Appendix H1: Terrestrial Biodiversity Assessment Report

TERRESTRIAL BIODIVERSITY, PLANT AND ANIMAL SPECIES IMPACT ASSESSMENT REPORT FOR THE UNAUTHORISED CLEARANCE OF VEGETATION ON SPIER WINE ESTATE, STELLENBOSCH, WESTERN CAPE PROVINCE

Prepared for:

Spier Wine Estate (Pty) Ltd.

Prepared by:

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Details of Company

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Authors

Tarryn Martin (Botanical Specialist) (Pri. Sci. Nat 008745)
Tarryn has over ten years of experience working as a botanist, nine of which are in the environmental sector. She has worked as a specialist and project manager on projects within South Africa, Mozambique, Lesotho, Zambia, Tanzania, Cameroon, Swaziland and Malawi. The majority of these projects required lender finance and consequently met both in-country and lender requirements.

Tarryn has extensive experience writing botanical impact assessments, critical habitat assessments, biodiversity management plans, biodiversity monitoring plans and Environmental Impact Assessments to International Standards, especially to those of the International Finance Corporation (IFC). Her experience includes working on large mining projects such as the Kenmare Heavy Minerals Mine, where she monitored forest health, undertook botanical impact assessments for their expansion projects and designed biodiversity management and monitoring plans. She has also project managed Environmental Impact Assessments for graphite mines in northern Mozambique and has a good understanding of the Mozambique Environmental legislation and processes.

Tarryn holds a BSc (Botany and Zoology), a BSc (Hons) in African Vertebrate Biodiversity and an MSc with distinction in Botany from Rhodes University. Tarryn's Master's thesis examined the impact of fire on the recovery of C3 and C4 Panicoid and non-Panicoid grasses within the context of climate change for which she won the Junior Captain Scott-Medal (Plant Science) for producing the top MSc of 2010 from the South African Academy of Science and Art as well as an Award for Outstanding Academic Achievement in Range and Forage Science from the Grassland Society of Southern Africa.
Tarryn is a professional member of the South African Council for Natural Scientific Professionals (since 2014).

Nicole Dealtry (née Wienand) (Pri. Sci. Nat. 130289)
Nicole is a Principal Botanical Specialist with over 7 years' experience. She obtained her BSc Honours in Botany (Environmental Management) from Nelson Mandela University (NMU) in December 2018 and holds a BSc Degree in Environmental Management (Cum Laude) from NMU. Nicole is a professional member of the South African Council for Natural Scientific Professionals (SACNASP) (Pri. Sci. Nat. Botany Reg No. 130289), the International Association for Impact Assessment (IAIAsa) (Membership No. 6176), and the South African Association of Botanists.

During her first four years of working, Nicole gained experience as an Ecological Specialist and an Environmental Assessment Practitioner (EAP) undertaking Basic Assessments and assisting with the general Environmental Impact Assessment (EIA) process, including compiling Scoping and Environmental Impact Assessment Reports, Environmental Management Programmes, and managing the Public Participation Process. Nicole went on to specialise in the field of ecology, ensuring compliance with the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320 of 2020), Plant and Animal Species (GN R. 1150 of 2020), as well as the Species Environmental Assessment Guidelines (SANBI, 2020).

Nicole has undertaken numerous Ecological Impact Assessments for a range of developments, including Wind Energy Facilities (WEFs), Solar Energy Facilities (SEFs), mines, powerlines, housing developments, and roads and has worked in South Africa, Mozambique, Malawi and Sierra Leone, working closely with developers and Environmental Assessment Practitioners to ensure these developments are environmentally sustainable, as well as financially and technically feasible. Additionally, she has experience in compiling Alien Invasive Species Management Plans, Ecosystem Services Assessments, Rehabilitation and Restoration Plans, Plant Search and Rescue Plans, performing ecological walk-through assessments, and obtaining permits for plant removal and translocation. Some of these assessments have been conducted in accordance with the IFC's Performance Standards.

Amber Jackson (Faunal Specialist) (Pri. Sci. Nat 007500*)*
Amber is a director of Biodiversity Africa and holds a BSc (Zoology and Ecology, Environment & Conservation) and BSc (Hons) in Ecology, Environment & Conservation from WITS University and an MPhil in Environmental Management from University of Cape Town. She is a professional member of the South African Council for Natural Scientific Professionals (SACNASP) (Pri. Sci. Nat. Zoology Reg No. 007500), the International Association for Impact Assessment (IAIAsa), Herpetological Association of Africa (HAA), and the Zoological Society of Southern Africa (ZSSA). In addition, Amber completed the IFC lead and Swiss funded programme in Environmental and Social (E&S) Risk Management course in 2018. The purpose of the course was to upskill Sub-Saharan African environmental consultants to increase the uptake of E&S standards by Financial Institutions.

She has over twelve years' experience in terrestrial vertebrate faunal assessments and has conducted large scale faunal impact assessments that are to international lender's standards in Mozambique, Tanzania, Lesotho and Malawi. In South Africa, her faunal impact assessments comply with the protocols for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity and follows the SANBI Species Environmental Assessment Guideline (2020). Her specialist input goes beyond impact assessments and includes faunal opportunities and constraints assessments, Critical Habitat Assessments, Biodiversity related Management Plans and Biodiversity Monitoring Programmes.

Lauren Jordaan (née Wienand) (Intern)
Lauren holds a BSc in Biological Sciences, a BSc (Hons) in Zoology and is currently completing her Master's degree that is using genomics to investigate leatherback sea turtle breeding sex ratios in the South West Indian Ocean. Lauren is currently working as an intern with a focus on faunal specialization. Through the internship she is gaining experience in botanical and faunal desktop assessments and reporting, field surveys, and mapping.

She has been studying zoology for six years, with special focus on animal interactions, population dynamics, genetics and conservation. Coupled with fieldwork, this has given her a holistic understanding of the environment and the importance of maintaining biodiversity. During her Honours degree she studied ecophysiology, coastal management, conservation biology, and global change and biodiversity. She also investigated the effect of climate change on leatherback hatchling sex ratios in the South West Indian Ocean and won the award for best Zoology Honours student for which she received a membership to the Zoological Society of Southern Africa. She has also presented both her Honours and Masters research at two international conferences. These projects have given her extensive experience in handling endangered species, permit applications, and working collaboratively with multidisciplinary teams including the Department of Forestry, Fisheries and the Environment (DFFE), the National Oceanic and Atmospheric Administration (NOAA) and Ezemvelo Wildlife.

Declaration

I, Tarryn Martin, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Refer to signed declaration attached.

Declaration

I, Nicole Dealtry, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Refer to signed declaration attached.

Declaration

I, Amber Jackson, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Refer to signed declaration attached.

Declaration

I, Lauren Jordaan, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Refer to signed declaration attached.

Executive Summary

Spier Wine Estate (Pty) Ltd received Environmental Authorisation (EA) in April 2021 for the establishment of vineyards on Portion 10 of Farm No. 502 near Stellenbosch, including a requirement to set aside areas for conservation under a biodiversity agreement with CapeNature. In February 2024, approximately 2 hectares of vegetation were unlawfully cleared outside the authorised footprint, prompting the initiation of a Section 24G process to assess retrospective impacts and obtain authorisation.

A desktop assessment of spatial data and literature—along with a botanical assessment by McDonald (2020) conducted prior to the unauthorised clearance and a subsequent field survey—confirmed that the cleared area comprised Secondary Fynbos vegetation and did not include remnants of the Endangered Swartland Granite Renosterveld. No plant species of conservation concern (SCC) were recorded or considered highly likely to have occurred within the cleared area. As a result, the Site Ecological Importance (SEI) of the project area to plant species was assessed as **very low** rather than **medium** as per the DFFE Screening Tool Report.

The Animal Species Theme was initially rated as **medium** sensitivity by the DFFE Screening Tool Report due to potential invertebrate SCC, though none were observed during the survey. Several mammal, amphibian, reptile, and bird SCCs were considered possibly present within the broader area, but habitat limitations reduced the likelihood for most. Four SCCs had a high likelihood of occurrence in the cleared area, with one additional species likely to occur nearby in riverine habitat. However, due to the secondary, fragmented nature of the project area the SEI of the project area to animal species was assessed as **low** rather than **medium**.

While the broader project area falls within several sensitive conservation planning layers—including a Critical Biodiversity Area (CBA 1), a Strategic Water Source Area (Boland SWSA), a Key Biodiversity Area (KBA), and the Cape Winelands Biosphere Reserve—the affected area comprises a very small portion of these features and, as mentioned above, contained Secondary Fynbos Vegetation.

All assessed impacts, including loss of vegetation, disruption of ecosystem processes, and loss of faunal habitat, were rated **low** in significance. The area is already fragmented and ecologically compromised, and the unauthorised activity is not expected to compromise broader conservation objectives, especially if the areas are restored.

Key recommendations include implementing the approved Restoration Plan (Holmes, 2021), conducting ongoing alien plant control, and integrating the cleared area into the estate's conservation agreement with CapeNature as per the Environmental Authorisation dated April 2021.

In summary, the ecological consequences of the unauthorised clearing are minimal, and with appropriate rehabilitation, the area can continue contributing to long-term biodiversity objectives.

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Glossary of Terms

Alien Invasive Species refers to an exotic species that can spread rapidly and displace native species causing damage to the environment

Biodiversity is the term that is used to describe the variety of life on Earth and is defined as "*the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems*" (Secretariat of the Convention on Biological Diversity, 2005).

Biome - Groupings based on dominant forms of plant life and prevailing climatic factors. Biomes have plants and/or animals living together with some degree of permanence, and one can observe large-size patterns in global plant cover. Biomes broadly correspond with climatic regions as moisture and temperature strongly influence plant establishment and survival, although other environmental controls are sometimes important (SANBI, 2020).

Critical Biodiversity Areas (CBAs): Areas that are required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure (CapeNatue, 2024).

Ecosystem - A dynamic complex of animal, plant and micro-organism communities and their non-living environment interacting as a functional unit (SANBI, 2020).

Ecological Support Areas (ESAs): Areas that are not essential for meeting biodiversity targets, but play an important role in supporting the functioning of PAs or CBAs and are often vital for delivering ecosystem services (CapeNature, 2025).

Habitat Fragmentation occurs when large expanses of habitat are transformed into smaller patches of discontinuous habitat units isolated from each other by transformed habitats such as farmland.

Natural Habitat refers to habitats composed of viable assemblages of plant and/or animal species of largely native origin and/or where human activity has not essentially modified an area's primary ecological function and species composition.

No Natural Remaining (NNR): Areas severely to completely modified by human activity to the extent that they are no longer natural, and do not contribute to biodiversity targets (CapeNature, 2025).

Other Natural Areas (ONAs): Areas not identified as a priority in the current biodiversity spatial plan but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions (CapeNature, 2025).

Project area refers specifically to the areas that have been unlawfully cleared, as illustrated in turquoise blue on Figure 1.2. These areas have been directly impacted by project activities.

Project area of influence (PAOI) refers to the broader area around the project area that may be indirectly impacted by project activities.

Protected Area is a clearly defined geographical space, recognised, dedicated, and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values *(IUCN Definition 2008).*

Sensitive Species are species that are sensitive to illegal harvesting. As such, their names are obscured and listed as "Sensitive species #". As per the best practice guideline that accompanies the protocol and screening tool, the name of the sensitive species may not appear in any BAR or EIA report, nor any specialist reports released into the public domain.

Species of Conservation Concern (SCC) includes all species that are assessed according the IUCN Red List Criteria as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Data Deficient (DD) or Near Threatened (NT), as well as range-restricted species which are not declining and are nationally listed as Rare or Extremely Rare [also referred to in some Red Lists as Critically Rare] (SANBI, 2021).

Study Area refers to the extent of analysis that extends beyond the project area and includes the broader surrounding area which may not necessarily be impacted by project activities.

Vegetation Type is defined in terms of dominant, common as well as rare species, as well as association with landscape features such as soil or geology, topography, and climate (SANBI).

Abbreviations

BI	Biodiversity Importance
CBA	Critical Biodiversity Area
CI	Conservation Importance
CR	Critically Endangered
DFFE	Department of Forestry, Fisheries and Environment
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EN	Endangered
EOO	Extent of Occupancy
FI	Functional Integrity
GIS	Geographical Information System
GN	Government Notice
IUCN	International Union for Conservation of Nature
LC	Least Concern
NEM:BA	National Environmental Management: Biodiversity Act
NT	Near Threatened
PAOI	Project Area of Influence
POSA	Plants of Southern Africa
RR	Receptor Resilience
SA	South Africa
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SEI	Site Ecological Importance
TOPS	Threatened and Protected Species
VU	Vulnerable

Specialist Check List

The contents of this specialist report complies with the legislated requirements as described in the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity, Plant and Animal Species (GN R. 320 of March 2020 and GN R1150 of 30 October 2020).

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN 1150			SECTION OF REPORT
3.1	The Terrestrial **ANIMAL SPECIES** Specialist Assessment Report must contain, as a minimum, the following information:		
	3.1.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page 3; Appendix 4 & 5
	3.1.2	A signed statement of independence by the specialist;	Page 4 & 5
	3.1.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 1.3 and 2.3
	3.1.4	A description of the methodology used to undertake the site sensitivity verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Chapter 2
	3.1.5	A description of the mean density of observations/number of sample sites per unit area and the site inspection observations;	Section 2.3 and Figure 2.1
	3.1.6	A description of the assumptions made and any uncertainties or gaps in knowledge or data;	Section 1.3
	3.1.7	Details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported;	Chapter 4
	3.1.8	The online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area;	N/A as no SCC observed within the project area
	3.1.9	A location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);	Chapter 7
	3.1.10	A discussion on the cumulative impacts;	Chapter 8
	3.1.11	Impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);	Chapter 8
	3.1.12	A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant; and	Chapter 9
	3.1.13	A motivation must be provided if there were development footprints identified as per paragraph 2.2.12 above that were identified as having a "low" or "medium" terrestrial animal species sensitivity and were not considered appropriate;	N/A
3.2	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 320			SECTION OF REPORT
3.1	The Terrestrial **PLANT SPECIES** Specialist Assessment Report must contain, as a minimum, the following information:		
	3.1.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page 2-3; Appendix 4 & 5
	3.1.2	A signed statement of independence by the specialist;	Page 4 & 5
	3.1.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 1.3 and 2.3
	3.1.4	A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Chapter 2
	3.1.5	A description of the assumptions made and any uncertainties or gaps in knowledge or data;	Section 1.3
	3.1.6	A description of the mean density of observations/number of samples sites per unit area of site inspection observations;	Section 2.3 and Figure 2.1
	3.1.7	Details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported;	Chapter 5
	3.1.8	The online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area;	Section 2.3
	3.1.9	A location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);	Chapter 7
	3.1.10	A discussion on the cumulative impacts;	Chapter 8
	3.1.11	Impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);	Chapter 8
	3.1.12	A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not, of the development related to the specific theme considered, and if the development should receive approval or not, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant; and	Chapter 9
	3.1.13	A motivation must be provided if there were any development footprints identified as per paragraph 2.3.12 above that were identified as having "low" or "medium" terrestrial plant species sensitivity and were not considered appropriate.	N/A
3.3	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 320			SECTION OF REPORT
3.1	The **TERRESTRIAL BIODIVERSITY** Specialist Assessment Report must contain, as a minimum, the following information:		
	3.1.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page 2-3; Appendix 4 & 5
	3.1.2	A signed statement of independence by the specialist;	Pages 4 & 5
	3.1.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 1.3 & 2.3

	3.1.4	A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Chapter 2
	3.1.5	A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;	Section 1.3
	3.1.6	A location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);	Chapter 7
	3.1.7	Additional environmental impacts expected from the proposed development;	Chapter 8
	3.1.8	Any direct, indirect and cumulative impacts of the proposed development;	
	3.1.9	The degree to which the impacts and risks can be mitigated;	
	3.1.10	The degree to which the impacts and risks can be reversed;	
	3.1.11	The degree to which the impacts and risks can cause loss of irreplaceable resources;	
	3.1.12	Proposed impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);	Chapter 8
	3.1.13	A motivation must be provided if there were development footprints identified as per paragraph 2.3.6 above that were identified as having a "low" terrestrial biodiversity sensitivity and that were not considered appropriate;	N/A
	3.1.14	A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability, or not, of the proposed development, if it should receive approval or not; and	Chapter 9
	3.1.15	Any conditions to which this statement is subjected.	
3.2	The findings of the Terrestrial Biodiversity Specialist Assessment must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr where relevant.		
3.3	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		

1. INTRODUCTION

1.1. Project Description

Spier Wine Estate (Pty) Ltd was granted Environmental Authorisation (EA) on 1 April 2021 for the clearance of indigenous vegetation to establish vineyards on Portion 10 of Farm No. 502, located within the Spier Wine Estate near Stellenbosch, in the Western Cape Province. The EA authorised the development of a 10-hectare vineyard and identified additional areas to be set aside for conservation under a biodiversity agreement with CapeNature. These included an 11-hectare buffer zone, a 10-hectare conservation area, and an existing conservation area of approximately 10 hectares.

In February 2024, approximately 2 hectares of vegetation outside the authorised development footprint were unlawfully cleared to establish cover crops in preparation for vineyard planting. As a result, a Section 24G process is now required to address the unauthorised activity and obtain retrospective environmental authorisation.

This report assesses the current ecological condition of the project area[1] and evaluates the retrospective impacts of the unauthorised clearance of 2 ha of vegetation on the terrestrial biodiversity, plant and animal species, to inform appropriate mitigation and restoration measures.

1.2. Objectives

The primary objective of this assessment is to evaluate the retrospective impacts of unauthorised vegetation clearance that occurred on Portion 10 of Farm No. 502, Spier Wine Estate, Stellenbosch, with a focus on terrestrial biodiversity, including both plant and animal species. The specific aims of the assessment are as follows:

- **Conduct a desktop review** to:
    - Identify the historical vegetation types and Species of Conservation Concern (SCC) potentially present within the cleared area prior to disturbance.
    - Determine the extent and nature of transformation and clearing that has occurred.
    - Assess whether the clearance affected any mapped biodiversity priority areas (e.g. CBAs, ESAs, KBAs).
- **Undertake a field survey** to:
    - Ground-truth and validate the findings of the desktop assessment.
    - Evaluate the likelihood of plant and animal SCC occurrence based on habitat conditions and ecological indicators.
    - Assess the current ecological condition of the site following the unauthorised clearing.
- **Determine the likely ecological sensitivity** of the cleared area prior to disturbance, using the methodology outlined in the Species Environmental Assessment Guideline (2020).
- **Evaluate the retrospective impacts** of the unauthorised clearing on indigenous vegetation, habitat structure, and potential faunal communities, including direct and indirect impacts on SCC.

[1] In the context of this report, the term "**project area**" refers specifically to the areas that have been unlawfully cleared, as illustrated in turquoise blue on Figure 1.2. The term "**study area**" refers to the extent of analysis that extends beyond the project area and includes the broader surrounding area which may not necessarily be impacted by project activities.

- **Recommend mitigation and rehabilitation measures** to reduce or offset biodiversity loss and to prevent further impacts on remaining natural areas within and surrounding the site.
- **Provide a specialist opinion** to inform the Section 24G rectification process and support compliance with the conditions of the Environmental Authorisation.

1.3. Limitations and Assumptions

This report is based on current available information and, as a result, the following limitations and assumptions are implicit:

- SCC are difficult to find and may be difficult to identify, thus species described in this report do not comprise an exhaustive list. It is possible that additional SCCs are present. However, every effort was made to identify SCC present on site during the field survey. Furthermore, a desktop assessment to identify SCC that could occur within the project area was undertaken, and the likelihood of occurrence assessed based on the species known distribution, available habitat recorded during the field survey within the project area, and previous recorded observations near the project area.
- Given that this assessment was conducted retrospectively following the unauthorised clearing, conclusions about the historical condition of the site and the potential impacts of the unauthorised activities were drawn from the best available information, including the original botanical assessment undertaken by Dr David McDonald in 2020.
- A field survey was conducted on 9 May 2025, which falls outside the optimal survey season for the Fynbos Biome in which the project area is located. However, the findings of this assessment have been supplemented with data from the original botanical assessment compiled by Dr David McDonald in 2020, which was based on an in-season survey.
- This assessment includes plants, birds, mammals, amphibians, reptiles and invertebrates.
- The faunal assessment is based on a desktop assessment coupled with a field survey to assess available habitat and active searching.
- The assessment has been undertaken in line with the Protocol for the Specialist Assessment and Minimum Report Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320) and Terrestrial Animal and Plant Species (GN R. 1150) as well as the Species Environmental Assessment Guideline (2020).

Despite the assumptions and limitations listed above, it is with a high level of confidence that the specialist can state that the duration of time spent in the field, and the data collected from both the field survey and desktop assessment, were adequate to ascertain the likely ecological status and sensitivity of the study site prior to vegetation clearance/transformation and assess the likely impacts associated with the unauthorised vegetation clearance.

Figure 1.1: Locality Map indicating illustrating the Spier Wine Estate (in red) in relation to Stellenbosch.

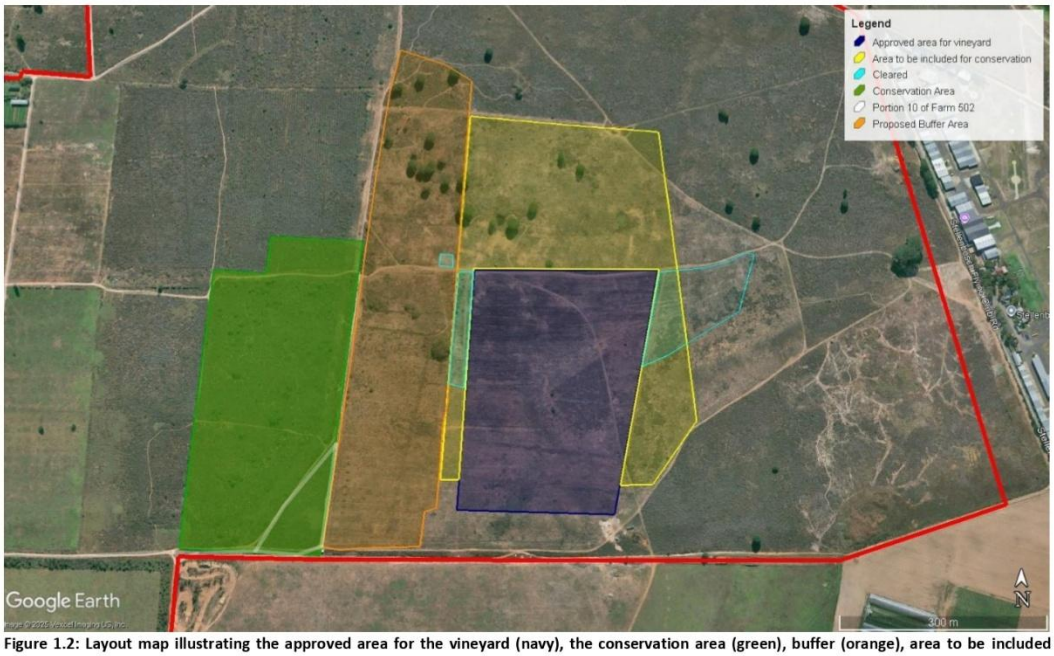

Figure 1.2: Layout map illustrating the approved area for the vineyard (navy), the conservation area (green), buffer (orange), area to be included in conservation (yellow) and unauthorised areas that have been cleared (turquoise blue) within the Spier Wine Estate (red polygon).
*This assessment pertains only to the unauthorised cleared areas indicated in turquoise blue.

2. METHODOLOGY

2.1. DFFE Screening Report

The DFFE Screening Tool Report identifies environmental sensitivities for the project area. This is based on available desktop data and requires that a suitably qualified specialist verify the findings. Of relevance to this report is the terrestrial biodiversity, plant, and animal species theme (refer to Table 2.1 below). A desktop assessment of available spatial data and literature resources was undertaken to verify the sensitivity features contributing to the sensitivity rating for each of the themes and this was supplemented with data gathered during the field survey. The key resources that were consulted for each theme are summarised in Section 2.2.1 to 2.2.3 below

It should be noted that a broader area surrounding the project area was selected when generating the DFFE Screening Tool Report, due to the small size of the cleared area and to ensure that all sensitive features have been adequately considered in this report.

Table 2.1: Summary of DFFE screening report themes relevant to this study.

Theme	Sensitivity	Sensitivity Features	Relevant Section of the Report
Animal Species	**MEDIUM**[2]	Possible presence of: • Five (5) invertebrate SCC.	The animal species theme has been categorised as medium due to the possible occurrence of five invertebrate species. Chapter 4 of this report provides an assessment of faunal species occurring in the project area.
Plant Species	**HIGH**	• Known occurrence of 8 sensitive plant SCC. • Possible presence of 102 plant SCC.	A desktop assessment that includes records from both Plants of Southern Africa (POSA) and iNaturalist databases was undertaken in conjunction with a field survey. For SCC that might occur within the project area, the likelihood of occurrence has been assessed based on distribution records and available habitat on site (Refer to Chapter 5).
Terrestrial Biodiversity (Figure 2.1)	**VERY HIGH**	• CBA 1: Terrestrial • SWSA(SW) _Boland • National Protected Area Expansion Strategy (NPAES) • Endangered (EN) Ecosystems ○ Swartland Granite Renosterveld	The implications of project activities on these features have been assessed in Chapter 6 and includes a combination of a desktop assessment and a field survey to verify these findings.

