ESKOM THUYSPUNT NUCLEAR 400KV INTEGRATION LINES EIA:

1. REVISED NORTHERN ROUTE

ENVIRONMENTAL IMPACT ASSESSMENT: BOTANY

A BARRIE LOW

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EXECUTIVE SUMMARY

A botanical assessment of a proposed transmission line route between Thyspunt and Grassridge/Port Elizabeth was undertaken.

The proposed transmission lines cross three Biomes (natural regions) and 10 vegetation types (VT's). Two VT's are Endangered and one Vulnerable, providing an indication of localised rarity in the area. Two VT's have more than 5% of their total area confined to the proposed routes, whilst several are extremely transformed and fragmented due to urbanisation, agriculture and infestation by alien vegetation. Many of the VT's are extensively and frequently burned, generally for grazing.

The proposed routing needs to be amended to accommodate VT rarity and sensitivity, and to focus on those areas which are already transformed and fragmented.

Impact assessment and mitigation

Impact assessment in this study is influenced by the following factors: presence of rare/endemic vegetation, habitats and species, fragmentation of habitat and height of vegetation with respect to powerlines. Assessment of impacts together with mitigation measures is shown in Table 1.4.

1. Rarity and endemism

HShR is Endangered (Table 1.1 and Figure 1.5 and has a fairly high fragmentation index (5.5 – Table 1.2). Likewise Albany Alluvial Vegetation is Endangered, with a fragmentation index of 2.2. Tsitsikamma Sandstone Fynbos is Vulnerable (Table 1.1 and Figure 1.5), but has an extremely low fragmentation index of 0.4. HShR and AAV are the most impacted due to agricultural activities, particularly cultivation, and this has resulted in large areas been cleared of natural vegetation.

Species rarity and endemicity has been found to be extremely low or nonexistent, suggesting that at a species level impacts will not be significant. Indications are, however, that habitat rarity is high owing to high site distinctiveness and these relaters to fairly high species turnovers and low site similarities (Figures 1.7 to 1.9). Very few sites have a greater than 50 – 60% similarity, with many in the 20 – 30% range (Figure 1.8). Of particular significance is the distinctive signature of Coega Bontveld fynbos which clusters out as a community totally separate from the other fynbos types. Correspondingly Coega Bontveld thicket, although showing a fairly high level of distinctiveness, nevertheless has affinities with both Gamtoos and Sundays Thicket.

Recommendations

The AAV in the east of the route should be crossed where narrowest (Figure 1.4) and if possible be avoided altogether. If Red Data or important endemic species are encountered (see Table 1.3)

2. Loss of natural vegetation

The greatest proportion of original extent of natural vegetation lying within the proposed route is Humansdorp Shale Renosterveld (HSR) (6.9%), followed by Loerie Conglomerate Fynbos (5.6%) and Gamtoos Thicket (3.0%) (Table 1.1).

Recommendations

That natural vegetation in these VT's is avoided where possible, in particular HShR, which is Endangered (Table 1.2). Where possible routing should be undertaken along servitudes which have transformed vegetation (see Figure 1.4), with key areas being north of Thyspunt and near Mondplaas. Intact patches of Southern Afrotemperate Forest and Albany Alluvial Vegetation should also be avoided.

3. Fragmentation of natural systems

Although powerlines potentially can cause mild fragmentation, the mere impact of powerline bases and management to contain high vegetation means fragmentation will occur in some form or another.

Recommendations

To minimise this, only transformed vegetation should be sought for the routing (see above) and, if not possible, then intact pieces of vegetation avoided altogether. It is also recommended that VT's which have suffered the most fragmentation (i.e. with a Fragmentation Index of >5 – see Table 1.2), should also be avoided. These are (with fragmentation index in brackets – see Table 1.2): Gamtoos Thicket (GT) (24.9%), Albany Alluvial Vegetation (9.7%), Tsitsikamma Sandstone Fynbos (6.2%) and Humansdorp Shale Renosterveld (5.5%). Rivers (AAV) should be crossed at their narrowest.

4. Sensitivity

Vegetation type sensitivity is shown in Table 1.2. Sensitivity is greatest for Albany Alluvial Vegetation (Very high), and Southern Temperate Forest and Humansdorp Shale Renosterveld (High) (Table 1.2). What this means is that these vegetation types will show the greatest vulnerability to development, particularly to construction of pylons.

Recommendations

Low sensitivity sites, and to a certain extent, those with moderate sensitivity, do not present too great an obstacle to the routing. However, those with High and Very High rankings should be avoided. These are: all wetland and riparian systems which dissect the route (Table 1.2; Figure 1.4), including AAV. The highly sensitive HShR should also be avoided.

5. Impacts on conservation areas

Although there has been a substantial change to the previous routing to avoid conservation areas, several sites still show cause for concern. These are the Stinkhoutberg Nature Reserve and Hankey Forest Reserve No.1, the Groendal wilderness Area (notably tall thicket) and the Springs Local Authority Nature Reserve (Figure 1.6).

Recommendations

Powerlines should avoid conservation areas, regardless of status.

6. Impacts on tall vegetation

Certain of the VT's in the study area support vegetation in excess of 4 m in height. This is the maximum height vegetation can be permitted to grow under power lines.

Recommendations

Where possible tall vegetation should be avoided. Firstly this presents a management challenge for Eskom as such vegetation will need continued cutting to remain short and unobtrusive. Secondly, lowering of vegetation height will impact ecosystem function and reduce available habitat niches for the resident fauna and flora. It is therefore strongly recommended that tall thicket (GT and ST) and Southern Afrotemperate Forest (SAF) be avoided.

7. Compromising of natural corridors

Natural corridors are located at intervals along the proposed routings.

Recommendations

Where natural corridors such as rivers stand to be compromised, the routes should be amended accordingly. Whilst the argument of power lines having minimal impact on natural systems by virtue of their height and small footprints of the pylons, natural corridors nevertheless will be negatively affected by their construction in a number of ways: these include physical barriers to birds and therefore potential impacts on pollination, general faunal movement, etc., and reducing the height of the resident vegetation on a regular basis.

8. Conclusions

Evaluation of a proposed northern transmission line route between Thyspunt and Grassridge was undertaken using desktop evaluation and botanical assessment in the field. Key findings were that two vegetation types were Endangered and one Vulnerable. However localised species rarity and/or endemism was low or absent. Correspondingly habitat distinctiveness, indicating localised ecosystem rarity. Several vegetation types impact on conservation areas along the route.

Key recommendations are that rare, fragmented and/or sensitive vegetation types should be avoided, as well as tall vegetation >4m high . In this respect, routing should be amended to either avoid such habitats or minimise the identified impacts.

CONTENTS

1. INTRODUCTION

Eskom is planning to construct a nuclear power station at Thuyspunt in the Eastern Cape. The Environmental Impact Assessment (EIA) for this project is reaching completion, and is being facilitated by Arcus Gibb. If this NPS is approved, then 400kV powerlines will need to connect the NPS with substations in the vicinity of Port Elizabeth. SiVest has been appointed by Eskom to undertake the Thyspunt Nuclear Integration 400kV Lines EIA. The EIA is to be conducted for 400 kV line servitudes exiting from the HV yard at the proposed Nuclear Power Station site, Thuyspunt. The servitudes will need to accommodate five 400 kV lines. In addition a new substation site is required in the Port Elizabeth area. Two of the 400kV lines head towards this substation site and a further two 400kV lines are required out of this new substation. This report assesses the proposed routing of transmission lines along a northern route, between Thyspunt and Grassridge, near Port Elizabeth.

Proposed routing of the northern transmission line corridor powerlines, following several iterations in the scoping process, is shown in Figure 1.

Coastec was appointed to undertake the botany EIA and with the following terms of reference:

Terms of Reference

a) Provide information to inform the selection of the preferred route options.
b) Identify, discuss and rate likely botanical impacts along the route.
c) Identify and provide mitigatory measures for each impact, bearing in mind that these might be used in the Site Specific Environmental Management Programme.
d) Identify and address any other aspects related to the botany of the study area.
e) Produce a draft botanical impact assessment report for review by SiVest and a final report following the incorporation of comments.
f) Incorporate the baseline (scoping) assessment as and when necessary.

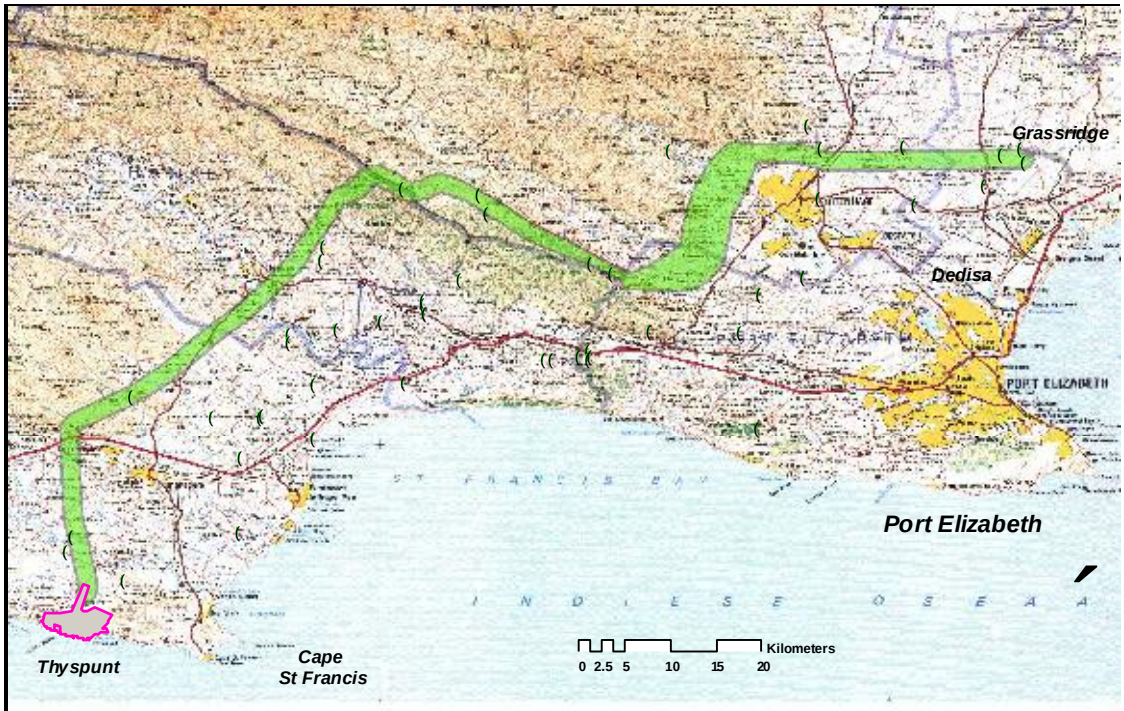


Figure 1.1. Proposed amended northern routing (November 2009) for the Eskom transmission line corridors between Thyspunt and Grassridge/Port Elizabeth. Green circles represent sampling sites

2. APPROACH AND METHODOLOGY

2.1 Site visit

For the initial scoping (baseline) assessment, the general route was visited during the week of 14 to 18 July 2008 and, following amendments to the routing in November 2008, on 4 and 15 February 2009. Amended routes followed in January, February, March, October and November 2009. During the scoping general observations were made of the state of the natural vegetation and natural systems encountered. For the EIA, detailed assessments were made in October 2009 and January 2010.

2.2 Desktop

Using ArcMap, the proposed transmission line routes were overlain on a vegetation map of the area derived from Mucina & Rutherford (2006) and the resultant vegetation types clipped. Threatened status was obtained from the SANBI vegetation layer, derived initially from Rouget et al. (2004). Remnant status of vegetation types was determined by using a modified Cape Floristic Region transformation layer (chiefly agriculture, urbanisation, woody aliens) to establish how much natural vegetation remained and degree of fragmentation.

2.3 Assessment

Desktop: based on the above, vegetation types were assessed for extent transformed, rarity, sensitivity, fragmentation and conservation status. Recommendations for amendments to the routes were made, based upon the desktop assessment and observations during the field two field trips.

Fieldwork: where possible, flora was sampled along or, where access was difficult and therefore time-consuming, adjacent to the proposed routing, ensuring that in the latter case vegetation was the same in terms of general habitat. Detailed plant species lists were made of random 0.1 ha plots in vegetation representative of that occurring along the route in a particular area.

2.4 Databasing

For each site sampled, all species data were entered into the SaSFlora database (SasFlora (1998 – 2010) for later analysis.

2.5 Analysis

Species data were analysed for similarity using the PRIMER statistical package (Clarke and Warwick, 1994). Degree of site distinctiveness was determined from degree of similarity with sites showing less than 50% similarity with the same vegetation type being regarded as distinctive. High distinctiveness correlated with high rarity.

3. FINDINGS

Field observations from the initial scoping field assessment (July 2008 and February 2009) are shown in Appendix 1. Detailed sampling sites are shown in Appendices 2 (October 2009) and 3 (January 2010).

3.1 Description of biomes encountered along route

A map showing the biomes or broad natural regions encountered along the northern route is shown in Figure 1.2. Three biomes – Fynbos, Forest and Albany Thicket (adapted from Low & Rebelo, 1998, and Mucina & Rutherford, 2006) – converge along the route. A fourth azonal type is also found (Mucina & Rutherford, 2006), but the Thicket Biome, indicated in the scoping report (Low, 2009) is now avoided due to amendments made to the initial route. The Albany Thicket Biome becomes more prominent in the east of the study area, particularly in the wide valleys and surrounding hillslopes of the Gamtoos and Sundays Rivers.

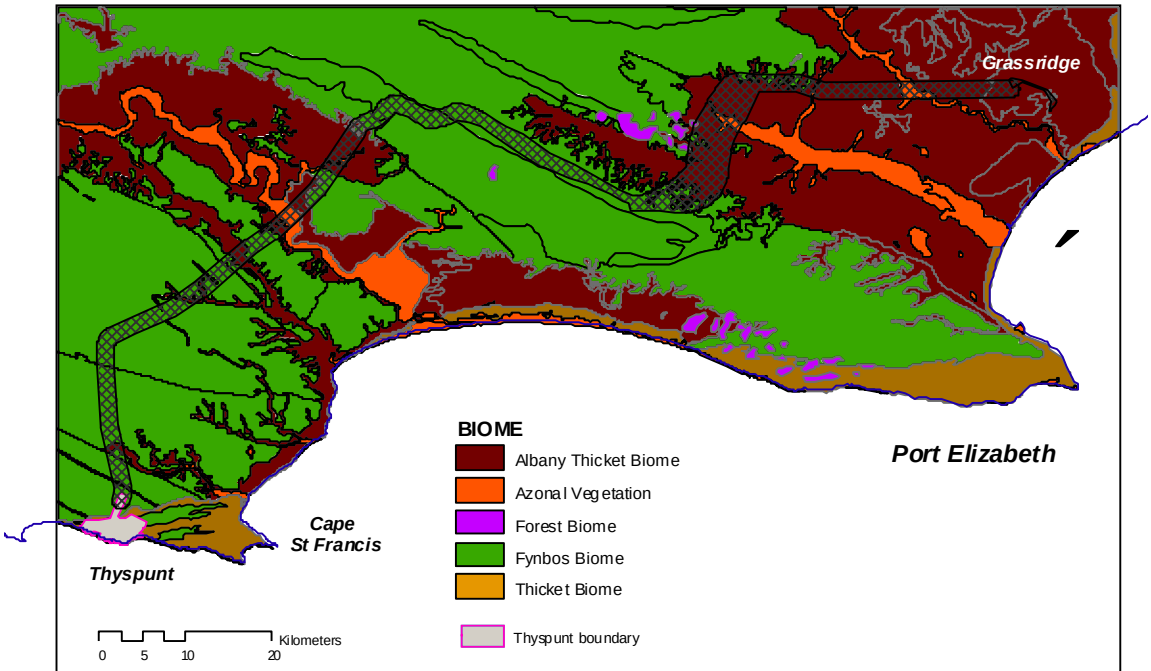


Figure 1.2. Biomes occurring along the proposed Thyspunt transmission lines northern route (November 2009) (after Low & Rebelo, 1998; Mucina & Rutherford, 2006)

3.2 Description of vegetation types and dominant flora along route

Twelve vegetation types were located along the northern route (non-transformed – Figure 1.3) with ten found for the transformed vegetation (Figure 1.4). Descriptions of each type appear in Table 1.1, with accounts of vegetation type rarity, transformation, fragmentation and sensitivity appearing in Table 1.2. Conservation status of vegetation types is shown in Figure 1.5 and Table 1.2, with location of existing conservation areas along the route and immediate environs in Figure 1.6.

3.2.1 Forest Biome

Southern Afrotemperate Forest (SAF)

This vegetation type occurs in small patches within the study area, with most being located in the Groendal Nature Reserve (Figure 1.6). Here it is virtually at its eastern limit of distribution (Mucina & Rutherford, 2006), with odd patches occurring in the west of the study area. This forest type tends to confine itself to mountains and kloofs of the Cape Fold Belt, occupying a range in altitude from the coast to just over 1000 m (Mucina & Rutherford, 2006). Much of this vegetation type is found in the hills and mountains in the north of the study area, for example near Loerie, where tall thicket and forest is found on Kirkwood shales (*sensu* Toerien, 1984). Good quality thicket seems to prefer sandstone outcrops in the shale.

Dominant tall tree species of this multi-layered vegetation type include: *Afrocarpus falcatus* Outeniqua yellowwood, *Cunonia capensis* rooiels, *Curtisia dentata* assegai wood, *Nuxia floribunda* vlieer, *Ocotea bullata* stinkwood, *Olinia ventosa* hardepeer, *Podocarpus elongatus* Breede River yellowwood, *P.latifolius* true yellowwood and *Rapanea melanophloeos* boekenhout.

This vegetation type is Least Threatened (Rouget et al., 2004; Figure 1.5), with 97.3 % remaining and nearly 60% conserved (Table 1.2) in this area, most in the Groendal Wilderness Area.

Southern Afrotemperate Forest under the N2, Van Stadens River

Southern Afrotemperate Forest, Groendal Wilderness Area

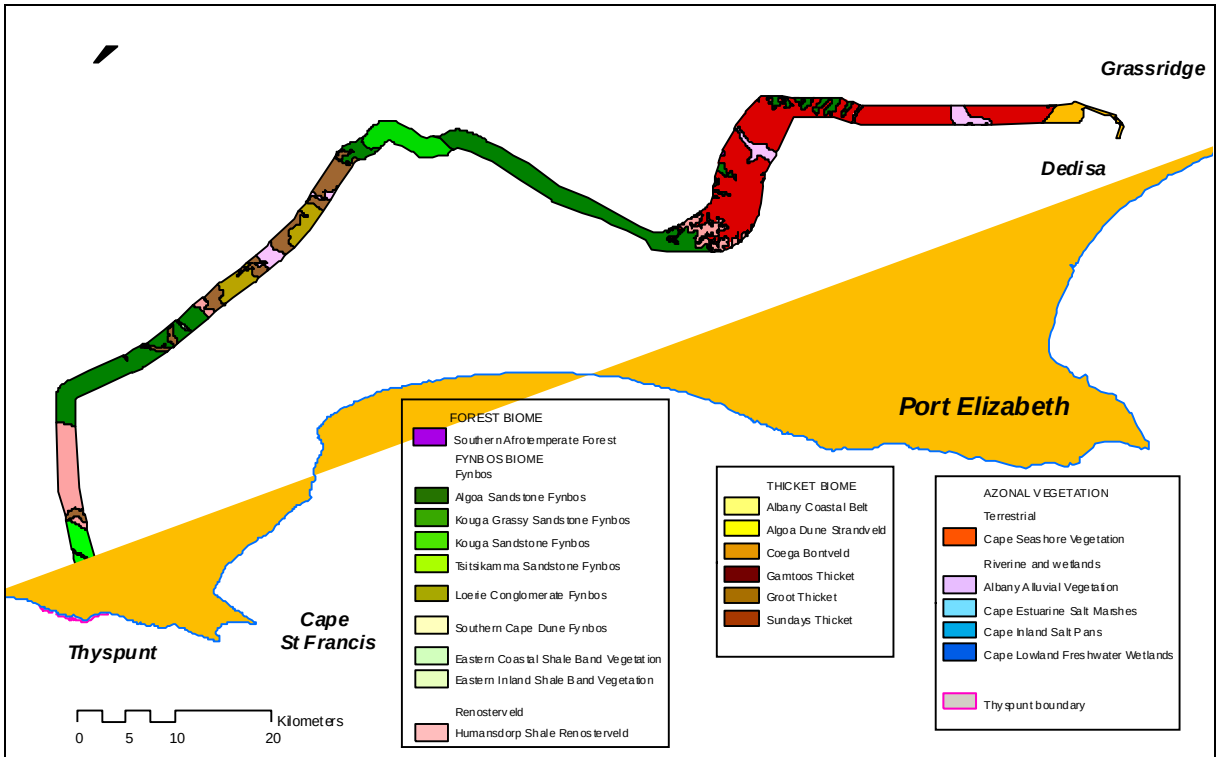


Figure 1.3. Vegetation types (non-transformed) occurring along the proposed Thyspunt northern transmission line route (November 2009) (after Mucina & Rutherford, 2006)

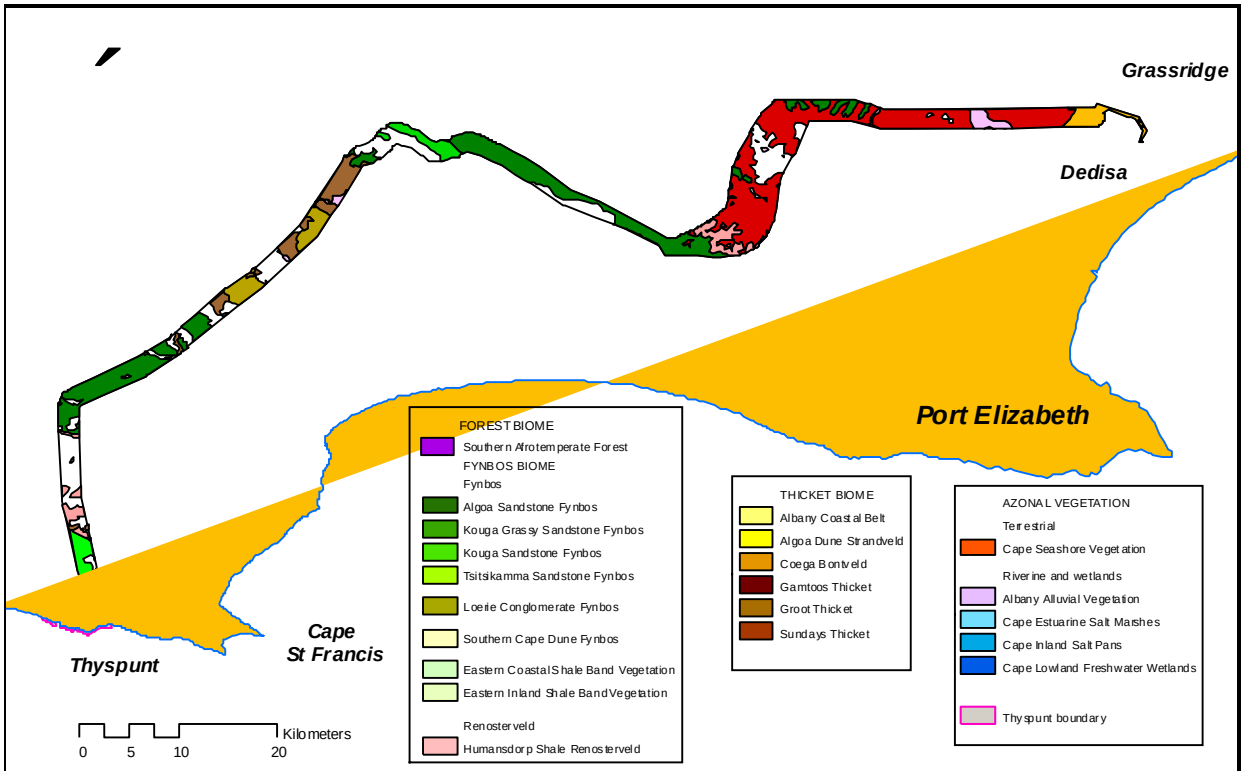


Figure 1.4. Vegetation types (transformed) occurring along the proposed Thyspunt northern transmission line route (November 2009) (after Mucina & Rutherford, 2006)

Table 1.1. Vegetation types occurring along proposed Thyspunt powerline corridor (revised northern route) from the proposed Thuyspunt nuclear power station. Vegetation type data from Mucina & Rutherford (2006); conservation data from Rouget et al., 2004. Certain biomes and vegetation types modified after Low & Rebelo (1998). Endangered VT's in magenta, Vulnerable in yellow

Biome/Vegetation type	Original extent (ha)	Extent remaining (ha)	% remaining	Extent in powerline route	% of original in powerline route
FOREST BIOME					
Southern Afrotemperate Forest	79980	77821	97.3	19	<0.1
FYNBOS BIOME					
Fynbos					
Kouga Grassy Sandstone Fynbos	413666	375195	90.7	8204	2.0
Kouga Sandstone Fynbos	240260	221520	92.2	1529	0.6
Loerie Conglomerate Fynbos	21866	19811	90.6	1214	5.6
Tsitsikamma Sandstone Fynbos	227916	152931	67.1	935	0.4
Renosterveld					
Humansdorp Shale Renosterveld	36662	14152	38.6	2525	6.9

Table 1.1 (contd.)

Biome/Vegetation type	Original extent (ha)	Extent remaining (ha)	% remaining	Extent in powerline routes	% of original in powerline routes
ALBANY THICKET BIOME					
Coega Bontveld	24622	23022	93.5	718	2.9
Gamtoos Thicket	88298	75936	86.0	2612	3.0
Sundays Thicket	523565	494770	94.5	9239	1.8
AZONAL VEGETATION					
Albany Alluvial Vegetation	58399	30006	51.4	1284	2.2

Table 1.2. Assessment of vegetation type rarity, fragmentation and sensitivity along proposed powerline corridor (revised northern route). Rarity (conservation status) data from Rouget et al., 2004). Fragmentation index derived from SANBI & CAPE vegetation/habitat remnant layers. Sensitivity data from Low (2008) and field observations. CFR = Cape Floristic Region

Biome/Vegetation type	% protected	Cons. status	No of fragments (original vegetation) (CFR) (a)	No of fragments (remnant vegetation) (CFR) (b)	Frag. index (b/a)	Sensitivity
FOREST BIOME						
Southern Afrotemperate Forest	59.7	LT	224	310	1.4	High
FYNBOS BIOME						
Fynbos						
Kouga Grassy Sandstone Fynbos	19.1	LT	94	182	1.9	Moderate
Kouga Sandstone Fynbos	40.3	LT	36	76	2.1	Moderate
Loerie Conglomerate Fynbos	11.4	LT	6	18	3.0	Moderate
Tsitsikamma Sandstone Fynbos	40.0	VU	45	278	6.2	Moderate
Renosterveld						
Humansdorp Shale Renosterveld	0.0	EN	22	122	5.5	High

Table 1.2 (contd.)

Biome/Vegetation type	% protected	Cons. status	No of fragments (original vegetation) (CFR) (a)	No of fragments (remnant vegetation) (CFR) (b)	Frag. index (b/a)	Sensitivity
THICKET (including Albany Thicket)						
Coega Bontveld	10.2	LT	12	22	1.8	Moderate
Gamtoos Thicket	6.1	LT	7	174	24.9	Low
Sundays Thicket	20.0	LT	14	59	4.2	Low
AZONAL						
Wetlands						
Albany Alluvial Vegetation	5.9	EN	18	174	9.7	Very high

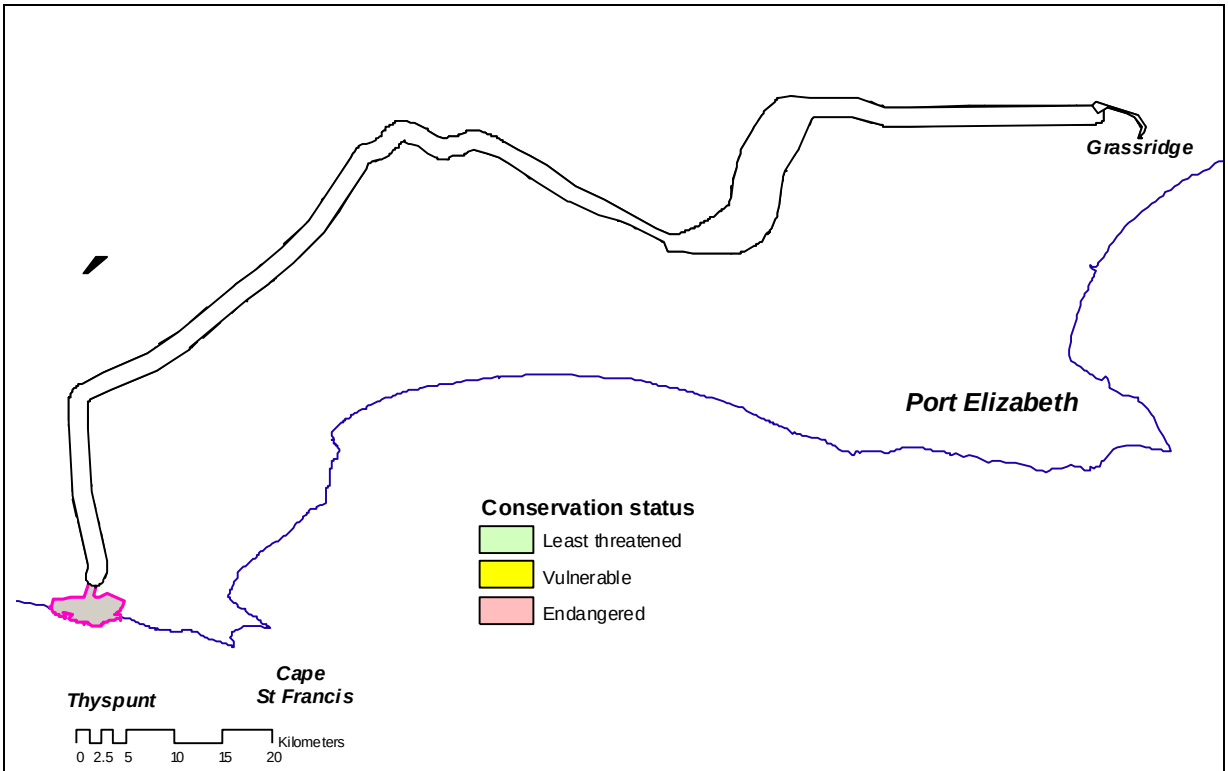


Figure 1.5. Conservation status of vegetation types occurring along the proposed Thyspunt powerline northern route (after Rouget et al., 2004; Mucina & Rutherford, 2006)

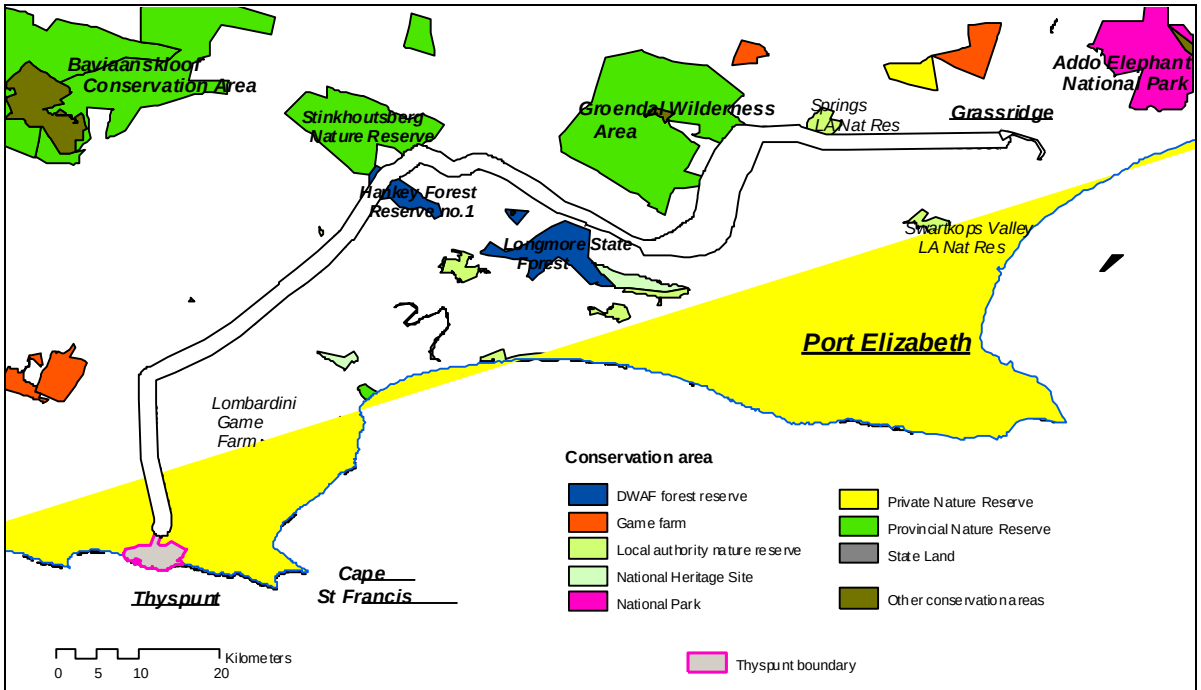


Figure 1.6. Conservation areas occurring along the proposed Thyspunt transmission line northern route (after data supplied by Andrew Skowno of ECOSOL GIS).

