference to Skinner and Chimimba, 2005). Species in bold have been previously recorded within the study area landscape (QDGS: 3422AA, MammalMAP, https://vmus.adu.org.za/; iNaturalist, www.iNaturalist.org). For each species, the taxonomic Order, Family, species binomial name and common name is shown, along with the current IUCN Red List classification of the species.

Mammals Desktop Species List				
Order	**Family**	**Species**	**Common name**	**Status**
Afrosoricida	Chrysochloridae	*Chlorotalpa duthieae*	Duthie's Golden Mole	Vulnerable
		Amblysomus corriae	Fynbos Golden Mole	Near-Threatened
		Amblysomus hottentotus	Hottentot Golden Mole	Least Concern
Carnivora	Canidae	*Canis mesomelas*	Black-backed Jackal	Least Concern
		Otocyon megalotis	**Bat-eared Fox**	**Least Concern**
		Vulpes chama	Cape Fox	Least Concern
	Felidae	***Caracal caracal***	**Caracal**	**Least Concern**
		Felis silvestris	African Wild Cat	Least Concern
		Leptailurus serval	Serval	Least Concern
		Panthera pardus	Leopard	Vulnerable
	Hyaenidae	*Proteles cristata*	Aardwolf	Least Concern
	Herpestidae	***Atilax paludinosus***	**Marsh Mongoose**	**Least Concern**
		Cynictis penicillata	Yellow Mongoose	Least Concern
		Herpestes ichneumon	Egyptian Mongoose	Least Concern
		Herpestes pulverulentus	**Cape grey Mongoose**	**Least Concern**
	Mustelidae	***Aonyx capensis***	**African Clawless Otter**	**Near-Threatened**
		Ictonyx striatus	Zorilla	Least Concern
		Mellivora capensis	**Honey Badger**	**Least Concern**

		Poecilogale albinucha	African Striped Weasel	Least Concern
	Viverridae	*Genetta genetta*	Common Genet	Least Concern
		Genetta tigrina	**Cape Genet**	**Least Concern**
Cetartiodactyla	Bovidae	*Oreotragus oreotragus*	Klipspringer	Least Concern
		Pelea capreolus	Grey Rhebok	Near-Threatened
		Philantomba monticola	**Blue Duiker**	**Least Concern**
		Raphicerus campestris	Steenbok	Least Concern
		Raphicerus melanotis	**Cape Grysbok**	**Least Concern**
		Sylvicapra grimmia	**Common Duiker**	**Least Concern**
		Tragelaphus scriptus	**Southern Bushbuck**	**Least Concern**
	Suidae	**Potamochoerus larvatus**	**Bushpig**	**Least Concern**
Chiroptera	Molossidae	*Tadarida aegyptiaca*	Egyptian Free-tailed Bat	Least Concern
	Nycteridae	*Nycteris thebaica*	Cape Long-eared Bat	Least Concern
	Pteropodidae	Epomophorus wahlbergi	Wahlberg's Epauletted Fruit Bat	Least Concern
		Rousettus aegyptiacus	Egyptian Fruit Bat	Least Concern
	Rhinolophidae	*Rhinolophus capensis*	Cape Horseshoe Bat	Least Concern
		Rhinolophus clivosus	Geoffroy's Horseshoe Bat	Least Concern
	Vespertilionidae	*Myotis tricolor*	Temminck's Hairy Bat	Least Concern
		Neoromicia capensis	Cape Bat	Least Concern
Eulipotyphla	Soricidae	*Crocidura cyanea*	Reddish-grey Musk Shrew	Least Concern
		Crocidura flavescens	**Greater Red Musk Shrew**	**Least Concern**
		Myosorex longicaudatus	Long-tailed Forest Shrew	Endangered
		Myosorex varius	Forest Shrew	Least Concern
		Suncus infinitesimus	Least Dwarf Shrew	Least Concern
		Suncus varilla	Lesser Dwarf Shrew	Least Concern
Hyracoidea	Procaviidae	***Procavia capensis***	**Rock Hyrax**	**Least Concern**
Lagomorpha	Leporidae	*Lepus saxatilis*	Cape Scrub Hare	Least Concern
		Pronolagus saundersiae	Hewitt's Red Rock Hare	Least Concern
Primates	Cercopithecidae	***Chlorocebus pygerythrus***	**Vervet Monkey**	**Least Concern**

		Papio ursinus	Chacma Baboon	Least Concern
Rodentia	Bathyergidae	***Bathyergus suillus***	**Cape Dune Mole-rat**	**Least Concern**
		Cryptomys hottentotus	African Mole-rat	Least Concern
		Georychus capensis	Cape Mole-rat	Least Concern
	Gliridae	*Graphiurus murinus*	Woodland Dormouse	Least Concern
	Hystricidae	***Hystrix africaeaustralis***	**Cape Porcupine**	**Least Concern**
	Muridae	*Acomys subspinosus*	Cape Spiny Mouse	Least Concern
		Gerbillurus paeba	Hairy-footed Gerbil	Least Concern
		Micaelamys namaquensis	Namaqua Rock Rat	Least Concern
		Mus minutoides	**Pygmy Mouse**	**Least Concern**
		Myomyscus verreauxii	Verreaux's Mouse	Least Concern
		Otomys irroratus	**Southern African Vlei Rat**	**Least Concern**
		Rhabdomys pumilio	**Four-striped Grass Mouse**	**Least Concern**
	Nesomyidae	*Dendromus melanotis*	Grey Climbing Mouse	Least Concern
		Dendromus mesomelas	Brant's Climbing Mouse	Least Concern
		Mystromys albicaudatus	White-tailed Rat	Vulnerable
		Saccostomus campestris	Pouched Mouse	Least Concern
		Steatomys krebsii	Krebs' Fat Mouse	Least Concern

