TROPICAL AFRICAN FLOWERING PLANTS

Ecology and Distribution

Vol. 7 – Monocotyledons 1 (Limnocharitaceae – Agavaceae)



• J.-P. LEBRUN
• A. L. STORK



Conservatoire
et Jardin botaniques
de la Ville de Genève
2012

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The account of Aloe *is by Mr. Christian Defferrard. We wish to extend to him our appreciation for this contribution. He is a botanist with a passion for succulent plants, some of which he grows at his home in Spain. He has travelled around the world to study them in their native habitats and we do thank him greatly for his help with this difficult genus.*
Christian Defferrard photographed in his office in Spain, Pego/Alicante.

Cover page illustration: *Aloe arborescens* Mill. Photograph: C. Defferrard.

Back cover illustration: *Scadoxus cinnabarinus* (Decne.) Friis & Nordal *(Amaryllidaceae)*; illustration (lectotype) published in Flore des Serres et des Jardins de l'Europe 12: pl. 1195, 1857. Decaisne received this plant from Gabon in November 1855. In his description he compares the umbel of vivid-vermilion flowers with the inflorescence of *Ixora coccinea (Rubiaceae)*.

J.-P. LEBRUN and ADÉLAÏDE L. STORK
with contribution from C. DEFFERRARD (Aloe)

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We would also like to thank the Director of the Royal Botanic Gardens, Kew, and the Keeper of the Herbarium, for permission to use the facilities at Kew; and in particular Mr. Ch. Mills, Head of Library, Art & Archives, and other Kew staff for access and help and for having received us so well on our visit to Kew in 2010. We are grateful to Fellesbiblioteket MN, University of Oslo, Norway and its librarian Rannveig Windingstad, for help with literature.

Mr. C. Defferrard has compiled the genus *Aloe (Aloaceae)*. His contribution is gratefully acknowledged. We extend our gratitude to Mrs. Susan Holmes (née Carter) for her revision of this account, and to Dr. R. M. Polhill and Mrs. Diana Polhill for their support and for checking the main English texts.

Mrs. Paulette Mérigout (Créteil, France) gives her faithful assistance and friendship. We are much indebted to her.

The descriptions of the species and the ecological notes figuring in the Checklist are mainly borrowed or adapted from the floras or papers cited.

I. INTRODUCTION

"God made the world a flowering tapestry and put man thereupon to stroll, live and be happy."

But:
Nomina si nescis, perit et cognitio rerum.

"Without names, no knowledge."
M. Lidén, The legacy of Linnaeus, in *J. Bot. Gard. Conserv. Int.* 4/1: 4,6, (2007).

And:
"We need to preserve the understanding that a plant is more than just a bag of genes". E. Marris, in *Nature* 440: 861 (of 13 April 2006).

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***

The *Liliaceae*, in its traditional broad sense, is included in this volume. Chase & al., o.c.: 132, recognise that "the classification of the lilioid monocots has long been problematic". The APG III classification refers them to the orders Liliales Perleb (1826) and Asparagales Link (1829), the latter being the largest order of monocots. When we compiled our "Enumération", Vol. 3 (Monocotylédones; Lebrun & Stork, 1995) we chose a narrower family circumscription following Dahlgren and others working in the 1980s. Our "Enumération" was updated by the team producing the "Checklist of Flowering Plants of Sub-Saharan Africa" (R. R. Klopper & al., 2006), based essentially on APG II (Bot. J. Linn. Soc. 141: 399-436, 2003).

In compiling this new Tropical African plant series we are again in a difficult position. APG III differs in many respects from the earlier treatment. There are three large families: *Amaryllidaceae* (including *Alliaceae*), *Asparagaceae* (including *Anthericaceae* and *Ruscaceae*) and *Xanthorrhoeaceae* (including *Asphodelaceae*). And we have no idea what modifications may be proposed in APG IV. Admittedly the APG III authors state that "we do not see the APG classification as continuing to mutate for the indefinite future", but add "although we do note those few areas where there is particular phylogenetic uncertainty that may necessitate further revision of familial or ordinal limits". The APG III authors agree that "the area around Asparagaceae is difficult from the standpoint of circumscription". Chase & al. (loc. cit.) have published a subfamilial classification of the three above-mentioned superfamilies "for convenience and better communication".

We have to be pragmatic. The people for whom this work is designed are not overly concerned with molecular evidence, nor indeed with strict phylogenetic methodology, and just need a practical tool for work in the field and in the herbarium. We feel that for the present they will be happier with a more traditional grouping of the *Liliaceae* sensu lato, so, broadly speaking, we have retained the circumscription used in the "Enumération" even if the family sequence has been changed. This may not be an ideal solution, but we felt it was the best choice.

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III. STATISTICAL SUMMARY

The present volume covers 32 [+3] families, including 98 genera and 1019 (+ 77-78?) species. They are listed below (Table 1) in alphabetical order. To avoid confusion we use 6-letter acronyms (cf. Vol. 1: 15, 2003).

Table 1 summarizes our lack of information relating to plant habit, flowers, fruit, ecology, and herbarium material.

With a total of 1019 (+ 77-78?) species, Table 1 shows the following results (figures within brackets indicate uncertain data):

– 1 (+ 4?) species (= < 0,1%) without known habit;
– 7 + 7? species (= < 1%) for which flowers are unknown;
– 4 species (= < 1%) for which male flowers are not known;
– 1 species (= < 0,1%) without female flowers recorded;
– 36 + 5% species (= < 4%) for which fruits have not been seen;
– 23 (+ 5?) species (= >3%) without records on their ecology;
– 56 + 2? (+ 13?) species (= > 5%) which are only known from the type.

We are aware of the fact that our figures do not reflect the absolute truth. They are certainly too high and should be considered as an indication only.

Table 1. – Families included in Volume 7 (alphabetical order, 6-letter acronyms). Statistical summary: number of genera (Nr. gen.) and species (Nr. spp.); number of species for which habit (hab.), reproductive organs (flowers, male flowers, female flowers, fruits) or ecology (eco.) are not recorded; and number of species only known from the type collection. Figures within brackets indicate uncertain data.

Family	*Nr. gen.*	*Nr. spp.*	*No hab.*	*No fl.*	*No♂ fl.*	*No♀ fl.*	*No fr.*	*No eco.*	*Only type*
Alisma	7	11							
Alliac	3	11							1
Aloace	3	247							20(+4+1?)
Amaryl	8	62	(4)				9 + 1?	2	4
Aponog	1	12							1
Aspara	1	49		3			7 (+1)	1	2 (+1?)
Asphod	5	35					3+2? (+2)		
Behnia	1	1							
Bromel	1	1							
Commel	15	196 (+60-61?)	1	(2+3?)			1 (+4?)	9	5 (+5?)
Costac	1	25 (+10?)					1 (+9?)	4 (+5?)	1
Cymodo	4	7			1				
Erioca	4	111 (+3?)				1		4	15 (+2?)
Flagel	1	2 (?)							
Hemero	1	1							
Hydroc	9	34			3		3		2?
Juncag	1	2							
Limnoc	1	1							
Marant	11	38					1 (+1?)		
Mayaca	1	1							
Musace	2?	4?							
Najada	1	8							
Potamo	1	9							
Rapate	1	1							
Restio	1	3							
Ruppia	1	1							
Streli	1	2							
Triuri	4	6							1
Xyrida	1	60 (+3?)		3 (+1?)			5 (+1)	1	6
Zannic	1	1							
Zingib	4	75+1?		1+1?			6+2? (+7)	2	
Zoster	1	2							
Total									
32	98	1019 (+77-78?)	1 (+4?)	7+7	4	1	36+5 (+25?)	23 (+5?)	56+2 (+12?)
				= <1%	= <1%	= <0,1%	= <4%	= >3%	= >5%

IV. LIST OF FAMILIES INCLUDED IN VOLUME 6

Sequence of families:

Limnocharitaceae (Butomaceae p.p.) ..... p. 19
Hydrocharitaceae ..... p. 19
Alismataceae ..... p. 30
Triuridaceae ..... p. 34
Aponogetonaceae ..... p. 36
Potamogetonaceae ..... p. 38
Ruppiaceae ..... p. 45
Zannichelliaceae ..... p. 46
Cymodoceaceae ..... p. 46
Zosteraceae ..... p. 48
Najadaceae ..... p. 50
Juncaginaceae ..... p. 52
Commelinaceae ..... p. 54
Restionaceae ..... p. 116
Flagellariaceae ..... p. 117
Mayacaceae ..... p. 117
Xyridaceae ..... p. 118
Rapateaceae ..... p. 135
Eriocaulaceae ..... p. 136
Bromeliaceae ..... p. 164
Musaceae ..... p. 165
Strelitziaceae ..... p. 167
Costaceae ..... p. 168
Zingiberaceae ..... p. 176
[Cannaceae] ..... p. 200
Marantaceae ..... p. 202
[Liliaceae] ..... p. 216
Alliaceae, incl. Agapanthaceae ..... p. 217
Amaryllidaceae ..... p. 220
Aloaceae ..... p. 245
Asphodelaceae ..... p. 314
Hemerocallidaceae (= Phormiaceae) ..... p. 325
Behniaceae (= Luzuriagaceae; syn. Philesiaceae) ..... p. 326
Asparagaceae ..... p. 328
[Agavaceae] ..... p. 344

V. HOW TO USE THIS BOOK

For each species there is a description and a simplified map of distribution. In a few cases two species figure on the same map but with different symbols.

The **text** is conceived in the following manner, based upon our "Enumération", Vol. 1 (J.-P. Lebrun & A. L. Stork 1991).

- Bibliographical references are sometimes given at the beginning of families and genera, as appropriate. They mostly refer to monographs or articles published after the issuing in 1997 of Volume 4 of our "Enumération" (an updating of the bibliographies is found at the end of each volume in the chapter "Additions et corrections...").
- Basionym and synonym(s) are only cited if they do not figure in the "Enumération".
- A short description, mainly with regard to life form, is given, e.g. tree, shrub, subshrub, liane, (annual, perennial) herb, and to the height of the plant; for trees sometimes also other characters, such as diameter and/or girth of the bole or presence of buttresses, are mentioned. Presence of rhizomes, tubers or bulbs and of spectacular features, such as showy flowers, exceptionally small or large leaves, flattened or rounded shoots, etc., or particular uses, are often specified.
- Ecological data are recorded, sometimes in rather detailed form if known; range of altitude is generally given.
- If a species comprises two or more intraspecific taxa, this is mentioned, but their names are not always quoted, as most of them appear in our "Enumération". However, there may have been changes since the publication in 1991, and in this case the names figure in the text.
- Extraterritorial geographical distribution is given (i.e. not marked on the accompanying map of distribution which includes only the tropical part of Africa as defined in our "Enumération").

* * *

On the **maps** of distribution (Fig. 1) we indicate the northern and southern limits of our area, as well as the political frontiers of the countries within these borders. Arrows (at the margin of the continent, W Africa) indicate the situation of four particular countries, viz. Western Sahara, Guinea Bissau, Togo, and Benin.

The main phytochoria, based upon Frank White's classification and indicated on the maps that figure in Volume 1 of this Series (p. 19), have been slightly modified. In the following list Section B has been split into two areas. From North to South, and East to West the phytochoria are (Figs. 1 and 2):

- A. Southern Sahara-Sindian zone [corresponding to the southern part of White's phytochorion XVII (Sahara regional transition zone)].
- B. Sahelian-Sudano-Zambezian zone :

  Ba. Sahel regional transition zone [corresponding to White's zone XVI];

  Bb. Sudano-Zambezian zone [corresponding to the following phytochoria of White: III (Sudanian regional centre of endemism), XI (Guinea-Congolia/Sudania regional transition zone); X (Guinea-Congolia/Zambezia regional transition zone); II (Zambezian regional centre of endemism); XIII (Zanzibar-Inhambane regional mosaic); and the north-eastern tip of XV, i.e. the southernmost part of Mozambique]; the enclosed parts of the "Afromontane archipelago-like regional centre of endemism" (VIII) and of the "Afroalpine archipelago-like region of extreme floristic impoverishment" (IX) have not been taken into account here (precluded by the small scale of our map).
- C. Guineo-Congolian rain-forest zone [corresponding to phytochorion I of White (Guineo-Congolian regional centre of endemism)].
- D. Ethiopian Afromontane zone [the northern part of White's phytochorion VIII (see above under Bb)].

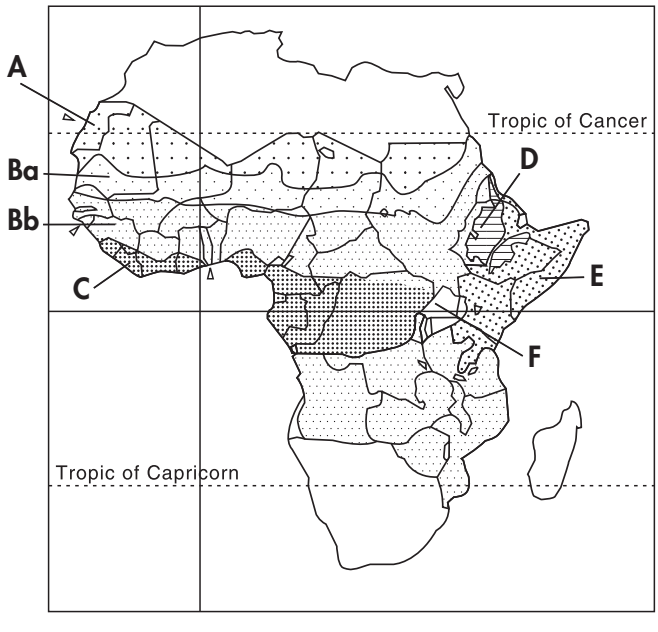


Fig. 1. – Main phytogeographical zones of tropical Africa used in the present work. For zones **A** through **F,** see explanations in the text.

