29. Afroalpine vegetation (A)

29.1. Description

The vegetation of the highest mountains of tropical Africa (≥ 3800, including the Aberdares [Kenya], Mt. Elgon [Kenya and Uganda], Mt. Kenya, Mt. Kilimanjaro [Tanzania], Mt. Meru [Tanzania], the Ruwenzori Mts. [Uganda and DRC], the Virunga Mts. [Rwanda and DRC] and the higher peaks of Ethiopia [but see section 3.2]) are characterized by the occurrence of Giant *Senecio* species (up to 6 m; *Senecio* subgenus *Dendrosenecio*), Giant *Lobelia* species (up to 6 m), shrubby *Alchemilla* species and other plants of remarkable lifeforms. Since most of the species also occur in the montane Ericaceous (E, see Volume 3) and Afromontane forest belts (Fa, Fb and Fd, see Volume 2), Afroalpine vegetation can be regarded as an archipelago-like floristic region of extreme floristic impoverishment (White 1983 p. 169).

Afroalpine vegetation occurs on high mountains where night frosts are liable to occur throughout the year (White 1983 p. 46).

Knox and Palmer (1993, Fig. 3) provide the following distribution pattern of the 11 species of giant *Senecio* species[19]:

- *Senecio* subgenus *Dendrosenecio adnivalis*: Ruwenzori Mts.
- *Senecio* subgenus *Dendrosenecio battiscombe*i: Aberdares and Mt. Kenya
- *Senecio* subgenus *Dendrosenecio brassiciformis*: Aberdares
- *Senecio* subgenus *Dendrosenecio cheranganiensis*: Cherangani Hills
- *Senecio* subgenus *Dendrosenecio elgonensis*: Mt. Elgon
- *Senecio* subgenus *Dendrosenecio erici-rosenii*: Ruwenzori,Virunga and Mitumba Mts.
- *Senecio* subgenus *Dendrosenecio johnstonii*: Mt. Kilimanjaro
- *Senecio* subgenus *Dendrosenecio keniensis:* Mt. Kenya
- *Senecio* subgenus *Dendrosenecio keniodendron*: Aberdares and Mt. Kenya
- *Senecio* subgenus *Dendrosenecio kilimanjar*i: Mt. Kilimanjaro
- *Senecio* subgenus *Dendrosenecio meruensis*: Mt. Meru

19: Based on analysis of chloroplast DNA, these authors suggest that the Dendrosenecio subgenus originated on Mt. Kilimanjaro

Figure 29.1. Afroalpine vegetation in the foreground with rosettes of Lobelia rhynchopetalum (before flowering). In the background the montane Ericaceous belt (see Volume 2) on the slope of the valley with Erica arborea. Semien mountains (Ethiopia). Photograph by I. Friis and Sebsebe Demissew (October 2009). Reproduced from Biologiske Skrifter of the Royal Danish Academy of Sciences and letters, Vol. 58, Fig. 30A. 2010.

Figure 29.2. Mosaic of grass sward and Helichrysum crispinum heath together with flowering and sterile individuals of Lobelia rhynchopetalum. Bale mountains (Ethiopia). Photograph by I. Friis and Sebsebe Demissew (September 2005). Reproduced from Biologiske Skrifter of the Royal Danish Academy of Sciences and letters, Vol. 58, Fig. 30C. 2010.

Figure 29.3. Afroalpine vegetation in the Ruwenzori Mts (Uganda). Photograph by M. Namaganda (June 2008).

Figure 29.4. Afroalpine vegetation in the Ruwenzori Mts (Uganda). Photograph by M. Namaganda (June 2008).

Figure 29.5. Afroalpine vegetation on the Karisimbi Volcano (Rwandan side of the Virunga Mts.). Photograph by V. Minani (April 2006).

Figure 29.6. Typical East African bird species that occur in Afroalpine vegetation within their natural habitat. Shell guide to East African birds (1960; reproduced with permission from URL *http://ufdc.ufl.edu/UF00077050*).

29.2. Species composition

(Please check the methodology and information from Volumes 2 - 5 for more details on how the information on species composition for the different manifestations of this potential natural vegetation type was compiled. In composition tables, "x" indicates that the species is expected to be present, "C" indicates that the species was identified as characteristic species and "f" indicates a species that was not listed in the documentation that we consulted although it is known to occur in the specific country).