Appendix B

Appendix B Desktop species list of the avifaunal species which have been recorded in the pentad (3400_2210) which overlaps the study area (the South African Bird Atlas Project 2, https://sabap2.birdmap.africa/). To create this species list, the species observed were included, noting the total number of observations, and also the latest date the species was recorded within this pentad. Furthermore, for each species, the taxonomic Order, Family, species binomial name and common name is shown, along with the current IUCN Red List classification of the species. Species in bold represent avifaunal species of conservation concern (SCC).

Avifauna Desktop Species List						
Order	**Family**	**Species**	**Common name**	**IUCN status**	**Number of observations**	**Latest record**
Accipitriformes	Accipitridae	*Accipiter melanoleucus*	Black Sparrowhawk	Least Concern	12	2023/12/15
		Accipiter minullus	Little Sparrowhawk	Least Concern	2	2022/04/25
		Accipiter tachiro	African Goshawk	Least Concern	22	2023/12/22
		Aquila verreauxii	Verreaux's Eagle	Least Concern	1	2011/05/27
		Buteo buteo	Common Buzzard	Least Concern	53	2024/01/24
		Buteo rufofuscus	Jackal Buzzard	Least Concern	119	2023/12/11
		Buteo trizonatus	**Forest Buzzard**	**Near-Threatened**	**18**	**2023/12/20**
		Circus maurus	**Black Harrier**	**Endangered**	**7**	**2022/07/09**
		Circus ranivorus	**African Marsh Harrier**	**Least Concern**	**1**	**2012/04/19**
		Elanus caeruleus	Black-winged Kite	Least Concern	83	2024/01/24
		Haliaeetus vocifer	African Fish Eagle	Least Concern	42	2024/01/24
		Hieraaetus pennatus	Booted Eagle	Least Concern	4	2021/12/18
		Lophaetus occipitalis	Long-crested Eagle	Least Concern	8	2023/10/31
		Melierax canorus	Pale Chanting-goshawk	Least Concern	1	2013/04/01
		Milvus aegyptius	Yellow-billed Kite	Least Concern	35	2023/12/11
		Pernis apivorus	European Honey-buzzard	Least Concern	2	2020/12/28

		Polemaetus bellicosus	**Martial Eagle**	**Endangered**	**5**	**2016/12/31**
		Polyboroides typus	African Harrier-Hawk	Least Concern	17	2023/12/27
	Pandionidae	*Pandion haliaetus*	Western Osprey	Least Concern	39	2024/01/05
	Sagittariidae	***Sagittarius serpentarius***	**Secretarybird**	**Endangered**	**1**	**2022/11/26**
Anseriformes	Anatidae	*Alopochen aegyptiaca*	Egyptian Goose	Least Concern	268	2024/01/24
		Anas capensis	Cape Teal	Least Concern	174	2024/01/24
		Anas erythrorhyncha	Red-billed Teal	Least Concern	131	2024/01/20
		Anas platyrhynchos	Mallard	Least Concern	163	2023/10/17
		Anas platyrhynchos	Domestic Duck	Least Concern	7	2020/11/28
		Anas sparsa	African Black Duck	Least Concern	5	2022/09/19
		Anas undulata	Yellow-billed Duck	Least Concern	277	2024/01/24
		Anser anser	Greylag Goose	Least Concern	27	2023/11/03
		Dendrocygna viduata	White-faced Whistling Duck	Least Concern	83	2024/01/24
		Netta erythrophthalma	Southern Pochard	Least Concern	7	2022/08/16
		Plectropterus gambensis	Spur-winged Goose	Least Concern	76	2024/01/24
		Spatula smithii	Cape Shoveler	Least Concern	167	2024/01/24
		Tadorna cana	South African Shelduck	Least Concern	16	2021/08/15
		Thalassornis leuconotus	White-backed Duck	Least Concern	2	2023/09/20
Bucerotiformes	Upupidae	*Upupa africana*	African Hoopoe	Least Concern	74	2023/10/02
Caprimulgiformes	Apodidae	*Apus affinis*	Little Swift	Least Concern	46	2023/10/02
		Apus apus	Common Swift	Least Concern	1	2023/12/15
		Apus barbatus	African Black Swift	Least Concern	34	2023/12/27
		Apus caffer	White-rumped Swift	Least Concern	112	2024/01/24
		Apus horus	Horus Swift	Least Concern	1	2014/12/16
		Cypsiurus parvus	African Palm Swift	Least Concern	46	2024/01/24
		Tachymarptis melba	Alpine Swift	Least Concern	7	2023/11/08
	Caprimulgidae	*Caprimulgus pectoralis*	Fiery-necked Nightjar	Least Concern	15	2023/12/15
Charadriiformes	Burhinidae	*Burhinus capensis*	Spotted Thick-knee	Least Concern	61	2023/12/27
		Burhinus vermiculatus	Water Thick-knee	Least Concern	160	2024/01/20

