FLORAL, FAUNAL, WETLAND AND AQUATIC ASSESSMENT AS PART OF THE ENVIRONMENTAL AUTHORISATION PROCESS FOR THE PROPOSED COMMISSIEKRAAL COLLIERY, KWAZULU-NATAL PROVINCE

Prepared for

SLR Consulting (Africa) (Pty) Ltd.

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Section B: Floral Assessment

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1 INTRODUCTION

1.1 Background

Scientific Aquatic Services (SAS) was appointed to conduct a faunal and floral ecological investigation as well as an investigation of the wetland and aquatic resources associated with a proposed new underground coal mine and related surface infrastructure to support a mining operation on the farm Commissiekraal 90HT, hereafter referred to as “subject property”. The subject property is located approximately 28 km north of Utrecht in the eMadlangeni Local Municipality and the Amajuba District Municipality, KwaZulu-Natal. The main land uses at the time of assessment include agriculture, primarily livestock grazing with minor dryland crops, forestry, conservation and tourism.

This report, after consideration and description of the ecological integrity of the subject property, must guide the proponent, authorities and Environmental Assessment Practitioner (EAP), by means of recommendations, as to the most appropriate way forward for further assessment of botanical impacts associated with the proposed development as well as to define the suitability of the subject property for the intended land use, which in this case is the proposed mining development, from a floral ecological point of view.

2 GENERAL SITE SURVEY

Field assessments were undertaken during April 2013, December 2013 and February 2014, in order to determine the ecological status of the subject property. A reconnaissance ‘walkabout’ was initially undertaken to determine the general habitat types found throughout the subject property and, following this, specific study sites were selected that were considered to be representative of the habitats found within the area, with special emphasis being placed on areas that may potentially support floral Species of Conservation Concern (SCC). Sites were investigated on foot in order identify the occurrence of the dominant plant species and habitat diversities.

3 FLORAL ASSESSMENT METHODOLOGY

3.1 Floral Species of Conservational Concern Assessment

Prior to the field visit, a record of floral SCC and their habitat requirements was acquired from the South African National Biodiversity Institute (SANBI) for the Quarter Degree Square (QDS) 2730AD (Appendix A). Throughout the floral assessment, special attention was paid to the identification of any of these SCC as well as identification of suitable habitat that could potentially sustain these species.

The Probability of Occurrence (POC) for each floral SCC was determined using the following calculations wherein the habitat requirements and habitat disturbance were considered. The accuracy of the calculation is based on the available knowledge about the species in question, with many of the species lacking in-depth habitat research. Therefore, it is important that the literature available is also considered during the calculation.

Each factor contributes an equal value to the calculation.

Literature availability						
	No literature available					**Literature available**
Site score						
EVC 1 score	0	1	2	3	4	5
Habitat availability						
	No habitat available					**Habitat available**
Site score						
EVC 1 score	0	1	2	3	4	5
Habitat disturbance						
	0	**Very low**	**Low**	**Moderate**	**High**	**Very high**
Site score						
EVC 1 score	5	4	3	2	1	0

[Literature availability + Habitat availability + Habitat disturbance] / 15 x 100 = POC%

3.2 Vegetation Surveys

Vegetation surveys were undertaken by first identifying different habitat units and then analysing the floral species composition that was recorded during detailed floral assessments using the step point vegetation assessment methodology. Different transect lines were chosen throughout the entire subject property within areas that were perceived to best represent the various plant communities. Floral species were recorded and a species list was compiled for each habitat unit. These species lists were also compared with the vegetation expected to be found within the relevant vegetation types as described in Section 4, which serves to provide an accurate indication of the ecological integrity and conservation value of each habitat unit (Evans & Love, 1957; Owensby, 1973).

3.3 Vegetation Index Score

The Vegetation Index Score (VIS) was designed to determine the ecological state of each habitat unit defined within an assessment site. This enables an accurate and consistent description of the Present Ecological State (PES) concerning the subject property in question. The information gathered during the assessment also contributes towards the sensitivity mapping, leading to a more truthful representation of ecological value and sensitive habitats.

Each defined habitat unit is assessed using separate data sheets (Appendix B) and all the information gathered then contributes to the final VIS score. The VIS is derived using the following formulas:

VIS = [(EVC) + (SI x PVC) + (RIS)]

Where:

1. **EVC** is extent of vegetation cover;
2. **SI** is structural intactness;
3. **PVC** is percentage cover of indigenous species and
4. **RIS** is recruitment of indigenous species.

Each of these contributing factors is individually calculated as discussed below. All scores and tables indicated in blue are used in the final score calculation for each contributing factor.

1. EVC=[(EVC1+EVC2)/2]

EVC 1 - Percentage natural vegetation cover						
Vegetation cover %	**0%**	**1-5%**	**6-25%**	**26-50%**	**51-75%**	**76-100%**
Site score						
EVC 1 score	0	1	2	3	4	5
EVC 2 – Total site disturbance						
Disturbance score	**0**	**Very low**	**Low**	**Moderate**	**High**	**Very high**
Site score						
EVC 2 score	5	4	3	2	1	0

2. SI=(SI1+SI2+SI3+SI4)/4)

	Trees (S1)		Shrubs (S2)		Forbs (S3)		Grasses (S4)	
Score	*Present state	**Perceived reference state	Present state	Perceived reference state	Present state	Perceived reference state	Present state	Perceived reference state
Continuous								
Clumped								
Scattered								
Sparse								

*Present State (P/S) = currently applicable for each habitat unit

*Perceived Reference State (PRS) = if in pristine condition

Each SI score is determined with reference to the following scoring table of vegetation distribution for present state versus perceived reference state.

	Present state (P/S)			
Perceived reference state (PRS)	**Continuous**	**Clumped**	**Scattered**	**Sparse**
Continuous	3	2	1	0
Clumped	2	3	2	1
Scattered	1	2	3	2
Sparse	0	1	2	3

3. ***PVC=[(EVC)-(exotic x 0.7) + (bare ground x 0.3)]***

Percentage vegetation cover (exotic)						
	0%	**1-5%**	**6-25%**	**26-50%**	**51-75%**	**76-100%**
Vegetation cover %						
PVC score	0	1	2	3	4	5
Percentage vegetation cover (bare ground)						
	0%	**1-5%**	**6-25%**	**26-50%**	**51-75%**	**76-100%**
Vegetation cover %						
PVC score	0	1	2	3	4	5

4. ***RIS***

Extent of indigenous species recruitment	**0**	**Very low**	**Low**	**Moderate**	**High**	**Very high**
RIS						
RIS Score	0	1	2	3	4	5

The final VIS scores for each habitat unit are then categorised as follows:

Vegetation Index Score	Assessment Class	Description
22 to 25	**A**	Unmodified, natural
18 to 22	**B**	Largely natural with few modifications
14 to 18	**C**	Moderately modified
10 to 14	**D**	Largely modified
5 to 10	**E**	The loss of natural habitat extensive
<5	**F**	Modified completely

4 ECOLOGICAL DESCRIPTION OF THE PROPERTY

4.1 Biome and bioregion

Biomes are broad ecological units that represent major life zones extending over large natural areas (Rutherford 1997). This subject property falls within the *Grassland Biome* (Figure 1) (Rutherford & Westfall, 1994). Biomes are further divided into bioregions, which are spatial terrestrial units possessing similar biotic and physical features, and processes at a regional scale. This assessment site is situated within the *Mesic Highveld Grassland Bioregion* (Figure 2) (Mucina & Rutherford, 2006).

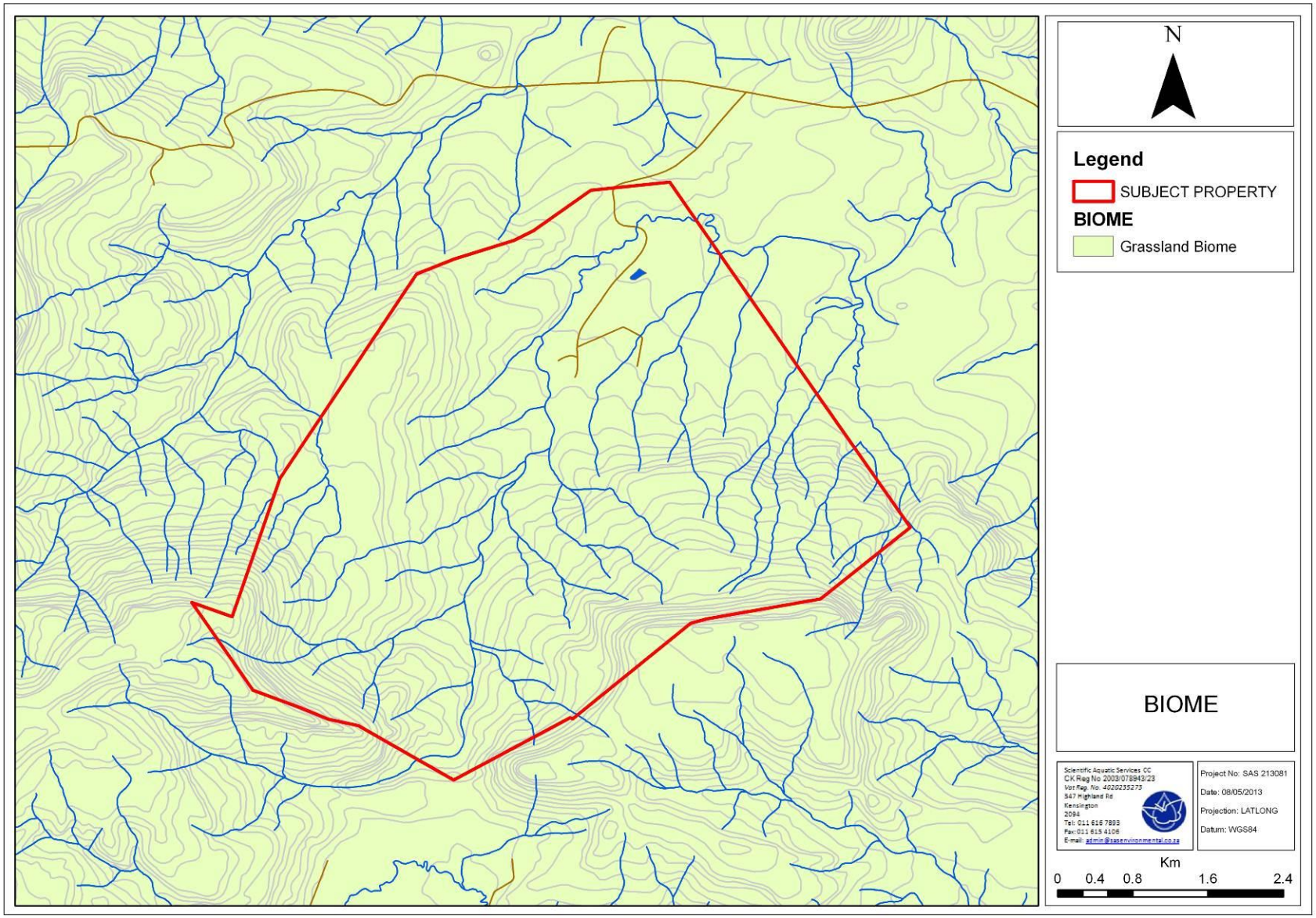


Figure 1: Biomes associated with the subject property (Mucina & Rutherford, 2006).

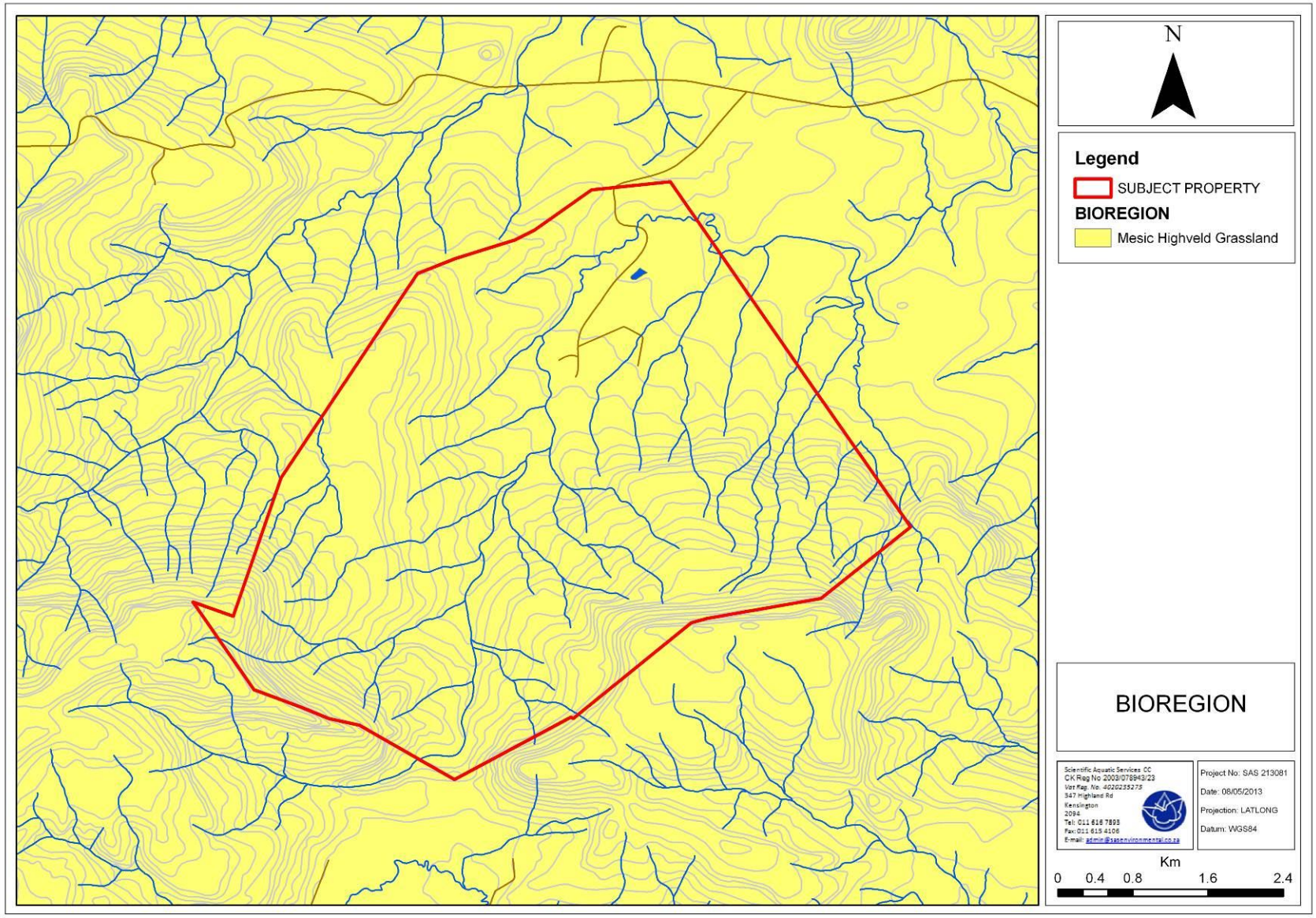


Figure 2: Bioregions associated with the subject property (Mucina & Rutherford, 2006).

4.2 Vegetation Type and Landscape Characteristics

While biomes and bioregions are valuable as they describe broad ecological patterns, they provide limited information on the actual species that are expected to be found in an area. Knowing which vegetation type an area belongs to provides an indication of the floral composition that would be found if the assessment site was in a pristine condition, which can then be compared to the observed floral list and so give an accurate and timely description of the ecological integrity of the assessment site. When the boundary of the subject property is superimposed on the vegetation types of the surrounding area it can be seen that it falls within the *Wakkerstroom Montane Grassland, Paulpietersburg Moist Grassland* and the *Northern Afrotemperate Forest Vegetation Types* (Figure 3).

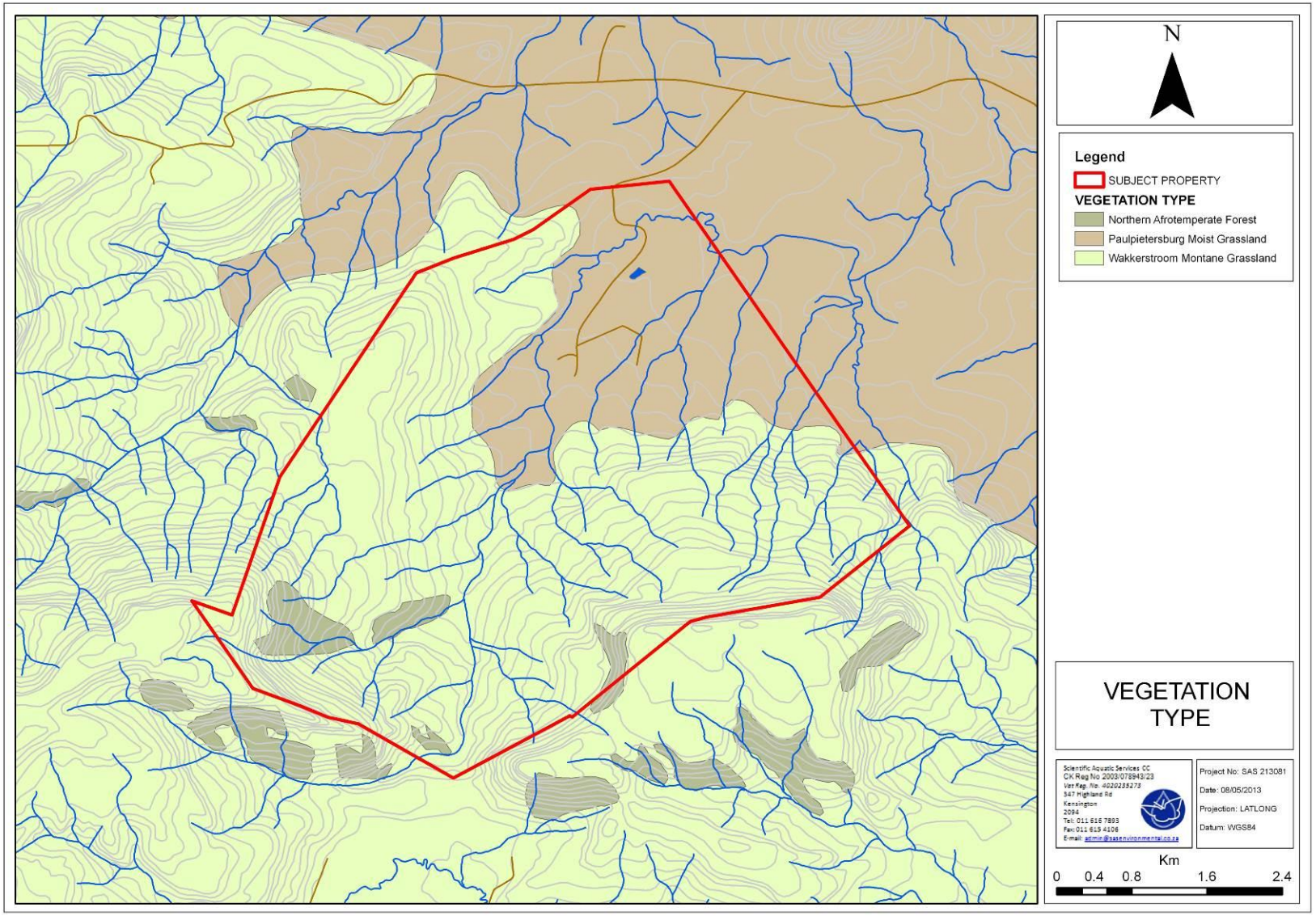


Figure 3: Vegetation type associated with the subject property (Mucina & Rutherford, 2006).

4.3 Wakkerstroom Montane Grassland

4.3.1 Distribution

Wakkerstroom Montane Grassland occurs in the KwaZulu-Natal and Mpumalanga Provinces. It occurs from the escarpment just north of Sheepmoor to south east of Utrecht, and then from the vicinity of Volksrust in the west to Mandhlangampisi Mountain near Luneberg in the east. Altitude is from 1140 – 2200 m (Mucina & Rutherford, 2006).

4.3.2 Climate

Rainfall in the *Wakkerstroom Montane Grassland* peaks in midsummer and varies from 800-11250mm per year. This unit experiences an orographic effect which results in a locally higher precipitation than the adjacent areas. Winters are very cold and summers are mild (Man annual temperature is 14°C) (Mucina & Rutherford, 2006).

4.3.3 Geology and soils

The mudstones, sandstones and shale of the Madzaringwe and Volksrust Formations were intruded by voluminous Jurassic dolerite dykes and sills. (Mucina & Rutherford, 2006).

4.3.4 Conservation

Wakkerstroom Montane Grassland is considered Least Threatened. The conservation target for the area is 27%. However, only 1% is statutorily protected in the Paardeplaats Nature Reserve. There are some 10 South African heritage sites in this unit, although very little of it is formally protected. Land use pressure from agriculture is low (5% cultivated) probably owing to colder climates and shallower soils. The area is also suited to afforestation, with more than 1% under *Acacia mearnsii* and *Eucalyptus* plantations. The black wattle (*A. mearnsii* is an aggressive invader of riparian areas. Erosion id very low and low (Mucina & Rutherford, 2006).

4.3.5 Taxa of the Wakkerstroom Montane Grassland

The *Wakkerstroom Montane Grassland* vegetation type is a less obvious continuation of the escarpment that links the southern and northern Drakensberg escarpments. It straddles this divide and is comprised of low mountains and undulating plains. The vegetation comprises predominantly short montane grasslands on the plateaus and the relatively flat areas, with short forest and *Leucosidea* thickets occurring along steep, mainly east facing slopes and drainage areas. *L.*

sericea is the dominant woody pioneer species that invades areas as a result of grazing mismanagement (Mucina and Rutherford, 2006).

Key indicator species of this vegetation type include:
Small trees: *Canthium ciliatum, Protea subvestita;*
Tall shrubs: *Buddleja salvifolia* (d), *Leucosidea sericea* (d), *Buddleja auriculata, Diospyros lycioides* subsp. *guerki. Euclea crispa* subsp. *crispa, Rhus Montana, R. rehmanniana, R. transvaalensis;*
Low shrubs: *Asparagus devinishii* (d), *Cliffortia linearifolia* (d), *Helichrysum melanacme* (d), *H. splendidum* (d), *Anthospermum rigidum* subsp. *pumilum, Clutia natalensis, Erica oatesii, Felicia filifolia* subsp. *filifolia, Gymnosporia heterophylla, Helichrysum hypoleucum, Hermannia geniculata, Inulanthera dregeana, Metalasia densa, Printzia pyrifolia, Rhus discolour, Rubus ludwigii* subsp. *ludwigii;*
Graminoids: - *Andropogon schirensis* (d), *Ctenium concinnum* (d), *Cymbopogon caesius* (d), *Digitaria tricholaenoides* (d), *Diheteropogon amplectens* (d), *Eragrostis chloromelas* (d), *E. plana* (d), *E. racemosa* (d), *Harpochloa falx* (d), *Heteropogon contortus* (d), *Hyparrhenia hirta* (d), *Microchloa caffra* (d), *Themeda triandra* (d), *Trachypogon spicatus* (d), *Tristachya leucothrix* (d), *Alloteropsis semialata* subsp. *eckloniana, Aristida junciformis* subsp. *galpinii, Brachiaria serrata, Diheteropogon filifolius, Elionurus muticus, Eragrostis capensis, Eulalia villosa, Festuca scabra, Loudetia simplex, Rendlia altera, Setaria nigrirostis;*
Herbs: *Berkheya onopordifolia* var. *glabra* (d), *Acalypha depressinerva, A. penduncularis, A. wilmsii, Aster bakerianus, Berkheya setifera, Euryops transvaalensis* subsp. *setilobus, Galium thunbergianum* var *thunbergianum, Geranium ornithopodiodes, Helichrysum cephaloidium, H. cooperi, H. monticola, H. nudifolium* var *nudifolium, H. oreophyllum, H. similimum, Pentanisia prunelloides* subsp. *latifolia, Plectranthus laxiflorus, Sebaea leiostyla, S. sedoides* var *sedoides, Selago densiflora, Vernonia hirsute, V. natalensis, Wahlenbergia cuspidate;*
Geophytic herbs: *Hypoxis costata* (d), *Agapanthus inaperatus* subsp. *intermedius, Asclepias aurea, Cheilanthes hirta, Corycium dracomontanum, C. nigrescens, Cyrtanthus tuckii* var. *transvaalensis, Disa versicolor, Eriospermum cooperi* var *cooperi, Eucomis bicolor, Geum capense, Gladiolus ecklonii, G. sericeovillosus* subsp. *sericeovillosus, Hesperantha coccinea, Hypoxis rigidula* var. *pilosissima, Moraea brevistyla, Rhodohypoxis baurii* var *confecta;*
Semiparasitic herb: *Striga bilabiata* subsp. *bilabiata.*
(d) = dominant species

4.4 Paulpietersburg Moist Grassland

4.4.1 Distribution

Paulpietersburg Moist Grassland occurs in the KwaZulu-Natal and Mpumalanga Provinces in the broad surrounds of Piet Retief, Paulpietersburg and Vryheid, extending westwards to east of Wakkerstroom. It occurs in the upper most catchments of the Phongolo River at altitudes between 920-1500 m (Mucina & Rutherford, 2006).

4.4.2 Climate

Paulpietersburg Moist Grassland is characterised by summer rainfalls with a MAP of 900mm. The vegetation type is characterised by a warm-temperate climate with a mean annual temperature close to 17°C with fairly frequent frosts (Mucina & Rutherford, 2006).

4.4.3 Geology and soils

This area is underlain by Archaean granite and gneiss partly covered by Karoo Supergroup sediments and intruded by Karoo Dolerite Suite dykes and sills. Dominant soils on the sedimentary parent material are yellow apedal, well drained, with a depth of >800mm and a clay content of >35%, representing the soils series Hutton, Clovelly and Griffin. Shortland soils are dominant on dolerite (Mucina & Rutherford, 2006).

4.4.4 Conservation

Paulpietersburg Moist Grassland is considered Vulnerable. The conservation target for the area is 24%. However, only a very small portion is statutorily conserved in the Witband, Vryheid Mountain, Paardeplaats and Phongola Bush Nature Reserves. Some private reserves protect small patches (Rooikraal, Mhlongamvula, Kombewaria). About one third is already transformed by plantations or cultivated land. Heavy livestock grazing and altered fire regimes have greatly reduced the area of grasslands of high conservation value. Aliens such as *Acacia*, *Eucalyptus* and *Pinus* are a major concern in places. Erosion is very low or low (Mucina & Rutherford, 2006).

4.4.5 Taxa of the Paulpietersburg Moist Grassland

The *Paulpietersburg Moist Grassland* vegetation type is mainly undulating with moderate steep slopes but valley basins are wide and flat and mountainous areas occur mostly along the northern and eastern boundary. Characterised by tall closed grassland rich in forbs and dominated by *Tristachya leucothrix*, *Themeda triandra* and *Hyparrhenia hirta*. Evergreen woody vegetation is characteristic on rocky outcrops.

Key indicator species of this vegetation type include:

Small trees: *Canthium cilliatum* (d), *Dombeya rotundifolia, Vangueria infausta;*

Succulent tree: *Aloe marlothii* subsp. *marlothii;*

Tall shrubs: *Calpurnia sericea* (d), *Rhus rehmannii* (d), *Diospyros lycioides* subsp. *guerkei, Euclea crispa* subsp. *crispa;*

Low shrubs*: Rhus discolour* (d), *Anthospermum rigidum* subsp. *pumilum, A. rigidum* subsp. *rigidum, Clutia monticola, Diospyros galpinii, Erica oatesii, E. woodii, Hermannia geniculata, Indigofera arrecta, Otholobium wilmsii, Polygala uncinata, Pseudarthria hookeri, Rubus rigidus;*

Succulent shrub*: Euphorbia pulvinata;*

Graminoids*: Alloteropsis semialata* subsp. *ecklonia* (d), *Andropogon schirensis (d), Brachiaria serrate* (d), *Ctenium concinnum* (d), *Cymbopogon caesius* (d), *Digitaria tricholaenoides* (d) *Eragrostis racemosa* (d), *Harpochloa falx* (d) *heteropogon contortus* (d), *Hyparrhenia hirta* (d), *Loudetia simplex* (d), *Microchloa caffra* (d), *Monocymbium ceresiiforme* (d), *Rendlia altera* (d), *Setaria nigrirostis* (d), *Themeda triandra* (d), *Tristachya leucothrix* (d), *Andropogon appendiculatus, Cynodon hirsutus, Diheteropogon amplectens, D. filifolius, Elionurus muticus, Eragrostis chloromelas, E. curvula, E. plana, Festuca scabra, Melinis nerviglumis, Panicum ecklonii, P. natalense, Trachypogon spicatus, Urelytrum agropyroides;*

Herbs: *Argyrolobium speciosum* (d), *Cissus diversilobata* (d), *Dicoma zeyheri* (d), *Eriosema kraussianum* (d) *Geranium wakkerstroomianum* (d), *Helichrysum nudifolium* var. *nudifolium* (d), *Ipomoea oblongata* (d), *Pelargonium luridum* (d), *Acalypha grandulifolia, A. peduncularis, Acanthospermum austral, Aster barkerianus, Becium filamentosum, Berkheya setifera, Dicoma anomala, Euryops laxus, E. transvaalensis* subsp. *setilobus, E. transvaalensis* subsp. *transvaalensis, Helichrysum rugulosum, H. similimum, Indigofera hilaris, I. velutina, Kohautia amatymbica, Pearsonia grandifolia, Pentanisia prunelloides* subsp. *latifolia, Senecio bupleuroides, S. coronatus, S. inornatus, S. isatideus, S. latifolius, Sonchus nanus, Thunbergia atriplicifolia, Vernonia capensis, V. natalensis, Xerophyta retinervis;*

Herbaceous climber*: Rhynchosia totta;*

Geophytic herbs: *Chlorophytum haygarthii* (d), *Gladiolus aurantiacus* (d), *Agapanthus inapertus* subsp. *intermedius, Asclepias aurea, Cheilanthes hirta, Cyrtanthus tuckii* var *transvaalensis, Hypoxis colchicifolia, H. costata, H. rigidula* var. *pilosissima, Moraea brevistyla, Pteridium aquilinum, Watsonia latifolia, Zantedeschia rehmannii;*

Succulent herbs: *Aloe ecklonis, A. maculata, Lopholaena segmentata.*

**(d = dominant species)*

4.5 Northern Afrotemperate Forest

4.5.1 Distribution

Northern Afrotemperate Forest occurs in the Free State, KwaZulu-Natal, Mpumalanga, North West, Gauteng and Limpopo Provinces. It is restricted to mountain kloofs and low ridges interrupting the relatively flat northern Highveld. This group also comprises forests found in kloofs along the northern and eastern flanks of the Drakensberg and those found on the slopes and scarps of the Low Escarpment between Van Reenens Pass and Pongola Bush near Piet Retief. The westernmost localities of these forests are found in the Koranaberg (Close to Thaba 'Nchu). Most patches occur at altitudes between 1450 and 1900m, with outliers as low as 1100m and around 2000m (Mucina & Rutherford, 2006).