Table 29. Species composition for Afroalpine vegetation (A)

SPECIES	Regional status	Ethiopia	Kenya	Rwanda	Tanzania	Uganda
Alchemilla argyrophylla	characteristic (genus)		x		f	x
Alchemilla elgonensis	characteristic (genus)		x			f
Alchemilla johnstonii	characteristic (genus)		x	x	f	x
Lobelia deckenii	characteristic (genus)					C
Lobelia rhynchopetalum	characteristic (genus)	C				
Lobelia stuhlmannii	characteristic (genus)			C		
Lobelia telekii	characteristic (genus)		C			C
Lobelia wollastonii	characteristic (genus)			C		C
Senecio myriocephalus	characteristic (genus)	x				
Senecio subgenus Dendrosenecio adnivalis	characteristic (genus)					C
Senecio subgenus Dendrosenecio elgonensis	characteristic (genus)		f			C
Senecio subgenus Dendrosenecio johnstonii	characteristic (genus)		C	C		f
Senecio subgenus Dendrosenecio keniodendron	characteristic (genus)		C			
Senecio subgenus Dendrosenecio kilimanjari	characteristic (genus)				C	
Senecio subsessilis	characteristic (genus)		f	C	f	f
Adenocarpus mannii		x	f	x	f	f
Erica arborea		C	x	f	f	f
Helichrysum formosissimum				x		C
Hypericum revolutum		C	f	f	f	f

30. Afromontane bamboo (B)

30.1. Description

Sinarundinaria alpina (synonym: *Arundinaria alpina*) is one of the four bamboo species (giant grasses with erect woody stems of 2 - 20 m [or even taller] that sometimes form pure and virtually impenetrable communities, and that persist for several years, then flower gregariously and then die back,) that are indigenous to Africa (the other species are *Oxytenanthera abyssinica* [mapped in the VECEA map as "L", see below], *Oreobambos buchwaldii* [it was recorded within species assemblages for various forest vegetation types] and *Arundinaria tessellata* [current name: *Thamnocalamus tessellatus*; it replaces ***Sinarundinaria alpina*** in South Africa]). ***Sinarundinaria alpina*** occurs on most of high mountains of East Africa (Ethiopia to southern Tanzania), but south of Tanzania it is only known to occur on the North Viphya Plateau (Malawi), Dedza Mt. (Malawi) and Mt. Mulanje (Malawi); White 1983 pp. 55 and 166). The Flora Zambesiaca confirms that *Sinarundinaria alpina* does not occur in Zambia. The species presently does not occur on the North Viphya Plateau (C. Dudley, personal observations).

In East Africa, ***Sinarundinaria alpina*** is mostly found between 2400 and 3000 m, although it ascends on Mt. Kenya to 3500 m and descends in the Uluguru Mts. (Tanzania) to 1630 m. It grows most vigorously on deep volcanic soils and gently slopes where the annual rainfall exceeds 1250 mm. The largest areas are found on the Aberdare Range (Kenya, 65000 ha), the Mau Range (Kenya, 51000 ha) and Mt Kenya (39000 ha; White 1983 p. 166). ***Sinarundinaria alpina*** does not form a belt on Mt. Kilimanjaro, whereas a bamboo belt occurs on the adjacent Mt. Meru (White 1983 p. 167).[20]

Hemp (2006) provides the following speculations about the absence of the bamboo zone on Mt. Kilimanjaro:

> "Another feature of the forests of Kilimanjaro is the absence of a bamboo zone, which occurs on all other tall mountains in East Africa with a similarly high rainfall. Observations on other East African mountains showed that the occurrence of bamboo is linked to a special type of disturbance: the activity of large herbivores. ***Sinarundinaria alpina*** stands are favoured by elephants and buffaloes. On Kilimanjaro these megaherbivores occur on the northern slopes, where it is too dry for a large bamboo zone to develop. They are excluded from the wet southern slope forests by topography and humans who have cultivated the foothills for at least 2000 years. From studies on Mt Kenya (Vanleeuwe and Lambrechts [1999]) it is known that elephants climb slopes only up to a steepness of about 30 degrees. On the south-western and north-eastern slopes of Kilimanjaro, very deep (up to several 100 m) and very steep (>30 degree) valleys exist, which reach high up into the alpine zone. These deep gorges prevent large herbivores migrating from the northern side of the mountain to the southern. Combined with human occupation of the wetter slopes, this means that the

20: Friis *et al.* 2010 (p. 95) mention that Hedberg only recorded distinct mountain bamboo zones from the Aberdares, Mt. Elgon, Mt. Kenya, Mt. Meru, Ruwenzori Mts., and Virungu Mts.