- E. Somalia-Masai/Afroriental zone [phytochorion IV of White (Somalia-Masai regional centre of endemism) and the northernmost part of XIII (see above under Bb)]. The "Afromontane" (VIII) and "Afroalpine" (IX) archipelago-like regional centres are included (see above under Bb).

• F. Lake Victoria mosaic [White's phytochorion XII (Lake Victoria regional mosaic)]. As is the case in our zones Bb and E, the "Afromontane" (VIII) and "Afroalpine" (IX) archipelago-like regional centres are included here (see above under Bb).

Madagascar is not included in our compilation although present on the map (Fig. 1).The maps are based on literature records at our disposal; thus they are indicate, but not exhaustive. In certain cases it has even been impossible to find the exact locality. Although it will always be possible to add dots on the maps, we believe that in most cases such additions will not change fundamentally the general pattern of distribution for a particular species.

The distribution of the species is shown on the maps in the following way:

- For small countries only one dot is used. For larger countries, and in particular if the distribution falls into different phytochoria, two (or more) dots are present.
- Dots are also placed in particular "subdivisions" of large countries, according to those given in the following floras: Adumbratio Florae Aethiopicae, Flora of Ethiopia and Eritrea, Flora of Somalia, Flora of Tropical East Africa, Flora Zambesiaca, Flore du Congo Belge et du Ruanda-Urundi (succeeded by Flore du Congo Belge, du Rwanda et du Burundu, and ultimately by Flore d'Afrique centrale), and Conspectus Florae Angolensis.

Readers will notice that plants seem to be more common (as dots are more numerous) in the eastern part of tropical Africa. This is often an illusion due to thesubdivision of large countries mentioned above.

At more or less regular intervals, and at the end of a family, one or two maps areleft blank, in order to allow for mapping of newly described species (or species overlooked by the compilers).

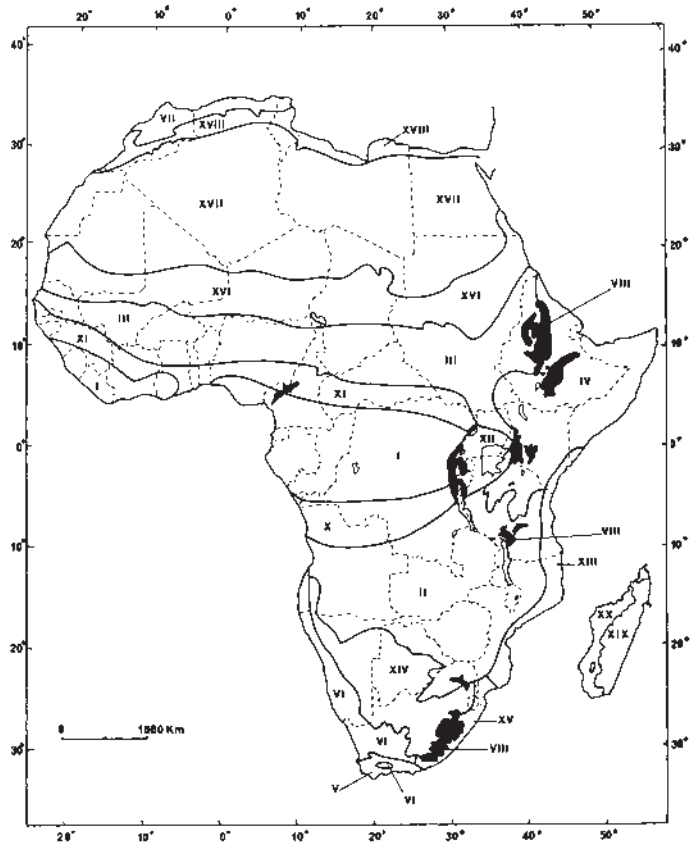


Fig. 2. – Main phytochoria of F. White (1983): p. 38 (cf. quotations in the text). See also "Enumération", vol. 1: pp. 24-25 (1991).

BASIC REFERENCE

WHITE, F. (1983). The vegetation of Africa: A descriptive memoir to accompany the Unesco/AETFAT/UNSO vegetation map of Africa. Unesco, Paris.

VII. THE CHECKLIST: Monocotyledons 1 (Limnocharitaceae – Agavaceae)

LIMNOCHARITACEAE / *1*g. / *1* sp.

syn.: *Butomaceae* p.p.

3 genera: *Butomopsis* Kunth, *Hydrocleys* Rich., *Limnocharis* Humb. & Bonpl. In tropical and subtropical regions in Africa, Asia, N Australia, America.

FEITOZA, L. L. & al. (2009). Cytogenetics of Alismatales s.s.: chromosomal evolution and C-banding. *Pl. Syst. Evol*. 280: 119-131.

FEITOZA, L. L. & al. (2010). Cytogenetics of Alismataceae and Limnocharitaceae: CMA/DAPI banding and 45S rDNA sites. *Pl. Syst. Evol.* 286: 199-208.

BUTOMOPSIS / *1*

Monospecific.

Butomopsis latifolia (D. Don) Kunth; Kubitzki, Fam. & genera vascul. pl. 4: 274, 1998; Lisowski, Flore (angiosp.) Rép. Guinée 1: 385, 2009. – Icon.: Fl. Trop. E. Afr., Butomaceae: 2, 1960 (sub. gen. *Tenagocharis);* Symoens in Symoens & al., eds., Studies on aquatic vascular plants: 305, 1982; Cook, Aquat. pl. book, ed. 2: 115, 1996; Cook, Aquat. & wetland pl. south. Afr.: 173, 2004; Akoegninou & al., Fl. analyt. Bénin: 142, 2006; Fl. Zambes. 12/2: 16, 2009.

bas.: *Butomus latifolius* D. Don

syn.: *Butomus lanceolatus* Roxb.; *Tenagocharis cordofana* Hochst.; *Butomopsis lanceolata* (Roxb.) Kunth; *Tenagocharis lanceolata* (Roxb.) Th. Durand & Schinz; *Butomopsis cordofana* (Hochst.) Kunth; *Tenagocharis alismoides* Hochst.; *T. latifolia* (D. Don) Buchenau; *Butomus senegalensis* Perrottet ex A. Braun; *Elattosis apetala* Gagnep.

Annual or perennial erect herb; leaves radical, petioles 5-30 cm long; blade glaucous, (oblong-)oblanceolate, 3-15 × 1,5-5 cm, base cuneate, apex bluntly acuminate, nerves 3-7; inflorescence borne above the leaves; flowers in 1-2 whorls of 3-20, petals white, carpels ± 5 × 2 mm.

Marshes; swamps; often gregarious; rice-fields; very often on clayey soils; sometimes on sand; under shadow; ? – 1080 m alt.

Botswana, S. Africa; SE Asia from India through Malaysia to N Australia.

HYDROCHARITACEAE / *9* g. / *34* spp.

excl. *Najas (= Najadaceae).*

A family of some 16 genera and > 70 species, widespread throughout temperate to tropical regions. 3 genera are marine. Many species are very variable and can be difficult to identify. Most species do not dry well and, whenever possible living material should be used for identification. Spirit material and photographs are most useful.

In our area a few species are incompletely known: juvenile leaves are lacking in 4 (+1 ?) species, male flowers none or immature only in 3 species, fruit in 3 species; and 2 species are probably known only from the type. Other taxa are of uncertain status.

BANDEIRA, S. O. (2002). Diversity and distribution of seagrasses around Inhaca Island, southern Mozambique. *S. Afric. J. Bot.* 68: 191-198.

FEITOZA, L. L. & al. (2009). See above under **Limnocharitaceae**.

GREEN, E. P. & F. T. SHORT, eds. (2003). *World atlas of seagrasses.* University of California Press, Berkeley, etc. XII + 298 pp.

GULLSTRÖM, M. & al. (2002). Seagrass ecosystems in the western Indian Ocean. *Ambio* 31: 588-596.

HARTOG, C. den & J. KUO (2006). Taxonomy and biogeography of seagrasses. *In:* LARKUM, A. W. D. & al., o.c.: 1-23.

LARKUM, A. W. D. & al. (2006, 2007). *Seagrasses: Biology, Ecology and Conservation.* Springer, Dordrecht. XVI + 691 pp.

LES, D. H. & al. (2006). A reappraisal of phylogenetic relationships in the monocotyledon family Hydrocharitaceae (Alismatidae). *Aliso* 22: 211-230.

TANAKA, N. & al. (1997). Phylogeny of the family Hydrocharitaceae inferred from rbcL and matK gene sequence data. *Plant Res.* 110: 329-337.

(BARKANIA)

Barkania bullata (Delile) Ehrenb. = **Halophila stipulacea**

punctata Ehrenb. = **H. ovalis** subsp**. ovalis**

stipulacea (Forssk.) Zanardini ex Pritz., incl. var. *bullata* (Delile) Zanardini ex Pritz. = **H. stipulacea**

BLYXA / *4*

A genus of 11 species widely distributed throughout tropical and subtropical regions of the Old World.

Blyxa aubertii Rich. var. **aubertii**; Cook, Aquat. & wetland pl. south Africa: 141, 2004; Fl. Zambes. 12/2: 43-44, 2009. – Icon.: Mém. Cl. Sci. Math. Phys. Inst. Imp. France 1811/2: pl. 4, (1812) 1814.

syn.: complete synonymy in Aquat. Bot. 15: 9-10, 1983, and Royal Bot. Gard., Kew, World Checklist Monocot., Hydrocharitaceae.

Perennial herb; stems very shortly rhizomatous or erect and corm-like, simple or forked, to 1 cm Ø; leaves radical, linear to lanceolate, 2-60 cm × 2-12 mm, attenuate to a narrowly acute or acuminate tip, patent or erect, with to 28 longitudinal veins and faint cross-veins; flowers bisexual, 1-2 in a spathe 4-12 cm × 1,5-3 mm, peduncle to 50 cm long; petals linear, often twisted and folded between the sepals, c. 1,7 cm long, white or reddish.

Still or flowing water to 2 m deep; near sea-level- 400 m alt.

Madagascar; India, E and SE Asia, Japan, Australia [var. *echinosperma* (C.B. Cl.) C. D. K. Cook & Lüönd]. – Recently established in America.

Resembling *Vallisneria*, but leaves not parallel-sided.

B. hexandra C. D. K. Cook & Lüönd; Figueiredo & Smith, Pl. Angola: 185, 2008. – Icon.: Mitt. Bot. Staatssamml. München 16: 489, 1980; Fl. Zambes. 12/2: 45, 2009.

Submerged, usually annual, rarely perennial herb with a corm-like, shortly erect stem; leaves radical, linear, 10-40 cm × 1-4,5 mm, tip attenuate to obtuse, patent to erect, margin denticulate towards apex; dioecious: male spathe on a peduncle to 40 cm long, with to 20 white flowers; female spathe on a peduncle to 25 cm long, with 1-2 white flowers; petals linear to filiform, 1,3-2,5 mm long.

Shallow still water; usually in temporary pools; muddy streams; often associated with papyrus, *Thelypteris*, *Limnophyton;* water depth 10-30 cm; 1000-1750 m alt.

Closely related to *B. radicans* Ridley and vicariant of the Asian *B. octandra* (Roxb.) Planchon ex Thwaites.

BLYXA

B. radicans Ridley; Figueiredo & Smith, Pl. Angola: 185, 2008; Fl. Zambes. 12/2: 44, 46, 2009.

Submerged perennial herb; stems creeping, slender and stoloniferous or occasionally thicker and rhizomatous, to 40 cm or more long, irregularly branched, rooting at nodes; leaves solitary or clustered into rosettes, linear, 3-70 × 0,05—0,5 cm, apex abruptly rounded, truncate, hooded or boat-shaped; dioecious: male spathe on a peduncle 0,5-70 cm long and to 20 or more flowers, white; female spathe on a peduncle to 40 cm or more long and 1-2 flowers, white.

Flowing water in rivers; still, permanent water; lake margins; water depth 0,15-2 m; associated with *Nymphaea, Utricularia;* 900-2200 m alt.

B. senegalensis Dandy; Lisowski, Fl. (angiosp.) Rép. Guinée 1: 418, 2009. – Icon.: Fl. ill. Sénégal 9: 392, 1988.

Submerged annual or perhaps perennial herb; stem simple, corm-like, to 1 cm Ø; leaves radical, narrowly elliptic to linear-lanceolate, to 6 × 0,8 cm, usually alike on each rosette, apex acuminate to distinctly caudate; margin with numerous unicellular spines (lens !); dioecious: male spathes on a peduncle to 16 cm long or more and to 20 flowers, white; female spathe on a peduncle to 20 cm long, and 1-2 flowers, white.

Temporary pool on lateritic outcrops.

