

contortus and *Themeda triandra*. Dominant forbs are *Tephrosia polystachya*, *Corchorus asplenifolius*, *Cyperus rupestris*, *Dyschoriste rogersii*, *Sericorema remotiflora*, *Thunbergia dregeana*, *Ruellia patula* and a series of other species. The vegetation of the spruits and river banks correspond with that of Landscape 21.

Fauna

Buffalo and zebra are probably the most important game species in this landscape, but impala, waterbuck, kudu, giraffe and elephant bulls are well represented. Wildebeest are not very common. The role played by hippos in the utilization of this landscape must not be underestimated. Large numbers of these animals occur along the rivers and they graze intensively. Rare game such as eland, tsessebe and roan antelope also occur in the northern areas of this landscape.

23. *Colophospermum mopane* Shrubveld on Basalt

Location and Geomorphology

This landscape extending northwards from the Timbavati River, is intersected by the Olifants and Letaba Rivers, broadens to include the plains of Tsende and Dzombo, is again intersected by the Shingwedzi River and extends further north to Kloppefontein. Structurally it consists of flat to concave plains with a number of drainage channels which can ultimately be classified as marshes or vleis. Good examples of such marshes are Shawu, Dzombo, Nkulumbeni, Boyela, Nwatwitsumbe and Hlamalala. The geological rock formations upon which this landscape developed is basalt, and Bristow (1980) classifies the basalts of this specific part of the KNP as Letaba Basalts. Darker coloured soils with vertic characteristics usually develop here as opposed to the Sabi River Basalts which occur further south and give rise to more red soil. Dolerite intrusions occur extensively in the basalts.

The mopane shrubveld is situated between 300 and 400 metres a.s.l. and is the largest and most homogeneous landscape. It covers 1 993 km² or 10,3 percent of the KNP.

Climate

The rainfall of this landscape varies between 450 and 500 mm per annum (Gertenbach 1980). Letaba (462 mm) and Shingwedzi (472 mm) are comparable rainfall stations. Temperature data is also available for the two stations in Tables 5 and 6. The summers are very hot and as a result of the flat topography there is relatively little difference in micro-climate.

Soil Pattern

The soils that occur in this landscape are darker in colour (melanic) and usually have a high clay content (20 to 50% clay). In some cases the A-horizon is thin (300 mm) and overlay a thick layer of lime concretions. Such soils belong to the Milkwood, Mayo and Mispah Forms. These types of soil occur mainly on the middle-and footslopes. On the higher middleslopes the colour of the soils are usually red and the dominant soil Forms are Bonheim, Swartland and Mayo. Where the topography is flat or even concave, darker coloured soils with vertic characteristics occur.

The soils expand and contract with wetting and drying because of the presence of montmorillonite-type clay. Soils developing under such circumstances are Bonheim, Arcadia and Rensburg. These vertisols are inclined to granulate spontaneously on the surface. The soils on the dolerite intrusions are more shallow and are better drained with Mayo, Milkwood and Glenrosa as the dominant Forms. The spruits that drain the landscape are shallow marshes and the soils are dark in colour, sometimes having a gleyed clayey B-horizon. Dominant soil Forms are Willowbrook, Bonheim and Inhoek.

Vegetation

The woody vegetation of this landscape is dominated by multi-stemmed mopane shrubs, one to two metres in height. As many as 600 of these shrubs can occur per hectare. The absolute dominance of *Colophospermum mopane* results in other woody species being relatively scarce. Individual species that occur are the following: *Combretum imberbe*, *Euphorbia guerichiana*, *Grewia bicolor*, *Commiphora glandulosa*, *Acacia exuvialis*, *Combretum apiculatum*, *Lannea stuhlmannii*, *Acacia nigrescens*, *Dalbergia melanoxylon*, *Lonchocarpus capassa*, *Sclerocarya caffra*, *Ozoroa engleri*, *Securinega virosa*, *Grewia villosa*, *Albizia harveyi*, *Acacia tortilis*, *Ehretia rigida*, *Combretum mossambicense*, *Maerua parvifolia*, *Combretum hereroense* and *Dichrostachys cinerea* subsp. *africana*.