	Charadrius hiaticula	Common Ringed Plover	Least Concern	102	2024/01/24
	Charadrius marginatus	White-fronted Plover	Least Concern	187	2024/01/24
	Charadrius pecuarius	Kittlitz's Plover	Least Concern	97	2024/01/24
	Charadrius tricollaris	Three-banded Plover	Least Concern	134	2024/01/05
	Pluvialis squatarola	Grey Plover	Least Concern	28	2023/12/17
	Vanellus armatus	Blacksmith Lapwing	Least Concern	272	2024/01/24
	Vanellus coronatus	Crowned Lapwing	Least Concern	108	2024/01/24
Charadriidae	*Vanellus melanopterus*	Black-winged Lapwing	Least Concern	62	2023/10/02
Haematopodidae	*Haematopus moquini*	African Oystercatcher	Least Concern	238	2024/01/24
Jacanidae	*Actophilornis africanus*	African Jacana	Least Concern	2	2019/06/15
Laridae	*Chlidonias hybrida*	Whiskered Tern	Least Concern	1	2022/09/19
	Hydroprogne caspia	Caspian Tern	Least Concern	54	2023/12/17
	Larus cirrocephalus	Grey-headed Gull	Least Concern	249	2024/01/24
	Larus dominicanus	Kelp Gull	Least Concern	291	2024/01/24
	Larus hartlaubii	Hartlaub's Gull	Least Concern	99	2024/01/24
	Sternula albifrons	Little Tern	Least Concern	6	2021/12/28
	Sterna hirundo	Common Tern	Least Concern	98	2024/01/24
	Thalasseus bergii	Greater Crested Tern	Least Concern	275	2024/01/24
	Thalasseus sandvicensis	Sandwich Tern	Least Concern	162	2024/01/24
Recurvirostridae	*Himantopus himantopus*	Black-winged Stilt	Least Concern	259	2023/12/22
	Recurvirostra avosetta	Pied Avocet	Least Concern	24	2021/11/21
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	Least Concern	30	2023/10/02
	Arenaria interpres	Ruddy Turnstone	Least Concern	1	2019/11/12
	Calidris alba	Sanderling	Least Concern	9	2023/12/17
	Calidris ferruginea	**Curlew Sandpiper**	**Near-Threatened**	**7**	**2022/12/08**
	Calidris minuta	Little Stint	Least Concern	27	2024/01/24
	Calidris pugnax	Ruff	Least Concern	2	2020/03/19
	Gallinago nigripennis	African Snipe	Least Concern	8	2023/08/19
	Limosa lapponica	**Bar-tailed Godwit**	**Near-Threatened**	**9**	**2021/02/07**

		Numenius arquata	**Eurasian Curlew**	**Near-Threatened**	**3**	**2021/01/30**
		Numenius phaeopus	Eurasian Whimbrel	Least Concern	127	2024/01/24
		Tringa glareola	Wood Sandpiper	Least Concern	12	2022/12/03
		Tringa nebularia	Common Greenshank	Least Concern	179	2024/01/24
		Tringa stagnatilis	Marsh Sandpiper	Least Concern	12	2022/01/30
		Xenus cinereus	Terek Sandpiper	Least Concern	2	2020/12/24
	Stercorariidae	*Catharacta antarctica*	Brown Skua	Least Concern	1	2023/10/02
		Ciconia ciconia	White Stork	Least Concern	10	2023/02/03
Ciconiiformes	Ciconiidae	*Ciconia nigra*	Black Stork	Least Concern	2	2018/03/17
Coliiformes	Coliidae	*Colius colius*	White-backed Mousebird	Least Concern	4	2018/03/23
		Colius striatus	Speckled Mousebird	Least Concern	203	2024/01/05
		Urocolius indicus	Red-faced Mousebird	Least Concern	106	2023/10/02
Columbiformes	Columbidae	*Columba arquatrix*	African Olive Pigeon	Least Concern	7	2023/10/02
		Columba guinea	Speckled Pigeon	Least Concern	258	2023/12/27
		Columba larvata	Lemon Dove	Least Concern	2	2021/05/24
		Columba livia	Rock Dove	Least Concern	41	2023/10/31
		Oena capensis	Namaqua Dove	Least Concern	6	2023/10/02
		Spilopelia senegalensis	Laughing Dove	Least Concern	249	2024/01/24
		Streptopelia capicola	Cape Turtle Dove	Least Concern	176	2024/01/24
		Streptopelia semitorquata	Red-eyed Dove	Least Concern	254	2024/01/24
		Turtur tympanistria	Tambourine Dove	Least Concern	9	2023/10/02
Coraciiformes	Alcedinidae	*Alcedo semitorquata*	Half-collared Kingfisher	Least Concern	8	2020/02/15
		Ceryle rudis	Pied Kingfisher	Least Concern	177	2024/01/20
		Coracias garrulus	European Roller	Least Concern	1	2022/01/21
		Corythornis cristatus	Malachite Kingfisher	Least Concern	18	2023/10/02
		Halcyon albiventris	Brown-hooded Kingfisher	Least Concern	59	2023/12/27
		Megaceryle maxima	Giant Kingfisher	Least Concern	54	2023/12/27
	Meropidae	*Merops persicus*	Blue-cheeked Bee-eater	Least Concern	1	2020/11/28
Cuculiformes	Cuculidae	*Centropus burchellii*	Burchell's Coucal	Least Concern	57	2024/01/05