[2] 'Medium' sensitivity does not indicate the known presence of a threatened plant within the proposed development footprint/PAOI but could indicate moderate likelihood of occurrence based on species distribution modelling, which relies on data such as habitat preferences and proximity to known locations of specific species (SANBI, 2020).

2.2. Desktop Assessment

A desktop assessment was undertaken prior to the field survey to determine the historical vegetation types likely present within the project area, identify Species of Conservation Concern (SCC) that might have occurred on site, and any biodiversity priority areas that may have been affected by the unauthorised activities. Key resources that were consulted are summarised in Section 2.2.1 to 2.2.3 below.

2.2.1. Animal Species Theme

The known diversity of the animal species in the project area was determined by a literature review. Species known from the region, or from adjacent regions, whose preferred habitat(s) were known to occur within the project area, were also included. The most recent literature sources were consulted and include:

- DFFE Screening Tool Report (2025);
- IUCN, 2025;
- INaturalist;
- Amphibians –Du Preez & Carruthers (2017);
- Reptiles – Branch (1998);
- Mammals – Stuart & Stuart (2014);
- Birds – Southern African Bird Atlas Project 2, 2025

To establish which of those species identified in the literature review are SCC, the following sources were consulted:

- Conservation status of the reptiles of South Africa, Eswatini and Lesotho (Tolley *et al*., 2023);
- Ensuring a future for South Africa's frogs: a strategy for conservation research (Measey 2011);
- Red List of Mammals of South Africa, Swaziland and Lesotho (Child, *et al.,* 2016);
- Regional Red Data Book of Birds of South Africa, Lesotho and Eswatini (Birdlife SA, 2025);
- IUCN (2025);
- NEM:BA (10 OF 2004) and TOPS

2.2.2. Plant Species Theme

A species list was compiled for the site and the likelihood of occurrence assessed for species listed as CR, EN, VU and Near Threatened (NT). Key resources consulted include:

- Botanical Assessment of a part of RE Portion 10 of Farm 502, Stellenbosch (Spier), Stellenbosch Municipality Western Cape Province (McDonald, 2020).
- The DFFE Screening Tool Reports (2025).
- The Plants of Southern Africa (POSA) database.
- iNaturalist.

Species threat status was checked against the South African Red Data List.

2.2.3. Terrestrial Biodiversity Theme

A desktop assessment was undertaken prior to the field survey to determine whether there are any terrestrial biodiversity features within the project area that are considered sensitive. The vegetation types present within the project area and key features driving the CBA status of the project area were identified and confirmed during the field survey. Key resources consulted include:

- The DFFE Screening Tool Reports (2025).
- The South African Vegetation Map (SANBI, 2024).
- The Western Cape Biodiversity Spatial Plan (WCBSP, 2023).
- The International Union for the Conservation of Nature (IUCN) Red List of Ecosystems for South Africa (SANBI, 2021).
- South African Red List of Terrestrial Ecosystems: assessment details and ecosystem descriptions (SANBI, 2022).
- National Protected Area Expansion Strategy (NPAES) (2018).
- The South African Protected Areas Database (SAPAD, Q3, 2024) and the South African Conservation Areas Database (SACAD, Q3, 2024).
- Key Biodiversity Areas (2024).
- Strategic Water Source Areas (SWSA, 2021).
- Freshwater Ecosystem Priority Areas (FEPA) subcatchments (2011).

2.3. Field Survey

A field survey was undertaken on 9 May 2025, which falls outside the optimal survey season for the Fynbos Biome in which the project area is located. However, the findings of this assessment have been supplemented with data from the original botanical assessment compiled by Dr David McDonald in 2020, which was based on an in-season survey undertaken in September 2019.

A total of twelve (12) sample points were assessed in the study area (~32 ha) which included reference sites adjacent to the cleared areas (2 ha). This equates to a density of 1 sample point per 2.7 ha. Reference areas were selected using Google Earth satellite imagery and historical aerial imagery.

Oruxmaps was utilised to record the specialists survey tracks and sample points. At each sample point, a waypoint and associated photograph was taken, the habitat described, and the likelihood of any SCC assessed (refer to Appendix 2 for photographs and accompanying habitat descriptions). Additionally, a nearby reference site containing degraded Swartland Granite Renosterveld was surveyed to allow for a comparison of species composition and vegetation structure between the degraded Renosterveld, and the secondary fynbos vegetation present at the reference sites (Figure 2.1).

Evidence of SCC recorded during the field survey was uploaded to iNaturalist:
https://www.inaturalist.org/observations?nelat=-33.97360384474726&nelng=18.823043143611095&subview=map&swlat=-33.98492054771881&swlng=18.802357947688243&user_id=nicole_wienand&view=species

2.3.1. Terrestrial Biodiversity and Plant Species Theme

The purpose of the botanical survey was to assess the site-specific botanical state of the Project Area

of Influence (PAOI) by recording the species present (both indigenous and alien invasive species), identifying sensitive plant communities such as vegetation associated with rocky outcrops, riparian areas, or areas with Species of Conservation Concern (SCC), and identifying the current land use.

During the survey, the project area was driven and walked, and sample plots were analysed by determining the dominant species in each plot, as well as any alien invasive species and potential SCC occurring within the plots (Figure 2.1). Each sample plot was sampled until no new species were recorded. Vegetation communities were then described according to the dominant species recorded from each type, and these were mapped and assigned a sensitivity score.

2.3.2. Animal Species Theme

The purpose of the faunal field survey was to determine the faunal habitats present within the project area and conduct searches for mammal, reptile, amphibian and bird species that may utilise these habitats. The project area was driven, and active searching conducted in various habitats present (Figure 2.1). Active searching for amphibians, reptiles, birds and mammals includes direct and indirect observation:

- Direct observations were made by walking and driving through the project area and recording species seen. The GPS location and number of individuals present were recorded using Orux Maps. Where feasible, photographs were taken.
- Indirect observation is the searching for evidence of faunal presence and includes spoor, skat, roadkill, skulls, quills, dens, burrows, hairs, scrapings, and diggings.

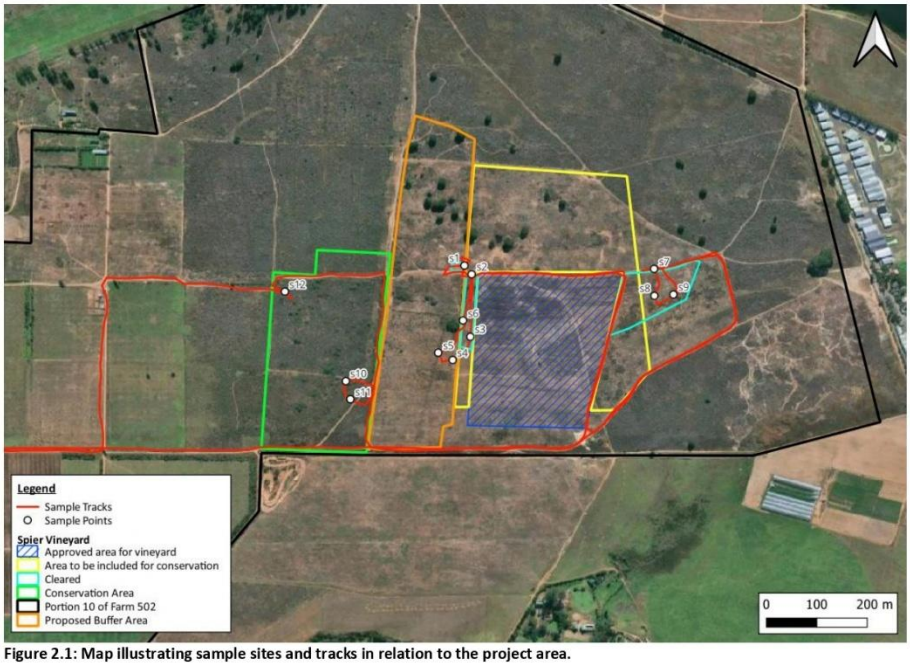

Figure 2.1: Map illustrating sample sites and tracks in relation to the project area.

2.4. Site Sensitivity Assessment

The Species Environmental Assessment Guideline (SANBI, 2020) was applied to assess the Site Ecological Importance (SEI) of the project area. The habitats and the SCC in the project area were assessed based on their conservation importance (CI), functional integrity (FI) and receptor resilience (RR) (Table 2.2). The combination of these resulted in a rating of SEI and interpretation of mitigation requirements based on the ratings.

The sensitivity map was developed using a combination of satellite imagery, information gathered from the desktop assessment, and data gathered from the field survey.

Table 2.2: Criteria for establishing Site Ecological Importance and description of criteria.

Criteria	Description
Conservation Importance (CI)	*The importance of a site for supporting biodiversity features of conservation concern present e.g. populations of Threatened and Near-Threatened species (CR, EN, VU & NT), Rare, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.*
Functional Integrity (FI)	*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.*
Biodiversity Importance (BI) is a function of Conservation Importance (CI) and the Functional Integrity (FI) of a receptor.	
Receptor Resilience (RR)	*The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.*
Site Ecological Importance (SEI) is a function of Biodiversity Importance (BI) and Receptor Resilience (RR)	

2.5. Impact Assessment Methodology

The impact assessment methodology enables the assessment of the significance of direct, indirect and cumulative impacts associated with the project, by considering intensity, extent, duration, and the probability of the impact occurring. Consideration is also given to the degree to which impacts may cause irreplaceable loss of resources, be avoided, reversibility of impacts and the degree to which the impacts can be mitigated. The impact assessment methodology applied in this report is included in Appendix 3 and was provided by the Environmental Assessment Practitioner (EAP) appointed for this project, Groenberg Enviro.

3. BIOPHYSICAL DESCRIPTION OF THE PROJECT AREA

The project area falls within the Fynbos Biome of the Cape Floristic Region and historically supported Swartland Granite Renosterveld, a vegetation type classified as Endangered (EN). However, the site is no longer ecologically intact, and evidence of historical disturbance is reflected in the structure and composition of the vegetation communities present within and surrounding the unauthorised cleared areas.

Analysis of historical aerial imagery dating back to 1983 (Figure 3.1) indicates that the site has undergone years of cultivation. A botanical assessment conducted in 2020, prior to the unauthorised clearing, identified the vegetation of the project area as secondary, having developed following disturbance more than two decades ago (McDonald, 2020). According to SANBI, previously ploughed areas do not qualify as natural habitat — even if partially rehabilitated — as soil disturbance and altered species composition mean they no longer support the original biodiversity representative of the ecosystem.

The area is underlain by granite of the Kuilsrivier Batholith, producing coarse sandy to loamy soils with strong texture contrast (land type Ca). These soils, which retain moisture in winter and spring, were confirmed as suitable for vineyard establishment during a soil survey in 2020 (McDonald, 2020). Topographically, the site lies on a gentle crest with low-gradient slopes — predominantly east-facing in the central area, with north- and southeast-facing slopes along the periphery.

The climate is Mediterranean, with cool, wet winters and hot, dry summers. Rainfall is winter-dominant, consistent with the broader Winter Rainfall Region of the Western Cape and similar to that of Swartland Granite Renosterveld areas.

Within the broader landscape context, the site is located in the Cape Winelands region, where agriculture — particularly viticulture — is the dominant land use (Figure 3.2). Large portions of the surrounding area have been cultivated, and recent Google Earth satellite imagery (Figure 3.3) clearly illustrates the fragmented nature of ecosystems in the region, with a mosaic of agricultural fields interspersed with isolated remnant patches of natural vegetation.

The ecological drivers that typically support ecosystem function within the Fynbos Biome — including nutrient-poor soils, fire, and specialised pollination systems — have likely been altered due to historical land use and habitat transformation. In particular, soil disturbance from past ploughing has modified soil structure and nutrient cycling; the natural fire regime may have been suppressed or irregular, disrupting successional dynamics; and the loss of native plant diversity likely affects interactions with specialist pollinators and seed dispersers. These changes collectively reduce the resilience and ecological integrity of remnant patches, even where some vegetation cover remains.

This context provides the environmental baseline against which the site's plant and animal species, as well as broader terrestrial biodiversity, are assessed in the chapters that follow.

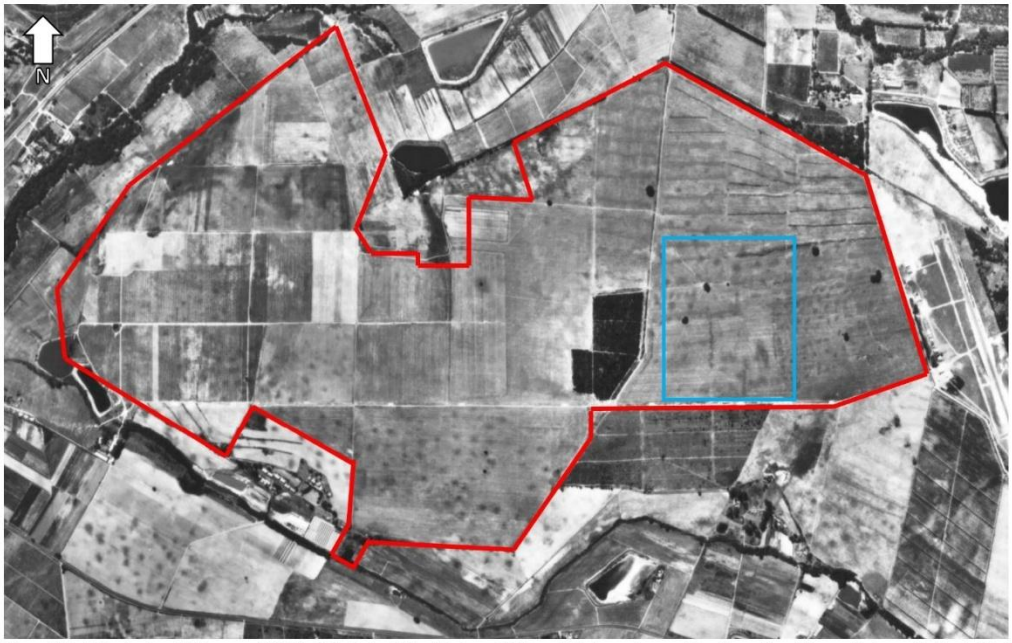

Figure 3.1: Historical aerial imagery (1983) of the Spier Wine Estate, with the estate boundary outlined in red and the project area indicated in blue. The image illustrates extensive historical cultivation, with a visible contrast between cleared areas and a darker patch of remnant vegetation (west of the blue polygon).

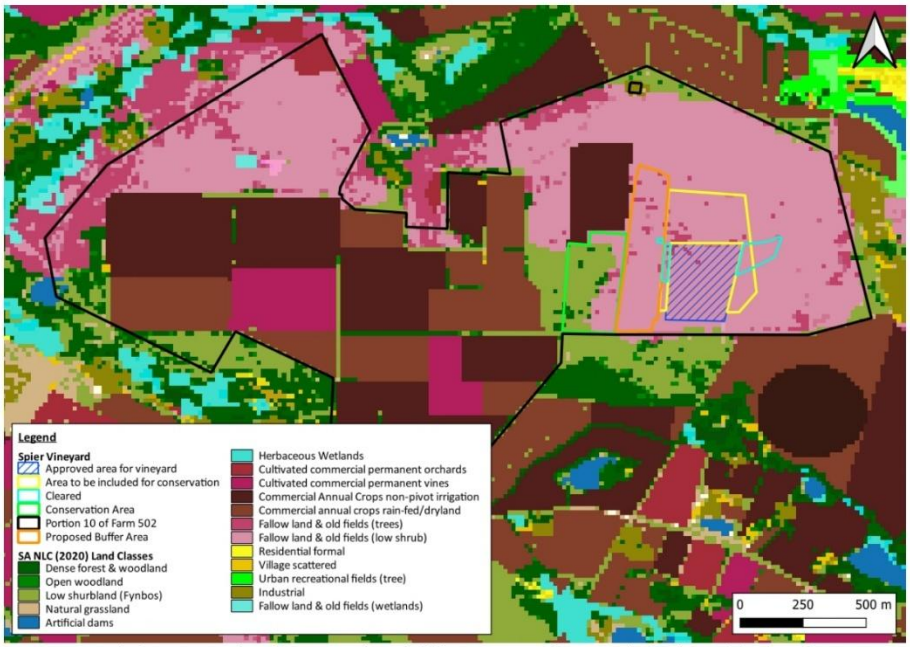

Figure 3.2: South African National Land Cover Map (2020) of the project area illustrating the land use of the cleared areas.
This image illustrates that the cleared areas are situated within fallow land and old fields which supports the findings of the historical aerial imagery analysis (Figure 3.1).

Figure 3.3: Google Earth Satellite Image illustrating the fragmented nature of ecosystems in the region, with a mosaic of agricultural fields interspersed with remnant patches of natural vegetation.

4. ANIMAL SPECIES THEME

The DFFE Screening Tool Report classifies the Animal Species Theme Sensitivity of the project area as MEDIUM due to the possible occurrence of five invertebrate species. This chapter describes the faunal habitats and sensitive species identified for the project area and project area of influence (PAOI), with regards to invertebrates, mammals, amphibians, reptiles, and birds.

Figure 4.1: Animal Species Theme Sensitivity of the project area as per the DFFE Screening Tool Report.

4.1. Faunal habitats

To determine the likelihood of occurrence of SCC, an assessment of the habitats available within the project area is required. Habitats are defined in this study as the natural environment or place where faunal species *live, breed and/or forage*. Each habitat type has different environmental conditions and structure which influences a species' distribution range.

The field survey confirmed that there is no natural habitat remaining in the project area as the project area has been historically ploughed and now consists primarily of secondary vegetation. However, the remaining area, although largely transformed, can still serve as habitat for faunal species that could use it to breed and forage in. Within the project area and study area, areas that may serve as faunal habitat include (Figure 4.2):

- Secondary Vegetation (project area unlawfully cleared vegetaiton)
- Degraded Swartland Granite Renosterveld
- Active agricultural land

- A farm dam
- Man-made structures/buildings

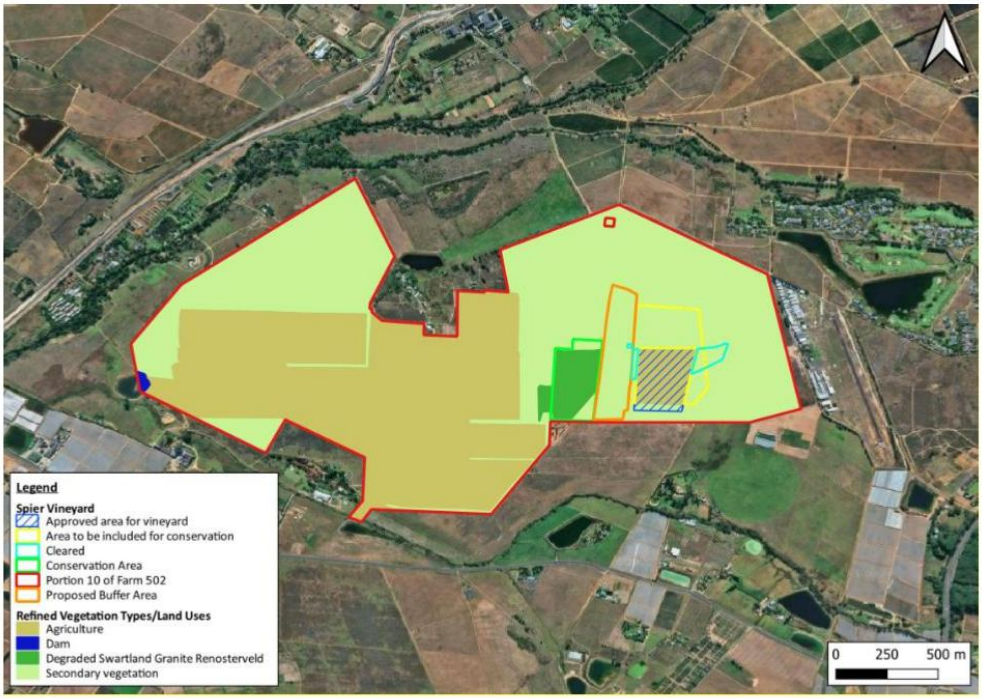

Figure 4.2: Map of the faunal habitats within the project area (in light blue) and project area of influence (in red) based on field survey findings.

4.2. Faunal Species of Conservation Concern in relation to the Project Area

The faunal assessment indicated that none of the five invertebrate species listed in the DFFE Screening Tool Report have been recorded in the project area or broader area and that although the project area falls within the distribution of the invertebrate species, limited habitat is available within the project area. As such their likelihood of occurrence in the project area was determined to be low to medium (Table 4.1).

Additionally, the project area was screened during the faunal desktop assessment to determine if there are any amphibian, reptile, mammal or bird SCC that could occur in the project area. The assessment identified seven mammal species, one amphibian species, one reptile species and nine bird species with a distribution that includes the project area. Their likelihood of occurrence was determined to be medium to low due to limited suitable habitat, except for four SCC (NT Fynbos Golden Mole, NT Cape Rain Frog, NT Cape Dwarf Chameleon and VU Blue Crane) that were determined to have a high likelihood of occurrence within the project area and one SCC (NT Cape Clawless Otter) that was determined to have a high likelihood of occurrence in the river and drainage line ~1km north, west, and south of the boundary of the project area, outside of the cleared area (Table 4.1).

Table 4.1: Summary of faunal Species of Conservation Concern with a distribution that includes the project area

Species name	Threat status	Distribution and habitat	Likelihood of occurrence
Invertebrates			
Dull Cape Dung Beetle (*Frankenbergerius opacus*)	CR	Species has only been recorded in Stellenbosch, Western Cape (Frolov and Scholtz, 2011). Occurs in an area in Stellenbosch where vegetation consists mainly of Renosterveld shrubland (Davis et al. 2020). The species were found on the fruiting bodies of mushrooms, Suillus, within an area that is characterised by renosterveld degraded by invasive trees (F. Roets pers. comm. 2024 - Davis et al. 2025 -IUCN).	**Medium** Project area falls within species distribution. However, species has not been recorded within the broader area and the habitat in the cleared areas consisted of secondary vegetation prior to the unauthorised clearance. No Suillus mushrooms were observed in adjacent secondary vegetation habitat during the field survey.
Westcoast Flightless Dung Beetle (*Pachysoma aesculapius*)	VU	Species occurs on the coast in a small region in the west of the Western Cape (Harrison *et al*. 2003). It has mostly been recorded (25/28 records) within the southwest coastal area of the Lowland fynbos and renosterveld ecoregion (ecoregion based on Olson *et al*. 2001), occurring in areas of low elevation characterised by low rainfall and temperature (Davis *et al.* 2024 - IUCN).	**Low** The species has not been recorded within the broader study area and is thought to be possibly extinct from the region within which the project area falls. No suitable habitat was present within the project area prior to the unauthorised clearance.
Peringuey's Meadow Katydid (*Conocephalus peringueyi*)	VU	Species has only been recorded in the mountains of the southwestern cape, Western Cape and is associated with the fynbos biome (Bazelet and Naskrecki, 2014 - IUCN).	**Low** Although the project area falls within the species distribution range, the species has only been recorded in the mountains of the southwestern cape and has not been recorded within the broader study area.
Bladder Grasshopper (*Bullacris obliqua*)	VU	Species occurs only in the Western and Northen Cape Provinces in South Africa, where it inhabits the Fynbos biome. It is closely associated with *Eriocephalus africanus* (Couldridge and Bazelet, 2018 -IUCN).	**Medium** Although the project area falls within the species distribution range, there are no known records of the species within the broader study area However, suitable habitat may have been present prior to the unauthorised clearance given *Eriocephalus africanus* was recorded during the field survey in adjacent habitat and may have been present in the project area. *Eriocephalus africanus* is currently the only known host plant for this species.

Yellow-winged Agile Grasshopper (*Aneuryphymus montanus*)	VU	Species occurs in mountainous habitats along the cape region from just before Clanwilliam to just before East London (Brown 1960) and is associated with fynbos vegetation, particularly sclerophyllous vegetation (Brown, 1960; Hochkirch et al. 2018 - IUCN).	**Medium** Project area falls within species distribution. However, species has not been recorded within the broader area and no suitable habitat was present within the project area prior to the unauthorised clearance.
Mammals			
Grey Rhebok (*Pelea capreolus*)	NT	Species typically occurs on rocky hills, grassy mountain slopes, plateau grasslands (Taylor et al. 2017).	**Low** Although project area falls within species distribution and species has been recorded within the broader area, the project area consists mostly of secondary vegetation and is highly fragmented. Furthermore, the project area is fenced and not easily accessible. It is therefore unlikely that this species utilized the project area prior to the unauthorised clearance.
African Clawless Otter (*Aonyx capensis*)	NT	Provided freshwater (0.5–1.5 m deep) is available this species can occur in a variety of habitats. Permanent habitation is dependent on the availability of prey and shelter and females may exhibit territoriality in these areas (Okes, et al. 2016).	**Low - project area** **High - riparian areas and drainage line in broader study area** The project area falls within species distribution range and species has been recorded within the broader area. The river and drainage line that runs ~1km from the north, west, and southern boundary of the project area could provide habitat for this species and even if present permanent habitation is considered unlikely. However, the clearing of vegetation (24G) was unlikely to impact on this habitat.