(BOOTTIA)

Boottia abyssinica Ridl. = **Ottelia ulvifolia**

alata Gagnep. = **O. alismoides**

aschersoniana Gürke = **O. muricata**

bodinieri (H. Lév. & Vaniot) H. Lév. & Vaniot = **O. alismoides**

brachyphylla Gürke = **O. brachyphylla**

crassifolia Ridl. = **O. ulvifolia**

cylindrica T. C. E. Fr. = **O. cylindrica**

exserta Ridl. = **O. exserta**

fischeri Gürke = **O. fischeri**

kunenensis Gürke = **O. kunenensis**

lanceolata Gagnep. = **O. alismoides**

macrantha C. H. Wright = **O. ulvifolia**

mossambicensis Peter = **O. muricata**

muricata C. H. Wright = **O. muricata**

parviflora Gürke = **O. exserta**

rautanenii Gürke = **O. exserta**

rohrbachiana Aschers. & Gürke = **O. ulvifolia**

scabra (Baker) Benth. & Hook. f. = **O. scabra**

schinziana Aschers. & Gürke = **O. exserta**

stratiotes T. C. E. Fr. = **O. stratiotes**

thorelii Gagnep. = **O. alismoides**

(CAULINIA)

Caulinia ovalis R. Br. = **Halophila ovalis**

(DAMASONIUM)

Damasonium alismoides (L.) R. Br. = **Ottelia alismoides**

indicum Willd. = **O. alismoides**

javanicum Blume = **O. alismoides**

lactucifolium Planch. = **O. alismoides**

lancifolium C. Presl = **O. alismoides**

timorense Zipp. ex Span. = **O. alismoides**

tranquebariense Schult. f. = **O. alismoides**

ulvifolium Planch. = **O. ulvifolia**

[EGERIA]

2 species native to subtropical and temperate S. America.

Egeria densa Planchon – Icon.: Cook, Aquat. pl. book, ed. 2: 98, 1996; Cook, Aquat. & wetland pl. south. Africa: 141, 2004; Veldkamp in Flora Males. Bull. 14: 158, 2008; Bot. Žurn. 94: 1708, 2009; Blyttia 68: 232-233, 2010 (with a world map; in hot springs in Iceland).

Submerged dioecious perennial herb, free floating or rooting from special nodes; stems elongate, branched regularly; leaves scale-like or opposite or blade-like in whorls of mostly 4, sessile, linear-lanceolate, 1-4 × 0,1-0,4 cm; flowers emergent, white, sweet-scented, insect-pollinated, only male ones known in Africa. – Spreading by vegetative fragments, but without bulbils or turions.

Still or slow-flowing freshwater; 360-2400 m alt.

Superficially resembling *Lagarosiphon major* (but with spirally arranged leaves).

Introduced from S. America, now a widespread weed; the male form now occurs in parts of N America, SE Australia, New Zealand, Japan, Russian Far East, Malesia, tropical (Ghana, Uganda, Kenya) and southern Africa. Widely sold in the aquarium trade.

ENHALUS / *1*

Monotypic.

Enhalus acoroides (L. f.) Royle – Icon.: Thulin, Fl. Somalia 4: 9, 1995; Green & Short, World atlas of seagrasses: 263, 2003; Gullström & al. in Ambio 31: 590, 2002; Cook, Aquat. pl. book, ed. 2: 100, 1996; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 5, 2001; Fl. Zambes. 12/2: 50, 2009; Fl. Australia 39: 33, 2011.

bas.: *Stratiotes acoroides* L. f.

syn.: *Enhalus koenigii* Rich.; *Vallisneria sphaerocarpa* Blanco; *Enhalus marinus* Griff.

Submerged, marine, perennial herb; roots coarse, unbranched; stem rhizomatous, rarely branched; leaves sessile, usually 2-6, distichously arranged at end of rhizome, linear, falcate, rounded or obtuse, 30-150 × 0,7-1,7 cm with sheaths compressed to 15 cm long; dioecious: male spathe on a peduncle to 5-10 cm long, solitary in the leaf axil, with numerous white flowers, composed of 2 partly connate bracts; female spathe on a peduncle to 50 cm long, solitary in the leaf-axil, spirally contracted after fertilization, 1-flowered, flower white with a reddish apex; fruit a large fleshy capsule 7 cm long, 4 cm Ø.

Sand or mud in sheltered seawater to 4 m deep (leaves lying on the water surface at low tide).

Widely distributed in the Red Sea, around coasts bordering the Indian Ocean and the western Pacific. – Map: Green & Short, l.c.

HALOPHILA / *4*

17-20 species, marine submerged herbs, along tropical and subtropical coasts.

Halophila decipiens Ostenf., incl. var. *pubescens* Hartog

Rhizome narrowly terete, unbranched, 0,1-0,4 mm Ø; stems erect, 1-10 mm long; leaves in pairs, 1 pair on each stem; blade (oblong-)elliptic, 10-21 × 4,5-8 mm, obtuse or rounded at apex, cuneate at base, often sparsely pubescent; petiole to 15 mm long; monoecious: spathe-bract ovate, 2,5-4,1 × ±1,5 mm, containing 1 male and 1 female flower.

Soft mud; fine coral sand in seawater to 85 m depth.

Widely distributed around tropical and subtropical coasts bordering the Indian and Pacific Oceans, together with the Gulf of Mexico, the Caribbean; Red Sea. – Maps: Green & Short, o.c.: 265; McMahon & Waycott, o.c.: 319.

McMAHON, K. M. & M. WAYCOTT (2009). New record for Halophila decipiens Ostenfeld in Kenya based on morphological and molecular evidence. *Aquat. Bot.* 91: 318-320.

H. gaudichaudii J. Kuo – Icon.: Acta Phytotax. Geobot. 57: 146, 2006; Gaudichaud in Louis de Freycinet, Voyage autour du Monde, Botanique: pl. 40 fig. 1, 1827.

syn.: *H. ovata* Gaudich., nom. illegit.; *H. ovalis* (R. Br.) Hook. f. var. *ovata* (Gaudich.) Balf. f.; *Thalassia ciliata* Decne., nom. illeg.; *T. vaginata* Decne. ex Kunth, pro syn.; *Halophila ovata* sensu Simpson in Fl. Trop. E. Afr., Hydrocharitaceae: 25-26, 1989, excl. syn. *Lemnopsis minor* Zoll., nom. illegit.; *Halodule minor* (Zoll.) Hartog

Perennial dioecious herb; rhizome filiform or narrowly terete, unbranched, 0,2-0,8 mm Ø; roots 1 per node; stems erect, hardly developed; leaves in pairs, 1-3 pairs on each erect stem; blade (ob)ovate or oblong-elliptic, 7-14 × 3-5 mm, obtuse or rounded, rarely apiculate, obtuse or cuneate at base, glabrous; male flower spathal bracts ovate, 2,5-3,5 × 1,5 mm; female flower spathal bracts 4-5 mm long.

Sand and mud in sheltered seawater to 2 m depth.

Widely distributed around SE Asian and Australian coasts.

For nomenclature of this species see Acta Phytotax. Geobot. 57: 147-148, 2006.

H. ovalis (R. Br.) Hook. f., excl. subsp. *australis* (Doty & B. C. Stone) Hartog [= *H. australis* Doty & B. C. Stone], subsp. *hawaiiana* (Doty & B. C. Stone) Hartog [= *H. hawaiiana* Doty & B. C. Stone], var. *major* (Zoll.) Aschers. [= *H. major* (Zoll.) Miq.], var. *minor* (Zoll.) Aschers. [= *H. minor* (Zoll.) Hartog], var. *ovata* (Gaudich.) Balf. f. [= *H. gaudichaudii* J. Kuo]. – Icon.: Fl. Eth. & Eritrea 6: 10, 1997; Thulin, Fl. Somalia 4: 11, 1995; Acta Phytotax. Geobot. 57: 138, 2006; Fl. Zambes. 12/2: 53, 2009 (subsp. **ovalis**); Oliveira & al., Marine pl. Tanzan.: 235, 2005.

bas.: *Caulinia ovalis* R. Br.

syn.: *Kernera ovalis* (R. Br.) Schult. & Schult. f.

Perennial dioecious herb; rhizome narrowly terete, often dichotomously branched, 0,2-1,5 mm Ø; roots 1-2 per node; stems erect, ± absent; leaves in pairs, 1 pair on each erect stem; blade (ob-)ovate, oblong-elliptic or spathulate, rather linear, 7-30 × 2,5-13 mm, obtuse to subapiculate at apex; spathal bracts 3-4 mm long; tepals yellowish.

Fine mud to coarse coral rubble; from mid-tidal level to 12 m depth; shallow sandy or silty areas subject to slight to moderate wave action.

Recently reported from the Tropical Atlantic Ocean: Antigua in The Caribbean West Indies (Aquat. Bot. 93: 141-146, 2010).

With a wide range of variation; 4 subspecies recognized, 2 of which in Africa: – subsp. **linearis** (Hartog) Hartog (bas.: *H. linearis* Hartog) from Mozambique, Inhaca Isl.; – subsp. **ovalis** (syn.: see above; *Barkania punctata* Ehrenb.; *Halophila kotschyana* Fenzl ex Zanardini 1858; *H. kotschyana* Fenzl ex Aschers. 1868), from the Red Sea (Egypt) to Madagascar, W. Pacific regions. Often co-existing with *H. minor* and/or *H. major.*

– Subsp. **bullosa** (Setch.) Hartog in the SW Pacific; – subsp. **ramamurthiana** K. Ravik. & R. Ganesan in SE India.

Halophila minor (Zoll.) Hartog in Fl. Males. 1/5: 410, 1957 [bas.: *Lemnopsis minor* Zoll.; syn.: *Halophila lemnopsis* Miq.; *H. ovalis* (R. Br.) Hook. f. var. *minor* (Zoll.) Aschers.] has been included in or confused with *H. ovalis.* But it is "easily distinguished from the closely related *H. ovalis* by the smaller size and the smaller number of cross-veins and the larger angle they make with the mid-rib". This plant grows in sheltered waters in SE Asia from W India through Malaysia to W Pacific Isl. – Later den Hartog placed *H. minor* as a synonym of *H. ovata* [syn.: *H. ovalis* var. *ovata* (Gaudich.) Balf. f.]. For discussions, see Acta Phytotax, Geobot. 57: 139, 2006.

In Green & Short, World atlas of seagrasses (2003) **H. ovalis** (Appendix 3, maps 11 and 12) the geographic distribution of the species is shown, before their revision and the range in a revised state including *H. johnsonii* Eiseman, *H. hawaiiana* Doty & D. C. Stone [syn.: *H. ovalis* subsp. *hawaiiana* (Doty & B. C. Stone) Hartog], *H. minor* (Zoll.) Hartog, and *H. ovata* Gaudich. – Maps of the first three species in Green & Short, o.c.: maps 8-10.

H. minor is recognised as a distinct species by Symoens in Flora Zambesiaca 12/2: 54, 2009. He reports it from Kenya and Mozambique (N, Quirimbas archipelago, Mecúfi-Pemba, Fernão-Veloso and Moçabique Isl.); on sand and mudflats exposed at very low tides, down to 2 m depth. – Difficult to distinguish from small specimens of *H. ovalis.* – Not mapped.

H. stipulacea (Forssk.) Aschers.; Thulin, Fl. Somalia 4: 11, 1995; Fl. Eth. & Eritrea 6: 9, 1997; Fl. Zambes. 12/2: 54-55, 2009. – Icon.: Green & Short, World atlas seagrasses: 268, 2003 (with map); Ambio 31: 590, 2002; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 6, 2001; Oliveira & al., Marine pl. Tanzan.: 235, 2005. – Type specimen (Forsskål, Yemen) not located in any herbarium with known Forsskål material.

bas.: *Zostera stipulacea* Forssk.

syn.: *Thalassia stipulacea* König

Dioecious herb; rhizome narrowly terete, unbranched, 0,2-2 mm Ø; roots 1 per node; stems erect, narrowly terete, to 1,5 mm long, 0,2-0,5 mm wide; leaves in pairs, 1 pair on each stem; blade linear to oblong or linear-elliptic, 1,5-8 cmx2-6 mm, often slightly falcate, obtuse or rounded at apex, cuneate at base; spathal leaves keeled; male flower with pedicel 7-15 mm long, female one sessile.

HALOPHILA STIPULACEA

Shallow sandy or silty areas of the sublittoral subject to slight to moderate wave action, in sheltered seawater to ± 7 m depth; sediment-covered coral reefs.

Egypt; Madagascar, Mauritius, Rodriguez; Saudi Arabia, Yemen (not refound since 18th century), Bahrain, India. – Invasive. Has migrated into the Mediterranean via the Suez Canal: S Israel, Cyprus, Rhodos, Samos (Aegean Sea), Libya west to Malta. Recently found in Dominica, West Indies (Aquat. Bot. 91: 137-142, 2009; Aquat. Bot. 85: 345-349, 2006).

2 forms are reported: plants from the Red Sea-Persian Gulf have leaves ± cartilaginous, later becoming bullate; those from the Indian Ocean have more membraneous leaves not bullate with age (often treated as *H. balfourii* Solereder (Fl. Eth. & Eritrea 6: 9, 1997).

HYDRILLA / *1*

syn.: *Serpicula* L. f.; *Hydrospondylus* Hassk.

Monotypic.