3.2.2 Fynbos

Fynbos

Kouga Grassy Sandstone Fynbos (KGSF)

Located between Uniondale and Uitenhage, this vegetation type (Figure 1.3) is found on sandstones of several mountain ranges in the area, including the Kouga, Baviaanskloof, Groot Winterhoek and Elandsberge, the latter two occurring along the northern route of the transmission lines. As its name suggests, this fynbos type, whilst shrubby in nature, has a high cover of grasses, much of its cover being found on Peninsula Formation sandstone (*sensu* Toerien, 1984), but with dense pine and eucalyptus infestation, for example at Syferfontein. However, fynbos shows good recovery where aliens are removed from firebreaks. Dense alien infestations are also found along the Melkhoutboom-Uitenhage Road, on Ceres Subgroup shales.

Dominant species include: *Agathosma mucronulata*, *Aloe ferox* tapaalwyn, *Aspalathus nivea*, *Cannomois virgata* besemkanet, *Clutia alaternoides*, *Cymbopogon marginatus* turpentine grass, *Disparago ericoides* basterslangbos, *Dodonaea viscosa* var. *angustifolia* sandolien, *Erica pectinifolia*, *Gazania krebsiana* gousblom, *Helichrysum teretifolium*, *Heteropogon contortus* pylgras, *Ischyrolepis gaudichaudiana*, *Leucadendron salignum* sunshine bush, *Leucospermum cuneiforme* gewoneluisiesbos, *Merxmuellera stricta* bokbaardgras, *Passerina obtusifolia*, *Pentaschistis pallida* haasgras, *Phylica axillaris*, *Protea* nitida waboom, *Rhodocoma fruticosa* kanet, *Seriphium plumosum* slangbos, *Thamnochortus fruticosus* besemriet, *Themeda triandra* rooigras and *Watsonia meriana* rooikanol (Mucina & Rutherford, 2006).

Most of this vegetation type remains untransformed (Table 1.1), with its conservation status that of Least Threatened (Rouget et al., 2004). 19.1% is formally protected (Table 1.2).

Kouga Grassy Sandstone Fynbos. The vegetation of most of the study area was burnt some 5 – 7 years previously, so that sampling had to be undertaken in relatively immature veld.

Leucospermum cuneiforme gewoneluisiesbos at Site KGSt4, near

Kouga Sandstone Fynbos (KSF)

As its name suggests, much of this vegetation type (Figure 1.3) is found on the Kouga Mountains, north-west of Port Elizabeth, although it does venture into the Baviaanskloof and Winterberg ranges. This is non-grassy fynbos, with three strata.

Dominant species include: *Euryops virgineus* rivierharpuisbos, *Leucadendron comosum, L.eucalyptifolium* grootgeelbos, *Protea mundii* witsuikerbos, *P.neriifolia* blousuikerbos, *P.nitida* waboom, *P.repens* suikerbos and *Rhus lucida* blinktaaibos (Mucina & Rutherford, 2006).

Some 92.2 % remains, with a conservations status of Least Threatened (Figure 1.5) and about 40% protected (Tables 1.1 & 1.2).

Kouga Sandstone Fynbos on the Vanstadensberge, looking south-eastwards. Young vegetation (5 – 7 years)

Kouga Sandstone Fynbos on the Elandsberge in the north of the area. Site KStF4, showing young but rare veld.

Leucadendron loeriense Loerie conebush, a regional endemic confined to the mountains between the Baviaanskloof and Elandsberge. As an obligate seed regenerator, it is threatened by high fire frequency. Woody aliens, particularly pines, have also reduced the size of its populations.

Young Kouga Sandtone Fynbos veld on the edge of the Longmore State Forest (see pine plantations in distance). Note emergent *Protea neriifolia* blousuikerbos

The coastal form is Endangered (Figure 1.5) with only about 35% remaining, whereas the inland shale band is Least Threatened (Figure 1.5) with some 93 % left (Tables 1.1 & 1.2). 16.1 and 37.9% respectively is protected (Table 1.1)

Loerie Conglomerate Fynbos (LCF)

This is a fairy localised vegetation type, being confined to both sides of the Gamtoos River valley and found in the west of the northern route (Figure 1.3). It reaches some 34 km inland from the coast and is some 20 km wide. This is a low, grassy form of fynbos, with the occasional emergent shrub (Mucina & Rutherford, 2006). Soils can become quite clayey, a reflection of the localised deposition of mudstones (Toerien, 1984). Elsewhere conglomerate grades into alluvial gravels nearer the Gamtoos River.

Dominant species include: *Aristida junciformis* wire grass, *Aspalathus nivea*, *Cliffortia ruscifolia* climber's friend, *Cymbopogon marginatus* turpentine grass, *Dicerothamnus rhinocerotis* renosterbos, *Dodonaea viscosa* var. *angustifolia* sandolien, *Helichrysum odoratissimum* kooigoed, *Ischyrolepis gaudichaudiana*, *Leucadendron salignum* sunshine bush, *Passerina obtusifolia*, *Protea nitida* waboom, *Sporobolus africanus* taaipol and *Tetraria cuspidata* (Mucina & Rutherford, 2006).

90.6% of this Least Threatened vegetation type (Figure 1.5) remains (Rouget et al., 2004), with about 11% in formal conservation areas (Tables 1.1 & 1.2).

Loerie Conglomerate Fynbos in the west of the study area. Note short vegetation from frequent burning

Young Loerie Conglomerate Fynbos above Loerie Dam (Site LCF4)

The spring-flowering orchid, *Satyrium membranaceum,* in Loerie Conglomerate Fynbos at Site LCF 4

Tsitsikamma Sandstone Fynbos (TSF)

This vegetation type just enters the western part of the northern corridor, occupying the sandstone flats just north of the Thyspunt site (Figure 1.3). Most of this habitat is severely burned, probably to maximise grazing (pers.obs.), so that very few emergent species are visible. Although Mucina & Rutherford (2006) remark on the wet nature of this system, the communities in the extreme east of the vegetation type are much drier (pers.obs.), dominated by proteoids and ericoid-leaved shrubs, as well as graminoids (grasses, sedges and restios).

Dominant species include: *Cliffortia serpyllifolia, Erica discolor, E.sparsa* ker-ker, *Leucadendron conicum, Leucadendron eucalyptifolium* grootgeelbos, *Restio triticeus* besemgoed, Tetraria c*apillac*ea and *Ursinia scariosa* (Mucina & Rutherford, 2006).

Much of this vegetation type (32.9% - see Table 1.1) has been transformed by pine plantations (Mucina & Rutherford, 2006) which give it a Vulnerable conservation status (Table 1.2; Figure 1.5). However a significant proportion (40%) is protected (Table 1.2).

Relatively old protea veld. This was a rare older stand (Site TSISF2), with most areas having been burnet some seven years previously.

Tsitsikamma Sandstone Fynbos at Site TSISf1, north of Thyspunt. Note low vegetation and emergent *Protea neriifolia* blousuikerbos, the dominant protea in the area (see close-up, below)

Protea neriifolia blousuikerbos at Site TSISF1

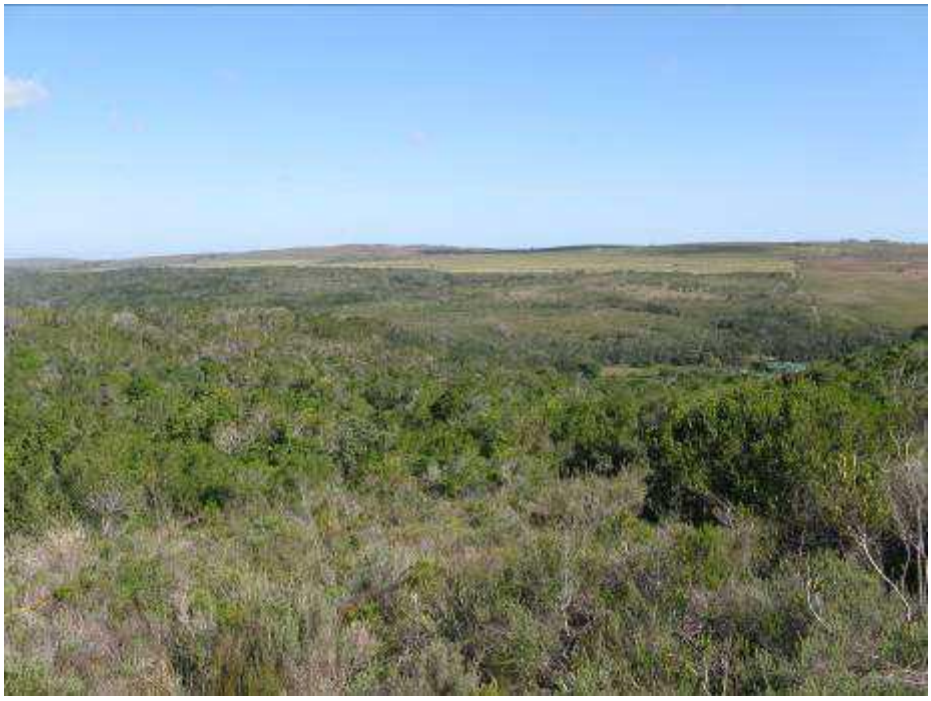
Renosterveld

Humansdorp Shale Renosterveld (HSR)

This is the only form of renosterveld vegetation which would be crossed by the powerline routes, and occurs in the study area from north of Cape St Francis to the Gamtoos River (Mucina & Rutherford, 2006; Figure 1.3). The habitat overlies Bokkeveld Group shales (Toerien, 1984) which produce soils of greater fertility than that of the neighbouring sandstones. Ferricretes are found locally. The habitat is severely degraded through extensive and frequent burning, as well as heavy grazing. Vegetation comprises a dense graminoid and cupressoid-leaved shrubland, dominated by *Dicerothamnus rhinocerotis* renosterbos. As is typical of renosterveld, Proteaceae, Ericaceae and Restionaceae tend to be conspicuous by their absence.

Dominant species include: *Dicerothamnus rhinocerotis* renosterbos, *Eustachys paspaloides* bruinhoenderspoor, *Helichrysum anomalum*, *Oedera genistifolia* kleinperdekaroo and *Themeda triandra* rooigras (Mucina & Rutherford, 2006). Thicket clumps can be found in this vegetation type, occasionally forming a mosaic with renosterveld. *Kniphofia citrina* red hot poker and the widespread *Erica glandulosa* occupy streamlines dissecting the area. *Opuntia* cactus is highly invasive in places.

Because of the fertile nature of the soils, this vegetation type has understandably been heavily used for agriculture with some 61% having been transformed for cultivation (Rouget et al., 2004; Table 1.1). Although this gives it an Endangered conservation status (Rouget et al., 2004; Figure 1.5), it nevertheless has the greatest representation (41.8%) of any of the vegetation types encountered in the study (Table 1.1), although none is formally protected (Table 1.2).



Humansdorp Shale Renosterveld (Site HShR1) grading into medium height thicket

Dense Humansdorp Shale Renosterveld in the south-west of study area; patches of thicket clearly visible. Renosterveld and thicket share several species

3.2.3 Albany Thicket

Coega Bontveld (CB)

Encountered in the extreme east of the study area, near Uitenhage (Figure 1.3), this vegetation type is a unique mix of thicket and fynbos elements (pers.obs.). Located on calcrete, the low grassy fynbos habitat (<0.5m) is interposed with bush clumps (>2m) which have an association with valley thicket (Mucina & Rutherford, 2006; and *sensu* Low & Rebelo, 1998).

Dominant species include: *Aristida diffusa* besemsteekgras, *Crassula expansa* strepiescrassula, *Cynodon dactylon* fine quick, *C.incompletus* soetkweek, *Euclea undulata* gewoneghwarrie, *Helichrysum anomalum*, *Heteropogon contortus* pylgras, *Jamesbrittenia microphylla*, *Merxmuellera disticha* koperdraad, *Ruschia hamata* and *Tephrosia capensis* (Mucina & Rutherford, 2006).

Some 10% of this Least Threatened vegetation type (Table 1.2; Figure 1.5) is protected, mainly in the Addo Elephant Park (Mucina & Rutherford, 2006). Most (93.5 % - Table 1.1) remains (Rouget et al., 2004).

Coega Bontveld in north-east of study area, near Grassridge. Mosaic of thicket (in distance) and low fynbos on calcrete. Vegetation locally degraded with heavy grazing by cattle

Trichodiadema bulbosum a prominent vygie found at site CB2.

Thicket clump of about 2.5 m at Site CB2. Note the abrupt transition from low fynbos (foreground) to thicket.

Gamtoos Thicket (GT)

As its name suggests, this vegetation type is located, among other, on either side of the Gamtoos River, stretching from a narrow (30 km) band along the coast, between the Krom and Gamtoos Rivers, and in the study area, inland to the Baviaanskloofberge (Figure 1.3). This tall, dense, relatively unstratified thicket, contains both trees and shrubs, as well as succulents (Mucina & Rutherford, 2006) and is well-represented from the Swartkops River eastwards, on Enon and Kirkwood shales (*sensu* Toerien, 1984). Good quality tall thicket is found on shales and on what appears to be clay-rich aeolianite towards the east of the study area.

Dominant species include: *Capparis sepiaria* Cape caper, *Ehrharta calycina* rooigras, E.erecta, *Euphorbia triangularis* riviernaboom, *Felicia muricata* taaibloublommetjie, *Hypoestes aristata* seeroogblommetjie, *Panicum deustum* rietbuffelsgras, *Portulacaria afra* spekboom, *Rhoicissus digitata* wild grape and *Setaria sphacelata* kanariegras (Mucina & Rutherford, 2006).

This vegetation type is fairly extensive, covering some 88 300 ha. Of this, 14% has been transformed, mainly for cultivation (Mucina & Rutherford, 2006; Table 1.1). Gamtoos Thicket is Least Threatened (Rouget et al., 2004; Figure 1.5), with some 6.1 % conserved (Table 1.2).

Tall Gamtoos Thicket just east of the Gamtoos River. Note location of powerlines and supports and the need to control vegetation height. Emergent tree is *Euphorbia triangularis* riviernaboom and grows to over 6 m tall

Diospyros lycioides, swartbos, a common medium-sized shrub in Eastern Cape thicket

Gamtoos Thicket on Maridadi Farm (Site near to the Gamtoos River. Note tall (4 m) *Euphorbia triangularis* riviernaboom in area cleared for powerlines

Gamtoos Thicket at edge of farmland at Kleinrivier. Note abrupt edge (cleared for farming) but mature, tall thicket (>5 m) tall) with emergent *Euphorbia triangularis* riviernaboom

3.2.4 Sundays Thicket (ST)

This vegetation type has most of its extent situated east and north-east of Port Elizabeth, towards the Zuurberg Mountains (see Figure 1.3 for occurrence in the northern route). Vegetation is a true, tall, dense thicket, with co-dominance of trees, shrubs and succulents, and is heavily spinescent. In the east of the route, between Grassridge and Port Elizabeth, this thicket becomes fairly fragmented, and often occurs on sandstone. Locally introduced acacia infestations are found on shale.

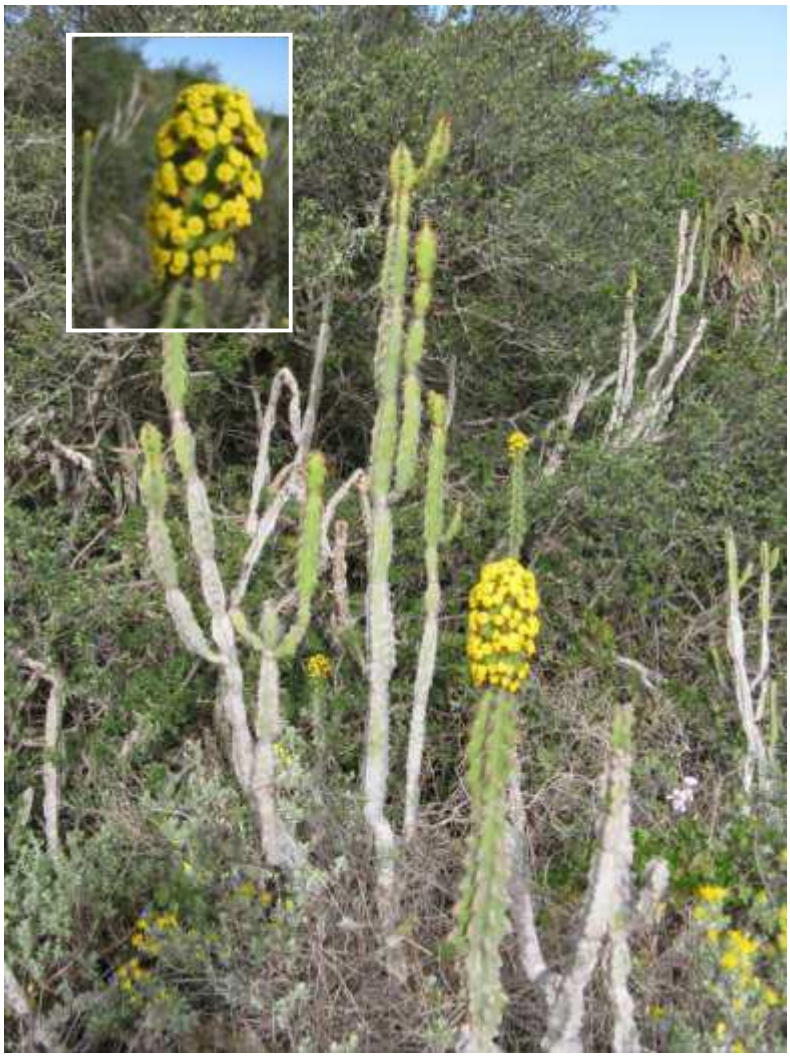
Dominant species include: *Aloe africana* Uitenhaagse-aalwyn, *Aristida adscensionis*, *A.congesta* katstertsteekgras, *Bulbine frutescens* rankkopieva, *Cynodon dactylon* fine quick, *C.incompletus* soetkweek, *Drimia intricata* volstruiskos, *Euclea undulata* gewoneghwarrie, *Euphorbia caerulescens* noors, *E.ledenii* suurnoors, *Olea europaea* subsp. *africana* wild olive, *Panicum maximum* purple-top buffalo, *Pappea capensis* jacket plum, *Pelargonium peltatum* ivy-leaved pelargonium, *Pentzia globosa* bitterkaroo, *Portulacaria afra* spekboom, *Schotia afra* boerboon, *Senecio radicans* bobbejaantoontjies and *Tragus bertonianus* kousklits (Mucina & Rutherford, 2006).

Only some 5.5% of this vegetation type has been transformed (Rouget et al., 2004; Table 1.1), mainly through grazing by livestock (Mucina & Rutherford, 2006). Its conservations status is Least Threatened (Figure 5) and 9.0% is formally protected (Table 1.2).

Sundays Thicket on outskirts of Port Elizabeth in central east of study area

Ehretia rigida Cape lilac, a common shrub to small tree in Sundays Thicket but occurring in many Eastern Cape thicket habitats

Maerua caffra wildeboshout in Sundays Thicket



Euphorbia ledienii noorsdoring, a common spinescent member of Sundays Thicket

3.2.4 Azonal vegetation

Terrestrial

Albany Alluvial Vegetation (AAV)

This unit could quite conceivably have been placed within a thicket category, given the vegetation is riverine thicket and thornveld (Mucina & Rutherford, 2006). Although distributed between Cape St Francis and East London, in the study area this vegetation type is confined to the Krom, Gamtoos, Swartkops and Coega Rivers. Locally this vegetation type has been cleared and heavily impacted by farming activity. Where natural vegetation is found, there appears to be a gradation from thicket to forest

Dominant species include: *Acacia natalitia* sweet thorn, *Cynodon dactylon* fine quick, *Cyperus papyrus*, *Pentzia incana* skaapkaroo, *Phragmites australis* fluitjiesriet, *Salix mucronata* cape willow, *Schotia afra* boerboon and *Sporobolus nitens* (Mucina & Rutherford, 2006).

This is an Endangered vegetation type (Rouget et al., 2004; Figure 1.5 & Table 1.2), by virtue of the fact that more than half its area has been transformed by cultivation, urban development and plantations (Mucina & Rutherford, 2006; Table 1.1). Only about 6% is formally protected (Table 1.2).

Albany Alluvial Vegetation on the Gamtoos River floodplain. This vegetation type is Endangered due to farming and other practices

Degraded Albany Alluvial Vegetation along lower Coega River. Note dominance of *Acacia karroo* soetdoring on both banks

Albany Alluvial Vegetation along the left bank of the lower Loerie River, just above the confluence with the Gamtoos River. Note dominance of *Acacia karroo* soetdoring (taller species) and *Gymnosporia buxifolia* pendoring. Area to the left of the thicket has been cleared for agriculture

3.3 Analysis of flora

3.3.1 Red list species and endemics

Plant species lists for individual sites, together with composites for vegetation types, appear in Appendix 1.4. Total number of species for each site appears in Table 1.3. Mean species numbers for 0.1 ha plots vary from 34 for Albany Alluvial Thicket and Albany Coastal Belt Vegetation, to 55 for Humansdorp Shale Renosterveld and 58 for Coega Bontveld fynbos, demonstrating there is considerable range in species richness across the sites studied. Despite this, standard deviations are so high that there is no distinction at 5% significance amongst sites. None of the sites displays remarkable rarity with only a few supporting one Red Data list species (Table 1.3). Likewise, there are no or only one endemic species per site, indicating that endemism is also not a key factor in the flora evaluated.

3.3.2 Floristic analysis

Of greater interest, however, is the floristic analysis. Analyses were run at several levels. Firstly, using combined species lists from individual vegetation types (Appendix ???), sites cluster into Fynbos, (fynbos and renosterveld), and thicket and forest biomes (Figure 1.7. The azonal attributes accorded Albany Alluvial Vegetation and Coega Bontveld by Mucina & Rutherford (2006) are clearly incorrect. The classification of Albany Coastal Belt is also unsure (Mucina & Rutherford (2006) have this as Albany Thicket) as in Figure 1.7 it clusters with the two forest types assessed. Except for Gamtoos and Sundays Thicket (>60% similarity), all other vegetation types are separated at around 20 – 50%. If individual sites are analysed (Figures 1.8 & 1.9), it would appear that individual sites do not necessarily group under the respective vegetation types, indicating there to be much variation across a vegetation type and a likely high species turnover within and between vegetation types.

It is difficult to test species turnovers by distance. However, there is an indication that greatest turnovers (lowest similarities with distance) are for Kouga Grassy Sandstone Fynbos and Humansdorp Shale Renosterveld, and lowest for Tsitsikamma Sandstone Fynbos. A linear relationship was found between distance and similarity for Tsitsikamma Sandstone Fynbos suggesting that habitats change with distance. This is a significant feature of fynbos, with figures as great as 60% over 25 km for the south-western Cape mountains (Kruger & Taylor, 1979). Vegetation types with the greatest species (and therefore habitat differentiation) with increasing distance) should therefore be viewed with greater caution when considering any impacts. Lack of habitat similarity is also borne out in Figure 1.7 where similarities within vegetation types are generally below 50 – 60% and sometimes as low as 20 – 30%.

Table 1.3. Numbers of species occurring in each site			
Site	**No. species**	**No. endemics recorded in study/endemism ranking[1]**	**No. Red Data species/RD ranking [2]**
FOREST			
SOUTHERN AFROTEMPERATE FOREST			
STFo1	40	0/M	0/L
STFo2	63	0/M	1/L
SOUTHERN COASTAL FOREST			
SCF1	41	0/L	0/L
FYNBOS			
ALGOA SANDSTONE FYNBOS			
AStF1	29	0/L	0/L
AStF2	36	0/L	1/L
KOUGA GRASSY SANDSTONE FYNBOS			
KGStF1	53	0/H	0/L
KGStF2	47	0/H	0/L
KGStF3	49	0/H	0/L
KGStF4	55	0/H	0/L
KGStF5	45	0/H	0/L
KGStF6	18	0/H	0/L
KGStF7	27	0/H	0/L
KOUGA SANDSTONE FYNBOS			
KStF1	57	0/H	0/L
KStF2	22	0/H	0/L
KStF3	30	0/H	0/L
KStF4	27	0/H	0/L
KStF5	32	0/H	0/L

Table 1.3 (contd.)			
Site	**No. species**	**No. endemics recorded in study/endemism ranking[1]**	**No. Red Data species/RD ranking [2]**
LOERIE CONGLOMERATE FYNBOS			
LCF1	37	0/H	0/L
LCF2	34	0/H	1/L
LCF3	65	0/H	0/L
LCF4	51	0/H	0/L
LCF5	51	0/H	0/L
LCF6	32	0/H	1/L
TSITSIKAMMA SANDSTONE FYNBOS			
TSIStF1	41	0/M	0/L
TSIStF2	40	0/M	0/L
TSIStF3	46	0/M	0/L
RENOSTERVELD			
HUMANSDORP SHALE RENOSTERVELD			
HShR1	52	0/L	0/L
HShR2	61	0/L	0/L
HShR3	64	0/L	1/L
HShR4	28	0/L	0/L
HShR5	68	0/L	0/L
THICKET			
ALBANY COASTAL BELT (GRASSLAND/THICKET) (also Ecotonal)			
GRASSLAND			
ACBG1	34	0/L	0/L
THICKET			
ACBT1	44	0/L	0/L

Table 1.3 (contd.)			
Site	**No. species**	**No. endemics recorded in study/endemism ranking[1]**	**No. Red Data species/RD ranking [2]**
COEGA BONTVELD (FYNBOS/THICKET) (also ecotonal)			
FYNBOS			
CB1	51	0/L	0/L
CB2	64	1/L	1/L
THICKET			
CB1	20	0/L	0/L
CB2	25	0/L	0/L
GAMTOOS THICKET			
GT1	44	0/L	0/L
GT2	55	0/L	0/L
GT3	59	0/L	0/L
GT4	59	0/L	0/L
GT5	42	0/L	0/L
GT6	44	0/L	0/L
SUNDAYS THICKET			
ST1	42	0/H	0/L
ST2	39	0/H	0/L
ST3	65	0/H	0/L
ST4	43	0/H	0/L
ST5	42	0/H	0/L

Table 1.3 (contd.)			
Site	**No. species**	**No. endemics recorded in study/endemism ranking[1]**	**No. Red Data species/RD ranking [2]**
AZONAL			
WETLANDS			
ALBANY ALLUVIAL VEGETATION (THICKET)			
AAV1	19	0/L (no endemics recorded)	0/L
AAV2	39	0/L	0/L
AAV3	45	0/L	0/L

[1] Species from Mucina & Rutherford (2006); ranking based upon proportion of endemics in vegetation type (L – low, M = moderate; H = high)

[2] From Raimondo et al. (2009); RD ranking based upon proportion of RD species in VT, as for endemics

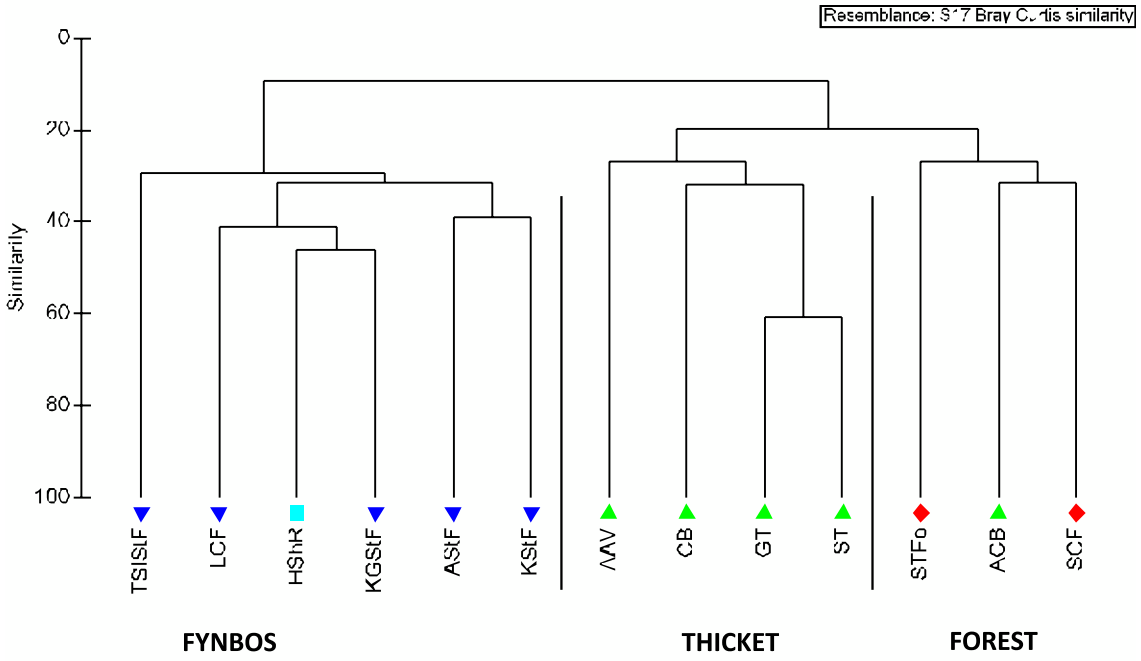


Figure 1.7. Cluster analysis of composite (vegetation type) species lists from the study area. Grouping into Fynbos, Thicket and Forest Biomes clearly evident. Note that ACB groups with forest rather than thicket as suggested in the text. In addition AAV is a thicket type and not azonal. Abbreviations as per Figure 1.9

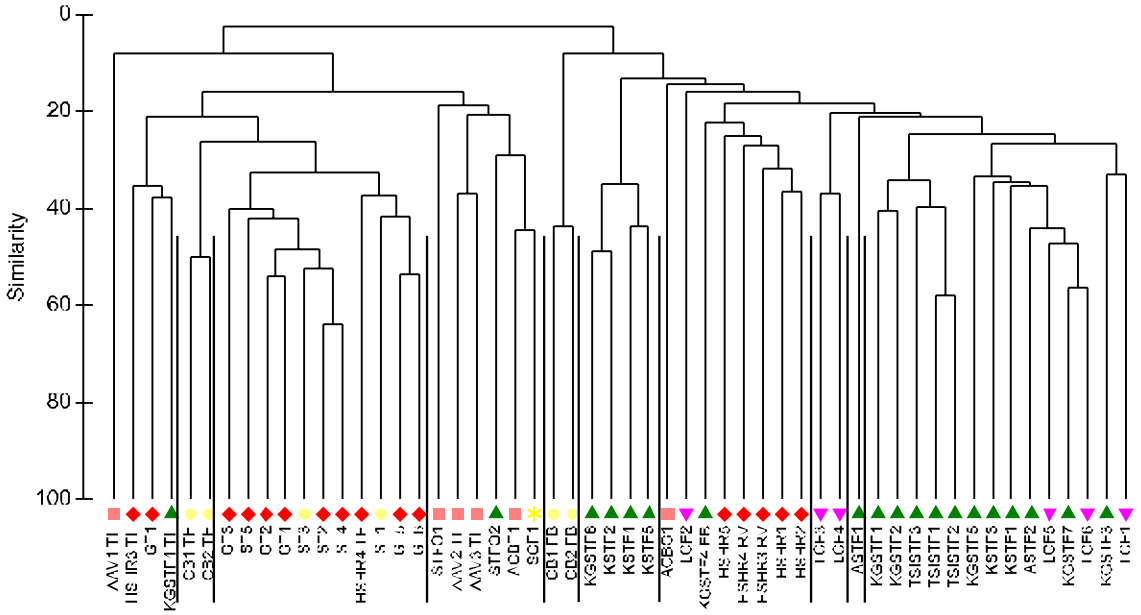


Figure 1.8. Cluster analysis of site floras from the study area. Main divisions designated with a black line. Note general clustering into forest, thicket and fynbos. Of particular note is marked site distinctiveness at 30 – 50% similarity indicating high site rarity despite general low rarity in vegetation types. AAV = Albany Alluvial Vegetation; ACB = Albany Coastal Belt; ASTF = Algoa Sandstone Fynbos; CB = Coega Bontveld; GT = Gamtoos Thicket; HShR = Humansdorp Shale Renosterveld; KGStF = Kouga Grassy Sandstone Fynbos; KStF = Kouga Sandstone Fynbos; LCF = Loerie Conglomerate Fynbos; SCF = Southern Coastal Forest; STFo = Southern Afrotemperate Forest; ST = Sundays Thicket; TSIStF = Tsitsikamma Sandstone Fynbos; TH = thicket

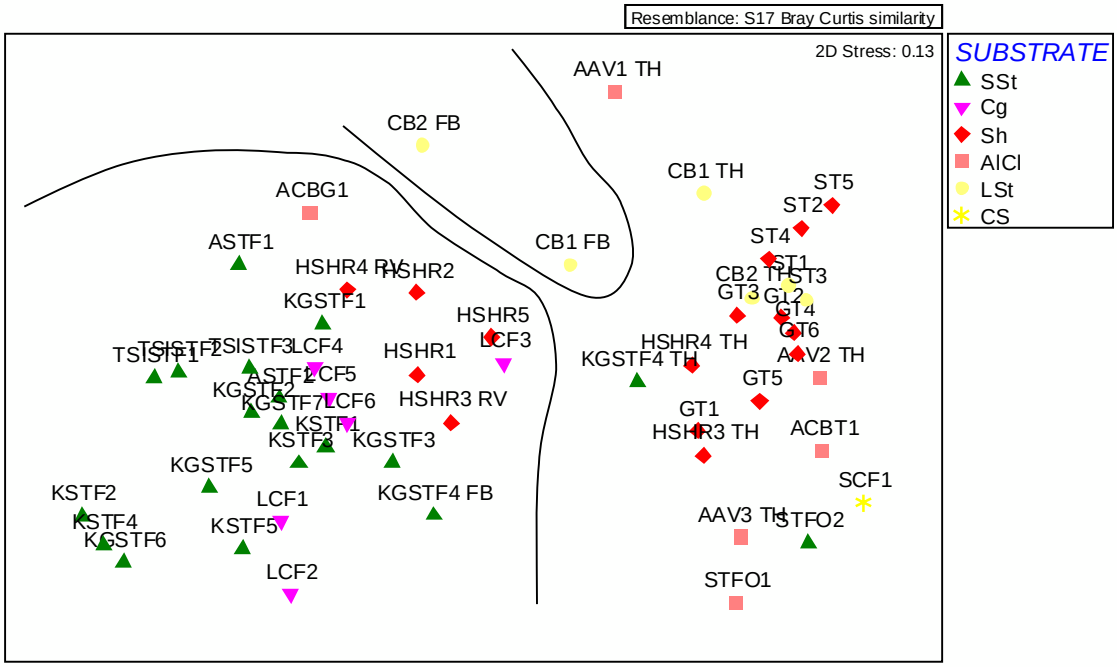


Figure 1.9. MDS analysis of site floras showing grouping into fynbos and thicket/forest. Distinctiveness of Coega Bontveld fynbos clear. Abbreviations as per Figure 1.7. The role of substrate is also apparent, with fynbos dominating on sandstone and conglomerate, and renosterveld on shale. Forest and thicket are found on a variety of substrates, generally clays and loams from shale and alluvium. AlCl = alluvial clay; Cg = conglomerate; CS = calcareous sand; LSt = limestone; Sh = shale; SSt = sandstone;

4. IMPACT ASSESSMENT AND MITIGATION

Impact assessment in this study is influenced by the following factors: presence of rare/endemic vegetation, habitats and species, fragmentation of habitat and height of vegetation with respect to powerlines. Assessment of impacts together with mitigation measures is shown in Table 1.4.