4.5.2 Geology and soils

Occurs on Shallow acidic soils over sandstones of the Karoo Supergroup, quartzites and rarely also volcanic rock of the Ventersdorp Supergroup and intrusive diabases of the Pretoria Igneous Complex (Mucina & Rutherford, 2006).

4.5.3 Conservation

Northern Afrotemperate Forest is considered Least Threatened. The conservation target for the area is 31%. About 30% of the vegetation type is statutorily conserved in uKhahlamba Drakensberg Park, Phongola Bush, Vryheid Mountain, Cloccolan/Robinsons Bush, Ngome and Ncandu Nature Reserves, Magaliesberg Nature Area, Merville Ridge, Paardeplaats, Rustenburg, Suikerbosrand Nature Reserves, Marekele National Park and Pilanesberg Game Reserve. Some private Nature Reserves (Mooibron, Mhlongamvula, Tafelkop, Oudehoutdraai, Oshoek and Ossewakop) protect some patches too. Occasional hot fires encroaching from the surrounding savannah woodlands, uncontrolled timber extraction, medicinal plant harvesting and grazing in the forests can be viewed as the current major threats (Mucina & Rutherford, 2006).

4.5.4 Taxa of Northern Afrotemperate Forest

Low, relatively species poor forests of afromontane origin and some of them still showing clear afromontane character. Found as small patches in kloofs and on sub-ridge scarps at high altitudes (1500-1900m). Canopy dominated usually by *Podocarpus latifolius, Olinia emarginata, Halleria lucida, Scolopia mundii* and rarely also by *Widdringtonia nodiflora*, in drier faces also by *Pittosporum viridiflorum, Celtis africana, Mimusops zeyheri, Nuxia congesta* and *Combretum*

erythrophyllum. Xymalos monospora sometimes dominates patches of species poor mistbelt forest of northern KwaZulu-Natal.

Key indicator species of this vegetation type include:
Tall Trees: *Celtis africana* (d), *Halleria lucida* (d), *Olinia emarginata* (d), *Pittosporum viridiflorum* (d), *Podocarpus latifolius* (d), *Rothmannia capensis* (d), *Scolopia mundii* (d), *Afrocarpus falcatus, Buddleja saligna, Dais cotinifolia, Ilex mitis;*
Small trees: *Acalypha glabrata* (d), *Buddleja salviifolia* (d), *Calpurnia aurea* (d), *Combretum erythrophyllum* (d), *Diospyros lycioides* subsp*. guerkei* (d), *D. whyteana* (d), *Euclea crispa* subsp. *crispa* (d), *Widdringtonia nodiflora* (d), *Bowkeria verticilata, Canthium ciliatum, Leucosidea sericea, Scolopia flanaganii;*
Woody climber*: Cassinopsis ilicifolia* (d);
Tall shrubs: *Myrsine africana* (d), *Cliffortia nitidula;*
Soft shrubs*: Isoglossa grantii* (d), *Hypoestes aristata, Plectranthus fruticosus;*
Herbs*: Plectranthus grallatus* (d), *P. hereroensis* (d), *Peperomia retusa, Streptocarpus haygarthii, S. pusillus;*
Geophytic herbs: *Blechnum attenuatum* (d), *Asplenium aethiopicum, Polystichum luctuosum;*
Graminoids*: Carex spicato-paniculata* (d), *Oplismenus hirtellus* (d), *Cyperus albostriatus, Schoenoxiphium lehmannii, Thamnocalamus tessellatus.*
**(d = dominant species)*

5 RESULTS OF FLORAL ASSESSMENT

During the field assessment, a number of habitat units were identified. These habitat units are:

- Wetland and riparian habitat associated with various streams, drainage lines, seepage areas and dams;
- Montane grassland, associated with the mountainous areas in the southern section of the subject property;
- Northern Afrotemperate forest, associated with ravines, kloofs and forest patches within the higher elevation grasslands; and
- Transformed grassland which has suffered impacts from current and historic cultivation, rural settlements and homesteads and severe overgrazing which is associated with the lower altitude areas on the subject property.

These habitat units are described in the sections below.

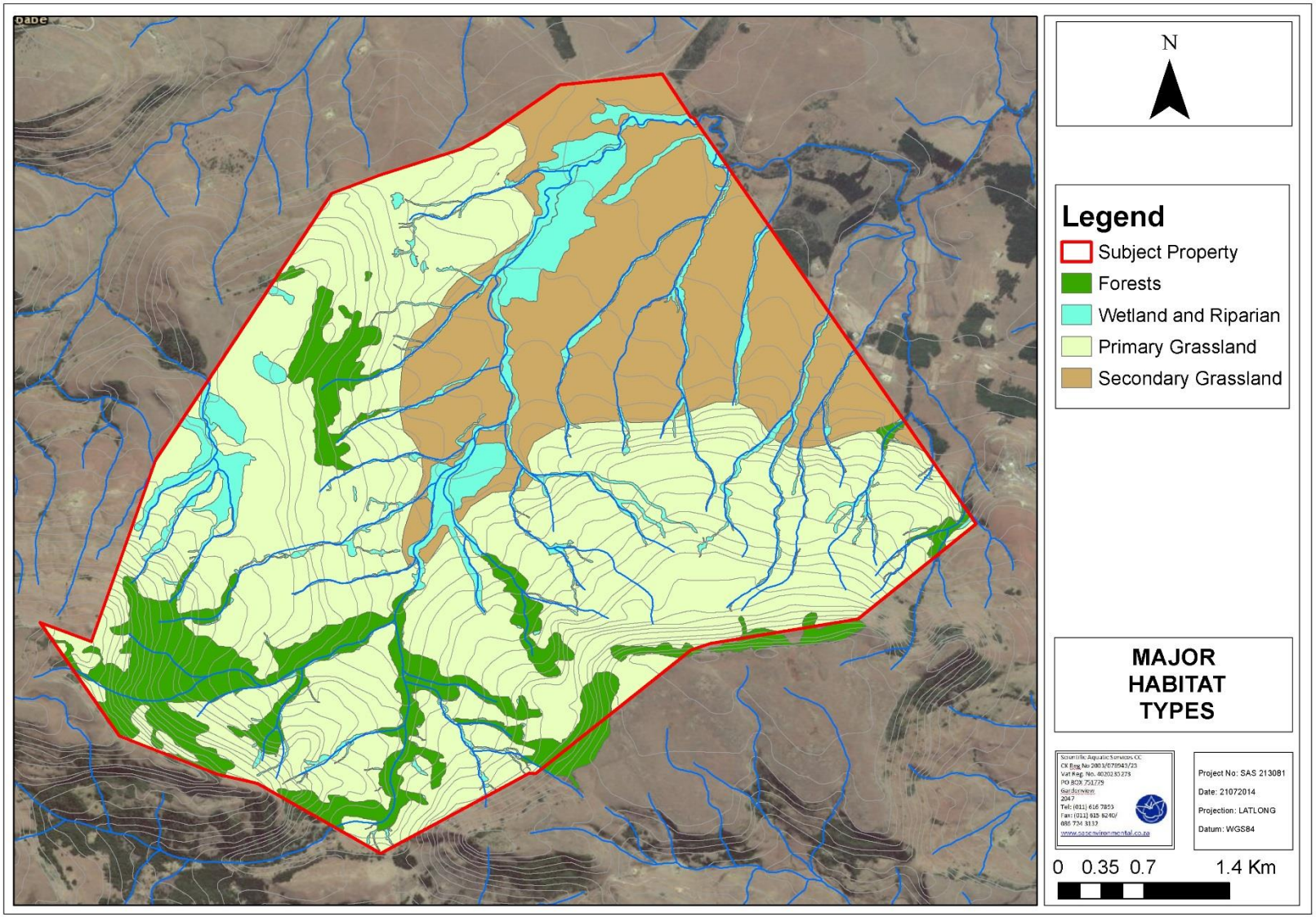


Figure 4: Conceptual illustration of the habitat units within the subject property.

5.1 Habitat Unit 1: Wetland and Riparian Habitat Unit

Figure 5: Wetland and riparian habitat present in the subject property.

Various wetland and riparian features (Pandana River) were encountered within the subject property that comprised of wetland types such as valley bottom wetlands, riparian zones and seepage wetlands. The ecological condition of these wetlands varies from excellent in the high altitude grasslands and Afrotemperate forests, to moderately transformed in the lower altitude areas where crop cultivation, dam and weir construction and alien floral invasion have transformed the hydrological and geomorphological aspects of the wetlands. Alien floral invasion levels were generally low, except for the lower sections of the Pandana River, where *Acacia mearnsii* has, in some instances, completely replaced the indigenous riparian vegetation.

Various floral SCC in the genera *Gladiolus., Habenaria, Eulophia, Satyrium* and *Disa* (refer to table below for complete floral SCC list), which are protected under the Kwazulu-Natal Nature Conservation Management Amendment Act, 1999 No. 5 of 1999, were encountered in the wetland areas during the field surveys.

In addition, the protected tree species *Podocarpus falcatus, P. latifolius* and *Ilex mitis* occur within the Afrotemperate forest riparian zones along the high altitude streams and ravines. These tree species are protected under the National Forests Act of 1998 (Act 84 of 1998). In terms of this act, protected tree species may not be cut, disturbed, damaged or destroyed and their products may not be possessed, collected, removed, transported, exported, donated, purchased or sold - except under licence granted by the Department of Water Affairs or a delegated authority.

During the assessment, the various wetland vegetation components were investigated. Dominant species were characterised as either wetland or terrestrial species. The wetland

species were then further categorised as temporary, seasonal and permanent zone species. This characterisation is presented in the table below.

Table 1: Dominant species encountered in the wetland and riparian habitat unit. Alien species are indicated with an asterisk (*) and protected species are in bold font.

Terrestrial species	Seasonal species	Temporary species	Permanent species
Eragrostis curvula	*Berkheya radula*	*Sporobolus africanus*	*Cyperus esculentis*
Eragrostis chloromelas	***Cyathea dregei***	*Miscanthus junceus*	*Cyperus rotundus*
Cynodon dactylon	*Schoenoplectus paludicola*	*Cyperus esculentis*	*Persicaria lapathifolia*
Hyparrhenia hirta	*Cyperus rupestris*	*Helichrysum krausii*	*Typha capensis*
*Acacia mearnsii	*Panicum maximum*	*Cyperus marginatus*	*Nymphaea capensis*
Ilex mitis	*Verbena bonariensis**	*Eragrostis plana*	*Leersia hexandra*
Podocarpus latifolius	***Panicum tricholaenoides***	*Schoenoplectus paludicola*	*Cyperus rupestris*
Podocarpus falcatus	*Imperata cylindrica*	*Stiburus alopecuroides*	*Schoenoplectus paludicola*
	Miscanthus junceus		
	Setaria sphacelata var. torta		
	Gladiolus dalenii		
	Gladiolus ecklonii		
	Corycium nigrescens		
	Stiburus alopecuroides		
	Disa versicolor		
	Gladiolus crassifolius		
	Gladiolus appendiculatus		

The riparian and wetland areas are generally characterised by high ecological functionality and overall high levels of habitat integrity. In terms of floral SCC, several such species are present in this habitat unit.

The wetland and riparian habitat unit provides niche habitat for a high diversity of floral and faunal species and acts as a very important network of migratory corridors for faunal species. Thus, this habitat unit is considered to be sensitive. As such, any impacts on the wetland and riparian systems associated with the subject property are likely to be significant on a local and potentially regional scale depending on how well impacts are managed and mitigated.

5.2 Habitat Unit 2: Montane grassland

Figure 6: Representative depictions of montane grassland present on the subject property.

This habitat unit comprises high-altitude grassland associated with Paulpietersburg Moist Grassland and Wakkerstroom Montane Grassland, and was encountered in high-altitude areas on the subject property (1600 mamsl and higher). Forb diversity was high, and species recorded within this habitat unit included *Gnidia kraussiana, Senecio coronatus, Kohautia amatymbica, Helichrysum kraussii, Acalypha angustata, Eriospermum abyssinicum, Castalis respectabilis* and *Hypoxis acuminata.* The graminoid layer was characterised by mostly climax species and included *Andropogon schirensis, Diheteropogon amplectens, Setaria sphacelata* var. *sphacelata, Harpochloa falx, Tristachya leucothrix, Themeda triandra* and *Elionurus muticus.* In the high altitude areas, woody clumps comprised of *Leucosidea sericea, Widdringtonia nodiflora.* Very few alien and/or invasive species were encountered within this habitat unit, which further indicates that floral habitat and community structure is intact.

Table 2: Dominant species encountered in montane grassland habitat unit. Alien species are indicated with an asterisk (*) and protected species are in bold font.

Grass/sedge/reed species	Forb species	Tree/Shrub Species
Aristida bipartata	*Acalypha angustata*	**Acacia mearnsii*
Aristida congesta subsp. congesta	*Agapanthus inaperatus subsp. intermedius*	***Cyathea dregei***
Aristida junciformis subsp. galpinii	*Albuca setosa*	*Indigofera hilaris*
Brachiaria serrata	*Castalis respectabilis*	*Leucosidea sericea*
Cynodon dactylon	*Cleome maculata*	***Protea subvestita***
Digitaria tricholaenoides	***Corycium nigrescens***	*Searsia pondoensis*
Diheteropogon amplectens	*Crassula alba*	*Widdringtonia nodiflora*
Elionurus muticus	*Crocosmia pottsii*	
Enneapogon scoparius	*Delosperma sutherlandii*	
Eragrostis chloromelas	*Dierama dracomontanum*	
Eragrostis curvula	*Dierama dracomontanum*	
Eragrostis gummiflua	*Dimorphotheca jucunda*	
Eragrostis superba	***Disa brevicornis***	
Harpochloa falx	***Disa versicolor***	
Imperata cylindrica	***Disperis concinna***	
Monocymbium ceresiiforme	***Disperis tysonii***	
Rendlia altera	*Eriosema burkei*	
Schizachyrium sanguineum	*Eriospermum abyssinica*	
Setaria sphacelata var. sphacelata	***Eucomis autumnalis***	
Themeda triandra	***Eulophia sp***	
Tristachya leucothrix	*Euphorbia clavaroides*	
	Galtonia candicans	
	Gladiolus appendiculatus	
	Gladiolus crassifolius	
	Gladiolus dalenii	
	Gladiolus ecklonii	
	Habenaria filicornis	
	Helichrysum kraussii	
	Hypoxis acuminata	
	Hypoxis angustifolia	
	Indigofera cuneifolia	
	Ledebouria cooperii	

Grass/sedge/reed species	Forb species	Tree/Shrub Species
	Ledebouria ovatifolia	
	Monopsis decipiens	
	Monsonia attenuata	
	Pelargonium luridum	
	Satyrium cristatum	
	Satyrium longicauda	
	Schizoglossum hilliardiae	
	Scilla nervosa	
	Senecio coronatus	
	Tritonia nelsonii	
	Tulbaghia acutilobia	
	**Verbena tenuisecta*	
	Watsonia confusa	
	Watsonia gladioloides	

The Montane Grassland habitat unit has general high ecological functionality and overall high levels of habitat integrity, especially in the high altitude areas and is in a mostly undisturbed condition, apart from isolated areas where existing homesteads and kraals are situated. Furthermore, several species protected under the Kwazulu-Natal Nature Conservation Management Amendment Act (No. 5 of 1999) (refer to table above) are present in this habitat unit. The above-mentioned botanical aspects of the Montane Grassland habitat indicate that this habitat type is of increased ecological sensitivity and conservation value. This habitat unit provides intact habitat for a high diversity of floral and faunal species and contributes towards faunal migratory connectivity within the area.

Thus, the Montane Grassland habitat unit is considered to be of high ecological sensitivity, and any impacts from the proposed mining activities and associated infrastructure are anticipated to be significant.

5.3 Habitat Unit 3: Northern Afrotemperate Forest

Figure 7: Forested ravines (left) and stream within Northern Afrotemperate Forest ravine (right).

The Northern Afrotemperate forests were encountered in ravines, kloofs and forest patches at higher altitude areas associated with the subject property. The floral species diversity is generally relatively low and dominated by *Podocarpus falcatus*, P *latifolius, Nuxia congesta, Olinia emarginata* and *Dais cotinifolia,* which is typical for this vegetation type. Very little disturbance was encountered, and was generally limited to isolated patches of deforestation and alien floral invasion by *Acacia mearnsii.* Thus, the species composition is representative of this vegetation type. Furthermore, several species, such as *Podocarpus falcatus, P. latifolius, Ilex mitis* and *Pittosporum viridiflorum,* are present in this habitat unit and are protected under the Kwazulu-Natal Nature Conservation Management Amendment Act (No. 5 of 1999) and the National Forests Act of 1998 (Act 84 of 1998). In terms of this act, protected tree species may not be cut, disturbed, damaged or destroyed and their products may not be possessed, collected, removed, transported, exported, donated, purchased or sold - except under licence granted by the Department of Water Affairs or a delegated authority. The dominant species recorded during the surveys are listed below.

Table 3: Dominant species encountered in Northern Afrotemperate Forest habitat unit. Alien species are indicated with an asterisk (*) and protected species are in bold font.

Grass/sedge/reed species	Forb species	Tree/Shrub Species
Carex spicato-paniculata	*Hypoestes aristata*	**Acacia mearnsii*
Cyperus albostriatus	*Isoglossa grantii*	*Acalypha glabrata*
Panicum maximum	*Peperomia retusa*	*Bowkeria verticilata*
	Plectranthus fruticosus;	*Buddleja saligna*
	Plectranthus grallatus	*Buddleja salviifolia*
	Streptocarpus haygarthii	*Calpurnia aurea*
	Streptocarpus pusillus	*Canthium ciliatum*
		Celtis africana
		Clausena anisata
		Cliffortia nitidula
		Combretum erythrophyllum
		Dais cotinifolia
		Diospyros lycioides subsp. guerkei
		Diospyros whyteana
		Euclea crispa subsp. crispa
		Halleria lucida,
		Ilex mitis
		Leucosidea sericea
		Myrsine africana
		Nuxia congesta
		Olinia emarginata
		Pittosporum viridiflorum
		Podocarpus falcatus
		Podocarpus latifolius
		Rapanea melanophloeos
		Rothmannia capensis
		Scolopia flanaganii
		Scolopia mundii
		Widdringtonia nodiflora

The Northern Afrotemperate habitat unit is representative of the vegetation type, has high ecological functionality and overall high levels of habitat integrity, especially in the more remote areas and is in a mostly undisturbed condition. Furthermore, several species protected under the Kwazulu-Natal Nature Conservation Management Amendment Act (No. 5 of 1999) and the Forests Act of 1998 (Act 84 of 1998) (refer to table above) are present in this habitat unit. The above-mentioned botanical aspects of the Northern Afrotemperate Forest indicate that this habitat type is of increased ecological sensitivity and conservation value. This habitat unit provides intact habitat for a high diversity of floral and faunal species and contributes towards faunal migratory connectivity and cover within the area.

Thus, the Northern Afrotemperate Forest habitat unit is considered to be of high ecological sensitivity, and any impacts from the proposed mining activities and associated infrastructure are anticipated to be significant.

5.4 Habitat Unit 4: Secondary Grassland

Figure 8: Transformed grassland associated with the subject property.

This habitat unit comprises of lower-altitude grassland which would most likely have been historically associated with Paulpietersburg Moist Grassland, and was encountered in low-

altitude areas on the subject property (lower than 1600 mamsl). Secondary grassland areas have been transformed by current and historic agricultural activities such as grazing and pastures, alien floral invasion and edge effects from farm homesteads, rural settlements, roads, vegetation clearing and woody encroachment by *Seriphium plumosum*. This has led to the alteration of the floral community structure and the establishment of a sub-climax grass community. Ecological functioning was found to be moderately low in most areas. Dominant grass species included *Hyparrhenia hirta, Eragrostis curvula* and *E. chloromelas*. These species are associated with transformation and usually grow in disturbed places such as old cultivated lands and along roadsides. Additionally, these areas have a significant build-up of moribund material due to the natural burning regime being altered, which significantly reduces forb diversity.

However, various floral SCC in the genera *Gladiolus., Habenaria, Eulophia, Satyrium* and *Disa,* among others, which are protected under the Kwazulu-Natal Nature Conservation Management Amendment Act, 1999 No. 5 of 1999, were encountered scattered throughout this habitat unit during the field surveys.

Table 4: Dominant species encountered in the secondary grassland habitat unit. Alien species are indicated with an asterisk.

Grass/sedge/reed species	Forb species	Tree/Shrub Species
Aristida bipartata	**Bidens formosa*	**Acacia mearnsii*
Aristida congesta subsp. barbicollis	**Bidens pilosa*	**Populus x canescens*
Aristida congesta subsp. congesta	**Plantago lanceolata*	*Indigofera cuneifolia*
Cynodon dactylon	**Tagetes minuta*	*Seriphium plumosum*
Digitaria tricholaenoides	**Taraxacum officinale*	
Eragrostis curvula	*Acalypha angustata*	
Eragrostis chloromelas	*Berkheya macrocephala*	
Hyparrhenia hirta	*Berkheya radula*	
Themeda triandra	***Corycium nigrescens***	
Tristachya leucothrix	***Disa brevicornis***	
Pogonarthria squarrosa	***Disa versicolor***	
Imperata cylindrica	***Gladiolus appendiculatus***	
	Gladiolus crassifolius	
	Gladiolus dalenii	
	Gladiolus ecklonii	
	Helichrysum kraussii	
	Helichrysum tenax	
	Hypoxis acuminata	

Grass/sedge/reed species	Forb species	Tree/Shrub Species
	Hypoxis angustifolia	
	Hypoxis iridifolia	
	Indigofera cuneifolia	
	Ledebouria cooperii	
	Ledebouria ovatifolia	
	Lotononis eriantha	
	Monopsis decipiens	
	Pelargonium luridum	
	Satyrium cristatum	
	Satyrium longicauda	
	Senecio coronatus	

The species composition of this habitat unit is still moderately representative of the vegetation type in which it occurs and the vegetation type is considered *Vulnerable* (Mucina & Rutherford, 2006). Furthermore, several species protected by the Kwazulu-Natal Nature Conservation Management Amendment Act (No. 5 of 1999) (refer to table above), are present in this habitat unit.

Thus, the Secondary Grassland habitat unit is considered to be of moderate ecological sensitivity, and impacts from the proposed mining activities and associated infrastructure are likely to be moderately significant.

5.5 Floral community assessment

Grass communities can provide information regarding the ecological status of specific areas within a subject property. If the species composition is quantitatively determined and characteristics of all components of the grass communities are taken into consideration, it is possible to determine the PES of the portion of land represented by the assessment point. Any given grass species is specifically adapted to specific growth conditions. This sensitivity to specific conditions make grasses good indicators of veld conditions.

The sections below summarise the dominant grass species identified within the transects with their associated habitats and optimal growth conditions with reference to the table and figure below. Please note that the percentage contribution of each species was rounded to the nearest 5% for presentation purposes. It should be noted that transect locations were chosen within all areas moderately representative of vegetation in a good condition, therefore areas with a complete loss of indigenous grass community were not assessed using this method. These areas were however assessed using the VIS (see section below).

Table 5: Grouping of gasses (Van Oudtshoorn, 2006).

Category	Decription
Pioneer	Hardened, annual plants that can grow in very unfavourable conditions. In time improves growth conditions for perennial grasses.
Subclimax	Weak perennials denser than pioneer grasses. Protects soils leading to more moisture, which leads to a denser stand, which deposits more organic material on the surface. As growth conditions improve climax grasses are replaced by subclimax grasses.
Climax	Strong perennial plants adapted to optimal growth conditions.
Decreaser	Grasses abundant in good veld.
Increaser I	Grasses abundant in underutilized veld.
Increaser II	Grasses abundant in overgrazed veld.
Increaser III	Grasses commonly found in overgrazed veld.

The results below indicate that the graminoid layer of the Montane Grassland habitat unit is in a largely climax state of ecological succession and representative of the vegetation type in which it occurs. Thus is considered to be a primary grassland and of high sensitivity. The graminoid layer of the Secondary Grassland habitat unit is moderately representative of the vegetation types associated with the location of the transects. However, the transect analysis indicates that secondary, sub-climax grassland conditions are present and the secondary grassland is of moderate sensitivity. The transects performed in the wetland areas indicate that the graminoid layer is representative of wetland conditions.

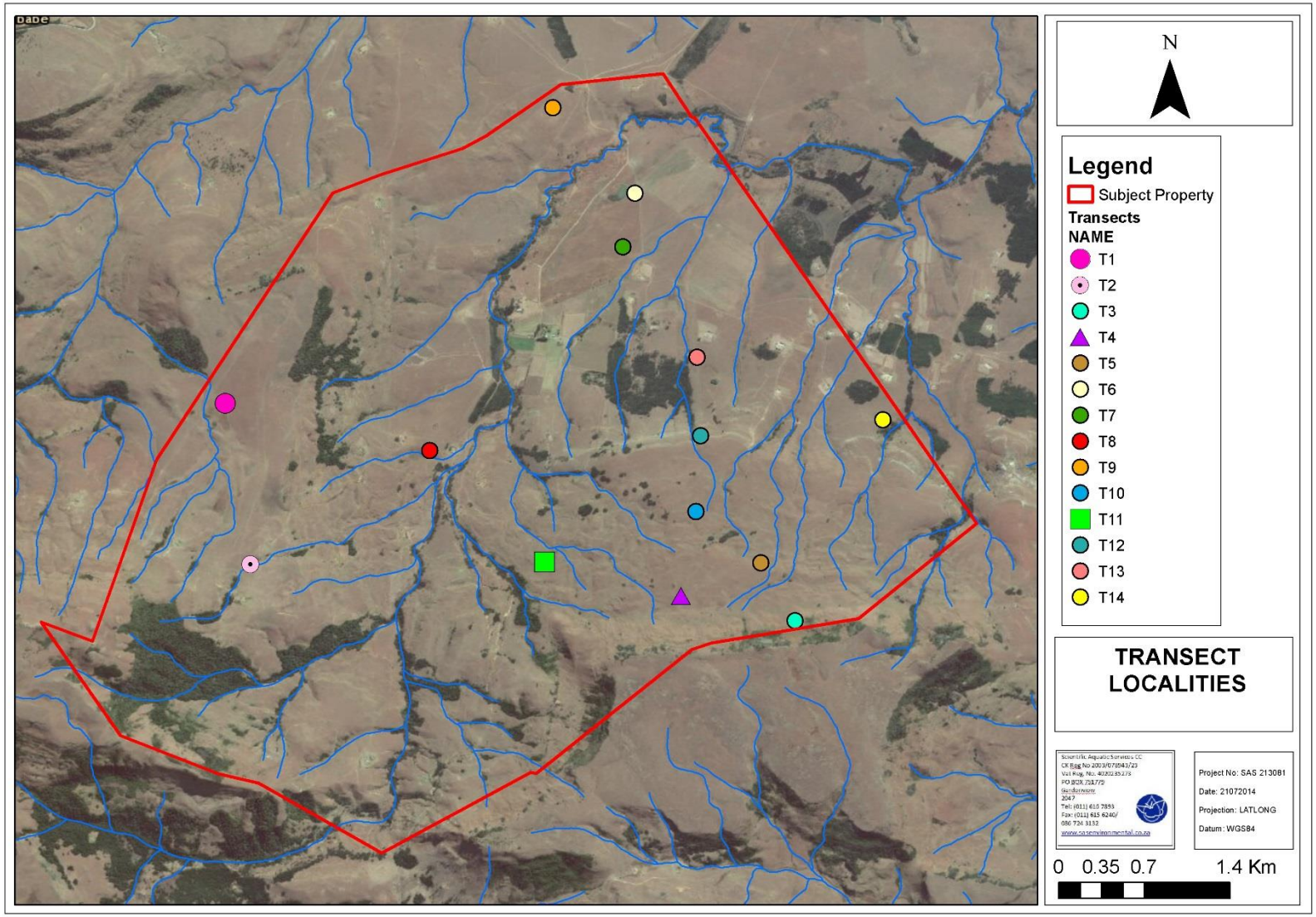
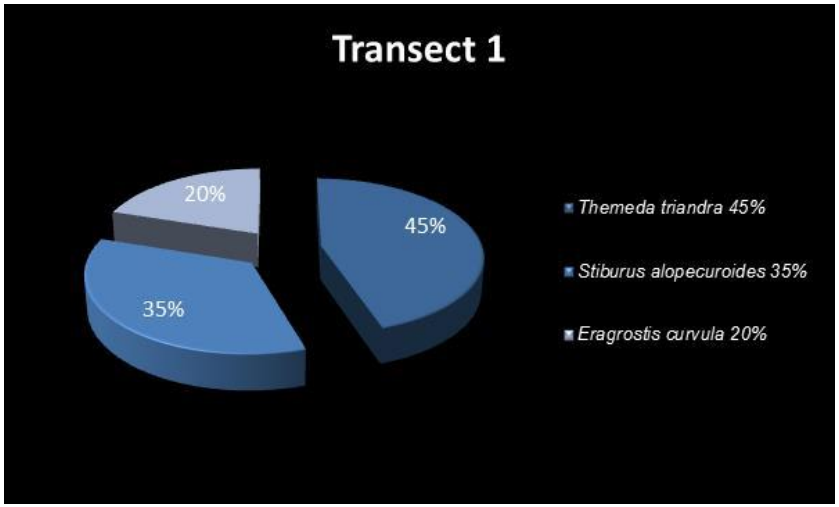


Figure 9: Digital satellite image depicting location of the transects.

