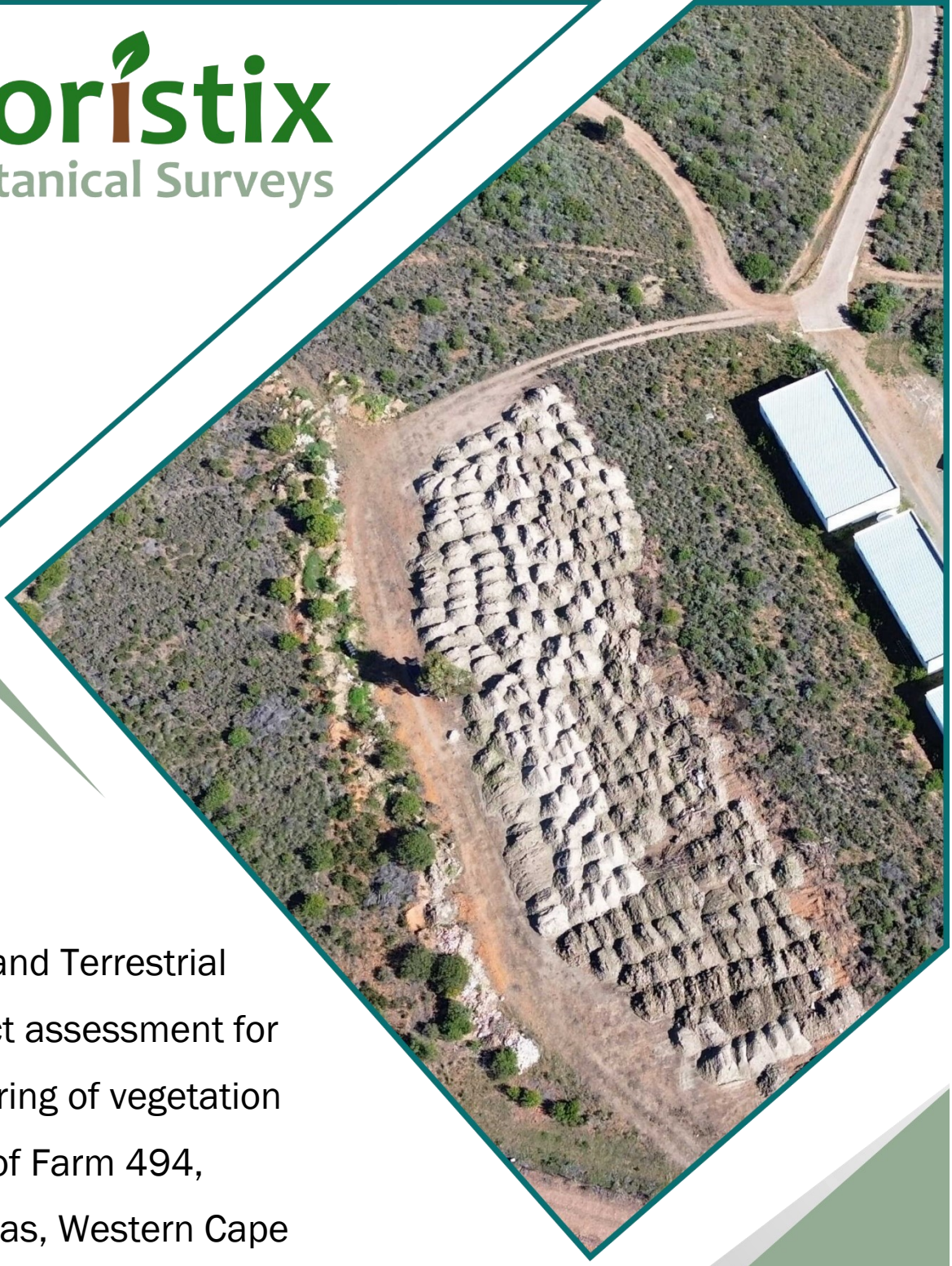
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Plant Species and Terrestrial Biodiversity Impact assessment for the proposed clearing of vegetation on Portion 4 of Farm 494, Stoffelsrivier, Malgas, Western Cape

REFERENCE
PR.26.046

DATE
28 September 2026

PREPARED FOR
Lornay Environmental Consulting

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Executive Summary

This botanical and terrestrial ecology evaluation, conducted on 29 July 2026, evaluates the proposed vegetation clearing activities — for construction of various boat garages — on the farm Stoffels Rivier near Malgas, Western Cape, situated within the Breede Riverine Estate.

Although desktop spatial analyses via VegMap indicate potential overlap with Potberg Ferricrete Fynbos, Eastern Rûens Shale Renosterveld, and Cape Lowland Alluvial vegetation, detailed ground-truthing confirmed that only Potberg Ferricrete Fynbos occurs within the study area and proposed development footprints. According to the Red List of Ecosystems (RLE 2021), Potberg Ferricrete Fynbos is classified as Critically Endangered due to extensive historical transformation from agriculture and alien plant invasions. Screening tool sensitivity maps designate the site as having High Plant Species Theme Sensitivity and Very High Terrestrial Biodiversity Theme Sensitivity. Ground-truthing verified that while provincially mapped Critical Biodiversity Areas (CBA1) broadly cover the property, mapping errors exist due to historical clearing and infrastructure; consequently, CBA mapping was refined to categorize intact natural vegetation as CBA1 and recovered secondary vegetation as CBA2/ESA1, while transformed areas are note classified. The property lies outside any National Protected Area Expansion Strategy (NPAES) focus areas and Strategic Water Source Areas (SWSAs), and although it falls within a Freshwater Ecosystem Priority Area (FEPA) river subcatchment adjacent to the Breede River, the small footprint of proposed activities presents a negligible risk to regional hydrological features.

The ecological baseline of the site reflects a distinct history of anthropogenic disturbance and natural recovery. Historic satellite imagery confirms that a substantial portion of the central study area was completely cleared prior to August 2009, subsequently experiencing severe infestations of invasive alien trees, predominantly *Acacia cyclops* (Rooikrans), with a few scattered *A. saligna* (Port Jackson) and *Eucalyptus conferruminata* (Spider Gum), according to a previous report. Targeted alien clearing occurred in early 2022, followed by the deposition of flood sediments in the central cleared footprint after severe flooding in May 2026. Field surveys conducted on 29 July 2026 identified two main terrestrial vegetation categories across the site: a primary natural community in the western portion and a recovered secondary community in the central portion, though both of these still conform to Potberg Ferricrete Fynbos. A total of 96 plant species were recorded on-site, including 92 native species and 9 Species of Conservation Concern (SCC). Notably, *Agathosma foetidissima* was recorded in high local abundance. The primary natural vegetation exhibits a somewhat medium receptor resilience, intact climax composition, and low historical disturbance, establishing its Site Ecological Importance (SEI) as Very High and designating it as a strict No-Go area. Conversely, the secondary vegetation demonstrates high receptor resilience and recovery potential, supporting an SEI rating of Medium, where development can be managed through minimization and restoration.

The impact risk assessment evaluated the Baseline (No Development Scenario), Alternative 1 (A1), and Alternative 2 (A2) across construction and cumulative phases. Under the Baseline scenario, existing invasive alien plant infestations and unmanaged site degraded conditions persist without active environmental management. Alternative 1 proposes a larger infrastructure footprint incorporating two additional boat garages (units 09 and 10), resulting in the total direct loss of 0.1825 hectares of Potberg Ferricrete Fynbos, comprised of 0.0334 hectares of primary natural habitat (CBA1) and 0.1491 hectares of secondary habitat. In contrast, Alternative 2 represents an optimized spatial layout designed specifically to

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avoid primary natural vegetation entirely and reduce SCC loss. Alternative 2 restricts habitat loss to 0.1139 hectares of secondary vegetation while utilizing 0.1261 hectares of critically and seriously modified land.

Comparative evaluation demonstrates that Alternative 2 significantly minimizes direct and cumulative ecological impacts. Direct loss of Critically Endangered vegetation and loss of SCC under Alternative 1 carry Medium significance pre- and post-mitigation, whereas under Alternative 2, impact significance is reduced to Low pre-mitigation and Low post-mitigation due to complete primary habitat avoidance. Furthermore, cumulative impacts on national conservation targets and broad-scale ecological processes are maintained at Low significance under Alternative 2, which is therefore identified as the environmentally preferred development layout.

Finally, given that Alternative 2 has been optimized to strictly avoid primary natural fynbos and minimize habitat loss, residual impacts remain at a Low significance, making the consideration or pursuit of biodiversity offsets unnecessary and unwarranted.

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i. List of Abbreviations

BODATSA: Botanical Database of Southern Africa
CARA: Conservation of Agricultural Resources Act (Act 43 of 1983)
CBA: Critical Biodiversity Area
CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora
CR: Critically Endangered (species threat status)
DD: Data Deficient (species threat status)
DDD: Data Deficient – Insufficient Information (species threat status)
DDT: Data Deficient – Taxonomically Problematic (species threat status)
EA: Environmental Authorization
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment: EIA regulations promulgated under section 24(5) of NEMA and published in Government Notice R. 543 in Government Gazette 33306 of 18 June 2010
EMPr: Environmental Management Programme
EN: Endangered (species threat status)
EO: Environmental Officer
EOO: Extent of Occurrence
ESA: Ecological Support Area
EW: Extinct in the Wild (species threat status)
EX: Extinct (species threat status)
FEPA: Freshwater Ecosystem Priority Area
IAPs: Invasive Alien Plant species
IUCN: International Union for Conservation of Nature
LC: Least Concern (species threat status)
NE: Not Evaluated (species threat status)
NEM:BA A&IS: NEM:BA Alien and Invasive Species Regulations, 2020
NEM:BA National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NEMA: National Environmental Management Act (Act 107 of 1998)
NFA: National Forests Act 1998 (No. 84 of 1998)
NFEPA: National Freshwater Ecosystem Priority Areas; identified to meet national freshwater conservation targets (CSIR, 2011)
NT: Near Threatened (species threat status)
NWA: National Water Act 36 of 1998
ONA: Other Natural Area
PA: Protected Area
PAOI: Project Areas of Influence
POSA: Plants of southern Africa (online database)
RE: Regionally Extinct (species threat status)
RLE: Red List of Ecosystems for South Africa
SANBI: South African National Biodiversity Institute
SCC: Species of Conservation Concern (includes species listed under the IUCN Red List Criteria as Critically Endangered [CR], Endangered [EN], Vulnerable [VU], Near Threatened [NT], or Data Deficient [DD], as well as range-restricted species which are not declining and are nationally listed as Rare or Extremely Rare [sometimes also termed "Critically Rare"])
SSV: Site Sensitivity Verification
SWSA: Strategic Water Source Area
VegMap: National Vegetation Map of Southern Africa, Lesotho, and Swaziland (as per Mucina and Rutherford, 2006, with subsequent updates, e.g., 2018, 2024)
VU: Vulnerable (species threat status)

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v. Report Minimum Legal Requirements

The Protocol for the Specialist Assessment and Minimum Report Content Requirements For Environmental Impacts on Terrestrial Plant Species (GN 1150, 43855, 30 October 2020) and the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN 320, 43110, 30 October 2020) are presented here, together with their fulfilments within this report.

Where protocol reference numbers differ between the two protocols, they are indicated either as PS (occurring in the Terrestrial Plant Species protocol) or TB (occurring in the Terrestrial Biodiversity protocol); otherwise they are the same between the protocols.

Protocol Reference	Plant Species and Terrestrial Biodiversity Specialist Assessment Report Content	Sections in this Report	Page
3.1.1.	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae.	12	91
3.1.2.	A signed statement of independence by the specialist	vi	x
3.1.3.	A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	2.5.1	25
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	9 and 10	72 and 79
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	1.5	7
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3.1.11. PS	Impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr)	4	59
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3.1.13.	A motivation must be provided if there were any development footprints identified that were identified as having “low” or “medium” terrestrial plant species sensitivity and were not considered appropriate	Not Applicable	Not Applicable
3.1.14. TB	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	5.2	61
3.1.15 TB	Any conditions to which this statement is subjected	4	59

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vi. Declaration of Consultant Independence

The consultant hereby declares that he:

- Is an independent specialist in this application;
- Regards the information contained in this report as it relates to specialist input/study to be true and correct at the time of publication;
- Do not, and will not, have any financial interest(s) in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA Environmental Impact Assessment Regulations, 2014, and any specific environmental management Act;
- Do not, and will not, have any vested interest(s) in the proceedings of the proposed activities;
- Have disclosed, to the applicant, EAP, and/or competent authority(-ies), any information that have, or may have, the potential to influence the decision of the competent authority(-ies) or the objectivity of any report, plan, or document required in terms of the NEMA Environmental Impact Assessment Regulations 2014, and any specific environmental management Act;
- Is fully aware of, and meet, the responsibilities in terms of the NEMA Environmental Impact Assessment Regulations 2014 (specifically in terms of regulation 13 of GN No. R. 326), and any specific environmental management Act, and that failure to comply with these requirements may result in disqualification;
- Have provided the competent authority(-ies) with access to all necessary information at his disposal at the time of publication regarding the application, whether such information is favourable to the applicant or not; and
- Is aware that a false declaration is an offense in terms of regulation 48 of GN No. R. 326.

REPORT AUTHOR:

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Pr.Sci.Nat 121678 (Botanical Science)

Fields of Expertise: Botany; Biogeography; Terrestrial Biodiversity; Vegetation Surveys and Mapping; Invasive Alien Plant Species Identification, Management, and Monitoring; Biological Sciences; Biodiversity Informatics; Experimental Design and Analysis; Geographic Information Systems; and Statistical Computing and Data Analysis.

Summary of Qualifications: BSc (*cum laude*) Chemistry with Physics and Biology; BSc (Hons *cum laude*) Botany (majoring in Plant Taxonomy, Plant Ecology, and Plant Physiology); MSc Botany (Invasive Plant Species and Risk Assessment); PhD Botany (Invasive Plant Species and Impacts); GIS Intermediate (GISB1500S NQF Level 5); SAGIC Invasive Species Consultant; Professional Natural Scientist (Botanical Science: 121678).



September 2026

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PART 1: INTRODUCTION, BACKGROUND, AND FINDINGS OF THE ASSESSMENT

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1. Introduction

1.1. General Information

This project, as well as any and all related areas/sites, will from here on interchangeably be referred to as either the "Project", "Project Area", "development site", or "study area". The "project areas of influence" (PAOI) is defined and used where relevant if the proposed activity(-ies) will impact on Species of Conservation Concern (SCC) beyond the boundary of the preferred site. The development footprint (or proposed development footprint) in the context of this document means the area that will be directly disturbed or impacted. The term "property" might also be used to refer to one or more cadastral property boundaries, and not just the study area.

Lornay Environmental Consulting (hereafter referred to as the "client"), on behalf of Breede Riverine Estate Body Corporate (hereafter referred to as the "applicant"), approached EcoFloristix Specialist Botanical Surveys to conduct a Plant Species and Terrestrial Biodiversity Impact assessment for the proposed clearing of vegetation on Portion 4 of Farm 494, Stoffelsrivier, Malgas, Western Cape.

1.2. Conditions of This Report

This report deals exclusively with the study area as defined in sections 1.1 and 1.4, and the impacts upon plant diversity and natural ecosystems in that area. Therefore, all relevant project information provided by the applicant and/or the client, as well as any other relevant Environmental Impact Assessment practitioner(s), to the biodiversity specialist was assumed to be correct and valid at the time of its provision and at the time of compilation. This report is not liable to include and assess any alterations to the study area, as provided by the client, if such alterations occurred after the survey date(s). Furthermore, any subsequent changes to the project footprint or layout — even within the broader studied area — may necessitate a re-evaluation of findings.

All findings, recommendations, and conclusions provided in this report are based on the author's best scientific and professional knowledge at the time of compilation, as well as information available at the time of compilation. This report is prepared solely for the use of the client and relevant regulatory authorities. No third party may rely on the findings or recommendations contained herein without the explicit written consent of the author. Additionally, the findings and recommendations provided do not guarantee environmental authorization or permit approval, as final decision-making authority rests solely with the competent authorities.

This report, whether in full or in part, may not be amended or extended in any way whatsoever without the prior explicit written consent of the author. Any recommendations, statements, or conclusions drawn from, or based on, this report must clearly cite or make reference to this report, making sure to include the following reference: PR.26.046. This report must be included in its entirety whenever any recommendations, statements, or conclusions relating to this report form any part of another report.

1.3. Terms of Reference (ToR)

The main aim of this assessment was to provide a professional opinion on botanical and terrestrial biodiversity issues related to the proposed activities within the study area. Specifically, this assessment intends to provide the relevant

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information for guiding and mitigating the risk(s) associated with the proposed activities and their impacts on the local plant communities and associated ecosystems within the study area and surrounds by conducting a desktop analysis and a Site Sensitivity Verification ("SSV").

Briefly, the following activities were performed:

- A desktop assessment to identify relevant ecologically important geographical features (for example, unique habitats, Critical Biodiversity Areas (CBAs), and threatened ecosystems);
- A desktop assessment to compile a list of species that might occur in the study area and surrounds, with a focus on plant Species of Conservation Concern (SCC);
- A field survey to assess the general species composition of the plant communities within and around the study area, as well as the presence of any SCC;
- A delineation and mapping of the plant communities and/or habitat types that occur within the study area, and a determination of their respective Site Ecological Importance values;
- An identification of the potential impacts of the proposed activities on the SCC and plant communities of the study area, and an evaluation of the risks associated with these potential impacts; and
- A prescription of mitigation measures and recommendations for the identified risks.

1.4. Locality and Details of Proposed Activities

1.4.1. Locality and General Details

The study area is located on the farm Stoffels Rivier near Malgas, Western Cape, and forms part of the Breede Riverine Estate (Map 1, Map 2).

1.4.2. Details of Proposed Activities

The term "proposed activities" will from here on specifically refer to the activities as defined in this section.

The applicant proposes to clear vegetation in the study area at various localities (Map 2).

More specifically, the primary proposed activities involves the construction of additional boat garage units similar to those that are already present on-site.

1.4.3. Alternatives

Two "Alternatives" are assessed here, in addition to the "Baseline" (or "No Development Scenario", i.e. maintaining the present circumstances and not proceeding with the proposed activities). Alternative 1 (A1) and Alternative 2 (A2) both involve the proposed activities and associated areas as presented in section 1.4.2 and 1.4.1, respectively.

A1 represents the original layout plan proposed by the applicant, prior to refinement as per the assessment detailed in this report. Under A1, the proposed additional boat garages were aligned directly adjacent to the existing garage structures on site, without specific regard to the underlying vegetation sensitivity or the presence of Species of Conservation Concern subsequently identified within the intact vegetation patches on the property.

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Alternative 1 proposed a total of ten (10) boat garage units. Of the ten proposed units, one unit measured 12 m x 30 m, while the remaining nine units each measured 12 m x 25 m. Because Alternative 1 was developed without the benefit of the botanical sensitivity mapping and true-scale digitisation of the units against the site's vegetation, this layout does not account for the high-sensitivity intact vegetation patches supporting Species of Conservation Concern identified during the subsequent SSV.

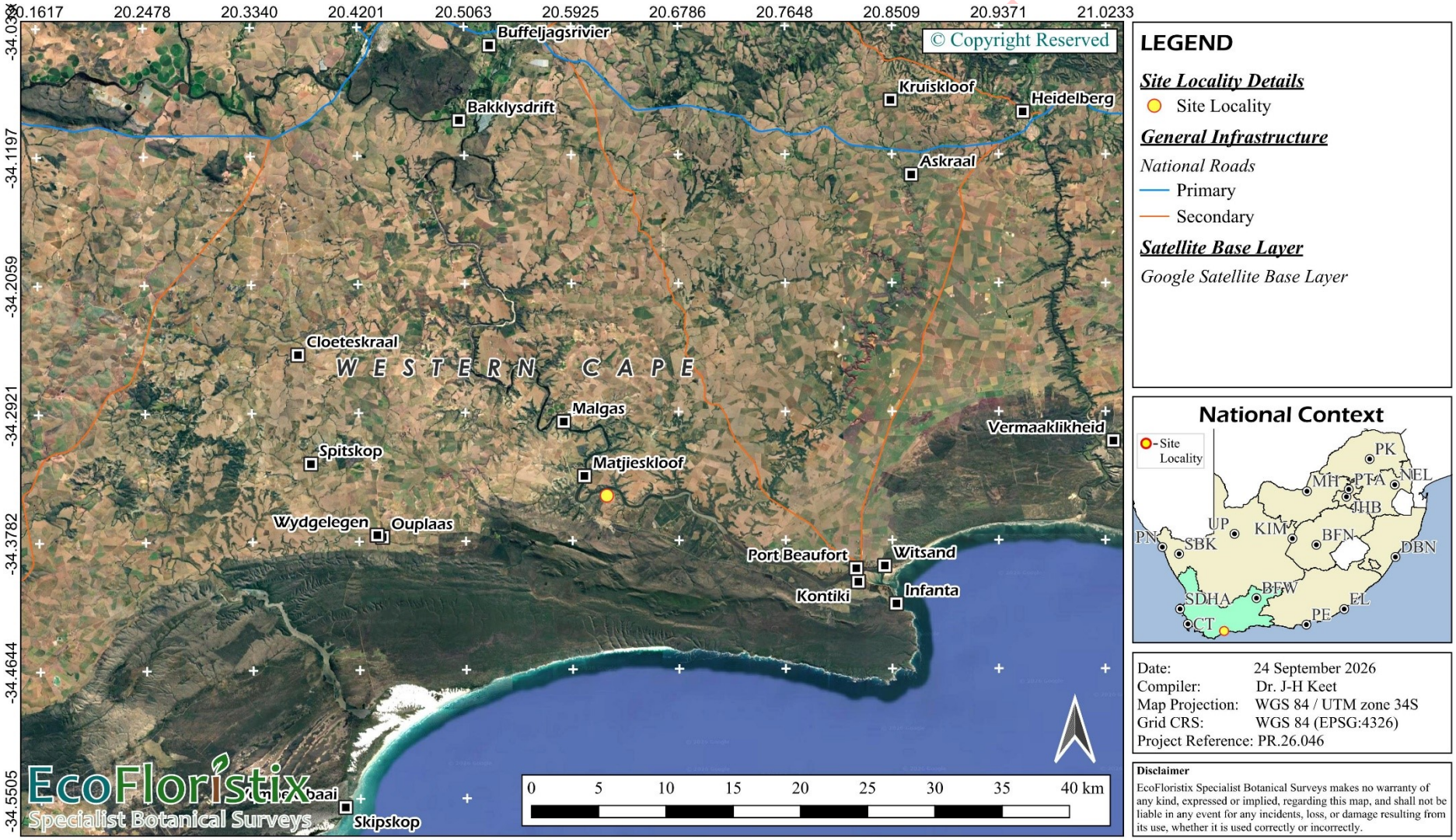
In contrast, A2 consists of eight (8) boat storage garages, all of which have been shifted in their spatial placement within the study area compares to A1. Thus, the primary difference between the two alternatives is that that A1 has two more units. Also, the two alternatives differ in their spatial placement within the study area.

1.4.4. Project Areas of Influence (PAOI)

The PAOI is considered the same as the study area (Map 2).

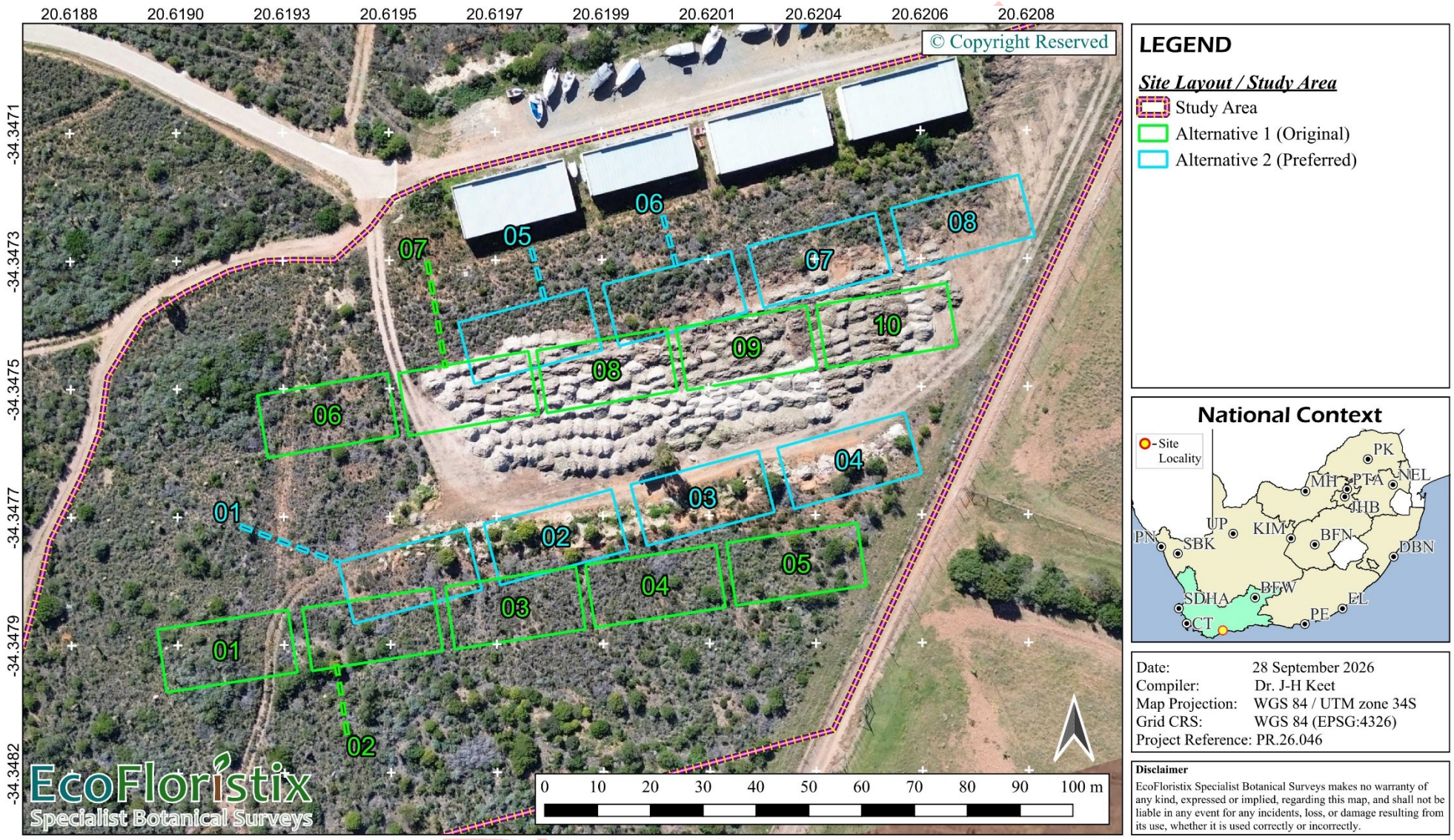
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Map 1: Locality of the study area, zoomed out to give a broad context. The inset map shows the main map extent within the broader (national) context of South Africa.

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Map 2: Overview of the study area. Note that the aerial imagery was taken on the day of the site inspection.

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1.5. General Assumptions and Potential Limitations

Temporal variation plays an important role in the structure and patterns of plant biodiversity, communities, and species occurrences. One site visit (or even multiple visits), or a single season's survey, might not fully catalogue plant species diversity in an area (for example, due to seasonal variation in vegetation and plant growth patterns).

Specifically, some annual, short-lived, ephemeral (plants surviving unfavourable conditions as seeds), geophytic (species with underground storage organs), or other cryptic species might not be observable/detectable. That is, many plant species are known to completely die back during certain times of the year, depending on respective life strategies. Thus, during these times such species remain unobservable/undetectable and survive only as dormant bulbs, corms, tubers, or rhizomes (for geophytes), or seeds (for ephemeral species) below the soil surface. Together with this, rare and threatened plant species are generally uncommon and/or localized, and can easily be overlooked. Even multiple site visits might fail to locate such species.

Furthermore, flowers and fruits are crucial for the complete and accurate identification of plant species, and any absence of such flowers and fruits might prevent the complete and accurate identification of such plant species. Flowering and fruiting times are species specific, and there are invariably always some plant species not flowering and/or fruiting during surveying. This not only impacts identifiability, but also detectability/visibility. Additionally, recent disturbance regimes (e.g., fire history, heavy livestock grazing, recent bush clearing) or extreme climatic conditions (e.g., preceding multi-year drought or unseasonal rainfall) directly influence current vegetation composition and may temporarily suppress target plant species.

Finally, in practice it is almost always impossible to survey any area to its full extent, both spatially (i.e., over land surface area) and temporally (i.e., over time). Spatial boundaries, vegetation mapping units, and sensitive habitat delineations produced via GPS/GIS represent natural transitional zones and carry standard visual and geospatial mapping margins of error. The total number of plant species recorded in any area is, therefore, almost always an underestimate of the potential number of species that could occur in such an area.

Considering all of the aforementioned, the possibility always exists that certain plant species might not be observable/detectable on site during the time of surveying, as a result of their potential annual, short-lived, dormant, cryptic, or ephemeral nature, or their rare and/or localized distributions on site, or the incomplete and inaccurate identification of plant species which lacked flowers and/or fruits and/or other characteristic features during surveying. While these inherent limitations present a sampling constraint, it can be mitigated to a great extent by supplementing site species lists with records from online databases (see section 9.3 for more details).

1.6. Key Legislative Requirements

The lists below provide legislation, policies, and guidelines that are applicable to the current project in terms of biodiversity and ecological support systems. Although these lists are extensive, they are not exhaustive, and other legislation, policies, and guidelines may also apply.

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International Legislation:

- Convention on Biological Diversity (CBD, 1993)
- The Convention on Wetlands (RAMSAR Convention, 1971)
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 1973)

National Legislation:

- Constitution of the Republic of South Africa (Act No. 108 of 1996)
- The National Environmental Management Act (NEMA) (Act No. 107 of 1998)
- The National Environmental Management: Protected Areas Act (Act No. 57 of 2003)
- The National Environmental Management: Biodiversity Act (NEM:BA) (Act No. 10 of 2004), Threatened or Protected Species Regulations
- Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, GNR 320 of Government Gazette 43310 (March 2020)
- Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, GNR 1150 of Government Gazette 43855 (October 2020)
- The Environment Conservation Act (Act No. 73 of 1989)
- National Protected Areas Expansion Strategy (NPAES)
- Natural Scientific Professions Act (Act No. 27 of 2003)
- National Forest Act (Act No. 84 of 1998)
- National Veld and Forest Fire Act (101 of 1998)
- National Water Act (NWA) (Act No. 36 of 1998)
- National Spatial Biodiversity Assessment (NSBA)
- Alien and Invasive Species Regulations and, Alien and Invasive Species Lists, published under NEM:BA (NEM:BA A&IS Regulations)
- Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA)

Provincial Legislation and Other:

- Western Cape Nature Conservation Ordinance, (Act No. 19 of 1974)
- Western Cape Nature Conservation Regulations, (Act No. 955 of 1975)
- Western Cape Nature Conservation Board Act, (Act No. 15 of 1998)
- Western Cape Nature Conservation Laws Amendment Act, (Act No. 3 of 2000)
- Western Cape Biodiversity Act, (Act No. 6 of 2021) 2024Cape Biodiversity Spatial Plan

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2. Results

For all relevant methodology, see sections 9 and 10 at the end of this document.

2.1. Desktop Analyses: Botanical Assessment

2.1.1. Vegetation Types of Study Area and Surrounds

According to VegMap, the study area overlaps with Potberg Ferricrete Fynbos (FFf 2) and Eastern Rûens Shale Renosterveld (FRs 13), and a small portion of Cape Lowland Alluvial vegetation (Aza 2) (Map 3; Table 1). Only Potberg Ferricrete Fynbos was found to occur on-site. Thus, only this vegetation type is treated here.

Table 1: Total area sizes (approximate) for vegetation types occurring within, or near, the study area, as mapped by the National Vegetation Map 2024.

Vegetation Type	Historic Distribution		Current Distribution			RLE Threat Status
	Total Area (km^2)	Total Area (ha)	Total Area (km^2)	Total Area (ha)	Percentage Remaining (%)	
Potberg Ferricrete Fynbos (FFf2)	41	4 057	19	1 940	47.8	CR

2.1.1.a) Potberg Ferricrete Fynbos (FFf 2)

This vegetation type is distributed in the Western Cape Province on the northern and western lowermost slopes of Potberg Mountain from Potberg to Poortsrivier, and bordered on the north by the Breede River from Diepkloof eastwards.

It is characterized by slight slopes and moderately undulating plains perched on the northern slopes below Potberg. A medium tall evergreen shrubland exists in which asteraceous and proteoid fynbos are dominant, with localised stands of restioid fynbos. Soils are of ferricrete with dry, shallow loamy sand; silcrete and Ordovician sandstone of the Table Mountain Group (Cape Supergroup) colluvium over shales are also present. Shallow stony soils and sandy loams are derived from shale. Rounded ferricrete stones, gravel, and cobble covering the surface are locally called "koffieklip" due to their brown colour. They are considered to be remains of the old African surface.

Conservation: CR according to RLE2021. Some of the unit is statutorily conserved in De Hoop Nature Reserve. About 40% of the area transformed (cultivation). *Acacia cyclops* and *A. saligna* are notable invading aliens. Erosion is moderate and very low. This little-known vegetation unit has features of both fynbos and renosterveld. *Elytropappus rhinocerotis* is present but not very conspicuous. It shares features with similar communities occurring on ferricrete or silcrete surfaces, and has the largest extant populations of Redlist silcrete endemics such as *Leucadendron coriaceum*, *L. cryptocephalum*, and *Protea decurrens*.

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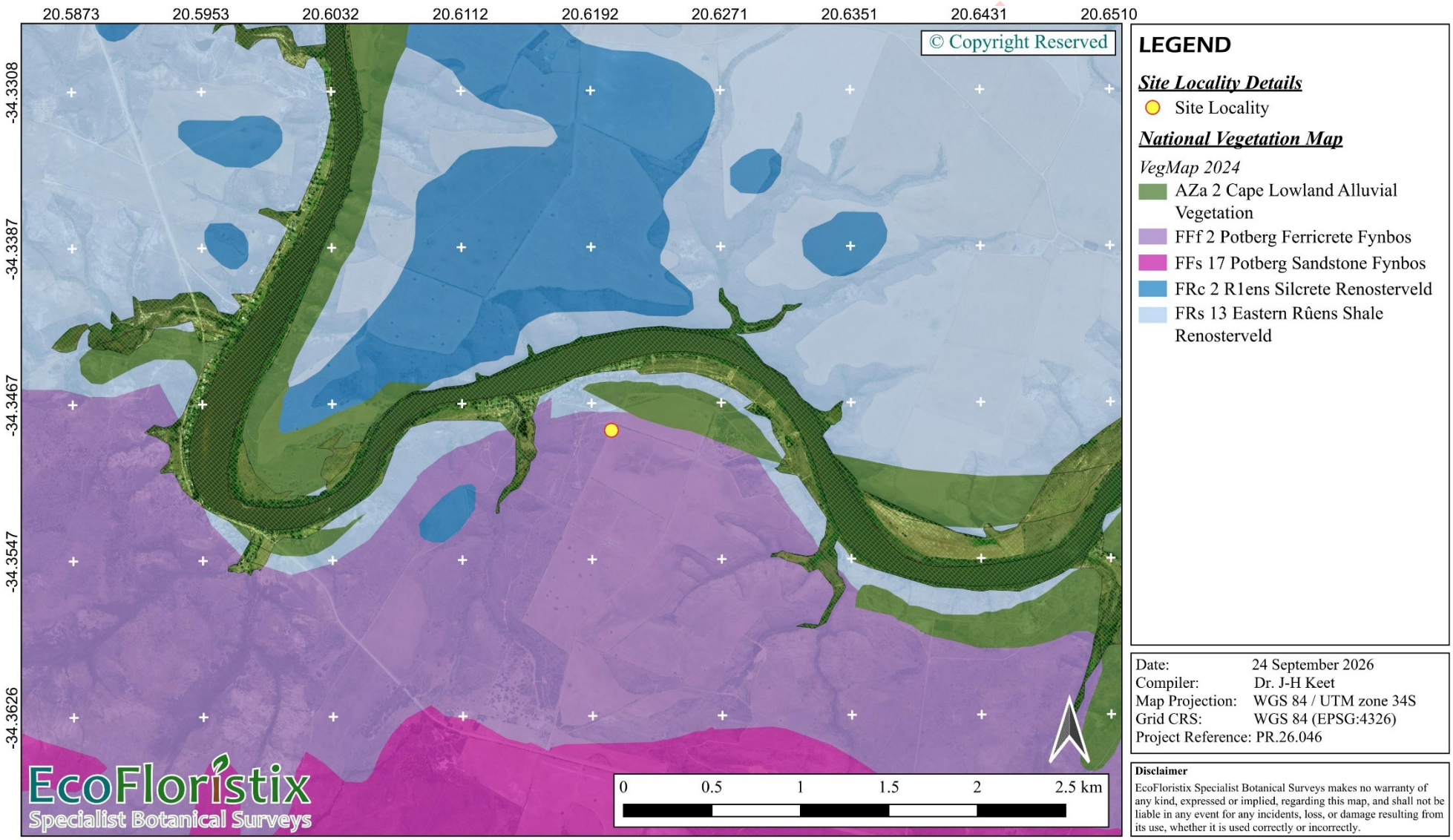
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Key species associated with Potberg Ferricrete Fynbos (FFf 2).