4.1 Rarity and endemism

HShR is Endangered (Table 1.1 and Figure 1.5 and has a fairly high fragmentation index (5.5 – Table 1.2). Likewise Albany Alluvial Vegetation is Endangered, with a fragmentation index of 2.2. Tsitsikamma Sandstone Fynbos is Vulnerable (Table 1.1 and Figure 1.5), but has an extremely low fragmentation index of 0.4. HShR and AAV are the most impacted due to agricultural activities, particularly cultivation, and this has resulted ion large areas been cleared of natural vegetation.

Species rarity and endemicity has been found to be extremely low or nonexistent, suggesting that at a species level impacts will not be significant. Indications are, however, that habitat rarity is high owing to high site distinctiveness and these relaters to fairly high species turnovers and low site similarities (Figures 1.7 to 1.9). Very few sites have a greater than 50 – 60% similarity, with many in the 20 – 30% range (Figure 1.8). Of particular significance is the distinctive signature of Coega Bontveld fynbos which clusters out as a community totally separate from the other fynbos types. Correspondingly Coega Bontveld thicket, although showing a fairly high level of distinctiveness, nevertheless has affinities with both Gamtoos and Sundays Thicket.

Recommendations

The AAV in the east of the route should be crossed where narrowest (Figure 1.4) and if possible be avoided altogether. If Red Data or important endemic species are encountered (see Table 1.3)

4.2 Loss of natural vegetation

The greatest proportion of original extent of natural vegetation lying within the proposed route is Humansdorp Shale Renosterveld (HSR) (6.9%), followed by Loerie Conglomerate Fynbos (5.6%) and Gamtoos Thicket (3.0%) (Table 1.1).

Recommendations

That natural vegetation in these VT's is avoided where possible, in particular HShR, which is Endangered (Table 1.2). Where possible routing should be undertaken along servitudes which have transformed vegetation (see Figure 1.4), with key areas being north of Thyspunt and near Mondplaas. Intact patches of Southern Afrotemperate Forest and Albany Alluvial Vegetation should also be avoided.

4.3 Fragmentation of natural systems

Although powerlines potentially can cause mild fragmentation, the mere impact of powerline bases and management to contain high vegetation means fragmentation will occur in some form or another.

Recommendations

To minimise this, only transformed vegetation should be sought for the routing (see above) and, if not possible, then intact pieces of vegetation avoided altogether. It is also recommended that VT's which have suffered the most fragmentation (i.e. with a Fragmentation Index of >5 – see Table 1.2), should also be avoided. These are (with fragmentation index in brackets – see Table 1.2): Gamtoos Thicket (GT) (24.9%), Albany Alluvial Vegetation (9.7%), Tsitsikamma Sandstone Fynbos (6.2%) and Humansdorp Shale Renosterveld (5.5%). Rivers (AAV) should be crossed at their narrowest.

4.4 Sensitivity

Vegetation type sensitivity is shown in Table 1.2. Sensitivity is greatest for Albany Alluvial Vegetation (Very high), and Southern Temperate Forest and Humansdorp Shale Renosterveld (High) (Table 1.2). What this means is that these vegetation types will show the greatest vulnerability to development, particularly to construction of pylons.

Recommendations

Low sensitivity sites, and to a certain extent, those with moderate sensitivity, do not present too great an obstacle to the routing. However, those with High and Very High rankings should be avoided. These are: all wetland and riparian systems which dissect the route (Table 1.2; Figure 1.4), including AAV. The highly sensitive HShR should also be avoided.

4.5 Impacts on conservation areas

Although there has been a substantial change to the previous routing to avoid conservation areas, several sites still show cause for concern. These are the Stinkhoutsberg Nature Reserve and Hankey Forest Reserve No.1, the Groendal wilderness Area (notably tall thicket) and the Springs Local Authority Nature Reserve (Figure 1.6).

Recommendations

Power lines should avoid conservation areas, regardless of status.

4.6 Impacts on tall vegetation

Certain of the VT's in the study area support vegetation in excess of 4 m in height. This is the maximum height vegetation can be permitted to grow under power lines.

Recommendations

Where possible tall vegetation should be avoided. Firstly this presents a management challenge for Eskom as such vegetation will need continued cutting to remain short and unobtrusive. Secondly, lowering of vegetation height will impact ecosystem function and reduce available habitat niches for the resident fauna and flora. It is therefore strongly recommended that tall thicket (GT and ST) and Southern Afrotemperate Forest (SAF) be avoided.

4.7 Compromising of natural corridors

Natural corridors are located at intervals along the proposed routings.

Recommendations

Where natural corridors such as rivers stand to be compromised, the routes should be amended accordingly. Whilst the argument of powerlines having minimal impact on natural systems by virtue of their height and small footprints of the pylons, natural corridors nevertheless will be negatively affected by their construction in a number of ways: these include physical barriers to birds and therefore potential impacts on pollination, general faunal movement, etc., and reducing the height of the resident vegetation on a regular basis.

Table 1.4. Impacts on the flora and vegetation along the proposed northern transmission line route

Impact	Nature	Extent	Intensity	Duration	Probability	Reversibility	Irreplaceable resources	Confidence	Consequence	Significance
FOREST										
1) Southern Temperate Forest										
Loss/fragmentation of habitat										
Loss of forest habitat	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align pylons to avoid habitat or place in degraded/cleared vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Loss of Red Data or endemic species										
Loss of locally occurring Red Data or endemic species	Negative to neutral	Local	High	Permanent	Probable	Low	Yes	High	High	Medium
With mitigation (locate bases of powerlines to avoid RD/endemic species; translocate species)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Impacts on tall vegetation										
Reduction in vegetation height to avoid powerlines	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align powerlines to avoid tall vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Cumulative impacts										
Loss of RD species, habitat and ecosystem functioning	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (avoid crossing intact vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low

Table 1.4 (contd.)

Impact	Nature	Extent	Intensity	Duration	Probability	Reversibility	Irreplaceable resources	Confidence	Consequence	Significance
FYNBOS										
2) Kouga Grassy Sandstone Fynbos										
Loss/fragmentation of habitat										
Loss of fynbos habitat	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align pylons to avoid habitat or place in degraded/cleared vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Loss of Red Data or endemic species										
Loss of locally occurring Red Data or endemic species	Negative to neutral	Local	Medium	Permanent	Probable	Low	Possible	High	High	Medium
With mitigation (locate bases of powerlines to avoid RD/endemic species; translocate species)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Conservation areas										
Impact on conservation area	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (avoid conservation areas)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Cumulative impacts										
Loss of RD species, habitat and ecosystem functioning	Negative to neutral	Local	High	Permanent	Probable	Low	Yes	High	High	Medium
With mitigation (avoid crossing intact vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low

Table 1.4 (contd.)

Impact	Nature	Extent	Intensity	Duration	Probability	Reversibility	Irreplaceable resources	Confidence	Consequence	Significance
3) Kouga Sandstone Fynbos										
Loss/fragmentation of habitat										
Loss of fynbos habitat	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align pylons to avoid habitat or place in degraded/cleared vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Loss of Red Data or endemic species										
Loss of locally occurring Red Data or endemic species	Negative to neutral	Local	Medium	Permanent	Probable	Low	Possible	High	High	Medium
With mitigation (locate bases of powerlines to avoid RD/endemic species; translocate species)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Conservation areas										
Impact on conservation area	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (avoid conservation areas)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Cumulative impacts										
Loss of RD species, habitat and ecosystem functioning	Negative to neutral	Local	High	Permanent	Probable	Low	Yes	High	High	Medium
With mitigation (avoid crossing intact vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low

Table 1.4 (contd.)

Impact	Nature	Extent	Intensity	Duration	Probability	Reversibility	Irreplaceable resources	Confidence	Consequence	Significance
4) Loerie Conglomerate Fynbos										
Loss/fragmentation of habitat										
Loss of fynbos habitat	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align pylons to avoid habitat or in degraded/cleared vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Loss of Red Data or endemic species										
Loss of locally occurring Red Data or endemic species	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High to Medium
With mitigation (locate bases of powerlines to avoid RD/endemic species; translocate species)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Cumulative impacts										
Loss of RD species, habitat and ecosystem functioning	Negative to neutral	Local	High	Permanent	Probable	Low	Yes	High	High	High to Medium
With mitigation (avoid crossing intact vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low

Table 1.4 (contd.)

Impact	Nature	Extent	Intensity	Duration	Probability	Reversibility	Irreplaceable resources	Confidence	Consequence	Significance
5) Tsitsikamma Sandstone Fynbos										
Loss/fragmentation of habitat										
Loss of fynbos habitat	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align pylons to avoid habitat or place in degraded/cleared vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Loss of Red Data or endemic species										
Loss of locally occurring Red Data or endemic species	Negative to neutral	Local	Medium	Permanent	Probable	Low	Possible	High	High	Medium
With mitigation (locate bases of powerlines to avoid RD/endemic species; translocate species)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Cumulative impacts										
Loss of RD species, habitat and ecosystem functioning	Negative to neutral	Local	High	Permanent	Probable	Low	Yes	High	High	Medium
With mitigation (avoid crossing intact vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low

Table 1.4 (contd.)

Impact	Nature	Extent	Intensity	Duration	Probability	Reversibility	Irreplaceable resources	Confidence	Consequence	Significance
RENOSTERVELD										
6) Humansdorp Shale Renosterveld										
Loss of habitat										
Loss of rare renosterveld habitat	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (adjust route to avoid vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Loss of Red Data species										
Loss of locally occurring Red Data species	Negative to neutral	Local	High	Permanent	Probable	Low	Yes	High	High	
With mitigation (relocate footprint of Yard)	Neutral	Local	Medium	Short-term	Probable	High	No	High	Low	Low
Cumulative impacts										
Possible loss of species, habitat and ecosystem functioning	Negative	Local	High	Permanent	Probable	Low	Yes	High	Medium	Medium
With mitigation (locate footprint away from good quality sandstone fynbos)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low

Table 1.4 (contd.)

Impact	Nature	Extent	Intensity	Duration	Probability	Reversibility	Irreplaceable resources	Confidence	Consequence	Significance
THICKET										
7) Coega Bontveld										
Loss/fragmentation of habitat										
Loss of habitat	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align pylons to avoid habitat or place in degraded/cleared vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Loss of Red Data or endemic species										
Loss of locally occurring Red Data or endemic species	Negative	Local	Medium	Permanent	Probable	Low	Possible	High	High	High
With mitigation (locate bases of powerlines to avoid RD/endemic species; translocate species)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Cumulative impacts										
Loss of RD species, habitat and ecosystem functioning	Negative to neutral	Local	High	Permanent	Probable	Low	Yes	High	High	Medium
With mitigation (avoid crossing intact vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low

Table 1.4 (contd.)

Impact	Nature	Extent	Intensity	Duration	Probability	Reversibility	Irreplaceable resources	Confidence	Consequence	Significance
8) Gamtoos Thicket										
Loss/fragmentation of habitat										
Loss of thicket habitat	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align pylons to avoid habitat or place pylons in degraded/cleared vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Loss of Red Data or endemic species										
Loss of locally occurring Red Data or endemic species	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High to Medium
With mitigation (locate bases of powerlines to avoid RD/endemic species; translocate species)	Negative to Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Impacts on tall vegetation										
Reduction in vegetation height to avoid powerlines	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align powerlines to avoid tall vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Conservation areas										
Impact on conservation area	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (avoid conservation areas)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Cumulative impacts										
Loss of RD species, habitat and ecosystem functioning	Negative to neutral	Local	High	Permanent	Probable	Low	Yes	High	High	High to Medium
With mitigation (avoid crossing intact vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low

Table 1.4 (contd.)

Impact	Nature	Extent	Intensity	Duration	Probability	Reversibility	Irreplaceable resources	Confidence	Consequence	Significance
9) Sundays Thicket										
Loss/fragmentation of habitat										
Loss of habitat	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align pylons to avoid habitat or place in degraded/cleared vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Loss of Red Data or endemic species										
Loss of locally occurring Red Data or endemic species	Negative to neutral	Local	Medium	Permanent	Probable	Low	Possible	High	High	Medium
With mitigation (locate bases of powerlines to avoid RD/endemic species; translocate species)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Impacts on tall vegetation										
Reduction in vegetation height to avoid powerlines	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align powerlines to avoid tall vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Conservation areas										
Impact on conservation area	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (avoid conservation areas)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Cumulative impacts										
Loss of RD species, habitat and ecosystem functioning	Negative to neutral	Local	High	Permanent	Probable	Low	Yes	High	High	Medium
With mitigation (avoid crossing intact vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low

Table 1.4 (contd.)

AZONAL										
10) Albany Alluvial Vegetation										
Loss/fragmentation of habitat										
Loss of alluvial thicket habitat	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align pylons to avoid habitat or place pylons in degraded/cleared vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Loss of Red Data or endemic species										
Loss of locally occurring Red Data or endemic species	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High to Medium
With mitigation (locate bases of powerlines to avoid RD/endemic species; translocate species)	Negative to Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Impacts on tall vegetation										
Reduction in vegetation height to avoid powerlines	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (align powerlines to avoid tall vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Conservation areas										
Impact on conservation area	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High
With mitigation (avoid conservation areas)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low
Cumulative impacts										
Loss of RD species, habitat and ecosystem functioning	Negative	Local	High	Permanent	Probable	Low	Yes	High	High	High to Medium
With mitigation (avoid crossing intact vegetation)	Neutral	Local	Low	Permanent	Probable	High	No	High	Low	Low

5. CONCLUSIONS

Evaluation of a proposed northern transmission line route between Thyspunt and Grassridge was undertaken using desktop evaluation and botanical assessment in the field. Key findings were that two vegetation types were Endangered and one Vulnerable. However localised species rarity and/or endemism was low or absent. Correspondingly habitat distinctiveness, indicating localised ecosystem rarity. Several vegetation types impact on conservation areas along the route.

Key recommendations are that rare, fragmented and/or sensitive vegetation types should be avoided, as well as tall vegetation >4m high . In this respect, routing should be amended to either avoid such habitats or minimise the identified impacts.

6. ACKNOWLEDGMENTS

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- Andrew Skowno made available various data sets for use in the desktop study, as well as providing the developing the route buffers and field maps
- Useful discussion on the principles of corridors was held with Wesley Berrington of Van Stadens River Nature Reserve
- Various private landowners provided access to their lands.

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Appendix 1.1. Field observations from selected localities along the proposed Eskom transmission line routes between Thyspunt and Grassridge/Port Elizabeth: scoping

Site no.	General description	Vegetation Type (from Mucina & Rutherford, 2006)	Geology (from Toerien, 1984, and Toerien & Hill, 1989)	Ecological state	Veg height (mature)	Longitude	Latitude	Altitude	Date
TL1	Sandstone Flats Fynbos – some shale – burnt & grazed – Renosterveld. Occasional stream lines – Kniphofia citrina – Erica glandulosa.	Kouga Grassy Sandstone Fynbos - Sandstone Flats Fynbos; Renosterveld on shales adjacent to area	Ss - Skurweberg Formation - quartzitic sandstones	Burnt & Grazed	Low	-33.98721	24.77664		16 July 2008
TL2	TG – SG. Localized deposits of Ferricrete	Kouga Grassy Sandstone Fynbos - Sandstone Flats Fynbos	Tg - Grahamstown Formation - Localized deposits of Ferricrete; also Sg - Goudini Formation - quartzitic sandstones			-33.97202	24.78195		16 July 2008
TL3	Renosterveld & Thicket mosaic on shale. S – DB shale.	Humansdorp Shale Renosterveld associated with & Gamtoos Thicket mosaic	S-Db - Baviaanskloof Formation - shale		Medium	-33.92912	24.80881		16 July 2008
TL4	Renosterveld & Thicket mosaic – DB shale. (Enon ??). Invasion by Opuntia. Power lines must avoid tall vegetation	Humansdorp Shale Renosterveld & mosaic with Gamtoos Thicket	Db - Boplaas Formation - shale.	Opuntia invasion. Good quality tall Euphorbia Thicket.	Medium	-33.90053	24.83708	261	16 July 2008
TL5	Fynbos on shale/mudstone	Probably Loerie Conglomerate Fynbos	Je - Enon Formation - possibly subordinate mudstone			-33.90343	24.85105		16 July 2008
TL6	Road turns north. Severely degraded veld on shale. Overgrazed Renosterbos dominant query start of Enon.	Humansdorp Shale Renosterveld with fynbos - possibly Loerie Conglomerate Fynbos	Je - Enon Formation - possibly subordinate mudstone	Severely degraded - overgrazed	Low	-33.92504	24.87961		16 July 2008
TL7	Road left. Degraded fynbos. Enon.	Loerie Conglomerate Fynbos	Je - Enon Formation	Degraded	Low	No coordinates			16 July 2008

Appendix 1.1. Field observations from selected localities along the proposed Eskom transmission line routes between Thyspunt and Grassridge/Port Elizabeth: scoping

Site no.	General description	Vegetation Type (from Mucina & Rutherford, 2006)	Geology (from Toerien, 1984, and Toerien & Hill, 1989)	Ecological state	Veg height (mature)	Longitude	Latitude	Altitude	Date
TL8	Loerie conglomerate fynbos on Enon conglomerate. Quite clayey – Low enough to tolerate powerline. Hyobanche, Gnidia, Mesems.	Loerie Conglomerate Fynbos	Je - Enon Formation Conglomerate	Low veg	Low	-33.95415	24.91791		16 July 2008
TL9	Fynbos with Farmland between 8 & 9. Alluvial gravel.	Fynbos - possibly related to Loerie Conglomerate Fynbos, but here on gravel	TQb - Bluewater bay Formation - Alluvial gravel	Farmland		-33.93930	24.94905		16 July 2008
TL10	Coastline. Disturbed Renosterveld on very clayey Enon conglomerate.	Renosterveld	Je - Enon conglomerate. Very clayey.	Disturbed		-33.98362	24.97593		16 July 2008
TL11	Coastline. Tall Thicket on clay, adjacent to Gamtoos River	Albany Alluvial Vegetation	TQb - Bluewater Bay Formation - Clay	Very good quality, but localised farming on floodplain and adjacent area	Tall	-33.93919	24.99024		16 July 2008
TL12	Tall Thicket & Forest on Kirkwood Shales.	Gamtoos Thicket with localised Forest patches	J-Kk - Kirkwood Formation Shales	Very good quality	Tall	-33.90382	24.02164		16 July 2008
TL13	Near Loerie. Kirkwood Shales with shorter, good quality Thicket when sandstone shows through.	Mosaic of Gamtoos Thicket & Loerie Conglomerate Fynbos (?)	J-Kk - Kirkwood Formation mudstones; also occasional sandstone	Good quality	Medium	-33.87467	25.02502		16 July 2008

Appendix 1.1. Field observations from selected localities along the proposed Eskom transmission line routes between Thyspunt and Grassridge/Port Elizabeth: scoping

Site no.	General description	Vegetation Type (from Mucina & Rutherford, 2006)	Geology (from Toerien, 1984, and Toerien & Hill, 1989)	Ecological state	Veg height (mature)	Longitude	Latitude	Altitude	Date
TL14	Off line point. Mountain Fynbos on Peninsula Formation Sandstone surrounded by pine & Eucalyptus plantation. Wall to wall invasives from here to Svferfontein.	Kouga Sandstone Fynbos	Op - Peninsula Formation Sandstone	Recovering good quality surrounded by plantation; Pine & Eucalyptus	Low	-33.80956	25.06462		16 July 2008
TL15	Plantations cleared for fire break. Fynbos on Sandstone.	Kouga Sandstone Fynbos	Op - Peninsula Formation Sandstone	Maintained	Low	-33.81445	25.09637		16 July 2008
TL16	Fynbos recovering from plantation on Sandstone.	Kouga Sandstone Fynbos	Op - Peninsula Formation Sandstone	Recovering	Low	-33.82239	25.12378		16 July 2008
TL17	Geology = SDB – Ceres Subgroup Shales (?). On Melkhoutboom – Uitenhage road. Dense infestations of Eucalyptus & Acacias not good quality fynbos here and S14	Kouga Grassy Sandstone Fynbos	S-Db – Baviaanskloof Formation sandstones & shales (?)	Poor quality. Dense infestations of Acacia's & Eucalyptus.	Tall (Alien)	-33.80211	25.19754	321	16 July 2008
TL18	Flood plain KwaZunga (Swartkops) Alluvium. To East Gamtoos Thicket on Enon Shale- to West Gamtoos Thicket on both Enon & Kirkwood Shale.	Albany Alluvial Vegetation	Alluvium	Floodplain		-33.73645	25.32548		16 July 2008
Site no.	**General description**	**Vegetation Type (from Mucina & Rutherford, 2006)**	**Geology (from Toerien, 1984, and Toerien & Hill,**	**Ecological state**	**Veg height (mature)**	**Longitude**	**Latitude**	**Altitude**	**Date**

Appendix 1.1. Field observations from selected localities along the proposed Eskom transmission line routes between Thyspunt and Grassridge/Port Elizabeth: scoping

			1989)						
TL19	Between TL18 and TL19 - Peninsula Formation (?). Heavily invaded but adjacent mountain good quality fynbos.	Kouga Grassy Sandstone Fynbos	Op - Peninsula Formation Sandstone	Dense alien infestation		No coordinates			16 July 2008
TL20	Aeolianite (?). Shale (?). Thicket & incipient forest.	Albany Coastal belt with Incipient Forest	TQn - Nanaga Formation - aeolianite	Very good quality (?)	Tall	-33.91032	25.07205		16 July 2008
TL21	Farmland on Gamtoos River floodplain. Alluvium.	(Albany Alluvial Vegetation)	Alluvium	Floodplain - cultivated	Low	-33.92945	25.01455		16 July 2008
TL22	Fynbos on SDB (?) or Shale (?).	Kouga Grassy sandstone Fynbos	S-Db - Baviaanskloof Formation - sandstone and insubordinate shale; shale here (?)		Low	-34.03482	24.83589		16 July 2008
TL23	DC clays. Degraded Fynbos	Tsitsikamma Sandstone Fynbos or Kouga Grassy sandstone Fynbos (Humansdorp Shale Renosterveld)	Dc - Ceres Subgroup - Clays	Degraded	Low	-34.09422	24.79991		16 July 2008
TL24	Tall Gamtoos Thicket on Aeolianite and possibly shale?	Gamtoos Thicket	TQn - Nanaga Formation - Aeolianite - ?shale	Good quality	Tall	-33.93388	25.05476		17 July 2008
TL25	NV (?). Van Stadens Shales - probably Nanaga. Mixture of Thicket & Farmlands. Existing power line	Albany Coastal Belt	TQn - Nanaga Formation - Aeolianite - ?shale	Mix of Farmland & Thicket	Tall	-33.92622	25.16201		17 July 2008
TL26	Peninsula Sandstone & Aeolianite – Thicket & Farmland. No corridors.	Thicket in ?Algoa Sandstone Fynbos or Humansdorp Shale Renosterveld	?TQn - Nanaga Formation - Aeolianite	Mix of Farmland & Thicket. No corridors	Tall (?)	-33.89537	25.32935		17 July 2008

Appendix 1.1. Field observations from selected localities along the proposed Eskom transmission line routes between Thyspunt and Grassridge/Port Elizabeth: scoping

Site no.	General description	Vegetation Type (from Mucina & Rutherford, 2006)	Geology (from Toerien, 1984, and Toerien & Hill, 1989)	Ecological state	Veg height (mature)	Longitude	Latitude	Altitude	Date
TL27	Cuts through Acacia & Eucalyptus – cleared Aeolianite? Patches of Fynbos & Farmland.	Algoa Sandstone Fynbos	Goudini Formation Sandstone - possibly Aeolianite (TQn)	Acacia & Eucalyptus – cleared. Mix of Farmland & Fynbos		-33.89056	25.37455		17 July 2008
TL28	Degraded Fynbos to the east. Peninsula Sandstone. Acacia's.	Algoa Sandstone Fynbos	Peninsula Sandstones	Degraded with Acacia infestation		No coordinates	No coordinates		17 July 2008
TL29	DC/SDB. Acacia's on shale. To the west Thicket on sandstone.	Boundary of Sundays Thicket and Groot Thicket	Dc - Ceres Subgroup - Shale	Acacia infested	Medium	-33.87003	25.46778		17 July 2008
TL30	Peninsula Formation Sandstone. Degraded Fynbos & alien infestation.	Algoa Sandstone Fynbos	Op - Peninsula Formation Sandstone intermingled with subordinate shale	Degraded with alien infestation	Medium	-33.89448	25.46589		17 July 2008
TL31	Race Track on side. Acacia on the other side.	Algoa Sandstone Fynbos	Op - Peninsula Formation Sandstone intermingled with subordinate shale	Race track on one side; Acacia infested on other side	Low	-33.89779	25.46352		17 July 2008
TL32	Substation end of line. Visited 14/7 Algoa Sandstone Fynbos on Peninsula Sandstone.	Algoa Sandstone Fynbos	Op - Peninsula Formation Sandstone			No coordinates No coordinates			17 July 2008
TL33	Red line on Map. Gamtoos Thicket on shale on M10 beneath line at substation.	Gamtoos Thicket	J-Kk Formation - Shale	Cleared below line but very good quality surrounding		-33.83050	25.45533		17 July 2008

Appendix 1.1. Field observations from selected localities along the proposed Eskom transmission line routes between Thyspunt and Grassridge/Port Elizabeth: scoping

Site no.	General description	Vegetation Type (from Mucina & Rutherford, 2006)	Geology (from Toerien, 1984, and Toerien & Hill, 1989)	Ecological state	Veg height (mature)	Longitude	Latitude	Altitude	Date
TL34	Thicket and open grassland/fynbos in North Grassridge Dedisa corridor	Coega Bontveld	Calcrete present - possibly related to Ta - Alexandria Formation. Also alluvium, with KS - Sundays River Formation (mudstone & sandstone) - exposed nearby	localised clearing and disturbance; cattle grazing; occasional streamline; Opuntia invasion	4-5m+	-33.76126	25.66063		4 February 2009
TL35	Crossroads with Addo Road/Uitenhage Roads; thicket on calcrete	Coega Bontveld	Calcrete dominant, possibly Ta - Alexandria Formation. But map gives TQb - Bluewater Bay Formation - alluvial sheet gravel; some Peninsula on edge of area but with thicket	Heavily disturbed through localised clearing and likely cattle grazing; but good thicket stands with few openings, unlike typical Bontveld; medicinal use of Aloe leaves	2m+ with emergent Acacia/Aloe, former to 3-4m+	-33.76914	25.59583		4 February 2009
TL36	NE of new SOUTH PE-GRASSRIDGE CORRIDOR	Sundays Thicket, but possibly Coega Bontveld	Calcrete, probably of Ta - Alexandria Formation; adjacent Kirkwood shale (J-Kk) on geological map	dense thicket, locally cleared and disturbance - cattle farming in vicinity; invasion by Agave along roadside	2-3m+, occasional emergents to 4m+	-33.74483	25.59362		4 February 2009

Appendix 1.1. Field observations from selected localities along the proposed Eskom transmission line routes between Thyspunt and Grassridge/Port Elizabeth: scoping

Site no.	General description	Vegetation Type (from Mucina & Rutherford, 2006)	Geology (from Toerien, 1984, and Toerien & Hill, 1989)	Ecological state	Veg height (mature)	Longitude	Latitude	Altitude	Date
TL37	PPC road in extreme east of study area, within NORTH GRASSRIDGE DEDISA CORRIDOR;	Coega Bontveld	TQb - Bluewater Bay Formation - alluvial gravels and sand on map, but probably Ta - Alexandria Formation due to dominance of calcrete, but here dominated by calcrete	Natural veld in fairly good condition, with major dichotomy between thicket patches and grassy vegetation (? grassy fynbos); signs of burning (e.g. resprouting shrubs in short grassy fynbos (<0.5m); localised calcrete mining (borrowing for road); invasive Acacia cyclops where open. Localised clearing for farming, probably cattle grazing; horses	2m+, with emergents 4-5m+; grassland and low shrubs ,0.5m	-33.70223	25.68372		4 February 2009
TL38	Thicket in SOUTH PE GRASSRIDGE CORRIDOR	Probable ecotone between Sundays Thicket and Coega Bontveld	Ta - Alexandria Formation - calcrete with reddish "terra rossa" soils	less grass than other sites assessed and more dwarf shrubs; unburnt; cattle in area; veld in fair to good condition; some invasion by Acacia cyclops where vegetation is open; greater proportion of thicket to "fynbos" than in most other sites assessed	dwarf grassland/fynbos generally <0.5m; thicket to 2m+, with emergents of 3-4m+	-33.77205	25.54699		4 February 2009

Appendix 1.1. Field observations from selected localities along the proposed Eskom transmission line routes between Thyspunt and Grassridge/Port Elizabeth: scoping

Site no.	General description	Vegetation Type (from Mucina & Rutherford, 2006)	Geology (from Toerien, 1984, and Toerien & Hill, 1989)	Ecological state	Veg height (mature)	Longitude	Latitude	Altitude	Date
TL39	Dense thicket in SOUTH PE GRASSRIDGE CORRIDOR ALT 1 just east of Uitenhage	Sundays Thicket	Sundays River Formation - shales - brown clayey soils	good quality, dense thicket, with localised clearing, probably cattle; marked spinescence!!; Opuntia invading locally	2-3m, with emergents to 4-5m+	-33.76896	25.47306		4 February 2009
TL40	Dense thicket in SOUTH PE GRASSRIDGE CORRIDOR ALT 2 west of Uitenhage	Sundays Thicket	J-Kk - Kirkwood Formation - mudstone & sandstone	good quality, dense thicket; localise farming with some recovery post-clearing; game farms	3-5m+	-33.80558	25.32221		4 February 2009
TL41	Disturbed fynbos on western edge of APPROX PE SUBSTATIONS CORRIDOR	On boundary between Kouga Sandstone Fynbos and Kouga Grassy Sandstone Fynbos	On boundary of sandstones of S-Db - Baviaanskloof Formation - and Ss - Skurweberg Formation	farmland on S-Db and poor fynbos (burnt) on Ss; aliens: Acacia mearnsii, Eucalyptus, Acacia saligna	<0.5m mainly	-33.86052	25.28302		4 February 2009
TL42	Disturbed fynbos on western edge of APPROX PE SUBSTATIONS CORRIDOR just north-east of VanStadensberge	Kouga Grassy Sandstone Fynbos	Goudini Formation Sandstone	farmland on sandstone, highly degraded area with Eucalyptus and Acacia mearnsii infestations	Low ?<0.5m) where present	-33.88726	25.29809		4 February 2009

Appendix 1.1. Field observations from selected localities along the proposed Eskom transmission line routes between Thyspunt and Grassridge/Port Elizabeth: scoping

