



Floristics

The *Burkea africana*-*Setaria lindenbergiana* Low Thicket is differentiated by species group X (Table 4.2) (see section 4.5).

This community is divided into the following two variations, based on floristics:

4.5.1.1 *Burkea africana*-*Diplorhynchus condylocarpon* variation

Habitat

The *Burkea africana*-*Diplorhynchus condylocarpon* variation is found at 1 320 m to 1 520 m above sea level (Figure 4.18) on east, north-east, north-west and south-west facing gentle to moderate slopes (11 - 28°) (see section 3.7.4). It is represented by 10 relevés and an average of 53 species was recorded per sample plot. This variation is a representative of Acocks's (1988) Sour Bushveld, with a low thicket structure (Edwards 1983).

This community occurs in the Ad- and Fa land types (figure 2.4). The soils are of the Mispah, Clovelly, Glenrosa, Hutton and Cartref Forms, derived from sandstone of the Sandriviersberg Formation (De Vries 1968/69) with the soil depth varying between 50 - 1 200 mm (Land Type Survey Staff 1988). Rocks cover more than 58 % of the soil surface (Figure 4.5).

Floristics

The *Burkea africana*-*Diplorhynchus condylocarpon* variation is differentiated by the following plant species (species group W, Table 4.2):

- Acalypha petiolaris***
- Achyranthus aspera***
- Ipomoea transvaalensis***
- Jasminum multipartitum***



<i>Andropogon chinensis</i>	<i>Jatropha zeyheri</i>
<i>Aristida scabrivalvis</i>	<i>Lablab purpurea</i>
<i>Blepharis subvolubilis</i>	<i>Leonotis microphylla</i>
<i>Brachiaria nigropedata</i>	<i>Limeum viscosum</i>
<i>Clerodendron myricoides</i>	<i>Macrotyloma axilare</i>
<i>Crossandra greenstockii</i>	<i>Pavonia transvaalensis</i>
<i>Cryptolepis oblongifolia</i>	<i>Tephrosia rhodesica</i>
<i>Cyphostemma lanigerum</i>	<i>Turraea obtusifolia</i>
<i>Diplorhynchus condylocarpon</i>	<i>Vitex pooara</i>
<i>Ipomoea obscura</i>	<i>Viscum combreticola</i>

The tree layer is on average 4,0 metres tall with an average canopy cover of 39 % (Table 4.2). Other prominent trees are *Englerophytum magalismontanum* (species group Z) and *Vangueria infausta*, *Vitex rehmannii* and *Heteropyxis natalensis* (species group BB, Table 4.2). The above-mentioned species occur as shrubs in the community as well.

The shrub layer is on average 1,0 metres tall with an average canopy cover of 33 % (Table 4.2). Prominent shrubs occurring in this community are *Ancylobotrys capensis* (species group Y), *Maytenus tenuispina* (species group Z) and *Asparagus transvaalensis* and *Rhoicissus revoilii* (species group BB, Table 4.2).

The herbaceous layer is well represented in this community, with an average canopy cover of 34 % and an average height of 0,8 metres. The dominant plant species are *Commelina africana*, *Aristida transvaalensis*, *Brachiaria serrata*, *Phyllanthus parvulus* and *Diheteropogon amplexans* (species group Z), *Melinis repens* (species group AA) and the xerophytic ferns *Cheilanthes viridis* and *Pellaea calomelanos* (species group BB, Table 4.2).

General

The vegetation of the *Burkea africana-Diplorhynchus condylocarpon* variation is a broad-leaved low thicket. Uneven broken areas carry a dense woody vegetation whereas, on more even terrain, trees are less dense. Trees and shrubs of varying age and height occur in all parts of the thicket. The *Burkea africana-Diplorhynchus condylocarpon* variation has many characteristic species in common with the



Barleria bremekampii-*Diplorhynchus* Tree Savanna (Coetzee et al. 1976) and the *Combretum molle*-*Aristida diffusa* open woodland (Westfall 1981).

4.5.1.2 *Burkea africana*-*Englerophytum magalismsontanum* variation

Habitat

The *Burkea africana*-*Englerophytum magalismsontanum* variation is found at 1 400 m to 1 620 m above sea level (Figure 4.1) on moderate slopes (20 - 33°) (see section 3.7.4). It is represented by eight relevés and an average of 41 species was recorded per sample plot. This variation is representative of Acocks's (1988) Sour Bushveld, with the structure a low thicket (Edwards 1983).