IMPORTANT SPECIES	
Growth Form	**Key Species (d = "Dominant")**
Tall Shrubs	*Protea repens (d), P. neriifolia, Searsia pallens*
Low Shrubs	*Dicerothamnus rhinocerotis (d), Erica quadrangularis (d), Leucadendron modestum (d), Amphithalea ciliaris, Chrysanthemoides monilifera, Erica imbricata, E. puberuliflora, E. viscaria subsp. longifolia, Leucadendron coriaceum, L. cryptocephalum, L. salignum, L. teretifolium, Oedera squarrosa, Serruria ludwigii*
Graminoids	*Cymbopogon pospischilii, Ficinia oligantha, Restio capensis, Karroochloa purpurea, Tenaxia stricta*
ENDEMIC SPECIES	
Growth Form	**Key Species (d = "Dominant")**
Geophytic Herb	*Bulbinella potbergensis*

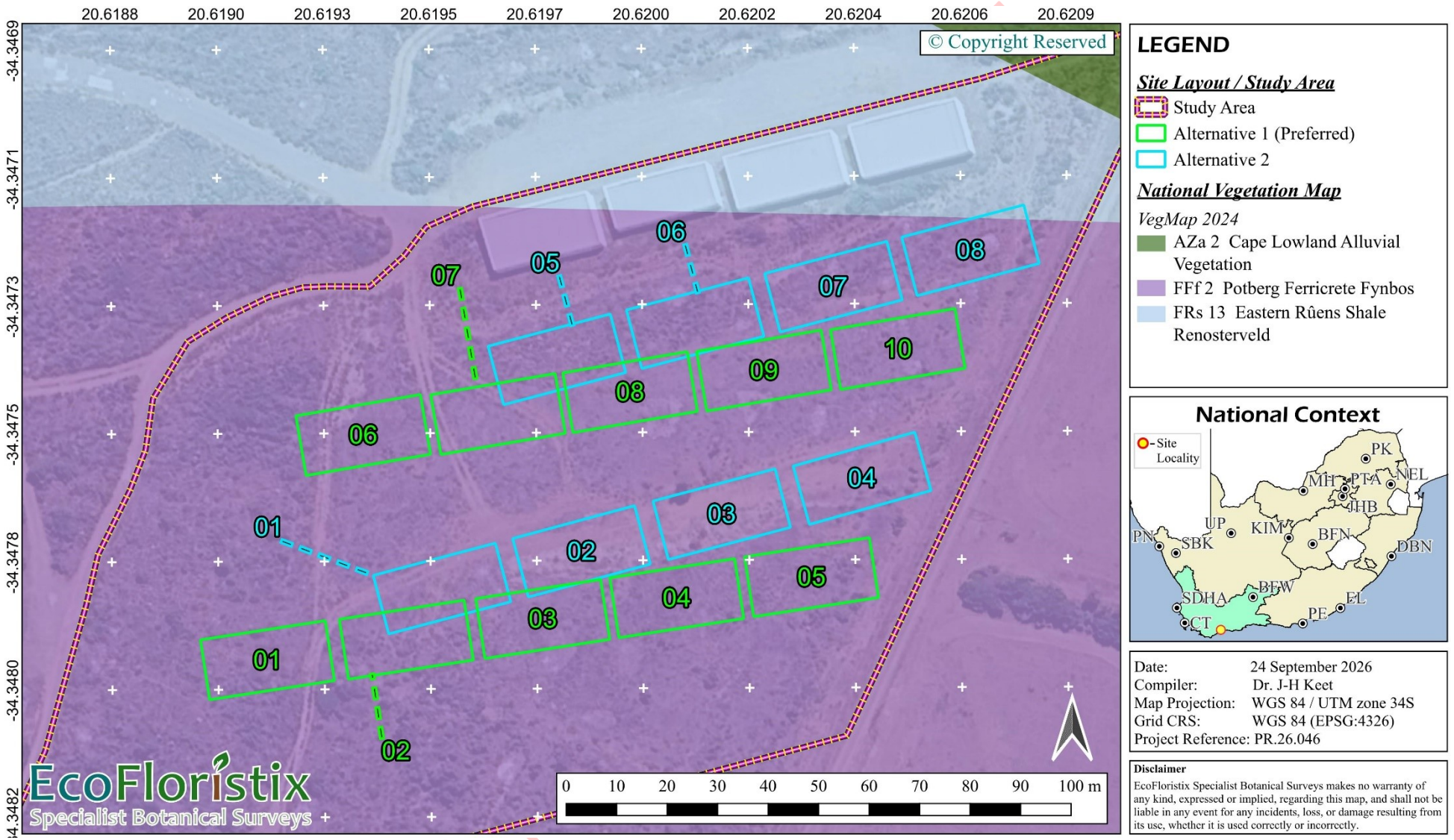
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Map 3: Specific vegetation types (according to VegMap 2024) of the study area and broader surrounds.

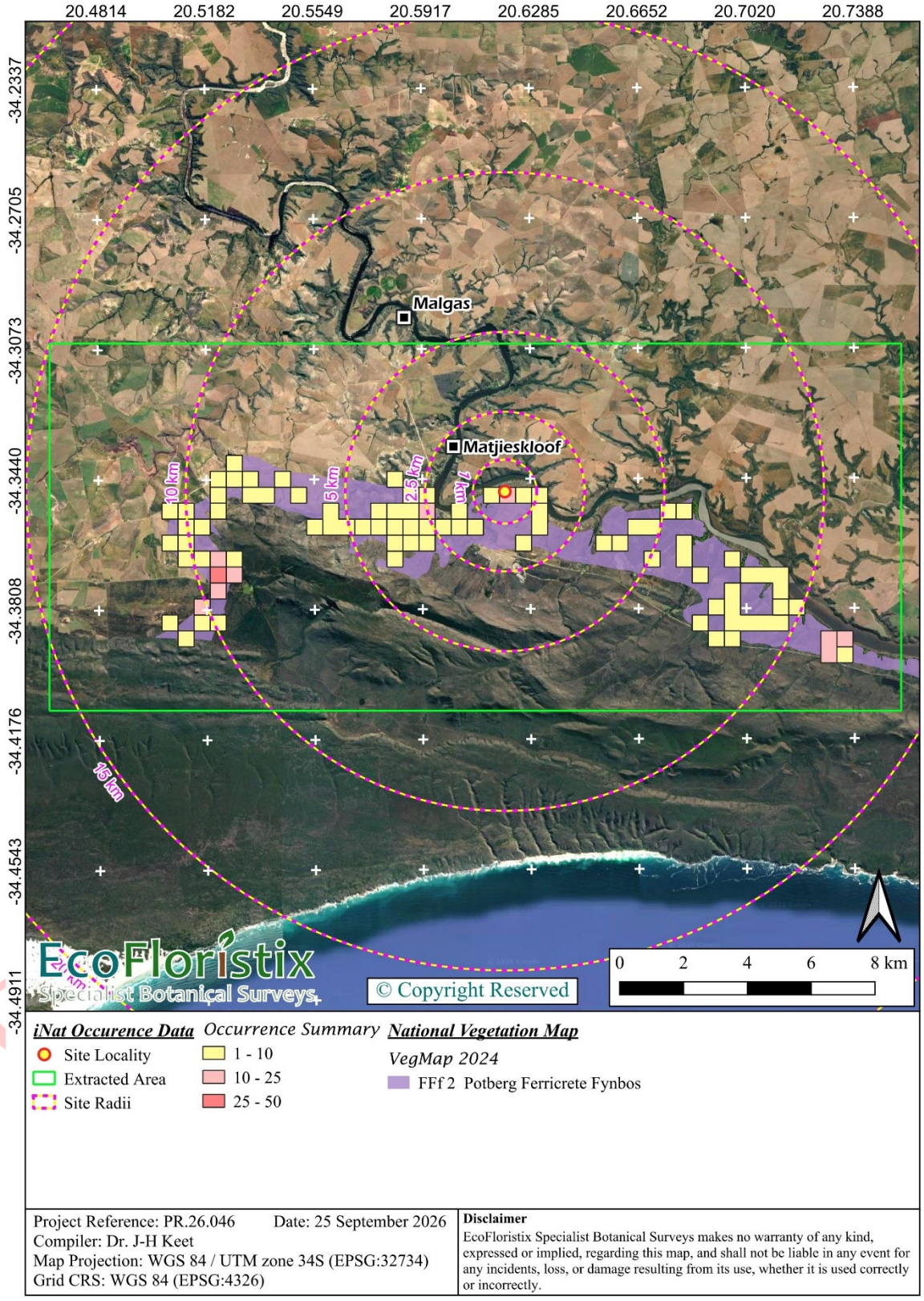
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Map 4: Specific vegetation types (according to VegMap 2024) of the study area.

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2.1.2. Species of Conservation Concern and General Species Occurrences



Map 5: Plant species occurrence data from iNaturalist, displayed as the number of records per grid square. Also shown are the mapped vegetation types (from VegMap) underlying the study area. See section 9.3.1 for more details on methodology.

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Only SCC that might potentially occur in the study area and surrounds, as predicted by online databases (see section 9.3.1; Map 5), are listed in this section. The field survey(s) aimed to validate which of these species occur within the study area, and whether any additional species were present that may not yet have been recorded in official databases (see section 2.5). Also see section 1.6 for key legislation used to assess SCC and protected plant species. Note that many records that are in the POSA database do not have an IUCN listing, or might have a "Not Evaluated" listing, even though they are indigenous. This is because such records represent older taxonomic groupings that have subsequently been assigned criteria at higher, or lower, taxonomic levels (for example, a subspecies name that is no longer valid and which has been assigned an IUCN value at species level, or a record of a species that has subsequently been divided into subspecies, and therefore assigned IUCN values at subspecies level instead of species level). These records have been included in the analysis for the sake of comprehensiveness since they still represent valuable data.

A combined total of 3 168 records were extracted from the online POSA (1 895 records) and iNaturalist (1 273 records) databases. The total area used to extract the records covered 33 014 hectares (330 km^2), with the records covering a minimum convex hull area of 25 270 hectares (253 km^2). The records were aggregated to cells measuring 0.5 x 0.5 km to visually estimate how many records occur near the study area.

Together, these records consisted of a combined total of 2 032 plant species that have been recorded within the extracted area (representing a total of 1 890 species at an inclusive level, i.e., without considering subspecies, varieties, etc.), with the top three representative families being Asteraceae (237 spp.), Fabaceae (171 spp.), and (158 spp.).

This list included a total of 289 SCC, including 171 threatened species (full summary: 1 CR PE, 8 CR, 57 EN, 105 VU, 78 NT, 2 Critically Rare, 17 DDT, 7 DDD, 1191 LC, and 74 Not Evaluated). It should be noted that the high number of SCC is likely due to the use of an excessively large area for species record collection. Consequently, it is highly improbable that many of these species would be present within the study area or its immediate vicinity.

A total of 121 of these SCC are protected. Apart from these, a further 375 species are also protected (thus yielding a total of 496 protected plant species, consisting of 493 provincially protected species and 3 nationally protected trees.

Finally, the online screening report also revealed the potential presence of 2 Sensitive Species (some of these might have been included in the other online databases). Note that, for their protection, some of the identities of these species will not be made public, and they have therefore been assigned random names.

The following is a summary of the threatened species (CR PE, CR, EN, VU) as recorded in the online databases, according to descending threat status:

- *Lobelia barkerae* (CR PE)
- *Anisodontea dissecta* (CR)
- *Bulbinella potbergensis* (CR)
- *Erica ribisaria* (CR; Protected [Provincial Schedule 4])
- *Hesperantha kiaratayloriae* (CR; Protected [Provincial Schedule 4])
- *Lachenalia barbarae* (CR; Protected [Provincial Schedule 4])
- *Leucospermum fulgens* (CR; Protected [Provincial Schedule 4])
- *Polhillia connata* (CR)
- *Xiphotheca rosmarinifolia* (CR)
- *Acrodon purpureostylus* (EN; Protected [Provincial Schedule 4])
- *Agathosma joubertiana* (EN; Protected [Provincial Schedule 4])
- *Amphithalea vlokii* (EN)
- *Argyrolobium harmsianum* (EN)
- *Argyrolobium pachyphyllum* (EN)
- *Aspalathus acutiflora* (EN)
- *Aspalathus burchelliana* (EN)
- *Aspalathus globulosa* (EN)

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- *Aspalathus grobleri* (EN)
- *Aspalathus joubertiana* (EN)
- *Aspalathus smithii* (EN)
- *Aspalathus tylodes* (EN)
- *Babiana montana* (EN; Protected [Provincial Schedule 4])
- *Cliffortia burgersii* (EN)
- *Cliffortia curvifolia* (EN)
- *Cyrtanthus leucanthus* (EN; Protected [Provincial Schedule 4])
- *Diosma haelkraalensis* (EN; Protected [Provincial Schedule 4])
- *Diosma parvula* (EN; Protected [Provincial Schedule 4])
- *Diosma tenella* (EN; Protected [Provincial Schedule 4])
- *Drosanthemum lavisii* (EN; Protected [Provincial Schedule 4])
- *Drosanthemum quadratum* (EN; Protected [Provincial Schedule 4])
- *Dymondia margaretae* (EN)
- *Elegia extensa* (EN)
- *Elegia squamosa* (EN)
- *Erica melanacme* (EN; Protected [Provincial Schedule 4])
- *Euphorbia pseudoglobosa* (EN)
- *Gladiolus vandermerwei* (EN; Protected [Provincial Schedule 4])
- *Gnidia ericoides* (EN)
- *Hesperantha muirii* (EN; Protected [Provincial Schedule 4])
- *Hypodiscus rugosus* (EN)
- *Indigofera mundiana* (EN)
- *Ixia erubescens* (EN; Protected [Provincial Schedule 4])
- *Lachenalia calcicola* (EN; Protected [Provincial Schedule 4])
- *Lachenalia nervosa* (EN; Protected [Provincial Schedule 4])
- *Lampranthus amabilis* (EN; Protected [Provincial Schedule 4])
- *Lampranthus glomeratus* (EN; Protected [Provincial Schedule 4])
- *Lampranthus leptaleon* (EN; Protected [Provincial Schedule 4])
- *Lampranthus pauciflorus* (EN; Protected [Provincial Schedule 4])
- *Lebeckia gracilis* (EN)
- *Leucadendron coriaceum* (EN; Protected [Provincial Schedule 4])
- *Leucadendron cryptocephalum* (EN; Protected [Provincial Schedule 4])
- *Leucadendron galpinii* (EN; Protected [Provincial Schedule 4])
- *Limonium anthericoides* (EN)
- *Mesembryanthemum napierense* (EN; Protected [Provincial Schedule 4])
- *Moraea debilis* (EN; Protected [Provincial Schedule 4])
- *Moraea melanops* (EN; Protected [Provincial Schedule 4])
- *Moraea tricolor* (EN; Protected [Provincial Schedule 4])
- *Pelargonium fergusoniae* (EN)
- *Pentameris scandens* (EN)
- *Phylica greyii* (EN)
- *Protea decurrens* (EN; Protected [Provincial Schedule 4])
- *Ruschia leptocalyx* (EN; Protected [Provincial Schedule 4])
- *Selago neglecta* (EN)
- *Selago ramosissima* (EN)
- *Stoebe rugulosa* (EN)
- *Tulista marginata* (EN)
- *Xiphotheca guthriei* (EN)
- *Acmadenia macropetala* (VU; Protected [Provincial Schedule 4])
- *Acrodon deminutus* (VU; Protected [Provincial Schedule 4])
- *Acrolophia ustulata* (VU; Protected [Provincial Schedule 4])
- *Adenandra gummifera* (VU; Protected [Provincial Schedule 4])
- *Agathosma eriantha* (VU; Protected [Provincial Schedule 4])
- *Agathosma microcarpa* (VU; Protected [Provincial Schedule 4])
- *Agathosma muirii* (VU; Protected [Provincial Schedule 4])
- *Agathosma riversdalensis* (VU; Protected [Provincial Schedule 4])
- *Amphithalea sericea* (VU)
- *Amphithalea speciosa* (VU)
- *Amphithalea virgata* (VU)
- *Anginon pumilum* (VU)
- *Aspalathus barbigera* (VU)
- *Aspalathus calcarea* (VU)
- *Aspalathus campestris* (VU)
- *Aspalathus candidula* (VU)
- *Aspalathus lebeckioides* (VU)
- *Aspalathus lotoides subsp. lotoides* (VU)
- *Aspalathus millefolia* (VU)
- *Aspalathus oblongifolia* (VU)
- *Aspalathus pallescens* (VU)
- *Aspalathus potbergensis* (VU)
- *Aspalathus quadrata* (VU)
- *Aspalathus quartzicola* (VU)
- *Aspalathus steudeliana* (VU)
- *Aspalathus zeyheri* (VU)
- *Berzelia cordifolia* (VU; Protected [Provincial Schedule 4])
- *Capnophyllum macrocarpum* (VU)
- *Centella pottebergensis* (VU)
- *Chaenostoma titanophilum* (VU)
- *Chrysocoma strigosa* (VU)
- *Cliffortia alata* (VU)
- *Cliffortia incana* (VU)
- *Cliffortia longifolia* (VU)
- *Coleonema pulchrum* (VU; Protected [Provincial Schedule 4])
- *Crassula simulans* (VU)
- *Cullumia squarrosa* (VU)
- *Cynanchum zeyheri* (VU; Protected [Provincial Schedule 4])
- *Cyrtanthus carneus* (VU; Protected [Provincial Schedule 4])
- *Diosma passerinoides* (VU; Protected [Provincial Schedule 4])
- *Disphyma dunsdonii* (VU; Protected [Provincial Schedule 4])

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- *Drosanthemum austricola* (VU; Protected [Provincial Schedule 4])
- *Drosanthemum striatum* (VU; Protected [Provincial Schedule 4])
- *Elegia fenestrata* (VU; Protected [Provincial Schedule 4])
- *Elegia verreauxii* (VU)
- *Erica albertyniae* (VU; Protected [Provincial Schedule 4])
- *Erica uysii* (VU; Protected [Provincial Schedule 4])
- *Euchaetis intonsa* (VU; Protected [Provincial Schedule 4])
- *Euchaetis laevigata* (VU; Protected [Provincial Schedule 4])
- *Euchaetis schlechteri* (VU; Protected [Provincial Schedule 4])
- *Euryops hebecarpus* (VU)
- *Felicia ebracteata* (VU)
- *Ficinia echinata* (VU)
- *Freesia leichtlinii subsp. leichtlinii* (VU; Protected [Provincial Schedule 4])
- *Galium bredasdorpense* (VU)
- *Gasteria carinata var. verrucosa* (VU)
- *Gibbaeum hartmannianum* (VU; Protected [Provincial Schedule 4])
- *Gibbaeum velutinum* (VU; Protected [Provincial Schedule 4])
- *Gladiolus abbreviatus* (VU; Protected [Provincial Schedule 4])
- *Gnidia spicata* (VU)
- *Haworthiopsis venosa* (VU)
- *Hermannia lavandulifolia* (VU)
- *Lachenalia sessiliflora* (VU; Protected [Provincial Schedule 4])
- *Lachnaea capitata* (VU)
- *Lampranthus ceriseus* (VU; Protected [Provincial Schedule 4])
- *Leucadendron burchellii* (VU; Protected [Provincial Schedule 4])
- *Leucospermum heterophyllum* (VU; Protected [Provincial Schedule 4])
- *Leucospermum muirii* (VU; Protected [Provincial Schedule 4])
- *Leucospermum praecox* (VU; Protected [Provincial Schedule 4])
- *Lobelia valida* (VU)
- *Lobostemon capitatus* (VU)
- *Lobostemon lucidus* (VU)
- *Lobostemon sanguineus* (VU)
- *Muraltia calycina* (VU)
- *Muraltia lewisiae* (VU)
- *Muraltia pottebergensis* (VU)
- *Muraltia spicata* (VU)
- *Muraltia tenuifolia* (VU)
- *Oedera garnotii* (VU)
- *Oedera steyniae* (VU)
- *Osteospermum subulatum* (VU)
- *Pelargonium plurisectum* (VU)
- *Phylica incurvata* (VU)
- *Phylica stenantha* (VU)
- *Phylica stenopetala var. stenopetala* (VU)
- *Polhillia pallens* (VU)
- *Polygala pottebergensis* (VU)
- *Protea denticulata* (VU; Protected [Provincial Schedule 4])
- *Protea scabra* (VU; Protected [Provincial Schedule 4])
- *Restio pulcher* (VU)
- *Selago diffusa* (VU)
- *Selago glandulosa* (VU)
- *Senecio lycopodioides* (VU)
- *Sensitive Species X2* (VU; Protected [Provincial Schedule 4])
- *Staberoha multispicula* (VU)
- *Stoebe muirii* (VU)
- *Stoebe schultzii* (VU)
- *Thamnochortus muirii* (VU)
- *Thamnochortus pluristachyus* (VU)
- *Trachyandra chlamydophylla* (VU)
- *Trachyandra filiformis* (VU)
- *Tribolium ciliare* (VU)
- *Trichodiadema occidentale* (VU; Protected [Provincial Schedule 4])
- *Wahlenbergia polyantha* (VU)
- *Watsonia fergusoniae* (VU; Protected [Provincial Schedule 4])

2.2. Invasive Alien Plant Species

A total of 81 alien plant species have been recorded within the extracted area, with 16 of them being listed invasive species within the NEM:BA A&IS Regulations (note that if "Category Multi" exists in this list, then it is intended to indicate that the listing of the species in question is context dependent; should such a species be found on site, then the category applicable to its context will be made clear in the sections on site-specific results). The NEM:BA A&IS Regulations species are:

- *Acacia cyclops* (Red eye; Category 1b)
- *Acacia longifolia* (Long-leaved wattle; Category 1b)

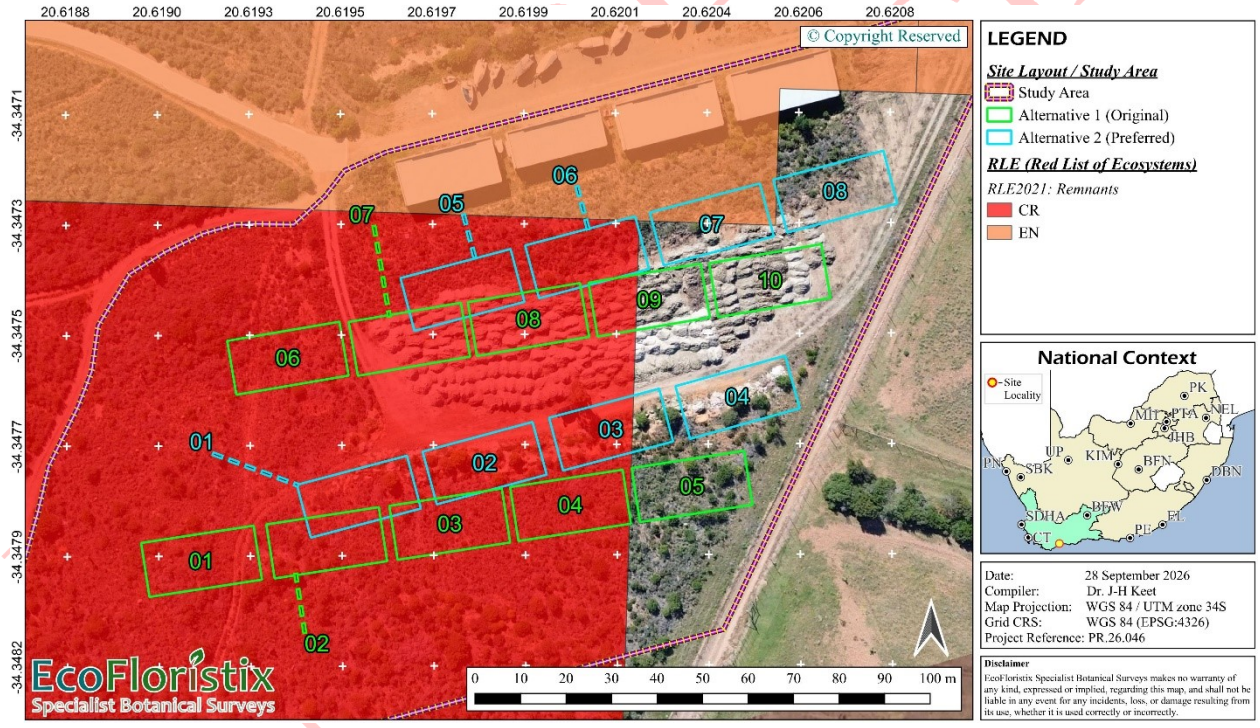
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- *Acacia mearnsii* (Black wattle; Category 2)
- *Acacia pycnantha* (Golden wattle; Category 1b)
- *Acacia saligna* (Port Jackson, Port Jackson willow; Category 1b)
- *Cirsium vulgare* (Spear thistle, Scotch thistle; Category 1b)
- *Datura stramonium* (Common thorn apple; Category 1b)
- *Eucalyptus conferruminata* (Spider gum; Category Multi)
- *Lantana camara* (Lantana, Tickberry, Cherry pie; Category 1b)
- *Opuntia ficus-indica* (Mission prickly pear, Sweet prickly pear; Category Multi)
- *Opuntia microdasys* (Yellow bunny-ears, Teddy-bear cactus; Category 1b)
- *Opuntia monacantha* (Cochineal prickly pear, Drooping prickly pear; Category 1b)
- *Pinus halepensis* (Aleppo pine; Category Multi)
- *Ricinus communis* (Castor-oil plant; Category 2)
- *Sesbania punicea* (Red sesbania; Category 1b)
- *Trichocereus spachianus* (Torch cactus; Category 1b)

2.3. Desktop Analyses: Ecologically Important Landscape Features

2.3.1. Ecosystem Threat Status: RLE 2021



Map 6: Ecosystem Threat Status, according to the Red List of Ecosystems for South Africa (2021), associated with the study area and surrounds.

According to the Red List of Ecosystems for South Africa (RLE 2021) spatial dataset the study area overlaps with Endangered and Critically Endangered ecosystems, namely Potberg Ferricrete Fynbos and Eastern Rûens Shale Renosterveld (Map 6).

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Ground truthing determined that this is mostly accurate, except that the latter (Eastern Rûens Shale Renosterveld) was not found to occur on-site. Furthermore, specific areas of the site have been greatly modified and thus do not conform to the listed vegetation type. Finally, note that the proposed development footprints have differing degrees of overlap with the intact vegetation, and these will be discussed in more detail in subsequent sections, especially regarding their impacts.

See section 9.2.1 for more details and notes on Ecosystem Threat Status categories.

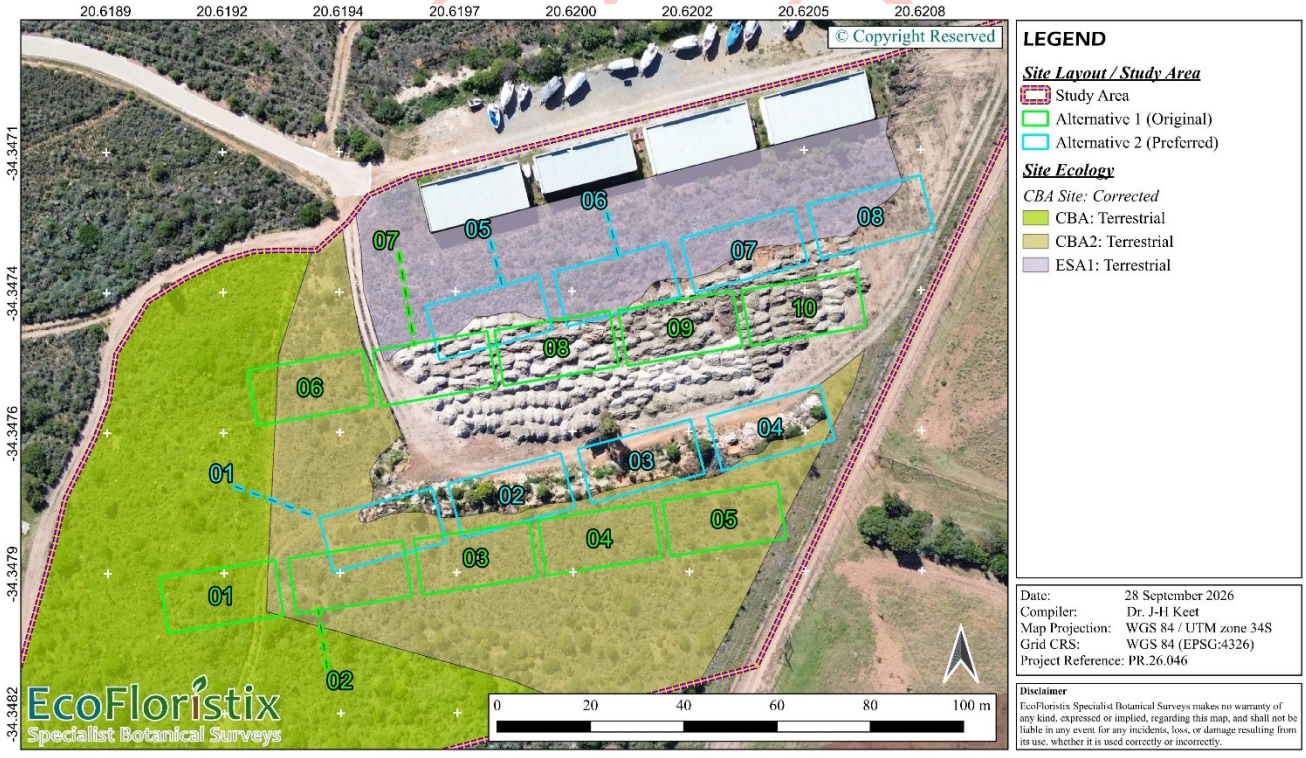
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2.3.2. Critical Biodiversity Areas and Ecological Support Areas



Map 7: Layout of provincially mapped Critical Biodiversity Areas within the study area and surrounds.



Map 8: Corrected Critical Biodiversity Areas within the study area.

According to the Western Cape CBA map, the study area overlaps mostly with a Critical Biodiversity Area 1 (CBA: Terrestrial) (Map 7).

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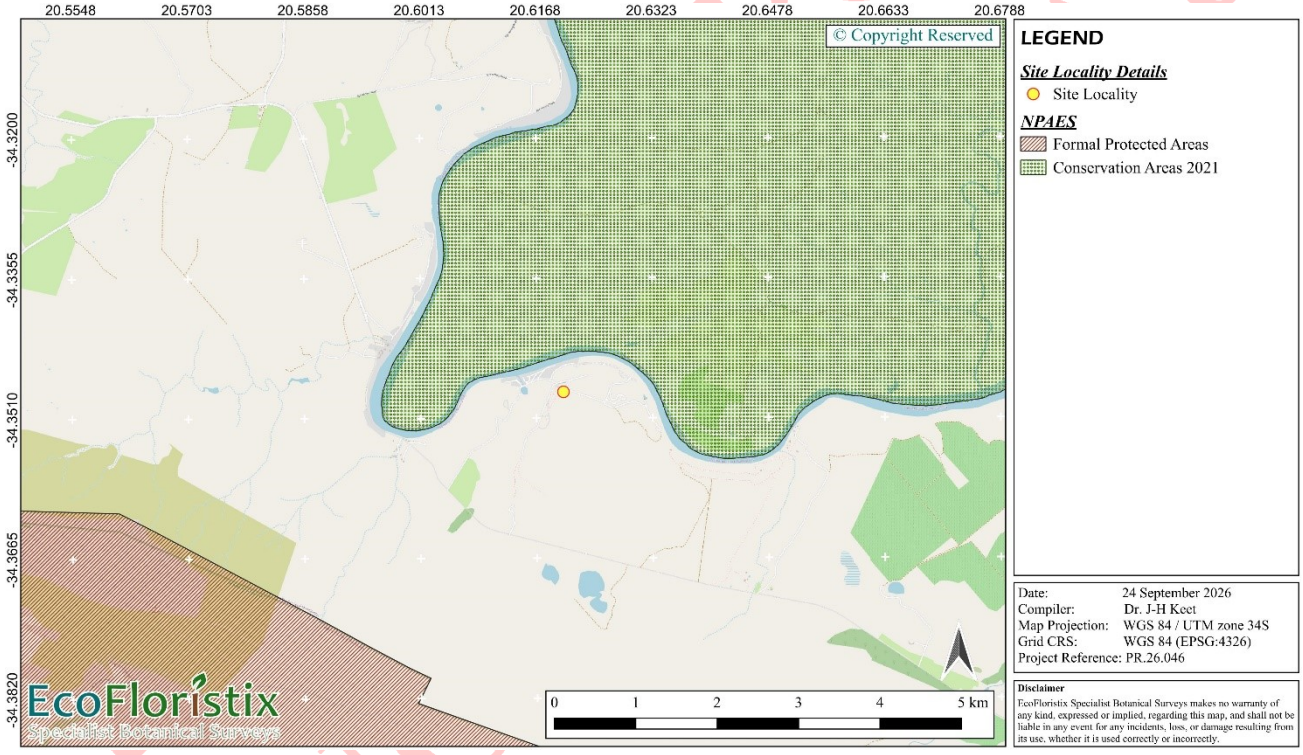
Ground truthing confirmed this to be somewhat accurate, though various mapping errors are present.

Firstly, CBA1 mapping overlaps with infrastructure and a large cleared area (as well as slightly with adjacent farmland). This is not accurate. Secondly, a large part of an area (western section of the study area) that has remained truly natural (as opposed to having been modified in the past; see section 2.4) has not been classified at all and should instead be corrected to CBA1. Finally, some areas have been greatly disturbed in the past, but have recovered quite well. These should likely not be classified as CBA1 given their secondary nature, but should nevertheless likely be considered CBA2, or ESA1 at the least. The area directly south of the existing boat garages can be considered ESA2 given its past disturbance history, proximity to infrastructure and edge effects, and more isolated nature the other fragments.

A corrected CBA mapping is thus presented by Map 8.

See section 9.2.6 for more details and notes on CBA and ESA categories.

2.3.3. National Protected Area Expansion Strategy



Map 9: Study area locality in relation to designated areas of the National Protected Area Expansion Strategy (NPAES).

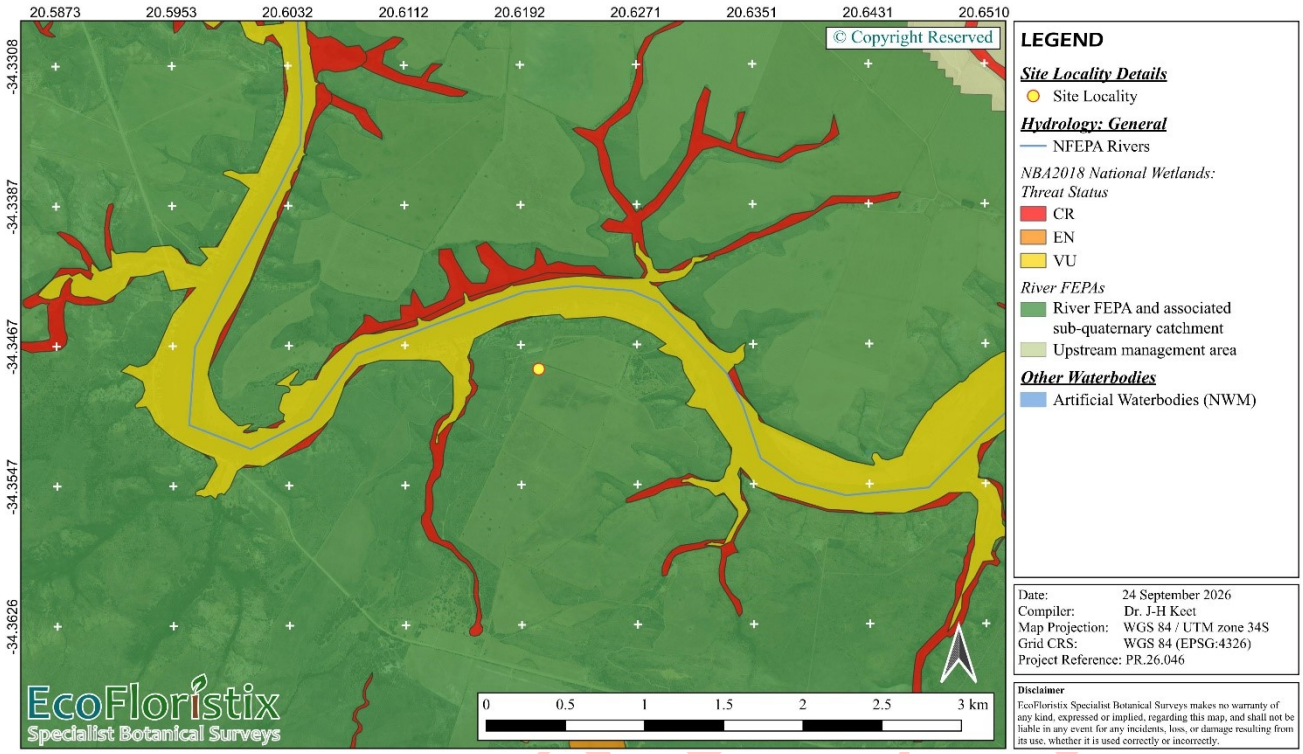
According to the National Protected Area Expansion Strategy (NPAES) dataset, the study area does not occur in or near any NPAES area (Map 9). The closest NPAES area (Agulhas) is 12.6 km southwest of the study area.

Furthermore, the study area does not occur in or near any conservation or protected area, apart from the Gouritz Cluster Biosphere Reserve which is 0.3 km north, but this will not be affected by the proposed activities in the study area.

Given this, the Project will not have any major impacts on any NPAES area targets. See section 9.2.3 for more details and notes on the NPAES.

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2.3.4. Hydrological Features



Map 10: Hydrological setting of the study area and surrounds in the context of Strategic Water Source Areas (SWSA) and Freshwater Ecosystem Priority Areas (FEPA), as well as general hydrology.

The study area does not overlap with any SWSAs (Map 10). However, it does overlap with a River FEPA (and associated quaternary catchment), as well as a small part of an NFEPA river.

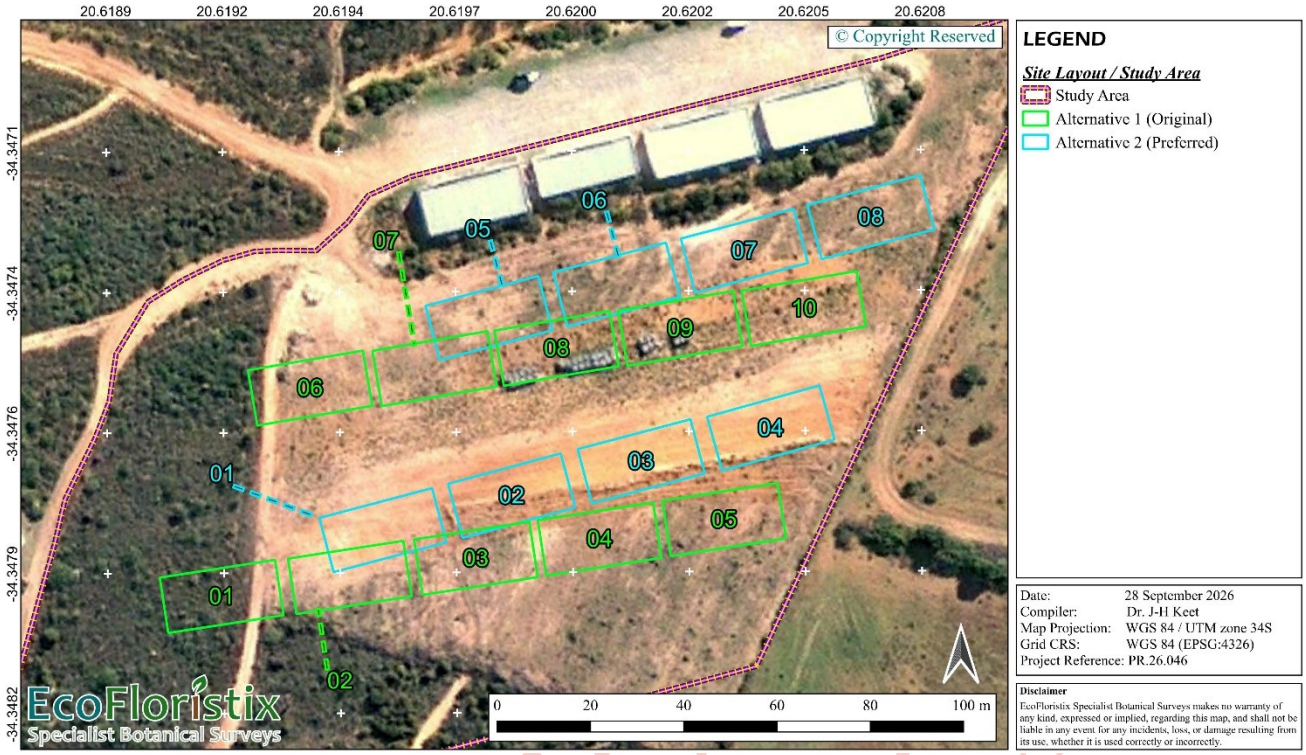
No important hydrological features were observed in the study area, although it does occur close to the Breede River. Given the exceptionally small scale of the proposed development footprint, it is highly unlikely that the proposed activities will have any major impacts on any important hydrological features.

See sections 9.2.4 and 9.2.5 for more details and notes on NFEPA and SWSA.