Spectacled Dormouse (*Graphiurus ocularis*)	NT	The Spectacled Dormouse is endemic to South Africa occurring in the Northern Cape, Eastern Cape, and Western Cape provinces (Cassola, 2016). Although widespread, it is considered uncommon. This solitary species inhabits sandstone formations and is associated with crevices in shrubland areas. However, it has also been recorded in the crevices of man-made features such as stone kraals, buildings and rockpiles (Wilson et al., 2016).	**Low** This species prefers sandstone substrates and is therefore unlikely to occur in the project area which is dominated by granite substrate.
Laminate Vlei Rat (*Otomys laminatus*)	NT	This species inhabits moist grasslands, wetlands, restio-dominated fynbos, coastal forests and pine plantations. It is typically herbivorous, feeding on shoots and stems of grasses, restios and small shrubs (Taylor & Baxter, 2019; Taylor et al. 2016).	**Low** Species has not been recorded within broader area and suitable habitat was not available within the project area prior to the unauthorised clearance.
Fynbos Golden Mole (*Amblysomus corriae*)	NT	Its habitat requirements include moist, soft sandy soils or loams typically associated with fynbos, Afromontane Forest, moist Savanna (Southern Cape Coast) and renosterveld in the south-west Cape. However, it has also been found in transformed habitats such as agricultural areas, golf courses and gardens (Bronner and Mynhardt, 2016).	**High** The project area falls within species distribution range, and it has been recorded within the broader area. Suitable habitat was present prior to the unauthorised clearance.
White-tailed Rat (*Mystromys albicaudatus*)	VU	Little is known about this species in the wild as it is difficult to sample. They are often associated with calcrete soils in grasslands and are not found on soft, sandy substrates, rocks, wetlands or riverbanks (Avenant et al., 2016 and 2019). There is evidence that they survive in disturbed areas and sparse grasslands but are not associated with transformed habitat (e.g. agricultural land). This species is nocturnal living in burrows and crevices.	**Low** Species has not been recorded within the broader area and is not associated with transformed habitat. Suitable habitat was not available within the project area prior to the unauthorised clearance.

African Marsh Rat (*Dasymys incomtus*)	VU	This species is endemic to eastern South Africa and Swaziland (EOO 104,281 km2; AOO 13,823 km2). It is found in a variety of habitat types, but they require intact wetlands where they occur in reed beds or semi-aquatic grasses. They have not been recorded in agricultural areas or near dams (Pillay et al., 2016).	**Low** Species has not been recorded within the area and habitat is not present. Furthermore, species is not associated with agricultural land.
Amphibians			
Cape Rain Frog (*Breviceps gibbosus*)	NT	Species inhabits Renosterveld, fynbos and heathland. It is also known to inhabit disturbed areas such as pine plantations and gardens (ASG & SA-FRoG, 2017). This species lives in burrows in the ground (fossorial) and is not associated with water-bodies for breeding as it breeds by direct development (i.e. terrestrial egg hatches as a fully formed, miniature adult) (Measey, 2011; ASG & SA-FroG, 2017).	**High** Project area occurs within species distribution and habitat is present. Species has been recorded within the broader area. Suitable habitat was also available within the project area prior to the unauthorised clearance.
Reptiles			
Cape Dwarf Chameleon (*Bradypodion pumilum*)	NT	*B. pumilum* is a range restricted species endemic to the Western Cape Province, occurring around the Cape Town region (Tolley and Burger 2007, Tilbury 2018). Its habitat includes a variety of vegetation types including Fynbos, Renosterveld, Thicket, Riparian Vegetation, Forest, and some densely vegetated gardens in urban areas (Tolley, 2022).	**High** Suitable habitat is present within the project area and falls within species distribution range. Species has been recorded within the broader area. Suitable habitat was also available within the project area prior to the unauthorised clearance.
Birds			
Black Harrier (*Circus maurus*)	EN	This species occurs in coastal and montane fynbos (Curtis et al. 2004) in the Western Cape particularly near vleis, marshes, streams or dams as well as dry grasslands, Karoo subdesert scrub, open plains with low shrubs and croplands (Brown et al. 1982; BirdLife Int., 2021). In renosterveld breeding restricted to intact patches exceeding 100ha. It does not nest on transformed lowland Fynbos (BirdLife Int., 2016; Taylor et al., 2015; Tarboton, 2014 and Chittenden, 2009).	**Low** The project area falls within species distribution and species has been recorded in broader area. However, there is no suitable habitat within the project area even prior to the unauthorised clearance.

African Marsh Harrier (*Circus ranivorus*)	VU	Species is dependent on permanent wetlands for breeding, feeding and roosting. It also forages over floodplains, grasslands, croplands and fynbos (Taylor et al., 2015).	**Low** The project area falls within species distribution and species has been recorded in broader area. However, there is no suitable habitat within the project area even prior to the unauthorised clearance.
Lanner Falcon (*Falco biarmicus*)	NT	Species inhabits a wide variety of habitat types including forest, savanna, shrubland, grassland, rocky areas and desert. Favour cliffs for breeding (75%) but if absent will use trees, electric pylons, buildings (25%) and utilise abandoned nests of other raptors, corvids, or herons (BirdLife Int., 2021).	**Low** The project area falls within species distribution and species has been recorded in broader area. However, there is no suitable habitat within the project area even prior to the unauthorised clearance.
Maccoa Duck (*Oxyura maccoa*)	VU	Species is dependent on permanent wetlands for breeding and feeding. This species also makes use of man-made habitats, such as farm wetlands and sewage basins, for breeding (Johnsgard 1978, Johnsgard and Carbonell 1996). It also occurs around larger, deeper brackish lagoons outside of breeding season (del Hoyo et al. 1992, Berruti et al. 2005, 2007).	**Low** Although project area falls within species distribution and species has been recorded within the broader area, suitable habitat is not present within the project area even prior to the unauthorised clearance.
Martial Eagle (*Polemaetus bellicosus*)	EN	This species is widespread throughout South Africa. It occurs in a variety of habitats but shows a preference for arid and mesic savanna, forest edges and open shrubland. They nest in tall trees or pylons. It rarely occurs in mountainous areas (Taylor et al., 2015).	**Low** The project area falls within species distribution and species has been recorded in broader area. However, there is no suitable habitat within the project area even prior to the unauthorised clearance.
Blue Crane (*Anthropoides paradiseus*)	VU	Species inhabits natural grasslands, grassland vegetation in the karoo biome, cultivated habitats within the Fynbos biome and also occurs in lowland agricultural habitats including fallow fields, pastures and croplands (Barnes, 2000, Hockey et al. 2005). It occasionally occurs in or near wetland areas for roosting or breeding (Barnes, 2000; Hockey et al. 2000).	**High within project area and broader area** The broader area provides foraging habitat in agricultural land that may be utilised by this species. Species has been recorded in the broader area (SABAP2, 2025). However, permanent habitation is unlikely even prior to the unauthorised clearance.

Secretarybird (*Sagittarius serpentarius*)	VU	Inhabits open landscapes, ranging from open plains and grasslands to lightly wooded savanna, but is also found in agricultural areas and sub-desert. In the WC during winter half the individuals have been recorded in transformed Fynbos biome environments (Birdlife Int, 2020).	**Medium** Project area falls within species distribution range and species has been recorded in broader area. However, permanent habitation is unlikely even prior to the unauthorised clearance.
Fynbos Buttonquail (*Turnix hottentottus*)	NT	Inhabiting fynbos and Coastal Strandveld on low gradient terrain. It is highly dependent on the structure of vegetation, preferring less dense vegetation (e.g., fire cycle 2-5 years, <10 years) (BirdLife Int. 2022).	**Low** Although project area falls within species distribution, species has not been recorded in project area. Suitable habitat is not present within the project area even prior to the unauthorised clearance.
Striped Flufftail (*Sarothrura affinis*)	VU	This species occurs in areas with dense cover and clear ground for foraging, particularly around small streams and marshy patches in dry upland or montane grassland characterized by either long or short grass, bracken, brambles or Protea. This species also occurs near forest edges, in fields of crops (del Hoyo *et al.* 1996; Urban *et al.* 1996).	**Low** Although project area falls within species distribution, species has not been recorded in project area. Suitable habitat is not present within the project area even prior to the unauthorised clearance.

5. PLANT SPECIES THEME

The DFFE Screening Tool classified the Plant Species Theme for the broader Project Area of Interest (PAOI) as HIGH based on the known occurrence of eight plant SCC, and MEDIUM due to the potential presence of 102 additional species. However, as outlined in Section 2.1, a larger area surrounding the actual project site was used to generate the report. As such, the HIGH sensitivity rating may not accurately reflect the sensitivity of the project footprint itself. This is further supported by the sensitivity map in the Screening Tool, which shows a MEDIUM sensitivity for the site (Figure 5.1). The potential presence of plant SCC within the project area is discussed in Section 5.2.

It should be noted that the Plant Species Theme in the DFFE Screening Tool Report is based on the presence, absence, or likely occurrence of Species of Conservation Concern (SCC). It does not include an assessment of the vegetation types in which these species occur. Instead, the assessment of vegetation types—also referred to as ecosystems in the DFFE Screening Tool Report—is included under the Terrestrial Biodiversity Theme. Accordingly, the assessment of vegetation types has been addressed in Chapter 6 below.

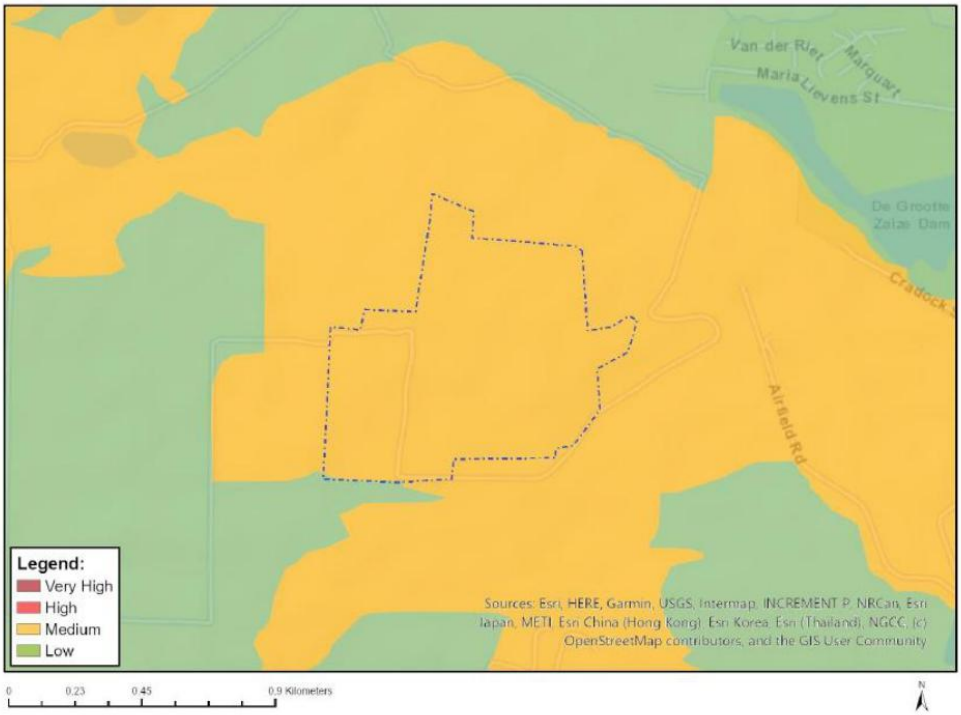

Figure 5.1: Map of the Plant Species Theme Sensitivity of the project area as per the DFFE Screening Tool Report.

5.1. Floristics and Species of Conservation Concern

During the field survey, 29 plant species from 13 families were recorded (Table 5.1) within and adjacent to the cleared areas. The Asteraceae family had the highest number of species (10), followed

by the Fabaceae family (4). The remainder of the families had 2 or less species.

Of the 29 plant species recorded, 4 are alien plant species. The remaining 25 indigenous plant species recorded were all classified as Least Concern (LC).

Although species diversity was relatively low, even within the reference sites, it should be noted that not all plant species could be identified, as many lacked key diagnostic features such as flowers or fruit at the time of the survey. It is therefore possible that additional species may be present but despite this, species diversity within the Secondary Vegetation is expected to remain low.

The survey placed particular emphasis on detecting Species of Conservation Concern (SCC) likely to occur within the previously cleared areas. A prior study conducted by McDonald (2020) found no SCC within the project area, which was characterised by secondary vegetation. Similarly, no SCC were recorded during the field survey undertaken for this assessment. Given the disturbed and secondary nature of the vegetation, it is considered unlikely that viable populations of SCC were present within the areas that were cleared.

A full list of the plant species recorded during the field survey is included in Appendix 1.

Table 5.1: Number of plant species recorded per family within the project area.

Family	Number of Species	Family	Number of Species
Asteraceae	10	Malvaceae	1
Fabaceae	4	Oleaceae	1
Aizoaceae	2	Oxalidaceae	1
Anacardiaceae	2	Plantaginaceae	1
Cyperaceae	2	Restionaceae	1
Poaceae	2	Thymelaeaceae	1
Geraniaceae	1		

5.2. Alien Plant Species

As noted in Section 5.1, 4 alien plant species were identified during the field survey, of which only one — *Acacia saligna* — is classified as invasive. *A. saligna* is listed as a Category 2 species under the Conservation of Agricultural Resources Act (CARA) (Act No. 43 of 1983) and as a Category 1b species under the National Environmental Management: Biodiversity Act (NEM:BA) (Act No. 10 of 2004). In terms of the legislation, this species is required to be eradicated. *A. saligna* was observed scattered throughout the project area; however, the number of individuals was low.

5.3. Protected Plant Species

Only two protected plant species were recorded within the project area, namely *Carpobrotus acinaciformis* and *C. edulis*. These species are listed under Schedule 4 of the Western Cape Nature Conservation Laws Amendment Act, 2000, and their removal requires a permit—one that was likely not obtained prior to the unlawful vegetation clearance. It is important to note, however, that both species are common, widespread pioneers that typically establish in disturbed environments, where they form dense ground-covering mats.

6. TERRESTRIAL BIODIVERSITY THEME

The DFFE Screening Tool Report classifies the Terrestrial Biodiversity Theme sensitivity of the project area as VERY HIGH (Figure 6.1) due to the following sensitivity features:

- One (1) Endangered Ecosystem
    - Swartland Granite Renosterveld
- Critical Biodiversity Area (CBA) 1: Terrestrial
- Strategic Water Source Area (SWSA): Boland
- National Protected Areas Expansion Strategy (NPAES)

This chapter examines the spatial planning tools relevant to each of these features and provides comment on the potential impacts—both past and ongoing—of the unlawful vegetation clearance on them.

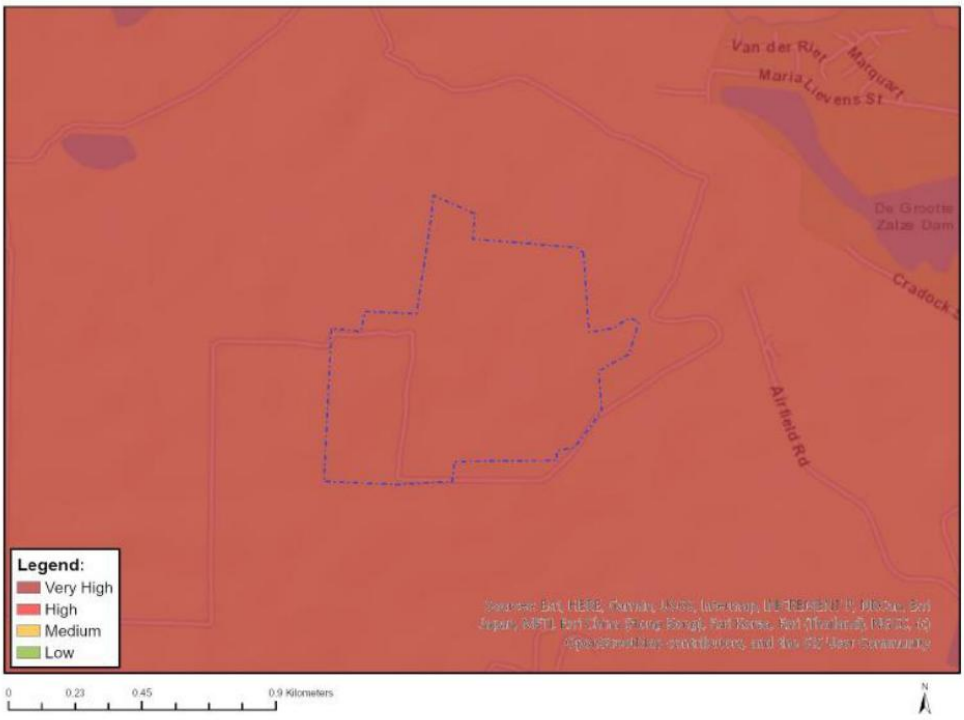

Figure 6.1: Terrestrial Biodiversity Theme Sensitivity of the project area as per the DFFE Screening Tool Report.

6.1. Vegetation Types Present

According to the National Vegetation Map (2024), which was compiled to provide a greater level of detail for floristically based vegetation units in South Africa, the project area occurs within one vegetation type, namely Swartland Granite Renosterveld (Figure 6.2). However, the RLE: Remnants Spatial Dataset (SANBI, 2021) indicates that only a few small patches of this vegetation remains along

the boundary of the Spier Wine Estate, with a small patch occuring within the conservation area located just west of the approved vineyard area (Figure 6.3) which was confirmed during the field survey. The areas that have been unlawfully cleared, and relevant to this assessment, however, did not contain remnants of Swartland Granite Renosterveld.

The project area/area that was unlawfully cleared comprised of secondary vegetation dominated by *Dicerothamnus rhinocerotis, Osteospermum moniliferum, Athanasia trifurcata, Helichrysum patulum, Metalasia densa, Eriocephalus africanus, Seriphium plumosum, Psoralea hirta, Senecio pterophorus, Carpobrotus edulis, C. acinaciformis, Plantago lanceolata, Cynodon dactylon, Pelargonium grossularioides, Oxalis caprina, Passerina corymbosa, Hermannia alnifolia, Senecio pubigerus*, with a few scattered alien invasive species, including *Acacia saligna.* This supports the findings of the original botanical assessment undertaken by McDonald (2020) prior to the unlawful vegetation clearance.

Figure 6.4 illustrates the spatial distribution of the actual vegetation types within the project area based on desktop and field survey findings.

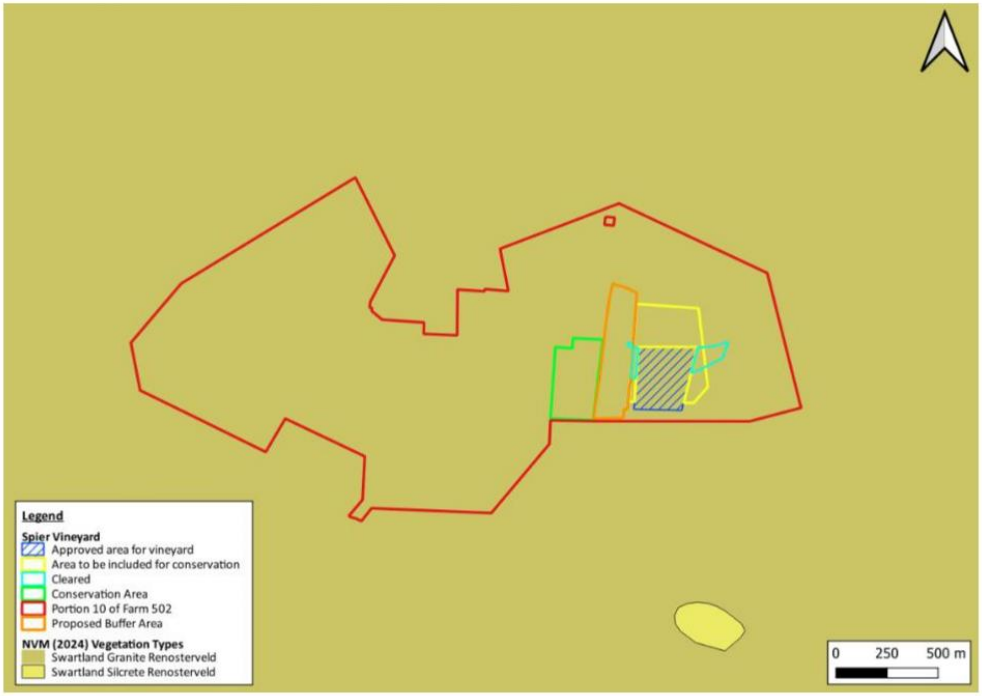

Figure 6.2: National Vegetation Map (2024) of the project area.

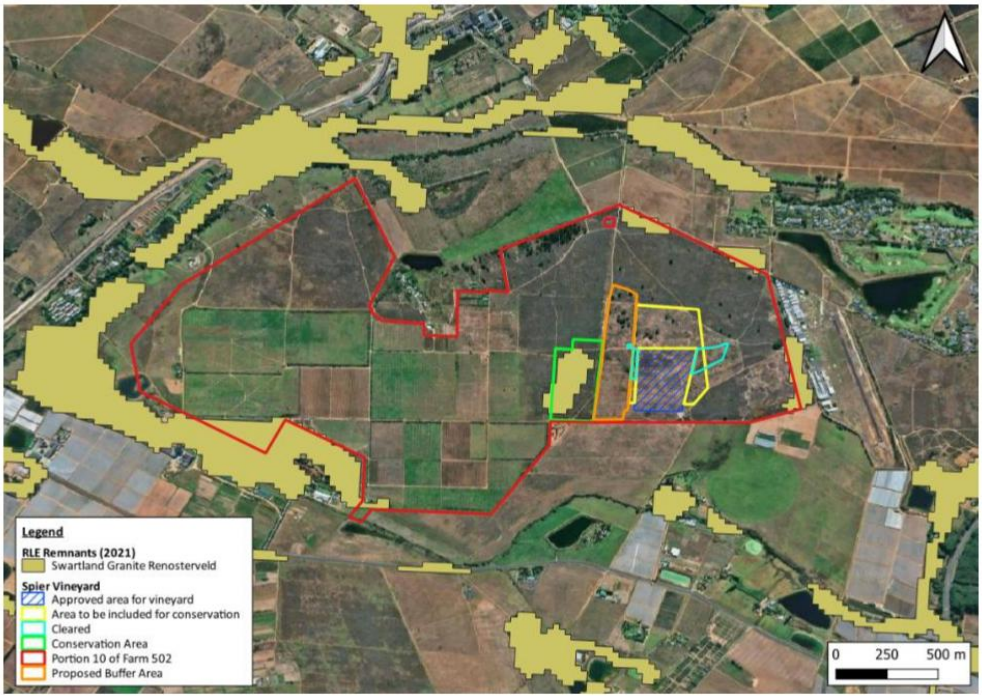

Figure 6.3: Remaining extent of threatened ecosystems within the project area according to SANBI (2021).

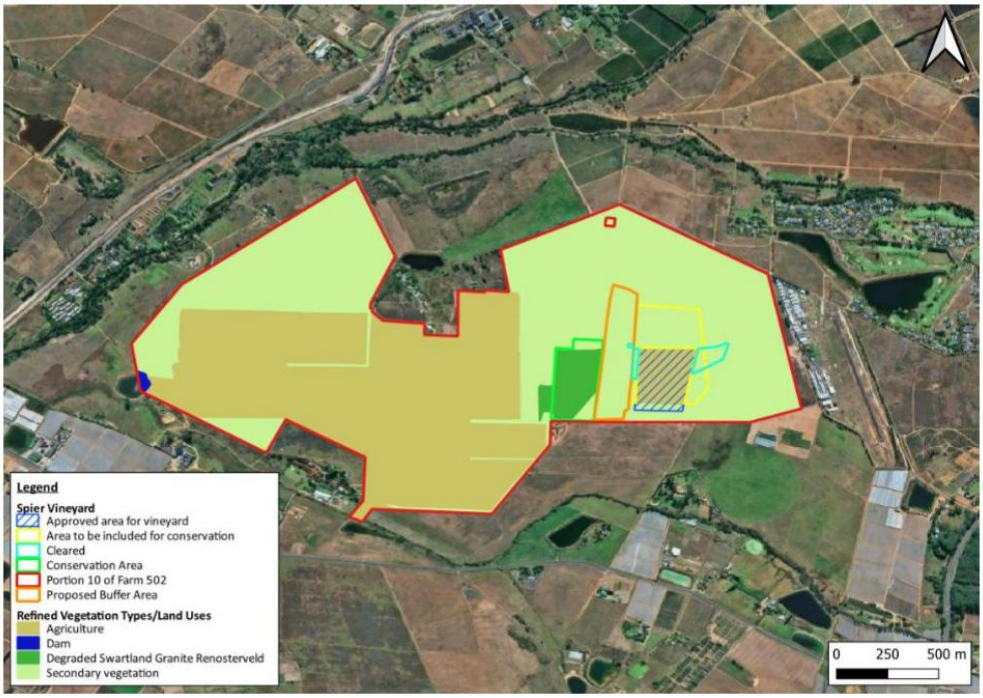

Figure 6.4: Refined vegetation map of the project area based on field survey findings.