Hydrilla verticillata (L. f.) Royle, incl. var. *brevifolia* Casp.; Burkill, Useful pl. W. trop. Afr., ed. 2, 2: 412, 1994. – Icon.: Castanea 61: 295, 1996; Cook, Aquat. pl. book, ed. 2: 100, 1996; Cook, Aquat. & wetland pl. south Afr.: 142, 2004; Fl. Zambes. 12/2: 28, 2009.

bas.: *Serpicula verticillata* L. f.

syn.: *Udora verticillata* (L. f.) Spreng.; *Vallisneria verticillata* (L. f.) Roxb.; *Elodea verticillata* (L. f.) F. Muell. – For complete synonymy, see Aquat. Bot. 13: 485-487, 1982; World checklist of Monocotyledons, Roy. Bot. Gard., Kew, Hydrocharitaceae.

Annual (occasional) or perennial submerged herb, often perennating by bulb-like turions arising from tips of stolons or in leaf-axils; stems stoloniferous or erect, terete, simple or branched, 1-1,5 mm Ø; roots unbranched, adventitious, without root-hairs; leaves sessile, usually linear to ovate, 2-15 × 1-3,7 mm, opposite towards base of stem or branch, otherwise in whorls of 3-12; monoecious, rarely dioecious; male spathe 1-1,7 mm Ø, flower usually white, rarely reddish; female spathe to 6 × 0,3-0,5 mm, flower white; fruits spiny.

Still or slow-flowing freshwater, to 1,5 m or more depth; 90-1950 m alt.

Variable. – Easily confused with *Lagarosiphon ilicifolius*, especially when occurring together in the same habitat; in *Hydrilla* the lower leaves on stem or branches are in *whorls* and not spirally arranged (most of the leaves).

Probably native in tropical Africa in and around the central African lakes; but introduced in Mozambique, Ivory Coast. Reported from N Africa (Dobignard & Chatelain, Index syn. fl. Afrique N 1: 148, 2010). Also in S. Africa (see Aquat. Bot. 87: 175-180, 2007). Native in Asia from Iran, Afghanistan, Pakistan, India, reaching Japan, Manchuria, Moluccas, New Guinea, Fiji, Guam; also in Mauritius, Réunion. – Maps: Aquat. Bot. 13: 491, 492, 1982.

Has become a serious pest in N. and C. America (Rhodora 111/945: 131-136, 2009); and in water storage systems in India, hindering anti-malarial measures and fish culture. A good oxygenator for aquaria. Spread through the trade.

HYDRILLA

SYNONYMS:

Hydrilla angustifolia Hassk. = **Hydrilla verticillata**

dentata Caspary = **H. verticillata**

dregeana C. Presl = **Lagarosiphon muscoides**

lithuanica (Rchb.) Dandy = **Hydrilla verticillata**

muscoides (Harv.) Planch. = **Lagarosiphon muscoides**

najadifolia Zoll. & Moritzi = **Hydrilla verticillata**

ovalifolia Rich. = **H. verticillata**

polysperma Blatt. = **H. verticillata**

roxburghii Steud. = **H. verticillata**

subulata Royle = **H. verticillata**

wightii Planch. = **H. verticillata**

HYDROCHARIS / *1*

3 species in the Old World.

Hydrocharis chevalieri (De Wild.) Dandy; Harris, Vascul. pl. Dzangha-Sangha Res., Centr. Afric. Rep.: 232, 2002; Sosef & al., Checklist pl. vascul. Gabon: 196, 2006; Lejoly & al., Cat. - fl. Kisangani & Tshopo in Taxonom. 30: 155, 2010. – Type: Chevalier 7658! – Icon.: Akoegninou & al., Fl. analyt. Bénin: 137, 2006.

bas.: *Ottelia chevalieri* De Wild.

syn.: *Monochoria africana* sensu A. Chev., Etudes fl. Afr. centr.: 324, 1913 quoad specim. Chevalier 7658; *Hydrocharis salifera* Pellegr.

Stoloniferous perennial herb ± 25 cm tall; leaves erect with a stipule to 5 cm long; petiole narrowed towards apex, 8-50 cm long; blade widely oval to suborbicular, 4-25 × 3,5-15 cm, base ± cordate, apex rounded or acuminate; scape arising between the leaves, to 8 cm long; spathe *monoic,* 1-2, c. 4 cm long; flowers right above the water.

Aquatic meadows; pools; streams in forest (still waters); bare mud; thalweg with periodical floods; between 20-60 cm of water depth; small swampy hollows (see Bull. Jard. Bot. Natl. Belg. 53: 3-16, 1983); map: Aquat. Bot. 14: 199, 1982.

LAGAROSIPHON / *8*

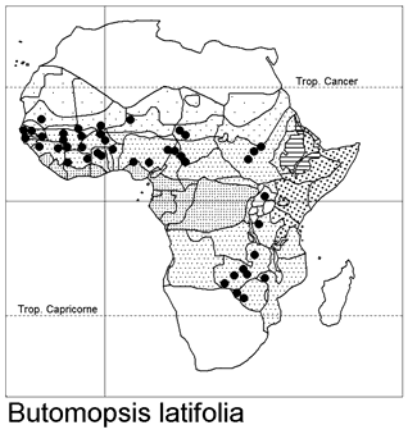
A genus of 9 species, incl. *L. madagascariensis* Caspary endemic to Madagascar.

All species can be identified without flowers. Male flowers are shed as buds, they float to the surface where they open, then transported over the water surface by wind and caught by floating female flowers.

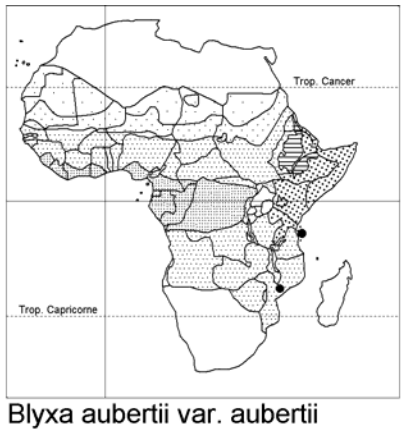
Lagarosiphon cordofanus (Hochst.) Caspary; Figueiredo & Smith, Pl. Angola: 185, 2008; Fl. Zambes. 12/2: 21-22, 2009. – Icon.: Thulin, Fl. Somalia 4: 8, 1995; Fl. Trop E. Afr., Hydrochar.: 3, 1989; Cook, Aquat. & wetland pl. south. Africa: 143, 2004; J. Linn. Soc., Bot. 30: pl. 31, 1895 (sub nom. *L. crispus*, *L. tenuis).*

bas.: *Udora cordofana* Hochst.

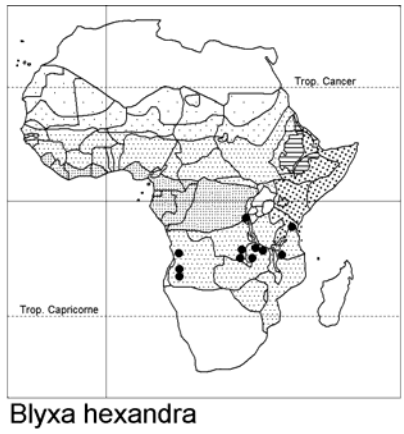
syn.: *Lagarosiphon nyassae* Ridl.; *L. fischeri* Gürke; *L. tenuis* Rendle; *L. schweinfurthii* Cufod. 1968, non Caspary 1870 (= *L. muscoides);* Enum. 3: 15, 1995.



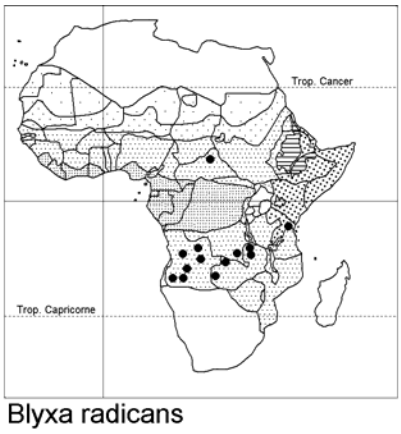
Butomopsis latifolia



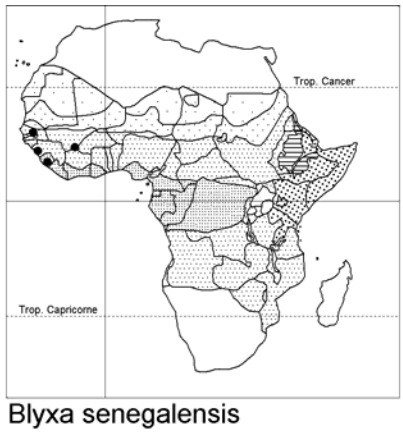
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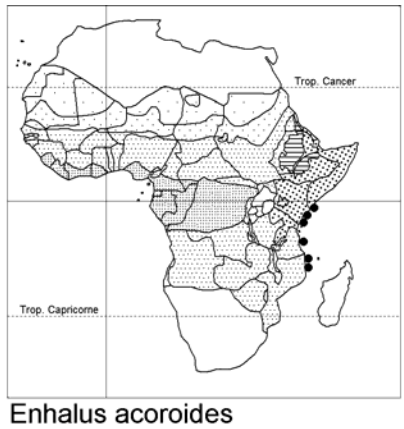
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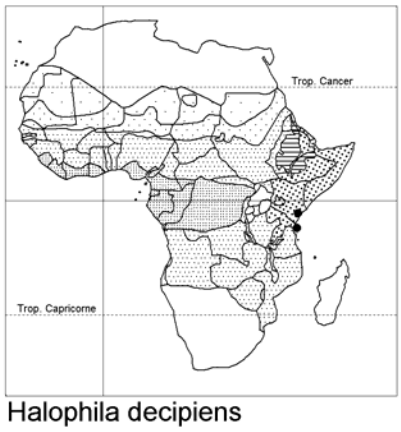
Blyxa radicans



Blyxa senegalensis



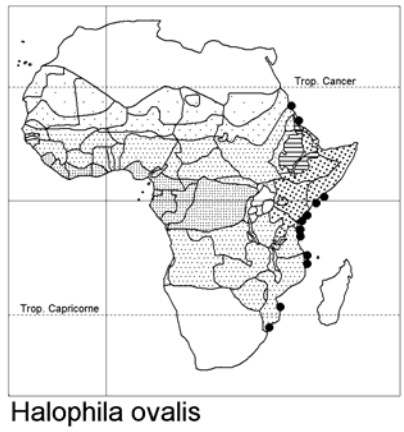
Enhalus acoroides



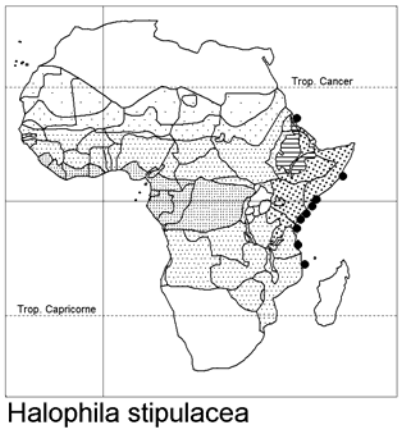
Halophila decipiens



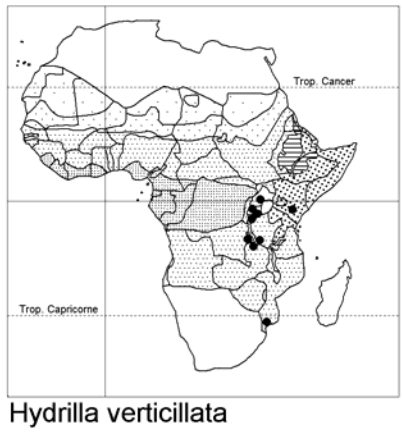
Halophila gaudichaudii



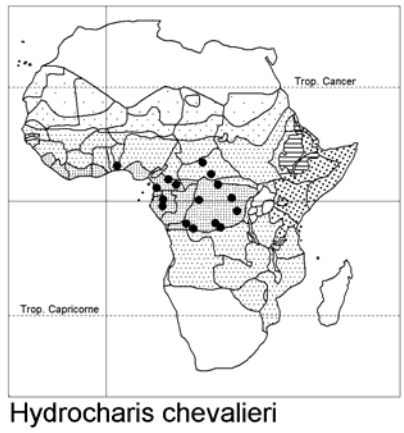
Halophila ovalis



Halophila stipulacea



Hydrilla verticillata



Hydrocharis chevalieri

LAGAROSIPHON CORDOFANUS

Submerged perennial dioecious herb; stems filiform or terete, 0,2-2 mm Ø; leaves spirally arranged to sub-opposite or in whorls, (narrowly) linear(-lanceolate), acute, patent, spreading or somewhat recurved, flaccid, translucent, 4-29 × 0,25-1,8 mm, margins green (hot hyaline), denticulate; male spathe ovate, 1,3-2-7 × 1-2 mm, pinkish-white; female spathe ovate, 1,7-2,8 × 0,7-1,2 mm; flowers white.

Still or slow-flowing freshwater; lakes, dams, ponds, flood plains; pools in shallow water (permanent to temporary); nearly sea-level to 1800 m alt.

Very variable.

Namibia, Botswana, S. Africa.