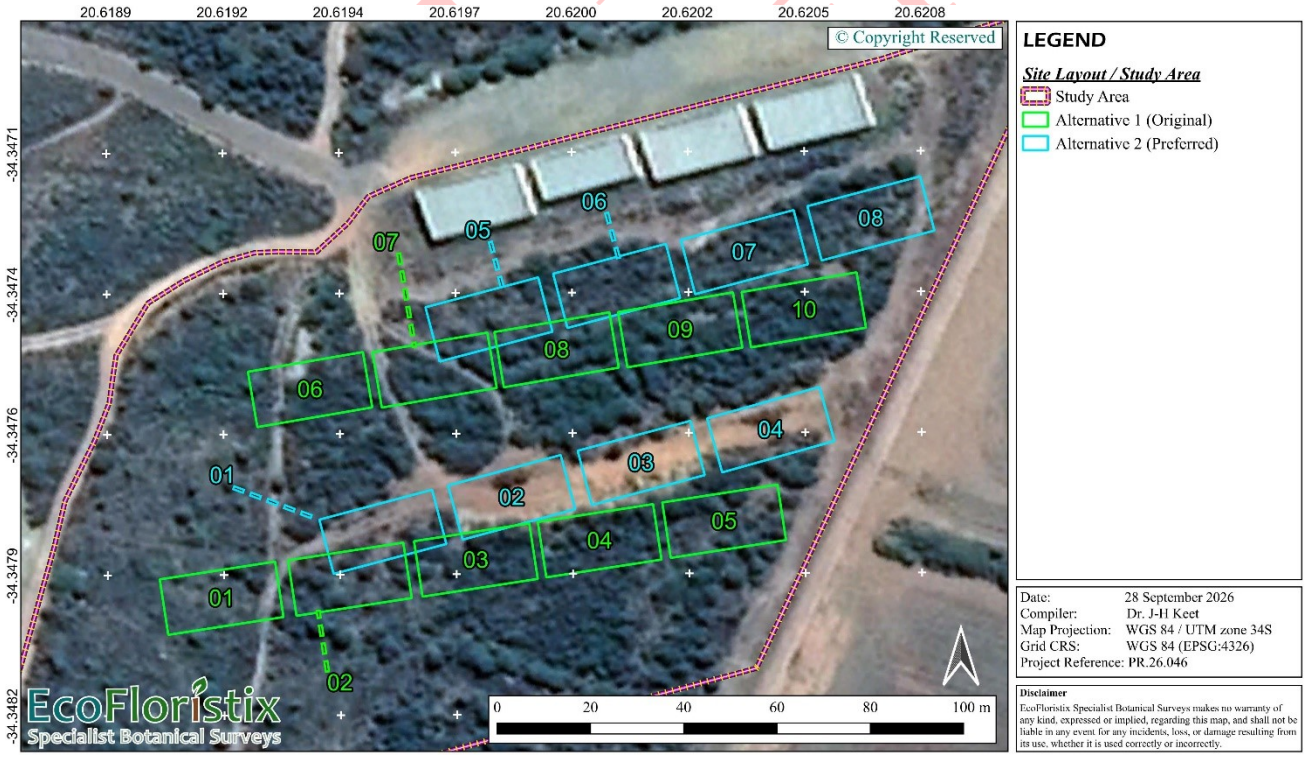
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2.4. Site History and Changes in Plant Communities

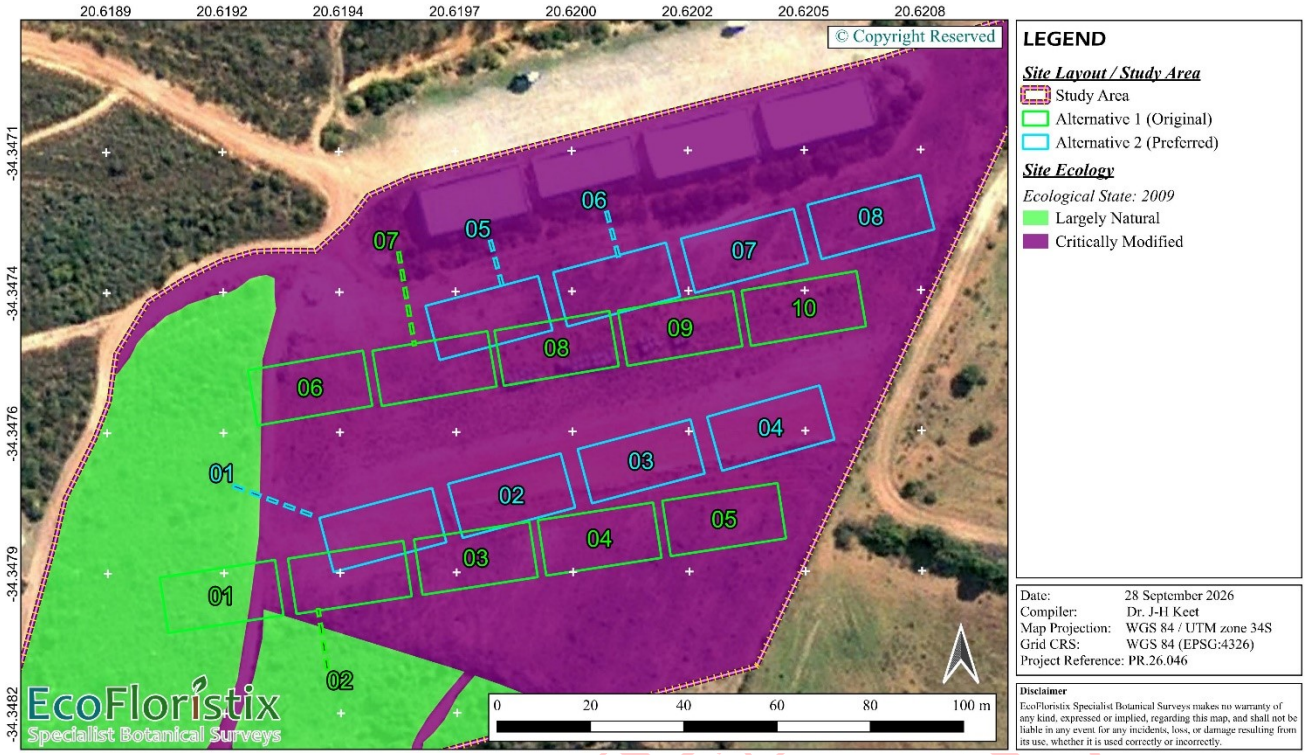


Map 11: Historic satellite imagery of the study area, dated August 2009.

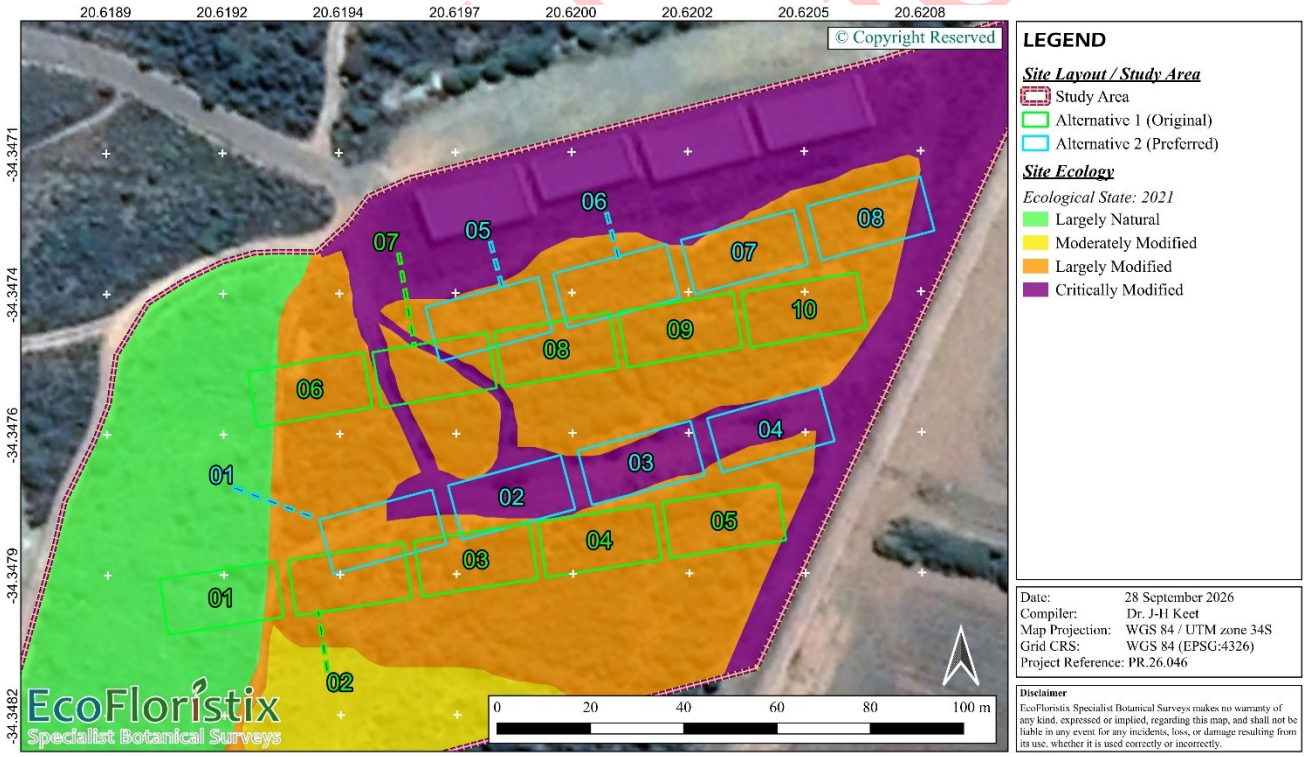


Map 12: Historic satellite imagery of the study area, dated March 2021.

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Map 13: Ecological state of the study area as it would most likely have been classified during August 2009 (compare with Map 11).



Map 14: Ecological state of the study area as it would most likely have been classified during March 2021 (compare with Map 12).

A large part of the study area has undergone significant modification in the past. Specifically, by August 2009 a large area was completely cleared of vegetation (Map 11). After this, the vegetation subsequently returned, but it is evident from

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historic satellite imagery, dated March 2021 (Map 12), that the central part of the study area had become densely invaded. This is attested to by a previous report (Curtis-Scott 2019) that noted dense infestations of *Acacia cyclops* (rooikrans) with a few scattered *A. saligna* (Port Jackson) and *Eucalyptus conferruminata* (Spider Gum) individuals. It also noted a very low diversity of indigenous flora in the understory. By March 2022, invasive alien plant species clearing attempts were made for this specific area.

After the devastating floods during May of this year (2026), many of the dwellings near the Breede River were flooded, and once the flood waters had receded, the deposited sediments were removed from inside the infrastructure and deposited within the study area (see Map 2, as well as Figure 1 and S4 in Figure 2). These deposits were placed on top of the previously invaded area, which would still have been highly degraded given the extreme density of the invasive alien plant infestation that occurred here.

Given the specific site history and best available historic satellite imagery, it is clear that only the western section is still a truly natural vegetation fragment (Map 15). The other areas are secondary communities that have regrown from the large-scale vegetation clearing that occurred prior to August 2009.



Map 15: Origin of the current plant communities within the study area.

2.5. Fieldwork and Site Inspection: Assessment of the Study Area

This section describes the different habitats and vegetation patterns, as expressed in plant community types, observed within the study area and surrounds. As these are field-based observations, they are more reliable and applicable than the coarsely mapped results of VegMap, which does not yet adequately represent such finer details.

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The botanical survey was conducted on 29 July 2026. This timeframe falls at the start the optimum surveying period (which is generally accepted to be during spring; also see section 1.5 for assumptions and potential limitations). The vegetation was in a very good condition for surveying, and in fact quite a number of species were in full flower.

A total distance of ± 1.75 km was surveyed on foot across the study area as well as by vehicle. Together with this, drone reconnaissance trips (total of ± 4.2 km) were made to gather data and insights on various landscape features, such as differences in vegetation composition and structure, watercourses, anomalies, potential infestations of invasive alien plant species, etc.

2.5.1. Plant Community Types

The study area is mapped by VegMap as being a mixture of Potberg Ferricrete Fynbos, Eastern Rûens Shale Renosterveld, and a small portion of Cape Lowland Alluvial vegetation (Map 3). Furthermore, a previous report (Curtis-Scott 2019) indicated the presence of Rûens Silcrete Renosterveld occurring nearby. Of these, only Potberg Ferricrete Fynbos was found to occur in the study area, and especially with the actual proposed development footprints.

Furthermore, a small strip highly disturbed vegetation occurs on leftover rubble mounds directly south of the cleared area, and a firebreak exists next to the eastern border of the property.

Thus, in order to summarize the study area, only one plant community type ("intact vegetation") will be described, and specific differences regarding natural and secondary vegetation will be discussed in more detail in its dedicated section.

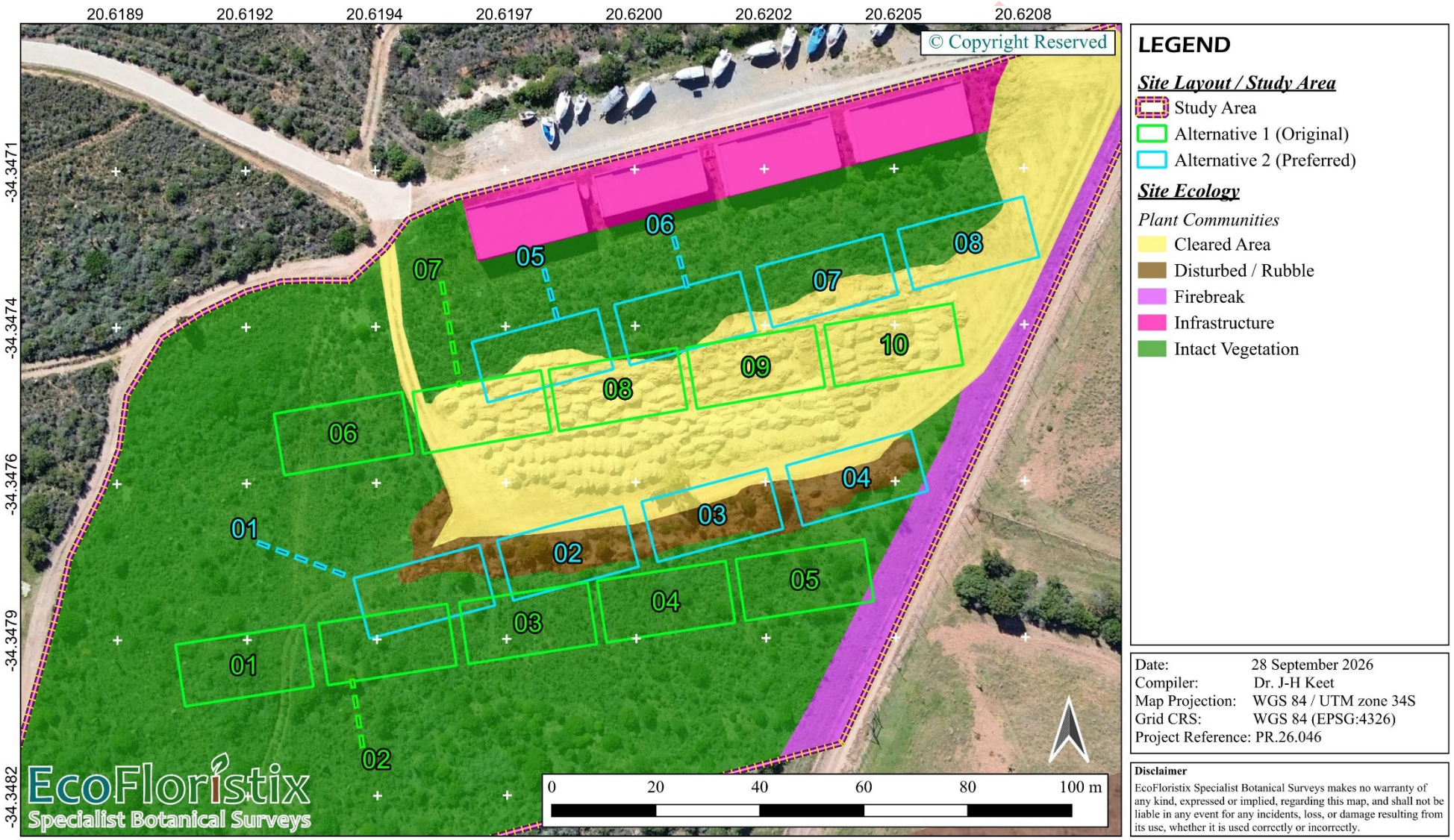
Plant community types are based on characteristic dominant plant species, and are discussed in more detail in the subsequent sections, with representative photos given where applicable. Although these observations are based on the study area, it must nevertheless be noted that variation occurs across the landscape, and species presences and abundances are not constant.

The following is a brief overall summary (the sections hereafter present specific details): a total of 96 plant species were found within the surveyed areas, which consisted of 92 native, 9 SCC, 16 protected (note: there is overlap between the number of SCC and protected species, since 5 of the SCC are also protected), 22 Provincial Endemic (PEN), 4 alien, and 3 NEM:BA A&IS Regulations listed species.

Furthermore, a total of 15 species were recorded within the surveyed areas that were not recorded within online databases for the area (i.e., POSA and iNaturalist), 6 of which are protected, 3 are SCC, and 1 is alien.

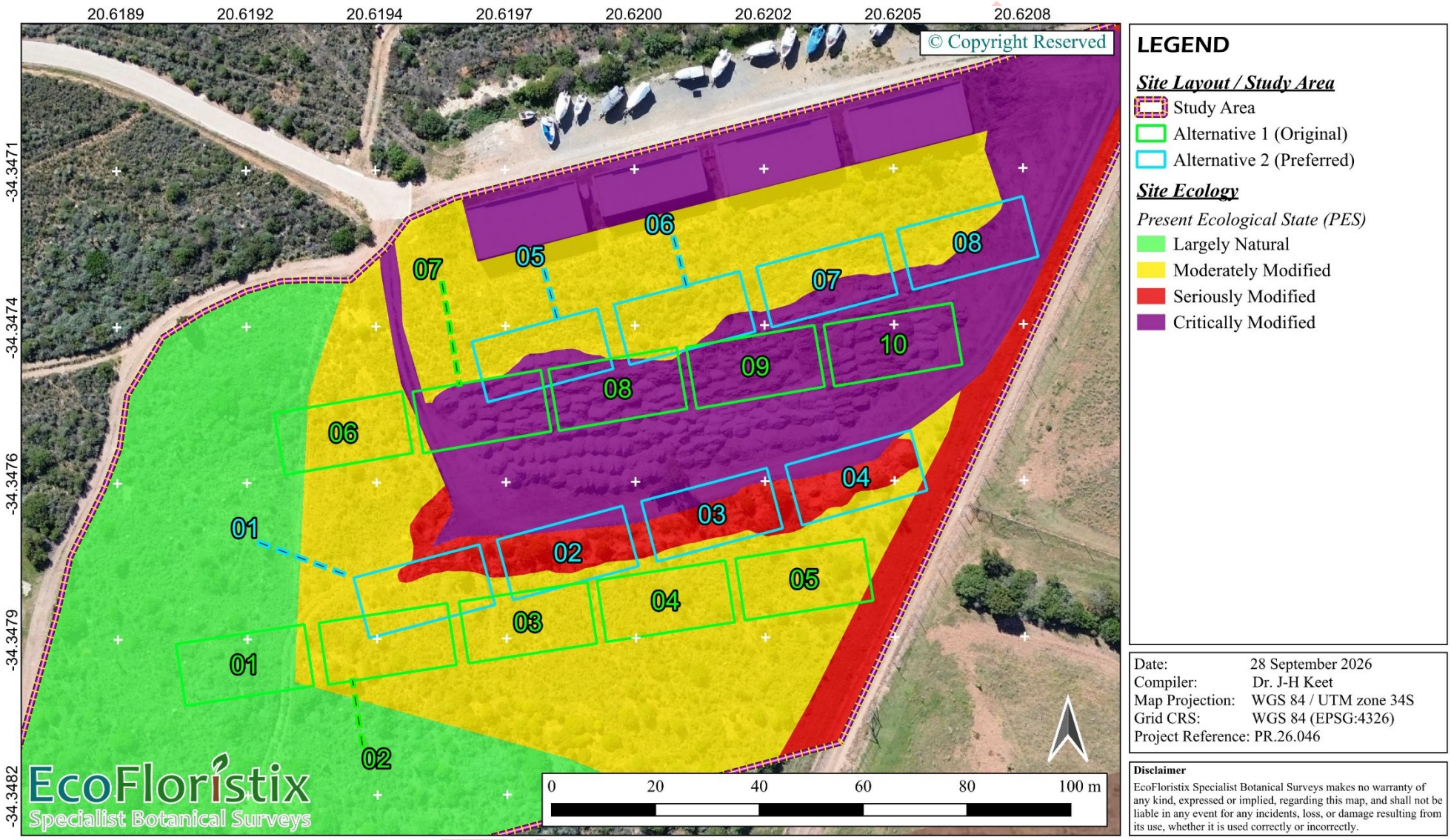
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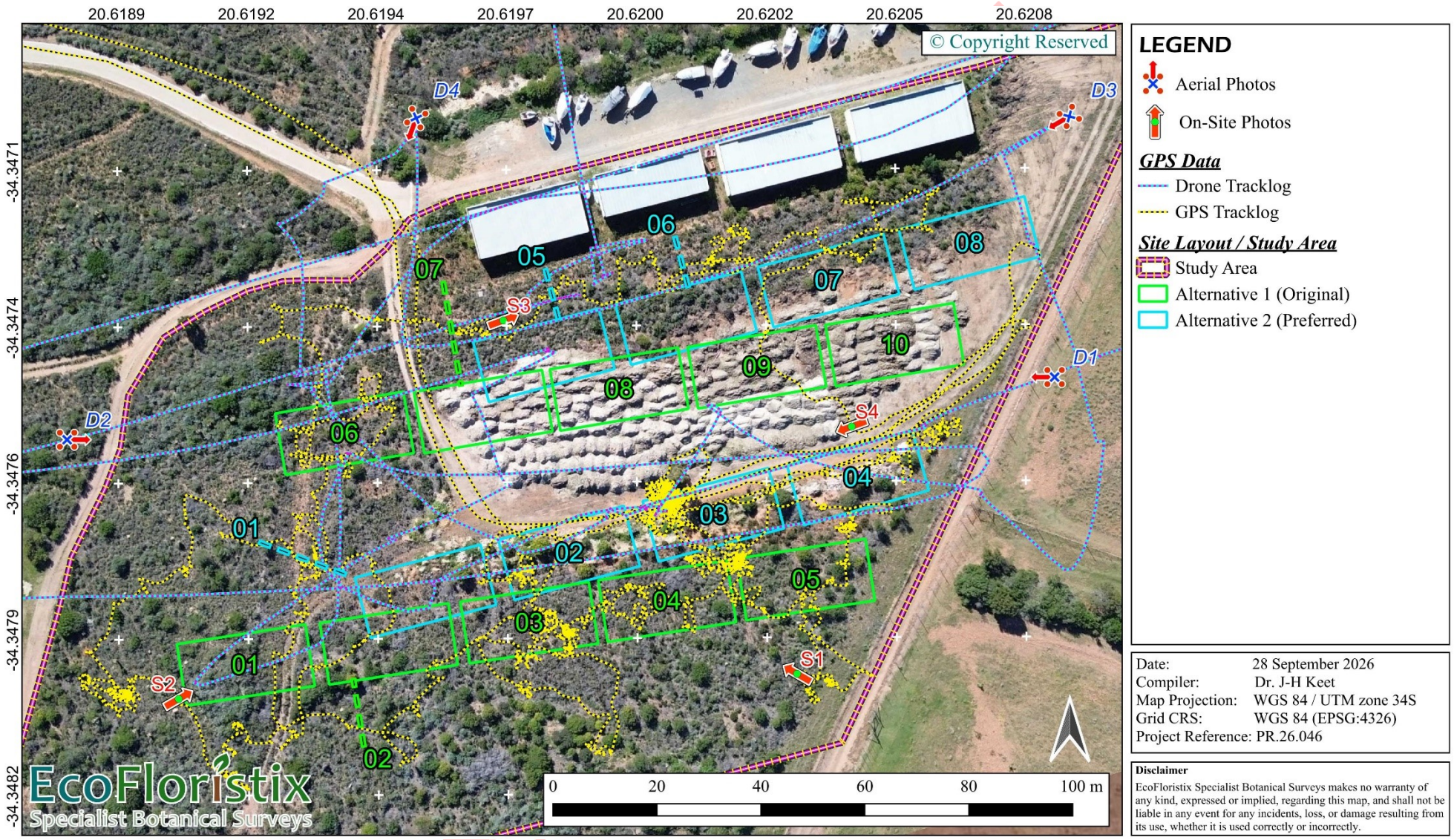
Map 16: Plant communities and other land types that were observed in the study area and immediate surrounds. See Figure 1 and Figure 2 for photos.

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Map 17: Present ecological state of the study area (compare with Map 16).

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Map 18: Photo localities and survey tracklogs for the study area. See Figure 1 and Figure 2 for photos.

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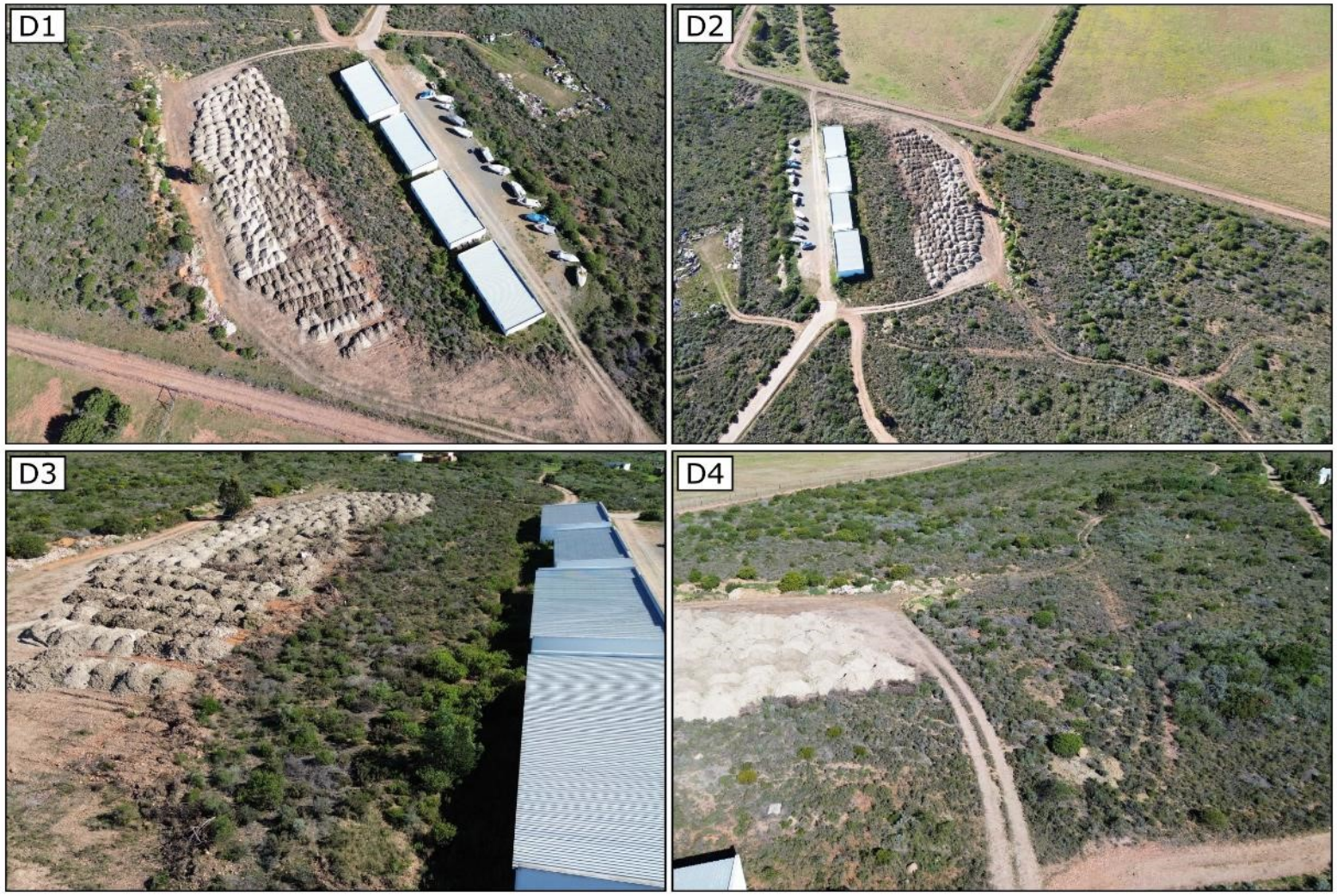


Figure 1: Representative aerial photos of the landscape and plant communities observed in the study area and surrounds; see Map 18 for photo localities and directions, and Figure 2 for on-site photos.

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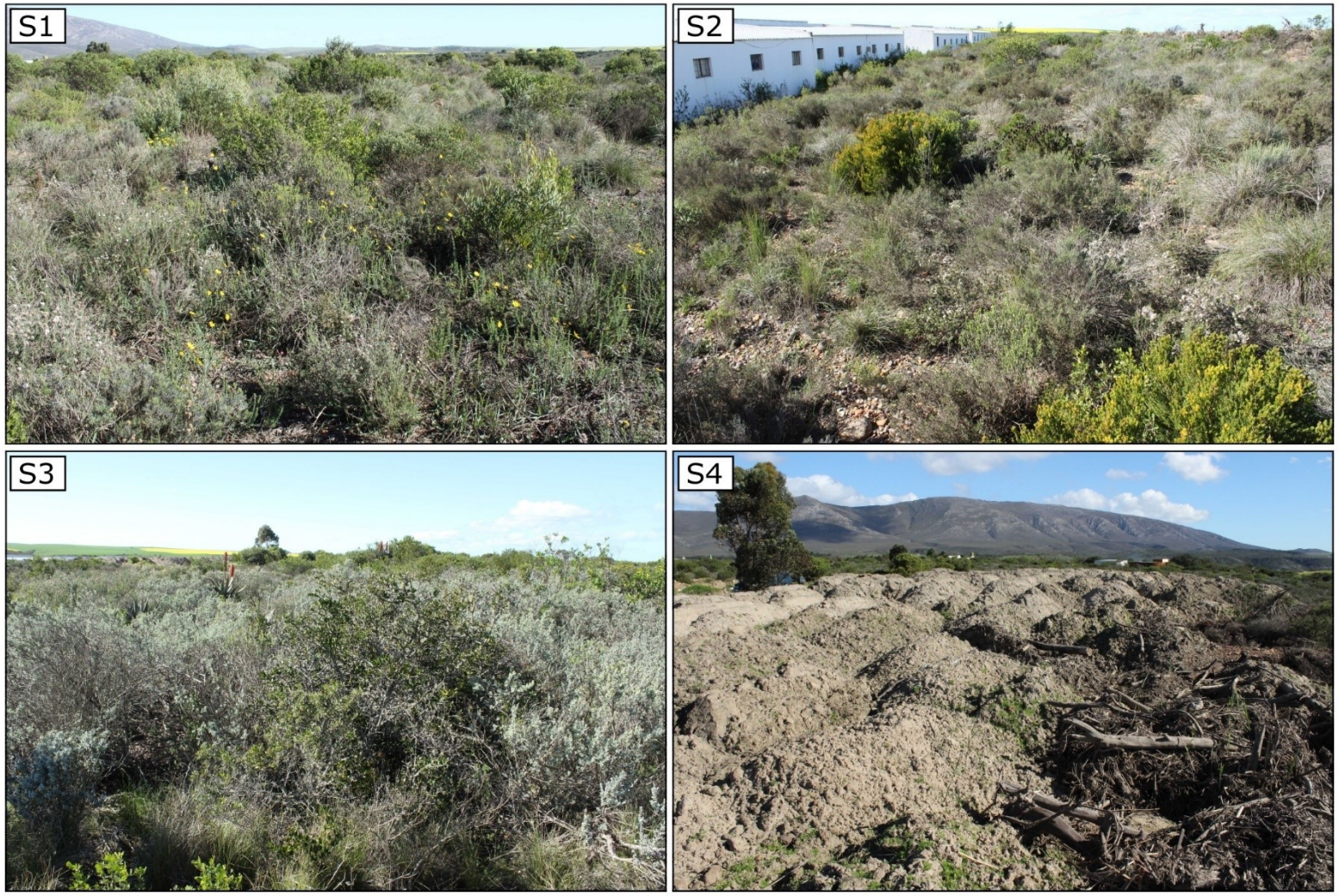


Figure 2. On-site photos of the various plant community types. S1 and S2) View of the secondary plant communities. S3) Natural plant community, which is similar to the secondary plant communities in many respects. S4) View of the flood sediment deposits that were removed from the flooded dwellings next to the Breede River. See Map 18 for photo localities.

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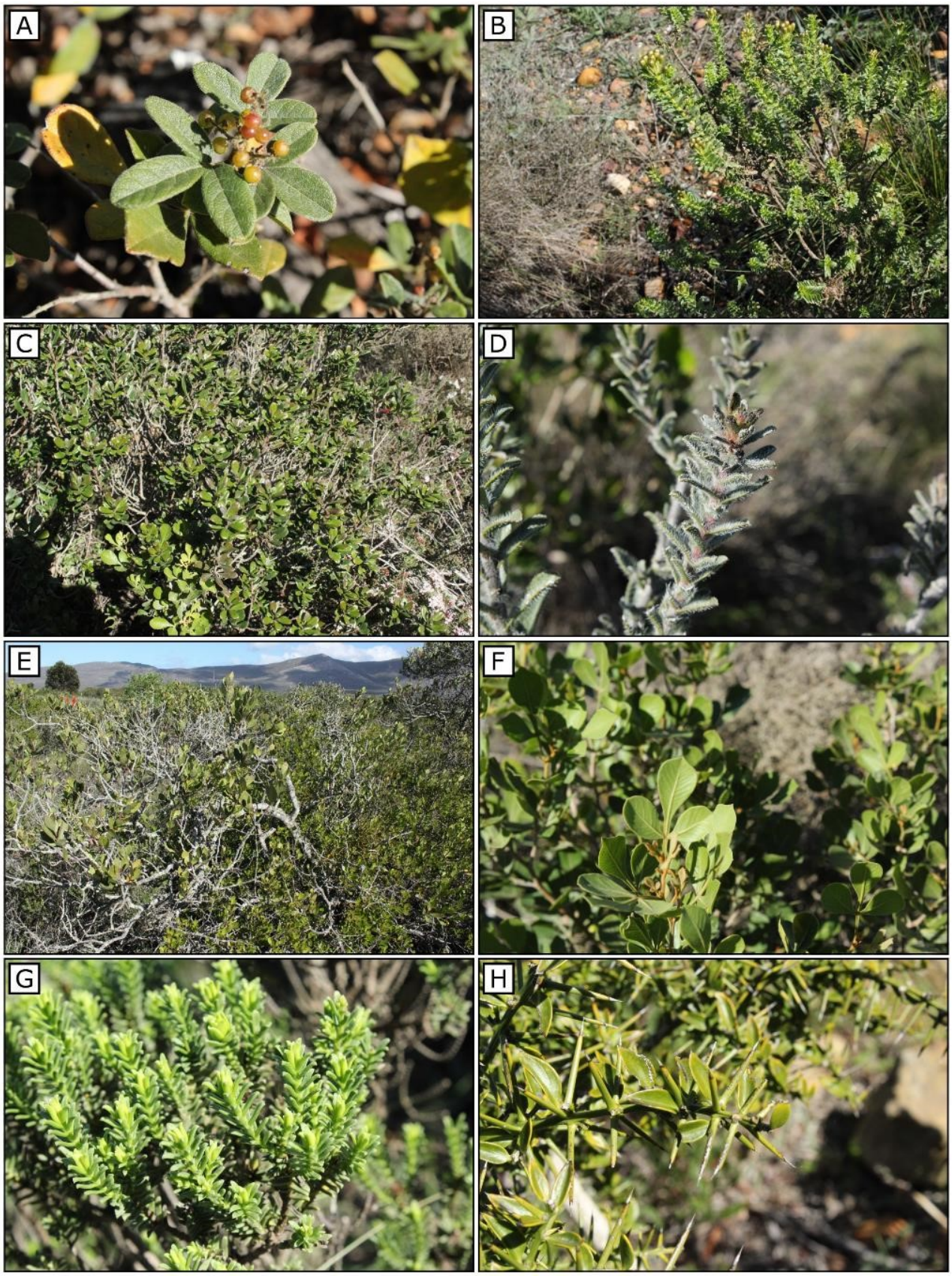


Figure 3: Selected representative plant species that were found within the study area and surrounds: A) *Searsia rehmanniana var. rehmanniana*, B) *Oedera squarrosa*, C) *Diospyros dichrophylla*, D) *Lobostemon trigonus*, E) *Pterocelastrus tricuspidatus*, F) *Searsia glauca*, G) *Oedera uniflora*, H) *Azima tetracantha*.

