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Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report

Proposed development of the Stanford Green Eco Estate residential area on Erf 438, Stanford, Version 2 – with offset considered

Prepared for: LORNAY ENVIRONMENTAL CONSULTING

October 2025

Prepared by: Jan A Venter & Rudi Swart

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Recommended citation:
Venter, J.A. & Swart, R., 2025. Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report - Proposed development of the Stanford Green Eco Estate residential area on Erf 438, Stanford, Version2 – with offset considered. Technical Report prepared for Lornay Environmental Consulting, George, Western Cape, ZA.

Photos by:

Declaration of independence

- We consider ourselves bound to the rules and ethics of the South African Council for Natural Scientific Professions (SACNASP);
- At the time of conducting the study and compiling this report, we did not have any interest, hidden or otherwise, in the proposed development that this study has reference to, except for financial compensation for work done in a professional capacity;
- Work performed for this study was done objectively. Even if this study results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being members of the general public;
- We declare that no circumstances may compromise my objectivity in performing this specialist investigation. We do not necessarily object to or endorse any proposed developments but aim to present facts, findings and recommendations based on relevant professional experience and scientific data;
- We do not have any influence over decisions made by the governing authorities;
- We undertake to disclose all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken concerning the application by a competent authority to such a relevant authority and the applicant;
- We have the necessary qualifications and guidance from professional experts in conducting specialist reports relevant to this application, including knowledge of the applicable Act, regulations and any guidelines that have relevance to the proposed activity;
- This document and all information contained herein is and will remain our intellectual property. This document, in its entirety or any portion thereof, may not be altered in any manner or form for any purpose without the specific and written consent of the specialist investigators.
- All the particulars we furnished in this document are true and correct.

_____ 24 October 2025

Signature Date

_____ 24 October 2025

Signature Date

Executive summary

This report presents the findings of a Terrestrial Animal Species Site Sensitivity Verification and Species Specialist Assessment for the proposed Stanford Green Eco Estate residential development on Erf 438, Stanford. The assessment was undertaken in response to a *High Sensitivity* rating for animal species identified by the National Environmental Screening Tool, in line with the relevant species protocols (DFFE, 2020; amended 2023).

The 5 ha site comprises a mosaic of modified land uses (lawn and Eucalyptus plantations) and remaining patches of natural habitat, including Milkwood thicket, wetland edge vegetation, and seasonal seep wetlands. Field surveys and desktop analysis identified potential use of the site and its surroundings by several faunal species, including Species of Conservation Concern (SCC). Among these, the *Western Leopard Toad (Sclerophrys pantherina)*—an *Endangered* species—was assessed as likely to occur in the area, with nearby wetlands supporting breeding and movement corridors.

Using standardised criteria aligned with SANBI's guidelines, the Site Ecological Importance (SEI) of the project area was rated as **Medium**, with areas of *High* importance in relation to amphibian habitat. Other SCC identified by the screening tool, including Black Harrier, Martial Eagle, and Denham's Bustard, were assessed as having *Low to Very Low* likelihood of occurrence due to unsuitable habitat or limited records.

Three development scenarios were evaluated: (1) development without mitigation, (2) development with mitigation, and (3) no development. Without mitigation, several potential impacts were identified, including loss of faunal habitat, increased road mortality (especially for amphibians), disruption of faunal movement corridors, and stormwater-related degradation of downstream habitats. The implementation of mitigation measures—such as amphibian underpasses, permeable fencing, habitat buffers, stormwater controls, and lighting restrictions—has the potential to reduce the significance of many of these impacts.

Given the anticipated residual impacts, particularly the loss of potentially suitable habitat for SCC such as the Western Leopard Toad, the initial faunal report recommends consideration of a biodiversity offset. Subsequent to the completion of this faunal assessment, a detailed Wetland Offset, Rehabilitation and Management Plan (Delta Ecology, 2025) was developed for Erf 438. The plan outlines on-site and off-site rehabilitation measures for the Mill Stream and Tributary wetlands, with specific provisions for the protection of *Sclerophrys pantherina* (Western Leopard Toad) and other wetland-dependent fauna. The proposed offset is aligned with the faunal mitigation and offset recommendations made in this report and is considered adequate to meet the biodiversity compensation requirements for terrestrial fauna associated with wetland habitats.

Contents

Introduction

The report deals with the proposed development of an eco-estate/residential development on Erf 438, Stanford (Figure 1). The Department of Forestry, Fisheries and the Environment (DFFE) screening report (performed in April 2023) identified the site as having a 'High' Animal Species Theme sensitivity (Lornay Environmental Consulting 2023)(Figure 2). A high sensitivity requires a 'Site Sensitivity Verification' and depending on the outcome either a 'Terrestrial Animal Species Compliance Statement' or a 'Terrestrial Animal Species Specialist Assessment Report'. This Statement or Report, as per the protocol set out by the DFFE (2020), reports on a site visit to the area that will be impacted by the development (the study area), during which the presence or possible presence of the Species of Conservation Concern (SCC) identified by the screening tool was determined. Animal species of concern (*n=9*) that was identified by the screening tool are listed in Table 1.

Figure 1: The cadastral boundary of Erf 438, Stanford (outlined in orange) intended for the development of an eco-estate. The Stanford village is seen directly north-west of the property.

This report follows the legislative requirements set out by sections 25(5)(a) and (h) and 44 of the National Environmental Management Act 107 of 1998 and specifically the regulations listed in the Government Gazette Notice No. 1150, Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial animal species, October 2020 as amended in Gazette Notice No. 3717, July 2023.

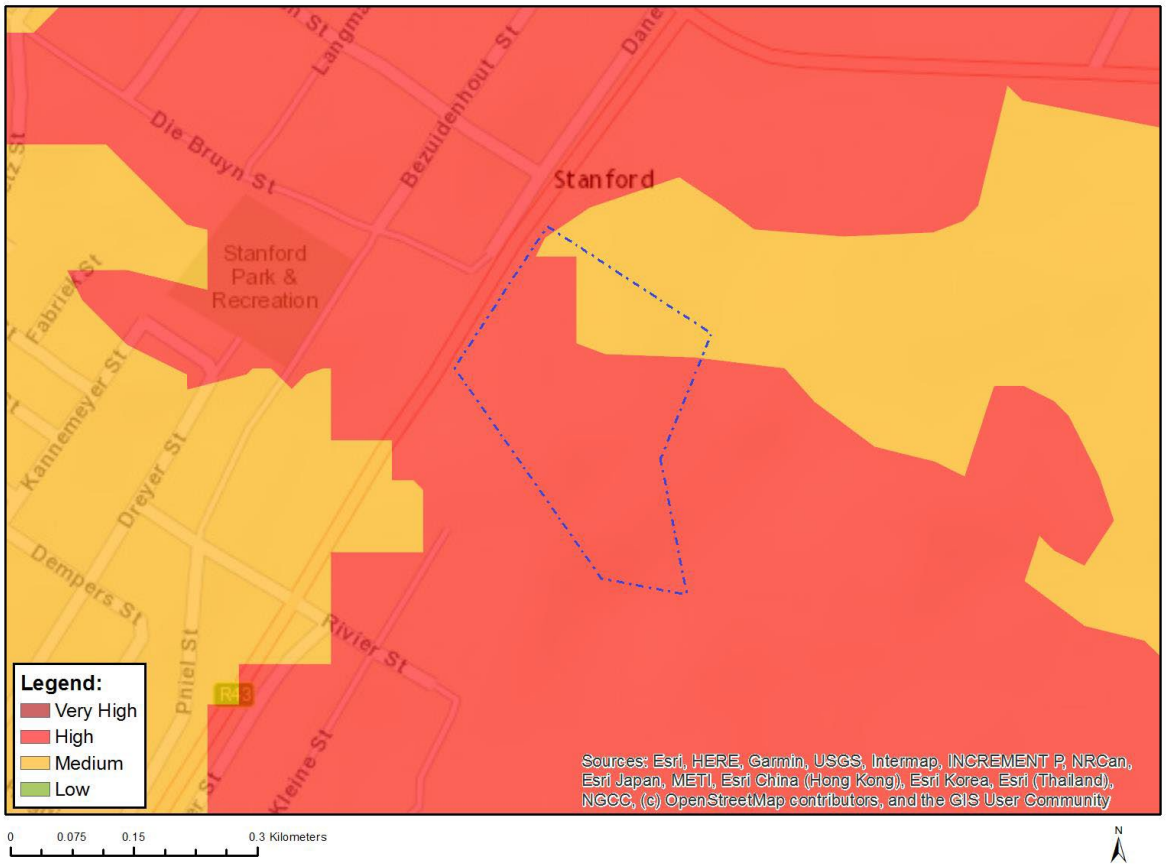

Figure 2: Map of the relative animal species theme sensitivity as per (Lornay Environmental Consulting 2023) indicating 'high' sensitivity for the whole property

Table 1: Animal species of concern identified by the screening report (Lornay Environmental Consulting 2023).

Sensitivity	Species name	Common name	Taxonomic group	Red List Status
High/Medium	*Sclerophrys pantherine*	Western leopard toad	Amphibian	EN
High	*Circus maurus*	Black Harrier	Avis	EN
High	*Circus ranivorus*	African Marsh Harrier	Avis	EN
High	*Neotis denhami*	Denham's Bustard	Avis	VU
High	*Polemaetus bellicosus*	Martial eagle	Avis	EN
Medium	*Afrotis afra*	Southern Black Korhaan	Avis	VU
Medium	*Bitis armata*	Southern Adder	Reptile	VU
Medium	*Brinckiella aptera*	Mute Winter Katydid	Invertebrate	VU
Medium	*Aneuryphymus montanus*	Yellow winged agile grasshopper	Invertebrate	VU

Study Area

Erf 438, Stanford is situated just east of the village Standford, Overberg District in the Western Cape Province (E 19°27'27"; S 34°26'41") (Figure 1). The proposed development includes the construction of an entrance gate area, a network of roads, and residential units (Figure 3).

Figure 3: The proposed development includes the construction of an entrance gate area, a network of roads, and residential units.

Methods

We followed the prescribed protocol for performing a Terrestrial Animal Site Sensitivity Verification Report according to the Government Gazette Notice 320 (Government Gazette 43110, 20 March 2020), and amended in Government Gazette Notice 3717 (Government Gazette 49028, 28 July 2023). We followed the SANBI (2020) species environmental assessment guidelines during the assessment.

This report's findings are based on:

- A desktop study to determine the presence of animal species of concern (as listed in Table 1) and other species at the study area; and
- Two field site visits (one diurnal and one nocturnal).

The desktop study included the use of iNaturalist, Global Biodiversity Information Framework (GBIF), Cape Nature as well as private records and reports, field guides and scientific literature. These records were used to determine the species recorded in the area and the presence of potential SCC, with particular emphasis on the SCC listed by the screening tool.

During the site survey, species and signs of presence (sounds, tracks, scats etc), observed were recorded. Surveys consisted of meandering visual, acoustic surveys and point surveys performed at and between the various proposed development sites, as well as extensive sweep netting (catch and release) to sample foliage invertebrates. We covered the whole property on foot (Figure 4 and Table 2). The main purpose of the site visit was to confirm whether:

- any of the listed SCC were present in the proposed development area;
- the proposed site for the development would act as a corridor for any of the SCC highlighted by the screening tool;
- whether the vegetation (indigenous and planted) at the proposed development site likely supports undetected individuals or populations of the SCC highlighted by the screening tool; and
- there are any SCC present at the site that were not highlighted by the initial screening.

To aid in record-keeping of the site and species observed, photographs were taken during the site visits.

Setting the project area of influence (PAOI)

The development property is fairly small (±5 ha). The PAOI was set considering main SCC we think are present on or close to the development footprint. This was based on recommended buffers for SCC (SANBI 2020) and WCDS expert knowledge.

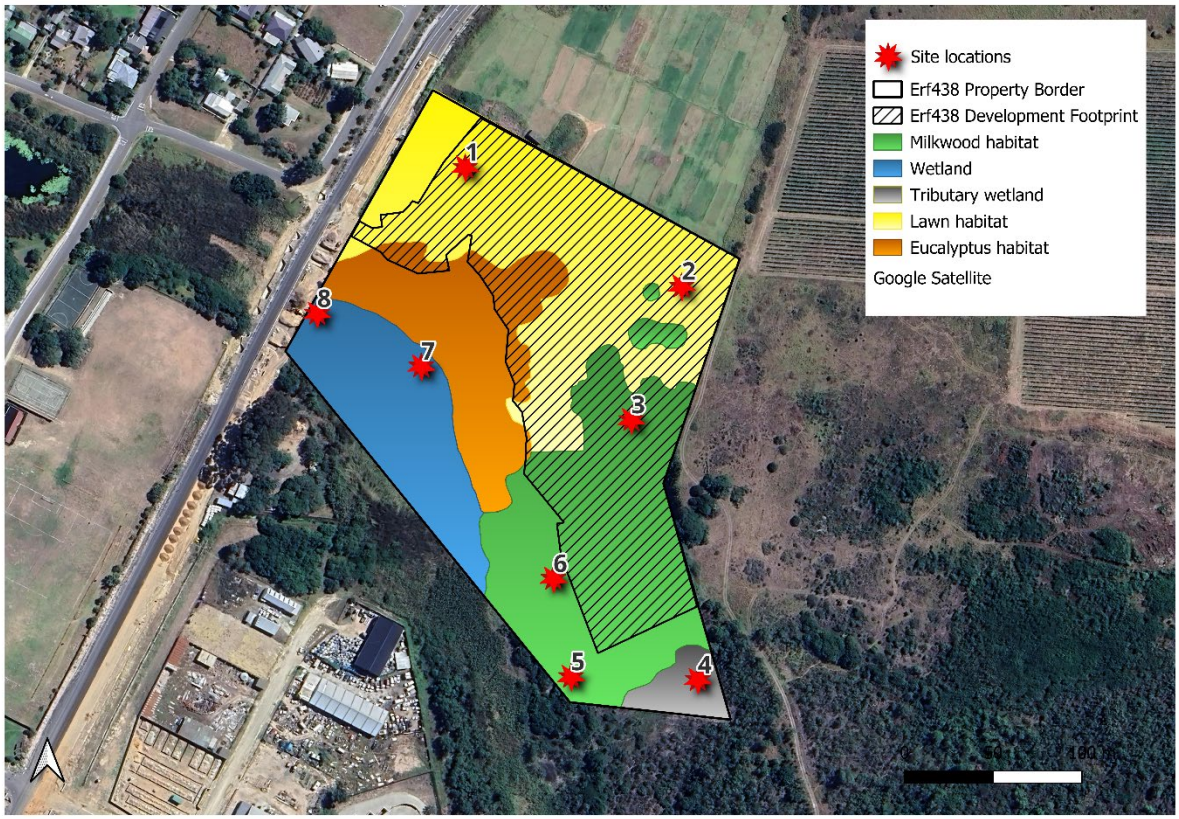

Figure 4: The entire property was covered during the search effort. Five different faunal habitat types were identified. Sites are indicated for habitat description purposes.

Table 2: Site coordinates

Site	Coordinates
SG1	34°26'36"S; 19°27'31"E
SG2	34°26'39"S; 19°27'31"E
SG3	34°26'41"S; 19°27'30"E
SG4	34°26'46"S; 19°27'31"E
SG5	34°26'46"S; 19°27'28"E
SG6	34°26'44"S; 19°27'28"E
SG7	34°26'40"S; 19°27'25"E
SG8	34°26'39"S; 19°27'23"E

Evaluation of Site Ecological Importance (SEI)

In order to spatially assess the different areas of importance for a species for the proposed development site we used the SEI approach, see SANBI (2020) for identifying the site-based ecological importance for species, in relation to the proposed PAOI. The SEI is a function of the biodiversity importance (BI) of the receptor (e.g. species of conservation concern, the vegetation/fauna community, habitat type or ecological process present on the site) and its resilience to impacts (receptor resilience [RR]) and is calculated as follows (SANBI 2020):

$$SEI = BI + RR$$

BI in turn is a function of conservation importance (CI) and the functional integrity (FI) of the receptor is calculated as follows:

$$BI = CI + FI$$

Conservation importance (*CI*) is evaluated in accordance with recognised established internationally acceptable principles and criteria for the determination of biodiversity-related value. Conservation importance is defined here as (SANBI 2020)(Tabe 3): *"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 3: Conservation importance (CI) criteria (SANBI 2020)

Conservation importance	Fulfilling criteria
Very High	Confirmed or highly likely occurrence of CR, EN, VU or Extremely Rare23 or Critically Rare24 species that have a global EOO of < 10 km2. Any area of natural habitat25 of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent26) 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 km2. 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.