6.2. The Western Cape Biodiversity Spatial Plan (2023)

The Western Cape Biodiversity Spatial Plan (WCBSP, 2023) is a spatial planning tool that includes a map of biodiversity importance for the Western Cape Province, covering both the terrestrial and freshwater realms, as well as major coastal and estuarine habitats. The WCBSP map delineates biodiversity priority features which require safeguarding to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services. The accompanying WCBSP handbook also presents a set of land use guidelines that are required to conserve biodiversity.

The WCBSP maps the following five broad biodiversity priority categories as per SANBIs Technical Guidelines for biodiversity maps (2017), including Protected Areas (PA), Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), and Other Natural Areas (ONAs) (please refer to glossary for definitions of these terms).

According to the WCBSP (2023), the project area does not fall within an ESA but occurs within a CBA 1: Threatened Ecosystem (Figure 6.5). The reason for the classification of this CBA is the presence of an endangered ecosystem; Swartland Granite Renosterveld. However, as described in Section 6.1 above, a large portion of the project area has previously been transformed for agricultural use and only one small, degraded patch (< 10 ha) of Swartland Granite Renosterveld occurs to the west of the approved vineyard (refer to Section 6.1 above). The project area therefore does not contain the features driving the CBA classification and it is unlikely that the unlawful vegetation clearance has impacted on the management objectives or conservation targets of the CBA.

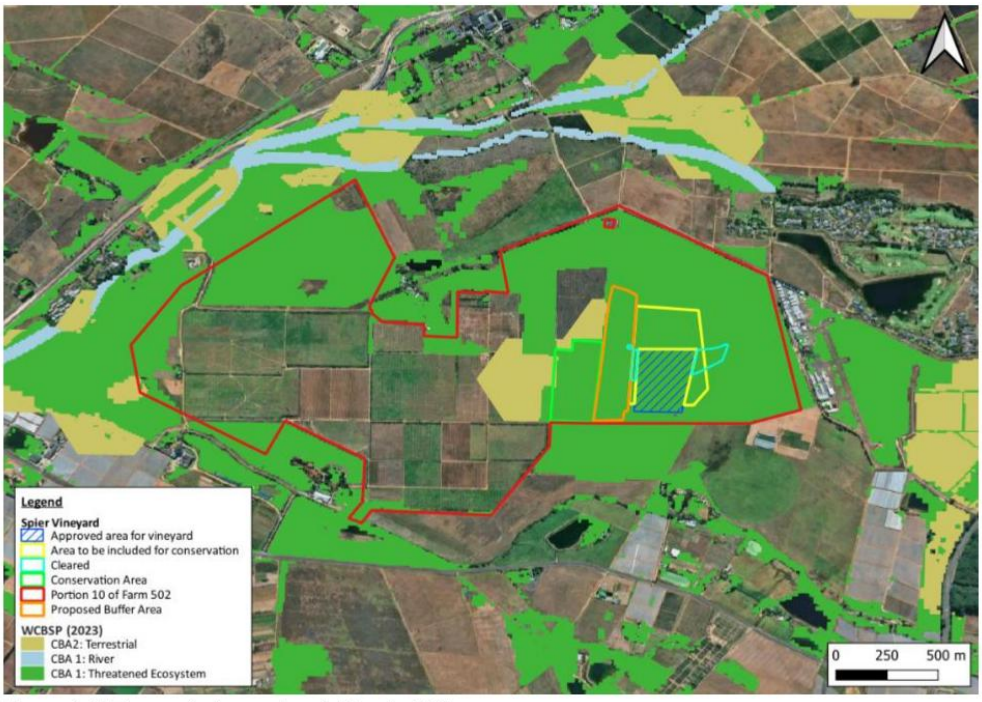

Figure 6.5: The project area in relation to CBAs.

6.3. Protected Areas, Conservation Areas, and National Area Expansion Strategy Areas

The South African Protected Areas Database (SAPAD) and the South African Conservation Areas Database (SACAD) are spatial datasets that includes all the protected areas (PA) and conservation areas (CA) within South Africa. Data on privately owned PAs are also included in the dataset which is maintained and updated on a quarterly basis. This dataset therefore provides the most up to date information on protected areas and conservation areas in South Africa. According to SAPAD (Q3, 2024), the project area does not occur within a protected area. The nearest protected area is the Papegaaiberg Nature Reserve located approximately 4.9 km northeast of the project area (Figure 6.6). Although the project area is not located within a protected area, it is located within a National Protected Areas Expansion Strategy Area Focus area (NPAES, 2018) and within a Conservation Area – the Cape Winelands Biosphere Reserve (SACAD, Q3, 2023) (Figure 6.6).

NPAES Focus Areas have been strategically mapped to determine the best areas in which to increase South Africa's protected area network as the current extent of protected areas are not adequate to sustain biodiversity and ecological processes. The NPAES aims to improve ecological sustainability and increase resilience to climate change and highlights ways in ways in which limited resources can be allocated efficiently and effectively to expanding protected areas. Although these areas have not undergone comprehensive stakeholder engagement and fine-scale feasibility/suitability assessments, development in these areas needs to be carefully considered.

The Cape Winelands Biosphere Reserve, extending from the Kogelberg Biosphere Reserve northwards along the Cape Fold Belt Mountain Chain and the valleys of the Cape Winelands, hosts a variety of diverse ecosystems and physiographic environments. It also encompasses important areas of the Cape Floral Region Protected Areas – a registered World Heritage site known for its exceptional terrestrial biodiversity. The reserve supports a gradient of land uses, ranging from the world-renowned Cape Winelands viticulture landscape to historic towns and farmsteads.

The Cape Winelands Biosphere Reserve focuses on the protection of the Cape Floral World Heritage Site and associated ecosystems through managing and coordinating conservation activities within the area. It also aims to combat poverty and inequality through promoting sustainable development, as well as maintaining long-term availability of high-quality water to adjoining regions and to the City of Cape Town. The Biosphere Reserve therefore prioritizes conservation, long-term sustainability, human well-fair and equitable access to basic resources. It is 3220,3 km^2 in extent. The area that was unlawfully cleared constitutes only 0.02 km^2 (0.0006%) of the total extent of the Cape Winelands Biosphere Reserve.

Additionally, historical imagery indicates that most of the project area has been historically ploughed and according to SANBI, cannot be regarded as natural habitat even if some regeneration occurs. This is because the species composition does not, and is unlikely to ever, reflect that of the original natural ecosystem after such disturbance. The surrounding land use is largely dominated by intensive agriculture and other anthropogenic developments including infrastructure such as an aerodrome and residential developments. This has resulted in significant habitat fragmentation and reduced ecological connectivity. Therefore, given the condition of the site before unlawful clearing and the

small extent of the area affected, it is unlikely that the proposed project or unlawful clearing will cause further impacts beyond those already incurred on both the Conservation Area and NPAES area.

6.4. Key Biodiversity Areas

Key Biodiversity Areas (KBAs) are critical locations for conserving species and their habitats, identified globally for their significant role in maintaining biodiversity. In South Africa, establishing KBAs was essential for enabling the country to report on global conservation targets. These areas will now be included in the range of tools used to monitor and assess biodiversity, guiding policy and decision-making across various sectors. According to South Africa's Key Biodiversity Areas (2024) spatial dataset, the project area does occur within a KBA: The Stellenbosch Lowlands KBA (Figure 6.6).

The Stellenbosch Lowlands plays an important role in conserving species and habitats that form part of the Cape Floristic region, a UNESCO world Heritage site known for its rich plant diversity and endemism. Although the region covers less than 0.5% of Africa's surface area, it contains close to 20% of Africa's flora and was therefore declared a World Centre of Plant Diversity by the IUCN. However, the Stellenbosch Lowlands is roughly 900 km^2 in extent. The area that was unlawfully cleared constitutes only 0.02 km^2 (0.002) % of the total extent of the Stellenbosch Lowlands KBA.

The project area has been historically ploughed and, according to SANBI, cannot be considered natural habitat due to lasting changes in species composition. Surrounding land uses, including intensive agriculture and infrastructure, have caused significant habitat fragmentation and reduced ecological connectivity. Therefore, given the condition of the site before unlawful clearing and the small extent of the area affected, it is unlikely that the proposed project or unlawful clearing will cause further impacts beyond those already incurred on the Stellenbosch Lowlands KBA.

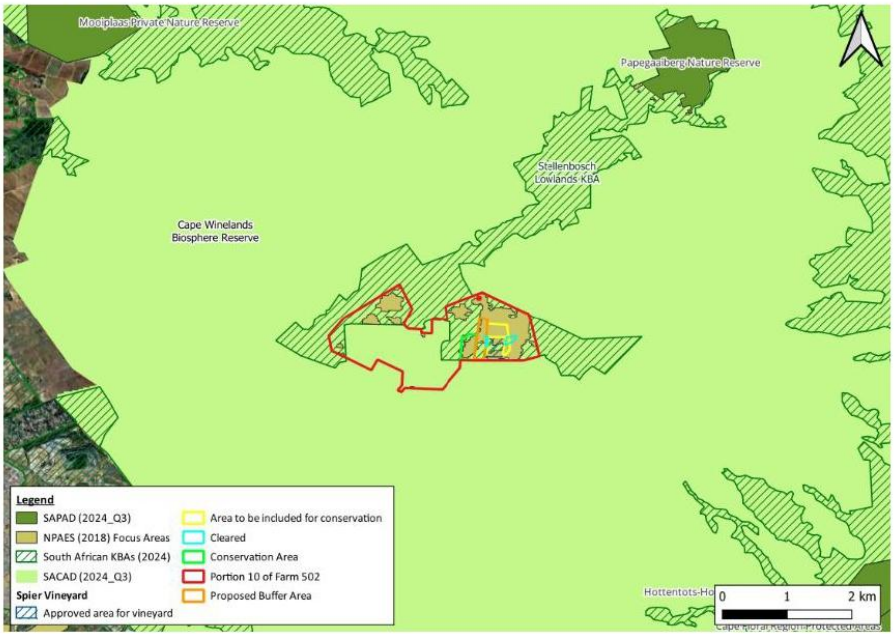

Figure 6.6: Map illustrating the project area in relation to Protected Areas (SAPAD), Conservation areas (SACAD) and NPAES.

6.5. Strategic Water Source Areas

Strategic Water Source Areas are natural source areas that provide large volumes of water, in the form of surface water or groundwater (or both), to the country. SWSAs are crucial for ensuring water security in South Africa and is regarded as vitally important ecological infrastructure. In South Africa, Stats SA and the South African National Biodiversity Institute (SANBI), in partnership with the DFFE, published the Accounts for Strategic Water Source Areas, 1990 to 2020, which is a discussion document that provides detailed information on each of South Africa's 22 SWSAs. According to the Accounts for Strategic Water Source Areas, 1990 to 2020, the project is located within the Boland SWSA (Figure 6.6).

The Boland SWSA is 6080 km^2 in extent. The area that was unlawfully cleared constitutes only 0.02 km^2 (0.0003%) of the total extent of the Boland SWSA. Additionally, a large portion of the land within the project area has been previously transformed for agricultural use and is adjacent to agricultural land and anthropogenic developments including infrastructure such as an aerodrome and residential developments. Therefore, given the condition of the site before unlawful clearing and the small extent of the area affected, it is unlikely that the proposed project or unlawful clearing will cause further impacts beyond those already incurred on the Boland SWSA. Whilst SWSAs contribute to terrestrial biodiversity, it is regarded as an aquatic feature and should be assessed by the Aquatic Specialist.

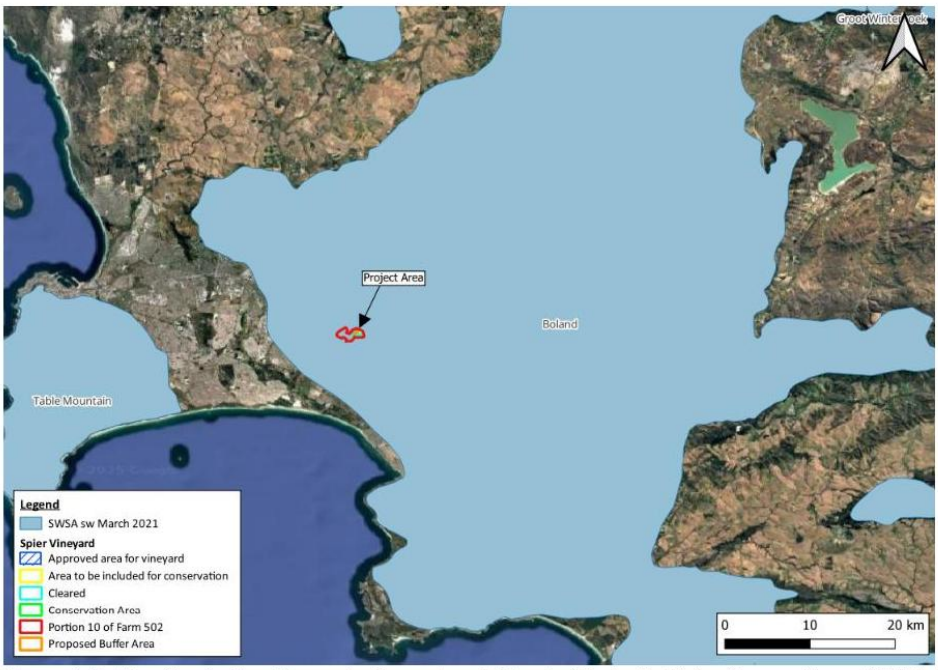

Figure 6.7: Map illustrating the project area in relation to Strategic Water Source Areas (SWSAs).

7. SITE ECOLOGICAL IMPORTANCE

This chapter assessed the site ecological importance (SEI) for animal SCC, plant SCC and the ecosystems in which they occur.

The methodology outlined in the Species Environmental Assessment Guideline (SANBI, 2020) (refer to Section 2.4) as well as the results from the desktop assessment and field survey have been used to determine the SEI for the vegetation types and faunal habitats present within the project area, the outcome of which, has been used to comment on the sensitivities of the DFFE screening report in Chapter 9.

7.1. Site Ecological Importance - Fauna

Four SCC (NT Fynbos Golden Mole, NT Cape Rain Frog, NT Cape Dwarf Chameleon and VU Blue Crane) have a high likelihood of occurrence in the project area. The SEI of the project footprint to these species is considered Low given that the habitat within the project area consisted mainly of secondary vegetation and is highly fragmented (Table 7.1).

Table 7.1: Site Ecological Importance of the project area to faunal SCC prior to the unlawful clearance of habitat.

Habitat / Species	Conservation Importance (CI)	Functional Integrity (FI)	BI	Receptor Resilience	SEI
Fynbos Golden Mole (NT), Cape Rain Frog (NT), Cape Dwarf Chameleon (NT), Blue Crane (VU) **Habitat: Secondary Vegetation**	Medium High likelihood of occurrence of NT species including Fynbos Golden Mole (NT), Cape Rain Frog (NT), Cape Dwarf Chameleon (NT), Blue Crane (VU).	Low Several minor and major ecological impacts (property historically ploughed and transformed for agriculture). Migrations are possible across modified habitat. A busy road network surrounds the project area. Patches of secondary vegetation have been fragmented by roads and fences.	Low	Medium These species have a medium likelihood of returning to the site once disturbance has been removed.	**Low**

7.2. Site Ecological Importance - Flora

The SEI for the Secondary Vegetation was determined to be VERY LOW due to the combination of low conservation importance, low functional integrity and high receptor resilience (Table 7.2).

Table 7.2: Sensitivity assessment for plant species within the project area.

Habitat / Species	Conservation Importance (CI)	Functional Integrity (FI)	BI	Receptor Resilience	SEI
	Low	Low		High	
Secondary Vegetation	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.	Several minor and major current ecological impacts (property historically ploughed and transformed for agriculture). Patches of secondary vegetation have been fragmented by roads and fences.	Low	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality.	**VERY LOW**

7.3. Combined SEI

According to the Species Environmental Assessment Guideline (SANBI, 2020), the SEI ratings for each taxon or receptor should be consolidated into a single, multi-taxon SEI evaluation to enable the competent authority to assess the overall sensitivity of the project area quickly and clearly. In this case, only one habitat type—Secondary Vegetation—was impacted by the unauthorised clearance of 2 ha. Therefore, the highest SEI rating from both the botanical and faunal assessments has been applied to this habitat type. Table 7.3 presents the consolidated SEI based on the detailed evaluations in Tables 7.1 and 7.2.

Table 7.3: Combined overall SEI for each habitat type.

Habitat	BOTANICAL SEI	FAUNAL SEI	OVERALL COMBINED SEI
Secondary Vegetation	Very Low	Low	Low

According to the guidelines for interpreting SEI in the context of development activities (SANBI, 2020), areas classified as LOW SEI can accommodate medium- to high-impact development activities, provided these are followed by appropriate restoration measures.

8. IMPACT ASSESSMENT

The impacts associated with the unauthorised clearing of 2 ha of vegetation, as described in Section 1.1, are assessed below. This assessment focuses on retrospective impacts that have already occurred, rather than projecting potential impacts on an undeveloped site.

Ten impacts have been identified for the construction phase (in this case, referring specifically to the clearance of vegetation). These impacts are assessed in Table 8.1 below and include:

- Loss of secondary Fynbos vegetation.
- Spread of Alien Invasive Plant Species.
- Partial Impact on a CBA 1.
- Partial impact on an NPAES Focus Area.
- Partial impact on the Cape Winelands Biosphere Reserve.
- Partial impact on the Stellenbosch Lowlands KBA.
- Partial impact on the Boland SWSA.
- Disruption of Ecosystem Function and Process.
- Loss of faunal habitat and disturbance to faunal species occupying habitat.
- Loss of faunal SCC

One impact has been identified for the operational phase. This has been assessed in Table 8.2 below and includes:

- Spread of Alien Invasive Plant Species.

Under the no-go alternative, the areas that were unlawfully cleared would have remained as Secondary Fynbos Vegetation and would eventually have been incorporated into the conservation areas as per the approved Environmental Authorisation (EA). Impacts have been assessed against the no-go alternative.

The cumulative impact of the unauthorised vegetation clearance (2 ha) on ecological and faunal features is considered negligible to low. The affected area is very small (0.02 km²), previously disturbed, and situated within a fragmented agricultural and semi-urban matrix. Although the site falls within several conservation planning layers — including the Cape Winelands Biosphere Reserve, the Stellenbosch Lowlands KBA, a CBA, and the Boland Strategic Water Source Area — it does not contain intact remnants of the sensitive ecosystems or critical habitats driving these designations. Similarly, while the broader area is flagged for the potential presence of species of conservation concern (SCC), no faunal SCC were confirmed on site, and the degraded and transformed nature of the site limits its functional suitability for such species. While incremental habitat loss contributes to regional biodiversity erosion, the scale and context of the disturbance mean that the cumulative impact on both ecological processes and faunal habitat availability is minimal, particularly in light of proposed mitigation and rehabilitation.

Table 8.1: Assessment of impacts associated with the Construction Phase.

Construction Phase		
Impact 1: Loss of secondary Fynbos vegetation.		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**Loss of 2 ha of Secondary Fynbos Vegetation.**	**Rehabilitation and conservation of Secondary Fynbos Vegetation.**
Extent and duration of impact:	Extent: Local Duration: Long-Term	Extent: Local Duration: Long-Term
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	High	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (-)	Low (+)
Degree to which the impact can be mitigated:	High	High
Proposed mitigation:	• The impact cannot be mitigated as it has already occurred. However, the impacted areas must be restored according to the Restoration Plan compiled for the project area by (Holmes, 2021).	
Cumulative impact post mitigation:	Low (-)	Low (+)
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (+)**
Impact 2: Spread of Alien Invasive Plant Species.		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**Four alien plant species were identified during the field survey, of which only one — *Acacia saligna* — is classified as invasive. The number of individuals were low and scattered throughout the broader property. The clearance of vegetation creates open habitats for the establishment and spread of Alien Invasive Plant Species.**	**Under the no go alternative, Alien Invasive Species are likely to have been controlled in line with the Alien Management Plan/ Method statement and/or Restoration Plan compiled for the project area by (Holmes, 2021).**
Extent and duration of impact:	Extent: Local Duration: Long-Term	Extent: Local Duration: Long-Term
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	High	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A

Cumulative impact prior to mitigation:	Low (-)	Low (+)
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (-)	Low (+)
Degree to which the impact can be mitigated:	High	High
Proposed mitigation:	• All alien plant species must be removed and disposed of in line with the Working for Water Programme.	
Cumulative impact post mitigation:	Low (-)	Low (+)
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (+)**
Impact 3: Partial Impact on a CBA 1.		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**The project area falls within a CBA 1: Threatened Ecosystem (Swartland Granite Renosterveld). However, the cleared area did not contain the key features driving the classification of the CBA. Given the site's historical transformation and the degraded state of remaining vegetation, the unlawful clearing is unlikely to have affected the CBA's management objectives or conservation targets.**	**Under the no-go alternative, the 2 ha area that was unlawfully cleared would have remained as Secondary Fynbos Vegetation and, in line with the approved Environmental Authorisation, would eventually have been incorporated into the designated conservation area. This scenario represents the preferred ecological outcome, where no further impacts occur and the site contributes to long-term conservation objectives.**
Extent and duration of impact:	Extent: Localised Duration: Long-term	Extent: Localised Duration: Permanent
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	High	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (-)	Low (+)
Degree to which the impact can be mitigated:	High	High
Proposed mitigation:	• The impact cannot be mitigated as it has already occurred. However, the impacted areas can be restored according to the Restoration Plan compiled for the project area by (Holmes, 2021).	

