

Appendix 7: Terrestrial Biodiversity Assessment

Terrestrial Biodiversity and Plant Species Assessment Report

prepared in accordance with the
*"Protocol for the Specialist Assessment and minimum report content
requirements for environmental impacts on Terrestrial Biodiversity"*

Mthatha Quarry Mining Rights area on farm Zitatele 39, north-east
of Mthatha, Eastern Cape Province



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Terrestrial Biodiversity and Plant Species Assessment Report for Mthatha Quarry Mining Rights area on farm Zitatele 39, north-east of Mthatha, Eastern Cape Province

28 October 2024

TABLE OF CONTENTS

TABLE OF CONTENTS	2
SPECIALIST DETAILS & DECLARATION	4
DECLARATION OF INDEPENDENCE:.....	4
DISCLOSURE:.....	4
TERMS OF REFERENCE	5
INTRODUCTION	6
SITE LOCATION	6
IDENTIFIED THEME SENSITIVITIES	8
<i>Plant Species theme</i>	9
<i>Terrestrial Biodiversity theme</i>	10
ASSESSMENT METHODOLOGY	11
SURVEY TIMING	11
FIELD SURVEY APPROACH	11
IMPACT ASSESSMENT METHODOLOGY	12
SOURCES OF INFORMATION.....	14
<i>Regional Vegetation</i>	14
<i>Threatened Ecosystems</i>	14
<i>Regional plans</i>	14
<i>Aerial imagery</i>	14
<i>Vegetation and plant species</i>	14
<i>Fauna</i>	15
LIMITATIONS	15
REGIONAL CONTEXT.....	16
REGIONAL VEGETATION PATTERNS	16
<i>Mthatha Moist Grassland</i>	16
CONSERVATION STATUS OF BROAD VEGETATION TYPES	17
BIODIVERSITY CONSERVATION PLANS	18
PROPOSED PROTECTED AREAS (NPAES FOCUS AREAS)	19
PLANT SPECIES RECORDED IN THE PROJECT AREA	19
PLANT SPECIES FLAGGED FOR THE STUDY AREA.....	20
PROTECTED TREES	21
OUTCOME OF THE ASSESSMENT.....	22
VERIFICATION OF OBSERVATIONS ON SITE.....	22
HABITATS ON SITE	29
SITE ECOLOGICAL IMPORTANCE.....	30
IMPACT ASSESSMENT.....	33
LOSS OF NATURAL VEGETATION IN AN ENDANGERED ECOSYSTEM.....	33
<i>Resource irreplaceability</i>	33
<i>Threshold</i>	33
<i>Resource condition</i>	33
<i>Reversibility of impact</i>	33
<i>Extent of impact</i>	33
<i>Duration of impact</i>	34
<i>Intensity of impact</i>	34
<i>Probability of occurrence</i>	34
<i>Confidence</i>	34

<i>Significance of impact</i>	34
<i>Possible mitigation measures</i>	34
LOSS OF POPULATIONS OF <i>NERINE MASONIORUM</i> (CR)	35
<i>Resource irreplaceability</i>	35
<i>Threshold</i>	35
<i>Resource condition</i>	35
<i>Reversibility of impact</i>	36
<i>Extent of impact</i>	36
<i>Duration of impact</i>	36
<i>Intensity of impact</i>	36
<i>Probability of occurrence</i>	36
<i>Confidence</i>	36
<i>Significance of impact</i>	36
<i>Possible mitigation measures</i>	36
CONCLUSION	38
REFERENCES & BIBLIOGRAPHY	39
APPENDICES:	41
APPENDIX 1: PLANT SPECIES RECORDED ON SITE.	41
APPENDIX 2: PROTECTED TREES OF SOUTH AFRICA.	43

SPECIALIST DETAILS & DECLARATION

This report has been prepared in accordance with the "Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity", as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020. It has been prepared independently of influence or prejudice by any parties.

The details of Specialists are as follows:

Specialist	Qualification and accreditation
Dr David Hoare (Pr.Sci.Nat.)	• PhD Botany • SACNASP Reg. no. 400221/05 (Ecology, Botany)

Declaration of independence:

David Hoare Consulting (Pty) Ltd in an independent consultant and hereby declare that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by David Hoare Consulting (Pty) Ltd is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

Disclosure:

David Hoare Consulting (Pty) Ltd undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to David Hoare Consulting (Pty) Ltd by the client and in addition to information obtained during the course of this study, David Hoare Consulting (Pty) Ltd present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.



Dr David Hoare

28 October 2024
Date

TERMS OF REFERENCE

This report is prepared in compliance with the PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL BIODIVERSITY AND TERRESTRIAL PLANT SPECIES

This assessment follows the requirements of The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020 for Terrestrial Biodiversity, and in GN. No. 1150 dated 30 October 2020 for Terrestrial Plant Species and Terrestrial Animal Species. As per these Regulations, the approach for assessing sensitivity with respect to Terrestrial Plant Species and Terrestrial Animal Species is in accordance with guidelines described in the latest version of the "*Species Environmental Assessment Guideline*", available at <https://bgis.sanbi.org/>.

The assessment and minimum reporting requirements of these protocols are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (screening tool). The screening tool can be accessed at:

<https://screening.environment.gov.za/screeningtool>.

INTRODUCTION

Site location

The site is at an existing quarry to the north-east of Mthatha (Figure 1). It is accessed from the N2 national road on the northern side of Mthatha. The quarry is spatially approximately equidistant from the N2 and the R61 road to Port St Johns, although not easily accessible from the Port St Johns road due to the river valley on the eastern side of the quarry.

The eastern side of the quarry is marked approximately by the riverbed of the Corana River, a tributary of the Mthatha River that joins about 6 km downstream. Within the site is a split to another tributary, the Kangisa River. The western side of the quarry property is approximately marked by the ridgeline of a low ridge. On the western side of this ridge is village that extends back to the N2, approximately 2 km away.

The scope of this report is the entire property, part of which is planned to be mined, and part of which is already mined. The initial assessment area was reduced following the identification of sensitivities on parts the site. The site assessed here is 87 ha.

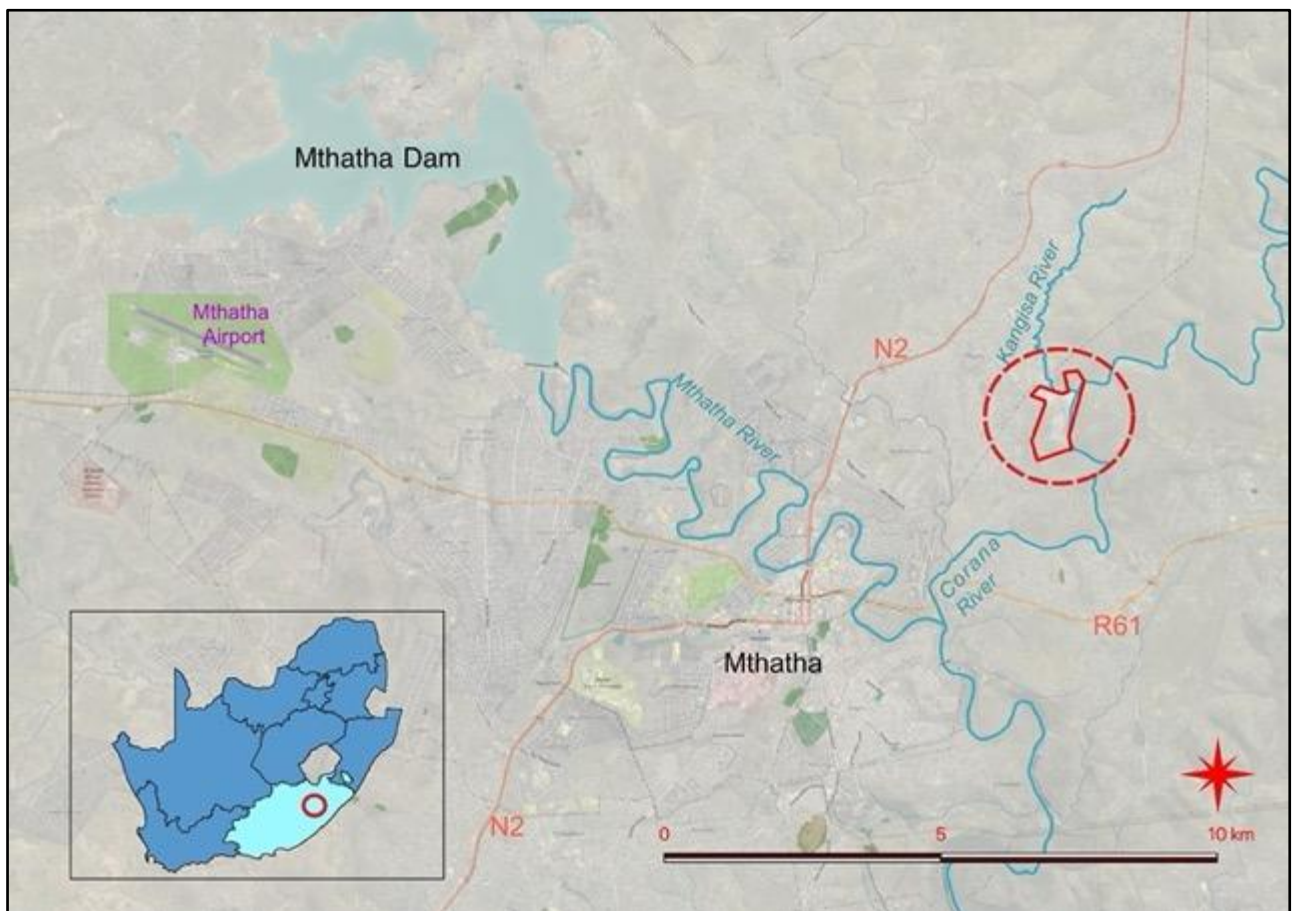


Figure 1: Location of the site.