The mopane-shrubveld can be divided into three variations on the basis of the composition of the field layer. The occurrence of the three variations corresponds to a large extent with the position in the topography. Gertenbach (1983 in prep.) refers to the three variations as the *Bothriochloa radicans*-variation, the *Themeda triandra*-variation and the *Setaria woodii*-variation.

The *Bothriochloa radicans*-variation (Fig. 53) occurs mainly on the lower-, middle- and footslopes on the Milkwood soils. The woody component of this variation is a typical open shrubveld, but the field layer is dominated by *Bothriochloa radicans*. Other important species that differentiate the variation are *Indigofera heterotricha*, *Neuracanthus africanus*, *Brachiaria eruciformes*, *Dicoma tomentosa* and *Euphorbia guerichiana*. Species in common with the *Themeda triandra*-variation are *Clerodendrum ternatum*, *Rhynchosia totta*, *Enneapogon cenchroides*, *Aristida congesta* subsp. *congesta*, *Fingerhutia africana*, *Seddera capense*, *Indigofera schimperi*, *Tephrosia polystachya*, *Schmidtia pappophoroides*, *Heteropogon contortus*, *Cenchrus ciliaris*, *Urochloa mosambicensis*, *Panicum coloratum*, *P. maximum* and *Digitaria eriantha* var. *pentzii*.

The *Themeda triandra*-variation (Fig. 54) occurs on the middleslopes and convex uplands. The soils are usually deeper (Bonheim, Swartland, Mayo) and the woody structure differs slightly from the *Bothriochloa radicans*-variation. Small *Colophospermum mopane* and *Combretum imberbe* trees are dispersed in between the mopane shrubs. The field layer is dominated by *Themeda triandra* and *Panicum coloratum*, but *Bothriochloa radicans* occurs especially under overgrazed conditions. Other grasses occurring in the *Themeda triandra*-variation are *Setaria woodii*, *Eragrostis superba*, *Aristida congesta* subsp. *barbicollis*, *Schmidtia pappophoroides*, *Heteropogon contortus*, *Cenchrus ciliaris*, *Urochloa mosambicensis*, *Panicum maximum*, *Sorghum versicolor* and *Digitaria eriantha* var. *pentzii*. Forbs are scarce in the



Fig. 53. Landscape 23. *Bothriochloa radicans*-variation. Mopane Shrubveld.



Fig. 54. Landscape 23. *Themeda triandra*-variation. Mopane Shrubveld.

veld because of the dense grass cover but the following species are common: *Heliotropium steudneri*, *Clerodendrum ternatum*, *Rhynchosia totta*, *Seddera capense*, *Indigofera schimperi*, *Tephrosia polystachya*, *Vernonia fastigiata*, *Cassia mimosoides*, *Sericorema remotiflora*, *Tephrosia multijuga* and *Rhynchosia minima*.

The *Setaria woodii*-variation (Fig. 55) occurs on concave terrain where soils are very clayey and expands and contracts with wetting and drying (Arcadia, Rensburg and Bonheim). The woody structure differs from the former two variations in that *Colophospermum mopane*-shrubs are more sparse and other species such as *Acacia nigrescens*, *Albizia harveyi* and *Lonchocarpus capassa* become more dominant. In certain areas such as Tihongonyeni an almost homogeneous stand of *Acacia nigrescens* trees occurs. The field layer comprises all the species occurring in the former two variations, but they differ in dominance. *Setaria woodii* is the dominant grass with *Cenchrus ciliaris*, *Urochloa mosambicensis*, *Panicum coloratum*, *Themeda triandra*, *Eragrostis superba*, *Panicum maximum* and *Sorghum versicolor* as constant species. Forbs which occur are *Solanum panduraeforme*, *Ipomoea obscura*, *Merremia kentrocaulos*, *Rhynchosia minima*, *Tephrosia multijuga* and *Vigna triloba*.

Where dolerite intrusions occur in the basalt, the soils are shallow and the internal drainage better. The grass cover is also sparser and according to Gertenbach & Potgieter (1979) small mopane trees are present. They explain this on the basis of a sparser grass cover and a lower intensity fire. Considering that the dolerite intrusions occur as reasonably straight dykes, the small trees tend to occur in straight lines. These dolerite intrusions give a good indication as to where to drill for water for game.