> southern and south-eastern montane forests of Mt Kilimanjaro are no longer accessible for buffaloes and elephants. This interplay of biotic and abiotic factors could explain not only the lack of a bamboo zone on Kilimanjaro but also offers possible explanations for the patterns of diversity and endemism."

Various tree species occur scattered within the bamboo. These tree species probably became established when bamboo plants died following their gregarious flowering (White 1983 p. 167).

Figure 30.1. Afromontane bamboo (*Sinarundinaria alpina;* synonym: *Arundinaria alpina*) in Kabatwa (Volcanoes National Park, Rwanda). Photograph by V. Minani (October 2009).

Figure 30.2. Afromontane bamboo (*Sinarundinaria alpina*; synonym: *Arundinaria alpina*) on the Virunga Mts. (Rwandan side). Photograph by V. Minani.

Figure 30.3. Edge of thicket of Afromontane bamboo (*Sinarundinaria alpina*; synonym: *Arundinaria alpina*) near Masha (Ethiopia). In the national reference for Ethiopia, Afromontane bamboo was not described separately from Afromontane forest types in which Afromontane bamboo occurs; this image was included with images for Afromontane rain forest (Fa). Photograph by I. Friis and Sebsebe Demissew (September 2005). Reproduced from Biologiske Skrifter of the Royal Danish Academy of Sciences and letters, Vol. 58, Fig. 25E. 2010.

Figure 30.4. Edge of thicket of Afromontane bamboo (*Sinarundinaria alpina*; synonym: *Arundinaria alpina*) after mass-flowering near Masha (Ethiopia). In the national reference for Ethiopia, Afromontane bamboo was not described separately from Afromontane forest types in which Afromontane bamboo occurs; this image was included with images for Afromontane rain forest (Fa). Photograph by I. Friis and Sebsebe Demissew (January 2009). Reproduced from Biologiske Skrifter of the Royal Danish Academy of Sciences and letters, Vol. 58, Fig. 25F. 2010.

30.2. Species composition

(Please check the methodology and information from Volumes 2 - 5 for more details on how the information on species composition for the different manifestations of this potential natural vegetation type was compiled. In composition tables, "x" indicates that the species is expected to be present, "C" indicates that the species was identified as characteristic species and "f" indicates a species that was not listed in the documentation that we consulted although it is known to occur in the specific country).

Table 30. Species composition for Afromontane bamboo (B)

SPECIES	Regional status	Ethiopia	Kenya	Malawi	Rwanda	Tanzania	Uganda
Sinarundinaria alpina	dominant	f	D	f	D	D	D
Cornus volkensii	characteristic		C	f	f	C	f
Dombeya torrida	characteristic	f	x	f	f	C	C
Faurea saligna	characteristic		f	f	f	C	x
Hagenia abyssinica	characteristic	f	C	f	f	C	C
Ilex mitis	characteristic	f	f	f	x	C	C
Juniperus procera	characteristic	f	f	f		C	f
Lepidotrichilia volkensii	characteristic	f	C	f	f	C	x
Nuxia congesta	characteristic	f	x	f	f	C	x
Podocarpus latifolius	characteristic		x	f	f	C	C
Prunus africana	characteristic	f	f	f	f	C	f
Rapanea melanophloeos	characteristic	f	x	f	x	C	C
Tabernaemontana stapfiana	characteristic		f	f	f	C	f
Agauria salicifolia		f	x	f	x	f	x
Hypericum revolutum		f	C	f	f	f	x
Peddiea fischeri			x		f	f	x
Rhamnus prinoides		f	x	f	x	f	x
Rubus apetalus		f	x	f	f	f	x
Sambucus ebulus			x			f	f
Schefflera volkensii		f	C			f	f

32. Grassland (excluding semi-desert grassland and edaphic grassland, G)

32.1. Description

White (1983) attempted to distinguish between climatic, edaphic and secondary grasslands. However, he admitted that is was not always easy to decide to which category a particular grassland type should belong since various factors may operate together. For example, grasslands may occur in soils that are incapable of supporting trees, but the soils themselves may have developed under unusual climatic conditions (White 1983 p. 51). The occurrence of semi-desert grassland (S) seems to be under climatic and edaphic control - rather than classifying it as climatic grassland or edaphic grassland, we classified it separately within the VECEA map as mapping unit S (see below).

Much of the grasslands which were considered to be climatic grasslands by early explorers are in fact secondary as a result from fire. However, the statement that no tropical grassland would be a true climatic climax is probably also incorrect (White 1983 pp. 50 - 51).