Aerial imagery (Figure 2) shows the boundary of the site. A significant part of the property is the existing quarry and associated infrastructure. Most of the remainder of the property is a combination of grassland and rock sheets. There are also well-developed hillslope seep wetlands on the grassy slopes.



Figure 2: Aerial image of the property and surrounding areas.

Identified Theme Sensitivities

A sensitivity screening report from the DEA Online Screening Tool was requested in the following application category:

1. Mining | Mining Right.

The DEA Screening Tool report for the area, dated 28/10/2024, indicates the following ecological sensitivities:

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Plant Species theme

Areas of different sensitivity are shown in Figure 4 and sensitive features for the two application categories for the site are indicated as follows:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Phymaspermum peglerae
Medium	Sensitive species 554

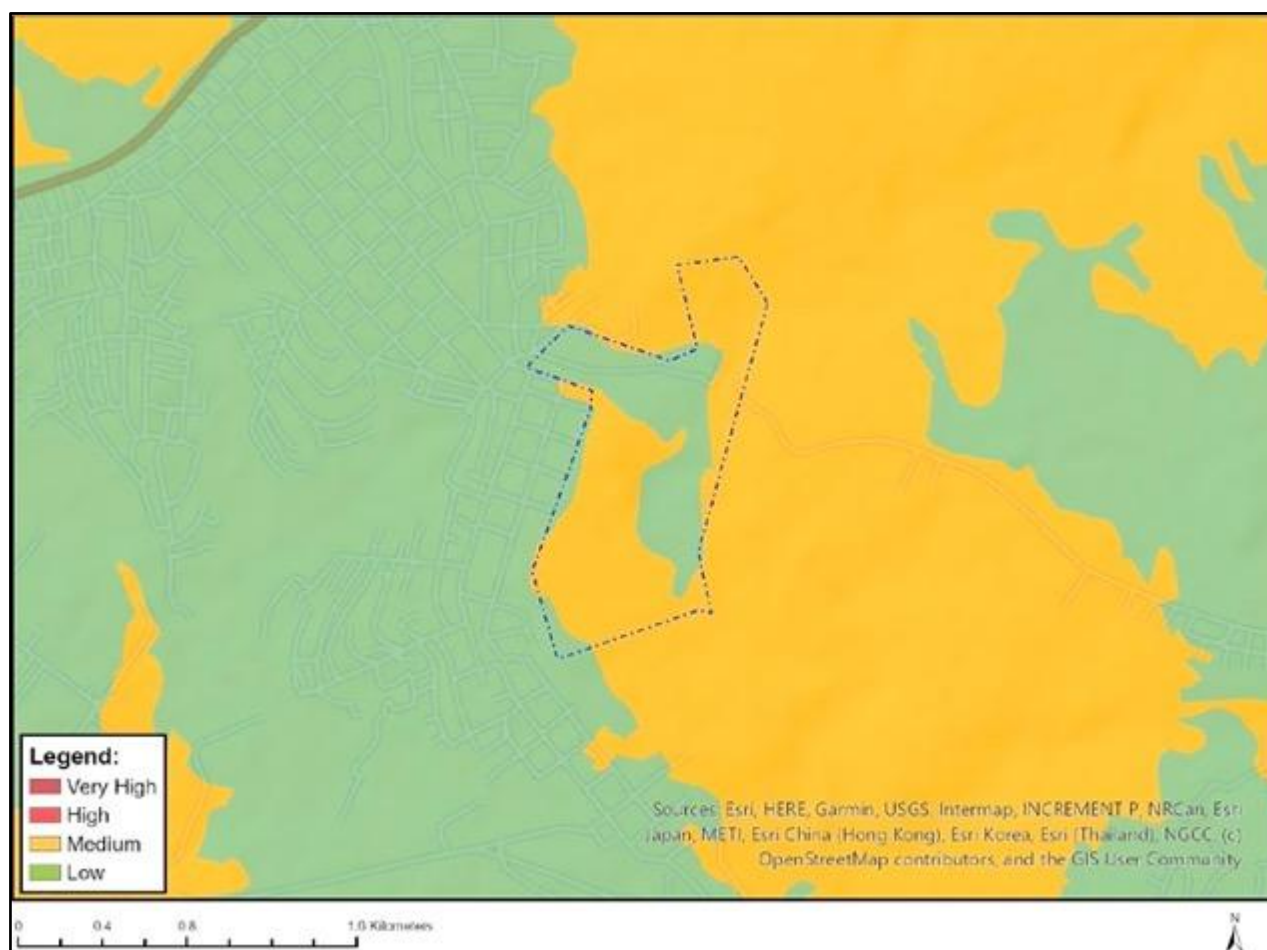


Figure 3: Plant Species theme sensitivity for the site and surrounding areas.

Terrestrial Biodiversity theme

Areas of Very High sensitivity are shown in Figure 5 and sensitive features are indicated as follows:

Sensitivity	Feature(s)
Very High	Endangered ecosystem_Mthatha Moist Grassland



Figure 4: Terrestrial Biodiversity theme sensitivity for the site and surrounding areas.

ASSESSMENT METHODOLOGY

Survey timing

The study commenced as a desktop-study followed by site-specific field studies on 15 February 2024. The site is within the Grassland Biome with a summer rainfall season. Figure 7 shows that Mthatha has peak rainfall from October to March (April). The timing of the survey in February is therefore optimal in terms of assessing the flora and vegetation of the site. It was possible to determine the overall condition of the vegetation with a high degree of confidence.

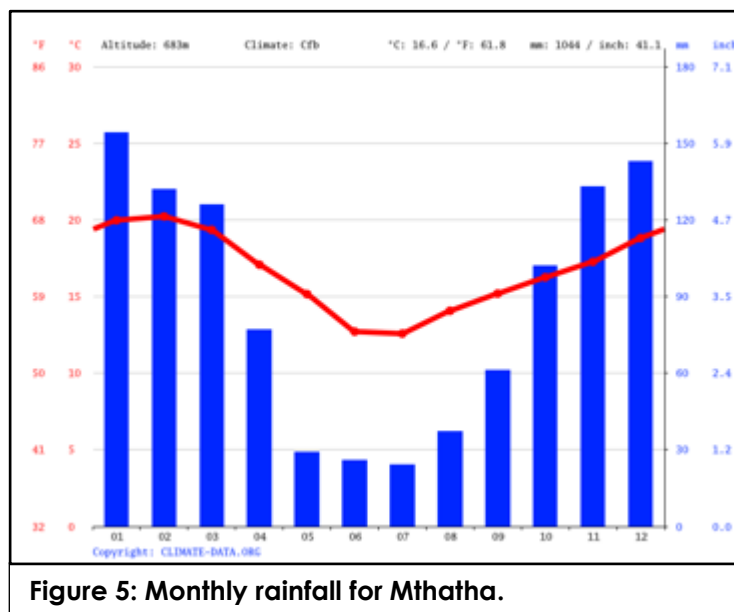


Figure 5: Monthly rainfall for Mthatha.

Field survey approach

During the field survey of the site, select areas were assessed on foot. These were only those areas where clearing has taken place without authorisation. Field surveys included both meander searches of general areas, and active searching in habitats that were considered to be suitable for specific groups or species. Meander surveys were undertaken with no time restrictions; the objective was to comprehensively examine all natural areas. A hand-held Garmin GPSMap 64s was used to record a track within which observations were made. Digital photographs were taken of features and habitats on site, as well as of all plant and animal species that were seen. All plant and animal species recorded were uploaded to the iNaturalist website (<https://www.inaturalist.org>) and are accessible by viewing the observations for the site (use the Explore menu, zoom and pan until the desired study area is within the browser window, click the button "Redo search in map", and all observations for that area will be shown and listed).

