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A GUIDE TO THE FIG TREES OF WESTERN TANZANIA WITH SPECIAL EMPHASIS ON GOMBE AND MAHALE NATIONAL PARKS

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ABSTRACT

An overview is given of the vegetation of the Gombe and Mahale National Parks in western Tanzania. The paper then focuses on the 24 fig trees of this area and after a brief overview of the natural history, keys are provided to identify the species. Each species is briefly treated with a short description, local names, habitat and specimen citations, as well as conservation assessments.

Keywords: *Ficus*, natural history, identification, vegetation

INTRODUCTION

Western Tanzania is situated at a meeting point of two main phytochoria: the Guineo-Congolian and the Zambezian Centres of Endemism (White, 1983). This results in a high diversity of *Ficus* and other plant species. Due to a varied topography there are several different types of vegetation in this area.

Many animals, including primates, eat *Ficus* parts, especially the so-called fruits, the figs. The fact that fig trees are often enormous, producing large amounts of fruits, and that they have staggered fruiting seasons make these plants very important in the diet of many animals. To help field identification of fig tree species in Western Tanzania we have produced this guide.

WESTERN TANZANIA: AN INTRODUCTION TO THE NATIONAL PARKS OF GOMBE AND MAHALE

Gombe and Mahale National Parks lie in the western part of Tanzania (figure 1). They are among the few areas in Africa which harbour that rare and endangered species of ape, the

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eastern chimpanzee *Pan troglodytes schweinfurthii* (Giglioli, 1872). This primate probably occurs here due to the high plant diversity coupled to the presence of different vegetation types.



Figure 1. Location of Gombe National Park (northern black square) and Mahale National Park (southern black square) within Tanzania; dotted lines are national borders.

In Gombe National Park intensive studies have been carried out on chimpanzees (van Lawick-Goodall, 1968; Wrangham 1975, 1977). Literature on vegetation is much scarcer, and consists mainly of a forest survey and checklist (Clutton-Brock & Gillett, 1979). In Mahale Mountains National Park chimpanzees have also been studied in depth (Nishida, 1968, 1990); literature on vegetation is almost non-existent, although over 600 plant species have been recorded (Nishida & Uehara, 1983; Wakibara, pers. comm., own observations).

As to climate, the dry season usually runs from May to October, with the rains coming in November and lasting until April. Annual rainfall in Gombe National Park was 1450–1710 mm over the years 1968–1970 (Clutton-Brock & Gillett, 1979). Annual rainfall in Mahale Mountains National Park varied between 1419 mm at Bilenge (mean of 1978–1982) to 1835 mm (mean of 1973–88) at Kansyana Camp (Moore, 1998; Turner, 2000).

Gombe National Park was established in 1967 with a coverage area of about 32 km^2 and is one of the smallest national parks in Tanzania. It is located on the eastern shore of Lake Tanganyika, in Kigoma Region, at 4°40'S, 29°38'E, some 15 km north of the town of Kigoma. From the shingle beach of the lake shore the ground rises steeply, with the lower slopes mostly denuded and covered with grassland and sparse woodland. The middle slopes carry dense forest, though the steep ridges can be almost bare. The upper slopes are covered with grassland and woodland; the escarpment crest has giant heath (*Erica*) and *Protea* vegetation (Clutton-Brock & Gillett, 1979). Elevation ranges from 773 m above sea level at the lake to over 1500 m along the escarpment. The whole park is divided by a series of steep ridges, separated by 15 valleys, some of them dry and some with water running all year from the top of the escarpment to the lake (east to west).

The vegetation types found in the park are classified into six major types:

- Evergreen riverine forest
- Deciduous forest

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- Thicket vine and tangle
- Miombo woodland
- Montane grassland
- Ridge top grassland

The **evergreen riverine forest** is found in the valley bottoms, starting as a narrow strip near the top of the escarpment and becoming wider nearer the lakeshore. The most visible constituents are tall trees up to 30 m high. Common trees species include *Ficus vallis-choudae*, *F. thonningii*, *Elaeis guineensis* Jacq., *Albizia glaberrima* (Schumach. & Thonn.) Benth., *Pseudospondias microcarpa* (A.Rich.) Engl., *Trichilia prieuriana* A.Juss., *T. dregeana* Sond., *Anthocleista grandiflora* Gilg, *Newtonia buchananii* (Baker) Gilbert & Boutique, *Myrianthus arboreus* P.Beauv. and *Pycnanthus angolensis* (Welw.) Exell. Common shrubs of the understorey include *Monanthotaxis poggei* Engl. & Diels, *Whitfieldia elongata* C.B.Clarke, *Ficus asperifolia*, *F. ottoniifolia* and *Leea guineensis* G.Don. Valleys that support the main riverine forests are Mitumba, Mkenke and Nyasanga.

Deciduous forest is found on the floors and slopes of drier valleys. Common tree species include *Pycnanthus angolensis*, *Pterygota mildbraedii* Engl., *Sterculia tragacantha* Lindl., *Synsepalum cerasiferum* (Welw.) T.D.Penn., *Lecaniodiscus fraxinifolius* Baker and *Albizia glaberrima*. This vegetation type is common in Upper Rutanga, Upper Mkenke, Kahama and Linda Valleys.

Thicket vine and tangle is a vegetation type found on the boundaries between woodland and forest. Dominant plant species are vines and trees. In some areas the understorey becomes very thick and difficult to pass through. Common climbers and vines are *Saba comorensis* (Bojer) Pichon, *Dictyophleba lucida* (K.Schum.) Pierre, *Dioscorea schimperana* Kunth, *D. hirtiflora* Benth., *Adenia rumicifolia* Engl., *A. gracilis* Harms, *Cayratia gracilis* (Guill. & Perr.) Suess., *Cissus rubiginosa* Planch., *C. faucicola* Wild & R.B.Drumm., *Cyphostemma adenocaule* Wild & R.B.Drumm., *Sabicea orientalis* Wernham, *Clerodendrum schweinfurthii* Guerke, *C. scandens* P.Beauv., *Dalbergia malangensis* E.C.Sousa and *Ampelocissus cavicaulis* Planch. Common tangle species are *Keetia gueinzii* (Sond.) Bridson, *K. hispidum* (Benth.) Bridson, *Mussaenda arcuata* Poir. and *Grewia platyclada* K.Schum. Trees and shrubs include *Albizia glaberrima*, *Parinari curatellifolia* Benth., *Bridelia cathartica* G.Bertol. and *Oxyanthus speciosus* DC. This vegetation type is common in almost all valleys, especially on hillsides.

Miombo woodland is common on the ridge tops and upper slopes. It has a low canopy and few species of grass and herbs in the understorey. Common tree species are *Brachystegia microphylla* Harms, *B. longifolia* Benth., *B. bussei* Harms, *Dalbergia nitidula* Baker, *Afzelia quanzensis* Welw., *Diplorhynchus condylocarpon* (Muell.Arg.) Pichon, *Uapaca kirkiana* Muell.Arg., *U. nitida* Muell.Arg., *U. sansibarica* Pax, *Terminalia mollis* Teijsm. & Binn., *Pericopsis angolensis* (Baker) Meeuwen and *Schrebera trichoclada* Welw. Common shrubs are *Maprounea africana* Muell.Arg., *Dichrostachys cinerea* (L.) Wight & Arn., *Rothmannia engleriana* (K.Schum.) Keay and *Multidentia crassa* (Hiern) Bridson & Verdc. Common grass species are *Loudetia simplex* (Nees) C.E.Hubb., *Panicum maximum* Jacq. and *Hyparrhenia filipendula* (Krauss) Stapf.

The park also has two types of **grassland vegetation**: the montane grassland, and ridge top grassland with scattered trees.

Common grass species in the **montane grassland** are *Loudetia arundinacea* Steud., *Pennisetum polystachyon* (L.) Schult., *Eragrostis tremula* (Lam.) Steud. and *Imperata cylindrica* (L.) P.Beauv. Common species of the few shrubs and herbs in this vegetation type are *Protea micans* Welw. subsp. *suffruticosa* (Beard) Chisumpa & Brummitt, *Securidaca*

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longipedunculata Fresen., *Clematis scabiosifolia* DC. and *Aspilia africana* (Pers.) C.D.Adams. This vegetation type is found at the top of the escarpment between 1400–1500 m above sea level.

The **ridge top grassland** with scattered trees is dominated by the grass species of *Hyparrhenia filipendula*, *Loudetia simplex*, *Pennisetum purpureum* Schumach., *Setaria homonyma* (Steud.) Chiov., *Imperata cylindrica* and *Eleusine indica* (L.) Gaertn. Common scattered trees are *Ficus mucuso*, *Gardenia ternifolia* Schumach. & Thonn. and *Pavetta schumanniana* K.Schum.

This vegetation type is common on some of the dry ridges and their lower slopes.

Mahale Mountains National Park was established in 1985 with a total area of 1577 km^2 and is located some 150 kilometres south of Gombe National Park on the shores of Lake Tanganyika, Kigoma Region, roughly at 06°15'S, 29°55'E. There is a series of NW to SE-oriented mountain ridges and peaks; the main peak is Mount Nkungwe at 2460 m. The mountains are intersected by many valleys, some with permanent streams (Turner, 2000). The lowest elevation is at 773 m above sea level at the lake.

The Mahale Mountains support vegetation which is rich in species and varied in community types. The vegetation can tentatively be divided into the following types (extracted and adapted from http://jinrui.zool.kyoto-u.ac.jp/ChimpHome/mahaleE.html, Lovett 1994, Vollesen & Bidgood 1997, Turner 2000, Wakibara & Mnaya 2002).