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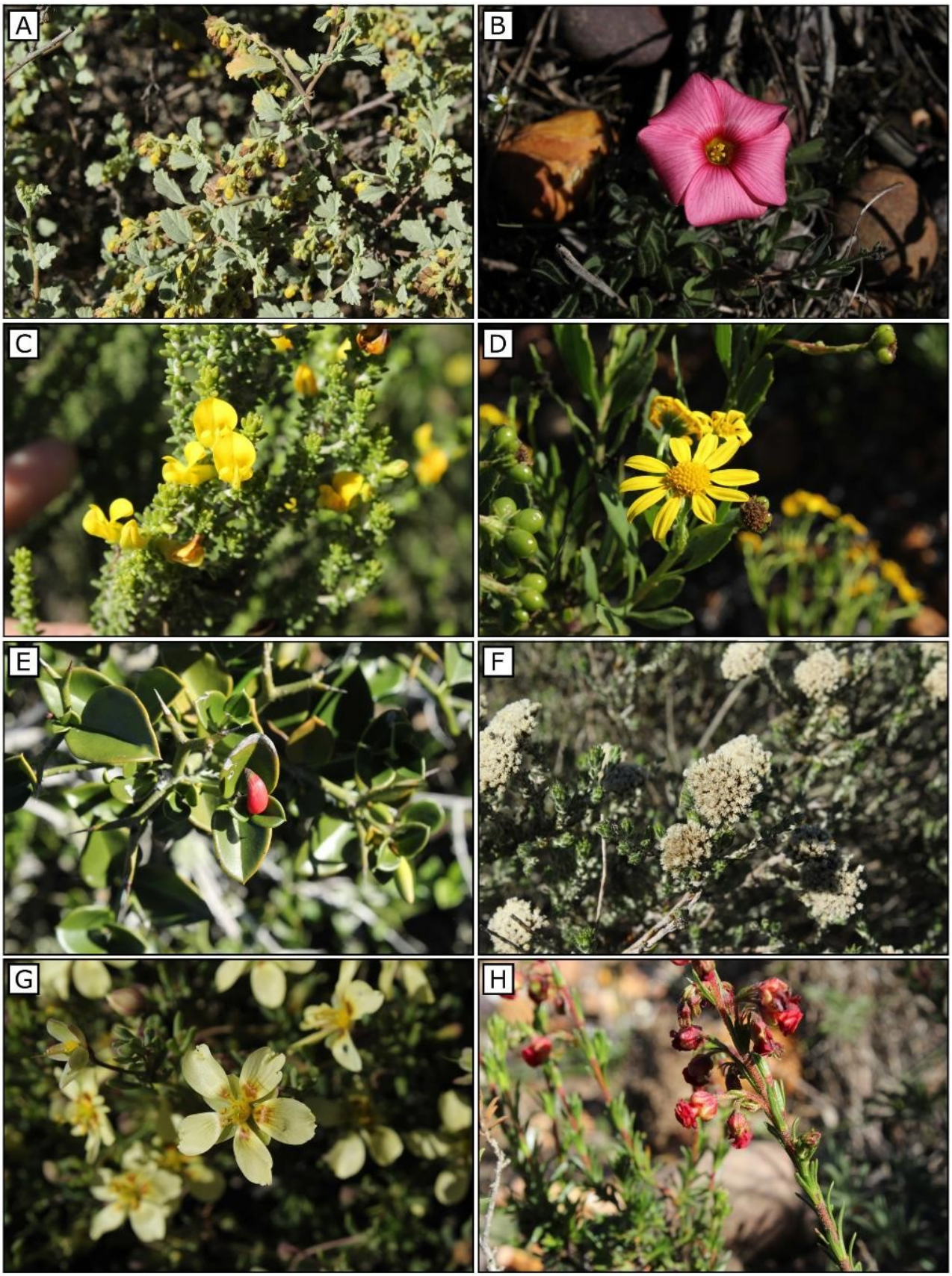


Figure 4: More selected representative plant species that were found within the study area and surrounds. A) ***Hermannia holosericea*****, B)** ***Oxalis engleriana*****, C)** ***Aspalathus pinguis subsp. pinguis*****, D)** ***Osteospermum moniliferum subsp. moniliferum*****, E)** ***Carissa bispinosa*****, F)** ***Metalasia pungens*****, G)** ***Roepera flexuosa*****, H)** ***Hermannia joubertiana*****.**

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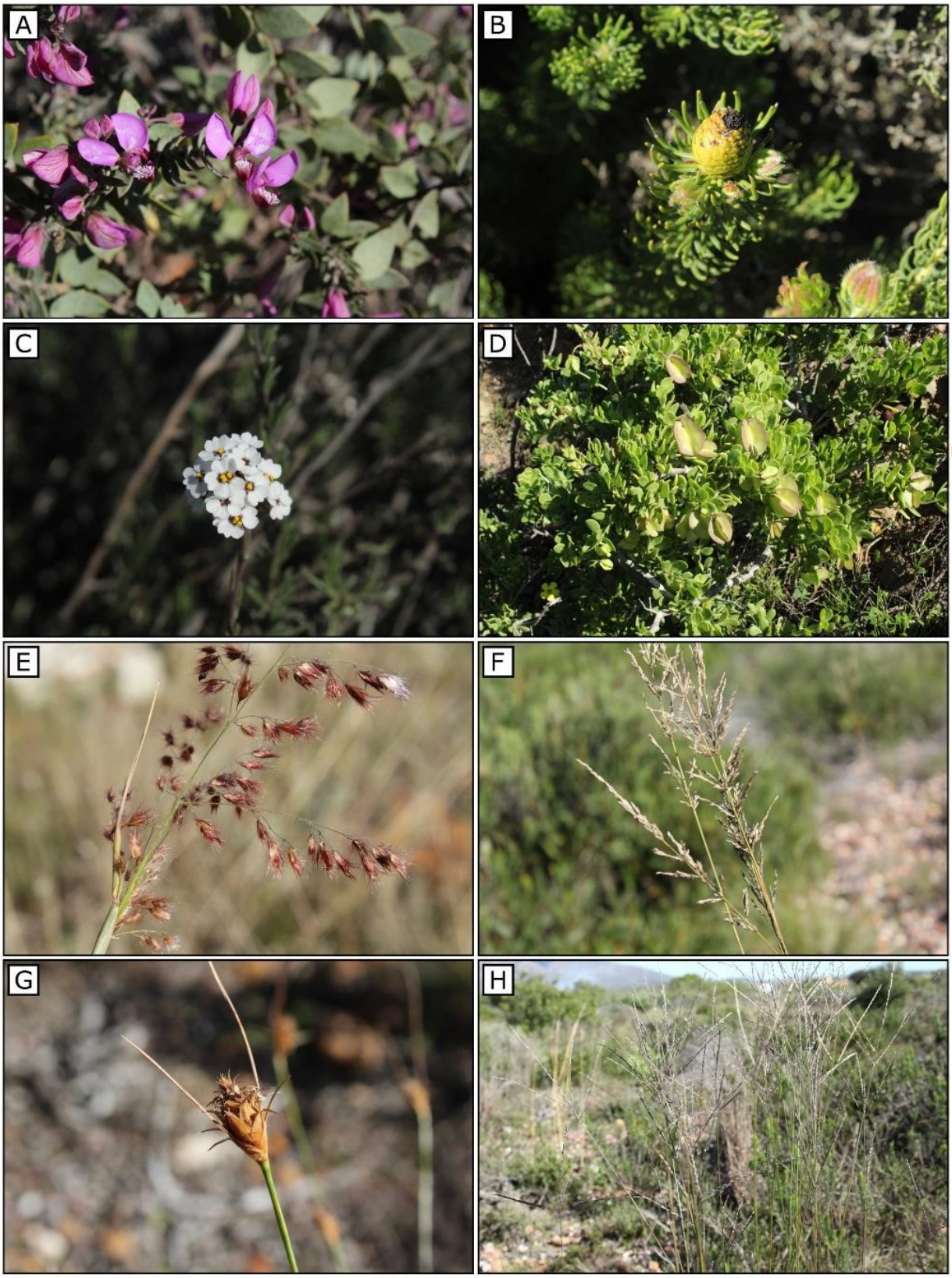


Figure 5: More selected representative plant species that were found within the study area and surrounds. A) *Polygala fruticosa*, B) *Leucadendron teretifolium*, C) *Eriocephalus africanus var. africanus*, D) *Roepera morgsana*, E) *Melinis repens subsp. repens*, F) *Eragrostis curvula*, G) *Ficinia nigrescens*, H) *Digitaria eriantha*.

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2.5.1.a) Intact Vegetation

Species Summary Statistics:					
Total:	**96**				
Shared:	N/A	SCC:	9	Native:	92
Unique:	N/A	Threatened:	5	Alien:	4
%Unique:	N/A	Protected:	16	NEM:BA:	3
		PEN:	22		

Vegetation Structure Summary:		
Vegetation Density (%):	75 - 100%	
	Cover (%)	Height (cm)
Tree Layer:	N/A	N/A
Shrub Layer:	50	150
Forb Layer:	5	25
Graminoid Layer:	60	100

Note: This summary represents average values and ranges. Vegetation structure and composition can vary across the landscape, even within the same plant community. Also, vegetation layers and their respective covers often overlap; thus their sum can easily exceed 100%. PEN = Provincial Endemic

This plant community type is located over much of the study area. A cleared area, with sediment deposits from the Breede River flood, occurs in between two of the secondary plant communities. A strip of rubble also between the southern fragment and the cleared area, and consists mostly of weedy and opportunistic species that have managed to establish on it.

The community conforms to the VegMap vegetation type Potberg Ferricrete Fynbos (FFf 2), although other elements that occur in Eastern Rûens Shale Renosterveld (FRs 13) are also present. The community is characterized by a very level topography. Soils and rocks are typical of ferricrete substrates.

The vegetation of this plant community type is co-dominated by various shrubby and graminoid species, including *Agathosma foetidissima*, *Eragrostis curvula*, *Osteospermum moniliferum subsp. moniliferum,* and *Pentameris eriostoma*. Vegetation cover ranges from moderate (50 – 75%) to high (> 75%).

Based on historic satellite imagery (see section 2.4), a distinction can be made between natural and secondary plant communities within the study area (Map 15). This is because a large part of the study area was completely cleared of vegetation by August 2009 (Map 11), presumably having been bulldozed and/or scraped. After this event, the vegetation subsequently returned. The amount of recovery is quite remarkable given the high diversity of plant species that was observed on-site. In contrast to this secondary community, the area directly to the south and west of it seems to have never been altered in such capacity before, based on the best available historic satellite imagery. These communities therefor represent truly natural vegetation, albeit in a very old state since is seems that has nor burned for very long (a crucial

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requirement for fynbos and renosterveld communities). The natural and secondary communities share many plant species and have a lot in common, though they differ in a few key ways. Firstly, the overall density of the natural community is higher than the secondary communities, which is to be expected given that scale and intensity of clearing that occurred in the past in the secondary community area. Secondly, some species are either only present in the natural community, or more dominant. Examples include the presence of mature individuals of *Aloe ferox*, the presence of *Euphorbia rhombifolia*, *Carissa bispinosa*, *Sideroxylon inerme* subsp. *inerme*, *Pterocelastrus tricuspidatus*, and a higher dominance of *Pterocelastrus tricuspidatus*, *Pentameris eriostoma*, and *Dicerothamnus rhinocerotis*. Thirdly, the secondary communities have some species that were in higher abundance compared to the natural community, such as *Polygala fruticosa* and especially *Agathosma foetidissima*. The latter seems to favour the disturbed areas since it occurred a relatively high abundance through the secondary communities.

A total of 9 Species of Conservation Concern (SCC) were observed, and 5 of these are protected (it must be noted that a permit must be obtained from relevant local competent authorities to damage, destroy, or relocate any SCC or protected plant species; any such actions are considered illegal without a permit, in which case such species must be avoided completely). They are:

- *Adenandra gummifera* (VU; Protected [Provincial Schedule 4])
- *Agathosma foetidissima* (NT; Protected [Provincial Schedule 4])
- *Agathosma minuta* (EN; Protected [Provincial Schedule 4])
- *Aspalathus rosea* (EN)
- *Drosanthemum autumnale* (DDD; Protected [Provincial Schedule 4])
- *Hermannia lavandulifolia* (VU)
- *Ixia capillaris* (NT; Protected [Provincial Schedule 4])
- *Massonia setulosa* (NT)
- *Selago ramosissima* (EN)

Furthermore, A total of 4 alien plant species were observed, of which 3 are NEMBA listed, namely:

- *Acacia cyclops* (Red eye; Category 1b)
- *Acacia mearnsii* (Black wattle; Category 2)
- *Acacia saligna* (Port Jackson, Port Jackson willow; Category 1b)

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2.5.2. Species of Conservation Concern (SCC)

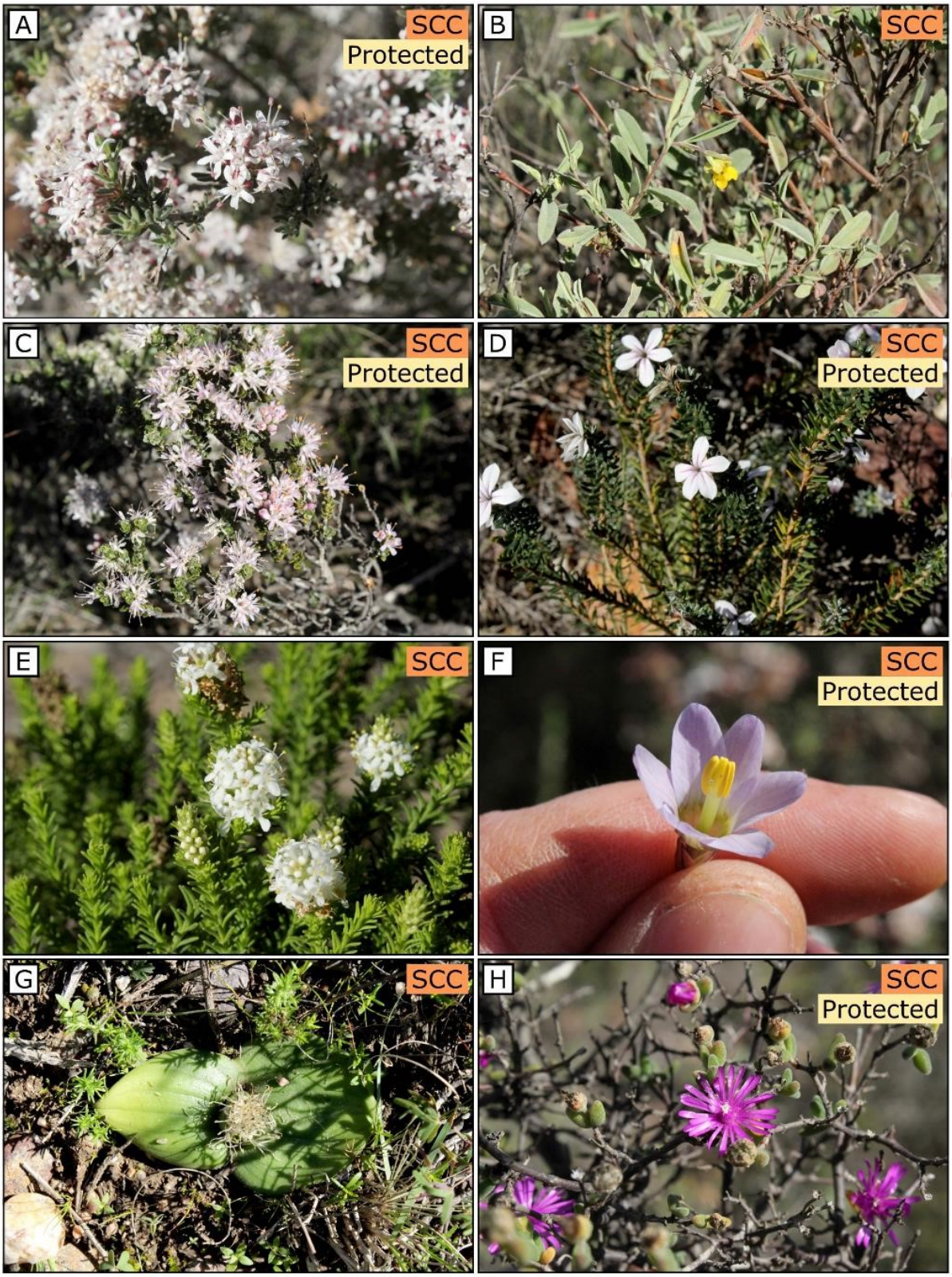


Figure 6: Selected plant SCC that were observed in the study area, namely: A) *Agathosma foetidissima*, B) *Hermannia lavandulifolia*, C) *Agathosma minuta*, D) *Selago ramosissima*, E) *Ixia capillaris*, F) *Adenandra gummifera*, G) *Massonia setulosa*, H) *Drosanthemum autumnale*.

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Ground truthing confirmed the occurrence of 9 SCC (of which 5 are threatened) and 16 protected plant species. Note that overlap exists between SCC and protected species. Specifically, 5 of the SCC are also protected.

Furthermore, a total of 3 SCC were not recorded within any of the online databases (2 of which are protected), while 6 protected plant species were found on site that are not recorded within any of the online databases

The SCC are (Figure 6 and Map 19):

- *Adenandra gummifera* (VU; Protected [Provincial Schedule 4])
- *Agathosma foetidissima* (NT; Protected [Provincial Schedule 4])
- *Agathosma minuta* (EN; Protected [Provincial Schedule 4])
- *Aspalathus rosea* (EN)
- *Drosanthemum autumnale* (DDD; Protected [Provincial Schedule 4])
- *Hermannia lavandulifolia* (VU)
- *Ixia capillaris* (NT; Protected [Provincial Schedule 4])
- *Massonia setulosa* (NT)
- *Selago ramosissima* (EN)
- *Serruria "ludwigii"*

Furthermore, the following protected plant species, excluding the already mentioned SCC, were found:

- *Babiana patula*
- *Boophone disticha*
- *Crossyne guttata*
- *Ferraria variabilis*
- *Geissorhiza inflexa*
- *Haemanthus sanguineus*
- *Leucadendron teretifolium*
- *Microloma tenuifolium*
- *Ruschia multiflora*
- *Ruschia tenella*
- *Sideroxylon inerme subsp. inerme*

Fortunately, the majority of the SCC individuals occur outside of the proposed development footprints, especially regarding Alternative 2 (see section 3 for details on development impacts). The only species that will likely not be avoided completely is *Agathosma foetidissima* given that it occurs in high abundances across the study area. However, this very fact also means that loss of a few individuals is unlikely to be detrimental to the population occurring here. This is especially true given how well this species has recolonized an area that was completely cleared and highly disturbed in the past.

A single individual of the nationally protected tree species *Sideroxylon inerme* subsp. *inerme* was found, but it occurs outside both of the proposed development footprints. Nevertheless, care must be taken not to damage it during construction.

It must be noted that a permit must be obtained from relevant local competent authorities to damage, destroy, or relocate any SCC or protected plant species; any such actions are considered illegal without a permit, in which case such species must be avoided completely.

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2.5.2.a) *Adenandra gummifera* [Vulnerable D2]

This species is endemic to the Potberg, a mountain on the eastern boundary of De Hoop Nature Reserve in the Western Cape, and usually occurs in Potberg Sandstone Fynbos and Albertinia Sand Fynbos. It is a localized, but locally abundant species, endemic to a small mountain where it occurs in rocky sandstone slopes in fynbos, and is potentially threatened by competition from alien invasive plants.

Field observations have noted dense infestations of alien invasive plants in parts of this species' habitat. Efforts have been made to clear alien invasive plants inside De Hoop Nature Reserve, but ongoing clearing is needed to control reinvasions, particularly post-fire, when invasive species re-emerge from persistent soil-stored seedbanks.

Adenandra gummifera is a highly localized species, but locally abundant in its habitat (Strid 1972). No significant population declines have been noted, and the population is assumed to be stable. This species' distribution is however so restricted that it could rapidly increase its risk of extinction, should potential threats become a reality.

Its occurrence here is thus either anomalous or it might occur more widespread than currently documented.

2.5.2.b) *Agathosma foetidissima* [Near Threatened A2c; Bokboegoe]

This species occurs from Bredasdorp to Riversdale in various vegetation types.

Although it has a fairly wide distribution (EOO 20 000 km^2), it is restricted to clay, gravel and shale soils. Much of its habitat has been transformed to agriculture and continues to be degraded by livestock grazing and trampling. It is suspected a 20 – 30% population reduction based on habitat loss over the past 45 years (generation length 15 years).

Fortunately, it occurs abundantly across the study area.

2.5.2.c) *Agathosma minuta* [Endangered B1ab(ii,iii,iv,v)]

This species occurs from Bredasdorp and Swellendam in various vegetation types. It usually occurs on coastal flats that are seasonally wet, and on shale in renosterveld.

Fewer than five known locations continue to decline due to habitat loss to crop cultivation, overgrazing and alien plant invasion.

Threats to continued persistence include pollution (affecting habitat and/or species), invasive alien species (direct effects), habitat loss, and habitat degradation.

This species did not occur in high abundances within the study area.

2.5.2.d) *Aspalathus rosea* [Endangered A2c]

This species occurs from Bot River to Elim in Western Ruens Shale Renosterveld, Greyton Shale Fynbos, and Elim Ferricrete Fynbos.

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A population reduction of at least 50% is estimated based on habitat loss to wheat and vineyard expansion over the past three generations (45 years). With an EOO of 1400 km^2, seven severely fragmented remaining subpopulations are declining due to agricultural expansion, alien plant invasion and livestock grazing.

Fortunately this species occurs well outside both proposed development footprints.

2.5.2.e) *Drosanthemum autumnale* [Data Deficient - Insufficient Information]

This species is recorded from Mossel Bay, possibly occurring further west to Bredasdorp.

It is a poorly known species, last collected in the 1930s, but possibly overlooked, as the genus *Drosanthemum* is taxonomically problematic and in need of revision. It is likely to be in danger of extinction due to habitat loss to coastal development and agriculture, but until its distribution range and precise habitat requirements can be defined, its risk of extinction cannot be assessed.

It main threats is habitat loss to agriculture and coastal development are likely to be ongoing threats.

This species is known from a few collections dating from the 1930s from the Mossel Bay area, but without precise localities. Since the genus *Drosanthemum* is in need of revision, and species are difficult to identify, it could well be that the species found on site might be classified in future as something when more taxonomic studies have been done.

Either way, the individual that was found occurs well outside the proposed development footprint.

2.5.2.f) *Hermannia lavandulifolia* [Vulnerable A2c]

This species is endemic to the Western Cape province of South Africa, where it occurs from Worcester to the Overberg, and extends along the southern Cape coastal lowlands as far east as Plettenberg Bay in numerous different vegetation types. It occurs on clay slopes in renosterveld and valley thicket.

It is a widespread and common species, with an extent of occurrence (EOO) of 12 018 km^2. It is declining due to severe, ongoing habitat loss and degradation. Based on the observed rate of habitat loss, a population reduction of 31% over three generations is inferred. It is therefore listed as Vulnerable under criterion A.

Hermannia lavandulifolia has lost nearly 80% of its habitat to crop cultivation in the past, and this loss continues. It is also threatened by habitat loss to coastal development between Stilbaai and Plettenberg Bay. Subpopulations on the southern Cape coast are also threatened by competition from dense infestations of alien invasive plants.

It is still common in spite of extensive historical habitat loss, but continues to decline. It has lost 8% of its habitat between 1990 and 2014, and based on the observed rate of loss, a population reduction of 31% over three generations (60 years) is inferred.

Only a few individuals were observed, some occurring in the proposed development footprint. Loss of one or two individuals will not be detrimental given the paucity of occurrence on-site and the fact that it is still relatively widespread.

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2.5.2.g) *Ixia capillaris* [Near Threatened A2c]

This species is endemic to the Western Cape of South Africa, where it occurs from Piketberg and Koue Bokkeveld to Bot River and Riversdale in numerous different vegetation types. It occurs on damp clay slopes in fynbos and renosterveld, most often on south-facing slopes

Ixia capillaris is a widespread and relatively common species that is declining due to ongoing habitat loss and degradation. Based on habitat loss observed over 24 years, a population reduction of 22 – 28% is suspected over the past three generations (60 years), nearly meeting the 30% population reduction threshold for Vulnerable under criterion A. It has an extent of occurrence (EOO) of 25 340 km^2, and is therefore listed as Near Threatened.

This widespread species has lost more than 60% of its habitat to agricultural expansion (wheat, vineyards and fruit orchards) and loss is continuing. Subpopulations on small fragments are also threatened by competition from alien invasive plants in some areas.

Ixia capillaris is very common in spite of extensive habitat loss — recent field observations indicate that it persists in at least 30 locations. The population continues to decline, and based on the rate of habitat loss observed between 1990 and 2014, a population reduction of 22 – 28% is estimated to have occurred over three generations (60 years).

Only a few individual of this species was found on-site, and these occur outside the proposed development footprints.

2.5.2.h) *Massonia setulosa* [Near Threatened B2ab(ii,iii,v)]

This species is widespread, occurring in both the Western and Eastern Cape provinces of South Africa. It grows between Worcester and Stanford and extends eastwards to Mossel Bay and along the Outeniqua Mountains. Plants grows on sandstone outcrops or flats in clay or loamy soils.

This species is endemic to the Western and Eastern Cape provinces of South Africa, and while it has a widespread distribution, extent of occurrence (EOO) 33 911 km^2, and its area of occupancy (AOO) is small, at 148 km^2. It is known from more than 10 locations which continue to decline due to agriculture expansion and invasion of habitat by alien plants. Population decline is taking place as a result of ongoing habitat loss and degradation. This species therefore almost meets the thresholds for listing as Vulnerable under criterion B and is assessed as Near Threatened.

More than 68% of this species' habitat has been converted to crop fields. Comparisons of land cover datasets between 1990 and 2014 indicate significant, ongoing agricultural expansion, particularly in the Overberg and southern coast. Small remnant of renosterveld and sandstone fynbos remain, typically those that are too steep or rocky to plough. *Massonia setulosa* still persists on many of these as it prefers rocky soils. Field observations also indicate the spread of alien invasive plants at many remaining locations.

More than 50% of recently recorded subpopulations occur on very small, isolated remnants, but the subpopulation sizes are unknown — therefore the population cannot be considered as severely fragmented. However, a continuing population decline is inferred from ongoing habitat loss and degradation.

Only a few individual of this species was found on-site, and these occur outside the proposed development footprints.

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2.5.2.i) *Selago ramosissima* [Endangered B1ab(iii)]

A range-restricted species (EOO 3722 km^2) occurring from Riviersonderend to Groot Brak River where it grows in clay flats, and shale-sandstone transitions on lower slopes. It has lost more than 90% of its renosterveld habitat to agricultural expansion. Only five severely fragmented locations are known, and it continues to decline due to ongoing habitat loss and degradation.

Less than 10% of lowland renosterveld in the Overberg remains intact after extensive loss to crop cultivation. Only small fragments remain, and these continue to be lost and degraded due to overgrazing, spreading alien invasive plants, inappropriate fire management and development.

Only a few individual of this species was found on-site, and these occur outside the proposed development footprints.

2.5.2.j) *Serruria "ludwigii"*

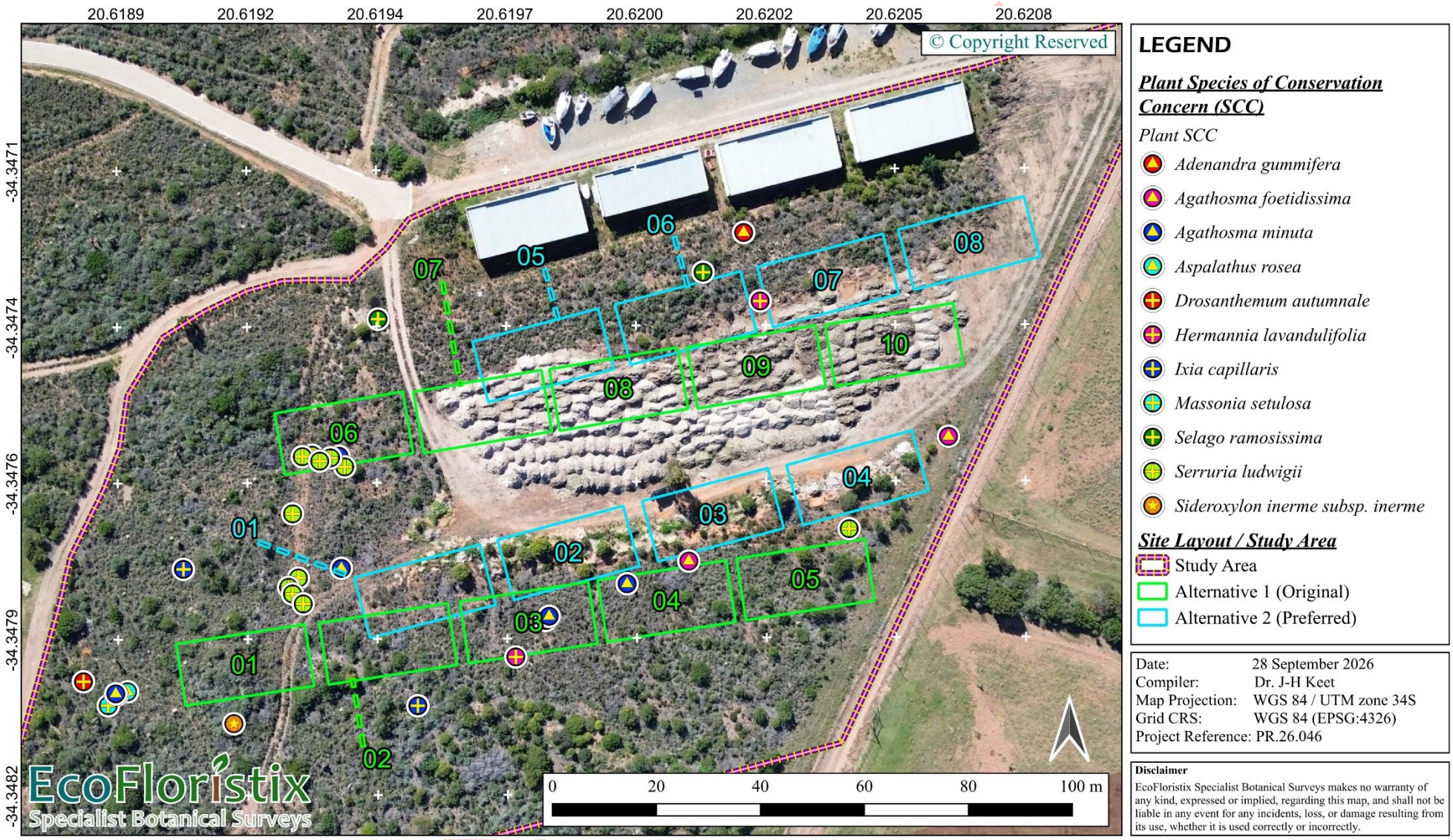
The name *Serruria "ludwigii"* is not officially published. It was a temporary name used in the Protea Atlas Project for the misapplied name *Serruria acrocarpa*, which is a different species. Thus, the entity in question is valid, but still needs to be described.

It is included here since, should it ever be formally described, it is likely that it would be given a threat status other than Least Concern given its fragmented occurrence across the Overberg and adjacent areas.

Most of the individuals observed on-site occur outside the proposed development footprints, except for a few that occur in Alternative 1.

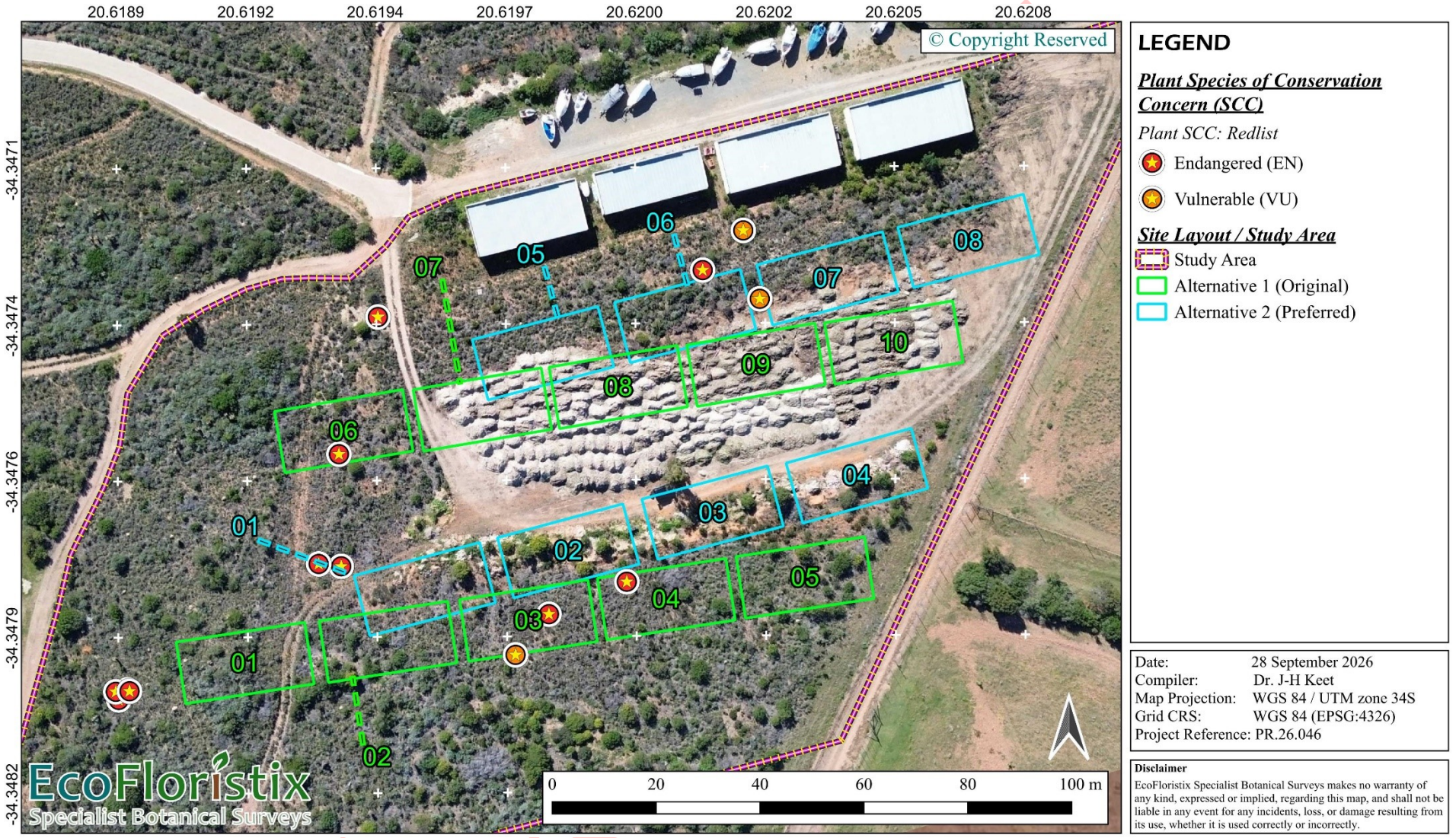
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Map 19: Localities of plant Species of Conservation Concern (SCC) that were observed within the study area.

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Map 20: Similar to Map 19, but here only showing localities of threatened species (in this case Endangered and Vulnerable species).

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2.5.3. Alien and Invasive Plant Species

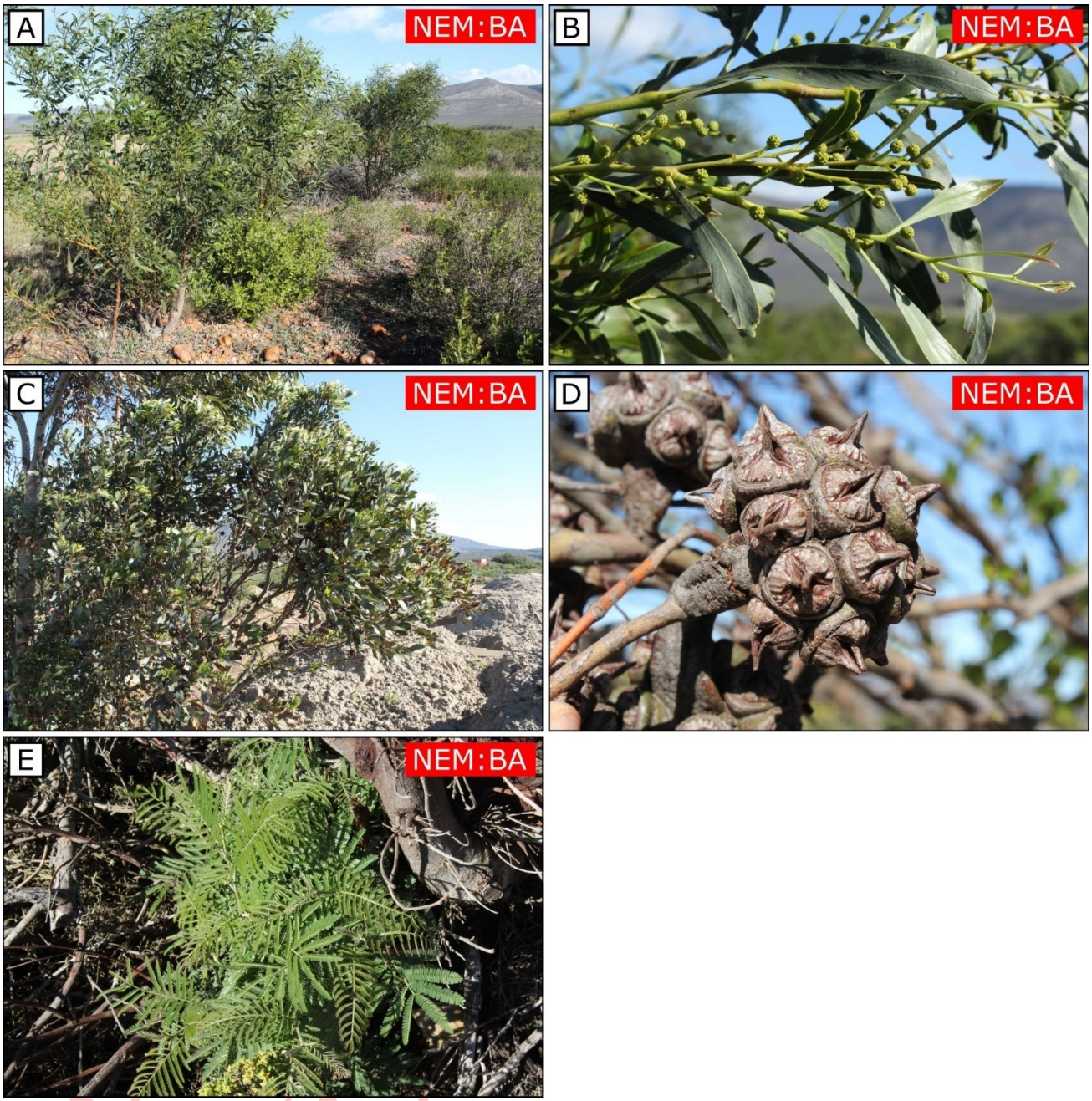


Figure 7: Alien and NEM:BA A&IS Regulations listed invasive plant species that were observed. A and B) *Acacia saligna*, C and D) *Eucalyptus conferruminata*, E) *Acacia mearnsii*.

A total of 5 alien plant species were found within the study area, of which 4 are NEM:BA A&IS Regulations listed invasive species (Figure 7), namely:

- *Acacia cyclops* (Red eye; Category 1b)
- *Acacia mearnsii* (Black wattle; Category 2)
- *Acacia saligna* (Port Jackson, Port Jackson willow; Category 1b)
- *Eucalyptus conferruminata* (Spider gum; Category 1b)

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Fortunately, these do not occur in very high abundances. Nevertheless, NEM:BA A&IS Regulations listed plant species must be removed and controlled as per NEM:BA requirements.

2.5.4. Site Ecological Importance Assessment (SEI)

Note that in this section highly disturbed areas or any infrastructure are by default considered as having a Very Low Site Ecological Importance (SEI).

The Relative Plant Species Theme Sensitivity for the study area and surrounds, according to the online screening tool, is scored as Medium (Figure 8). This is based on the fact that SCC and sensitive species are recorded to occur in the broad area in online databases (see sections 9.3.1 and 2.1.2). SCC (Endangered, Vulnerable, and Near Threatened) were indeed confirmed to occur in the study area (see section 2.5.2). Thus, the true Relative Plant Species Theme Sensitivity for the natural and secondary plant communities on-site should be considered High according to the criteria given by Government Notice 1150 of Government Gazette 43855 (October 2020; see section 10.2).

The Relative Terrestrial Biodiversity Theme Sensitivity for the study area and surrounds, according to the online screening tool, was scored as Very High (Figure 8). This is due to the area being mapped as occurring in CBA1 and CBA2 (Terrestrial), FEPA Subcatchment, and Critically Endangered vegetation type (Potberg Ferricrete Fynbos).

Ground truthing determined that this is mostly accurate for the study area where vegetation is intact (i.e., excluding cleared areas and infrastructure). However, given the major past disturbances that occurred over most of the central parts of the study area (see section 2.4), and consequent development of secondary communities (Map 15), these should likely better be considered CBA2 at best, possibly even ESA1. Similarly, the small area directly bordering the existing boat garages to the south should be considered ESA1, given its past disturbance history, proximity to infrastructure and edge effects, and more isolated nature the other fragments. In contrast, the areas containing natural plant communities in the western part of the study area are correct in being classified as CBA1. Thus, for the areas of intact vegetation the true Relative Biodiversity Theme Sensitivity is correct in being Very High. However, given that only two categories [“Very High” and “Low”] are provided by Gazetted Protocol 43110 No. 32, the Site Ecological Importance score with more categories, as discussed below, is preferable. More categories are preferred because they allow for a more nuanced and accurate representation of the varying degrees of vulnerability across different ecosystems, species, or areas. Using only two categories risks oversimplifying complex ecological realities.