Site no.	General description	Vegetation Type (from Mucina & Rutherford, 2006)	Geology (from Toerien, 1984, and Toerien & Hill, 1989)	Ecological state	Veg height (mature)	Longitude	Latitude	Altitude	Date
TL43	Fynbos north of Maitland River mouth in south of APPROX. PE SUBSTATION CORRIDOR	Albany Coastal Belt ?on shale	TQn - Nanaga Formation, but with adjacent Sardinia Bay Formation sandstones	Fynbos in fair condition but locally disturbed. Localised clearing for farmland. Not Algoa Coastal Belt locally - vegmap inaccurate here, but possibly present elsewhere in area. More likely to be Algoa Sandstone Fynbos given the presence of sandstones in the area; probably high fire frequency associated with farming activity	1-2m+ with some emergents to 3m	-33.93896	25.30290		4 February 2009
TL44	Tall thicket/forest between Maitland and Van Stadens River mouths near coast, in south of APPROX. PE SUBSTATION CORRIDOR	Probably Southern Coast Forest, although vegmap indicates Algoa Coastal Belt; but also have affinities with Gamtoos |Thicket which is also in the area	TQn - Nanaga Formation, but with adjacent Sardinia Bay Formation sandstones	Tall thicket/forest in good condition (dense!), but localised clearing for farming, NB orchards	5-6m+ occasionally to 8-10m+; too tall for powerlines	-33.95811	25.27595		4 February 2009
TL45	Renosterveld in SOUTH PE GRASSRIDGE CORRIDOR ALT2 CORRIDOR	Humansdorp Shale Renosterveld	S-Db - Baviaanskloof Formation sandstones and subordinate shale	heavily disturbed renosterveld, opposite quarry (road aggregate); low species diversity; farmland locally; invasion by Acacia cyclops	1m, with few natural emergents	-33.86532	25.36504		4 February 2009

Appendix 1.1. Field observations from selected localities along the proposed Eskom transmission line routes between Thyspunt and Grassridge/Port Elizabeth: scoping

Site no.	General description	Vegetation Type (from Mucina & Rutherford, 2006)	Geology (from Toerien, 1984, and Toerien & Hill, 1989)	Ecological state	Veg height (mature)	Longitude	Latitude	Altitude	Date
TL46	Thicket/renosterveld mosaic in SOUTH PE GRASSRIDGE ALT2 CORRIDOR	Mosaic between Humansdorp Shale Renosterveld and Sundays Thicket	Dc - Ceres Subgroup shales	Vegetation in fairly good condition, but impacts from dust from quarrying in area. Also urban development	Renosterveld = 1m; thicket = 2-3m; Acacia cyclops invading to 4m+	-33.84467	25.38293		4 February 2009
TL47	Thicket, near Springs Resort	Sundays Thicket	J-Kk - Kirkwood Formation sandstone & shale	Thicket in fairly good condition, but degraded in parts for farming-cattle/goats & aliens in thicket, Prickly Pear, Jointed Cactus & Agave sisalana	about 3m	-33.71241	25.43629	127m	15 February 2009
TL48	Thicket, near Fitzpatrick Valley	Sundays Thicket	J-Kk - Kirkwood Formation sandstone & shale	Thicket in good condition, with only a little Prickly Pear	3m	-33.70259	25.46880	148m	15 February 2009
TL49	Thicket, at Glendore Quarry	Sundays Thicket	Alluvium with sand, gravel & cobbles	Vegetation is mainly intact, but there are patches of Pteronia	about 2m, with Aloes reaching 3m	-33.73086	25.53753	71m	15 February 2009
TL50	Thicket/Mosaic, little patches of Mosaic with Aloe striata, on Addo Road, near brick works west of Hillside	Sundays Thicket	Alluvium with sand, gravel & cobbles	In a very good state with very little Prickly Pear	2 to 3 m	33.72888	25.57636	57m	15 February 2009

Appendix 1.2. Location and description of plant species sampling sites along the proposed Eskom transmission line routes between Thyspunt and Port Elizabeth: EIA (October 2009 fieldwork)

Date	Site	Locality and general description of habitat	Latitude	Longitude	Alt (m)	Plot dim.
17 October 2009	TSIStF1	Tsitsikamma Sandstone Fynbos at southern side of Krom River (Mpofu) Dam wall; shallow sandy soil over Goudini Formation quartzite; veld 8 – 10 years old, with younger veld (3 – 4 yrs) adjacent; gentle south-facing slope	-34.10523	24.69327	125	20 m x 50 m
17 October 2009	TSIStF2	Tsitsikamma Sandstone Fynbos at Water Treatment Works above Krom River (Mpofu) Dam; gentle south-facing slope; 15 yr+ old veld; shallow (to >20 cm deep) sandy soil over Goudini Formation quartzite; localised exposure of bedrock	-34.07393	24.63005	150	20 m x 50 m
17 October 2009	HShR1	Relatively good quality Humansdorp Shale Renosterveld north of Krom River, near Bushbuck Garden (Perry's Farm), locally transitional to thicket (small thicket clumps present) above Krom Rover (Mpofu) Dam; medium height shrubland over Ceres Formation shale; shallow, loamy, stony brown soil; age of community unknown but likely to have burnt in the 2004 fire (community is fire-maintained); a few fynbos species are present indicating rainfall at top end of spectrum for renosterveld; moderate south-east facing slope	-34.08832	24.69826	200	20 m x 50 m
17 October 2009	KGStF1	Kouga Sandstone Fynbos at Sunnyside Farm No. 338; heavily disturbed fynbos on skeletal sandy soil over Skurweberg Formation quartzite; disturbances due to grazing/browsing and fire; veld about 5 yrs old (2004 fire?)	-34.01263	24.86391	121	20 m x 50 m
18 October 2009	KGStF2	Kouga Grassy Sandstone Fynbos on Honeyville Farm; west of northern corridor; veld 7 – 8 yrs post burn and with diffuse Protea neriifolia stand (most of area is burnt (3 – 4 yrs), with some dense stands below hill peaks; also includes local Leucadendron salignum stand; shallow sandy to loamy soil over Goudini Formation quartzite; grazing by cattle	-33.95144	24.75681	337	20 m x 50 m
18 October 2009	KGStF3	Kouga Grassy Sandstone Fynbos on Weltevreden Farm on Misgund; 20 yrs+ Protea neriifolia stand on north-facing slope – has escaped the 2004 fire, but on fairly skeletal, sandy soil over Skurweberg Formation quartzite, with some exposed bedrock; sand to sandy loam; termite hills present	-33.97213	24.83533	201	20 m x 50 m
18 October 2009	GT1	Gamtoos Thicket just outside entrance gate to Fijnbosch Estate; dense, medium height thicket (mostly 5 – 6 m, but occasionally 8 – 10 m) on loamy soils over Baviaanskloof Formation subordinate shale; on edge of stream	-33.97305	24.88214	81	10 m x 100 m
Date	**Site**	**Locality and general description of habitat**	**Latitude**	**Longitude**	**Alt (m)**	**Plot dim.**

Appendix 1.2. Location and description of plant species sampling sites along the proposed Eskom transmission line routes between Thyspunt and Port Elizabeth: EIA (October 2009 fieldwork)

Date	Site	Locality and general description of habitat	Latitude	Longitude	Alt (m)	Plot dim.
19 October 2009	GT2	Gamtoos Thicket on Mr Bujani's private farm between Melon and road to Hankey, eastern side of Gamtoos River; thicket over Kirkwood Formation mudstone; moderate to steep east-facing slope with , shallow red-brown soil; thicket to 4 – 5m, occasionally 6 – 7m, dominated by Euphorbia triangularis and Schotia afra	-33.88635	24.95883	28?	10 m x 100 m
19 October 2009	LCF1	Loerie Conglomerate Fynbos along road between Hankey & Loerie; veld 15 yrs old, stony, sandy soil over Enon Formation conglomerate; dominated by Protea neriifolia; moderate south-east facing slope; termite hills; good quality vegetation of 1.5 to 2 m tall; but Leucadendron salignum dominating in general area, presumably due to high frequency burning.	-33.94003	24.93622	156	20 m x 50 m
19 October 2009	GT3	Gamtoos Thicket on Maridadi Farm, above Gamtoos River (west bank); dense, mid-high thicket to 4 – 5+m, with emergent Euphorbia triangularis to 6m+; community found on gentle to moderate south-west facing slope; reddish brown stony and loamy soil over Enon Conglomerate with subordinate mudstone; local disturbance by cattle grazing	-33.89180	24.91181	45	10 m x 100 m
19 October 2009	LCF2	Loerie Conglomerate Fynbos on Spitzbak Farm, above Gamtoos River (west bank); moderate to steep south-facing slope; shallow, stony, sandy soil over Enon Formation conglomerate; proteoid fynbos 1 – 1.5m tall; approx. 5 – 7 yrs post fire	-33.99288	24.93578	0 m	20 m x 50 m
20 October 2009	LCF3	Loerie Conglomerate Fynbos in Loerie Dam Nature Reserve; gentle to moderate east/south-east facing slope; shallow stony, sandy soil over Enon Formation conglomerate; veld 12 yrs old, but most of Reserve burnt in 2004 fire; vegetation dominated by Protea repens to 2 m tall; some thicket species encroaching into fynbos	-33.86208	25.04240	45 m	20 m x 50 m
20 October 2009	LCF4	Loerie Conglomerate Fynbos in Loerie Dam Nature Reserve (450 m north of LCF3); gentle to moderate west/south-west facing slope; vegetation 12 yrs old, although most of site burnt in 2004 (edge of site); rocky soil on ferricrete "borrow" pit; sandy loam over Enon Formation conglomerate	-33.85791	25.04268	59 m	20 m x 50 m
20 October 2009	LCF5	Loerie Conglomerate Fynbos on Kouga Municipal land, east of Water Treatment Works, Loerie Dam, along road south of Loerie; 12 yr old Protea neriifolia veld; gentle south-facing slope; sandy loam over Enon Formation conglomerate, with little exposed rock	-33.87114	25.04504	75 m	20 m x 50 m

Appendix 1.2. Location and description of plant species sampling sites along the proposed Eskom transmission line routes between Thyspunt and Port Elizabeth: EIA (October 2009 fieldwork)

21 October 2009	CB2	Coega Bontveld in north-east of study area, just south of Grass Ridge substation; shallow, skeletal sandy soil over Bluewater Bay Formation recent calcrete; flat; low fynbos (mostly to 30cm, rarely to 50 cm) and thicket clumps of 2 – 2.5 m tall; grass dominant; probably burnt during 2004 fire	-33.72173	25.63486	77 m	20 m x 50 m
21 October 2009	ST1	Sundays Thicket along dirt road between CB1 powerlines and main PE-Addo road; shallow brown, clay-loam soil over Alexandra Formation limestone; dense thicket to 3 m+	-33.71424	25.61213	86 m	10 m x 100 m
21 October 2009	AAV1	Albany Alluvial Vegetation adjacent to bridge over lower Coega River, road between PE and Addo; 5 – 10 m band of alluvial vegetation in narrow channel of Coega River; clay alluvium over Quaternary alluvium; vegetation dominated by Acacia karroo	-33.74564	25.59346	35 m	10 m x 100 m
21 October 2009	ST2	Sundays Thicket along road to Springs Resort, north of Uitenhage; dense thicket to 3 – 4 m tall; shallow reddish clay loam soil over Kirkwood Formation mudstone; gentle south-east facing slope	-33.70881	25.43470	39 m	5 m x 200 m
22 October 2009	AAV2	Albany Alluvial Vegetation along the Coega River, on Amanzi, Sir Percy Fitzpatrick's Farm, north-east of Uitenhage; vegetation found on a series of longitudinal pools, now seasonal; site heavily degraded with fallow citrus orchard in flood plain, and tall eucalypts along edge of river bank, to 30m+; extremely thick litter layer (shedders); upper bank invaded by Opuntia; cattle; stratified alluvium (alluvial clay) on Quaternary deposits; thicket vegetation upstream of longitudinal pools, in a narrow band (barely 10 m wise) along upper reaches, essentially on floodplain	-33.70586	25.51560	88 m	10 m x 100 m
22 October 2009	ST4	Sundays Thicket on a farm at the intersection of Port Elizabeth-Graaff-Reinet Roads and Motherwell/Uitenhage interchange; dense thicket to 6 m + (Euphorbia triangularis), but locally heavily degraded due to cattle grazing and clearing; some path erosion; shallow, reddish soils (similar to ST3) over Sundays River Formation mudstones	-33.75790	25.43148	143 m	10 m x 100 m
23 October 2009	KGStF4	Kouga Grassy Sandstone Fynbos on Hillwacht Farm; shallow, skeletal; stony soils (sand to sandy loam) over Peninsula Formation quartzite; moderate south-east facing slope; with bedrock exposed locally; fairly degraded with cattle grazing and likelihood of frequent burning; 4 – 5 yr post fire, but older individuals of Leucospermum cuneiforme of 1.5 to 2 m tall; Bobartia orientalis common, to 1 m	-33.68655	25.42082	277 m	20 m x 50 m
Date	**Site**	**Locality and general description of habitat**	**Latitude**	**Longitude**	**Alt (m)**	**Plot dim.**
23 October 2009	STFo1	Southern Afrotemperate Forest in Groendal Wilderness Area, at edge of KwaZunga floodplain; medium height forest to 12 – 15 m; dark brown ?alluvial clay along river, over Enon Conglomerate	-33.70960	25.28591	74 m?	20 m x 50 m

Appendix 1.2. Location and description of plant species sampling sites along the proposed Eskom transmission line routes between Thyspunt and Port Elizabeth: EIA (October 2009 fieldwork)

23 October 2009	KGStF5	Kouga Grassy Sandstone Fynbos in Otterford State Forest, above Izak Fourie's Farm; top of mountain ridge on the Elandsberge (back of Vanstadensberge); flat to gentle south-facing slope on Peninsula Formation sandstone; about 6 – 7 years post-fire	-33.83189	25.22931	476 m	50 m x 20 m
24 October 2009	HShR3	Humansdorp Shale Renosterveld on Rietkuil Farm 396 on road between St Albans Prison and KwaNobuhle township (Uitenhage); gentle to moderate south-facing slope; clay soil over shale, with termitaria; renosterveld shrubland somewhat degraded; open patches possibly grazed, farm derelict; mid-dense veld, grazed and burnt, but fairly high diversity; height 40 – 50 cm	-33.85203	25.37496	206 m	20 m x 50 m
24 October 2009	STFo2	Southern Afrotemperate Forest in Van Stadens Nature Reserve, along Forest Walk; Peninsula Formation sandstone, with steep north-facing slope; closed canopy (90 – 95% cover) with forest reaching about 12 m tall	-33.91165	25.20487	165 m	100 m x 10 m
24 October 2009	ST5	Sundays Thicket at Kakkerlaksvlei, near (to the south-east) KwaNobuhle; ?Kirkwood shale, with red earths, deepish soil, but stony; thicket heavily disturbed but good localised patches; probably grazing/browsing by goats; thicket 2.5 to 3 m tall, dense where not cleared; occasional emergent *Portulacaria afra* spekboom to 4 m; *Felicia filifolia, Pteronia paniculata, P.incana* and *Cynodon dactylon* in openings	-33.83409	25.41788	94 m	100 m x 10 m
25 October 2009	GT4	Gamtoos Thicket on Dr Kift's Farm, east side of Gamtoos River valley, overlooking estuary; reddish clay soil over Enon Formation subordinate mudstone; medium height thicket to 3 – 4 m; with Euphorbia triangularis to 5m and Sideroxylon inerme milkwood to 6 m; relatively open understory; moderate south-facing slope	-33.93967	25.02478	76 m	10 m x 100 m
26 October 2009	HShR4	Humansdorp Shale Renosterveld on Lombardini Game Farm; renosterveld in fairly good condition, probably burnt in 2004 fire, dominated by Oedera genistifolia; 50 cm to 1 m tall, with emergent dense thicket clumps of 2 – 3 m; presence of indigenous game	-34.08477	24.86150	22 m	20 m x 50 m

Appendix 1.2. Location and description of plant species sampling sites along the proposed Eskom transmission line routes between Thyspunt and Port Elizabeth: EIA (October 2009 fieldwork)

Date	Site	Locality and general description of habitat	Latitude	Longitude	Alt (m)	Plot dim.
26 October 2009	TSIStF3	Tsitsikamma Sandstone Fynbos on Mr Yusef Jeeva's Farm, to the north of the St Francis Bay-Oyster Bay Road, south of the Krom River; gentle south-facing slope; shallow sandy soils over Goudini Formation quartzite; frequently burnt veld with loss of obligate reseeding proteas; proteas to 0.5m, occasionally 1 m; veld 4 – 5 yrs post-fire	-34.13384	24.74849	85 m	20 m x 50 m
27 October 2009	KStF1	Kouga Sandstone Fynbos in Nature Conservation lands, south of Kingsview farm, (Cyferfontein) within the Longmore Forestry Area; moribund veld of 15 – 17 yrs post fire (rest of area burnt in 2004 0r 2005); shallow sandy loam soils with dark brown topsoil over Peninsula Formation quartzite; vegetation dominated by Protea neriifolia (3 m) also Leucadendron salignum sunshine bush (1 – 1.5m) and ericas (0.5 to 1m); probable grazing by cattle	-33.83782	25.07857	324 m	20 m x 50 m
27 October 2009	AAV3	Albany Alluvium Vegetation on left bank of Loerie River, just above confluence with the Gamtoos, near railway line; flat alluvial plain; deep clay-rich alluvial soils; thicket dominated by Acacia karroo to 6m+, occasionally 8 m	-33.87733	25.00142	0 m	10 m x 100 m
27 October 2009	HShR5	Humansdorp Shale Renosterveld in the Kabeljous River Nature Reserve, on the coast just east of Jefferys Bay; 5 yr post fire renosterveld to 0.5.- 1 m, dominated by Aspalathus sp., but often lower; localised damp patches with Conyza cf. scabrida; gentle south-facing slope with occasional emergent thicket species; shallow clayey soils over Bluewater Bay Formation alluvial gravels	-33.99297	24.93574	13 m	20 m x 50 m

Appendix 1.3. Location and description of plant species sampling sites along the proposed Eskom transmission line routes between Thyspunt and Port Elizabeth: EIA (January 2010 fieldwork)

Date	Site	Locality and general description of vegetation	Latitude	Longitude	Alt (m)	Plot dim.
17 January 2010	KGStF6	Low mountain (back of Van Stadensberg) on Izak Fourie's Farm, along Elands River Road, northern boundary of Longmore State Forest (pine plantations); 5 – 6 yrs, possibly to 7 post fire; Young mesic sandstone fynbos; Skurweberg Formation quartzite	-33.88938	25.35585	575	20 m x 50 m
17 January 2010	KGStF7	12. 6 north-west of KGStF6, extension of Van Stadensberg just inside Longmore State Forest. Gentle south-east facing slope; 15 yrs+ post fire; mesic to wet fynbos on shallow sandy soils over Skurweberg Formation quartzite; light brown termite hills present	-33.75456	25.09778	504	20 m x 50 m
17 January 2010	AStF1	2 – 3 yr old veld; extreme SE of southern route, near St Albans, on powerline route 50 – 75 m wide; shallow sandy soils over Goudini Formation quartzite, although some clay present. Some laterisation; vegetation dominated by Leucadendron salignum (resprouter); veld likely to have lost many obligate reseeders	-33.88938	25.35585	231	20 m x 50 m
18 January 2010	KStF2	Van Stadensberg, near radio masts on top of mountain; gentle south facing slope; shallow, stony sandy soils over Peninsula Formation quartzite; approx 5 yr old veld; 5 – 10 % exposed bedrock; wet fynbos	-33.88783	25.26674	576	20 m x 50 m
18 January 2010	KStF3	Mesic fynbos on Peninsula Formation quartzite, in northern section of Van Stadens Nature Reserve (north of N2) (gentle north-facing slope; shallow sandy soil over quartzite; 5 yr post fire proteoid vegetation (Protea repens)	-33.90674	25.20542	227	20 m x 50 m
18 January 2010	AStF2	Van Stadens Nature Reserve, south of N2 (about 400 m), along track leading to forest walk); mesic fynbos on Sardinia Formation quartzite with occasional conglomerate; shallow sandy soil over quartzite; 5 yr post fire mesic to wet fynbos	-33.91238	25.20716	212	20 m x 50 m
18 January 2010	GT5	Van Stadens Pass (east of bridge); steep north-west facing slope; mesic thicket 6 – 7 m tall on Sardinia Formation but local subordinate shale; dominated by Brachylaena elliptica, Euclea undulata, Pterocelastrus tricuspidatus, Hippobromus pauciflorus; locally open understory, possibly transitional to forest which occurs elsewhere in the gorge (see Site STFo2), with occasional emergent tree, but thicket dominating	-33.91264	25.19647	96	15 m x 60 – 80 m
Date	**Site**	**Locality and general description of habitat**	**Latitude**	**Longitude**	**Alt (m)**	**Plot dim.**

Appendix 1.3. Location and description of plant species sampling sites along the proposed Eskom transmission line routes between Thyspunt and Port Elizabeth: EIA (January 2010 fieldwork)

19 January 2010	GT6	Gamtoos Thicket at Kleinrivier Boedery (Kleyns). Moderate to steep south-facing slope; shale or conglomerate (subordinate shale) with deep red and brown earths, > 15 cm deep, with 2-3 cm thick litter layer and high organic matter in topsoil, dense root mat; thicket in good condition, but abrupt cut due to farmland; thicket resilient to disturbance; much co-dominance	-33.80582	24.94483	119 m	50 m x 20 m
19 January 2010	LCF6	Mesic to dry Loerie Conglomerate Fynbos on Kleinrivier Farm, south of main farm (Marius Kleyn); shallow, stony Kirkwood Formation quartzite soils; mid dense to dense proteoid fynbos; Protea repens 17 yrs post fire; moderate south-facing slope dominated by Protea repens and Leucadendron salignum	-33.81725	24.94300	229	50 m x 20 m
19 January 2010	KStF4	Kouga Sandstone Fynbos in northern corridor; gentle south-facing slope; shallow sandy soils on Peninsula Formation quartzite; on edge of Otterford Forestry Area; good quality fynbos although recently burnt (2004 fire, so 5 yrs post burn; shallow, skeletal soils >15 cm deep), grey brown in colour; dominated locally by Leucadendron loeriensis, Protea mundii, with exposed bedrock (5 – 10%)	-33.74816	25.02279	858	20 m x 50 m
20 January 2010	KStF5	Kouga Sandstone Fynbos west of KGStF7 in MTO land; Elandsrivier Road, south-west of KGStF7, and south-west of Vrede; skeletal, yellow brown, stony, sandy soil over Skurweberg Formation quartzite; veld 5 – 6 yrs post fire) (probably 2004 fire); gentle south-facing slope; dominants – Protea neriifolia and Osteospermum polygaloides; 20% bedrock and stones	-33.77253	25.10623	580	20 m x 50 m
20 January 2010	ACBG1	Albany Coastal Belt Grassland at Jagerhof Farm; Nanaga Formation aeolianite (decomposing old dunes) with deep, fine textured sands, light brown to grey; dominated by grasses (Ehrharta calycina), with emergent thicket species; thicket locally as well small forest patches	-33.91623	25.17009	189	20 m x 50 m
20 January 2010	ACBT1	Dense thicket in Albany Coastal Belt Vegetation (mosaic with grassland); but also transitional forest, along cutting on high point in Jagerhof Farm; Nanaga Formation aeolianite (decomposing old dunes) with deep, fine textured sands, light brown to grey; dominated by Scutia myrtina, Rhoicissus spp., Chaetacme, Isoglossa ciliata; Schotia latifolia; deep sands over Nanaga Formation aeolianite	-33.91683	25.16150	262	20 m x 50 m

Appendix 1.3. Location and description of plant species sampling sites along the proposed Eskom transmission line routes between Thyspunt and Port Elizabeth: EIA (January 2010 fieldwork)

Vegetation type (SANBI)
AAV – Albany Alluvial Vegetation

ACB – Albany Coastal Belt grassland and thicket

AStF – Algoa Sandstone Fynbos

CB – Coega Bontveld

GT – Gamtoos Thicket

HShR – Humansdorp Shale Renosterveld

KGStF – Kouga Grassy Sandstone Fynbos

KStF – Kouga Sandstone Fynbos

LCF – Loerie Conglomerate Fynbos

SCF – Southern Coastal Forest

ST – Sundays Thicket

STFo – Southern Afrotemperate Forest

TSIStF– Tsitsikamma Sandstone Fynbos

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

EX = Extinct, EW = Extinct in the wild, CR = Critically Endangered, EN = Endangered, CU = Vulnerable, NT = Near Threatened, DD = Data Deficient, LC = Least Concern, NE = Not Evaluated.

*** = National assessment downgraded as per IUCN regional assessment procedures**

Report produced by the SaSFLORA database: data (C) Coastec; database design and structures (C) Reuben Roberts 1998-2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

FOREST

SOUTHERN AFROTEMPERATE FOREST

SITE STFo1

Division: Pteridophyta
THELYPTERIDACEAE
Thelypteris
confluens (Thunb.) C.V.Morton LC

Division: Anthophyta **Class:** Dicotyledones
ARALIACEAE
Centella
cf. asiatica (L.) Urban LC
Hydrocotyle
verticillata Thunb. LC
ASTERACEAE
Mikania
capensis DC. LC
CAMPANULACEAE
Grammatotheca
cf. bergiana (Cham.) C.Presl
CELASTRACEAE
Cassine
parvifolia Sond. LC
Elaeodendron
croceum (Thunb.) DC. Declining
Gymnosporia
buxifolia (L.) Szyszyl. LC
CELTIDACEAE
Celtis
cf. africana Burm.f. LC
CONVOLVULACEAE
Ipomoea
cairica (L.) Sweet LC
CRASSULACEAE
Crassula
spathulata Thunb. LC
EBENACEAE
Diospyros
dichrophylla (Gand.) De Winter LC
FABACEAE
Acacia
karroo Hayne LC
Rhynchosia
caribaea (Jacq.) DC. LC
ICACINACEAE
Apodytes
cf. dimidiata E.Mey. ex Arn. subsp. dimidiata LC
MALVACEAE
Pavonia
praemorsa (L.f.) Cav. LC
MORACEAE
Ficus
sur Forssk. LC
OLEACEAE
Olea
cf. europaea (L.) subsp. africana (Mill.) P.S.Green LC
PODOCARPACEAE
Podocarpus
falcatus (Thunb.) R.Br. ex Mirb.
RHAMNACEAE
Scutia
myrtina (Burm.f.) Kurz LC
RUBIACEAE
Canthium
cf. inerme (L.f.) Kuntze LC
Galopina
circaeoides Thunb. LC
SAPINDACEAE
Allophylus
cf. decipiens (Sond.) Radlk. LC
SAPOTACEAE
Sideroxylon
inerme L. subsp. inerme LC
STILBACEAE
Nuxia
floribunda Benth. LC
VITACEAE
Rhoicissus
tomentosa (Lam.) Wild & R.B.Drumm. LC

Division: Anthophyta **Class:** Monocotyledones
CYPERACEAE
Carex
clavata Thunb. LC
Eleocharis
limosa (Schrad.) Schult. LC
Fuirena
hirsuta (P.J.Bergius) P.L.Forbes LC
IRIDACEAE
Aristea

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

cf. ecklonii Baker LC
Dietes
cf. iridioides (L.) Sweet ex Klatt LC
JUNCACEAE
Juncus
capensis Thunb. LC
RESTIONACEAE
Calopsis
paniculata (Rottb.) Desv. LC

Total species:	40
Total named species:	**33**
Total genera:	**33**
Total families:	**25**
Total red data species:	**0**
Total introduced species:	**1**

References: A B Low, C Logie & Y Pretorius personal collection, 23 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE STFO2

Division: Pteridophyta
ASPLENIACEAE
Asplenium
rutifolium (P. J. Bergius) Kunze LC
DRYOPTERIDACEAE
Rumohra
adiantiformis (G.Forst.) Ching LC
RUBIACEAE
Burchellia
bubalina (L.f.) Sims NE

Division: Anthophyta **Class:** Dicotyledones
ANACARDIACEAE
Loxostylis
alata A.Spreng. ex Reichb. Declining
APOCYNACEAE
Carissa
cf. bispinosa (L.) Desf. ex Brenan LC
Gonioma
kamassi E.Mey. LC
Secamone
alpini Schult. LC
ASTERACEAE
Brachylaena
glabra (L.f.) Druce LC
Cineraria
cf. lobata L'Her. LC
Gerbera
ambigua (Cass.) Sch.Bip. LC
Mikania
capensis DC. LC
Senecio
deltoideus Less. LC
macroglossus DC. LC
BRASSICACEAE
Capparis
sepiaria L.
CELASTRACEAE
Cassine
peragua L.
Gymnosporia
nemorosa (Eckl. & Zeyh.) Szyszyl. LC
Lauridia
reticulata Eckl. & Zeyh. LC
Pterocelastrus
tricuspidatus (Lam.) Sond. LC
Robsonodendron
eucleiforme (Eckl. & Zeyh.) R.H.Archer LC
CELTIDACEAE
Chaetachme
aristata Planch.
CRASSULACEAE
Crassula
orbicularis L. LC
pellucida L.
CURTISIACEAE
Curtisia
dentata (Burm.f.) C.A.Sm. NT
FLACOURTIACEAE
Scolopia
mundii (Eckl. & Zeyh.) Warb. LC
Trimeria
trinervis Harv. LC
GESNERIACEAE
Streptocarpus
rexii LC
HAMAMELIDACEAE
Trichocladus
crinitus (Thunb.) Pers. LC
ICACINACEAE
Apodytes
dimidiata E.Mey. ex Arn. subsp. dimidiata LC
LAMIACEAE
Plectranthus
madagascariensis (Pers.) Benth.
verticillatus (L.f.) Druce LC
MYRSINACEAE
Rapanea
melanophloeos (L.) Mez Declining
OCHNACEAE
Ochna
serrulata (Hochst.) Walp. LC
OLEACEAE
Chionanthus
foveolatus (E.Mey.) Stearn
Olea
capensis L. subsp. macrocarpa (C.H.Wright) I.Verd. LC
OLINIACEAE
Olinia
capensis (Jacq.) Klotzsch LC
OXALIDACEAE
Oxalis
incarnata L. LC
PODOCARPACEAE
Podocarpus

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

falcatus (Thunb.) R.Br. ex Mirb.
RHAMNACEAE
Scutia
myrtina (Burm.f.) Kurz LC
RUBIACEAE
Canthium
mundianum Cham. & Schltdl.
spinosum (Klotzsch) Kuntze LC
RUTACEAE
Vepris
lanceolata (Lam.) G.Don LC
SANTALACEAE
Rhoiacarpos
capensis (Harv.) A.DC. LC
SAPINDACEAE
Allophylus
decipiens (Sond.) Radlk. LC
Atalaya
capensis R.A.Dyer LC
Smelophyllum
capense (Sond.) Radlk. LC
SAPOTACEAE
Sideroxylon
inerme L. subsp. inerme LC
VITACEAE
Rhoicissus
digitata (L.f.) Gilg & M.Brandt LC

Division: Anthophyta **Class:** Monocotyledones
AMARYLLIDACEAE
Haemanthus
albiflos Jacq. LC
ASPARAGACEAE
Asparagus
suaveolens Burch. LC
volubilis Thunb. LC
ASPHODELACEAE
Bulbine
latifolia (L.f.) Roem. & Schult.
BEHNIACEAE
Behnia
reticulata (Thunb.) Didr. LC
CONVALLARIACEAE
Dracaena
aletriformis (Haw.) Bos LC

HYACINTHACEAE
Ornithogalum
cf. longibracteatum Jacq. LC
Veltheimia
bracteata Harv. ex baker LC
IRIDACEAE
Dietes
iridioides (L.) Sweet ex Klatt LC
Melasphaerula
ramosa (L.) N.E.Br. LC
ORCHIDACEAE
Liparis
bowkeri Harv. LC
POACEAE
Panicum
cf. maximum Jacq. LC

Total species:	**63**
Total named species:	**60**
Total genera:	**55**
Total families:	**38**
Total red data species:	**1**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 24 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SOUTHERN COASTAL FOREST

SITE SCF1

Division: Pteridophyta
DRYOPTERIDACEAE
Rumohra
adiantiformis (G.Forst.) Ching LC
Division: Anthophyta **Class:** Dicotyledones
ACANTHACEAE
Hypoestes
forskaolii (Vahl) R.Br. LC
ANACARDIACEAE
Rhus
chirindensis Baker
APOCYNACEAE
Carissa
bispinosa (L.) Desf. ex Brenan LC
Cynanchum
natalitium Schltr. LC
Secamone
alpini Schult. LC
BORAGINACEAE
Cordia
caffra Sond. LC
BRASSICACEAE
Capparis
sepiaria L.
Maerua
cf. racemulosa (A.DC.) Gilg & Ben. LC
CELASTRACEAE
Elaeodendron
croceum (Thunb.) DC. Declining
Maytenus
undata (Thunb.) Blakelock LC
Mystroxylon
aethiopicum (Thunb.) Loes.
Pterocelastrus
tricuspidatus (Lam.) Sond. LC
CELTIDACEAE
Celtis
africana Burm.f. LC
EBENACEAE
Diospyros
pallens (Thunb.) F.White LC
FABACEAE
Schotia
cf. latifolia LC
FLACOURTIACEAE
Trimeria
cf. trinervis Harv. LC
ICACINACEAE
Apodytes
dimidiata E.Mey. ex Arn. subsp. dimidiata LC
MALVACEAE
Grewia
occidentalis L.
MORACEAE
Ficus
cf. natalensis Hochst. subsp. natalensis
MYRTACEAE
Eugenia
zeyheri Harv. LC
OLEACEAE
Chionanthus
foveolatus (E.Mey.) Stearn
PLUMBAGINACEAE
Plumbago
auriculata Lam. LC
RANUNCULACEAE
Clematis
brachiata Thunb. LC
RHAMNACEAE
Scutia
myrtina (Burm.f.) Kurz LC
RUBIACEAE
Canthium
cf. inerme (L.f.) Kuntze LC
spinosum (Klotzsch) Kuntze LC
RUTACEAE
Clausena
anisata (Willd.) Hook.f. ex Benth.
Vepris
lanceolata (Lam.) G.Don LC
Zanthoxylum
capense (Thunb.) Harv. LC
SAPOTACEAE
Sideroxylon
inerme L. subsp. inerme LC
SCROPHULARIACEAE
Chaenostoma
violaceum Schltr.
VITACEAE
Rhoicissus
tomentosa (Lam.) Wild & R.B.Drumm. LC

Division: Anthophyta **Class:** Monocotyledones
AMARYLLIDACEAE

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Scadoxus
puniceus (L.) Friis & Nordal LC
BEHNIACEAE
Behnia
reticulata (Thunb.) Didr. LC
IRIDACEAE
Dietes
cf. iridioides (L.) Sweet ex Klatt LC
POACEAE
Panicum
cf. maximum Jacq. LC

Total named species:	41
Total named species:	**37**
Total genera:	**36**
Total families:	**28**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 24 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

FYNBOS

ALGOA SANDSTONE FYNBOS

SITE ASTF1

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - rosmarinifolia Vahl

ARALIACEAE
- Centella
  - hermanniifolia (Eckl. & Zeyh.) Domin var. hermannifolia

ASTERACEAE
- Disparago
  - cf. tortilis (DC.) Sch.Bip.
- Helichrysum
  - cf. anomalum Less. LC
  - teretifolium (L.) D.Don. LC
- Relhania
  - pungens L'Her.
- Senecio
  - chrysocoma Meerb. LC
  - inaequidens DC. LC
- Syncarpha
  - argentea (Thunb.) B.Nord. LC
  - striata (Thunb.) B.Nord.