The drainage channels in the landscape are shallow marshes or vleis (Fig. 56) with a dense grass cover from 1 to 1,5 metres high and practically no trees. Woody species that occur here are *Acacia xanthophloea*, *Lonchocarpus capassa*, *Hyphaene natalensis*, *Albizia harveyi*, *Dalbergia melanoxylon* and *Croton megalobotrys*. *Sporobolus consimilis* is the dominant grass with the following constant species: *Cyperus sexangularis*, *Corchorus asplenifolius*, *Sutera bolusii*, *Ischaemum brachyatherum*, *Chloris gayana*, *Phragmites australis*, *Eustachys paspaloides*, *Corchorus trilocularis*, *Sesbania sesban*, *Sporobolus fimbriatus*, *Cynodon dactylon*, *Leptochloa uniflora* and *Typha latifolia*.

Fauna

This landscape is of major importance to the rare game species that occur in the KNP. Almost 85 percent of the roan antelope population of the KNP occurs in this landscape. Tsessebe, sable and eland occur in fair numbers. Zebra and buffalo are, however, the animals that are present in the largest numbers. Elephant bulls are common, while breeding herds occasionally move through to other landscapes. Waterbuck generally occur at permanent waters and at Shawu dam a population of approximately 150 animals can regularly be seen.

In the shrub mopane-veld impala are very rare but steenbok and Sharp's grysbok are quite common. Reedbuck occur widespread but concentrations are usually restricted to the marshy flats. Kudu and giraffe are very poorly represented and



Fig. 55. Landscape 23. *Setaria woodii*-variation. Mopane Shrubveld.



Fig. 56. Landscape 23. Nwashitsumbe vlei. Mopane Shrubveld.

warthog occur near permanent water. Ostriches prefer this open shrubveld and are seen regularly. Carnivores such as lion, hyaena and cheetah are scarce but leopard can be encountered frequently.

24. *Colophospermum mopane* Shrubveld on Gabbro

Location and Geomorphology

The landscape forms a narrow intermittent strip from the Timbavati River to Phonda hillocks west of Shingwedzi. It is a continuation of the gabbro intrusion that also forms the underlying material of Landscape 19. The terrain of this landscape is flat to slightly undulating and is higher situated than the surrounding granite (± 350 metres). Numerous outcrops or koppies like Shilawuri, Chugamila, Tsange and Phonda consist of undecomposed gabbro.

This landscape covers 284 km² or 1,5 percent of the area of the KNP.

Climate

The mopane shrubveld on gabbro is high lying and frost seldom occurs. Temperature data for Letaba and Shingwedzi (Tables 5 and 6) are applicable to this landscape. Rainfall varies between 450 and 500 mm per annum.

Soil Pattern

The soils that develop from the gabbro are dark in colour and contain relatively large amounts of clay. These soils contain more exchangeable nutrients compared to soils that develop from granite, therefore the grazing on the gabbro is usually more palatable. Dominant soil Forms are Milkwood, Mayo, Bonheim and Swartland with vertisols in the areas with a concave topography. The soils on the koppies are shallow and can be classified as lithosols.

Vegetation

Gertenbach (1978) gives a complete description of this landscape under the name of *Themeda triandra/Colophospermum mopane*-shrubveld (Fig. 57). Two variations of the shrubveld viz. a *Sclerocarya caffra*- and an *Acacia nigrescens*-variation occur. The two variations differ not only as far as their botanic composition is concerned but have considerable differences in structure. The *Sclerocarya caffra*-variation is dominated by *Colophospermum mopane* shrubs and the following woody species are common: *Commiphora africana*, *Sclerocarya caffra*, *Acacia exuvialis*, *Albizia harveyi*, *Dalbergia melanoxylon*, *Grewia bicolor* and *Cissus cornifolia*. There are practically no large trees in this shrubveld. A structural comparison of the two variations is described below.

Percentage Crown Cover

	<i>Sclerocarya caffra</i> - variation	<i>Acacia nigrescens</i> - variation
Tree layer	0	13
High shrub layer	8	4
Low shrub layer	18	27
Field layer	71	77
	88	



Fig. 57. Landscape 24. *Colophospermum mopane* Shrubveld on Gabbro.

