

Republic of Zambia

South Luangwa National Park - Vegetation Map

Alluvial Complex

A flat alluvial landscape with a range of soil types, includes the distributary drainage area of the Mupamadzi river. The constituent vegetation types are distinctive but too small in area and diffuse to map separately. They are described separately below. Riparian Woodland and thicket occur along the distributary and other channels. Riverine Woodland and grassland occur on freely draining sand soils. Mopane Woodland and shrubland occur on clay soils or on sand soils with impeded drainage. Semi-aquatic grassland occurs in localized areas throughout. The woodlands and thickets are deciduous and have been greatly modified by browsing.

Point Bar Deposits

The deposits consist of a series of gently curving ridges, vertical relief about 2 meters, separated by swales which widen downstream to a width of up to 150 meters. The ridges bear tall grassland with scattered trees and shrubs. Common trees and shrubs are *Combretum fragrans*, *C. imberbe*, *Faidherbia albida*, *Kigelia africana*, *Lonicera capensis*, *Sclerocarya birrea*. *Terminalia* carry the shrubs. *Capparis tomentosa*, *Combretum obovatum*, *Jasminum fluminense*. The grass cover is composed of species in the genera *Andropogon*, *Diheteropogon*, *Hyparrhenia*, *Hyparrhenia*, a zone of *Setaria incrassata* occurs on the lower slopes of the ridges adjacent to the semi-aquatic grassland in the swales. The seasonal pools in the lower reaches of the swales are typically surrounded by heavily grazed *Phragmites mauritanica*, common around the pools are *Heteropogon indicum*, *H. ovalifolium*, *H. setigerus*, *Styragma pectinatum*, *P. salicifolium*, *Pistia stratiotes*, and the ferns *Nitella*, *Marsilea minuta*.

Riverine Grassland

Tall grassland occurs along lower reaches of the major tributaries and in smaller areas within the Alluvial Complex. It is probable that these are secondary formations following the reduction of tree cover by browsing and fire. On sandy soils the common species are *Andropogon capensis*, *Hyparrhenia filipendula*, *Hyparrhenia dissoluta*, *Panicum maximum*. Other common species in areas which have been heavily grazed are *Cynodon dactylon*, *Eragrostis chaparrali*, *E. cilianthus*, *Heteropogon comatus*, *Schmidia pappophoroides*, *Urochloa mosambicensis*. On heavier soils *Hyparrhenia rufa*, *Panicum maximum* and *Setaria incrassata* are more common.

Semi-Aquatic Grassland

Occurs on flood channels, abandoned channels swales of Point Bar Deposits, back swamps and as a secondary formation where Mopane Woodland on clay soils has been destroyed. The cover is short *Echinochloa polystachya* grassland, on wetter sites there is an increase in *Echinochloa polystachya* and *Orzya barthii*. Common associates in the *E. colona* swale are *Cyperus fastuosus*, *Chamaecrista mimosoides*, *Colocasia esculenta*, *C. falcularis*, *C. minima*, *Diosperma quadrangulare*, *D. Crenatum*, *Ipomoea aquatica*, *Rhynchospora bitulosa*, common *Cyperaceae* members are *Ascyrodes prostrata*, *Cyperus uncinatus*, *C. medius*, *Scleria bifida*, *Sesbania sesban*. Low *Terminalia* are a feature of the larger plains, these include carry the shrubs. *Combretum obovatum*, *Capparis tomentosa*, *Jasminum fluminense*. Occasional tree species occur, becoming more frequent around the margins. *Acacia kirkii*, *A. nilotica*, *A. tortilis*, *Colophospermum mopane*.

Watershed Plain Grassland

The Chitungwe and Luanda Plains are broad levelled landscapes on mudstone rock overlain by heavy clay. The plains are dissected by deep gullies into a series of wide interflaves. The vegetation is tall grassland, often dominated by *Setaria incrassata* on black wetter soils or by *Hyparrhenia rufa* on redder soils.