L. hydrilloides Rendle – Icon.: J. Linn. Soc., Bot. 30: pl. 32/1-7, 1895.

Submerged perennial dioecious herb; stems terete, 1-2 mm Ø; leaves mostly in whorls, rarely spirally arranged or sub-opposite near base of stem, linear, patent, spreading or somewhat recurved, flaccid, 7-32 × 1,2-2,3 mm, margins ± hyaline, denticulate; male spathe ovate, 3-4,5 × 1,5-2,5 mm, pinkish, containing to 40 whitish flowers; female spathe narrowly ovate, 2,5-5,5 × 0,8-2,3 mm, pinkish-purple; female flower white.

Still or slow-flowing freshwater; 1650-3500 m alt.

L. ilicifolius Oberm.; Figueiredo & Smith, Pl. Angola: 185, 2008. – Icon.: Cook, Aquat. & wetland pl. south. Afr.: 143, 2004; Fl. Zambes. 12/2: 26, 2009.

Submerged robust dioecious perennial herb; stems terete, 0,8-3 mm Ø; leaves spirally arranged, sub-opposite or rarely in whorls, often crowded, linear to lanceolate, 4,5-13,5 × 2-3,7 mm, acute to subobtuse, often strongly recurved, firm, margins ± hyaline, green, denticulate; male spathe ovate to suborbicular, 4-4,2 × 2-3 mm, pink or lilac, containing to 30 flowers not known at maturity; female spathe (narrowly) ovate, 2-4,3 × 0,8-1,8 mm, pink or lilac; female flower pale purple.

Still or slow-flowing freshwater to ± 3 m deep; 500-1150 m alt. – Can develop large colonies, but does not seem to be troublesome.

Namibia, Botswana.

L. major (Ridley) Moss ex Wager; Fl. Zambes. 12/2: 24-25, 2009. – Icon.: Cook, Aquat. & wetland pl. south. Africa: 144, 2004; Kirkia 2: pl. 13D (p. 65-66), 1961.

bas.: *L. muscoides* Harvey var. *major* Ridley

syn.: often cultivated under the names *"Elodea crispa"*, *"Anacharis crispa"*.

Submerged perennial dioecious herb; stems robust, firm, c. 3 mm Ø; leaves alternate, occasionally in whorls, spreading or recurved, linear(-lanceolate), 6,5-30 × 2-5 mm, firm, apex mostly obtuse, rarely acute or acuminate, *margins translucent with > 50 teeth on each side;* male spathe ovate, 3-5 × 1,9-2,7 mm, bearing c. 50 flower buds, flowers pinkish; female spathe ovate to narrowly ovate, 3,5-5,5 × 1,4-2,5 mm, flowers pinkish.

Freshwater, in a wide variety of habitats.

Native in Zimbabwe and S. Africa. Naturalized in Europe, New Zealand where it has become a serious weed (map: Bull. Jard. Bot. Natl. Belg. 53: 481, 1983). Male plants unknown outside native range.

Troublesome in dams, rivers, etc. (cf. Kirkia 2: 39, 1961).

LAGAROSIPHON

L. muscoides Harvey, *excl.* var. *major* Ridley *(= L. major)*, but incl. fa. *brevifolia* Wager, and fa. *longifolia* Wager; Fl. Zambes. 12/2: 22, 24, 2009. – Icon.: J. Bot. (Hooker) 4: pl. 22, 1841; Cook, Aquat. & wetland pl. south. Africa: 101, 2004; Cook, Aquat. pl. book, ed. 2: 144, 1996.

syn.: *Hydrilla muscoides* (Harvey) Planchon; *H. dregeana* C. Presl; *Lagarosiphon schweinfurthii* Caspary 1870, non Cufod. 1968 *(= L. cordofana)*.

Submerged perennial or sometimes annual dioecious herb; stems filiform or terete, 0,2-1,6 mm Ø; leaves *spirally arranged* to sub-opposite or in whorls, mostly linear, acute or acuminate, patent, spreading or somewhat recurved, flaccid, 4,8-20 × 0,5-1,6 mm, margins translucent, denticulate; male spathe ovate to suborbicular, 3-4 × 1,7-2,8 mm, pinkish, containing to 40 white or pink flowers; female spathe narrowly ovate to ovate, 1,2-2 × 0,8-1,1 mm, white or pink, flowers white or pink.

Still or slow-flowing freshwater to ca. 1,5 m deep; or pools drying out; 1350-1950 m alt. (Uganda, Kenya).

Namibia, Botswana, S. Africa where it is reported as a noxious weed choking up shallow dams and rivers.

L. rubellus Ridley; Figueiredo & Smith, Pl. Angola: 185, 2008. – Icon.: Cook, Aquat. & wetland pl. south. Afr.: 145, 2004.

Submerged perennial (or sometimes annual ?) dioecious herb; stems filiform c. 0,5 mm Ø; *leaves* alternate, sub-opposite or verticillate, *spreading*, linear, *thread-like*, 5-16,8 × 0,25-0,7 mm, apex very acute, margins nearly translucent with 28-40 teeth on each side; male spathe purplish, ovate, 1,9-3,5 × 1,2-2,5 mm, containing c. 10-15 flowers; male flowers stalked; female spathe purplish, ovate, 4-5 × 0,8-1,3 mm, flowers reddish.

Inhabiting rivers in great masses; in deeper streams with *Utricularia* spp., *Potamogeton* spp.; pans, dams; 500 m alt.

Perhaps also in Namibia (Cunene Riv. system).

L. steudneri Caspary – Icon.: Fl. Eth. & Eritrea 6: 7, 1997.

Submerged perennial dioecious herb; stems 1-1,5 mm Ø; leaves alternate, rarely sub-opposite, spreading, linear, 7-18,2 × 0,9-1,8 mm, margins with 36-105 teeth on each side; male spathe ovate, 3,2-3,7 × 2-2,1 mm, containing to 30 flower buds; mature male flowers unknown; female spathe ovate, 2,3-4 × 1-2 mm, flower reddish.

Stagnant or slow-flowing pools; 1650-1800 m alt.

L. verticillifolius Obermayer – Icon.: Cook, Aquat. & wetland pl. south. Afr.: 145, 2004; Fl. Zambes. 12/2: 23, 2009.

Submerged perennial (sometimes annual ?) dioecious herb; stems filiform, 0,5-1 mm Ø; leaves *5-7-verticillate*, occasionally sub-whorlded, spreading, linear, 6,5-20 × 0,4-1,2 mm, apex very acute, margins with 26-58 teeth on each side; male spathe ovate, 2,3-3,4 × 1-1,6 mm, 10-20-flowered; female spathe, ovate, tubular above, 2,2-4,5 × 0,7-1 mm, flowers whitish.

Freshwater; pans, dams, streams.

S. Africa, Swaziland.

LAGAROSIPHON

SYNONYMS:

Lagarosiphon crispus Rendle = **Lagarosiphon cordofanus**

fischeri Gürke = **L. cordofanus**

muscoides Harv. var *major* Ridley = **L. major**

nyassae Ridley = **L. cordofanus**

schweinfurthii Caspary = **L. muscoides**

schweinfurthii Cufod. = **L. cordofanus**

tenuis Rendle = **L. cordofanus**

tsotsorogensis Bremek. & Oberm. = **L. cordofanus**

NAJAS – See **Najadaceae**

OTTELIA / *13*

syn.: *Boottia* Wall.; *Damasonium* Schreber, nom. illegit., non Miller

20 species in tropical and subtropical Africa, Asia, Australasia, one species in Brazil – NE Argentina [*O. brasiliensis* (Planch.) Walp.].

Ottelia alismoides (L.) Pers.; Aquat. Bot. 20: 131-146, 1984; Dobignard & Chatelain, Index synon. fl. Afrique N 1: 149, 2010; Aqua Planta 22/4: 138-143, 1997. – Icon.: Boulos, Fl. Egypt 4: 7, 2005; Cook, Aquat. pl. book, ed. 2: 103, 1996.

bas.: *Stratiotes alismoides* L.

syn.: *Damasonium alismoides* (L.) R. Br.; for full synonymy, see World checklist of monocotyledons, Royal Botanic Gardens, Kew, Hydrocharitaceae.

Monoecious, dioecious or hermaphrodite annual or short-lived perennial aquatic herb; stem corm-like, simple or rarely forked; juvenile leaves linear to obovate or spathulate; mature leaves petiolate; blade submerged or floating, elliptic to widely ovate, 8-17 × 5,7-20 cm, acute to obtuse or rounded, cuneate to cordate or somewhat involute at base, margins entire or denticulate; spathe: peduncle 10-15 × 0,17-0,5 cm; spathe body submerged, cylindric to ellipsoid or urceolate, 2-6-lobed at apex, with 3-12 crisped or wavy *wings* or ribs; flower petals white with yellow base, yellow, pink to purple; male flower with pedicels to 7 cm long; other flowers sessile.

Still or moving water to 1 m deep; 1050-1100 m alt.

Extremely variable, with much taxonomic confusion as a result.

Egypt; widespread throughout India, E and SE Asia, N Australia; scattered localities in Europe, W Asia, N. America.

Can be distinguished from other African species by the presence of 3 or more wings on the spathe.

O. brachyphylla (Gürke) Dandy *[excl.* syn. *Boottia parviflora* Gürke *(= O. exserta)]*.

bas.: *Boottia brachyphylla* Gürke

Aquatic herb; basal leaves submerged, broad-lanceolate, sessile, thin, attenuate towards the base, 12-18 × 4-6 cm, margins sparsely and finely toothed, obtuse; male spathe narrowly ovate, 4-5 × 1,4-1,6 cm, flower peduncles 6-7 cm long; female spathe elliptic, 4-4,5 × 1,2-1,3 cm with 2 wings 3 mm broad; flowers yellow.

Freshwater ?

Known only from the type ? (Schweinfurth 2423).

In Flora Trop. Africa 7: 9, 1898 included in *Boottia abyssinica (= O. ulvifolia).*

OTTELIA

O. cylindrica (T. C. E. Fries) Dandy, incl. var. *stratiotes* (T. C. E. Fries) Cook, Symoens & Urmi-König, nom. inval. (in key); Fl. Zambes. 12/2: 38-39, 2009. – Icon.: R. E. Fries, Wiss. Erg. Schwed. Rhod.-Kongo Exped. 1: 190, 1916 (partial).

bas.: *Boottia cylindrica* T. C. E. Fries

syn.: *B. stratiotes* T. C. E. Fries; *Ottelia stratiotes* (T. C. E. Fries) Dandy

Aquatic herb; leaves submerged, linear, c. 1 m long, smooth, 2 mm wide at base, c. 6 mm wide higher up, apex flagelliform; female spathes *cylindric, 6 cm long,* 3 mm wide, one-flowered, 6-nerved; female flower with white petals; male spathes oblong, 2,7-3 cm long, 7-9 mm wide, bifid at apex, many-flowered; male flowers with white petals.

Stream *(Ottelio-Brasenietum schreberi* Lisowski & Malaisse) in still water to 2 m deep (see Lisowski & Malaisse in Exploration Hydrobiologique du Bassin du Lac Bangweolo et du Luapula. Résultants scientifiques publiés par J.-J. Symoens, Bruxelles. 18/1: 18-21, 1989); fast flowing streams, drainage channels, peat-bogs; 1100-1900 m alt.

O. exserta (Ridl.) Dandy; Figueiredo & Smith, Pl. Angola: 186, 2008. – Icon.: Thulin, Fl. Somalia 4: 8, 1995; Cook, Aquat. & wetland pl. south. Africa: 146, 2004; Fl. Zambes. 12/2: 34, 2009.

bas.: *Boottia exserta* Ridl. – Icon.: J. Linn. Soc. 22: tab. 13, 1886.

syn.: *B. schinziana* Aschers. & Gürke; *Ottelia schinziana* (Aschers. & Gürke) Dandy (considered as a good species by Cook, o.c.: 147, from S. Angola: Cunene, and N Namibia); *Boottia parviflora* Gürke; *B. rautanenii* Gürke; *Ottelia somalensis* Chiov.

Aquatic dioecious or rarely monoecious herb, annual or sometimes perennial; stem erect, corm-like, simple or rarely forked; juvenile leaves with petiole to 7 cm long; mature ones with petiole 9-45 cm long, 3-sided, 0,1-1,6 cm Ø; blade floating, linear-elliptic to ovate, 4,4-15 × 1,8-6,5 cm, obtuse, cuneate or cordate at base, margins entire; male spathe with peduncle 6-30 × 0,3-1,7 cm; body of spathe submerged, 4,6-9 × 0,6-3,9 cm, oblong to ovate-lanceolate, 2-6-lobed at apex, with 0-2 wings and several longitudinal ribs or veins, green or purplish, often minutely tuberculate; male flowers up to 60 in each spathe with sepals whitish or green, often with brown longitudinal striations, the margins hyaline; petals white with yellow base; female flowers solitary, petals white with yellow base.

Pools; still freshwater; slowly flowing rivers; rarely wet mud; often in large masses; water depth 25-45 cm; 0-1500 m alt.

Namibia, S. Africa.