		Chrysococcyx caprius	Diederik Cuckoo	Least Concern	40	2024/01/20
		Chrysococcyx cupreus	African Emerald Cuckoo	Least Concern	3	2023/10/02
		Chrysococcyx klaas	Klaas's Cuckoo	Least Concern	23	2023/10/02
		Cuculus clamosus	Black Cuckoo	Least Concern	15	2023/12/22
		Cuculus solitarius	Red-chested Cuckoo	Least Concern	34	2024/01/20
Falconiformes	Falconidae	*Falco amurensis*	Amur Falcon	Least Concern	1	2018/12/16
		Falco biarmicus	Lanner Falcon	Least Concern	2	2023/10/02
		Falco peregrinus	Peregrine Falcon	Least Concern	23	2022/12/20
		Falco rupicolus	Rock Kestrel	Least Concern	36	2024/01/24
Galliformes	Gruidae	***Anthropoides paradiseus***	**Blue Crane**	**Vulnerable**	**81**	**2023/12/22**
	Numididae	*Numida meleagris*	Helmeted Guineafowl	Least Concern	180	2024/01/24
	Phasianidae	*Coturnix coturnix*	Common Quail	Least Concern	16	2023/12/27
		Pavo cristatus	Indian Peafowl	Least Concern	2	2019/11/16
		Pternistis afer	Red-necked Spurfowl	Least Concern	6	2023/10/02
		Pternistis capensis	Cape Spurfowl	Least Concern	248	2024/01/24
	Rallidae	*Fulica cristata*	Red-knobbed Coot	Least Concern	214	2024/01/24
		Gallinula chloropus	Common Moorhen	Least Concern	139	2024/01/05
		Porphyrio madagascariensis	African Swamphen	Least Concern	2	2023/01/28
		Zapornia flavirostra	Black Crake	Least Concern	36	2024/01/24
Gruiformes	Rallidae	*Sarothrura elegans*	Buff-spotted Flufftail	Least Concern	2	2023/10/02
Musophagiformes	Musophagidae	*Tauraco corythaix*	Knysna Turaco	Least Concern	61	2024/01/20
Otidiformes	Otididae	***Neotis denhami***	**Denham's Bustard**	**Near-Threatened**	**31**	**2023/10/02**
Passeriformes	Acrocephalidae	*Acrocephalus baeticatus*	African Reed Warbler	Least Concern	14	2023/10/02
		Acrocephalus gracilirostris	Lesser Swamp Warbler	Least Concern	24	2023/10/02
	Alaudidae	*Calandrella cinerea*	Red-capped Lark	Least Concern	32	2023/10/31
		Certhilauda brevirostris	Agulhas Long-billed Lark	Least Concern	7	2023/10/02
		Galerida magnirostris	Large-billed Lark	Least Concern	1	2019/11/12
		Mirafra apiata	Cape Clapper Lark	Least Concern	1	2023/10/31
	Buphagidae	*Buphagus erythrorynchus*	Red-billed Oxpecker	Least Concern	2	2022/01/04

Campephagidae	*Campephaga flava*	Black Cuckooshrike	Least Concern	9	2023/08/19
	Ceblepyris caesius	Grey Cuckooshrike	Least Concern	1	2021/12/24
Cisticolidae	*Apalis thoracica*	Bar-throated Apalis	Least Concern	208	2024/01/24
	Camaroptera brachyura	Bleating Camaroptera	Least Concern	28	2023/12/27
	Cisticola fulvicapilla	Neddicky	Least Concern	125	2024/01/24
	Cisticola juncidis	Zitting Cisticola	Least Concern	70	2024/01/05
	Cisticola lais	Wailing Cisticola	Least Concern	4	2023/10/31
	Cisticola subruficapilla	Grey-backed Cisticola	Least Concern	19	2024/01/24
	Cisticola textrix	Cloud Cisticola	Least Concern	1	2020/02/15
	Cisticola tinniens	Levaillant's Cisticola	Least Concern	150	2023/12/22
	Prinia maculosa	Karoo Prinia	Least Concern	205	2024/01/24
Corvidae	*Corvus albicollis*	White-necked Raven	Least Concern	71	2023/10/02
	Corvus albus	Pied Crow	Least Concern	104	2024/01/20
	Corvus capensis	Cape Crow	Least Concern	73	2024/01/20
Dicruridae	*Dicrurus adsimilis*	Fork-tailed Drongo	Least Concern	174	2024/01/05
Emberizidae	*Emberiza capensis*	Cape Bunting	Least Concern	3	2023/01/08
Estrildidae	*Coccopygia melanotis*	Swee Waxbill	Least Concern	29	2023/10/02
	Estrilda astrild	Common Waxbill	Least Concern	108	2024/01/24
	Ortygospiza atricollis	African Quailfinch	Least Concern	5	2023/08/19
	Spermestes cucullata	Bronze Mannikin	Least Concern	2	2023/12/15
Fringillidae	*Crithagra albogularis*	White-throated Canary	Least Concern	5	2021/05/17
	Crithagra flaviventris	Yellow Canary	Least Concern	30	2023/06/15
	Crithagra gularis	Streaky-headed Seedeater	Least Concern	104	2023/12/22
	Crithagra scotops	Forest Canary	Least Concern	24	2023/10/02
	Crithagra sulphurata	Brimstone Canary	Least Concern	43	2023/10/02
	Crithagra totta	Cape Siskin	Least Concern	2	2019/12/23
	Serinus canicollis	Cape Canary	Least Concern	123	2024/01/05
Hirundinidae	*Cecropis cucullata*	Greater Striped Swallow	Least Concern	133	2024/01/24
	Hirundo albigularis	White-throated Swallow	Least Concern	104	2024/01/05