The *Acacia nigrescens*-variation is also a shrubveld, but a few larger shrubs and trees occur. *Colophospermum mopane* trees and shrubs occur and the following woody species are present: *Acacia nigrescens*, *Commiphora africana*, *Dichrostachys cinerea* subsp. *africana*, *Acacia tortilis*, *Ziziphus mucronata*, *Acacia exuvialis*, *Albizia harveyi*, *Securinega virosa*, *Lannea stuhlmannii*, *Grewia bicolor*, *Cissus cornifolia* and *Dalbergia melanoxylon*. As far as the botanic composition is concerned the *Acacia nigrescens*-variation has a greater variety of species than the *Sclerocarya caffra*-variation.

The field layer of both these variations are dense and have the following dominant species in common: *Fingerhutia africana*, *Panicum coloratum*, *Schmidtia pappophoroides*, *Heteropogon contortus*, *Digitaria eriantha* var. *pentzii*, *Bothriochloa radicans*, *Themeda triandra*, *Cymbopogon plurinodis*, *Eragrostis superba*, *Panicum maximum*, *Urochloa mosambicensis*, *Heliotropium steudneri*, *Phyllanthus pentandrus*, *P. asperulatus*, *Corbichonia decumbens*, *Euphorbia neopolycnemoides*, *Tephrosia polystachya*, *Indigofera bainesii*, *Corchorus asplenifolius*, *Rhynchosia totta* and *Ipomoea crassipes*. The following herbaceous species are restricted to the *Acacia nigrescens*-variation: *Sporobolus nitens*, *Pavonia patens*, *Veronia fastigiata*, *Hibiscus pusillus*, *Tragia dioica*, *Ipomoea obscura* and *Commelina bengalensis*.

The vegetation that occurs on the gabbro outcrops (Fig. 58) include the following species: *Combretum apiculatum*, *Pappea capensis* (mountain type), *Kirkia acuminata*, *Acacia nigrescens*, *Berchemia discolor*, *Bridelia mollis*, *Cassia abbreviata*, *Commiphora mollis*, *Diospyros mespiliformis*, *Dombeya rotundifolia*, *Ficus soldanella*, *Steganotaenia araliacea*, *Sterculia rogersii*, *Terminalia prunioides*, *Combretum mossambicense*, *Gardenia resiniflua*, *Grewia hexamita* and *G. flavescens*.



Fig. 58. Landscape 24. Shilawari, a gabbro outcrop.

Fauna

Seeing that the structure of the mopane-shrubveld corresponds with that of Landscape 23 (*Colophospermum mopane* Shrubveld on Basalt) there is also a similarity in the animals that occur here. Roan antelope for example occur on the gabbro between Letaba and Phalaborwa. The same applies for small herds around Stapelkop dam and Nkokodzi. Other game species that occur in this landscape are buffalo, zebra, eland, ostrich, white rhino (at Chugamila) and single elephant bulls. Tsessebe occur around Swartkops, Stamp-en-Stoot and Stapelkop dams. Kudu, waterbuck, impala and giraffe are notably scarce in this type of veld.

25. *Adansonia digitata/Colophospermum mopane* Rugged Veld

Location and Geomorphology

The basalt slopes towards the Levubu River are physiologically dry as a result of the steep slopes and shallow calcareous soils. The terrain is strongly undulating and is comparable to the slopes of the Olifants, Letaba and Shingwedzi Rivers (Landscapes 7, 10, 21 and 22). Spruits draining this area are the Madzaringwe, Nkovakulu and Thambyi. Koppies occur regularly in this landscape.

Climate

The *Adansonia digitata/Colophospermum mopane* Rugged Veld is rugged in the true sense of the word. Rainfall varies between 450 and 500 mm annually and there is a relatively high run-off of rainwater as a result of the steep slopes. Pafuri with an

average rainfall of 438 mm per year is in the centre of this landscape. The summer temperatures are very high with 40°C often experienced during the period November to March. Temperature data for Shingwedzi (Table 6) is probably the most applicable for this landscape where frost seldom, if ever, occurs.

Soil Pattern

The soils of this landscape are shallow, calcareous and contain a reasonable amount of clay. The soils are mostly dark in colour, but the structure of the topsoil is sometimes poorly developed. Dominant Forms are Milkwood, Mayo, Mispah and Glenrosa. Shallow lithosols occur on the koppies.