32.2. Species composition

(Please check the methodology and information from Volumes 2 - 5 for more details on how the information on species composition for the different manifestations of this potential natural vegetation type was compiled. In composition tables, "x" indicates that the species is expected to be present, "C" indicates that the species was identified as characteristic species and "f" indicates a species that was not listed in the documentation that we consulted although it is known to occur in the specific country).

Table 32. Species composition for Grassland (excluding semi-desert grassland and edaphic grassland, G)

SPECIES Regional status	Kenya	Uganda
Acacia drepanolobium		x
Acacia mellifera		x
Barleria prionitis		x
Chrysopogon aucheri		x
Dichrostachys cinerea		x
Microchloa kunthii	x	
Pennisetum mezianum	x	x
Pennisetum sphacelatum	x	
Sporobolus helvolus	x	
Themeda triandra	x	
Trichoneura mollis	x	

33. Mangrove (M)

33.1. Description

Mangrove is dominated by trees that occur on shores that are periodically flooded by sea-water. Mangrove was classified by White (1983) as a major physiognomic type and not as a subtype of forests - especially since near climatic and edaphic limits of mangrove, many mangrove species form communities that physiognomically resemble bushland and thickets but are otherwise very similar to "mangrove forests". All true mangrove species either have pneumatophores which are exposed at low tide or are viviparous (or nearly so, most African species show both these features). The *Bruguiera, Ceriops* and *Rhiziphora* mangrove species are viviparous: the embryo develops precociously ('exceptionally early') after which the hypocotyl undergoes enormous development. Mangrove species have succulent leaves. Their roots are able to desalinate seawater to a high degree but some salts also accumulate in their tissues (only *Avicennia* species excrete salt from their leaves) (White 1983 pp. 54 - 55 and 261).

The true mangrove species that occur in East Africa include ***Avicennia marina, Bruguiera gymnorhiza, Ceriops tagal, Heritiera littoralis, Lumnitzera racemosa, Rhizophora mucronata, Sonneratia alba, Xylocarpus granatum*** and ***Xylocarpus moluccensis***. All these species extend further to the east and most reach the western Pacific Ocean (White 1983 p. 261).

33.2. Species composition

(Please check the methodology and information from Volumes 2 - 5 for more details on how the information on species composition for the different manifestations of this potential natural vegetation type was compiled. In composition tables, "x" indicates that the species is expected to be present, "C" indicates that the species was identified as characteristic species and "f" indicates a species that was not listed in the documentation that we consulted although it is known to occur in the specific country).

Tabel 33. Species composition for Mangrove (M)

SPECIES	Regional status	VECEA
Avicennia marina	mangrove in East Africa	x
Bruguiera gymnorhiza	mangrove in East Africa	x
Ceriops tagal	mangrove in East Africa	x
Heritiera littoralis	mangrove in East Africa	x
Lumnitzera racemosa	mangrove in East Africa	x
Rhizophora mucronata	mangrove in East Africa	x
Sonneratia alba	mangrove in East Africa	x
Xylocarpus granatum	mangrove in East Africa	x
Xylocarpus moluccensis	mangrove in East Africa	x

Figure 33.1. Mangrove forest. Tanga region of Tanzania. Photograph by H. N. Moshi (May 2009).

Figure 33.2. Typical East African bird species from mangrove within their natural habitat. Shell guide to East African birds (1960; reproduced with permission from URL *http://ufdc.ufl.edu/UF00077050*).

34. Somalia-Masai semi-desert grassland and shrubland (S)

34.1. Description

White (1983) does not think that there is an objective criterion to separate arid regions from wet regions, although he also mentions that semi-desert areas usually begin to appear where the mean annual rainfall drops below 250 mm, the southern boundary of the Sahara desert corresponds to the 150 mm isohyet and the northern boundary of the Sahara desert corresponds to the 100 mm isohyet. However, he defines semi-deserts as areas where the differences in soil characteristics (such as soil colour) are more conspicuous than the vegetation itself, but where the plants are still sufficiently evenly distributed so that the vegetation can be further classified in physiognomic categories such as "semi-desert grassland" and "semi-desert shrubland" (White 1983 pp. 52 - 53, see also the description of desert [D] above).