	Hirundo dimidiata	Pearl-breasted Swallow	Least Concern	31	2023/12/27
	Hirundo rustica	Barn Swallow	Least Concern	143	2024/01/24
	Psalidoprocne pristoptera	Black Saw-wing	Least Concern	88	2023/12/27
	Ptyonoprogne fuligula	Rock Martin	Least Concern	70	2023/10/02
	Riparia cincta	Banded Martin	Least Concern	2	2020/12/03
	Riparia paludicola	Brown-throated Martin	Least Concern	95	2023/10/02
Laniidae	*Lanius collaris*	Southern Fiscal	Least Concern	270	2024/01/24
Locustellidae	*Bradypterus baboecala*	Little Rush Warbler	Least Concern	28	2023/10/02
	Bradypterus sylvaticus	**Knysna Warbler**	**Vulnerable**	**87**	**2023/12/27**
Macrosphenidae	*Cryptillas victorini*	Victorin's Warbler	Least Concern	3	2020/12/23
	Sphenoeacus afer	Cape Grassbird	Least Concern	47	2024/01/05
Malaconotidae	*Chlorophoneus olivaceus*	Olive Bushshrike	Least Concern	59	2024/01/20
	Dryoscopus cubla	Black-backed Puffback	Least Concern	28	2023/12/15
	Laniarius ferrugineus	Southern Boubou	Least Concern	176	2024/01/20
	Tchagra tchagra	Southern Tchagra	Least Concern	39	2023/12/15
	Telophorus zeylonus	Bokmakierie	Least Concern	100	2024/01/20
Monarchidae	*Terpsiphone viridis*	African Paradise Flycatcher	Least Concern	51	2023/12/27
	Trochocercus cyanomelas	Blue-mantled Crested Flycatcher	Least Concern	7	2023/10/02
Motacillidae	*Anthus cinnamomeus*	African Pipit	Least Concern	95	2023/12/11
	Anthus leucophrys	Plain-backed Pipit	Least Concern	17	2023/10/02
	Anthus nicholsoni	Nicholson's Pipit	Least Concern	4	2020/12/03
	Macronyx capensis	Cape Longclaw	Least Concern	88	2023/11/08
	Motacilla capensis	Cape Wagtail	Least Concern	323	2024/01/24
Muscicapidae	*Cossypha caffra*	Cape Robin-Chat	Least Concern	208	2024/01/20
	Cossypha dichroa	Chorister Robin-Chat	Least Concern	28	2023/12/27
	Melaenornis silens	Fiscal Flycatcher	Least Concern	192	2024/01/24
	Monticola rupestris	Cape Rock Thrush	Least Concern	1	2018/12/25
	Muscicapa adusta	African Dusky Flycatcher	Least Concern	35	2023/10/02
	Oenanthe familiaris	Familiar Chat	Least Concern	9	2022/12/20