Forest types (mainly on the Western slopes):

- Low-altitude forest: *Xylopia-Pycnanthus* semi-evergreen forest, 780–1300 m
- Forest with *Anthocleista - Blighia - Bridelia - Cassipourea - Celtis - Diospyros - Ficalhoa - Kigelia - Lecaniodiscus - Newtonia - Pseudospondias - Pterygota - Rothmannia - Sterculia – Syzygium*, common, 1100–1400 m
- Gallery forest dominated by *Ficus vallis-choudae*
- *Erythrophleum* or *Croton sylvaticus* Hochst. or *Senna* secondary forest
- Montane forest with *Croton megalocarpus* Hutch. and *Parinari*, 1300–1800 m
- *Julbernardia seretii* (De Wild.) Troupin forest at higher levels
- Montane forest with *Afrocarpus, Myrsine* and *Nuxia* (patches)
- Montane bamboo 'forest' (*Sinarundinaria*)

Woodland types:

- *Brachystegia boehmii* Taub. / *B. spiciformis* Benth. woodland, the most common vegetation type in the park, 900–1800 m
- *Combretum-Uapaca* woodland with *Annona* and *Diplorhynchus*

Wooded grassland types:

- *Acacia* wooded grassland with *Imperata* and *Pennisetum*, at low altitudes
- *Terminalia mollis* Teijsm. & Binn., *Pterocarpus tinctorius* Welw. fire-degraded wooded grassland, at low altitudes
- *Terminalia mollis, Dombeya rotundifolia* Planch., *Hyparrhenia* fire-degraded wooded grassland, above 1800 m
- *Dombeya-Erythrina* wooded grassland, above 1800 m

Bushland types:

- Montane bushland
- *Protea-Ricinodendron* montane bushland or bushed grassland

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Grassland types:

- Riverine grassland in valleys
- Montane grassland
- swamp and marsh grassland, mbuga grassland

In addition, other types of various secondary stages caused chiefly by human disturbance are scattered throughout the park especially in some of the forest types.

No checklists of plant species of Mahale Mountain National Park have been published, and there are no detailed vegetation descriptions.

NATURAL HISTORY OF FIG TREES IN GENERAL

Ficus species (in our area) are shrubs or trees, with alternate leaves (rarely sub-opposite) and with white latex in most parts. An account of all species in East Africa is given in Berg & Hijman (1989). The root system of most *Ficus* species is extensive, and the crown is often large and dense; when competition for water or light arises, *Ficus* will often out-compete other species.

Many *Ficus* species start life as epiphytes, when fig seeds have been excreted by birds or mammals on branches of other trees. The young *Ficus* will send down roots along the trunk of the host tree, and when these reach the ground, the roots and branches of the *Ficus* will start to grow rapidly, and will soon out compete the host by both root competition and heavy shade cast by the dense crown. Because the trunk of the host is enveloped by the Ficus roots the death of the host is usually attributed to 'strangling'.

Not all *Ficus* species start life as epiphytes, and it is not clear whether there are any obligatory epiphytes. Some species seem to be obligate terrestrials (*e.g. F. amadiensis, F. exasperata, F. glumosa, F. ingens, F. sycomorus, F. vallis-choudae*), and some of these (*F. glumosa, F. ingens*) can grow in dry localities such as on large rocks; again, the extensive root system will enable the tree to find water even in such a site.

The flowers and fruits are on the inside of a hollow globe, the fig, with a small opening at the top to allow pollination. The intricate system of *Ficus* pollination is described briefly in Beentje (1988). Here we will restrict ourselves to explaining that the fig is not a real fruit but a fleshy envelope with the flowers, and later the fruits, on the hollow inside – accessible by a tiny slit or hole at the top, the ostiole. Each species of *Ficus* usually has its own dedicated species of fig-wasp, which breeds in the figs and also cross-pollinates them. The way the pollination-pollinator interaction is set up results in all *Ficus* species having staggered flowering seasons ('inter-tree asynchrony'); the fig-wasps need to find another flowering tree within days of their emergence. Therefore, within a species, there is no specific flowering season, and at any given time, some trees may be bare of figs, some may have unripe figs, and some may have ripe ones. Figs are therefore available all year round, and most species fruit in very large numbers. These factors make figs a reliable food source for fruit-eating animals.

Mammals eating figs, observed in East Africa in general, include several species of fruit-bat (Megachiroptera, Pteropodidae), monkeys (*Cercopithecus* spp.), chimpanzee, tree hyrax *Dendrohyrax* arboreus (A. Smith 1827), several squirrel species (*Sciuridae* spp.), potto *Perodicticus potto* Müller 1766, bushbabies (Galagidae) and humans, and possibly genet *Genetta genetta* (Linnaeus 1758), African civet *Civettictis civetta* (Schreber 1776) and several species of mongoose (Herpestidae). Fallen fruit are eaten by bushbuck *Tragelaphus scriptus*

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(Pallas, 1766), duikers (Cephalophini), suni *Neotragus moschatus* (Von Dueben, 1846), bush pig *Potamochoerus larvatus* (F. Cuvier, 1822) and small rodents. Birds eating figs include hornbills (*Tockus* and *Bycanistes* spp.), turacos (*Tauraco* and *Corythaeola* spp.), pigeons (*Treron* spp.), parrots (*Poicephalus* spp.), lovebirds (*Agapornis* spp.), barbets (*Tricholaema* and *Trachyphonus* spp.), mousebirds (*Colius* and *Urocolius* spp.), orioles (*Oriolus* spp.), starlings (*Cinnyricinclus* spp.), bulbuls (*Pycnonotus* spp.), greenbuls (*Andropadus* and *Phyllastrepus* spp.) and thrushes (*Turdus* spp.); fallen fruits are eaten by francolins (*Francolinus* spp.) and several species of ground-dwelling doves (*Streptopelia* spp.). Fallen and fermenting figs may attract butterflies and many fly species (G.R. Cunningham van Someren, pers. comm.; Beentje, 1988).

For chimpanzees, figs may form an important part of the diet. In Uganda, during the dry season chimpanzees spent a third of their time eating figs of *Ficus sur* (Newton-Fisher, 1999). In Mahale Nishida & Uehara reported on fig species consumed by chimpanzees (Nishida & Uehara, 1983 unless otherwise stated), with details on the part eaten:

F. asperifolia (as *F. urceolaris*): fruit on 78 occasions, leaves on 310 occasions

F. cyathistipula: fruit on 20 occasions

F. exasperata Vahl: fruit on 78 occasions, leaves on 99 occasions

F. glumosa: fruit; also (as *F. sonderi*): fruit on nine occasions

F. ingens: fruit on five occasions, leaves

F. sur (as *F. capensis*): fruit on 283 occasions, leaves, wood on three occasions

F. thonningii: fruit on nine occasions

F. ?thonningii, parts unspecified (Moore, 1994)

F. vallis-choudae: fruit on 118, leaves on three, wood on one occasions

"*F. congensis*": fruit on 11 occasions, leaves (petiole only) five occasions– the problem with this record is that *F. congensis* Engl., now a synonym of *F. trichopoda* Bak.) does not occur in either of the parks, as far as we know. This must be a mistaken identification.

The wood of *Ficus* species is soft and is excavated for nest holes by woodpeckers and barbets. Several beetles, particularly long-horned Cerambicidae attack the wood. Caterpillars of moths (Arctiidae, Eupterotidae, Lymantridae) feed on the leaves and are in turn fed upon by orioles, cuckoos and cuckoo-shrikes. Caterpillars of fig tree blues, the butterflies *Myrina silenus* (Fabricius, 1775) and *M. dermaptera* (Wallengren, 1857) (Lycaenidae) feed on the leaves. Scale insects (Coccidae) often infest foliage as well and are eaten by smaller honeyguides, small warblers and sunbirds (G.R. Cunningham van Someren, pers. comm.; Beentje, 1988)

USES

Because of their soft wood, fig tree logs are easily hollowed out and used as beehives hung in other trees. Fig trees are used as shade trees in cultivated plots and are often left standing when forest is cut, specifically for this purpose – and also because the wood is not very useful. But in many cultures fig trees are also seen as special or even sacred: the sycamore is mentioned several times in the Bible (1 Kings 10:27; 2 Chronicles 1:15; 9:27; Isaiah 9:10; 1 Chronicles 27:28; Psalms 78:47; Amos 7:14; Luke 19:4); it was sacred to several ancient Egyptian gods, especially to Hathor, the goddess of love. Other species are sacred to Hindu and Buddhist faiths. In East Africa *F. natalensis* and *F. thonningii* are venerated by several cultural groups, as are *F. sur* and *F. sycomorus*.

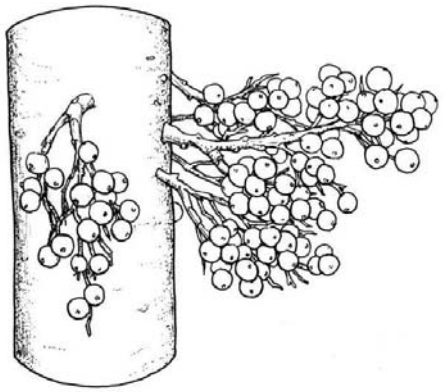
Another general and widepread use is the use of the bark fibre for rope; in former times, bark cloth was made from fig trees as well.

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IDENTIFICATION KEY TO FICUS SPECIES OF WESTERN TANZANIA

Note: the key is illustrated to help with the identification.