Functional integrity (*FI*) of the receptor (e.g. the vegetation/fauna community or habitat type) is defined here as 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 (SANBI 2020)(Table 4): *"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 4: Functional Integrity (FI) criteria (SANBI 2020)

Functional integrity	Fulfilling criteria
Very High	Very large (> 100 ha) intact area for any conservation status of ecosystem type or > 5 ha for CR ecosystem types. High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts with no signs of major past disturbance (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.

Receptor resilience (RR) is defined here as (SANBI 2020)(Table 5): *"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."* The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor.

Table 5: Resilience criteria (SANBI 2020)

Resilience	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.

Evaluation of the SEI in the context of the proposed development activities are then categorised in a final risk category (SANBI 2020)(Table 6).

Table 6: Interpreting SEI in the context of the proposed development activities (SANBI 2020)

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

Conditions, limitations, and assumptions

The findings and recommendations of this report are based on WCDS best scientific and professional knowledge, literature and other data sources. WCDS reserve the right to modify aspects of the report, including the recommendations and conclusions, if additional relevant information becomes available.

The conditions, e.g. weather and otherwise, during the assessment period could have a significant influence determining whether animal species will be found on site or not. An animal species absence during field assessments does not necessarily mean it is not present at assessment locations. At WCDS we use an evidence-based approach to provide the best possible assessment of species presence and potential impacts.

Results

Field survey conditions

A site visit was performed on the 23rd of January 2025, (between 18h00 and 22h00), and again the 24th of January 2025 (between 8h00 and 11h00). During the visits, conditions were warm with little wind which were ideal for faunal surveys.

Project area of influence (PAOI)

The development property is small (±5 ha). The PAOI covers the whole property and adjacent areas (Figure 4 and Table 6).

Table 6: The PAOI was set considering main SCC we think are present on or close to the development footprint.

Species/Group	PAOI Buffer size	Notes
Raptors and Birds general	300 m	Foraging and resting areas
Nocturnal insects	250 m	Influence of artificial light
Diurnal insects and herpetofauna	100 m	Foraging and breeding habitat

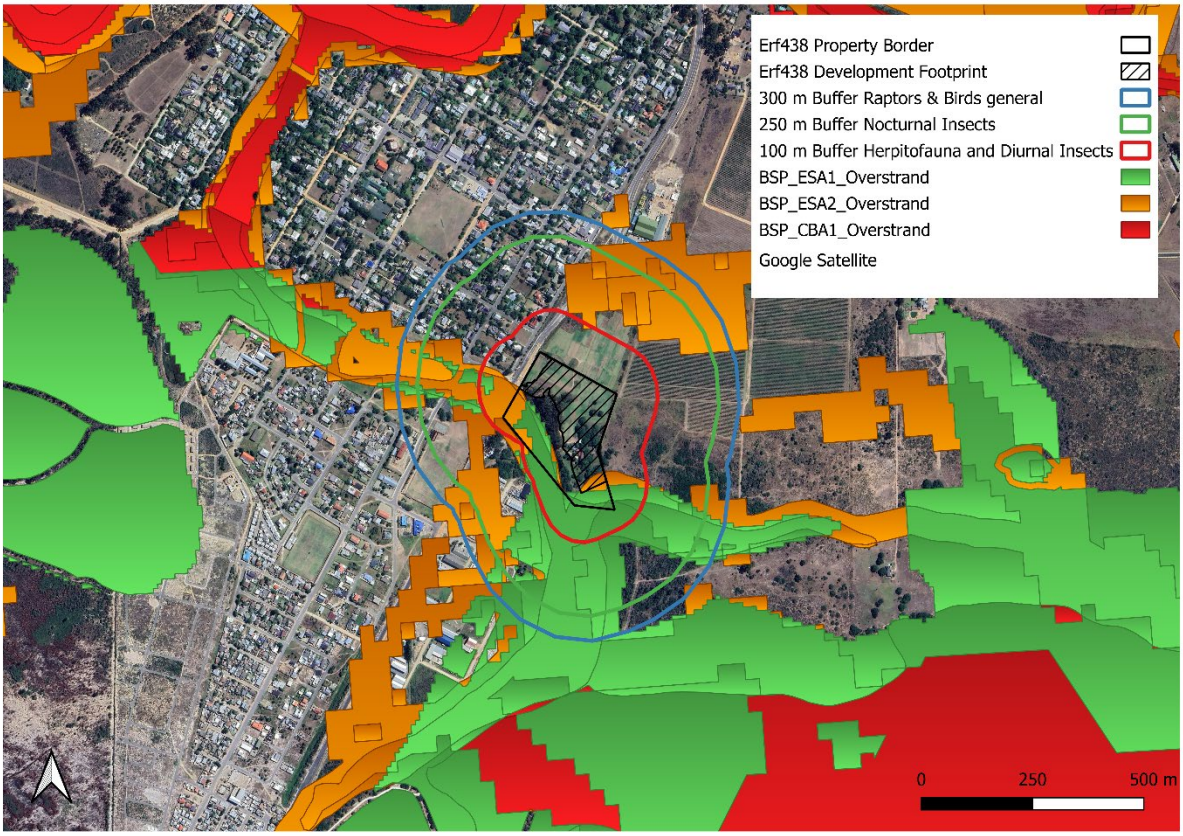

Figure 5: The PAOI was set considering main SCC we think are present on or close to the development footprint.

Habitat descriptions.

After screening the development site using Google Earth images and on-site verification, we did intensive searches in the PAOI of the proposed development site (Figure 4) within the development area. The property is relatively simple in terms of habitat types important to faunal species due to it being highly transformed. From a faunal perspective there are five different habitat types, namely wetland, Eucalyptus forest, lawn, milkwood forest and tributary wetland habitat (Figure 4).

Site 7, 8 - Wetland habitat

The wetland habitat is part of the Millstream (van Zyl 2024) and covers ca. 7080.15m² / 0.71 ha. It contains open water and dense stands of tall *Arundo donax* (Giant reed), an invasive species in South Africa (Category 1 NEMBA – Category 1b). It spans the western part of the property and borders large Eucalyptus trees to the east and the provincial R43 road to its west. The site was visited during crepuscular, nocturnal and diurnal time periods, with very mild to no wind, and warm temperatures. Elevation is 10-15m asl. We observed a number of species in this habitat (Table 7).

Table 7: Animal species observed at sites 7 and 8 (wetland habitat)

Group	Species	Notes	Status
Birds:	*Dicrurus adsimilis* Fork-tailed Drongo	Observed foraging	Least concern
	Ploceus capensis Cape Weaver	Observed resting	Least concern
	Hirundo dimidiata Pearl-breasted Swallow	Observed flying	Least concern
	Anas undulata Yellow-billed duck	Observed flying	Least concern
	Alopochen aegyptiaca Egyptian goose	Observed swimming	Least concern
	Common moorhen Gallinula chloropus	Foraging in reeds	Least concern
Mammals	Water mongoose *Atilax paludinosus*	Scat observed	Least concern
Invertebrates:	*Ceriagrion glabrum* (common orange, damselfly)	Observed resting on vegetation	Least concern
	Trithemis arteriosa (red-veined dropwing, dragonfly)	Observed resting on vegetation	Least concern
	Phaonia sp. (muscid fly)	Observed resting on vegetation	NA

Figure 6: The wetland habitat as seen from the south of the habitat, near the property's southern boundary, dominated by tall *Arundo donax*, an exotic reed that forms dense stands

Figure 7: The wetland habitat saw open water towards the north, bordering large Eucalyptus trees (seen to the left on image)

Site 7 – Eucalyptus forest

The Eucalyptus forest habitat covers ca. 7748.27m² / 0.77 ha, and contains >20m tall Eucalyptus trees. In the understorey, there are some indigenous plants, including *Maytenus oleoides* and *Searsia laevigata*, however the understorey is very sparse and the ground layer dominated by Eucalyptus leaf litter and branches, as well as building rubble. The site was visited during crepuscular, nocturnal and diurnal time periods, with very mild to no wind, and warm temperatures. Elevation is 15-20m asl. This habitat was less species diverse (Table 8).

Table 8: Animal species observed at site 7 (Eucalyptus habitat)

Group	Species	Notes	Status
Birds:	*Dicrurus adsimilis* Fork-tailed Drongo	Observed foraging	Least concern
	Ploceus capensis Cape Weaver	Observed resting	Least concern
	Bubo africanus Spotted Eagle-Owl	Calling in tall trees	Least concern
	Numida meleagris Helmeted guineafowl	Foraging	Least concern
Invertebrates:	*Pieris brassicae* (large cabbage white, butterfly)	Seen flying, sampled via netting	NA
	Sphingidae sp. (hawkmoth)	Seen in flight during night visit	NA
	Phaonia sp. (muscid fly)	Observed resting on vegetation	NA

Figure 8: The Eucalyptus habitat as seen from the southeastern corner, which contained very little indigenous vegetation in the understorey

Site 1, 2 – Lawn habitat

The lawn habitat covers ca. 15 954.03m² / 1.6 ha. It comprises of grass that was planted for selling, and has a sandy substrate. There is little to no natural vegetation in this habitat type, and the height of the vegetation is on average <0.2m in height. It covers the northern and northeastern parts of the property. This habitat also contain some transformed seep wetlands (van Zyl 2024). Within this habitat, two stands of *Sideroxylon inerme* (milkwood) are found (Figure 9). The area is irrigated regularly. The site was visited during crepuscular, nocturnal and diurnal time periods, with very mild to no wind, and warm temperatures. Elevation is 15-20m asl. This site had a abundance of frogs foraging on the lawn at night (Table 9).

Table 9: Animal species observed at sites 1,2 (lawn habitat)

Group	Species	Notes	Status
Birds:	*Numida meleagris* Helmeted guineafowl	Foraging	Least concern
	Blacksmith lapwing *Vanellus armatus*	Foraging	Least concern
	Bostrychia hagedash Hadada Ibis	Foraging	Least concern
	Streptopelia capicola *Cape turtle Dove*	Flyng	Least concern
Amphibians:	*Sclerophrys capensis Raucus toad*	Foraging	Least concern
	Strongylopus grayii Clicking stream frog	Foraging	Least concern
Invertebrates:	*Anaeolopus dorsalis* (grasshopper)	Sampled during sweep netting, released	NA
	Eyprepocnemis calceata (shoed grasshopper)	Sampled during sweep netting, released	NA
	Trithemis arteriosa (red-veined dropwing, dragonfly)	Observed in flight	Least concern
	Nassinia caffraria (threaded looper, moth)	Observed resting on vegetation, bordering milkwood stand	NA

Pieris brassicae (large cabbage white, butterfly)	Observed in flight	NA
Gastrimargus crassicollis (grassland hill grasshopper)	Sampled during sweep netting, released	NA
Ailopus thalassinus (slender green-winged grasshopper)	Sampled during sweep netting, released	NA
Harpactira cafreriana Cape orange baboon spider	Observed on lawn grass	NA

Figure 9: The lawn habitat dominates the north and northcentral part of the property and has little to no natural vegetation within it, except for two stands of milkwood trees which hosts multiple indigenous plant species associated with coastal forest vegetation (see Milkwood habitat below).

Site 2, 3, 5, 6 – Milkwood habitat

The Milkwood habitat is dominated by *Sideroxylon inerme* (milkwood) trees forming clumps of tall canopy thickets, with grass (unkept, taller than lawn height) interspersed between the clumps. It covers 16 440.11m² / 1.64 ha in total, and contains indigenous, typically coastal forest associated plant species. It covers the central-southern part of the property. Plants include *Chionanthus foveolatus*, *Lauridia tetragona*, *Sideroxylon inerme*, *Searsia glauca*, *Searsia laevigata*, *Olea europaea africana*, *Olea exasperata*, *Gymnosporia buxifolia*, *Carissa bispinosa*, *Osteospermum moniliferum*, *Maytenus oleoides* and *Myrsine africana*. Exotic species include *Myoporum tenuifolium* and *Acacia* spp., although in relatively low numbers and as scattered individuals. The site was visited during crepuscular, nocturnal and diurnal time periods, with very mild to no wind, and warm temperatures. Elevation is 15-20m asl. This habitat was more species diverse (Table 10).

Table 10: Animal species observed at sites 2, 3, 5, 6 (milkwood habitat)

Group	Species	Notes	Status
Birds:	*Corvus albus* *Pied Crow*	Flying	Least concern
	Dicrurus adsimilis Fork-tailed Drongo	Foraging	Least concern
	Pycnonotus capensis Cape Bulbul	Foraging	Least concern
	Lanius collaris Southern Fiscal	Foraging	Least concern
	Nectarinia famosa Malachite Sunbird	Foraging	Least concern
	Zosterops virens Cape White-eye	Foraging	Least concern
	Cinnyris chalybeus Southern Double-collared Sunbird	Foraging	Least concern
	Streptopelia capicola Cape turtle Dove	Foraging	Least concern
Amphibians:	*Cacosternum boettgeri Boettger's Dainty Frog*	Under rotting wooden planks	Least concern
Reptiles:	*Chersina angulata*, Angulate tortoise	Observed	Least concern
Mammals	*Bathyergus suillus,* Cape dune molerat	Burrowing activity	Least concern
Invertebrates:	*Promeces longipes* (common metallic longhorn beetle)	Observed resting on vegetation	NA
	Palystes castaneus (Cape rainspider)	Nest observed	NA
	Eyprepocnemis calceata (shoed grasshopper)	Sampled during sweep netting, released	NA
	Ceriagrion glabrum (common orange, damselfly)	Observed resting on vegetation	Least concern
	Oecanthus capensis (Cape thermometer cricket)	Sampled during sweep netting, released	NA
	Crematogaster peringueyi (black cocktail ant)	Nest observed	NA
	Conocephalus maculatus (spotted meadow katydid)	Sampled during sweep netting, released	Least concern
	Frontifissia laevata (grasshopper)	Sampled during sweep netting, released	NA
	Acridinae sp. (grasshopper)_	Sampled during sweep netting, released	NA
	Trithemis arteriosa (red-veined dropwing, dragonfly)	Observed resting on vegetation	Least concern
	Chrysoperla sp. (common green lacewing)	Observed resting on vegetation	NA
	Eristalinus sp. (lagoon fly)	Observed resting on vegetation	NA
	Myrmeleon obscurus (antlion)	Observed resting on vegetation	NA
	Pieris brassicae (large cabbage white, butterfly)	Observed in flight	NA
	Phaonia sp. (muscid fly)	Observed resting on vegetation	NA
	Gastrimargus crassicollis (grassland hill grasshopper)	Sampled during sweep netting, released	NA
	Ailopus thalassinus (slender green-winged grasshopper)	Sampled during sweep netting, released	NA

Figure 10: The milkwood habitat is largely natural and forms clumps of milkwood forest with numerous indigenous forest plant species in the understorey and along the edges

Figure 11: The milkwood habitat had large areas of tall, unkept grasses between milkwood clumps – many grasshopper species were sampled here