Aerial imagery from Google Earth was used to identify and assess habitats on site. This included historical imagery that may show information not visible in any single dated image. Patterns identified from satellite imagery were verified on the ground. Digital photographs were taken at locations where features of interest were observed. During the field survey, particular attention was paid to ensuring that all habitat variability was covered physically on the ground.

Impact assessment methodology

The Impact Assessment Methodology assists in evaluating the overall effect of a proposed activity on the environment. Impact assessment must take account of the nature, scale and duration of effects on the environment and whether such effects are positive (beneficial) or negative (detrimental). The rating system is applied to the potential impact on the receptor. The impact assessment methodology provided below explicitly takes into account the value and condition of the biodiversity resources affected. In assessing the significance of each issue the following criteria (including an allocated point system) is used:

CRITERIA	SCORE 1	SCORE 2	SCORE 3	SCORE 4	SCORE 5
BIODIVERSITY VALUE / SENSITIVITY CRITERIA					
Irreplaceability (I) The biodiversity value of the affected resource	Resource is widespread and common and /or regenerates itself (LC)	Resource is uncommon, endemic to a restricted area, moderately rare, or is already noticeably affected but still relatively widespread (e.g., NT, ESA)	Resource is naturally rare, restricted to limited localities, ephemeral, or is approaching a threshold of persistence (VU, CBA2)	Resource is highly localised / loss has already exceeded persistence thresholds (EN, CBA1)	Resource is critically rare / loss has already well exceeded persistence thresholds (CR, Protected)
Threshold (T) The scale of the impact relative to the overall distribution of a resource, therefore the degree to which the impact contributes towards exceeding an ecological threshold	Impact affects a negligible proportion of the overall biodiversity resource	Impact affects a proportion of the biodiversity resource that is within 6 orders of magnitude of the total extent / number of the resource (0.001-0.1%)	Impact affects a proportion of the biodiversity resource that is within 4 orders of magnitude of the total extent / number of the resource (0.1-1%)	Impact affects a proportion of the biodiversity resource that is within 2 orders of magnitude of the total extent / number of the resource (1-10%)	Impact affects a proportion of the biodiversity resource that is within 1 order of magnitude or more of the total extent / number of the resource ($\geq 10\%$)
Condition (C) The integrity of the resource in terms of its intactness and functionality, the coherence of its ecological structure and function	Resource in very poor condition, displaying advanced degradation		Moderately affected resource, functional but displaying obvious signs of minor degradation		Fully functional and in a state expected in a completely natural state, unaffected by human influence.
Reversibility (R) The ability of the environmental receptor to rehabilitate or restore after the activity has caused environmental change	Reversible: Recovery without rehabilitation	Mostly reversible: requires minor mitigation	Partly reversible: Recoverable with more intense mitigation	Barely reversible: unlikely to be reversed, even with intense mitigation	Irreversible: Not possible despite action

CRITERIA	SCORE 1	SCORE 2	SCORE 3	SCORE 4	SCORE 5
IMPACT MAGNITUDE CRITERIA					
Extent (E) The geographical extent of the impact on a given environmental receptor	Site: Within site boundary only	Site & surroundings: Extends for a limited distance beyond site boundaries	Landscape: Outside activity area	Regional: Affects patterns at a regional or provincial scale	Global: Across borders or boundaries
Duration (D) The length of permanence of the impact on the environmental receptor	Immediate: On impact, 0-1 years	Short term: 1-5 years	Medium term: 5-10 years	Long term: Project life, 10-25 years	Permanent: Indefinite
Magnitude (M) The degree of alteration of the affected environmental receptor	Very low: No impact on processes	Low: Slight impact on processes	Medium: Processes continue but in a modified way	High: Processes temporarily cease or continue in a highly modified way	Very High: Permanent cessation of processes
Probability of Occurrence (P) The likelihood of an impact occurring in the absence of pertinent environmental management measures or mitigation	Improbable	Low Probability	Probable	Highly Probability	Definite
Significance (S) is determined by combining the above criteria in the following formula:	$S = [(E + D + M)/3 \times (R + I + T + C)/4 \times P]/25$ $Significance = (Extent + Duration + Magnitude)/3 \times (Reversibility + Irreplaceability + Threshold + Condition)/4 \times Probability$				
IMPACT SIGNIFICANCE RATING					
Total Score	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5
Environmental Significance Rating (Negative (-))	Very low	Low	Moderate	High	Very High
Environmental Significance Rating (Positive (+))	Very low	Low	Moderate	High	Very High

Sources of information

Regional Vegetation

- Broad vegetation types occurring on site were obtained from Mucina and Rutherford (2006), with updates described in Dayaram et al., 2019 and according to the SANBI BGIS website (<http://bgis.sanbi.org>), as follows:
 - Mucina, L. and Rutherford, M.C. (editors) 2006. Vegetation map of South Africa, Lesotho and Swaziland: an illustrated guide. Strelitzia 19, South African National Biodiversity Institute, Pretoria.
 - South African National Biodiversity Institute 2018 Final Vegetation Map of South Africa, Lesotho and Swaziland [Vector] 2018. Available from the Biodiversity GIS website, downloaded on 23 September 2021.
- The description of each vegetation type includes a list of plant species that may be expected to occur within the particular vegetation type.

Threatened Ecosystems

- The conservation status of the vegetation types were obtained from Mucina and Rutherford (2006) and the National List of Ecosystems that are Threatened and in need of protection (GN1002 of 2011), published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004). Updates from the National Biodiversity Assessment 2018 were taken into consideration, and have recently been gazetted.
- The plant species checklist of species that could potentially occur on site was compiled from a plant species checklist extracted from the NewPosa database of the South African National biodiversity Institute (SANBI) for the quarter degree grid in which the site is located, as well as by doing a search of observations in the area around Ermelo on the iNaturalist website.
- The IUCN Red List Category for plant species, as well as supplementary information on habitats and distribution, was obtained from the SANBI Threatened Species Programme (Red List of South African Plants, <http://redlist.sanbi.org>).

Regional plans

- The 2019 Eastern Cape Biodiversity Conservation Plan (ECBCP) Maps were consulted for inclusion of any parts of the site into any Critical Biodiversity Areas or Ecological Support Areas (Desmet & Hawley 2019, available from the Biodiversity GIS website (biodiversityadvisor.sanbi.org)).
- South Africa Protected Areas Database (SAPAD_OR_2021_Q2) retrieved from the Department of Forestry, Fisheries and the Environment website (https://egis.environment.gov.za/data_egis/data_download/current).
- Information from the National Protected Areas Expansion Strategy (NPAES) was consulted for possible inclusion of the site into a protected area in future (available on <http://bgis.sanbi.org>).

Aerial imagery

- Recent satellite imagery (courtesy of Google Earth Pro). Google Earth Pro also provides historical imagery for a period up to 15 years ago, which aided in the determination of certain vegetation types and land use historically and currently present on site.

Vegetation and plant species

- Plant species that could potentially occur in the general area were obtained from the Botdatsa database of the South African National biodiversity Institute (SANBI).
- The IUCN Red List Category for plant species, as well as supplementary information on habitats and distribution, was obtained from the SANBI Threatened Species Programme (Red List of South African Plants, <http://redlist.sanbi.org>).
- Lists were compiled specifically for any species at risk of extinction (Red List species) previously recorded in the area. Historical occurrences and habitat information of threatened plant

species were obtained from SANBI and various published sources. The probability of finding any of these species was then assessed by comparing the habitat requirements with those habitats that were found during the field survey of the site.

- Regulations published for the National Forests Act (Act 84 of 1998) (NFA) as amended, provide a list of protected tree species for South Africa. The species on this list were assessed in order to determine which protected tree species have a geographical distribution that coincides with the study area and habitat requirements that may be met by available habitat in the study area. The distribution of species on this list were obtained from published sources (e.g. van Wyk & van Wyk 1997) and from SANBI.

Fauna

- Lists of animal species that have a geographical range that includes the study area were obtained from literature sources (Bates et al., 2014 for reptiles, du Preez & Carruthers 2009 for frogs, Mills & Hes 1997 and Friedmann & Daly, 2004 for mammals). This was supplemented with information from the Animal Demography Unit website (adu.uct.ac.za) and literature searches for specific animals, where necessary.

Limitations

The following assumptions, limitations and uncertainties are listed regarding the assessment of the site:

- The assessment is based on one site visit as well as a desktop study of the available information. The time spent on site was adequate for understanding general vegetation patterns across the study area.
- Rare and threatened plant and animal species are, by their nature, usually very difficult to locate and can be easily missed. This is partially overcome by undertaking desktop research of possible species of concern. The Screening Tool output contains modelled distributions of all species that could occur on site, based on current knowledge of all SANBI databases.

REGIONAL CONTEXT

Regional vegetation patterns

The property is within one mapped regional terrestrial vegetation type, namely Mthatha Moist Grassland (Figure 8). The vegetation type that occurs on site, according to the national map, is briefly described below. This published description provides background information on expected species composition and patterns within each mapped unit, which must be confirmed in the field.