This community occurs in the Fa and Ib land type (Figure 2.4), with only one relevé (78) in the Ib land type. The soils are of the Mispah, Hutton and Glenrosa Forms derived from sandstone of the Sandriviersberg Formation (De Vries 1968/69) with the soil depth varying between 10 - 350 mm (Land Type Survey Staff 1988). Rocks cover more than 48 % of the soil surface, which is lower than that of the *Burkea africana*-*Diplorhynchus condylocarpon* variation.

Floristics

Although no differential species were identified for this variation, it can be distinguished from the *Burkea africana*-*Diplorhynchus condylocarpon* variation by the absence of species in species group W and the presence of species in species group X (Table 4.2).

The tree stratum is between three and five metres tall, with an average of 3,5 metres, and with an average canopy cover of 13 % (Table 4.2). The most prominent trees are *Burkea africana* (species group X) and *Diplorhynchus condylocarpon* (species group W) and *Apodytes dimidiata* and *Heteropyxis natalensis* (species group BB, Table 4.2).

The shrub stratum, which is on average 0,8 metres tall, has an average canopy cover of 12 % (Table 4.2). Grasses and forbs cover 29 % of the area with an average height of 0,6 metres. The dominant species in the herbaceous layer are *Setaria lindenbergiana* (species group X), *Andropogon schirensis* (species group Z) and *Fadogia homblei* (species group AA, Table 4.2).

General

The *Burkea africana-Englerophytum magalismontanum* variation has many characteristic species in common with the *Combretum molle-Aristida diffusa* open woodland described by Westfall (1981) and the *Barleria bremekampii-Diplorhynchus* Tree Savanna described by Coetzee *et al.* (1976). This variation is very similar to the *Burkea africana-Diplorhynchus condylocarpon* variation on other rocky sandstone areas, and because of the similarity of these two variations, they are mapped as a single unit on the vegetation map (Figure 4.1).

4.6 *Andropogon huillensis-Xyris capensis* Major Community

The species composition of the *Andropogon huillensis-Xyris capensis* Major Community is given in Table 4.2. This major community is differentiated by the following diagnostic plant species (species group FF, Table 4.2):

Andropogon huillensis* *Kohautia virgata
Cyperus leptocladus* *Xyris capensis

Many streams arise in seepage areas, for instance on mountain slopes. These are seasonally or perennially waterlogged, with vegetation dominated by sedges and other hygrophilous angiosperms and perhaps mosses and are termed sponges (Noble & Hemens 1978).

This major community occurs along streams and tributaries of the Matlabas-, Mamba- and Sterkstroom Rivers and shallow submerged marshy areas or sponges (Figures 4.1).



The soils are mainly of the Avalon, Hutton, Katspruit, Oakleaf and Westleigh Forms, derived from sandstone of the Sandriviersberg Formation (De Vries 1968/69). The soil depth varies between 300 - 1 200 mm (Land Type Survey Staff 1988). Coetzee (1975) described similar communities as the *Aristida junciformis*- *Arundinella nepalensis* Grassland and the *Pteridium aquilinum*-*Phragmites mauritianus* Reedswamp.

A dendrogram to illustrate the habitat relationship of the plant communities classified under the *Andropogon huilensis*-*Xyris capensis* Major Community is shown in Figure 4.6.

In the phytosociological classification, the plant communities classified under the *Andropogon huilensis*-*Xyris capensis* Major Community are classified as follows (Tables 4.1 & 4.2):

- 4.6.1 *Syzygium cordatum*-*Miscanthus junceus* Short Thicket
- 4.6.2 *Fuirena pubescens*-*Aristida junciformis* Low Closed Grassland
- 4.6.3 *Fuirena pubescens*-*Chironia purpurascens* Low Closed Grassland

Agrostis lachnantha

Miscanthus junceus

4.6.1 *Syzygium cordatum*-*Miscanthus junceus* Short Thicket

Andropogon huilensis *Xyris capensis*

Chironia linearifolia

Polygonum pulchrum

Calceolaria

Pseudognaphalium luteo-album

Cuscuta debilis

Schoenoplecton corymbosum

Habitat

Setaria megaphylla

Hammarthia strictissima

S. pallida-*huaca*

Ischaemum fasciculatum

Syzygium cordatum

The *Syzygium cordatum*-*Miscanthus junceus* Short Thicket is found at 1 300 m to 1 420 m above sea level (Figure 4.1) on level and gentle slopes (1 - 3°) (see section 3.7.4).

This plant community occurs on the banks of the Matlabas-, Mamba- and Sterkstroom Rivers, as well as along the streams contributing to these rivers. The watercourses are not particularly rich in plant species, being mostly dominated by a few herbaceous species. It is represented by seven relevés and an average of 22 species was recorded per sample plot.