Site 4 – Tributary wetland habitat

The tributary wetland habitat covers about 1163.67m² / 0.12 ha at the southernmost part of the property. It contains largely indigenous fynbos, or heathland habitat, falling under Agulhas limestone fynbos (Rebelo et al. 2006). It is wet during certain times of the year (van Zyl 2024) but was dry during our visit. Plant species include *Chironia* sp. (very abundant), *Falkia repens*, *Polygala myrtifolia*, *Gnidia squarrosa*, *Osteospermum moniliferum*, *Olea exasperata*, *Passerina corymbosa*, *Elegia* sp. and *Restio* spp. There is emerging invasion by *Acacia* spp., although scattered and in low numbers. The average height of the vegetation was ca. 1.4m tall. Apart from the scattered invasive species, the habitat is in a good condition, albeit small in extent. The site was visited during crepuscular, nocturnal and diurnal time periods, with very mild to no wind, and warm temperatures. Elevation is 15-20m asl. A number of faunal species was observed (Table 11)>

Table 11: Animal species observed at sites 4 (sedges / fynbos habitat)

Group	Species	Notes	Status
Birds:	*Dicrurus adsimilis* Fork-tailed Drongo	Foraging	Least concern
	Pycnonotus capensis Cape Bulbul	Foraging	Least concern
	Lanius collaris Southern Fiscal	Foraging	Least concern
	Zosterops virens Cape White-eye	Foraging	Least concern
	Cinnyris chalybeus Southern Double-collared Sunbird	Foraging	Least concern
	Prinia maculosa Karoo prinia	Foraging	Least concern
Reptiles:	*Chersina angulata*, Angulate tortoise	Observed	Least concern
Mammals:	*Bathyergus suillus,* Cape dune molerat	Burrowing activity	Least concern
Invertebrates:	*Xylocopa caffra* (double-banded carpenter bee)	Observed visiting *Chironia* flowers	NA
	Eyprepocnemis calceata (shoed grasshopper)	Sampled during sweep netting, released	NA
	Trithemis arteriosa (red-veined dropwing, dragonfly)	Observed resting on vegetation	Least concern
	Tylopsis continua (brownback grass katydid)	Sampled during sweep netting, released	Least concern
	Conocephalus maculatus (spotted meadow katydid)	Sampled during sweep netting, released	Least concern
	Sphaerocoris testudogrisea (brownspotted shield bug)	Sampled during sweep netting, released	NA
	Crematogaster peringueyi (black cocktail ant)	Nest observed	NA
	Acridinae sp. (grasshopper)	Sampled during sweep netting, released	NA

Figure 12: The sedges / fynbos habitat was relatively pristine and was dominated by a species of *Chironia*, which in turn attracted an abundance of *Xylocopa caffra*. In the foreground, *Chironia* is seen with pink flowers; in the background, a milkwood clump is seen with some invasive *Acacia* spp. present.

Figure 13: The sedges / fynbos habitat has emerging invasion by *Acacia* spp., of which some individuals were >1.8m tall.

Animal species of concern

A total of 9 animal species of concern was identified by the screening tool (Lornay Environmental Consulting 2023)(Table 1). The following section deals with the site's potential importance for these species and the probability of them being present in habitats in the development area.

The transformed state of the property, this assessment, and risk/impact implications for animals

The property in its current state is highly transformed, dominated by lawns (as a commercial venture) and Eucalyptus trees. However, the remaining natural vegetation is in a relatively good state, i.e., the milkwood forest clumps and the remnant fynbos patch (0.12 ha) at the southernmost border of the property. The transformed nature of much of the property, though, has negative implications for animal occurrence, diversity, and density. We considered this in our assessment when impact on and risk to animals was assessed.

Connectivity for animal species

The conservation planning map of the Western Cape Biodiversity Plan (Pool-Stanvliet et al. 2017) indicates the presence of a ESA1 and ESA2 (Ecological Support Area) (Figure 5). From a faunal connectivity perspective, the presence of an ecological corridor facilitating movement of ground-dwelling species (in this case Western Leopard Toad, see species specific section) between CBA1 and ESA1 areas to the north and south of Stanford is important and essential. Development of the two wetland habitats should therefore be avoided at all costs (Figure 3). The development footprint does still infringe on the ESA1 and ESA 2 areas in the PAOI. From a faunal connectivity perspective, we therefore consider the proposed development risk as **'medium'** (Table 12) provided the necessary mitigation measures is in place to facilitate animal movement (see section on mitigation measures).

Table 12: Evaluation of site ecological importance (SEI) in terms of connectivity (the receptor) for animal species of conservation concern for the proposed development, see evaluation criteria (SANBI 2020). SEI is classified as 'medium'.

Biodiversity importance		Conservation importance				
		Very high	High	Medium	Low	Very low
Functional integrity	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

Site ecological importance (SEI)		Biodiversity importance				
		Very high	High	Medium	Low	Very low
Receptor resilience	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	High	Medium	Medium	Low	Low	Very low
	Very high	Medium	Low	Very low	Very low	Very low

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.

Black harrier *Circus maurus*

Black Harrier *Circus maurus* is a rare endangered, southern African endemic that may have lost more than 50% of its breeding habitat as a result of extensive land transformation by agriculture, invasive alien vegetation and urbanization in the Fynbos biome (Curtis et al. 2004, Taylor 2015a). The species' typical breeding habitat is Fynbos, particularly Strandveld and Mountain Fynbos. In fragmented Renosterveld habitat it is only found in high-quality, larger sized patches (Curtis et al. 2004). Foraging habitat includes montane areas, lower altitude Karoo scrub, semi-desert, floodplains and croplands (Curtis et al. 2004). Small mammals and birds (especially quail) are their main diet preference (Curtis et al. 2004). Both GBIF and iNaturalist data sets indicates sufficient records of this species in the general region of the property. The type and transformed nature of the habitats in the development area makes the area not suitable as black harrier habitat. We did not observe the species during our field visit. The development site does not significantly influence potential breeding sites. The Black harrier *Circus maurus,* will therefore not likely be significantly impacted by the proposed development and potential impact are therefore classified as **'very low'**.

African marsh harrier *Circus ranivorus*

This species occurs along large water bodies and adjacent open vegetation (Simmons 2005). The species is classified as Endangered in South Africa (Taylor 2015b), with habitat loss and degradation being the most significant threat to the continued survival of this species. Both GBIF and iNaturalist data have records 7 km's west of the property. There is therefore a reasonable likelihood that the species would occasionally frequent the property for foraging purposes. We did not observe the species during our field visit. The relatively small footprint of the proposed development and even smaller suitable forage habitat for marsh harriers do not warrant a major concern. The development site does not significantly influence potential breeding sites. The African marsh harrier *Circus ranivorus,* will therefore not likely be significantly impacted by the proposed development and potential impact are therefore classified as **'very low'**.

Martial eagle *Polemaetus bellicosus*

The Martial eagle is listed as 'endangered' (Birdlife International 2020). The species is a low density apex predator declining in both non-protected and protected areas in southern Africa

(van Eeden et al. 2017). There has been a decline of this species of 59% over the last 20 years (Cloete 2013). Threats include increase powerline densities, decrease in suitable breeding areas and prey and potentially climate change effects (Cloete 2013, Berndt 2015, Amar and Cloete 2018). An emerging threat is mortality due to collision with wind turbines (Simmons and Martins 2024). Martial Eagles use habitats that were closer to rivers, with higher tree cover, and dense vegetation rather than open bush or grassland (van Eeden et al. 2017). The closest iNaturalist record of the species we could find is an in the mountainous areas 15 km north-east of Stanford. GBIF records indicate a couple of sightings in the vicinity of Stanford. We did not observe the species during our field visit. We do not consider habitat in the development site as suitable for the species or its preferred prey. The impact of the development on Martial eagle *Polemaetus bellicosus* by the proposed development is therefore considered to be **'very low'**.

Southern black korhaan *Afrotis afra*

Southern Black Korhaan *Afrotis afra* is classified as 'Vulnerable' and is a South African endemic (Evans 2023). The species distribution range is restricted to the western area of the Northern Cape Province and to the area south of the Great Escarpment in the Western Cape, and the western section of the Eastern Cape Province (Evans 2023). Most iNaturalist and GBIF records indicates several records in the open plain Renosterveld areas of the Overberg >40 km south-east of the property. We did not observe the species during our field visit. The habitat in the development site is not suitable for the species. The impact of the development on Southern Black Korhaan *Afrotis afra* by the proposed development is therefore considered to be **'very low'**.

Denham's bustard *Neotis denhami*

Denham's bustard occurs in natural vegetation (fynbos and grasslands), pastures and agricultural fields (Allan 2005). The species is classified as 'Vulnerable'(Taylor 2015c), mainly due to powerline collisions (Shaw et al. 2010), habitat conversion to intensive monoculture fields, and overgrazing of grassland habitats. Most iNaturalist and GBIF records indicates several records to the east of the property but more in the open plain areas of the Overberg where they frequent the more open agricultural fields. We did not observe the species during our field visit. The habitat in the development site is not suitable for the species. The impact of the development on Denham's bustard, *Neotis denhami*, by the proposed development is therefore considered to be **'very low'**.

Southern Adder *Bitis armata*

The Southern Adder *Bitis armata* is classified as 'Vulnerable' because of its severely fragmented distribution due to the reduction in the extent and quality of its habitat (Maritz and Turner 2023). This species has a small distribution in the southwest coastal margin of the Western Cape with three disjunct subpopulations, one from West Coast National park to just north of Cape Town, the second near Hermanus and the third near De Hoop Nature reserve (Maritz and Turner 2023). The species occurs mainly in coastal lowland Fynbos on sandy and rocky substrates (Phelps 2010). It is known to shelter under rock slabs between dense shrubs on coastal plains (Phelps 2010). iNaturalist and GBIF records for this species is concentrated between Stanford and Struisbaai with the closest 1.2 km away to the south-east of this

property. We did not observe the species during our field visit. We consider the Milkwood and tributary habitat areas in the property as marginally suitable. We consider the likelihood that this species would occur at the site to be low due to habitat suitability reasons. The impact of the development on Southern Adder *Bitis armata*, by the proposed development will therefore likely be **'very low'** (Table 13).

Table 13: Evaluation of site ecological importance (SEI) in terms of Southern Adder Bitis armata habitat (the receptor) for animal species of conservation concern for the proposed development, see evaluation criteria (SANBI 2020). SEI is classified as 'very low'.

Biodiversity importance		Conservation importance				
		Very high	High	Medium	Low	Very low
Functional integrity	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

Site ecological importance (SEI)		Biodiversity importance				
		Very high	High	Medium	Low	Very low
Receptor resilience	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	High	Medium	Medium	Low	Low	Very low
	Very high	Medium	Low	Very low	Very low	Very low

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.

Western leopard toad *Sclerophrys pantherine*

The Western leopard toad *Sclerophrys pantherine* is listed as 'Endangered' because of its extent of occurrence of 3,824 km^2, its area of occupancy is 405 km^2 (IUCN SSC Amphibian Specialist Group and South African Frog Re-assessment Group 2016). The population and its habitat is considered to be severely fragmented and in decline due to urbanisation and agricultural expansion throughout its range (IUCN SSC Amphibian Specialist Group and South African Frog Re-assessment Group 2016). Western leopard toads require a standing body of water that which is at least 30-50 cm deep, with large open water areas (Burger 2020). The water should not dry up for the period of late July to well into November and even December, so as to allow sufficient time for the development of different batches of tadpoles (Burger

2020). One of the population strongholds for this species is located in Stanford in the Millstream wetland (Willem Appel Dam) just a few hundred meters to the west of the property (Doucette-Riise 2012, Casola 2017, Whale Coast Conservation 2024) (unpublished data CapeNature, iNaturalist and Whale Coast Conservation)(Figure 14). Considering that the property is surrounded by sites where the toad has been observed and a confirmed breeding site just to the west it is highly likely that the species occurs and likely breeds there. We did not observe the species during the field visits.

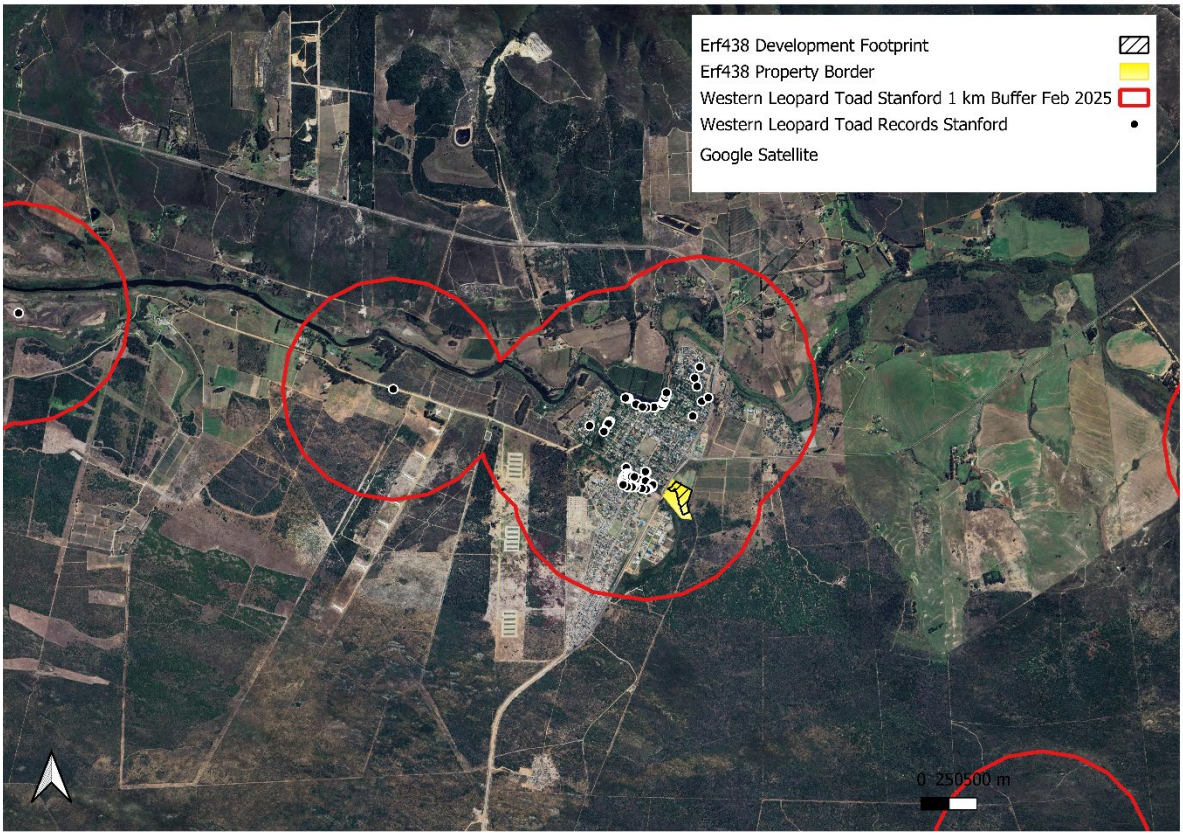

Figure 14: The proposed development is within, what is considered to be, a western leopard toad stronghold.

All the habitats except perhaps the eucalyptus habitat is usable for the toads in some form. The development will result in permanent loss of habitat and if not mitigated properly long-term detrimental consequences for the population. Long term impact will be mainly because of potential roadkills and connectivity issues. Disturbance during construction phase will have a negative impact. Decreased water quality from stormwater runoff affecting breeding areas downstream is also a cause for concern. The potential impact on Western leopard toad *Sclerophrys pantherine* without mitigation is classified as **'medium'** (Table 15). With mitigation focussed on enhancing connectivity, preventing roadkills and maintaining stormwater runoff quality (see recommendations section) impact remains **'medium'** (Table 16)**.** With a 'no-go' scenario the current degradation of the landscape is expected to continue and impact remains **'medium'** (Table 17).