1. Leaves truncate at apex or nearly so ..... *F. craterostoma*
   Leaves not truncate 2
2. Leaves sandpapery 3
   Leaves smooth or hairy, not rough 8
3. Leaf apex rounded or obtuse ..... *F. sycomorus*
   Leaf apex acute or acuminate 4
4. Leaf base cuneate or narrow and obtuse 5
   Leaf base rounded or (sub)cordate 6
5. Leaf apex long-acuminate ..... *F. asperifolia*
   Leaf apex acute or shortly acuminate ..... *F. exasperata*
6. Figs on old wood 7



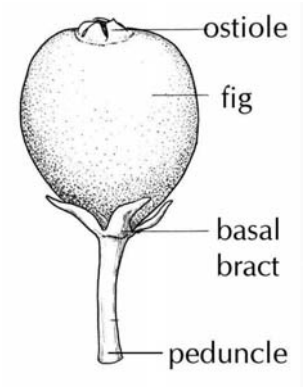
   Figs in leaf axils ..... *F. variifolia*

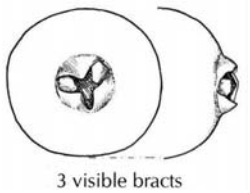


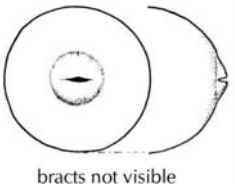
7. Twigs and leaf-stalk with flaking surface and hairs of different length ..... *F. mucoso*
   Twigs and leaf-stalk with smooth surface and hairs of all the same length ..... *F. sur*
8. Leaf base cuneate or tapering but obtuse 9
   Leaf base broadly rounded or (sub)cordate 16

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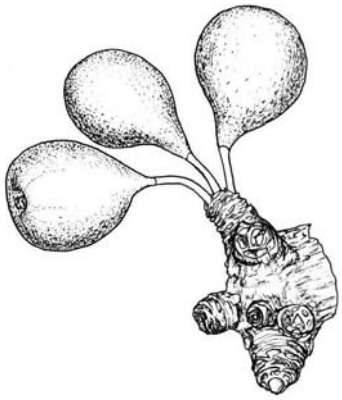
9. Leaves hairy ..... *F. thonningii*
   Leaves glabrous or nearly so 10
10. Stipules persistent, partly connate, 1–2 cm long ..... *F. cyathistipula*
    Stipules caducous (or if subpersistent free and < 1 cm) 11
11. Ostiole with 3 visible bracts – swamps ..... *F. verruculosa*
    Ostiole without visible bracts 12



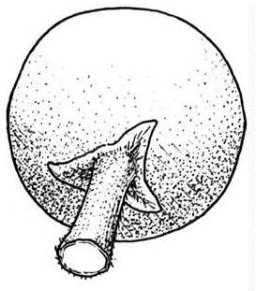




12. Figs among the leaves in leaf axils 13
    Figs on spurs on old wood 14

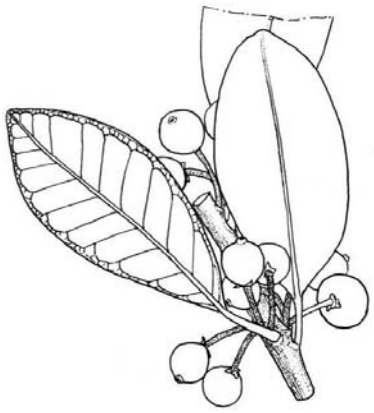


13. Basal bracts of fig caducous ..... *F. natalensis*
    Basal bracts persistent ..... *F. thonningii*



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14. Leaf apex acuminate ..... *F. ottoniifolia*
    Leaf apex obtuse 15
15. Leaves minutely hairy beneath ..... *F. artocarpoides*
    Leaves glabrous ..... *F. sansibarica*
16. Leaf margin toothed or crenulate 17
    Leaf margin smooth, entire (though young leaves may be toothed or lobed) 19
17. Figs on spurs on old wood ..... *F. sur*
    Figs among the leaves in leaf axils 18
18. Ripe figs 3–6 cm across ..... *F. vallis-choudae*
    Ripe figs ± 2 cm across ..... *F. variifolia*
19. Stipules persistent, partly connate, 1–2 cm long ..... *F. cyathistipula*
    Stipules caducous (or if subpersistent free and < 1 cm) 20
20. Leaves < 1.5 × as long as wide 21
    Leaves > 1.5 × as long as wide 22
21. Figs when mature 20–45 mm across; leaf base often rounded; riverine *F. vallis-choudae*
    Figs 5–16 mm across; leaf base cordate; rocky or riverine ..... *F. glumosa*
22. Figs on spurs on old wood, not among the leaves 23
    Figs among the leaves 25
23. Figs on branched leafless branches ..... *F. sur*
    Figs on short spurs or in clusters on thick wood, not in branched systems 24
24. Leaf apex obtuse ..... *F. sansibarica*
    Leaf apex acuminate ..... *F. ottoniifolia*
25. Figs 2–7 together on spurs in leaf axils or just below the leafy part of the branch ..... *F. usambarensis*



    Figs 1–2 in leaf axils or just below the leafy part of the branch 26
26. Tertiary leaf venation uniformly reticulate 27
    Some of the tertiary leaf venation thicker, forming slightly thicker veins at right angles to secondary veins 29
27. Leaf with basal veins faintly branched ..... *F. stuhlmannii*
    Veins unbranched 28
28. Basal bracts of fig 15–20 mm long ..... *F. amadiensis*
    Basal bracts of fig 2–4 mm long ..... *F. thonningii*
29. Figs at ostiole with 3 visible bracts ..... *F. ingens*
    Only a slit visible 30

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30. Leaf base cordate; ripe figs 5–12 mm across ..... *F. glumosa*
    Leaf base rounded or subcordate; ripe figs 12–25 mm across 31
31. Petiole when dry with flaking surface ..... *F. lutea*
    Petiole not flaking 32
32. Ripe figs 1.5–2 cm across 33
    Ripe figs 2.5–5 cm across ..... *F. ovata*
33. Leaves glabrous ..... *F. fischeri*
    Leaves hairy when young, often sandpapery when older ..... *F. variifolia*

COLLECTING FICUS SPECIMENS

To increase our knowledge of the figs of western Tanzania, additional material would be very welcome. Those with a permit for collecting plants in Tanzania are requested to forward their specimens to the herbarium of the University of Dar es Salaam, P.O. Box 35060, Dar es Salaam. Specimens should consist of twigs with both leaves and figs, and should be dried and pressed.

FIG TREE SPECIES OF WESTERN TANZANIA

Note: synonyms are those from East African literature only.

Ficus amadiensis De Wild. (figure 2A)
Habitat. Possibly in lakeside forest
Description. Tree to 15 m; leafy twigs 5–10 mm thick. Leaves leathery, elliptic, ovate or obovate, 7–17 × 3–9 cm, glabrous. Figs in pairs in the leaf axils, sessile, with 15–20 mm long basal bracts; ripe figs round, 12–22 mm across, yellow to red to purple.
Specimens seen. **Gombe**: Kakombe valley, 21 Nov. 1971, *Wrangham* GF 22 (DSM)
Distribution elsewhere. Central and East Africa, usually in wooded grassland or lakeside forest and thicket
Synonyms. *F. calotropis* Lebrun & Toussaint, *F. kitubalu* Hutch., *F. ndola* Mildbr.
Notes. Ripe figs are edible (Beentje, 1988)
Conservation status. Fairly widespread in a common habitat → Least Concern

Ficus artocarpoides Warb. (figure 2B)
Local names. *Kajimonsole* (Tongwe, *fide* Nishida)
Habitat. Riverine forest at 800 m, rare.
Description. Tree to 15 m high, hemi-epiphytic; leafy twigs 2–4 mm thick. Leaves leathery, oblong to somewhat lanceolate, 6–21 × 2–6 cm, minutely puberulous beneath. Figs up to 5 together on spur shoots to 4 cm long on older wood, fig stalks 15–35 mm long; ripe figs round, 30–40 mm across, greenish yellow to purple.
Specimens seen. **Mahale**: Kasoge, 27 Oct. 1987, *Nishida* 8702 (K)
Distribution elsewhere. West Africa from Ivory Coast to Uganda and North Angola
Synonyms. *F. kisantuensis* Warb.
Notes. Figs eaten by chimpanzees (*fide* Nishida label).
Conservation status. Widespread → Least Concern

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Ficus asperifolia Miq. (figure 2C)

Local names. *Lusieno ndogo* (Kiha, *fide* Mbago); Lusieno (language not specified, *fide* Pirozynski)

Habitat. Riverine or gallery forest, less often in tall grassland or montane rain-forest; altitude 780–1800 m

Description. (Scrambling) shrub 1–6 m, often with whippy branches; leafy branches hairy or glabrous. Leaves asymmetric, elliptic, ovate or obovate, 3–20 × 2–12 cm, apex long-acuminate, sandpapery to the touch or rough-hairy beneath. Figs 1–5 together in leaf axils or just below the leaves; fig stalks to 4 mm long; ripe fig round, 1–2 cm across, yellow, orange or red.

Specimens seen. **Gombe**, Mkenke Valley near Lake, 29 Apr. 1992, *Mbago* 1015 (K) & Kakombe Valley, 7 Jan. 1964, *Pirozynski* 181 (K) & 85 (K) & Rutanga Valley, 22 Jan. 1964, *Pirozynski* 280 (K) & Mkenke Valley, 25 Jan. 1964, *Pirozynski* 290 (K) & Kasakela Chimp Reserve, 18 Nov. 1962, *Verdcourt* 3362 (K); **Mahale**, Katimba, 5 Sep. 1958, *Newbould & Jefford* 2349 (K) & Sikoke, 29 Sep. 1958, *Newbould & Jefford* 2760 (K) & Utahya, 2 Aug. 1958, *Newbould & Jefford* 1301 (K) & Kasangazi-Kunge, 16 July 1958, *Mgaza* 150 (K) & Kasangazi, 16 July 1958, *Mahinde* S31 (K) & Kungwe Mountain, Dec. 1956, *Procter* 635 (K) & between Musenabantu & Pasagulu, 10 Aug. 1959, *Harley* 9290 (K) & Kasoje, 17 July 1959, *Newbould & Jefford* 4444 (K)

Distribution elsewhere. Widespread in tropical Africa down to North Angola and North Zambia; in Tanzania only known from the West. A species of forest (edges), riverine forest and wooded grassland.