Where annual rainfall is between 100 and 200 mm in the Somalia-Masai region, semi-desert grassland (dominated by ***Centropodia glauca, Eragrostis mahrana*** and ***Panicum turgidum***) occurs on deep sand. Under similar rainfall conditions, semi-desert shrubland occurs on stony soils (White 1983 p. 115). Most primary shrubland areas in African lowlands occur under a semi-desert climate and where edaphic conditions influence the vegetation (such as Somalia-Masai shrubland occurring on gypseous soils [these soils are themselves also partially a result from the dry climate]; White (1983 p. 50). *Lagenantha cycloptera* is a gypsum-tolerant succulent species that forms almost pure stands (20% cover) on white calcareous soils in the old Chalbi lake bed in Marsabit district (White 1983 p. 120).

Semi-desert annual grassland is the most extensive vegetation type in Marsabit district (covering one third of the area, especially in the driest parts). The dominant grasses are *Aristida adscensionis* and *Aristida mutabilis*; during drought periods, these grasses may be absent for years. Woody plants are nearly always present (then providing 2 -20 percent ground cover), sometimes in the forms of shrubs (***Duosperma eremophilum***) or sometimes as bushes or bushy trees such as *Acacia horrida, Acacia reficiens, Acacia senegal, Acacia seyal, Acacia tortilis* and several *Commiphora* spp. (White 1983 p. 120).

Semi-desert dwarf shrubland (< 1 m high) is the second-most extensive vegetation type in Marsabit district (covering 28 percent of the area). *Duosperma eremophilum* and ***Indigofera spinosa*** dominate or co-dominate 71% and 64% percent of all dwarf shrubland respectively. The more moisture demanding ***Duosperma eremophilum*** occupies somewhat heavier and wetter soils, whereas ***Indigofera spinosa*** occupies the drier sites. When these species occur together, they often show a catenary relationship with ***Indigofera*** dominant on the compact soils of ridge tops and ***Duosperma*** dominant in shallow depressions (White 1983 p. 120). Extensive areas are without woody species, but bushes and small trees including *Acacia etbaica, Acacia mellifera, Acacia reficiens, Acacia senegal, Acacia seyal, Acacia tortilis, Boswellia neglecta* and various *Commiphora* species have a scattered occurrence with 2 to 20 percent cover (White 1983 p. 120).

Figure 34.1. Semi-desert grassland with the annual grass species *Aristida mutabilis.* Marsabit District (Kenya). Photograph by F. Gachathi (2009).

Figure 34.2. Semi-desert vegetation with the dwarf shrub *Indigofera spinosa*. *Acacia tortilis* occurs as a scattered emergent species. Turkana District (Kenya). Photograph by F. Gachathi (2010).

Figure 34.3. Semi-desert vegetation near Dolo Odo (Ethiopia). Photograph by T. Cole (2008, with permission from this author).

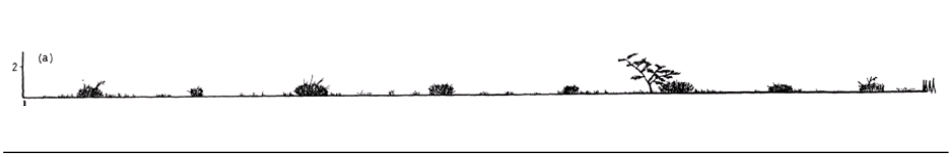

Figure 34.4. SD. Profile diagram of *Duosperma* (probably *D. eremophilum*) dwarf shrub grassland. The grass species is of the *Enneapogon* genus. Pratt *et al*. (1966, Fig. 6a). Image obtained from URL: *http://www.jstor.org/stable/2401259*.

34.2. Species composition

(Please check the methodology and information from Volumes 2 - 5 for more details on how the information on species composition for the different manifestations of this potential natural vegetation type was compiled. In composition tables, "x" indicates that the species is expected to be present, "C" indicates that the species was identified as characteristic species and "f" indicates a species that was not listed in the documentation that we consulted although it is known to occur in the specific country).

Table 34. Species composition for Somalia-Masai semi-desert grassland and shrubland (S)