Mthatha Moist Grassland

Distribution

Eastern Cape Province: Plains between Mthatha and Butterworth parallel to the coastline and excluding the river valleys that intrude landwards into this unit. Altitude 600–1 080 m.

Vegetation & Landscape Features

Undulating plains and hills supporting species-poor, sour, wiry grassland with *Eragrostis plana* and *Sporobolus africanus*; although in good condition, it is more likely to be dominated by *Themeda triandra*.



Figure 6: Regional vegetation types of the site and surrounding areas.

Geology & Soils

Mudstones of the Tarkastad and Adelaide Subgroups (Beaufort Group, Karoo Supergroup) underlie this area, with highly leached soils typical of the Fa land type.

Climate

Summer rainfall, with MAP 600–970 mm. The coefficient of variation of MAP 25–30% across the unit, but drops to approximately 15% on the southeast-facing inland mountain slopes. Incidence of frost 2–14 days, but is higher further from the coast.

Important Taxa

Graminoids: *Cyperus obtusiflorus* var. *obtusiflorus* (d), *Elionurus muticus* (d), *Eragrostis curvula* (d), *Heteropogon contortus* (d), *Microchloa caffra* (d), *Paspalum dilatatum* (d), *Sporobolus africanus* (d), *Themeda triandra* (d), *Abildgaardia ovata*, *Alloteropsis semialata* subsp. *eckloniana*, *Aristida congesta*, *Brachiaria serrata*, *Chloris virgata*, *Cymbopogon marginatus*, *Cynodon dactylon*, *Cyperus haematocephalus*, *C. obtusiflorus* var. *flavissimus*, *Digitaria eriantha*, *D. ternata*, *Eragrostis capensis*, *E. plana*, *Eustachys paspaloides*, *Harpochloa falx*, *Hemarthria altissima*, *Hyparrhenia hirta*, *Panicum ecklonii*, *Paspalum scrobiculatum*, *Setaria nigrirostris*, *Tristachya leucothrix*.

Herbs: *Senecio coronatus* (d), *Centella asiatica*, *Chamaecrista mimosoides*, *Cyanotis speciosa*, *Eriosema salignum*, *Falkia repens*, *Helichrysum rugulosum*, *Indigofera hedyantha*, *I. hilaris* var. *hilaris*, *Ipomoea crassipes*, *Lobelia flaccida*, *Pentanisia prunelloides* subsp. *latifolia*, *Senecio retrorsus*, *Sonchus dregeanus*, *Vernonia capensis*, *V. natalensis*, *Wahlenbergia stellarioides*.

Herbaceous Climber: *Rhynchosia totta*.

Geophytic Herbs: *Boophone disticha*, *Habenaria dives*.

Small Tree: *Acacia natalitia*.

Low Shrubs: *Senecio pterophorus* (d), *Coddia rudis*, *Erica caffrorum* var. *caffrorum*, *Felicia filifolia* subsp. *filifolia*, *Hermannia parviflora*.

Biogeographically Important Taxa

(Sub-Escarpment Grassland endemic) Small Tree: *Encephalartos friderici-guilielmi*.

Remarks

There is a high level of utilisation of this unit leading to degradation and transformation and the vegetation shows various stages of overutilisation (Steenkamp et al. 2005). Shifting cultivation and the effects of development have caused continuous disturbance of the soil surface, which has led to secondary succession changes in the grassland (documented in Smits et al. 1999). Poor grazing management has led to the dominance of unpalatable grasses and invasion by weedy, mostly alien, forb species (Hoare 2002).

Conservation status of broad vegetation types

The conservation status for each vegetation type is given in the table below. This table shows the threat status in accordance with the Revised National List of Ecosystems (Government Notice No 2747 of 18 November 2022) published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004), which lists national vegetation types that are afforded protection on the basis of rates of transformation.

Vegetation Type	Conservation status
	Revised National Ecosystem List (NEM:BA) (2022)
Mthatha Moist Grassland	Endangered

Note that this is a desktop description of what could possibly occur on site, based on mapped ecosystems. The on-site habitat assessment, described in a section below, determines whether any such vegetation units occur on site or not.

It is therefore verified that the site occurs within a Listed Ecosystem, as listed in The Revised National List of Ecosystems that are Threatened and need of protection (GN2747 of 2022) and therefore has **VERY HIGH** sensitivity with respect to this attribute.

Biodiversity Conservation Plans

The Eastern Cape Biodiversity Conservation Plan (ECBCP) classifies the habitats of the province according to conservation value in decreasing value, as follows:

1. Protected Areas (PA) = map category 6;
2. Critical Biodiversity Areas 1 (CBA1) = map category 5;
3. Critical Biodiversity Areas 2 (CBA2) = map category 4;
4. Ecological Support Area 1 (ESA1) = map category 3;
5. Ecological Support Area 2 (ESA2) = map category 2;

According to the Eastern Cape Biodiversity Conservation Plan (ECBCP), none of the habitat on site or in surrounding areas is mapped in any conservation category (Figure 7). This indicates that natural areas on site is not considered to be important for maintaining ecological patterns or processes in the Province.

This desktop description verifies that the site is not included in any conservation zones.



Figure 7: Eastern Cape Biodiversity Conservation Plan of the site and surrounding areas.

Proposed protected areas (NPAES Focus Areas)

The updated National Protected Areas Expansion Strategy was published for public comment in 2018, but is not available as a spatial dataset. It does, however, indicate that each province is responsible for its own strategy. In practice, most provinces currently use the CBA map as a proposed protected area strategy. This means that Irreplaceable Areas in Eastern Cape are also priority areas for the 2018 National Protected Areas Expansion Strategy.

The results of the current investigation verify the output from the Online Screening Tool in concept and spatial placement and confirm that no parts of the site occur within "Irreplaceable Areas" and the site therefore has LOW sensitivity with respect to this attribute.

Plant species recorded in the project area

A total of 79 plant species were recorded on site (see Appendix 1). This list is from areas that are representative of areas affected by the proposed activities.

Six species on site are alien invasive species, and three are naturalised exotic species. The remaining species are a diverse mixture of species that include typical components of Mthatha Moist Grassland.



Figure 8: Observations of the Critically Endangered *Nerine masoniorum* on site, as well as habitats suitable for or confirmed to contain additional populations.

One of the species found on site is a listed Critically Endangered plant species, *Nerine masoniorum*. This species is listed as Critically Endangered. It was not flagged for the site, but was recorded on site during the field assessment (Figure 8). The species is only known from Mthatha, where it is described as occurring in grassland on large, exposed sheets of dolerite that receive mist from the coastal plains. This is the exact habitat in which it was found on site. The species was found at several locations on dolerite rock sheets on site.

None of the species recorded on site are protected under the National Environmental Management: Biodiversity Act No 10 of 2004.

There is no tree species protected under the National Forest Act, 1998 (Act No. 84 of 1998) that were encountered on site.

Plant species flagged for the study area

According to the National Web-Based Environmental Screening Tool, two plant species of conservation concern are flagged as of concern for the site. A full list of the species with their distribution, habitat and probability of occurrence is provided in the table below.

Taxon	IUCN Status	Distribution	Habitat	Probability of occurrence
<i>Phymaspermum peglerae</i>	CR (PE)	Mthatha	Banks of the Mthatha River. Only known from two very old collections on the banks of the Mthatha River.	Suitable but degraded habitat on site - low
<i>Sensitive species 554</i>	VU Blab	Stutterheim to Engcobo and Mthatha	Dolerite outcrops.	Suitable habitat on site - low

Impact calculations are based on scale of 1-5, with 0 being absent, 1 being low, and 5 being high, for two factors:

Risk of occurrence on study site of previously uncultivated margins of site

0 = not possible to occur on site

1 = confirmed to not be suitable habitat or distribution for species

2 = very low chance of occurrence due to distribution or habitat

3 = habitat and distribution possibly suitable

4 = not confirmed on site but ideal factors and therefore high possibility

5 = confirmed on site

Impact of loss of population on world population:

0 = no portion of total population affected

1 = negligible to small portion of total population affected (< 1% of global population)

2 = small portion of total population affected (2-5% of global population)

3 = moderate portion of total population affected (5-10% of global population)

4 = large portion of total population affected (10-20% of global population)

5 = Very large portion of total population affected, resulting in increased threat of extinction (> 20% of global population)

Risk of occurrence on previously cultivated areas that have been fallow for > 10 years

0 = No chance of re-establishing, e.g. rare species with specific habitat requirements, or long lived habits e.g. trees

1 = Resprouter shrub, woody underground plants, specific habitats, very unlikely to re-establish on disturbed site in 10 years

2 = Reseeder shrub, bulbs, specific habitat requirements

3 = Perennial herbs, forbs, not wind dispersed

4 = Perennial herbs, forbs, wind-dispersed, without specific habitat requirements

5 = Easily re-establishing species such as wind-dispersed annuals, grasses, not habitat specialists

Study site: mostly previously not in a natural state. Altitude of study site: 0-3 m, aspect mostly flat. Short-lived species that establish easily in disturbed ground would be likely to have occurred in the time between 2002 and 2020.