Synonyms. *F. urceolaris* Hiern, *F. stortophylla* Warb.

Notes. Leaves used as sandpaper by humans.

Conservation status. Widespread in a common habitat → Least Concern

Ficus craterostoma Mildbr. & Burret (figure 2D)

Habitat. Not recorded for our area.

Description. Shrub or tree to 10 m, hemi-epiphytic; leafy twigs hairy or glabrous. Leaves sometimes almost opposite, obtriangular to obovate, 3–8 × 2–4.5 cm, apex truncate or nearly so, glabrous. Figs in pairs in the leaf axils, sessile; ripe figs round or ellipsoid, 8–12 mm across, yellow or red.

Specimens seen. **Mahale**: Mahale Mountains, May 1972, *Kakeya* 81 (DSM)

Distribution elsewhere. Widespread in tropical Africa, usually in riverine forest; 300–2100 m.

Synonyms. *F. luteola* De Wild., *F. pilosula* De Wild.

Conservation status. Widespread in a common habitat → Least Concern

Ficus cyathistipula Warb. (figure 2E)

Habitat. Exposed rocky promontory at lake edge, occasional; 810 m

Description. Small shrub or tree to 4.5 m (elsewhere to 15 m high), occasionally epiphytic, sometimes with aerial roots; leafy twigs hairy or glabrous, with partly connate persistent stipules. Leaves obovate, 6–22 × 3–8 cm, glabrous. Figs solitary (rarely up to three together) in the leaf axils, on stalks to 1 cm long; ripe figs round or obovoid, 3–5 cm across, pale green to pale yellow.

Specimens seen. **Mahale:** Mahale Mountains, 22 Sep. 1958, *Newbould & Jefford* 2544b (K); Lumbye, 22 Sep. 1958, *Newbould & Jefford* 2544a (K)

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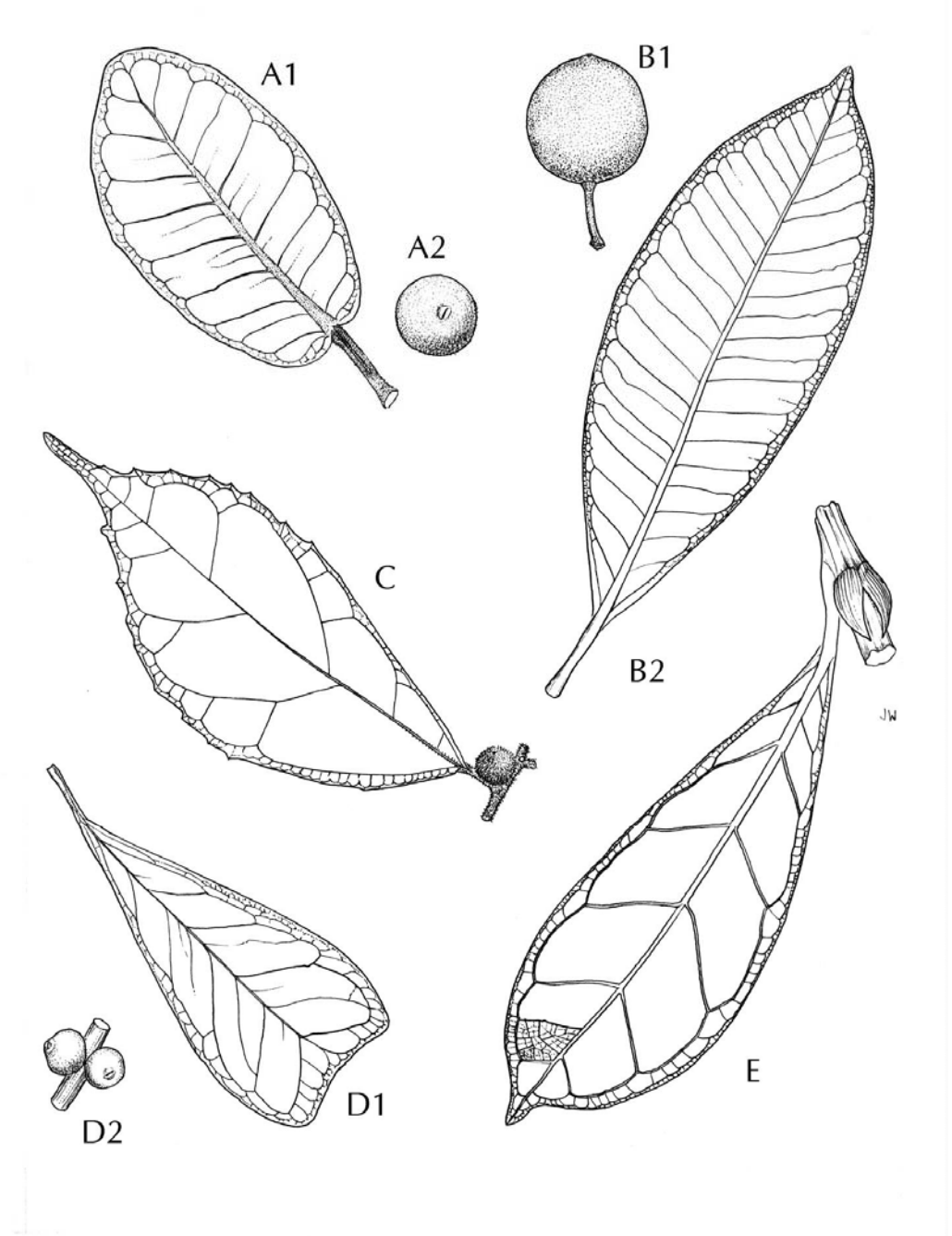


Figure 2. A. Ficus amadiensis*, A1. leaf-upper surface, A2. fig (from S. Bidgood* et al. *3518). B.* Ficus artocarpoides*, B1. fig, B2. leaf-lower surface (from Nishida 8702). C.* Ficus asperifolia, *leaf-lower surface, with young fig (from Mgago 1015). D.* Ficus craterostoma*, D1. leaf-upper surface, D2. pair of figs (from Frimodt-Møller* et al. *NG131). E.* Ficus cyathistipula, *leaf-lower surface (Newbould & Jefford 2544A). Drawings by J. Williamson.*

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Distribution elsewhere. Widespread in forests in tropical Africa, sometimes on rocks; 700–1800 m.
Synonyms. *F. rhynchocarpa* Mildbr. & Burret
Conservation status. Widespread in a common habitat → Least Concern

Ficus exasperata Vahl (figure 3A)
Local names. *Lilwago* (Tongwe)
Habitat. On rocky shore of exposed promontory or sandy plain near lake shore; ± 810 m,
Description. Shrub or tree to 24 m high; bark smooth, pale; bole with plank buttresses; leafy twigs rough-hairy. Leaves elliptic, ovate or obovate, 2.5–16 × 1–12 cm, sandpapery to the touch or rough-hairy. Figs in pairs or solitary in leaf axils or sometimes on older wood; fig stalk 5–10 mm long; ripe figs ± round, 10–25 mm across, yellow, orange to reddish.
Specimens seen. **Mahale**, Sisaba, 22 Sep. 1958, *Newbould & Jefford* 2553 (K) & Lubulungu, 1958, *Newbould & Jefford* 2609, 2610 (both K)
Distribution elsewhere. Widespread in tropical Africa and South Asia; usually in forest (edges), in rocky sites and along rivers; 0–1850 m.
Notes. Newbould & Jefford record that of two adjacent trees of this species one had leaves and no figs, and the other ripe figs and no leaves. This is a common occurance in fig species; see natural history, above.
Conservation status. Widespread in a common habitat → Least Concern

Ficus fischeri Mildbr. & Burret (figure 3B)
Description. A tree to 15 m, hemi-epiphytic. Leaves ovate to elliptic, 6–17 × 5–11 cm, glabrous. Figs 1–2 in leaf axils, on stalks 1–2 cm long; figs round, 1.5–2 cm across and yellow-green when fresh.
Specimens seen. Not found, though might occur.
Distribution elsewhere. Tanzania to Angola and Botswana, in woodland and wooded grassland; 950–1500 m.
Conservation status. Widespread in a common habitat → Least Concern

Ficus glumosa Delile (figure 3C)
Local names. *Sisenya* (Tongwe; *fide Newbould & Jefford* 2434); *Mku* (Kinyanmwezi, *fide Pirozynski* 600); *Umukuyu* (Kiha, *fide Pirozynski* 600); *Mkuyu* (Swahili, *fide Pirozynski* 600)
Habitat. Rocky sites near shore or in gallery forest, or top of scarp; 760–1110 m; uncommon?
Description. Shrub or tree to 12 m, always terrestrial; leafy branches shortly hairy. Leaves elliptic or ovate, sometimes almost round, 2–14 × 2–9 cm, base cordate, hairy (especially on lower leaf surface) to glabrous. Figs in pairs in leaf axils or just below the leafy part, sessile or on tiny stalks; ripe figs round or ellipsoid, 1–2 cm across and orange to pink or red.
Specimens seen. **Mahale:** Mahali Mts, Selambula, 17 Sep. 1958, *Newbould & Jefford* 2434 (K) & Lumbye, 21 Sep. 1958, *Newbould & Jefford* 2490 (K) & Sisaba, 22 Sep. 1958, *Newbould & Jefford* 2560 (K); **Gombe:** Kanangiye 7 miles N of Kigoma, 22 Mar. 1964, *Pirozynski* 600 (K)
Distribution elsewhere. Widespread in tropical Africa, also in Yemen; on rock and lava flows in wooded grassland or bushland; 500–2000 m.
Synonyms. *F. sonderi* Miq.
Conservation status. Widespread in a common habitat → Least Concern