Vegetation

The vegetation of this landscape is discussed in detail by Van Rooyen (1978) under the heading *Colophospermum mopane/Commiphora glandulosa/Seddera capensis* — Open Bush Savanna. This vegetation corresponds to that of the *Colophospermum mopane* shrubveld on basalt (Landscape 23) and also to other forms of rugged veld viz. Landscapes 4, 7, 10, 21 and 22.

It is an open tree savanna and the physiognomic dominance of *Adansonia digitata* and *Colophospermum mopane* trees and shrubs give the landscape its name (Fig. 59). The following woody species also occur regularly: *Kirkia acuminata*, *Sclerocarya caffra*, *Combretum apiculatum*, *Commiphora glandulosa*, *Terminalia prunioides*, *Grewia bicolor*, *Cissus cornifolia*, *Acacia nigrescens*, *Maerua parvifolia*, *Zanthoxylum humilis*, *Commiphora mollis*, *C. edulis*, *Sterculia rogersii*, *Dichrostachys cinerea* subsp. *africana*, *Combretum mossambicense*, *Markhamia acuminata*, *Grewia villosa*, *Gardenia resiniflua* and *Ormocarpum trichocarpum*.

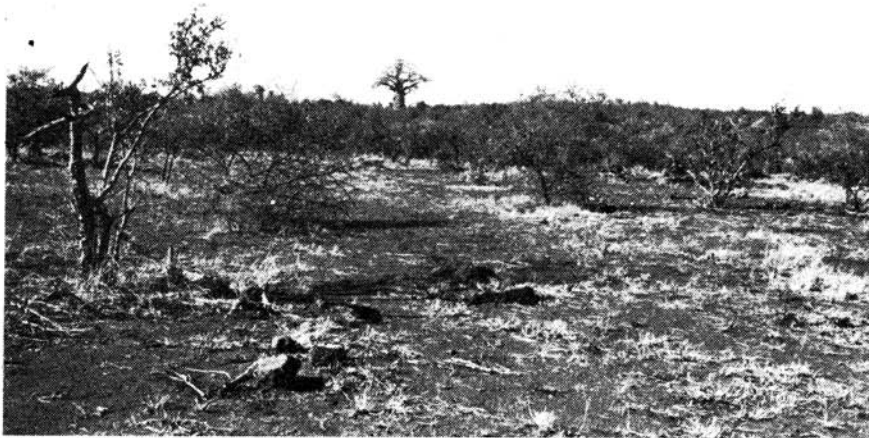


Fig. 59. Landscape 25. *Adansonia digitata/Colophospermum mopane* Rugged Veld.

The sparse field layer is dominated by *Enneapogon cenchroides*, *Aristida congesta* subsp. *congesta*, *Panicum maximum*, *Digitaria eriantha* var. *pentzii*, *Hibiscus micranthus* and *Neuracanthus africanus*. The absence of *Themeda triandra* is conspicuous. Other herbaceous species that occur here are the following: *Aristida congesta* subsp. *barbicollis*, *Bothriochloa radicans*, *Fingerhutia africana*, *Pseudobrachiaria deflexa*, *Rhynchosia totta*, *Seddera capense*, *Indigofera vicioides*, *Phyllanthus burchellii*, *Monechma monechmoides*, *Tephrosia polystachya*, *Euphorbia neopolycnemoides*, *Becium obovatum*, *Ecbolium revolutum*, *Dalechampia galpinii*, *Aptosimum lineare* and *Leucas glabrata*.

Fauna

Elephant, buffalo and zebra are the most important game species, but occur infrequently. Eland and sable antelope seldom occur, but impala are quite common. Nyala and kudu are fairly widespread while duiker and steenbok are well represented. Some baobab trees are seriously damaged by elephant bulls at certain times of the year, but these trees have an amazing ability to recover.

26. *Colophospermum mopane* Shrubveld on Calcrete

Location and Geomorphology

This mopane-shrubveld occurs as two isolated areas in the far north of the KNP. One area is situated on the eastern boundary of the KNP North of the Nwambia Sandveld and the other along the western boundary on the watershed between the Limpopo and the Levubu Rivers. The underlying geological material of this landscape consists of the Malvernian Formations (Schutte 1974) which decompose to give rise to soil with a lot of lime concretions.