Table 15: Evaluation of site ecological importance (SEI) in terms of Western leopard toad Sclerophrys pantherine habitat (the receptor) for animal species of conservation concern for the proposed development, see evaluation criteria (SANBI 2020). SEI is classified as 'high' without mitigation.

Biodiversity importance		Conservation importance				
		Very high	High	Medium	Low	Very low
Functional integrity	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

Site ecological importance (SEI)		Biodiversity importance				
		Very high	High	Medium	Low	Very low
Receptor resilience	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	High	Medium	Medium	Low	Low	Very low
	Very high	Medium	Low	Very low	Very low	Very low

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.

Table 16: Evaluation of site ecological importance (SEI) in terms of Western leopard toad Sclerophrys pantherine habitat (the receptor) for animal species of conservation concern for the proposed development, see evaluation criteria (SANBI 2020). SEI is classified as 'medium' with mitigation.

Biodiversity importance		Conservation importance				
		Very high	High	Medium	Low	Very low
Functional integrity	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

Site ecological importance (SEI)		Biodiversity importance				
		Very high	High	Medium	Low	Very low
Recepto r	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	High	Medium	Medium	Low	Low	Very low

	Very high	Medium	Low	Very low	Very low	Very low

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.

Table 17: Evaluation of site ecological importance (SEI) in terms of Western leopard toad Sclerophrys pantherine habitat (the receptor) for animal species of conservation concern for the proposed development, see evaluation criteria (SANBI 2020). SEI is classified as 'high' with a 'no-go' scenario.

Biodiversity importance		Conservation importance				
		Very high	High	Medium	Low	Very low
Functional integrity	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

Site ecological importance (SEI)		Biodiversity importance				
		Very high	High	Medium	Low	Very low
Receptor resilience	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	High	Medium	Medium	Low	Low	Very low
	Very high	Medium	Low	Very low	Very low	Very low

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.

Yellow-winged Agile Grasshopper *Aneuryphymus montanus*

The Yellow-winged Agile Grasshopper is an endemic grasshopper species occurring on Western and Eastern Cape mountains. It is listed as vulnerable on the IUCN Red List Category. It has been recorded from near Clanwilliam, and from there eastwards towards East London, associated with different fynbos types occurring on south-facing, cool slopes (Brown 1960, Kinvig 2005). Brown (1960) mentions the species being collected "amongst partly burnt stands of evergreen sclerophyll in rocky foothills". Sites where the species have been documented include Graafwater, close to Lambert's Bay, De Rust, Suurbraak, Bot River, Kogelberg and Joubertinia. The species seems to show preference for rocky, mountainous areas. Its estimated extent of occurrence is ca. 170 000 square kilometres, the largest of the two insect SCC flagged for the proposed development. Although the host plant/s of *A. montanus* is not yet determined, we noted a relatively small remnant patch (ca. 1163.67m² / 0.12 ha) of native fynbos vegetation (re: 'evergreen sclerophyll'). Extensive sweep netting was performed in the natural fynbos remnant (re: sedges / fynbos habitat), where *Chironia* sp., *Falkia repens*, *Polygala myrtifolia*, *Gnidia squarrosa*, *Osteospermum moniliferum*, *Olea exasperata*, *Passerina corymbosa*, *Elegia* sp. and *Restio* spp. individuals were found. We also extensively sweep netted the transformed parts (lawn, Eucalyptus understorey) and milkwood forest habitat (edges, understorey) of the property and conducted active searches. No specimens of *A. montanus* were seen during field visits. The site does not occur in close proximity to mountains, and occurs on the flats. The substrate was not rocky.

The proposed developments are classified as '**very low'** impact on *A. montanus*, due to 1) distance to mountains and low elevation (10-20m asl), 2) an absence of species data from this area, 3) no host plant records being available to link present vegetation to possible insect species occurrence, 4) no direct evidence of occurrence, and 5) the high level of transformation of large areas of the site that will not support *A. montanus*.

Mute Winter Katydid *Brinckiella aptera*

The Mute Winter Katydid occurs in the fynbos biome of the Western Cape. It is listed as vulnerable on the IUCN Red List Category (Naskrecki & Bazelet 2009). The species is unique in the genus, with the males being apterous. It has been found at four locations only, including Bredasdorp, Pearly Beach and Tulbagh. It can expectantly be found across the Western Cape province in succulent Karoo (re: into southern Namaqualand) and fynbos habitats, although declining due to habitat loss (Naskrecki & Bazelet 2009). The estimated extent of occurrence is ca. 12 500 square kilometres (Naskrecki and Bazelet 2009). Its host plant data is absent, but predictably feeds on flowers and leaves of a narrow range of host plants (re: are thus quite host specific), occurring on low-growing, herbaceous shrubs (Naskrecki and Bazelet 2009). They are a nocturnal species, and thus sensitive to light disturbance, such as artificial lights associated with development. Their peak emergence time is from August to October. Although the host plant/s of *B. aptera* is not yet determined, we noted a relatively small remnant patch (ca. 1163.67m² / 0.12 ha) of native fynbos vegetation. Extensive sweep netting was performed in the natural fynbos remnant (re: sedges / fynbos habitat), where *Chironia* sp., *Falkia repens*, *Polygala myrtifolia*, *Gnidia squarrosa*, *Osteospermum moniliferum*, *Olea exasperata*, *Passerina corymbosa*, *Elegia* sp. and *Restio* spp. individuals were found. We also extensively sweep netted the transformed parts (lawn, Eucalyptus understorey) and milkwood forest habitat (edges, understorey) of the property and conducted active searches. No specimens of *B. aptera* were found. The proposed development lies in close proximity to where *B. aptera* has previously been observed, namely Pearly Beach (ca. 24km away) and Bredasdorp (ca. 53km away). Agulhas Limestone Fynbos occurs from the proposed development site, towards Pearly Beach and reaches Bredasdorp. Thus, if the site is rehabilitated to its historic vegetation, it could host this species in the future. At present, its presence is unlikely, at least on the majority of the property.

The proposed developments are classified as **low impact** on *B. aptera*, due to 1) no host plant records being available to link present vegetation to possible insect species occurrence, 2) no direct evidence of occurrence after extensive sweep netting, and 3) the high level of transformation of the majority of the site that will not support *B. aptera* (Table 18). Because it is a nocturnal species, and the historic vegetation of the site could have supported it, or rehabilitation efforts could see it return in the future.

Table 18: Evaluation of site ecological importance (SEI) in terms of Mute Winter Katydid Brinckiella aptera forage habitat (the receptor) for animal species of conservation concern for the proposed development, see evaluation criteria (SANBI 2020). SEI is classified as 'low'.

Biodiversity importance		Conservation importance				
		Very high	High	Medium	Low	Very low
Functional integrity	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

Site ecological importance (SEI)		Biodiversity importance				
		Very high	High	Medium	Low	Very low
Receptor resilience	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	High	Medium	Medium	Low	Low	Very low
	Very high	Medium	Low	Very low	Very low	Very low

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.

Overall SEI for the PAOI

The overall SEI for the PAOI is considered '**Medium'** (Table 19):

Table 19: Evaluation of SEI of faunal habitats/processes in the PAOI for the proposed development. BI = biodiversity importance, RR = receptor resilience.

Habitat/Process	Conservation Importance	Functional Integrity	Receptor resilience	Site ecological importance
Connectivity for animal species (suitable safe habitat allowing free animal movement)	**Medium** ESA 1, ESA2 linking the CBA 1 areas to north and south. Mill Stream important for conectivity	**Medium** Although the area is small the wetland and terrestrial connection is still functional and important	**Medium** Decrease in habitat with potential impact on free animal movement	**Medium** BI=Medium RR=Medium
Black harrier *Circus maurus* forage habitat	**Very low**	**Very low**	**Very low**	**Very low**
Martial eagle *Polemaetus bellicosus* forage habitat	**Very low**	**Very low**	**Very low**	**Very low**
African marsh harrier *Circus ranivorus* forage habitat	**Very low**	**Very low**	**Very low**	**Very low**
Southern black korhaan *Afrotis afra* (species not present)	**Very low**	**Very low**	**Very low**	**Very low**
Denham's bustard *Neotis denhami* (species not present)	**Very low**	**Very low**	**Very low**	**Very low**
Southern Adder *Bitis armata*	**Low** Habitat marginally suitable. Likelihood of species presence low. Precautionary principle remains	**Low** Small proportion of property is suitable.	**Very high** Marginally suitable habitat to be rehabilitated.	**Very Low** BI=Low RR=Very High
Western leopard toad *Sclerophrys pantherine*	**High** Suitable habitat present for foraging and breeding. Species EN and small distribution range	**Low** Property small and transformed.	**Low** Habitat is unlikely to be able to recover fully after a relatively long period.	**Medium** BI=Medium RR=Low
Yellow-winged Agile Grasshopper *Aneuryphymus montanus* (species not present)	**Very low**	**Very low**	**Very low**	**Very low**
Mute Winter Katydid *Brinckiella aptera*	**Low** Potential habitat if site is rehabilitated	**Low** Property could serve as foraging and breeding habitat. Impact fairly minor to turn positive with rehabilitation	**High** Potential decrease in forage habitat size but low impact in terms of broader forage range	**Low** BI=Low RR=High

Recommended Mitigation Measures to Minimise Animal Impacts

The following mitigation measures are recommended to reduce the potential negative impacts of the proposed development on local fauna and associated habitats:

a) Alien Plant Eradication and Rehabilitation Plan

A comprehensive Alien Plant Eradication and Rehabilitation Plan must be developed and implemented for the property. This plan should address the removal of invasive species and the ecological rehabilitation of disturbed areas. It must be formally incorporated into the long-term management and maintenance of communal open spaces.

b) Use of Indigenous Plant Species

Only plant species that are indigenous to the local area should be permitted in residential gardens. This will support local biodiversity and prevent the introduction of potentially invasive alien species.

c) Construction Area Demarcation

During the construction phase, all construction zones must be clearly demarcated and physically separated from adjacent wetland and sensitive habitats to prevent accidental disturbance, habitat destruction, and pollution.

d) Rehabilitation of Private Open Spaces

Prior to and following construction, all designated ‘Private Open Space’ areas must be rehabilitated. This includes the removal of construction rubble, litter, and any other debris to restore ecological functionality.

e) Permeable Fencing

All boundary and internal fences must remain semi-permeable to allow free movement of small terrestrial fauna such as genets and mongooses, particularly along the Mill Stream wetland corridor.

f) Wildlife Search and Rescue

A pre-construction search and rescue operation must be conducted for slow-moving or sedentary fauna within designated development footprints. Rescued animals must be relocated within suitable nearby open space areas on site and not removed from the property.

g) Domestic Pet Management

Free-roaming dogs must be strictly prohibited from accessing open space areas to prevent disturbance or predation of wildlife. Cats should not be permitted on the property due to their significant adverse impact on small mammals, reptiles, amphibians, and birds.

h) Environmentally Responsible Rodent Control

Rodent control should be achieved through environmentally sensitive methods, including the installation of owl nesting boxes and raptor perches to promote natural predation rather than chemical baiting, which poses a secondary poisoning risk to wildlife.

i) Lighting and Insect Attraction Management

To mitigate the impact of artificial lighting on nocturnal wildlife and reduce insect mortality, the following measures must be adopted:

- Lights should be turned off when not in use.
- Lighting should be fitted with motion sensors or timers to limit unnecessary operation.
- Fixtures must include shielding to prevent light spill and direct illumination only where necessary.
- All outdoor lighting should shine downward and avoid illuminating natural habitats.
- Use long-wavelength lighting (e.g., red or amber filtered LEDs) to reduce ecological disruption; avoid blue and green light spectrums where possible.
- A site-specific lighting plan must be developed to minimise ecological light pollution.

j) Vegetation Protection and Trampling Avoidance

The clearing of indigenous fynbos and Milkwood (*Sideroxylon inerme*) vegetation must be minimised. All natural vegetation, particularly fynbos and Milkwood forest clumps surrounding the development footprint, must be protected from unnecessary disturbance and trampling during and after construction.

Measures specific to Western Leopard Toads

The site ecological importance for western leopard toads after mitigation (as per recommendations below) remains 'medium' with expected residual negative impacts considered to be 'medium'.

Western Leopard Toad specific recommended mitigation measures

This section outlines specific and enforceable mitigation measures to minimise the impact of the proposed Stanford Green development on amphibians, particularly the Endangered Western Leopard Toad. The main risks identified is **increased road kills**, **reduced landscape connectivity**, and **stormwater quality** affecting downstream breeding sites. Also see the recommendations from the Whale Coast Conservation (2024) report.

Construction Phase Mitigation

Contractor Induction and Awareness

- All construction personnel must receive environmental awareness training regarding amphibian species present on site, including the Western Leopard Toad.
- Training should emphasize the risks of amphibian entrapment in trenches, pipes, and foundation works. Trench inspections must be conducted daily, and amphibians removed safely by a trained ECO (Environmental Control Officer).

Environmental Control Officer (ECO)

- Appoint an ECO with amphibian expertise to monitor implementation of all mitigation measures.
- The ECO must be present during key earthworks within 50 m of any delineated wetland or amphibian corridor.

Wetland Buffer and No-Go Zones

- Strictly avoid encroachment into the 32 m buffer zone around delineated wetlands, especially the Mill Stream and tributary Unchanneled Valley-Bottom wetlands (UVBW) (see van Zyl (2024))
- Temporary fencing should demarcate and protect all no-go zones.

Operational Phase Mitigation

Habitat Connectivity and Permeability

- All perimeter and internal fences must be permeable to amphibians. Avoid solid barriers like brick or precast walls.
- Install toad-friendly passages such as:
    - "Toad holes" (min. 100 mm diameter, ≤300 mm in length) every 20 m in walls and fences.
    - Open-bottomed boundary fences or gaps at ground level.
- Include amphibian underpasses (e.g. drainage culverts or pipes) beneath internal roads at key crossing points to minimize road mortalities.

Road Verge and Kerb Design

- All new kerbs must not exceed 50 mm in height and should incorporate shallow V-shaped gutters to allow safe passage for toadlets (see Whale Coast Conservation (2024)).
- Adequate road reserve should be implemented for internal access roads within the estate to facilitate the movement of toads.

Stormwater Management

- Cover stormwater drains with grates or mesh to prevent toad entrapment.
- Treat all stormwater in vegetated detention ponds or swales before discharge into wetlands, see van Zyl (2024)
- Monitor stormwater for pollutants and nutrients; implement community-based campaigns to prevent dumping of chemicals or waste into drains.
- Tie into mainline sewage or use fully contained conservancy tanks serviced by truck. No sewage treatment, irrigation or soak-aways should be contemplated, see (van Zyl 2024).

Garden and Landscape Guidelines

- Gardens should prioritize indigenous vegetation and "wild" landscaping (e.g. woodpiles, compost heaps, leaf litter) to provide habitat for adult toads.

- Encourage the planting of Arum Lilies (*Zantedeschia aethiopica*) in wetland buffers to support the amphibian diversity and filter stormwater runoff.

Swimming Pool Safety for Amphibians

- Enforce a compulsory “frog escape” net or ladder requirement for all swimming pools.
- Promote use of non-chlorinated eco-pools or “beach-entry” designs to allow safe amphibian exit (van Zyl 2024).

Control of Invasive Vegetation

- Systematic removal of invasive grasses and maintenance of fynbos-dominated groundcover on road verges and open areas is critical.
- Reed cutting in the Mill Stream and tributaries should occur only during the dry season (December–May) and follow best practices:
    - Do not exceed 300 m² per cut (as per regulation).
    - Remove all cut biomass immediately to prevent nutrient leaching.
- Removal of *Eucalyptus* forest and rehabilitation to indigenous vegetation will improve habitat suitability for toads along Mill stream corridor

Community Engagement and Education

Signage and Speed Control

- Install educational signage throughout the estate highlighting Western Leopard Toad presence, breeding season (July–September), and road mortality risks.
- Impose and enforce a maximum speed limit of 30 km/h within the estate, especially during breeding and emergence seasons.