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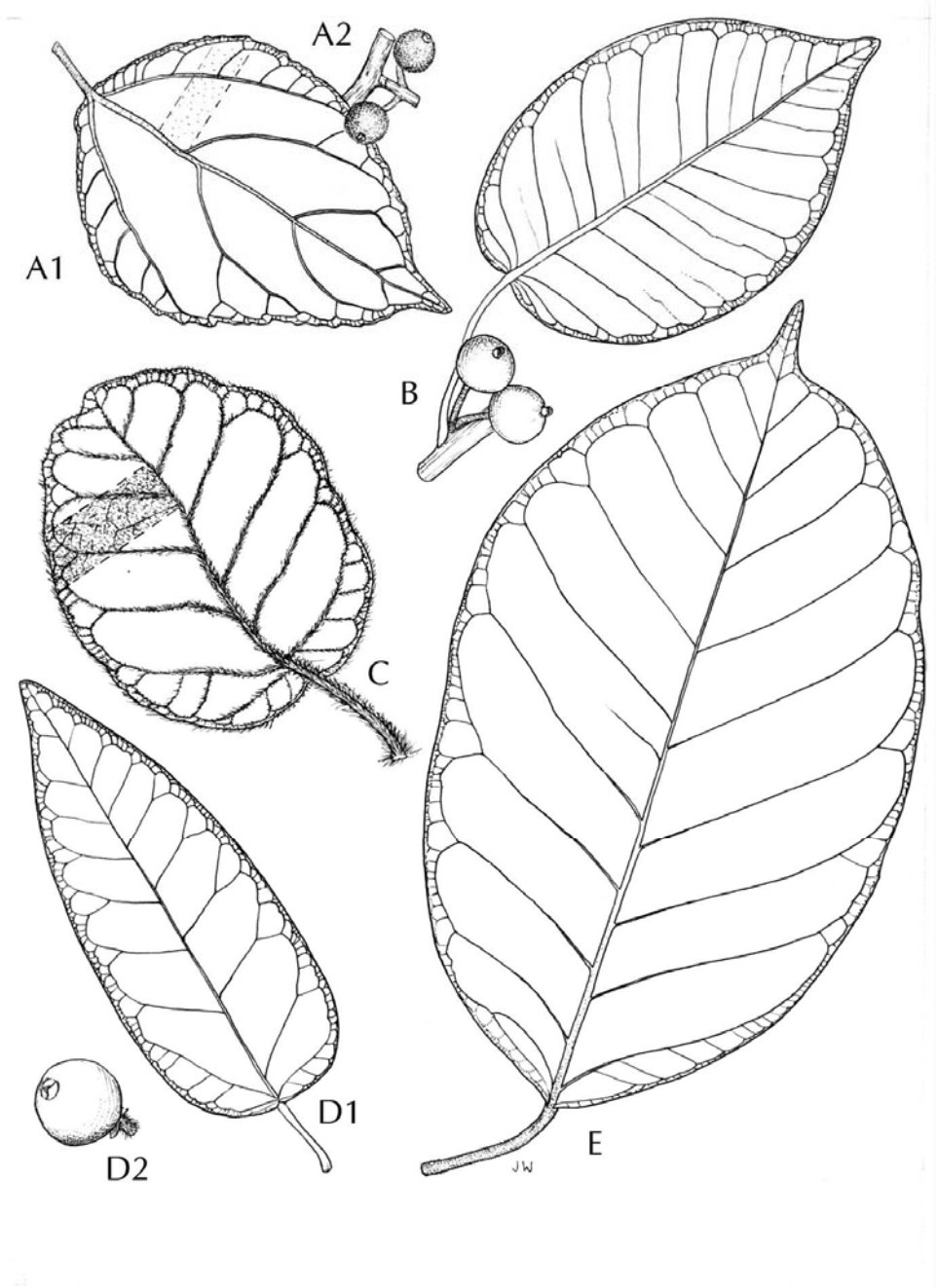


Figure 3. A. Ficus exasperata*, A1. leaf-lower surface, A2. figs on stem (from Faulkner 4619). B.* Ficus fischeri*, leaf-lower surface, with figs (from Ruffo 989). C.* Ficus glumosa, *leaf-lower surface (from Newbould & Jefford 2434). D.* Ficus ingens*, D1. leaf-upper surface(from Pirozynski P377), D2. fig (from Mbago 1085). E.* Ficus lutea*, leaf-upper surface (from Ruffo & Kisena 2771). Drawings by J. Williamson.*

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Ficus ingens (Miq.) Miq. (figure 3D)

Local names. *Mlumba* (Swahili, Kinyamwezi), *Ikivumansolia* (Kiha, *fide* Pirozynski); *Mulumba*, *Jami ya Lusieno* (Kiha, *fide* Mbago)

Habitat. On or between rocks near lake or river, or in valley forest, or in riverine forest/woodland ecotone; 810–1060 m

Description. Tree 2.4–10 m high (elsewhere to 18 m); roots often spreading over rocks; bark grey or ochre, smooth; leafy twigs shortly hairy. Leaves ovate to elliptic, 5–18 × 2–9 cm, glabrous. Figs in pairs in the leaf axils or just below the leafy part of the branch, on small stalks of up to 5 mm; ripe figs round, 1–2 cm across when fresh, pink, red or purple, at ostiole with 3 visible bracts.

Specimens seen. Kigoma District: Zibwesa Point, Lake Tanganyika, 7 July 1958, *Juniper & Jefford* 36 (K); **Mahale:** Mahali Mountains, Lumbye, 20 Sep. 1958, *Newbould & Jefford* 2463 (K) & idem, 21 Sep. 1958, *Newbould & Jefford* 2491 (K) & Kibweza Point, 12 Sep. 1958, *Newbould & Jefford* 2203 (K); **Gombe**: Kasakela Valley, 10 Feb. 1964, *Pirozynski* 377 (K) & Kakombe Valley, 31 Dec. 1963, *Pirozynski* 134 (K) & Kanangiye, 27 Mar. 1964, *Pirozynski* 593 (K); Upper Kakombe, 2 May 1992, *Mbago* 1085 (K, DSM) & upper Linda Valley, 3 May 1992, *Mbago & Knopfler* 1086 (K)

Distribution elsewhere. Widespread in tropical Africa, also in Yemen; usually on rock outcrops or lava flows between 0–2600 m.

Synonyms. *F. ingentoides* Hutch., *F. ingens* var. *tomentosa* Hutch.

Conservation status. Widespread in a common habitat → Least Concern

Ficus lutea Vahl (figure 3E)

Description. Tree to 20 m high, hemi-epiphytic; bark smooth, grey-brown; leafy twigs thick. Leaves elliptic to obovate, 7–25 × 3–15 cm, glabrous above, hairy or glabrous beneath; petiole when dry with flaking surface. Figs 2–4 per leaf axil or below the leafy part of the branch, sessile; ripe figs round, 1–3 cm across and yellow to orange.

Specimens seen. Not found, though might occur.

Distribution elsewhere. Collected in Mbizi Forest Reserve, Sumbawanga District; widespread from Ethiopia to South Africa, usually in forest or forest remnants between 0–1800 m.

Synonyms. *F. vogelii* (Miq.) Miq., *F. quibeba* Ficalho, *F. subcalcarata* Warb. & Schweinf., *F. verrucocarpa* Warb., *F. nekbudu* Warb.

Notes. Close to *Ficus saussureana*.

Conservation status. Widespread in a common habitat → Least Concern

Ficus mucoso Ficalho (figure 4A)

Description. Tree to 40 m high, often buttressed. Leaves elliptic to almost round, 6–17 × 4–15 cm, sandpapery above, short-hairy beneath. Figs on old wood, on branched leafless branches to 30 cm long, each fig stalked for 1–2.5 cm, round to obovoid, 2.5–4 cm across and dark orange to red when ripe.

Specimens seen. Not found, though might occur.

Distribution elsewhere. Uganda; Northeast Tanzania; extending to West Africa and Angola, in rain-forest between 300–1200 m.

Conservation status. Widespread in a fairly common habitat → Least Concern

Ficus natalensis Hochst. (figure 4B)

Habitat. In rock crevices near mouth of ravine; 900 m

Description. Small shrub, elsewhere a tree to 20 m high, hemi-epiphytic; leafy twigs