This plant community is situated within the Sour Bushveld (Acocks 1988), with the structure as a short thicket (Edwards 1983). All the relevés occur in the Fa Land Type, with one relevé (107) occurring in the Ib Land Type (Figure 2.4).

The soils are of the Mispah-, Katspruit and/or Glenrosa Forms, derived from sandstone of the Sandriviersberg Formation. The soil is relatively shallow (50 - 350 mm) (Land Type Survey Staff 1988) (Figure 4.6) and rocks cover more than 54 % of the soil surface (De Vries 1968/69).

This plant community is restricted to relatively fast-draining watercourses and is associated with intermediate or deep streambed incision (Fuls *et al.* 1992 a&b).

Floristics

The *Syzygium cordatum*-*Miscanthus junceus* Short Thicket is differentiated by the following plant species (species group CC, Table 4.2):

<i>Agrostis lachnantha</i>	<i>Miscanthus junceus</i>
<i>Andropogon eucomus</i>	<i>Osmunda regalis</i>
<i>Cliffortia linearifolia</i>	<i>Polygonum pulchrum</i>
<i>Coleochloa setifera</i>	<i>Pseudognaphalium luteo-album</i>
<i>Dissotis debilis</i>	<i>Schoenoplectus corymbosus</i>
<i>Hemarthria altissima</i>	<i>Setaria megaphylla</i>
<i>Ilex mitis</i>	<i>S. pallide-fusca</i>
<i>Ischaemum fasciculatum</i>	<i>Syzygium cordatum</i>
<i>Lycopodium cercuum</i>	<i>S. guineense</i>

Shrubs and trees are encountered in the deeper incised watercourses (Fuls *et al.* 1992 a&b). The tree stratum is between four and 10 metres tall with an average canopy cover of 70 % (Table 4.2). The most conspicuous tree species that may be found are *Syzygium cordatum* and *S. guineense* (species group CC, Table 4.2). The shrub stratum, which is on average 1,4 metres tall, has an average canopy cover of 42 % (Table 4.2). The dominant shrubs are *Syzygium cordatum*, *Cliffortia linearifolia* and *Ilex mitis* (species group CC, Table 4.2).