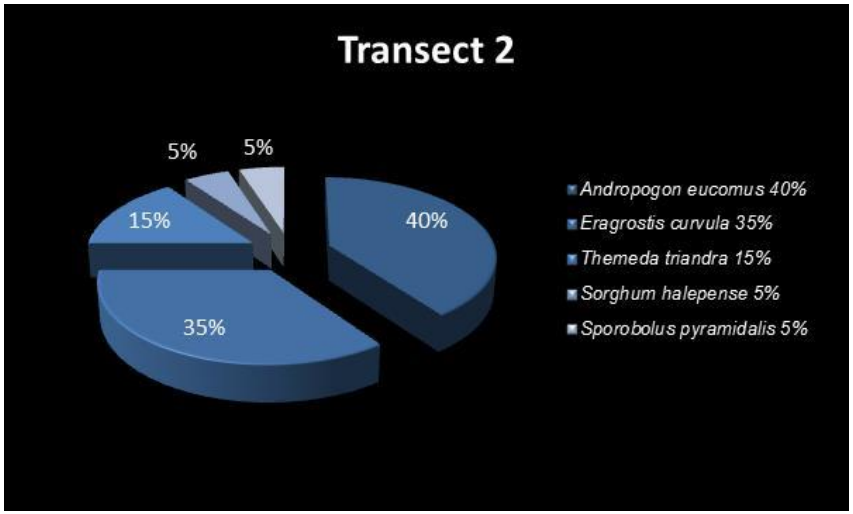


Transect 1 –Wetland habitat unit

- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.
- *Stiburus alopecuroides* (Stiburus) [Climax Grass, Low grazing value]. Stiburus grows in high altitude open grassland in shallow, damp soil such as vlei areas and on poorly drained rock plates. It mostly growls in soil with high nutritional status.
- *Eragrostis curvula* (Weeping love grass) [Climax grass; Increaser II]. Weeping love grass usually grows in disturbed places such as old cultivated lands and roadsides mostly in well drained fertile soil. It is associated with regions with a high rainfall with overgrazed and trampled veld.

Conclusion: *Themeda triandra* and *Stiburus alopecuroides* dominated this transect undertaken within the wetland habitat unit. These species are known to grow in in open grassland within undisturbed veld or areas with damp soil, such as the area where this transect was undertaken. The area in the vicinity of Transect 1 can therefore be considered in a natural state representative of the vegetation type.

Figure 10: Transect 1



Transect 2 –Secondary Grassland habitat unit

- *Andropogon eucomus* (Snowflake grass) [Subclimax grass, Increaser II]. Snowflake grass grows in wet areas such as vleis, riverbanks, road reserves and seepage areas, especially in disturbed sandy soil
- *Eragrostis curvula* (Weeping love grass) [Climax grass; Increaser II]. Weeping love grass usually grows in disturbed places such as old cultivated lands and roadsides mostly in well drained fertile soil. It is associated with regions with a high rainfall with overgrazed and trampled veld.
- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.
- *Sorghum halepense* (Johnson grass) [Subclimax grass, Climax grass, exotic grass]. Johnson grass grows in disturbed places, usually in damp clay or sandy soil. It seldom occurs in natural grazing.
- *Sporobolus pyramidalis* (Catstail Dropseed) [Subclimax grass, Increaser II]. Catstail dropseed grows in disturbed places such as trampled veld and old cultivated lands in areas with a high rainfall or in damp places. It is often found near kraals or other places where animals pass by. It grows in all soil types, especially in fertile soil.

Conclusion: The two dominant species occurring within the transformed grassland area are *Andropogon eucomus* and *Eragrostis curvula*. These species usually grow in moist grassland areas with some disturbance. *Sorghum halepense and Sporobolus pyramidalis* grow in more disturbed places and overgrazed veld, as was the case in areas closer to the alien proliferation due to overgrazing and alien tree communities.

Figure 11: Transect 2.

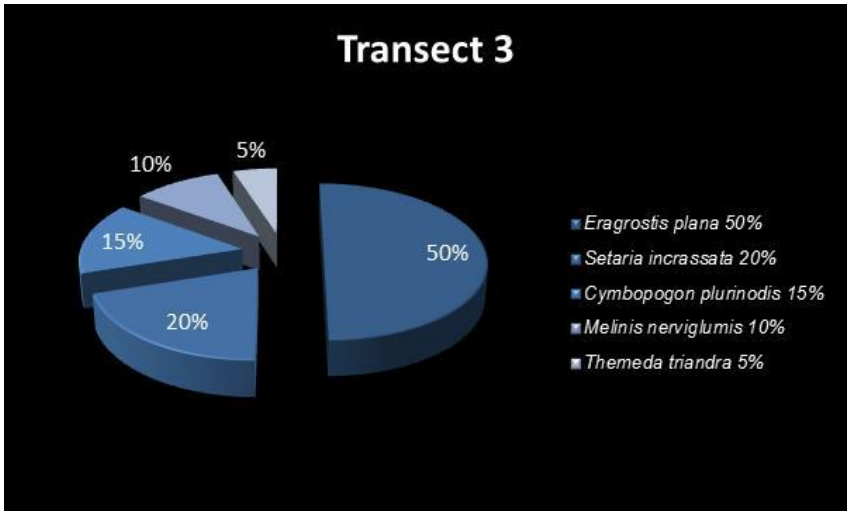
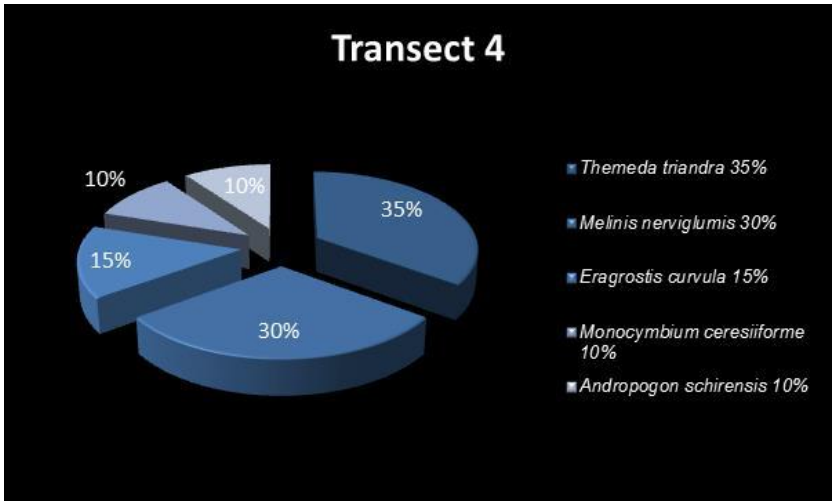


Figure 12: Transect 3.

Transect 3 – Montane Grassland habitat unit

- *Eragrostis plana* (Tough love grass) [Increaser II; Subclimax grass]. Tough love grass grows in disturbed places such as old cultivated lands, road reserves and also tramples places such as feedlots and water points; it grows in all types of soil; mostly in damp patches, especially in the more arid western parts of its area of distribution.
- *Setaria incrassata (*Vlei Bristle grass) [Climax grass, Decreaser]. Vlei bristle grass usually grows in damp places such as vleis or riverbanks, on black clay soil. It is also found at the edges or forests and sometimes on stony slopes, usually in fertile soil.
- *Cymbopogon plurinodis* (Narrow-leaved Turpentine Grass) [Climax grass, Increaser I/ Increaser III]: Narrow-leafed turpentine grass grows in open grassland or on bare patches in bushveld. Occurs in most soils types where it can form dominant stands.
- *Melinis nerviglumis* (Bristle-leaved Rep Top) [Climax grass, Increaser I]. Bristle-leaved red top grows in undisturbed veld shallow, gravelly soil. It usually grows on slopes.
- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.

Conclusion: The majority of grass species occurring within this transect are classified as climax grasses which are representative of the vegetation type in which the transect was undertaken. *Eragrostis plana* is a subclimax gras, however it is naturally dominant in Wakkerstroom Montane Grassland. Thus, the Montane Grassland is considered to be in a climax state of ecological succession.

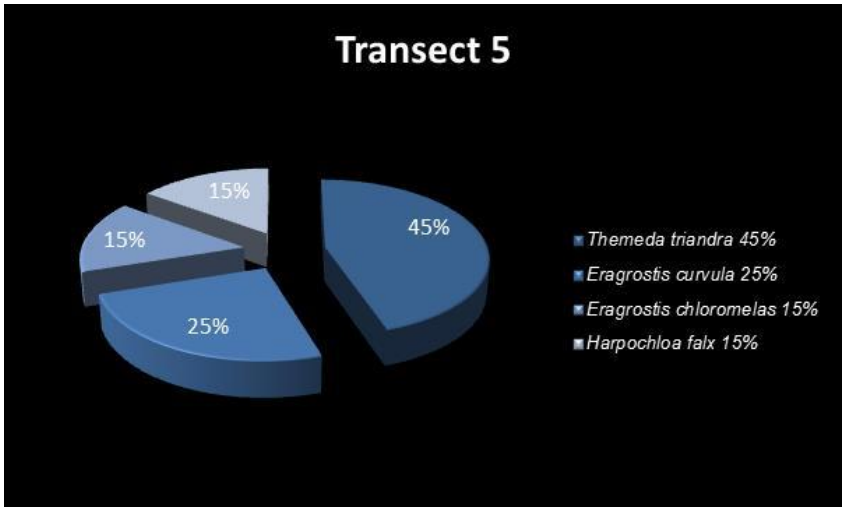


Transect 4 – Grassland habitat unit (rocky slopes)

- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.
- *Melinis nerviglumis* (Bristle-leaved Rep Top) [Climax grass, Increaser I]. Bristle-leaved red top grows in undisturbed veld shallow, gravelly soil. It usually grows on slopes.
- *Eragrostis curvula* (Weeping love grass) [Climax grass; Increaser II]. Weeping love grass usually grows in disturbed places such as old cultivated lands and roadsides mostly in well drained fertile soil. It is associated with regions with a high rainfall with overgrazed and trampled veld.
- *Monocymbium ceresiiforme* (Boat grass) [Decreaser, Climax grass]. Boat grass usually grows on slopes in high altitude grassland with a high rainfall. It is associated with leached acidic soil. In areas with a lower rainfall the grass mostly grows in sandy soil in places where water accumulates. In the central parts of Africa it often grows around vleis in low-lying regions.
- *Andropogon schirensis* (Stab grass) [Climax grass; Increaser I]. Stab grass occurs in grassland with a relatively high rainfall and in open bushveld areas. It is often found on rocky slopes in well drained soil. But sometimes also in damp places.

Conclusion: The majority of grass species occurring within this transect are classified as climax grasses which are representative of the vegetation type in which the transect was undertaken. Thus, the Montane Grassland is considered to be in a climax state of ecological succession.

Figure 13: Transect 4.

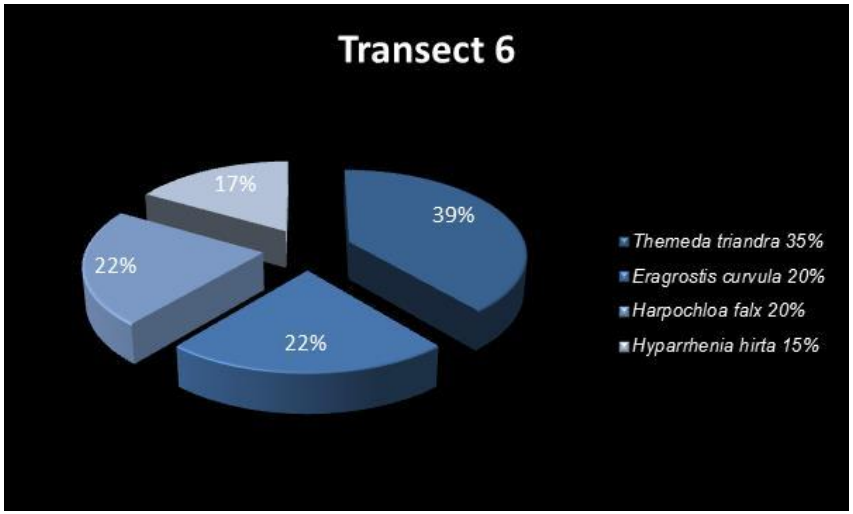


Transect 5 –Montane Grassland habitat unit

- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.
- *Eragrostis curvula* (Weeping love grass) [Climax grass; Increaser II]. Weeping love grass usually grows in disturbed places such as old cultivated lands and roadsides mostly in well drained fertile soil. It is associated with regions with a high rainfall with overgrazed and trampled veld.
- *Eragrostis chloromelas* (Narrow curly leaf) [Increaser II, subclimax and climax grass]. Curly leaf grows on stony slopes in sandy and loam soil. It is more common in open grassland than in the bushveld.
- *Harpochloa falx* (Caterpillar Grass)[Climax grass, Increaser I]: This grass species usually grows against rocky slopes in well-drained soil, usually in high-rainfall areas. Mostly in undisturbed grassland.

Conclusion: *Themeda triandra* dominated this transect undertaken within the Montane Grassland habitat unit. This species is known to grow in in open grassland within undisturbed veld or areas with mostly clay soil, such as the area where this transect was undertaken. Thus, the Montane Grassland is considered to be in a climax state of ecological succession.

Figure 14: Transect 5.

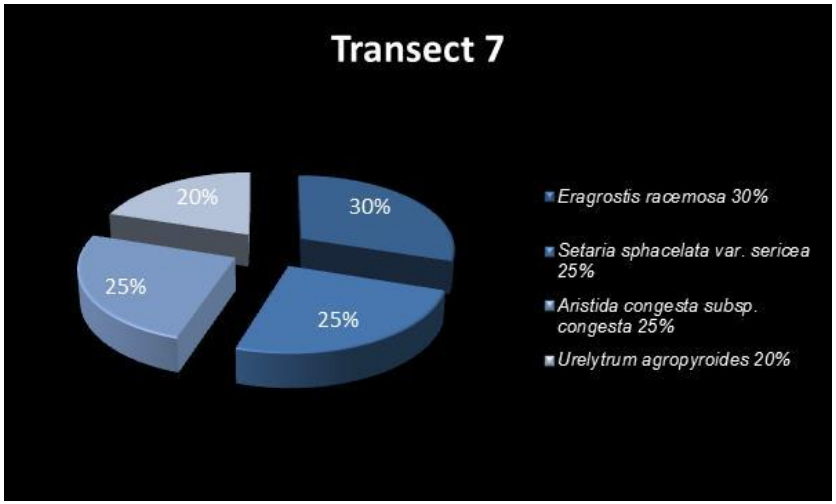


Transect 6 –Secondary grassland

- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.
- *Eragrostis curvula* (Weeping love grass) [Climax grass; Increaser II]. Weeping love grass usually grows in disturbed places such as old cultivated lands and roadsides mostly in well drained fertile soil. It is associated with regions with a high rainfall with overgrazed and trampled veld.
- *Harpochloa falx* (Caterpillar Grass) [Climax grass, Increaser I]: This grass species usually grows against rocky slopes in well-drained soil, usually in high-rainfall areas. Mostly in undisturbed grassland.
- *Hyparrhenia hirta* (Common thatching grass) [Increaser I, Climax grass]. Grows well in drained soil, especially gravelly soil, in open grassland, as well as in bushveld. It is often found in disturbed places such as old cultivated lands and road reserves. It is also sometimes found along riversides on heavier soil.
- *Panicum maximum* (Guinea Grass) [Subclimax/ climax grass, Decreaser]. Guinea grass grows in shade under trees and shrubs. Grows well under moist conditions in fertile soils, often adjacent to streams. Also utilises other growing conditions.

Conclusion: The three dominant species occurring within the secondary grassland area are *Themeda triandra, Harpochloa falx* and *Eragrostis curvula*. These species usually grow in moist grassland areas, as was the case with this transect being undertaken next to a wetland. *Hyparrhenia hirta* grows in more disturbed areas and overgrazed veld, as was the case in areas closer to the alien proliferation due to overgrazing and historic agricultural activities. Although several climax species are present, the abundance of *Panicum maximum* and *Hyparrhenia hirta* are indicative of secondary grassland conditions.

Figure 15: Transect 6.

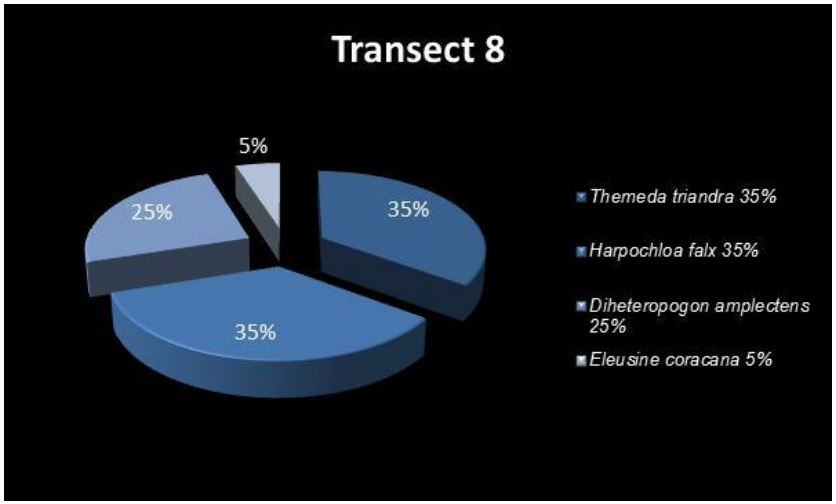


Transect 7 – Secondary grassland

- *Eragrostis racemosa* (Narrow heart love grass) [Subclimax grass, Increaser II]. Narrow heart love grass grows in a large variety of habitat types, mostly in shallow sandy or gravelly soil in damp places. It is more often found in disturbed places.
- *Setaria sphacelata var. sericea* (Golden bristle grass) [Climax grass, Decreaser grass]. Golden bristle grass grows in mountainous grassland in parts with a high rainfall; damp places such as in vleis and marshes; mostly in clay soil. It is often also found in damp places in old cultivated lands, roads reserves and other disturbed places.
- *Aristida congesta* subsp*. congesta* (Tassel Three-awn) [Pioneer grass, Increaser II]: this grass occurs mostly in disturbed places such as old fields, road reserves and bare patches in overutilised veld. It grows in most soil types, but mostly loam soil.
- *Urelytrum agropyroides* (Quinine grass) [Climax grass; Increaser I]. Quinine grass grows in open as well as open parts in bushveld areas. It usually grows on stony slopes in sandy (often damp) soil.

Conclusion: The grass species associated with this transect are mostly associated with disturbance such as old cultivated lands. This area has undergone historic cultivation activities and is currently used for grazing of livestock.

Figure 16: Transect 7.

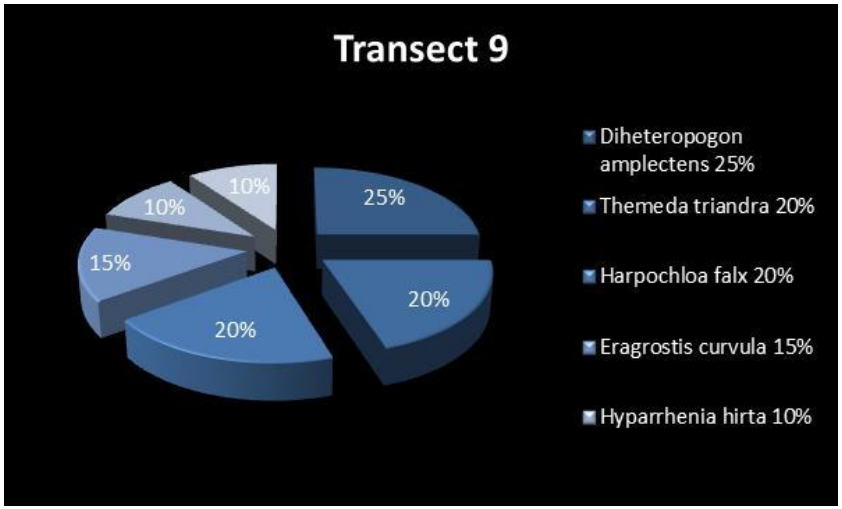


Transect 8 – Montane Grassland habitat unit

- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.
- *Harpochloa falx* (Caterpillar Grass) [Climax grass, Increaser I]: This grass species usually grows against rocky slopes in well-drained soil, usually in high-rainfall areas. Mostly in undisturbed grassland.
- *Diheteropogon amplectens* (Broad-leaved Bluestem) [Climax grass, decreaser]. Broad-leaved bluestem grows in open grassland, as well as in open patches in bushveld parts (especially in mixed bushveld). It grows mostly in poor gravelly soil on slopes, but also in other soil types.
- *Eleusine coracana* (Goose grass) [Pioneer, Increaser II grass]. Goose grass grows in disturbed places such as cultivated lands and gardens, in all soil types. Grows in compacted ground (for example roads) where few other grasses can survive.

Conclusion: The majority of grass species occurring within this transect are classified as climax grasses which are representative of the vegetation type in which the transect was undertaken. Thus, the Montane Grassland is considered to be in a climax state of ecological succession.

Figure 17: Transect 8.

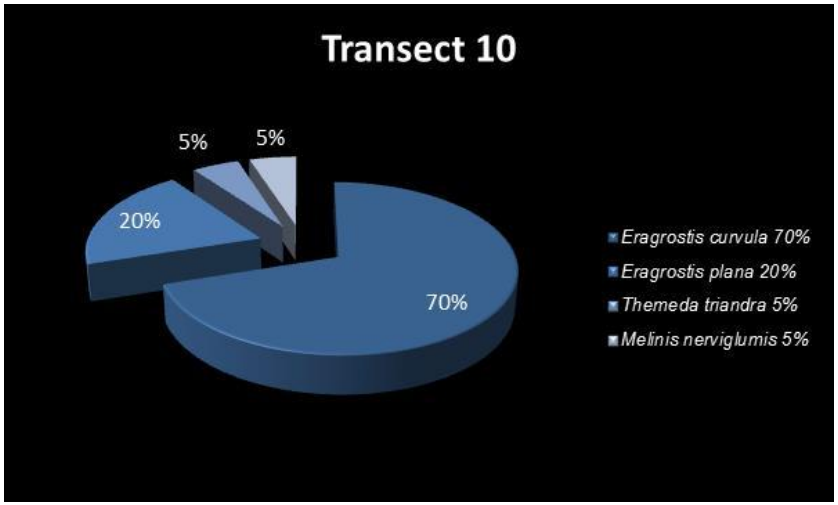


Transect 9 – Montane Grassland habitat unit

- *Diheteropogon amplectens* (Broad-leaved Bluestem) [Climax grass, decreaser]. Broad-leaved bluestem grows in open grassland, as well as in open patches in bushveld parts (especially in mixed bushveld). It grows mostly in poor gravelly soil on slopes, but also in other soil types.
- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.
- *Harpochloa falx* (Caterpillar Grass) [Climax grass, Increaser I]: This grass species usually grows against rocky slopes in well-drained soil, usually in high-rainfall areas. Mostly in undisturbed grassland.
- *Eragrostis curvula* (Weeping love grass) [Climax grass; Increaser II]. Weeping love grass usually grows in disturbed places such as old cultivated lands and roadsides mostly in well drained fertile soil. It is associated with regions with a high rainfall with overgrazed and trampled veld.
- *Hyparrhenia hirta* (Common thatching grass) [Increaser I, Climax grass]. Grows well in drained soil, especially gravelly soil, in open grassland, as well as in bushveld. It is often found in disturbed places such as old cultivated lands and road reserves. It is also sometimes found along riversides on heavier soil.
- *Trachypogon spicatus* (Giant spear grass) [Climax grass; Increaser I]. Giant spear grass mostly grows in open undisturbed grassland, but it also occurs in bushveld areas with a relatively high rainfall. It is often encountered near vleis. It grows mostly in sandy and gravelly soil types.

Conclusion: *Themeda triandra, Diheteropogon amplectens and Harpochloa falx* dominated this transect unit undertaken within the grassland habitat unit. These species are known to grow in in open grassland within undisturbed veld or areas with mostly clay soil, such as the area where this transect was undertaken. Thus, the Montane Grassland is considered to be in a climax state of ecological succession.

Figure 18: Transect 9.

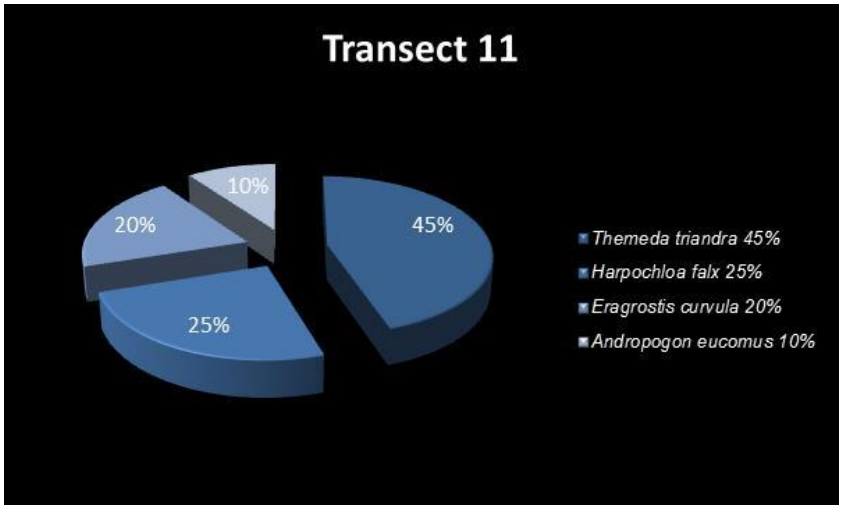


Transect 10 –Montane Grassland habitat unit

- *Eragrostis curvula* (Weeping love grass) [Climax grass; Increaser II]. Weeping love grass usually grows in disturbed places such as old cultivated lands and roadsides mostly in well drained fertile soil. It is associated with regions with a high rainfall with overgrazed and trampled veld.
- *Eragrostis plana* (Tough love grass) [Increaser II; Subclimax grass]. Tough love grass grows in disturbed places such as old cultivated lands, road reserves and also tramples places such as feedlots and water points; it grows in all types of soil; mostly in damp patches, especially in the more arid western parts of its area of distribution.
- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.
- *Melinis nerviglumis* (Bristle-leaved Rep Top) [Climax grass, Increaser I]. Bristle-leaved red top grows in undisturbed veld shallow, gravelly soil. It usually grows on slopes.

Conclusion: The dominant species is *Eragrostis curvula,* which usually grows in disturbed places such as overgrazed areas, as was the case where this .transect was performed.