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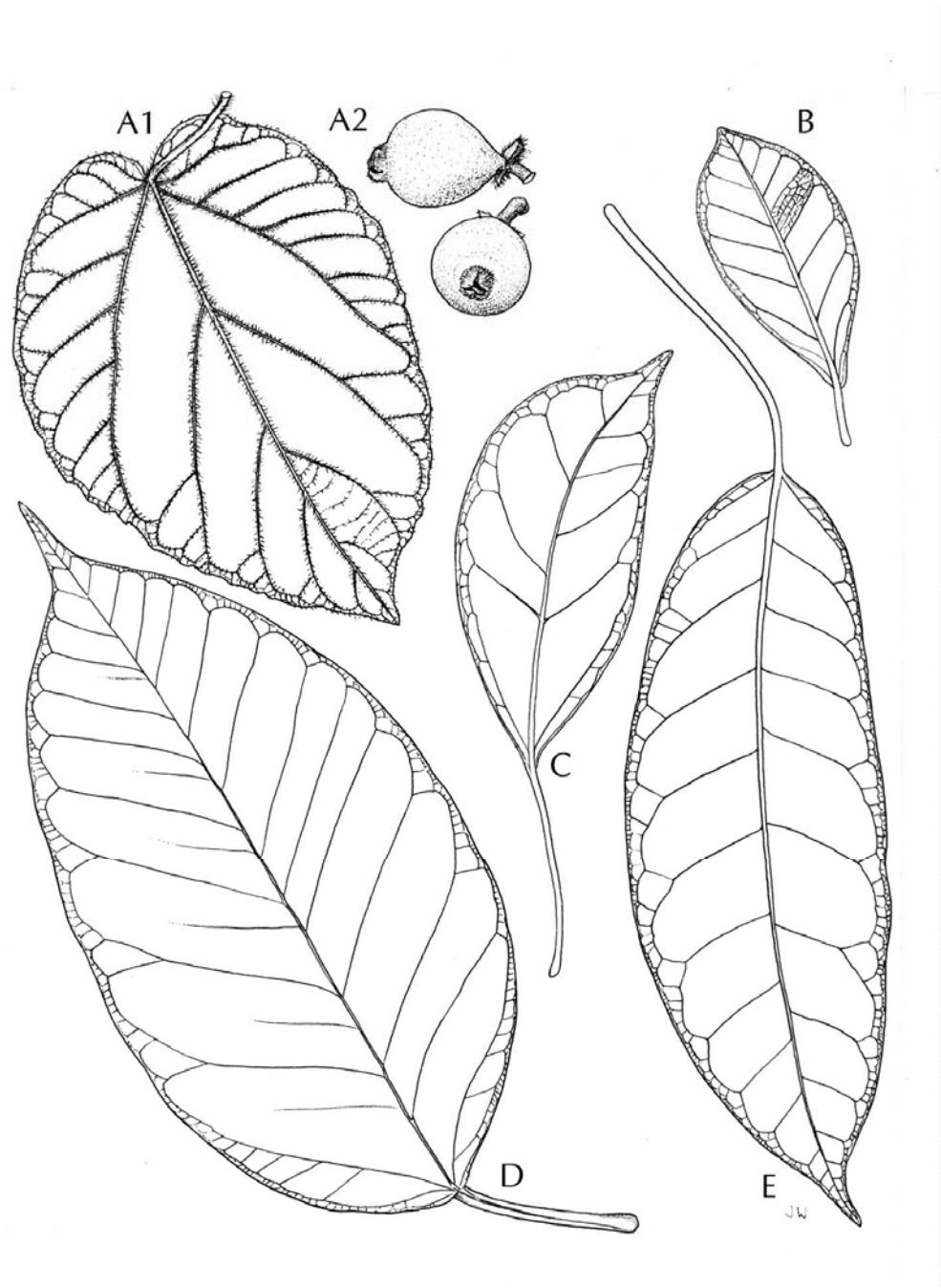


Figure 4. A. Ficus mucoso*, A1. leaf-lower surface, A2. figs (from Archbold 2783). B.* Ficus natalensis, *leaf-lower surface (from Newbould & Jefford 2497). C.* Ficus ottoniifolia, *leaf-lower surface (from Mbago 1123). D* Ficus ovata, *lear-lower surface (from Pirozynski -.74). E.* Ficus sansibarica*, leaf-lower surface (from Mbago 1041). Drawings by J. Williamson.*

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glabrous or hairy. Leaves elliptic to obovate, 3–10 × 1–4.5 cm, glabrous. Figs in pairs in the leaf axils or just below the leafy part of the branch, stalk 0.2–1 cm long; ripe figs round or ellipsoid, 1.5–2 cm across, yellow, orange or red when ripe.

Specimens seen. **Mahale**: Mahale Mountains, Lumbye, 21 Sep. 1958, *Newbould & Jefford* 2497 (K)

Distribution elsewhere. Widespread in most of tropical Africa, in forest and woodland between 0–2200 m.

Synonyms. *F. volkensii* Warb.

Notes. Much resembles *F. thonningii*.

Conservation status. Widespread in a common habitat → Least Concern

Ficus ottoniifolia (Miq.) Miq. (figure 4C)

Local names. *Kirukia* (Kiha, *fide* Mbago)

Habitat. Riverine forest or tall closed forest; 900–1100 m

Description. Shrub, liana or tree to 15 m high, terrestrial or hemi-epiphytic, with aerial roots, bark pale grey; leafy twigs hairy or glabrous. Leaves ovate, elliptic or obovate, 6–20 × 3–7 cm, apex acuminate, glabrous. Figs on older wood, several together on spurs to 1.5 cm long, stalks 0.8–2.5 cm long; ripe figs round or ellipsoid, 1.5–2.5 cm across and pale orange or brown.

Specimens seen. **Gombe**: Kabusindi Hills, 7 Apr. 1992, *Mbago* 1123 (K); Nyasanga Valley, 9 June 1970, *Clutton-Brock* 670 (K); **Mahale**: Kasoje, 24 Sep. 1958, *Newbould & Jefford* 2621 (K); Mount Livandabe (Lubahsi), 5 June 1997, *Bidgood*, *Sitoni*, *Vollesen & Whitehouse* 4315 (K)

Distribution elsewhere. Fairly widespread in tropical Africa, generally in moist forest between 0–1500 m.

Synonyms. *F. lucanda* Ficalho, *F. scheffleri* Mildbr. & Burret, *F. ulugurensis* Mildbr. & Burret

Notes. Our material belongs to subspecies *lucanda* (Ficalho) C.C.Berg.

Conservation status. Widespread in a common habitat → Least Concern

Ficus ovata Vahl (figure 4D)

Local names. *Kirukia kihololo*, *Jami ya mkuyu* (Kiha, *fide* Mbago)

Habitat. Among rocks or in thicket (where common) at lake shore, or woodland on hill-slope; 750–900 m

Description. Tree to 15 m high, terrestrial or hemi-epiphytic and strangling; bole may be fluted and buttressed; sometimes a shrub or liana; leafy twigs thick, usually hairy. Leaves ovate to elliptic, 10–35 × 6–25 cm, glabrous or hairy. Figs solitary or less often in pairs in leaf axils or on older wood, on stalks to 1 cm long; figs ovoid or ellipsoid, 2.5–5 cm across and greenish when ripe.

Specimens seen. **Gombe**: Kakombe Valley, 24 Dec. 1963, *Pirozynski* 74 (K); Linda Valley, 3 May 1992, *Mbago* 1091 (K); between Kasakela & Peak Ridge, 4 May 1992, *Mbago* 1095 (K); **Mahale**: Mahale Mountains, Kasoje, 24 Sep. 1958, *Newbould & Jefford* 2621 (K) & same, 25 Sep. 1958, *Newbould & Jefford* 2634 (K) & Mkoloka, 19 Sep. 1958, *Jefford & Newbould* 2501 (K)

Distribution elsewhere. Widespread in tropical Africa, along rivers or lakes, in woodland or wooded grassland; 750–2100 m.

Synonyms. *F. brachypoda* Hutch., *F. ovata* var. *octomelifolia* (Warb.) Mildbr. & Burret

Conservation status. Widespread in a common habitat → Least Concern

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Ficus sansibarica Warb. (figure 4E)
Local names. *Jamu ya lusieno* (Kiha, *fide* Mbago); *Mtobogolo* nr. 3 (*fide* Mbago)
Habitat. In bush or forest on rocky sites near lake or rivers; 900–1300 m
Description. Tree to 20 m high, hemi-epiphytic and strangling; leafy twigs glabrous or nearly so. Leaves ovate or elliptic, 4–13 × 2–6 cm, glabrous. Figs on older wood, several together on spurs 2–15 cm long, stalks 1–2.5 cm long; ripe figs round, 2–6 cm and green or purplish when ripe.
Specimens seen. **Gombe**: Kakombe Beach, over Michael's house, 6 Apr. 1970, *Clutton-Brock* 80 (K); Kakombe Beach ridge, 24 Aug. 1969, *Clutton-Brock* 252 (K); upper Lutanga, 8 May 1992, *Mbago* 1133 (K); Kakombe Valley, 30 Apr. 1992, *Mbago* 1041 (K)
Distribution elsewhere. widespread over most of tropical Africa, in evergreen forest between 0–1200 m.
Notes. Our material probably belongs to subspecies *macrosperma* (Mildbr. & Burrett) C.C.Berg, due to the long spurs.
Conservation status. Widespread in a common habitat → Least Concern

Ficus scassellatii Pamp. (figure 5A)
Local names. *Kajimonsole* (Tongwe, *fide* Uchara)
Habitat. Forest; 900 m.
Description. Tree to 50 m high, hemi-epiphytic; leafy twigs thick, glabrous or nearly so. Leaves elliptic to obovate, 6–28 × 3–8 cm, glabrous. Figs 1–2 in leaf axils, sessile or on stalks to 1.5 cm long; ripe figs round to ellipsoid, 3–4.5 cm across, greenish.
Specimens seen. **Mahale**: Mahale Mts, Nkala 2, July 1972, *Uehara* 518K
Distribution elsewhere. Central and East Africa, in forest between 0–1800 m.
Synonyms. *F. kirkii* Hutch.
Conservation status. Widespread in a common habitat → Least Concern

Ficus stuhlmannii Warb. (figure 5B)
Description. Tree to 10 m high, terrestrial or hemi-epiphytic. Leaves ovate, elliptic or obovate, 2–18 × 1–9 cm, hairy, especially beneath; basal veins faintly branched. Figs in pairs in leaf axils, sessile or nearly so; ripe figs round to ellipsoid, 1.5–2 cm across and pink to purple when ripe.
Specimens seen. Not found, though might occur.
Distribution elsewhere. Widespread in East, Central and southern Africa, in wooded grassland, along rivers and lakes, often on rock outcrops; 0–1800 m.
Conservation status. Widespread in a common habitat → Least Concern

Ficus sur Forssk. (figure 5C)
Habitat. Major constituent of valley bottom marsh, also on rocky ground near river and in gallery forest in miombo woodland, 750–1700 m
Description. Tree, 7–15 m high (elsewhere to 25 m), sometimes with buttresses, sometimes hemi-epiphytic; bark smooth, pink to grey, flaking and peeling to show dark green; leafy twigs hairy. Leaves elliptic to ovate, 5–20 × 3–13 cm, with toothed margin, sometimes sandpapery above, hairy or glabrous beneath. Figs on small bosses or hanging leafless branches to 50 cm long on bare trunk and main branches, stalked for 0.3–2 cm; ripe figs round to obovoid, 2–4 cm across, orange to red and often hairy.
Specimens seen. **Mahale**: Mahale Mountains, Utahya, 6 Sep. 1958, *Newbould & Jefford* 2352 (K) & Kabesi, 4 Sep. 1958, *Newbould & Jefford* 2326 (K) & Lumbye River mouth,

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20 Sep. 1958, *Newbould & Jefford* 2522 (K); Mahale Peninsula, between Pasagulu & Musenabantu, 9 Aug. 1959, *Harley* 9261 (K) & NW slopes of Musenabantu, 12 Aug. 1959, *Harley* 9313 (K)

Distribution elsewhere. East Africa southwards to South Africa and northwards to Yemen, in forest and wooded grassland; 0–2300 m.