Riparian Woodland

Occurs as a narrow discontinuous strip on recent levees of all major rivers and some streams, including the distributary channels in the Alluvial Complex. Remains as a fringe on the concave banks of oxbow lakes formed by canal cut-offs. Occasional ferns grow, typically of *Diospyros mespiliformis* with *Faidherbia albida*, which are of sufficient area to be mapped separately. Along the Luangwa the characteristic species are *Acacia nigrescens*, *Acacia garkana*, *Berchemia discolor*, *Cordia africana*, *Diospyros mespiliformis*, *Garcinia livingstonii*, *Trichilia enetica*, *Ziziphus abyssinica*. Common woody climbers are *Dalbergia arbutifolia*, *Dioscorea* spp., *Combretum micropodium*, *C. obovatum*, *Hippocratea nana*. The shrub *Sida subcordata* occurs occasionally on the banks of the Luangwa as does *Ficus capreifolia* on the levees in the absence of Riparian Woodland. Along the major tributaries Riparian Woodland occurs very intermittently, the common species include *Acacia garkana*, *Acacia nilotica*, *Vicex doniana*, *Isobornia agelenis*, *Syzygium cordatum*, *S. guineense*, and *Peltophorum africanum* occur along rivers on the valley floor below the Machingo Escarpment.

Riverine Woodland

Occurs on older river levees on sandy soil along the Luangwa and its major tributaries and as sinuous strips on some interflaves of the Alluvial Complex. In the Luangwa some of the common trees are *Acacia garkana*, *A. nigrescens*, *Cordia africana*, *Combretum fragrans*, *C. imberbe*, *Erythrophloeum africanum*, *Lamnia discolor*, *Lonicera capensis*, *Sclerocarya birrea*. Smaller trees and shrubs include *Cassia abbreviata*, *Combretum obovatum*, *Crotophyta ghrifiga*, *Ferrea acrocarpa*, *Holarrhena pubescens*, *Ocoba spinosa* and *Flaegelia viridis* are common shrubs adjacent to Riverine Woodland. *Tamarindus indica* is common on the levees. *Terminalia* which frequently occur, other common species on mounds are *Balanites aegyptiaca*, *Bocia angustifolia*, *Capparis tomentosa*, *Combretum obovatum*, *Jasminum fluminense*, *Marsipa pinnatifida*. Trees which are common in riparian areas but occasional elsewhere include *Adansonia digitata*, *Ficus busei*, *F. sycamora*, and the palm *Hyphaene ventricosa*. The canopy cover is thought to have been greatly reduced by browsing and fire. The ground cover is similar to that of Riverine Grassland. Within the Alluvial Complex Riverine Woodland occurs on sand interflaves of the distributary drainage system. In these areas the common tree species are *Erythrophloeum africanum*, *Pseudolachnostylis maprotopnefolia* and *Terminalia sericea*.

Thicket

Deciduous thicket occurs locally on isolated termite mounds, on alluvial soil and rarely, on residual soils. They are botanically variable, the thickets in the south of the Park are distinguished by the presence of the emergent tree *Persea guineensis*. Other more widespread emergents include *Acacia nigrescens*, *Schizaphyllum raitanum*, *Xeroderma sukmanii*. The dominant shrubs or small trees are *Combretum obovatum*, *Diospyros guineensis*, *D. senensis*, common associates are *Albizia umbellata*, *Cleistanthus kirkii*, *Croton griseostriatus*, *C. megalobotrys*, *Ficus bicolor*, *Grewia bicolor*, *G. pachylova*, *G. praeox*, *Holarrhena pubescens*, *Markhamia obtusifolia*, *M. zimbabwica*, *Sclerocarya birrea*, *Strychnos coccinellata*, *S. spicata*. Common scandent shrubs are *Acacia utaxacantha*, *Combretum apiculatum*, *Dryas Hippocratea africana*, *H. indica*, *Palafoxia pinnata*, *Strophanthus comosus*, *S. lombae*.

Mopane Woodland and Shrubland

The deciduous *Colophospermum mopane* Mopane Woodland is a tree up to 20 meters, a low tree, or as a multitempered shrub. Within the Alluvial Complex it occurs in discrete communities on clay or on shallow sandy soils with an underlying hard pan. These communities form mosaics with other vegetation types but in some areas tall Mopane Woodlands on sand are of sufficient area to be mapped separately. The shrubland is very distinctive as it is heavily pollinated and overlies sparse, short grassland in which *Microchloa indica* and *Sporobolus cordiformis* are common species. There are few woody associates. On black cracking clays Mopane occurs as a low, open woodland over semi-aquatic grassland. The occasional associates are *Acacia kirkii*, *A. tortilis*. In tall Mopane Woodland the trees are often clumped on wide, low mounds. These are few associates in the canopy layer, they include *Adansonia digitata*, *A. nilotica*, *Albizia umbellata*, *Dalbergia melanoxylon*, *Strychnos imrayana*, *S. madagascariensis*. Small areas of free draining soils occur within the Mopane Woodland, distinguished by the absence of mounds and the presence of *Cassia abbreviata*, *Combretum elaeagnoides*, *C. obovatum*, and *Terminalia sericea*. There is a short grass cover within the mopane woodlands.