Field observations, together with the SEI assessment presented here (see section 10.3 for details), indicated that the study area should be classified as having a combination of Medium and Very High SEI scores (Table 2 and Map 21). The following specific reasons contributed towards this score:

- Numerous SCC were observed on site (Endangered, Vulnerable, and Near Threatened), occurring in both natural and secondary plant communities. This increases SEI scores, especially for Endangered and Vulnerable species.
- Negligible ecological impacts exist for areas of natural communities. This contributes to increasing SEI scores. In contrast, the major past disturbances that have occurred in areas of secondary communities lowers SEI scores.
- Finally, the areas of secondary communities have shown a remarkable amount of recovery given the intensity of past vegetation clearing. This demonstrates that is has a very high Receptor Resilience, which lowers SEI scores.

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While this might well be true also of the areas of natural communities — namely that such would also recover quickly after intense disturbance — the fact that there are nevertheless some key differences between it and secondary communities (see section 2.5.1.a), specifically regarding climax vegetation, means that it likely has a lower Receptor Resilience, which contributes to increasing SEI scores. This is acceptable following a risk averse and cautious approach.

The SEI score interpretations according to the *Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa* (South African National Biodiversity Institute, 2020) are as follows (specifically see Figure 11 and details given in section 10.2):

- **Medium**: Minimization and restoration mitigation.
- **Very High**: Avoidance mitigation — no destructive development activities should be considered.

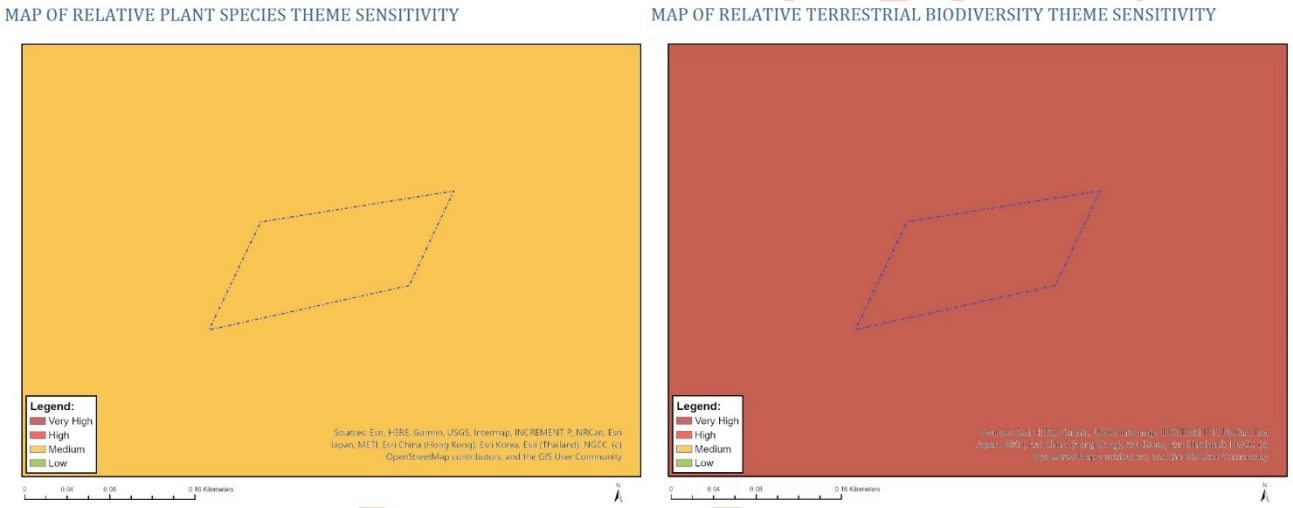


Figure 8: Relative Plant Species and Terrestrial Biodiversity Theme Sensitivities for the study area and surrounds, as indicated by the National Web-based Environmental Screening Tool.

Table 2: Evaluation of Site Ecological Importance (SEI) for the plant community type(s) within the study area. BI = Biodiversity Importance. See section 10.2 for more details.

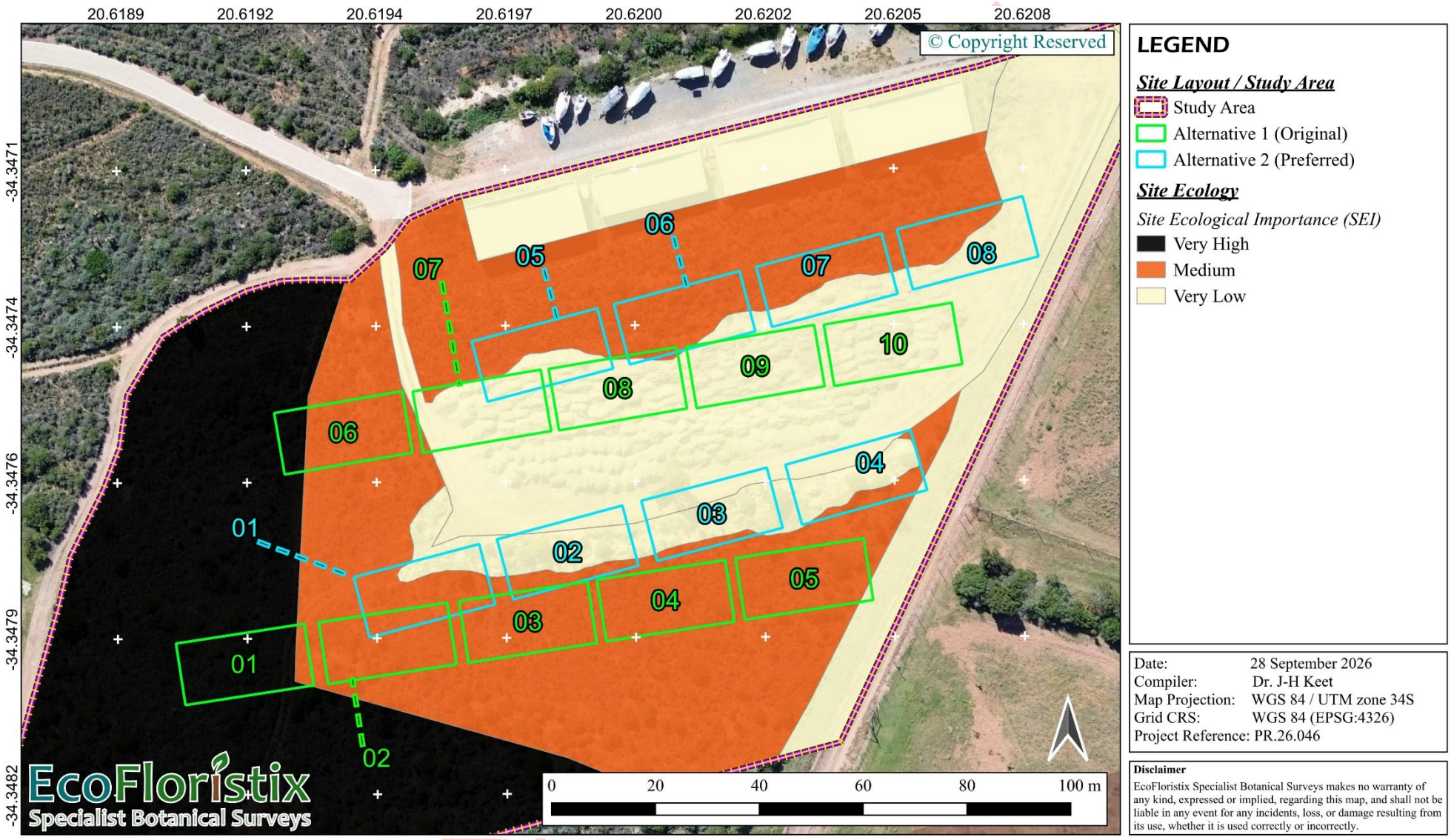
Plant Community Type / Habitat	Conservation Importance (CI)	Functional Integrity (FI)	Receptor Resilience (RR)	SEI
Natural Communities	Very High: Any area of natural habitat of a CR ecosystem type. High: Confirmed occurrence of EN and VU species that have a global EOO of > 10 km².	Very High: No or minimal current negative ecological impacts with no signs of major past disturbance (e.g. ploughing).	Medium: Will recover slowly (more than 10 years) to restore > 75% of the original species composition and receptor functionality.	Very High (BI: Very High)

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	Medium: Confirmed occurrence of populations of NT species. More than 50% of receptor contains natural habitat with potential to support SCC.	Low: Small (> 1 ha but < 5 ha) area.		
Secondary Communities	Very High: Any area of natural habitat of a CR ecosystem type.	Medium: Mostly minor current negative ecological impacts with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.	High: Habitat that can recover relatively quickly (5–10 years) to restore > 75% of the original species composition and receptor functionality, or species that have a high.	Medium (BI: High)
	High: Confirmed occurrence of EN and VU species that have a global EOO of > 10 km².	Low: Small (> 1 ha but < 5 ha) area.		
	Medium: Confirmed or highly likely occurrence of populations of NT species. More than 50% of receptor contains natural habitat with potential to support SCC.			

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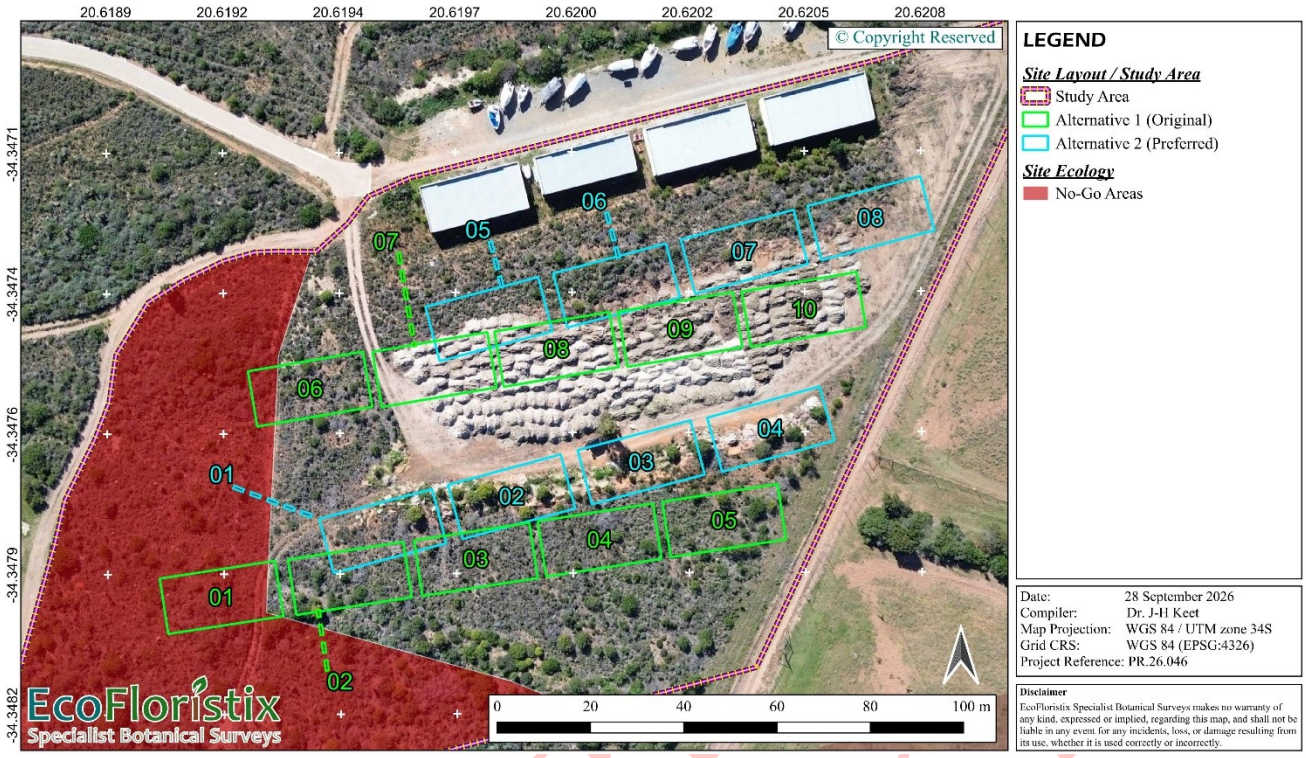
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Map 21: Site Ecological Importance (SEI) for the study area (see Table 2 for more details).

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2.5.5. No-Go Areas



Map 22: No-Go areas identified within the study area.

Given the information presented in the previous sections, the following No-Go areas are proposed (Map 22):

- All areas of natural plant communities of Potberg Ferricrete Fynbos. These are valuable given that minimal high impact disturbances have occurred in them during the past as observed from the best available historic satellite imagery.

In contrast, the following areas are allowed (Map 22):

- A limited amount of secondary communities of Potberg Ferricrete Fynbos. As mentioned, the secondary plant communities have shown a remarkable amount of recovery despite the intensity of clearing that occurred in the past. Nevertheless, it still represents valuable Potberg Ferricrete Fynbos harbouring SCC, and as such it is recommended that a minimal amount of this vegetation be cleared.
- Any highly degraded or transformed areas (infrastructure, cleared areas etc).
- All existing roads.

3. Impact Risk Assessment

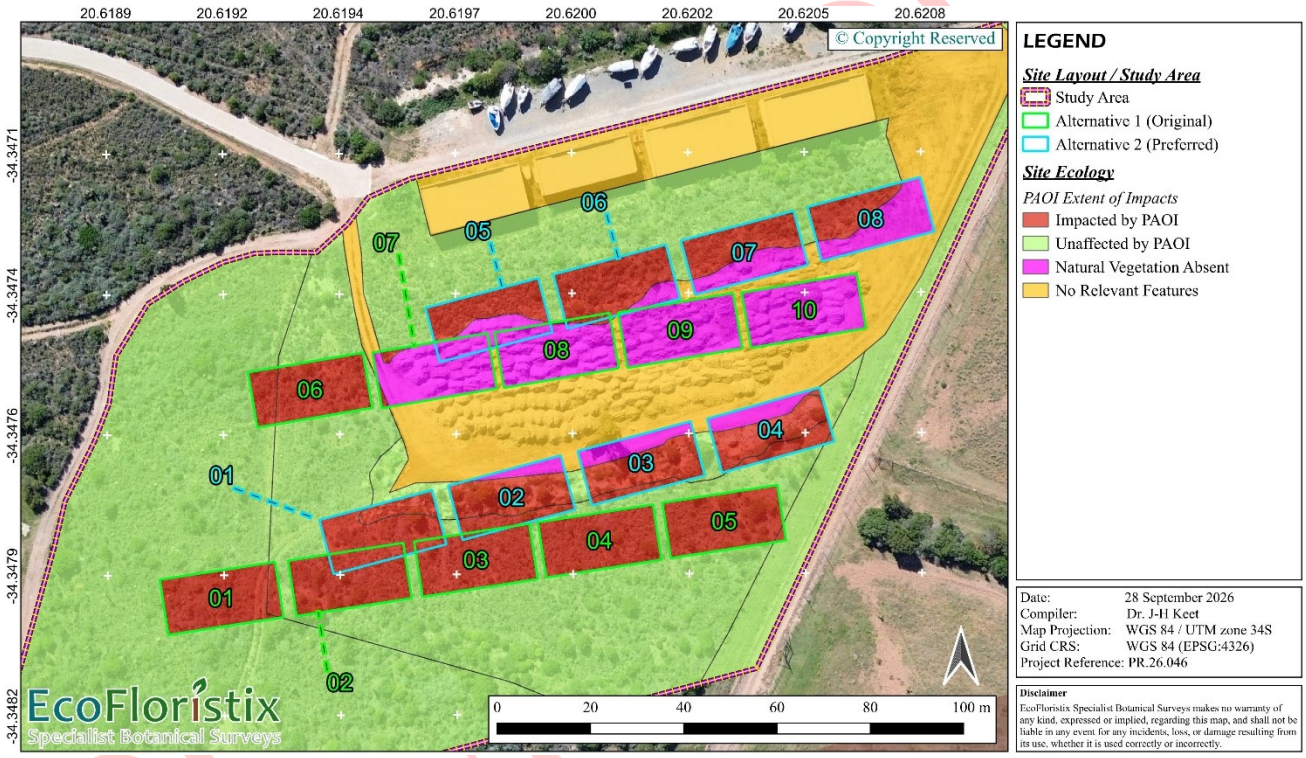
This section describes and summarizes the significance of perceived impacts on the terrestrial ecology of the study area. Potential impacts were evaluated based on desktop and field assessment data. The relevant impacts associated with the proposed activities were then subjected to the impact assessment methodology as described in section 10.4. Finally, relevant maps should be consulted as presented in section 2.5.

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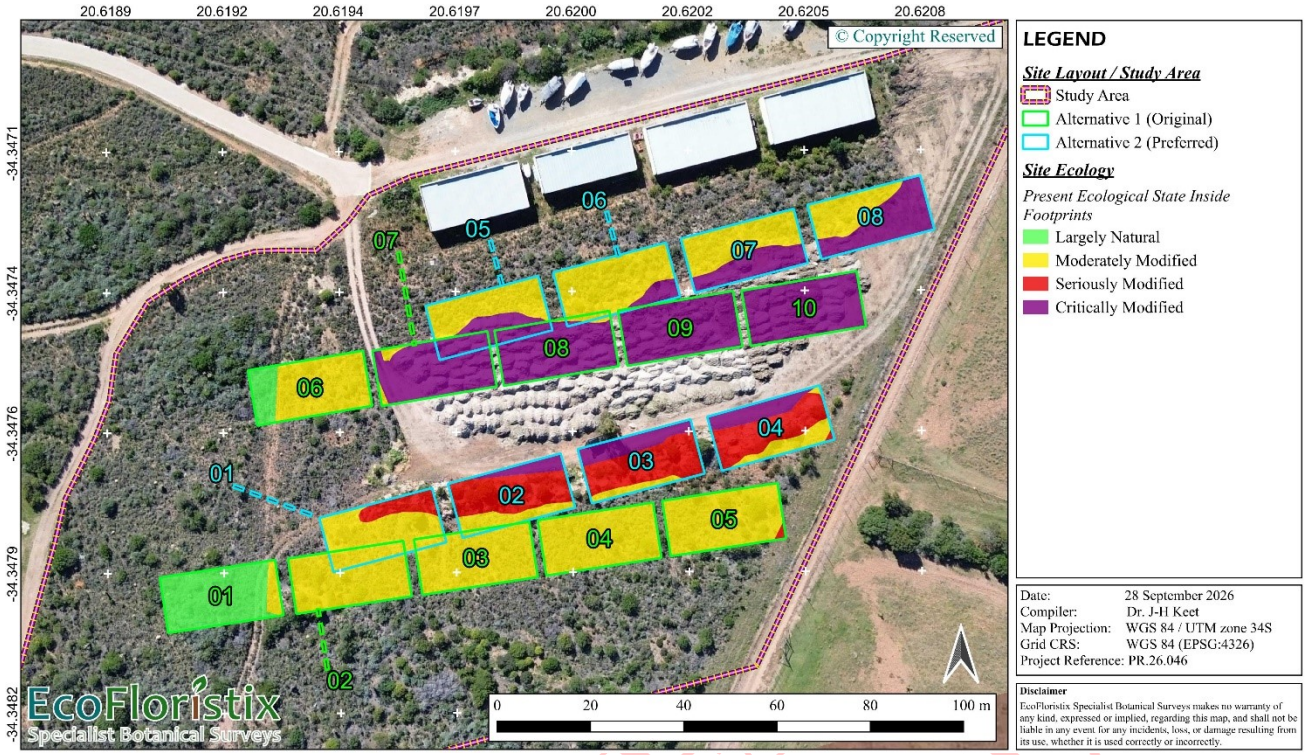
As discussed in section 1.4, two "Alternatives" are assessed here (A1 and A2), as well as the "Baseline" (or "No Development Scenario", i.e. maintaining the present circumstances and not proceeding with the proposed activities).

More specifically, the Baseline scenario is where no development or proposed activities occur. It is also sometimes referred to as the "No Development Scenario", "No-Go Option", or the "Do Nothing Scenario" — that is, maintaining the present circumstances and not proceeding with the proposed Project (the term "Baseline" is preferred here to avoid confusion with No-Go areas). This can be seen as a baseline against which to measure impacts. Note that this is not always the best scenario, since development can actively mitigate against unwanted and negative on-site conditions (for example proliferation of invasive alien plant species). That is, existing environmental problems may remain unaddressed and can worsen over time due to a lack of innovation, investment in sustainable solutions, or adaptation to ongoing changes. Moreover, important opportunities to implement cleaner technologies and restore ecosystems might be missed.



Map 23: Extent of impacts of the proposed development footprints on the intact vegetation within the study area. The red shading indicates parts of intact vegetation that will be lost due to vegetation clearing, while green areas will not be impacted to any significant degree. Footprint areas that do not have any naturally occurring plant communities present are shaded in magenta/pink. The red and magenta areas essentially represent the combined proposed development footprint (compare with Map 24).

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Map 24: Present ecological state as specifically occurring within the proposed development footprints only. Compare with Map 17.

The two Alternatives differ in two key ways (see Map 23 and Map 24, as well as Map 15):

1. A1 has two more boat garage units (09 and 10).
2. A1 overlaps more extensively with both natural and secondary plant communities compared to A2, which has specifically been positioned to minimize such overlap.

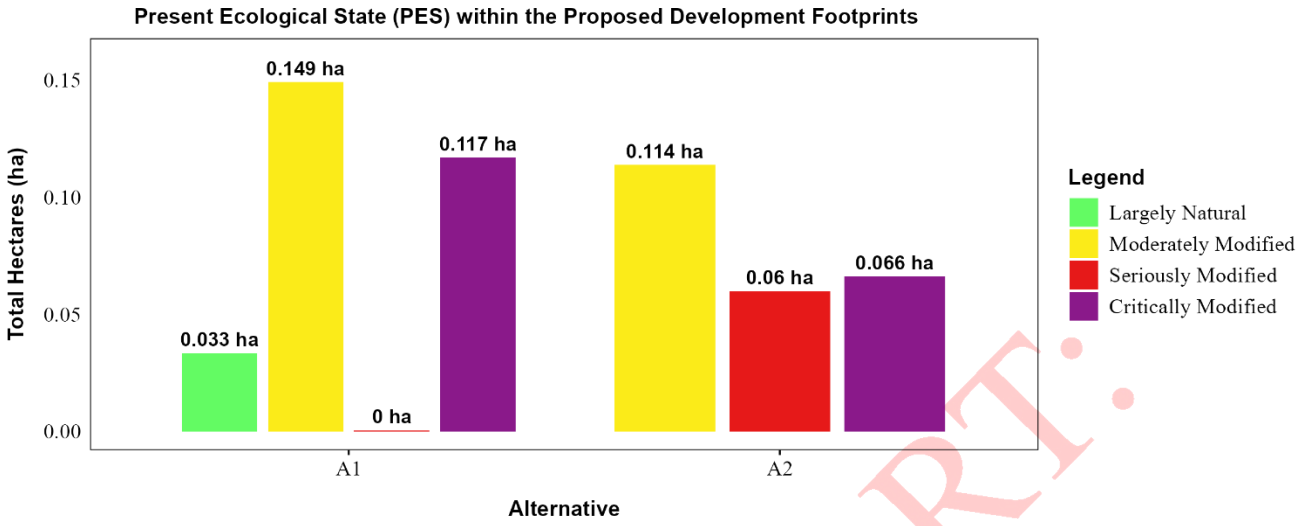
This essentially means that the two alternatives have differing extents of impact on the plant communities in the study area (Map 23). More specifically, in A1 the placement of units overlap more extensively with intact vegetation, with a total of 0.1825 ha that will be lost (0.0334 being natural and 0.1491 ha being secondary communities). In contrast, apart from having two fewer units, A2 overlaps much less with intact vegetation, with only 0.1139 ha that will be lost, all of which comprise secondary plant communities.

Furthermore, while A2 utilizes less of Critically Modified areas in terms of present ecological state (0.0662 ha compared to 0.1169 ha for A1), it completely avoids Largely Natural areas, in contrast to A1 that will lead to loss of 0.0334 ha of Largely Natural areas. A2 will also include 0.0599 ha of Seriously Modified areas, which is essentially absent under A1 (Map 24).

Thus, A2 has been specifically optimized such as to minimize loss of natural/primary plant communities over secondary communities, while still incorporating as much degraded areas as possible. The sections that follow will assess in more detail the specific impacts associated with these two alternatives.

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3.1. Present Impacts to Biodiversity

Anthropogenic activities and influences occur within the landscape, and a few current negative impacts to biodiversity were observed within the proposed development site and surrounds, including:

- The current biggest negative impact is habitat fragmentation due to the infrastructure and development in the area (buildings, access roads, etc). This has resulted in the permanent loss of natural habitat. This potentially fragments the home ranges of smaller or less mobile species, and also creates barriers to movement for fauna, though this is likely not as big of a problem given the small scale of disturbance here.
- Wildlife disturbance and behavioural change: The presence of people and vehicles, even when quiet and respectful, can cause wildlife to flee, alter feeding/breeding patterns, or avoid preferred habitats. Repeated disturbance can lead to chronic stress or lower reproductive success.
- Presence of IAPs: While this was a much bigger problem in the past, IAPs still persist on-site and negatively impact the environment, especially considering that the most important invaders here are legumes capable, which fix nitrogen and thus adversely alter soil conditions to the detriment of indigenous species. Furthermore, visitors' clothing, vehicles, and equipment can inadvertently carry non-native seeds or into the area, which might cause the establishment and proliferation of new IAPs with their subsequent associated negative effects.

3.2. Identification and Assessment of Potential Impacts

The assessment of impact significance usually considers both pre- and post-mitigation scenarios. Moreover, it usually considers these scenarios for all the phases during the project lifecycle, namely:

- Construction: The construction phase refers to the period of construction when all proposed features of the project are constructed.
- Operational: The operational phase refers to the period when the construction phase has been completed, and the proposed activities of the project commences.
- Decommissioning (if applicable): The phase where regular daily activities have ceased, and the project has ended.

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Only construction phase and cumulative impacts are assessed here given that the listed activities addressed in this report entail the clearing of indigenous vegetation, which only occurs during the construction phase.

3.2.1. Construction Phase

3.2.1.a) Plant Communities

Specific Impact(s): Loss of plant community types, specifically Potberg Ferricrete Fynbos (Endangered).

Nature and Type of Impact: Negative, Direct.

Baseline Conditions: A large part of the study area has undergone significant modification (vegetation clearing) in the past. After this, vegetation regrowth commenced, but certain parts were soon infested with invasive alien Acacias. These were eventually cleared. The parts where secondary plant communities have developed have shown quite a remarkable amount of recovery, though these communities still differ from the surrounding natural communities a certain key ways (see section 2.5.1). Thus, the study area contains a mix of natural and secondary plant communities, together with cleared and highly transformed areas.

Mitigation Measures: The best mitigation will be maximizing the avoidance of sensitive features. This includes as much avoidance of natural communities as possible in favour or secondary plant communities, or better yet, of highly transformed areas. Furthermore, the proposed development footprint can also be minimized as much as possible. In this regard, A2 is the superior layout since it completely avoids natural communities, and also includes areas that have been heavily transformed (also see the start section 3). Under A2, a minimal amount of secondary plant communities will be lost (only 0.1139 ha), while 0.1261 ha will come from Critically and Seriously Modified areas (Map 24). In contrast, A1 will lead to the loss of 0.0334 ha of Largely Natural areas (natural communities), as well as 0.1491 ha of Moderately Modified areas (secondary plant communities), yielding a total loss of 0.1825 ha of Potberg Ferricrete Fynbos.

Significance of Impacts:

	Baseline	A1 Before Mitigation	A1 After Mitigation	A2 Before Mitigation	A2 After Mitigation
Extent	Site-specific	Site-specific	Site-specific	Site-specific	Site-specific
Duration	Short-term	Long-term	Medium-term	Medium-term	Medium-term
Magnitude	Very Low	Medium	High	Low	Low
Consequence	**Very Low**	**Medium**	**Medium**	**Very Low**	**Very Low**
Probability	Improbable	Highly Probable	Probable	Probable	Probable
Loss of Irreplaceable Resource	No loss	Marginal loss	Marginal loss	Marginal loss	Marginal loss
Reversibility	Not required	Moderately reversible	Moderately reversible	Moderately reversible	Moderately reversible
Confidence	High	High	High	High	High
Significance	**Low**	**Medium**	**Medium**	**Low**	**Low**
Avoidance			Limited Avoidance		Partial Avoidance
Management			Moderately Effective		Highly Effective
Mitigation			Moderately Effective		Highly Effective
Residual Impact			**Medium-Low**		**Low**

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3.2.1.b) Loss of Species of Conservation Concern (SCC)

Specific Impact(s): Loss of SCC.

Nature and Type of Impact: Negative, Direct.

Baseline Conditions: Numerous SCC occur in the study area, and ground truthing confirmed the occurrence of 9 SCC (of which 5 are threatened). Fortunately, the majority of these SCC are not very abundant (i.e., in either scenario not many will be lost) and most of them occur outside the proposed development footprint. The only species that occurred in relatively high abundance is *Agathosma foetidissima*.

Mitigation Measures: As with the previous impact, the he biggest mitigation measure is simply as much avoidance of SCC individuals as possible. In this regard, A2 is again a superior layout since it almost completely avoids Endangered species, and will also lead to a recued loss of *Agathosma foetidissima*, which is especially abundant in the area directly south of the cleared central section. Regarding the latter, it is highly probable that a few individuals will be lost given its abundance, despite the better placement of A2 — it will also not relocate well via Seach and Rescue efforts. This is acceptable given that many other individuals will by default be avoided.

Significance of Impacts:

	Baseline	A1 Before Mitigation	A1 After Mitigation	A2 Before Mitigation	A2 After Mitigation
Extent	Site-specific	Site-specific	Site-specific	Site-specific	Site-specific
Duration	Short-term	Short-term	Short-term	Short-term	Short-term
Magnitude	Very Low	Medium	Medium	Low	Low
Consequence	**Very Low**	**Very Low**	**Very Low**	**Very Low**	**Very Low**
Probability	Improbable	Highly Probable	Highly Probable	Probable	Probable
Loss of Irreplaceable Resource	No loss	Marginal loss	Marginal loss	Marginal loss	Marginal loss
Reversibility	Not required	Partly reversible	Partly reversible	Moderately reversible	Partly reversible
Confidence	High	High	High	High	High
Significance	**Low**	**Medium-Low**	**Medium-Low**	**Low**	**Low**
Avoidance			Limited Avoidance		Partial Avoidance
Management			Moderately Effective		Highly Effective
Mitigation			Moderately Effective		Highly Effective
Residual Impact			**Medium-Low**		**Low**

3.2.1.c) Invasive Alien Plant Species

Specific Impact(s): Spread and/or establishment of alien and/or invasive species.

Nature and Type of Impact: Negative, Direct.

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Baseline Conditions: Large parts of the study area was densely invaded during the past. Most of this infestation has been cleared, although individuals of certain invasive alien plant species are still present on-site, notably *Acacia saligna*, *A. cyclops, A. mearnsii,* and *Eucalyptus conferruminata*. None of these occur in high abundances.

Mitigation Measures: The single most effective mitigation measure remains active clearing and management of any existing individuals or populations of IAPs, as well as prevention of IAPs introduction. If any new IAPs establish on site, then they must be removed using approved clearing methods. Regular monitoring must follow any IAPs removal to prevent regrowth/reestablishment and ensure seedbanks become depleted. The two alternatives have little real difference regarding IAPs, and both have the same risks, namely creating more opportunities for the establishment of IAPs.

Significance of Impacts:

	Baseline	A1 Before Mitigation	A1 After Mitigation	A2 Before Mitigation	A2 After Mitigation
Extent	Site-specific	Site-specific	Site-specific	Site-specific	Site-specific
Duration	Medium-term	Medium-term	Medium-term	Medium-term	Medium-term
Magnitude	Very Low	Low	Low	Low	Low
Consequence	**Very Low**	**Very Low**	**Very Low**	**Very Low**	**Very Low**
Probability	Highly Probable	Highly Probable	Probable	Highly Probable	Probable
Loss of Irreplaceable Resource	Marginal loss	Marginal loss	Marginal loss	Marginal loss	Marginal loss
Reversibility	Not required	Moderately reversible	Moderately reversible	Moderately reversible	Moderately reversible
Confidence	High	High	High	High	High
Significance	**Medium-Low**	**Medium-Low**	**Low**	**Medium-Low**	**Low**
Avoidance			Partial Avoidance		Partial Avoidance
Management			Moderately Effective		Moderately Effective
Mitigation			Moderately Effective		Moderately Effective
Residual Impact			**Low**		**Low**

3.2.2. Cumulative

3.2.2.a) Conservation Targets

Specific Impact(s): The loss of vegetation types on a cumulative basis from the broader area negatively impacts provincial and national conservation targets.

Furthermore, any destruction of SCC might contribute either directly or indirectly to their conservation statuses. On a cumulative basis, their loss might in future contribute to affecting and elevating national listings if similar habitats in the surrounding area also disappear.

Nature and Type of Impact: Negative, Indirect.

Baseline Conditions: The vegetation on-site consists of Critically Endangered Potberg Ferricrete Fynbos. However, the disturbance history of the site is such that both natural and secondary plant communities are present. While both are

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valuable considering that both harbour SCC, the natural communities are by default more valuable since not many areas still harbour truly natural fragments of Potberg Ferricrete Fynbos. Thus, any scenario that maximizes utilization of secondary plant communities over the natural communities is more desirable.

Mitigation Measures: The foremost mitigation is firstly that any proposed development footprint is optimized so that it avoids as many SCC as possible, as well as minimizing vegetation loss. Regarding the latter, as mentioned, loss of secondary plant communities should be prioritized over the loss of natural communities. In this instance, A2 has been optimized to achieved exactly that, and its design and spatial placements firstly completely avoids loss of natural communities, and secondly also slightly reduces the loss of SCC. This means that A2 can be mitigated down to having a Low residual impact given the very small scale of intact vegetation loss that will occur.

Significance of Impacts:

	Baseline	A1 Before Mitigation	A1 After Mitigation	A2 Before Mitigation	A2 After Mitigation
Extent	Site-specific	Site-specific	Site-specific	Site-specific	Site-specific
Duration	Short-term	Long-term	Long-term	Long-term	Long-term
Magnitude	Very Low	Medium	Medium	Low	Low
Consequence	**Very Low**	**Medium**	**Medium**	**Low**	**Low**
Probability	Improbable	Highly Probable	Probable	Probable	Probable
Loss of Irreplaceable Resource	No loss	Marginal loss	Marginal loss	Marginal loss	Marginal loss
Reversibility	Not required	Moderately reversible	Moderately reversible	Moderately reversible	Moderately reversible
Confidence	High	High	High	High	High
Significance	**Low**	**Medium**	**Medium**	**Low**	**Low**
Avoidance			Partial Avoidance		Partial Avoidance
Management			Moderately Effective		Moderately Effective
Mitigation			Moderately Effective		Moderately Effective
Residual Impact			**Medium-Low**		**Low**

3.2.2.b) Broad-Scale Ecological Processes

Specific Impact(s): Disruption of broad-scale ecological processes.

Habitat destruction and fragmentation can potentially disrupt the connectivity of the landscape for fauna and flora, and impair their ability to respond to environmental fluctuations. It can also eventually lead indirectly to the loss of local plant community types, SCC, protected plant species, and genetic diversity, among other things, if these occur on a cumulative basis in the surrounding areas.

Nature and Type of Impact: Negative, Indirect.

Baseline Conditions: Despite the fact that much of the study area was greatly disturbed in the past, some parts have shown a remarkably level of recovery, such that much of it can be considered as only moderately modified (in addition to the

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previously undisturbed areas that should be considered largely natural). This means that even these previously disturbed areas are capable of fulfilling their ecological functioning within the broader landscape. However, a road network and various infrastructure has also fragmented and impacted the broader area.

Mitigation Measures: Similar to the previous section, the foremost mitigation measure is to optimize and reduce the proposed development footprint so as to minimize vegetation loss and avoid the most sensitive features, and again A2 is superior in this regard. However, not that while A2 is recommended, neither scenarios will drastically alter any broad-scale ecological processes simply due to the very small scale of proposed operations.

Significance of Impacts:

	Baseline	A1 Before Mitigation	A1 After Mitigation	A2 Before Mitigation	A2 After Mitigation
Extent	Site-specific	Site-specific	Site-specific	Site-specific	Site-specific
Duration	Short-term	Long-term	Medium-term	Long-term	Medium-term
Magnitude	Very Low	Medium	Medium	Low	Low
Consequence	**Very Low**	**Medium**	**Low**	**Low**	**Very Low**
Probability	Improbable	Probable	Probable	Probable	Probable
Loss of Irreplaceable Resource	No loss	Marginal loss	Marginal loss	Marginal loss	Marginal loss
Reversibility	Moderately reversible	Moderately reversible	Moderately reversible	Moderately reversible	Moderately reversible
Confidence	High	High	High	High	High
Significance	**Low**	**Medium**	**Low**	**Low**	**Low**
Avoidance			Partial Avoidance		Partial Avoidance
Management			Moderately Effective		Moderately Effective
Mitigation			Moderately Effective		Moderately Effective
Residual Impact			**Low**		**Low**

3.3. Summary of Anticipated Impacts

The following table offers a brief overview of the anticipated impacts within the PAOI and respective significance values, and draws from the assessments presented in the previous section. It is only a concise summary, and the previous section should be consulted for details. Abbreviations: **A1 — Alternative 1; A2 — Alternative 2**.

Phase	Impact	Baseline	A1 Before Mitigation	A1 After Mitigation	A2 Before Mitigation	A2 After Mitigation
Construction	Loss of plant community types	Low	Medium	Medium	Low	Low
Construction	Loss of SCC and/or protected species	Low	Medium-Low	Medium-Low	Low	Low
Construction	Spread and/or establishment of alien and/or invasive species.	Medium-Low	Medium-Low	Low	Medium-Low	Low
Cumulative	Reduced ability to meet conservation targets	Low	Medium	Medium	Low	Low

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Phase	Impact	Baseline	A1 Before Mitigation	A1 After Mitigation	A2 Before Mitigation	A2 After Mitigation
Cumulative	Disruption of broad-scale ecological processes	Low	Medium	Low	Low	Low

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4. Proposed Impact Management Actions

4.1. Proposed Mitigation Measures for Consideration in the EMPr

Construction Phase	
Impact	**Mitigation**
Potential impacts on plant communities, and SCC and/or protected plant species.	Any landowners must adhere to their legal obligations to actively eradicate and manage alien vegetation infestations present on the applicable and surrounding properties. SCC and/or protected plant species should be avoided wherever possible. If individuals cannot be avoided, then a permit for their destruction must be obtained from the relevant local authority. No plant species, whether native or exotic, should be brought into, or removed from, the study area, to prevent the spread of exotic or invasive species or the illegal collection of plants. No plants may be translocated or otherwise uprooted or disturbed for rehabilitation or other purposes without express permission from the Contractor's EO or without the relevant permits. Blanket clearing of vegetation must be limited to the proposed footprint, and only where necessary; no clearing outside of permitted areas may take place. Clearing of vegetation should be minimized and avoided where possible. Immediately rehabilitate all areas outside of the proposed development site that were disturbed and implement mitigation measures to prevent associated impacts from re-occurring.
Spread and/or establishment of alien and/or invasive species.	IAPs, wherever present, must be cleared as per NEM:BA requirements where applicable and must not be allowed to spread. Clearing methods should aim to keep disturbance to a minimum and must be undertaken in accordance with relevant guidelines. Any area that is cleared of IAPs must receive regular follow-up treatments (preferably at least three follow-ups) to ensure that populations do no re-establish after such initial clearing efforts. Any chemicals/herbicides used during clearing efforts must strictly be used only in accordance with the manufactures guidelines. Under no circumstances should unqualified persons be allowed to conduct IAPs clearing using chemicals/herbicides or dangerous equipment without supervision from a suitably qualified pest control officer. Such a qualified pest control officer must be present on site at all times during IAPs clearing. No planting or importing of any alien species to the site for landscaping, rehabilitation, or any other purpose should be allowed.