Synonyms. *F. capensis* Thunb., *F. mallotocarpa* Warb.

Notes. Fruit said to be edible (*Newbould & Jefford* 2326)

Conservation status. Widespread in a common habitat → Least Concern

Ficus sycomorus L. (figure 5D)

Local names. *Mkuyu* (Kiha, *fide* Mbago); *Ikuku* (*fide* Uehara)

Habitat. Riverine forest or sandy lake shore; 774–1000 m

Description. Tree up to 10 m tall, elsewhere sometimes to 30 m; buttresses sometimes present; leafy twigs with minute hairs. Leaves ovate, elliptic or obovate, 2.5–20 × 2–16 cm, apex rounded or obtuse, usually sandpapery above, rough- to soft-hairy underneath. Figs in 1–2 in leaf axils or just below the leaves, or on leafless branches on old wood, on stalks 3–25 mm long; ripe fig obovoid or round, 1.5–5 cm across, yellow to red.

Specimens seen. **Gombe**, Mkenke Valley near lake shore, 21 May 1991, *Mbago* 692 (DSM); **Mahale**, Kasiha, Kasoje, 14 Nov. 1983, *Uehara* 709, 710, 711 (all K)

Distribution elsewhere. Widespread in Africa and Madagascar; a species of forest edges, lakesides, riversides, in dry country in moist sites at foot of hills; 0–2200 m.

Synonyms. *F. gnaphalocarpa* (Miq.) A.Rich.

Conservation status. Widespread in a common habitat → Least Concern

Ficus thonningii Blume (figure 5E)

Local names. *Mtobogolo*/*Mjigojigo* (Kiha, *fide Mbago*); *Kajimonsole* (Mahale, *fide* Takahata)

Habitat. Riverine forest or on cliff near lake-shore, occasional; 780–810 m

Description. Shrub or tree to 20 m high, terrestrial or hemi-epiphytic; leafy twigs minutely hairy or glabrous. Leaves elliptic, lanceolate or oblanceolate, 3–12 × 1–6 cm, glabrous or shortly hairy. Figs in pairs in the leaf axils or just below the leafy part of the branch, sessile or stalked for up to 1 cm; ripe figs round or ellipsoid, 0.5–1.5 cm across, yellow or red, hairy or glabrous.

Specimens seen. **Gombe**: Kakombe Valley, 30 Apr. 1992, *Mbago* 1042 (K); **Mahale:** Mahale Mountains, Kibweza Point, 12 Sep. 1958, *Newbould & Jefford* 2204 (K), & same, *Newbould & Jefford* 2205 (K) & Kasoje, 14 Sep. 1981, *Takahata* 438 (K)

Distribution elsewhere. Widespread in tropical Africa, in forest, woodland, bushland, wooded grassland; 350–2500 m.

Synonyms. *F. burkei* (Miq.) Miq., *F. chlamydodora* Warb., *F. cyphocarpa* Mildbr., *F. dekdekana* (Miq.) A.Rich., *F. dekdekana* var. *angustifolia* Peter, *F. eriocarpa* Warb., *F. hochstetteri* (Miq.) A.Rich., *F. neurocarpa* Lebrun & Toussaint, *F. mammigera* R.E.Fries, *F. persicifolia* Warb., *F. petersii* Warb., *F. rhodesica* Mildbr. & Burret, *F. thonningii* var. *heterophylla* Peter

Notes. Closely resembles *F. natalensis*.

Conservation status. Widespread in a common habitat → Least Concern

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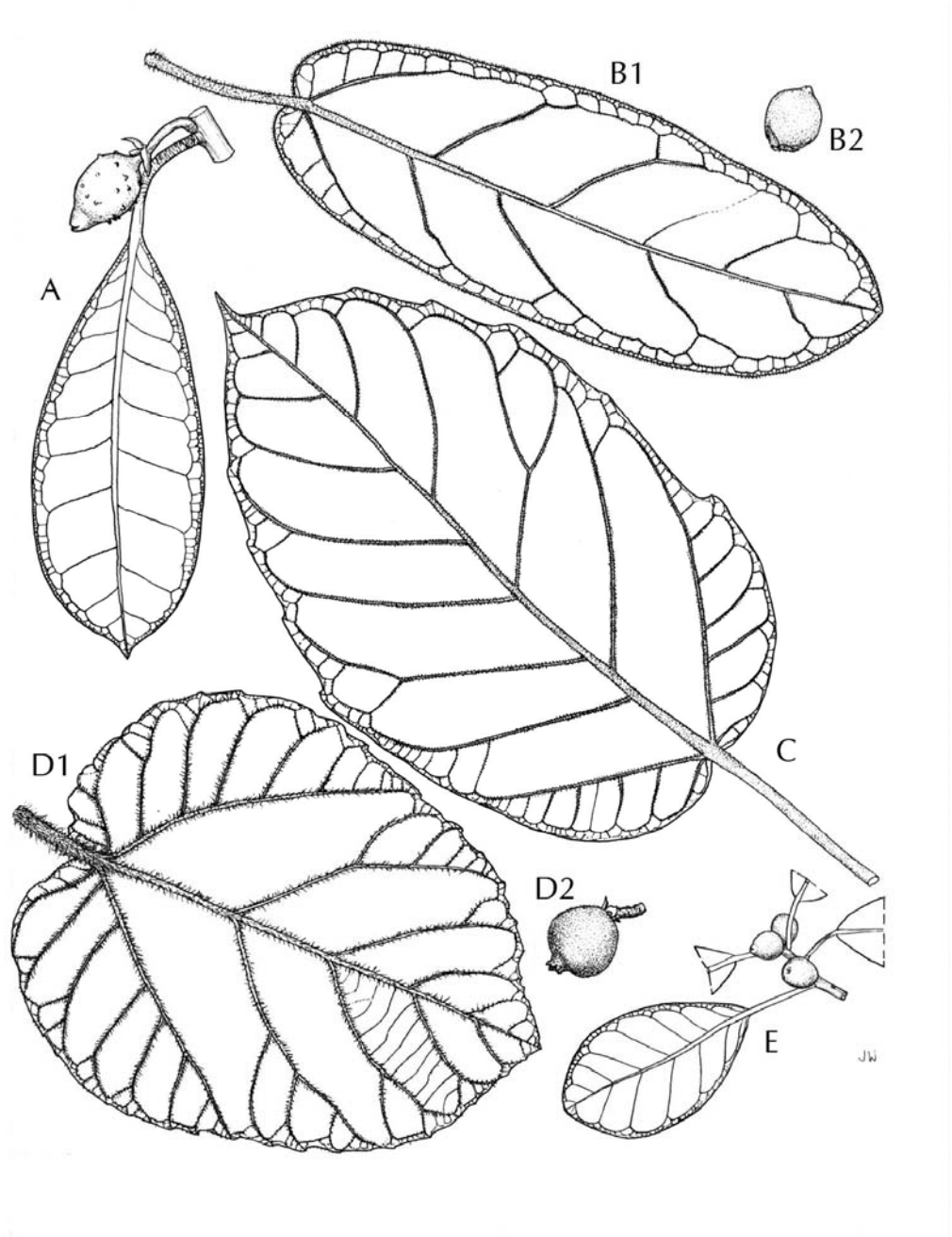


Figure 5. A. Ficus scassellatii*, leaf-lower surface, with fig (from Frimod -Møller,* et al. *NG123). B.* Ficus stuhlmannii*, B1. leaf-lower surface, B2. fig (from Greenway 2466). C.* Ficus sur*, leaf-lower surface (from Newbould & Jefford 2326). D.* Ficus sycomorus*, D1. leaf-lower surface (from Ruffo & Kisena 2770), D2. fig (from Silungwe s.n.). E.* Ficus thonningii*, leaf-lower surface, with fig (from Jefford, Juniper & Newbould 2205). Drawings by J. Williamson.*

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Ficus usambarensis Warb. (figure 6A)
Local names. *Kitakata* (Kiha, *fide Wrangham* G7111)
Habitat. Secondary woodland dominated by *Anthocleista*; 990 m
Description. Tree to 15 m; leafy twigs thick, hairy or glabrous. Leaves lanceolate, 9–15 × 4–6 cm, glabrous. Figs 2–7 together on small spurs in the leaf axils or just below the leafy part of the branch, on stalks 1–2 cm long; ripe figs round, 0.8–1 cm across, colour unknown.
Specimens seen. **Gombe**, Kakambe, 24 Aug. 1973, *Wrangham* G7111 (K)
Distribution elsewhere. Only known from this specimen and several from the Usambara Mountains, Southeast Kenya, Northeast Zambia and North Mozambique, in woodland.
Conservation status. Least Concern, though not common anywhere.