	• Areas approved for development must be clearly demarcated to prevent further encroachment. • No further clearance must be permitted beyond approved footprint. • Impacted areas must be restored according to the Restoration Plan compiled for the project area by (Holmes, 2021).	
Cumulative impact post mitigation:	Negligible	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (+)**
Impact 4: Partial impact on an NPAES Focus Area.		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**The site falls within a National Protected Area Expansion Strategy (NPAES) Focus Area; however, the cleared area (2 ha) is small, degraded secondary vegetation located within the operational footprint of Spier Wine Estate. As such, the unauthorised clearance is not considered to have undermined the broader goals or targets of the NPAES.**	**Under the no-go alternative, the area that was unlawfully cleared (2 ha) would have remained as Secondary Fynbos Vegetation, which had re-established on historically cultivated land. Over time, this vegetation could have continued to regenerate and would have been incorporated into the designated conservation area in accordance with the approved Environmental Authorisation.**
Extent and duration of impact:	Extent: Localised Duration: Long-Term	Extent: Localised Duration: Permanent
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	High	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (-)	Low (+)
Degree to which the impact can be mitigated:	High	High
Proposed mitigation:	• Refer to mitigation measures listed under Impact 3 above.	
Cumulative impact post mitigation:	Negligible	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (+)**
Impact 5: Partial impact on the Cape Winelands Biosphere Reserve.		
Alternatives	**Alternative 1**	**No-Go (Preferred)**

Nature of impact:	**The project area is located within the Cape Winelands Biosphere Reserve, a UNESCO-designated area promoting sustainable development and biodiversity conservation. However, the extent of the vegetation clearance is minimal, covering only 0.02 km² (2 ha), which equates to approximately 0.0006% of the total extent of the biosphere reserve. Furthermore, the cleared area consisted of Secondary Fynbos Vegetation on previously transformed land and did not contain features of high ecological integrity or intact threatened ecosystems. As such, while the activity is not aligned with the goals of the biosphere reserve, the impact is considered negligible at the landscape level and unlikely to compromise the broader objectives of the reserve.**	**Under the no-go scenario, the area that was unlawfully cleared would have remained as Secondary Fynbos Vegetation within the biosphere reserve. Over time, and in accordance with the approved Environmental Authorisation, it would have been incorporated into the broader conservation area on the Spier Wine Estate. This would have enhanced the biosphere reserve's conservation role by supporting passive restoration of previously cultivated land and aligning with its objectives of protecting biodiversity, restoring ecosystem function, and promoting land stewardship. Therefore, the no-go alternative would have presented a low-impact, conservation-supportive outcome within the context of the biosphere reserve.**
Extent and duration of impact:	Extent: Localised Duration: Long-Term	Extent: Localised Duration: Permanent
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	High	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (-)	Low (+)
Degree to which the impact can be mitigated:	High	High
Proposed mitigation:	• Refer to mitigation measures listed under Impact 3 above.	
Cumulative impact post mitigation:	Negligible	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (+)**
Impact 6: Partial impact on the Stellenbosch Lowlands KBA.		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**The project area falls within the Stellenbosch Lowlands Key Biodiversity Area (KBA), identified as a site of global significance for the**	**Under the no-go scenario, the area that was unlawfully cleared would have remained as Secondary Fynbos Vegetation**

	persistence of biodiversity. However, the unlawful clearance affected only 0.02 km² (2 ha), which constitutes approximately 0.002% of the total extent of the KBA. The cleared area was previously cultivated and supported Secondary Fynbos Vegetation with no evidence of irreplaceable or threatened species or intact remnants of the endangered ecosystem for which the KBA was designated. Although the activity occurred within a KBA, the scale and ecological significance of the impact are negligible, and it is unlikely to undermine the KBA's overall conservation targets or ecological integrity.	**within the Stellenbosch Lowlands KBA. This vegetation would have been incorporated into the conservation area as per the approved Environmental Authorisation, contributing toward restoration objectives within a landscape. Although the area is small, its passive regeneration and formal conservation would have been more aligned with the KBA's management goals, which include the long-term protection and recovery of biodiversity features unique to this site. Thus, the no-go alternative would have yielded a slightly more ecologically favourable outcome, consistent with the objectives of the KBA framework.**
Extent and duration of impact:	Extent: Localised Duration: Long-Term	Extent: Localised Duration: Permanent
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	High	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (-)	Low (+)
Degree to which the impact can be mitigated:	High	High
Proposed mitigation:	• Refer to mitigation measures listed under Impact 3 above.	
Cumulative impact post mitigation:	Negligible	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (+)**
Impact 7: Partial impact on the Boland SWSA.		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**The project area is within the Boland SWSA (6,080 km²), but the cleared area is very small (0.02 km²; 0.0003% of the SWSA) and consists of previously transformed secondary vegetation adjacent to agricultural**	**Under the no-go option, the cleared area would have remained as secondary vegetation and been incorporated into the conservation area per the approved Environmental**

	and developed land. Given the limited size and condition of the site, the clearance is unlikely to affect the SWSA's hydrological functions or overall ecological integrity. As an aquatic feature, the SWSA's terrestrial vegetation impacts should be considered low and assessed by an aquatic specialist.	**Authorisation. This would better align with SWSA conservation goals by avoiding further terrestrial disturbance, although the overall difference is minimal given the small area involved.**
Extent and duration of impact:	Extent: Localised Duration: Long-Term	Extent: Localised Duration: Permanent
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	High	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (-)	Low (+)
Degree to which the impact can be mitigated:	High	High
Proposed mitigation:	• Refer to mitigation measures listed under Impact 3 above.	
Cumulative impact post mitigation:	Negligible	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (+)**
Impact 8: Disruption of Ecosystem Function and Process.		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**The unlawful clearance of 2 ha of secondary vegetation at Spier Wine Estate contributes marginally to the ongoing fragmentation of the site, which is already heavily altered by agricultural activities, infrastructure, roads, fencing, and invasive alien plant species. This clearing further isolates remaining habitat patches, potentially limiting species movement and reducing ecosystem connectivity. However, given the small scale of the clearance and the pre-existing fragmented landscape, the overall disruption to ecosystem function and processes is considered to be of low significance.**	**Under the no-go alternative, the unlawfully cleared 2 ha of secondary vegetation within the Spier Wine Estate would have remained intact, preserving the existing habitat connectivity within an already highly fragmented landscape. Given that the project area is surrounded by agricultural land, infrastructure, and invasive alien plants, maintaining this patch of vegetation would help support remaining ecosystem functions and species movement to the extent possible. No additional habitat fragmentation or ecosystem disruption would**

		occur, making this the more favourable ecological outcome.
Extent and duration of impact:	Extent: Localised Duration: Long-Term	Extent: Localised Duration: Permanent
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	High	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (-)	Low (+)
Degree to which the impact can be mitigated:	High	High
Proposed mitigation:	• Refer to mitigation measures listed under Impact 3 above.	
Cumulative impact post mitigation:	Negligible	Negligible
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (+)**
Impact 9: Loss of faunal habitat and disturbance to faunal species occupying habitat		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**The unlawful clearing of 2ha of Secondary Fynbos habitat in 2024 likely disrupted any faunal species utilising the habitat to some extent and was the was no longer available to faunal species once cleared. The clearing activities and loss of habitat may have caused individuals to move away from the immediate area into surrounding areas, increasing competition for food and shelter in those areas, and may even have disrupted a breeding cycle causing them to skip a season.**	**If the area was not cleared of vegetation, the habitat would still be in place and faunal species would have continued to use the habitat. In addition, the habitat quality may have increased due to the implementation of Restoration Plan compiled for the property by Holmes (2021).**
Extent and duration of impact:	Extent: Localised Duration: Long-Term	Extent: Localised Duration: Long-Term
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	Low	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A
Cumulative impact prior to mitigation:	Negligible	Negligible

Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	Low (+)
Degree to which the impact can be mitigated:	Low	High
Proposed mitigation:	• It is unclear it any mitigation measures were implemented to reduce disturbance to faunal species. • Depending on how the site was cleared, manually or with machinery and how long it took faunal species may have had time to move away into adjacent areas.	• Restoration Plan compiled for the property by Holmes (2021) implemented.
Cumulative impact post mitigation:	N/A	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	N/A	Medium (+)
Impact 10: Loss of faunal SCC		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**There is a High likelihood of occurrence that the Fynbos Golden Mole (NT), Cape Rain Frog (NT), Cape Dwarf Chameleon (NT) and Blue Crane (VU) utilised that secondary habitat for shelter, foraging, or breeding/nesting sites prior to clearing. However, the SEI of the project area to all these species was found to be Low. Depending on the mechanism used to clear vegetation the impact is also considered low.**	**If the area was not cleared of vegetation, the habitat would still be in place and faunal SCC would have continued to use the habitat. In addition, the habitat quality may have increased due to the implementation of Restoration Plan compiled for the property by Holmes (2021).**
Extent and duration of impact:	Extent: Localised Duration: Short-Term	Extent: Localised Duration: Long-Term
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	Low	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	Low (+)
Degree to which the impact can be mitigated:	Low	High

Proposed mitigation:	• It is unclear it any mitigation measures were implemented to reduce loss of faunal SCC. • Depending on how the site was cleared, manually or with machinery and how long it took faunal species may have had time to move away into adjacent areas.	Restoration Plan compiled for the property by Holmes (2021) implemented.
Cumulative impact post mitigation:	• N/A	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	• N/A	Medium (+)

Table 8.2: Assessment of impacts associated with the Operational Phase.

Operational Phase		
Impact 11: Spread of Alien Invasive Plant Species.		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**If alien plant species are not managed during the construction phase, they may establish and spread further during the operational phase, potentially extending to adjacent areas outside the project area.**	**Under the no go alternative, Alien Invasive Species are likely to have been controlled in line with the Alien Management Plan/ Method statement and/or Restoration Plan compiled for the project area by (Holmes, 2021).**
Extent and duration of impact:	Extent: Local Duration: Long-Term	Extent: Local Duration: Long-Term
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	High	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low	N/A
Cumulative impact prior to mitigation:	Low (-)	Low (+)
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (-)	Low (+)
Degree to which the impact can be mitigated:	High	High
Proposed mitigation:	• All alien plant species must be removed and disposed of in line with the Working for Water Programme.	•
Cumulative impact post mitigation:	Low (-)	Low (+)
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	**Low (-)**	**Low (+)**

9. KEY FINDINGS AND RECOMMENDATIONS

9.1. Summary of Key Findings

9.1.1. Terrestrial Biodiversity Theme

The DFFE Screening Tool Report classified the Terrestrial Biodiversity Theme sensitivity of the project area as VERY HIGH. This is due to its overlap with several conservation planning features, including a Critical Biodiversity Area (CBA 1), an Endangered Ecosystem (Swartland Granite Renosterveld), a Strategic Water Source Area (Boland SWSA), and a National Protected Areas Expansion Strategy (NPAES) focus area. Despite this classification, the cleared area (2 ha) did not contain remnant patches of Swartland Granite Renosterveld and consisted of secondary vegetation previously transformed by agricultural activities. Consequently, the site lacks the key ecological features that contribute to the high sensitivity classification, and the impact of the unlawful clearing on biodiversity objectives is considered low to negligible.

9.1.2. Plant Species Theme

The broader PAOI was classified as HIGH sensitivity due to the known occurrence of eight sensitive plant SCC and MEDIUM due to the possible presence of 102 plant SCC. During the field survey 29 plant species were recorded, of which 25 were indigenous (all classified as Least Concern) and 4 were alien species. No plant SCC were recorded, and the diversity of plant species was relatively low. The vegetation was dominated by common secondary species typical of previously disturbed Fynbos habitats. This supports the findings of the original botanical assessment undertaken by McDonald, (2020) prior to the unlawful vegetation clearance. Therefore, the plant species theme impact of the unlawful clearance is considered low. Furthermore, it is the opinion of the specialist that the Plant Species Theme Sensitivity is reclassified as VERY LOW.

9.1.3. Animal Species Theme

The Animal Species Theme was classified as MEDIUM sensitivity due to the potential occurrence of five invertebrate SCC. However, none were recorded during the field survey. The assessment identified seven mammal, one amphibian, one reptile, and nine bird SCCs with possible presence, but limited habitat resulted in low to medium likelihoods for most. Four species (NT Fynbos Golden Mole, NT Cape Rain Frog, NT Cape Dwarf Chameleon, and VU Blue Crane) had a high likelihood of occurrence in the cleared area, while the NT Cape Clawless Otter had a high likelihood of occurring in surrounding riverine habitats outside the cleared footprint. The secondary, fragmented nature of the vegetation reduced the potential ecological value of the habitat, resulting in a LOW impact to fauna. Based on the evaluation of SEI, it is the opinion of the specialist that the Animal Species Theme Sensitivity is reclassified as LOW.

9.1.4. Site Ecological Importance

The Site Ecological Importance (SEI) was determined to be LOW for faunal SCC and VERY LOW for plant SCC, resulting in an overall SEI of LOW. According to the guidelines for interpreting SEI in the context

of development activities (SANBI, 2020), areas classified as LOW SEI can accommodate medium- to high-impact development activities, provided these are followed by appropriate restoration measures.

9.1.5. Summary of Impacts

The ecological impacts of the 2 ha unlawful clearing are limited due to the small size of the cleared area and its degraded ecological condition. Key impacts assessed include:

- **Minimal impact on CBA 1:** The site lacks the features responsible for CBA classification.
- **Negligible impact on Swartland Granite Renosterveld:** No remnant vegetation was present in the cleared area.
- **Negligible impact on the Cape Winelands Biosphere Reserve and Stellenbosch Lowlands KBA:** The cleared area constitutes only 0.0006% and 0.002% of their respective total extents.
- **Negligible impact on Boland SWSA:** The cleared area represents just 0.0003% of the SWSA and occurs in a previously modified area.
- **Low impact on faunal species and SCC:** Only four species had a high likelihood of occurrence within the project area, but habitat quality is low.
- **Low impact on ecosystem functioning and fragmentation:** The project area is already ecologically fragmented.

Table 9.1 below summarises the impacts associated with the unlawful clearing.

Table 9.1: Summary of impacts associated with the unlawful clearance of 2 ha of vegetation.

Impact	Residual Significance	
	Alternative 1	No-go Alternative
Construction Phase		
Impact 1: Loss of secondary Fynbos vegetation.	Low (-)	Low (+)
Impact 2: Spread of Alien Invasive Plant Species.	Low (-)	Low (+)
Impact 3: Partial Impact on a CBA 1.	Low (-)	Low (+)
Impact 4: Partial impact on an NPAES Focus Area.	Low (-)	Low (+)
Impact 5: Partial impact on the Cape Winelands Biosphere Reserve.	Low (-)	Low (+)
Impact 6: Partial impact on the Stellenbosch Lowlands KBA.	Low (-)	Low (+)
Impact 7: Partial impact on the Boland SWSA.	Low (-)	Low (+)
Impact 8: Disruption of Ecosystem Function and Process.	Low (-)	Low (+)
Impact 9: Loss of faunal habitat and disturbance to faunal species occupying habitat	Low (-)	Medium (+)
Impact 10: Loss of faunal SCC	Low (-)	Medium (+)
Operational Phase		
Impact 11: Spread of Alien Invasive Plant Species.	Low (-)	Low (+)

9.2. Conclusions and Recommendations

The retrospective ecological assessment of the 2 ha unlawfully cleared area within Spier Wine Estate indicates that the impacts to terrestrial biodiversity, plant and animal species are minimal to low. The

project area is ecologically degraded and primarily consists of secondary vegetation.

Given the limited scale and intensity of the impact:

- **Restoration** should be undertaken in line with the approved Restoration Plan compiled by **Holmes (2021).**
- **Ongoing monitoring** should be conducted to ensure alien species do not establish and that secondary vegetation recovers.
- The cleared area should be incorporated into the existing conservation commitments under the biodiversity agreement with CapeNature as per the EA dated April 2021.

In conclusion, although the unlawful activity triggered the need for a Section 24G process, the ecological consequences are not considered severe. With appropriate management and restoration, the area can be reintegrated into the estate's conservation framework and continue contributing to long-term biodiversity goals.

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APPENDIX 1: LIST OF PLANT SPECIES RECORDED DURING THE FIELD SURVEY

Family	Scientific Name	Common Name	Threat Status	NEM:BA TOPS 2007	WC PNCO 2000	DFFE List of Protected Trees (2024)
Aizoaceae	*Carpobrotus acinaciformis*	Sally-my-handsome	LC	-	Schedule 4	-
Aizoaceae	*Carpobrotus edulis*	sea fig	LC	-	Schedule 4	-
Anacardiaceae	*Searsia angustifolia*	Willow Karee	LC	-	-	-
Anacardiaceae	*Searsia laevigata*	Dune Currantrhus	LC	-	-	-
Asteraceae	*Athanasia trifurcata*	Three-tooth Kanniedood	LC	-	-	-
Asteraceae	*Dicerothamnus rhinocerotis*	Renosterbush	LC	-	-	-
Asteraceae	*Erigeron bonariensis*	Flax-leaved Horseweed	NE	-	-	-
Asteraceae	*Eriocephalus africanus*	Cape Snow Bush	LC	-	-	-
Asteraceae	*Helichrysum patulum*	Honey Everlasting	LC	-	-	-
Asteraceae	*Metalasia densa*	Fynbos Blombush	LC	-	-	-
Asteraceae	*Osteospermum moniliferum*	Bietou	LC	-	-	-
Asteraceae	*Senecio pterophorus*	Shoddy Ragwort	LC	-	-	-
Asteraceae	*Senecio pubigerus*	Ridgestem Ragwort	LC	-	-	-
Asteraceae	*Seriphium plumosum*	Bankrupt Bush	LC	-	-	-
Cyperaceae	*Ficinia bulbosa*	Bulbous Sedge	LC	-	-	-
Cyperaceae	*Ficinia indica*	Indian Sedge	LC	-	-	-
Fabaceae	*Acacia saligna*	golden wreath wattle	NE	-	-	-
Fabaceae	*Aspalathus cephalotes*	Purplehead Capegorse	LC	-	-	-
Fabaceae	*Psoralea hirta*	Hairy Dottypea	LC	-	-	-
Fabaceae	*Trifolium angustifolium*	Narrow-leaved clover	NE	-	-	-
Geraniaceae	*Pelargonium grossularioides*	Coconut Geranium	LC	-	-	-
Malvaceae	*Hermannia alnifolia*	Fanleaf Dollsrose	LC	-	-	-
Oleaceae	*Olea europaea*	Olive	LC	-	-	-
Oxalidaceae	*Oxalis caprina*	Goat's-foot	LC	-	-	-
Plantaginaceae	*Plantago lanceolata*	ribwort plantain	LC	-	-	-

Poaceae	*Cynodon dactylon*	Bermuda grass	LC	-	-	-
Poaceae	*Pentameris pallida*	Pale Fiveawn	NE	-	-	-
Restionaceae	*Restio triticeus*	Wheat Capereed	LC	-	-	-
Thymelaeaceae	*Passerina corymbosa*	Common Gonna	LC	-	-	-

APPENDIX 2: SAMPLE SITE DESCRIPTIONS

Sample Site No.	Habitat Description	Photograph
S1 (33°58'43.76"S; 18°48'36.87"E)	Portion of site unlawfully cleared. Topography: Flat Soil Type: Coarse sandy to loamy soils. Vegetation beginning to re-establish. Vegetation surrounding the cleared area consists of pioneer and ruderal species including *Seriphium plumosum, Osteospermum moniliferum, Carpobrotus acinaciformis, Athanasia trifurcata* and *Dicerothamnus rhinocerotis* with scattered *Acacia saligna.* Cover: 25-50% Canopy Height: 1-1.5 m	
S2 (33°58'44.44"S; 18°48'37.43"E)	Portion of site unlawfully cleared. Topography: Flat Soil Type: Coarse sandy to loamy soils. Vegetation beginning to re-establish. Vegetation surrounding the cleared area consists of pioneer and ruderal species including *Seriphium plumosum* (dominant), *Osteospermum moniliferum, Carpobrotus acinaciformis, Athanasia trifurcata* and *Dicerothamnus rhinocerotis* with scattered *Acacia saligna.* Cover: 75-90% Canopy Height: 1-1.5 m	

S3 (33°58'49.25"S; 18°48'37.33"E)	Portion of site unlawfully cleared. Topography: Flat to gently sloping. Soil Type: Coarse sandy to loamy soils. Vegetation beginning to re-establish. Vegetation surrounding the cleared area consists of pioneer and ruderal species including *Seriphium plumosum* (dominant), *Osteospermum moniliferum, Carpobrotus acinaciformis, Athanasia trifurcata* and *Dicerothamnus rhinocerotis* with scattered *Acacia saligna.* Cover: 50-75% Canopy Height: 1-1.5 m	
S4 (33°58'51.05"S; 18°48'35.96"E)	Reference Site. Topography: Flat to gentle sloping. Soil Type: Coarse sandy to loamy soils. Secondary Fynbos Vegetation dominated by pioneer and ruderal species including *Seriphium plumosum* (dominant), *Cynodon dactylon, Osteospermum moniliferum, Carpobrotus acinaciformis, Athanasia trifurcata, Erigeron bonariensis, Eriocephalus africanus* and *Dicerothamnus rhinocerotis, Hermannia alnifolia, Psoralea hirta* with scattered *Acacia saligna.* One large *Olea europaea* observed along the fence line. Cover: 60-75% Canopy Height: 1-1.5 m	

S5 (33°58'50.49"S; 18°48'34.84"E)	Reference Site. Topography: Flat to gentle sloping. Soil Type: Coarse sandy to loamy soils. Secondary Fynbos Vegetation dominated by pioneer and ruderal species including *Seriphium plumosum* (dominant), *Cynodon dactylon, Osteospermum moniliferum, Carpobrotus acinaciformis, Athanasia trifurcata, Erigeron bonariensis, Eriocephalus africanus* and *Dicerothamnus rhinocerotis, Hermannia alnifolia, Psoralea hirta* with scattered *Acacia saligna.* Cover: 50-75% Canopy Height: 1-1.5 m	
S6 (33°58'48.00"S; 18°48'36.76"E)	Portion of site unlawfully cleared. Topography: Flat to gentle sloping. Soil Type: Coarse sandy to loamy soils. Secondary Fynbos Vegetation dominated by pioneer and ruderal species including *Seriphium plumosum* (dominant), *Cynodon dactylon, Osteospermum moniliferum, Carpobrotus acinaciformis, Athanasia trifurcata, Erigeron bonariensis, Eriocephalus africanus* and *Dicerothamnus rhinocerotis, Hermannia alnifolia, Psoralea hirta* with scattered *Acacia saligna.* One large *Olea europaea* observed along the fence line. Evidence of clearing (dead branches). Cover: ~50-75% (open in some places, more dense in others) Canopy height: <1.5 m; emergent tree (~5-8 m)	

S7 (33°58'44.02"S; 18°48'51.52"E)	Portion of site unlawfully cleared. Topography: Flat to gentle sloping. Soil Type: Coarse sandy to loamy soils. Vegetation has re-established and resembles that of the surrounding Secondary Fynbos Vegetation dominated by pioneer and ruderal species including *Seriphium plumosum* (dominant), *Cynodon dactylon, Osteospermum moniliferum, Carpobrotus acinaciformis, Athanasia trifurcata, Erigeron bonariensis, Eriocephalus africanus* and *Dicerothamnus rhinocerotis, Hermannia alnifolia, Psoralea hirta* with scattered *Acacia saligna.* Cover: ~75% (relatively dense) Canopy height: <1.5 m	
S8 (33°58'46.09"S; 18°48'51.54"E)	Portion of site unlawfully cleared. Topography: Flat to gentle sloping. Soil Type: Coarse sandy to loamy soils. Vegetation has re-established and resembles that of the surrounding Secondary Fynbos Vegetation dominated by pioneer and ruderal species including *Seriphium plumosum* (dominant), *Osteospermum moniliferum, Athanasia trifurcata, Eriocephalus africanus* and *Dicerothamnus rhinocerotis, Hermannia alnifolia,* with scattered *Acacia saligna.* Cover: ~75% (relatively dense) Canopy height: <1.5 m	

S9 (33°58'46.00"S; 18°48'53.01"E)	Portion of site unlawfully cleared. Topography: Flat to gentle sloping. Soil Type: Coarse sandy to loamy soils. Patch of *Cynodon dactylon* lawn surrounded by Secondary Fynbos Vegetation dominated by pioneer and ruderal species including *Seriphium plumosum* (dominant), *Osteospermum moniliferum, Carpobrotus acinaciformis, Athanasia trifurcata, Erigeron bonariensis, Eriocephalus africanus* and *Dicerothamnus rhinocerotis, Hermannia alnifolia,* with scattered *Acacia saligna.* Cover: ~-50-75% Canopy height: <1.5 m	
S10 (33°58'52.68"S; 18°48'27.71"E)	Reference site. Patch of degraded Swartland Granite Renosterveld. Soil Type: Coarse sandy to loamy soils. Fynbos vegetation dominated by *Phylica cephalantha, Anthospermum aethiopicum, Eriocephalus africanus, Seriphium plumosum, Phylica ericoides, Asparagus rubicundus, Hermannia multiflora, Searsia tomentosa, Aspalathus cordata, Trichocephalus stipularis, Diospyros glabra, Willdenowia incurvata, Metalasia densa, Leucadendron spp., Staberoha distachyos, Tetraria ustulata, Bobartia sp.,* and *Salvia africana.* Signs of fragmentation including powerline and gravel access road. Scattered *Acacia saligna* present. Cover: ~75% Canopy height: 1-1.5 m	

S11 (33°58'54.07"S; 18°48'28.06"E)	As above.	
S12 (33°58'45.77"S; 18°48'23.01"E)	Reference site. Patch of degraded Swartland Granite Renosterveld. Soil Type: Coarse sandy to loamy soils. Fynbos vegetation dominated by *Phylica cephalantha, Anthospermum aethiopicum, Eriocephalus africanus, Seriphium plumosum, Phylica ericoides, Asparagus rubicundus, Hermannia multiflora, Searsia tomentosa, Aspalathus cordata, Trichocephalus stipularis, Diospyros glabra, Willdenowia incurvata, Metalasia densa, Leucadendron spp., Staberoha distachyos, Tetraria ustulata, Bobartia sp.,* and *Salvia africana.* Signs of fragmentation including powerline and gravel access road. Scattered *Acacia saligna* present. Cover: ~75-90% Canopy height: 1.5-2m	

APPENDIX 3: IMPACT ASSESSMENT METHODOLOGY

The Environmental Impact Assessment (EIA) 2014 Regulations promulgated in terms of Sections 24 (5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) [as amended] (NEMA), requires that all identified potential impacts associated with the proposed project be assessed in terms of their overall potential significance on the natural, social and economic environments. The criteria identified in the EIA Regulations (2014) include the following:

- Nature of the impact;
- Extent of the impact;
- Duration of the impact
- Probability of the impact occurring;
- Degree to which impact can be reversed;
- Degree to which impact may cause irreplaceable loss of resources;
- Degree to which the impact can be mitigated; and
- Cumulative impacts

The criteria for the description and assessment of environmental impacts were drawn from the National Environmental Management Act, 1998 (Act No.107 of 1998).
The level of detail was somewhat fine-tuned by assigning specific values to each impact. In order to establish a coherent framework within which all impacts could be objectively assessed it is necessary to establish a rating system, which is consistent throughout all criteria.

Potential Impact OR Nature of Impact

This is an appraisal of the type of effect the proposed activity would have on the affected environmental component. Its description should include what is being affected and how it is being affected.

Extent

The physical and spatial scale of the impact is classified as:

- **Local**: The impacted area extends only as far as the activity, e.g. a footprint.
- **Site**: The impact could affect the whole or a measurable portion of the site.
- **Regional**: The impact could affect the area including the neighbouring erven, the transport routes and the adjoining towns.
- **National**: The impact extends across national boundaries and may have national implications.

Duration

The lifetime of the impact, which is measured in relation to the lifetime of the proposed base?

- **Temporary**: The impact can be reversed when it is removed.
- **Short term**: The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than any of the phases.
- **Medium term**: The impact will last up to the end of the phases, where after it will be entirely negated.
- **Long term**: The impact will continue or last for the entire operational lifetime of the Development but will be mitigated by direct human action or by natural processes thereafter.

- **Permanent**: This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

Consequence of impact or risk

Indicates what will happen if the impact occurs.

Intensity

The intensity of the impact is considered here by examining whether the impact is destructive or benign, whether it destroys the impacted environment, alters its functioning, or slightly alters the environment itself. These are rated as:

- **Low**: The impact alters the affected environment in such a way that the natural processes or functions are not affected.
- **Medium**: The affected environment is altered, but functions and processes continue, albeit in a modified way.
- **High**: Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project.