Figure 19: Transect 10.

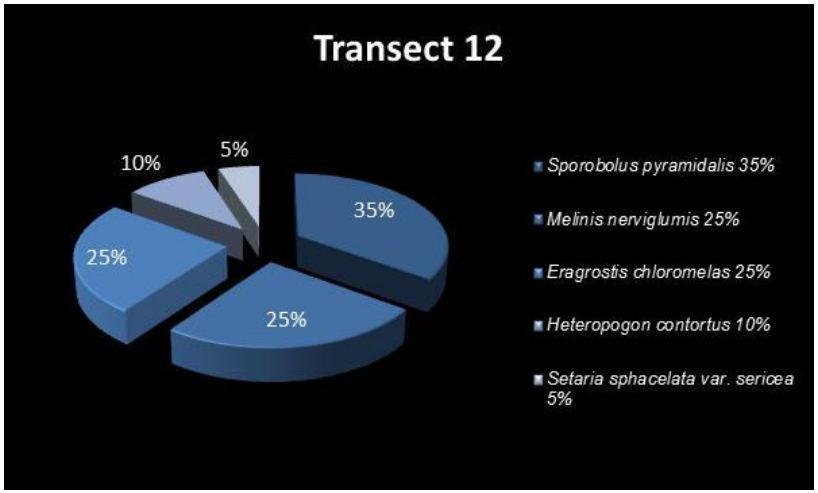


Transect 11 – Montane Grassland habitat unit

- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.
- *Harpochloa falx* (Caterpillar Grass) [Climax grass, Increaser I]: This grass species usually grows against rocky slopes in well-drained soil, usually in high-rainfall areas. Mostly in undisturbed grassland.
- *Eragrostis curvula* (Weeping love grass) [Climax grass; Increaser II]. Weeping love grass usually grows in disturbed places such as old cultivated lands and roadsides mostly in well drained fertile soil. It is associated with regions with a high rainfall with overgrazed and trampled veld.
- *Andropogon eucomus* (Snowflake grass) [Subclimax grass, Increaser II]. Snowflake grass grows in wet areas such as vleis, riverbanks, road reserves and seepage areas, especially in disturbed sandy soil.

Conclusion: The grass species associated with this transect are mostly associated with open grasslands and rocky slopes. Some disturbance has occurred due to livestock transforming natural grasslands and decreasing indigenous floral diversity.

Figure 20: Transect 11.

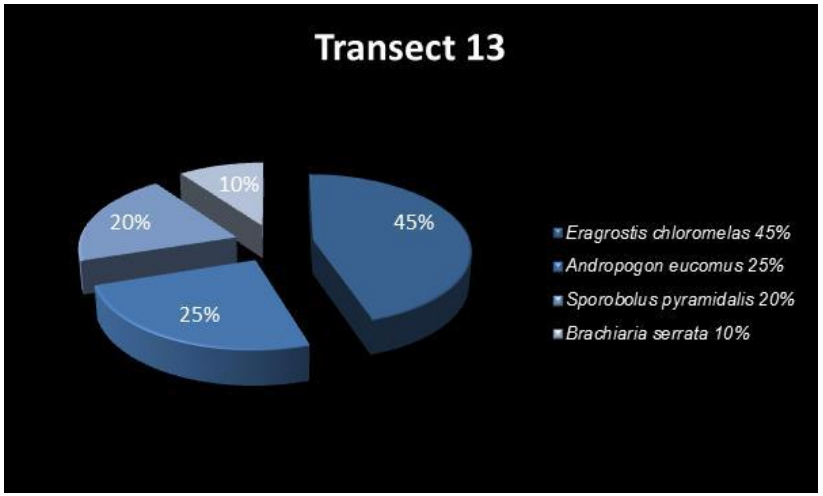


Transect 12 – Montane Grassland habitat unit

- *Sporobolus pyramidalis* (Catstail Dropseed) [Subclimax grass, Increaser II]. Catstail dropseed grows in disturbed places such as trampled veld and old cultivated lands in areas with a high rainfall or in damp places. It is often found near kraals or other places where animals pass by. It grows in all soil types, especially in fertile soil.
- *Melinis nerviglumis* (Bristle-leaved Rep Top) [Climax grass, Increaser I]. Bristle-leaved red top grows in undisturbed veld shallow, gravelly soil. It usually grows on slopes.
- *Eragrostis chloromelas* (Narrow curly leaf) [Increaser II, subclimax and climax grass]. Curly leaf grows on stony slopes in sandy and loam soil. It is more common in open grassland than in the bushveld.
- *Heteropogon contortus* (Spear grass) [Increaser II]. Grows especially in gravelly and other well drained soil. It often grows on slopes and disturbed places such as road reserves where it forms dense stands.
- *Setaria sphacelata var. sericea* (Golden bristle grass) [Climax grass, Decreaser grass]. Golden bristle grass grows in mountainous grassland in parts with a high rainfall; damp places such as in vleis and marshes; mostly in clay soil. It is often also found in damp places in old cultivated lands, roads reserves and other disturbed places.

Conclusion: The three dominant grass species found within this transect unit are mostly associated with open grasslands and some degree of disturbance and trampled veld. These species are increaser, climax and subclimax grasses indicating that these species would increase in favourable conditions.

Figure 21: Transect 12.

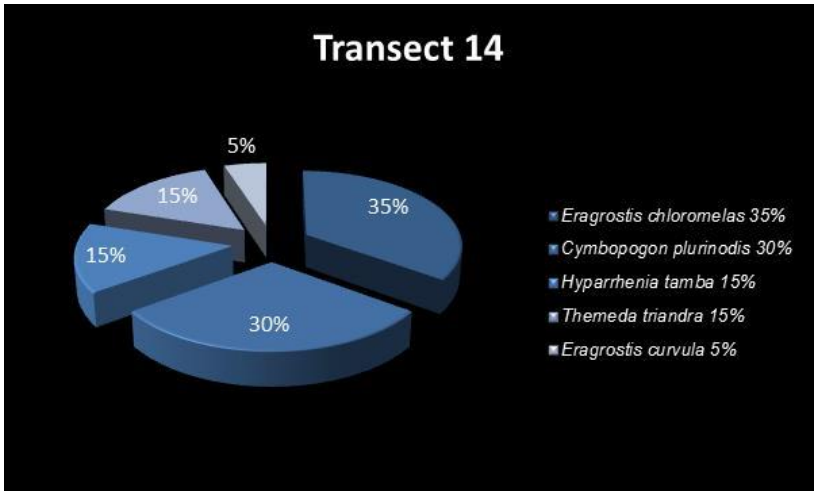


Transect 13 – Wetland habitat unit

- *Eragrostis chloromelas* (Narrow curly leaf) [Increaser II, subclimax and climax grass]. Curly leaf grows on stony slopes in sandy and loam soil. It is more common in open grassland than in the bushveld.
- *Andropogon eucomus* (Snowflake grass) [Subclimax grass, Increaser II]. Snowflake grass grows in wet areas such as vleis, riverbanks, road reserves and seepage areas, especially in disturbed sandy soil.
- *Sporobolus pyramidalis* (Catstail Dropseed) [Subclimax grass, Increaser II]. Catstail dropseed grows in disturbed places such as trampled veld and old cultivated lands in areas with a high rainfall or in damp places. It is often found near kraals or other places where animals pass by. It grows in all soil types, especially in fertile soil.
- *Brachiaria serrata*. (Velvet signal grass) [Climax grass, Decreaser]. Velvet signal grass occurs mainly in rocky places in undisturbed veld. It also utilises a wide range of other habitat types such as sand veld and marshes. It often grows in sandy and loamy soils.

Conclusion: *Eragrostis chloromelas* and *Andropogon eucomus* dominated this transect within the wetland habitat unit. These species are known to grow in in open grassland within undisturbed veld or areas with damp soil, such as the area where this transect was undertaken.

Figure 22: Transect 13.



Transect 14 – Montane Grassland habitat unit

- *Eragrostis chloromelas* (Narrow curly leaf) [Increaser II, subclimax and climax grass]. Curly leaf grows on stony slopes in sandy and loam soil. It is more common in open grassland than in the bushveld.
- *Cymbopogon plurinodis* (Narrow-leaved Turpentine Grass) [Climax grass, Increaser I/ Increaser III]: Narrow-leafed turpentine grass grows in open grassland or on bare patches in bushveld. Occurs in most soils types where it can form dominant stands.
- *Hyparrhenia tamba* (Blue thatching grass) [Climax grass; Increaser I]. Blue thatching grass usually grows in road reserves, especially where water collects; otherwise in damp soil next to rivers and vleis.
- *Themeda triandra* (Red Grass) [Decreaser; Climax grass]. Red grass is abundant in undisturbed open grassland and bushveld in parts with an average to high rainfall. It grows in any type of soil, but mostly clay soil.
- *Eragrostis curvula* (Weeping love grass) [Climax grass; Increaser II]. Weeping love grass usually grows in disturbed places such as old cultivated lands and roadsides; mostly in well drained fertile soil. It is associated with regions with a high rainfall with overgrazed and trampled veld.

Conclusion: The two dominant grass species found within this transect unit are mostly associated with open grasslands. These species are increaser, climax grasses indicating that these species would increase in favourable conditions. Some disturbance of floral diversity has occurred due to alien encroachment along the wetland features and grazing of livestock in the area.

Figure 23: Transect 14.

The dominant grass species are all indicative of nutrient-poor, sandy soils, which is the dominant soil type associated with the subject property. Furthermore, the fact that the majority of grass species are sub-climax species does not necessarily indicate disturbance, but is a function of the sandy nature of the soil and typical of the vegetation types in which the subject property is situated. Thus, the grass layer is considered to be in a largely natural condition.

5.6 Vegetation Index Score

The information gathered during the assessment of the subject property was used to determine the Vegetation Index Score (VIS) - see Appendix B for calculations. Due to variation between the different habitat units within the site, all habitat units were assessed separately. The tables below list the scoring system as well as the results of each habitat unit.

Table 6: Scoring for the Vegetation Index Score

Vegetation Index Score	Assessment Class	Description
22 to 25	**A**	Unmodified, natural
18 to 22	**B**	Largely natural with few modifications.
14 to 18	**C**	Moderately modified
10 to 14	**D**	Largely modified
5 to 10	**E**	The loss of natural habitat extensive
<5	**F**	Modified completely

Table 7: Vegetation Index Score

Habitat unit	Score	Class	Motivation
Montane Grassland	21	**B - Largely natural with few modifications**	Montane Grassland mostly undisturbed and representative of vegetation type, intact, high ecological functionality, low levels of alien floral invasion.
Northern Afrotemperate Forest	21	**B - Largely natural with few modifications**	Northern Afrotemperate Forest mostly undisturbed and representative of vegetation type, intact, high ecological functionality, low levels of alien floral invasion and isolated transformed areas.
Wetlands and Riparian habitat	18	**B/C – Largely natural/Moderately modified**	Upper reaches mostly intact, lower levels moderate to high levels of alien floral invasion. Overall, it still consists of an intact interconnected system providing valuable ecological and socio-cultural services.
Secondary Grassland	15	**C – Moderately modified**	Evidence of overgrazing and alien plant species invasion was noted, although overall functioning is still largely intact, placing the secondary grasslands within a Class C VIS.

5.7 Floral Species of Conservation Concern Assessment

An assessment considering the presence of any plant species of concern, as well as suitable habitat to support any such species will be undertaken. The complete PRECIS Red Data

Listed plants for the grid reference 2730AD was acquired from SANBI. The following red data species were listed for the area.

Table 8: IUCN Red Data List Categories – Version 3.1 as supplied by SANBI

Category	Definition
EX	Extinct
EW	Extinct in the wild
CR	Critically endangered
EN	Endangered
VU	Vulnerable
NT	Near threatened
LC	Least concern
DD	Data deficient
NE	Not evaluated

Threatened species are species that are facing a high risk of extinction. Any species classified in the IUCN categories Critically Endangered, Endangered or Vulnerable is a threatened species.

SCC are species that have a high conservation importance in terms of preserving South Africa's high floristic diversity and include not only threatened species, but also those classified in the categories Extinct in the Wild (EW), Regionally Extinct (RE), Near Threatened (NT), Critically Rare, Rare and Declining.

Table 9: PRECIS RDL plant list for the QDS 2730AD (Raimondo *et al*., 2009; SANBI, www.sanbi.org).

Family	Species	Threat status	Habitat
AMARYLLIDACEAE	*Nerine platypetala McNeil*	VU	Montane grassland, margins of permanently moist vleis and levees of river banks.
ANACARDIACEAE	*Searsia dracomontana (Moffett) Moffett*	NT	Lower Drakensberg Escarpment around Charlestown and Wakkerstroom in southern Mpumalanga and at Van Reenen on the Free State-KwaZulu-Natal border.
APOCYNACEAE	*Aspidoglossum xanthosphaerum Hilliard*	VU	Montane grassland, marshy sites, 1800 m.
APOCYNACEAE	*Brachystelma remotum R.A.Dyer*	Rare	Montane grasslands, grows in shallow soils on shale outcrops, 1600-2200 m.
APOCYNACEAE	*Brachystelma villosum (Schltr.) N.E.Br.*	Rare	Scattered in grassland at an altitude of 500-1500 m.
AQUIFOLIACEAE	*Ilex mitis (L.) Radlk. var. mitis*	Declining	Along rivers and streams in forest and thickets, sometimes in the open. Found from sea level to inland mountain slopes.

Family	Species	Threat status	Habitat
ASPARAGACEAE	*Asparagus fractiflexus (Oberm.) Fellingham & N.L.Mey.*	EN	High altitude, open grasslands, on rocky outcrops or among boulders.
ASPHODELACEAE	*Aloe kniphofioides Baker*	VU	High altitude grasslands of Mpumalanga, KwaZulu-Natal and north-eastern Eastern Cape.
ASTERACEAE	*Helichrysum aureum (Houtt.) Merr. var. argenteum Hilliard*	VU	Montane grassland, 1800-2000 m.
CELASTRACEAE	*Gymnosporia devenishii Jordaan*	Rare	Montane and mistbelt forest understorey.
COLCHICACEAE	*Sandersonia aurantiaca Hook.*	Declining	Cool, moist slopes with minimal herbivory and fire, 200-1800 m.
DIOSCOREACEAE	*Dioscorea mundii Baker*	NT	Eastern Cape, Western Cape
FABACEAE	*Lotononis amajubica (Burtt Davy) B.-E.van Wyk*	Rare	Well-drained, high altitude grassland, 1600-1800 m.
FABACEAE	*Lotononis dichiloides Sond.*	CR	Indian Ocean Coastal Belt
GUNNERACEAE	*Gunnera perpensa L.*	Declining	Damp marshy area and vleis from coast to 2400 m.
HYACINTHACEAE	*Eucomis bicolor Baker*	NT	Well-drained, grassy mountain slopes, sometimes in forests, along watercourses and on rocky cliffs, generally at higher altitudes up to 2800 m.
HYACINTHACEAE	*Eucomis montana Compton*	Declining	Rocky montane grassland.
HYACINTHACEAE	*Merwilla plumbea (Lindl.) Speta*	NT	Widespread in eastern half of South Africa. Also in Swaziland and Lesotho.
MESEMBRYANTHEMACEAE	*Khadia alticola Chess. & H.E.K.Hartmann*	Rare	Montane grassland in shallow, sandy, humus-rich soil pockets and crevices between rock plates above 2000 m.
MESEMBRYANTHEMACEAE	*Khadia beswickii (L.Bolus) N.E.Br.*	VU	Gauteng
MYRSINACEAE	*Rapanea melanophloeos (L.) Mez*	Declining	Coastal, swamp and mountain forest, on forest margins and bush clumps, often in damp areas from coast to mountains.
ORCHIDACEAE	*Disa galpinii Rolfe*	Rare	Between Ramatsiliso's Gate and Naude's Nek Pass.
ORCHIDACEAE	*Satyrium microrrhynchum Schltr.*	Rare	Montane and subalpine grassland 1 600-3 000 m, on grassy and sometimes stony or moist slopes.
PROTEACEAE	*Protea parvula Beard*	NT	Most prominent in Lydenburg montane grassland.
PROTEACEAE	*Protea subvestita N.E.Br.*	VU	Confined to infrequently burned habitats, often associated with gullies, scarps and forest margins. Occasional fires are required for successful recruitment.
SCROPHULARIACEAE	*Bowkeria citrina Thode*	Rare	Between Groenvlei, Wakkerstroom and Luneburg. Forest margins and cliff edges on cool slopes, 1400-1800 m.

The POC of each of the species listed above was calculated (table below) with reference to habitat suitability within the subject property.

Table 10: POC for floral species of concern.

Species	POC	Motivation
Nerine platypetala McNeil	80%	High probability of occurring, especially in montane grassland and wetlands. Not recorded during assessment.
Searsia dracomontana (Moffett) Moffett	70%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Aspidoglossum xanthosphaerum Hilliard	76%	High probability of occurring, especially in montane grassland and wetlands. Not recorded during assessment.
Brachystelma remotum R.A.Dyer	80%	High probability of occurring, especially in montane grassland and wetlands. Not recorded during assessment.
Brachystelma villosum (Schltr.) N.E.Br.	80%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Ilex mitis (L.) Radlk. var. mitis	100%	Recorded during assessment in Northern Afrotemperate Forest
Asparagus fractiflexus (Oberm.) Fellingham & N.L.Mey.	80%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Aloe kniphofioides Baker	80%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Helichrysum aureum (Houtt.) Merr. var. argenteum Hilliard	80%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Gymnosporia devenishii Jordaan	80%	High probability of occurring, especially in Northern Afrotemperate Forest. Not recorded during assessment.
Sandersonia aurantiaca Hook.	75%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Dioscorea mundii Baker	0%	Outside distribution range.
Lotononis amajubica (Burtt Davy) B.-E.van Wyk	70%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Lotononis dichiloides Sond.	0%	Outside distribution range
Gunnera perpensa L.	0%	High probability of occurring, especially in wetlands. Not recorded during assessment.
Eucomis bicolor Baker	80%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Eucomis montana Compton	78%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Merwilla plumbea (Lindl.) Speta	85%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Khadia alticola Chess. & H.E.K.Hartmann	80%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Khadia beswickii (L.Bolus) N.E.Br.	0%	Outside distribution range
Rapanea melanophloeos (L.) Mez	100%	Recorded during assessment
Disa galpinii Rolfe	15%	On verge of distribution range. Suitable habitat present
Satyrium microrrhynchum Schltr.	80%	High probability of occurring, especially in montane grassland. Not recorded during assessment.
Protea parvula Beard	0%	Outside distribution range
Protea subvestita N.E.Br.	100%	Recorded during assessment
Bowkeria citrina Thode	90%	High probability of occurring, especially in montane grassland. Not recorded during assessment.

From the above assessment, it is clear that the majority of the floral SCC listed for the QDS 2730AD have a high probability of occurring within the subject property, especially within the

Montane Grassland, Northern Afrotemperate Forest and Wetland and Riparian habitat units. Three of the listed species, namely *Ilex mitis, Rapanea melanophloeos* and *Protea subvestita* were positively identified during the field assessments.

Furthermore, four tree species protected by the National Forest Act (1998), namely *Podocarpus latifolius, P. falcatus, Ilex mitis* and *Pittosporum viridiflorum* are present in the Northern Afrotemperate Forest habitat unit. In terms of this act, protected tree species may not be cut, disturbed, damaged or destroyed and their products may not be possessed, collected, removed, transported, exported, donated, purchased or sold - except under licence granted by the Department of Water Affairs (DWA) (or a delegated authority). Various species in the genera *Gladiolus., Habenaria, Eulophia, Satyrium* and *Disa* (refer to tables for complete floral SCC list), were also recorded and are protected under the Kwazulu-Natal Nature Conservation Management Amendment Act, 1999 No. 5 of 1999. Thus, the subject property is considered to be of high sensitivity in terms of floral SCC conservation. Impacts from the proposed mining activities and associated infrastructure are deemed highly likely to have a significant impact on floral SCC and habitat.

5.8 Alien and Invasive Plant Species

Alien invaders are plants that are of exotic origin and are invading previously pristine areas or ecological niches (Bromilow, 2001). Not all weeds are exotic in origin but, as these exotic plant species have very limited natural “check” mechanisms within the natural environment, they are often the most opportunistic and aggressively growing species within the ecosystem. Therefore, they are often the most dominant and noticeable within an area. Disturbances of the ground through trampling, excavations or landscaping often leads to the dominance of exotic pioneer species that rapidly dominate the area. Under natural conditions, these pioneer species are overtaken by sub-climax and climax species through natural veld succession. This process however takes many years to occur, with the natural vegetation never reaching the balanced, pristine species composition prior to the disturbance. There are many species of indigenous pioneer plants, but very few indigenous species can out-compete their more aggressively growing exotic counterparts.

Alien vegetation invasion causes degradation of the ecological integrity of an area, causing (Bromilow, 2001):

- A decline in species diversity;
- Local extinction of indigenous species;
- Ecological imbalance;
- Decreased productivity of grazing pastures and

- Increased agricultural input costs.

Grasslands are particularly prone to bush encroachment and alien vegetation invasion, as this vegetation type is the most utilised for agricultural purposes. This is mainly for livestock grazing, or complete transformation for agronomy (crops). These areas suffer the highest degree of degrading factors that include overgrazing, trampling, incorrect fire management and removal, and grassland areas are traditionally sought after for agronomy, as they often occur on rich, fertile soils. These factors lead to an imbalance in the species composition and make the grasslands prone to alien vegetation invasion. Exotic trees and shrubs often invade grasslands, with the grass species not being able to compete with the deeper-rooted and taller trees for moisture and light and are therefore quickly displaced. A loss of floral and faunal species diversity then occurs that was once dependent on the grassland.

Table 11: Exotic or invasive species within the subject property.

Species	English name	Country of Origin	Category*
Trees/ shrubs			
Acacia mearnsii	Black wattle	Australia	2
Populus x canescens	Grey Poplar	Europe and Asia	2
Forbs			
Bidens pilosa	Common blackjack	S America	NA
Bidens formosa	Cosmos	Central America	NA
Tagetes minuta	Tall khakiweed	S America	NA
Verbena tenuisecta	Purple top	S America	NA
Asclepias fruticosa	Shrubby milkweed	Indigenous weed	Na

Category 1a – Invasive species that require compulsory control.
Category 1b – Invasive species that require control by means of an invasive species management programme.
Category 2 – Commercially used plants that may be grown in demarcated areas, provided that there is a permit and that steps are taken to prevent their spread.
Category 3 – Ornamentally used plants that may no longer be planted. Existing plants may remain, except within the flood line of watercourses and wetlands, as long as all reasonable steps are taken to prevent their spread (Bromilow, 2001).

From the table above it is clear that a low diversity of alien species occurs within the subject property. Of particular concern are the dense stands of *Acacia mearnsii* in the lower sections of the subject property, especially associated with the Pandana River, which have transformed the indigenous vegetation. Alien species located in the subject property need to be removed on a regular basis as part of maintenance activities according to the National Environmental Management: Biodiversity Act (Act 10 of 2004): Alien and Invasive Species Regulations, GN R598 of 2014.

5.9 Medicinal Plant Species

Medicinal floral species are not necessarily indigenous species, with many of them regarded as alien invasive weeds.

The table below presents a list of dominant floral species with traditional medicinal value, floral parts traditionally used and their main applications, which were identified during the field assessment.

Table 12: Traditional medicinal floral species identified during the field assessment. Medicinal applications and application methods are also presented (van Wyk, Oudtshoorn, Gericke, 2009).

Species	Name	Plant parts used	Medicinal uses
Rapanea melanophloeos	Cape Beech	Bark and roots	The grey bark or sometimes roots are used medicinally for respiratory problems, stomach, muscular and heart complaints.
Eucomis autumnalis	Pineapple flower	Bulb	Decoctions of the bulb in water or milk are usually administered as enemas for the treatment of low backache, to assist in post-operative recovery, and to aid in healing fractures. Decoctions are also used for a variety of ailments, including urinary diseases, stomach ache, fevers, colic, flatulence, hangovers and syphilis, and to facilitate childbirth.
Scilla nervosa	Squill	Various parts	Warmed fresh bulb scales, slightly burned bulb scales and decoctions of the bulb are used externally as ointments for wound-healing, to treat sprains, fractures, boils and sores and to draw abscesses. Decoctions are taken as enemas for female infertility and to enhance male potency and libido. It is also known to be used as a purgative, a laxative and for internal tumours, and is used in conjunction with other ingredients in infusions taken during pregnancy to facilitate delivery and in treatments for chest pain and kidney troubles.
Podocarpus falcatus	Outeniqua yellowwood	Sap	The sap is used as a remedy for chest complaints.
Pittosporum viridiflorum	Cheesewood	Various parts	Decoctions or infusions are widely used to treat stomach complaints, abdominal pain and fever. Dried, powdered root or bark is sometimes added to beer as an aphrodisiac.
Rothmannia capensis	Wild gardenia	Roots	The powdered roots are used for treating leprosy and rheumatism.
Tagetes minuta	Tall khaki bush	Leaves	Highly aromatic leaves have repellent properties of essential oils used by gardeners to keep plants disease free. Oil used in perfumery and as flavouring in foods, beverages and tobacco.
Helichrysum kraussii	Everlasting	Leaves, twigs and sometimes the roots	Many ailments are treated, including coughs, colds, fever, infections, headache and menstrual pains. It is a popular ingredient in wound dressing.

Species	Name	Plant parts used	Medicinal uses
Asclepias fruticosa	Milkweed	Mainly leaves, sometimes roots.	Snuff is prepared from ground leaves and used for treatment of headaches, tuberculosis and a general emetic to strengthen body.

A moderate to high diversity of medicinal species is present, and it is highly likely that the local communities rely on these medicinal species as relatively few medical facilities are present in the local area. In addition, two medicinal tree species, namely *Podocarpus falcatus* and *Pittosporum viridiflorum* are protected under the NFA (1998). Other medicinal species, namely *Scilla nervosa* and *Eucomis autumnalis,* are protected under the Kwazulu-Natal Nature Conservation Management Amendment Act, 1999 No. 5 of 1999. Furthermore, *Rapanea melanophloeos* is listed as *Rare* by SANBI for the QDS 2730AD.

Thus, any detrimental impact on the medicinal species associated with the subject property is likely to have a significant impact on surrounding communities relying on such species for medicinal use.

6 SENSITIVITY MAPPING

The figure below conceptually illustrates the areas considered to be of increased ecological sensitivity in relation to the proposed project. The areas are depicted according to their sensitivity in terms of faunal and floral habitat integrity and their suitability to provide habitat to faunal and floral communities.

The Wetland and Riparian habitat unit (blue) provides niche habitat for a high diversity of floral and faunal species and acts as a very important network of migratory corridors for faunal species. Thus, this habitat unit is considered to be highly sensitive. As such, any impacts on the wetland and riparian systems associated with the mining footprint area are likely to be significant on a local and regional scale.

The Northern Afrotemperate Forest habitat unit (dark green) provides niche habitat for a high diversity of floral and faunal species and contributes towards faunal migratory connectivity within the area. The species composition of this habitat unit is also representative of the vegetation type in which it occurs. Furthermore, this habitat unit contains several floral SCC. Thus, this habitat unit is considered to be highly sensitive.

The Montane Grassland habitat unit (light red) has general high ecological functionality and overall high levels of habitat integrity and is in a mostly undisturbed condition. The species

composition of this habitat unit is also representative of the vegetation type in which it occurs. Furthermore, this habitat unit contains several floral SCC. Thus, this habitat unit is considered to be highly sensitive.

The Secondary Grassland habitat unit (light green) has general moderate levels of ecological functionality and moderate levels of habitat integrity as a moderate degree of transformation has occurred. Furthermore, this habitat unit contains several floral SCC. Thus, this habitat unit is considered to be moderately sensitive, although edge effects from mining activities are deemed likely to have a detrimental impact on the surrounding more sensitive habitat units.