BORAGINACEAE
- Lobostemon
  - cf. trigonus (Thunb.) H.Buek LC

DIPSACACEAE
- Cephalaria
  - cf. attenuata (L.f.) Roem. & Schult. LC

FABACEAE
- Tephrosia
  - capensis (Jacq.) Pers.

GENTIANACEAE
- Chironia
  - cf. palustris Burch. subsp. palustris

GERANIACEAE
- Pelargonium
  - ribifolium Jacq. LC

MALVACEAE
- Hermannia
  - flammea Jacq. LC

MONTINIACEAE
- Montinia
  - caryophyllacea Thunb. LC

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC

RUBIACEAE
- Anthospermum
  - cf. aethiopicum L. LC

RUTACEAE
- Coleonema
  - cf. pulchellum I.Williams LC

THYMELAEACEAE
- Gnidia
  - cf. styphelioides Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

AMARYLLIDACEAE
- Boophone
  - disticha (L.f.) Herb. Declining

IRIDACEAE
- Aristea
  - anceps Eckl. ex Klatt LC
- Watsonia
  - pillansii L.Bolus LC

ORCHIDACEAE
- Acrolophia
  - cf. capensis (P.J.Bergius) Fourc. LC
- Disa
  - hians (L.f.) Spreng. LC

POACEAE
- Ehrharta
  - cf. calycina Sm. LC
- Themeda
  - triandra Forssk. LC

RESTIONACEAE
- Thamnochortus
  - cf. glaber (Mast.) Pillans LC

Total species:	**29**
Total named species:	**29**
Total families:	**19**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 17 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE ASTF2

Division: Pteridophyta
SCHIZAEACEAE
Schizaea
cf. pectinata (L.) Sw. LC

Division: Anthophyta **Class:** Dicotyledones
ACANTHACEAE
Chaetacanthus
setiger (Pers.) Lindl. LC
Thunbergia
capensis Retz. LC
ANACARDIACEAE
Rhus
lucida L.
ASTERACEAE
Athanasia
dentata (L.) L. LC
Chrysanthemoides
monilifera (L.) Norl.
Felicia
amelloides (L.) Voss
Helichrysum
cf. asperum (Thunb.) Hilliard & B.L.Burtt
cymosum (L.) D.Don.
felinum Less. LC
nudifolium (L.) Less.
Senecio
chrysocoma Meerb. LC
Vernonia
capensis (Houtt.) Druce LC
CAMPANULACEAE
Lobelia
tomentosa L.f. LC
DIPSACACEAE
Scabiosa
cf. columbaria L. LC
EUPHORBIACEAE
Euphorbia
cf. silenifolia (Haw.) Sweet LC
FABACEAE
Indigofera
verrucosa Eckl. & Zeyh. LC
LAURACEAE
Cassytha
ciliolata Nees LC
MALVACEAE
Hermannia
flammea Jacq. LC
MONTINIACEAE
Montinia
caryophyllacea Thunb. LC
POLYGALACEAE
Polygala
virgata Thunb.
PROTEACEAE
Leucadendron
salignum P.J.Bergius LC
Protea
neriifolia R.Br. LC
RHAMNACEAE
Phylica
axillaris Lam.
RUBIACEAE
Anthospermum
cf. aethiopicum L. LC
SAPINDACEAE
Dodonaea
viscosa Jacq. var. angustifolia LC
SCROPHULARIACEAE
Selago
cf. corymbosa L. LC
THYMELAEACEAE
Struthiola
parviflora Bartl. ex Meisn. LC

Division: Anthophyta **Class:** Monocotyledones
ASPHODELACEAE
Aloe
micracantha Haw. NT
HYACINTHACEAE
Ornithogalum
dubium Houtt. LC
LANARIACEAE
Lanaria
lanata (L.) T.Durand & Schinz LC
POACEAE
Themeda
triandra Forssk. LC

Total species:	**36**
Total named species:	**32**

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total genera:	**29**
Total families:	**22**
Total red data species:	**1**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 18 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

KOUGA GRASSY SANDSTONE FYNBOS

SITE KGSTF1

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Chaetacanthus
  - setiger (Pers.) Lindl. LC

ANACARDIACEAE
- Rhus
  - cf. pallens Eckl. & Zeyh.
  - rosmarinifolia Vahl

ASTERACEAE
- Disparago
  - tortilis (DC.) Sch.Bip.
- Helichrysum
  - cymosum (L.) D.Don.
  - nudifolium (L.) Less.
  - teretifolium (L.) D.Don. LC
- Metalasia
  - cf. muricata (L.) D.Don. LC
- Senecio
  - chrysocoma Meerb. LC
  - oederiifolius DC. LC
- Tarchonanthus
  - camphoratus L. LC
- Vernonia
  - cf. capensis (Houtt.) Druce LC

CARYOPHYLLACEAE
- Silene
  - pilosellifolia Cham. & Schltdl.

DIPSACACEAE
- Scabiosa
  - columbaria L. LC

ERICACEAE
- Erica
  - pectinifolia Salisb.

FABACEAE
- Eriosema
  - squarrosum (Thunb.) Walp. LC
- Indigofera
  - glaucescens Eckl. & Zeyh. LC
- Tephrosia
  - capensis (Jacq.) Pers.

GERANIACEAE
- Pelargonium
  - reniforme Curtis

MALVACEAE
- Hermannia
  - flammea Jacq. LC

MONTINIACEAE
- Montinia
  - caryophyllacea Thunb. LC

OROBANCHACEAE
- Hyobanche
  - sanguinea L. LC

OXALIDACEAE
- Oxalis
  - imbricata Eckl. & Zeyh.

PROTEACEAE
- Leucadendron
  - cf. salignum P.J.Bergius LC
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC
- Protea
  - tenax (Salisb.) R.Br. LC

RUBIACEAE
- Anthospermum
  - aethiopicum L. LC

RUTACEAE
- Agathosma
  - capensis (L.) Dümmer LC

SCROPHULARIACEAE
- Jamesbrittenia
  - foliolosa (Benth.) Hilliard LC
- Selago
  - corymbosa L. LC

Division: Anthophyta **Class:** Monocotyledones

IRIDACEAE
- Aristea
  - cf. pusilla (Thunb.) Ker Gawl. LC

OXALIDACEAE
- Oxalis
  - smithiana Eckl. & Zeyh. LC

POACEAE
- Cymbopogon
  - marginatus (Steud.) Stapf ex Burtt Davy LC
- Eragrostis
  - capensis (Thunb.) Trin. LC
- Themeda
  - triandra Forssk. LC

RESTIONACEAE
- Ischyrolepis
  - sieberi (Kunth) H.P.Linder LC

Total species:	**53**
Total named species:	**36**

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total genera:	**31**
Total families:	**19**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 17 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE KGSTF2

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - cf. lucida L.
  - rosmarinifolia Vahl

ASTERACEAE
- Corymbium
  - africanum L.
- Disparago
  - tortilis (DC.) Sch.Bip.
- Euryops
  - munitus (L.f.) B.Nord. LC
- Helichrysum
  - nudifolium (L.) Less.
  - teretifolium (L.) D.Don. LC
- Metalasia
  - cf. densa (Lam.) Karis LC
- Senecio
  - oederiifolius DC. LC
- Seriphium
  - plumosum L. NE

CAMPANULACEAE
- Lobelia
  - tomentosa L.f. LC

ERICACEAE
- Erica
  - nutans J.C.Wendl.
  - pectinifolia Salisb.

FABACEAE
- Aspalathus
  - cf. biflora E.Mey.
- Indigofera
  - heterophylla Thunb. LC
- Tephrosia
  - capensis (Jacq.) Pers.

GERANIACEAE
- Pelargonium
  - ovale (Burm.f.) L'Hér.

MALVACEAE
- Hermannia
  - saccifera (Turcz.) K.Schum. LC
- Hibiscus
  - aethiopicus L.

OXALIDACEAE
- Oxalis
  - imbricata Eckl. & Zeyh.

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC
- Protea
  - neriifolia R.Br. LC
  - tenax (Salisb.) R.Br. LC

RANUNCULACEAE
- Knowltonia
  - capensis (L.) Huth LC
  - cordata H.Rasm. LC

RUBIACEAE
- Anthospermum
  - aethiopicum L. LC

RUTACEAE
- Agathosma
  - capensis (L.) Dümmer LC
  - cf. pegleriae Dümmer

THYMELAEACEAE
- Gnidia
  - cf. styphelioides Meisn. LC
- Struthiola
  - parviflora Bartl. ex Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

AMARYLLIDACEAE
- Cyrtanthus
  - obliquus (L.f.) Aiton Declining

CYPERACEAE
- Tetraria
  - cf. bromoides (Lam.) Pfeiffer LC

IRIDACEAE
- Bobartia
  - orientalis J.B.Gillet subsp. orientalis LC

LANARIACEAE
- Lanaria
  - lanata (L.) T.Durand & Schinz LC

POACEAE
- Eragrostis
  - capensis (Thunb.) Trin. LC
- Themeda
  - triandra Forssk. LC

RESTIONACEAE
- Thamnochortus
  - cinereus H.P.Linder LC

Total species:	**47**
Total named species:	**38**

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total genera:	**32**
Total families:	**19**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 18 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE KGSTF3

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - lucida L.
  - rosmarinifolia Vahl

APOCYNACEAE
- Carissa
  - bispinosa (L.) Desf. ex Brenan LC
- Microloma
  - tenuifolium (L.) K.Schum. LC

ASTERACEAE
- Chrysanthemoides
  - monilifera (L.) Norl.
- Cineraria
  - cf. lobata L'Her. LC
- Disparago
  - tortilis (DC.) Sch.Bip.
- Euryops
  - munitus (L.f.) B.Nord. LC
- Helichrysum
  - cymosum (L.) D.Don.
- Metalasia
  - cf. densa (Lam.) Karis LC
- Senecio
  - chrysocoma Meerb. LC
  - crenatus Thunb. LC
  - deltoideus Less. LC

BRASSICACEAE
- Heliophila
  - cf. elongata (Thunb.) DC. LC
  - suavissima Burch. ex DC. LC

CELASTRACEAE
- Maytenus
  - cf. oleoides (Lam.) Loes. LC

CRASSULACEAE
- Crassula
  - tetragona L.

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC

ERICACEAE
- Erica
  - pectinifolia Salisb.

LAURACEAE
- Cassytha
  - ciliolata Nees LC

MALVACEAE
- Hermannia
  - involucrata Cav. LC

MESEMBRYANTHEMACEAE
- Carpobrotus
  - edulis (L.) L.Bolus

MYRSINACEAE
- Myrsine
  - africana L. LC

POLYGALACEAE
- Muraltia
  - cf. squarrosa (L.f.) DC. LC

PROTEACEAE
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC
- Protea
  - neriifolia R.Br. LC

RUBIACEAE
- Anthospermum
  - prostratum Sond. LC

RUTACEAE
- Agathosma
  - ovata (Thunb.) Pillans LC

SCROPHULARIACEAE
- Selago
  - cf. luxurians Choisy LC

THYMELAEACEAE
- Gnidia
  - styphelioides Meisn. LC
- Passerina
  - cf. corymbosa Eckl. ex C.H.Wright LC

VITACEAE
- Rhoicissus
  - digitata (L.f.) Gilg & M.Brandt LC

Division: Anthophyta **Class:** Monocotyledones

AMARYLLIDACEAE
- Cyrtanthus
  - obliquus (L.f.) Aiton Declining

COMMELINACEAE
- Commelina
  - africana L.

IRIDACEAE
- Gladiolus
  - permeabilis D.Delaroche

LANARIACEAE
- Lanaria
  - lanata (L.) T.Durand & Schinz LC

POACEAE
- Cymbopogon

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

marginatus (Steud.) Stapf ex Burtt Davy LC
Ehrharta
calycina Sm. LC

Total species:	**49**
Total named species:	**38**
Total genera:	**34**
Total families:	**24**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 18 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE KGSTF4 - FYNBOS

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Chaetacanthus
  - setiger (Pers.) Lindl. LC
- Thunbergia
  - capensis Retz. LC

APIACEAE
- Lichtensteinia
  - interrupta (Thunb.) Sond. LC

ASTERACEAE
- Arctotheca
  - cf. calendula (L.) Levyns LC
- Disparago
  - tortilis (DC.) Sch.Bip.
- Euryops
  - cf. algoensis DC. LC
- Gerbera
  - ambigua (Cass.) Sch.Bip. LC
- Helichrysum
  - cymosum (L.) D.Don.
  - nudifolium (L.) Less.
- Metalasia
  - cf. densa (Lam.) Karis LC
- Oedera
  - genistifolia Anderb. & Bremer LC

CRASSULACEAE
- Crassula
  - cf. muscosa L.

DIPSACACEAE
- Scabiosa
  - columbaria L. LC

EBENACEAE
- Euclea
  - daphnoides

ERICACEAE
- Erica
  - pectinifolia Salisb.

EUPHORBIACEAE
- Clutia
  - cf. alaternoides L.
- Euphorbia
  - cf. clava Jacq. LC
  - pubiglans N.E.Br. LC

FABACEAE
- Podalyria
  - cf. burchellii LC
- Rhynchosia
  - cf. ciliata (Thunb.) Schinz LC
- Tephrosia
  - capensis (Jacq.) Pers.

FLACOURTIACEAE
- Trimeria
  - trinervis Harv. LC

GERANIACEAE
- Pelargonium
  - reniforme Curtis

MESEMBRYANTHEMACEAE
- Antimima
  - caryophyllacca

PITTOSPORACEAE
- Pittosporum
  - viridiflorum Sims LC

PROTEACEAE
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC

RANUNCULACEAE
- Knowltonia
  - vesicatoria (L.f.) Sims

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

RUBIACEAE
- Canthium
  - mundianum Cham. & Schltdl.

THYMELAEACEAE
- Gnidia
  - capitata L.f. LC

Division: Anthophyta **Class:** Monocotyledones

HYACINTHACEAE
- Ornithogalum
  - dubium Houtt. LC

HYPOXIDACEAE
- Hypoxis
  - angustifolia Lam.

IRIDACEAE
- Aristea
  - cf. ecklonii Baker LC
- Bobartia
  - orientalis J.B.Gillett

POACEAE
- Cymbopogon
  - cf. marginatus (Steud.) Stapf ex Burtt Davy LC
- Cynodon
  - cf. dactylon (L.) Pers. LC
- Eragrostis
  - capensis (Thunb.) Trin. LC
  - curvula (Schrad.) Nees LC
- Themeda
  - triandra Forssk. LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total named species:	**55**
Total named species:	**39**
Total genera:	**36**
Total families:	**22**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 23 October 2009

; database design and structures (C) Reuben Roberts 1998-2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

KGSTF4 - THICKET

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - lucida L.
  - pallens Eckl. & Zeyh.

ASTERACEAE
- Chrysanthemoides
  - monilifera (L.) Norl.

CELASTRACEAE
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC
  - scabrida (Harv. ex Hiern) De Winter
- Euclea
  - undulata Thunb. LC

MALVACEAE
- Grewia
  - cf. occidentalis L.

OLEACEAE
- Jasminum
  - angulare Vahl LC

RUBIACEAE
- Canthium
  - inerme (L.f.) Kuntze LC
  - cf. spinosum (Klotzsch) Kuntze LC

SAPINDACEAE
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC
- Pappea
  - capensis Eckl. & Zeyh. LC

VISCACEAE
- Viscum
  - capense L.f. LC

VITACEAE
- Rhoicissus
  - tridentata (L.f.) Wild & R.B.Drumm. LC

Total species:	**18**
Total named species:	**16**
Total genera:	**12**
Total families:	**10**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 23 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE KGSTF5

Division: Anthophyta **Class:** Dicotyledones

ASTERACEAE
- Athanasia
  - dentata (L.) L. LC
- Euryops
  - munitus (L.f.) B.Nord. LC
- Helichrysum
  - felinum Less. LC
  - cf. nudifolium (L.) Less.
- Metalasia
  - cf. densa (Lam.) Karis LC
- Pteronia
  - cf. teretifolia (Thunb.) Fourc. LC

CAMPANULACEAE
- Lobelia
  - tomentosa L.f. LC

EBENACEAE
- Euclea
  - cf. acutifolia E.Mey. ex A.DC. LC

ERICACEAE
- Erica
  - pectinifolia Salisb.

EUPHORBIACEAE
- Clutia
  - cf. laxa Eckl. ex Sond. LC

FABACEAE
- Indigofera
  - heterophylla Thunb. LC

MESEMBRYANTHEMACEAE
- Antimima
  - caryophyllacca

PENAEACEAE
- Penaea
  - cf. mucronata L. LC

POLYGALACEAE
- Polygala
  - ericaefolia DC. LC
  - cf. virgata Thunb.

PROTEACEAE
- Leucadendron
  - eucalyptifolium H.Buek. ex Meisn. LC
  - salignum P.J.Bergius LC
- Protea
  - eximia (Salisb. ex Knight) Fourc. LC
  - neriifolia R.Br. LC

RANUNCULACEAE
- Knowltonia
  - cf. vesicatoria (L.f.) Sims

ROSACEAE
- Cliffortia
  - ilicifolia L.

RUBIACEAE
- Anthospermum
  - aethiopicum L. LC

THYMELAEACEAE
- Gnidia
  - capitata L.f. LC
  - cf. styphelioides Meisn. LC
- Struthiola
  - parviflora Bartl. ex Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

RESTIONACEAE
- Cannomois
  - cf. virgata (Rottb.) Steud. LC
- Hypodiscus
  - synchroolepis (Steud.) Mast. LC

Total species:	**45**
Total named species:	**27**
Total genera:	**22**
Total families:	**15**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 23 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE KGSTF6 Thomas personal collection, 17 January 2010

Division: Anthophyta **Class:** Dicotyledones
ASTERACEAE
Corymbium
africanum L.
Euryops
munitus (L.f.) B.Nord. LC
Helichrysum
felinum Less. LC
ERICACEAE
Erica
cerinthoides L.
FABACEAE
Rhynchosia
cf. ciliata (Thunb.) Schinz LC
PENAEACEAE
Penaea
cf. mucronata L. LC
POLYGALACEAE
Polygala
illepida E.Mey. ex Harv. LC
PROTEACEAE
Leucadendron
salignum P.J.Bergius LC
Protea
cynaroides (L.) L. LC
eximia (Salisb. ex Knight) Fourc. LC
neriifolia R.Br. LC
THYMELAEACEAE
Gnidia
coriacea Meisn. LC
Struthiola
cf. argentea Lehm. LC
Division: Anthophyta **Class:** Monocotyledones
CYPERACEAE
Tetraria
cf. bromoides (Lam.) Pfeiffer LC
LANARIACEAE
Lanaria
lanata (L.) T.Durand & Schinz LC
RESTIONACEAE
Thamnochortus
cf. cinereus H.P.Linder LC

Total species:	**18**
Total named species:	**16**
Total genera:	**14**
Total families:	**10**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE KGSTF7

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - lucida L.

ASTERACEAE
- Athanasia
  - dentata (L.) L. LC
- Chrysanthemoides
  - monilifera (L.) Norl.
- Euryops
  - munitus (L.f.) B.Nord. LC
- Helichrysum
  - anomalum Less. LC
  - cf. cymosum (L.) D.Don.
  - felinum Less. LC
  - nudifolium (L.) Less.
- Osteospermum
  - polygaloides L.
- Pteronia
  - cf. teretifolia (Thunb.) Fourc. LC

ERICACEAE
- Erica
  - pectinifolia Salisb.

FABACEAE
- Tephrosia
  - capensis (Jacq.) Pers.

LINACEAE
- Linum
  - cf. africanum L. LC

MALVACEAE
- Hermannia
  - flammea Jacq. LC

MONTINIACEAE
- Montinia
  - caryophyllacea Thunb. LC

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Protea
  - neriifolia R.Br. LC

RUBIACEAE
- Anthospermum
  - aethiopicum L. LC

SCROPHULARIACEAE
- Selago
  - luxurians Choisy LC

THYMELAEACEAE
- Gnidia
  - styphelioides Meisn. LC
- Struthiola
  - parviflora Bartl. ex Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

CYPERACEAE
- Tetraria
  - cf. bromoides (Lam.) Pfeiffer LC

LANARIACEAE
- Lanaria
  - lanata (L.) T.Durand & Schinz LC

POACEAE
- Eragrostis
  - capensis (Thunb.) Trin. LC
- Themeda
  - triandra Forssk. LC

Total species:	**27**
Total named species:	**25**
Total genera:	**22**
Total families:	**14**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 17 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

KOUGA SANDSTONE FYNBOS

SITE KSTF1

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - lucida L.
  - rosmarinifolia Vahl

ASTERACEAE
- Athanasia
  - cf. dentata (L.) L. LC
- Gerbera
  - cf. ambigua (Cass.) Sch.Bip. LC
- Helichrysum
  - anomalum Less. LC
  - cymosum (L.) D.Don.
  - nudifolium (L.) Less.
  - petiolare Hilliard & B.L.Burtt LC
- Metalasia
  - cf. densa (Lam.) Karis LC
- Pteronia
  - cf. teretifolia (Thunb.) Fourc. LC
- Senecio
  - bulbinifolius DC. LC
  - chrysocoma Meerb. LC

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC

FABACEAE
- Indigofera
  - denudata L.f. LC

GENTIANACEAE
- Sebaea
  - grisebachiana Schinz LC

MALVACEAE
- Hermannia
  - flammea Jacq. LC

POLYGALACEAE
- Polygala
  - cf. ericaefolia DC. LC

PROTEACEAE
- Leucadendron
  - sp. KSTF/17
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC
- Protea
  - neriifolia R.Br. LC
  - repens (L.) L. LC

ROSACEAE
- Cliffortia
  - cf. ilicifolia L.

RUBIACEAE
- Anthospermum
  - cf. aethiopicum L. LC

RUTACEAE
- Agathosma
  - capensis (L.) Dümmer LC

THYMELAEACEAE
- Gnidia
  - cf. coriacea Meisn. LC
- Struthiola
  - cf. argentea Lehm. LC

Division: Anthophyta **Class:** Monocotyledones

POACEAE
- Cymbopogon
  - cf. marginatus (Steud.) Stapf ex Burtt Davy LC
- Themeda
  - triandra Forssk. LC

RESTIONACEAE
- Hypodiscus
  - synchroolepis (Steud.) Mast. LC

Total species:	**57**
Total named species:	**29**
Total genera:	**23**
Total families:	**14**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie, Y Pretorius & D McDonald, personal collection, 27 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE KSTF2

Division: Pteridophyta
SCHIZAEACEAE
Schizaea
cf. pectinata (L.) Sw. LC

Division: Anthophyta **Class:** Dicotyledones
ASTERACEAE
Corymbium
cf. africanum L.
cf. glabrum L.
Disparago
cf. ericoides (P.J.Bergius) Gaertn.
Euryops
munitus (L.f.) B.Nord. LC
Helichrysum
cf. cymosum (L.) D.Don.
felinum Less. LC
Ursinia
cf. chrysanthemoides (Less.) Harv. LC
CAMPANULACEAE
Lobelia
neglecta Roem. & Schult. LC
PENAEACEAE
Penaea
cf. mucronata L. LC
POLYGALACEAE
Polygala
illepida E.Mey. ex Harv. LC
PROTEACEAE
Leucadendron
eucalyptifolium H.Buek. ex Meisn. LC
Protea
cynaroides (L.) L. LC
eximia (Salisb. ex Knight) Fourc. LC
foliosa Rourke LC
neriifolia R.Br. LC
RUTACEAE
Agathosma
capensis (L.) Dümmer LC
SCROPHULARIACEAE
Selago
luxurians Choisy LC
Division: Anthophyta **Class:** Monocotyledones
CYPERACEAE
Tetraria
cf. bromoides (Lam.) Pfeiffer LC
ORCHIDACEAE
Disa
hians (L.f.) Spreng. LC
RESTIONACEAE
Thamnochortus
cf. glaber (Mast.) Pillans LC

Total species:	**22**
Total named species:	**21**
Total genera:	**16**
Total families:	**11**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 18 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE KSTF3

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - rosmarinifolia Vahl

ASTERACEAE
- Athanasia
  - dentata (L.) L. LC
- Chrysanthemoides
  - monilifera (L.) Norl.
- Felicia
  - cf. amelloides (L.) Voss
- Helichrysum
  - cf. cymosum (L.) D.Don.
  - felinum Less. LC
- Senecio
  - chrysocoma Meerb. LC
- Tarchonanthus
  - camphoratus L. LC

CAMPANULACEAE
- Lobelia
  - tomentosa L.f. LC

CRASSULACEAE
- Crassula
  - cf. muscosa L.

EBENACEAE
- Diospyros
  - cf. dichrophylla (Gand.) De Winter LC

ERICACEAE
- Erica
  - cf. nutans J.C.Wendl.

FABACEAE
- Aspalathus
  - angustifolia (Lam.) R.Dahlgren
- Tephrosia
  - capensis (Jacq.) Pers.

GENTIANACEAE
- Chironia
  - cf. palustris Burch. subsp. palustris

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Protea
  - cynaroides (L.) L. LC
  - eximia (Salisb. ex Knight) Fourc. LC
  - neriifolia R.Br. LC
  - repens (L.) L. LC

RUBIACEAE
- Anthospermum
  - cf. aethiopicum L. LC
  - cf. prostratum Sond. LC

SCROPHULARIACEAE
- Selago
  - luxurians Choisy LC

STILBACEAE
- Halleria
  - cf. elliptica Thunb. LC

THYMELAEACEAE
- Struthiola
  - cf. hirsuta Wikstr. LC
  - parviflora Bartl. ex Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

POACEAE
- Sporobolus
  - cf. africanus (Poir.) Robyns & Tournay LC
- Themeda
  - triandra Forssk. LC

RESTIONACEAE
- Thamnochortus
  - cf. glaber (Mast.) Pillans LC

Total species:	**30**
Total named species:	**29**
Total genera:	**23**
Total families:	**15**
Total red data species:	**0**
Total introduced species:	**1**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 18 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE KSTF4

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Laurophyllus
  - capensis Thunb. LC

ASTERACEAE
- Corymbium
  - cf. africanum L.
- Euryops
  - munitus (L.f.) B.Nord. LC
- Helichrysum
  - cf. anomalum Less. LC
  - felinum Less. LC
  - nudifolium (L.) Less.
- Osteospermum
  - junceum P.J.Bergius LC
- Senecio
  - paucifloscululosus C.Jeffrey LC
- Ursinia
  - cf. chrysanthemoides (Less.) Harv. LC

CAMPANULACEAE
- Lobelia
  - neglecta Roem. & Schult. LC

ERICACEAE
- Erica
  - cerinthoides L.
  - nabea Guthrie & Bolus LC

FABACEAE
- Podalyria
  - cf. burchellii LC

PENAEACEAE
- Penaea
  - cf. mucronata L. LC

PROTEACEAE
- Leucadendron
  - cf. eucalyptifolium H.Buek. ex Meisn. LC
  - loeriense I.Williams LC
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC
- Protea
  - cynaroides (L.) L. LC
  - foliosa Rourke LC
  - mundii Klotzsch LC

ROSACEAE
- Cliffortia
  - ilicifolia L.

RUBIACEAE
- Anthospermum
  - cf. prostratum Sond. LC

RUTACEAE
- Agathosma
  - capensis (L.) Dümmer LC
  - cf. ovata (Thunb.) Pillans LC

Division: Anthophyta **Class:** Monocotyledones

LANARIACEAE
- Lanaria
  - lanata (L.) T.Durand & Schinz LC

Total species:	**27**
Total named species:	**25**
Total genera:	**18**
Total families:	**11**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 18 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE KSTF5

Division: Pteridophyta
SCHIZAEACEAE
Schizaea
cf. pectinata (L.) Sw. LC

Division: Anthophyta **Class:** Dicotyledones
ASTERACEAE
Corymbium
cf. africanum L.
Gerbera
cf. ambigua (Cass.) Sch.Bip. LC
Helichrysum
cf. anomalum Less. LC
Osteospermum
junceum P.J.Bergius LC
Pteronia
cf. teretifolia (Thunb.) Fourc. LC
Senecio
paucifloscululosus C.Jeffrey LC
CAMPANULACEAE
Lobelia
neglecta Roem. & Schult. LC
ERICACEAE
Erica
cerinthoides L.
nabea Guthrie & Bolus LC
nutans J.C.Wendl.
pectinifolia Salisb.
EUPHORBIACEAE
Euphorbia
cf. silenifolia (Haw.) Sweet LC
GENTIANACEAE
Chironia
cf. palustris Burch.
POLYGALACEAE
Muraltia
cf. squarrosa (L.f.) DC. LC
PROTEACEAE
Leucadendron
salignum P.J.Bergius LC
Protea
cynaroides (L.) L. LC
foliosa Rourke LC
neriifolia R.Br. LC
RHAMNACEAE
Phylica
cf. axillaris Lam.
ROSACEAE
Cliffortia
ilicifolia L.
RUBIACEAE
Anthospermum
cf. aethiopicum L. LC
cf. prostratum Sond. LC
SCROPHULARIACEAE
Selago
luxurians Choisy LC
THYMELAEACEAE
Gnidia
styphelioides Meisn. LC
Struthiola
hirsuta Wikstr. LC

Division: Anthophyta **Class:** Monocotyledones
COMMELINACEAE
Commelina
africana L.
CYPERACEAE
Tetraria
cf. bromoides (Lam.) Pfeiffer LC
IRIDACEAE
Watsonia
knysnana L.Bolus LC
LANARIACEAE
Lanaria
lanata (L.) T.Durand & Schinz LC

Total species:	**32**
Total named species:	**30**
Total genera:	**24**
Total families:	**17**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 20 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

LOERIE CONGLOMERATE FYNBOS

SITE LCF1

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - rosmarinifolia Vahl

ASTERACEAE
- Helichrysum
  - felinum Less. LC
- Metalasia
  - cf. densa (Lam.) Karis LC
- Pteronia
  - teretifolia (Thunb.) Fourc. LC

CRASSULACEAE
- Crassula
  - muscosa L.

EBENACEAE
- Diospyros
  - scabrida (Harv. ex Hiern) De Winter

ERICACEAE
- Erica
  - pectinifolia Salisb.

GENTIANACEAE
- Chironia
  - cf. tetragona L.f. LC

MALVACEAE
- Hermannia
  - involucrata Cav. LC

MESEMBRYANTHEMACEAE
- Carpobrotus
  - edulis (L.) L.Bolus

OXALIDACEAE
- Oxalis
  - algoensis Eckl. & Zeyh. LC

POLYGALACEAE
- Muraltia
  - squarrosa (L.f.) DC. LC

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Protea
  - neriifolia R.Br. LC
  - repens (L.) L. LC

RUBIACEAE
- Anthospermum
  - aethiopicum L. LC

THYMELAEACEAE
- Gnidia
  - cf. styphelioides Meisn. LC
- Struthiola
  - cf. argentea Lehm. LC

Division: Anthophyta **Class:** Monocotyledones

HYACINTHACEAE
- Ledebouria
  - revoluta

IRIDACEAE
- Bobartia
  - cf. orientalis J.B.Gillet subsp. orientalis LC

LANARIACEAE
- Lanaria
  - lanata (L.) T.Durand & Schinz LC

POACEAE
- Cymbopogon
  - marginatus (Steud.) Stapf ex Burtt Davy LC

RESTIONACEAE
- Hypodiscus
  - striatus (Kunth) Mast. LC

Total species:	**37**
Total named species:	**23**
Total genera:	**22**
Total families:	**18**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 19 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE LCF2

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - cf. lucida L.