Probability

This describes the likelihood of the impacts occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:

- **Improbable**: The possibility of the impact occurring is none, due either to the circumstances, design or experience.
- **Possible**: The possibility of the impact occurring is very low, due either to the circumstances, design or experience.
- **Likely**: There is a possibility that the impact will occur to the extent that provisions must, therefore, be made.
- **Highly Likely**: It is most likely that the impacts will occur at some stage of the Development. Plans must be drawn up before carrying out the activity.
- **Definite**: The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on.

Irreplaceability

This reviews the extent to which an environmental resource is replaceable or irreplaceable. For example, if the proposed project will be undertaken on land that is already transformed and degraded, this will yield a low irreplaceability score; however, should a proposed development destroy unique wetland systems for example, these may be considered irreplaceable and thus be described as high. The assessment of the degree to which the impact causes irreplaceable loss of resources is based on the following terms:

- **High** irreplaceability of resources (this is the least favourable assessment for the environment);
- **Moderate** irreplaceability of resources;
- **Low** irreplaceability of resources; or
- Resources are replaceable (this is the most favourable assessment for the environment)

Reversibility

This considers the degree to which the adverse environmental impacts are reversible or irreversible. For example, an impact will be described as low should the impact have little chance of being rectified to correct environmental impacts. On the other hand, an impact such as the nuisance factor caused by noise impacts from wind turbines can be considered to be highly reversible at the end of the project lifespan. The assessment of the reversibility of potential impacts is based on the following terms:

- **High**: Impacts on the environment at the end of the operational life cycle are highly reversible.
- **Moderate**: Impacts on the environment at the end of the operational life cycle are reasonably reversible.
- **Low**: Impacts on the environment at the end of the operational life cycle are slightly reversible.
- **Non-reversible**: Impacts on the environment at the end of the operational life cycle are not reversible and are consequently permanent.

Indirect Impact

Indirect impacts are secondary impacts and usually occur at a different place or time. Specialists will need to elaborate on any indirect or secondary impacts of proposed activities. If there are no indirect impacts, the specialist will need to briefly explain so.

Cumulative Impact

Consideration is given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts are evaluated with an assessment of similar developments already in the environment. Such impacts will be either positive or negative, and will be graded as being of negligible, low, medium or high impact.

Determination of Significance – Without Mitigation

The significance is determined through a synthesis of impact characteristics and is an indication of the importance of the impact in terms of both physical extent and time scale. The significance of the impact "without mitigation" is the prime determinant of the nature and degree of mitigation required. Where the impact is positive, the significance is noted as "positive." The significance is rated on the following scale:

- **No significance**: The impact is not substantial and does not require any mitigation action.
- **Low**: The impact is of little importance but may require limited mitigation.
- **Medium**: The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
- **High**: The impact is of great importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

Determination of Significance – With Mitigation

The significance is determined through a synthesis of impact characteristics. It is an indication of the importance of the impact in terms of both physical extent and time scale and therefore indicates the level of mitigation required. In this case, the prediction refers to the foreseeable significance of the impact after the successful implementation of the suggested mitigation measures. Significance with mitigation is rated on the following scale:

- **No significance**: The impact will be mitigated to the point where it is regarded to be insubstantial.
- **Low**: The impact will be mitigated to the point where it is of limited importance.
- Low to medium: The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels.
- **Medium**: Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.
- **Medium to high**: The impact is of great importance. Through implementing the correct mitigation measures the negative impacts will be reduced to acceptable levels.
- **High**: The impact is of great importance. Mitigation of the impact is not possible on a cost-effective basis. The impact continues to be of great importance, and taken within the overall context of the project, is a fatal flaw in the project proposal. This could render the entire development option or entire project proposal unacceptable.

The status of the impacts and degree of confidence with respect to the assessment of the significance is stated as follows:

Status of the impact: A description as to whether the impact will be:

- **Positive** (environment overall benefits from impact);
- **Negative** (environment overall adversely affected); or
- **Neutral** (environment overall not affected).

Degree of confidence in predictions:

The degree of confidence in the predictions, based on the availability of information and specialist knowledge.

This should be assessed as:

- **High**;
- **Medium**; or
- **Low**.

Furthermore, the following must be considered:

- Impacts should be described both before and after the proposed mitigation and management measures have been implemented.
- All impacts should be evaluated for the construction, operation and decommissioning phases of the project, where relevant.
- The impact evaluation should take into consideration the cumulative effects associated with this and other facilities which are either developed or in the process of being developed in the region, if relevant. Management Actions:
- Where negative impacts are identified, mitigatory measures will be identified to avoid or reduce negative impacts. Where no mitigatory measures are possible this will be stated.
- Where positive impacts are identified, augmentation measures will be identified to potentially enhance these.
- Quantifiable standards for measuring and monitoring mitigatory measures and enhancements will be set. This will include a programme for monitoring and reviewing the recommendations to ensure their ongoing effectiveness.

Monitoring

Specialists should recommend monitoring requirements to assess the effectiveness of mitigation actions, indicating what actions are required, by whom, and the timing and frequency thereof.

Mitigation

The objective of mitigation is to firstly avoid and minimise impacts where possible and where these cannot be completely avoided, to compensate for the negative impacts of the development on the receiving environment and to maximise re-vegetation and rehabilitation of disturbed areas. For each impact identified, appropriate mitigation measures to reduce or otherwise avoid the potentially negative impacts are suggested. All impacts are assessed without mitigation and with the mitigation measures as suggested.

The degree to which the impact can be avoided:

This indicates the degree to which an impact can be avoided. Impacts can either be fully avoided (impact is completely avoidable), partly avoided (impact is avoidable with moderate mitigation and/or management) or the impact is unavoidable (the impact it cannot be avoided even with significant mitigation measures and/or management).

The degree to which the impact can be managed:

This indicates the degree to which an impact can be managed. Impacts can either be fully managed (impact is completely manageable), partly managed (impact is manageable with moderate mitigation and/or management) or the impact is unmanageable (the impact cannot be managed even with significant mitigation measures).

The degree to which the impact can be mitigated:

This indicates the degree to which an impact can be reduced. The degree of mitigation can either be high (the impact can be fully mitigated), moderate (the impact can be partly mitigated) or not mitigated at all.

Residual Impact

Residual impacts are those impacts that remain following the implementation of mitigation measures. Residual impacts must be identified and discussed. If there are no residual impacts, the specialist will need to briefly explain that the activity will have no residual impacts.

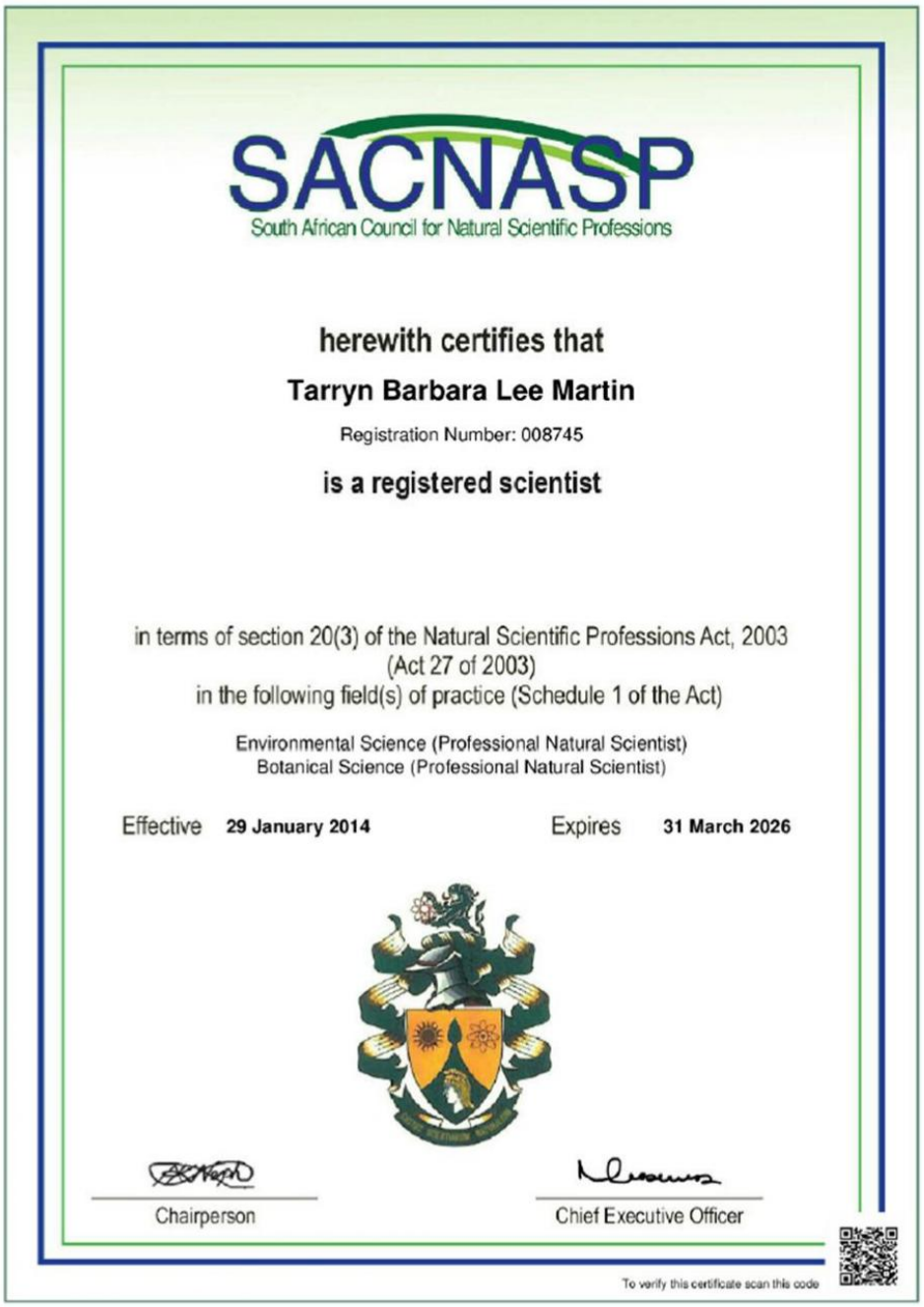
Impact Assessment Table

Construction Phase		
Impacts on Botany:		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**Loss of Degraded Secondary Vegetation**	**Rehabilitation of cleared Secondary Vegetation**
Extent and duration of impact:	Extent: Localised Duration: Permanent	Extent: Localised Duration: Permanent
Probability of occurrence:	Definite	Definite
Degree to which the impact can be reversed:	Low	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low	Low
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative	Medium positive
Degree to which the impact can be mitigated:	Low	High
Proposed mitigation:	The clearance has already occurred. The following mitigation measures were implemented: • Development area must be demarcated. • Clearance must only take place within the demarcated area.	The following mitigation and rehabilitation measures must be implemented: • The development area must be demarcated. • The cleared areas must be rehabilitated as per the Rehabilitation Plan under Appendix H2.
Cumulative impact post mitigation:	N/A	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible	High positive

Operational Phase		
Impacts on Botany:		
Alternatives	**Alternative 1**	**No-Go (Preferred)**
Nature of impact:	**Loss of Degraded Secondary Vegetation**	**Rehabilitation of cleared Secondary Vegetation**
Extent and duration of impact:	Extent: Localised Duration: Permanent	Extent: Localised Duration: Permanent
Probability of occurrence:	Definite	Definite

Degree to which the impact can be reversed:	Low	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low	Low
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative	Medium positive
Degree to which the impact can be mitigated:	Low	High
Proposed mitigation:	The clearance has already occurred. The following mitigation measures were implemented: • Development area must be demarcated. • Clearance must only take place within the demarcated area.	The following mitigation and rehabilitation measures must be implemented: • The development area must be demarcated. • The cleared areas must be rehabilitated as per the Rehabilitation Plan under Appendix H2.
Cumulative impact post mitigation:	N/A	N/A
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Negligible	High positive

APPENDIX 4: PROOF OF SACNASP REGISTRATION AND HIGHEST QUALIFICATION



SACNASP
South African Council for Natural Scientific Professions

herewith certifies that

Tarryn Barbara Lee Martin

Registration Number: 008745

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)

Environmental Science (Professional Natural Scientist)
Botanical Science (Professional Natural Scientist)

Effective **29 January 2014** Expires **31 March 2026**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

RHODES UNIVERSITY

THIS IS TO CERTIFY THAT

TARRYN BARBARA LEE MARTIN

WAS THIS DAY AT A CONGREGATION OF THE UNIVERSITY
ADMITTED TO THE DEGREE OF

MASTER OF SCIENCE

IN

BOTANY

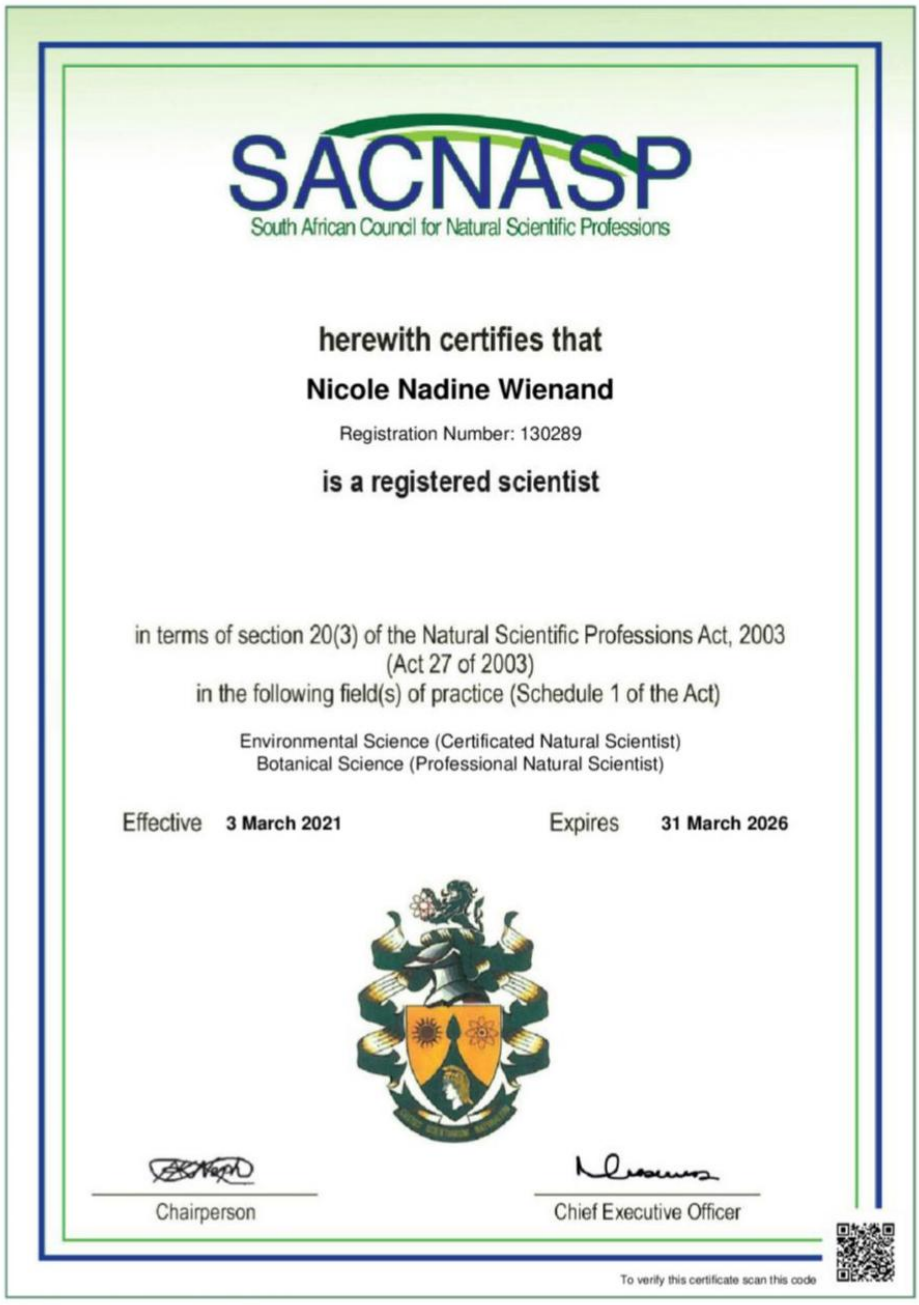
WITH DISTINCTION

VICE CHANCELLOR

DEAN OF THE FACULTY OF SCIENCE

REGISTRAR

GRAHAMSTOWN
10 APRIL 2010



SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Nicole Nadine Wienand

Registration Number: 130289

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)

Environmental Science (Certificated Natural Scientist)
Botanical Science (Professional Natural Scientist)

Effective **3 March 2021** Expires **31 March 2026**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

NELSON MANDELA
UNIVERSITY

This is to certify that, all the requirements
having been met, the degree

Bachelor of Science Honours in Botany

with all the associated rights and privileges,
was conferred upon

Nicole Nadine Wienand
ID no.: 9501170150088

at a congregation of the Nelson Mandela University on
13 December 2018

Certificate no.: 20185249

Vice-Chancellor

Registrar

00008632

Application for Professional Natural Science in the field of Zoology is currently awaiting approval.

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Amber Leah Jackson

Registration Number: 100125/12

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)

Environmental Science (Candidate Natural Scientist)

Effective **15 August 2012** Expires **31 March 2026**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

University of Cape Town • iYunivesithi yaseKapa • Universiteit van Kaapstad

SPES BONA

we certify that

Amber Leah Jackson

was admitted to the degree of

Master of Philosophy

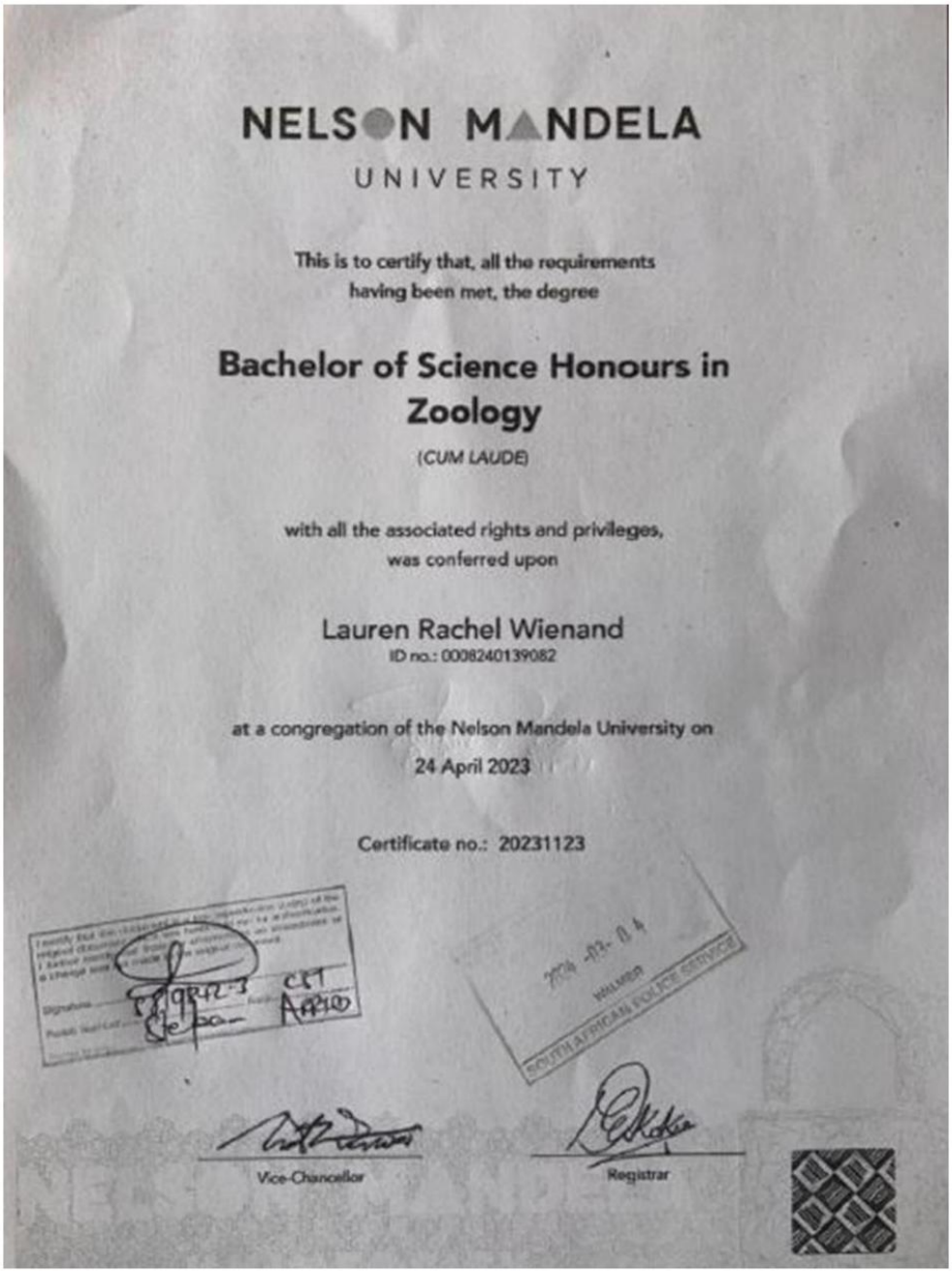
in Environmental Management

on 9 June 2011

Vice-Chancellor

UNIVERSITY OF CAPE TOWN MDCCCXCIX

Registrar



NELSON MANDELA
UNIVERSITY

This is to certify that, all the requirements having been met, the degree

Bachelor of Science Honours in Zoology

(CUM LAUDE)

with all the associated rights and privileges, was conferred upon

Lauren Rachel Wienand
ID no.: 0008240139082

at a congregation of the Nelson Mandela University on

24 April 2023

Certificate no.: 20231123

Vice-Chancellor

Registrar

APPENDIX 5: CV

CONTACT DETAILS

Name	**Tarryn Martin**
Name of Company	**Biodiversity Africa**
Designation	Director
Profession	Botanical and Terrestrial Biodiversity Specialist
E-mail	tarryn@biodiversityafrica.com
Office number	+27 (0)71 332 3994
Education	2010: Master of Science with distinction (Botany) 2004: Bachelor of Science (Hons) in African Terrestrial Vertebrate Biodiversity 2003: Bachelor of Science
Nationality	**South African**
Professional Body	**SACNASP**: South African Council for Natural Scientific Profession: Professional Natural Scientist (400018/14) **SAAB**: Member of the South African Association of Botanists **IAIASa**: Member of the International Association for Impact Assessments South Africa Member of Golden Key International Honour Society
Key areas of expertise	• Biodiversity Surveys and Impact Assessments that meet Performance Standard 6 of the IFC and the Protocols under NEMA • Environmental Impact Assessments • Critical Habitat Assessments • Biodiversity Management and Monitoring Plans • Alien Invasive Management Plans • Rehabilitation Plans • Project Management of large Environmental Impact Assessments in Mozambique

PROFILE

Tarryn has over twelve years of experience working as a botanist, eleven of which are in the environmental sector. She has worked as a botanical specialist and project manager on projects within South Africa, Mozambique, Lesotho, Zambia, Tanzania, Cameroon and Malawi.

She has extensive experience writing botanical impact assessments, critical habitat assessments, biodiversity management plans, biodiversity monitoring plans and rehabilitation and restoration plans to South African and International Standards such as those of the International Finance Corporation (IFC). Her experience includes working on large renewable energy projects in South Africa as well as large mining projects in Mozambique, including multiple graphite mines and a heavy mineral mine, all of which were to international lenders standards.

Tarryn holds a BSc (Botany and Zoology), a BSc (Hons) in African Vertebrate Biodiversity and an MSc with distinction in Botany from Rhodes University. Tarryn's Master's thesis examined the impact of fire on the recovery of C_3 and C_4 Panicoid and non-Panicoid grasses within the context of climate change for which she won the Junior Captain Scott-Medal (Plant Science) for producing the top MSc of 2010 from the South African Academy of Science and Art as well as an Award for Outstanding Academic Achievement in Range and Forage Science from the Grassland Society of Southern Africa. Tarryn is a professional member of the South African Council for Natural Scientific Professionals (since 2014).

EMPLOYMENT EXPERIENCE

Director and Botanical Specialist, Biodiversity Africa

July 2021 - present

- Botanical and ecological assessments for local and international EIAs in Southern Africa
- Identifying and mapping vegetation communities and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Designing rehabilitation plans
- Designing alien management plans
- Ecological walkthroughs micro siting project infrastructure for renewable energy developments
- Critical Habitat Assessments and Ecosystem Services Reports that meet PS6 of the IFC
- Managing budgets

Principal Environmental Consultant, Branch Manager and Botanical Specialist, Coastal and Environmental Services

May 2012-June 2021

- Managing large ESIAs to lenders standards in South Africa and Mozambique
- Botanical and ecological assessments for local and international EIAs in Southern Africa often to IFC Standards
- Identifying and mapping vegetation communities and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Designing rehabilitation and biodiversity offset plans
- Designing alien management plans
- Critical Habitat Assessments
- Large ESIA studies
- Managing budgets
- Cape Town branch manager
- Coordinating specialists and site visits

Accounts Manager, Green Route DMC

October 2011- January 2012

- Project and staff co-ordination
- Managing large budgets for incentive and conference groups travelling to southern Africa
- Creating tailor-made programs for clients
- Negotiating rates with vendors and assisting with the ground management of inbound groups to ensure client satisfaction.