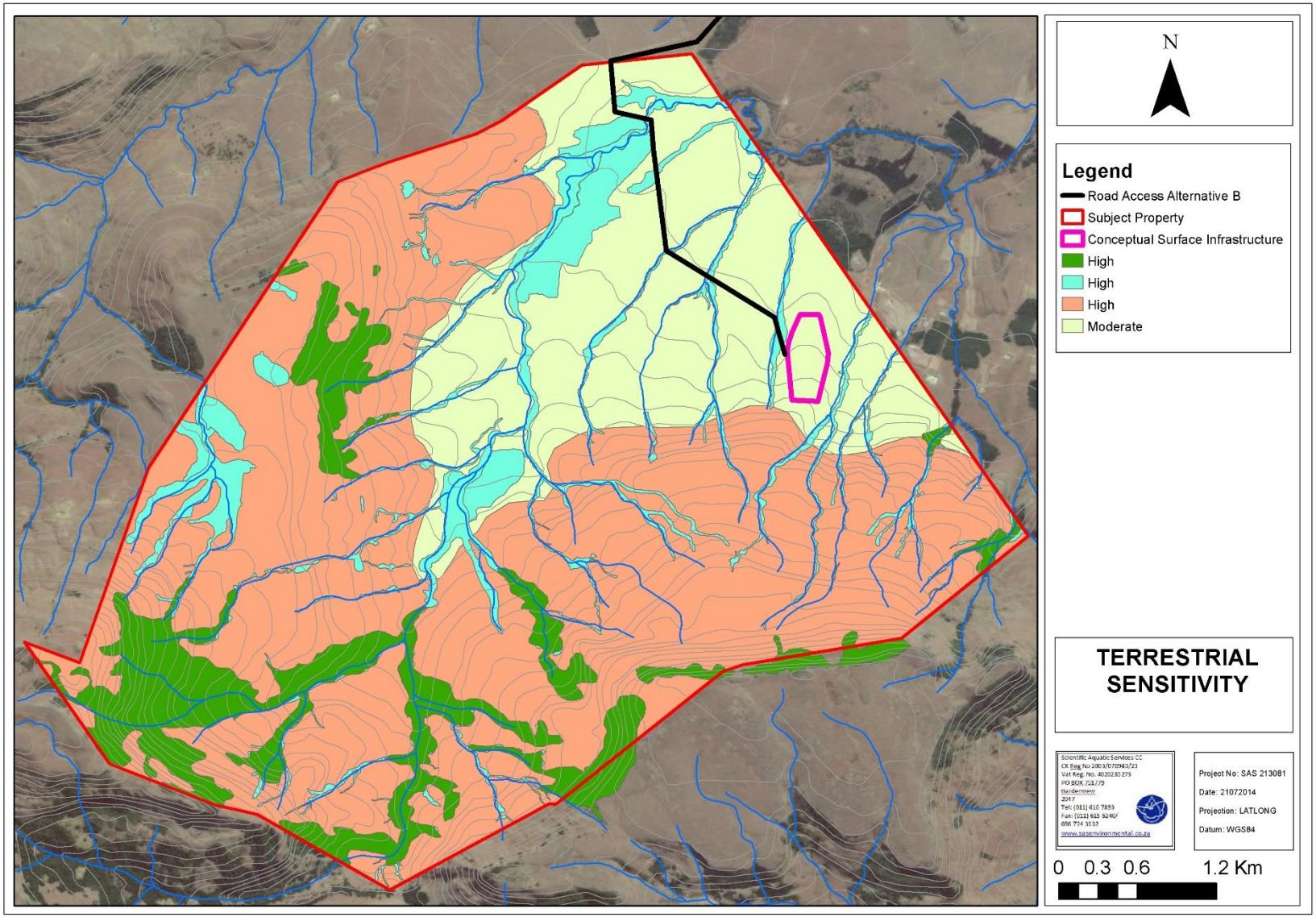


Figure 24: Sensitivity map for the subject property

7 REFERENCES

Evans, R.A., and R.M. Love. 1957. **The step-point method of sampling: A practical tool in range research**. Journal of Range Management 10:208-212.

KZN Act No 5. 1999**.** KwaZulu-Natal Nature Conservation Management Act (Act No 5 of 1999).

Determining the Conservation Value of Land in Kwazulu Natal, 2000**.** Ezemvelo KZN Wildlife.

Gill, K. and Engelbrecht, A. (2012) **Wild flowers of the Magaliesberg**. Paradigm Print, Johannesburg.

Henderson, L. (2001) **Alien Weeds and Invasive plants – A Complete Guide to Declared Weeds and Invaders in South Africa.** Plant Protection Research Institute, Agricultural Research Council Handbook No 12. Pretoria.

Low, A.B. and Rebelo, A.G. (eds) (1998) **Vegetation of South Africa, Lesotho and Swaziland.** Department of Environmental Affairs & Tourism, Pretoria

Owensby, C.E. 1973. **Modified step-point system for botanical composition and basal cover estimates**. Journal of Range Management 26:302-303.

Raimondo, D., von Staden, L., Foden, W., Victor, J.E, Helme, NA., Turner, R.C, Kamundi, DA., Manyama, PA. (eds) (2009). **Red List of South African Plants** Strelitzia 25. South African National Biodiversity Institute, Pretoria. **Version 2014.1**

SANBI (2015) The South African National Biodiversity Institute is thanked for the use of data from the National Herbarium, Pretoria (PRE) Computerised Information System (PRECIS).

Scott-Shaw, C.R and Escott, B.J. (Eds) (2011) KwaZulu-Natal Provincial Pre-Transformation Vegetation Type Map – 2011. Unpublished GIS Coverage [kznveg05v2_1_11_wll.zip], Biodiversity Conservation Planning Division, Ezemvelo KZN Wildlife, P. O. Box 13053, Cascades, Pietermaritzburg, 3202.

Threatened Species Programme (2005) Red **Data List of South African Plant Species.** Available online: http://www.redlist.org.

Van Oudtshoorn, F. (1999) **Guide to Grasses of Southern Africa.** Briza Publications, Pretoria.

Van Wyk, B. and Malan, S. (1998) **Field Guide to the Wild Flowers of the Highveld.** Struik Publishers, Cape Town.

Van Wyk, B., van Oudtshoorn, B. and Gericke, N. (1997) **Medicinal Plants of South Africa.** Briza Publications, Pretoria.

Van Wyk, B. van Wyk, P. and van Wyk, B. (2000) **Photographic Guide to Trees of Southern Africa.** Briza Publications, Pretoria.

APPENDIX A

List of floral species in QDS

Table 13: Expected floral species list for the QDS *2730AD* (SANBI, 2015)

Family	Species	Threat status	Growth forms
ACANTHACEAE	*Chaetacanthus setiger (Pers.) Lindl.*	LC	Dwarf shrub, herb, shrub
ACANTHACEAE	*Crabbea hirsuta Harv.*	LC	Herb
ACANTHACEAE	*Hypoestes aristata (Vahl) Sol. ex Roem. & Schult. var. aristata*	LC	Suffrutex
ACANTHACEAE	*Hypoestes triflora (Forssk.) Roem. & Schult.*	LC	Dwarf shrub, herb
ACANTHACEAE	*Ruellia stenophylla C.B.Clarke*	LC	Herb
ACANTHACEAE	*Thunbergia atriplicifolia E.Mey. ex Nees*	LC	Dwarf shrub, herb
ACHARIACEAE	*Kiggelaria africana L.*	LC	Shrub, tree
AGAPANTHACEAE	*Agapanthus caulescens Spreng. subsp. gracilis (F.M.Leight.) F.M.Leight.*	LC	Herb
AGAPANTHACEAE	*Agapanthus inapertus P.Beauv. subsp. inapertus*	LC	Herb
AGAPANTHACEAE	*Agapanthus inapertus P.Beauv. subsp. intermedius F.M.Leight.*	LC	Herb
ALLIACEAE	*Tulbaghia acutiloba Harv.*	LC	Herb
ALLIACEAE	*Tulbaghia cernua Avé-Lall.*	LC	Herb
ALLIACEAE	*Tulbaghia leucantha Baker*	LC	Herb
AMARANTHACEAE	*Achyranthes aspera L. var. pubescens (Moq.) C.C.Towns.*	Not Evaluated	Herb
AMARANTHACEAE	*Achyranthes aspera L. var. sicula L.*	Not Evaluated	Herb
AMARANTHACEAE	*Cyathula cylindrica Moq. var. cylindrica*	LC	Herb
AMARYLLIDACEAE	*Apodolirion buchananii Baker*	LC	Geophyte
AMARYLLIDACEAE	*Brunsvigia grandiflora Lindl.*	LC	Geophyte
AMARYLLIDACEAE	*Brunsvigia radulosa Herb.*	LC	Geophyte
AMARYLLIDACEAE	*Cyrtanthus breviflorus Harv.*	LC	Geophyte
AMARYLLIDACEAE	*Cyrtanthus epiphyticus J.M.Wood*	LC	Epiphyte, geophyte
AMARYLLIDACEAE	*Cyrtanthus obrienii Baker*	LC	Geophyte
AMARYLLIDACEAE	*Cyrtanthus stenanthus Baker var. stenanthus*	LC	Geophyte
AMARYLLIDACEAE	*Cyrtanthus tuckii Baker var. transvaalensis I.Verd.*	LC	Geophyte
AMARYLLIDACEAE	*Cyrtanthus tuckii Baker var. tuckii*	LC	Geophyte
AMARYLLIDACEAE	*Haemanthus humilis Jacq. subsp. hirsutus (Baker) Snijman*	LC	Geophyte
AMARYLLIDACEAE	*Haemanthus humilis Jacq. subsp. humilis*	LC	Geophyte
AMARYLLIDACEAE	*Nerine angustifolia (Baker) Baker*	LC	Geophyte
AMARYLLIDACEAE	*Nerine filifolia Baker*	LC	Geophyte
AMARYLLIDACEAE	*Nerine platypetala McNeil*	VU	Geophyte
AMARYLLIDACEAE	*Scadoxus puniceus (L.) Friis & Nordal*	LC	Geophyte, herb
ANACARDIACEAE	*Searsia chirindensis (Baker f.) Moffett*	LC	Shrub, tree
ANACARDIACEAE	*Searsia dentata (Thunb.) F.A.Barkley*	LC	Shrub, tree
ANACARDIACEAE	*Searsia discolor (E.Mey. ex Sond.) Moffett*	LC	Dwarf shrub, shrub
ANACARDIACEAE	*Searsia dracomontana (Moffett) Moffett*	NT	Dwarf shrub, shrub
ANACARDIACEAE	*Searsia lucida (L.) F.A.Barkley forma lucida*	Not Evaluated	Shrub, tree
ANACARDIACEAE	*Searsia montana (Diels) Moffett*	LC	Shrub, tree
ANACARDIACEAE	*Searsia pentheri (Zahlbr.) Moffett*	LC	Shrub, tree
ANACARDIACEAE	*Searsia pyroides (Burch.) Moffett var. gracilis (Engl.) Moffett*	LC	Shrub, tree
ANACARDIACEAE	*Searsia pyroides (Burch.) Moffett var. integrifolia (Engl.) Moffett*	LC	Shrub, tree

Family	Species	Threat status	Growth forms
ANACARDIACEAE	*Searsia pyroides (Burch.) Moffett var. pyroides*	LC	[No lifeform defined]
ANACARDIACEAE	*Searsia rigida (Mill.) F.A.Barkley var. dentata (Engl.) Moffett*	LC	Shrub, tree
ANACARDIACEAE	*Searsia rigida (Mill.) F.A.Barkley var. margaretae (Burtt Davy ex Moffett) Moffett*	LC	Shrub
ANACARDIACEAE	*Searsia tomentosa (L.) F.A.Barkley*	LC	Shrub, tree
ANACARDIACEAE	*Searsia transvaalensis (Engl.) Moffett*	LC	Shrub, tree
ANEMIACEAE	*Mohria nudiuscula J.P.Roux*	LC	Geophyte, herb, lithophyte
ANEMIACEAE	*Mohria vestita Baker*	LC	Geophyte, herb, lithophyte
ANTHERICACEAE	*Chlorophytum cooperi (Baker) Nordal*	LC	Herb
ANTHERICACEAE	*Chlorophytum fasciculatum (Baker) Kativu*	LC	Herb
ANTHERICACEAE	*Chlorophytum haygarthii J.M.Wood & M.S.Evans*	LC	Herb
APIACEAE	*Afroligusticum thodei (T.H.Arnold) P.J.D.Winter*	LC	Herb
APIACEAE	*Afrosciadium caffrum (Meisn.) P.J.D.Winter*	LC	Herb
APIACEAE	*Afrosciadium platycarpum (Sond.) P.J.D.Winter*	LC	Herb
APIACEAE	*Alepidea cordifolia B.-E.van Wyk*		Herb
APIACEAE	*Alepidea peduncularis A.Rich.*	DDT	Herb
APIACEAE	*Alepidea setifera N.E.Br.*	LC	Herb
APIACEAE	*Berula thunbergii (DC.) H.Wolff*	LC	Herb, hydrophyte
APIACEAE	*Bupleurum mundii Cham. & Schltdl.*	LC	Herb
APIACEAE	*Conium fontanum Hilliard & B.L.Burtt var. fontanum*	LC	Herb
APIACEAE	*Heteromorpha arborescens (Spreng.) Cham. & Schltdl. var. abyssinica (Hochst. ex A.Rich.) H.Wolff*	LC	Shrub, tree
APIACEAE	*Pimpinella caffra (Eckl. & Zeyh.) D.Dietr.*	LC	Herb
APIACEAE	*Pimpinella transvaalensis H.Wolff*	LC	Herb
APIACEAE	*Polemannia montana Schltr. & H.Wolff*	LC	Shrub, tree
APIACEAE	*Sanicula elata Buch.-Ham. ex D.Don*	LC	Herb
APOCYNACEAE	*Asclepias albens (E.Mey.) Schltr.*	LC	Herb
APOCYNACEAE	*Asclepias aurea (Schltr.) Schltr.*	LC	Herb
APOCYNACEAE	*Asclepias cucullata (Schltr.) Schltr. subsp. cucullata*	LC	Herb
APOCYNACEAE	*Asclepias cultriformis (Harv. ex Schltr.) Schltr.*	LC	Herb
APOCYNACEAE	*Asclepias gibba (E.Mey.) Schltr. var. gibba*	LC	Herb
APOCYNACEAE	*Asclepias stellifera Schltr.*	LC	Herb
APOCYNACEAE	*Asclepias vicaria N.E.Br.*	LC	Herb
APOCYNACEAE	*Aspidoglossum demissum Kupicha*	DDD	Herb, succulent
APOCYNACEAE	*Aspidoglossum dissimile (N.E.Br.) Kupicha*	LC	Herb, succulent
APOCYNACEAE	*Aspidoglossum glabrescens (Schltr.) Kupicha*	LC	Herb, succulent
APOCYNACEAE	*Aspidoglossum glanduliferum (Schltr.) Kupicha*	LC	Herb, succulent
APOCYNACEAE	*Aspidoglossum ovalifolium (Schltr.) Kupicha*	LC	Herb, succulent
APOCYNACEAE	*Aspidoglossum xanthosphaerum Hilliard*	VU	Herb, succulent
APOCYNACEAE	*Aspidonepsis diploglossa (Turcz.) Nicholas & Goyder*	LC	Herb, succulent
APOCYNACEAE	*Brachystelma remotum R.A.Dyer*	Rare	Geophyte, succulent
APOCYNACEAE	*Brachystelma villosum (Schltr.) N.E.Br.*	Rare	Geophyte, succulent

Family	Species	Threat status	Growth forms
APOCYNACEAE	*Carissa bispinosa (L.) Desf. ex Brenan*	LC	Shrub
APOCYNACEAE	*Cordylogyne globosa E.Mey.*	LC	Geophyte, succulent
APOCYNACEAE	*Cynanchum ellipticum (Harv.) R.A.Dyer*	LC	Climber
APOCYNACEAE	*Miraglossum pulchellum (Schltr.) Kupicha*	LC	Herb, succulent
APOCYNACEAE	*Pachycarpus campanulatus (Harv.) N.E.Br. var. sutherlandii N.E.Br.*	LC	Herb, succulent
APOCYNACEAE	*Pachycarpus grandiflorus (L.f.) E.Mey. subsp. tomentosus (Schltr.) Goyder*	LC	Geophyte, herb, succulent
APOCYNACEAE	*Raphionacme galpinii Schltr.*	LC	Geophyte, herb, succulent
APOCYNACEAE	*Raphionacme hirsuta (E.Mey.) R.A.Dyer*	LC	Geophyte, herb, succulent
APOCYNACEAE	*Schizoglossum atropurpureum E.Mey. subsp. atropurpureum*	LC	Herb, succulent
APOCYNACEAE	*Schizoglossum bidens E.Mey. subsp. atrorubens (Schltr.) Kupicha*	LC	Herb, succulent
APOCYNACEAE	*Schizoglossum bidens E.Mey. subsp. bidens*	LC	Herb, succulent
APOCYNACEAE	*Schizoglossum bidens E.Mey. subsp. pachyglossum (Schltr.) Kupicha*	LC	Herb, succulent
APOCYNACEAE	*Schizoglossum cordifolium E.Mey.*	LC	Herb
APOCYNACEAE	*Schizoglossum nitidum Schltr.*	LC	Herb, succulent
APOCYNACEAE	*Schizoglossum stenoglossum Schltr. subsp. latifolium Kupicha*	LC	Herb, succulent
APOCYNACEAE	*Secamone alpini Schult.*	LC	Climber
APOCYNACEAE	*Secamone gerrardii Harv. ex Benth.*	LC	Climber
APOCYNACEAE	*Sisyranthus huttoniae (S.Moore) S.Moore*	LC	Herb
APOCYNACEAE	*Sisyranthus imberbis Harv.*	LC	Herb
APOCYNACEAE	*Strophanthus speciosus (Ward & Harv.) Reber*	LC	Climber, shrub
APOCYNACEAE	*Xysmalobium involucratum (E.Mey.) Decne.*	LC	Herb, succulent
APOCYNACEAE	*Xysmalobium parviflorum Harv. ex Scott-Elliot*	LC	Herb, succulent
APOCYNACEAE	*Xysmalobium stockenstromense Scott-Elliot*	LC	Herb, succulent
APOCYNACEAE	*Xysmalobium undulatum (L.) Aiton f. var. undulatum*	LC	Herb, succulent
APONOGETONACEAE	*Aponogeton junceus Lehm.*	LC	Geophyte, herb, hydrophyte, tenagophyte
AQUIFOLIACEAE	*Ilex mitis (L.) Radlk. var. mitis*	Declining	Shrub, tree
ARACEAE	*Zantedeschia aethiopica (L.) Spreng.*	LC	Geophyte, herb
ARACEAE	*Zantedeschia albomaculata (Hook.) Baill. subsp. albomaculata*	LC	Geophyte, herb
ARACEAE	*Zantedeschia albomaculata (Hook.) Baill. subsp. macrocarpa (Engl.) Letty*	LC	Geophyte, herb
ARACEAE	*Zantedeschia rehmannii Engl.*	LC	Geophyte, herb
ARALIACEAE	*Cussonia paniculata Eckl. & Zeyh. subsp. sinuata (Reyneke & Kok) De Winter*	LC	Succulent, tree
ASPARAGACEAE	*Asparagus angusticladus (Jessop) J.-P.Lebrun & Stork*	LC	Climber
ASPARAGACEAE	*Asparagus asparagoides (L.) Druce*	LC	Climber, succulent
ASPARAGACEAE	*Asparagus concinnus (Baker) Kies*	LC	Shrub
ASPARAGACEAE	*Asparagus cooperi Baker*	LC	Dwarf shrub, shrub
ASPARAGACEAE	*Asparagus devenishii (Oberm.) Fellingham & N.L.Mey.*	LC	Dwarf shrub
ASPARAGACEAE	*Asparagus edulis (Oberm.) J.-P.Lebrun & Stork*	LC	Dwarf shrub

Family	Species	Threat status	Growth forms
ASPARAGACEAE	*Asparagus fractiflexus (Oberm.) Fellingham & N.L.Mey.*	EN	Scrambler
ASPARAGACEAE	*Asparagus laricinus Burch.*	LC	Shrub
ASPARAGACEAE	*Asparagus microraphis (Kunth) Baker*	LC	Shrub
ASPARAGACEAE	*Asparagus ramosissimus Baker*	LC	Climber
ASPARAGACEAE	*Asparagus virgatus Baker*	LC	Shrub
ASPHODELACEAE	*Aloe ecklonis Salm-Dyck*	LC	Herb, succulent
ASPHODELACEAE	*Aloe kniphofioides Baker*	VU	Geophyte, herb, succulent
ASPHODELACEAE	*Aloe maculata All.*	LC	Herb, succulent
ASPHODELACEAE	*Aloe mudenensis Reynolds*	LC	Herb, succulent
ASPHODELACEAE	*Bulbine coetzeei Oberm.*	LC	Geophyte, succulent
ASPHODELACEAE	*Bulbine frutescens (L.) Willd.*	LC	Dwarf shrub, succulent
ASPHODELACEAE	*Kniphofia albescens Codd*	LC	Herb
ASPHODELACEAE	*Kniphofia fluviatilis Codd*	LC	Herb
ASPHODELACEAE	*Kniphofia linearifolia Baker*	LC	Herb
ASPHODELACEAE	*Kniphofia multiflora J.M.Wood & M.S.Evans*	LC	Herb
ASPHODELACEAE	*Kniphofia porphyrantha Baker*	LC	Herb
ASPHODELACEAE	*Trachyandra asperata Kunth var. asperata*	LC	Geophyte, succulent
ASPHODELACEAE	*Trachyandra asperata Kunth var. nataglencoensis (Kuntze) Oberm.*	LC	Geophyte, succulent
ASPHODELACEAE	*Trachyandra gerrardii (Baker) Oberm.*	LC	Geophyte, succulent
ASPHODELACEAE	*Trachyandra margaretae Oberm.*	LC	Geophyte, succulent
ASPHODELACEAE	*Trachyandra saltii (Baker) Oberm. var. saltii*	LC	Geophyte, succulent
ASPLENIACEAE	*Asplenium aethiopicum (Burm.f.) Bech.*	LC	Epiphyte, geophyte, herb, lithophyte
ASPLENIACEAE	*Asplenium monanthes L.*	LC	Geophyte, herb, lithophyte
ASPLENIACEAE	*Asplenium varians Wall. ex Hook. & Grev. subsp. fimbriatum (Kunze) Schelpe*	LC	Geophyte, herb, lithophyte
ASTERACEAE	*Adenanthellum osmitoides (Harv.) B.Nord.*	LC	Herb
ASTERACEAE	*Arctotis arctotoides (L.f.) O.Hoffm.*	LC	Herb
ASTERACEAE	*Artemisia afra Jacq. ex Willd. var. afra*	LC	Herb, shrub
ASTERACEAE	*Aster bakerianus Burtt Davy ex C.A.Sm.*	LC	Herb
ASTERACEAE	*Aster harveyanus Kuntze*	LC	Herb
ASTERACEAE	*Athrixia arachnoidea J.M.Wood & M.S.Evans ex J.M.Wood*	LC	Dwarf shrub
ASTERACEAE	*Athrixia fontana MacOwan*	LC	Herb
ASTERACEAE	*Athrixia gerrardii Harv.*	LC	Dwarf shrub
ASTERACEAE	*Athrixia phylicoides DC.*	LC	Shrub
ASTERACEAE	*Berkheya echinacea (Harv.) O.Hoffm. ex Burtt Davy subsp. echinacea*	LC	Herb
ASTERACEAE	*Berkheya rhapontica (DC.) Hutch. & Burtt Davy subsp. rhapontica*	LC	Herb
ASTERACEAE	*Berkheya setifera DC.*	LC	Herb
ASTERACEAE	*Berkheya speciosa (DC.) O.Hoffm. subsp. lanceolata Roessler*	LC	Herb
ASTERACEAE	*Callilepis laureola DC.*	LC	Herb
ASTERACEAE	*Chrysocoma ciliata L.*	LC	Shrub
ASTERACEAE	*Cineraria geifolia (L.) L.*	LC	Herb, suffrutex

Family	Species	Threat status	Growth forms
ASTERACEAE	*Conyza chilensis Spreng.*	Not Evaluated	Herb
ASTERACEAE	*Conyza gouanii (L.) Willd.*	LC	Herb
ASTERACEAE	*Conyza pinnata (L.f.) Kuntze*	LC	Herb
ASTERACEAE	*Cotula hispida (DC.) Harv.*	LC	Herb
ASTERACEAE	*Crassocephalum x picridifolium (DC.) S.Moore*	Not Evaluated	Herb
ASTERACEAE	*Crepis hypochaeridea (DC.) Thell.*	Not Evaluated	Herb
ASTERACEAE	*Denekia capensis Thunb.*	LC	Herb
ASTERACEAE	*Dimorphotheca jucunda E.Phillips*	LC	Herb
ASTERACEAE	*Euryops gilfillanii Bolus*	LC	Herb
ASTERACEAE	*Euryops laxus (Harv.) Burtt Davy*	LC	Herb
ASTERACEAE	*Euryops transvaalensis Klatt subsp. setilobus (N.E.Br.) B.Nord.*	LC	Herb
ASTERACEAE	*Felicia muricata (Thunb.) Nees subsp. muricata*	LC	Shrub
ASTERACEAE	*Felicia quinquenervia (Klatt) Grau*	LC	Herb
ASTERACEAE	*Felicia rosulata Yeo*	LC	Herb
ASTERACEAE	*Galinsoga parviflora Cav.*	Not Evaluated	Herb
ASTERACEAE	*Garuleum woodii Schinz*	LC	Shrub, suffrutex
ASTERACEAE	*Gazania krebsiana Less. subsp. krebsiana*	LC	Herb
ASTERACEAE	*Gazania krebsiana Less. subsp. serrulata (DC.) Roessler*	LC	Herb
ASTERACEAE	*Gerbera ambigua (Cass.) Sch.Bip.*	LC	Herb
ASTERACEAE	*Gerbera galpinii Klatt*	LC	Herb
ASTERACEAE	*Gerbera natalensis Sch.Bip.*	LC	Herb
ASTERACEAE	*Gerbera piloselloides (L.) Cass.*	LC	Herb
ASTERACEAE	*Haplocarpha nervosa (Thunb.) Beauverd*	LC	Herb
ASTERACEAE	*Haplocarpha scaposa Harv.*	LC	Herb
ASTERACEAE	*Helichrysum adenocarpum DC. subsp. adenocarpum*	LC	Herb
ASTERACEAE	*Helichrysum allioides Less.*	LC	Herb
ASTERACEAE	*Helichrysum appendiculatum (L.f.) Less.*	LC	Herb
ASTERACEAE	*Helichrysum argyrolepis MacOwan*	LC	Dwarf shrub
ASTERACEAE	*Helichrysum aureonitens Sch.Bip.*	LC	Herb
ASTERACEAE	*Helichrysum aureum (Houtt.) Merr. var. argenteum Hilliard*	VU	Herb
ASTERACEAE	*Helichrysum aureum (Houtt.) Merr. var. candidum Hilliard*	LC	Herb
ASTERACEAE	*Helichrysum aureum (Houtt.) Merr. var. monocephalum (DC.) Hilliard*	LC	Herb
ASTERACEAE	*Helichrysum caespititium (DC.) Harv.*	LC	Herb
ASTERACEAE	*Helichrysum cephaloideum DC.*	LC	Herb
ASTERACEAE	*Helichrysum chionosphaerum DC.*	LC	Herb
ASTERACEAE	*Helichrysum confertifolium Klatt*	LC	Herb
ASTERACEAE	*Helichrysum cooperi Harv.*	LC	Herb
ASTERACEAE	*Helichrysum cymosum (L.) D.Don subsp. calvum Hilliard*	LC	Dwarf shrub, shrub
ASTERACEAE	*Helichrysum ecklonis Sond.*	LC	Herb
ASTERACEAE	*Helichrysum epapposum Bolus*	LC	Herb
ASTERACEAE	*Helichrysum glomeratum Klatt*	LC	Herb