The area is situated between 215 and 445 metres above sea level. The eastern and western sub-regions are drained by the Shilahlandonga and Mutale spruits respectively. The terrain is intersected to undulating and covers 117 km² or 0.6 percent of the area of the KNP. The Malonga spring is located on the brink of this landscape.

Climate

Rainfall in this vicinity varies between 450 and 500 mm per year and the temperature is high in the summer and mild during the winter. The role that fog plays in winter in the dry mountainous areas will be explained in the discussion of Landscape 31. Temperature data for Shingwedzi (Table 6) is the most applicable to this landscape.

Soil Pattern

The soils of this landscape are shallow and calcareous. According to Van Rooyen (1978) as much as 10 percent of the surface of the soil is covered by stones and the pH varies between 7.9 and 8.4. Most important soil Forms are Milkwood, Mispah, Glenrosa and Mayo while the occurrence of lithosols are common.

Vegetation

Structurally the two sub-units of this landscape differ from one another. The sub-unit next to the eastern boundary at Shilahlandonga is mainly a shrub savanna (Fig.

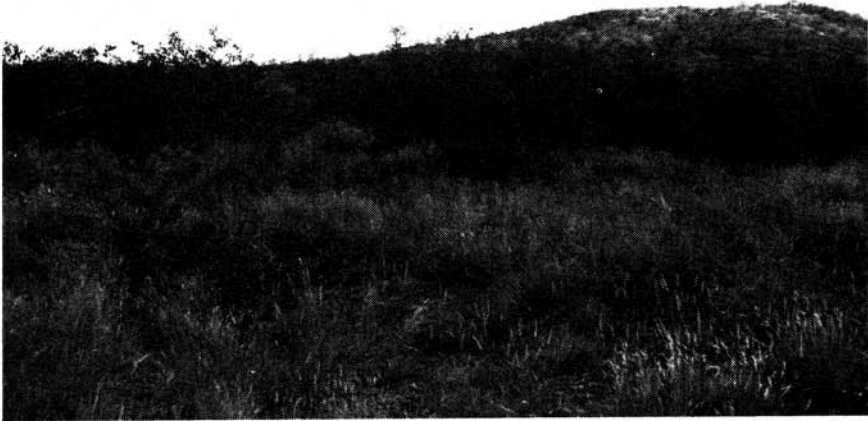


Fig. 60. Landscape 26. *Colophospermum mopane* Shrubveld on Calcrete.

60), while the sub-unit on the western boundary can be regarded as a tree savanna. The dominant woody species are: *Colophospermum mopane*, *Maytenus heterophylla*, *Euclea schimperi*, *Grewia bicolor*, *Acacia nigrescens*, *Combretum apiculatum*, *Terminalia prunioides*, *Euclea divinorum*, *Sterculia rogersii*, *Commiphora mollis*, *Zanthoxylum humilis* and *Dalbergia melanoxylon*.

The field layer is characterised by the presence of species such as *Enneapogon scoparius*, *Seddera capensis* and *Aristida congesta* subsp. *congesta* and *Panicum maximum* does not occur in this area. Other herbaceous species are *Heteropogon contortus*, *Fingerhutia africana*, *Eragrostis superba*, *Digitaria eriantha*, *Rhynchelytrum villosum*, *Indigofera vicioides*, *Rhynchosia totta*, *Barleria lancifolia*, *Tephrosia polystachya*, *Phyllanthus pentandrus*, *Hibiscus micranthus* and *Acalypha indica*.

Androstachys johnsonii-bush occurs on certain slopes of this landscape. The floristic composition of this bush will, however, be described in more detail under Landscape 31.

This landscape as a whole is unique, not only in the KNP but also in South Africa. This fact necessitates special conservation status for the area.

Fauna

This *Colophospermum mopane* Shrubveld on Calcrete is not a landscape that supports a high density of game. Zebra, kudu, steenbok, Sharpe's grysbok, nyala, eland and elephant are the most important animals, but they always occur in small numbers.