Total impact score:

0: no impact possible
1-5: Negligible impact
6-10: Low impact
11-15: Moderate impact
16-20: High impact
> 20: Severe impact

There is suitable habitat present for both species flagged for the study area. The site is also confirmed to have a healthy population of a Critically Endangered plant species. It is therefore verified that, in terms of terrestrial plant species, the Plant Species Theme has VERY HIGH sensitivity for this site (*confirmed habitat for SCC where the site represents > 1% of the global population of the species and the site is assessed as probably being one of the largest 10 aggregations of the species*). Where SCC are found on site or have been confirmed to be likely present, a Terrestrial Plant Species Specialist Assessment must be submitted in accordance with the requirements specified for "very high" and "high" sensitivity (GN 1150: PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL PLANT SPECIES).

Protected trees

In terms of section 15(1) of the National Forests Act, 1998, no person may cut, disturb, damage or destroy any protected tree; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except under a licence or exemption granted by the Minister of Agriculture, Forestry and Fisheries. The list of Protected Tree Species under the National Forest Act, 1998 (Act No. 84 of 1998) is attached here as Appendix 2. The most recent version of this list was published in the Government Gazette No. 41887 on 7 September 2018, designated as GN No. 536 of 2018, and contains 47 species distributed across South Africa.

No species of protected tree were found on site.

OUTCOME OF THE ASSESSMENT

Verification of observations on site

According to the "AMENDMENT TO THE PROTOCOLS FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL ANIMAL AND PLANT SPECIES IN TERMS OF SECTIONS 24(5)(a) AND (h) AND 44 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998", a specialist report must include the following:

5.3.4A verifiable evidence from the specialist's site inspection, including as a minimum:

5.3.4A.1 a map showing the specialist's GPS track in relation to the study area; and

5.3.4A.2 at least 4 spatially representative sample site descriptions from across the study area that include as a minimum:

(a) precise geographical coordinates of the sample site;

(b) at least one in situ photograph (taken on site by the specialist during the site inspection) of the sample site; and

(c) a habitat description of the sample site.

To address these specific requirements, photographs of landscapes on site were taken at various localities to show conditions on site. A map showing the location of these photographs is provided in Figure 11. This also shows the GPS track log of areas walked in the course of undertaking this assessment.



Figure 91: Location of photographs taken on site during the site inspection, as well as the GPS track log of areas traversed during the field assessment of the site.



Photo 0412
31° 33' 51.08" S, 28° 50' 15.23" E

View from near the quarry towards the south. This shows natural grassland on site with the wetland area clearly visible in the middle ground.



Photo 0416
31° 33' 55.64" S, 28° 50' 11.04" E

Typical low shrubland on boulders outcrops along the western boundary of the site.



Photo 0417
31° 33' 57.90" S, 28° 50' 10.56" E

View from near the western boundary of the site towards the river valley on the eastern side.



Photo 0424
31° 33' 51.08" S, 28° 50' 15.23" E

Grassland with rock sheets in the background.



Photo 0426
31° 33' 55.64" S, 28° 50' 11.04" E

Seepage area in the grassland, dominated by sedges.



Photo 0432
31° 33' 57.90" S, 28° 50' 10.56" E

Sheet rock area with typical vegetation of these habitats.



Photo 0427

31° 33' 51.08" S, 28° 50' 15.23" E

Sheet rock area with typical vegetation of these habitats.



Photo 0435

31° 33' 55.64" S, 28° 50' 11.04" E

View from near the southern side of the site looking eastwards showing the river valley from near the top of the ridge.



Photo 0440

31° 33' 57.90" S, 28° 50' 10.56" E

View from near the south-eastern corner of the site showing some of the thicket components of the vegetation on site.



Photo 0442
31° 33' 51.08" S, 28° 50' 15.23" E

View from near the south-eastern side of the site showing the river valley.



Photo 0446
31° 33' 55.64" S, 28° 50' 11.04" E

View of floodplain vegetation in the river valley bottom.



Photo 0448
31° 33' 57.90" S, 28° 50' 10.56" E

Pool in river.



Photo 0450
31° 33' 51.08" S, 28° 50' 15.23" E

View from near the south-eastern side of the site showing the river valley from within the thicket area.



Photo 0452
31° 33' 55.64" S, 28° 50' 11.04" E

Rock outcrops near the bottom of the slope near to the existing quarry.



Photo 0453
31° 33' 57.90" S, 28° 50' 10.56" E

Stream flow from seepage area.



Photo 0456
31° 33' 51.08" S, 28° 50' 15.23" E

Grassy slope with rock outcrops overlooking the existing quarry.



Photo 0461
31° 33' 55.64" S, 28° 50' 11.04" E

View of the slope overlooking the quarry from near the north-western side of the site.



Photo 0464
31° 33' 57.90" S, 28° 50' 10.56" E

View of the processing plant and village in the background from near the north-western side of the site.

Habitats on site

The remaining natural habitat on site is a combination of grassland, rock sheets, seepage wetlands, a riparian area (Figure 10). Despite the historically high levels of disturbance associated with the existing quarry, the vegetation on site is in moderate condition. Most of the weeds encountered on site are associated with disturbed areas in specific parts of the site.

The following is a summary list of the habitats mapped for the site:

1. Grassland (=Mthatha Moist Grassland).
2. Rock sheets.
3. Wetlands.
4. Riparian habitat.
5. Degraded areas.
6. Transformed areas (existing quarry).



Figure 10: Habitats of the site and surrounding areas.

SITE ECOLOGICAL IMPORTANCE

The Species Environmental Assessment Guidelines require that a Site Ecological Importance (SEI) is calculated for each habitat on site, and provides methodology for making this calculation. The preliminary SEI is assessed here as a combination of the two biodiversity themes (Terrestrial Plant Species theme and Terrestrial Biodiversity Theme).

As per the Species Environmental Assessment Guidelines, Site Ecological Importance (SEI) is calculated as a function of the Biodiversity Importance (BI) of the receptor and its resilience to impacts ($SEI = BI + RR$). The Biodiversity Importance (BI) in turn is a function of Conservation Importance (CI) and Functional Integrity (FI), i.e. $BI = CI + FI$.

Site ecological importance of habitats found on site (two themes combined) is given in the table below and shown in Figure 11.

Habitat	Conservation importance	Functional integrity	Receptor resilience	Site Ecological Importance (BI)
Grassland	High Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type.	High > 10 ha for EN ecosystem types.	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. Based on the fact that the habitat is structurally dominated by long-lived tree species.	Very high (BI = High)
Rock sheets	Very high Confirmed occurrence of CR species that has a global EOO of < 10 km ² (estimated on the basis that no other known populations currently survive, except at one possible nearby location).	High > 10 ha for EN ecosystem types.	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. Based on the fact that the habitat is structurally dominated by long-lived tree species.	Very high (BI = Very High)
Wetland	High Small area (> 0.01% but < 0.1% of the total	High > 10 ha for EN ecosystem types.	Very low Habitat that is unable to recover from major	Very high (BI = High)

	ecosystem type extent) of natural habitat of EN ecosystem type.		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. Based on the fact that the habitat is structurally dominated by long-lived tree species.	
Riparian	High Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type.	High > 10 ha for EN ecosystem types.	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. Based on the fact that the habitat is structurally dominated by long-lived tree species.	Very high (BI = High)
Degraded areas	High Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type.	Low Several minor and major current negative ecological impacts (previously cultivated)	Medium Species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed (<i>meaning the current species composition and structure that has developed in the degraded areas NOT the original natural species composition, which is not recoverable</i>).	Medium (BI = Medium)
Cleared & transformed area	Very low No natural habitat remaining.	Very low Several major current negative ecological impacts.	Very high Habitat that can recover rapidly	Very low (BI = Very low)