SPECIES	Regional status	Ethiopia	Kenya
Acacia etbaica	characteristic	f	f
Acacia horrida	characteristic	f	f
Acacia mellifera	characteristic	f	f
Acacia reficiens	characteristic	f	f
Acacia senegal	characteristic	x	x
Acacia seyal	characteristic	f	x
Acacia tortilis	characteristic	x	x
Aerva javanica	characteristic		f
Aloe breviscapa	characteristic		f
Aloe rigens	characteristic	f	f
Aloe scobinifolia	characteristic		f
Aristida mutabilis	characteristic		x
Caralluma edithae	characteristic (one of the two species that form most of the phytomass of communities of dwarf succulents)		f
Caralluma penicillata	characteristic (one of the two species that form most of the phytomass of communities of dwarf succulents)		f
Centropodia glauca	characteristic		f
Chrysopogon plumulosus	characteristic (grass species that was possibly dominant before overgrazing)		x
Duosperma eremophilum	characteristic		C
Eragrostis mahrana	characteristic		f
Euphorbia columnaris	characteristic (gypseous soils)		f
Euphorbia cuneata	characteristic	x	x
Euphorbia mosaica	characteristic (gypseous soils)		f
Euphorbia multiclava	characteristic		f
Euphorbia sepulta	characteristic (gypseous soils)		f
Farsetia longisiliqua	characteristic		f
Helichrysum glumaceum	characteristic		f
Indigofera spinosa	characteristic		C
Ipomoea sultani	characteristic		f
Jatropha pelargoniifolia	characteristic		f
Kelleronia splendens	characteristic	x	f
Leucas abyssinica	characteristic	f	f
Lycium europaeum	characteristic		f
Melocarpum hildebrandtii	characteristic	x	f
Ochradenus baccatus	characteristic	C	f
Panicum turgidum	characteristic	f	f
Pelargonium christophoranum	characteristic (gypseous soils)		f
Sporobolus spicatus	characteristic		f
Suaeda monoica	characteristic	x	f
Acacia bussei		x	f
Acacia drepanolobium		f	x
Acacia edgeworthii		x	f
Acacia ehrenbergiana		C	
Acacia gerrardii		f	x
Acacia nilotica		f	x
Acacia oerfota		x	f
Acacia zanzibarica		x	f
Adenium obesum		x	f
Aristida adscensionis			x
Balanites aegyptiaca		x	f
Balanites pedicellaris		x	f
Balanites rotundifolia		f	x
Blepharis linariifolia			x
Boscia angustifolia		x	f
Boscia coriacea		f	x
Boswellia rivae		x	f
Cadaba farinosa		f	x
Cadaba glandulosa		x	f
Cadaba mirabilis		x	x
Cadaba rotundifolia		x	f
Calotropis procera		x	f
Capparis cartilaginea		x	f
Capparis decidua		x	
Cenchrus pennisetiformis			x
Chasmanthera dependens		x	f
Cissus rotundifolia		x	f
Cocculus hirsutus		x	f
Combretum aculeatum		x	f
Commiphora africana		x	f
Commiphora erlangeriana		x	f
Commiphora erythraea		x	
Commiphora gileadensis		x	
Commiphora guidottii		x	f
Commiphora habessinica		x	f

SPECIES	Regional status	Ethiopia	Kenya
Commiphora incisa		x	f
Commiphora kua		x	f
Commiphora myrrha		x	f
Commiphora samharensis		C	f
Commiphora sphaerocarpa		x	f
Cordeauxia edulis		x	
Cordia sinensis		f	x
Cordia suckertii		x	
Cynanchum clavidens		x	
Cynanchum gerrardii		x	
Dactyloctenium aegyptium	(grass)		x
Delonix elata		x	f
Dobera glabra		x	f
Grewia similis		f	x
Grewia tenax		f	x
Hyphaene thebaica	(palm species)	x	
Indigofera oblongifolia		x	
Ipomoea donaldsonii		x	f
Lannea triphylla		x	f
Lawsonia inermis		x	f
Leptadenia arborea		x	
Leptadenia hastata		x	f
Leptothrium senegalense			x
Leucas tomentosa		x	f
Lycium shawii		x	f
Maerua crassifolia		f	x
Maerua oblongifolia		x	f
Momordica sessilifolia		x	f
Momordica spinosa		x	f
Moringa peregrina		x	
Oropetium capense			x
Salvadora persica		x	x
Sarcostemma viminale		x	f
Senna alexandrina		x	f
Senna longiracemosa		x	f
Senna sophera		x	
Sericocomopsis hildebrandtii		f	x
Sericocomopsis pallida		x	f
Sesamothamnus busseanus		x	f
Sesbania sesban		x	f
Sporobolus helvolus			x
Sporobolus pellucidus			x
Sterculia africana		x	f
Tamarindus indica		x	f
Tamarix aphylla		x	f
Tamarix nilotica		x	f
Terminalia brevipes		x	f
Tetrapogon cenchriformis			x
Tragus berteronianus			x
Vernonia cinerascens		x	f
Wrightia demartiniana		x	f
Ziziphus spina-christi		x	f