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Cumulative Impacts	
Impact	**Mitigation**
Reduced ability to meet conservation obligations and targets and Impacts on broad-scale ecological processes.	Avoid unnecessary damage to vegetation wherever possible. Any signs of erosion resulting from the project activities must be rectified immediately and monitored thereafter to ensure that there is no re-occurrence. All affected areas resulting from the proposed activities, and that are not part of the proposed activities, should be re-vegetated with locally occurring native species to bind the soil and limit erosion potential. Avoid No-Go areas wherever possible.

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5. Conclusion and Impact Statement

5.1. Conclusion

EcoFloristix Specialist Botanical Surveys was appointed to conduct a Plant Species and Terrestrial Biodiversity Impact assessment for the proposed clearing of vegetation for construction of various boat garages on the farm Stoffels Rivier near Malgas, Western Cape, situated within the Breede Riverine Estate.

The study confirmed that while the property overlaps spatially with the Critically Endangered Potberg Ferricrete Fynbos ecosystem, site-specific ecological conditions are heterogeneous. Historical clearance, intense alien plant infestations, and recent sediment deposition have modified significant portions of the site, giving rise to resilient secondary plant communities and degraded areas alongside remaining fragments of primary, natural fynbos. Ground-truthing corrected provincial mapping errors by delineating the natural western fragment as CBA1 and reclassifying recovered secondary habitats as CBA2 or ESA1, establishing a clear ecological baseline for developmental planning.

Adherence to the environmental mitigation hierarchy — specifically prioritizing the avoidance of high-sensitivity features — establishes Alternative 2 as the environmentally acceptable layout option. Alternative 1 causes more direct ecological damage by encroaching into primary natural fynbos and removing more Endangered species individuals. In contrast, Alternative 2 achieves better spatial mitigation by completely avoiding primary Potberg Ferricrete Fynbos fragments, eliminating two boat garage units, restricting necessary clearing to secondary plant communities (0.1139 hectares), and maximizing the utilization of previously transformed or heavily modified footprints (0.1261 hectares).

Provided that Alternative 2 is selected and implemented, the proposed development is considered environmentally acceptable from a terrestrial botanical perspective. Approval should be subject to key conditions, including the avoidance of primary natural fynbos fragments as No-Go zones, and the implementation of an active, long-term invasive alien plant management and monitoring program. Under these managed conditions, both direct and cumulative ecological impacts will remain at a Low residual significance.

As a final note, pursuing biodiversity offsets is considered unnecessary and unwarranted, given that the development layout (Alternative 2) has already been spatially optimized to completely avoid primary natural vegetation and mitigate residual ecological impacts down to a Low significance, as well as the small scale of the proposed development footprint.

The mitigations, management, and associated monitoring regarding all the impacts identified in this report are the most important factors of this project and must be considered by the competent authority.

5.2. Impact Statement

FINAL STATEMENT

Considering all the findings of this report, no fatal flaws are evident, but only as far as the suggested mitigation measures are implemented. Alternative 2 is the recommended and supported layout.

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PART 2: REFERENCES, METHODOLOGY, AND SUPPLEMENTARY INFORMATION

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6. References

Bromilow, C. (2010). *Problem Plants and Alien Weeds of South Africa* (3rd ed.). Briza Publications.

Curtis-Scott, O., Goulding, M., Helme, N., McMaster, R., Privett, S., & Stirton, C. (2020). *Field Guide to Renosterveld of the Overberg*. Struik Nature.

Dayaram, A., Harris, L., Grobler, B. A., van der Merwe, S., Rebelo, A. G., Powrie, L. W., Vlok, J. H. J., Desmet, P., Qabaqaba, M., Hlahane, K. M., & Skowno, A. L. (2018). Vegetation Map of South Africa, Lesotho and Swaziland 2018: A description of changes since 2006. *Bothalia*, *49*(1), a2452. https://doi.org/10.4102/ abc.v49i1.2452

DFFE. (2023). National Environmental Management: National Biodiversity Offset Guideline. Gazette 48841, NO. .569. In *Government Gazette*. www.gpwonline.co.za

Dorrat-Haaksma, E., & Linder, H. P. (2012). *Restios of the Fynbos* (2nd ed.). Struik Nature.

Fish, L., Mashau, A. C., Moeaha, M. J., & Nembudani, M. T. (2015). *Identification guide to southern African Grasses: An identification manual with keys, descriptions and distributions, Strelitzia 36*. South African National Biodiversity Institute.

Henderson, L. (2020). *Invasive Alien Plants in South Africa. PPRI Handbook No 21*. Department of Environment, Forestry and Fisheries of South Africa.

Manning, J. C. (2007). *Field Guide to Fynbos*. Struik Nature.

Mucina, L., & Rutherford, M. C. (Eds.). (2006). *The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19.* South African National Biodiversity Institute.

Nel, J., Maherry, A. M., Peterson, C. P., Roux, D. J., Driver, A., Hill, L., van Deventer, H., Funke, N., Swartz, E. R., Smith-Adao, L. B., Mbona, N., Downsborough, L., & Nienaber, S. (2011). *Technical Report for the National Freshwater Ecosystem Priority Areas project. WRC Report No. 1801/2/11.*

Raimondo, D., von Staden, L., Foden, W., Victor, J. E., Helme, N., Turner, R. C., Kamundi, D. A., & Manyama, P. A. (2009). *Red List of South African plants 2009. Strelitzia 25.* South African National Biodiversity Institute.

Rebelo, A. G. (1995). *SASOL Proteas: A field guide to the Proteas of Southern Africa*. Fernwood Press.

Skowno, A. L., Poole, C. J., Raimondo, D., Sink, K., van Deventer, H., van Niekerk, L., Harris, L. R., Smith-Adao, L. B., Tolley, K. A., Zengeya, T. A., Foden, W., Midgley, G. F., & Driver, A. (2019). *National Biodiversity Assessment 2018: The status of South Africa's ecosystems and biodiversity. Synthesis Report. South African National Biodiversity Institute, an entity of the Department of Environment, Forestry and Fisheries.*

South African National Biodiversity Institute. (2018). *The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors), Version 2018*. http://bgis.sanbi.org/Projects/Detail/186

South African National Biodiversity Institute. (2020). *Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa* (Issue 3.1). South African National Biodiversity Institute.

Van Oudtshoorn, F. (2012). *Gids tot Grasse van suider-Afrika* (3rd ed.). Briza Publications.

Vlok, J., & Schutte-Vlok, A. L. (2015). *Plants of the Klein Karoo*. Umdaus Press.

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7. Appendix A: Plant Species List

The plant species list presented here is a combination of online databases (e.g., POSA and iNaturalist) and site survey data, and is indented to provide a comprehensive overview of important species that could potentially occur in the study area and surrounds. However, note that while all species that were observed on site are listed, only SCC from online databases are included.

Descriptions of colours and symbols are given below:

Species in **bold**:	Species that were observed during the Site Sensitivity Verification.
Species marked with *:	Protected plant species.
Species marked with ~:	Plant Species of Conservation Concern (SCC).
Species highlighted in orange:	Threatened (CR, EN, VU) plant species.
Species highlighted in blue:	Alien plant species.
Species marked with NEM:BA:	Invasive Alien Plant species listed in the NEM:BA A&IS Regulations.
Species marked with PEN:	Provincial Endemic.
Small letters in []:	Vegetation/plant community type in which the species was found:

- a: Intact Vegetation

Family	Species	IUCN	Family	Species	IUCN	Family	Species	IUCN
Fabaceae	***Acacia cyclops*** (NEM:BA)[a]	**NE**	Aizoaceae	*~*Drosanthemum quadratum* (PEN)	EN	**Asteraceae**	***Macledium spinosum*** [a]	**LC**
Fabaceae	***Acacia mearnsii*** (NEM:BA)[a]	**NE**	Aizoaceae	*~*Drosanthemum striatum* (PEN)	VU	Scrophulariaceae	*~Manulea caledonica* (PEN)	NT
Fabaceae	***Acacia saligna*** (NEM:BA)[a]	**NE**	Asteraceae	*~Dymondia margaretae* (PEN)	EN	**Hyacinthaceae**	***~Massonia setulosa*** [a]	**NT**
Rutaceae	*~*Acmadenia densifolia* (PEN)	NT	**Poaceae**	***Ehrharta calycina*** [a]	**LC**	**Poaceae**	***Melinis repens* subsp. *repens*** [a]	**LC**
Rutaceae	*~*Acmadenia macropetala* (PEN)	VU	Restionaceae	*~Elegia extensa* (PEN)	EN	Aizoaceae	*~*Mesembryanthemum napierense* (PEN)	EN
Rutaceae	*~*Acmadenia mundiana* (PEN)	Rare	Restionaceae	*~*Elegia fenestrata* (PEN)	VU	**Asteraceae**	***Metalasia acuta*** (PEN)[a]	**LC**
Aizoaceae	*~*Acrodon deminutus* (PEN)	VU	Restionaceae	*~Elegia recta* (PEN)	NT	Asteraceae	*~Metalasia calcicola* (PEN)	NT
Aizoaceae	*~*Acrodon purpureostylus* (PEN)	EN	Restionaceae	*~Elegia squamosa* (PEN)	EN	Asteraceae	*~Metalasia erectifolia* (PEN)	NT
Orchidaceae	*~*Acrolophia ustulata* (PEN)	VU	Restionaceae	*~Elegia verreauxii* (PEN)	VU	**Asteraceae**	***Metalasia pungens*** [a]	**LC**
Rutaceae	***~*Adenandra gummifera*** (PEN)[a]	**VU**	Cyperaceae	*~Eleocharis schlechteri*	DDT	**Apocynaceae**	****Microloma tenuifolium*** [a]	**LC**
Rutaceae	*~*Adenandra rotundifolia* (PEN)	NT	**Hypoxidaceae**	***Empodium plicatum*** [a]	**LC**	**Montiniaceae**	***Montinia caryophyllacea*** [a]	**LC**
Rutaceae	*~*Agathosma collina* (PEN)	NT	**Poaceae**	***Eragrostis curvula*** [a]	**LC**	Iridaceae	*~*Moraea debilis* (PEN)	EN
Rutaceae	*~*Agathosma cordifolia* (PEN)	Rare	Ericaceae	*~*Erica albertyniae* (PEN)	VU	Iridaceae	*~*Moraea elsiae* (PEN)	NT
Rutaceae	*~*Agathosma eriantha* (PEN)	VU	Ericaceae	*~Erica arenaria* (PEN)	NT	Iridaceae	*~*Moraea fergusoniae* (PEN)	NT
Rutaceae	***~*Agathosma foetidissima*** (PEN)[a]	**NT**	Ericaceae	*~*Erica dispar* (PEN)	NT	Iridaceae	*~*Moraea melanops* (PEN)	EN
Rutaceae	*~*Agathosma geniculata* (PEN)	NT	Ericaceae	*~*Erica filipendula* subsp. *filipendula* (PEN)	NT	Iridaceae	*~*Moraea tricolor* (PEN)	EN

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Rutaceae	~*Agathosma joubertiana (PEN)	EN	Ericaceae	~*Erica macrophylla (PEN)	Rare	Polygalaceae	~Muraltia calycina (PEN)	VU
Rutaceae	~*Agathosma marifolia (PEN)	NT	Ericaceae	~*Erica melanacme (PEN)	EN	Polygalaceae	~Muraltia lewisiae (PEN)	VU
Rutaceae	~*Agathosma microcarpa (PEN)	VU	Ericaceae	~*Erica ribisaria (PEN)	CR	Polygalaceae	~Muraltia pappeana (PEN)	NT
Rutaceae	***~*Agathosma minuta* (PEN)[a]**	**EN**	Ericaceae	~*Erica sperata (PEN)	Rare	Polygalaceae	~Muraltia pottebergensis (PEN)	VU
Rutaceae	~*Agathosma muirii (PEN)	VU	Ericaceae	~*Erica uysii (PEN)	VU	Polygalaceae	~Muraltia spicata (PEN)	VU
Rutaceae	~*Agathosma riversdalensis (PEN)	VU	**Asteraceae**	***Eriocephalus africanus* var. *africanus* (PEN)[a]**	**LC**	Polygalaceae	~Muraltia splendens (PEN)	NT
Rutaceae	~*Agathosma scaberula (PEN)	NT	**Ruscaceae**	***Eriospermum capense* subsp. *capense*[a]**	**LC**	Polygalaceae	~Muraltia tenuifolia (PEN)	VU
Hyacinthaceae	***Albuca canadensis*[a]**	**LC**	Rutaceae	~*Euchaetis diosmoides (PEN)	NT	**Scrophulariaceae**	***Nemesia barbata*[a]**	**LC**
Fabaceae	~Amphithalea alba (PEN)	NT	Rutaceae	~*Euchaetis intonsa (PEN)	VU	Apiaceae	~Notobubon striatum (PEN)	NT
Fabaceae	~Amphithalea sericea (PEN)	VU	Rutaceae	~*Euchaetis laevigata (PEN)	VU	Asteraceae	~Oedera garnotii (PEN)	VU
Fabaceae	~Amphithalea speciosa (PEN)	VU	Rutaceae	~*Euchaetis schlechteri (PEN)	VU	Asteraceae	~Oedera resinifera (PEN)	Rare
Fabaceae	~Amphithalea tomentosa (PEN)	NT	**Ebenaceae**	***Euclea undulata*[a]**	**LC**	**Asteraceae**	***Oedera squarrosa*[a]**	**LC**
Fabaceae	~Amphithalea virgata (PEN)	VU	Euphorbiaceae	~Euphorbia pseudoglobosa (PEN)	EN	Asteraceae	~Oedera steyniae (PEN)	VU
Fabaceae	~Amphithalea vlokii (PEN)	EN	**Euphorbiaceae**	***Euphorbia rhombifolia*[a]**	**LC**	**Asteraceae**	***Oedera uniflora* (PEN)[a]**	**LC**
Apiaceae	~Anginon pumilum (PEN)	VU	Asteraceae	~Euryops hebecarpus (PEN)	VU	**Hyacinthaceae**	***Ornithogalum dubium*[a]**	**LC**
Malvaceae	~Anisodontea capensis	DDD	Asteraceae	~Euryops linearis (PEN)	NT	Asteraceae	~Osteospermum aciphyllum (PEN)	NT
Malvaceae	~Anisodontea dissecta (PEN)	CR	**Poaceae**	***Eustachys paspaloides*[a]**	**LC**	**Asteraceae**	***Osteospermum calendulaceum*[a]**	**LC**
Fabaceae	~Argyrolobium harmsianum (PEN)	EN	**Asteraceae**	***Felicia amoena* subsp. *amoena* (PEN)[a]**	**LC**	Asteraceae	~Osteospermum elsieae (PEN)	Critically Rare
Fabaceae	~Argyrolobium pachyphyllum (PEN)	EN	Asteraceae	~Felicia ebracteata (PEN)	VU	**Asteraceae**	***Osteospermum moniliferum* subsp. *moniliferum*[a]**	**LC**
Fabaceae	~Aspalathus acutiflora (PEN)	EN	Asteraceae	~Felicia esterhuyseniae (PEN)	Rare	**Asteraceae**	***Osteospermum polygaloides* var. *polygaloides*[a]**	**LC**
Fabaceae	~Aspalathus barbigera (PEN)	VU	Asteraceae	~Felicia nordenstamii (PEN)	NT	Asteraceae	~Osteospermum potbergense (PEN)	Critically Rare
Fabaceae	~Aspalathus burchelliana (PEN)	EN	**Iridaceae**	***Ferraria variabilis*[a]**	**LC**	Asteraceae	~Osteospermum subulatum (PEN)	VU
Fabaceae	~Aspalathus calcarea (PEN)	VU	**Cyperaceae**	***Ficinia bulbosa*[a]**	**LC**	**Asteraceae**	***Osteospermum tomentosum* (PEN)[a]**	**LC**
Fabaceae	~Aspalathus campestris (PEN)	VU	Cyperaceae	~Ficinia echinata (PEN)	VU	Oxalidaceae	~Oxalis confertifolia (PEN)	DDT
Fabaceae	~Aspalathus candidula (PEN)	VU	**Cyperaceae**	***Ficinia nigrescens*[a]**	**LC**	**Oxalidaceae**	***Oxalis engleriana*[a]**	**LC**
Fabaceae	~Aspalathus globulosa (PEN)	EN	Cyperaceae	~Ficinia overbergensis (PEN)	NT	**Oxalidaceae**	***Oxalis obtusa*[a]**	**LC**
Fabaceae	~Aspalathus grobleri (PEN)	EN	Iridaceae	~*Freesia caryophyllacea (PEN)	NT	Oxalidaceae	~Oxalis pardalis (PEN)	DDT
Fabaceae	~Aspalathus joubertiana (PEN)	EN	Iridaceae	~*Freesia leichtlinii subsp. leichtlinii (PEN)	VU	**Oxalidaceae**	***Oxalis pes-caprae* var. *pes-caprae*[a]**	**LC**
Fabaceae	***Aspalathus laricifolia* subsp. *laricifolia* (PEN)[a]**	**LC**	**Aizoaceae**	***Galenia africana*[a]**	**LC**	**Oxalidaceae**	***Oxalis stellata* var. *stellata*[a]**	**LC**

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Fabaceae	~*Aspalathus lebeckioides* (PEN)	VU	Rubiaceae	~*Galium bredasdorpense* (PEN)	VU	Proteaceae	~**Paranomus abrotanifolius* (PEN)	NT
Fabaceae	~*Aspalathus lotoides* subsp. *lotoides* (PEN)	VU	Asphodelaceae	~*Gasteria carinata* var. *verrucosa* (PEN)	VU	Geraniaceae	~*Pelargonium fergusoniae* (PEN)	EN
Fabaceae	~*Aspalathus millefolia* (PEN)	VU	**Asteraceae**	***Gazania krebsiana* subsp. *krebsiana*** [a]	**LC**	Geraniaceae	~*Pelargonium plurisectum* (PEN)	VU
Fabaceae	~*Aspalathus oblongifolia* (PEN)	VU	**Iridaceae**	***Geissorhiza inflexa* (PEN)** [a]	**LC**	Geraniaceae	~*Pelargonium weberi* (PEN)	DDD
Fabaceae	~*Aspalathus pallescens* (PEN)	VU	Iridaceae	~**Geissorhiza tenella* (PEN)	NT	Poaceae	~*Pentameris calcicola* var. *calcicola*	NT
Fabaceae	***Aspalathus pinguis* subsp. *pinguis*** (PEN)[a]	**LC**	Aizoaceae	~**Gibbaeum hartmannianum* (PEN)	VU	**Poaceae**	***Pentameris eriostoma*** [a]	**LC**
Fabaceae	~*Aspalathus potbergensis* (PEN)	VU	Aizoaceae	~**Gibbaeum velutinum* (PEN)	VU	Poaceae	~*Pentameris scandens*	EN
Fabaceae	~*Aspalathus quadrata* (PEN)	VU	Iridaceae	~**Gladiolus abbreviatus* (PEN)	VU	Rhamnaceae	~*Phylica elimensis* (PEN)	EN
Fabaceae	~*Aspalathus quartzicola* (PEN)	VU	Iridaceae	~**Gladiolus emiliae* (PEN)	NT	Rhamnaceae	~*Phylica greyii* (PEN)	EN
Fabaceae	***~Aspalathus rosea*** (PEN)[a]	**EN**	Iridaceae	~**Gladiolus stefaniae* (PEN)	Rare	Rhamnaceae	~*Phylica incurvata* (PEN)	VU
Fabaceae	~*Aspalathus salteri* (PEN)	NT	Iridaceae	~**Gladiolus vandermerwei* (PEN)	EN	Rhamnaceae	~*Phylica lasiantha* (PEN)	DDD
Fabaceae	~*Aspalathus sanguinea* subsp. *sanguinea* (PEN)	NT	Asteraceae	~*Gnaphalium declinatum* (PEN)	NT	Rhamnaceae	~*Phylica nigrita* (PEN)	NT
Fabaceae	~*Aspalathus smithii* (PEN)	EN	Thymelaeaceae	~*Gnidia chrysophylla* (PEN)	NT	**Rhamnaceae**	***Phylica purpurea* var. *purpurea*** (PEN)[a]	**LC**
Fabaceae	***Aspalathus spinosa* subsp. *spinosa*** [a]	**LC**	Thymelaeaceae	~*Gnidia ericoides* (PEN)	EN	Rhamnaceae	~*Phylica stenantha* (PEN)	VU
Fabaceae	~*Aspalathus steudeliana* (PEN)	VU	Thymelaeaceae	~*Gnidia spicata* (PEN)	VU	Rhamnaceae	~*Phylica stenopetala* var. *stenopetala* (PEN)	VU
Fabaceae	~*Aspalathus tylodes* (PEN)	EN	Thymelaeaceae	~*Gnidia subulata* (PEN)	DDT	Rhamnaceae	~*Phylica velutina* (PEN)	NT
Fabaceae	~*Aspalathus zeyheri* (PEN)	VU	Thymelaeaceae	~*Gnidia variegata* (PEN)	DDT	Fabaceae	~*Polhillia connata*	CR
Asparagaceae	~*Asparagus lignosus* (PEN)	NT	**Apocynaceae**	***Gomphocarpus cancellatus*** [a]	**LC**	Fabaceae	~*Polhillia pallens* (PEN)	VU
Asparagaceae	~*Asparagus stipulaceus* (PEN)	NT	Asteraceae	~*Gorteria piloselloides*	NT	**Caryophyllaceae**	***Pollichia campestris*** [a]	**LC**
Asparagaceae	***Asparagus suaveolens*** [a]	**LC**	**Amaryllidaceae**	***Haemanthus sanguineus*** [a]	**LC**	Polygalaceae	~*Polygala pottebergensis*	VU
Asteraceae	***Athanasia trifurcata*** [a]	**LC**	Asphodelaceae	~**Haworthia mirabilis* (PEN)	DDT	**Campanulaceae**	***Prismatocarpus pedunculatus*** (PEN)[a]	**LC**
Salvadoraceae	***Azima tetracantha*** [a]	**LC**	Asphodelaceae	~*Haworthiopsis venosa* (PEN)	VU	Campanulaceae	~*Prismatocarpus spinosus* (PEN)	Rare
Iridaceae	~**Babiana montana* (PEN)	EN	Asteraceae	~*Helichrysum cochleariforme* (PEN)	NT	Proteaceae	~**Protea decurrens* (PEN)	EN
Iridaceae	***Babiana patula*** (PEN)[a]	**LC**	**Brassicaceae**	***Heliophila pendula*** [a]	**LC**	Proteaceae	~**Protea denticulata* (PEN)	VU
Bruniaceae	~**Berzelia cordifolia* (PEN)	VU	**Malvaceae**	***Hermannia alnifolia*** [a]	**LC**	Proteaceae	~**Protea obtusifolia* (PEN)	NT
Iridaceae	~**Bobartia lilacina* (PEN)	Rare	**Malvaceae**	***Hermannia holosericea*** [a]	**LC**	Proteaceae	~**Protea scabra* (PEN)	VU
Iridaceae	~**Bobartia longicyma* subsp. *longicyma* (PEN)	NT	**Malvaceae**	***Hermannia joubertiana*** (PEN)[a]	**LC**	Proteaceae	~**Protea susannae* (PEN)	NT
Amaryllidaceae	***Boophone disticha*** [a]	**LC**	**Malvaceae**	***~Hermannia lavandulifolia*** (PEN)[a]	**VU**	**Celastraceae**	***Pterocelastrus tricuspidatus*** [a]	**LC**
Aizoaceae	~**Braunsia vanrensburgii* (PEN)	Rare	Iridaceae	~**Hesperantha kiarataylorae* (PEN)	CR	**Asteraceae**	***Pteronia incana*** [a]	**LC**
Asphodelaceae	~*Bulbine flexicaulis* (PEN)	DDT	Iridaceae	~**Hesperantha muirii* (PEN)	EN	**Restionaceae**	***Restio capensis*** [a]	**LC**

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Asphodelaceae	~*Bulbinella potbergensis* (PEN)	CR
Apiaceae	~*Capnophyllum macrocarpum* (PEN)	VU
Apocynaceae	***Carissa bispinosa*** [a]	**LC**
Aizoaceae	***Carpobrotus edulis* subsp. *edulis*** [a]	**LC**
Aizoaceae	~*Carpobrotus muirii* (PEN)	NT
Apiaceae	~*Centella calcaria* (PEN)	NT
Apiaceae	~*Centella pottebergensis* (PEN)	VU
Aizoaceae	~*Cephalophyllum diversiphyllum* (PEN)	NT
Scrophulariaceae	~*Chaenostoma titanophilum* (PEN)	VU
Amaranthaceae	***Chenopodium album*** [a]	**NE**
Gentianaceae	***Chironia baccifera*** [a]	**LC**
Asteraceae	~*Chrysocoma strigosa* (PEN)	VU
Menispermaceae	***Cissampelos capensis*** [a]	**LC**
Rosaceae	~*Cliffortia alata* (PEN)	VU
Rosaceae	~*Cliffortia burgersii* (PEN)	EN
Rosaceae	~*Cliffortia carinata* (PEN)	Rare
Rosaceae	~*Cliffortia curvifolia* (PEN)	EN
Rosaceae	~*Cliffortia incana* (PEN)	VU
Rosaceae	~*Cliffortia longifolia* (PEN)	VU
Rutaceae	~*Coleonema pulchrum* (PEN)	VU
Asteraceae	~*Cotula filifolia*	NT
Crassulaceae	***Crassula saxifraga*** [a]	**LC**
Crassulaceae	~*Crassula simulans*	VU
Amaryllidaceae	***Crossyne guttata*** [a]	**LC**
Asteraceae	~*Cullumia carlinoides* (PEN)	NT
Asteraceae	~*Cullumia squarrosa* (PEN)	VU
Asteraceae	~*Curio archeri* (PEN)	DDT
Curtisiaceae	~*Curtisia dentata*	NT
Fabaceae	~*Cyclopia galioides*	Rare
Fabaceae	~*Cyclopia genistoides*	NT
Poaceae	***Cymbopogon marginatus*** [a]	**LC**
Iridaceae	~*Hesperantha pilosa* subsp. *pilosa*	NT
Iridaceae	~*Hesperantha radiata*	NT
Restionaceae	~*Hypodiscus rugosus* (PEN)	EN
Fabaceae	~*Indigofera candolleana* (PEN)	Rare
Fabaceae	~*Indigofera floribunda*	DDD
Fabaceae	***Indigofera heterophylla*** [a]	**LC**
Fabaceae	~*Indigofera hispida*	NT
Fabaceae	~*Indigofera mundiana* (PEN)	EN
Iridaceae	***~Ixia capillaris*** [a]	**NT**
Iridaceae	~*Ixia erubescens* (PEN)	EN
Iridaceae	~*Ixia micrandra* (PEN)	NT
Scrophulariaceae	~*Jamesbrittenia calciphila* (PEN)	NT
Hyacinthaceae	~*Lachenalia barbarae* (PEN)	CR
Hyacinthaceae	~*Lachenalia calcicola* (PEN)	EN
Hyacinthaceae	~*Lachenalia contaminata* (PEN)	NT
Hyacinthaceae	~*Lachenalia nervosa* (PEN)	EN
Hyacinthaceae	~*Lachenalia sessiliflora* (PEN)	VU
Thymelaeaceae	~*Lachnaea axillaris* (PEN)	NT
Thymelaeaceae	~*Lachnaea capitata* (PEN)	VU
Thymelaeaceae	~*Lachnaea filicaulis* (PEN)	NT
Aizoaceae	~*Lampranthus amabilis* (PEN)	EN
Aizoaceae	~*Lampranthus ceriseus* (PEN)	VU
Aizoaceae	~*Lampranthus glomeratus* (PEN)	EN
Aizoaceae	~*Lampranthus leptaleon* (PEN)	EN
Aizoaceae	~*Lampranthus pauciflorus* (PEN)	EN
Celastraceae	***Lauridia tetragona*** [a]	**LC**
Fabaceae	~*Lebeckia gracilis*	EN
Hyacinthaceae	***Ledebouria revoluta*** [a]	**LC**
Fabaceae	***Lessertia frutescens* subsp. *frutescens*** [a]	**LC**
Proteaceae	~*Leucadendron burchellii* (PEN)	VU
Proteaceae	~*Leucadendron coniferum* (PEN)	NT
Restionaceae	~*Restio pulcher* (PEN)	VU
Zygophyllaceae	***Roepera flexuosa*** [a]	**LC**
Aizoaceae	~*Ruschia brevicyma*	DDT
Aizoaceae	~*Ruschia leptocalyx* (PEN)	EN
Aizoaceae	***Ruschia multiflora*** (PEN)[a]	**LC**
Aizoaceae	***Ruschia tenella*** (PEN)[a]	**LC**
Anacardiaceae	***Searsia glauca*** [a]	**LC**
Anacardiaceae	***Searsia rehmanniana* var. *rehmanniana*** [a]	**LC**
Anacardiaceae	***Searsia rosmarinifolia*** [a]	**LC**
Scrophulariaceae	~*Selago diffusa*	VU
Scrophulariaceae	~*Selago glandulosa* (PEN)	VU
Scrophulariaceae	~*Selago neglecta* (PEN)	EN
Scrophulariaceae	***~Selago ramosissima*** [a]	**EN**
Asteraceae	***Senecio burchellii*** [a]	**LC**
Asteraceae	~*Senecio lycopodioides* (PEN)	VU
Hyacinthaceae	~*Sensitive Species X1* (PEN)	Rare
Hyacinthaceae	~*Sensitive Species X2* (PEN)	VU
Proteaceae	~*Serruria inconspicua* (PEN)	NT
Proteaceae	~*Serruria nervosa* (PEN)	NT
Sapotaceae	***Sideroxylon inerme* subsp. *inerme*** [a]	**LC**
Caryophyllaceae	~*Silene mundiana*	DDD
Restionaceae	~*Staberoha multispicula* (PEN)	VU
Asteraceae	~*Stoebe muirii* (PEN)	VU
Asteraceae	~*Stoebe rugulosa* (PEN)	EN
Asteraceae	~*Stoebe schultzii* (PEN)	VU
Restionaceae	~*Thamnochortus fraternus* (PEN)	NT
Restionaceae	~*Thamnochortus muirii* (PEN)	VU
Restionaceae	~*Thamnochortus paniculatus* (PEN)	NT
Restionaceae	~*Thamnochortus pluristachyus* (PEN)	VU
Santalaceae	~*Thesium annulatum* (PEN)	DDT
Santalaceae	~*Thesium bathyschistum* (PEN)	DDT

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Apocynaceae	~*Cynanchum zeyheri (PEN)	VU	Proteaceae	~*Leucadendron coriaceum (PEN)	EN	Santalaceae	~*Thesium fragile*	DDT
Lobeliaceae	***Cyphia digitata*** [a]	**LC**	Proteaceae	~*Leucadendron cryptocephalum (PEN)	EN	Santalaceae	~*Thesium frisea* var. *frisea*	DDT
Amaryllidaceae	~*Cyrtanthus carneus (PEN)	VU	Proteaceae	~*Leucadendron galpinii (PEN)	EN	Santalaceae	~*Thesium leptocaule*	DDT
Amaryllidaceae	~*Cyrtanthus leucanthus (PEN)	EN	Proteaceae	~*Leucadendron linifolium (PEN)	NT	Santalaceae	~*Thesium quinqueflorum* (PEN)	DDT
Aizoaceae	~*Delosperma inaequale (PEN)	DDD	Proteaceae	~*Leucadendron meridianum (PEN)	NT	Santalaceae	~*Thesium sertulariastrum* (PEN)	DDT
Scrophulariaceae	***Diascia capensis* (PEN)[a]**	**LC**	Proteaceae	~*Leucadendron modestum (PEN)	NT	Asphodelaceae	~*Trachyandra chlamydophylla* (PEN)	VU
Poaceae	***Digitaria eriantha*** [a]	**LC**	Proteaceae	~*Leucadendron muirii (PEN)	NT	Asphodelaceae	~*Trachyandra filiformis* (PEN)	VU
Rutaceae	~*Diosma haelkraalensis (PEN)	EN	**Proteaceae**	***Leucadendron teretifolium* (PEN)[a]**	**LC**	**Asphodelaceae**	***Trachyandra revoluta*** [a]	**LC**
Rutaceae	~*Diosma parvula (PEN)	EN	Proteaceae	~*Leucospermum fulgens (PEN)	CR	Poaceae	~*Tribolium ciliare* (PEN)	VU
Rutaceae	~*Diosma passerinoides	VU	Proteaceae	~*Leucospermum heterophyllum (PEN)	VU	Aizoaceae	~*Trichodiadema occidentale* (PEN)	VU
Rutaceae	~*Diosma tenella (PEN)	EN	Proteaceae	~*Leucospermum muirii (PEN)	VU	Iridaceae	~*Tritonia flabellifolia*	NT
Ebenaceae	***Diospyros dichrophylla*** [a]	**LC**	Proteaceae	~*Leucospermum praecox (PEN)	VU	Asphodelaceae	~*Tulista marginata* (PEN)	EN
Orchidaceae	~*Disa flexuosa*	NT	Proteaceae	~*Leucospermum truncatum (PEN)	NT	Campanulaceae	~*Wahlenbergia polyantha* (PEN)	VU
Orchidaceae	~*Disa purpurascens (PEN)	NT	Plumbaginaceae	~*Limonium anthericoides (PEN)	EN	Iridaceae	~*Watsonia aletroides* (PEN)	NT
Aizoaceae	~*Disphyma dunsdonii (PEN)	VU	Lobeliaceae	~*Lobelia valida* (PEN)	VU	Iridaceae	~*Watsonia fergusoniae* (PEN)	VU
Hyacinthaceae	~*Drimia sigmoidea (PEN)	Rare	Boraginaceae	~*Lobostemon capitatus (PEN)	VU	Fabaceae	~*Wiborgia tenuifolia* (PEN)	NT
Aizoaceae	~*Drosanthemum austricola (PEN)	VU	Boraginaceae	~*Lobostemon daltonii (PEN)	EN	Fabaceae	~*Wiborgiella sessilifolia* (PEN)	NT
Aizoaceae	***Drosanthemum autumnale* (PEN)[a]**	**DDD**	Boraginaceae	~*Lobostemon lucidus (PEN)	VU	Fabaceae	~*Xiphotheca guthriei* (PEN)	EN
Aizoaceae	~*Drosanthemum barkerae (PEN)	DDT	Boraginaceae	~*Lobostemon sanguineus (PEN)	VU	Fabaceae	~*Xiphotheca rosmarinifolia*	CR
Aizoaceae	~*Drosanthemum calycinum (PEN)	NT	**Boraginaceae**	***Lobostemon trigonus*** [a]	**LC**			
Aizoaceae	~*Drosanthemum lavisii (PEN)	EN	Fabaceae	~*Lotononis prostrata* (PEN)	NT			

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8. Appendix B: Disseminated Evidence of Observed SCC

This section contains information regarding the online database name, hyperlink, and record accession numbers for disseminated evidence of SCC found within the study area as required by the Protocol for the Specialist Assessment and Minimum Report Content Requirements For Environmental Impacts on Terrestrial Plant Species (GN 1150, 43855, 30 October 2020). Observations were uploaded to iNaturalist (https://www.inaturalist.org/home).

Only selected species were uploaded and the list is not intended to be comprehensive. Sensitive species, as determined by the National Web Based Environmental Screening Tool, were not disseminated, and are not listed here since their identities will not be made public.