O. fischeri (Gürke) Dandy; Fl. Zambes. 12/2: 35-36, 2009.

bas.: *Boottia fischeri* Gürke

Aquatic plant, dioecious, annual or rarely perennial; stem erect, corm-like, simple or shortly rhizomatous; juvenile leaves unknown; mature leaves petiolate; blade submerged, elliptic to elliptic-ovate, 8,4-16 × 4,5-9,4 cm, obtuse or rounded, cuneate at base; petiole to 38 cm long, 0,4-0,8 cm wide, somewhat winged in the lower half; flowers unisexual; male spathe with peduncle 18-28 × 0,4-1,3 cm; body of spathe submerged, oblong to ovate, 7-10 × 1,7-3,2 cm, 2-4-lobed at apex, 0-2-winged; male flowers pedicellate, to 15 per spathe, pedicel to 12 cm long; petals white or yellowish; female spathe with peduncle 30 × 0,6-1,2 cm; body of spathe submerged, oblong, 4,5-6 × 0,8-1,5 cm, 2-4-lobed at apex, 0-2-winged and with several longitudinal ribs or veins, the ribs sometimes purplish; female flower 1 per spathe; petals white; fruit unknown.

Swamps; shallow freshwater; 1200-1600 m alt.

OTTELIA

O. kunenensis (Gürke) Dandy; Figueiredo & Smith, Pl. Angola: 186, 2008; Bothalia 39: 196, 2009 (Baum, Kunene Exp.); Fl. Zambes. 12/2: 40, 2009. – Icon.: Cook, Aquat. & wetland pl. south. Africa: 147, 2004.

bas.: *Boottia kunenensis* Gürke

Aquatic dioecious annual or perennial herb; leaves submerged, *ribbon-like*, to 50 × 2 cm, often with purple blotches, margin denticulate, undulate, midrib dorsally denticulate; inflorescences on slender scapes, triangular in cross-section, serrulate or smooth; male flowers (6-40) with ovoid spathe to 3 × 1 cm, with 9-12 narrow denticulate ribs, mouth split into 3-9 teeth, outer segments linear, 14 × 2 mm, inner ones obovate, c. 25 mm long, white or yellow; female spathe cylindric, 2,5 cm long, 1-flowered, perianth tube as long as the spathe; segments resembling those of the male.

Ponds in flood-plains with *Phragmites*; water depth 60-90 cm; 1000-1100 m alt.

Namibia, Botswana.

O. lisowskii Symoens; Fl. Zambes. 12/2: 38, 2009.

Aquatic perennial dioecious herb, submerged or half-floating, 50-90 cm tall; stem erect, corm-like, simple, c. 2 cm long; leaves in a dense rosette, linear-narrowly lanceolate, 46-85 × 2,5 cm; male inflorescence with peduncle 30-80 cm long; spathe oblong-lanceolate, 45-65 mm long, male flowers c. 15 per spathe, petals white; female spathe 1-flowered, 36 mm long.

Rivers; c. 1300 m alt.

O. luapulana Symoens – Icon.: Fl. Zambes. 12/2: 37, 2009.

Submerged perennial dioecious herb 55-65 cm tall; stem erect, corm-like, simple, 1-2,5 cm long; leaves in dense radical rosette, petiole 14-34 cm long; blade ± lanceolate, 8-31 × 1-6 cm, thin, green sometimes flushed red; male inflorescence with peduncle 21-57 cm long, simple, exceptionally 2-forked; spathes 39-72 mm long; male flowers c. 10 per spathe; female spathes with peduncle 28 cm long, spathe 45-60 mm long, flowers 1 per spathe; fruits and seeds unknown.

Swamp lagoons and channels, water depth c. 60 cm, with *Nymphaea, Najas, Cyperaceae;* 1000-1140 alt.

O. muricata (C. H. Wright) Dandy; Figueiredo & Smith, l.c.; Bothalia 39: l.c. – Icon.: Hook. Ic. Pl. 32: tab. 3101, 1927, excl. fig. 1; Cook (2004): l.c.; Fl. Zambes. 12/2: 41, 2009.

bas.: *Boottia muricata* C. H. Wright

syn.: *B. aschersoniana* Gürke; *B. mossambicensis* Peter

Aquatic dioecious annual or perennial herb *with coarse prickles or spines* (soft in living state); leaves submerged, filiform, with a prominent midrib, flat to *triangular* in cross-section, with coarse teeth on the ribs, lamina to 2 m long, 5-15(-19) mm wide, margins spiny; inflorescences with spiny scape terete to triangular in cross-section, 1 m or more long, male ones many-flowered; spathe fusiform, c. 35 × 10 mm, with 7-10 *spiny* ribs, mouth 2-lobed; female flower solitary, spathe cylindrical, 45 × 4 mm, with 7 spiny ribs.

Still water in river; dams, ditches; water depth 0,75-3,5 m; 1000-1500 m alt.

Namibia, Botswana.

First discovered in 1856 but the material was insufficient; adequate material collected in 1896.

OTTELIA

O. obtusifolia T. C. E. Fries – Icon.: R. E. Fries, Wiss. Erg. Schwed. Rhod.-Kongo Exped. 1: 190, 1916 (partial.)

Aquatic herb; leaves lanceolate, smooth, apex rounded, margins entire, blade 14-16 × 2,5 cm, gradually narrowing into the 25-30 cm long petiole; peduncle of spathes c. 30 cm long, smooth; spathes narrowly oblong, smooth, c. 5 × 1 cm, with greenish nerves, mouth 2-fid,1-flowered, petals yellow.

In water.

Known only from the type ?

O. scabra Baker – Icon.: Bot. J. Linn. Soc. 78: 245, 1979 (leaf).

syn.: *Boottia scabra* (Baker) Benth & Hook. f.

Aquatic herb, dioecious, annual or rarely perennial; stem erect, corm-like, simple or rarely forked; juvenile leaves unknown; mature leaves with petiole 29-113 × 0,7-1,3 cm; blade submerged, lanceolate, 13,5-64 × 4,2-11 cm, obtuse, cuneate or obtuse at base, margins entire or scabrid; flowers unisexual; male flower unknown; female spathe with peduncle 27-54 × 0,5-1,2 cm; body of spathe submerged, oblong to ovate, 4,3-7,2 × 1,3-2,2 cm, apex 2-6-lobed, 0-2-winged, green, the ribs purple; female flower 1 per spathe, sepals green, petals white.

Still freshwater; 900 m alt.

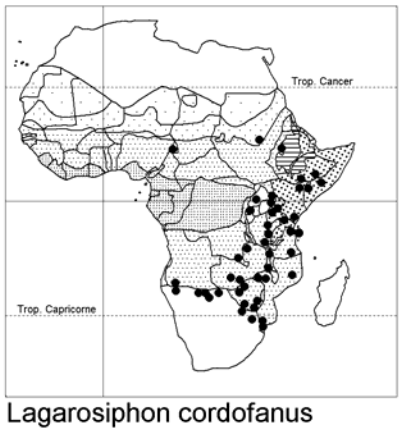
O. ulvifolia (Planch.) Walp.; Burkill, Useful pl. W. Trop. Africa, ed. 2, 2: 412, 1994; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep. : 232, 2002; Sosef & al., Check-list pl. vascul. Gabon: 196, 2006; Figueiredo & Smith, Pl. Angola: 186, 2008; Bothalia 39: 196, 2009 (Baum, Kunene Exp.); Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 155, 2010; Fl. Zambes. 12/2: 31-32, 2009. – Icon.: Richard, Tent. fl. Abyss.: pl. 95, 1851, sub nom. *O. lancifolia;* Andrews, Flow. pl. Sudan 3: pl. 60, 1956; Fl. Cameroun 26: 37, 1984; Fl. Eth. & Eritrea 6: 3, 1997; Akoegninou & al., Fl. analyt. Bénin: 138, 2006; Cook, Aquat. & wetland pl. south. Africa: 147, 2004; Lisowski, Fl. (angiosp.) Rép. Guinée 2: fig. 495, 2009; Kirkia 2: pl. 12B (p. 65-66), 1961.

bas.: *Damasonium ulvifolium* Planch.

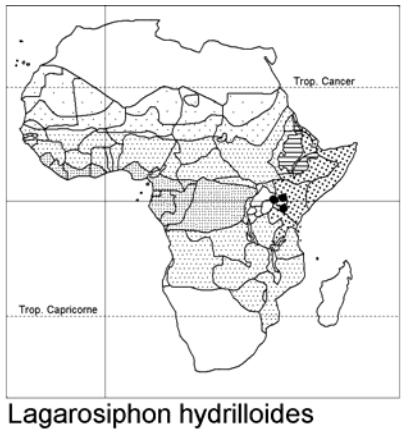
syn.: *Boottia abyssinica* Ridl.; *Ottelia abyssinica* (Ridl.) Gürke; *O. lancifolia* A. Rich., incl. var. *fluitans* Ridl.; *O. plantaginea* Welw. ex Ridl.; *O. vesiculata* Ridl.; *O. crassifolia* (Ridl.) Welw. ex Rendle; *Boottia crassifolia* Ridl.; *B. rohrbachiana* Aschers. & Gürke; *Ottelia rohrbachiana* (Aschers. & Gürke) Gürke; *Boottia macrantha* C. H. Wright; *Ottelia macrantha* (C. H. Wright) Dandy; *O. halogena* De Wild. & T. Durand; *O. baumii* Gürke; *O. benguellensis* Gürke; *O. buchneri* Gürke; *O. massaiensis* Gürke; *O. schweinfurthii* Gürke; *O. latifolia* De Wild.

Aquatic herb, annual, rarely perennial (in permanently flowing or deep water), monoecious; stems erect, corm-like, simple or rarely forked; juvenile leaves unknown ?; mature leaves with petiole 6,2-100 × 0,2-0,8 cm; blade submerged or sometimes floating, often purple-tinged, linear-elliptic to ovate-elliptic, 8-45 × 0,9-11,5 cm, acute to obtuse, base cuneate, smooth, margins entire; spathe with peduncle 4,2-60 × 0,2-0,8 cm; body of spathe submerged, linear-oblong to urceolate, 2-6 × 0,4-2,8 cm, 2-6-lobed at apex, with 0-2 wings; flowers bisexual, 1 per spathe; petals white, or white with yellow base, or yellow.

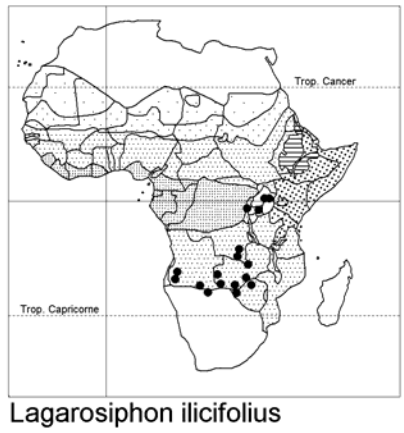
Still or slow-moving water to 2 m depth; muddy pond; clayey soil flooded under 5-15 cm water; temporary marigot; clay or sandy bottoms; with *Nymphaea* in ponds on lofty rocks; sometimes in masses; streams and clear ponds with *Myriophyllum, Isnardia, Potamogeton, Nymphaea;* in almost dried-up ponds; swampy rice fields; 10-2790 m alt.