Resident Awareness Program

- Distribute educational materials to new residents on amphibian-friendly living, including:
- Stormwater pollution prevention
- Gardening for toads
- Responsible pet and chemical use

Citizen Science and Ecotourism

- Explore opportunities for annual toad migration events and night walks during the breeding season (August), which coincide with the low tourism season and offer potential for ecotourism-based engagement.

Legislative Compliance and Long-Term Management

Wetland Protection and Offsets

- Secure and implement a Wetland Offset, Rehabilitation and Management Plan, especially for the impacted hillslope seep wetland (PES: E).
- No water abstraction from wetlands unless authorized via a valid Water Use Licence.

Monitoring and Review

- Establish a post-development biodiversity monitoring program to assess amphibian diversity and abundance.
- Review mitigation effectiveness annually and adjust management practices accordingly.

Mitigation measures conclusion

Through the full and consistent implementation of these mitigation measures, the development of Erf 438 can be aligned with the conservation of the Western Leopard Toad and the ecological integrity of the Mill Stream wetland system. These actions support compliance with NEMA and GN 320 of 2020, and position Stanford Green as a model of amphibian-sensitive estate planning.

Predicted Faunal Impacts Under Alternative Development Scenarios

This section provides a comparative analysis of potential faunal impacts under three alternative development scenarios for the proposed Stanford Green Eco Estate. The scenarios considered are: (1) development without mitigation (Table 20), (2) development with the implementation of the recommended mitigation measures (Table 21), and (3) a no development scenario that assumes the continuation of existing land use practices (Table 22). For each scenario, the predicted impacts on fauna are summarized in tabular format, detailing the nature, timing, spatial extent, probability, and overall significance of each impact. These evaluations are based on site-specific observations, expert judgement, and the ecological sensitivity of the habitats and species identified within the project area of influence (PAOI).

Table 20: Faunal Environmental Impact Summary – Scenario 1: Development Without Mitigation

Impact	Project phase	Nature of impact	Impact duration	Extent	Probability	Significance
Habitat loss (wetland, milkwood, fynbos)	Construction	Destruction of indigenous habitat, including edge wetland and milkwood stands	Permanent	Local	High	High
Habitat fragmentation	Operational	Loss of ecological connectivity for small mammals, reptiles and amphibians	Long-term	Local	Medium	Medium
Road mortality of amphibians (incl. Western Leopard Toad)	Operational	High risk of roadkill during breeding season due to lack of amphibian crossings	Seasonal (annual)	Local	High	High
Western Leopard Toad breeding and foraging disruption	Construction & Operational	Loss of usable habitat, increased mortality, and stormwater impacts on breeding	Long-term	Local	High	High
Artificial light impact on nocturnal insects & toads	Operational	Attraction and disorientation of nocturnal invertebrates and amphibians	Long-term	Local	High	Medium
Stormwater runoff pollution	Operational	Untreated runoff degrading downstream breeding habitat (Mill Stream)	Long-term	Local-Regional	Medium	Medium

Table 21: Faunal Environmental Impact Summary – Scenario 2: Development with Mitigation

Impact	Project phase	Nature of impact	Impact duration	Extent	Probability	Significance
Habitat loss (wetland, milkwood, fynbos)	Construction	Avoidance of key sensitive habitats and buffers around wetlands	Permanent	Local	Medium	Medium
Habitat fragmentation	Operational	Mitigated via amphibian-friendly fencing and underpasses	Long-term	Local	Low	Low
Road mortality of amphibians (incl. Western Leopard Toad)	Operational	Reduced via traffic-calming, kerb design and amphibian passages	Seasonal (annual)	Local	Medium	Medium
Western Leopard Toad breeding and foraging disruption	Construction & Operational	Mitigated via no-go zones, stormwater controls and public awareness	Long-term	Local	Medium	Medium
Artificial light impact on nocturnal insects & toads	Operational	Minimized through directional, low-spectrum lighting and controls	Long-term	Local	Medium	Low
Stormwater runoff pollution	Operational	Treated through vegetated swales and retention features before discharge	Long-term	Local-Regional	Low	Low

Table 22: Faunal Environmental Impact Summary – Scenario 3: No Development

Impact	Project phase	Nature of impact	Impact duration	Extent	Probability	Significance
Habitat loss (wetland, milkwood, fynbos)	Operational	Gradual degradation from alien plant spread and unmanaged land use	Long-term	Local	Medium	Medium
Habitat fragmentation	Operational	Connectivity remains partially compromised due to existing fences/land use	Long-term	Local	Medium	Medium
Road mortality of amphibians (incl. Western Leopard Toad)	Operational	Risk remains due to local traffic and lack of proactive mitigation	Seasonal (annual)	Local	Medium	Medium
Western Leopard Toad breeding and foraging disruption	Operational	Continued degradation from unmanaged landscape and stormwater effects	Long-term	Local	Medium	Medium
Artificial light impact on nocturnal insects & toads	Operational	Existing lighting persists with no strategic controls	Long-term	Local	Medium	Medium
Stormwater runoff pollution	Operational	No improvement; ongoing risk to downstream breeding wetlands	Long-term	Local-Regional	Medium	Medium

Biodiversity offset requirement.

According to the NEMA Act no 107 of 1998 a biodiversity offset is required when a proposed listed or specified activity, or activities, is/are likely to have residual negative impacts on biodiversity of medium or high significance.

Is there a need for a biodiversity offset?

This assessment indicates that the residual impact of the proposed development on the Western leopard toad *Sclerophrys pantherine* will be 'meduim'. The main risks identified is increased habitat loss, road kills, reduced landscape connectivity, and stormwater quality affecting downstream breeding sites. While some of these effects can be mitigated to some extent the risk remains 'medium' (Table 15, 16, 17 and 19)(Figure 15).

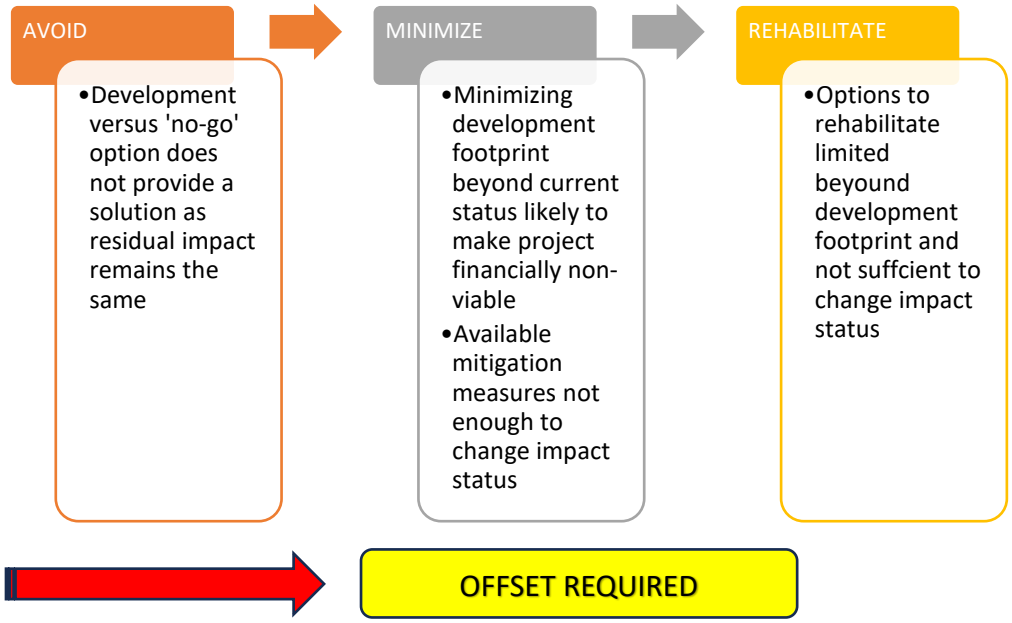

Figure 15: Preliminary consideration of alternative project options, locations, mitigations, scales and layouts indicates the potential need to consider offsets.

Integration of Faunal and Wetland Offsets

Following the recommendation for a biodiversity offset in this report, (Zdanow and Morton 2025) prepared a *Wetland Offset, Rehabilitation and Management Plan* for the Stanford Green development. The plan provides a scientifically robust offset framework using the *Macfarlane et al. (2014)* national wetland offset calculator and identifies both onsite and offsite rehabilitation areas along the Mill Stream and Tributary wetlands.

From a faunal perspective, this plan satisfies the objectives of the recommended biodiversity offset by:

Securing and enhancing breeding and foraging habitat for the *Western Leopard Toad (Sclerophrys pantherina)* through restoration of functional wetland systems and surrounding buffer zones;

a) Removing alien vegetation (notably *Eucalyptus camaldulensis*) and rubble that previously degraded amphibian and invertebrate habitat;

b) Removal, thinning and control of dense stands of *Phragmites australis.*
c) Establishment of indigenous vegetated in the wetland offset areas which will provide habitat for faunal species of concern.
d) Implementing stormwater management and "toad-friendly" design interventions to maintain hydrological connectivity and reduce road mortality; and
e) Establishing long-term management and monitoring commitments to ensure persistence of amphibian and wetland-dependent fauna.

The inclusion of an offsite portion of the Mill Stream wetland, secured through a lease with the Overstrand Municipality, provides additional ecological compensation and connectivity benefits (Table 23). The combined offset measures therefore would potentially achieve no net loss of faunal habitat function and are consistent with the *SANBI (2020)* offset and SEI guidance used in this faunal assessment.

Table 23: Faunal Environmental Impact Summary – Scenario 2: Development with Mitigation and offset considered as per (Zdanow and Morton 2025)

Impact	Project phase	Nature of impact	Impact duration	Extent	Probability	Significance
Habitat loss (wetland, milkwood, fynbos)	Construction	Avoidance of key sensitive habitats and buffers around wetlands, offset area provides sanctuary areas	Permanent	Local	Medium	Low
Habitat fragmentation	Operational	Mitigated via amphibian-friendly fencing and underpasses, offset area provides sanctuary areas	Long-term	Local	Low	Low
Road mortality of amphibians (incl. Western Leopard Toad)	Operational	Reduced via traffic-calming, kerb design and amphibian passages	Seasonal (annual)	Local	Medium	Low
Western Leopard Toad breeding and	Construction & Operational	Mitigated via no-go zones, stormwater controls and	Long-term	Local	Medium	Low

Impact	Project phase	Nature of impact	Impact duration	Extent	Probability	Significance
foraging disruption		public awareness				
Artificial light impact on nocturnal insects & toads	Operational	Minimized through directional, low-spectrum lighting and controls	Long-term	Local	Medium	Low
Stormwater runoff pollution	Operational	Treated through vegetated swales and retention features before discharge	Long-term	Local-Regional	Low	Low

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Appendix 1

CV and SACNASP Certificate of Prof JA Venter

CV and SACNASP Certificate of Dr Rudi Swart

Curriculum Vitae

Jan Adriaan Venter

1. Personal information

Full name:	Jan Adriaan Venter	**Home address:**	8 Steve Landman Crescent, Loeriepark, George, 6529, South Africa
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twitter **@JanBuffel**		**Conservation@Mandela**	RG **Jan Adriaan Venter**
Web page: Wildlife Conservation Decision Support		Web page: Wildlife Ecology Lab	
Scopus Scopus		Google Scholar Google	

2. Tertiary qualifications

Degree	Institution	Research theme or modules	Time period
Doctor of Philosophy: Biology	University of Kwazulu-Natal	Intrinsic and extrinsic influences on African large herbivore assemblages and implications for their conservation.	2009 – 2014
Master of Technology: Nature Conservation	Nelson Mandela Metropolitan University	The feeding ecology of buffalo (*Syncerus caffer*) on Doornkloof Nature Reserve, Northern Cape, South Africa	2002-2006
Baccalaureus of Technology: Nature Conservation	Technikon Port Elizabeth	Plant studies IV; Research methodology; Fresh water management IV; Conservation management I; Principles of management I; Resource management IV	1998-1999
National Diploma: Nature Conservation	Technikon South Africa	Plant studies I, II and III; Animal studies I, II and III; Conservation Ecology I, II and III; Resource Management I, II and III; Conservation Communication I and II	1993-1996

3. Work experience

Institution	Institution details	Job description	Time period
Full time positions:			
NELSON MANDELA UNIVERSITY	Department of Conservation Management, Faculty of Science, Nelson Mandela University, George Campus, Madiba Drive, George, 6530	*Associate Professor* *Head of Department: Conservation Management* *Program Coordinator: Nature Conservation and Game Ranch Management* *Senior Lecturer* *Lecturer*	1 January 2021 – current date 1 January 2021 – 31 December 2023 1 June 2017- 31 December 2020 1 January 2018 – 31 December 2020 1 June 2015- 31 December 2017
ADVENTURE PROVINCE Eastern Cape PARKS & TOURISM AGENCY	Scientific Section, 6 St Marks Street, Southernwood, East London, South Africa, 5201. Tel: 043 7054400	*Specialist Ecologist* *Area of responsibility:* Eastern Cape Provincial Protected areas as well as National Marine Protected Areas *Responsible for:* Research, monitoring and specialist decision support on biodiversity conservation, protected area expansion and wildlife management. Manager of the Marine Scientific Unit (1 x Marine ecologist and 1 x Marine Technician) *Ecologist* *Area of responsibility*: Wild Coast (Mkambati, Silaka, Hluleka & Dwesa-Cwebe, East London Coast Nature Reserves; Pondoland, Hluleka & Dwesa-Cwebe Marine Protected Areas) also Baviaanskloof Mega Reserve *Responsible for*: Facilitating and conducting research, biological monitoring as well as decision support to conservation management	1 November 2011 – 31 May 2015 1st March 2006 – 31 October 2011
UNIVERSITY OF LIMPOPO	School of Agricultural and Environmental Sciences, University of Limpopo, Private Bag X1106, Sovenga, 0727.	*Senior Technician* *Area of responsibility:* Aquaculture Research Unit *Responsible for:* Technical and research support for the research unit	1st May 2004 – 28th February 2006

Department: Environmental Affairs and Nature Conservation	Doornkloof Nature Reserve, PO Box 94, Colesberg, 9795	*Protected Area Manager* *Area of responsibility:* Doornkloof Nature Reserve *Responsible for:* General, conservation and wildlife management of the nature reserve	1st September 1998 – 28th April 2004
	Namakwa District Office, Private Bag X6, Calvinia, 8190	*District Nature Conservation Officer* *Area of responsibility:* Namakwa-Hantam District *Responsible for:* Law enforcement, environmental education, conservation advice and community liaison	6th January 1997 – 30th August 1998
Part-time/Contract positions: University of Pretoria	Centre for Wildlife Management, University of Pretoria, Pretoria, 0002	*Technician* *Area of responsibility:* Centre for Wildlife Management *Responsible for:* Technical and research support for the research unit	19th June 1996 – 31st December 1996
North-West Parks Board	Pilanesberg National Park, PO Box 1201, Mogwase, 0302	*Volunteer* *Area of responsibility:* Pilanesberg National Park *Responsible for:* Assisted field ecologist with data collection and field work	15th May 1996 – 17th June 1996
Cape Nature Conservation	Outeniqua Nature Reserve, Private Bag X6517, George, 6530	*Student Nature Conservator* *Area of responsibility:* Outeniqua Nature Reserve *Responsible for:* Assisted reserve manager with conservation management and field work	15th May 1995 – 6th May 1996

4. Ratings & Impacts

Agency	Rating
South African National Research Foundation	C3 (Rating)
Google Scholar	20 (h-index)
Scopus	15 (h-index)