Taxon ID	Species	Common Name	Hyperlink
75250	*Acacia mearnsii*	Black Wattle	https://www.inaturalist.org/observations/386380603
75255	*Acacia saligna*	Port Jackson Wattle	https://www.inaturalist.org/observations/386380640
579072	*Adenandra gummifera*	Gummy Chinaflower	https://www.inaturalist.org/observations/386380628
467681	*Agathosma*	Boegoes	https://www.inaturalist.org/observations/386379880
579255	*Agathosma foetidissima*	Buck Buchu	https://www.inaturalist.org/observations/386379466
579255	*Agathosma foetidissima*	Buck Buchu	https://www.inaturalist.org/observations/386379570
579285	*Agathosma minuta*		https://www.inaturalist.org/observations/386380403
579285	*Agathosma minuta*		https://www.inaturalist.org/observations/386380429
124412	*Aloe ferox*	Cape Aloe	https://www.inaturalist.org/observations/386380288
569329	*Aspalathus laricifolia*	Larch Capegorse	https://www.inaturalist.org/observations/386379682
580554	*Aspalathus pinguis*	Thickleaf Capegorse	https://www.inaturalist.org/observations/386379474
580554	*Aspalathus pinguis*	Thickleaf Capegorse	https://www.inaturalist.org/observations/386379702
580572	*Aspalathus rosea*		https://www.inaturalist.org/observations/386380394
580633	*Asparagus capensis*	Cape Asparagus	https://www.inaturalist.org/observations/386379753
184447	*Azima tetracantha*	Needle Bush	https://www.inaturalist.org/observations/386380143
528773	*Babiana patula*	Short Bobbejaantjie	https://www.inaturalist.org/observations/386379434
528773	*Babiana patula*	Short Bobbejaantjie	https://www.inaturalist.org/observations/386379839
367465	*Boophone disticha*	Common Oxbane	https://www.inaturalist.org/observations/386379561
581754	*Carex capensis*	Cape Sedge	https://www.inaturalist.org/observations/386379576
337799	*Carissa bispinosa*	Num-Num	https://www.inaturalist.org/observations/386380317
582959	*Crassula saxifraga*	Tutu Stonecrop	https://www.inaturalist.org/observations/386380325
367438	*Crossyne guttata*	April-Fool Parasol	https://www.inaturalist.org/observations/386380336
367438	*Crossyne guttata*	April-Fool Parasol	https://www.inaturalist.org/observations/386380456
583194	*Cymbopogon marginatus*	Dobo Grass	https://www.inaturalist.org/observations/386380201
567751	*Cyphia digitata*	Finger Baroe	https://www.inaturalist.org/observations/386379635
583642	*Diascia capensis*	Cape Twinspur	https://www.inaturalist.org/observations/386379989
583672	*Diascia parviflora*		https://www.inaturalist.org/observations/386380244
161903	*Digitaria eriantha*	Digitgrass	https://www.inaturalist.org/observations/386379965
583883	*Diospyros dichrophylla*	Poison Starapple	https://www.inaturalist.org/observations/386379675
583883	*Diospyros dichrophylla*	Poison Starapple	https://www.inaturalist.org/observations/386380613
584200	*Drosanthemum autumnale*		https://www.inaturalist.org/observations/386380412
76766	*Ehrharta calycina*	Perennial Veldtgrass	https://www.inaturalist.org/observations/386380055
76850	*Eragrostis curvula*	Weeping Love Grass	https://www.inaturalist.org/observations/386380025
430981	*Eriocephalus africanus*	Wild Rosemary	https://www.inaturalist.org/observations/386379734
585390	*Eriospermum capense*	Cape Woolseed	https://www.inaturalist.org/observations/386380111
77090	*Eucalyptus conferruminata*	Spidergum	https://www.inaturalist.org/observations/386380635
569116	*Euphorbia rhombifolia*	Springbuck Milkbush	https://www.inaturalist.org/observations/386380597
343038	*Eustachys paspaloides*	Fan Grass	https://www.inaturalist.org/observations/386380235
570419	*Felicia amoena*	Soft Felicia	https://www.inaturalist.org/observations/386379951
524577	*Ferraria variabilis*	Sheathing Spiderlily	https://www.inaturalist.org/observations/386380155

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585933	*Ficinia nigrescens*	Black Clubrush	https://www.inaturalist.org/observations/386379823
119582	*Gazania krebsiana*	Terracotta Gazania	https://www.inaturalist.org/observations/386380527
586231	*Geissorhiza inflexa*	White Satin	https://www.inaturalist.org/observations/386379626
586501	*Glia prolifera*	Common Gli	https://www.inaturalist.org/observations/386379849
481919	*Gomphocarpus cancellatus*	Wild Cotton	https://www.inaturalist.org/observations/386379928
361682	*Haemanthus sanguineus*	Smooth Bloodlily	https://www.inaturalist.org/observations/386380577
587124	*Heliophila pendula*	Hanging Sunspurge	https://www.inaturalist.org/observations/386379653
587192	*Hermannia alnifolia*	Fanleaf Dollsrose	https://www.inaturalist.org/observations/386379661
587249	*Hermannia holosericea*	Kwaaiman Dollsrose	https://www.inaturalist.org/observations/386379873
587253	*Hermannia joubertiana*		https://www.inaturalist.org/observations/386379690
587253	*Hermannia joubertiana*		https://www.inaturalist.org/observations/386380005
587257	*Hermannia lavandulifolia*	Lavender Dollsrose	https://www.inaturalist.org/observations/386380262
531575	*Indigofera heterophylla*	Diverse Indigo	https://www.inaturalist.org/observations/386379480
60258	*Isolepis*		https://www.inaturalist.org/observations/386379994
120432	*Ixia capillaris*	Capillary Kalossie	https://www.inaturalist.org/observations/386380095
119372	*Lachenalia orchioides*	Wild Viooltjie	https://www.inaturalist.org/observations/386379895
588764	*Lauridia tetragona*	Climbing Saffron	https://www.inaturalist.org/observations/386380148
490656	*Ledebouria revoluta*	Common African Hyacinth	https://www.inaturalist.org/observations/386380370
589008	*Lessertia frutescens*	Cancer Bush	https://www.inaturalist.org/observations/386380179
589096	*Leucadendron teretifolium*	Strawberry Conebush	https://www.inaturalist.org/observations/386380606
589096	*Leucadendron teretifolium*	Strawberry Conebush	https://www.inaturalist.org/observations/386380618
589365	*Lobostemon trigonus*	Eastern Healthbush	https://www.inaturalist.org/observations/386379595
589683	*Massonia setulosa*	Ruens Hedgehog Lily	https://www.inaturalist.org/observations/386380448
77987	*Melinis repens*	Natal Grass	https://www.inaturalist.org/observations/386379449
84991	*Mesembryanthemum guerichianum*	Salt Icefig	https://www.inaturalist.org/observations/386501204
589904	*Metalasia acuta*	Pointy Blombush	https://www.inaturalist.org/observations/386380549
567826	*Metalasia pungens*	Stink Blombush	https://www.inaturalist.org/observations/386380351
467690	*Microloma sagittatum*	Rockcandy Minimouth	https://www.inaturalist.org/observations/386380497
119329	*Nemesia barbata*	Blue-Beard Lionface	https://www.inaturalist.org/observations/386379631
524617	*Oedera squarrosa*	Square Perdekaroo	https://www.inaturalist.org/observations/386379762
590723	*Oedera uniflora*	Limestone Perdekaroo	https://www.inaturalist.org/observations/386379750
522101	*Ornithogalum dubium*	Yellow Chincherinchee	https://www.inaturalist.org/observations/386380250
165983	*Osteospermum calendulaceum*	Weedy Buchu Boneseed	https://www.inaturalist.org/observations/386380193
404420	*Osteospermum moniliferum*	Bietou	https://www.inaturalist.org/observations/386379485
591004	*Osteospermum polygaloides*	Common Boneseed	https://www.inaturalist.org/observations/386379713
591019	*Osteospermum tomentosum*	Woolly Boneseed	https://www.inaturalist.org/observations/386380634
591182	*Oxalis engleriana*	Gland Sorrel	https://www.inaturalist.org/observations/386379547
119468	*Oxalis obtusa*	Reverse Sorrel	https://www.inaturalist.org/observations/386379454
119468	*Oxalis obtusa*	Reverse Sorrel	https://www.inaturalist.org/observations/386379977
591281	*Oxalis stellata*	Star Sorrel	https://www.inaturalist.org/observations/386380065
566745	*Phylica purpurea*	Purple Hardleaf	https://www.inaturalist.org/observations/386379444
566745	*Phylica purpurea*	Purple Hardleaf	https://www.inaturalist.org/observations/386380561
592315	*Pollichia campestris*	Waxberry Plant	https://www.inaturalist.org/observations/386380041
474386	*Polygala fruticosa*	Heartleaf Falsepea	https://www.inaturalist.org/observations/386379856
474386	*Polygala fruticosa*	Heartleaf Falsepea	https://www.inaturalist.org/observations/386380623
526208	*Pterocelastrus tricuspidatus*	Candlewood	https://www.inaturalist.org/observations/386380537
524304	*Pteronia incana*	Ash Gumbush	https://www.inaturalist.org/observations/386380301
592906	*Restio capensis*	Cape Pegreed	https://www.inaturalist.org/observations/386380015
560274	*Roepera flexuosa*	Thin Twinleaf	https://www.inaturalist.org/observations/386380271
593259	*Roepera morgsana*	Salad Twinleaf	https://www.inaturalist.org/observations/386380190
593512	*Ruschia multiflora*	Kraal Tentfig	https://www.inaturalist.org/observations/386380584
593571	*Ruschia tenella*	Delicate Tentfig	https://www.inaturalist.org/observations/386379724
564119	*Searsia glauca*	Blue Kunirhus	https://www.inaturalist.org/observations/386379511
593914	*Searsia rehmanniana*	Blunt-Leaved Currant-Rhus	https://www.inaturalist.org/observations/386380132

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528462	*Searsia rosmarinifolia*	Rosemary Currantrhus	https://www.inaturalist.org/observations/386380391
594124	*Selago ramosissima*		https://www.inaturalist.org/observations/386380609
733766	*Serruria 'ludwigii'*	Ruens Spiderhead	https://www.inaturalist.org/observations/386368345
733766	*Serruria 'ludwigii'*	Ruens Spiderhead	https://www.inaturalist.org/observations/386379831
362175	*Sideroxylon inerme*	White Milkwood	https://www.inaturalist.org/observations/386380309
594835	*Stipagrostis zeyheri*		https://www.inaturalist.org/observations/386380625
595154	*Tenaxia stricta*	Cape Wire Grass	https://www.inaturalist.org/observations/386380365
595224	*Tetragonia echinata*	Opskot Seacoral	https://www.inaturalist.org/observations/386380212
595404	*Thesium funale*	Torch Rootthug	https://www.inaturalist.org/observations/386380073
406772	*Ursinia anthemoides*	Common Paraseed	https://www.inaturalist.org/observations/386379938

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9. Appendix C: Methodology Desktop Phase

This assessment was conducted according to the 2014 EIA Regulations, as amended on 7 April 2017, as well as according to the most up to date *Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa* (South African National Biodiversity Institute, 2020) and the *Ecosystem Environmental Assessment Guideline: Draft* (http://opus.sanbi.org/jspui/handle/20.500.12143/7624).

A desktop assessment was undertaken using an appropriate Geographic Information System (GIS) and the latest available spatial datasets, as well as relevant online biodiversity databases and/or literature (these are listed where applicable). The aim of this was to develop local digital cartographs and species lists/databases. The various subsections that follow expand upon this desktop assessment.

It must be noted that during the entirety of this project it was assumed that all third-party information used — e.g., GIS software and data, satellite imagery, mapping algorithms, etc. — was correct and accurate at the time of their use. The author of this report accepts no liability for any erroneous data or algorithms produced by any third-parties, or any subsequent products derived from such data.

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9.1. Ecologically Important Landscape Features: Custom GIS Mapping

The GIS was used together with the latest satellite imagery to delineate and map observable landscape features in the study area and surrounds. Specifically, attention was given to homogenous units that could easily be recognized. Some examples of such features include watercourses, plains and floodplains, hill- and mountain tops, and hill- and mountains slopes (if present and if sufficiently large and distinct from surrounding features), as well as areas that have distinctly recognizable vegetation features, such as the presence/absence of large trees and/or shrubs, and vegetation patches of differing colours — these likely represent distinct plant community types. However, while satellite imagery is highly useful, it nevertheless suffers from several issues. For example, these include the generation of areas where image stitching has resulted in different colours for the same features, or imagery that might not have a high enough resolution, among other things. For this reason ground truthing is required to validate and refine the results of such desktop analyses.

9.2. Ecologically Important Landscape Features: Existing Data

Existing ecologically relevant data layers were incorporated into the GIS to establish how the proposed development might interact with any ecologically important entities. Emphasis was placed around the following spatial datasets:

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9.2.1. Red List of Ecosystems for South Africa

The Red List of Ecosystems (RLE; http://bgis.sanbi.org/Projects/Detail/1233/) for South Africa is a dataset containing the historical/potential extent, as well as the remaining remnants, of each ecosystem type. This represents a revision of the "List of terrestrial ecosystems that are threatened or in need of protection" published in December 2011. Ecosystems are categorised into one of four classes representing their risk of collapse, namely Critically Endangered (CR), Endangered (EN), Vulnerable (VU), or Least Concern (LC). The units of assessment for the RLE are the vegetation types of VegMap (see section 9.3.2).

9.2.2. National Biodiversity Assessment 2018

The National Biodiversity Assessment 2018 (NBA) (Skowno et al., 2019) assessed the state of South Africa's biodiversity based on the best available science to understand temporal trends, and informs policy and decision-making across a range of sectors. The NBA deals with three biodiversity components: 1) genetics, 2) species, and 3) ecosystems. The NBA also assesses biodiversity and ecosystems across terrestrial, freshwater, estuarine, and marine environments. The two headline indicators assessed in the NBA are:

- **Ecosystem Threat Status**: An indicator of ecosystem wellbeing. This concerns the amount of change regarding ecosystem structure, function, and/or composition, based on the proportion of the original extent of each ecosystem type still currently in good ecological condition. Specifically, ecosystem threat levels are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), or Least Concern (LC).
- **Ecosystem Protection Level**: An indicator of how well ecosystems are adequately protected or under-protected. Specifically, ecosystems protection levels are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP), based on biodiversity targets for each ecosystem type included within one or more protected areas. So-called "under-protected ecosystems" include NP, PP, or MP ecosystem types.

9.2.3. Protected Areas

National Protected Areas Expansion Strategy (NPAES; SANBI, 2010): NPAES provides spatial information on areas that are suitable for terrestrial ecosystem protection. These present the best opportunities for meeting ecosystem-specific protected area targets set out in the NPAES and were designed with strong emphasis on climate change resilience and requirements for protecting freshwater ecosystems. NPAES focus areas are large, intact, and unfragmented, and are therefore highly important for biodiversity, climate resilience, and freshwater protection. Note that these areas are not necessarily future protected area boundaries — often times only a portion of a particular focus area would be required to meet protected area targets. Moreover, they do not replace fine scale planning. Such planning might identify many different priority sites based on local requirements, constraints, and opportunities.

9.2.4. Hydrological Features: Strategic Water Source Areas

Strategic Water Source Areas (SWSAs) represent 10% of South Africa's land area that provides a disproportionate 50% of the country's water runoff. The localities of SWSAs are crucial for planning and managing water resources, including the ecosystems that support water quality and quantity (SWSAs extend into Lesotho and eSwatini).

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9.2.5. Hydrological Features: National Freshwater Ecosystem Priority Area Status

South African river systems are categorised based on ecological criteria (such as ecosystem representation, water yield, connectivity, unique features, and threatened taxa) to better conserve aquatic ecosystems, and are represented by Freshwater Ecosystem Priority Areas (FEPAs) (Nel et al., 2011). FEPAs are intended to support conservation and are intended to guide the effective implementation of measures to achieve the National Environment Management Biodiversity Act's (NEM:BA) biodiversity goals.

9.2.6. Biodiversity Spatial Plan

Biodiversity Spatial Plans classify areas based on their contribution towards provincial conservation targets. Various land use types are classified according to their biodiversity and environmental importance as follows:

- **Critical Biodiversity Areas** (CBAs): areas that are required to meet biodiversity targets for species, ecosystems, or ecological processes and infrastructure. CBAs are of high biodiversity and ecological value and must be kept in a natural or near-natural state, with no further loss of habitat or species. Moreover, degraded areas should be rehabilitated to natural or near-natural conditions, and only low-impact, biodiversity-sensitive land uses are appropriate. Examples are areas required to meet biodiversity pattern (e.g. species and ecosystems) targets, Critically Endangered (CR) ecosystems, all areas required to meet ecological infrastructure targets, and critical corridors that maintain landscape connectivity. Two subtypes are distinguished:
    - CBA Irreplaceable (CBA 1): Areas that are critical for meeting biodiversity targets and thresholds, and which are required to ensure the persistence of viable species populations and ecosystem functionality.
    - CBA Optimal (CBA 2): Areas which represent the best localities, from a potentially larger selection of available planning units, that are optimally located to meet conservation targets, as well as other criteria.
- **Ecological Support Areas** (ESAs): the ecological functioning and sustainability of CBAs require support from additional areas, namely ESAs. Although ESAs are not essential for meeting biodiversity targets, they are nevertheless important for supporting PAs or CBAs. ESAs are often crucial for delivering ecosystem services. For terrestrial and aquatic environments, such areas are functional, but not necessarily pristine and natural. However, they are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within CBAs, and also contribute significantly to the maintenance of ecological infrastructure. Two subtypes are distinguished:
    - ESA 1: Areas that might still be functional, and could be natural, near-natural, or moderately degraded.
    - ESA 2: Areas that are severely degraded or have no natural cover remaining and therefore require restoration.
- **Other Natural Areas** (ONAs): Some areas have not been identified as a priority in the current biodiversity spatial plan. However, they retain most of their natural character, and still perform many biodiversity and ecological infrastructure functions. Therefore, they are an important part of the natural ecosystem. It is desirable that ONAs, where possible, are managed or utilized to minimize habitat and species loss, and that ecosystem functionality through strategic landscape planning is ensured.
- **Severely Modified to No Natural Remaining** (NNR): These areas have been severely modified by human activity. They are no longer natural and do not contribute to biodiversity targets. However, these areas may still provide

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limited biodiversity and ecological infrastructure functions (and could potentially be useful for restoration/rehabilitation endeavours).

- **Protected Areas** (PAs): Areas that are formally protected by law in terms of the NEM:PAA. This includes gazetted private Nature Reserves and Protected Environments.

9.3. Botanical Assessment

The flora of the region was assessed both floristically (species identity) and compositionally (community assembly patterns).

9.3.1. Species Identities

Various reasons exist why the flora of a region cannot be fully catalogued within a limited timeframe (or even an extended timeframe; specifically see section 1.5). Therefore, the following data sources were used to obtain historical distribution records to develop a comprehensive list of plant species potentially occurring within the study area and broader region:

- **Botanical Database of Southern Africa** (BODATSA; also often referred to as POSA [Plants of southern Africa]): this is an electronic database hosted by the South African National Biodiversity Institute (SANBI) that provides herbarium records collected in the region (http://posa.sanbi.org/). Records were specifically extracted from a very large area surrounding the actual study area.
- **The Red List of South African Plants** (Raimondo et al., 2009): this online database (http://redlist.sanbi.org/) provides the most current national status of South Africa's vascular plant species. This was used to assess SCC[1], which are taxa (in this case plant species) that have a significant conservation importance for preserving South Africa's high biological diversity. SCC have a high conservation importance in terms of preserving South Africa's high floristic diversity, and include threatened species (CR, EN, and VU), as well as NT or DD, and also includes 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; see Figure 9) (South African National Biodiversity Institute, 2020). Note that SANBI divides the IUCN category DD into "Data Deficient: Insufficient Information (DDD)", and "Data Deficient: Taxonomically Problematic (DDT)". When SCC occur in a study area or PAOI, the proposed activities could impact them and result in significant biodiversity loss — the loss of SCC populations might either increase the extinction risk of the respective species, or might even contribute toward their extinction. As such, it is very important to note that a permit must be obtained from the relevant local authorities to destroy or relocate any SCC (or even protected species).
- **iNaturalist**: this is a comprehensive online platform (https://www.inaturalist.org/) to which numerous citizen scientists contribute distribution records of biodiversity, mostly in the form of photos. Although many of the users are not professional botanists, various recognized botanical experts from across the globe assist in accurate species

[1] Note that all South African plants have been assessed (i.e., assigned a red list category, or "redlisted") by the Red List of South African Plants. Therefore, using the terms "redlist" or "red list" specifically for Threatened or other conservation concern species is not accurate (even though it remains popular). The term "Species of Conservation Concern" (or SCC) is preferable, or "Threatened" where applicable.

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identification, and the platform is therefore an invaluable source of information regarding biodiversity. Nevertheless, to ensure a higher data reliability (i.e., only relevant/accurate records), the following parameters were used to extract records for this project: Quality Grade = "Research"; Identifications = "most agree"; Captive / Cultivated = "no". Records were specifically extracted from a very large area surrounding the actual study area. However, to minimize redundancy, and to provide the most likely set of plant species that might occur on site, the retrieved geospatial records were filtered by the vegetation types underlying the study area (as mapped by VegMap; see section 9.3.2).

- **National Web Based Environmental Screening Tool**: a geographically based, web-enabled governmental application (https://screening.environment.gov.za/screeningtool/#/pages/welcome) which allows a proponent intending on submitting an application for environmental authorisation in terms of the Environmental Impact Assessment (EIA) Regulations 2014, as amended, to screen their study area for environmental sensitivity. Of specific interest for this report are the potential presences of so-called "sensitive plant species" that might occur in the study area and surrounds, as well as any terrestrial biodiversity features listed as having a "Very High" sensitivity rating.

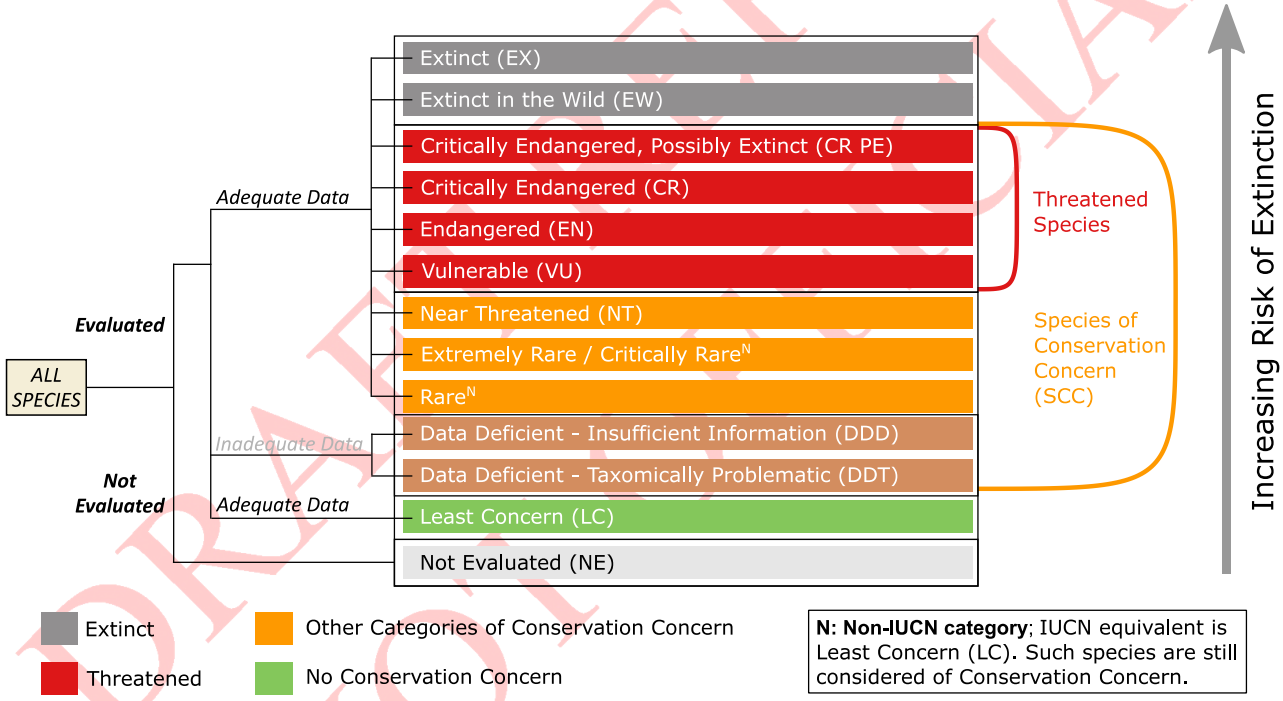


Figure 9: Red List and SCC categories used in this report as originally delineated according to SANBI's Red List of South African Plants (http://redlist.sanbi.org/redcat.php), and recently updated in the *Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa* (South African National Biodiversity Institute, 2020).

Although not explicitly required by the relevant gazetted protocols, protected plant species were also surveyed for and included in this project. The lists obtained from the aforementioned databases were used to identify such protected plant species. These species are protected by NEM:BA, as well as other provincial legislation (see section 1.6). Briefly, no person may sell, buy, transport, destroy, or harvest a protected plant without a permit from the relevant authority.

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Finally, the lists obtained from these databases were used to identify invasive alien plant species (IAPs) that are listed in the NEM:BA A&IS Regulations. IAPs can dominate, and even replace, native flora. Therefore, they have the ability to completely transform the structure, composition, and functioning of ecosystems. IAPs must be controlled, and preferably eradicated, by means of an eradication and monitoring program (see below for details).

9.3.1.a) NEM:BA Alien and Invasive Species Regulations

The NEM:BA A&IS Regulations is the most current legislation regarding IAPs. The list of Alien Invasive Species was first published in August 2014 in terms of NEM:BA, with subsequent updates. The Alien and Invasive Species Regulations were published in the Government Gazette No. 44182, 24th of February 2021. The legislation requires the removal and/or control of Category 1a and 1b IAPs. In addition, unless authorised in terms of the National Water Act, no land user may allow Category 2 IAPs to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam, or wetland. Category 3 IAPs are also prohibited from occurring close to a watercourse.

The NEM:BA A&IS Regulations categories are, briefly, as follows:

- **Category 1a**: Invasive species requiring compulsory control. All specimens must be removed and destroyed, and the species must be eradicated from the environment. No permits will be issued.
- **Category 1b**: Invasive species requiring compulsory control as part of an invasive species control program. All specimens must be removed and destroyed. Since these IAPs can have a high invasive potential, infestations may qualify for a government sponsored invasive species management program. No permits will be issued.
- **Category 2**: Invasive species regulated by area. A demarcation permit is required to import, possess, grow, breed, move, sell, buy, or accept as a gift any Category 2 IAPs. No permits will be issued for Category 2 plants to exist in riparian zones.
- **Category 3**: Invasive species regulated by activity. An individual plant permit is required to undertake restricted activities such as importing, possessing, growing, breeding, moving, selling, buying, or accepting as a gift any Category 3 IAPs. No permits will be issued for Category 3 plants to exist in riparian zones.

According to the NEM:BA A&IS Regulations, any person in control of a Category 1b IAPs must immediately:

- Notify the competent authority in writing; and
- Take steps to manage the listed invasive species in compliance with:
    - Section 75 of NEM:BA;
    - The relevant invasive species management program developed in terms of regulation 4; and
- Any directive issued in terms of section 73(3) of NEM:BA.

9.3.2. Community Composition: Vegetation Types

The vegetation types (and their conservation statuses) of the study area, as well as the broader regions surrounding the study area, were verified using the South African National Vegetation Map, or simply "VegMap" (Dayaram et al., 2018; Mucina & Rutherford, 2006; South African National Biodiversity Institute, 2018) and the Red List of Ecosystems (see section 9.2.1). The latest version of VegMap was consulted for any updates of the respective regions. Vegetation

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descriptions given are as per VegMap 2006 except were new vegetation types have been added by subsequent updates — in such cases the latest descriptions have been used. All of the units were also cross-validated with VegMap 2024 to inspect their respective extents.

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10. Appendix D: Methodology Fieldwork Phase

Briefly, the field surveys aimed to investigate the following on-site aspects:

- The occurrence of SCC and protected plant species;
- The specific vegetation types (identification, classification, and delineation); and
- The specific habitat/community types (classification and delineation).

10.1. Botanical Assessment Details

Surveying was done within specifically targeted areas that were perceived as ecologically distinct and/or sensitive based on the results obtained from the desktop assessment of plant community types (sections 9.1 and 9.2). This was to optimize coverage and to perform a rapid, but efficient, vegetation and ecological assessment at each survey area.

The botanical assessment was conducted by surveying fixed-point plots of sufficient size within each community type, which were also supplemented with timed meanders (South African National Biodiversity Institute, 2020) within the respective community types. This combination is highly efficient for conducting floristic analyses. This allows plant species coverages and SCC occurrences to be rapidly estimated, as well as the compilation of adequate plant species lists, thereby giving a prompt indication of botanical diversity. Other useful observations were also recorded where applicable within each community type, examples of which include ecological condition and current impacts (examples of which could include the presence of invasive alien plant species, livestock grazing, degree of erosion, etc.), general vegetation density and physiognomic characteristics, habitat notes, and the presence of any sensitive features (e.g., wetlands, seepages, and drainage lines). Finally, any opportunistic observations were also made while surveying.

Various field guides and identification manuals were used for plant identification, as well as other relevant literature regarding the ecology of the region (Bromilow, 2010; Curtis-Scott et al., 2020; Dorrat-Haaksma & Linder, 2012; Fish et al., 2015; Henderson, 2020; Manning, 2007; Rebelo, 1995; Van Oudtshoorn, 2012; Vlok & Schutte-Vlok, 2015), and are listed in section 6.

10.2. Sensitivities: Terrestrial Plant Species Sensitivity Criteria

The protocol for the *Specialist Assessment And Minimum Report Content Requirements For Environmental Impacts On Terrestrial Plant Species* (Gazette 43855 No. 1150) provides various criteria that define the plant species sensitivity categories Very High, High, Medium, and Low. These are provided below, together with relevant notes where applicable.

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Sensitivity	Criteria	Notes
Very High	• Critical Habitat for range restricted species of conservation concern that have a global range of less than 10 km^2. • SCC listed on the IUCN Red List of Threatened Species or on South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable according the IUCN Red List 3.1. Categories and Criteria or listed as Nationally Rare • Species aggregations that represent ≥1% of the global population size of a species, over a season, and during one or more key stages of its life cycle. • The number of mature individuals that ranks the site among the largest 10 aggregations known for the species.	These areas are irreplaceable in terms of SCC.
High	• Confirmed habitat for SCC. • SCC listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable according the IUCN Red List 3.1. Categories and Criteria.	These areas are unsuitable for development due to a very likely impact on SCC.
Medium	• Suspected habitat for SCC based either on there being records for this species collected in the past, prior to 2002, or being a natural area included in a habitat suitability model. • SCC listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable according the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare.	(None given)
Low	• Areas where no natural habitat remains. • Natural areas where there is no suspected occurrence of SCC.	(None given)

10.3. Sensitivities: Terrestrial Site Ecological Importance (SEI)

The most current site sensitivity methodology, namely the Site Ecological Importance (SEI), was followed here, as proposed by the *Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa* (South African National Biodiversity Institute, 2020).

The different plant community types within the Project Area were delineated and identified based on field observations and satellite imagery (also see section 9.1). These plant community types were assigned SEI categories based on various factors, such as ecological integrity, conservation value, functionality, ecosystem processes, and the presence/absence of SCC, among other things.

Specifically, SEI is a function of two factors (Figure 10): 1) The Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/fauna community, or habitat type) and Receptor Resilience (RR; the resilience of the receptor to impacts). BI is in turn a function of Conservation Importance (CI; the importance of a site for supporting biodiversity features of conservation concern that are present) and the Functional Integrity (FI; the receptors' current ability to maintain its structure and functions, compared to its known or predicted state under ideal conditions) of the receptor.

BI and SEI are both calculated using respective risk matrices (Figure 11). BI, FI, and RR categories are all circumscribed by various criteria (see Table 3, Table 4, and Table 5). The various criteria per category may be applied in combination or in isolation. See Figure 11 for guidelines on interpreting the resulting SEI categories. SEI is usually evaluated per plant community type / vegetation type.

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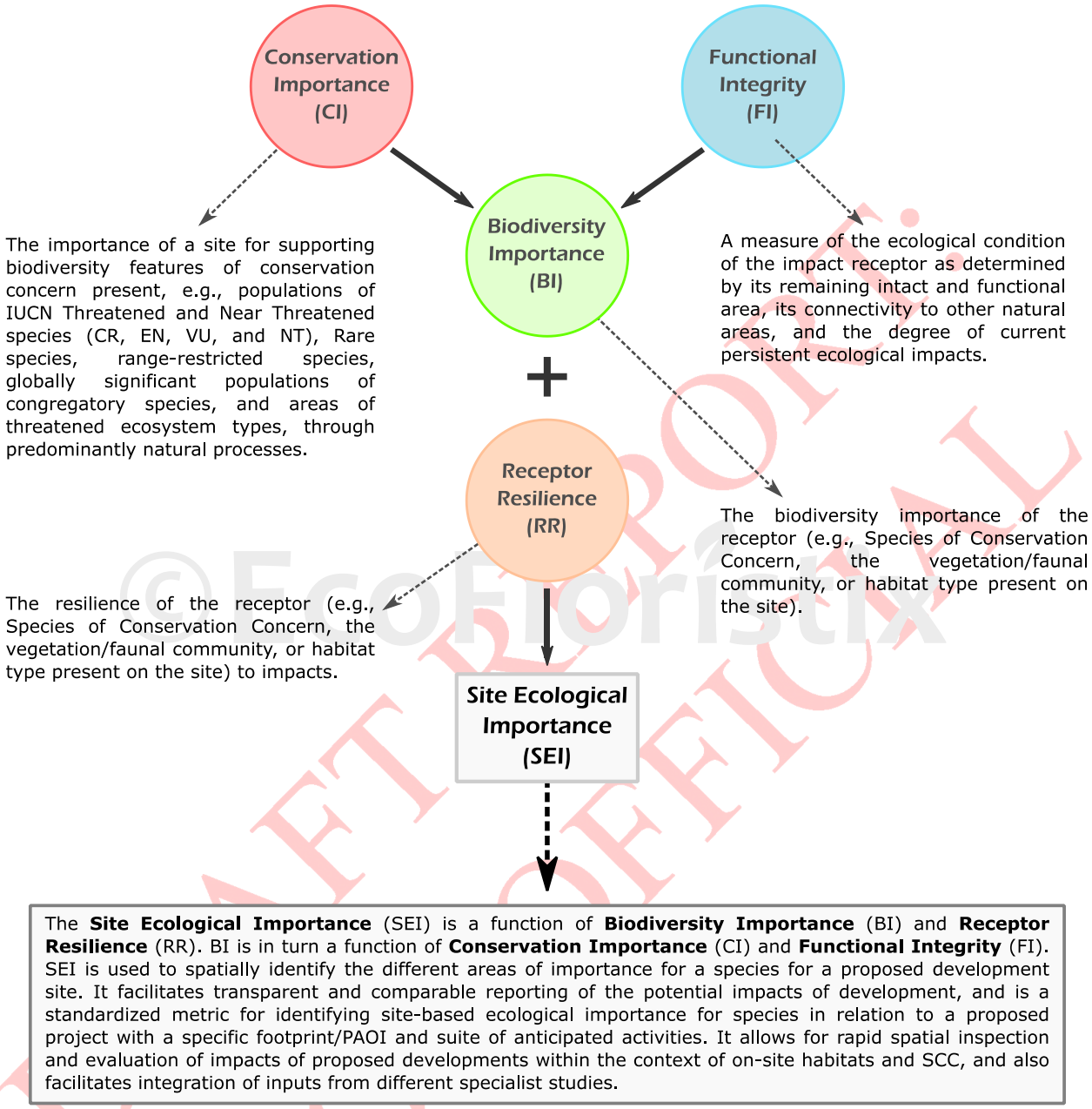
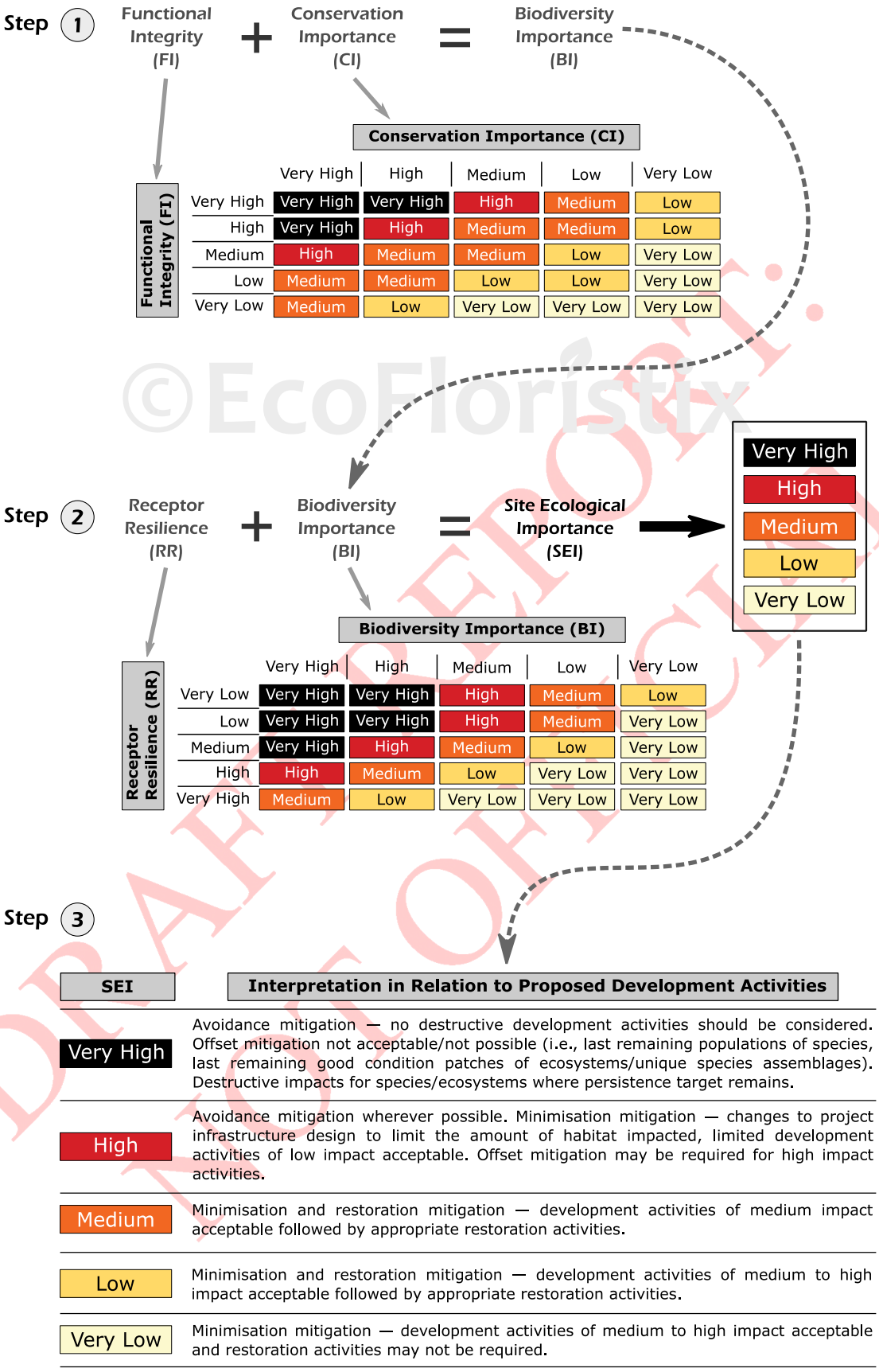


Figure 10: Details on the factors that contribute to the Site Ecological Importance value. Also see Figure 11.

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Figure 11: Calculations, scores, process, and guidelines for calculating and interpreting Site Ecological Importance (SEI) categories.

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Table 3: Details regarding Conservation importance (CI) categories.

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

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Table 4: Details regarding Functional Integrity (FI) categories.

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

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Table 5: Details regarding Receptor Resilience (RR) categories.

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

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10.4. Impact Assessment Methodology

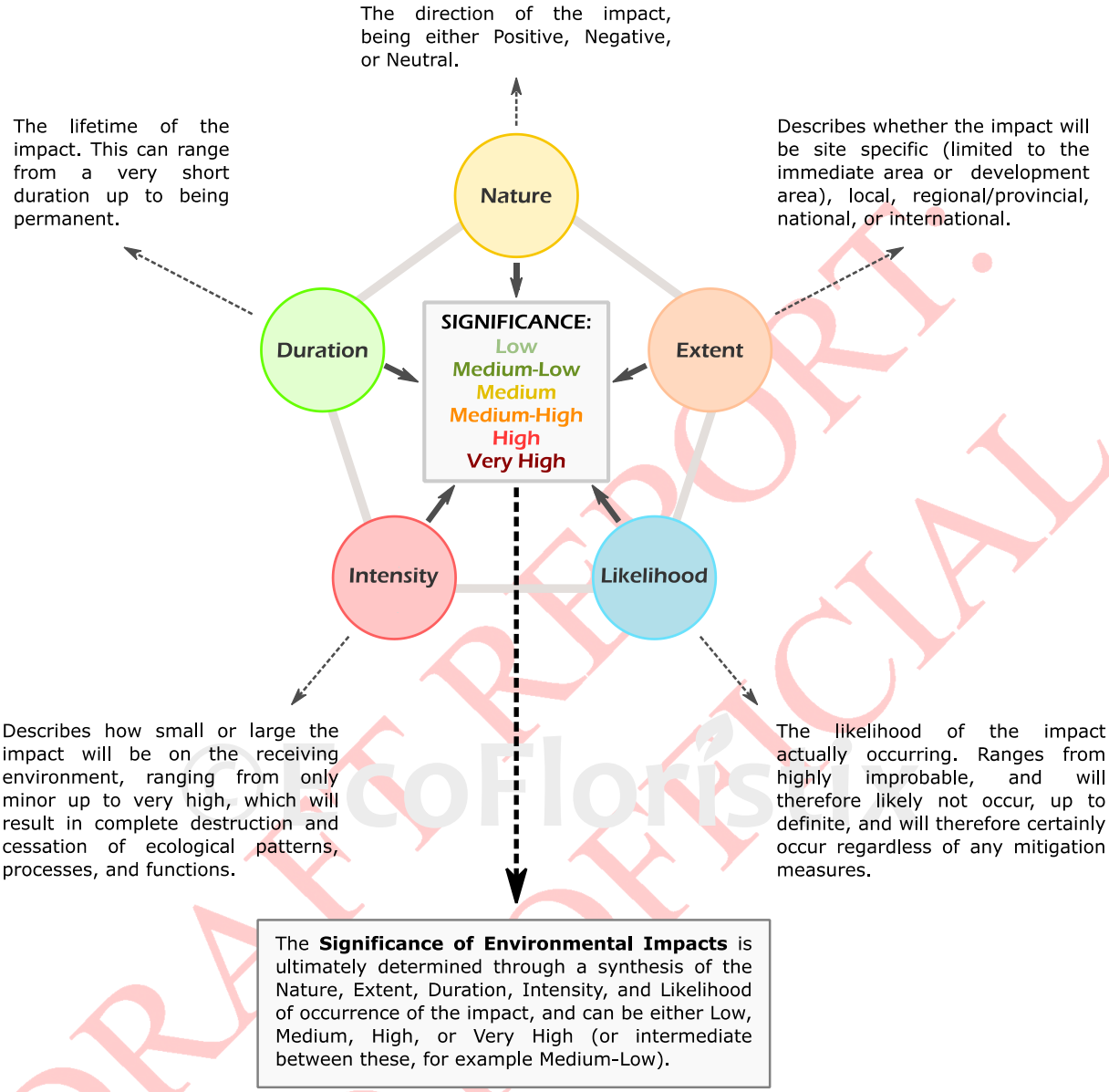


Figure 12: Details on the factors that contribute to Significance of Environmental Impacts values.