Family	Species	Threat status	Growth forms
ASTERACEAE	*Helichrysum hypoleucum Harv.*	LC	Herb, shrub
ASTERACEAE	*Helichrysum infaustum J.M.Wood & M.S.Evans*	LC	Dwarf shrub
ASTERACEAE	*Helichrysum interjacens Hilliard*	LC	Dwarf shrub, herb
ASTERACEAE	*Helichrysum krookii Moeser*	LC	Herb
ASTERACEAE	*Helichrysum melanacme DC.*	LC	Dwarf shrub, herb
ASTERACEAE	*Helichrysum miconiifolium DC.*	LC	Herb
ASTERACEAE	*Helichrysum monticola Hilliard*	LC	Herb
ASTERACEAE	*Helichrysum mundtii Harv.*	LC	Herb
ASTERACEAE	*Helichrysum nudifolium (L.) Less. var. nudifolium*	LC	Herb
ASTERACEAE	*Helichrysum nudifolium (L.) Less. var. pilosellum (L.f.) Beentje*	LC	Herb
ASTERACEAE	*Helichrysum opacum Klatt*	LC	Herb
ASTERACEAE	*Helichrysum oreophilum Klatt*	LC	Herb
ASTERACEAE	*Helichrysum pallidum DC.*	LC	Herb
ASTERACEAE	*Helichrysum platypterum DC.*	LC	Herb
ASTERACEAE	*Helichrysum polycladum Klatt*	LC	Herb
ASTERACEAE	*Helichrysum rugulosum Less.*	LC	Herb
ASTERACEAE	*Helichrysum spiralepis Hilliard & B.L.Burtt*	LC	Herb
ASTERACEAE	*Helichrysum splendidum (Thunb.) Less.*	LC	Herb, shrub
ASTERACEAE	*Helichrysum spodiophyllum Hilliard & B.L.Burtt*	LC	Dwarf shrub, herb
ASTERACEAE	*Helichrysum sutherlandii Harv.*	LC	Dwarf shrub, herb, shrub
ASTERACEAE	*Hilliardiella aristata (DC.) H.Rob.*	LC	Herb
ASTERACEAE	*Hilliardiella hirsuta (DC.) H.Rob.*	LC	Herb
ASTERACEAE	*Hirpicium armerioides (DC.) Roessler*	LC	Herb
ASTERACEAE	*Hirpicium linearifolium (Bolus) Roessler*	LC	Herb
ASTERACEAE	*Hypochaeris radicata L.*	Not Evaluated	Herb
ASTERACEAE	*Inulanthera calva (Hutch.) Källersjö*	LC	Shrub
ASTERACEAE	*Lactuca inermis Forssk.*	LC	Herb
ASTERACEAE	*Leucanthemum vulgare Lam.*	Not Evaluated	Herb
ASTERACEAE	*Lopholaena segmentata (Oliv.) S.Moore*	LC	Herb, succulent
ASTERACEAE	*Macledium zeyheri (Sond.) S.Ortíz subsp. argyrophyllum (Oliv.) S.Ortíz*	LC	Herb
ASTERACEAE	*Macowania pinifolia (N.E.Br.) Kroner*	LC	Shrub
ASTERACEAE	*Macowania tenuifolia M.D.Hend.*	LC	Shrub
ASTERACEAE	*Nidorella anomala Steetz*	LC	Herb
ASTERACEAE	*Nidorella auriculata DC.*	LC	Herb
ASTERACEAE	*Nidorella undulata (Thunb.) Sond. ex Harv.*	LC	Herb
ASTERACEAE	*Othonna gymnodiscus (DC.) Sch.Bip.*	LC	Geophyte, herb, succulent
ASTERACEAE	*Othonna natalensis Sch.Bip.*	LC	Herb, succulent
ASTERACEAE	*Phymaspermum acerosum (DC.) Källersjö*	LC	Shrub
ASTERACEAE	*Phymaspermum woodii (Thell.) Källersjö*	LC	Herb
ASTERACEAE	*Printzia auriculata Harv.*	LC	Shrub
ASTERACEAE	*Pseudognaphalium luteo-album (L.) Hilliard & B.L.Burtt*		Herb
ASTERACEAE	*Pseudognaphalium oligandrum (DC.) Hilliard & B.L.Burtt*	LC	Herb

Family	Species	Threat status	Growth forms
ASTERACEAE	*Schistostephium crataegifolium (DC.) Fenzl ex Harv.*	LC	Herb, suffrutex
ASTERACEAE	*Schkuhria pinnata (Lam.) Kuntze ex Thell.*	Not Evaluated	Herb
ASTERACEAE	*Senecio adnatus DC.*	LC	Herb
ASTERACEAE	*Senecio albanensis DC. var. albanensis*	LC	Herb
ASTERACEAE	*Senecio albanensis DC. var. doroniciflorus (DC.) Harv.*	LC	Herb
ASTERACEAE	*Senecio barbatus DC.*	LC	Herb
ASTERACEAE	*Senecio burchellii DC.*	LC	Dwarf shrub, shrub
ASTERACEAE	*Senecio caudatus DC.*	LC	Herb
ASTERACEAE	*Senecio deltoideus Less.*	LC	Herb, scrambler
ASTERACEAE	*Senecio discodregeanus Hilliard & B.L.Burtt*	LC	Herb
ASTERACEAE	*Senecio erubescens Aiton var. erubescens*	LC	Herb
ASTERACEAE	*Senecio glaberrimus DC.*	LC	Herb
ASTERACEAE	*Senecio harveianus MacOwan*	LC	Dwarf shrub, herb
ASTERACEAE	*Senecio hieracioides DC.*	LC	Herb
ASTERACEAE	*Senecio inaequidens DC.*	LC	Herb
ASTERACEAE	*Senecio inornatus DC.*	LC	Herb
ASTERACEAE	*Senecio othonniflorus DC.*	LC	Herb
ASTERACEAE	*Senecio oxyriifolius DC. subsp. oxyriifolius*	LC	Herb, succulent
ASTERACEAE	*Senecio panduriformis Hilliard*	LC	Herb
ASTERACEAE	*Senecio polyodon DC. var. polyodon*	LC	Herb
ASTERACEAE	*Senecio purpureus L.*	LC	Herb
ASTERACEAE	*Senecio scitus Hutch. & Burtt Davy*	LC	Herb
ASTERACEAE	*Senecio serratuloides DC.*	LC	Herb
ASTERACEAE	*Senecio striatifolius DC.*	LC	Herb
ASTERACEAE	*Senecio subcoriaceus Schltr.*	LC	Herb
ASTERACEAE	*Senecio subrubriflorus O.Hoffm.*	LC	Herb
ASTERACEAE	*Senecio tanacetopsis Hilliard*	LC	Dwarf shrub, shrub
ASTERACEAE	*Senecio ulopterus Thell.*	LC	Herb
ASTERACEAE	*Sonchus integrifolius Harv. var. schlechteri R.E.Fr.*	LC	Herb
ASTERACEAE	*Tolpis capensis (L.) Sch.Bip.*	LC	Herb
ASTERACEAE	*Ursinia montana DC. subsp. montana*	LC	Herb
ASTERACEAE	*Ursinia tenuiloba DC.*	LC	Herb
ASTERACEAE	*Vernonia galpinii Klatt*	LC	Herb
ASTERACEAE	*Vernonia sutherlandii Harv.*	LC	Herb
ASTERACEAE	*Vernonia thodei E.Phillips*	LC	Herb
AYTONIACEAE	*Asterella bachmannii (Steph.) S.W.Arnell*		Bryophyte
AYTONIACEAE	*Asterella wilmsii (Steph.) S.W.Arnell*		Bryophyte
BALSAMINACEAE	*Impatiens hochstetteri Warb. subsp. hochstetteri*	LC	Herb
BARTRAMIACEAE	*Philonotis hastata (Duby) Wijk & Margad.*		Bryophyte
BEHNIACEAE	*Behnia reticulata (Thunb.) Didr.*	LC	Climber
BORAGINACEAE	*Cynoglossum austroafricanum Hilliard & B.L.Burtt*	LC	Herb
BORAGINACEAE	*Cynoglossum hispidum Thunb.*	LC	Herb
BORAGINACEAE	*Lithospermum papillosum Thunb.*	LC	Herb
BORAGINACEAE	*Myosotis afropalustris C.H.Wright*	LC	Herb

Family	Species	Threat status	Growth forms
BORAGINACEAE	*Myosotis sylvatica Hoffm.*	Not Evaluated	Herb
BRASSICACEAE	*Cardamine flexuosa With.*	Not Evaluated	Herb
BRASSICACEAE	*Cardamine impatiens L.*	Not Evaluated	Herb
BRASSICACEAE	*Heliophila carnosa (Thunb.) Steud.*	LC	Dwarf shrub, succulent
BRASSICACEAE	*Heliophila rigidiuscula Sond.*	LC	Herb
BRASSICACEAE	*Raphanus raphanistrum L.*	Not Evaluated	Herb
BRASSICACEAE	*Rorippa nudiuscula Thell.*	LC	Herb
BRASSICACEAE	*Turritis glabra L.*	Not Evaluated	Herb
BRYACEAE	*Anomobryum julaceum (Schrad. ex P.Gaertn., B.Mey. & Schreb.) Schimp.*		Bryophyte
BRYACEAE	*Brachymenium acuminatum Harv.*		Bryophyte
BRYACEAE	*Brachymenium pulchrum Hook.*		Bryophyte, epiphyte
BRYACEAE	*Bryum argenteum Hedw.*		Bryophyte
BRYACEAE	*Bryum pseudotriquetrum (Hedw.) P.Gaertn., B.Mey. & Scherb.*		Bryophyte
BUDDLEJACEAE	*Buddleja auriculata Benth.*	LC	Shrub
BUDDLEJACEAE	*Buddleja dysophylla (Benth.) Radlk.*	LC	Climber, shrub
BUDDLEJACEAE	*Buddleja loricata Leeuwenb.*	LC	Shrub
BUDDLEJACEAE	*Buddleja salviifolia (L.) Lam.*	LC	Shrub, tree
CAMPANULACEAE	*Wahlenbergia androsacea A.DC.*	LC	Herb
CAMPANULACEAE	*Wahlenbergia cuspidata Brehmer*	LC	Herb
CAMPANULACEAE	*Wahlenbergia epacridea Sond.*	LC	Herb
CAMPANULACEAE	*Wahlenbergia grandiflora Brehmer*	LC	Herb
CAMPANULACEAE	*Wahlenbergia huttonii (Sond.) Thulin*	LC	Herb
CAMPANULACEAE	*Wahlenbergia krebsii Cham. subsp. krebsii*	LC	Herb
CAMPANULACEAE	*Wahlenbergia squamifolia Brehmer*	LC	Herb
CAMPANULACEAE	*Wahlenbergia undulata (L.f.) A.DC.*	LC	Herb
CAMPANULACEAE	*Wahlenbergia virgata Engl.*	LC	Herb
CANNACEAE	*Canna indica L.*	Not Evaluated	Herb
CAPPARACEAE	*Maerua cafra (DC.) Pax*	LC	Shrub, tree
CARYOPHYLLACEAE	*Cerastium arabidis E.Mey. ex Fenzl*	LC	Herb
CARYOPHYLLACEAE	*Cerastium indicum Wight & Arn.*	LC	Herb
CARYOPHYLLACEAE	*Dianthus basuticus Burtt Davy subsp. basuticus var. basuticus*	LC	Herb
CARYOPHYLLACEAE	*Dianthus basuticus Burtt Davy subsp. basuticus var. grandiflorus S.S.Hooper*	LC	Herb
CARYOPHYLLACEAE	*Herniaria erckertii Herm. subsp. erckertii*	LC	Herb
CARYOPHYLLACEAE	*Paronychia brasiliana DC. var. pubescens Chaudhri*	Not Evaluated	Herb
CARYOPHYLLACEAE	*Silene burchellii Otth var. angustifolia Sond.*	Not Evaluated	Herb
CARYOPHYLLACEAE	*Silene undulata Aiton*	LC	Herb
CARYOPHYLLACEAE	*Spergula arvensis L.*	Not Evaluated	Herb
CELASTRACEAE	*Gymnosporia buxifolia (L.) Szyszyl.*	LC	Shrub, tree
CELASTRACEAE	*Gymnosporia devenishii Jordaan*	Rare	Shrub, tree
CELASTRACEAE	*Gymnosporia harveyana Loes. subsp. harveyana*	LC	Shrub, tree
CELASTRACEAE	*Gymnosporia mossambicensis (Klotzsch) Loes.*	LC	Shrub, tree
CELASTRACEAE	*Gymnosporia nemorosa (Eckl. & Zeyh.) Szyszyl.*	LC	Shrub, tree
CELASTRACEAE	*Maytenus acuminata (L.f.) Loes. var. acuminata*	LC	Shrub, tree

Family	Species	Threat status	Growth forms
CELASTRACEAE	*Maytenus undata (Thunb.) Blakelock*	LC	Shrub, tree
CELASTRACEAE	*Mystroxylon aethiopicum (Thunb.) Loes. subsp. aethiopicum*	LC	Shrub, tree
CELASTRACEAE	*Pterocelastrus echinatus N.E.Br.*	LC	Shrub, tree
CELASTRACEAE	*Robsonodendron eucleiforme (Eckl. & Zeyh.) R.H.Archer*	LC	Tree
CELTIDACEAE	*Celtis africana Burm.f.*	LC	Shrub, tree
CHENOPODIACEAE	*Chenopodium schraderianum Roem. & Schult.*	Not Evaluated	Herb
CHRYSOBALANACEAE	*Parinari capensis Harv. subsp. capensis*	LC	Dwarf shrub
CLADONIACEAE	*Cladonia subulata (L.) Weber ex F.H.Wigg.*		Lichen
COLCHICACEAE	*Colchicum longipes (Baker) J.C.Manning & Vinn.*	LC	Geophyte
COLCHICACEAE	*Colchicum striatum (Hochst. ex A.Rich.) J.C.Manning & Vinn.*	LC	Geophyte
COLCHICACEAE	*Gloriosa modesta (Hook.) J.C.Manning & Vinn.*	LC	Climber, geophyte
COLCHICACEAE	*Sandersonia aurantiaca Hook.*	Declining	Climber, geophyte, herb
COMMELINACEAE	*Commelina africana L. var. africana*	LC	Herb
COMMELINACEAE	*Cyanotis speciosa (L.f.) Hassk.*	LC	Herb, succulent
CONVOLVULACEAE	*Convolvulus farinosus L.*	LC	Climber, herb
CONVOLVULACEAE	*Convolvulus natalensis Bernh. ex Krauss*	LC	Herb
CONVOLVULACEAE	*Cuscuta campestris Yunck.*	Not Evaluated	Herb, parasite
CONVOLVULACEAE	*Ipomoea crassipes Hook. var. crassipes*	LC	Herb, succulent
CONVOLVULACEAE	*Ipomoea oblongata E.Mey. ex Choisy*	LC	Herb, succulent
CRASSULACEAE	*Crassula arborescens (Mill.) Willd. subsp. arborescens*	LC	Shrub, succulent
CRASSULACEAE	*Crassula compacta Schönland*	LC	Herb, succulent
CRASSULACEAE	*Crassula inanis Thunb.*	LC	Herb, hydrophyte, succulent
CRASSULACEAE	*Crassula lanceolata (Eckl. & Zeyh.) Endl. ex Walp. subsp. lanceolata*	LC	Herb, succulent
CRASSULACEAE	*Crassula lanceolata (Eckl. & Zeyh.) Endl. ex Walp. subsp. transvaalensis (Kuntze) Toelken*	LC	Herb, succulent
CRASSULACEAE	*Crassula natalensis Schönland*	LC	Herb, lithophyte, succulent
CRASSULACEAE	*Crassula pellucida L. subsp. brachypetala (Drège ex Harv.) Toelken*	LC	Herb, scrambler, succulent
CRASSULACEAE	*Crassula setulosa Harv. var. rubra (N.E.Br.) G.D.Rowley*	LC	Herb, succulent
CRASSULACEAE	*Crassula setulosa Harv. var. setulosa forma setulosa*	Not Evaluated	Herb, succulent
CRASSULACEAE	*Crassula tuberella Toelken*	LC	Herb, succulent
CRASSULACEAE	*Crassula vaginata Eckl. & Zeyh. subsp. vaginata*	LC	Herb, succulent
CUCURBITACEAE	*Cucumis myriocarpus Naudin subsp. myriocarpus*	LC	Herb
CUCURBITACEAE	*Kedrostis capensis (Sond.) A.Meeuse*	LC	Climber, succulent
CUCURBITACEAE	*Momordica boivinii Baill.*	LC	Climber, herb, succulent
CUCURBITACEAE	*Momordica foetida Schumach.*	LC	Climber, herb
CYATHEACEAE	*Alsophila dregei (Kunze) R.M.Tryon*	LC	Tree
CYPERACEAE	*Ascolepis capensis (Kunth) Ridl.*	LC	Cyperoid, herb
CYPERACEAE	*Bulbostylis densa (Wall.) Hand.-Mazz. subsp. afromontana (Lye) R.W.Haines*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Bulbostylis humilis (Kunth) C.B.Clarke*	LC	Cyperoid, herb, mesophyte

Family	Species	Threat status	Growth forms
CYPERACEAE	*Bulbostylis oritrephes (Ridl.) C.B.Clarke*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Bulbostylis schoenoides (Kunth) C.B.Clarke*	LC	Cyperoid, helophyte, herb, mesophyte
CYPERACEAE	*Carex acutiformis Ehrh.*	Not Evaluated	Cyperoid, emergent hydrophyte, helophyte, herb
CYPERACEAE	*Carex cognata Kunth*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Carex rhodesiaca Nelmes*		[No lifeform defined]
CYPERACEAE	*Carex spicatopaniculata Boeckeler ex C.B.Clarke x C. zuluensis C.B.Clarke*	Not Evaluated	Cyperoid, herb, mesophyte
CYPERACEAE	*Carex spicatopaniculata Boeckeler ex C.B.Clarke*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Carpha filifolia C.Reid & T.H.Arnold*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Cyperus albostriatus Schrad.*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Cyperus congestus Vahl*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Cyperus keniensis Kük.*	LC	Cyperoid, helophyte, herb, mesophyte
CYPERACEAE	*Cyperus obtusiflorus Vahl var. flavissimus (Schrad.) Boeck.*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Cyperus obtusiflorus Vahl var. obtusiflorus*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Cyperus rupestris Kunth var. rupestris*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Cyperus schlechteri C.B.Clarke*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Cyperus semitrifidus Schrad.*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Cyperus uitenhagensis (Steud.) C.Archer & Goetgh.*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Dracoscirpoides falsa (C.B.Clarke) Muasya*	LC	[No lifeform defined]
CYPERACEAE	*Eleocharis dregeana Steud.*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Ficinia gracilis Schrad.*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Ficinia stolonifera Boeckeler*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Fuirena pubescens (Poir.) Kunth var. pubescens*	LC	Cyperoid, helophyte, herb, mesophyte
CYPERACEAE	*Isolepis cernua (Vahl) Roem. & Schult. var. cernua*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Isolepis costata Hochst. ex A.Rich.*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Isolepis fluitans (L.) R.Br. var. fluitans*	LC	Cyperoid, emergent hydrophyte, helophyte, herb
CYPERACEAE	*Isolepis inyangensis Muasya & Goetgh.*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Isolepis natans (Thunb.) A.Dietr.*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Kyllinga alata Nees*	LC	Cyperoid, helophyte, herb, mesophyte
CYPERACEAE	*Kyllinga erecta Schumach. var. erecta*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Kyllinga pauciflora Ridl.*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Pycreus cooperi C.B.Clarke*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Pycreus macranthus (Boeckeler) C.B.Clarke*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Pycreus nigricans (Steud.) C.B.Clarke*	LC	Cyperoid, helophyte, herb

Family	Species	Threat status	Growth forms
CYPERACEAE	*Pycreus nitidus (Lam.) J.Raynal*	LC	Cyperoid, helophyte, herb, sudd hydrophyte
CYPERACEAE	*Pycreus rehmannianus C.B.Clarke*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Pycreus unioloides (R.Br.) Urb.*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Rhynchospora brownii Roem. & Schult.*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Schoenoplectus brachyceras (Hochst. ex A.Rich.) Lye*	LC	Cyperoid, emergent hydrophyte, helophyte, herb
CYPERACEAE	*Schoenoxiphium lehmannii (Nees) Steud.*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Schoenoxiphium rufum Nees var. rufum*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Schoenoxiphium sparteum (Wahlenb.) C.B.Clarke*	LC	Cyperoid, herb, mesophyte
CYPERACEAE	*Scleria dieterlenii Turrill*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Scleria dregeana Kunth*	LC	Cyperoid, helophyte, herb
CYPERACEAE	*Scleria woodii C.B.Clarke*	LC	Cyperoid, helophyte, herb
DICRANACEAE	*Campylopus pilifer Brid. var. pilifer*		Bryophyte
DIOSCOREACEAE	*Dioscorea cotinifolia Kunth*	LC	Climber, geophyte, succulent
DIOSCOREACEAE	*Dioscorea mundii Baker*	NT	Climber, geophyte, succulent
DIOSCOREACEAE	*Dioscorea retusa Mast.*	LC	Climber, geophyte, succulent
DIOSCOREACEAE	*Dioscorea sylvatica Eckl. var. brevipes (Burtt Davy) Burkill*	Not Evaluated	Climber, geophyte, succulent
DIOSCOREACEAE	*Dioscorea sylvatica Eckl. var. sylvatica*	Not Evaluated	Climber, geophyte, succulent
DIPSACACEAE	*Cephalaria petiolata Compton*		Herb
DIPSACACEAE	*Cephalaria pungens Szabó*	LC	Herb
DIPSACACEAE	*Scabiosa columbaria L.*	LC	Herb
DITRICHACEAE	*Ceratodon purpureus (Hedw.) Brid. subsp. stenocarpus (Bruch & Schimp. ex Müll.Hal.) Dixon*		Bryophyte
DROSERACEAE	*Drosera collinsiae N.E.Br. ex Burtt Davy*	LC	Carnivore, herb
DROSERACEAE	*Drosera dielsiana Exell & J.R.Laundon*	LC	Carnivore, herb
DRYOPTERIDACEAE	*Dryopteris inaequalis (Schltdl.) Kuntze*	LC	Geophyte, herb
DRYOPTERIDACEAE	*Dryopteris lewalleana Pic.Serm.*	LC	Geophyte, herb, lithophyte
DRYOPTERIDACEAE	*Polystichum luctuosum (Kunze) T.Moore*	LC	Geophyte, herb, lithophyte
DRYOPTERIDACEAE	*Polystichum transvaalense N.C.Anthony*	LC	Geophyte, herb, lithophyte
EBENACEAE	*Diospyros austro-africana De Winter var. microphylla (Burch.) De Winter*	LC	Shrub
EBENACEAE	*Diospyros lycioides Desf. subsp. guerkei (Kuntze) De Winter*	LC	Shrub, tree
EBENACEAE	*Diospyros lycioides Desf. subsp. sericea (Bernh.) De Winter*	LC	Shrub, tree
EBENACEAE	*Diospyros whyteana (Hiern) F.White*	LC	Shrub, tree
EBENACEAE	*Euclea crispa (Thunb.) Gürke subsp. crispa*	LC	Shrub, tree
ELAPHOGLOSSACEAE	*Elaphoglossum acrostichoides (Hook. & Grev.) Schelpe*	LC	Epiphyte, geophyte, herb, lithophyte
ERICACEAE	*Erica alopecurus Harv. var. alopecurus*	LC	Shrub
ERICACEAE	*Erica caffrorum Bolus var. caffrorum*	LC	Shrub

Family	Species	Threat status	Growth forms
ERICACEAE	*Erica cerinthoides L. var. cerinthoides*	LC	Shrub
ERICACEAE	*Erica drakensbergensis Guthrie & Bolus*	LC	Shrub
ERICACEAE	*Erica oatesii Rolfe var. oatesii*	LC	Shrub
ERICACEAE	*Erica revoluta (Bolus) L.E.Davidson*	LC	Shrub
ERICACEAE	*Erica woodii Bolus var. woodii*	LC	Dwarf shrub
ERIOCAULACEAE	*Eriocaulon hydrophilum Markötter*	LC	Herb, hydrophyte, tenagophyte
ERIOCAULACEAE	*Eriocaulon sonderianum Körn.*	LC	Herb, hydrophyte, tenagophyte
ERIOSPERMACEAE	*Eriospermum cooperi Baker var. cooperi*	LC	Geophyte
ERIOSPERMACEAE	*Eriospermum flagelliforme (Baker) J.C.Manning*	LC	Geophyte
ERIOSPERMACEAE	*Eriospermum porphyrovalve Baker*	LC	Geophyte
ESCALLONIACEAE	*Choristylis rhamnoides Harv.*	LC	Climber, shrub, tree
EUPHORBIACEAE	*Acalypha wilmsii Pax ex Prain & Hutch.*	LC	Dwarf shrub, herb, shrub
EUPHORBIACEAE	*Adenocline acuta (Thunb.) Baill.*	LC	Herb
EUPHORBIACEAE	*Adenocline pauciflora Turcz.*	LC	Herb
EUPHORBIACEAE	*Clutia affinis Sond.*	LC	Shrub
EUPHORBIACEAE	*Clutia hirsuta (Sond.) Müll.Arg. var. hirsuta*	LC	Dwarf shrub, shrub
EUPHORBIACEAE	*Clutia laxa Eckl. ex Sond.*	LC	Shrub
EUPHORBIACEAE	*Clutia monticola S.Moore var. monticola*	LC	Dwarf shrub, herb
EUPHORBIACEAE	*Clutia natalensis Bernh.*	LC	Shrub
EUPHORBIACEAE	*Clutia pulchella L. var. pulchella*	LC	Dwarf shrub, herb, shrub
EUPHORBIACEAE	*Clutia virgata Pax & K.Hoffm.*	LC	Dwarf shrub, herb
EUPHORBIACEAE	*Euphorbia clavarioides Boiss. var. truncata (N.E.Br.) A.C.White, R.A.Dyer & B.Sloane*	LC	Dwarf shrub, shrub, succulent
EUPHORBIACEAE	*Euphorbia epicyparissias E.Mey. ex Boiss.*	LC	Dwarf shrub, herb
EUPHORBIACEAE	*Euphorbia kraussiana Bernh. var. kraussiana*	LC	Dwarf shrub, herb
EUPHORBIACEAE	*Euphorbia striata Thunb. var. striata*	LC	Dwarf shrub, herb
FABACEAE	*Argyrolobium lotoides Harv.*	LC	Herb
FABACEAE	*Argyrolobium pseudotuberosum T.J.Edwards*	LC	Herb
FABACEAE	*Argyrolobium rupestre (E.Mey.) Walp. subsp. rupestre*	LC	Herb
FABACEAE	*Argyrolobium speciosum Eckl. & Zeyh.*	LC	Herb
FABACEAE	*Argyrolobium tomentosum (Andrews) Druce*	LC	Dwarf shrub, shrub
FABACEAE	*Argyrolobium tuberosum Eckl. & Zeyh.*	LC	Herb
FABACEAE	*Calpurnia aurea (Aiton) Benth. subsp. aurea*	LC	Shrub, tree
FABACEAE	*Calpurnia sericea Harv.*	LC	Shrub
FABACEAE	*Desmodium repandum (Vahl) DC.*	LC	Herb, shrub
FABACEAE	*Dichilus strictus E.Mey.*	LC	Dwarf shrub, herb, shrub
FABACEAE	*Dolichos angustissimus E.Mey.*	LC	Herb
FABACEAE	*Elephantorrhiza elephantina (Burch.) Skeels*	LC	Dwarf shrub, shrub, suffrutex
FABACEAE	*Eriosema cordatum E.Mey.*	LC	Herb
FABACEAE	*Eriosema kraussianum Meisn.*	LC	Herb
FABACEAE	*Erythrina zeyheri Harv.*	LC	Dwarf shrub, shrub, succulent
FABACEAE	*Indigastrum fastigiatum (E.Mey.) Schrire*	LC	Herb
FABACEAE	*Indigofera dimidiata Vogel ex Walp.*	LC	Herb

Family	Species	Threat status	Growth forms
FABACEAE	*Indigofera frondosa N.E.Br.*	LC	Shrub
FABACEAE	*Indigofera hilaris Eckl. & Zeyh. var. hilaris*	LC	Herb
FABACEAE	*Indigofera longibarbata Engl.*	LC	Dwarf shrub
FABACEAE	*Indigofera rostrata Bolus*	LC	Dwarf shrub, herb
FABACEAE	*Indigofera sanguinea N.E.Br.*	LC	Herb
FABACEAE	*Leobordea eriantha (Benth.) B.-E.van Wyk & Boatwr.*	LC	[No lifeform defined]
FABACEAE	*Lotononis amajubica (Burtt Davy) B.-E.van Wyk*	Rare	Dwarf shrub
FABACEAE	*Lotononis dichiloides Sond.*	CR PE	Shrub
FABACEAE	*Lotus discolor E.Mey. subsp. discolor*	LC	Herb
FABACEAE	*Otholobium nigricans C.H.Stirt.*	LC	Shrub
FABACEAE	*Otholobium spicatum (L.) C.H.Stirt.*	LC	Shrub
FABACEAE	*Otholobium wilmsii (Harms) C.H.Stirt.*	LC	Shrub, tree
FABACEAE	*Pearsonia grandifolia (Bolus) Polhill subsp. grandifolia*	LC	Herb
FABACEAE	*Pearsonia sessilifolia (Harv.) Dummer subsp. filifolia (Bolus) Polhill*	LC	Herb
FABACEAE	*Pearsonia sessilifolia (Harv.) Dummer subsp. marginata (Schinz) Polhill*	LC	Dwarf shrub, herb
FABACEAE	*Rhynchosia caribaea (Jacq.) DC.*	LC	Climber, herb
FABACEAE	*Rhynchosia harmsiana Schltr. ex Zahlbr. var. harmsiana*	LC	Climber, herb
FABACEAE	*Rhynchosia pentheri Schltr. ex Zahlbr. var. pentheri*	LC	Herb
FABACEAE	*Rhynchosia totta (Thunb.) DC. var. totta*	LC	Climber, herb
FABACEAE	*Tephrosia capensis (Jacq.) Pers. var. capensis*	LC	Dwarf shrub, herb, shrub
FABACEAE	*Tephrosia elongata E.Mey. var. elongata*	LC	Dwarf shrub, herb, shrub
FABACEAE	*Tephrosia marginella H.M.L.Forbes*	LC	Herb
FABACEAE	*Tephrosia polystachya E.Mey. var. polystachya*	LC	Dwarf shrub, herb, shrub
FABACEAE	*Trifolium africanum Ser. var. africanum*	LC	Herb
FABACEAE	*Trifolium africanum Ser. var. lydenburgense J.B.Gillett*	LC	Herb
FABACEAE	*Zornia capensis Pers. subsp. capensis*	LC	Herb
FISSIDENTACEAE	*Fissidens bryoides Hedw.*		Bryophyte
FISSIDENTACEAE	*Fissidens ovatus Brid.*		Bryophyte, hydrophyte
FUMARIACEAE	*Cysticapnos pruinosa (Bernh.) Lidén*	LC	Herb
GENTIANACEAE	*Chironia krebsii Griseb.*	LC	Herb
GENTIANACEAE	*Sebaea bojeri Griseb.*	LC	Herb
GENTIANACEAE	*Sebaea erosa Schinz*	LC	Herb
GENTIANACEAE	*Sebaea leiostyla Gilg*	LC	Herb
GENTIANACEAE	*Sebaea longicaulis Schinz*	LC	Herb
GENTIANACEAE	*Sebaea natalensis Schinz*	LC	Herb
GENTIANACEAE	*Sebaea repens Schinz*	LC	Herb
GENTIANACEAE	*Sebaea sedoides Gilg var. confertiflora (Schinz) Marais*	LC	Herb
GENTIANACEAE	*Sebaea sedoides Gilg var. schoenlandii (Schinz) Marais*	LC	Herb
GENTIANACEAE	*Sebaea sedoides Gilg var. sedoides*	LC	Herb
GENTIANACEAE	*Sebaea thomasii (S.Moore) Schinz*	LC	Herb