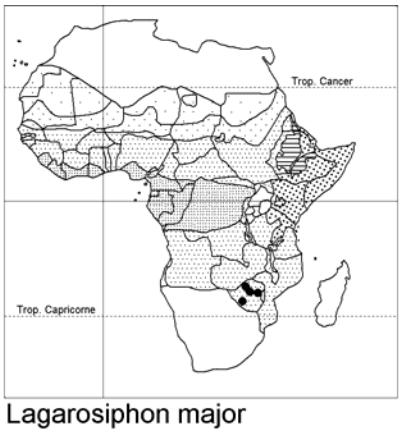
Lagarosiphon cordofanus



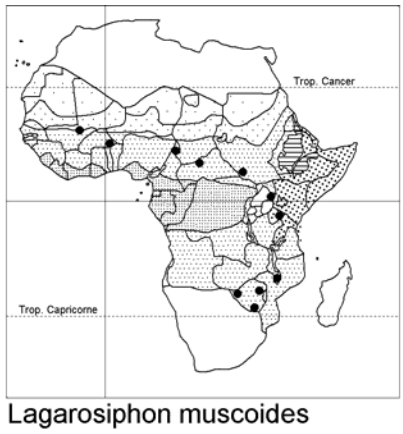
Lagarosiphon hydrilloides



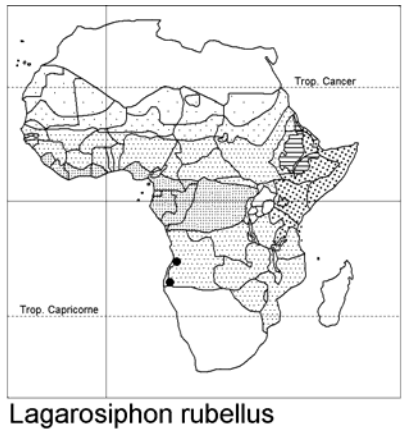
Lagarosiphon ilicifolius



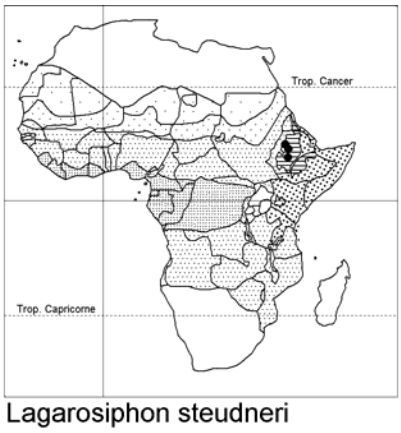
Lagarosiphon major



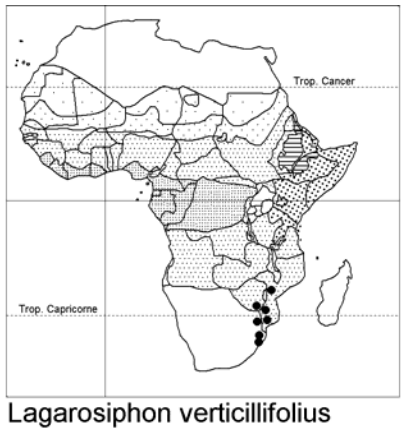
Lagarosiphon muscoides



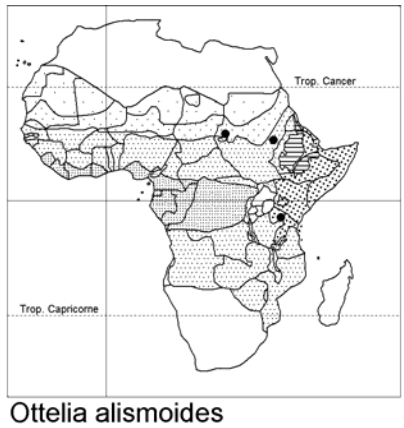
Lagarosiphon rubellus



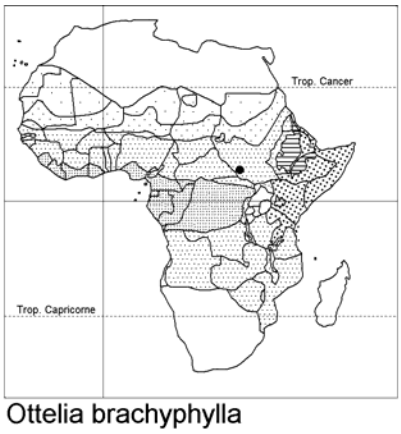
Lagarosiphon steudneri



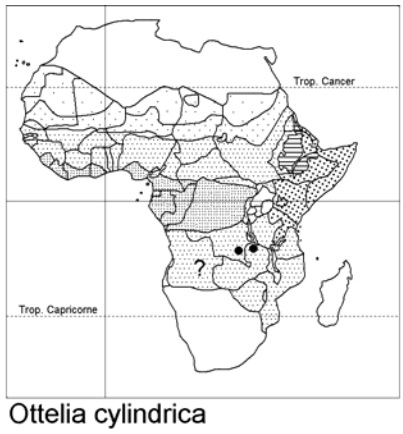
Lagarosiphon verticillifolius



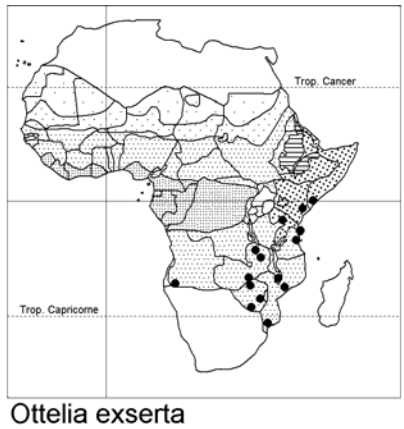
Ottelia alismoides



Ottelia brachyphylla



Ottelia cylindrica



Ottelia exserta

OTTELIA ULVIFOLIA

Variable in shape and size of leaves, in spathe-structure.

Bioko; Namibia, Botswana, Swaziland, S. Africa (Transvaal); Madagascar. – May well occur in Somalia, too (Thulin, Fl. Somal. 4: 8, 1995).

Planted in wells in Tanzania to prevent rapid evaporation of the water (Burkill, l.c.). Fruit and leaves edible.

Troublesome in dams, rivers, etc. (cf. Kirkia 2: 34, 1961).

O. verdickii Gürke, ? incl. var. *elanga* De Wild., Pl. Bequaert. 1: 455, 1922; Figueiredo & Smith, Pl. Angola: 186, 2008.

syn.: *O. gigas* T. C. E. Fries

Aquatic herb, perennial, hermaphrodite; stem erect, corm-like; juvenile leaves unknown; mature leaves with a petiole 6-44 × 0,3-1,2 cm; blade submerged, elliptic(-lanceolate), 15-90 × 4,5-10 cm, acute, cuneate at base, margins entire or scabrid; spathe with peduncle 3-11,5 × 0,4-1,8 cm, spiny; body of spathe submerged, oblong, 5,4-11 × 0,9-1,7 cm, 2-6-lobed at apex, 0-2-winged, often with several longitudinal wings or ribs, strongly *tuberculate* or *spiny;* flower 1 per spathe; sepals green or pale purple-red; petals white.

Still freshwater; swamps, rivers; often forming a fringe to *Papyrus-Thelypteris* at lake margins; water depth to 2,4 m; 1150-1350 m alt.

TAXA OF UNCERTAIN STATUS:

Ottelia bongoensis Gürke

Aquatic herb with submerged narrow lanceolate leaves 10-15 × 1-2 cm, blade narrowed towards the base into a thin petiole 10-20 cm long, blade entire of thin texture, acute at apex; spathe cylindrical, 2-2,4 cm long, 3-4 mm wide, smooth, 2-ribbed, 1-flowered; ovary 18-22 mm long; sepals narrow lanceolate, 9-10 × 1,5-2 mm; petals 12-14 mm long, yellow.

Collected at Bulu near Sabbi SW Sudan (6°15'Nx29°E); Schweinfurth 2715.

Is perhaps a synonym under *O. ulvifolia.*

O. brevifolia Gürke

Aquatic herb with elliptic-lanceolate submerged leaves, blade 10-16 × 4-6 cm, of thin texture, narrowed into a petiole 10-15 cm long, 4-5 mm wide, margins undulate, not serrate, apex obtuse; spathes ellipsoid, 3-4 cm long, 1-1,5 cm wide, 2-ribbed, smooth, 1-flowered, peduncle 25 cm long at fruit maturity.

Collected at Nuer villages on the Bahr al Ghazal (c. 9°30' Nx30°E); Schweinfurth 1159a Schweinfurth 1159, collected the same localities are *(O. rohrbachiana =) O. ulvifolia.*

SYNONYMS:

Ottelia abyssinica (Ridl.) Gürke = **Ottelia ulvifolia**

alata (Gagnep.) H. Li = **O. alismoides**

australis Bremek. = **O. ulvifolia**

baumii Gürke = **O. ulvifolia**

benguellensis Gürke = **O. ulvifolia**

bongoensis Gürke = ? (see at end of species list)

brevifolia Gürke = ? (see at end of species list)

buchneri Gürke = **O. ulvifolia**

chevalieri De Wild. = **Hydrocharis**

condorensis Gagnep. = **Ottelia alismoides**

OTTELIA

crassifolia (Ridl.) Welw. ex Rendle = **O. ulvifolia**

dioecia S. Z. Yan = **O. alismoides**

ensiformis Blanco = **O. alismoides**

halogena De Wild. & T. Durand = **O. ulvifolia**

hoffmeisteri Klotzsch = **O. alismoides**

indica (Willd.) Planch. ex Dalzell & A. Gibson = **O. alismoides**

japonica Miq. = **O. alismoides**

javanica (Blume) Voigt = **O. alismoides**

lactucifolia (Planch.) Walp. = **O. alismoides**

lanceolata (Gagnep.) Dandy = **O. alismoides**

lancifolia A. Rich., incl. var. *fluitans* Ridl. = **O. ulvifolia**

latifolia De Wild. = **O. ulvifolia**

macrantha (C. H. Wright) Dandy = **O. ulvifolia**

massaiensis Gürke = **O. ulvifolia**

philippinensis Ostenf. = **O. alismoides**

plantaginea Welw. ex Ridl. = **O. ulvifolia**

rohrbachiana (Aschers. & Gürke) Gürke = **O. ulvifolia**

schinziana (Aschers. & Gürke) Dandy = **O. exserta**

schweinfurthii Gürke = **O. ulvifolia**

somalensis Chiov. = **O. exserta**

thorelii (Gagnep.) Dandy = **O. alismoides**

vernayi Bremek. & Oberm. = **O. ulvifolia**

vesiculata Ridl. = **O. ulvifolia**

(SCHIZOTHECA)

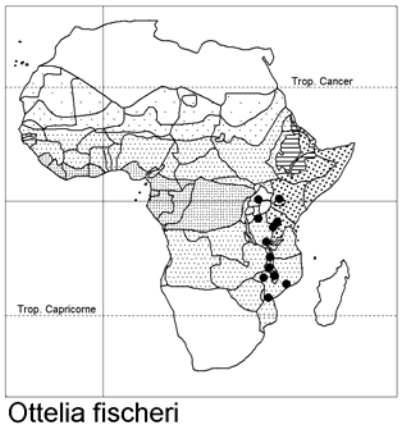
Schizotheca hemprichii Ehrenb. ex Solms = **Thalassia**

(SERPICULA)

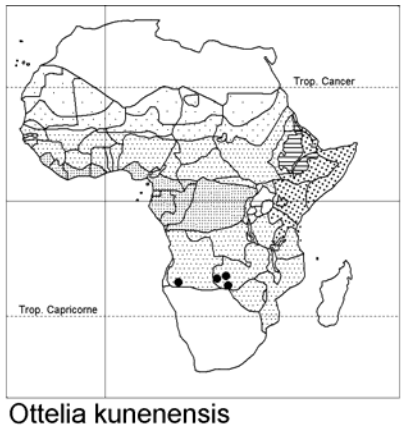
Serpicula verticillata L. f. = **Hydrilla**

(STRATIOTES)