The Significance of Environmental Impacts was used to assess the impacts and risks associated with the proposed activities. The "Significance" of an environmental impact is a combination of the consequence and likelihood of an impact occurring (DFFE, 2023). The following factors must at least be considered as part of the process of assessing the significance of a negative impact on biodiversity (Figure 12):

- **Consequence** of an impact: a combination of the intensity, extent, and duration of the impact.
    - **Intensity** (severity) of the impact: the intensity of an ecological impact is given at a defined (usually spatial) scale.

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- **Extent** of the impact: the scale of expected impacts as a proportion or range of a given biodiversity feature. The greater the extent, the greater the consequence, and the more significant the impact.
- **Duration** of the impact: how long the impact will last, from short-term to permanent, where permanent is a period of thirty years and above (unless the receiving environment justifies a shorter consideration of permanent). The longer the duration, the greater the consequence, and the more significant the impact.

- **Likelihood** (or probability) of the occurrence of the impact: The more likely the impact, the greater the certainty of the impact significance.

Thus, the Significance of Environmental Impacts is primarily a function of 1) the present environmental aspects that are to be impacted on, 2) the likelihood of an impact occurring, and 3) the consequence of such an impact occurring before, and after, implementation of proposed mitigation measures.

In addition, the "nature" of the impact can be negative, neutral, or positive; this adds additional context to the significance values.

Implicitly considered is the degree to which impacts can be managed/mitigated, reversed, and/or may cause irreplaceable loss of resources.

10.5. The Mitigation Hierarchy

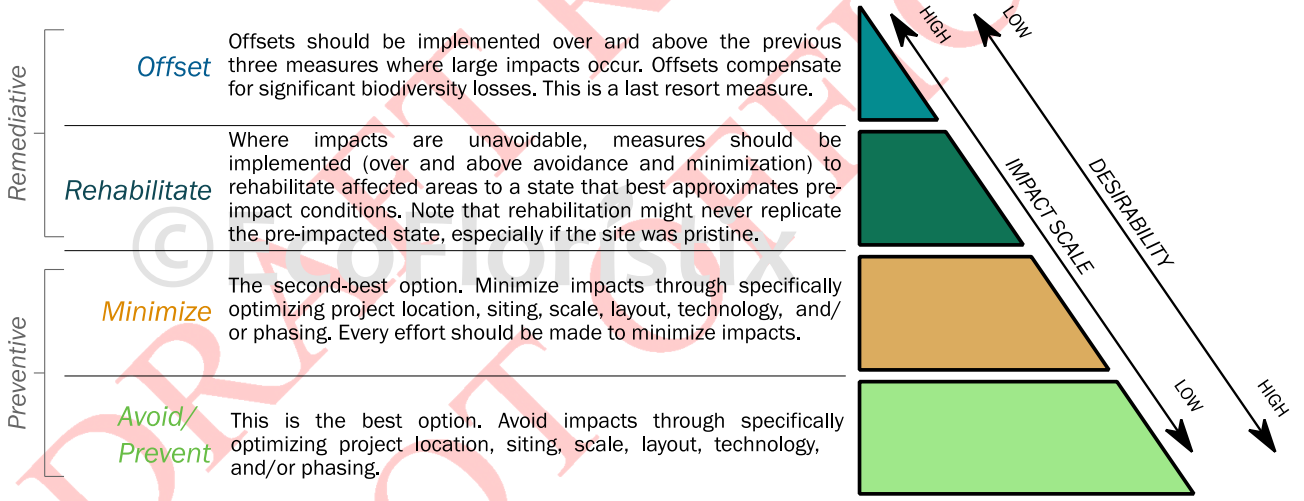


Figure 13: The Mitigation Hierarchy.

The mitigation hierarchy (Figure 13) is a fundamental and internationally recognized framework in environmental management, designed to systematically address and limit the negative impacts of human activities on biodiversity and ecosystems. It is a guiding principle that ensures a strategic and proactive approach to environmental impact assessment and management. The hierarchy prioritizes actions, starting with those that offer the greatest environmental benefit and least risk, and progressively moves towards less desirable options when the preferred ones are not entirely achievable. In essence, it encourages the consideration of alternatives that avoid significant impacts. The best-case scenario (most desirable) is thus the one with the lowest impacts.

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The hierarchy consists of four sequential steps:

1. **Avoidance/Prevention:** This is the most crucial and preferred step. It focuses on preventing impacts from occurring in the first place. This can be achieved through careful project planning, strategic site selection to bypass sensitive areas, or by redesigning project components to eliminate potential harm entirely. Effective avoidance at the earliest stages of a project's lifecycle, often during feasibility and conceptual design, can significantly reduce the need for subsequent, more costly, and often less effective mitigation measures.

2. **Minimization/Reduction:** Where complete avoidance is not feasible, the next step involves minimizing or reducing the intensity, duration, timing, and/or extent of unavoidable impacts. This requires implementing measures to lessen the severity of the anticipated harm. Examples include adopting less impactful construction methods, restricting the operational footprint of a development, or implementing seasonal restrictions on activities to avoid sensitive periods for wildlife (e.g., breeding seasons). Minimization often involves adaptive management, where the effectiveness of measures is monitored, and adjustments are made as needed to further reduce impacts.

3. **Restoration/Rehabilitation:** This comes into play after impacts have occurred, and is the start of remediative processes. It focuses on actively restoring or rehabilitating degraded ecosystems and habitats to a former or desired state. Rehabilitation typically aims to re-establish basic ecological functions and productivity, while restoration strives to achieve a fully functioning ecosystem comparable to the original, pre-impact condition. This can involve measures such as re-vegetating disturbed areas with indigenous species, restoring hydrological flows in altered wetlands, or remediating contaminated soils. The goal is to repair the damage as much as possible on-site, bringing the affected area back to an ecologically viable state.

4. **Offsetting/Compensation:** As the last resort, when significant residual impacts remain after all reasonable avoidance, minimization, and restoration measures have been implemented, offsetting (also known as compensation) is considered. This involves providing measurable conservation gains elsewhere to compensate for the unavoidable loss of biodiversity or ecosystem services. Offsets should ideally target the same type of biodiversity or ecosystem services that have been impacted. Examples include the establishment of new protected areas, the restoration of degraded habitats off-site, or funding long-term conservation programmes that directly benefit the impacted species or ecosystems. In South Africa, the concept of biodiversity offsets aims to ensure that they genuinely contribute to "no net loss" or even a "net positive gain" for biodiversity, recognizing that offsets are complex and require robust monitoring and long-term commitment.

The effective application of the mitigation hierarchy is crucial for achieving sustainable development outcomes. It promotes a transparent and accountable approach to environmental management. It guides decision-making towards minimizing ecological footprints and ensures that biodiversity considerations are integrated throughout a project's lifecycle.

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11. Appendix E: Notes on SCC and Protected Plant Species

This section includes relevant definitions and regulations pertaining to SCC and protected plant species as determined by national legislation. Briefly, a permit is required to perform any restricted activity, as defined by NEM:BA, on specimens of any SCC or protected plant species, whether such specimens are living or dead. Note: this is NOT an exhaustive account of NEM:BA.

11.1. National Environmental Management: Biodiversity Act, 2004 (Act No. 10, 2004, Vol. 467, No. 26436)

NEM:BA Definition of "specimen" (Chapter 1, Definitions):

a) any living or dead animal, plant or other organism;

b) a seed, egg, gamete or propagule or part of an animal, plant or other organism capable of propagation or reproduction or in any way transferring genetic traits;

c) any derivative of any animal, plant or other organism; or any goods which-

   i. contain a derivative of an animal, plant or other organism; or

   ii. from an accompanying document, from the packaging or mark or label, or from any other indications, appear to be or to contain any derivative of an animal, plant or other organism.

NEM:BA Definition of "restricted activity" (Chapter 1, Definitions):

(a) in relation to a specimen of a listed threatened or protected species, means-

i. hunting, catching, capturing or killing any living specimen of a listed threatened or protected species by any means, method or device whatsoever, including searching, pursuing, driving, lying in wait, luring, alluring, discharging a missile or injuring with intent to hunt, catch, capture or kill any such specimen;
ii. gathering, collecting or plucking any specimen of a listed threatened or protected species;
iii. picking parts of, or cutting, chopping off, uprooting, damaging or destroying, any specimen of a listed threatened or protected species;
iv. importing into the Republic, including introducing from the sea, any specimen of a listed threatened or protected species;
v. exporting from the Republic, including re-exporting from the Republic, any specimen of a listed threatened or protected species;
vi. having in possession or exercising physical control over any specimen of a listed threatened or protected species;
vii. growing, breeding or in any other way propagating any specimen of a listed threatened or protected species, or causing it to multiply;
viii. conveying, moving or otherwise translocating any specimen of a listed threatened or protected species;
ix. selling or otherwise trading in, buying, receiving, giving, donating or accepting as a gift, or in any way acquiring or disposing of any specimen of a listed threatened or protected species; or
x. any other prescribed activity which involves a specimen of a listed threatened or protected species

Restricted activities involving listed threatened or protected species, Part 2, 57:

(1) A person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7 (Permits).

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11.2. National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004): Threatened or Protected Species Regulations

"**Biodiversity Act**" means the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), including any amendment thereof;

"**protected species**" means any species listed as protected in terms of section 56(1)(d) of the Biodiversity Act;

"**threatened species**" means an indigenous species listed as critically endangered, endangered or vulnerable species in terms of section 56(1)(a), (b) and (c) of the Biodiversity Act;

Chapter 2 (Permit System for Listed Threatened or Protected Species), Part 1 Application for permits: Carrying out a restricted activity

4. (1) A person may carry out a restricted activity involving a specimen of a listed threatened or protected species, only if he or she is the holder of a permit issued-

a) in terms of section 57(1) of the Biodiversity Act;
b) in accordance with Chapter 7 of the Biodiversity Act, and
c) in accordance with these Regulations;

unless the Minister has exempted the carrying out of such restricted activity involving such specimen in terms of section 57(4) of the Biodiversity Act.

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12. Appendix F: Abbreviated Curriculum Vitae of the Specialist

Personal and Company Details:

- Name: Dr. Jan-Hendrik Keet
- Address: Somerset West, Western Cape, 7130
- Cell: 071 451 4853
- Email: info@ecofloristix.co.za
- Date of Birth: 07 November 1988
- Website: https://ecofloristix.co.za/
- LinkedIn: https://za.linkedin.com/company/ecofloristix
- Instagram: @ecofloristix

Expertise and Experience:

- Current: Botanical & Terrestrial Biodiversity Specialist Consultant (EcoFloristix Specialist Botanical Surveys)
- Current: Freelance Academic/Technical Editor, Proof-reader, and Dissertation Specialist
- Previous: Post-Doctoral Researcher — Mathematical Biosciences Hub (Department of Mathematics), Stellenbosch University
- Previous: Post-Doctoral Researcher — DST NRF Centre of Excellence for Invasion Biology (Department of Botany and Zoology), Stellenbosch University
- Specialization: Botany, Ecology, Biogeography, Invasive Plant Species, and Invasion Biology
- Years of experience: > 10 years
- Published in various, high-impact, national and international scientific journals

Skills and Competencies:

- Botany and Ecology
- Invasive Species Biology (PhD in Botany [Stellenbosch University] with a focus on Invasive Alien Plant Species and their environmental impacts)
- Plant Biogeography
- Plant Identification and Taxonomy
- Vegetation Surveys and Mapping
- Biodiversity Informatics
- Biological Sciences
- Soil Microbiome Composition, Function, and Chemistry
- Geographic Information Systems (*GISB1500S, NQF level 5*)
- Research Data Management and Data Visualization
- Statistical Computing Methods (*R Statistical Computing Expert*)
- Experimental Design and Analysis

Global Scientific Influence:

- Citations >750
- Global Publication Reads >10 000
- Scopus h-index 13
- Google Scholar h-index 12
- Google Scholar i10-index 14

Tertiary Education:

- 2015 – 2019: Stellenbosch University, Stellenbosch, South Africa. Doctor of Philosophy (Botany)
- 2013 – 2014: University of the Free State, Bloemfontein, South Africa. Magister Scientiae (Botany)

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- 2012: University of the Free State, Bloemfontein, South Africa. Bachelor of Science Honours (Botany) - *cum laude*
- 2009 – 2011: University of the Free State, Bloemfontein, South Africa. Bachelor of Science (Chemistry with Physics and Biology) - *cum laude*

Employment History:

- 2015 – present: Botanical Specialist
- 2021 – present: Freelance Academic/Technical Editor, Proof-reader, and Dissertation Specialist
- 2019 – 2021: Post-Doctoral Researcher – Centre for Invasion Biology (Department of Botany and Zoology), Stellenbosch University
- 2011: Part-time demonstrator. Department of Plant Sciences, University of the Free State, Bloemfontein, South Africa
- 2010: Part-time lab assistant. Department of Chemistry, University of the Free State, Bloemfontein, South Africa
- 2007 – 2009: Shop Manager. Christian Tees, Brandwag Centre, Bloemfontein

Memberships, Certifications, and Short Courses:

- SACNASP: Professional Natural Scientist (No.: 121678)
- South African Association of Botanists (SAAB) Ordinary Member (No.: 821)
- SAGIC Invasive Species Consultant (Cape Town, South Africa), March 2016
- GIS Intermediate (NQF level 5): Hydrological modelling and terrain analysis using digital elevation models (University of the Free State, South Africa), 2014
- Project Management (Stellenbosch University), 2023
- Good Laboratory Practice seminar presented by Merck Millipore South Africa, 2012
- Laboratory Safety seminar presented by Merck Millipore South Africa, 2012
- Golden Key International Honour Society (Membership No.: 7564025), 2012

Selected Peer-reviewed Scientific Publications and Book Chapters (a full list is available on request)**:**

- Rodríguez J, Novoa A, Duncan RP, Hulme PR, **Keet J-H**, Valverde A, Wandrag EM, Le Roux JJ (2026) Australian Acacia species impact soil bacterial communities abroad but not at home. Plant Soil, https://doi.org/10.1007/s11104-026-08751-w
- Le Roux JJ & **Keet J-H** (2026) Native Cape Fynbos legumes in South Africa do not nodulate with rhizobium strains associated with invasive Australian Acacia species. Biological Invasions 28: 56, https://doi.org/10.1007/s10530-026-03783-w
- **Keet J-H** & Hui C (2025) One-hectare fine-scale dataset of a fynbos plant community in the Cape Floristic Region. *Data in Brief*, https://doi.org/10.1016/j.dib.2025.111334
- Yannelli F, **Keet J-H**, Kritzinger-Klopper S, Le Roux JJ (2025) Legacy effects of an invasive legume more strongly impact bacterial than plant communities in a Mediterranean-type ecosystem. *Journal of Environmental Management* 373:123802, https://doi.org/10.1016/j.jenvman.2024.123802
- **Keet J-H**, Ellis AG, Hui C, Le Roux (2023) Responses of soil bacterial communities to invasive Australian *Acacia* species over large spatial scales. In: Richardson DM, Le Roux JJ, & Marchante E (Eds.) *Wattles: Australian Acacia Species Around the World*, CAB International, https://www.cabidigitallibrary.org/doi/10.1079/9781800622197.0000.
- **Keet J-H**, Datta A, Foxcroft LC, Kumschick S, Wilson JRU, Nichols GR, Richardson DM (2022) Assessing the level of compliance with alien plant regulations in a large African protected area. *Biological Invasions* 24: 3831 – 3844, https://doi.org/10.1007/s10530-022-02883-7.
- Warrington S, Ellis AG, **Keet J-H**, Le Roux JJ (2022) How does familiarity in rhizobial interactions impact the performance of invasive and native legumes? *Neobiota* 72: 129 – 156, https://neobiota.pensoft.net/article/79620/.
- **Keet J-H** & Richardson, DM (2022) A rapid survey of naturalized and invasive eucalypt species in southwestern Limpopo, South Africa. *South African Journal of Botany* 144: 339 – 346, https://doi.org/10.1016/j.sajb.2021.09.008.
- Novoa A, Foxcroft LC, **Keet J-H**, Pyšek P, Le Roux JJ (2021) The invasive cactus *Opuntia stricta* creates fertility islands in African savannas and benefits from those created by native trees. Scientific Reports 11: 20748, https://www.nature.com/articles/s41598-021-99857-x.

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- **Keet J-H**, Ellis AG, Hui C, Novoa A, Le Roux JJ (2021) Impacts of invasive Australian acacias on soil bacterial community composition, microbial enzymatic activities, and nutrient availability in fynbos soils. *Microbial Ecology* 82: 704 – 721, http://dx.doi.org/10.1007/s00248-021-01683-1.
- **Keet J-H**, Robertson MP, Richardson DM (2020) *Alnus glutinosa* (Betulaceae) in South Africa: invasive potential and management options. *South African Journal of Botany* 135: 280 – 293, https://doi.org/10.1016/j.sajb.2020.09.009.
- Wilson JRU, Datta A, Hirsch H, **Keet J-H**, Mbobo T, Nkuna KV, Nsikani MM, Pyšek P, Richardson DM, Zengeya TA, Kumschick S (2020) Is invasion science moving towards agreed standards? The influence of selected frameworks. *NeoBiota*, 62: 569 – 590, https://doi.org/10.3897/neobiota.62.53243.
- Novoa A, **Keet J-H**, Lechuga-Lago Y, Pyšek P, Le Roux JJ (2020) Urbanization and *Carpobrotus edulis* invasion alter the diversity and composition of soil bacterial communities in coastal areas. FEMS Microbiology Ecology 96(7): fiaa106, https://doi.org/10.1093/femsec/fiaa106.
- Le Roux JJ, Leishman MR, Cinantya AP, Gufu GD, Hirsch H, **Keet J-H**, Manea A, Saul W-C, Tabassum S, Warrington S, Yannelli FA, Ossola A (2020) Plant biodiversity in the face of global change. *Current Biology* 30: R371 – R392, https://doi.org/10.1016/j.cub.2020.02.066.
- Hirsch H, Allsopp MH, Canavan S, Cheek M, Geerts S, Geldenhuys CJ, Harding G, Hurley BP, Jones W, **Keet J-H**, Klein H, Ruwanza S, van Wilgen BW, Wingfield MJ, Richardson DM (2019) *Eucalyptus camaldulensis* in South Africa – past, present, future. *Transactions of the Royal Society of South Africa* 75(1): 1 – 22, https://doi.org/10.1080/0035919X.2019.1669732.
- Le Roux JJ, Hui C, Castillo ML, Iriondo, JM, **Keet J-H**, Khapugin, AA, Médail F, Rejmánek M, Theron G, Yannelli FA, Hirsch H (2019) Recent anthropogenic plant extinctions differ in biodiversity hotspots and coldspots. *Current Biology* 29(17): 2912 – 2918, https://doi.org/10.1016/j.cub.2019.07.063.
- **Keet J-H**, Ellis AG, Hui C, Le Roux JJ (2019) Strong spatial and temporal turnover of soil bacterial communities in South Africa's hyperdiverse fynbos biome. *Soil Biology and Biochemistry* 136: 107541, https://doi.org/10.1016/j.soilbio.2019.107541.
- Le Roux JJ, Ellis AG, Van Zyl L-M, Hosking ND, **Keet J-H**, Yannelli F (2018) Importance of soil legacy effects and successful mutualistic interactions during Australian acacia invasions in nutrient-poor environments. *Journal of Ecology* 106(5): 2071 – 2081, https://doi.org/10.1111/1365-2745.1296.
- **Keet J-H**, Ellis AG, Hui C, Le Roux JJ (2017) Legume–rhizobium symbiotic promiscuity and effectiveness do not affect plant invasiveness. *Annals of Botany* 119(8): 1319 – 1331, https://doi.org/10.1093/aob/mcx028.
- Le Roux JJ, **Keet J-H**, Mutiti B, Ellis AG (2017) Cultivation may not dramatically alter rhizobial community diversity or structure associated with rooibos tea (*Aspalathus linearis* Burm.f.) in South Africa. *South African Journal of Botany* 110: 87-96, https://doi.org/10.1016/j.sajb.2017.01.014.
- Le Roux JJ, Hui C, **Keet J-H**, Ellis AG (2017) Co-introduction vs ecological fitting as pathways to the establishment of effective mutualisms during biological invasions. *New Phytologist* 215(4): 1354 – 1360, https://doi.org/10.1111/nph.14593.
- Nsikani M, Novoa A, Van Wilgen B, **Keet J-H**, Gaertner M (2017) *Acacia saligna*'s soil legacy effects persist up to ten years after clearing: Implications for ecological restoration. *Austral Ecology* 42(8): 880 – 889, https://doi.org/10.1111/aec.12515.
- **Keet J-H**, Cindi D, Du Preez PJ (2016) Assessing the invasiveness of *Berberis aristata* and *B. julianae* (Berberidaceae) in South Africa: management options and legal recommendations. *South African Journal of Botany* 105: 288 – 298, https://doi.org/10.1016/j.sajb.2016.04.012.

Selected Conferences (a full list is available on request)**:**

- 46th South African Association of Botanists conference (Qwa-Qwa, South Africa), January 2020, ***Alnus glutinosa* (L.) Gaertn. [Black Alder]: *an emerging invader in South Africa***
- International Association for Food Protection (IAFP; Louisville, Kentucky, USA), July 2019.
- Ecological Society of America Conference, (New Orleans, Louisiana, USA), August 2018 **Invasive legumes dramatically impact soil bacterial community structures but not function**
- Legumes for Life Workshop (Stellenbosch, South Africa), May 2018 **Legume-rhizobium symbiotic promiscuity and effectiveness do not affect plant invasiveness**
- Fynbos Forum Conference (Swellendam, South Africa), July 2017 **Assessing the impacts of invasive legumes on soil conditions and microbial community composition in a biodiversity hotspot**
- 43rd South African Association of Botanists Conference (Cape Town, South Africa), January 2017, **Legume-rhizobium symbiotic promiscuity and effectiveness do not affect plant invasiveness** *Best PhD presentation*

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- 43rd Annual Research Symposium on the Management of Biological Invasions Conference (Worscester, South Africa), May 2016, **Legume-rhizobium symbiotic promiscuity does not determine plant invasiveness**
- Evolutionary dynamics of tree invasions: drivers, dimensions, and implications for management (Stellenbosch, South Africa), November 2015
- Neobiota: 8th International Conference on Biological Invasions (Antalya, Turkey), November 2014, **Assessing the threat and potential for management of Berberis spp. (Berberidaceae) in South Africa**
- 42nd Annual Symposium on the Management of Invasive Alien Plants (Karridene Beach Hotel, Durban, South Africa)
- XXth Association for the Taxonomic Study of the Flora of Tropical Africa International Conference (Stellenbosch, South Africa), January 2014
- 41st Annual Symposium on the Management of Invasive Alien Plants (Cape St. Francis, South Africa), May 2013

Selected EIAs and other works (a full list is available on request)**:**

- Botanical and Invasive Alien Plant (IAP) Assessment for a Biodiversity Offset Study on portion 7/323 and the remainder of farm no. 323 Koele Fontein, Prince Alfred Hamlet, Western Cape (August 2026). Report prepared for Doug Jeffrey Environmental. Reference: PR.26.055.
- Plant Species and Terrestrial Biodiversity Impact assessment for the proposed clearing of vegetation on the remainder of farm Romance 1370, Kraaifontein, Western Cape (August 2026). Report prepared for EcoPartners. Reference: PR.26.050.
- Plant Species and Terrestrial Biodiversity Compliance Statement for the proposed clearing of vegetation on portions 16 and 29 of farm Cemetery 727, Kraaifontein, Western Cape (August 2026). Report prepared for EcoPartners. Reference: PR.26.049.
- Plant Species and Terrestrial Biodiversity Impact assessment for proposed and unlawful (section 24G) clearing of indigenous vegetation on portions 45 and 38 of Farm 115, Robertson, Western Cape (June 2026). Report prepared for EarthGrace. Reference: PR.25.036.
- Plant Species and Terrestrial Biodiversity Compliance Statement for the Proposed Development of a Fuel Retail Facility and Truck Stop on RE/Portion 6 of Farm 764, Western Cape (June 2026). Report prepared for Doug Jeffrey Environmental. Reference: PR.26.009.
- Plant Species and Terrestrial Biodiversity Compliance Statement for the proposed clearing of vegetation on Farm 6/407 (The New Baths), Caledon, Western Cape (June 2026). Report prepared for Lornay Environmental Consulting. Reference: PR.25.009.
- Botanical Site Sensitivity Verification report for portion 2 of farm 1370, Kylemore, Western Cape (March 2026). Report prepared for Banhoek Vista. Reference: PR.26.014.
- Plant Species and Terrestrial Biodiversity Compliance Statement for the proposed clearing of vegetation on the Remainder of Erf 1489, Vermont, Western Cape (March 2026). Report prepared for Lornay Environmental Consulting. Reference: PR.26.002.
- Plant Species and Terrestrial Biodiversity Impact assessment for the proposed clearing of vegetation for road upgrades in the Groot Winterhoek Nature Reserve, Western Cape (February 2026). Report prepared for Doug Jeffrey Environmental. Reference: PR.26.004.
- Plant Species and Terrestrial Biodiversity Impact assessment for the proposed clearing of vegetation at various localities in the Hottentots-Holland and the Groenlandberg Natures Reserves, Western Cape (February 2026). Report prepared for Doug Jeffrey Environmental. Reference: PR.26.003.
- Plant Species and Terrestrial Biodiversity Impact assessment for a section 24G unlawful clearing of indigenous vegetation on Annex Klein Zout Rivier 39, Napier, Western (February 2026). Report prepared for Lornay Environmental Consulting. Reference: PR.25.046.
- Plant Species and Terrestrial Biodiversity Impact assessment for the proposed clearing of vegetation on Portion 1 of 723 (Coot Club), Wortelgat, Hermanus, Western Cape (February 2026). Report prepared for Lornay Environmental Consulting. Reference: PR.25.042.
- Site Sensitivity Verification Regarding the Plant Species and Terrestrial Biodiversity of Farm Hoopenberg No. 32, Stellenbosch (January 2026). Report prepared for Doug Jeffrey Environmental. Reference: PR24.019.
- Plant Species and Terrestrial Biodiversity Impact assessment for a section 24G unlawful construction of five boathouse units on Portion 1 of 723 Coot Club, Wortelgat, Western Cape (January 2026). Report prepared for Lornay Environmental Consulting. Reference: PR.25.044.

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- Site Sensitivity Verification Regarding the Plant Species and Terrestrial Biodiversity of Libertas Villas, Stellenbosch (December 2025). Report prepared for Doug Jeffrey Environmental. Reference: PR25.047.
- Plant Species and Terrestrial Biodiversity Impact assessment for vegetation clearing on farm Schalkenbosch 229, Tulbagh, Western Cape (November 2025). Report prepared for Enviro EAP. Reference: PR.25.038.
- Plant Species and Terrestrial Biodiversity Compliance Statement for the Proposed Residential Development and Associated Infrastructure on Erven no. 31231, 31232, 34864, and RE/4752, Paarl, Western Cape (November 2025). Report prepared for Doug Jeffrey Environmental. Reference: PR25.031.
- Plant Species and Terrestrial Biodiversity Impact assessment for a new prospecting right application on farms Karree Bosch Pan 143, Springbokspoor 144, and Zeerust 262 near Hopetown, Northern Cape Province (November 2025). Report prepared for Site Plan Consulting. Reference: PR25.037.
- Plant Species, Terrestrial Biodiversity, and Faunal Impact Assessment for the East London Industrial Development Zone (ELIDZ), Zones 1A, 1B, and 1C, Eastern Cape. In collaboration with Nkurenkuru Ecology and Biodiversity. (October 2025). Report prepared for AGES Omega. Reference: PR.25.017B.
- Plant Species and Terrestrial Biodiversity Compliance Statement for an industrial development on Farm RE/37/168, Fisantekraal, Western Cape (September 2025). Report prepared for Doug Jeffrey Environmental. Reference: PR.25.002.
- Terrestrial Biodiversity Impact Assessment / Plant Species Impact Assessment for the clearing of vegetation on Portion 20 of Farm 323, Ceres (Koelefontein), Western Cape Province (August 2025). Report prepared for Doug Jeffrey Environmental. Reference: PR.25.010.
- Plant Species and Terrestrial Biodiversity Impact assessment for the proposed clearing of vegetation for a proposed access road and house on Portion 124 of Farm 559 Hangklip, Betty's Bay, Western Cape (August 2025). Report prepared for Ohana Environmental. Reference: PR.25.011.
- Botanical survey to identify Saldanha Limestone Strandveld on farms Yzerfontein 560 (partly), Tygerfontein 564, Coffee Fontein 563, Plot 2717, and the green corridors within Yzerfontein, Western Cape (August 2025). Report prepared for Jos de Villiers Belleggings Trust. Reference: PR.25.030.
- Terrestrial Biodiversity Impact Assessment / Plant Species Impact Assessment for a Proposed Green Technology and Industrial Development on the remainder of Erf 277, Atlantis, Cape Town, Western Cape Province (June 2025). Report prepared for Ohana Environmental. Reference: IA.25.012.
- Invasive Alien Plant Species Management Framework for the East London Industrial Development Zone (IDZ), East London, Eastern Cape Province, South Africa (June 2025). Report prepared for AGES Omega. Reference: PR.25.017.
- Terrestrial Desktop Sensitivity for a Prospecting Right Application on Farm 622 for Uranium ore in the Namaqualand Magisterial District in the Northern Cape Province, South Africa (May 2025). Report prepared for Greenmined Environmental. Reference: PR.24.016.
- Terrestrial Desktop Sensitivity for a Proposed Prospecting Right On Farm Kamaggas no. 200, Drie Rivier No. 268, Polly's Kloof No. 267, Sannagas No. 269, and Klipfontein no. 266, for Uranium Ore in the Northern Cape Province, South Africa (May 2025). Report prepared for Greenmined Environmental. Reference: PR.24.018.
- Terrestrial Desktop Sensitivity for a Prospecting Right Application for Targeted Blocks on Farms Tusschen In 143, Aardvark 164, Steenbok 165, and Gifkop 166 near Steinkopf, Northern Cape Province, South Africa (May 2025). Report prepared for Greenmined Environmental. Reference: IA.25.006.
- Terrestrial Biodiversity Impact Assessment / Plant Species Impact Assessment for an industrial development on the proposed expansion of the bulk water pipeline on Portion 1 of Farm La Parisa No. 888, Paarl, Western Cape Province (May 2025). Report prepared for Doug Jeffrey Environmental. Reference: IA.25.003.
- Plant Species and Terrestrial Biodiversity Compliance Statement for illegal repairs to an old road through a watercourse and the removal of material from a water impoundment dam near Infanta, Western Cape (April 2025). Report prepared for EarthGrace. Reference: IA.25.016.
- Invasive Alien Species Risk Analysis Review of the Canetsfontein Wine Farm I&AS Risk Assessment Report (November 2024). Report prepared for Earthguard Consulting.
- Terrestrial Biodiversity and Plant Species Compliance Statement for a mining permit application project on Bonne Esperance Farm 83 near Tulbagh in the Western Cape Province (November 2024). Report prepared for Greenmined Environmental. Reference: IA.24.023.
- Section 24G Botanical Assessment for the construction of two unlawful dams on Farm 497 Portion 3 Weltevreden, Western Cape Province. Report prepared for Doug Jeffery Environmental (November 2024). Report prepared for Doug Jeffrey Environmental. Reference: IA.24.021.
- Invasive Alien Species Risk Analysis Review of the Canetsfontein Wine Farm I&AS Risk Assessment Report (November 2024). Report prepared for Earthguard Consulting.

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- N6 Galway City (Ireland) Ring Road Environmental Impact Assessment Report: Assistance with Data Analysis, Modelling, and Validation (July 2024 – January 2025). In collaboration with Scott Cawley, Ireland.
- Plant and Terrestrial Biodiversity Assessment for a Mining Permit Extension application for the mining site Norrabees near Henkries, Northern Cape Province (May 2024). Report prepared for Site Plan Consulting. Reference: IA.24.010A.
- Plant and Terrestrial Biodiversity Assessment for a Mining Permit Application for the mining site Spodumene Kop near Henkries, Northern Cape Province (May 2024). Report prepared for Site Plan Consulting. Reference: IA.24.010B
- Terrestrial Biodiversity (Fauna, Flora and Terrestrial Biodiversity) study and impact Report for the Grid Connection Solution for the Proposed Onderstepoort Solar 1 and 2 Facilities Near Boshoek in the North West Province. In collaboration with Nkurenkuru Ecology and Biodiversity (PTY) Ltd. (April 2024). Report prepared for Atlantic Energy Partners.
- Specialist Invasive Alien Plant Species Assessment. (March 2024). Report prepared for Mpact Corrugated. Reference: IA.24.006.
- Terrestrial Biodiversity (Fauna, Flora, and Ecological EIA Phase Assessment) Report for the Proposed Kingston Solar PV Energy Facility Near Bothaville, Free State Province. In collaboration with Nkurenkuru Ecology and Biodiversity (PTY) Ltd. (March 2024). Report prepared for Atlantic Energy Partners.
- Terrestrial Biodiversity (Fauna, Flora, and Ecological EIA Phase Assessment) Report for the Proposed Crecy Photovoltaic Solar 4 Energy Facility and Associated Infrastructure near Mookgopong, Limpopo Province. In collaboration with Nkurenkuru Ecology and Biodiversity (PTY) Ltd. (February 2024). Report prepared for Atlantic Energy Partners.
- Plant and Terrestrial Biodiversity Assessment for a Solar Photovoltaic Facility near Northam, Limpopo. In collaboration with Nkurenkuru Ecology and Biodiversity (PTY) Ltd. (November 2023). Report prepared for Atlantic Energy Partners.
- Botanical Impact Assessment for a proposed rerouting of a sewer pipeline on Erf 5076, Khayalethu, Knysna, Western Cape. In collaboration with Keep Rooted (PTY) Ltd. (October 2023). Report prepared for Ohana Environmental. Reference: IA.23.015.
- Screening report for a proposed Solar PV plant near Boshoek, Northwest Province. In collaboration with Nkurenkuru Ecology and Biodiversity (PTY) Ltd. (September 2023). Report prepared for Atlantic Energy Partners.
- Plant and Terrestrial Biodiversity Assessment for a Powerline Corridor near Boshoek, Northwest Province. In collaboration with Nkurenkuru Ecology and Biodiversity (PTY) Ltd. (September 2023). Report prepared for Atlantic Energy Partners.
- Botanical Assessment and Motivation for a Mining Stockpile Area within a non-CBA zone on Farm Steinkopf no. 22 near Steinkopf, Northern Cape. (August 2023). Report prepared for Greenmined Environmental. Reference: IA.23.010.
- Botanical Impact Assessment: Development of portion 223 of Farm 559, Betty's Bay, Western Cape. (July 2023). Report prepared for Ohana Environmental. Reference: IA.23.007.
- Botanical Study and Assessment for a Housing Development, 2023. Proposed development of the development of Erf 397, Suiderstrand, Western Cape. Report prepared for RMS Environmental.
- Botanical Study and Assessment for a Mining Permit Application, 2023. Proposed development of a dolerite mine near Beaufort West, Western Cape. Report prepared for Greenmined Environmental (Pty) Ltd.
- In collaboration with Nkurenkuru Ecology and Biodiversity, 2022. Full Botanical Assessment for the proposed development of wind energy facilities south of Bethal, Mpumalanga Province.
- In collaboration with Nkurenkuru Ecology and Biodiversity, 2021. Application (Expansion of mining footprint), and Final Basic Assessment and Environmental Management Plan for the proposed sand mine expansion on Portion 4 of the Farm Zandberg Fontein 97, Western Cape Province.
- In collaboration with Nkurenkuru Ecology and Biodiversity, 2021. Proposed development of wind energy facilities on the farms Brussels, Driepoort (664-1 and 664-2), Kameelfontein, Lisbon, Nazareth, and Zwartkrans, near Vryburg, Northwest Province.
- In collaboration with Nkurenkuru Ecology and Biodiversity, 2021. Botanical Study and Assessment: Proposed development of wind energy facilities on the farm Kluitjieskraal, Loeriesfontein, Northern Cape Province.
- In collaboration with Nkurenkuru Ecology and Biodiversity, 2021. Botanical Study and Assessment: Proposed development of an access road to the authorised Sutherland 1 and Rietrug wind energy facilities near Sutherland.

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- Specialist Botanical Assessment Report: Assessment of Damage and Rehabilitation Costs for Unauthorised Driving of a 4x4 Vehicle in the Big Bay Open Space System, Cape Town. Prepared for Hannes, Pretorius, Bock & Bryant Attorneys.
- In collaboration with Nkurenkuru Ecology and Biodiversity, 2019. Mining Permit, Final Basic Assessment & Environmental Management Plan for the proposed mining of Sillimanite, Aggregate and Stone Gravel on the Farm Koenabib 43, Northern Cape Province. Botanical Study and Assessment Report. Unpublished report prepared by Nkurenkuru Ecology and Biodiversity for GreenMined Environmental. Version 1.0, 30 January 2020
- In collaboration with Nkurenkuru Ecology and Biodiversity, 2019. Mining Permit, Final Basic Assessment & Environmental Management Plan for the proposed mining of Sillimanite on the Farm Wortel 42, Northern Cape Province. Botanical Study and Assessment Report. Unpublished report prepared by Nkurenkuru Ecology and Biodiversity for GreenMined Environmental. Version 1.0, 30 January 2020
- Specialist Invasive Alien Plant Species Report: Prepared for: Mpact Corrugated, Kuils River (Western Cape), July 2019
- Proposed Township development, Country view, Gauteng: Biodiversity Impact Assessment (Flora) – Specialist Report prepared for Zone Land Solutions (PTY) Ltd, July 2015
- Colenso Anthracite Coal Mining and Power Station Project: Biodiversity Impact Assessment (Flora) – Specialist Report prepared for Zone Land Solutions (PTY) Ltd, July 2015

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