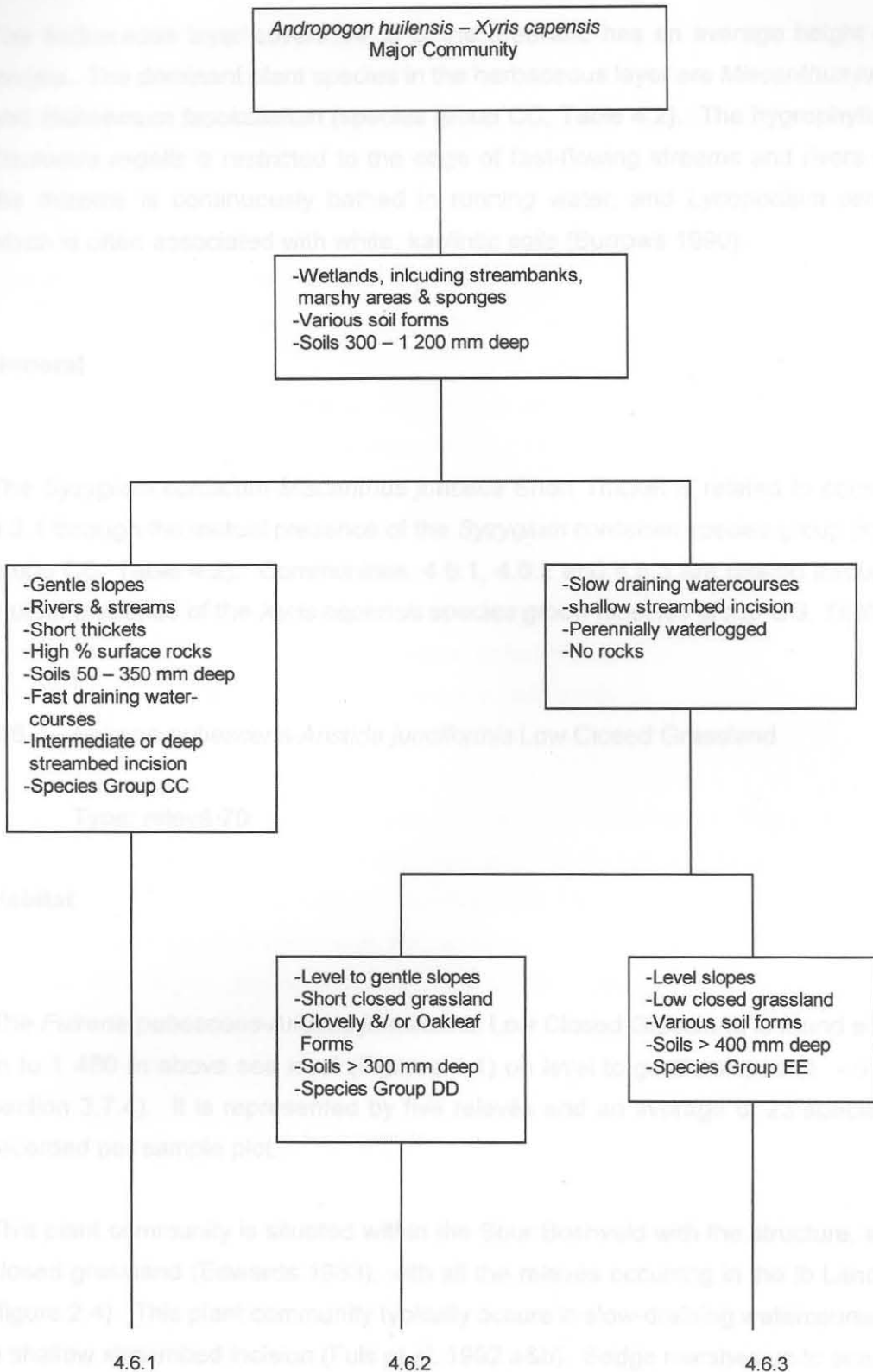


Figure 4.6 A dendrogram to illustrate the habitat relationships of the plant communities classified under the *Andropogon huilensis-Xyris capensis* Major Community



The herbaceous layer covers 54 % of the area and has an average height of 1,1 metres. The dominant plant species in the herbaceous layer are *Miscanthus junceus* and *Ischaemum fasciculatum* (species group CC, Table 4.2). The hygrophytic fern, *Osmunda regalis* is restricted to the edge of fast-flowing streams and rivers where the rhizome is continuously bathed in running water, and *Lycopodium cernuum*, which is often associated with white, kaolintic soils (Burrows 1990).

Flora

General

The *Fuirena pubescens-Aristida junciformis* Low Closed Grassland is differentiated by the following main species (species group CC, Table 4.2):

The *Syzygium cordatum-Miscanthus junceus* Short Thicket is related to community 4.2.1 through the mutual presence of the *Syzygium cordatum* species group (species group CC, Table 4.2). Communities 4.6.1, 4.6.2 and 4.6.3 are related through the mutual presence of the *Xyris capensis* species group (species group GG, Table 4.2).

- Sorghum arifolium* *Peristichia spiculata*
- Boerhaavia brevifolia* *Pycnosiechys reticulata*

4.6.2 *Fuirena pubescens-Aristida junciformis* Low Closed Grassland

Large Type: relevé 70 do not occur in this plant community (Table 4.2). The herbaceous layer covers 23 % of the area and has an average height of 0,7 m.

Habitat

The plant community is differentiated by the following main species (species group CC, Table 4.2):

The *Fuirena pubescens-Aristida junciformis* Low Closed Grassland is found at 1 460 m to 1 480 m above sea level (Figures 4.1) on level to gentle slopes (1 - 5°) (see section 3.7.4). It is represented by five relevés and an average of 23 species was recorded per sample plot.

General

This plant community is situated within the Sour Bushveld with the structure, a short closed grassland (Edwards 1983), with all the relevés occurring in the Ib Land Type (figure 2.4). This plant community typically occurs in slow-draining watercourses with a shallow streambed incision (Fuls *et al.* 1992 a&b). Sedge marshes up to one metre in height, which are perennially waterlogged, intergrade with river source sponges on mountain slopes (Noble & Hemens 1978). This plant community is perennially waterlogged, with the vegetation dominated by sedges and other hygrophilous angiosperms. The area represents sponges and these are the source of water for the Matlabas River.

The soils are of the Clovelly- and/or Oakleaf Forms, derived from sandstone of the Sandriviersberg Formation (De Vries 1968/69). No rocks occur in this plant community and the soil is relatively deep (300 - 1 000 mm) (Land Type Survey Staff 1988)(Figure 4.6).