ASTERACEAE
- Dicerothamnus
  - rhinocerotis (DC.) Koekemoer NE
- Eriocephalus
  - cf. africanus L.
- Euryops
  - munitus (L.f.) B.Nord. LC
- Helichrysum
  - felinum Less. LC
- Metalasia
  - densa (Lam.) Karis LC
- Relhania
  - pungens L'Hér. subsp. trinervis (Thunb.) Bremer LC

CELASTRACEAE
- Maytenus
  - oleoides (Lam.) Loes. LC

ERICACEAE
- Erica
  - cf. chamissonis Klotzsch ex Benth.

FABACEAE
- Otholobium
  - heterosepalum (Fourc.) C.H.Stirt. Rare

GENTIANACEAE
- Chironia
  - cf. tetragona L.f. LC

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC
- Protea
  - neriifolia R.Br. LC

THYMELAEACEAE
- Passerina
  - cf. falcifolia (Meisn.) C.H.Wright LC

Division: Anthophyta **Class:** Monocotyledones

IRIDACEAE
- Bobartia
  - cf. macrospatha Baker
- Tritoniopsis
  - caffra (Ker Gawl. ex Baker) Goldblatt LC

POACEAE
- Merxmuellera
  - arundinacea (P.J.Bergius) Conert LC

RESTIONACEAE
- Mastersiella
  - purpurea (Pillans) H.P.Linder LC
- Thamnochortus
  - cinereus H.P.Linder LC

Total species:	**34**
Total named species:	**20**
Total genera:	**20**
Total families:	**11**
Total red data species:	**1**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 19 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE LCF3 - FYNBOS

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Loxostylis
  - alata A.Spreng. ex Reichb. Declining
- Rhus
  - incisa L.f. var. effusa
  - lucida L.

APOCYNACEAE
- Astephanus
  - marginatus Decne.
- Carissa
  - bispinosa (L.) Desf. ex Brenan LC

ASTERACEAE
- Chrysanthemoides
  - monilifera (L.) Norl.
- Dicerothamnus
  - rhinocerotis (DC.) Koekemoer NE
- Disparago
  - tortilis (DC.) Sch.Bip.
- Eriocephalus
  - cf. africanus L.
- Metalasia
  - cf. pulcherrima Less.
- Oedera
  - genistifolia Anderb. & Bremer LC

CELASTRACEAE
- Pterocelastrus
  - tricuspidatus (Lam.) Sond. LC

CRASSULACEAE
- Cotyledon
  - orbiculata L. LC
- Crassula
  - cf. ovata (Mill.) Druce LC
  - tetragona L.

EUPHORBIACEAE
- Clutia
  - daphnoides Lam. LC

FABACEAE
- Acacia
  - karroo Hayne LC
- Aspalathus
  - nivea Thunb.

GERANIACEAE
- Pelargonium
  - peltatum (L.) L'Hér. LC

MALVACEAE
- Grewia
  - robusta Burch. LC
- Hibiscus
  - aethiopicus L.

MESEMBRYANTHEMACEAE
- Carpobrotus
  - cf. edulis (L.) L.Bolus

MONTINIACEAE
- Montinia
  - caryophyllacea Thunb. LC

MYRTACEAE
- Eugenia
  - zeyheri Harv. LC

POLYGALACEAE
- Muraltia
  - cf. squarrosa (L.f.) DC. LC

PROTEACEAE
- Protea
  - repens (L.) L. LC

ROSACEAE
- Cliffortia
  - cf. ilicifolia L.

SANTALACEAE
- Rhoiacarpos
  - capensis (Harv.) A.DC. LC

SAPINDACEAE
- Dodonaea
  - viscosa Jacq. var. angustifolia LC

SCROPHULARIACEAE
- Chaenostoma
  - campanulatum (Benth.) Kuntze LC
- Freylinia
  - undulata (L.f.) Benth. LC
- Selago
  - cf. corymbosa L. LC

THYMELAEACEAE
- Passerina
  - cf. falcifolia (Meisn.) C.H.Wright LC
- Struthiola
  - parviflora Bartl. ex Meisn. LC

VITACEAE
- Rhoicissus
  - digitata (L.f.) Gilg & M.Brandt LC

Division: Anthophyta **Class:** Monocotyledones

AMARYLLIDACEAE
- Brunsvigia
  - cf. striata (Jacq.) Aiton LC

ASPARAGACEAE
- Asparagus
  - capensis L.
  - cf. striatus (L.f.) Thunb. LC

ASPHODELACEAE
- Bulbine

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

latifolia (L.f.) Roem. & Schult.
COMMELINACEAE
Commelina
africana L.
ORCHIDACEAE
Satyrium
cf. membranaceum Sw. LC
POACEAE
Cynodon
dactylon (L.) Pers. LC
Eragrostis
curvula (Schrad.) Nees LC
Themeda
triandra Forssk. LC
RESTIONACEAE
Ischyrolepis
triflora (Rottb.) H.P.Linder LC

Total species:	**65**
Total named species:	**45**
Total genera:	**42**
Total families:	**27**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 20 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE LCF3 - THICKET

Division: Anthophyta **Class:** Dicotyledones
CELASTRACEAE
Lauridia
tetragona (L.f.) R.H.Archer LC
EBENACEAE
Diospyros
dichrophylla (Gand.) De Winter LC
RUBIACEAE
Canthium
spinosum (Klotzsch) Kuntze LC

Division: Anthophyta **Class:** Monocotyledones
ASPHODELACEAE
Aloe
ferox Mill. LC

Total species:	**4**
Total named species:	**4**
Total genera:	**4**
Total families:	**4**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 20 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE LCF4

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - rosmarinifolia Vahl

ASTERACEAE
- Chrysanthemoides
  - monilifera (L.) Norl.
- Disparago
  - tortilis (DC.) Sch.Bip.
- Euryops
  - munitus (L.f.) B.Nord. LC
- Metalasia
  - cf. pulcherrima Less.
- Pteronia
  - cf. teretifolia (Thunb.) Fourc. LC
- Ursinia
  - chrysanthemoides (Less.) Harv. LC

CRASSULACEAE
- Crassula
  - muscosa L.

EBENACEAE
- Euclea
  - cf. tomentosa E.Mey. ex A.DC. LC

FABACEAE
- Tephrosia
  - capensis (Jacq.) Pers.

GENTIANACEAE
- Chironia
  - cf. tetragona L.f. LC

MALVACEAE
- Grewia
  - robusta Burch. LC
- Hermannia
  - flammea Jacq. LC
- Hibiscus
  - aethiopicus L.

MESEMBRYANTHEMACEAE
- Antimima
  - caryophyllacca
- Carpobrotus
  - cf. edulis (L.) L.Bolus

MONTINIACEAE
- Montinia
  - caryophyllacea Thunb. LC

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Protea
  - repens (L.) L. LC

RUTACEAE
- Agathosma
  - capensis (L.) Dümmer LC

SANTALACEAE
- Thesium
  - cf. strictum P.J. Bergius LC

SAPINDACEAE
- Dodonaea
  - viscosa Jacq. var. angustifolia LC

SCROPHULARIACEAE
- Freylinia
  - undulata (L.f.) Benth. LC
- Selago
  - cf. corymbosa L. LC

THYMELAEACEAE
- Gnidia
  - cf. styphelioides Meisn. LC
- Struthiola
  - parviflora Bartl. ex Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

AMARYLLIDACEAE
- Boophone
  - disticha (L.f.) Herb. Declining

IRIDACEAE
- Bobartia
  - macrospatha Baker

LANARIACEAE
- Lanaria
  - lanata (L.) T.Durand & Schinz LC

ORCHIDACEAE
- Satyrium
  - cf. membranaceum Sw. LC

POACEAE
- Cymbopogon
  - marginatus (Steud.) Stapf ex Burtt Davy LC
- Themeda
  - triandra Forssk. LC

RESTIONACEAE
- Ischyrolepis
  - capensis (L.) H.P.Linder LC
  - triflora (Rottb.) H.P.Linder LC
- Restio
  - cf. triticeus Rottb. LC
- Rhodocoma
  - fruticosa (Thunb.) H.P.Linder LC

Total species:	**51**
Total named species:	**36**

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total genera:	**35**
Total families:	**21**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 20 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE LCF5

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - lucida L.
  - rosmarinifolia Vahl

ASTERACEAE
- Athanasia
  - cf. dentata (L.) L. LC
- Dicerothamnus
  - rhinocerotis (DC.) Koekemoer NE
- Helichrysum
  - cf. cymosum (L.) D.Don.
- Metalasia
  - cf. pulcherrima Less.
- Pteronia
  - cf. teretifolia (Thunb.) Fourc. LC

DROSERACEAE
- Drosera
  - cistiflora L. LC

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC
- Euclea
  - cf. linearis Zeyh. ex Hiern LC

ERICACEAE
- Erica
  - chamissonis Klotzsch ex Benth.

FABACEAE
- Indigofera
  - cf. heterophylla Thunb. LC

LAURACEAE
- Cassytha
  - ciliolata Nees LC

MALVACEAE
- Hermannia
  - flammea Jacq. LC
- Hibiscus
  - aethiopicus L.

MONTINIACEAE
- Montinia
  - caryophyllacea Thunb. LC

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC
- Protea
  - neriifolia R.Br. LC
  - nitida Mill. LC

RUBIACEAE
- Anthospermum
  - aethiopicum L. LC

SCROPHULARIACEAE
- Chaenostoma
  - campanulatum (Benth.) Kuntze LC
- Freylinia
  - undulata (L.f.) Benth. LC

THYMELAEACEAE
- Gnidia
  - cf. styphelioides Meisn. LC
- Struthiola
  - parviflora Bartl. ex Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

LANARIACEAE
- Lanaria
  - lanata (L.) T.Durand & Schinz LC

ORCHIDACEAE
- Satyrium
  - membranaceum Sw. LC

POACEAE
- Cymbopogon
  - cf. marginatus (Steud.) Stapf ex Burtt Davy LC
- Themeda
  - triandra Forssk. LC

Total species:	**51**
Total named species:	**29**
Total genera:	**27**
Total families:	**16**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 20 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE LCF6

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Thunbergia
  - capensis Retz. LC

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - lucida L.

ASTERACEAE
- Dicerothamnus
  - rhinocerotis (DC.) Koekemoer NE
- Disparago
  - tortilis (DC.) Sch.Bip.
- Euryops
  - munitus (L.f.) B.Nord. LC
- Helichrysum
  - felinum Less. LC
  - nudifolium (L.) Less.
- Oedera
  - imbricata Lam. LC
- Pteronia
  - cf. teretifolia (Thunb.) Fourc. LC
- Senecio
  - crenatus Thunb. LC

CAMPANULACEAE
- Lobelia
  - tomentosa L.f. LC

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC

ERICACEAE
- Erica
  - pectinifolia Salisb.

FABACEAE
- Podalyria
  - cf. burchellii LC

GENTIANACEAE
- Chironia
  - cf. palustris Burch.

LINACEAE
- Linum
  - africanum L. LC

MALVACEAE
- Hermannia
  - flammea Jacq. LC

MONTINIACEAE
- Montinia
  - caryophyllacea Thunb. LC

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC
- Protea
  - neriifolia R.Br. LC
  - nitida Mill. LC
  - repens (L.) L. LC

RHAMNACEAE
- Phylica
  - cf. axillaris Lam.

RUBIACEAE
- Anthospermum
  - cf. aethiopicum L. LC

THYMELAEACEAE
- Gnidia
  - styphelioides Meisn. LC
- Struthiola
  - parviflora Bartl. ex Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

ASPHODELACEAE
- Aloe
  - micracantha Haw. NT

IRIDACEAE
- Bobartia
  - cf. orientalis J.B.Gillet subsp. orientalis LC

POACEAE
- Eragrostis
  - capensis (Thunb.) Trin. LC
- Themeda
  - triandra Forssk. LC

Total species:	**32**
Total named species:	**32**
Total genera:	**28**
Total families:	**18**
Total red data species:	**1**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 19 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

TSITSIKAMMA SANDSTONE FYNBOS

SITE TSISTF1

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - rosmarinifolia Vahl

APIACEAE
- Alepidea
  - capensis (P.J.Bergius) R.A.Dyer

ASTERACEAE
- Gazania
  - krebsiana Less.
  - pectinata (Thunb.) Hartweg LC
- Helichrysum
  - teretifolium (L.) D.Don. LC
- Senecio
  - crenatus Thunb. LC

BRASSICACEAE
- Heliophila
  - suavissima Burch. ex DC. LC

CAMPANULACEAE
- Lobelia
  - tomentosa L.f. LC

CRASSULACEAE
- Crassula
  - tetragona L.

DIPSACACEAE
- Scabiosa
  - columbaria L. LC

ERICACEAE
- Erica
  - fuscescens (Klotzsch) E.G.H.Oliv. LC
  - cf. pectinifolia Salisb.
  - cf. sessiliflora L.f. LC
  - cf. sparsa Lodd.

FABACEAE
- Indigofera
  - glaucescens Eckl. & Zeyh. LC
- Podalyria
  - cf. burchellii LC
- Rhynchosia
  - capensis (Burm.f.) Schinz LC

GENTIANACEAE
- Chironia
  - tetragona L.f. LC

OXALIDACEAE
- Oxalis
  - imbricata Eckl. & Zeyh.

POLYGALACEAE
- Polygala
  - ericaefolia DC. LC

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Protea
  - foliosa Rourke LC
  - neriifolia R.Br. LC
  - tenax (Salisb.) R.Br. LC

RUTACEAE
- Agathosma
  - capensis (L.) Dümmer LC

THYMELAEACEAE
- Gnidia
  - cf. styphelioides Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

CYPERACEAE
- Tetraria
  - cf. bromoides (Lam.) Pfeiffer LC

IRIDACEAE
- Bobartia
  - cf. macrospatha Baker
- Gladiolus
  - grandiflorus Andrews LC
- Watsonia
  - cf. schlechteri L.Bolus LC

LANARIACEAE
- Lanaria
  - lanata (L.) T.Durand & Schinz LC

POACEAE
- Imperata
  - cylindrica (L.) Raeuschel
- Themeda
  - triandra Forssk. LC

RESTIONACEAE
- Elegia
  - vaginulata Mast. LC
- Ischyrolepis
  - capensis (L.) H.P.Linder LC
- Thamnochortus
  - cf. cinereus H.P.Linder LC
  - fruticosus P.J.Bergius LC

Total species:	**41**
Total named species:	**37**

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total genera:	**30**
Total families:	**20**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 17 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE TSISTF2

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - rosmarinifolia Vahl

ASTERACEAE
- Disparago
  - tortilis (DC.) Sch.Bip.
- Gazania
  - krebsiana Less.
  - linearis (Thunb.) Druce var. linearis LC
- Helichrysum
  - cymosum (L.) D.Don.
  - felinum Less. LC
  - teretifolium (L.) D.Don. LC
- Senecio
  - cf. chrysocoma Meerb. LC
  - crenatus Thunb. LC
  - oederiifolius DC. LC
- Seriphium
  - plumosum L. NE

BRUNIACEAE
- Berzelia
  - cf. abrotanoides (L.) Brongn. LC

CAMPANULACEAE
- Lobelia
  - tomentosa L.f. LC

CRASSULACEAE
- Crassula
  - tetragona L.

ERICACEAE
- Erica
  - fuscescens (Klotzsch) E.G.H.Oliv. LC
  - sessiliflora L.f. LC
  - sparsa Lodd.

FABACEAE
- Indigofera
  - glaucescens Eckl. & Zeyh. LC

OXALIDACEAE
- Oxalis
  - polyphylla Jacq.

PENAEACEAE
- Penaea
  - cf. cneorum Meerb.

POLYGALACEAE
- Polygala
  - ericaefolia DC. LC

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC
- Protea
  - neriifolia R.Br. LC

RUTACEAE
- Agathosma
  - capensis (L.) Dümmer LC

SCROPHULARIACEAE
- Selago
  - corymbosa L. LC

THYMELAEACEAE
- Gnidia
  - styphelioides Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

IRIDACEAE
- Gladiolus
  - grandiflorus Andrews LC

LANARIACEAE
- Lanaria
  - lanata (L.) T.Durand & Schinz LC

RESTIONACEAE
- Elegia
  - vaginulata Mast. LC
- Ischyrolepis
  - cf. capensis (L.) H.P.Linder LC
- Thamnochortus
  - cinereus H.P.Linder LC

Total species:	**40**
Total named species:	**32**
Total genera:	**25**
Total families:	**17**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 17 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE TSISTF3

Division: Anthophyta **Class:** Dicotyledones

APIACEAE
- Alepidea
  - capensis (P.J.Bergius) R.A.Dyer
- Arctopus
  - cf. echinatus L. LC

ASTERACEAE
- Disparago
  - tortilis (DC.) Sch.Bip.
- Euryops
  - munitus (L.f.) B.Nord. LC
- Gerbera
  - ambigua (Cass.) Sch.Bip. LC
- Helichrysum
  - cymosum (L.) D.Don.
  - teretifolium (L.) D.Don. LC
- Metalasia
  - cf. densa (Lam.) Karis LC

CRASSULACEAE
- Crassula
  - tetragona L.

ERICACEAE
- Erica
  - cf. pectinifolia Salisb.
  - sessiliflora L.f. LC

FABACEAE
- Rhynchosia
  - caribaea (Jacq.) DC. LC
- Vigna
  - vexillata

GENTIANACEAE
- Chironia
  - cf. palustris Burch. subsp. palustris

MALVACEAE
- Hibiscus
  - aethiopicus L.

POLYGALACEAE
- Polygala
  - cf. ericaefolia DC. LC

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC
- Leucospermum
  - cuneiforme (Burm.f.) Rourke LC
- Protea
  - tenax (Salisb.) R.Br. LC

RHAMNACEAE
- Phylica
  - gnidioides Eckl. & Zeyh. LC

RUBIACEAE
- Anthospermum
  - cf. aethiopicum L. LC
  - cf. prostratum Sond. LC

RUTACEAE
- Agathosma
  - capensis (L.) Dümmer LC
  - cf. clavisepala

SCROPHULARIACEAE
- Selago
  - corymbosa L. LC

THYMELAEACEAE
- Gnidia
  - cf. coriacea Meisn. LC

Division: Anthophyta **Class:** Monocotyledones

CYPERACEAE
- Tetraria
  - bromoides (Lam.) Pfeiffer LC

HAEMODORACEAE
- Wachendorfia
  - paniculata Burm. LC

HYPOXIDACEAE
- Hypoxis
  - villosa L.f. LC

IRIDACEAE
- Babiana
  - cf. patersoniae L.Bolus LC
- Watsonia
  - cf. schlechteri L.Bolus LC

LANARIACEAE
- Lanaria
  - lanata (L.) T.Durand & Schinz LC

POACEAE
- Themeda
  - triandra Forssk. LC

RESTIONACEAE
- Elegia
  - vaginulata Mast. LC
- Hypodiscus
  - striatus (Kunth) Mast. LC
- Thamnochortus
  - cinereus H.P.Linder LC

Total species:	**46**
Total named species:	**36**

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total genera:	**32**
Total families:	**21**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie, Y Pretorius & D McDonald, personal collection, 26 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

RENOSTERVELD

HUMANSDORP SHALE RENOSTERVELD

SITE HShR1 - RENOSTERVELD

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - lucida L.

ASTERACEAE
- Chrysanthemoides
  - monilifera (L.) Norl.
- Dicerothamnus
  - rhinocerotis (DC.) Koekemoer NE
- Helichrysum
  - cymosum (L.) D.Don.
  - felinum Less. LC
  - nudifolium (L.) Less.
  - teretifolium (L.) D.Don. LC
- Metalasia
  - cf. densa (Lam.) Karis LC
- Pteronia
  - cf. teretifolia (Thunb.) Fourc. LC
- Senecio
  - crenatus Thunb. LC
  - oederiifolius DC. LC
- Ursinia
  - chrysanthemoides (Less.) Harv. LC

BORAGINACEAE
- Lobostemon
  - cf. trigonus (Thunb.) H.Buek LC

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC
- Euclea
  - cf. racemosa Murray
  - cf. undulata Thunb. LC

ERICACEAE
- Erica
  - cf. anguliger (N.E.Br.) E.G.H.Oliv. LC

EUPHORBIACEAE
- Lachnostylis
  - hirta (L.f.) Muell.Arg. LC

FABACEAE
- Indigofera
  - heterophylla Thunb. LC
  - tomentosa Eckl. & Zeyh. LC
- Otholobium
  - virgatum (Burm.f.) C.H.Stirt. LC
- Tephrosia
  - capensis (Jacq.) Pers.

LINACEAE
- Linum
  - africanum L. LC

MALVACEAE
- Grewia
  - cf. robusta Burch. LC
- Hermannia
  - flammea Jacq. LC
- Hibiscus
  - aethiopicus L.

POLYGALACEAE
- Polygala
  - microlopha DC.

PROTEACEAE
- Leucadendron
  - salignum P.J.Bergius LC

RUTACEAE
- Agathosma
  - apiculata G.Mey. LC
  - pegleriae Dümmer

SANTALACEAE
- Osyris
  - compressa (P.J.Bergius) A.DC. LC
- Thesidium
  - fragile (Thunb.) Sond. LC

SCROPHULARIACEAE
- Buddleja
  - saligna Willd. LC

THYMELAEACEAE
- Passerina
  - corymbosa Eckl. ex C.H.Wright LC

Division: Anthophyta **Class:** Monocotyledones

HYACINTHACEAE
- Ornithogalum
  - dubium Houtt. LC

IRIDACEAE
- Gladiolus
  - floribundus Jacq. LC

POACEAE
- Cymbopogon

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

marginatus (Steud.) Stapf ex Burtt Davy LC
Themeda
triandra Forssk. LC

Total species:	**52**
Total named species:	**39**
Total genera:	**31**
Total families:	**18**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 17 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE HShR1 - THICKET CLUMPS

Division: Anthophyta **Class:** Dicotyledones

APOCYNACEAE
- Carissa
  - bispinosa (L.) Desf. ex Brenan LC

CELASTRACEAE
- Mystroxylon
  - aethiopicum (Thunb.) Loes.
- Pterocelastrus
  - tricuspidatus (Lam.) Sond. LC

Total species:	**3**
Total named species:	**3**
Total genera:	**3**
Total families:	**2**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 17 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE HShR2

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Chaetacanthus
  - setiger (Pers.) Lindl. LC
- Thunbergia
  - capensis Retz. LC

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - cf. pallens Eckl. & Zeyh.

APIACEAE
- Lichtensteinia
  - interrupta (Thunb.) Sond. LC

ARALIACEAE
- Centella
  - asiatica (L.) Urban LC

ASTERACEAE
- Athanasia
  - cf. dentata (L.) L. LC
- Berkheya
  - decurrens (Thunb.) Willd. LC
  - cf. rigida (Thunb.) Adamson and T.M.Salter LC
- Chrysocoma
  - oblongifolia DC. LC
- Dicerothamnus
  - rhinocerotis (DC.) Koekemoer NE
- Helichrysum
  - cymosum (L.) D.Don.
  - nudifolium (L.) Less.
  - teretifolium (L.) D.Don. LC
- Metalasia
  - cf. densa (Lam.) Karis LC
- Oedera
  - genistifolia Anderb. & Bremer LC
- Senecio
  - leptophyllus DC. LC

CAMPANULACEAE
- Wahlenbergia
  - divaricata

COLCHICACEAE
- Androcymbium
  - longipes

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC

EUPHORBIACEAE
- Clutia
  - cf. alaternoides L.

FABACEAE
- Argyrolobium
  - cf. polyphyllum
- Eriosema
  - squarrosum (Thunb.) Walp. LC
- Indigofera
  - heterophylla Thunb. LC
- Otholobium
  - virgatum (Burm.f.) C.H.Stirt. LC
- Tephrosia
  - capensis (Jacq.) Pers.

GENTIANACEAE
- Sebaea
  - grisebachiana Schinz LC

GERANIACEAE
- Pelargonium
  - reniforme Curtis

MALVACEAE
- Hermannia
  - flammea Jacq. LC
  - saccifera (Turcz.) K.Schum. LC
- Hibiscus
  - aethiopicus L.

RUBIACEAE
- Anthospermum
  - aethiopicum L. LC

RUTACEAE
- Agathosma
  - pegleriae Dümmer

Division: Anthophyta **Class:** Monocotyledones

ASPHODELACEAE
- Aloe
  - cf. africana Mill. LC
- Bulbine
  - longifolia Schinz LC

HYACINTHACEAE
- Ornithogalum
  - dubium Houtt. LC

IRIDACEAE
- Aristea
  - cf. pusilla (Thunb.) Ker Gawl. LC

ORCHIDACEAE
- Satyrium
  - membranaceum Sw. LC

OXALIDACEAE
- Oxalis
  - smithiana Eckl. & Zeyh. LC

POACEAE
- Eragrostis

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

capensis (Thunb.) Trin. LC
curvula (Schrad.) Nees LC
Melica
decumbens Thunb. LC
Themeda
triandra Forssk. LC

Total species:	**61**
Total named species:	**43**
Total genera:	**37**
Total families:	**21**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 18 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE HShR3 - RENOSTERVELD

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - pallens Eckl. & Zeyh.
  - rosmarinifolia Vahl

APIACEAE
- Lichtensteinia
  - interrupta (Thunb.) Sond. LC

APOCYNACEAE
- Xysmalobium
  - zeyheri N.E. Br.

ASTERACEAE
- Dicerothamnus
  - rhinocerotis (DC.) Koekemoer NE
- Eriocephalus
  - cf. africanus L.
- Euryops
  - munitus (L.f.) B.Nord. LC
- Helichrysum
  - nudifolium (L.) Less.
  - teretifolium (L.) D.Don. LC
- Metalasia
  - cf. muricata (L.) D.Don. LC
- Oedera
  - genistifolia Anderb. & Bremer LC
- Pteronia
  - cf. teretifolia (Thunb.) Fourc. LC

BORAGINACEAE
- Lobostemon
  - cf. trigonus (Thunb.) H.Buek LC

CELASTRACEAE
- Gymnosporia
  - buxifolia (L.) Szyszyl. LC
  - cf. polyacantha (Sond.) Szyszyl. subsp. polyacantha

DIPSACACEAE
- Scabiosa
  - columbaria L. LC

EBENACEAE
- Diospyros
  - cf. dichrophylla (Gand.) De Winter LC
- Euclea
  - undulata Thunb. LC

FABACEAE
- Argyrolobium
  - cf. barbatum Walp. VU
- Aspalathus
  - spinosa L.
- Lotononis
  - cf. acuminata Eckl. & Zeyh.
- Tephrosia
  - capensis (Jacq.) Pers.

GERANIACEAE
- Monsonia
  - emarginata (L.f.) L'Her. LC
- Pelargonium
  - reniforme Curtis

MALVACEAE
- Hermannia
  - flammea Jacq. LC
  - saccifera (Turcz.) K.Schum. LC

MESEMBRYANTHEMACEAE
- Antimima
  - caryophyllacca

POLYGALACEAE
- Muraltia
  - asbetina

RUBIACEAE
- Anthospermum
  - cf. prostratum Sond. LC

RUTACEAE
- Agathosma
  - capensis (L.) Dümmer LC

SCROPHULARIACEAE
- Jamesbrittenia
  - cf. foliolosa (Benth.) Hilliard LC

Division: Anthophyta **Class:** Monocotyledones

ASPHODELACEAE
- Bulbine
  - narcissifolia Salm-Dyck LC

HYACINTHACEAE
- Ornithogalum
  - graminifolium Thunb. LC

IRIDACEAE
- Babiana
  - cf. sambucina (Jacq.) Ker Gawl.
- Gladiolus
  - cf. maculatus Sweet LC

ORCHIDACEAE
- Holothrix
  - cf. parviflora (Lindl.) Rchb.f. LC
- Satyrium
  - cf. membranaceum Sw. LC

POACEAE
- Cymbopogon
  - cf. marginatus (Steud.) Stapf ex Burtt Davy LC
- Themeda
  - triandra Forssk. LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

TECOPHILAEACEAE
Cyanella
lutea L.f. LC

Total species:	**64**
Total named species:	**41**
Total genera:	**36**
Total families:	**22**
Total red data species:	**1**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 24 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE HShR3 - THICKET CLUMP

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - pallens Eckl. & Zeyh.

ARALIACEAE
- Cussonia
  - spicata Thunb. LC

ASTERACEAE
- Tarchonanthus
  - camphoratus L. LC

EBENACEAE
- Euclea
  - undulata Thunb. LC

FLACOURTIACEAE
- Scolopia
  - zeyheri (Nees) Harv. LC

MALVACEAE
- Grewia
  - occidentalis L.

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

SAPINDACEAE
- Allophylus
  - decipiens (Sond.) Radlk. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

VISCACEAE
- Viscum
  - cf. capense L.f. LC

Total species:	**11**
Total named species:	**11**
Total genera:	**10**
Total families:	**10**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 24 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE HShR4 - RENOSTERVELD

Division: Anthophyta **Class:** Dicotyledones

ASTERACEAE
- Chrysanthemoides
  - monilifera (L.) Norl.
- Chrysocoma
  - cf. oblongifolia DC. LC
- Dicerothamnus
  - rhinocerotis (DC.) Koekemoer NE
- Eriocephalus
  - cf. africanus L.
- Euryops
  - munitus (L.f.) B.Nord. LC
- Helichrysum
  - cymosum (L.) D.Don.
- Metalasia
  - cf. densa (Lam.) Karis LC
- Oedera
  - genistifolia Anderb. & Bremer LC
- Senecio
  - cf. ilicifolius L. LC

CRASSULACEAE
- Crassula
  - tetragona L.

EUPHORBIACEAE
- Clutia
  - daphnoides Lam. LC

FABACEAE
- Indigofera
  - cf. denudata L.f. LC
- Tephrosia
  - capensis (Jacq.) Pers.

GERANIACEAE
- Pelargonium
  - reniforme Curtis

MALVACEAE
- Hermannia
  - flammea Jacq. LC

RUBIACEAE
- Anthospermum
  - aethiopicum L. LC

RUTACEAE
- Agathosma
  - ovata (Thunb.) Pillans LC

SCROPHULARIACEAE
- Selago
  - cf. corymbosa L. LC

Division: Anthophyta **Class:** Monocotyledones

HYACINTHACEAE
- Drimia
  - elata Jacq. ex Willd. DDT

POACEAE
- Themeda
  - triandra Forssk. LC

Total species:	**28**
Total named species:	**21**
Total genera:	**21**
Total families:	**12**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie, Y Pretorius & D McDonald, personal collection, 26 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE HShR4 - THICKET CLUMPS

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - pallens Eckl. & Zeyh.

APOCYNACEAE
- Carissa
  - bispinosa (L.) Desf. ex Brenan LC

CELASTRACEAE
- Gymnosporia
  - cf. capitata (E.Mey. ex Sond.) Loes. LC
  - nemorosa (Eckl. & Zeyh.) Szyszyl. LC
- Lauridia
  - tetragona (L.f.) R.H.Archer LC
- Mystroxylon
  - aethiopicum (Thunb.) Loes.
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC
- Euclea
  - cf. racemosa Murray
  - undulata Thunb. LC

EUPHORBIACEAE
- Clutia
  - cf. daphnoides Lam. LC

FLACOURTIACEAE
- Scolopia
  - zeyheri (Nees) Harv. LC

MALVACEAE
- Grewia
  - robusta Burch. LC

MENISPERMACEAE
- Cissampelos
  - cf. capensis L.f. LC

RANUNCULACEAE
- Clematis
  - brachiata Thunb. LC

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

SANTALACEAE
- Rhoiacarpos
  - capensis (Harv.) A.DC. LC

SAPINDACEAE
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

SCROPHULARIACEAE
- Buddleja
  - saligna Willd. LC

Division: Anthophyta **Class:** Monocotyledones

ASPARAGACEAE
- Asparagus
  - cf. africanus Lam. LC
  - striatus (L.f.) Thunb. LC
  - cf. suaveolens Burch. LC

Total species:	**27**
Total named species:	**24**
Total genera:	**19**
Total families:	**15**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie, Y Pretorius & D McDonald, personal collection, 26 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE HShR5

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Thunbergia
  - capensis Retz. LC

AIZOACEAE
- Aizoon
  - rigidum L.f. LC

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - laevigata L.f.
  - lucida L. forma scoparia (Eckl. & Zeyh.) Moffett
  - pallens Eckl. & Zeyh.

APOCYNACEAE
- Carissa
  - bispinosa (L.) Desf. ex Brenan LC

ASTERACEAE
- Athanasia
  - cf. trifurcata (L.) L. LC
- Chrysocoma
  - oblongifolia DC. LC
- Eriocephalus
  - cf. africanus L.
- Euryops
  - algoensis DC. LC
- Helichrysum
  - teretifolium (L.) D.Don. LC
- Metalasia
  - cf. densa (Lam.) Karis LC
- Oedera
  - genistifolia Anderb. & Bremer LC
- Pteronia
  - cf. teretifolia (Thunb.) Fourc. LC
- Senecio
  - chrysocoma Meerb. LC

BRASSICACEAE
- Heliophila
  - suavissima Burch. ex DC. LC

CELASTRACEAE
- Lauridia
  - tetragona (L.f.) R.H.Archer LC
- Pterocelastrus
  - tricuspidatus (Lam.) Sond. LC

CONVOLVULACEAE
- Convolvulus
  - capensis Burm.f. LC

CRASSULACEAE
- Crassula
  - tetragona L.