	Oenanthe pileata	Capped Wheatear	Least Concern	42	2023/11/08
	Pogonocichla stellata	White-starred Robin	Least Concern	2	2023/10/02
	Saxicola torquatus	African Stonechat	Least Concern	129	2024/01/24
	Turdus olivaceus	Olive Thrush	Least Concern	115	2023/12/22
	Tychaedon coryphoeus	Karoo Scrub Robin	Least Concern	6	2019/11/02
Nectariniidae	*Anthobaphes violacea*	Orange-breasted Sunbird	Least Concern	1	2016/03/18
	Chalcomitra amethystina	Amethyst Sunbird	Least Concern	153	2024/01/24
	Cinnyris afer	Greater Double-collared Sunbird	Least Concern	178	2023/12/27
	Cinnyris chalybeus	Southern Double-collared Sunbird	Least Concern	86	2023/10/31
	Cyanomitra verreauxii	Mouse-coloured Sunbird	Least Concern	28	2023/12/22
	Hedydipna collaris	Collared Sunbird	Least Concern	7	2023/10/02
	Nectarinia famosa	Malachite Sunbird	Least Concern	45	2023/10/02
Oriolidae	*Oriolus larvatus*	Eastern Black-headed Oriole	Least Concern	70	2023/12/22
Passeridae	*Passer diffusus*	Southern Grey-headed Sparrow	Least Concern	66	2023/10/02
	Passer domesticus	House Sparrow	Least Concern	98	2023/12/27
	Passer melanurus	Cape Sparrow	Least Concern	209	2024/01/20
Phylloscopidae	*Phylloscopus ruficapilla*	Yellow-throated Woodland Warbler	Least Concern	4	2023/10/02
	Phylloscopus trochilus	Willow Warbler	Least Concern	1	2011/05/27
Platysteiridae	*Batis capensis*	Cape Batis	Least Concern	39	2023/12/22
Ploceidae	*Euplectes capensis*	Yellow Bishop	Least Concern	64	2023/10/31
	Euplectes orix	Southern Red Bishop	Least Concern	166	2024/01/24
	Ploceus capensis	Cape Weaver	Least Concern	229	2024/01/05
	Ploceus velatus	Southern Masked Weaver	Least Concern	17	2023/10/02
	Quelea quelea	Red-billed Quelea	Least Concern	4	2023/10/02
Promeropidae	*Promerops cafer*	Cape Sugarbird	Least Concern	19	2021/01/07
Pycnonotidae	*Andropadus importunus*	Sombre Greenbul	Least Concern	243	2024/01/24
	Phyllastrephus terrestris	Terrestrial Brownbul	Least Concern	57	2024/01/20
	Pycnonotus capensis	Cape Bulbul	Least Concern	230	2024/01/20
Remizidae	*Anthoscopus minutus*	Cape Penduline-tit	Least Concern	2	2023/02/01

	Sturnidae	*Notopholia corusca*	Black-bellied Starling	Least Concern	26	2023/12/22
		Onychognathus morio	Red-winged Starling	Least Concern	81	2024/01/01
		Sturnus vulgaris	Common Starling	Least Concern	308	2024/01/24
	Viduidae	*Vidua macroura*	Pin-tailed Whydah	Least Concern	96	2024/01/20
	Zosteropidae	*Zosterops virens*	Cape White-eye	Least Concern	213	2023/12/27
Pelecaniformes	Ardeidae	*Ardea alba*	Great Egret	Least Concern	9	2020/07/26
		Ardea cinerea	Grey Heron	Least Concern	285	2024/01/24
		Ardea goliath	Goliath Heron	Least Concern	3	2018/11/04
		Ardea intermedia	Intermediate Egret	Least Concern	11	2021/09/22
		Ardea melanocephala	Black-headed Heron	Least Concern	194	2024/01/24
		Ardea purpurea	Purple Heron	Least Concern	35	2023/06/03
		Ardeola ralloides	Squacco Heron	Least Concern	2	2023/04/28
		Bubulcus ibis	Western Cattle Egret	Least Concern	233	2024/01/24
		Egretta garzetta	Little Egret	Least Concern	274	2024/01/24
		Ixobrychus minutus	Little Bittern	Least Concern	2	2013/12/16
		Nycticorax nycticorax	Black-crowned Night Heron	Least Concern	29	2024/01/20
	Scopidae	*Scopus umbretta*	Hamerkop	Least Concern	19	2023/04/28
	Threskiornithidae	*Bostrychia hagedash*	Hadada Ibis	Least Concern	235	2024/01/24
		Platalea alba	African Spoonbill	Least Concern	76	2023/11/03
		Plegadis falcinellus	Glossy Ibis	Least Concern	12	2021/12/29
		Threskiornis aethiopicus	African Sacred Ibis	Least Concern	198	2024/01/05
Phoenicopteriformes	Phoenicopteridae	***Phoeniconaias minor***	**Lesser Flamingo**	**Near-Threatened**	**4**	**2020/12/24**
		Phoenicopterus roseus	Greater Flamingo	Least Concern	161	2023/12/22
Piciformes	Indicatoridae	*Indicator minor*	Lesser Honeyguide	Least Concern	1	2023/10/02
		Indicator variegatus	Scaly-throated Honeyguide	Least Concern	2	2022/12/20
		Prodotiscus regulus	Brown-backed Honeybird	Least Concern	1	2022/12/25
	Lybiidae	*Tricholaema leucomelas*	Acacia Pied Barbet	Least Concern	1	2017/08/31
	Picidae	***Campethera notata***	**Knysna Woodpecker**	**Near-Threatened**	**7**	**2021/12/29**
		Dendropicos fuscescens	Cardinal Woodpecker	Least Concern	8	2023/06/15