Floristics

The *Fuirena pubescens-Aristida junciformis* Low Closed Grassland is differentiated by the following plant species (species group DD, Table 4.2):

<i>Aristida junciformis</i>	<i>Cyperus dedunatus</i>
<i>Arundinella nepalensis</i>	<i>Eriochrysis pallida</i>
<i>Ascolepis capensis</i>	<i>Helichrysum epapposum</i>
<i>Berkheya radula</i>	<i>Pennisetum sphacelatum</i>
<i>Brachiaria boviniae</i>	<i>Pycnostachys reticulata</i>
<i>Carex cernua</i>	<i>Sopubia simplex</i>

Large woody species do not occur in this plant community (Table 4.2). The herbaceous layer covers 78 % of the area and has an average height of 0,9 metres (Table 4.2). The most conspicuous diagnostic species is *Fuirena pubescens*, a perennial herb species commonly encountered in moist habitats. Other diagnostic species include the grasses *Leersia hexandra* and *Diplachne fusca* as well as the forbs *Monopsis decipiens*, *Helichrysum aureonitens*, *Sebaea leiostyla* and *Hypericum lalandii* (species group FF, Table 4.2).

General

Plant communities, 4.6.2 and 4.6.3 are related to each other through the mutual presence of the *Fuirena pubescens* species group (species group FF, Table 4.2). In the past this plant community was intensively overgrazed by cattle and annually burnt by farmers to induce new grass growth for the cattle through the period before the summer rains start. This practice led to the dessication of the sponges and the introduction of woody plants that already occur on the fringes of this community.



The management of this plant community is very important because the sponges are the source of the Matlabas River, and overutilization would lead to the dessication and the degrading of the Matlabas River System.

4.6.3 *Fuirena pubescens-Chironia purpurascens* Low Closed Grassland

Type: relevé 103

Habitat

The *Fuirena pubescens-Chironia purpurascens* Low Closed Grassland is found at 1 410 m to 1430 m above sea level (Figure 4.1) on level slopes (2 - 3°) (see section 3.7.4). It is represented by four relevés and an average of 27 species was recorded per sample plot.

This plant community is situated within the Sour Bushveld, with the structure a low closed grassland (Edwards 1983). All the relevés occur in the Fa Land Type (Figure 2.4). This plant community typically occurs in slow-draining watercourses with a shallow streambed incision (Fuls *et al.* 1992 a&b). This plant community occurs as sponges, perennially waterlogged, with the vegetation dominated by sedges and other hygrophilous angiosperms. This plant community occurs at the source of the Sterkstroom River.

RANGE MANAGEMENT

The soils are of the Hutton-, Clovelly-, Avalon-, Westleigh- and/or Katspruit Forms, derived from sandstone of the Sandriviersberg Formation (De Vries 1968/69). No rocks occur in this plant community and the soil is relatively deep (400 mm - 1 200 mm) (Land Type Survey Staff 1988)(Figure 4.6).

Floristics

The *Fuirena pubescens-Chironia purpurascens* Low Closed Grassland is differentiated by the following plant species (species group EE, Table 4.2):

- Aristida bipartita*
- Kyllinga alba*



- | | |
|---------------------------------|----------------------------|
| <i>Asclepias brevipes</i> | <i>Lobelia erinus</i> |
| <i>Chironia purpurascens</i> | <i>Nemesia fruticans</i> |
| <i>Cyperus</i> sp. | <i>Panicum dregeanum</i> |
| <i>Cyperus thorncroftii</i> | <i>Senecio affinis</i> |
| <i>Dierama medium</i> | <i>S. erubescens</i> |
| <i>Disa woodii</i> | <i>S. polyodon</i> |
| <i>Drosera madagascariensis</i> | <i>Verbena bonariensis</i> |
| <i>Eragrostis inamoena</i> | |

Large woody species do not occur in this plant community (Table 4.2). The herbaceous layer covers 88 % of the area with an average height of 0,5 metres (Table 4.2). The most conspicuous diagnostic species is *Fuirena pubescens*, a perennial herb species commonly encountered in moist places. Other diagnostic species occur in species group FF (Table 4.2).

General

This plant community has also been described, similarly to the *Fuirena pubescens-Aristida junciformis* Short Closed Grassland due to the grazing and burning of the sponges (see section 4.6.2).

B RANGE MANAGEMENT

Introduction

The grazing capacity of 10 of the 16 plant communities, which include four variations, was determined using the Graze Program (Bredenkamp & van Rooyen 1991 a&b). The grazing capacity of the following plant communities was not determined because of the small size, low grazing potential an/or inaccessibility of this specific communities (Table 4.2; Section 3.8):

- Widdringtonia nodiflora-Podocarpus latifolius* Short Forest.
- Podocarpus latifolius-Rothmannia capensis* Tall Forest.
- Buxus macowanii-Kirkia wilmsii* Low Forest.



Rhus leptodictya-Mimusops zeyheri Termitaria Thickets.

Olea europaea subsp.*africana*-*Calpurnia aurea* Tall Closed Woodland.

Syzygium cordatum-Miscanthus junceus Short Thicket.