27. Mixed *Combretum* spp./*Colophospermum mopane* Woodland

Location and Geomorphology

Where the white sand of Quaternary origin mixes with the gravel and basalt, a landscape occurs that is reasonably flat and the altitude varies between 230 and 475 metres. This area is located north-east of Shingwedzi and is drained by the Hlamalala, Nwaswitsumbe and Nkulumbeni spruits. The landscape covers 329 km² or 1,9 percent of the KNP.

Climate

Rainfall in this area varies between 450 and 500 mm annually. Temperature data is comparable to that of Shingwedzi (Table 6).

Soil Pattern

The soil is of a mixed origin and consists of weathered products of basalt and Quaternary sand and gravel. The soils are deep and sandy at places, but normally well drained. Van Rooyen (1978) states that the soils are neutral (pH between 6,1 and 7,2) and up to 15 percent of the surface is covered with stone or gravel. Dominant Forms are Hutton, Shortlands, Bonheim, Valsrivier, Swartland, Glenrosa, Mispah and Mayo.

Vegetation

The landscape is an open tree veld with a large quantity of medium shrubs (Fig.61). Van Rooyen (1978) classifies it as an open tree savanna. Dominant woody species



Fig. 61. Landscape 27. Mixed *Combretum* spp./*Colophospermum mopane* Woodland.

in the tree and shrub layers are: *Colophospermum mopane*, *Sclerocarya caffra*, *Combretum apiculatum*, *Grewia bicolor*, *Dichrostachys cinerea* subsp. *africana*, *Acacia nigrescens*, *Boscia albitrunca*, *Combretum mossambicense*, *C. zeyheri*, *Euclea divinorum*, *Markhamia acuminata*, *Securinega virosa*, *Commiphora mollis*, *Sterculia rogersii*, *Lonchocarpus capassa*, *Dalbergia melanoxylon*, *Combretum hereroense*, *Bridelia mollis*, *Maytenus heterophylla*, *Grewia flavescens* and *Ziziphus mucronata*. Van Rooyen (1978) describes this landscape as one community viz. the *Colophospermum mopane*/*Combretum apiculatum*/*Digitaria eriantha*-open treeveld.

The field layer is moderate to dense and the dominant grasses are: *Digitaria eriantha* var. *pentzii*, *Schmidtia pappophoroides*, *Panicum maximum*, *Aristida congesta* subsp. *congesta*, *Heteropogon contortus*, *Aristida congesta* subsp. *barbicollis*, *Fingerhutia africana*, *Urochloa mosambicensis* and *Brachiaria xantholeuca*. Forbs commonly occurring are: *Vigna unguiculata*, *Tephrosia polystachya*, *Phyllanthus pentandrus*, *Hibiscus micranthus*, *Solanum panduraeforme*, *Neuracanthus africanus*, *Indigofera vicioides*, *Cyphocarpa angustifolia*, *Crotalaria virgulata*, *Euphorbia tettensis*, *Cassia mimosoides*, *Commelina bengalensis*, *Merremia tridentata* and *Lantana rugosa*.

Fauna

This landscape supports a low density of game. Elephant and kudu occur regularly and sable antelope are characteristic. Other species of game which occur regularly but in low densities are zebra, buffalo, giraffe, eland, impala and steenbok.

28. Limpopo/Levubu Floodplains

Location and Geomorphology

As the name indicates, this landscape occurs on the banks of the Limpopo and Levubu Rivers. The underlying material of this area is alluvium that has been deposited over the years on the floodplains along the rivers. This is a low lying landscape with a flat to concave topography. The altitude varies between 200 and 250 metres.

When the Limpopo and Levubu Rivers are both in flood, a blockage takes place above the confluence and because the area is flat, and sometimes concave, flooding of the land adjacent to the rivers takes place. Silt is deposited and pans that normally hold water for a long period such as the Gwalala, Rietbok, Nyala, Nwambi, Hulukulu, Makwadzi, Spokenyolo and Dakamila pans, are filled. This pan veld is a unique characteristic of this landscape while koppies do not occur.

Climate

Purely from a rainfall point of view, this is one of the driest landscapes in the KNP, with an annual average of 438 mm at Pafuri. Moisture is more available in these parts due to the flooding of the river banks. Temperatures are extremely high during summer, but there is no weather station situated near enough to record the temperature variations.