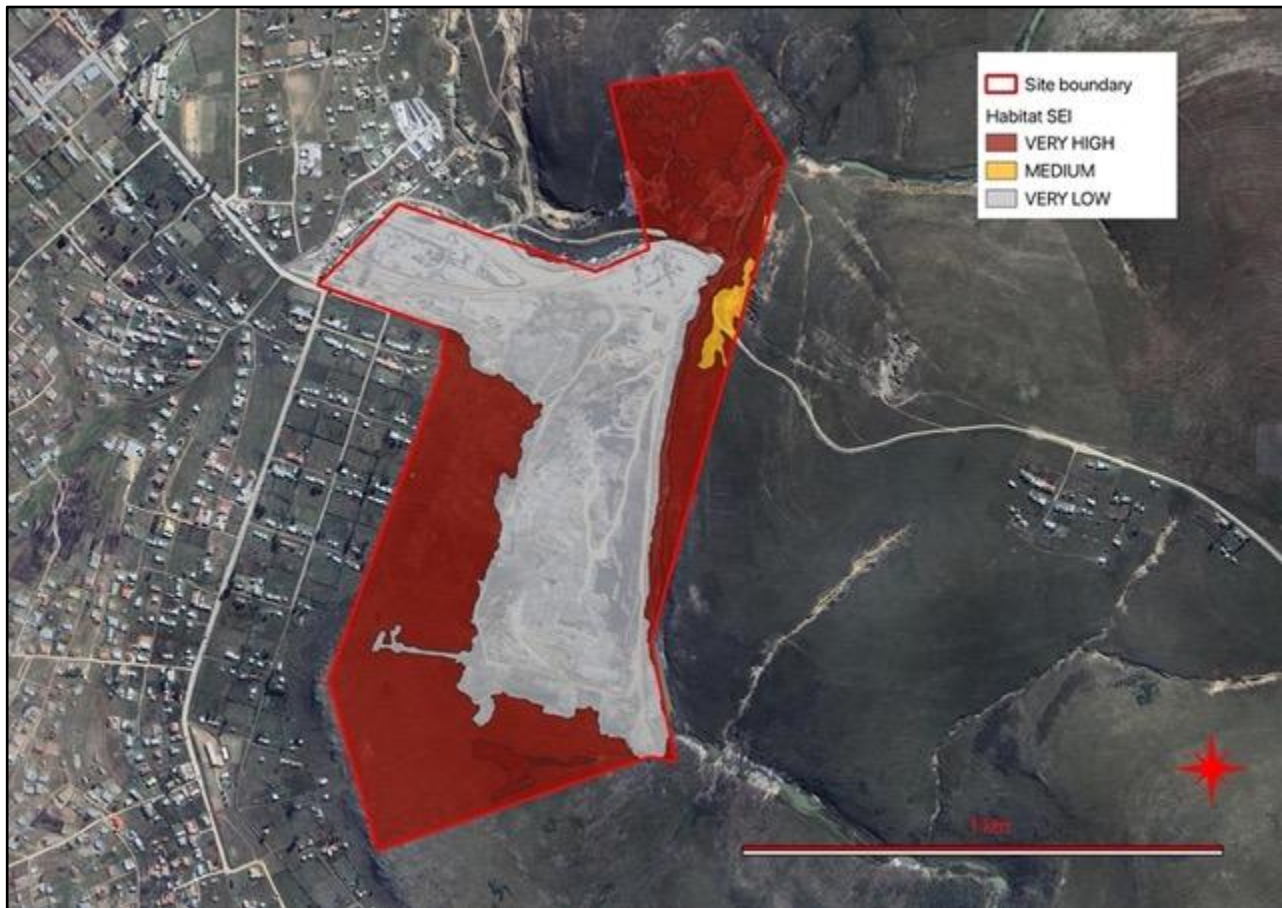


Figure 11: Site Ecological Importance (SEI) of the site.

Guidelines for development activities within different importance levels are given in the Table below.

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

IMPACT ASSESSMENT

The proposal is to extend the existing quarry. Natural grassland habitat will be affected. Possible impacts are on natural habitat (grassland), which also constitute areas within a threatened (Endangered) ecosystem.

In terms of the sensitivities flagged for the site, no confirmed sensitivities under the Plant Species Theme were found on site. However, a Critically Endangered plant species was found just to the south of the proposed mine area, and the habitat on site is considered to be critical habitat for this plant species of conservation concern.

In terms of the Terrestrial Biodiversity Theme, any sensitivities (from a terrestrial perspective) would be linked to the existence of any remaining areas of flagged ecosystems, in this case, an Endangered ecosystem, Mthatha Moist Grassland. All remaining natural vegetation on site falls within this ecosystem.

The impacts assessed here are as follows:

1. LOSS OF NATURAL VEGETATION IN AN ENDANGERED ECOSYSTEM
2. LOSS OF POPULATIONS OF *NERINE MASONIORUM* (CRITICALLY ENDANGERED)

Loss of natural vegetation in an Endangered ecosystem

Resource irreplaceability

The vegetation type (Mthatha Moist Grassland) is listed as Endangered in the Revised National List of Ecosystems (Government Notice No 2747 of 18 November 2022) published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004). This ecosystem type has been highly modified and is also degraded over most of the remaining extent due to various human activities. The area of natural vegetation on site is in a moderately good condition, despite the degradation in the surrounding landscape. It is also an area with a complex combination of habitats that are naturally connected to one another. Score = 5.

Threshold

The potential impact affects a relatively small proportion of the vegetation type (Mthatha Moist Grassland) but there are few intact areas remaining. The total original area of the vegetation type was mapped as 524 155 ha, of which it is estimated that 43% remains (225 387 ha). The proposal affects approximately 45 ha of grassland, which is 0.02% of the remaining extent. Score = 2.

Resource condition

The vegetation on site is in relatively good condition, despite the existing quarrying operations. The core vegetation area is in good condition with a species composition expected of the natural habitat. Score = 5.

Reversibility of impact

Loss of habitat on site is IRREVERSIBLE - secondary vegetation does not recover to its original species composition. In addition, quarrying will completely remove the substrate upon which the vegetation grows. Score = 5.

Extent of impact

The impact will occur within the site boundary. It is possible that there may be spillover effects into surrounding areas, due mostly to secondary impacts, such as dust deposition, alien invasive species spread, etc. Score = 2.

Duration of impact

Loss of the habitat on site is assessed as being permanent. Score = 5

Intensity of impact

At a local scale, the impact is of HIGH intensity, since it would result in the partial cessation of ecological processes on site. Score = 4.

Probability of occurrence

Based on the proposed development plan and the known location of the habitats found on site, the impact will be DEFINITE. Score = 5.

Confidence

There is a high understanding in the identity and on-site value of the vegetation, as well as the nature and extent of the proposed activity. Score = 5. No measures are therefore required to improve the confidence in the assessed impact.

Significance of impact

The significance is a combination of the value of the biodiversity resource, the magnitude of the expected impact and the probability of the impact occurring.

Biodiversity value score: $(5 + 2 + 5 + 5)/4 = 4.25$

Impact magnitude: $(2 + 5 + 4)/3 = 3.67$

Impact probability: 5.00

The calculation of the significance of an impact uses the following formula:

Significance = (Biodiversity value) x (Magnitude) x (Probability).

On this basis, the impact is calculated as $(4.25 \times 3.67 \times 5.00 = 87)/25 = 3.12 = \text{HIGH}$ significance

Possible mitigation measures

Possible mitigation measures that can be applied are as follows:

1. The best mitigation is avoidance. This would require no or limited development within areas of natural vegetation.
2. Limit activities to the immediate footprint of the proposed development zone.
3. Manage remaining natural habitat in an ecologically sustainable way, including avoidance of disturbance to any areas that will not be developed.
4. Ensure all possible steps are taken to limit erosion of surfaces, including proper management of storm-water runoff, so that downslope areas are protected from mine spillover.
5. Compile and implement an alien management plan, which highlights control priorities and areas and provides a programme for long-term control.
6. Undertake regular monitoring to detect alien invasions early so that they can be controlled, as per the Alien Management Plan.

Loss of populations of *Nerine masoniorum* (CR)

Resource irreplaceability

The plant species (*Nerine masoniorum*), listed as Critically Endangered, was found in the rocky areas to the south of the proposed mining area. It is found only in the Mthatha area. The original taxonomic description for the species states that it is "restricted to the Transkei between Butterworth and Umtata, and, from Umtata, out on the Engcobo road as well as in the opposite direction near Mquanduli." A later description states that it occurs "between Mquanduli and Libode". It is found in "grassland, on large, exposed sheets of dolerite that receive mist from coastal plains". Using these descriptions, the maximum possible geographical range for the species can be mapped, with Mthatha Moist Grassland being the only grassland habitat within this range (Figure). In Figure 12, the species only occurs on rock sheets within the orange-shaded area inside the blue polygon. This area has suffered high levels of transformation and degradation and little natural habitat remains.

Score = 5.

Threshold

The potential impact affects a small population on site, but this is currently the only known intact population within the known geographical range of the species (see <https://www.inaturalist.org/taxa/590572-Nerine-masoniorum>). Another population was known to exist near Misty Mountain (between Mthatha and Libode), but it is likely that this has been lost by now (Dold & Weeks 2000). Searches over a fifteen year period by staff from the University of Transkei have failed to locate any additional populations (Dold & Weeks 2000). Score = 5.

Resource condition

The population of plants on site is healthy and in good condition. Score = 5.