Termitaria

Mopane Woodland on large termite mounds. Here the vegetation is confined to large termitaria with open grassland in the inter mound areas. There is a wide range of woody species on the mounds.

Shrubland on Dissected Terrain

A finely dissected landscape of low, much branched interflaves with a dendritic drainage pattern. The country rock is siltstone. The vegetation is deciduous shrubland with a variety of species which occur as single species communities or in mixed communities, distinguished by the absence of mounds and the presence of *Brachystegia stipitata*, *Julbernardia globiflora*, *Colophospermum mopane*. In mixed communities other species which occur with these three are *Acacia garkana*, *Brachystegia stipitata*, *B. mangae*, *Combretum apiculatum*, *Combretum apiculatum*, *Dalbergia nyassae*, *Diospyros kirkii*, *Diplophyllum condylocarpum*, *Monotes africanus*, *M. angolensis*, *Persea guineensis*, *Terminalia sericea*. The crest and slopes of the low hills are often carpeted with a siltstone grass cover of low and sparse. *Aristida scabrivulva*, *A. hordeacea*, *Bracharia serena*, *Leukeria flava*, *Rhynchospora repens*, *Pogonarthra squarrosa*, *Trinaria reuteriana*. The narrow drainage lines and lower slopes carry trees of *Brachystegia stipitata* with *Combretum fragrans*, *Colophospermum mopane*, *Ptilostigma thomsonii* over tall grassland. *Andropogon chentensis*, *A. schirensis*, *Diheteropogon amplicrenis*, *Hyparrhenia* species, *Hyparrhenia dissoluta*.

Shrubland on Flat Terrain

Occurs on low, flat interflaves with distinct drainage pattern, typically poorly drained clay or clay loam soils. The country rock is siltstone or sandstone. Common small trees and shrubs, all deciduous, are *Brachystegia stipitata*, *Colophospermum mopane*, *Diospyros kirkii*, *Diplophyllum condylocarpum*, *Terminalia sericea*, *T. sennottiana*, *T. subnana*, other widespread associates are *Combretum apiculatum*, *Crotophyta ghrifiga*, *Raphia muscivora*. The grass cover is well developed but variable in species composition.

Miombo Woodland on Ridges and Plateaux

Country rock is gneiss or sandstone. The woodland is semi-deciduous but with frequent deciduous species. *Brachystegia busei* occurs in single species communities on rocky slopes, elsewhere there is a mixture of *Brachystegia allenii*, *B. boehmii*, *B. mangae*, *B. stipitata*, *Combretum apiculatum*, *Diplophyllum condylocarpum*, *Julbernardia globiflora*, *Monotes africanus*, *M. angolensis*, *M. kuanensis*, *Ocoba spinosa*, *O. vichensis*, *Persea guineensis*, *Persea angolensis*. There is a good grass cover of *Andropogon schirensis*, *Bracharia tritricha*, *B. serena*, *Chloris pycnantha*, *Digitaria spicata*, *Diheteropogon amplicrenis*, *Figyria angustifolia*, *H. bipindula*, *Urochloa mosambicensis*, *Loudetia simplex* and *Melinis longistylis* are more frequent on shallow stony soils. (Presidents Hill is a rocky hill adjacent to the Luangwa, miombo species are not found. *Kirkia acuminata*, *Sterculia africana*, *Grossularia americana* occur).

Drainage Head Grassland

Occurs in flat or concave areas of variable width along upper reaches of drainage channels. The species composition varies locally with the soil type and wetness. In general *Loudetia simplex* short grassland occurs on the drier, sandier soils and *Hyparrhenia/Styria* on the heavier wetter soils. Scattered trees sometimes occur around the margins. *Terminalia sericea*, *Combretum fragrans*, *C. imberbe* are common, immediately below the Machingo Escarpment *Syzygium cordatum* and *S. guineense* occur in the drainage lines.

Savanna Woodland

Occurs on fans at the base of the Machingo Escarpment. Tall hyperborean woodland on the western side of the valley the common canopy species are *Brachystegia allenii*, *B. mangae*, *Barcoa africana*, *Isobornia angolensis*, *Julbernardia globiflora*, *J. paniculata*. Smaller trees include *Brachystegia stipitata*, *Diplophyllum condylocarpum*, *Bixa doniana*, *B. mombasae*, *B. peruviana*, *Crotophyta marianensis* is a common suffutens. The frequency of the *Brachystegia*, *Isobornia*, and *Julbernardia* species decreases as the Luangwa alluvial area is approached. There is a corresponding increase in the frequency of *Erythrophloeum africanum*, *Pseudolachnostylis maprotopnefolia*, and *Terminalia sericea*. Adjoining the alluvial plain these three deciduous species dominate, these areas have been labelled I1s.