Camp Administrator and Project Co-ordinator, Windsor Mountain International Summer Camp, USA

April 2011 - September 2012

- Co-ordinated staff and camper travel arrangements, main camp events and assisted with marketing the camp to prospective families.

Freelance Project Manager, Green Route DMC

November 2010 - April 2011

- Project and staff co-ordination
- Managing large budgets for incentive and conference groups travelling to southern Africa
- Creating tailor-made programs for clients
- Negotiating rates with vendors and assisting with the ground management of inbound groups to ensure client satisfaction.

Camp Counselor, Windsor Mountain Summer Camp, USA

June 2010 - October 2010

NERC Research Assistant, Botany Department, Rhodes University, Grahamstown in collaboration with Sheffield University, Sheffield, England

April 2009 - May 2010

- Set up and maintained experiments within a common garden plot experiment
- collected, collated and entered data
- Assisted with the analysis of the data and writing of journal articles

Head Demonstrator, Botany Department, Rhodes University

March 2007 - October 2008

Operations Assistant, Green Route DMC

September 2005 - February 2007

- Project and staff co-ordination
- Managing large budgets for incentive and conference groups travelling to southern Africa
- Creating tailor-made programs for clients
- Negotiating rates with vendors and assisting with the ground management of inbound groups to ensure client satisfaction

PUBLICATIONS

- Ripley, B.; Visser, V.; Christin, PA.; Archibald, S.; Martin, T and Osborne, C. Fire ecology of C_3 and C_4 grasses depends on evolutionary history and frequency of burning but not photosynthetic type. *Ecology*. 96 (10): 2679-2691. 2015
- Taylor, S.; Ripley, B.S.; Martin, T.; De Wet, L-A.; Woodward, F.I.; Osborne, C.P. Physiological advantages of C_4 grasses in the field: a comparative experiment demonstrating the importance of drought. *Global Change Biology*. 20 (6): 1992-2003. 2014
- Ripley, B; Donald, G; Osborne, C; Abraham, T and Martin, T. Experimental investigation of fire ecology in the C3 and C4 subspecies of *Alloteropsis semialata*. *Journal of Ecology*. 98 (5): 1196 - 1203. 2010
- South African Association of Botanists (SAAB) conference, Grahamstown. Title: Responses of C3 and C4 Panicoid and non-Panicoid grasses to fire. January 2010
- South African Association of Botanists (SAAB) conference, Drakensberg. Title: Photosynthetic and Evolutionary determinants of the response of selected C3 and C4 (NADP-ME) grasses to fire. January 2008

COURSES

- EIA Short Course 2012, Rhodes University and CES, Grahamstown
- Fynbos identification course, Kirstenbosch, 2015.
- Photography Short Course, Cape Town School of Photography, 2015.
- Using Organized Reasoning to Improve Environmental Impact Assessment, 2018, International IAIA conference, Durban

CONSULTING EXPERIENCE (projects that meet IFC PS are in bold)

International Projects

- **2022: Critical Habitat Assessment for FG Gold Baomahun Gold Project, Sierra Leone. This report was to IFC Standards.**
- **2022: Botanical Impact Assessment for the proposed Nataka Heavy Minerals Mine and TSF, Nampula Province, Mozambique. This report was to IFC Standards.**
- 2021: Botanical screening assessment for the proposed Nataka Heavy Minerals Mine, Nampula Province, Mozambique
- 2021: Botanical specialist for the Pilivilli Heavy Minerals Mine Monitoring Program in Nampula Province, Mozambique

- 2020 – 2021: Project manager for the 2Africa subsea cable ESIA in Mozambique.
- 2020 – 2021: Project manager for the Category B EIA for the Wihinana Graphite Mine, Cabo delgado, Mozambique
- 2020 – 2021: Project manager for the category B exploration ESIA for Sofala Heavy Minerals Mine, Inhambane, Mozambique
- **2020: Critical Habitat Assessment for a graphite mine in Cabo Delgado, Mozambique. This assessment was to IFC standards.**
- 2020: Analysed the botanical dataset for Lurio Green Resources and provided comment on the findings and gaps.
- **2020: Biodiversity Management Plan and Monitoring Plan for mine at Pilivilli in Nampula Province, Mozambique. This assessment was to IFC standards.**
- **2019: Botanical Assessment for a cocoa plantation, Tanzania. This assessment was to IFC standards.**
- **2019: Critical Habitat Assessment, Biodiversity Management Plan and Ecosystem Services Assessment for JCM Solar Farm in Cameroon. This assessment was to IFC standards.**
- **2019: Undertook the Kenmare Road and Infrastructure Botanical Baseline Survey and Impact Assessment for an infrastructure corridor that will link the existing mine at Moma to the new proposed mine at Pillivilli in Nampula Province, Mozambique. This assessment was to IFC standards.**
- 2012 – 2019: Kenmare Terrestrial Monitoring Program Project Manager and Specialist Survey, Nampula Province, Mozambique.
- **2018: Conducted a field survey and wrote a botanical report to IFC standards for the proposed Balama Graphite Mine Environmental and Social Impact Assessment (ESIA) in Cabo Delgado Province, Mozambique.**
- **2018: Co-authored the critical habitat assessment chapter for the proposed Kenmare Pilivilli Heavy Minerals Mine.**
- 2018: Authored the Conservation Efforts chapter for the Kenmare Pilivilli Heavy Minerals Mine.
- **2017-2018: Co-authored and analysed data for the Kenmare Bioregional Survey of *Icuria dunensis* (species trigger for critical habitat) in Nampula Province, Mozambique. This was for a mining project that needed to be IFC compliant.**
- **2017: Conducted a field survey and wrote a botanical report to IFC standards for the proposed Ancuabe Graphite Mine Environmental and Social Impact Assessment (ESIA) in Cabo Delgado Province, Mozambique.**
- 2017-2018: Managed the Suni Resources Montepuez Graphite Mine Environmental Impact Assessment. This included the management of ten specialists, the co-ordination of their field surveys, regular client liaison and the writing of the Environmental Impact Assessment Report which summarised the specialists findings, assessed the impacts of the proposed mine on the environment and provided mitigation measures to reduce the impact.
  I was also the lead botanist for this baseline survey and impact assessment and undertook the required field work and analysed the data and wrote the report.
- **2017: Undertook the botanical baseline survey and impact assessment for the proposed Kenmare Pilivili Heavy Mineral Mine in Nampula Province, Mozambique. This was to IFC Standards.**
- 2017: Ecological Survey for the Megaruma Mining Limitada Ruby Mine Exploration License, Cabo Delgado, Mozambique.
- 2016: Undertook the botanical baseline survey and impact assessment, wrote an alien invasive management plan and co-authored the biodiversity monitoring plan for this farm. The project was located in Zambezia Province, Mozambique.
- 2015-2016: Conducted the Triton Minerals Nicanda Hills Graphite Mine Botanical Survey and Impact Assessment. Was also the project manager and specialist coordinator for this project. The project was located in Cabo Delgado Province, Mozambique.
- **2015: Was part of the team that undertook a Critical Habitat Assessment for the Nhangonzo Coastal Stream site at Inhassora in Mozambique that Sasol intend to establish drill pads at. This project needed to meet the IFC standards.**

- 2014: Lurio Green Resources Wood Chip Mill and Medium Density Fibre-board Plant, Project Manager and Ecological Specialist, Nampula Province, Mozambique. 2014-2015.
- 2013-2014: LHDA Botanical Survey, Baseline and Impact assessment, Lesotho.
- 2014: Biotherm Solar Voltaic Ecological Assessment, Zambia.
- 2013-2014: Lurio Green Resources Plantation Botanical Assessment, Vegetation and Sensitivity Mapping, Specialist Co-ordination, Nampula Province, Mozambique.
- 2013: Syrah Resources Botanical Baseline Survey and Ecological Assessment., Cabo Delgado Mozambique.
- 2013-2014: Baobab Mining Ecological Baseline Survey and Impact Assessment, Tete, Mozambique.

South African Projects

- **2025: Critical Habitat Assessment, Ecosystem Services Assessment and Biodiversity Management Plan for the Khauta Solar PV Cluster, Free State.**
- **2024: Critical Habitat Assessment for Mogobe BESS and OHL, Northern Cape Province.**
- 2025: Ecological Walkthrough of the Bon Espirage Powerline, Northern Cape.
- 2024: Ecological Assessment of the Kuduskop Access Road and Overhead Powerline, Northern and Western Cape Province.
- 2024: Ecological walkthrough for the Mogobe BESS and OHL, Northern Cape Province
- 2024: Ecological Walkthrough for the Rhino Solar PV Facility, North West Province
- 2024 - Present: Ecological Impact Assessment for two SEFS in the Free State Province
- 2024: Botanical and Terrestrial Biodiversity Impact Assessment for a SEF Cluster, Limpopo Province
- 2024: Ecological Site Verification and Screening field survey and report for a SEF cluster, Mpumalanga Province
- 2024: Ecological Site Verification and Screening field survey and report for a SEF cluster, Limpopo Province
- 2024: Ecological Site Verification and Screening field survey and report for a SEF cluster, Gauteng Province
- 2024: Ecological Assessment for the Somerset Housing Development, Worcestor, Western Cape
- 2024: Ecological Assessment for the Uitvlug Industrial Development, Worcestor, Western Cape
- 2023 – Present: Botanical and Terrestrial Biodiversity Assessment for a housing estate, Plettenberg Bay, Western Cape Province
- 2023 – 2025: Botanical Impact Assessment for the Zephyr WEF and OHL, Mpumulanga Province
- 2023 – Present: Botanical Impact Assessment for a WEF Cluster, Mpumulanga Province
- 2023: Ecological Screening assessment for two housing estates, Jacobsbaai, Western Cape
- 2023 – Present: Botanical and Terrestrial Biodiversity Assessment for a WEF near Three Sisters, Western Cape Province
- 2023 – Present: Botanical and Terrestrial Biodiversity Assessment for a SEF near Murraysberg, Western Cape Province
- 2023: Kareerand BESS Ecological Assessment, North West Province
- 2023: Midas BESS Ecological Assessment, North West Province
- **2023: Ecosystems Services Assessment for Oya WEF, Western Cape**
- **2023: Critical Habitat Assessment and Ecosystem Services Assessment for Kareebosch WEF, Western Cape**
- 2023: Ecological desktop screening assessment for a Solar PV Facility, North West Province

- 2023: Ecological Screening and Sensitivity Verification Assessment for a WEF Facility Cluster, Northern Cape
- 2023: Ecological Impact Assessment for the Eskom Powerline from Kenhardt to Vredendal, Western and Northern Cape Provinces
- 2023: Compliance Statement for and S24G for the unauthorized clearing of vegetation to expand a dam, Bot Rivier, Western Cape
- 2023: Ecological Site Verification and Screening field survey and report for a WEF cluster, Free State
- 2023: Ecological Site Verification and Screening field survey and report for a WEF cluster, Mpumulanga
- 2023: Ecological Site Verification and Screening field survey and report for a second WEF cluster, Mpumulanga
- 2022 – Present: Ecological Impact Assessment for a Solar Facility Cluster, Free State
- 2022: Ecological Impact Assessment for the Kaladokwhe WEF Cluster, Cradock, Eastern Cape
- **2022 - Present: Botanical Impact Assessment to IFC Standards for a cluster of wind energy facilities, Northern Cape**
- 2022: Ecological Screening and Sensitivity Verification Assessment for a Solar PV Facility Cluster, Northern Cape
- 2022: Ecological Walkthrough for two WEF located between Matjiesfontein and Sutherland, Western Cape
- 2022: iLanga Solar PV Cluster Ecological Assessment, Western Cape
- 2022: Alien Invasive Plant Management Plan for a private farm, Kleinbrak, Western Cape
- 2022: Ecological Impact Assessment for a road upgrade, Elgin, Western Cape
- 2022: Ecological Impact Assessment for the Kiboko Private Land Strip, Mosselbay, Western Cape
- 2022: Ecological Screening Assessment for a WEF, Free State
- 2022: Ecological Impact Assessment for a S24G for a composting Facility, Tulbagh, Western Cape
- 2022: Compliance Statement for a dairy farm, Franschhoek, Western Cape
- 2022: Ecological Impact Assessment for a housing development, Jacobsbaai, Western Cape
- 2022: Compliance Statement for the development of a private home, Constantia, Western Cape
- 2022: Compliance Statement for and S24G for the unauthorized clearing of vegetation. Bot Rivier, Western Cape
- 2022: Botanical Impact Assessment for a housing estate, Fishhoek, Western Cape
- 2022: Botanical Impact Assessment for a raisin factory, Vredendal, Western Cape
- 2022: Botanical Impact Assessment and Translocation Plan for a SCC for a mixed use development, Kuils River, Western Cape
- 2022: Botanical Impact Assessment for the clearing of indigenous vegetation, Augrabies, Northern Cape
- 2021 – present: Botanical Assessment for a Solar PV Facility near Klerksdorp, North West Province
- 2021: Ecological Screening Assessment for a solar PV facility, North West Province
- 2021: Botanical screening assessment for cemetery sites near Ceres, Western Cape
- 2021: Botanical Impact Assessment for a S24G tented camp, Stellenbosch, Western Cape
- 2021 (in progress): Botanical Impact Assessment for a housing Estate at a wine estate in Stellenbosch, Western Cape
- 2021: Botanical Walkthrough and assessment for the Kudu-Oranjemund powerline and the Gromis substation deviation, Northern Cape, South Africa
- 2021: Botanical Assessment of four biodiversity offset sites for ECPTA, Eastern Cape, South Africa

- 2021: Botanical Assessment for a S24G process for a tented camp, Western Cape, South Africa
- 2021: Translocation Plan for a critically endangered geophyte, Western Cape, South Africa
- 2021: Ecological walkthrough for the Eskom Juno-Gromis 15km powerline deviation, Western Cape, South Africa
- 2021: Project Manager for the Sturdee Energy Solar PV facility, Western Cape
- 2021: Ecological Assessment for the Sturdee Energy Solar PV facility, Western Cape
- 2021: Rehabilitation plan for a housing development (Hope Village)
- 2020: Ecological Assessment for the Eskom Juno-Gromis Powerline deviation, Western Cape
- 2020: Project Manager for the Basic Assessment for SANSA development at Matjiesfontein (Western Cape). Project received authorization in 2021.
- 2020: Ecological Assessment for construction of satellite antennae, Matjiesfontein, Western Cape
- 2019: Ecological Assessment for a wind farm EIA, Kleinzee, Northern Cape
- 2019: Ecological Assessment for two housing developments in Zeerust, North West Province
- 2019: Botanical Assessment in Retreat, Cape Town for the DRDLR land claim.
- 2019: Cape Agulhas Municipality Botanical Assessment for the expansion of industrial zone, Western Cape, South Africa, 2019.
- 2018: Ecological Assessment for the construction of a farm dam in Greyton, Western Cape.
- 2018: Conducted the Ecological Survey for a housing development in Noordhoek, Cape Town
- 2018: Conducted the field survey and developed an alien invasive management plan for the Swartland Municipality, Western Cape.
- 2017: Undertook the field survey and co-authored a coastal dune study that assesses the impacts associated with the proposed rezoning and subdivision of Farm Bookram No. 30 to develop a resort.
- 2017: Project managed and co-authored a risk assessment for the use of Marram Grass to stabilise dunes in the City of Cape Town.
- 2015-2016: iGas Saldanha to Ankerlig Biodiversity Assessment Project Manager, Saldanha.
- 2015: Innowind Ukomoleza Wind Energy Facility Alien Invasive Management Plan, Eastern Cape Province, South Africa.
- 2015: Savannah Nxuba Wind Energy Facility Powerline Ecological Assessment, ground truthing and permit applications, Eastern Cape South Africa.
- 2014: Cob Bay botanical groundtruthing assessment, Eastern Cape, South Africa.
- 2013-2016: Dassiesridge Wind Energy Facility Project Manager, Eastern Cape, South Africa.
- 2013: Harvestvale botanical groundtruthing assessment, Eastern Cape, South Africa.
- 2012: Tsitsikamma Wind Energy Facility Community Power Line Ecological Assessment, Eastern Cape, South Africa.
- 2012: Golden Valley Wind Energy Facility Power Line Ecological Assessment, Eastern Cape, South Africa.
- 2012: Middleton Wind Energy Facility Ecological Assessment and Project Management, Eastern Cape, South Africa.
- 2012: Mossel Bay Power Line Ecological Assessment, Western Cape, South Africa.
- 2012: Groundtruthing the turbine sites for the Waainek Wind Energy Facility, Eastern Cape, South Africa.
- 2012: Toliara Mineral Sands Rehabilitation and Offset Strategy Report, Madagascar.

CONTACT DETAILS

Name	**Nicole Dealtry (née Wienand)**
Name of Company	Biodiversity Africa
Designation	Senior Botanist
Professional Affiliations	SACNASP Pri. Sci. Nat. Botany Reg No. 130289 IAIAsa Membership No. 6176 SAAB: Member of the South African Association of Botanists
E-mail	nicole@biodiversityafrica.com
Contact Number	+27 (0)81 044 1925
Education	April 2018: Bachelor of Science (BSc) Botany and Geology December 2018: Bachelor of Science (BSc) Honours (Hons) Botany
Nationality	South African
Key areas of expertise	• Ecological Impact Assessments • Botanical Micro-siting • GIS Mapping

PROFILE

Nicole (SACNASP Pri. Sci. Nat. Botany Reg No. 130289) is a Botanical Specialist with over 4 years' experience. Nicole obtained her BSc Honours in Botany (Environmental Management) from Nelson Mandela University (NMU) in December 2018. She also holds a BSc Degree in Environmental Management (Cum Laude) from NMU. Nicole has undertaken numerous Ecological Impact Assessments for a range of developments, including Wind Energy Facilities (WEFs), mines, powerlines, housing developments, roads, amongst others, ensuring that these specialist assessments are undertaken and prepared in accordance with the Protocols for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320), Plant Species and Animal Species (GN R. 1150) whilst working closely with developers to ensure a development which is environmentally sustainable as well as financially and technically feasible. Nicole also has experience with conducting specialist assessments in other African countries, including Sierra Leone and Mozambique.

EMPLOYMENT EXPERIENCE

Botanical Specialist, Biodiversity Africa
March 2023 – present

- Botanical and Ecological Impact Assessments
- Alien Management Plans
- GIS Mapping

Environmental Consultant and Botanical Specialist, Coastal and Environmental Services (CES)
07 January 2019 – February 2023

- Ecological Impact Assessments
- Botanical Micro-siting
- GIS Mapping
- Basic Assessments
- Public Participation
- Environmental Auditing/Compliance Monitoring
- Environmental Management Programmes (EMPr)

ACADEMIC QUALIFICATIONS

Nelson Mandela University, Port Elizabeth
BSc Honours Botany (Environmental Management)

2018

Nelson Mandela Metropolitan University, Port Elizabeth
BSc Environmental Sciences
2015-2017

CONSULTING EXPERIENCE

Basic Assessments

- Basic Assessment Report (BAR) for the proposed Duyker Island Prospecting Right, North West Province (Role: Assistant Report Writer).
- Basic Assessment Report (BAR) for the proposed Fairview Sand Mine near Port Alfred, Eastern Cape Province (Role: Report Writer).
- Basic Assessment Report (BAR) for the proposed Kareekrans Boerdery Agricultural Development near Kirkwood, Eastern Cape Province (Role: Report Writer).
- Basic Assessment Report (BAR) for the proposed Sitrusrand Dwarsleegte Farm Citrus Development near Kirkwood, Eastern Cape Province (Role: Report Writer).
- Basic Assessment Report (BAR) for the Proposed Private Jetty in Bushman's Estuary near Kenton-On-Sea, within the Eastern Cape Province (Role: Report Writer).

Ecological Impact Assessments and Related Work

- ZMY Steel Traders (Pty) Ltd., Steel Recycling Plant, Zone 5 of the Coega SEZ, Eastern Cape Province (Role: Ecological Specialist and Ecological Chapter Writer).
- Ecological Impact Assessment for the proposed Kareekrans Boerdery Agricultural Development near Kirkwood Eastern Cape Province (Role: Botanical specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Sitrusrand Dwarsleegte Farm Citrus Development near Kirkwood, Eastern Cape Province – Ecological Impact Assessment and Report Writing (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Uitsig Boerdery Trust Citrus Development near Kirkwood, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ground Truthing Survey for Aloe bowiea on Portion 2 of Farm 683 for the proposed Uitsig Boerdery Trust Citrus Development near Kirkwood, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Mosselbankfontein Coastal Dune and Ecological Impact Assessment near Witsand, Western Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Mangrove Forest Survey for the Kenmare Biodiversity Management Plan, Topuito, Mozambique (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Refele Village Sports Facility, Mount Fletcher, Elundini Local Municipality, Eastern Cape Province of South Africa (Role: Lead Report Writer).
- Ecological Impact Assessment for the proposed Hamburg Quarry Expansion, R72, Ngqushwa Local Municipality (Role: Lead Report Writer).
- Ecological Opinion and Site Sensitivity Report for the proposed Woodlands Dairy 22kV Overhead Line near Humandsdorp, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment Report for the proposed Edendale Quarry, R56, Matatiele Local Municipality, Eastern Cape Province (Role: Report Writer).
- Ecological Impact Assessment for the proposed TWFT Piggery near Tsitsikamma, Koukama Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).

- Ecological Impact Assessment for the proposed Oudtshoorn Cemetery Expansion, Oudtshoorn Local Municipality, Western Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Tyolomnqa River Estuary Situation Assessment (Role: Assistant Report Writer).
- Ecological Opinion Letter for the Proposed Umsobomvu Infrastructure Development, Eastern and Northern Cape Provinces (DEFF Reference Number: 14/12/16/3/3/1/2040) (Role: Report Writer).
- Ecological Opinion Letter for the Proposed Coleskop Infrastructure Development, Eastern and Northern Cape Provinces (DEFF Reference Number: 14/12/16/3/3/1/2039) (Role: Report Writer).
- Quinera Estuary Draft Situation Assessment Report (Role: Report Writer).
- Ecological Impact Assessment for the Proposed Umoyilanga 132 kV Overhead Line in the Sundays River Valley Local Municipality and the Nelson Mandela Bay Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the Proposed Umoyilanga Ancillary Infrastructure near Uitenhage, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment Report for the proposed Marine Servitude Project, Zone 10, Coega SEZ, Eastern Cape Province, South Africa (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the proposed Umoyilanga 132 kV Overhead Line in the Sundays River Valley Local Municipality and the Nelson Mandela Bay Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micrositing Report for the Proposed Dassiesridge (Umoyilanga) Wind Energy Facility near Uitenhage, Nelson Mandela Bay Municipality and Sundays River Valley Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Screening Report for the Proposed Hlaziya 400-132 kV Powerline Project (the MTS Integration Project) from close to Jeffrey's Bay to Grassridge, near the Coega Sez, Eastern Cape Province (Role: Lead Report Writer).
- Ecological Impact Assessment for the proposed Umsobomvu Substation, Concrete Tower Manufacturing Facilities and Temporary Laydown Area, situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the Eskom Infrastructure MTS situated in the Umsobomvu Local Municipality (Northern Cape Province) (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the Proposed Coleskop Wind Energy Facility situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the Proposed Umsobomvu Wind Energy Facility situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the Proposed Ganspan Pering 132 kV Overhead Line near Pampierstand, North West and Northern Cape Provinces (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-Siting Investigation for the R342 Road Upgrade Between Paterson And Addo, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Terrestrial Biodiversity Compliance Statement for the proposed Stedin College, Walmer, Nelson Mandela Bay Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).

- Ecological Impact Assessment Report for a proposed Hippo Enclosure on Glen Boyd Farm, Makana Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the Proposed Senqu Rural Water Supply Scheme, Joe Gqabi District Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Environmental Management Site Specification for the Rehabilitation of Land within the Coastal Dune System Impacted by the Zone 10 Services Project, Coega SEZ, Eastern Cape Province (Role: Site Visit and Assistant Report Writer).
- Botanical Assessment Report for the proposed Agricultural Development on the Remainder of Erf 60845, Zone 1, East London Industrial Development Zone, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Botanical Impact Assessment for the proposed FG Gold Limited Baomahun Gold Project, Sierra Leone (Role: Botanical Specialist and Lead Report Writer).
- Biodiversity Management Plan for the proposed FG Gold Limited Baomahun Gold Project, Sierra Leone (Role: Lead Report Writer).
- Ecological Baseline Assessment for the proposed Jeffreys Bay Eco-Estate, Eastern Cape Province (Role: Botanical Specialist and Co-Author).
- Ecological Impact Assessment for the proposed Mulilo Newcastle Wind Energy Facility, KwaZulu-Natal Province (Role: Botanical Specialist and Assistant Report Writer).
- Ecological Impact Assessment for the proposed Ngxwabangu Wind Energy Facility and Grid Connection near Cofimvaba, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Umoyilanga Buffer Yard, Site Camp and Site Camp Access Road near Uitenhage, Nelson Mandela Bay Municipality and Sundays River Valley Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Terrestrial Biodiversity Compliance Statement for the proposed Reverse Osmosis Plant for the Matla Power Station near Kriel, Mpumalanga Province (Role: Lead Report Writer).
- Ecological Impact Assessment for the proposed Great Kei Ancillary Infrastructure located near Komga, Eastern Cape Province.