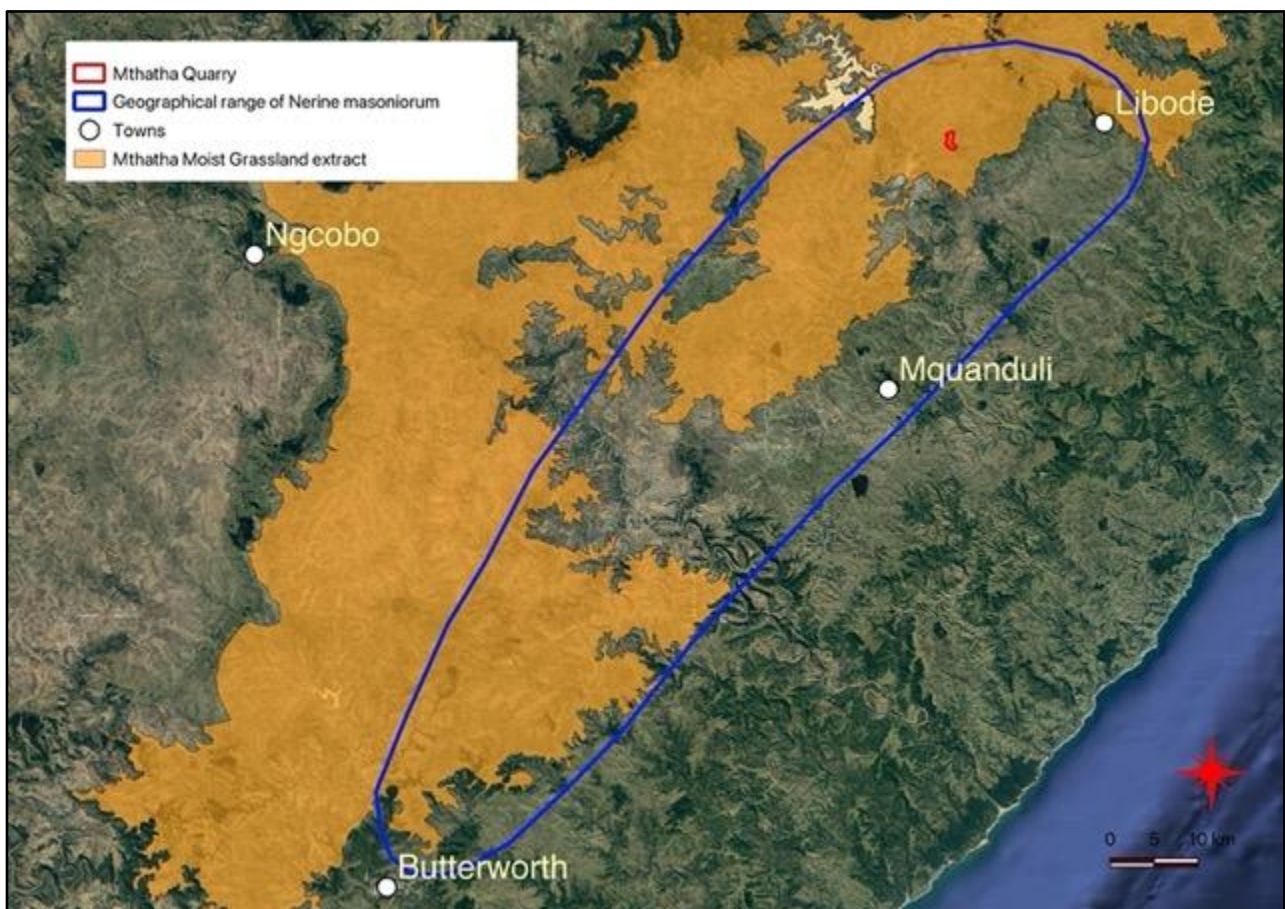


Figure 12: Site Ecological Importance (SEI) of the site and surrounding areas.

Reversibility of impact

Loss of the habitat within which the plants occur on site would result in an irreversible impact on the species. Score = 5.

Extent of impact

The impact could occur at the site but affects the global population of the species. It is possible that there are unknown populations of this species, but this is currently unknown. Score = 5.

Duration of impact

Loss of populations of the species on site, if it occurs, will be permanent. Score = 5

Intensity of impact

Given the proposed activities on site, it is expected that any impacts on the species will be of very high intensity (will result in the permanent cessation of population processes). The potential impact is therefore scored as being of VERY HIGH intensity. Score = 5.

Probability of occurrence

The original extent of the quarry included the populations of this species, but the proposed activity area has been reduced to avoid this species. The probability of the impact occurring is therefore LOW. Score = 2.

Confidence

There is a high understanding in the identity and on-site value of the vegetation, as well as the nature and extent of the proposed activity. No measures are therefore required to improve the confidence in the assessed impact.

Significance of impact

The significance is a combination of the value of the biodiversity resource, the magnitude of the expected impact and the probability of the impact occurring.

Biodiversity value score: $(5 + 5 + 5 + 5)/4 = 5.00$

Impact magnitude: $(5 + 5 + 5)/3 = 5.00$

Impact probability: 2.00

The calculation of the significance of an impact uses the following formula:

Significance = (Biodiversity value) x (Magnitude) x (Probability).

On this basis, the impact is calculated as $(5.00 \times 5.00 \times 2.00 = 50)/25 = 2.0 = \text{MEDIUM}$ significance

Possible mitigation measures

Possible mitigation measures that can be applied are as follows:

1. The best mitigation is avoidance. This would require no development within the area where the species occurs, with an appropriate ecological buffer maintained around habitats suitable for the species. Note that, according to the Plant Species Protocols, the habitat on site in which this species is found has VERY HIGH sensitivity and is therefore considered to be irreplaceable.
2. Further measures would entail minimising indirect impacts, such as trampling, movement of machinery, dust control, and invasion by alien invasive plant species.
3. It would be very useful to do further research on the species to understand the value of the population that occurs on site. Possible research includes the following (in order of importance):

- a. undertaking on-site assessments to properly quantify the population that occurs on site (location and distribution of plants).
- b. using aerial image interpretation to attempt to identify any other suitable sites within the indicated geographical range of the species (as shown in Figure 12). This would require identifying areas of rock sheets in grassland within areas that have not been degraded or transformed.
- c. undertaking targeted field surveys of sites identified in the previous step to determine whether any of them have populations of *Nerine masoniorum*.

CONCLUSION

Desktop information, field data collection and mapping from aerial imagery provides the following verifications of patterns for various themes:

1. Approximately half of the site is in a natural state and, according to the DFFE Screening Tool report, has Very High sensitivity for the Terrestrial Biodiversity Theme. These are natural areas of Mthatha Moist Grassland, which is listed as Endangered in the Revised National List of Ecosystems (Government Notice No 2747 of 18 November 2022) published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004).
2. Significant parts of the site have been mostly transformed by the existing quarry operation. Natural areas that remain are grassland that is representative of the regional vegetation type, Mthatha Moist Grassland. These areas are in a natural state and, due to the fact that they occur within an Endangered ecosystem, have Very High sensitivity with respect to the Terrestrial Biodiversity Theme.
3. There are two flagged plant species for the site, neither of which was found there. However, a Critically Endangered plant species (not flagged) was found immediately south of the proposed mining area, and the habitat there is considered to be critical habitat for this plant species of conservation concern. These areas therefore have VERY HIGH sensitivity with respect to the Plant Species Theme.
4. The potential impact on natural habitat on site was assessed as having potentially HIGH significance. The potential impact on the Critically Endangered plant species was assessed as having MEDIUM significance.
5. On the basis of the assessment here, the project affects areas of Very High sensitivity. The impacts associated with the project on these areas cannot be mitigated in any significant way. Up to 45 hectares of grassland are potentially affected by expansion of the mine, which is relatively insignificant in comparison to the remaining extent of grassland. The impact is also adjacent to an existing mine, which means no additional fragmentation will occur.

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APPENDICES:

Appendix 1: Plant species recorded on site.