4.7 *Acacia karroo-Eragrostis chloromelas* Short Closed Woodland

The size of this plant community is 385 ha and covers 1,3 % of the study area. The grazing capacity is 5,5 ha/LSU (Table 4.3).

The ecological index of the veld is at present 841, which shows that it is in good condition, because of the high percentage Decreaser species present in this veld (Table 4.3). According to Trollope et al. (1989), veld that has a high forage and fuel production potential is indicative of veld that is being moderately utilised by grazing animals. This veld is subjected to frequent lightning fires that help to maintain the present veld condition. During a year with below average rainfall, the grazing capacity would decrease from 5,5 ha/LSU to 7,8 ha/LSU (Table 4.3). The grasses with the highest frequency are as follows:

Species	% Frequency
<i>Themeda triandra</i>	36 %
<i>Heteropogon contortus</i>	20 %
<i>Eragrostis chloromelas</i>	18 %
<i>Brachiaria serrata</i>	9 %
<i>Aristida canescens</i>	4 %
<i>Panicum coloratum</i>	4 %
<i>Bothriochloa insculpta</i>	3 %



Table 4.3 Grazing capacity of *Acacia karroo-Eragrostis chloromelas* Short Closed Woodland

SIZE (ha) = 385

AVERAGE RAINFALL BELOW AVERAGE RAINFALL

% BUSH COVER	TREES:	46	46
	SHRUBS:	9	9
		---	---
		.8	.8
% DECREASES		77	77
% INCREASES 1		3	3
% INCREASES 2a&b		10	10
% INCREASES 2c		10	10
		---	---
TOTAL		100	100
ECOLOGICAL INDEX		841	757
% GRASS COVER		39	48
AVERAGE RAINFALL (mm/year)		551	441
ACCESSIBILITY			
(.9 =hills / 1 =plains)		.9	.9
FIRE			
(1 =regular/ never= .8)		1	1
GRAZING CAPACITY FOR GAME		5.5 (ha/LSU)	7.8 (ha/LSU)



4.8 *Faurea saligna-Setaria sphacelata* variation

The size of this plant community is 1 675 ha and covers 5,8 % of the study area. The grazing capacity is 7,4 ha/LSU (Table 4.4).

The ecological index of the veld is at present 760, which shows that it is in a fairly good condition, because of the high percentage Decreaser species present in this veld. The total of 19 % for the Increaser 2c species show that this veld will degrade if the grazing capacity of 7,4 ha/LSU for an average rainfall is exceeded (Table 4.4). Lightning fires occur regularly in this veld that help with maintaining the present veld condition.

During a year with below average rainfall, the grazing capacity would decrease from 7,4 ha/LSU to 11,5 ha/LSU (Table 4.4). The grasses with the highest frequency are as follows:

Species	% Frequency
<i>Digitaria eriantha</i>	25 %
<i>Themeda triandra</i>	18 %
<i>Setaria sphacelata</i>	15 %
<i>Melinis repens</i>	8 %
<i>Diheteropogon amplexans</i>	6 %
<i>Elionurus muticus</i>	3 %



Table 4.4 Grazing capacity of *Faurea saligna*-*Setaria sphacelata* variation

SIZE (ha) = 1675

AVERAGE RAINFALL BELOW AVERAGE RAINFALL

% BUSH COVER	TREES:	39	39
	SHRUBS:	7	7
		---	---
		.7	.7
% DECREASERS		67	67
% INCREASERS 1		5	5
% INCREASERS 2a&b		9	9
% INCREASERS 2c		19	19
		---	---
TOTAL		100	100
ECOLOGICAL INDEX		760	684
% GRASS COVER		22	18
AVERAGE RAINFALL (mm/year)		551	468
ACCESSIBILITY (.9 =hills / 1 =plains)		.9	.9
FIRE (1 =regular/ never= .8)		1	1
GRAZING CAPACITY FOR GAME		7.4 (ha/LSU)	11.5 (ha/LSU)



4.9 *Acacia caffra*-*Setaria sphacelata* variation

The size of this plant community is 743 ha and covers 2,6 % of the study area. The grazing capacity is 5,1 ha/LSU (Table 4.5).

The ecological index of the veld is at present 835, which shows that the veld is in good condition, because of the high percentage Decreaser species present in the veld (Table 4.5). The total of 12 % for Increaser 2c species shows that this veld will degrade if the grazing capacity of 5,1 ha/LSU for an average rainfall is exceeded (Table 4.5).