Environmental Auditing

- Khayamnandi Extension on Erven 114, 609, 590 and 24337, Bethelsdorp, within the Nelson Mandela Bay Municipality;
- Aberdeen Bulk Water Supply Phase 2, Dr Beyers Naude Local Municipality, Eastern Cape Province, South Africa;
- The Milkwoods Integrated Residential Development, Remainder Erf 1953, Victoria Drive, Walmer, Nelson Mandela Bay Municipality, Eastern Cape Province;
- Fishwater Flats Wastewater Treatment Works Refurbishment, Nelson Mandela Bay Municipality, Eastern Cape Province;
- The Refurbishment of the Kwanobuhle Wastewater Treatment Plant, Nelson Mandela Bay Municipality, Eastern Cape Province, South Africa; and
- Driftsands Sewer Collector Augmentation (Phase Ii), Within the Nelson Mandela Bay Municipality, Eastern Cape Province.

Geographical Information Systems (GIS) Mapping

- ZMY Steel Traders – Basic Assessment Report and Biophysical Mapping.
- Duyker Island – Prospecting Area Mapping & Biophysical Mapping.
- Fairview Sand Mine near Port Alfred, Eastern Cape Province – Biophysical and Layout Mapping.
- St Francis Coastal Protection Scheme – Kromme Estuary Functional Zone Mapping; Biophysical Mapping; and Sand Source Area Mapping.

- Kareekrans Boerdery Agricultural Development – Biophysical and Layout Mapping.
- Sitrusrand Dwarsleegte Farm Citrus Development – Biophysical and Layout Mapping.
- Marine Intake and Outfall Infrastructure Servitude Project, Zone 10, Coega SEZ, Eastern Cape Province, South Africa – Biophysical and Layout Mapping.
- Proposed Private Jetty in Bushman's Estuary near Kenton-On-Sea, within the Eastern Cape Province – Biophysical and Layout Mapping.
- Proposed Woodlands Dairy 22kV Overhead Line near Humandsdorp, Eastern Cape Province – Biophysical and Layout Mapping.
- Tyolomnqa River Estuary Situation Assessment – Biophysical and Layout Mapping.
- Hamburg Quarry Expansion, R72, Ngqushwa Local Municipality – Biophysical and Layout Mapping.
- Refele Village Sports Facility, Mount Fletcher, Elundini Local Municipality, Eastern Cape Province of South Africa – Biophysical and Layout Mapping.
- The proposed Woodlands Dairy 22kV Overhead Line near Humandsdorp, Eastern Cape Province – Biophysical and Layout Mapping.
- Ecological Impact Assessment Report for the proposed Edendale Quarry, R56, Matatiele Local Municipality, Eastern Cape Province – Biophysical and Layout Mapping.
- The proposed TWFT Piggery near Tsitsikamma, Koukama Local Municipality, Eastern Cape Province – Biophysical and Layout Mapping.
- Tyolomnqa River Estuary Situation Assessment – Biophysical and Layout Mapping.
- Quinera Estuary Draft Situation Assessment Report – Biophysical and Layout Mapping.
- The Proposed Umoyilanga 132 kV Overhead Line in the Sundays River Valley Local Municipality and the Nelson Mandela Bay Municipality, Eastern Cape Province – Biophysical and Layout Mapping.
- The Proposed Umoyilanga Ancillary Infrastructure near Uitenhage, Eastern Cape Province – Biophysical and Layout Mapping.
- Proposed Hlaziya 400-132 kV Powerline Project (the MTS Integration Project) from close to Jeffrey's Bay to Grassridge, near the Coega Sez, Eastern Cape Province - Biophysical and Layout Mapping.
- Proposed Umsobomvu Substation, Concrete Tower Manufacturing Facilities and Temporary Laydown Area, situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) - Biophysical and Layout Mapping.
- Eskom Infrastructure MTS situated in the Umsobomvu Local Municipality (Northern Cape Province) - Biophysical and Layout Mapping.
- Botanical Micro-siting Investigation for the Proposed Umsobomvu Wind Energy Facility situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) - Biophysical and Layout Mapping.
- Proposed Ganspan Pering 132 kV Overhead Line near Pampierstand, North West and Northern Cape Provinces - Biophysical and Layout Mapping.
- The proposed Agricultural Development on the Remainder of Erf 60845, Zone 1, East London Industrial Development Zone, Eastern Cape Province - Biophysical and Layout Mapping.
- The proposed Reverse Osmosis Plant for the Matla Power Station near Kriel, Mpumalanga Province - Biophysical and Layout Mapping.

Public Participation process

- Duyker Island Prospecting Right, North West Province St Francis Coastal Protection Scheme.
- Fairview Sand Mine near Port Alfred, Eastern Cape Province.

- Kareekrans Boerdery Agricultural Development near Kirkwood Eastern Cape Province,
- Proposed Coastal Protection Scheme, St Francis Bay, Kouga Local Municipality, Eastern Cape Province; and
- Sitrusrand Dwarsleegte Farm Citrus Development near Kirkwood, Eastern Cape Province.
- Marine Intake and Outfall Infrastructure Servitude Project, Zone 10, Coega SEZ, Eastern Cape Province, South Africa.
- Proposed Hlaziya 400-132 kV Powerline Project (the MTS Integration Project) from close to Jeffrey's Bay to Grassridge, near the Coega Sez, Eastern Cape Province.

Social Auditing

- Malawi Millennium Development Trust – Resettlement Action Plan Implementation Auditing.

CONTACT DETAILS

Name	**Amber Jackson**
Name of Company	**Biodiversity Africa**
Designation	Director
Profession	Faunal Specialist and E&S Practitioner
E-mail	amber@biodiversityafrica.com
Office number	+27 (0)78 340 6295
Education	2011 M. Phil Environmental Management (University of Cape Town) 2008 BSc (Hons) Ecology, Environment and Conservation (University of the Witwatersrand) 2007 BSc 'Ecology, Environment and Conservation' and Zoology (WITS)
Nationality	**South African**
Professional Body	**SACNASP**: South African Council for Natural Scientific Profession (100125/12) **ZSSA**: Zoological Society of Southern Africa **HAA**: Herpetological Association of Southern Africa **IAIASa**: Member of the International Association for Impact Assessments South Africa
Key areas of expertise	• Environmental and Social Due Diligence and Action Plans • Company compliance with lender requirements and Action plans • Biodiversity Surveys and Impact Assessments • Biodiversity Management and Monitoring Plans • Faunal Monitoring • IFC PS6 related outputs e.g. Critical Habitat Assessments

PROFILE

Amber has over twelve years' experience in terrestrial vertebrate faunal assessments. She has conducted large scale faunal impact assessments that are to international lender's standards in Mozambique, Tanzania, Lesotho and Malawi. In South Africa her faunal impact assessments comply with the protocols for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity and follows the SANBI Species Environmental Assessment Guideline. Her specialist input goes beyond impact assessments and includes faunal opportunities and constraints assessments, Critical Habitat Assessments, Biodiversity related Management Plans and Biodiversity Monitoring Programmes.

Amber completed the IFC lead and Swiss funded programme in Environmental and Social Risk Management course in 2018. The purpose of the course was to upskill Sub-Saharan African environmental consultants to increase the uptake of E&S standards by Financial Institutions.

Amber holds a BSc (Zoology and Ecology, Environment & Conservation) and BSc (Hons) in Ecology, Environment & Conservation from WITS University and an MPhil in Environmental Management from University of Cape Town. Amber's honours focused on the landscape effects on Herpetofauna in Kruger National Park and her Master's thesis focused on the management of social and natural aspects of environmental systems with a dissertation in food security that investigated the complex food system of informal and formal distribution markets.

EMPLOYMENT EXPERIENCE

Director and Faunal Specialist, Biodiversity Africa

July 2021 - present

- Faunal assessments for local and international EIAs in Southern Africa
- Identifying and mapping habitats and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Critical Habitat Assessments that meet PS6 of the IFC

Principal Environmental Consultant and Faunal Specialist,

Coastal and Environmental Services . EOH . CES Environmental and Social advisory Services.

September 2011-June 2021

- Faunal and ecological assessments for local and international EIAs in Southern Africa
- Identifying and mapping habitat and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Critical Habitat Assessments
- Large ESIA studies
- Coordinating specialists and site visits
- Faunal Impact Assessment
- Project Management, including budgets, deliverables and timelines.
- Environmental Impact Assessments and Basic Assessments project
- Environmental Control Officer
- Public/client/authority liaison
- Mentoring and training of junior staff

COURSES

- **Herpetological Association of Southern Africa Conference- Cape St Frances** September 2019
- **International Finance Corporation Environmental and Social Risk Management (ESRM) Program** January – November 2018
- **IAIA WC EMP Implementation Workshop** 27 February 2018
- **IAIAsa National Annual Conference** August 2017
  Goudini Spa, Rawsonville.
- **Biodiversity & Business Indaba, NBBN** April 2017
  Theme: Moving Forward Together (Partnerships & Collaborations)
- **Snake Awareness, Identification and Handling course, Cape Reptile Institute (CRI)** November 2016
- **Coaching Skills programme, Kim Coach** November 2016
- **Western Cape Biodiversity Information Event, IAIAsa** May 2016
  Theme: Biodiversity offsets & the launch of a Biodiversity Information Tool
- **Photography Short Course** 2015.
  Cape Town School of Photography,
- **Mainstreaming Biodiversity into Business: WHAT, WHY, WHEN and HOW** June 2014 Hosted by Dr Marie Parramon Gurney on behalf of the NBBN at the Rhodes Business School
- **IAIAsa National Annual Conference** September 2013
  Thaba'Nchu Sun, Bloemfontein
- **St Johns Life first aid course** July 2012

CONSULTING EXPERIENCE (projects that meet IFC PS are in bold)

INTERNATIONAL PROJECTS TO LENDER STANDARDS

Faunal Specialist

- 2022/2023 – Faunal Impact Assessment for the Kenmare Nataka Heavy Minerals Mine, Mozambique.
- 2022/2023 – Faunal Impact Assessment for the Kenmare Idoa TSF, Mozambique.
- 2022 - Faunal Monitoring Programme (year 2 wet season)- Baseline for Kenmare Pilivili Heavy Minerals Mine, Mozambique.
- 2021/22 - Kenmare Faunal Monitoring Programme (year 1 dry season)- Baseline, Mozambique.
- 2021: Faunal screening assessment for the proposed Nataka Heavy Minerals Mine, Nampula Province, Mozambique
- 2021 – Faunal Impact Assessment for PV Solar Project, Bowa, Malawi.

- 2021- Critical Habitat Assessment Faunal component for a Powerline project, eSwatini.
- 2021- Critical Habitat Assessment Faunal component for Suni Resources Balama Graphite Mine Project, Mozambique.
- 2020-Kenmare Faunal Biodiversity Management Plan, Mozambique.
- 2020-Kenmare Faunal Monitoring Programme (year 1)- Baseline, Mozambique.
- 2019-Kenmare addendum ESIA Faunal Impact Assessment, Mozambique.
- 2019-Kenmare infrastructure corridor ESIA Faunal Impact Assessment, Mozambique.
- 2019/20-Olam Cocoa Plantation Faunal Impact Assessment, Tanzania.
- 2019-JCM Solar Voltaic project Faunal desktop critical habitat assessment, Cameroon.
- 2018-Suni Resources Balama Graphite Mine Project Faunal Impact Assessment, Mozambique.
- 2017/18-Battery Minerals Montepuez Graphite Mine Project Faunal Impact Assessment, Mozambique.
- 2017-Triton Minerals Nicanda Hills Graphite Mine Project Faunal Impact Assessment, Mozambique.
- 2017-Sasol Biodiversity Assessment, Mozambique.
- 2016-Bankable Feasibility Study of Simandou Infrastructure Project – Port and Railway Summary of critical habitat, biodiversity offset plan and monitoring and evaluation plan.
- 2016-Lurio Green Resources Forestry Projects ESIA project upgrade to Lender standards including IFC, EIB, FSC and AfDB, Mozambique
- 2014-Lesotho Highlands Water Project Faunal Impact Assessment, Lesotho.
- 2012-Malawi Monazite mine Projects (ESIA) EMP ecological management contribution

E&S Consulting

- 2021 – Project Manager and Environmental lead for ESDD on behalf of three internal lenders on an intermediate agricultural lender and 10 of their subsidiaries located in over five African Countries.
- 2018-Crooks Brothers Post EIA Work- Environmental and Social EMPr, Policies, E&S Management Plans and Monitoring Programmes, Mozambique.
- 2018-Triton Ancuabe Graphite Mine (ESHIA), Mozambique. IFC Standards.
- . 2016 - PGS Seismic Project (ESIA), Mozambique.
- 2014-Green Resources Woodchip and MDF plant (EPDA), Mozambique.
- 2014-Niassa Green Resources Forestry Projects ESIA to Lender standards including IFC, EIB, FSC and AfDB, Mozambique.

SOUTH AFRICAN PROJECTS

Faunal Specialist

- **2025: Critical Habitat Assessment, Ecosystem Services Assessment and Biodiversity Management Plan for the Khauta Solar PV Cluster, Free State Province.**
- 2025: Faunal SSV for a powerline near Aberdeen, Northern Cape.
- 2025: Ecological sensitivity screening assessment PV near eMalahleni in Mpumalanga Province.
- 2025: Faunal Compliance Statement for a housing development in Bishopscourt, Western Cape Province.
- 2025: Faunal Compliance Statement for the development of a Toyota dealership in Mthatha, Eastern Cape Province.
- 2025: Terrestrial Animal Impact Assessment for a WEF near Kleinzee, Northern Cape Province.

- 2025: Faunal SSV for a PV facility near Polokwane, Limpopo Province.
- 2025: Faunal Compliance Statement, Bulk Services infrastructure, Boschendal, Western Cape Province.
- 2025: Faunal Compliance Statement, Road Rehabilitation, Kloof Road, Cape Town, Western Cape Province.
- 2025: Ecological Impact Assessment for a housing development in Van Dyk's Baai, Western Cape Province.
- 2025: Ecological Compliance Statement, Building infrastructure, Botfontien, Western Cape Province.
- 2024: Riverine Rabbit Monitoring (camera trapping) for a WEF near Three Sisters, Western Cape.
- 2024: Riverine Rabbit Monitoring (camera trapping) for a WEF near Three Sisters, Western Cape.
- 2024: Ecological Assessment of the Kuduskop Access Road and Overhead Powerline, Northern and Western Cape Province. ·
- 2024 - Present: Ecological Impact Assessment for two SEFS (NDA) in the Free State Province ·
- 2024: Faunal Impact Assessment for a SEF Cluster (NDA), Limpopo Province ·
- 2024: Ecological Site Sensitivity Screening report for a SEF cluster (NDA), Mpumalanga Province ·
- 2024: Ecological Site Sensitivity Screening report for a SEF cluster (NDA), Limpopo Province ·
- 2023: Riverine Rabbit Monitoring (camera trapping) for a Solar PV near Three Sisters, Western Cape.
- 2023 – Present: Faunal Assessment for a housing estate, Plettenberg Bay, Western Cape Province ·
- 2023 – 2025: Faunal Impact Assessment for the Zephyr WEF and OHL, Mpumulanga Province ·
- 2023 – Present: Faunal Impact Assessment for a WEF Cluster, Mpumulanga Province ·
- 2023: Ecological Screening assessment for two housing estates, Jacobsbaai, Western Cape ·
- 2023 – Present: Faunal Assessment for a WEF near Three Sisters, Western Cape Province ·
- 2023 – Present: Faunal Assessment for a SEF near Murraysberg, Western Cape Province ·
- 2023: Critical Habitat Assessment for Kareebosch WEF, Western Cape ·
- 2023: Ecological desktop screening assessment for a Solar PV Facility, North West Province ·
- 2023: Ecological Impact Assessment for the Eskom Powerline from Kenhardt to Vredendal, Western and Northern Cape Provinces ·
- 2023 - Renewable Energy Project – Faunal Verification Sensitivity, New Castle, KZN Province.
- 2023 - Renewable Energy Project – Faunal Verification Sensitivity, Richmond/Hanover, NC Province.
- 2023 - Renewable Energy Project – Faunal Verification Sensitivity, Ermelo, Mpumalanga Province.
- 2023 - Renewable Energy Project – Faunal Verification Sensitivity, Wakkerstroom, KZN Province.
- 2023 - Renewable Energy Project – Faunal Verification Sensitivity, Memel, Freestate Province.
- 2022 - Renewable Energy Project – Faunal Verification Sensitivity, Middleburg, EC Province.
- 2022 – Faunal Compliance Statement – Mixed-use development, Joostenbergvlakte, WC Province.
- 2022 – Faunal Compliance Statement – Housing development, Mfuleni, CT, WC Province.
- 2022 – Faunal Impact Assessment – Housing development, Fishhoek, CT, WC Province.

- 2022 – Faunal Impact Assessment – Housing development, Morningstar, CT, WC Province.
- 2022 – Faunal Impact Assessment – Landing strip, Gondwana, WC Province.
- 2022 - Renewable Energy Project – Faunal Impact Assessment, Cradock, EC Province.
- 2022 – Renewable Energy Project – Faunal Impact Assessment to IFC Standards, Britstown, NC Province.
- 2022: Ecological Screening Assessment for a WEF, Free State
- 2022 - Renewable Energy Project – Faunal Impact Assessment, Klerksdorp, NW Province.
- 2022 – Renewable Energy Project – Faunal Impact Assessment, Malmesbury Farms, WC Province.
- 2022 – Mixed-use development Project- Faunal Impact Assessment, Mossel Bay, WC.
- 2021 - Mixed-use development Project- Avifaunal Risk Assessment, Paardevlei, WC.
- 2021 - Ecological Screening Assessment for a solar PV facility, North West Province
- 2021 - Faunal component of an Ecological Impact Assessment for a S24G tented camp, Stellenbosch, Western Cape.
- 2021 (in progress): Faunal Compliance Statement for a housing estate in Stellenbosch, Western Cape.
- 2021 - Ecological Assessment for the Sturdee Energy Solar PV facility, Western Cape.
- 2021 – Mixed-use development Project- Faunal Impact Assessment, Kommetjie, WC.
- 2021 – Project Manager for a 24G for a housing development (Hope Village), Gauteng.
- 2021 – Reptile Species Assessment for wind energy project, Humansdorp, Eastern Cape.
- 2020: Ecological Assessment for the Eskom Juno-Gromis Powerline deviation, Western Cape
- 2020: Desktop Faunal Assessment for an Ecological Impact Assemt for construction of satellite antennae, Matjiesfontein, Western Cape
- 2020 – Faunal Impact Assessment for the CoCT transport infrastructure in Wynberg, Western Cape.
- 2019-Boulders Powerline BA Faunal desktop impact assessment, WC, SA.
- 2019-Ramotshere housing development BA Faunal desktop impact assessment, NW, SA.
- 2019-Cape Agulhas Municipality Industrial development faunal impact assessment, WC, SA.
- 2019-SANSA Solar PV BA Faunal desktop impact assessment, WC, SA.
- 2019-Wisson Coal to Urea Faunal desktop assessment, Mpumalanga.
- 2019-Assessment Boschendal Estate Faunal Opportunities and Constraints, WC, SA.
- 2019-Ganspan-Pan Wetland Reserve Recreational and Tourist Development Avifaunal Impact Assessment, NC, SA.
- 2018-City of Johannesburg Municipal Reserve Proclamation for Linksfield Ridge and Northcliff Hill Faunal Assessment, South Africa.
- 2017-Augrabies falls hydro-electric project Hydro-SA Faunal Impact Assessment

E&S Consulting

- 2018-Port St Johns Second Beach Coastal Infrastructure Project - E&S Risk Assessment
- 2015-Blouberg Development Initiative- E&S Risk Assessment
- Port St Johns Second Beach Coastal Infrastructure Project (EIA), South Africa.
- Woodbridge Island Revetment checklist.
- Belmont Valley Golf Course and Makana Residential Estate (EIA)

- Belton Farm Eco Estate (BA).
- Ramotshere housing development (BA).
- G7 Brandvalley Wind Energy Project (EIA)
- G7 Rietkloof Wind Energy Project (EIA)
- G7 Brandvalley Powerlines (BA)
- G7 Rietkloof Powerlines (BA)
- Boschendal wine estate Hydro-electric schemes (BA, 24G and WULA)
- Mossel Bay Wind Energy Project (EIA)
- Mossel Bay Powerline (BA) 132kV interconnection
- Inyanda Farm Wind Energy (EIA)
- Middleton Wind Energy (EIA)
- Peddie Wind Energy (EIA)
- Cookhouse Wind Energy Project (EIA)
- Haverfontein Wind Energy Project (EIA)
- Plan 8 Wind Energy Project (EIA)
- Brakkefontein Wind Energy Project (EIA)
- Grassridge Wind Energy Project (EIA) (Coega)
- St Lucia Wind Energy Project (EIA)
- ACSA ECO CT (Lead ECO)
- Enel Paleisheuwel Solar farm (Lead ECO)
- NRA Caledon road upgrade ECO
- Solar Capital DeAar Solar farm annual audits
- Eskom Pinotage substation WUL offset compliance

CONTACT DETAILS

Name	**Lauren Jordaan (née Wienand)**
Name of Company	**Biodiversity Africa**
Designation	Intern
E-mail	lauren@biodiversityafrica.com
Contact Number	+27 (0)73 401 9567
Education	April 2022: Bachelor of Science (BSc) Biological Sciences April 2023: Bachelor of Science (BSc) Honours (Hons) Zoology
Nationality	**South African**
Key areas of expertise	• Report writing • Data entry and analysis • Permit application and handling • Liaison with government officials • Field work

PROFILE

Lauren is a zoologist currently working as an intern with a focus on faunal specialization. Through the internship she is gaining experience in botanical and faunal desktop assessments and reporting, field surveys, and mapping. Lauren holds a BSc in Biological Sciences, a BSc (Hons) in Zoology and is currently completing her Master's degree that is using genomics to investigate leatherback sea turtle breeding sex ratios in the South West Indian Ocean.

She has been studying zoology for six years, with special focus on animal interactions, population dynamics, genetics and conservation. Coupled with fieldwork, this has given her a holistic understanding of the environment and the importance of maintaining biodiversity. During her Honours degree she studied ecophysiology, coastal management, conservation biology, and global change and biodiversity. She also investigated the effect of climate change on leatherback hatchling sex ratios in the South West Indian Ocean and won an award for best Zoology Honours student for which she received a membership to the Zoological Society of Southern Africa. She has also presented both her Honours and Masters research at two international conferences. These projects have given her extensive experience in handling endangered species, permit applications, and working collaboratively with multidisciplinary teams including the Department of Forestry, Fisheries and the Environment (DFFE), the National Oceanic and Atmospheric Administration (NOAA) and Ezemvelo Wildlife.

EMPLOYMENT EXPERIENCE

Intern faunal specialist, Biodiversity Africa
April 2025 – present

- Assisting Ecological Walk-through/micro-siting
- Mapping

Indian Ocean South East Asia Advisory committee
April 2023 – January 2024

- Systematic review of sea turtle threats, conservation and beach management practices within the IOSEA region and assisted with compiling a report to be used as a decision support framework by Advisory committee of IOSEA in terms of moving forward with best sea turtle conservation and beach management practices

Practical demonstrator, Nelson Mandela University
February 2023 – October 2024

- Assisting with field work

- Assessing reports

iSimangaliso Wetland Park Turtle Conservation through Nelson Mandela University
Jan 2022, Dec 2022- February 2023

- Monitoring turtle nesting and hatching
- Data collection and entry
- Placing Identification tags
- Satellite tagging
- DNA sample collection
- Blood analysis

Field assistance for botanical assessment, Coastal and Environmental Service (CES)
2020

- Assisting with field surveys

ACADEMIC QUALIFICATIONS

Nelson Mandela University, Port Elizabeth
- BSc Honors in Zoology (*cum laude*)
- 2022

Nelson Mandela Metropolitan University, Port Elizabeth
- BSc Biological Sciences (*cum laude*)
- 2019-2021

COURSES

- Western Indian Ocean Marine Science Association (WIOMSA) symposium
- International Sea Turtle Society (ISTS) symposium

RESEARCH

- Masters research project – Breeding sex ratios of leatherback sea turtles (Dermochelys coriacea) in the South West Indian Ocean, 2023 - present
- Honors Thesis - Hatchling sex ratios in leatherbacks (Dermochelys coriacea): a spatio-temporal analysis to assess the likelihood of feminization of the South West Indian Ocean population, 2022
- Indian Ocean South East Asia (IOSEA) beach management and sea turtle conservation – conducted systematic review of sea turtle threats, conservation and beach management practices within the IOSEA region and assisted with compiling a report to be used as a decision support framework by Advisory committee of IOSEA in terms of moving forward with best sea turtle conservation and beach management practices, 2023-2024

PUBLIC SECTOR

- National Oceanic and Atmospheric Administration (NOAA) – collaboration on Masters project required liaison with federal agents in the United States to organize primers and sequencing of South African leatherback sea turtle DNA
- Department of Forestry, Fisheries and the Environment (DFFE) – liaison with government authorities for permits to export endangered species samples to the United States for sequencing
- Ezemvelo Wildlife – sea turtle monitoring and data collection at sea turtle rookery within iSimangaliso Wetland Park