5. Scientific output

Peer reviewed Journal Publications (shading indicates publications by postgraduate students and post-doctoral researchers under my supervision)
1) DAVIS, RS., GOPALAWAMY, AM., ELIIOT, NB., VENTER, JA. (2025) Using spatial capture-recapture models to inform lion (*Panthera leo*) management in fenced protected areas. The Journal of Wildlife Management https://doi.org/10.1002/jwmg.70085
2) VAN BERGEN, G., COETZEE, A., VENTER, J.A., ROETS, F, SWART, RC. (2025) Small forest patches support greater diversity of dung and carrion beetles compared to large continuous forest in South Africa, during Winter months. African Zoology 60(3) https://doi.org/10.1080/15627020.2025.2543237
3) DAVIS, RS, SALOOJEE, K, VENTER, JA. 2025. Using a recently developed camera trapping method to improve monitoring efforts for African small carnivore species. Ecological Solutions and Evidence. 6:e70091. https://doi.org/10.1002/2688-8319.70091
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5) MALULEKE, A., MARNEWICK, K, DRUCE, D, VENTER, JA. (In press) Spotted hyaena (*Crocuta crocuta*) recolonisation:

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83)	VENTER, J.A. & WATSON, L.H. (2008) Feeding and habitat use of buffalo (*Syncerus caffer caffer*) in Nama-Karoo, South Africa. South African Journal of Wildlife Research 38(1): 42-51. http://www.bioone.org/doi/abs/10.3957/0379-4369-38.1.42

84)	VENTER, J.A., 2004. Notes on the introduction of Cape buffalo to Doornkloof Nature Reserve, Northern Cape Province, South Africa. South African Journal of Wildlife Research 34(1): 95-99. http://reference.sabinet.co.za/sa_epublication_article/wild_v34_n1_a10
Book sections/chapters	
1)	VENTER, J.A., VERMEULEN, M. & BROOKE, C. (2019) Feeding ecology of large browsing and grazing herbivores, Eds: Gordon I & Prins HHT, The Ecology of Browsing and Grazing II, Springer Ecological Studies Series.
2)	VENTER J, CHILD MF. 2016. A conservation assessment of *Alcelaphus buselaphus caama*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa
3)	VENTER J, SEYDACK A, EHLHERS_SMITH Y, UYS R, CHILD MF. 2016. A conservation assessment of *Philantomba monticola*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.
4)	VENTER J, EHLERS-SMITH Y, SEYDACK A. 2016. A conservation assessment of *Potamochoerus larvatus*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.
5)	GAYLARD A, VENTER J, EHLERS-SMITH Y, CHILD MF. 2016. A conservation assessment of *Dendrohyrax arboreus*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.
6)	TAMBLING C, VENTER J, DU TOIT JT, CHILD MF. 2016. A conservation assessment of *Syncerus caffer caffer*. In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.
7)	BURGER, M. & VENTER, J.A. 2013. Reptiles and Amphibians of Mkambati Nature Reserve In: Mkambati and the Wild Coast: South Africa and Pondoland's Unique Heritage, Second edition, by Div De Villiers and John Costello.
8)	DE VILLIERS, D. & VENTER, J.A. 2013. Mammal Species of the Pondoland Wild Coast. In: Mkambati and the Wild Coast: South Africa and Pondoland's Unique Heritage, Second edition, by Div De Villiers and John Costello.
Technical Reports	
1)	VENTER, J.A. & SWART, R., 2025. Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report - Proposed development of the Stanford Green Eco Estate residential area on Erf 438, Stanford, Version2 – with offset considered. Technical Report prepared for Lornay Environmental Consulting, George, Western Cape, ZA.
2)	VENTER, J.A. & SWART, R. 2025. Section 24G Terrestrial Animal Site Sensitivity Verification Report and Compliance Statement: Development of an unlawful dam within a watercourse on No. 232, Portion 17 of the Farm Redford, The Crags, Bitou Municipal Area. Technical Report prepared for Bokamoso Environmental Consultants, George, Western Cape, ZA.
3)	VENTER, J.A. 2025. Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report - Proposed Residential Development on Portion 4 of the Farm 643, Stanford. Technical Report prepared for Lornay Environmental Consulting, Hermanus, Western Cape, ZA.
4)	VENTER, J.A., SWART, R. 2025. Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report - Proposed Residential Development on Erf 3495, Paapekuilfontein, Struisbaai. Technical Report prepared for Lornay Environmental Consulting, Hermanus, Western Cape, ZA.
5)	VENTER, J.A. 2025. Terrestrial Animal Site Sensitivity Verification Report and Compliance Statement - Proposed residential development of RE281, Paapekuilfontein, Struisbaai. Technical Report prepared for Lornay Environmental Consulting, George, Western Cape, ZA.
6)	VENTER, J.A., PEEL, M.J.S., MARTINDALE, G., HECHTER, F.S. 2025. Maputo National Park Wildlife Offtakes Operational Plan. Mozambique. Technical Report, Mozambique National Administration of Conservation Areas (ANAC) & Peace Parks Foundation, Maputo, Mozambique.
7)	VENTER, J.A., 2025. Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report - Proposed Residential Dwelling on Erf 1071 Hoekwil in Wilderness. Technical Report prepared for Greenfire Enviro (Pry) Ltd, George, Western Cape, ZA.
8)	VENTER, J.A., 2025. Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report - Proposed Dam and Aircraft Landing Strip on Farm Antjiesfontein RE/14, Prince Albert. Technical Report prepared for Greenfire Enviro (Pry) Ltd, George, Western Cape, ZA.
9)	VENTER, J.A. & SWART, R., 2024. Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report - Proposed infrastructure upgrade and expansion of the tourist accommodation facilities on Rusty Gate Mountain Retreat, Farms 824, Rem. Farm 826 and Farm 887, in the Caledon District. Technical Report prepared for Lornay Environmental Consulting, George, Western Cape, ZA.
10)	VENTER, J.A. & SWART, R., 2025. Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report - Proposed development of the Stanford Green Eco Estate residential area on Erf 438, Stanford. Technical Report prepared for Lornay Environmental Consulting, George, Western Cape, ZA.

11)	VENTER, J.A. & SWART, R., 2025. Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report Ver. 2- Proposed development of an eco-estate/beach resort on Portion 36 of Farm Franche Kraal 708, Overberg. Technical Report prepared for Lornay Environmental Consulting, George, Western Cape, ZA.
12)	VENTER, J.A. & PEEL, M.J.S. 2024. Limpopo National Park Water Supplementation Policy Review and Recommendations. Mozambique. Unpublished report, Peace Parks Foundation, Maputo, Mozambique.
13)	VENTER, J.A. & SWART, R., 2024. Terrestrial Animal Site Sensitivity Verification Report and Compliance Statement - Proposed expansion of the Aqunion (Pty) Ltd Abalone Farm, Romansbaai Farm Portion 2 of Klipfontein Farm no 711, Gansbaai. Technical Report prepared for Lornay Environmental Consulting, George, Western Cape, ZA.
14)	VENTER, J.A. & SWART, R., 2024. Terrestrial Animal Site Sensitivity Verification and Species Specialist Assessment Report - Proposed development of the Khoisan Bay Residential Development on Portion 2 of Farm Strandfontein No. 712, Gansbaai. Technical Report prepared for Lornay Environmental Consulting, George, Western Cape, ZA.
15)	VENTER, J.A., 2024. Terrestrial Animal Site Sensitivity Verification Report and Compliance Statement - 80MWac Solar PV+130MWh BESS, Portions 11 & 89 of Farm 183 Eastbrook, Karatara. Technical Report prepared for Celior (Pty) Ltd, George, Western Cape, ZA.
16)	VENTER, J.A. & SWART, R., 2024. Terrestrial Animal Site Sensitivity Verification Report and Compliance Statement - Proposed infrastructure upgrade and expansion of the tourist accommodation facilities on Rusty Gate Mountain Retreat, Farms 824, Rem. Farm 826 and Farm 887, in the Caledon District. Technical Report prepared for Lornay Environmental Consulting, George, Western Cape, ZA.
17)	VENTER, J.A., PEEL, M.J.S., & WOLFAARD, G.C.M. 2023. An ecological assessment of potential sanctuaries for White Rhino (*Ceratotherium simum*) in Limpopo National Park, Mozambique. Unpublished report, Peace Parks Foundation, Maputo, Mozambique.
18)	VENTER, J.A. 2024. Terrestrial Animal Site Sensitivity Verification Report and Species Specialist Assessment Report - Proposed development of Residential Erf 1486, Vermont, Hermanus. Technical Report prepared for Lornay Environmental Consulting, George, Western Cape, ZA.
19)	VENTER, J.A., PEEL, M.J.S., & WOLFAARD, G.C.M. 2023. An ecological assessment of potential sanctuaries for White Rhino (*Ceratotherium simum*) in Maputo National Park, Mozambique. Unpublished report, Peace Parks Foundation, Maputo, Mozambique.
20)	VENTER, J.A. 2023. Terrestrial Animal Compliance Statement Duthie's Golden Mole - *Chlorotalpa duthieae*, Eden Palms Residential, Property: Portion 21/438, Ladywood Estate, Plettenberg Bay.
21)	VENTER, J.A., FOUCHE, P.S.O, VLOK, W., MOYO, N.A.G., GROBLER, P., THERON, S. 2010. A guide to te development of conservation plans for southern African fish species. WRC Report No. 1677/1/10. Water Research Commission, Pretoria South Africa.
Presentations at conferences and symposia (International conferences are shaded)	
1)	VENTER, JA, DAVIS, R., RYAN, R., BALL, I., ELLIOT, N., GOPALASWAMY, A., GROOM, R., WATERMEYER, J., TZITZIKA, I. 2025 Landscapes, and Evidence: A Multi-Site Evaluation of Robust Monitoring for African Carnivore Conservation. International Wildlife Congress, 1-4 September 2025, Lillehammer, Norway.
2)	HONIBALL, T., VALEIX, M., FRITZ, H., SWANEPOEL, L. & VENTER, J.A. 2025. Rather the enemy you know: Territorial behaviour of spotted hyaenas in fenced protected areas. IX European Congress of Mammalogy (ECM 9), 31 March - 4 April 2025, Patras, Greece.
3)	VENTER, J.A., PARDO, L, OSNER, N.R., HUEBNER, S., NICVERT, L., SWANEPOEL, L., PEEL, M., SOMERS, M., KEITH, M., FRITZ, H. 2023 Running a large-scale, long-term camera trap monitoring project for conservation in Africa, the SnapshotSafari experience. 13th International Mammalogical Congress, Anchorage, Alaska, USA
4)	HONIBALL, T., VALEIX, M., FRITZ, H., SWANEPOEL, L. & VENTER, J.A. 2023 The Human-Wildlife Landscape: Effects of Fences as a Conservation Management Tool, 13th International Mammalogical Congress, Anchorage, Alaska, USA
5)	VENTER, J.A. & BETTINGS, I. (2022) Using a spatially explicit capture-recapture model to investigate the demography and spatial dynamics of lion prides in Pilanesberg National Park. 2nd Northwest Provincial Annual Biodiversity Research Symposium, Rustenburg, South Africa.
6)	VENTER, J.A. & SWARTZ, Y. (2019) Insights into past and present behaviour and impacts of a fast-growing elephant population in Madikwe Game Reserve. 1st North West Provincial Annual Biodiversity Research Symposium, Cookes Lake, Mahikeng, South Africa.
7)	VENTER, JA, BROOKE, C., MAREAN, C., FRITZ, H. & HELM, C. 2019. Conceptual reconstruction of Late Pleistocene large mammal assemblages of the Palaeo-Agulhas Plain reveals resilience to climate change but vulnerability to modern humans. 8th European Congress of Mammalogy, Warsaw, Poland.
8)	VENTER, JA, BROOKE, C., MAREAN, C., FRITZ, H. & HELM, C. 2019. Conceptual reconstruction of large mammal assemblages of the Palaeo-Agulhas Plain reveals resilience to climate change but vulnerability to modern humans. 29th International Congress for Conservation Biology (ICCB 2019), Kuala Lumpur, Malaysia.
9)	VENTER, JA, BROOKE, C., MAREAN, C., FRITZ, H. & HELM, C. 2019. Conceptual reconstruction of large mammal

communities on the Palaeo-Aghulas Plain. Annual Meeting & Centennial celebration of the American Society of Mammalogists, Hyatt Regency Washington on Capitol Hill, Washington DC.
10) VENTER, JA., VERMEULEN, MM., PACKER, C., SLOTOW, R., DOWNS, D., SOMERS, MJ., PEEL, M., SWANEPOEL, L., MGQATSA, N.,FRITZ, H., WILLOWS-MUNRO, S., KEITH, M., PARKER, D., LE ROUX, A. 2018. Snapshot Safari – South Africa: Contemporary applications of camera traps to monitor mammal communities in South African protected areas. Joint SANBI Biodiversity Information Management & Foundational Biodiversity Information Programme Forum, Cape St Francis, Eastern Cape, South Africa.
11) VENTER, J.A., PRINS, H.H.T., MASHANOVA, A., & SLOTOW, R., 2017. Ungulates rely less on visual cues, but more on adapting movement behaviour, when searching for forage, 12th International Mammalogical Congress, Perth, Western Australia.
12) VENTER, J.A., MARTENS, F.R., PFEIFFER, M.B., DOWNS, C.T. 2017. Cape vultures and wind turbines: Between a rock and a hard place. Southern African Wildlife Management Association Symposium: Wildlife management in the face of global change, Goudini, Western Cape Province, South Africa
13) VENTER, J.A., PRINS, H.H.T., MASHANOVA, A., DE BOER, W.F., & SLOTOW, R., 2014. Intrinsic and extrinsic factors influencing large African herbivore movements. Southern African Wildlife Management Association Symposium: Reconciling the contradictions of wildlife management in southern Africa. Pine Lodge Resort, Port Elizabeth, Eastern Cape, South Africa.
14) VENTER, J.A., PRINS, H.H.T., MASHANOVA, A., DE BOER, W.F., & SLOTOW, R., 2014. Intrinsic and extrinsic factors influencing large African herbivore movements. Spatial Ecology & Conservation 2, University of Birmingham, Birmingham, United Kingdom.
15) VENTER, J.A., PRINS, H.H.T., BALFOUR, D.A., SLOTOW, R. 2013. Reconstructing grazer assemblages for protected area restoration in South Africa. 11th International Mammalogical Congress, Queens University of Belfast, Belfast, Northern–Ireland.
16) VENTER, J.A., NABE-NIELSEN, J., PRINS, H.H.T., SLOTOW, R. 2012. Fire-patch foraging by red hartebeest and zebra in nutrient limited grassland under variable predation risk. Southern African Wildlife Management Association Symposium: Responsible Biodiversity Research and Wildlife Management, Klein Kariba, Limpopo Province, South Africa.
17) VENTER, J.A., FOUCHE, P. & VLOK, W. 2010. The development of a conservation framework for threatened southern African fish. 24th International Congress for Conservation Biology, Edmonton, Canada.
18) HAMER, M., SLOTOW, R. & VENTER, J.A. 2008. Patterns of invertebrate species richness and endemism in a protected area on the Pondoland Coast, South Africa. Southern African Wildlife Management Association Symposium: Wildlife Management – Biodiversity Conservation: The science-management interface. Impekweni Resort, Port Alfred, Eastern Cape, South Africa.
19) VENTER, J.A., 2005. The feeding ecology of Cape buffalo on Doornkloof Nature Reserve, Northern Cape Province. Southern African Wildlife Management Association Symposium: Wildlife Management – A conservation or economic Incentive, Magoebaskloof, Limpopo Province South Africa.
20) VENTER, J.A., HARLEY, V. & MALATJI, M.B. 2004. Game counts on Northern Cape Provincial Nature Reserves: Recommendations for future management. Southern African Wildlife Management Association Symposium: Innovations in Managing Wildlife Resources. Kathu, Northern Cape, South Africa.
21) VENTER, J.A., 2001. The Karoo habitat of the Blue Crane (*Anthropoides paradiseus*). The 13th South African Crane Working Group Workshop and the Southern African Strategy Meeting, South African Crane Working Group. Howick, Kwazulu-Natal, South Africa.
Poster presentations (International conferences are shaded)
1)
2) VENTER, J.A. 2011. The value of science to improve conservation management effectiveness in marine protected areas. World Marine Biodiversity Conference 2011, Aberdeen, Scotland. (Digital object presentation)
3) VENTER, J.A., FOUCHE, P. & VLOK, W. 2010. The current distribution of *Opsaridium peringuyei* in South Africa: Is there reason for concern? 8th Annual Science Networking Meeting, Kruger National Park, Skukuza, Mpumalanga, South Africa.
4) VENTER, J.A., MOYO, N., VLOK, W., FOUCHE, P. & GROBLER, J.P. 2005. The ecology and distribution of the Southern Barred Minnow (*Opsaridium peringueyi*) in some southern African river systems. Southern African Wildlife Management Association Symposium: Wildlife Management – A conservation or economic Incentive, Magoebaskloof, Limpopo, South Africa.