Miombo Woodland on Flat Interflaves

The country rock is sandstone and the soils are freely draining soils. The type merges with the Miombo Woodland on ridges and plateaux and with Riverine Woodland. The latter has a more open canopy, better developed grass cover and smaller range of species. Typical species which occur on ridges but are rare on flat interflaves are *Brachystegia busei*, *Monotes* species, *Ocoba spinosa*. On the flat interflaves the species composition varies locally. Below the Machingo Escarpment on the western side of the valley the common canopy species are *Brachystegia allenii*, *B. mangae*, *Barcoa africana*, *Isobornia angolensis*, *Julbernardia globiflora*, *J. paniculata*. Smaller trees include *Brachystegia stipitata*, *Diplophyllum condylocarpum*, *Bixa doniana*, *B. mombasae*, *B. peruviana*, *Crotophyta marianensis* is a common suffutens. The frequency of the *Brachystegia*, *Isobornia*, and *Julbernardia* species decreases as the Luangwa alluvial area is approached. There is a corresponding increase in the frequency of *Erythrophloeum africanum*, *Pseudolachnostylis maprotopnefolia*, and *Terminalia sericea*. Adjoining the alluvial plain these three deciduous species dominate, these areas have been labelled I1s.

Escarpment Woodland

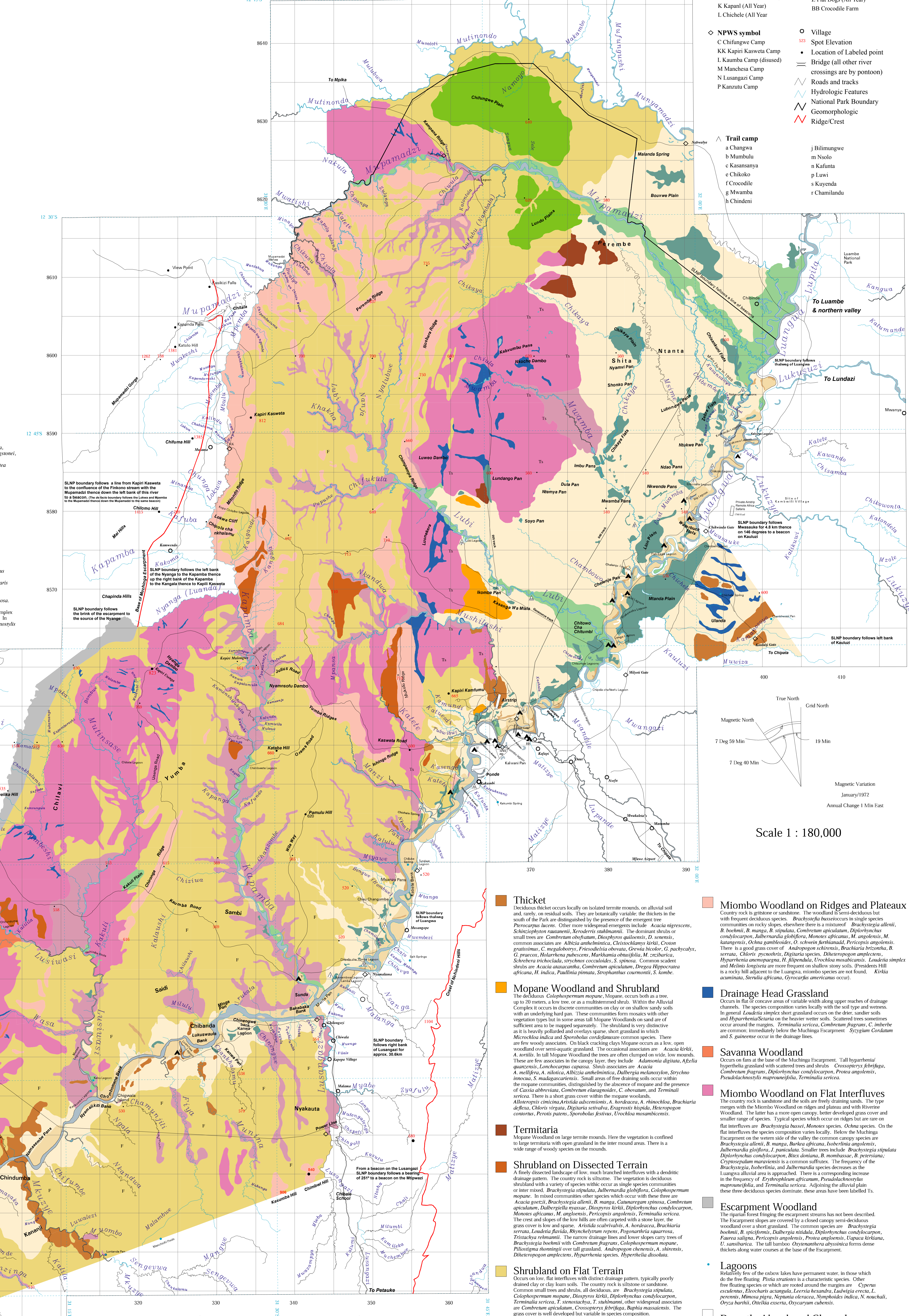
The riparian forest fringing the escarpment streams has not been described. The Escarpment slopes are covered by a closed canopy semi-deciduous woodland over a short grassland. The canopy species are *Brachystegia boehmii*, *B. spiciformis*, *Dalbergia nitida*, *Diplophyllum condylocarpum*, *Faurea saligna*, *Persea guineensis*, *Persea angolensis*, *Uapaca lobata*, *U. usambirana*. The tall barba *Oxytenanthera abyssinica* forms dense thickets along water courses at the base of the Escarpment.