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC
  - glabra (L.) De Winter LC
- Euclea
  - racemosa Murray
  - undulata Thunb. LC

FABACEAE
- Aspalathus
  - chortophila Eckl. & Zeyh. LC
  - nivea Thunb.
- Indigofera
  - glaucescens Eckl. & Zeyh. LC
- Tephrosia
  - capensis (Jacq.) Pers.

MALVACEAE
- Hermannia
  - cf. althaeoides Link LC
  - decumbens Willd. ex Spreng. LC
  - cf. flammea Jacq. LC

MESEMBRYANTHEMACEAE
- Carpobrotus
  - cf. edulis (L.) L.Bolus

OLEACEAE
- Olea
  - exasperata Jacq. LC

OXALIDACEAE
- Oxalis
  - polyphylla Jacq.

RUBIACEAE
- Canthium
  - spinosum (Klotzsch) Kuntze LC

SANTALACEAE
- Rhoiacarpos
  - capensis (Harv.) A.DC. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

SCROPHULARIACEAE
- Phyllopodium
  - cuneifolium (L.f.) Benth. LC
- Selago
  - corymbosa L. LC

THYMELAEACEAE
- Struthiola
  - parviflora Bartl. ex Meisn. LC

VERBENACEAE
- Chascanum
  - cuneifolium (L.f.) E.Mey. LC

Division: Anthophyta **Class:** Monocotyledones

COMMELINACEAE

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Commelina
africana L.
IRIDACEAE
Babiana
patersoniae L.Bolus LC
Moraea
tripetala (L.f.) Ker Gawl. LC
OXALIDACEAE
Oxalis
smithiana Eckl. & Zeyh. LC
POACEAE
Ehrharta
calycina Sm. LC
Eragrostis
capensis (Thunb.) Trin. LC
cf. curvula (Schrad.) Nees LC
Themeda
triandra Forssk. LC
RESTIONACEAE
Ischyrolepis
capensis (L.) H.P.Linder LC
Thamnochortus
cinereus H.P.Linder LC

Total species:	**68**
Total named species:	**52**
Total genera:	**42**
Total families:	**25**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie, Y Pretorius & D McDonald, personal collection, 26 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

THICKET

ALBANY COASTAL BELT

SITE ACBG1

Division: Pteridophyta **Class**
DENNSTAEDTIACEAE
Pteridium
aquilinum (L.) Kuhn subsp. aquilinum LC
Division: Anthophyta **Class:** Dicotyledones
ANACARDIACEAE
Rhus
laevigata L.f.
lucida L.
ASTERACEAE
Gazania
cf. pectinata (Thunb.) Hartweg LC
Helichrysum
cymosum (L.) D.Don.
cf. niveum (L.) Less.
Senecio
inaequidens DC. LC
Seriphium
plumosum L. NE
Vernonia
capensis (Houtt.) Druce LC
BRASSICACEAE
Heliophila
cf. suavissima Burch. ex DC. LC
CAMPANULACEAE
Prismatocarpus
campanuloides (L.f.) Sond.
Wahlenbergia
capillacea (Thunb.) A.DC.
FABACEAE
Indigofera
heterophylla Thunb. LC
GENTIANACEAE
Chironia
baccifera L. LC
MALVACEAE
Hermannia
cf. althaeifolia L. LC
MESEMBRYANTHEMACEAE
Delosperma
patersoniae (L.Bolus) L.Bolus LC
MYRICACEAE
Morella
cf. serrata (Lam.) Killick LC
POLYGALACEAE
Nylandtia
spinosa (L.) Dumort. LC
PROTEACEAE
Leucadendron
salignum P.J.Bergius LC
Leucospermum
cuneiforme (Burm.f.) Rourke LC
RUBIACEAE
Anthospermum
cf. aethiopicum L. LC
SCROPHULARIACEAE
Phyllopodium
cuneifolium (L.f.) Benth. LC
Selago
corymbosa L. LC

Division: Anthophyta **Class:** Monocotyledones
AMARYLLIDACEAE
Cyrtanthus
loddigesianus (Herb.) R.A.Dyer LC
COMMELINACEAE
Commelina
africana L.
CYPERACEAE
Ficinia
cf. lateralis (Vahl) Kunth LC
Isolepis
cf. antarctica (L.) Roem. & Schult. LC
HYACINTHACEAE
Ledebouria
cf. floribunda (Baker) Jessop
HYPOXIDACEAE
Hypoxis
cf. villosa L.f. LC
IRIDACEAE
Aristea
cf. anceps Eckl. ex Klatt LC
POACEAE
Digitaria
cf. eriantha Steud. LC
Ehrharta
calycina Sm. LC
Eragrostis
curvula (Schrad.) Nees LC
Themeda
triandra Forssk. LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total species:	**34**
Total named species:	**34**
Total genera:	**32**
Total families:	**21**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 20 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE ACBT1
Division: Anthophyta **Class:** Dicotyledones
ACANTHACEAE
Isoglossa
ciliata (Nees) Lindau LC
ANACARDIACEAE
Rhus
incisa L.f. var. effusa
APOCYNACEAE
Carissa
bispinosa (L.) Desf. ex Brenan LC
haematocarpa (Eckl.) A.DC. NE
Cynanchum
cf. ellipticum (Harv.) R.A.Dyer LC
Secamone
alpini Schult. LC
ASTERACEAE
Senecio
cf. angulatus L.f. LC
cf. deltoideus Less. LC
BRASSICACEAE
Capparis
sepiaria L.
CELASTRACEAE
Gymnosporia
buxifolia (L.) Szyszyl. LC
nemorosa (Eckl. & Zeyh.) Szyszyl. LC
Maytenus
undata (Thunb.) Blakelock LC
Pleurostylia
capensis (Turcz.) Loes. LC
CELTIDACEAE
Celtis
africana Burm.f. LC
EBENACEAE
Diospyros
pallens (Thunb.) F.White LC
Euclea
schimperi (A.DC.) Dandy LC
FABACEAE
Calpurnia
aurea (Aiton) Benth.
Schotia
latifolia LC
FLACOURTIACEAE
Dovyalis
cf. rhamnoides (Burch. ex DC.) Burch. & Harv. LC
Scolopia
zeyheri (Nees) Harv. LC
HAMAMELIDACEAE
Trichocladus
cf. crinitus (Thunb.) Pers. LC
MALVACEAE
Grewia
cf. occidentalis L.
MYRTACEAE
Eugenia
zeyheri Harv. LC
OCHNACEAE
Ochna
cf. serrulata (Hochst.) Walp. LC
OLEACEAE
Jasminum
angulare Vahl LC
Olea
europaea (L.) subsp. africana (Mill.) P.S.Green LC
PITTOSPORACEAE
Pittosporum
viridiflorum Sims LC
PLUMBAGINACEAE
Plumbago
auriculata Lam. LC
RHAMNACEAE
Rhamnus
prinoides L'Her. LC
Scutia
myrtina (Burm.f.) Kurz LC
RUTACEAE
Zanthoxylum
capense (Thunb.) Harv. LC
SALVADORACEAE
Azima
tetracantha Lam. LC
SAPINDACEAE
Allophylus
decipiens (Sond.) Radlk. LC
Hippobromus
pauciflorus (L.f.) Radlk. LC
SAPOTACEAE
Sideroxylon
inerme L. subsp. inerme LC
ULMACEAE
Chaetacme
aristata Planch. LC

VITACEAE
Rhoicissus
digitata (L.f.) Gilg & M.Brandt LC
tomentosa (Lam.) Wild & R.B.Drumm.

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

LC
tridentata (L.f.) Wild & R.B.Drumm. LC

Division: Anthophyta **Class:** Monocotyledones
AMARYLLIDACEAE
Scadoxus
cf. puniceus (L.) Friis & Nordal LC
ASPARAGACEAE
Asparagus
asparagoides (L.) Druce LC
BEHNIACEAE
Behnia
reticulata (Thunb.) Didr. LC
IRIDACEAE
Dietes
iridioides (L.) Sweet ex Klatt LC
POACEAE
Panicum
maximum Jacq. LC

Total species:	**44**
Total named species:	**44**
Total genera:	**39**
Total families:	**29**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 20 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

COEGA BONTVELD

SITE CB1 - FYNBOS

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Barleria
  - irritans Nees LC
- Blepharis
  - capensis (L.f.) Pers. LC

AIZOACEAE
- Aizoon
  - rigidum L.f. LC

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa

APOCYNACEAE
- Sarcostemma
  - viminale (L.) R.Br.

ASTERACEAE
- Disparago
  - cf. tortilis (DC.) Sch.Bip.
- Metalasia
  - cf. densa (Lam.) Karis LC
- Osteospermum
  - polygaloides L.

BRASSICACEAE
- Heliophila
  - cf. linearis (Thunb.) DC.

CAMPANULACEAE
- Wahlenbergia
  - cf. albens (Spreng. ex A.DC.) Lammers LC

CELASTRACEAE
- Gymnosporia
  - capitata (E.Mey. ex Sond.) Loes. LC
- Mystroxylon
  - aethiopicum (Thunb.) Loes.

EBENACEAE
- Euclea
  - undulata Thunb. LC

FABACEAE
- Aspalathus
  - cf. lactea Thunb
- Indigofera
  - cf. heterophylla Thunb. LC

FLACOURTIACEAE
- Scolopia
  - zeyheri (Nees) Harv. LC

MALVACEAE
- Abutilon
  - sonneratianum (Cav.) Sweet LC

MESEMBRYANTHEMACEAE
- Trichodiadema
  - cf. bulbosum (Haw.) Schwantes

OLEACEAE
- Jasminum
  - cf. angulare Vahl LC

RUTACEAE
- Acmadenia
  - obtusata (Thunb.) Bart. & H.L.Wendl. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

SCROPHULARIACEAE
- Jamesbrittenia
  - cf. microphylla (L.f.) Hilliard LC

THYMELAEACEAE
- Passerina
  - cf. rigida Wikstr. LC

Division: Anthophyta **Class:** Monocotyledones

ASPARAGACEAE
- Asparagus
  - cf. racemosus Willd. LC

ASPHODELACEAE
- Bulbine
  - cf. frutescens (L.) Willd. LC
  - latifolia (L.f.) Roem. & Schult.

CYPERACEAE
- Ficinia
  - truncata (Thunb.) Schrad. LC

HYACINTHACEAE
- Ledebouria
  - floribunda (Baker) Jessop

IRIDACEAE
- Gladiolus
  - permeabilis D.Delaroche

POACEAE
- Eragrostis
  - capensis (Thunb.) Trin. LC
- Themeda
  - triandra Forssk. LC

Total species:	**51**
Total named species:	**31**
Total genera:	**30**
Total families:	**24**

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total red data species: **0**
Total introduced species: **0**

References: A B Low, C Logie & Y Pretorius personal collection, 21 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE CB1 - THICKET CLUMPS

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - pterota C.Presl.

ASTERACEAE
- Chrysanthemoides
  - monilifera (L.) Norl.

CELASTRACEAE
- Lauridia
  - tetragona (L.f.) R.H.Archer LC
- Pterocelastrus
  - tricuspidatus (Lam.) Sond. LC
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

GENTIANACEAE
- Chironia
  - baccifera L. LC

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

SANTALACEAE
- Osyris
  - compressa (P.J.Bergius) A.DC. LC

SAPINDACEAE
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC

VISCACEAE
- Viscum
  - obovatum Harv.

Division: Anthophyta **Class:** Monocotyledones

AMARYLLIDACEAE
- Haemanthus
  - albiflos Jacq. LC

ASPARAGACEAE
- Asparagus
  - cf. africanus Lam. LC
  - striatus (L.f.) Thunb. LC
  - suaveolens Burch. LC
  - cf. volubilis Thunb. LC

ASPHODELACEAE
- Aloe
  - ferox Mill. LC

Total species:	**20**
Total named species:	**16**
Total genera:	**13**
Total families:	**11**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 21 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE CB2 - FYNBOS

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Barleria
  - irritans Nees LC
- Chaetacanthus
  - cf. setiger (Pers.) Lindl. LC

AIZOACEAE
- Aizoon
  - rigidum L.f. LC

ASTERACEAE
- Berkheya
  - heterophylla (Thunb.) O.Hoffm.
- Disparago
  - tortilis (DC.) Sch.Bip.
- Euryops
  - algoensis DC. LC
- Gazania
  - cf. krebsiana Less.
- Osteospermum
  - polygaloides L.
- Pteronia
  - incana (Burm.) DC. LC

BORAGINACEAE
- Lobostemon
  - cf. trigonus (Thunb.) H.Buek LC

CAMPANULACEAE
- Wahlenbergia
  - cf. albens (Spreng. ex A.DC.) Lammers LC

EUPHORBIACEAE
- Euphorbia
  - esculenta

FABACEAE
- Indigofera
  - heterophylla Thunb. LC

MALVACEAE
- Hermannia
  - althaeoides Link LC
  - flammea Jacq. LC
- Hibiscus
  - aethiopicus L.

MESEMBRYANTHEMACEAE
- Rhombophyllum
  - rhomboideum (Salm-Dyck) Schwantes
- Trichodiadema
  - cf. bulbosum (Haw.) Schwantes

RUTACEAE
- Acmadenia
  - obtusata (Thunb.) Bart. & H.L.Wendl. LC

SCROPHULARIACEAE
- Jamesbrittenia
  - microphylla (L.f.) Hilliard LC

ZYGOPHYLLACEAE
- Roepera
  - fulva L. LC

Division: Anthophyta **Class:** Monocotyledones

AMARYLLIDACEAE
- Boophone
  - cf. disticha (L.f.) Herb. Declining
- Cyrtanthus
  - spiralis Burch. ex Ker Gawl. EN

ASPARAGACEAE
- Asparagus
  - cf. racemosus Willd. LC
  - striatus (L.f.) Thunb. LC

ASPHODELACEAE
- Aloe
  - ferox Mill. LC
- Bulbine
  - cf. frutescens (L.) Willd. LC

CYPERACEAE
- Ficinia
  - truncata (Thunb.) Schrad. LC

HYACINTHACEAE
- Ledebouria
  - cf. floribunda (Baker) Jessop

IRIDACEAE
- Babiana
  - cf. sambucina (Jacq.) Ker Gawl.

OXALIDACEAE
- Oxalis
  - smithiana Eckl. & Zeyh. LC

POACEAE
- Cymbopogon
  - cf. marginatus (Steud.) Stapf ex Burtt Davy LC
- Themeda
  - triandra Forssk. LC

Total species:	**64**
Total named species:	**33**
Total genera:	**31**
Total families:	**20**
Total red data species:	**1**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 21 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE CB2 - THICKET CLUMPS

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - cf. longispina Eckl.& Zeyh.
  - pterota C.Presl.

APOCYNACEAE
- Carissa
  - haematocarpa (Eckl.) A.DC. NE
- Sarcostemma
  - viminale (L.) R.Br.

BORAGINACEAE
- Ehretia
  - rigida (Thunb.) Druce

CELASTRACEAE
- Lauridia
  - tetragona (L.f.) R.H.Archer LC
- Mystroxylon
  - aethiopicum (Thunb.) Loes.
- Pterocelastrus
  - tricuspidatus (Lam.) Sond. LC
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

EBENACEAE
- Euclea
  - undulata Thunb. LC

FABACEAE
- Schotia
  - afra (L.) Thunb.

FLACOURTIACEAE
- Dovyalis
  - rotundifolia (Thunb.) Thunb. & Harv. LC
- Scolopia
  - zeyheri (Nees) Harv. LC

GENTIANACEAE
- Chironia
  - baccifera L. LC

OLEACEAE
- Jasminum
  - angulare Vahl LC

RHAMNACEAE
- Scutia
  - cf. myrtina (Burm.f.) Kurz LC

SALVADORACEAE
- Azima
  - tetracantha Lam. LC

SANTALACEAE
- Osyris
  - compressa (P.J.Bergius) A.DC. LC

SAPINDACEAE
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

VISCACEAE
- Viscum
  - obovatum Harv.

Division: Anthophyta **Class:** Monocotyledones

AMARYLLIDACEAE
- Haemanthus
  - albiflos Jacq. LC

ASPARAGACEAE
- Asparagus
  - cf. asparagoides (L.) Druce LC

Total species:	**25**
Total named species:	**24**
Total genera:	**22**
Total families:	**17**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 21 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

GAMTOOS THICKET

SITE GT1

Division: Pteridophyta
PTERIDACEAE
Cheilanthes
viridis (Forssk.) Sw.

Division: Anthophyta **Class:** Dicotyledones
ANACARDIACEAE
Rhus
lucida L.
pallens Eckl. & Zeyh.
pyroides Burch.
tomentosa L.
APOCYNACEAE
Carissa
bispinosa (L.) Desf. ex Brenan LC
ARALIACEAE
Cussonia
spicata L. var. spicata
ASTERACEAE
Tarchonanthus
camphoratus L. LC
BORAGINACEAE
Ehretia
rigida (Thunb.) Druce
CELASTRACEAE
Cassine
peragua L.
Gymnosporia
buxifolia (L.) Szyszyl. LC
Lauridia
tetragona (L.f.) R.H.Archer LC
Pterocelastrus
tricuspidatus (Lam.) Sond. LC
Putterlickia
pyracantha (L.) Szyszyl. LC
EBENACEAE
Diospyros
dichrophylla (Gand.) De Winter LC
Euclea
undulata Thunb. LC
FLACOURTIACEAE
Scolopia
zeyheri (Nees) Harv. LC
GERANIACEAE
Pelargonium
peltatum (L.) L'Hér. LC
MALVACEAE
Grewia
cf. occidentalis L.
MYRSINACEAE
Rapanea
melanophloeos (L.) Mez Declining
OLEACEAE
Jasminum
cf. angulare Vahl LC
Olea
cf. europaea (L.) subsp. africana (Mill.) P.S.Green LC
PITTOSPORACEAE
Pittosporum
viridiflorum Sims LC
RHAMNACEAE
Scutia
myrtina (Burm.f.) Kurz LC
RUBIACEAE
Canthium
inerme (L.f.) Kuntze LC
spinosum (Klotzsch) Kuntze LC
Galopina
circaeoides Thunb. LC
SANTALACEAE
Osyris
compressa (P.J.Bergius) A.DC. LC
SAPINDACEAE
Allophylus
decipiens (Sond.) Radlk. LC
Hippobromus
pauciflorus (L.f.) Radlk. LC
SAPOTACEAE
Sideroxylon
inerme L. subsp. inerme LC
SCROPHULARIACEAE
Buddleja
saligna Willd. LC
VITACEAE
Rhoicissus
digitata (L.f.) Gilg & M.Brandt LC

Division: Anthophyta **Class:** Monocotyledones
ASPARAGACEAE
Asparagus
cf. scandens Thunb. LC
ASPHODELACEAE
Aloe
cf. maculata All. LC
IRIDACEAE
Dietes
iridioides (L.) Sweet ex Klatt LC
POACEAE

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Panicum
cf. maximum Jacq. LC

Total species:	**44**
Total named species:	**37**
Total genera:	**33**
Total families:	**25**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 19 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE GT2

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Hypoestes
  - forskaolii (Vahl) R.Br. LC

ANACARDIACEAE
- Rhus
  - incisa L.f.
  - longispina Eckl.& Zeyh.
  - pallens Eckl. & Zeyh.
  - pterota C.Presl.

APOCYNACEAE
- Carissa
  - haematocarpa (Eckl.) A.DC. NE
- Sarcostemma
  - viminale (L.) R.Br.

ASTERACEAE
- Brachylaena
  - cf. ilicifolia (Lam.) E.Phillips & Schweick. LC
- Senecio
  - odontophyllus

BRASSICACEAE
- Capparis
  - sepiaria L.
  - tomentosa

CAMPANULACEAE
- Cyphia
  - cf. sylvatica Eckl.

CRASSULACEAE
- Cotyledon
  - velutina Hook.f. LC
- Crassula
  - rupestris Thunb.
  - spathulata Thunb. LC
- Kalanchoe
  - rotundifolia (Haw.) Haw. LC

CUCURBITACEAE
- Kedrostis
  - nana (Lam.) Cogn.

EBENACEAE
- Euclea
  - undulata Thunb. LC

EUPHORBIACEAE
- Euphorbia
  - triangularis Desf. LC
- Jatropha
  - capensis (L.f.) Sond. LC

FABACEAE
- Lablab
  - purpureus L. subsp. purpureus NE
- Schotia
  - afra (L.) Thunb.
  - latifolia LC

GERANIACEAE
- Pelargonium
  - peltatum (L.) L'Hér. LC

LAMIACEAE
- Plectranthus
  - cf. strigosus Benth. LC

MALVACEAE
- Grewia
  - cf. robusta Burch. LC

OLEACEAE
- Olea
  - europaea (L.) subsp. africana (Mill.) P.S.Green LC

PLUMBAGINACEAE
- Plumbago
  - auriculata Lam. LC

PORTULACACEAE
- Portulacaria
  - afra Jacq. LC

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

RUBIACEAE
- Canthium
  - spinosum (Klotzsch) Kuntze LC

RUTACEAE
- Clausena
  - anisata (Willd.) Hook.f. ex Benth.
- Zanthoxylum
  - capense (Thunb.) Harv. LC

SALVADORACEAE
- Azima
  - tetracantha Lam. LC

SAPINDACEAE
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC
- Pappea
  - capensis Eckl. & Zeyh. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

VISCACEAE
- Viscum
  - rotundifolium L.f. LC

VITACEAE
- Rhoicissus
  - cf. digitata (L.f.) Gilg & M.Brandt LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Division: Anthophyta **Class:** Monocotyledones
ASPARAGACEAE
  Asparagus
    cf. subulatus Thunb. LC
ASPHODELACEAE
  Aloe
    africana Mill. LC
    ferox Mill. LC
COMMELINACEAE
  Commelina
    africana L.
CONVALLARIACEAE
  Sansevieria
    hyacinthoides (L.) Druce LC
HYACINTHACEAE
  Ledebouria
    cf. revoluta
HYPOXIDACEAE
  Hypoxis
    villosa L.f. LC

Total species:	**55**
Total named species:	**47**
Total genera:	**40**
Total families:	**32**
Total red data species:	**0**
Total introduced species:	**1**

References: A B Low, C Logie & Y Pretorius personal collection, 19 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE GT3

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - cf. pallens Eckl. & Zeyh.
  - pterota C.Presl.

APOCYNACEAE
- Carissa
  - haematocarpa (Eckl.) A.DC. NE
- Cynanchum
  - gerrardii (Harv.) Liede LC
- Sarcostemma
  - viminale (L.) R.Br.

ASTERACEAE
- Cineraria
  - cf. lobata L'Her. LC
- Senecio
  - odontophyllus
  - pyramidatus DC. LC

BRASSICACEAE
- Capparis
  - cf. tomentosa
- Maerua
  - cafra (DC.) Pax LC

CAMPANULACEAE
- Cyphia
  - cf. sylvatica Eckl.

CELASTRACEAE
- Lauridia
  - reticulata Eckl. & Zeyh. LC
  - tetragona (L.f.) R.H.Archer LC
- Pterocelastrus
  - tricuspidatus (Lam.) Sond. LC
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

CRASSULACEAE
- Cotyledon
  - velutina Hook.f. LC

CUCURBITACEAE
- Kedrostis
  - nana (Lam.) Cogn.

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC
  - scabrida (Harv. ex Hiern) De Winter
- Euclea
  - daphnoides
  - undulata Thunb. LC

EUPHORBIACEAE
- Euphorbia
  - triangularis Desf. LC

FABACEAE
- Schotia
  - afra (L.) Thunb.
  - latifolia LC

FLACOURTIACEAE
- Scolopia
  - zeyheri (Nees) Harv. LC

GERANIACEAE
- Pelargonium
  - peltatum (L.) L'Hér. LC

LAMIACEAE
- Plectranthus
  - strigosus Benth. LC

MALVACEAE
- Grewia
  - robusta Burch. LC

OLEACEAE
- Olea
  - europaea (L.) subsp. africana (Mill.) P.S.Green LC

POLYGALACEAE
- Polygala
  - myrtifolia L.

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

SANTALACEAE
- Rhoiacarpos
  - capensis (Harv.) A.DC. LC

SAPINDACEAE
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC

SAPINDACEAE
- Pappea
  - capensis Eckl. & Zeyh. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

Division: Anthophyta **Class:** Monocotyledones

ASPARAGACEAE
- Asparagus
  - asparagoides (L.) Druce LC
  - cf. scandens Thunb. LC

ASPHODELACEAE
- Aloe
  - africana Mill. LC
- Bulbine
  - latifolia (L.f.) Roem. & Schult.

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Gasteria
cf. bicolor Haw. var. bicolor LC
POACEAE
Ehrharta
calycina Sm. LC
Panicum
maximum Jacq. LC

Total species:	**59**
Total named species:	**42**
Total genera:	**35**
Total families:	**24**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 19 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE GT4

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Hypoestes
  - forskaolii (Vahl) R.Br. LC

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - pterota C.Presl.
  - cf. undulata Jacq.

APOCYNACEAE
- Carissa
  - haematocarpa (Eckl.) A.DC. NE
- Cynanchum
  - gerrardii (Harv.) Liede LC
- Sarcostemma
  - viminale (L.) R.Br.

ASPHODELACEAE
- Aloe
  - subulatus

BORAGINACEAE
- Ehretia
  - rigida (Thunb.) Druce

BRASSICACEAE
- Cadaba
  - aphylla (Thunb.) Wild LC
- Capparis
  - sepiaria L.
- Maerua
  - cafra (DC.) Pax LC

CAMPANULACEAE
- Cyphia
  - cf. sylvatica Eckl.

CELASTRACEAE
- Gymnosporia
  - cf. buxifolia (L.) Szyszyl. LC
- Lauridia
  - tetragona (L.f.) R.H.Archer LC
- Mystroxylon
  - aethiopicum (Thunb.) Loes.

CRASSULACEAE
- Cotyledon
  - velutina Hook.f. LC

CUCURBITACEAE
- Kedrostis
  - nana (Lam.) Cogn.

EBENACEAE
- Euclea
  - undulata Thunb. LC

EUPHORBIACEAE
- Euphorbia
  - fimbriata Scop.
  - triangularis Desf. LC

FABACEAE
- Schotia
  - afra (L.) Thunb.

GERANIACEAE
- Pelargonium
  - peltatum (L.) L'Hér. LC

LAMIACEAE
- Plectranthus
  - madagascariensis (Pers.) Benth.

MALVACEAE
- Grewia
  - cf. robusta Burch. LC

PLUMBAGINACEAE
- Plumbago
  - auriculata Lam. LC

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

RUBIACEAE
- Galopina
  - circaeoides Thunb. LC

RUTACEAE
- Clausena
  - anisata (Willd.) Hook.f. ex Benth.

SALVADORACEAE
- Azima
  - tetracantha Lam. LC

SANTALACEAE
- Rhoiacarpos
  - capensis (Harv.) A.DC. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

VISCACEAE
- Viscum
  - rotundifolium L.f. LC

VITACEAE
- Rhoicissus
  - digitata (L.f.) Gilg & M.Brandt LC

ZYGOPHYLLACEAE
- Roepera
  - morgsana L. LC

Division: Anthophyta **Class:** Monocotyledones

ASPARAGACEAE
- Asparagus
  - subulatus Thunb. LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

ASPHODELACEAE
  Aloe
    africana Mill. LC
    cf. pluridens Haw. LC
  Bulbine
    frutescens (L.) Willd. LC
  Gasteria
    cf. acinacifolia (Jacq.) Haw. LC
BEHNIACEAE
  Behnia
    reticulata (Thunb.) Didr. LC
COMMELINACEAE
  Commelina
    africana L.
CONVALLARIACEAE
  Sansevieria
    cf. hyacinthoides (L.) Druce LC
HYACINTHACEAE
  Ornithogalum
    longibracteatum Jacq. LC
POACEAE
  Panicum
    cf. maximum Jacq. LC

Total species:	**59**
Total named species:	**46**
Total genera:	**41**
Total families:	**33**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 25 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE GT5

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Isoglossa
  - cf. ciliata (Nees) Lindau LC

ANACARDIACEAE
- Rhus
  - pallens Eckl. & Zeyh.

APOCYNACEAE
- Carissa
  - cf. bispinosa (L.) Desf. ex Brenan LC
- Sarcostemma
  - viminale (L.) R.Br.

ASTERACEAE
- Brachylaena
  - cf. ilicifolia (Lam.) E.Phillips & Schweick. LC
- Senecio
  - deltoideus Less. LC
  - linifolius L. LC

BRASSICACEAE
- Capparis
  - sepiaria L.

CELASTRACEAE
- Elaeodendron
  - cf. croceum (Thunb.) DC. Declining
- Gymnosporia
  - buxifolia (L.) Szyszyl. LC
  - cf. nemorosa (Eckl. & Zeyh.) Szyszyl. LC
- Lauridia
  - tetragona (L.f.) R.H.Archer LC
- Pterocelastrus
  - tricuspidatus (Lam.) Sond. LC
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

CRASSULACEAE
- Cotyledon
  - velutina Hook.f. LC
- Crassula
  - spathulata Thunb. LC

EBENACEAE
- Euclea
  - undulata Thunb. LC

EUPHORBIACEAE
- Euphorbia
  - cf. triangularis Desf. LC

FABACEAE
- Acacia
  - karroo Hayne LC
- Dipogon
  - cf. lignosus (L.) Verdc. LC
- Schotia
  - cf. latifolia LC

FLACOURTIACEAE
- Scolopia
  - zeyheri (Nees) Harv. LC

GERANIACEAE
- Pelargonium
  - peltatum (L.) L'Hér. LC

MALVACEAE
- Abutilon
  - sonneratianum (Cav.) Sweet LC

OCHNACEAE
- Ochna
  - cf. serrulata (Hochst.) Walp. LC

OLEACEAE
- Olea
  - europaea (L.) subsp. africana (Mill.) P.S.Green LC

PITTOSPORACEAE
- Pittosporum
  - viridiflorum Sims LC

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

RUBIACEAE
- Burchellia
  - bubalina (L.f.) Sims NE
- Canthium
  - cf. inerme (L.f.) Kuntze LC

SANTALACEAE
- Rhoiacarpos
  - capensis (Harv.) A.DC. LC

SAPINDACEAE
- Allophylus
  - decipiens (Sond.) Radlk. LC
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

ULMACEAE
- Chaetacme
  - cf. aristata Planch. LC

Division: Anthophyta **Class:** Monocotyledones

AMARYLLIDACEAE
- Scadoxus
  - cf. puniceus (L.) Friis & Nordal LC

ASPARAGACEAE
- Asparagus
  - striatus (L.f.) Thunb. LC
  - cf. suaveolens Burch. LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

ASPHODELACEAE
  Aloe
    cf. pluridens Haw. LC
COMMELINACEAE
  Commelina
    africana L.
IRIDACEAE
  Dietes
    iridioides (L.) Sweet ex Klatt LC
POACEAE
  Panicum
    deustum Thunb. LC

Total species:	**42**
Total named species:	**42**
Total genera:	**39**
Total families:	**28**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 18 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE GT6

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Hypoestes
  - forskaolii (Vahl) R.Br. LC

ANACARDIACEAE
- Rhus
  - cf. longispina Eckl.& Zeyh.
  - cf. pallens Eckl. & Zeyh.

APOCYNACEAE
- Carissa
  - cf. haematocarpa (Eckl.) A.DC. NE
- Sarcostemma
  - viminale (L.) R.Br.

ARALIACEAE
- Cussonia
  - spicata Thunb. LC

ASTERACEAE
- Senecio
  - angulatus L.f. LC

BRASSICACEAE
- Capparis
  - sepiaria L.

CELASTRACEAE
- Gymnosporia
  - buxifolia (L.) Szyszyl. LC
  - nemorosa (Eckl. & Zeyh.) Szyszyl. LC
  - szyszylowiczii (Kuntze) M.Jordaan
- Lauridia
  - tetragona (L.f.) R.H.Archer LC
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

CRASSULACEAE
- Cotyledon
  - velutina Hook.f. LC

EBENACEAE
- Euclea
  - undulata Thunb. LC

EUPHORBIACEAE
- Clutia
  - cf. daphnoides Lam. LC
- Euphorbia
  - triangularis Desf. LC

FABACEAE
- Dipogon
  - cf. lignosus (L.) Verdc. LC
- Schotia
  - afra (L.) Thunb.

GERANIACEAE
- Pelargonium
  - peltatum (L.) L'Hér. LC

MALVACEAE
- Abutilon
  - sonneratianum (Cav.) Sweet LC
- Grewia
  - occidentalis L.