Grant funding	
National Research Foundation	Society for Conservation Biology
Bill Branch Memorial Grant	National Geographic Society
Oppenheimer Trust	Forestry CETA
Ernest and Ethel Eriksen Trust	Rufford Foundation
Copenhagen Zoo	Templeton Foundation

Shangani Ranch Amarula Elephant Fund The Elephant Managers Association The Palaeontological Scientific Trust Fynbos Trust Grootbos Foundation Fairfield Fund Dormehl Cunningham Scholarship Funding Cape Leopard Trust	Waitt Grants Program US National Science Foundation South African Water Research Commission Harry and Anette Swartz Foundation Lion Recovery Fund Tswalu Foundation Madikwe Wildlife Trust Panthera

Review of journal manuscripts

African Journal of Wildlife Research, African Journal of Marine Research, African Zoology, African Ecology, International Journal of Marine Science, Environmental Monitoring and Assessment, Ecological Applications, Acta Theriologica, Ecological Research, International Journal of Biodiversity and Conservation, PeerJ, Ecological Informatics, Mammal Research, Urban Forestry & Urban Greening, Journal of Arid Environments, Biodiversity and Conservation, Journal of Ornithology, Transportation Research Part D: Transport and Environment, Remote Sensing in Ecology and Conservation, Mammalia, Ecological Monographs, Kudu, Global Ecology and Conservation

Research reviews or supervisory panels

National Research Foundation	NRF Researcher Rating Review	2020 (Reviewer)
National Research Foundation	Postdoctoral, Travel, General and International Research Grants Virtual Peer Review Panel	2020 (Review Panel)
National Research Foundation	Postgraduate Bursaries/ Travel Grants Virtual Peer Review Panel	2019 (Review Panel)
National Research Foundation	Physiological plasticity of water-dependent antelope	2019 (Reviewer)
National Research Foundation	Mechanisms of resource selection and space use in a recovering rare antelope population	2018 (Reviewer)
Water Research Commission	WRC Project K5/2337 - Assessing the effect of global climate change on indigenous and alien fish in the Cape Floristic Region	2014-2017 (supervisory panel)
Water Research Commission	WRC Project K5/2039 - To understand the unintended spread and impact of alien and invasive fish species in order to develop mitigation and prevention guidelines.	2012-2014 (supervisory panel)
Water Research Commission	WRC Project K5/2187 – The resilience of South Africa's estuaries to future water resource development based on a provisional ecological classification of these systems.	2012-2014 (supervisory panel)
Water Research Commission	WRC Project K5/2261 - Evaluating fish and macro-invertebrate recovery rates in the Rondegat river, Western Cape, after river rehabilitation by alien fish removal using rotenone.	2013-2016 (supervisory panel)

Student supervision

BSc Hon/BTech

1) M. Mbiko	Honours degree (Zoology), Walter Sisulu University, Co-supervisor	The study of dietary niche separation for ungulates in Mkambati Nature Reserve, using the stable carbon isotopes	Completed (2014)
2) E. Jones	BTech (Nature Conservation), NMU, Supervisor	Amphibians and Vegetation as indicators of Conservation Value of Wetlands in an Anthropogenically Impacted Landscape	Completed (2016) *Cum Laude*
3) K. Green	BTech (Nature Conservation), NMU, Supervisor	Variables affecting mammal species rate of capture as evaluated by camera traps on Tswalu Kalahari Reserve	Completed (2016)
4) B White	BTech (Nature Conservation), NMU, Supervisor	Water Bird Counts Along the Klein Brak River: A Study on the Precision of Citizen Science Counts	Completed (2016)
5) P Rossouw	BTech (Nature Conservation), NMU, Supervisor	Herpetological biodiversity in areas adjacent to the Wilderness section of the Garden Route National Park	Completed (2016)

6) S. Schimmel	BTech (Nature Conservation), NMU, Supervisor	Mammal diversity and density in transformed and natural landscapes of a conservation corridor adjacent to the Garden Route National Park, Western Cape	Completed (2016)
7) S. Atkinson	BTech (Nature Conservation), NMU, Supervisor	The precision of waterfowl numbers through Co-ordinated Waterbird Counts on the Great Brak Estuary	Completed (2016)
8) A. Robinson	BTech (Nature Conservation), NMU, Supervisor	Does distance from water influence herbivore assemblages in Kruger National Park?	Completed (2017)
9) D. van Aswegen	BTech (Nature Conservation), NMU, Supervisor	The effect of forest fragmentation on forest bird diversity and movement in a plantation dominated landscape	Completed (2017)
10) KL Midlane	BTech (Nature Conservation), NMU, Supervisor	Amphibian and reptile biodiversity patterns in commercial plantations of the Southern Cape	Completed (2017)
11) M. Gouws	BTech (Nature Conservation), NMU, Supervisor	Do different herbivores influence soil nitrogen levels in Satara, Kruger National Park?	Completed (2017)
12) O. Rynders	BTech (Nature Conservation), NMU, Supervisor	Forest fragmentation and its effects on invertebrate diversity and abundance	Completed (2017) *Cum Laude*
13) Z. Schoeman	BTech (Nature Conservation), NMU, Supervisor	The effect of anthropogenic disturbance on marine shorebird population size and habitat use in the Garden Route	Completed (2017)
14) D. de Villiers	BTech (Nature Conservation), NMU, Supervisor	The herpetological diversity in the Karoo National Park in South Africa	Completed (2018)
15) C. Esmeraldo	BTech (Nature Conservation), NMU, Supervisor	The influence of vegetation and water on ungulate distribution in the Karoo National Park	Completed (2018)
16) A. Laas	BTech (Nature Conservation), NMU, Supervisor	The activity patterns of herbivores exposed to predators in the Karoo National Park, South Africa	Completed (2018)
17) J. Dicker	BTech (Nature Conservation), NMU, Supervisor	The activity patterns of species exposed to large predators in the Mountain Zebra National Park	Completed (2018)
18) S. Truter	BSc Hons (Wildlife Management), UP, Co-Supervisor	Effects of medium to large carnivores on small carnivores in space and time in the Telperion Nature Reserve	Completed (2018)
19) N. Nkosi	BTech (Nature Conservation), NMU, Supervisor	Ungulates response to old agricultural fields in Gondwana Game reserve	Completed (2019)
20) I. Bettings	BTech (Nature Conservation), NMU, Supervisor	Habitat variations influencing the frequency of bird strikes in high air traffic areas within the George Airport	Completed (2019)
21) D. Ball	BTech (Nature Conservation), NMU, Supervisor	Large tree utilisation of the African Elephant (*Loxodonta africana*) in the Savanna biome	Completed (2019)
22) G. Reynolds	BTech (Nature Conservation), NMU, Supervisor	Assessing impacts of African elephant (*Loxodonta africana*) on the vegetation of Gondwana Private Game Reserve	Completed (2019)
23) K. Smith	BSc Hons (Wildlife Management), UP, Co-Supervisor	Testing the spatial and temporal avoidance hypothesis in a semi-arid landscape: Do subordinate carnivores of the Karoo change behaviour in response to dominant predators?	Completed (2019) *Cum Laude*
24) G. Sambula	BSc Hons (Zoology),	Carnivore Richness In Private And State	Completed (2019)

	UNIVEN, Co-Supervisor	Protected Areas	
25) T. Baird	BSc Hons (Wildlife Management), UP, Co-Supervisor	Spatial and temporal avoidance between large and meso-carnivores	Completed (2020)
26) A. Gervais	BSc Hons (Wildlife Management), UP, Co-Supervisor	Investigating the impact of large carnivores on mesocarnivores' temporal dynamics	Completed (2020)
27) Miss E.E.M. Evers	BSc Hons (Wildlife Management), UP, Co-Supervisor	Spatial and temporal organization of leopards (*Panthera pardus*) and spotted hyaena (*Crocuta crocuta*) on Madikwe Game Reserve	Completed (2020)
28) Mr R. Pienaar	BSc Hons (Animal, Plant & Environmental Science), WITS, Co-Supervisor	Do lions with long, dark manes behaviourally compensate for potentially high heat loads?	Completed (2020)
29) Mr I Kayiza	BSc Hons (Wildlife Management), UP, Co-Supervisor	Edge effect and its impacts on the abundance of mammal species in selected protected areas in South Africa	Completed (2020)
30) Mr N.K. Shah	BSc Hons (Wildlife Management), UP, Co-Supervisor	Do herbivores change their behaviour in the absence of lions in arid areas of SA?	Completed (2021) *Cum Laude*
31) Miss M. Thomson	BSc Hons (Wildlife Management), UP, Co-Supervisor	Herbivore space use in Atherstone Nature Reserve, Limpopo Province, South Africa.	Completed (2021) *Cum Laude*
32) Miss T. Tiribeni	BSc Hons (Wildlife Management), UP, Co-Supervisor	The effect of lion pride structure on home ranges	Completed (2022)
33) Miss K. Mieny	BSc Hons (Wildlife Management), UP, Co-Supervisor	A Preliminary Assessment of the Seasonal Difference and Influence of Megaherbivores on the Diets of Large Herbivores in Sanbona Wildlife Reserve	Completed (2022)
34) Mr A. van Niekerk	BSc Hons (Wildlife Management), UP, Co-Supervisor	Leopard tortoise occupancy in arid reserves in South Africa: assessment using camera traps.	Completed (2022)
35) Miss H. Basson	BSc Hons (Natural Resource Management), NMU, Co-supervisor	Factors influencing Chondrichthyan egg case hatching success in Mossel Bay, South Africa	Completed (2023) *Cum Laude*
36) Miss Y. Markides	BSc Hons (Natural Resource Management), NMU, Supervisor	The Development of a Condition Scoring System for White Rhinoceros (*Ceratotherium simum*), using expert knowledge	Completed (2023)
37) Mrs Rebecka Ryan	BSc Hons (Natural Resource Management), NMU, Supervisor	Opportunistic utilisation of resource pulses by a mesopredator in Welgevonden Game Reserve, South Africa	Completed (2023) *Cum Laude*
38) Mr D Stols	BSc Hons (Natural Resource Management), NMU, Co-supervisor	Elephants reduce vegetation diversity and affect tree structure in Madikwe Game Reserve	Completed (2023) *Cum Laude*
39) Mr T. Fifford	BSc Hons (Natural Resource Management), NMU, Supervisor	An assessment of a decade of surf-zone linefish monitoring in the Goukamma Marine Protected Area: Is the current resource use zonation effective?	Completed (2023) *Cum Laude*
40) Mr D.J.S. Samarasinghe	BSc Hons (Natural Resource Management), NMU, Supervisor	On the population ecology of an island leopard from a protected landscape	Completed (2023)

41) Miss S Rich	BSc Hons (Wildlife Management), UP, Co-Supervisor	The effect of vehicles on black-backed jackal (*Lupulella mesomelas*) and leopard (*Panthera pardus*) activity	Completed (2023)
42) Miss M. Venter	BSc Hons (Wildlife Management), UP, Co-Supervisor	Drivers of free-roaming African wild dog land use in the Waterberg, South Africa	Completed (2023)
43) Miss C Meyer	BSc Hons (Wildlife Management), UP, Co-Supervisor	Assessing the Indirect Effect of Elephants on Bird & Bat Assemblages	Completed (2024)
44) Mr K. Saloojee	BSc Hons (Natural Resource Management), NMU, Co-Supervisor	Testing a Novel Camera Trapping Method to Survey African Small Carnivore Populations	Completed (2024)
45) Miss J Morris	BSc Hons (Natural Resource Management), NMU, Supervisor	Balancing Fear and Forage: How zebra Equus quagga navigate risk and resources in the Makgadikgadi Pans, Botswana	In-progress (2025)
46) Miss D Ferreira	BSc Hons (Natural Resource Management), NMU, Supervisor	Golden Moles of the Southern Cape: Insights into Their Distribution and Habitat Selection	In-progress (2025)
47) Miss H Loubser	BSc Hons (Natural Resource Management), NMU, Supervisor	Environmental factors that influence lion pride spatial use in Kruger National Park	In-progress (2025)
48) Miss A Watson	BSc Hons (Natural Resource Management), NMU, Supervisor	Assessing the impacts of Environmental and Anthropogenic Factors on Elephant Spatial Distribution in a Fenced Reserve	In-progress (2025)
Masters			
1) Mr E. Mmonoa	MSc (Zoology), University of Limpopo, Co-supervisor	Breeding habitat of Blue crane (*Anthropoides paradiseus*) in Mpumalanga	Completed (2010)
2) Miss M. Pfeiffer	Msc (Zoology), University of Kwazulu-Natal, Co-supervisor	Understanding the association between Cape Vultures (*Gyps coprotheres*) and communal farmland.	Upgraded to PhD (2013)
3) Mrs M. Vermeulen	MSc (Nature Conservation), NMU, Co-supervisor	Exploring feeding ecology and population growth rate responses of ungulates in southern African arid biomes	Completed (2016-2017)
4) Mr C. Brooke	MSc (Nature Conservation), NMU, Supervisor	Energy maximisation strategies of different African herbivores in a fire dominated and nutrient poor grassland ecosystem	Completed (2016-2017) *Cum Laude*
5) Miss F. Martens	MSc (Nature Conservation), NMU, Supervisor	The spatial ecology and roost site selection of fledging Cape Vultures (*Gyps coprotheres*) in the Eastern Cape, South Africa.	Completed (2016-2017) *Cum Laude*
6) Mrs T. Meintjes	MSc (Nature Conservation – Part time), NMU, Supervisor	Using citizen science data to evaluate waterbird populations in the Garden Route	Deregistered (2016-2020) Not completed
7) Miss D. Winterton	MSc (Nature Conservation), NMU, Supervisor	Land use and ecosystem regulation: Exploring the influence of management practise on mesopredator and herbivore interactions	Completed (2017-2018)
8) Mr J. Vogel	MSc (Nature Conservation), NMU, Supervisor	Predicting reintroduction outcomes: Assessing the feasibility of reintroducing African wild dog to a small protected area.	Completed (2017-2018) *Cum Laude*
9) Miss C. Young	MSc (Nature Conservation), NMU,	Examining the influence of extrinsic factors on herbivore assemblage composition and	Completed (2017-2018)