Lagoons

Usually at the base of the oxbow lakes have permanent water, in those other do the free floating *Pistia stratiotes* is a characteristic species. Other free floating species or which are rooted around the margins are *Cyperus exaltatus*, *Eleocharis acicularis*, *Eleocharis acicularis*, *Luahaia erecta*, *L. perennis*, *Mimosa pigra*, *Nepenthes indica*, *Nymphoides indica*, *N. nouchali*, *Orzya barthii*, *Oreola eseriata*, *Oryzarium cubense*.

Recently Abandoned Channel

Water



- ▲ Lodge or Camp
- ▲ Lion (Seasonal)
- ▲ B Kakuli (Seasonal)
- ▲ C Chinzombo (Seasonal)
- ▲ D Big Lagoon (disused)
- ▲ E Mchenja (Seasonal)
- ▲ F Chibembe (Seasonal)
- ▲ G Luamfwia (Seasonal)
- ▲ H Manzi (Seasonal)
- ▲ J James Schultz (All Year)
- ▲ K Kapani (All Year)
- ▲ L Chichele (All Year)
- M Mfuwe (All Year)
- N Nsefu (Seasonal)
- R Kaingo (Seasonal)
- S Tafika (Seasonal)
- T Teneta (Seasonal)
- Y Nkwali (Seasonal)
- W Wildlife Society
- Y Kapamba (Seasonal)
- Z Flat Dogs (All Year)
- BB Crocodile Farm

- ◇ NPWS symbol
- Chitungwe Camp
- KK Kapiri Kasweta Camp
- L Kaumba Camp (disused)
- M Manchesa Camp
- N Lusangati Camp
- P Kazantu Camp
- Village
- Spot Elevation
- Location of Labeled point
- Bridge (all other river crossings are by pontoon)
- Roads and tracks
- Hydrologic Features
- National Park Boundary
- Geomorphologic
- Ridge/Crest

- ▲ Trail camp
- a Changwa
- b Mumbulu
- c Kasansanya
- e Chikoko
- f Crocodile
- g Mwamba
- h Chindeni
- j Bilimungwe
- k Nsulo
- n Kafunta
- p Luwi
- s Kuyenda
- r Chamilandu

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Map Compilation Information

Compiled by W.L. Astle from aerial photography flown 1965, 1967, 1988, field work 1965 to 1973 and 1986 to 1995, prepared in draft 1997, revised and published 1998, revised 1995. Additional field work by S.D. Prince, R.C. Phiri, D. Nyolwa, M.Mvula, assistance with names from P.S.M. Berry, J. Chivwala, P.S.M. Phiri, assistance with camp locations from N. Anslin, J. Coppinger, F. Hide.

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The numbered lines indicate a 5,000 meter Universal Transverse Mercator grid, zone 36, Clarke 1880 (unmodified) spheroid. The last three digits of the number are omitted.

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Boundary Description from Statutory Instrument Number 44 of 1972 National Park Number 1, South Luangwa National Park