Family	Species	Threat status	Growth forms
GENTIANACEAE	*Swertia welwitschii Engl.*	LC	Herb
GERANIACEAE	*Geranium robustum Kuntze*	LC	Dwarf shrub
GERANIACEAE	*Geranium wakkerstroomianum R.Knuth*	LC	Herb
GERANIACEAE	*Monsonia attenuata Harv.*	LC	Herb
GERANIACEAE	*Monsonia brevirostrata R.Knuth*	LC	Geophyte, scrambler
GERANIACEAE	*Pelargonium alchemilloides (L.) L'Hér.*	LC	Dwarf shrub
GERANIACEAE	*Pelargonium luridum (Andrews) Sweet*	LC	Geophyte, succulent
GERANIACEAE	*Pelargonium tabulare (Burm.f.) L'Hér.*	LC	Dwarf shrub
GESNERIACEAE	*Streptocarpus grandis N.E.Br. subsp. grandis*	LC	Epiphyte, herb, lithophyte
GESNERIACEAE	*Streptocarpus pentherianus Fritsch*	LC	Herb, lithophyte
GESNERIACEAE	*Streptocarpus pusillus Harv. ex C.B.Clarke*	LC	Herb, lithophyte
GREYIACEAE	*Greyia radlkoferi Szyszyl.*	LC	Shrub, tree
GREYIACEAE	*Greyia sutherlandii Hook. & Harv.*	LC	Shrub, tree
GUNNERACEAE	*Gunnera perpensa L.*	Declining	Herb, hydrophyte
HEDWIGIACEAE	*Braunia secunda (Hook.) Bruch & Schimp.*		Bryophyte, epiphyte
HYACINTHACEAE	*Albuca affinis Baker*	LC	Geophyte
HYACINTHACEAE	*Albuca baurii Baker*	LC	Geophyte
HYACINTHACEAE	*Albuca humilis Baker*	LC	Geophyte
HYACINTHACEAE	*Albuca shawii Baker*	LC	Geophyte
HYACINTHACEAE	*Albuca tortuosa Baker*	LC	Geophyte
HYACINTHACEAE	*Dipcadi brevifolium (Thunb.) Fourc.*	LC	Geophyte
HYACINTHACEAE	*Dipcadi gracillimum Baker*	LC	Geophyte
HYACINTHACEAE	*Dipcadi marlothii Engl.*	LC	Geophyte
HYACINTHACEAE	*Dipcadi viride (L.) Moench*	LC	Geophyte
HYACINTHACEAE	*Drimia calcarata (Baker) Stedje*	LC	Geophyte
HYACINTHACEAE	*Drimia depressa (Baker) Jessop*	LC	Geophyte
HYACINTHACEAE	*Drimia elata Jacq.*	DDT	Geophyte
HYACINTHACEAE	*Drimia kniphofioides (Baker) J.C.Manning & Goldblatt*	LC	Geophyte
HYACINTHACEAE	*Drimia multisetosa (Baker) Jessop*	LC	Geophyte
HYACINTHACEAE	*Drimia sphaerocephala Baker*	LC	Geophyte
HYACINTHACEAE	*Eucomis autumnalis (Mill.) Chitt. subsp. clavata (Baker) Reyneke*	Not Evaluated	Geophyte
HYACINTHACEAE	*Eucomis bicolor Baker*	NT	Geophyte
HYACINTHACEAE	*Eucomis montana Compton*	Declining	Geophyte
HYACINTHACEAE	*Eucomis pallidiflora Baker subsp. pallidiflora*	LC	Geophyte
HYACINTHACEAE	*Ledebouria cooperi (Hook.f.) Jessop*	LC	Geophyte
HYACINTHACEAE	*Ledebouria floribunda (Baker) Jessop*	LC	Geophyte
HYACINTHACEAE	*Ledebouria ovatifolia (Baker) Jessop*	LC	Geophyte
HYACINTHACEAE	*Ledebouria revoluta (L.f.) Jessop*	LC	Geophyte
HYACINTHACEAE	*Merwilla plumbea (Lindl.) Speta*	NT	Geophyte
HYACINTHACEAE	*Ornithogalum flexuosum (Thunb.) U.& D.Müll.-Doblies*	LC	Geophyte
HYACINTHACEAE	*Ornithogalum graminifolium Thunb.*	LC	Geophyte
HYACINTHACEAE	*Ornithogalum paludosum Baker*	LC	Geophyte
HYACINTHACEAE	*Ornithogalum tenuifolium F.Delaroche subsp. tenuifolium*	Not Evaluated	Geophyte

Family	Species	Threat status	Growth forms
HYACINTHACEAE	*Schizocarphus nervosus (Burch.) Van der Merwe*	LC	Geophyte
HYDROCHARITACEAE	*Lagarosiphon major (Ridl.) Moss ex Wager*	LC	Herb, hydrophyte
HYPERICACEAE	*Hypericum aethiopicum Thunb. subsp. sonderi (Bredell) N.Robson*	LC	Herb
HYPERICACEAE	*Hypericum lalandii Choisy*	LC	Herb
HYPOXIDACEAE	*Empodium elongatum (Nel) B.L.Burtt*	LC	Geophyte
HYPOXIDACEAE	*Hypoxis acuminata Baker*	LC	Geophyte
HYPOXIDACEAE	*Hypoxis argentea Harv. ex Baker var. argentea*	LC	Geophyte
HYPOXIDACEAE	*Hypoxis colchicifolia Baker*	LC	Geophyte
HYPOXIDACEAE	*Hypoxis costata Baker*	LC	Geophyte
HYPOXIDACEAE	*Hypoxis filiformis Baker*	LC	Geophyte
HYPOXIDACEAE	*Hypoxis gerrardii Baker*	LC	Geophyte
HYPOXIDACEAE	*Hypoxis iridifolia Baker*	LC	Geophyte
HYPOXIDACEAE	*Hypoxis kraussiana Buchinger*	LC	Geophyte
HYPOXIDACEAE	*Hypoxis rigidula Baker var. rigidula*	LC	Geophyte, herb
HYPOXIDACEAE	*Hypoxis tetramera Hilliard & B.L.Burtt*	LC	Geophyte
HYPOXIDACEAE	*Rhodohypoxis baurii (Baker) Nel var. confecta Hilliard & B.L.Burtt*	LC	Geophyte
HYPOXIDACEAE	*Rhodohypoxis milloides (Baker) Hilliard & B.L.Burtt*	LC	Geophyte
ICACINACEAE	*Cassinopsis ilicifolia (Hochst.) Kuntze*	LC	Shrub, tree
ICACINACEAE	*Pyrenacantha grandiflora Baill.*	LC	Climber, shrub
IRIDACEAE	*Aristea angolensis Baker subsp. angolensis*	LC	Herb
IRIDACEAE	*Aristea montana Baker*	LC	Herb
IRIDACEAE	*Aristea torulosa Klatt*	LC	Herb
IRIDACEAE	*Crocosmia aurea (Pappe ex Hook.) Planch. subsp. aurea*	LC	Geophyte, herb
IRIDACEAE	*Dierama insigne N.E.Br.*	LC	Geophyte, herb
IRIDACEAE	*Dierama medium N.E.Br.*	LC	Geophyte, herb
IRIDACEAE	*Dierama pauciflorum N.E.Br.*	LC	Geophyte, herb
IRIDACEAE	*Dierama tyrium Hilliard*	LC	Geophyte, herb
IRIDACEAE	*Dietes iridioides (L.) Sweet ex Klatt*	LC	Geophyte, herb
IRIDACEAE	*Gladiolus appendiculatus G.J.Lewis*	LC	Geophyte, herb
IRIDACEAE	*Gladiolus crassifolius Baker*	LC	Geophyte, herb
IRIDACEAE	*Gladiolus dalenii Van Geel subsp. dalenii*	LC	Geophyte, herb
IRIDACEAE	*Gladiolus densiflorus Baker*	LC	Geophyte, herb
IRIDACEAE	*Gladiolus ecklonii Lehm.*	LC	Geophyte, herb
IRIDACEAE	*Gladiolus longicollis Baker subsp. platypetalus (Baker) Goldblatt & J.C.Manning*	LC	Geophyte, herb
IRIDACEAE	*Gladiolus papilio Hook.f.*	LC	Geophyte, herb
IRIDACEAE	*Gladiolus sericeovillosus Hook.f. subsp. sericeovillosus*	LC	Geophyte, herb
IRIDACEAE	*Gladiolus woodii Baker*	LC	Geophyte, herb
IRIDACEAE	*Hesperantha baurii Baker subsp. baurii*	LC	Geophyte, herb
IRIDACEAE	*Hesperantha coccinea (Backh. & Harv.) Goldblatt & J.C.Manning*	LC	Geophyte, herb
IRIDACEAE	*Hesperantha leucantha Baker*	LC	Geophyte, herb
IRIDACEAE	*Hesperantha radiata (Jacq.) Ker Gawl.*	LC	Geophyte, herb

Family	Species	Threat status	Growth forms
IRIDACEAE	*Moraea ardesiaca Goldblatt*	LC	Geophyte, herb
IRIDACEAE	*Moraea brevistyla (Goldblatt) Goldblatt*	LC	Geophyte, herb
IRIDACEAE	*Moraea elliotii Baker*	LC	Geophyte, herb
IRIDACEAE	*Moraea huttonii (Baker) Oberm.*	LC	Geophyte, herb
IRIDACEAE	*Moraea modesta Killick*	LC	Geophyte, herb
IRIDACEAE	*Moraea moggii N.E.Br. subsp. albescens Goldblatt*	LC	Geophyte, herb
IRIDACEAE	*Moraea muddii N.E.Br.*	LC	Geophyte, herb
IRIDACEAE	*Moraea natalensis Baker*	LC	Geophyte, herb
IRIDACEAE	*Moraea pallida (Baker) Goldblatt*	LC	Geophyte, herb
IRIDACEAE	*Moraea pubiflora N.E.Br.*	LC	Geophyte, herb
IRIDACEAE	*Moraea robusta (Goldblatt) Goldblatt*	LC	Geophyte, herb
IRIDACEAE	*Moraea spathulata (L.f.) Klatt*	LC	Geophyte, herb
IRIDACEAE	*Moraea stricta Baker*	LC	Geophyte, herb
IRIDACEAE	*Moraea trifida R.C.Foster*	LC	Geophyte, herb
IRIDACEAE	*Romulea camerooniana Baker*	LC	Geophyte
IRIDACEAE	*Tritonia disticha (Klatt) Baker subsp. rubrolucens (R.C.Foster) M.P.de Vos*	LC	Geophyte, herb
IRIDACEAE	*Watsonia latifolia N.E.Br. ex Oberm.*	LC	Geophyte, herb
IRIDACEAE	*Watsonia pulchra N.E.Br. ex Goldblatt*	LC	Geophyte, herb
JUNCACEAE	*Juncus dregeanus Kunth subsp. dregeanus*	LC	Helophyte, herb
JUNCACEAE	*Juncus effusus L.*	LC	Helophyte, herb
LAMIACEAE	*Ajuga ophrydis Burch. ex Benth.*	LC	Herb
LAMIACEAE	*Mentha aquatica L.*	LC	Herb
LAMIACEAE	*Plectranthus dolichopodus Briq.*	LC	Herb
LAMIACEAE	*Plectranthus grallatus Briq.*	LC	Herb
LAMIACEAE	*Plectranthus laxiflorus Benth.*	LC	Herb
LAMIACEAE	*Plectranthus rubropunctatus Codd*	LC	Herb
LAMIACEAE	*Prunella vulgaris L.*	Not Evaluated	Herb
LAMIACEAE	*Pycnostachys reticulata (E.Mey.) Benth.*	LC	Herb
LAMIACEAE	*Rabdosiella calycina (Benth.) Codd*	LC	Herb
LAMIACEAE	*Rotheca hirsuta (Hochst.) R.Fern.*	LC	Herb
LAMIACEAE	*Salvia runcinata L.f.*	LC	Herb
LAMIACEAE	*Salvia triangularis Thunb.*	LC	Herb
LAMIACEAE	*Stachys albiflora N.E.Br.*	LC	Herb
LAMIACEAE	*Stachys caffra E.Mey. ex Benth.*	LC	Shrub
LAMIACEAE	*Stachys grandifolia E.Mey. ex Benth.*	LC	Herb
LAMIACEAE	*Stachys nigricans Benth.*	LC	Herb
LAMIACEAE	*Stachys sessilis Gürke*	LC	Herb
LAMIACEAE	*Syncolostemon concinnus N.E.Br.*	LC	Herb
LAMIACEAE	*Syncolostemon parviflorus E.Mey. ex Benth. var. parviflorus*	LC	Dwarf shrub, herb
LAMIACEAE	*Syncolostemon pretoriae (Gürke) D.F.Otieno*	LC	Herb
LAMIACEAE	*Syncolostemon punctatus (Codd) D.F.Otieno*	LC	Shrub
LENTIBULARIACEAE	*Utricularia livida E.Mey.*	LC	Carnivore, herb
LENTIBULARIACEAE	*Utricularia prehensilis E.Mey.*	LC	Carnivore, herb

Family	Species	Threat status	Growth forms
LESKEACEAE	*Pseudoleskeopsis claviramea (Müll.Hal.) Thér.*		Bryophyte, epiphyte
LINACEAE	*Linum thunbergii Eckl. & Zeyh.*	LC	Herb
LOBELIACEAE	*Cyphia elata Harv. var. elata*	LC	Herb
LOBELIACEAE	*Cyphia elata Harv. var. glabra Harv.*	LC	Herb
LOBELIACEAE	*Cyphia longifolia N.E.Br.*	LC	Herb
LOBELIACEAE	*Lobelia laxa MacOwan*	LC	Herb
LOBELIACEAE	*Lobelia vanreenensis (Kuntze) K.Schum.*	LC	Herb
LOBELIACEAE	*Monopsis decipiens (Sond.) Thulin*	LC	Herb
LOBELIACEAE	*Monopsis malvacea E.Wimm.*		Herb
LORANTHACEAE	*Tapinanthus rubromarginatus (Engl.) Danser*	LC	Parasite, shrub, succulent
LYCOPODIACEAE	*Lycopodiella cernua (L.) Pic.Serm.*	LC	Geophyte, herb
LYCOPODIACEAE	*Lycopodium clavatum L.*	LC	Geophyte, herb, lithophyte
LYTHRACEAE	*Rotala capensis (Harv.) A.Fern. & Diniz*	LC	Herb, hydrophyte
MALVACEAE	*Grewia occidentalis L. var. occidentalis*	LC	Shrub, tree
MALVACEAE	*Hermannia cristata Bolus*	LC	Dwarf shrub
MALVACEAE	*Hermannia grandistipula (Buchinger ex Hochst.) K.Schum.*	LC	Herb
MALVACEAE	*Hibiscus aethiopicus L. var. ovatus Harv.*	LC	Herb
MALVACEAE	*Hibiscus trionum L.*		Herb
MALVACEAE	*Pavonia columella Cav.*	LC	Herb, shrub
MALVACEAE	*Sparrmannia ricinocarpa (Eckl. & Zeyh.) Kuntze var. ricinocarpa*	LC	Shrub
MALVACEAE	*Triumfetta pilosa Roth var. tomentosa Szyszyl. ex Sprague & Hutch.*	LC	Shrub
MELIACEAE	*Ekebergia capensis Sparrm.*	LC	Tree
MELIACEAE	*Ekebergia pterophylla (C.DC.) Hofmeyr*	LC	Shrub, tree
MELIANTHACEAE	*Melianthus dregeanus Sond. subsp. insignis (Kuntze) S.A.Tansley*	LC	Shrub
MENISPERMACEAE	*Cissampelos torulosa E.Mey. ex Harv.*	LC	Climber
MENISPERMACEAE	*Stephania abyssinica (Quart.-Dill. & A.Rich.) Walp. var. tomentella (Oliv.) Diels*	LC	Climber
MENYANTHACEAE	*Nymphoides thunbergiana (Griseb.) Kuntze*	LC	Hydrophyte
MESEMBRYANTHEMACEAE	*Khadia acutipetala (N.E.Br.) N.E.Br.*	LC	Succulent
MESEMBRYANTHEMACEAE	*Khadia alticola Chess. & H.E.K.Hartmann*	Rare	Succulent
MESEMBRYANTHEMACEAE	*Khadia beswickii (L.Bolus) N.E.Br.*	VU	Succulent
MNIACEAE	*Plagiomnium rhynchophorum (Hook.) T.J.Kop. var. reidii (Dixon) T.J.Kop.*		Bryophyte
MOLLUGINACEAE	*Psammotropha myriantha Sond.*	LC	Herb
MORACEAE	*Ficus ingens (Miq.) Miq.*	LC	Tree
MYRICACEAE	*Morella pilulifera (Rendle) Killick*	LC	Shrub, tree
MYRSINACEAE	*Myrsine africana L.*	LC	Shrub
MYRSINACEAE	*Rapanea melanophloeos (L.) Mez*	Declining	Tree
NECKERACEAE	*Neckera valentiniana Besch.*		Bryophyte, epiphyte
NECKERACEAE	*Porotrichum madagassum Kiaer ex Besch.*		Bryophyte, epiphyte
OCHNACEAE	*Ochna serrulata (Hochst.) Walp.*	LC	Shrub, tree
OLINIACEAE	*Olinia emarginata Burtt Davy*	LC	Tree
ONAGRACEAE	*Epilobium capense Buchinger ex Hochst.*	LC	Herb

Family	Species	Threat status	Growth forms
ONAGRACEAE	*Oenothera tetraptera Cav.*	Not Evaluated	Herb
OPHIOGLOSSACEAE	*Ophioglossum reticulatum L.*	LC	Geophyte, herb
ORCHIDACEAE	*Brownleea galpinii Bolus subsp. galpinii*	LC	Geophyte, herb
ORCHIDACEAE	*Brownleea parviflora Harv. ex Lindl.*	LC	Geophyte, herb
ORCHIDACEAE	*Corycium dracomontanum Parkman & Schelpe*	LC	Geophyte, herb
ORCHIDACEAE	*Corycium nigrescens Sond.*	LC	Geophyte, herb
ORCHIDACEAE	*Disa aconitoides Sond. subsp. aconitoides*	LC	Geophyte, herb
ORCHIDACEAE	*Disa baurii Bolus*	LC	Geophyte, herb
ORCHIDACEAE	*Disa brevicornis (Lindl.) Bolus*	LC	Geophyte, herb
ORCHIDACEAE	*Disa chrysostachya Sw.*	LC	Geophyte, herb
ORCHIDACEAE	*Disa cooperi Rchb.f.*	LC	Geophyte, herb
ORCHIDACEAE	*Disa cornuta (L.) Sw.*	LC	Geophyte, herb
ORCHIDACEAE	*Disa galpinii Rolfe*	Rare	Geophyte, herb
ORCHIDACEAE	*Disa nervosa Lindl.*	LC	Geophyte, herb
ORCHIDACEAE	*Disa oreophila Bolus subsp. oreophila*	LC	Geophyte, herb
ORCHIDACEAE	*Disa patula Sond. var. transvaalensis Summerh.*	LC	Geophyte, herb
ORCHIDACEAE	*Disa rhodantha Schltr.*	LC	Geophyte, herb
ORCHIDACEAE	*Disa stachyoides Rchb.f.*	LC	Geophyte, herb
ORCHIDACEAE	*Disa versicolor Rchb.f.*	LC	Geophyte, herb
ORCHIDACEAE	*Disperis cardiophora Harv.*	LC	Geophyte, herb
ORCHIDACEAE	*Disperis cooperi Harv.*	LC	Geophyte, herb
ORCHIDACEAE	*Disperis fanniniae Harv.*	LC	Geophyte, herb
ORCHIDACEAE	*Disperis tysonii Bolus*	LC	Geophyte, herb
ORCHIDACEAE	*Disperis wealei Rchb.f.*	LC	Geophyte, herb
ORCHIDACEAE	*Eulophia aculeata (L.f.) Spreng. subsp. huttonii (Rolfe) A.V.Hall*	LC	Geophyte, herb
ORCHIDACEAE	*Eulophia calanthoides Schltr.*	LC	Geophyte, herb
ORCHIDACEAE	*Eulophia foliosa (Lindl.) Bolus*	LC	Geophyte, herb
ORCHIDACEAE	*Eulophia hians Spreng. var. hians*	LC	Geophyte, herb
ORCHIDACEAE	*Eulophia hians Spreng. var. nutans (Sond.) S.Thomas*	LC	Geophyte, herb
ORCHIDACEAE	*Eulophia ovalis Lindl. var. ovalis*	LC	Geophyte, herb
ORCHIDACEAE	*Eulophia parviflora (Lindl.) A.V.Hall*	LC	Geophyte, herb
ORCHIDACEAE	*Habenaria clavata (Lindl.) Rchb.f.*	LC	Geophyte, herb
ORCHIDACEAE	*Habenaria dives Rchb.f.*	LC	Geophyte, herb
ORCHIDACEAE	*Habenaria dregeana Lindl.*	LC	Geophyte, herb
ORCHIDACEAE	*Habenaria epipactidea Rchb.f.*	LC	Geophyte, herb
ORCHIDACEAE	*Habenaria filicornis Lindl.*	LC	Geophyte, herb
ORCHIDACEAE	*Habenaria laevigata Lindl.*	LC	Geophyte, herb
ORCHIDACEAE	*Habenaria lithophila Schltr.*	LC	Geophyte, herb
ORCHIDACEAE	*Mystacidium flanaganii (Bolus) Bolus*	LC	Epiphyte, herb
ORCHIDACEAE	*Neobolusia tysonii (Bolus) Schltr.*	LC	Geophyte, herb
ORCHIDACEAE	*Polystachya ottoniana Rchb.f.*	LC	Epiphyte, herb, succulent
ORCHIDACEAE	*Pterygodium hastatum Bolus*	LC	Geophyte, herb
ORCHIDACEAE	*Pterygodium magnum Rchb.f.*	LC	Geophyte, herb

Family	Species	Threat status	Growth forms
ORCHIDACEAE	*Satyrium bracteatum (L.f.) Thunb.*	LC	Geophyte, herb, lithophyte
ORCHIDACEAE	*Satyrium cristatum Sond. var. cristatum*	LC	Geophyte, herb
ORCHIDACEAE	*Satyrium cristatum Sond. var. longilabiatum A.V.Hall*	LC	Geophyte, herb
ORCHIDACEAE	*Satyrium hallackii Bolus subsp. ocellatum (Bolus) A.V.Hall*	LC	Geophyte, herb
ORCHIDACEAE	*Satyrium longicauda Lindl. var. jacottetianum (Kraenzl.) A.V.Hall*	LC	Geophyte, herb
ORCHIDACEAE	*Satyrium longicauda Lindl. var. longicauda*	LC	Geophyte, herb
ORCHIDACEAE	*Satyrium microrrhynchum Schltr.*	Rare	Geophyte, herb
ORCHIDACEAE	*Satyrium neglectum Schltr. subsp. neglectum var. neglectum*	LC	Geophyte, herb
ORCHIDACEAE	*Satyrium parviflorum Sw.*	LC	Geophyte, herb
ORCHIDACEAE	*Satyrium trinerve Lindl.*	LC	Geophyte, herb
ORCHIDACEAE	*Schizochilus flexuosus Harv. ex Rolfe*	LC	Geophyte, herb
ORCHIDACEAE	*Schizochilus zeyheri Sond.*	LC	Geophyte, herb
OROBANCHACEAE	*Alectra capensis Thunb.*	LC	Herb, parasite
OROBANCHACEAE	*Alectra sessiliflora (Vahl) Kuntze var. sessiliflora*	LC	Herb, parasite
OROBANCHACEAE	*Buchnera simplex (Thunb.) Druce*	LC	Herb, parasite
OROBANCHACEAE	*Graderia scabra (L.f.) Benth.*	LC	Herb, parasite, suffrutex
OROBANCHACEAE	*Harveya pumila Schltr.*	LC	Herb, parasite
OROBANCHACEAE	*Harveya speciosa Bernh.*	LC	Herb, parasite
OROBANCHACEAE	*Melasma scabrum P.J.Bergius var. scabrum*	LC	Herb, parasite
OROBANCHACEAE	*Sopubia cana Harv. var. cana*	LC	Herb, parasite
OROBANCHACEAE	*Striga bilabiata (Thunb.) Kuntze subsp. bilabiata*	LC	Herb, parasite
ORTHOTRICHACEAE	*Macrocoma lycopodioides (Schwägr.) Vitt*		Bryophyte, epiphyte
ORTHOTRICHACEAE	*Macrocoma tenuis (Hook. & Grev.) Vitt subsp. tenuis*		Bryophyte, epiphyte
OXALIDACEAE	*Oxalis corniculata L.*	Not Evaluated	Herb
OXALIDACEAE	*Oxalis obliquifolia Steud. ex A.Rich.*	LC	Geophyte
PALLAVICINIACEAE	*Symphyogyna brasiliensis Nees & Mont.*		Bryophyte
PAPAVERACEAE	*Papaver aculeatum Thunb.*	LC	Herb
PARMELIACEAE	*Flavoparmelia baltimorensis (Gyeln. & Fóriss) Hale*		Lichen
PARMELIACEAE	*Usnea flaccida (Müll.Arg.) Motyka*		Lichen
PHYTOLACCACEAE	*Phytolacca heptandra Retz.*	LC	Herb
PIPERACEAE	*Peperomia tetraphylla (G.Forst.) Hook. & Arn.*	LC	Herb, succulent
PITTOSPORACEAE	*Pittosporum viridiflorum Sims*	LC	Shrub, tree
PLANTAGINACEAE	*Plantago virginica L.*	Not Evaluated	Herb
POACEAE	*Agrostis barbuligera Stapf var. barbuligera*	LC	Graminoid
POACEAE	*Agrostis barbuligera Stapf var. longipilosa Gooss. & Papendorf*	LC	Graminoid
POACEAE	*Agrostis eriantha Hack. var. eriantha*	LC	Graminoid
POACEAE	*Agrostis lachnantha Nees var. lachnantha*	LC	Graminoid
POACEAE	*Alloteropsis semialata (R.Br.) Hitchc. subsp. eckloniana (Nees) Gibbs Russ.*	LC	Graminoid
POACEAE	*Andropogon amethystinus Steud.*	LC	Graminoid
POACEAE	*Andropogon appendiculatus Nees*	LC	Graminoid
POACEAE	*Andropogon eucomus Nees*	LC	Graminoid