Soil Pattern

The soils of this landscape are alluvial and the material thus probably originates from granite, Waterberg Sandstone, Cave Sandstone, basalt, dolerite as well as other parent rock formations. Expected soil Forms are Inhoek, Dundee and Oakleaf on the floodplains, with Arcadia and Willowbrook soils in the pans.

Vegetation

Van Rooyen (1978) describes the following components of this landscape:

- i) *Colophospermum mopane*/*Acacia tortilis*/*Urochloa mosambicensis*-tree savanna.
- ii) *Acacia albida*/*Ficus sycomorus*-river forest.
- iii) *Acacia xanthophloea*/*Panicum meyerianum*-open tree savanna.
- iv) *Sporobolus consimilis*-grass veld.

The *Colophospermum mopane*/*Acacia tortilis*/*Urochloa mosambicensis*-tree savanna (Fig. 62) occurs on the basalt footslopes. Dominant woody species associated with *Colophospermum mopane* and *Acacia tortilis* are *Maerua parvifolia*, *Grewia bicolor*, *Azima tetracantha*, *Acacia senegal* var. *rostrata*, *Salvadora angustifolia*, *Hyphaene natalensis*, *Commiphora glandulosa*, *Thilachium africanum*, *Ximenia americana*, *Gardenia resiniflua*, *Maytenus heterophylla*, *Dalbergia melanoxylon*, *Acacia nigrescens*, *Gardenia spatulifolia*, *Zanthoxylum humilis*, *Boscia albitrunca* and *Adansonia digitata*. Almost homogeneous stands of baobab occur in certain localities. The field layer is sparse with a large variety of species. Grass species are



Fig. 62. Landscape 28. *Colophospermum mopane*/*Acacia tortilis*/*Urochloa mosambicensis* tree savanna.

Tragus berteronianus, *Aristida congesta* subsp. *barbicollis*, *Chloris virgata*, *Sporobolus smutsii*, *Enneapogon cenchroides* and *Dactyloctenium aegyptium*. Forbs are *Alternanthera pungens*, *Trianthema triguetra*, *Cyathula crista*, *Corbichonia decumbens*, *Pupalia lappacea*, *Hibiscus micranthus*, *H. engleri*, *Indigofera rhytidocarpa*, *Boerhaavia diffusa*, *Ecbolium revolutum*, *Gisekia africana* and *Ipomoea obscura*.

The *Acacia albida*/*Ficus sycomorus*-river forest (Fig. 63) occurs on the banks of the rivers and consists of a large variety of species. Van Rooyen (1978) gives a complete species list, but only a few of the most important species are mentioned here. The community is a closed forest of about 20 metres high. Dense undergrowth with little grass occurs. The most important woody species are: *Acacia albida*, *Ficus sycomorus*, *Acacia robusta*, *Trichilia emetica*, *Xanthocercis zambesiaca*, *Acacia ataxacantha*, *Ficus capreifolia*, *Combretum microphyllum*, *Grewia caffra*, *Diospyros mespiliformis*, *Tabernaemontana elegans*, *Acacia xanthophloea*, *Lonchocarpus capassa*, *Combretum imberbe*, *Acacia tortilis*, *Kigelia africana*, *Maclura africana*, *Albizia harveyi*, *Rauvolfia caffra*, *Ekebergia capensis*, *Strychnos potatorum*, *Breonadia microcephala*, *Syzygium guineense*, *Deinbollia oblongifolia*, *Ochna confusa*, *Nuxia oppositifolia*, *Azima tetracantha*, *Mimusops zeyheri*, *Garcinia livingstonei*, *Croton megalobotrys*, *Hyphaene natalensis* and *Ficus stuhlmannii*.

The field layer of this community is sparse and the following species are important: *Abutilon angulatum*, *Achyranthes aspera*, *Epilates gariepina*, *Hypoetes verticillaris*, *Hibiscus engleri*, *Wissadula rostrata*, *Ageratum conyzoides*, *Cynanchum schistoglossum*. The grass cover is sparse and consists of species such as *Panicum meyerianum*, *Urochloa mosambicensis*, *Echinochloa pyramidalis*, *Chloris gayana*, *Cymosestaria sagittifolia* and *Sporobolus consimilis*.



Fig. 63. Landscape 28. *Acacia albida*/*Ficus sycomorus* river forest.