This veld is subjected to frequent lightning fires that help to maintain the present veld condition. During a year with below average rainfall, the grazing capacity would decrease from 5,1 ha/LSU to 7,3 ha/LSU (Table 4.5). The grasses with the highest frequency are as follows:

Species	% Frequency
<i>Setaria sphacelata</i>	31 %
<i>Themeda triandra</i>	27 %
<i>Heteropogon contortus</i>	16 %
<i>Melinis repens</i>	8 %
<i>Elionurus muticus</i>	4 %
<i>Eragrostis chloromelas</i>	3 %
<i>Trachypogon spicatus</i>	3 %



Table 4.5 Grazing capacity of *Acacia caffra*-*Setaria sphacelata* variation

SIZE (ha) = 743

AVERAGE RAINFALL BELOW AVERAGE RAINFALL

% BUSH COVER	TREES:	53	53
	SHRUBS:	14	14
		---	---
		.6	.6
% DECREASESERS		76	76
% INCREASESERS 1		5	5
% INCREASESERS 2a&b		7	7
% INCREASESERS 2c		12	12
		---	---
TOTAL		100	100
ECOLOGICAL INDEX		835	752
% GRASS COVER		52	42
AVERAGE RAINFALL (mm/year)		551	468
ACCESSIBILITY (.9 =hills / 1 =plains)		.9	.9
FIRE (1 =regular/ never= .8)		1	1
GRAZING CAPACITY FOR GAME		5.1 (ha/LSU)	7.3 (ha/LSU)



4.10 *Protea caffra* - *Tristachya rehmannii* Low Open Shrubland

The size of this plant community is 2 458 ha and covers 8,5 % of the study area. The grazing capacity is 5,4 ha/LSU (Table 4.6).

The ecological index of the veld is at present 772, which shows that it is in moderately good condition, because of the fairly high percentage Decreaser species and high percentage Increaser 1 species present in this veld. The percentage of the Increaser 2a+2b & 2c species is very low which is also an indication that this veld is in good condition (Table 4.6).

During a year with below average rainfall, the grazing capacity would decrease from 5,4 ha/LSU to 7,8 ha/LSU (Table 4.6). The grasses with the highest frequency are as follows:

Species	% Frequency
<i>Tristachya rehmannii</i>	19 %
<i>Panicum natalense</i>	16 %
<i>Trachypogon spicatus</i>	12 %
<i>Urelytrum agropyroides</i>	8 %
<i>Loudetia simplex</i>	7 %
<i>Setaria sphacelata</i>	6 %
<i>Andropogon schirensis</i>	5 %
<i>Monocymbium cerisiiforme</i>	5 %
<i>Themeda triandra</i>	5 %
<i>Eragrostis racemosa</i>	4 %
<i>Schizachyrium sanguineum</i>	4 %
<i>Tristachya leucothrix</i>	4 %



Table 4.6 Grazing capacity of *Protea caffra*-*Tristachya rehmannii* Low Open Shrubland

The size of this plant community is 180 ha and covers 0,8 % of the study area. The grazing capacity is 6,7 ha/LSU (Table 4.7).

The ecological index is present 789 which shows that it is in a good condition, because of the moderate percentage Decreaser species and high percentage Increaser 1 species present in this veld. According to Bredenkamp & Van Rensburg

	AVERAGE RAINFALL	BELOW AVERAGE RAINFALL
SIZE (ha) = 2 458		
% BUSH COVER		
TREES:	28	28
SHRUBS:	11	11
	----	----
	.8	.8
% DECREASERS	33	33
% INCREASERS 1	60	60
% INCREASERS 2a&b	5	5
% INCREASERS 2c	2	2
	----	----
TOTAL	100	100
ECOLOGICAL INDEX	772	695
% GRASS COVER	40	32
AVERAGE RAINFALL (mm/year)	551	468
ACCESSIBILITY		
(.9 =hills / 1 =plains)	.9	.9
FIRE		
(1 =regular/ never= .8)	1	1
GRAZING CAPACITY FOR GAME	5.4 (ha/LSU)	7.8 (ha/LSU)

Species % Frequency

- Tristachya rehmannii* 11 %
- Umhlobo-umagqashana* 9 %
- Themeda triandra* 5 %
- Bertholletia senegalensis* 4 %
- Eragrostis polystachya* 3 %
- Schizachyrium capense* 3 %
- Sida acuta* 3 %



4.11 *Protea caffra*-*Encephalartos eugene-maraisii* Low Open Woodland

The size of this plant community is 180 ha and covers 0,6 % of the study area. The grazing capacity is 6,7 ha/LSU (Table 4.7).