Family	Species	Threat status	Growth forms
POACEAE	*Andropogon lacunosus J.G.Anderson*	LC	Graminoid
POACEAE	*Andropogon mannii Hook.f.*	LC	Graminoid
POACEAE	*Anthoxanthum ecklonii (Nees ex Trin.) Stapf*	LC	Graminoid
POACEAE	*Aristida congesta Roem. & Schult. subsp. congesta*	LC	Graminoid
POACEAE	*Aristida junciformis Trin. & Rupr. subsp. junciformis*	LC	Graminoid
POACEAE	*Arundinella nepalensis Trin.*	LC	Graminoid
POACEAE	*Brachypodium bolusii Stapf*	LC	Graminoid
POACEAE	*Brachypodium flexum Nees*	LC	Graminoid
POACEAE	*Bromus catharticus Vahl*	Not Evaluated	Graminoid
POACEAE	*Bromus firmior (Nees) Stapf*	LC	Graminoid
POACEAE	*Bromus leptoclados Nees*	LC	Graminoid
POACEAE	*Ctenium concinnum Nees*	LC	Graminoid
POACEAE	*Cymbopogon dieterlenii Stapf ex E.Phillips*	LC	Graminoid
POACEAE	*Cynodon hirsutus Stent*	LC	Graminoid
POACEAE	*Cynodon transvaalensis Burtt Davy*	LC	Graminoid
POACEAE	*Digitaria argyrograpta (Nees) Stapf*	LC	Graminoid
POACEAE	*Digitaria eriantha Steud.*	LC	Graminoid
POACEAE	*Digitaria flaccida Stapf*	LC	Graminoid
POACEAE	*Digitaria monodactyla (Nees) Stapf*	LC	Graminoid
POACEAE	*Digitaria scalarum (Schweinf.) Chiov.*	LC	Graminoid
POACEAE	*Digitaria thouarsiana (Flüggé) A.Camus*	LC	Graminoid
POACEAE	*Diheteropogon filifolius (Nees) Clayton*	LC	Graminoid
POACEAE	*Echinochloa jubata Stapf*	LC	Graminoid
POACEAE	*Ehrharta erecta Lam. var. erecta*	LC	Graminoid
POACEAE	*Eleusine indica (L.) Gaertn.*	LC	Graminoid
POACEAE	*Elionurus muticus (Spreng.) Kunth*	LC	Graminoid
POACEAE	*Eragrostis caesia Stapf*	LC	Graminoid
POACEAE	*Eragrostis capensis (Thunb.) Trin.*	LC	Graminoid
POACEAE	*Eragrostis chloromelas Steud.*	LC	Graminoid
POACEAE	*Eragrostis curvula (Schrad.) Nees*	LC	Graminoid
POACEAE	*Eragrostis planiculmis Nees*	LC	Graminoid
POACEAE	*Eragrostis racemosa (Thunb.) Steud.*	LC	Graminoid
POACEAE	*Eulalia villosa (Thunb.) Nees*	LC	Graminoid
POACEAE	*Festuca costata Nees*	LC	Graminoid
POACEAE	*Festuca scabra Vahl*	LC	Graminoid
POACEAE	*Helictotrichon longifolium (Nees) Schweick.*	LC	Graminoid
POACEAE	*Helictotrichon turgidulum (Stapf) Schweick.*	LC	Graminoid
POACEAE	*Hyparrhenia dregeana (Nees) Stapf ex Stent*	LC	Graminoid
POACEAE	*Hyparrhenia hirta (L.) Stapf*	LC	Graminoid
POACEAE	*Imperata cylindrica (L.) Raeusch.*	LC	Graminoid
POACEAE	*Ischaemum fasciculatum Brongn.*	LC	Graminoid
POACEAE	*Koeleria capensis (Steud.) Nees*	LC	Graminoid
POACEAE	*Leersia hexandra Sw.*	LC	Graminoid
POACEAE	*Loudetia simplex (Nees) C.E.Hubb.*	LC	Graminoid

Family	Species	Threat status	Growth forms
POACEAE	*Melinis nerviglumis (Franch.) Zizka*	LC	Graminoid
POACEAE	*Merxmuellera macowanii (Stapf) Conert*	LC	Graminoid
POACEAE	*Microchloa caffra Nees*	LC	Graminoid
POACEAE	*Miscanthus junceus (Stapf) Pilg.*	LC	Graminoid
POACEAE	*Monocymbium ceresiiforme (Nees) Stapf*	LC	Graminoid
POACEAE	*Panicum ecklonii Nees*	LC	Graminoid
POACEAE	*Panicum natalense Hochst.*	LC	Graminoid
POACEAE	*Paspalum dilatatum Poir.*	Not Evaluated	Graminoid
POACEAE	*Pennisetum clandestinum Hochst. ex Chiov.*	Not Evaluated	Graminoid
POACEAE	*Pennisetum natalense Stapf*	LC	Graminoid
POACEAE	*Pennisetum sphacelatum (Nees) T.Durand & Schinz*	LC	Graminoid
POACEAE	*Pennisetum thunbergii Kunth*	LC	Graminoid
POACEAE	*Phalaris arundinacea L.*	Not Evaluated	Graminoid
POACEAE	*Phragmites australis (Cav.) Steud.*	LC	Graminoid
POACEAE	*Poa binata Nees*	LC	Graminoid
POACEAE	*Poa pratensis L.*	Not Evaluated	Graminoid
POACEAE	*Rendlia altera (Rendle) Chiov.*	LC	Graminoid
POACEAE	*Setaria nigrirostris (Nees) T.Durand & Schinz*	LC	Graminoid
POACEAE	*Setaria sphacelata (Schumach.) Stapf & C.E.Hubb. ex M.B.Moss var. sphacelata*	LC	Graminoid
POACEAE	*Sporobolus centrifugus (Trin.) Nees*	LC	Graminoid
POACEAE	*Stiburus alopecuroides (Hack.) Stapf*	LC	Graminoid
POACEAE	*Stiburus conrathii Hack.*	LC	Graminoid
POACEAE	*Stipa dregeana Steud. var. elongata (Nees) Stapf*	LC	Graminoid
POACEAE	*Styppeiochloa gynoglossa (Gooss.) De Winter*	LC	Graminoid
POACEAE	*Trachypogon spicatus (L.f.) Kuntze*	LC	Graminoid
POACEAE	*Tristachya leucothrix Trin. ex Nees*	LC	Graminoid
PODOCARPACEAE	*Podocarpus falcatus (Thunb.) R.Br. ex Mirb.*	LC	Tree
PODOCARPACEAE	*Podocarpus henkelii Stapf ex Dallim. & A.B.Jacks.*	LC	Tree
PODOCARPACEAE	*Podocarpus latifolius (Thunb.) R.Br. ex Mirb.*	LC	Tree
POLYGALACEAE	*Muraltia saxicola Chodat*	LC	Dwarf shrub
POLYGALACEAE	*Polygala amatymbica Eckl. & Zeyh.*	LC	Herb
POLYGALACEAE	*Polygala gerrardii Chodat*	LC	Herb
POLYGALACEAE	*Polygala gracilenta Burtt Davy*	LC	Herb
POLYGALACEAE	*Polygala hispida Burch. ex DC.*	LC	Dwarf shrub, herb
POLYGALACEAE	*Polygala houtboshiana Chodat*	LC	Herb
POLYGALACEAE	*Polygala leendertziae Burtt Davy*	LC	Dwarf shrub, herb
POLYGALACEAE	*Polygala ohlendorfiana Eckl. & Zeyh.*	LC	Herb
POLYGALACEAE	*Polygala virgata Thunb. var. decora (Sond.) Harv.*	LC	Dwarf shrub, shrub
POLYGALACEAE	*Polygala virgata Thunb. var. virgata*	LC	Dwarf shrub, shrub
POLYGALACEAE	*Polygala wilmsii Chodat*	LC	Herb
POLYGONACEAE	*Persicaria attenuata (R.Br.) Soják subsp. africana K.L.Wilson*	LC	Helophyte, herb, hydrophyte
POLYGONACEAE	*Persicaria meisneriana (Cham. & Schltdl.) M.Gómez*	LC	Helophyte, herb, hydrophyte
POLYGONACEAE	*Rumex acetosella L. subsp. angiocarpus (Murb.) Murb.*		Herb

Family	Species	Threat status	Growth forms
POLYGONACEAE	*Rumex crispus L.*	Not Evaluated	Herb
POLYGONACEAE	*Rumex dregeanus Meisn. subsp. montanus B.L.Burtt*	LC	Herb
POLYGONACEAE	*Rumex sagittatus Thunb.*	LC	Climber, herb
POLYPODIACEAE	*Pleopeltis macrocarpa (Bory ex Willd.) Kaulf.*	LC	Epiphyte, herb, lithophyte
POLYPODIACEAE	*Pleopeltis polypodioides (L.) E.G.Andrews & Windham subsp. ecklonii (Kunze) J.P.Roux*	LC	Epiphyte, herb, lithophyte
POTTIACEAE	*Bryoerythrophyllum campylocarpum (Müll.Hal.) H.A.Crum*		Bryophyte
POTTIACEAE	*Syntrichia fragilis (Taylor) Ochyra*		Bryophyte, epiphyte
POTTIACEAE	*Trichostomum brachydontium Bruch*		Bryophyte
PRIMULACEAE	*Anagallis huttonii Harv.*	LC	Herb
PROTEACEAE	*Protea parvula Beard*	NT	Dwarf shrub
PROTEACEAE	*Protea roupelliae Meisn. subsp. roupelliae*	LC	Tree
PROTEACEAE	*Protea subvestita N.E.Br.*	VU	Shrub
PTERIDACEAE	*Adiantum poiretii Wikstr.*	LC	Geophyte, herb, lithophyte
PTERIDACEAE	*Pteris cretica L.*	LC	Geophyte, herb, lithophyte
PTERIDACEAE	*Pteris dentata Forssk.*	LC	Geophyte, herb
PTYCHOMITRIACEAE	*Ptychomitrium subcrispatum Thér. & P.de la Varde*		Bryophyte, epiphyte
RACOPILACEAE	*Racopilum capense Müll.Hal. ex Broth.*		Bryophyte, epiphyte
RANUNCULACEAE	*Clematis brachiata Thunb.*	LC	Climber
RANUNCULACEAE	*Knowltonia transvaalensis Szyszyl. var. transvaalensis*	LC	Herb
RANUNCULACEAE	*Ranunculus meyeri Harv.*	LC	Helophyte
RANUNCULACEAE	*Ranunculus multifidus Forssk.*		Herb
RANUNCULACEAE	*Thalictrum rhynchocarpum Quart.-Dill. & A.Rich.*	LC	Herb
RHAMNACEAE	*Rhamnus prinoides L'Hér.*	LC	Shrub, tree
RHAMNACEAE	*Scutia myrtina (Burm.f.) Kurz*	LC	Shrub, tree
RHAMNACEAE	*Ziziphus mucronata Willd. subsp. mucronata*	LC	Shrub, tree
RICCIACEAE	*Riccia natalensis Sim*		Bryophyte
ROSACEAE	*Agrimonia procera Wallr.*	LC	Herb
ROSACEAE	*Alchemilla woodii Kuntze*	LC	Herb
ROSACEAE	*Cliffortia linearifolia Eckl. & Zeyh.*	LC	Shrub
ROSACEAE	*Geum capense Thunb.*	LC	Herb
ROSACEAE	*Leucosidea sericea Eckl. & Zeyh.*	LC	Shrub
ROSACEAE	*Rubus apetalus Poir. var. apetalus*	Not Evaluated	Scrambler, shrub
ROSACEAE	*Rubus ludwigii Eckl. & Zeyh. subsp. ludwigii*	LC	Shrub
RUBIACEAE	*Anthospermum herbaceum L.f.*	LC	Herb
RUBIACEAE	*Anthospermum welwitschii Hiern*	LC	Shrub
RUBIACEAE	*Canthium ciliatum (Klotzsch) Kuntze*	LC	Shrub, tree
RUBIACEAE	*Canthium kuntzeanum Bridson*	LC	Shrub
RUBIACEAE	*Cephalanthus natalensis Oliv.*	LC	Shrub
RUBIACEAE	*Galium capense Thunb. subsp. capense*	LC	Herb
RUBIACEAE	*Galium capense Thunb. subsp. garipense (Sond.) Puff var. garipense*	LC	Herb
RUBIACEAE	*Galium scabrelloides Puff*	LC	Herb
RUBIACEAE	*Galium spurium L. subsp. africanum Verdc.*	LC	Herb

Family	Species	Threat status	Growth forms
RUBIACEAE	*Galium spurium-aparine complex*	LC	Scrambler
RUBIACEAE	*Galium subvillosum Sond. var. subvillosum*	LC	Herb
RUBIACEAE	*Galium thunbergianum Eckl. & Zeyh. var. thunbergianum*	LC	Herb
RUBIACEAE	*Galopina circaeoides Thunb.*	LC	Herb
RUBIACEAE	*Kohautia amatymbica Eckl. & Zeyh.*	LC	Herb
RUBIACEAE	*Pachystigma thamnus Robyns*	LC	Dwarf shrub
RUBIACEAE	*Pavetta cooperi Harv. & Sond.*	LC	Shrub, tree
RUBIACEAE	*Pavetta kotzei Bremek.*	LC	Shrub
RUBIACEAE	*Pentanisia angustifolia (Hochst.) Hochst.*	LC	Herb
RUBIACEAE	*Pentanisia prunelloides (Klotzsch ex Eckl. & Zeyh.) Walp. subsp. latifolia (Hochst.) Verdc.*	LC	Herb
RUBIACEAE	*Pentanisia prunelloides (Klotzsch ex Eckl. & Zeyh.) Walp. subsp. prunelloides*	LC	Herb
RUBIACEAE	*Pygmaeothamnus chamaedendrum (Kuntze) Robyns var. chamaedendrum*	LC	Dwarf shrub
RUBIACEAE	*Spermacoce natalensis Hochst.*	LC	Herb
RUTACEAE	*Calodendrum capense (L.f.) Thunb.*	LC	Tree
RUTACEAE	*Clausena anisata (Willd.) Hook.f. ex Benth. var. anisata*	LC	Shrub, tree
RUTACEAE	*Zanthoxylum davyi (I.Verd.) P.G.Waterman*	LC	Tree
SALICACEAE	*Salix mucronata Thunb. subsp. woodii (Seemen) Immelman*	LC	Tree
SALICACEAE	*Scolopia mundii (Eckl. & Zeyh.) Warb.*	LC	Shrub, tree
SALICACEAE	*Scolopia oreophila (Sleumer) Killick*	LC	Tree
SALICACEAE	*Trimeria grandifolia (Hochst.) Warb. subsp. grandifolia*	LC	Shrub, tree
SANTALACEAE	*Osyris lanceolata Hochst. & Steud.*	LC	Shrub
SANTALACEAE	*Thesium costatum A.W.Hill var. costatum*	LC	Herb, parasite
SANTALACEAE	*Thesium imbricatum Thunb.*	LC	Dwarf shrub, parasite, shrub
SANTALACEAE	*Thesium nigrum A.W.Hill*	LC	Herb, parasite, shrub
SCROPHULARIACEAE	*Bowkeria citrina Thode*	Rare	Shrub
SCROPHULARIACEAE	*Chaenostoma floribundum Benth.*	LC	Herb
SCROPHULARIACEAE	*Chaenostoma neglectum J.M.Wood & M.S.Evans*	LC	Herb
SCROPHULARIACEAE	*Chaenostoma polelense (Hiern) Kornhall subsp. fraterna (Hilliard) Kornhall*	LC	Herb
SCROPHULARIACEAE	*Diclis reptans Benth.*	LC	Herb
SCROPHULARIACEAE	*Diclis rotundifolia (Hiern) Hilliard & B.L.Burtt*	LC	Herb
SCROPHULARIACEAE	*Hebenstretia comosa Hochst.*	LC	Herb
SCROPHULARIACEAE	*Hebenstretia dura Choisy*	LC	Dwarf shrub, shrub
SCROPHULARIACEAE	*Hebenstretia oatesii Rolfe subsp. oatesii*	LC	Herb
SCROPHULARIACEAE	*Hebenstretia rehmannii Rolfe*	LC	Herb
SCROPHULARIACEAE	*Jamesbrittenia pristisepala (Hiern) Hilliard*	LC	Dwarf shrub, lithophyte
SCROPHULARIACEAE	*Jamesbrittenia silenoides (Hilliard) Hilliard*	LC	Herb
SCROPHULARIACEAE	*Limosella longiflora Kuntze*	LC	Herb, hydrophyte
SCROPHULARIACEAE	*Limosella maior Diels*	LC	Herb, hydrophyte
SCROPHULARIACEAE	*Lindernia conferta (Hiern) Philcox*	LC	Epihydate, herb
SCROPHULARIACEAE	*Manulea buchneroides Hilliard & B.L.Burtt*	LC	Herb

Family	Species	Threat status	Growth forms
SCROPHULARIACEAE	*Manulea rhodantha Hilliard subsp. aurantiaca Hilliard*	LC	Herb
SCROPHULARIACEAE	*Mimulus gracilis R.Br.*	LC	Helophyte, herb, hydrophyte
SCROPHULARIACEAE	*Nemesia caerulea Hiern*	LC	Herb
SCROPHULARIACEAE	*Nemesia denticulata (Benth.) Grant ex Fourc.*	LC	Herb
SCROPHULARIACEAE	*Nemesia fruticans (Thunb.) Benth.*	LC	Dwarf shrub, suffrutex
SCROPHULARIACEAE	*Phygelius aequalis Harv. ex Hiern*	LC	Dwarf shrub, herb, shrub
SCROPHULARIACEAE	*Selago capitellata Schltr.*	LC	Herb
SCROPHULARIACEAE	*Selago compacta Rolfe*	LC	Herb
SCROPHULARIACEAE	*Selago cucullata Hilliard*	LC	Herb
SCROPHULARIACEAE	*Selago galpinii Schltr.*	LC	Herb
SCROPHULARIACEAE	*Selago longicalyx Hilliard*	LC	Herb
SCROPHULARIACEAE	*Veronica anagallis-aquatica L.*	LC	Herb, hydrophyte
SCROPHULARIACEAE	*Zaluzianskya distans Hiern*	LC	Herb
SCROPHULARIACEAE	*Zaluzianskya microsiphon (Kuntze) K.Schum.*	LC	Herb
SCROPHULARIACEAE	*Zaluzianskya pulvinata Killick*	LC	Herb
SCROPHULARIACEAE	*Zaluzianskya spathacea (Benth.) Walp.*	LC	Herb
SINOPTERIDACEAE	*Cheilanthes hirta Sw. var. hirta*	LC	Geophyte, herb, lithophyte
SINOPTERIDACEAE	*Cheilanthes quadripinnata (Forssk.) Kuhn*	LC	Geophyte, herb, lithophyte
SINOPTERIDACEAE	*Cheilanthes viridis (Forssk.) Sw. var. glauca (Sim) Schelpe & N.C.Anthony*	LC	Geophyte, herb, lithophyte
SOLANACEAE	*Physalis peruviana L.*	Not Evaluated	Herb, shrub
SOLANACEAE	*Solanum aculeatissimum Jacq.*	LC	Shrub
SOLANACEAE	*Solanum capense L.*	LC	Dwarf shrub, shrub
SOLANACEAE	*Solanum lichtensteinii Willd.*	LC	Dwarf shrub, shrub
SOLANACEAE	*Solanum retroflexum Dunal*	LC	Herb
SOLANACEAE	*Solanum rigescens Jacq.*	Not Evaluated	[No lifeform defined]
SOLANACEAE	*Withania somnifera (L.) Dunal*	LC	Dwarf shrub, herb, shrub
THYMELAEACEAE	*Dais cotinifolia L.*	LC	Tree
THYMELAEACEAE	*Gnidia albosericea Moss ex B.Peterson*	LC	Dwarf shrub, shrub
THYMELAEACEAE	*Gnidia fastigiata Rendle*	LC	Dwarf shrub
THYMELAEACEAE	*Gnidia polyantha Gilg*	LC	Dwarf shrub, shrub
THYMELAEACEAE	*Passerina montana Thoday*	LC	Dwarf shrub, shrub
TYPHACEAE	*Typha capensis (Rohrb.) N.E.Br.*	LC	Herb, hydrophyte, hyperhydate
URTICACEAE	*Laportea peduncularis (Wedd.) Chew subsp. peduncularis*	LC	Herb
VALERIANACEAE	*Valeriana capensis Thunb. var. capensis*	LC	Herb
VELLOZIACEAE	*Xerophyta retinervis Baker*	LC	Herb
VERBENACEAE	*Chascanum latifolium (Harv.) Moldenke var. latifolium*	LC	Herb
VERBENACEAE	*Verbena bonariensis L.*	Not Evaluated	Herb
VITACEAE	*Cyphostemma sandersonii (Harv.) Desc.*	LC	Climber, succulent
VITACEAE	*Rhoicissus revoilii Planch.*	LC	Climber, shrub, tree
WOODSIACEAE	*Athyrium schimperi Moug. ex Fée*	LC	Geophyte, herb
WOODSIACEAE	*Cystopteris fragilis (L.) Bernh. subsp. fragilis*	LC	Geophyte, herb

Family	Species	Threat status	Growth forms
XYRIDACEAE	*Xyris capensis Thunb.*	LC	Helophyte, herb, hydrophyte

APPENDIX B

Vegetation Index Score

Vegetation Index Score – Montane Grassland

1. *EVC=[(EVC1+EVC2)/2]*

EVC 1 - Percentage natural vegetation cover:

Vegetation cover %	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Site score						X
EVC 1 score	0	1	2	3	4	5

EVC2 - Total site disturbance score:

Disturbance score	0	Very Low	Low	Moderately	High	Very High
Site score		X				
EVC 2 score	5	4	3	2	1	0

2. *SI=(SI1+SI2+SI3+SI4)/4)*

	Trees (SI1)		Shrubs (SI2)		Forbs (SI3)		Grasses (SI4)	
Score:	Present State	Perceived Reference State	Present State	Perceived Reference State	Present State	Perceived Reference State	Present State	Perceived Reference State
Continuous							X	X
Clumped			X	X	X	X		
Scattered								
Sparse	X	X						

5. **Present State (P/S) = Currently applicable for each habitat unit**
6. **Perceived Reference State (PRS) = If in pristine condition**
7. Each SI score is determined with reference to the following scoring table of vegetation distribution for present state versus perceived reference state.

8.

	Present state (P/S)			
Perceived Reference state (PRS)	Continuous	Clumped	Scattered	Sparse
Continuous	3	2	1	0
Clumped	2	3	2	1
Scattered	1	2	3	2
Sparse	0	1	2	3

3. *PVC=[(EVC)-(exotic x 0.7) + (bare ground x 0.3)]*

Percentage vegetation cover (exotic):

	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Vegetation cover %		X				
PVC Score	0	1	2	3	4	5

Percentage vegetation cover (bare ground):

	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Vegetation cover %	X					
PVC Score	0	1	2	3	4	5

4. RIS

Extent of indigenous species recruitment	**0**	**Very Low**	**Low**	**Moderate**	**High**	**Very High**
						X
RIS	**0**	**1**	**2**	**3**	**4**	**5**

9. VIS = [(EVC) + (SI x PVC) + (RIS)] = 21

The final VIS scores for each habitat unit are then categorised as follows:

Vegetation Index Score	Assessment Class	Description
22 to 25	**A**	Unmodified, natural
18 to 22	**B**	Largely natural with few modifications.
14 to 18	**C**	Moderately modified
10 to 14	**D**	Largely modified
5 to 10	**E**	The loss of natural habitat extensive
<5	**F**	Modified completely

Vegetation Index Score – Northern Afrotemperate Forest

5. *EVC=[(EVC1+EVC2)/2]*

EVC 1 - Percentage natural vegetation cover:

Vegetation cover %	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Site score						X
EVC 1 score	0	1	2	3	4	5

EVC2 - Total site disturbance score:

Disturbance score	0	Very Low	Low	Moderately	High	Very High
Site score		X				
EVC 2 score	5	4	3	2	1	0

6. *SI=(SI1+SI2+SI3+SI4)/4)*

	Trees (SI1)		Shrubs (SI2)		Forbs (SI3)		Grasses (SI4)	
Score:	Present State	Perceived Reference State	Present State	Perceived Reference State	Present State	Perceived Reference State	Present State	Perceived Reference State
Continuous	X	X						
Clumped			X	X	X	X		
Scattered							X	X
Sparse								

10. **Present State (P/S) = Currently applicable for each habitat unit**
11. **Perceived Reference State (PRS) = If in pristine condition**
12. Each SI score is determined with reference to the following scoring table of vegetation distribution for present state versus perceived reference state.

	Present state (P/S)			
Perceived Reference state (PRS)	Continuous	Clumped	Scattered	Sparse
Continuous	3	2	1	0
Clumped	2	3	2	1
Scattered	1	2	3	2

Sparse	0	1	2	3

13.

7. PVC=[(EVC)-(exotic x 0.7) + (bare ground x 0.3)]

Percentage vegetation cover (exotic):

	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Vegetation cover %		X				
PVC Score	0	1	2	3	4	5

Percentage vegetation cover (bare ground):

	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Vegetation cover %	X					
PVC Score	0	1	2	3	4	5

8. RIS

Extent of indigenous species recruitment	**0**	**Very Low**	**Low**	**Moderate**	**High**	**Very High**
						X
RIS	**0**	**1**	**2**	**3**	**4**	**5**

14. VIS = [(EVC) + (SI x PVC) + (RIS)] = 21

The final VIS scores for each habitat unit are then categorised as follows:

Vegetation Index Score	Assessment Class	Description
22 to 25	**A**	Unmodified, natural
18 to 22	**B**	Largely natural with few modifications.
14 to 18	**C**	Moderately modified
10 to 14	**D**	Largely modified
5 to 10	**E**	The loss of natural habitat extensive
<5	**F**	Modified completely

Vegetation Index Score – Wetland/Riparian Habitat Unit

1. *EVC=[(EVC1+EVC2)/2]*

EVC 1 - Percentage natural vegetation cover:

Vegetation cover %	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Site score						X
EVC 1 score	0	1	2	3	4	5

EVC2 - Total site disturbance score:

Disturbance score	0	Very Low	Low	Moderately	High	Very High
Site score			X			
EVC 2 score	5	4	3	2	1	0

2. *SI=(SI1+SI2+SI3+SI4)/4*

	Trees (SI1)		Shrubs (SI2)		Forbs (SI3)		Grasses (SI4)	
Score:	Present State	Perceived Reference State	Present State	Perceived Reference State	Present State	Perceived Reference State	Present State	Perceived Reference State
Continuous	X	X						
Clumped			X	X	X			X
Scattered						X	X	
Sparse								

15. **Present State (P/S) = Currently applicable for each habitat unit**

16. **Perceived Reference State (PRS) = If in pristine condition**

17. Each SI score is determined with reference to the following scoring table of vegetation distribution for present state versus perceived reference state.

	Present state (P/S)			
Perceived Reference state (PRS)	Continuous	Clumped	Scattered	Sparse
Continuous	3	2	1	0
Clumped	2	3	2	1
Scattered	1	2	3	2

Sparse	0	1	2	3

3. PVC=[(EVC)-(exotic x 0.7) + (bare ground x 0.3)

Percentage vegetation cover (exotic):

	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Vegetation cover %		X				
PVC Score	0	1	2	3	4	5

Percentage vegetation cover (bare ground):

	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Vegetation cover %		X				
PVC Score	0	1	2	3	4	5

4. RIS

Extent of indigenous species recruitment	**0**	**Very Low**	**Low**	**Moderate**	**High**	**Very High**
						X
RIS	**0**	**1**	**2**	**3**	**4**	**5**

18. VIS = [(EVC) + (Si x PVC) + (RIS)] = 18

The final VIS scores for each habitat unit are then categorised as follows:

Vegetation Index Score	Assessment Class	Description
22 to 25	**A**	Unmodified, natural
18 to 22	**B**	Largely natural with few modifications.
14 to 18	**C**	Moderately modified
10 to 14	**D**	Largely modified
5 to 10	**E**	The loss of natural habitat extensive
<5	**F**	Modified completely

Vegetation Index Score – Secondary Grassland Habitat Unit

9. *EVC=[[(EVC1+EVC2)/2]*

EVC 1 - Percentage natural vegetation cover:

Vegetation cover %	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Site score					X	
EVC 1 score	0	1	2	3	4	5

EVC2 - Total site disturbance score:

Disturbance score	0	Very Low	Low	Moderately	High	Very High
Site score			X			
EVC 2 score	5	4	3	2	1	0

10. *SI=(SI1+SI2+SI3+SI4)/4)*

	Trees (SI1)		Shrubs (SI2)		Forbs (SI3)		Grasses (SI4)	
Score:	Present State	Perceived Reference State	Present State	Perceived Reference State	Present State	Perceived Reference State	Present State	Perceived Reference State
Continuous								
Clumped		X	X	X		X		X
Scattered	X				X		X	
Sparse								

Present State (P/S) = Currently applicable for each habitat unit
Perceived Reference State (PRS) = If in pristine condition

Each SI score is determined with reference to the following scoring table of vegetation distribution for present state versus perceived reference state.

	Present state (P/S)			
Perceived Reference state (PRS)	Continuous	Clumped	Scattered	Sparse
Continuous	3	2	1	0
Clumped	2	3	2	1
Scattered	1	2	3	2
Sparse	0	1	2	3

11. *PVC=[(EVC)-((exotic x 0.7) + (bare ground x 0.3))*

Percentage vegetation cover (exotic):

Vegetation cover %	0%	1-5%	6-25%	26-50%	51-75%	76-100%
			X			
PVC Score	0	1	2	3	4	5

Percentage vegetation cover (bare ground):

	0%	1-5%	6-25%	26-50%	51-75%	76-100%
Vegetation cover %			X			
PVC Score	0	1	2	3	4	5

12. RIS

Extent of indigenous species recruitment	**0**	**Very Low**	**Low**	**Moderate**	**High**	**Very High**
				X		
RIS	**0**	**1**	**2**	**3**	**4**	**5**

VIS = [(EVC)+((SIxPVC)+(RIS))] = 15

The final VIS scores for each habitat unit are then categorised as follows:

Vegetation Index Score	Assessment Class	Description
22 to 25	**A**	Unmodified, natural
18 to 22	**B**	Largely natural with few modifications.
14 to 18	**C**	Moderately modified
10 to 14	**D**	Largely modified
5 to 10	**E**	The loss of natural habitat extensive
<5	**F**	Modified completely