		Dendropicos griseocephalus	Olive Woodpecker	Least Concern	19	2023/12/27
Podicipediformes	Podicipedidae	*Podiceps cristatus*	Great Crested Grebe	Least Concern	26	2023/10/02
		Procellaria aequinoctialis	**White-chinned Petrel**	**Vulnerable**	**1**	**2023/10/02**
		Tachybaptus ruficollis	Little Grebe	Least Concern	189	2024/01/20
Sphenisciformes	Spheniscidae	*Bubo africanus*	Spotted Eagle-Owl	Least Concern	10	2023/10/02
Strigiformes	Tytonidae	*Tyto alba*	Common Barn-owl	Least Concern	2	2023/10/02
Struthioniformes	Struthionidae	*Struthio camelus*	Common Ostrich	Least Concern	48	2023/10/02
Suliformes	Anhingidae	*Anhinga rufa*	African Darter	Least Concern	162	2024/01/24
	Phalacrocoracidae	*Microcarbo africanus*	Reed Cormorant	Least Concern	271	2024/01/24
		Phalacrocorax capensis	**Cape Cormorant**	**Endangered**	**46**	**2023/10/02**
		Phalacrocorax lucidus	White-breasted Cormorant	Least Concern	275	2024/01/24
	Sulidae	***Morus capensis***	**Cape Gannet**	**Endangered**	**32**	**2023/10/02**
Trogoniformes	Trogonidae	*Apaloderma narina*	Narina Trogon	Least Concern	1	2022/12/09

Appendix C

Appendix C Species list of the faunal species recovered within the study area during the field survey. For each, the taxonomic Order, Family, species binomial name and species common name are shown, along with the current IUCN Red List classification of the species, and the number of records of the species during the surveying period.

Mammals					
Order	**Family**	**Species**	**Common name**	**IUCN status**	**Number of observations**
Rodentia	Hystricidae	*Hystrix africaeaustralis*	Cape Porcupine	Least Concern	1
	Muridae	*Gerbillurus paeba*	Hairy-footed Gerbil	Least Concern	1
		Rhabdomys pumilio	Four-striped Grass Mouse	Least Concern	6
Avifauna					
Order	**Family**	**Species**	**Common name**	**IUCN status**	**Number of observations**
Coliiformes	Coliidae	*Colius striatus*	Speckled Mousebird	Least Concern	1
Columbiformes	Columbidae	*Streptopelia capicola*	Cape Turtle Dove	Least Concern	2
Galliformes	Numididae	*Numida meleagris*	Helmeted Guineafowl	Least Concern	1
Passeriformes	Cisticolidae	*Apalis thoracica*	Bar-throated Apalis	Least Concern	1
		Cisticola subruficapilla	Grey-backed Cisticola	Least Concern	2
		Cisticola tinniens	Levaillant's Cisticola	Least Concern	2
		Prinia maculosa	Karoo Prinia	Least Concern	2
	Estrildidae	*Estrilda astrild*	Common Waxbill	Least Concern	1
	Fringillidae	*Serinus canicollis*	Cape Canary	Least Concern	1
	Laniidae	*Lanius collaris*	Southern Fiscal	Least Concern	2
	Locustellidae	*Bradypterus baboecala*	Little Rush Warbler	Least Concern	1
	Malaconotidae	*Laniarius ferrugineus*	Southern Boubou	Least Concern	1
		Telophorus zeylonus	Bokmakierie	Least Concern	1
	Muscicapidae	*Cossypha caffra*	Cape Robin-Chat	Least Concern	1

	Ploceidae	*Ploceus capensis*	Cape Weaver	Least Concern	1
	Pycnonotidae	*Pycnonotus capensis*	Cape Bulbul	Least Concern	2
Pelecaniformes	Ardeidae	*Ardea melanocephala*	Black-headed Heron	Least Concern	1
		Bubulcus ibis	Western Cattle Egret	Least Concern	1
	Threskiornithidae	*Bostrychia hagedash*	Hadada Ibis	Least Concern	1
Suliformes	Anhingidae	*Anhinga rufa*	African Darter	Least Concern	1
Butterflies					
Order	**Family**	**Species**	**Common name**	**IUCN status**	**Number of observations**
Lepidoptera	Hesperiidae	*Afrogegenes letterstedti*	Common Dodger	Least Concern	1
		Gomalia elma	Green-marbled Skipper	Least Concern	1
	Lycaenidae	*Eicochrysops messapus*	Cupreous Blue	Least Concern	2
	Nymphalidae	*Cassionympha cassius*	Rainforest Brown	Least Concern	1
		Danaus chrysippus	Plain Tiger	Least Concern	1
		Junonia hierta	Yellow Pansy	Least Concern	1
	Pieridae	*Nepheronia buquetii*	Green-eyed Vagrant	Least Concern	2
Grasshoppers					
Order	**Family**	**Species**	**Common name**	**IUCN status**	**Number of observations**
Orthoptera	Acrididae	*Acrida acuminata*	Common Stick Grasshopper	Not Assessed	2
		Aiolopus thalassinus	Slender Green-winged Grasshopper	Not Assessed	1
		Eyprepocnemis plorans	Lamenting Grasshopper	Least Concern	15

Appendix D

Curriculum Vitae of Jacobus Hendrik Visser

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Qualifications

- PhD (Zoology), University of Johannesburg (2015 - 2017)
- MSc (Zoology), Stellenbosch University (2011 - 2013)
- BSc Honours (Zoology) cum laude, Stellenbosch University (2010)
- BSc (Biodiversity and Ecology) cum laude, Stellenbosch University (2007 - 2009)