Ficus vallis-choudae Delile (figure 6B)
Local names. *Mkuyu*, *Umukuyu* (Swahili); *Mtobogoro* (Kiha)
Habitat. Riverine or lakeshore forest or in reeds at river mouth, 750–1350 m. Dominant in riverine forest at Kasoje.
Description. Shrub 1.5 m (and with figs at this size!) to tree 10–25 m high; buttresses sometimes present; leafy twigs thick, glabrous. Leaves ovate to heart-shaped, 10–26 × 6–24 cm, often with toothed margin, hairy or glabrous, sometimes slightly sandpapery. Figs solitary in leaf axils or just below the leafy part of the branch, on a stalk 0.2–1.2 cm long; ripe figs round or obovoid, 3–6 cm across, yellowgreen turning orange and pink with darker stripes.
Specimens seen. **Gombe:** Kakombe Valley, 7 Jan. 1964, *Pirozynski* 183 (K); Kakombe Valley, 2 Mar. 1964, *Pirozynski* 479 (K); **Mahale:** Mahale Mountains, Mkololea, 19 Sep. 1958, *Newbould & Jefford* 2513 (K)& Lumbye, 21 Sep. 1958, *Newbould & Jefford* 2492 (K) & Lumbye R mouth, 6 Sep. 1958, *Newbould & Jefford* 2521 (K)& Lubulungu, 23 Sep. 1958, *Newbould & Jefford* 2611 (K) & Sisaba, 22 Sep. 1958, *Newbould & Jefford* 2554 (K) & Kabesi, 3 Sep. 1958, *Newbould & Jefford* 2181 (K) & Kungwe Mountain, Kasoje, 16 July 1959, *Newbould & Harley* 4381 (K)
Distribution elsewhere. Widespread in tropical Africa, in riverine or lakeside forest between 450–1800 m.
Synonyms. *F. vallis-choudae* var. *pubescens* Peter
Notes. Ripe figs said to be edible (Newbould & Jefford 2513)
Conservation status. Widespread in a common habitat → Least Concern

Ficus variifolia Warb. (figure 6C)
Local names. *Lusieno* (Kiha, *fide* Mbago); *Lwago Lugosi* (language not specified, *fide* Nishida)
Habitat. Forest, where it may be very common, also riverine forest; 800–900 m.
Description. Shrub or tree to 12 m (elsewhere to 35 m) high, buttressed; leafy twigs hairy or glabrous. Leaves elliptic or ovate, 5–20 × 2–12 cm, with toothed margin, hairy when young becoming glabrous or sandpapery. Figs solitary or in pairs in leaf axils, on a stalk 0.3–1 cm long; ripe figs round or obovoid, 2 cm across, yellow.
Specimens seen. **Gombe**: Kahama Valley, square 51, 27 June 1969, *Clutton-Brock* 163 (K); Mkenke Valley 500 m from Lake shore, 29 Apr. 1992, *Mbago* 1019 (K); **Mahale:** Mahale Mountains, 10 Dec. 1987, *Nishida* 8704 (K)

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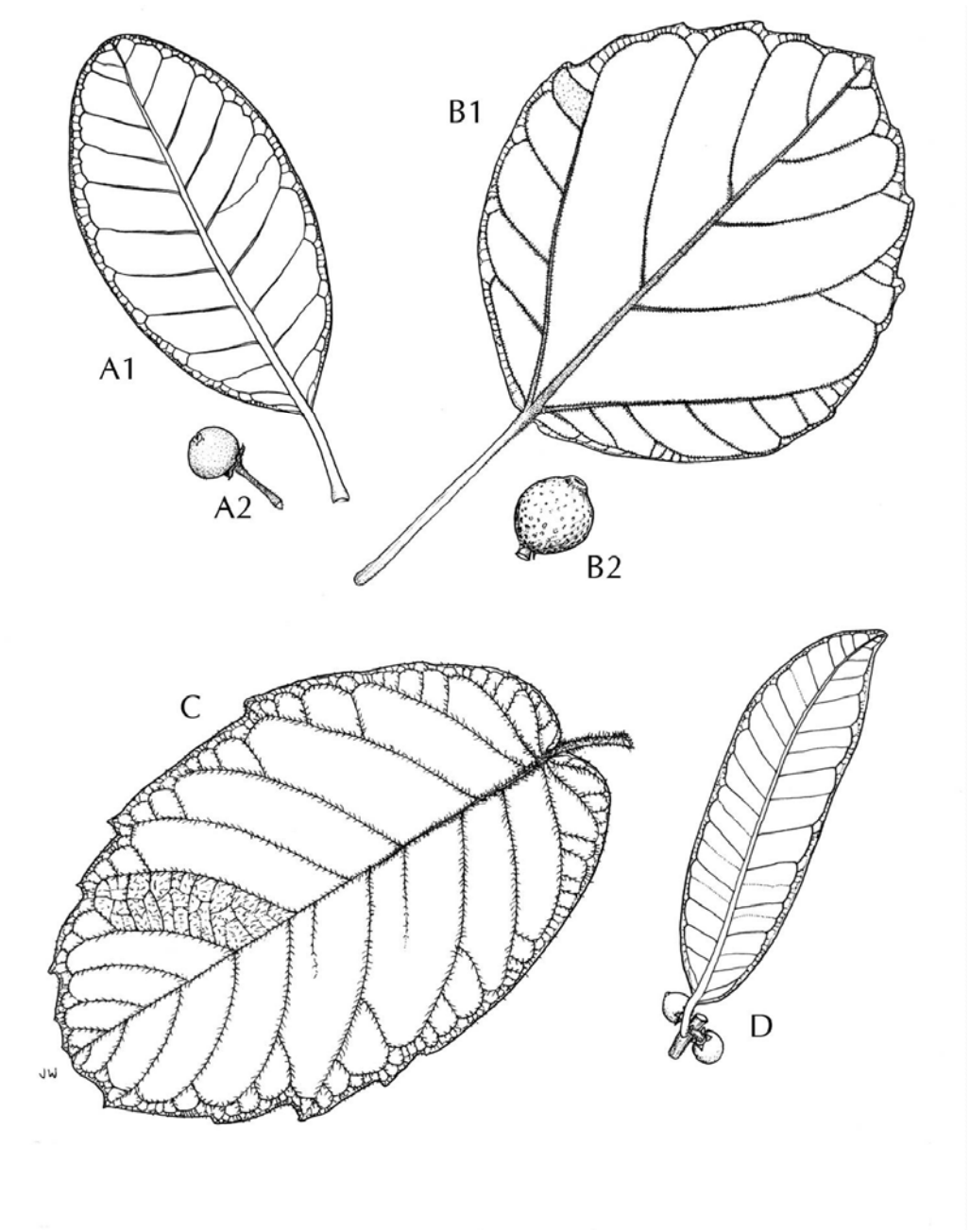


Figure 6. A. Ficus usambarensis*, A1. leaf-lower surface, A2. fig (from Wrangham G-7111X1). B.* Ficus vallis-choudae*, B1 leaf-upper surface, B2 fig (from Pirozynski P183). C.* Ficus variifolia*, leaf-upper surface (from Nishida 8704). D.* Ficus verruculosa*, leaf-lower surface, with fig (from Lowe s.n.). Drawings by J. Williamson.*

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Distribution elsewhere. West Africa, South Sudan, Uganda, Angola, in forest; a pioneer of cleared areas; 900–1200 m.
Synonyms. *F. sciarophylla* Warb.
Conservation status. Widespread in a common habitat → Least Concern

Ficus verruculosa Warb. (figure 6D)
Description. Shrub or tree to 7 m high. Leaves lanceolate, 3–10 × 1–4 cm, glabrous. Figs in pairs in leaf axils or below the leafy part; ripe figs round or ellipsoid, 0.5–2 cm across, red or purple, the ostiole with 3 visible bracts.
Specimens seen. Not found but might just occur
Distribution elsewhere. Widespread in tropical Africa and found in the Malagarasi swamp not too far from our area; usually in water like swamps and streams; 800–1850 m.
Conservation status. Widespread in a common habitat → Least Concern

Note: on http://weber.ucsd.edu/~jmoore/apesites/Gombe/Gombeflora.html the following species are said to occur in Gombe as well, but we have seen no vouchers:

- *Ficus congensis* Engl., a synonym of *F. trichopoda* Baker, a species not yet found at either Gombe or Mahale, or in W Tanzania at all
- *Ficus depauperata* Sim, a synonym of *F. lingua* De Wild. & T.Durand, a species not yet found at either Gombe or Mahale, or in W Tanzania at all
- *Ficus polita* (Miq.) Vahl, a species not yet found at either Gombe or Mahale, or in W Tanzania at all.; possibly confused with *F. fischeri*.

ACKNOWLEDGMENTS

We would like to thank James Wakibara for access to the rare literature on Mahale National Park, Mike Lock and two anonymous reviewers for suggestions to improve the text, and Juliet Williamson for the fine drawings.

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INDEX TO COMMON AND VERNACULAR NAMES

Ikuku	**Ficus sycomorus**
Jamu ya lusieno	**Ficus sansibarica**
Kajimonsole	**Ficus scassellatii** or **Ficus artocarpoides**
Kirukia	**Ficus ottoniifolia**
Kitakata	**Ficus usambarensis**
Lilwago	**Ficus exasperata**
Lusieno ndogo	**Ficus asperifolia**
Lusieno	**Ficus asperifolia** or **Ficus variifolia**
Lwago Lugosi	**Ficus variifolia**
Mjigojigo	**Ficus thonningii**
Mku	**Ficus glumosa**
Mkuyu	**Ficus glumosa** or **Ficus sycomorus** or **Ficus vallis-choudae**
Mtobogolo ‘nr. 3’	**Ficus sansibarica**
Mtobogolo	**Ficus thonningii**
Mtobogoro	**Ficus vallis-choudae**
Mulumba	**Ficus ingens**
Sisenya	**Ficus glumosa**
Umukuyu	**Ficus glumosa** or **Ficus vallis-choudae**

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F. burkei (Miq.) Miq. = **F. thonningii**
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F. luteola De Wild. = **F. craterostoma**
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F. neurocarpa Lebrun & Toussaint = **F. thonningii**
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F. polita (Miq.) Vahl. (mentioned, not described)
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F. rhodesica Mildbr. & Burret = **F. thonningii**
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