	Supervisor	resultant nutrient feedbacks in Kruger National Park	
10) Miss A. Robinson	MSc (Nature Conservation), NMU, Supervisor	The influence of water dependency on the spatial ecology of large mammalian herbivores on the paleo-Agulhus plain	Deregistered (2018-2022) Not completed
11) Miss Z. Schoeman	MSc (Nature Conservation), NMU, Supervisor	The spatiotemporal aspects of predation on the Cape gannet *Morus capensis* population at Bird Island, Lambert's Bay, Western Cape, South Africa	Completed (2018-2019)
12) Mr P. Faure	MSc (Nature Conservation), NMU, Supervisor	The influence of anthropogenic and environmental covariates on the habitat use and density of sympatric carnivores, Limpopo Province, South Africa	Completed (2018-2019)
13) Miss YRP. Swartz	MSc (Nature Conservation), NMU, Supervisor	Elephants in Madikwe Game Reserve: Measuring past and future impacts	Deregistered (2018-2021) Not completed
14) Miss C. Burt	MSc (Nature Conservation), NMU, Supervisor	An assessment of different methods for measuring mammal diversity in two Southern African arid ecosystems	Completed (2018-2020)
15) Miss A. Jansen-van Vuuren	MSc (Nature Conservation), NMU, Supervisor	The feeding ecology and habitat selection of small antelopes in the Overberg Renosterveld, Western Cape	Completed (2019-2020)
16) Mr H. Swanepoel	MSc (Nature Conservation), NMU, Supervisor	The implications of landscape scale habitat fragmentation and ecological corridors on the spatial ecology of five specialist browser species in a lowland Fynbos and Renosterveld ecosystem.	Completed (2019-2020)
17) Miss T. Honiball	MSc (Nature Conservation), NMU, Supervisor	Estimating the population size of three large carnivore species and the diet of six large carnivore species, in Madikwe Game Reserve	Completed (2019-2020)
18) Miss N. Tsie	MSc (Wildlife Management), UP, Co-supervisor	The interaction between burrowing mammal occurrence and large carnivore presence in South Africa	Deregistered, Not completed (2019-2022)
19) Mrs C. Shutte	MSc (Nature Conservation), NMU, Supervisor	Understanding what factors determine the birth-sex ratio of Chacma baboons (*Papio ursinus*) on the Cape Peninsula	Deregistered, Not completed (2020-2023)
20) Miss I. Bettings	MSc (Nature Conservation), NMU, Supervisor	Using spatial explicit capture-recapture model to investigate the demography and spatial dynamics of lion prides in Pilanesberg National Park	Completed (2020-2021)
21) Mr Kyle Smith	MSc (Wildlife Management), UP, Co-supervisor	Testing the spatial and temporal avoidance hypotheses: Do subordinate carnivores change behaviour in response to dominant carnivores?	Completed (2020-2022)
22) Mr D. Ball	MSc (Nature Conservation), NMU, Supervisor	Do African elephants (*Loxodonta africana*) use artificial water points as central forage stations in the Madikwe Game Reserve?	Deregistered (2020-2021) Not completed
23) Miss J. Daya	MSc (Nature Conservation), NMU, Supervisor	Feeding ecology and habitat preference of black rhino (*Diceros bicornis*) in Welgevonden Game Reserve, Limpopo Province.	Completed (2020-2021)
24) Mr TD Baird	MSc (Wildlife Management), UP, Co-supervisor	Implications of camera trap survey design and analytical methods for large carnivore estimates	Completed (2021)
25) Miss J. Harris	MSc (Nature Conservation), NMU, Supervisor	Investigating the effects of pulse-driven resource availability on mammal communities in the Kalahari, South Africa	Completed (2021-2022)

26) Mr Markus Woesner	MSc (Conservation and Management of Fish and Wildlife), Swedish University of Agricultural Science, Co-supervisor	Does the response to hot temperatures differ among species in a large herbivore community in the southern Kalahari? A landscape of risk versus heat	Completed (2022-2023)
27) Mr Samuel Ralph Davidson-Phillips	MSc (Nature Conservation), NMU, Supervisor	Estimation of a generalist meso-carnivore (Black-backed Jackal) population from a fenced protected area	Completed (2022-2023) *Cum Laude*
28) Mr Moraswi Masehle	Magister Science Wildlife Health, Ecology and Management, University of Pretoria, Co-supervisor	The Activity Patterns of the Specialized Browsing Species and their Behavioral Adjustments in Response to Predation	In progress (2022)
29) Mr Jaco Geldenhuys	Master of Scientiae (MSc) in Environmental Management, University of Pretoria, Co-supervisor	Occupancy of black-backed jackal (*Canis mesomelas* Schreber, 1775) across South Africa	In progress (2021-2022)
30) Miss Cleo Ferreira	MSc (Nature Conservation), NMU, Supervisor	Evaluating the impact of dehorning on the behavioural ecology of white rhinoceros (*Ceratotherium simum*)	In progress (2023-2024)
31) Mrs Rebecca Ryan-Stolz	MSc (Nature Conservation), NMU, Supervisor	Estimating population density and assessing territoriality of African lions (Panthera leo) in Kruger National Park, South Africa	In progress (2024-2025)
32) Miss Yasmin Markides	MSc (Nature Conservation), NMU, Supervisor	Assessing landscape permeability and dispersal corridors for threatened carnivores across a multi-use landscape	In progress (2024-2025)
33) Miss Hannah Basson	MSc (Nature Conservation), NMU, Supervisor	A landscape-level evaluation of black-footed cat (*Felis nigripes*) distribution in the south-eastern Karoo	In progress (2024-2025)
34) Mr Dietre Stolz	MSc (Nature Conservation), NMU, Co-Supervisor	Giants of the Savannah: Unravelling the Impact of Elephant Preferences on Woody Vegetation in Madikwe and Timbavati Game Reserves.	In progress (2024-2025)
35) Miss M Venter	MSc (Wildlife Management), UP, Co-supervisor	Diet and movement patterns of two free-roaming packs of African wild dogs (Lycaon pictus) in the Waterberg, South Africa	In progress (2024-2025)
36) Miss R Mooney	MSc (Nature Conservation), NMU, Supervisor	Ranging behaviors of endangered, free-roaming African wild dogs (Lycaon pictus) outside of formally protected areas in the Waterberg, South Africa	In progress (2024-2025)
37) Miss Carina Meyer	MSc (Nature Conservation), NMU, Supervisor	The influence of complex social structures with fission-fusion properties on foraging efficiency and spatial dynamics of buffalo herds in the APNR	In progress (2025-2026)
Doctoral			
1) Miss M. Pfeiffer	PhD (Zoology), University of Kwazulu-Natal, Co-supervisor	Ecology and conservation of the Cape Vulture in the Eastern Cape, South Africa	Completed 2016
2) Mr W. Matthee	PhD (Nature Conservation – Part time), NMU, Supervisor	Forest birds and habitat fragmentation: evolutionary adaptations to environmental change	Deregistered, Not completed (2016-2022)
3) Mrs MM. Vermeulen	PhD (Nature Conservation), NMU, Supervisor	Variation in abundance and structure of mammal communities and the consequences for species diversity	In progress (2018-2022)
4) Mrs FR. Brooke	PhD (Nature	Cape Vultures and their increasing threats:	Completed (2018-2021)

	Conservation), NMU, Supervisor	a race to extinction?	
5) Mr CF. Brooke	PhD (Nature Conservation), NMU, Supervisor	Large mammalian fauna of the Palaeo-Agulhas Plain: Predicting habitat use and range distribution	Completed (2018-2020)
6) Mr P. Mkumba	PhD (Nature Conservation), NMU, Co-Supervisor	Migration patterns of male elephants (*Loxodonta africana*) in the Hwange-Shangani corridor: Consequences on Human Elephant Conflict	In progress (2019-2022)
7) Mr W. Conradie	PhD (Nature Conservation), NMU, Supervisor	Herpetofaunal diversity and affiliations of the Okavango River Basin, with specific focus on the Angolan headwaters.	Completed (2020-2023)
8) Miss A. Bernard	PhD (Zoology) REHABS International Research Laboratory, CNRS-Université Lyon 1-Nelson Mandela University, Co-Supervisor	Trophic guild distortion in anthropogenic landscapes – Testing anthropodependence and reconciliation ecology principles of mammals in the Greater Cape Floristic Kingdom.	Completed (2020-2022)
9) Mr GS. Botha	PhD (Nature Conservation), NMU, Supervisor	The effects of fences and other infrastructure on the mammal community structure and distribution in protected areas across South Africa.	Completed (2020-2025)
10) Dr C. Helm	PhD (Geoscience), NMU, Co-supervisor	Pleistocene fossil tracks and traces on the Cape coast of South Africa	Completed (2020-2023)
11) Mrs Z. Strydom	PhD (Nature Conservation), NMU, Supervisor	Assessing the effects of fish stock management on endangered seabird populations in South Africa	Completed (2020-2023)
12) Mrs W.L. Zeller Zigaitis	PhD (Geography), Pennsylvania State University, Co-supervisor	Protected Area Process and Design: Using Geospatial Data to Mitigate Poaching in Protected Areas	Completed (2020-2024)
13) Miss T. Honiball	PhD (Nature Conservation), NMU, Supervisor	Social dynamics of spotted hyaenas (*Crocuta crocuta*) in fenced protected areas: Implications for conservation management of a socially intelligent species.	Completed (2021-2024)
14) Miss A. Jansen van Vuuren	PhD (Nature Conservation), NMU, Supervisor	The role of spotted and brown hyaena activity hotspots on interspecific interactions	In progress (2021-2024)
15) Mr H. Swanepoel	PhD (Nature Conservation), NMU, Supervisor	The effects of climate on the phenology of African ungulates in arid and semi-arid regions of South Africa.	In progress (2022-2024)
16) Miss J Daya	PhD (Nature Conservation), NMU, Supervisor	Managing Lions in Pilanesberg National Park: Finding a Balance between Economic and Ecological Realities in Fenced Parks	In progress (2023-2025)
17) Miss J Harris	PhD (Nature Conservation), NMU, Supervisor	A Game of Thrones: Rivals, territories and resources. What are the intrinsic costs to African lions contained in small, fenced parks?	Deregistered (2023-2023) Not completed.
18) Mr S Tokota	PhD (Nature Conservation), NMU, Supervisor	A regional assessment of leopard (Panthera pardus) population status, threats, distribution, and habitat connectivity in the Eastern Cape, South Africa	In progress (2023-2025)
19) Miss E Overton	PhD (Nature Conservation), NMU, Supervisor	The ecological role of cheetah (*Acinonyx jubatus)* and their impact on prey populations on Tswalu Kalahari Reserve	In progress (2023-2026)
20) Miss M	PhD Biodiversity (U. of	Enhancing Coexistence: Understanding	In progress (2024-2026)

Rodriguez	Barcelona), Supervisor	Large Carnivore Mobility in Different Wildlife-Based Land Use Patterns in South Africa	
Post-Doctoral Researchers & Research fellows			
1) Dr L. Pardo-Vargas	Snapshot Safari South Africa – A country wide assessment of mammal biodiversity		FBIP-NRF Post-Doctoral Researcher (2019-2020) NRF Innovation Postdoctoral Fellowship (2021-2022)
2) Dr C. Guerbois	Social-Ecological Systems		NMU Research Fellow (2019-2023)
3) Dr D. Marneweck	Snapshot Safari South Africa – A country wide assessment of mammal biodiversity		NMU Post-Doctoral Research Fellow (2020-2021)
4) Dr C. Brooke	Late Pleistocene herbivore use on the Palaeo-Agulhas Plain: the facilitation role of megaherbivores and the implications for the modern rewilding of landscapes		NRF Innovation Postdoctoral Fellowship (2021-2022)
5) Dr R. Davies	Assessing the density, distribution and spatiotemporal dynamics of small carnivores across African conservation landscapes		NMU Post-Doctoral Research Fellow (2022-2023)
6) Dr Chad Keates	Genetic study on herpetological samples from Angola in association with Werner Conradie, PE Museum.		NMU Post-Doctoral Researcher (2022)
7) Dr L Thel	A Game of Thrones: Rivals, territories and resources. What are the intrinsic costs to African lions contained in small, fenced parks?		FBIP-NRF Post-Doctoral Researcher (2023-2024) NMU Post-Doctoral Research Fellow (2025-2026)

6. Experience in Teaching & Learning

Teaching experience			
Time period	Institution	Module or Course Information	
2015-current	Nelson Mandela University	I teach Animal Studies I/Game Health I & Animal Studies III/Game Science III to undergraduates (Diploma in Nature Conservation and Diploma in Game Ranch Management), Conservation Management and Plant Studies IV (BTech Nature Conservation), Game Science IV/Animal Studies IV (Advanced Diploma in Game Ranch Management & Advanced Diploma Nature Conservation), Conservation Management (BSc Hons Natural Resource Management).	
2022 (April-May)	Swedish University of Agricultural Sciences	Visiting lecturer at the Department Wildlife, Fish and Environmental Studies, Umea. Course work Masters degree, International Wildlife Management Module. Sweden-South Africa Erasmus ICM exchange program on wildlife ecology and management	
2010-2018	Pennsylvania State University/University of Cape Town	Assisted in setting up and hosting a study abroad program called People and Parks South Africa (http://aeseda.psu.edu/programs/parks-and-people-south-africa/). The students spend 10 weeks in South Africa (January-March) on an annual basis. I was one of the South African field lecturers for the program and presented practical biodiversity surveys (where we physically conducted biodiversity inventory surveys on various protected areas) and since 2013 an introductory course to conservation in South Africa. This course (2 weeks) introduced students to South African ecological and biodiversity features as well as various protected area management models while traveling from Cape Town to their base (Wild Coast, Eastern Cape).	
2005	University of Limpopo	Taught GIS to 1st and 2nd year students for one semester as substitute lecturer at the Department of Geography	
Curriculum Development & Review			
2019	Nelson Mandela University	Development of the new Advanced Diploma: Nature Conservation	Team leader of course development team
2018-2019	Nelson Mandela University	Development of the new BSc Honours: Natural Resource Management	Team member of the course development team

2020	University of South Africa	Review of the Postgraduate Diploma: Nature Conservation	Chairman of the external review committee
2020	Southern African Wildlife College	Review of a new Diploma: Applied Natural Resource Management	External reviewer

7. Professional membership and service

Association	Details	Time period
South African Wildlife Management Association	Ordinary member (Council member 2008-2010; 2018-2023)	1998-Current date
Zoological Society of Southern Africa	Ordinary member	2009-2023
IUCN Crocodile Specialist Group	Ordinary member	2013-2025
Mammal Research Institute, University of Pretoria	Research Associate	2013-Current date
Centre for Coastal Palaeo Science, NMU	Honorary Researcher	2016-Current date
South African Council for Natural Scientific Professions	Professional Natural Scientist – Ecological Sciences: Registration Number. 400111/14	2014-Current date
Associated Private Nature Reserves Ecological Advisory Committee	Committee member	2022 – Current date
Welgevonden Game Reserve Scientific Advisory Committee	Committee member	2018-Current date
BirdLife South Africa and Endangered Wildlife Trust - Birds and Renewable Energy Specialist Group	Specialist advisor	2019-2021
SEA REDZs Vulture Working Group	Specialist	2024-Current date
REHABS International Research Laboratory, CNRS-Université Lyon 1-Nelson Mandela University, George Campus	Deputy Director	2019-Current date
Society for Conservation Biology	Professional Member	2020-Current date
Centre for African Conservation Ecology, Nelson Mandela University	Member	2022-Current date

8. Other courses and qualifications

List of qualifications obtained	List of courses completed
Professional Hunter; Category C Skippers License; Marine VHF Radio Operator; NAUI Open Water 1 SCUBA Diver	Statistical Techniques in Ecology, Snake ID & Snakebite Treatment; Advanced Snake Handling; Conservation Planning; Practical Remote Sensing for Conservation Biologists; Ecological Niche Modelling; Landscape genetic approaches for Conservation Biologists; Resource evaluation and game ranch management for sustainable game production and conservation; Disease Risk Assessment; Game counting techniques; Wildlife handling and welfare; Maintenance of outboard motors and handling of boats on inland waters; Various ArcView, ArcGIS courses; Quantum GIS Various Windows Software courses; Financial management systems; Peace officer; Problem animal control.

9. Referees

Prof. Herbert Prins
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SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Jan Adriaan Venter

Registration Number: 400111/14

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Ecological Science (Professional Natural Scientist)

Effective **12 March 2014** Expires **31 March 2026**

Chairperson

Chief Executive Officer

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