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- **Visser, J.H.** Terrestrial Faunal and Avifaunal Species Compliance Statement Report for a Portion of Brazil 329, Nama Khoi Municipality, Namakwa District. April 2022. Prepared for WNel Environmental Consulting Services.
- **Visser, J.H.** Terrestrial Faunal And Avifaunal Species Scoping Report for the Proposed Waste Management Facility at Portions 1 and 6 of Farm 32 Brakkefontein, City of Cape Town. April 2022. Prepared for SLR Consulting.
- **Visser, J.H.** Terrestrial Faunal And Avifaunal Species Impact Assessment Report for a Portion of Riet Valleij (Somerset Vale, Farm Portion RE/150), Estelm Boerdery, Swellendam Municipality, Overberg District. June 2022. Prepared for PHS Consulting.
- **Visser, J.H.** Site Sensitivity Verification Report for Remainder of Farm De Draay No 563, Overstrand Municipality. August 2022. Prepared for PHS Consulting.
- **Visser, J.H.** Terrestrial Faunal and Avifaunal Impact Assessment Report for Remainder of Farm Rooilandia No. 472, Breede Valley Municipality. October 2022. Prepared for McGregor Environmental Services.
- **Visser, J.H.** Terrestrial Faunal and Avifaunal Species Impact Assessment Report for Portion 3 of Farm 781, Theewaterskloof Local Municipality. December 2022. Prepared for PHS Consulting.
- **Visser, J.H.** Terrestrial Faunal Species Compliance Statement Report for Farm Portion 49, Hansmoeskraal Farm 202, George Local Municipality. April 2023. Prepared for Sharples Environmental Services cc (SES).
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- **Visser, J.H.** Terrestrial Faunal and Avifaunal Species Compliance Statement Report for the Proposed Sandmine on Portion 109 of the Farm Zwarte Jongers Fontein No. 489, Hessequa Municipality. August 2023. Prepared for Pro-Earth Consulting.
- **Visser, J.H.** Terrestrial Faunal and Avifaunal Species Impact Assessment Report for the Upgrading of Herold's Bay Sewer Pump Station and Associated Rising Main on Remainder of Farm Brakfontein 236, Portion 10 of Farm Brakfontein 236 and Erven RE/95 and 116, Herholds Bay, George Municipality. September 2023. Prepared for Sharples Environmental Services cc (SES).
- **Visser, J.H.** Terrestrial Faunal and Avifaunal Species Impact Assessment Report for the Proposed Flood Damage Repairs, Rehabilitation and Other Mitigation Measures in Van Riebeeck Gardens and Camphersdrift, George, George Municipality. September 2023. Prepared for Sharples Environmental Services cc (SES).

- **Visser, J.H.** Terrestrial Faunal and Avifaunal Species Compliance Statement Report for the Proposed Hartenbos Waste Water Treatment Works PV Solar Plant on Remainder of Portion 101 of the Farm Hartenbosch 217, Mossel Bay, Mossel Bay Municipality. September 2023. Prepared for Sharples Environmental Services cc (SES).
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- **Visser, J.H.** Terrestrial Faunal and Avifaunal Species Site Sensitivity Verification Report for Portion 7 of The Farm Hans Moes Kraal No. 202, George Local Municipality. December 2023. Prepared for Sharples Environmental Services cc (SES).
- **Visser, J.H.,** Colville, J.F., McDonald, D., Proposed Low Cost Housing Development on Farm Witteklip 69/123, Vredenburg, Saldanha Bay Municipality - Biodiversity Offset Report. December 2023. Prepared for Ecosense Environmental Consultants.
- **Visser, J.H.** Terrestrial Faunal and Avifaunal Species Compliance Statement Report for the Proposed Construction of a Photovoltaic Solar Plant and Battery Energy Storage System on Remainder of Erf 2018, Riversdale, Hessequa

Municipality. February 2024. Prepared for Sharples Environmental Services cc (SES).

- **Visser, J.H.** Terrestrial Faunal and Avifaunal Species Compliance Statement Report for the Proposed Development on Erf 998, Tergniet and Portion 5 of the Farm Zandhoogte No. 139, Mossel Bay Local Municipality. February 2024. Prepared for Sharples Environmental Services cc (SES).

Other projects

- Southern African Bird Atlas Project 2 (SABAP2)
- Endemism, genetic variance and conservation priorities in the highlands of south-western Africa.
- Biodiversity and ecology of scorpions in the Cape Floristic Region.
- National Biodiversity Assessment 2018: The status of South Africa's ecosystems and biodiversity. Synthesis Report. South African National Biodiversity Institute, an entity of the Department of Environment, Forestry and Fisheries, Pretoria.

Conferences

- Presenter at the 2017 conference of the South African Wildlife Management Association (Presentation title: The influence of commercial game farming on maintaining genetic diversity in the sable antelope (*Hippotragus niger*) and roan antelope (*Hippotragus equinus*)
- Presenter at the 2017 conference of the Zoological Society of Southern Africa (Presentation title: Evolution of the South African Bathyergidae: Patterns and processes)
- Presenter at the 2010 conference of the Zoological Society of Southern Africa (Presentation title: Local and regional scale genetic variation in the Cape dune mole-rat, *Bathyergus suillus*