Abildgaardia ovata
Abutilon sonneratianum
Aloe africana
Aloe arborescens
Andropogon eucomus
Arctotis arctotoides
Argyrobium stipulaceum
Aristida congesta subsp congesta
Asparagus densiflorus
Berkheya decurrens
Bulbine abyssinica
Carex spartea
Cheilanthes eckloniana
Chironia tetragona
Cirsium vulgare* (Category 1b)
Coddia rudis
Conostomium natalense
Crabbea hirsuta
Crassula dependens
Crassula obovata
Crassula pellucida
Cucumis zeyheri
Cynodon dactylon
Cyperus congestus
Cyperus erectus
Cyperus longus
Cyperus rubicundus
Cyperus sexangularis
Dichondra micrantha
Euphorbia ophthalmica
Felicia filifolia
Felicia muricata
Fimbristylis dichotoma
Fuirena pubescens
Pelargonium sp
Senecio sp
Helichrysum aureonitens
Helichrysum nudifolium
Helichrysum odoratissimum
Hibiscus pusillus
Hibiscus trionum
Hyparrhenia hirta
Hypochaeris radicata
Hypoxis argentea
Isolepis cernua
Jamesbrittenia kraussiana
Juncus oxycarpus
Lantana camara* (Category 1b)
Leersia hexandra
Leonotis nepetifolia

Lippia javanica
Lobelia thermalis
Melia azedarach* (Category 1b)
Melinis repens
Microchloa caffra
Miscanthus ecklonii
Nerine masoniorum CRITICALLY ENDANGERED
Ocimum obovatum
Opuntia monacantha* (Category 1b)
Oxalis corniculata*
Plantago tomentosa
Priva adhaerens
Pulicaria scabra
Rhamnus prinoides
Richardia humistrata*
Schoenoplectus muriculatus
Selaginella dregei
Sida rhombifolia
Solanum campylacanthum
Solanum chrysotrichum* (Category 1b)
Tephrosia capensis
Tephrosia multijuga
Teucrium trifidum
Themeda triandra
Trisetopsis imberbis
Verbena rigida*
Wahlenbergia stellarioides
Xysmalobium undulatum
Zinnia peruviana* (Category 1b)

Appendix 2: Protected trees of South Africa.

SCHEDULE A

Botanical name	English common names	Other common names Afrikaans (A), Sepedi (P), Sesotho (S), Setswana (T), Tshivenda (V), isiXhosa (X), isiZulu (Z), Xitsonga (XT)	National tree number
<i>Acacia erioloba</i>	Camel thorn	Kameeldoring (A)/Mogohlo (NS)/Mogoŋlho (T)/	168
<i>Acacia haematoxylon</i>	Grey camel thorn	Vaalkameeldoring (A)/Mokholo (T)	169
<i>Adansonia digitata</i>	Baobab	Kremetart (A)/Seboi (NS)/Mowana (T)/Ximuwu (XT)	467
<i>Azelia quanzensis</i>	Pod mahogany	Peulmahonie (A)/Mutokota (V)/Inkehli (Z)	207
<i>Balanites</i> subsp. <i>maughamii</i>	Torchwood	Groendoring (A)/Ugobandlovu (Z)	251
<i>Barringtonia racemosa</i>	Powder-puff tree	Poeierkwasboom (A)/lboqo (Z)	524
<i>Boscia albitrunca</i>	Shepherd's tree	Witgat (A)/Mohlopi (NS)/Motlhoapi (T)/Muvhombwe (V)/Umgqomogqomo (X)/Umvithi (Z)	122
<i>Brachystegia spiciformis</i>	Msasa	Msasa (A)	198.1
<i>Breonadia salicina</i>	Matumi	Mingerhout (A)/Mohlome (NS)/Mutu-lume (V)/Umfomfo (Z)	684
<i>Bruguiera gymnorhiza</i>	Black mangrove	Swartwortelboom (A)/isiKhangati (X)/IsiHlobane (Z)	527
<i>Cassipourea swaziensis</i>	Swazi onionwood	Swazi-uehout (A)	531.1
<i>Catha edulis</i>	Bushman's tea	Boesmanstee (A)/Mohlatse (NS)/Igqwaka (X)/Umhlwazi (Z)	404
<i>Ceriops tagal</i>	Indian mangrove	Indiese wortelboom (A)/isinkaha (Z)	525
<i>Cleistanthus schlechteri</i> var. <i>schlechteri</i>	False tamboti	Bastertambotie (A)/Umzithi (Z)	320
<i>Colubrina nicholsonii</i>	Pondo weeping thorn	Pondo-treurdoring (A)	453.8
<i>Combretum imberbe</i>	Leadwood	Hardekool (A)/Mohwelere-tšhipi (NS)/Motswiri (T)/Impondondlovu (Z)	539
<i>Curtisia dentata</i>	Assegai	Assegai (A)/Umgxina (X)/Umagunda (Z)	570

<i>Elaeodendron transvaalensis</i>	Bushveld saffron	Bosveld-saffraan (A)/Monomane (T)/Ingwavuma (Z)	416
<i>Erythrophysa transvaalensis</i>	Bushveld red balloon	Bosveld-rooiklapperbos (A)/Mofalatsane (T)	436.2
<i>Euclea pseudebenus</i>	Ebony guarri	Ebbeboom-ghwarrie (A)	598
<i>Ficus trichopoda</i>	Swamp fig	Moerasvy (A)/Umvubu (Z)	54
<i>Leucadendron argenteum</i>	Silver tree	Silwerboom (A)	77
<i>Lumnitzera racemosa</i> var. <i>racemosa</i>	Tonga mangrove	Tonga-wortelboom (A)/isiKhaha-esibomvu (Z)	552
<i>Lydenburgia abbottii</i>	Pondo bushman's tea	Pondo-boesmanstee (A)	407
<i>Lydenburgia cassinoides</i>	Sekhukhuni bushman's tea	Sekhukhuni-boesmanstee (A)	406
<i>Mimusops caffra</i>	Coastal red milkwood	Kusrooimelkhout (A)/Umthunzi (X)/Umkhakhayi (Z)	583
<i>Newtonia hildebrandtii</i> var. <i>hildebrandtii</i>	Lebombo wattle	Lebombo-wattel (A)/Umfomothi (Z)	191
<i>Ocotea bullata</i>	Stinkwood	Stinkhout (A)/Umhlungulu (X)/Umnukane (Z)	118
<i>Ozoroa namaquensis</i>	Gariep resin tree	Gariep-harpuisboom (A)	373.2
<i>Philenoptera violacea</i>	Apple-leaf	Appelblaar (A)/Mphata (NS)/Mohata (T)/isiHomohomo (Z)	238
<i>Pittosporum viridiflorum</i>	Cheesewood	Kasuur (A)/Kgalagangwe (NS)/Umkhwenkwe (X)/Umfusamvu (Z)	139
<i>Podocarpus elongatus</i>	Breede River yellowwood	Breeëiviergeelhout (A)	15
<i>Podocarpus falcatus</i> (<i>Afrocarpus falcatus</i>)	Outeniqua yellowwood	Outniekwageelhout (A)/Mogōbagōba (NS)/Umkhoba (X)/Umsonti (Z)	16
<i>Podocarpus henkelii</i>	Henkel's yellowwood	Henkel se geelhout (A)/Umsonti (X)/Umsonti (Z)	17
<i>Podocarpus latifolius</i>	Real yellowwood	Regte-geelhout (A)/Mogōbagōba (NS)/Umcheya (X)/Umkhoba (Z)	18
<i>Protea comptonii</i>	Saddleback sugarbush	Barberton-suikerbos (A)	88
<i>Protea curvata</i>	Serpentine sugarbush	Serpentynsuikerbos (A)	88.1
<i>Prunus africana</i>	Red stinkwood	Rooistinkhout (A)/Umkhakhase (X)/Umdumezulu (Z)	147
<i>Pterocarpus angolensis</i>	Wild teak	Kiaat (A)/Morōtō (NS)/Mokwa (T)/Mutondo (V)/Umvangazi (Z)	236
<i>Rhizophora mucronata</i>	Red mangrove	Rooiwortelboom (A)/isiKhangathi (X)/Umhlume (Z)	526

<i>Sclerocarya birrea</i> subsp. <i>caffra</i>	Marula	Maroela (A)/Morula (NS)/Morula (T)/Unganu (Z) /Nkanyi (XT)	360
<i>Securidaca longepedunculata</i>	Violet tree	Krinkhout (A)/Mmaba (T)	303
<i>Sideroxylon inerme</i> subsp. <i>inerme</i>	White milkwood	Witmelkhout (A)/Ximafana (X)/Umakhwelafingqane (Z)	579
<i>Tephrosia pondoensis</i>	Pondo poison pea	Pondo-gifertjie (A)	226.1
<i>Warburgia salutaris</i>	Pepper-bark tree	Peperbasboom (A)/Molaka (NS)/Mulanga (V)/isiBaha (Z)	488
<i>Widdringtonia cedarbergensis</i>	Clanwilliam cedar	Clanwilliamseder (A)	19
<i>Widdringtonia schwarzii</i>	Willowmore cedar	Baviaanskloofseder (A)	21
<i>Berchemia zeyheri</i> (RHAMNACEAE) LC	Red ivory Pink ivory	Rooi-ivoor (A) / Rooihout (A) / Monee (S) / umNeyi (SW) / umNini (Z, X) / Xiniyani (TS) / Moye (T) / Munianiane (V)	450
<i>Diospyros mespiliformis</i> (EBENACEAE) LC	Jackal berry	Jakkalsbessie (A) / Musuma (V) / Muntoma (TS) / Mgula (TS)	606
<i>Schinziophyton rautanenii</i>	Manketti / Mongongo	Mankettiboom (A) / Monghongho (T) / Makongwa (T)	337
<i>Umtiza listeriana</i>	Umtiza	Umtiza (X) / Omtisa (A)	205