The ecological index of the veld is at present 769, which shows that it is in a good condition, because of the moderate percentage Decreaser species and high percentage Increaser 1 species present in this veld. According to Bredenkamp & Van Rooyen (1991 a&b), veld with a high percentage Decreaser and Increaser 1 species, is a veld in good condition with a high grazing capacity. This veld however, is not very accessible for grazing animals and is therefore *underutilised*. *Underutilised* veld has a moderate to low forage production potential but a very high fuel production potential (Trollope *et al.* 1989).

This veld condition only develops in the Sour Bushveld (Acocks 1988). Grass species like *Loudetia simplex*, *Trachypogon spicatus*, *Tristachya rehmannii* and *Urelytrum agropyroides* become dominant as a result of undergrazing caused by grasses becoming unpalatable in the absence of regular burning or with protection from fire (Trollope *et al.* 1989). During a year with below average rainfall, the grazing capacity would decrease from 6,7 ha/LSU to 9,8 ha/LSU (Table 4.7). The grasses with the highest frequency are as follows:

Species	% Frequency
<i>Trachypogon spicatus</i>	23 %
<i>Loudetia simplex</i>	17 %
<i>Panicum natalense</i>	11 %
<i>Tristachya rehmannii</i>	11 %
<i>Urelytrum agropyroides</i>	9 %
<i>Andropogon schirensis</i>	8 %
<i>Themeda triandra</i>	5 %
<i>Brachiaria serrata</i>	4 %
<i>Eragrostis racemosa</i>	3 %
<i>Schizachyrium sanguineum</i>	3 %
<i>Setaria sphacelata</i>	3 %



Table 4.7 Grazing capacity of *Protea caffra-Encephalartos eugenemarisii* Low Open Woodland

The size of this plant community is 5 555 ha and covers 19,1 % of the study area. The grazing capacity is 6,7 ha/LSU (Table 4.8)

SIZE (ha) = 180

AVERAGE RAINFALL BELOW AVERAGE RAINFALL

	AVERAGE RAINFALL	BELOW AVERAGE RAINFALL
% BUSH COVER	TREES: 19	19
	SHRUBS: 11	11
	-----	-----
	.8	.8
% DECREASERS	26	% Frequency 26
% INCREASERS 1	71	71
% INCREASERS 2a&b	3	23 % 3
% INCREASERS 2c	0	16 % 0
	-----	-----
TOTAL	100	11 % 100
ECOLOGICAL INDEX	769	11 % 692
% GRASS COVER	34	0 % 27
AVERAGE RAINFALL (mm/year)	551	6 % 468
ACCESSIBILITY		4 %
(.9 =hills / 1 =plains)	.9	.9
FIRE		
(1 =regular/ never= .8)	1	1
GRAZING CAPACITY FOR GAME	6.7 (ha/LSU)	9.8 (ha/LSU)



4.12 *Protea caffra*-*Rhus dentata* Low Open Woodland

The size of this plant community is 5 555 ha and covers 19,1 % of the study area. The grazing capacity is 6,7 ha/LSU (Table 4.8).

The ecological index of the veld is at present 790 (see sections 4.7 - 4.11). This community occurs mostly on gentle to moderate slopes and the soils are very rocky and rocks cover more than 40 % of the soil surface (see section 4.4.3). This could contribute to the *underutilization* of this specific community.

During a year with below rainfall, the grazing capacity would decrease from 6,7 ha/LSU to 9,9 ha/LSU (Table 4.8). The grasses with the highest frequency are as follows:

Species	% Frequency
<i>Trachypogon spicatus</i>	23 %
<i>Panicum natalense</i>	16 %
<i>Loudetia simplex</i>	11 %
<i>Tristachya rehmannii</i>	11 %
<i>Urelytrum agropyroides</i>	11 %
<i>Andropogon schirensis</i>	9 %
<i>Monocymbium ceresiiforme</i>	8 %
<i>Themeda triandra</i>	4 %



Table 4.8 Grazing capacity of *Protea caffra*-*Rhus dentata* Low Open Woodland

SIZE (ha) = 5 555

AVERAGE RAINFALL BELOW AVERAGE RAINFALL

% BUSH COVER	TREES:	23	23
	SHRUBS:	10	10
		---	---
		.8	.8
% DECREASESERS		31	31
% INCREASESERS 1		68	68
% INCREASESERS 2a&b		1	1
% INCREASESERS 2c		0	0
		---	---
TOTAL		100	100
ECOLOGICAL INDEX		790	711
% GRASS COVER		29	23
AVERAGE RAINFALL (mm/year)		551	468
ACCESSIBILITY (.9 =hills / 1 =plains)		.9	.9
FIRE (1 =regular/ never= .8)		1	1
GRAZING CAPACITY FOR GAME		6.7 (ha/LSU)	9.9 (ha/LSU)