OCHNACEAE
- Ochna
  - cf. serrulata (Hochst.) Walp. LC

OLEACEAE
- Jasminum
  - angulare Vahl LC
- Olea
  - europaea (L.) subsp. africana (Mill.) P.S.Green LC

PLUMBAGINACEAE
- Plumbago
  - auriculata Lam. LC

PTAEROXYLACEAE
- Ptaeroxylon
  - obliquum (Thunb.) Radlk. LC

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

SALVADORACEAE
- Azima
  - tetracantha Lam. LC

SANTALACEAE
- Rhoiacarpos
  - capensis (Harv.) A.DC. LC

SAPINDACEAE
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC
- Pappea
  - capensis Eckl. & Zeyh. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

SCROPHULARIACEAE
- Buddleja
  - saligna Willd. LC

ULMACEAE
- Chaetacme
  - aristata Planch. LC

VISCACEAE
- Viscum
  - rotundifolium L.f. LC

VITACEAE
- Rhoicissus
  - digitata (L.f.) Gilg & M.Brandt LC
  - tridentata (L.f.) Wild & R.B.Drumm. LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Division: Anthophyta **Class:** Monocotyledones
ASPARAGACEAE
  Asparagus
    racemosus Willd. LC
    cf. suaveolens Burch. LC
ASPHODELACEAE
  Aloe
    cf. africana Mill. LC
IRIDACEAE
  Dietes
    iridioides (L.) Sweet ex Klatt LC
ORCHIDACEAE
  Bonatea
    speciosa (L.f.) Willd. var. antennifera LC
POACEAE
  Panicum
    deustum Thunb. LC

Total species:	**44**
Total named species:	**44**
Total genera:	**39**
Total families:	**31**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & C Weatherall-Thomas personal collection, 18 January 2010

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SUNDAYS THICKET

SITE ST1

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - incisa L.f.
  - pyroides Burch.

APOCYNACEAE
- Carissa
  - haematocarpa (Eckl.) A.DC. NE
- Sarcostemma
  - viminale (L.) R.Br.

ARALIACEAE
- Cussonia
  - spicata Thunb. LC

ASTERACEAE
- Brachylaena
  - cf. ilicifolia (Lam.) E.Phillips & Schweick. LC
- Felicia
  - filifolia (Vent.) Burtt Davy
- Pteronia
  - incana (Burm.) DC. LC
- Senecio
  - lineatus (L.f.) DC. LC
  - cf. linifolius L. LC

BORAGINACEAE
- Ehretia
  - rigida (Thunb.) Druce

BRASSICACEAE
- Capparis
  - sepiaria L.
- Maerua
  - cafra (DC.) Pax LC

CELASTRACEAE
- Gymnosporia
  - capitata (E.Mey. ex Sond.) Loes. LC
- Lauridia
  - tetragona (L.f.) R.H.Archer LC
- Mystroxylon
  - aethiopicum (Thunb.) Loes.
- Pterocelastrus
  - tricuspidatus (Lam.) Sond. LC
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

CRASSULACEAE
- Crassula
  - spathulata Thunb. LC

EBENACEAE
- Euclea
  - undulata Thunb. LC

FABACEAE
- Acacia
  - karroo Hayne LC
- Schotia
  - afra (L.) Thunb.

FLACOURTIACEAE
- Dovyalis
  - cf. rotundifolia (Thunb.) Thunb. & Harv. LC
- Scolopia
  - zeyheri (Nees) Harv. LC

GERANIACEAE
- Pelargonium
  - peltatum (L.) L'Hér. LC

MALVACEAE
- Grewia
  - cf. robusta Burch. LC

OLEACEAE
- Olea
  - europaea (L.) subsp. africana (Mill.) P.S.Green LC

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

SAPINDACEAE
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC
- Pappea
  - capensis Eckl. & Zeyh. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

VISCACEAE
- Viscum
  - obscurum Thunb. LC
  - rotundifolium L.f. LC

VITACEAE
- Rhoicissus
  - tridentata (L.f.) Wild & R.B.Drumm. LC

Division: Anthophyta **Class:** Monocotyledones

ASPARAGACEAE
- Asparagus
  - cf. striatus (L.f.) Thunb. LC

ASPHODELACEAE
- Aloe
  - ferox Mill. LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

CONVALLARIACEAE
Sansevieria
hyacinthoides (L.) Druce LC

Total species:	**42**
Total named species:	**37**
Total genera:	**34**
Total families:	**22**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 21 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE ST2

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Hypoestes
  - forskaolii (Vahl) R.Br. LC

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - pterota C.Presl.

APOCYNACEAE
- Carissa
  - haematocarpa (Eckl.) A.DC. NE
- Sarcostemma
  - viminale (L.) R.Br.

ASTERACEAE
- Senecio
  - radicans (L.f.) Sch.Bip. LC

BORAGINACEAE
- Ehretia
  - rigida (Thunb.) Druce

BRASSICACEAE
- Capparis
  - sepiaria L.
- Maerua
  - cafra (DC.) Pax LC

CELASTRACEAE
- Gymnosporia
  - capitata (E.Mey. ex Sond.) Loes. LC

CRASSULACEAE
- Cotyledon
  - velutina Hook.f. LC
- Crassula
  - spathulata Thunb. LC
- Kalanchoe
  - rotundifolia (Haw.) Haw. LC

EBENACEAE
- Euclea
  - undulata Thunb. LC

EUPHORBIACEAE
- Euphorbia
  - fimbriata Scop.
  - ledienii A.Berger
  - mauritanica L.
  - triangularis Desf. LC

FABACEAE
- Schotia
  - afra (L.) Thunb.

LAMIACEAE
- Plectranthus
  - verticillatus (L.f.) Druce LC

PORTULACACEAE
- Portulacaria
  - afra Jacq. LC

SALVADORACEAE
- Azima
  - tetracantha Lam. LC

SAPINDACEAE
- Pappea
  - capensis Eckl. & Zeyh. LC

VISCACEAE
- Viscum
  - rotundifolium L.f. LC

VITACEAE
- Rhoicissus
  - digitata (L.f.) Gilg & M.Brandt LC

Division: Anthophyta **Class:** Monocotyledones

ASPARAGACEAE
- Asparagus
  - striatus (L.f.) Thunb. LC

ASPHODELACEAE
- Aloe
  - africana Mill. LC
  - ferox Mill. LC
- Bulbine
  - frutescens (L.) Willd. LC
  - latifolia (L.f.) Roem. & Schult.

CONVALLARIACEAE
- Sansevieria
  - cf. hyacinthoides (L.) Druce LC

Total species:	**39**
Total named species:	**31**
Total genera:	**25**
Total families:	**20**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 21 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE ST3

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Hypoestes
  - aristata (Vahl.) Sol. ex Roem. & Schult.
  - forskaolii (Vahl) R.Br. LC
- Isoglossa
  - ciliata (Nees) Lindau LC
- Justicia
  - cf. cuneata Vahl

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - pterota C.Presl.

APOCYNACEAE
- Carissa
  - haematocarpa (Eckl.) A.DC. NE
- Cynanchum
  - gerrardii (Harv.) Liede LC
- Sarcostemma
  - viminale (L.) R.Br.

ARALIACEAE
- Cussonia
  - spicata L. var. spicata

ASTERACEAE
- Brachylaena
  - cf. ilicifolia (Lam.) E.Phillips & Schweick. LC
- Senecio
  - radicans (L.f.) Sch.Bip. LC

BORAGINACEAE
- Ehretia
  - rigida (Thunb.) Druce

BRASSICACEAE
- Capparis
  - sepiaria L.
- Maerua
  - cafra (DC.) Pax LC

CAMPANULACEAE
- Cyphia
  - cf. sylvatica Eckl.

CELASTRACEAE
- Gymnosporia
  - capitata (E.Mey. ex Sond.) Loes. LC
- Maytenus
  - undata (Thunb.) Blakelock LC
- Mystroxylon
  - aethiopicum (Thunb.) Loes.
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

CRASSULACEAE
- Cotyledon
  - velutina Hook.f. LC
- Crassula
  - expansa Dryand. subsp. expansa LC
  - mesembryanthoides (Haw.) Dietr.
  - ovata (Mill.) Druce LC
  - rupestris Thunb.

EBENACEAE
- Euclea
  - undulata Thunb. LC

EUPHORBIACEAE
- Clutia
  - cf. daphnoides Lam. LC
- Euphorbia
  - clava Jacq. LC
  - ledienii A.Berger
- Jatropha
  - capensis (L.f.) Sond. LC

FABACEAE
- Schotia
  - afra (L.) Thunb.

FLACOURTIACEAE
- Dovyalis
  - cf. rotundifolia (Thunb.) Thunb. & Harv. LC

GERANIACEAE
- Pelargonium
  - peltatum (L.) L'Hér. LC
  - reniforme Curtis

LAMIACEAE
- Plectranthus
  - madagascariensis (Pers.) Benth.
- Stachys
  - aethiopica L. LC

MALVACEAE
- Abutilon
  - sonneratianum (Cav.) Sweet LC
- Grewia
  - cf. occidentalis L.

OLEACEAE
- Olea
  - europaea (L.) subsp. africana (Mill.) P.S.Green LC

PORTULACACEAE
- Portulacaria
  - afra Jacq. LC

PTAEROXYLACEAE
- Ptaeroxylon
  - obliquum (Thunb.) Radlk. LC

SANTALACEAE
- Rhoiacarpos
  - capensis (Harv.) A.DC. LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SAPINDACEAE
  Allophylus
    decipiens (Sond.) Radlk. LC
  Hippobromus
    pauciflorus (L.f.) Radlk. LC
SAPINDACEAE
  Pappea
    capensis Eckl. & Zeyh. LC
  Sideroxylon
    inerme L. subsp. inerme LC
SOLANACEAE
  Withania
    somnifera (L.) Dunal LC
VERBENACEAE
  Lantana
    rugosa Thunb. LC
VISCACEAE
  Viscum
    obscurum Thunb. LC
    rotundifolium L.f. LC
VITACEAE
  Rhoicissus
    digitata (L.f.) Gilg & M.Brandt LC

Division: Anthophyta **Class:** Monocotyledones
AMARYLLIDACEAE
  Haemanthus
    albiflos Jacq. LC
ASPHODELACEAE
  Aloe
    africana Mill. LC
  Bulbine
    frutescens (L.) Willd. LC
  Gasteria
    cf. bicolor Haw. var. bicolor LC
CONVALLARIACEAE
  Sansevieria
    hyacinthoides (L.) Druce LC
POACEAE
  Panicum
    cf. maximum Jacq. LC

Total species:	**65**
Total named species:	**57**
Total genera:	**49**
Total families:	**31**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 22 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE ST4

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Hypoestes
  - cf. forskaolii (Vahl) R.Br. LC

ANACARDIACEAE
- Rhus
  - incisa L.f. var. effusa
  - longispina Eckl.& Zeyh.
  - pterota C.Presl.

APOCYNACEAE
- Carissa
  - haematocarpa (Eckl.) A.DC. NE
- Sarcostemma
  - viminale (L.) R.Br.

ARALIACEAE
- Cussonia
  - spicata Thunb. LC

ASTERACEAE
- Pteronia
  - incana (Burm.) DC. LC

BRASSICACEAE
- Capparis
  - sepiaria L.
- Maerua
  - cafra (DC.) Pax LC

CELASTRACEAE
- Gymnosporia
  - cf. capitata (E.Mey. ex Sond.) Loes. LC
- Mystroxylon
  - aethiopicum (Thunb.) Loes.
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

CRASSULACEAE
- Crassula
  - rupestris Thunb.

CUCURBITACEAE
- Kedrostis
  - nana (Lam.) Cogn.

EBENACEAE
- Euclea
  - undulata Thunb. LC

EUPHORBIACEAE
- Euphorbia
  - ledienii A.Berger
  - mauritanica L.
  - triangularis Desf. LC

FABACEAE
- Schotia
  - afra (L.) Thunb.

LAMIACEAE
- Plectranthus
  - cf. madagascariensis (Pers.) Benth.

PORTULACACEAE
- Portulacaria
  - afra Jacq. LC

SALVADORACEAE
- Azima
  - tetracantha Lam. LC

SANTALACEAE
- Rhoiacarpos
  - cf. capensis (Harv.) A.DC. LC

SAPINDACEAE
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC
- Pappea
  - capensis Eckl. & Zeyh. LC

SAPOTACEAE
- Sideroxylon
  - inerme L. subsp. inerme LC

SCROPHULARIACEAE
- Jamesbrittenia
  - microphylla (L.f.) Hilliard LC

VISCACEAE
- Viscum
  - obscurum Thunb. LC
  - rotundifolium L.f. LC

VITACEAE
- Rhoicissus
  - digitata (L.f.) Gilg & M.Brandt LC

Division: Anthophyta **Class:** Monocotyledones

AMARYLLIDACEAE
- Haemanthus
  - albiflos Jacq. LC

ASPARAGACEAE
- Asparagus
  - asparagoides (L.) Druce LC

ASPHODELACEAE
- Aloe
  - africana Mill. LC
  - ferox Mill. LC
- Bulbine
  - frutescens (L.) Willd. LC

COMMELINACEAE
- Commelina
  - africana L.

CONVALLARIACEAE
- Sansevieria
  - cf. hyacinthoides (L.) Druce LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total species:	**43**
Total named species:	**38**
Total genera:	**32**
Total families:	**26**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 22 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE ST5

Division: Anthophyta **Class:** Dicotyledones

ANACARDIACEAE
- Rhus
  - pallens Eckl. & Zeyh.
  - pterota C.Presl.

APOCYNACEAE
- Carissa
  - haematocarpa (Eckl.) A.DC. NE
- Cynanchum
  - gerrardii (Harv.) Liede LC
- Pachypodium
  - bispinosum (L.f.) A.DC. LC
  - succulentum (Jacq.) Sweet LC

ASTERACEAE
- Brachylaena
  - ilicifolia (Lam.) E.Phillips & Schweick. LC

BRASSICACEAE
- Capparis
  - sepiaria L.
- Maerua
  - cafra (DC.) Pax LC

CAMPANULACEAE
- Cyphia
  - cf. sylvatica Eckl.

CELASTRACEAE
- Gymnosporia
  - cf. capitata (E.Mey. ex Sond.) Loes. LC
- Putterlickia
  - pyracantha (L.) Szyszyl. LC

CRASSULACEAE
- Cotyledon
  - velutina Hook.f. LC
  - woodii Schönland & Baker f. LC
- Crassula
  - cordata Thunb.
  - rupestris Thunb.

CUCURBITACEAE
- Kedrostis
  - cf. nana (Lam.) Cogn.

EBENACEAE
- Euclea
  - undulata Thunb. LC

EUPHORBIACEAE
- Euphorbia
  - fimbriata Scop.
  - mauritanica L.
- Jatropha
  - cf. capensis (L.f.) Sond. LC

FABACEAE
- Schotia
  - afra (L.) Thunb.

GERANIACEAE
- Pelargonium
  - peltatum (L.) L'Hér. LC

PORTULACACEAE
- Portulacaria
  - afra Jacq. LC

SALVADORACEAE
- Azima
  - tetracantha Lam. LC

SANTALACEAE
- Rhoiacarpos
  - capensis (Harv.) A.DC. LC

SAPINDACEAE
- Pappea
  - capensis Eckl. & Zeyh. LC

VISCACEAE
- Viscum
  - cf. crassulae Eckl. & Zeyh. LC

VITACEAE
- Rhoicissus
  - tridentata (L.f.) Wild & R.B.Drumm. LC

ZYGOPHYLLACEAE
- Roepera
  - morgsana L. LC

Division: Anthophyta **Class:** Monocotyledones

ASPARAGACEAE
- Asparagus
  - suaveolens Burch. LC
  - subulatus Thunb. LC
  - volubilis Thunb. LC

ASPHODELACEAE
- Aloe
  - africana Mill. LC
- Gasteria
  - cf. bicolor Haw. var. bicolor LC

HYACINTHACEAE
- Ornithogalum
  - conicum Jacq.

Total species:	**42**
Total named species:	**37**
Total genera:	**30**
Total families:	**23**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 24 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

AZONAL

ALBANY ALLUVIAL VEGETATION

SITE AAV1 - THICKET

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Hypoestes
  - cf. aristata (Vahl.) Sol. ex Roem. & Schult.

AIZOACEAE
- Aizoon
  - rigidum L.f. LC
- Tetragonia
  - fruticosa L. LC

ANACARDIACEAE
- Rhus
  - cf. pterota C.Presl.

APOCYNACEAE
- Cynanchum
  - obtusifolium L.f. LC

ASTERACEAE
- Chrysanthemoides
  - incana (Burm.f.) Norl. LC
- Cineraria
  - cf. lobata L'Her. LC
- Gazania
  - krebsiana Less.

BORAGINACEAE
- Ehretia
  - capensis

BRASSICACEAE
- Maerua
  - cafra (DC.) Pax LC

CRASSULACEAE
- Crassula
  - cf. cordata Thunb.
  - expansa Dryand.

EBENACEAE
- Diospyros
  - cf. dichrophylla (Gand.) De Winter LC

FABACEAE
- Acacia
  - karroo Hayne LC

MALVACEAE
- Pavonia
  - praemorsa (L.f.) Cav. LC

SAPINDACEAE
- Pappea
  - capensis Eckl. & Zeyh. LC

SCROPHULARIACEAE
- Chaenostoma
  - campanulatum (Benth.) Kuntze LC

Division: Anthophyta **Class:** Monocotyledones

POACEAE
- Phragmites
  - australis (Cav.) Trin. ex Steud. LC

Total species:	**19**
Total named species:	**18**
Total genera:	**17**
Total families:	**14**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 21 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE AAV1 - WETLAND/RIVER PLAIN

Division: Anthophyta **Class:** Dicotyledones

ASTERACEAE
- Arctotheca
  - calendula (L.) Levyns LC
- Conyza
  - cf. scabrida DC. LC
- Cotula
  - coronopifolia L. LC
- Senecio
  - cf. burchellii DC. LC
  - pterophorus DC. LC

CAMPANULACEAE
- Monopsis
  - unidentata (Dryand. ex Aiton) E.Wimm.

FABACEAE
- Rhynchosia
  - cf. caribaea (Jacq.) DC. LC

Division: Anthophyta **Class:** Monocotyledones

CYPERACEAE
- Cyperus
  - textilis Thunb. LC

JUNCACEAE
- Juncus
  - cf. kraussii Hochst. subsp. kraussii LC

POACEAE
- Cynodon
  - dactylon (L.) Pers. LC
- Phragmites
  - australis (Cav.) Trin. ex Steud. LC
- Sporobolus
  - virginicus (L.) Kunth LC

Total species:	**19**
Total named species:	**12**
Total genera:	**11**
Total families:	**6**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 21 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE AAV2 - CHANNEL

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Hypoestes
  - aristata (Vahl.) Sol. ex Roem. & Schult.

ASTERACEAE
- Conyza
  - scabrida DC. LC

SOLANACEAE
- Solanum
  - nigrum L. NE

Division: Anthophyta **Class:** Monocotyledones

CYPERACEAE
- Cyperus
  - textilis Thunb. LC
- Ficinia
  - cf. nodosa (Rottb.) Goetgh. LC

JUNCACEAE
- Juncus
  - kraussii Hochst. subsp. kraussii LC

POACEAE
- Melica
  - decumbens Thunb. LC
- Phragmites
  - australis (Cav.) Trin. ex Steud. LC

Total species:	**9**
Total named species:	**8**
Total genera:	**8**
Total families:	**6**
Total red data species:	**1**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection, 22 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE AAV2 - THICKET

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Hypoestes
  - aristata (Vahl.) Sol. ex Roem. & Schult.
  - forskaolii (Vahl) R.Br. LC

ANACARDIACEAE
- Rhus
  - cf. incisa L.f. var. effusa
  - cf. longispina Eckl.& Zeyh.
  - pterota C.Presl.

APOCYNACEAE
- Cynanchum
  - cf. natalitium Schltr. LC

ASTERACEAE
- Chrysanthemoides
  - monilifera (L.) Norl. subsp. pisifera (L.) Norl. LC
- Cineraria
  - cf. lobata L'Her. LC

BORAGINACEAE
- Ehretia
  - rigida (Thunb.) Druce

BRASSICACEAE
- Capparis
  - sepiaria L.
- Maerua
  - cafra (DC.) Pax LC

CELASTRACEAE
- Gymnosporia
  - buxifolia (L.) Szyszyl. LC
- Maytenus
  - undata (Thunb.) Blakelock LC

CRASSULACEAE
- Kalanchoe
  - rotundifolia (Haw.) Haw. LC

CUCURBITACEAE
- Kedrostis
  - nana (Lam.) Cogn.

FABACEAE
- Acacia
  - karroo Hayne LC
- Rhynchosia
  - caribaea (Jacq.) DC. LC

HYDNORACEAE
- Hydnora
  - africana Thunb LC

MALVACEAE
- Abutilon
  - sonneratianum (Cav.) Sweet LC
- Grewia
  - cf. occidentalis L.
  - cf. robusta Burch. LC

MENISPERMACEAE
- Cissampelos
  - capensis L.f. LC

OLEACEAE
- Jasminum
  - angulare Vahl LC

PLUMBAGINACEAE
- Plumbago
  - auriculata Lam. LC

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

RUTACEAE
- Clausena
  - anisata (Willd.) Hook.f. ex Benth.

SALVADORACEAE
- Azima
  - tetracantha Lam. LC

SOLANACEAE
- Lycium
  - cf. ferocissimum Miers LC

VITACEAE
- Rhoicissus
  - tridentata (L.f.) Wild & R.B.Drumm. LC

Division: Anthophyta **Class:** Monocotyledones

ASPARAGACEAE
- Asparagus
  - asparagoides (L.) Druce LC

ASPHODELACEAE
- Aloe
  - pluridens Haw. LC

COMMELINACEAE
- Commelina
  - africana L.

CONVALLARIACEAE
- Sansevieria
  - cf. hyacinthoides (L.) Druce LC

POACEAE
- Melica
  - decumbens Thunb. LC
- Panicum
  - cf. maximum Jacq. LC

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

Total species:	**39**
Total named species:	**35**
Total genera:	**31**
Total families:	**25**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie & Y Pretorius personal collection,22 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE AAV3 - RIVER BANK

Division: Anthophyta **Class:** Dicotyledones

FABACEAE
- Rhynchosia
  - capensis (Burm.f.) Schinz LC

LAMIACEAE
- Leonotis
  - ocymifolia (Burm.f.) Iwarsson LC

NYMPHAEACEAE
- Nymphaea
  - nouchali Burm.f. var. caerulea LC

PENAEACEAE
- Penaea
  - cf. cordatus

Division: Anthophyta **Class:** Monocotyledones

CYPERACEAE
- Cyperus
  - textilis Thunb. LC
- Eleocharis
  - limosa (Schrad.) Schult. LC

JUNCACEAE
- Juncus
  - cf. kraussii Hochst. subsp. kraussii LC

POACEAE
- Phragmites
  - australis (Cav.) Trin. ex Steud. LC
- Stenotaphrum
  - secundatum (Walter) Kuntze LC

Total species:	**14**
Total named species:	**9**
Total genera:	**9**
Total families:	**7**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie, Y Pretorius & Dane McDonald personal collection, 27 October 2009

APPENDIX 1.4. ESKOM TRANSMISSION LINES: INDIVIDUAL PLANT SPECIES LISTS

SITE AAV3 - THICKET

Division: Anthophyta **Class:** Dicotyledones

ACANTHACEAE
- Hypoestes
  - aristata (Vahl.) Sol. ex Roem. & Schult.

APOCYNACEAE
- Cynanchum
  - cf. natalitium Schltr. LC

ASTERACEAE
- Arctotheca
  - calendula (L.) Levyns LC

BORAGINACEAE
- Ehretia
  - rigida (Thunb.) Druce

CELASTRACEAE
- Gymnosporia
  - buxifolia (L.) Szyszyl. LC
  - cf. capitata (E.Mey. ex Sond.) Loes. LC
  - nemorosa (Eckl. & Zeyh.) Szyszyl. LC

CUCURBITACEAE
- Coccinia
  - quinqueloba (Thunb.) Cogn. LC

EBENACEAE
- Diospyros
  - dichrophylla (Gand.) De Winter LC

EUPHORBIACEAE
- Lachnostylis
  - hirta (L.f.) Muell.Arg. LC

FABACEAE
- Acacia
  - karroo Hayne LC
- Rhynchosia
  - caribaea (Jacq.) DC. LC

FLACOURTIACEAE
- Trimeria
  - trinervis Harv. LC

LAMIACEAE
- Leonotis
  - cf. leonurus (L.) R.Br. LC

MALVACEAE
- Pavonia
  - praemorsa (L.f.) Cav. LC

OLEACEAE
- Jasminum
  - angulare Vahl LC
- Olea
  - europaea (L.) subsp. africana (Mill.) P.S.Green LC

PLUMBAGINACEAE
- Plumbago
  - auriculata Lam. LC

RANUNCULACEAE
- Clematis
  - brachiata Thunb. LC

RHAMNACEAE
- Scutia
  - myrtina (Burm.f.) Kurz LC

RUBIACEAE
- Canthium
  - mundianum Cham. & Schltdl.

RUTACEAE
- Clausena
  - anisata (Willd.) Hook.f. ex Benth.
- Zanthoxylum
  - capense (Thunb.) Harv. LC

SALICACEAE
- Salix
  - mucronata Thunb.

SAPINDACEAE
- Hippobromus
  - pauciflorus (L.f.) Radlk. LC

SOLANACEAE
- Lycium
  - cf. ferocissimum Miers LC
- Solanum
  - africanum Mill. LC

Division: Anthophyta **Class:** Monocotyledones

POACEAE
- Panicum
  - cf. maximum Jacq. LC
- Phragmites
  - australis (Cav.) Trin. ex Steud. LC

Total species:	**45**
Total named species:	**30**
Total genera:	**28**
Total families:	**23**
Total red data species:	**0**
Total introduced species:	**0**

References: A B Low, C Logie, Y Pretorius & Dane McDonald personal collection, 27 October 2009

APPENDIX 1.5. ENDEMIC SPECIES OCCURRING IN THE DIFFERENT VEGETATION TYPES IN THE STUDY AREA

FOREST

SOUTHERN AFROTEMPERATE FOREST	
AMARYLLIDACEAE	Clivia mirabilis
CUNONIACEAE	Platylophus trifoliatus
CYPERACEAE	Schoenoxiphium altum
DRYOPTERIDACEAE	Polystichum incongruum
FABACEAE	Virgilia oroboides subsp. ferruginea
FABACEAE	Virgilia oroboides subsp. oroboides
ICACINACEAE	Apodytes geldenhuysii
IRIDACEAE	Freesia sparrmannii
LAURACEAE	Cryptocarya angustifolia
STRELITZIACEAE	Strelitzia alba
THELYPTERIDACEAE	Amauropelta knysnaensis
SOUTHERN COASTAL FOREST	
MALVACEAE	Sterculia alexandri

FYNBOS

ALGOA SANDSTONE FYNBOS	
ERICACEAE	Erica etheliae
FABACEAE	Cyclopia pubescens (wetlands)
ORCHIDACEAE	Holothrix longicornu
RUTACEAE	Agathosma gonaquensis (wetlands)
KOUGA GRASSY SANDSTONE FYNBOS	
SCROPHULARIACEAE	Freylinia crispa
FABACEAE	Argyrolobium parviflorum
FABACEAE	Argyrolobium trifoliatum
ASTERACEAE	Cullumia cirsioides
ASTERACEAE	Eriocephalus tenuipes
RUTACEAE	Euchaetis vallis-simiae

APPENDIX 1.5. ENDEMIC SPECIES OCCURRING IN THE DIFFERENT VEGETATION TYPES IN THE STUDY AREA

SCROPHULARIACEAE	Chaenostoma (Sutera) cinereum
MESEMBRYANTHEMACEAE	Lampranthus lavisii
APIACEAE	Annesorhiza thunbergii
ASTERACEAE	Aster laevigatus
ARALIACEAE	Centella didymocarpa
APIACEAE	Peucedanum dregeanum
AMARYLLIDACEAE	Cyrtanthus flammosus
AMARYLLIDACEAE	Cyrtanthus labiatus
AMARYLLIDACEAE	Cyrtanthus montanus
IRIDACEAE	Gladiolus uitenhagensis
ASPHODELACEAE	Gasteria glauca
RESTIONACEAE	Restio vallis-simius
KOUGA SANDSTONE FYNBOS	
FABACEAE	Cyclopia longifolia
RUTACEAE	Agathosma martiana
RUTACEAE	Agathosma unicarpellata
FABACEAE	Aspalathus lanceicarpa
FABACEAE	Cyclopia filiformis
ERICACEAE	Erica abelii
ERICACEAE	Erica affinis
ERICACEAE	Erica bolusanthus
ERICACEAE	Erica flocciflora
ERICACEAE	Erica harveyana
ERICACEAE	Erica humansdorpensis,
ERICACEAE	Erica kougabergensis
ERICACEAE	Erica sagittata
ERICACEAE	Erica saptouensis
ASTERACEAE	Euryops integrifolius
ASTERACEAE	Euryops ursinoides
PROTEACEAE	Leucadendron orientale

APPENDIX 1.5. ENDEMIC SPECIES OCCURRING IN THE DIFFERENT VEGETATION TYPES IN THE STUDY AREA

PROTEACEAE	Leucadendron sorocephalodes
PROTEACEAE	Paranomus esterhuyseniae
PROTEACEAE	Paranomus reflexus
ASTERACEAE	Senecio oederiifolius
LOERIE CONGLOMERATE FYNBOS	
MESEMBRYANTHEMACEAE	Erepsia aristata
TSITSIKAMMA SANDSTONE FYNBOS	
FABACEAE	Aspalathus teres subsp. thodei
ERICACEAE	Erica trachysantha
ERICACEAE	Erica zitzikammensis
ASTERACEAE	Felicia tsitsikamae
ASTERACEAE	Helichrysum outeniquense

RENOSTERVELD

HUMANSDORP SHALE RENOSTERVELD	
MESEMBRYANTHEMACEAE	Delosperma patersoniae
MESEMBRYANTHEMACEAE	Trichodiadema fourcadei
AMARYLLIDACEAE	Cyrtanthus wellandii

THICKET

ALBANY COASTAL BELT	
MESEMBRYANTHEMACEAE	Bergeranthus concavus
APOCYNACEAE	Brachystelma franksiae var. grandiflorum
ASPHODELACEAE	Bulbine frutescens var. nov
MESEMBRYANTHEMACEAE	Faucaria subintegra
ASPHODELACEAE	Haworthia coarctata var. tenuis
ASPHODELACEAE	Haworthia cooperi var. venusta
ASPHODELACEAE	Haworthia reinwardtii var. reinwardtii f. chalumnensis
	Stapelia praetermissa var. luteola

APPENDIX 1.5. ENDEMIC SPECIES OCCURRING IN THE DIFFERENT VEGETATION TYPES IN THE STUDY AREA

APOCYNACEAE	Stapelia praetermissa var. praetermissa
IRIDACEAE	Bobartia gracilis
AMARYLLIDACEAE	Apodolirion amyanum
APOCYNACEAE	Aspidoglossum flanaganii
HYACINTHACEAE	Drimia chalumnensis
RUTACEAE	Acmadenia kiwanensis
GERANIACEAE	Monsonia galpinii
COEGA BONTVELD	
EUPHORBIACEAE	Euphorbia globosa
MESEMBRYANTHEMACEAE	Rhombophyllum rhomboideum
APIACEAE	Anginon rugosum
HYACINTHACEAE	Ledebouria sp. nov. cf. coriacea
GAMTOOS THICKET	
APOCYNACEAE	Huernia bayeri
ARALIACEAE	Cussonia gamtoosensis
ASPHODELACEAE	Gasteria pulchra
HYACINTHACEAE	Lachenalia latimerae
SUNDAYS THICKET	
ZAMIACEAE	Encephalartos horridus
ASPHODELACEAE	Aloe bowiea
ASPHODELACEAE	Aloe gracilis
MESEMBRYANTHEMACEAE	Bergeranthus addoensis
MESEMBRYANTHEMACEAE	Glottiphyllum grandiflorum
MESEMBRYANTHEMACEAE	Orthopterum coegana
MESEMBRYANTHEMACEAE	Ruschia aristata
MESEMBRYANTHEMACEAE	Trichodiadema rupicola
MESEMBRYANTHEMACEAE	Aptenia haeckeliana
APOCYNACEAE	Ceropegia dubia
ASPHODELACEAE	Haworthia arachnoidea var. xiphiophylla
ASPHODELACEAE	Haworthia aristata

APPENDIX 1.5. ENDEMIC SPECIES OCCURRING IN THE DIFFERENT VEGETATION TYPES IN THE STUDY AREA

APOCYNACEAE	Huernia longii subsp. longii
APOCYNACEAE	Brachystelma cummingii
APOCYNACEAE	Brachystelma schoenlandianum
APOCYNACEAE	Brachystelma tabularium
GERANIACEAE	Pelargonium ochroleucum
STRELITZIACEAE	Strelitzia juncea
IRIDACEAE	Tritonia dubia
ASTERACEAE	Arctotis hispidula
FABACEAE	Argyrolobium crassifolium
FABACEAE	Lessertia carnosa
FABACEAE	Lotononis monophylla
ASTERACEAE	Senecio scaposus var. addoensis
CAMPANULACEAE	Wahlenbergia oocarpa

AZONAL

ALBANY ALLUVIAL THICKET	
None recorded	None recorded

APPENDIX 1.6. PROTECTED TREES IN THE STUDY AREA

Common name	Scientific name
Assegai	*Curtisia dentata (Burm.f.) C.A.Sm.*
Stinkwood	*Ocotea bullata*
Cheesewood	*Pittosporum viridiflorum*
Outeniqua yellowwood	*Podocarpus falcatus (Afrocarpus falcatus)*
Real yellowwood	*Podocarpus latifolius*