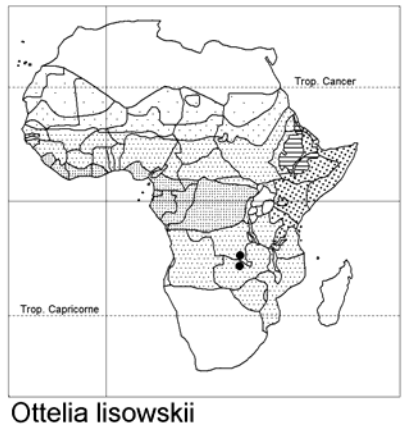
Stratiotes alismoides L. = **Ottelia**



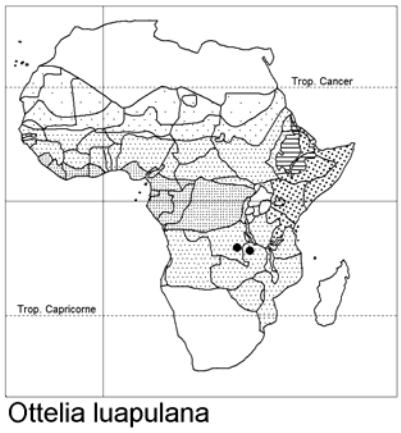
Ottelia fischeri



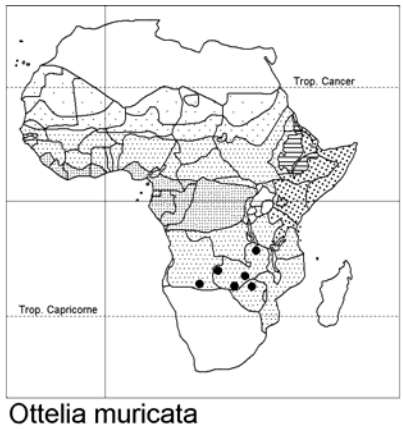
Ottelia kunenensis



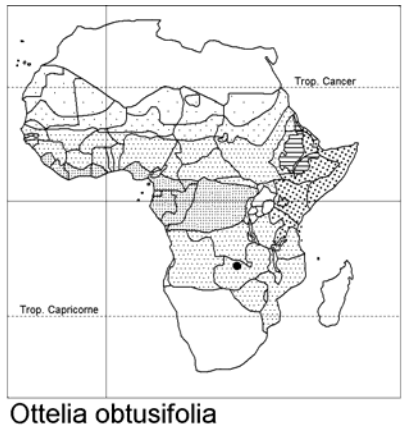
Ottelia lisowskii



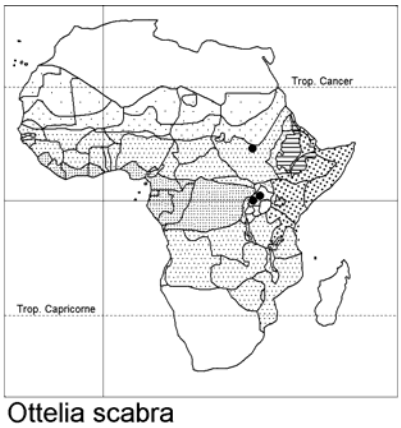
Ottelia luapulana



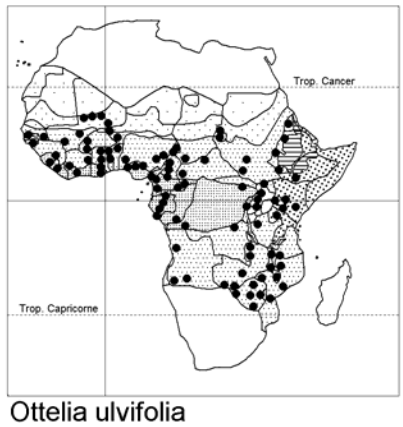
Ottelia muricata



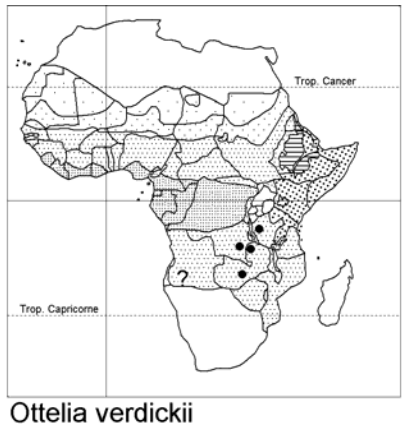
Ottelia obtusifolia



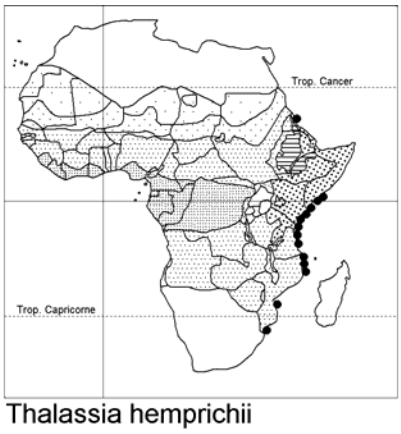
Ottelia scabra



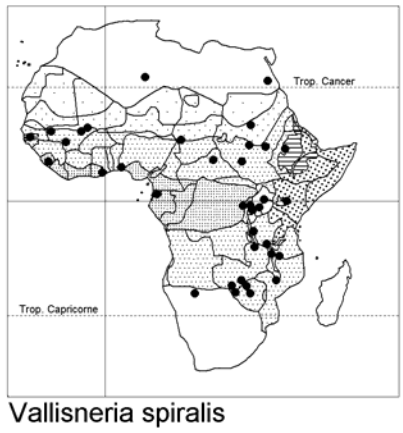
Ottelia ulvifolia



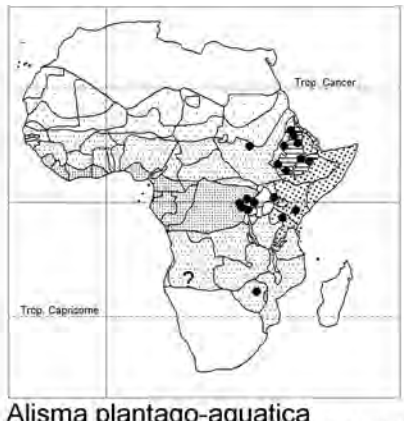
Ottelia verdickii



Thalassia hemprichii



Vallisneria spiralis



Alisma plantago-aquatica
subsp. plantago-aquatica

THALASSIA / *1*

Genus of 2 marine species; one *(T. testudinum* Banks ex König) in Central America, SE USA, Caribbean.

Thalassia hemprichii (Ehrenb. ex Solms) Aschers. – Icon.: Thulin, Fl. Somalia 4: 10, 1995; Fl. Eth. & Eritrea 6: 8, 1997; Gullström & al. in Ambio 31: 590, 2002; Green & Short, World atlas seagrasses: 269, 2003 (with map); Boulos, Fl. Egypt 4: 7, 2005; Fl. Zambes. 12/2: 57, 2009; Oliveira & al., Marine pl. Tanzan.: 236, 2005.

Dioecious submerged marine perennial herb; rhizome creeping, terete, 2-5 mm Ø; stem erect terete, to 5 mm Ø; leaves 4-40 cm long, 2,5-11 mm wide; leaf sheaths compressed, to 9 cm long, persistent; male spathe with peduncle to 3 cm long; spathe bracts with entire margins, rarely serrulate near apex, 1,7-2,5 cm long, ± 5 mm wide, light brown with dark reddish brown streaks; male flower tepals light brown or colourless, with reddish brown dots or streaks; female spathe with peduncle to 1,5 cm long; bracts 1,7-2,5 × 1 cm, light brown with dark reddish-brown streaks; female flowers with perianth tube 20-30 mm long.

Fine mud to clean coral-sand on reef platforms and sublittoral flats from low water mark to 7 m depth. Common, forming extensive beds; in the eulittoral zone, restricted to shallow pools.

Egypt, Saudi Arabia (Red Sea); Maldives, Seychelles, Madagascar, tropical Indian Ocean, W. Pacific Ocean incl. Australia. – In Somalia probably occurring also further north than shown on our map.

One of the most important seagrass species in the western Indian Ocean with *Thalassodendron ciliatum (Cymodoceaceae).*

SYNONYMS:

Thalassia bullata (Delile) König = **Halophila stipulacea**
ciliata Decne. = **H. gaudichaudii**
stipulacea (Forssk.) K. D. König = **H. stipulacea**
vaginata Decne. ex Kunth = **H. gaudichaudii**

(UDORA)

Udora cordofana Hochst. = **Lagarosiphon**
lithuanica Rchb. = **Hydrilla verticillata**
occidentalis W. D. J. Koch = **H. verticillata**
pomeranica Rchb. = **H. verticillata**
verticillata (L. f.) Spreng. = **H. verticillata**

VALLISNERIA / *1*

Some 10 species (perhaps more); see Les & al., o.c.

BOGNER, J. (2011). Die Gattung Vallisneria (Hydrocharitaceae) – ein Nachtrag. *Aqua-Planta* 36: 49-51.

BOGNER, J. & al. (2011). Die Gattung Vallisneria. *Aqua-Planta* 36: 4-15.

LES, D. H. & al. (2008). Systematics of Vallisneria (Hydrocharitaceae). *Syst. Bot.* 33: 49-65.

Vallisneria spiralis L., incl. fa. *aethiopica* (Fenzl) T. Durand & Schinz – Icon.: Kirkia 2: pl. 12C (p. 65-66), 1961 (sub nom. *V. aethiopica);* Candollea 23: 53, 1968; Fl. Eth. & Eritrea 6: 4, 1997; Cook, Aquat. pl. book, ed. 2: 104, 1996; Cook, Aquat. & wetland pl. south. Africa: 148, 2004; Boulos, Fl. Egypt 4: 7, 2005; Fl. Zambes. 12/2: 47, 2009 (fa. *aethiopica* recognised as a distinct entity).

VALLISNERIA SPIRALIS

syn.: *V. aethiopica* Fenzl; *V. numidica* Pomel; *V. spiralis* var. *numidica* (Pomel) Maire & Weiller; ? *V. denseserrulata* (Makino) Makino; *V. spiralis* ? var. *denseserrulata* Makino

Dioecious, submerged, perennial herb; roots unbranched; stems short, with creeping stolons or runners, terete, 0,6-1,9 mm Ø; leaves, 0,5-57(-200) cm long, 1,7-12 mm wide, mid- to dark green with numerous minute longitudinal and transverse reddish-brown striations; margins entire to coarsely serrate; male spathe with peduncle to 7 cm long; spathe 4-5,5 × 2,3-2,5 mm, light brown, with to ± 50 tiny flowers, shed as buds; peduncle of female spathe to 1 m long, body of spathe 8-19 × 1-2 mm, whitish to light brown; flowers solitary, opening and floating on the water surface; sepals 3, light to reddish-brown often with dark reddish-brown dots or streaks; petals 3, rudimentary.

Still or flowing fresh or brackish water 0,2-3,5 m deep; lakes, streams, irrigation channels; mostly on sandy bottoms; 0-1860 m alt. – Troublesome in irrigation channels.

Namibia, Botswana, S. Africa (Natal); Europe; N Algeria, Egypt; Réunion, Mauritius; Turkey, Palestine through Middle East to Central Asia, India, Sri Lanka, Vietnam, Japan; Australia.

Cultivated in aquaria.

According to Les & al., o.c.: 61, "additional sampling would be necessary to determine whether *V. denseserrulata* also occurs in Africa and if it truly is conspecific with *V. aethiopica".* According to Bogner & al. (o.c.: 9, 13) *V. denseserrulata* is a distinctive species occurring in China and Japan.

SYNONYMS (see also above under the species):

Vallisneria sphaerocarpa Blanco = **Enhalus acoroides**
verticillata (L. f.) Roxb. = **Hydrilla verticillata**

ALISMATACEAE / *7* g. / *11* spp.

Comprising some 14 genera, 100 species. Cosmopolitan; aquatic and semi-aquatic herbs especially abundant in temperate and tropical regions on the N Hemisphere.

FEITOZA, L. L. & al. (2009). See above under **Limnocharitaceae**.

FEITOZA, L. L. & al. (2010). Cytogenetics of Alismataceae and Limnocharitaceae: CMA/DAPI banding and 45S rDNA sites. *Pl. Syst. Evol.* 286: 199-208.

LEHTONEN, S. (2009). Systematics of the Alismataceae – A morphological evaluation. *Aquat. Bot.* 91: 279-290.

ALISMA / *1*

Some 9 species native in the N Hemisphere, by recent introductions nearly cosmopolitan.

Alisma plantago-aquatica L. subsp. **plantago-aquatica**; Dobignard & Chatelain, Index synon. fl. Afrique N. 1: 59, 2010; Figueiredo & Smith, Pl. Angola: 170, 2008. – Icon.: Fl. south. Africa 1: 98, 1966; Fl. Afr. Centr., Alismat.: 9, 1975; Fl. Eth. & Eritrea 6: 1, 1997; Cook, Aquat. & wetland pl. south. Africa: 49, 2004; Boulos, Fl. Egypt 4: 3, 2005; Kirkia 2: pl. 13A (p. 65-66), 1961; Fl. Zambes. 12/2: 3, 2009.

syn.: *A. plantago* L. subsp. *michaletii* Aschers. & Graebn.; *A. michaletii* (Aschers. & Graebn.) Aschers. & Graebn.; *A. plantago-aquatica* var. *michaletii* (Aschers. & Graebn.) Buchenau; *A. plantago* L. subsp. *michaletii* Aschers. & Graebn. fa. *latifolium* (Gilib.) Mildbr.; see World Checklist Monocot., Roy. Bot. Gard., Kew, Alismataceae.

ALISMA PLANTAGO-AQUATICA

Perennial aquatic herb 0,4-1,2 m tall; rhizome erect, 1-2 cm Ø; leaves (mature) emergent, to 80 cm long, petiole 5-40 cm long; blade ovate to lanceolate, 5-30 × 2-14 cm, base rounded to heart-shaped; inflorescence a much-branched panicle with 5-8 whorls of major branches ending in terminal umbels of 3-8 pedicelled flowers; flowers bisexual, 3 sepals greenish, 3 petals white; achenes broadly ovate, disk-like, with 2-3 ridges on dorsal surface, pale brown to yellowish, buoyant for many months.

Muddy habitats in (temporary) ponds, marshes, swamps, river margins; along banks of lakes and pools; 900-2500 m alt.

Introduced in Zimbabwe (C: Harare Distr.), Angola (Huila).

N Africa from Morocco to Egypt (Nile Delta), Libya ?; temperate Europe; SW-C Asia; Himalaya – temperate E Asia [subsp. **orientale** (Sam.) Sam.]. Introduced in S. Africa, Australia, New Zealand, S. America.

Subsp. *brevipes* (Greene) Sam. is a synonym of **A. triviale** Pursh present in N. America.

SYNONYMS:

Alisma angustifolium Hoppe = **Alisma plantago-aquatica** subsp. **plantago-aquatica**

ceretanica Sennen = **Alisma plantago-aquatica** subsp. **plantago-aquatica**

cristatum Wall. = **Sagittaria guayanensis** subsp. **lappula**

enneandrum Hochst., nom. nud. = **Burnatia**

glandulosum Thwaites = **Caldesia oligococca** var. **echinata**

heterophyllum Schur = **Alisma plantago-aquatica** subsp. **plantago-aquatica**

humile Rich. ex Kunth = **Ranalisma**

kotschyi Hochst. = **Limnophyton obtusifolium**

lappula Buch.-Ham. ex Kunth = **Sagittaria guayanensis** subsp. **lappula**

latifolium Gilib. = **Alisma plantago-aquatica** subsp. **plantago-aquatica**

major Gray, incl. var. *lanceolatum* Gray = **A. plantago-aquatica** subsp. **plantago-aquatica**

michaletii (Aschers. & Graebn.) Aschers. & Graebn., incl. fa. *latifolium* (Gilib.) Mildbr. = **Alisma plantago-aquatica** subsp. **plantago-aquatica**

natans Pollich = **A. plantago-aquatica** subsp. **plantago-aquatica**

obtusifolium (L.) Thwaites = **Limnophyton obtusifolium**

oligococcum F. Muell. = **Caldesia oligococca**

paniculatum Stokes = **Alisma plantago-aquatica** subsp. **plantago-aquatica**

parnassifolium Bassi ex L. var. *majus* Micheli = **Caldesia reniformis**

plantagineum St.-Lag. = **Alisma plantago-aquatica** subsp. **plantago-aquatica**

plantaginifolium St.-Lag. = **A. plantago-aquatica** subsp. **plantago-aquatica**

reniforme D. Don = **Caldesia reniformis**

sagittifolium Willd. = **Limnophyton obtusifolium**

verticillatum Dulac = **Alisma plantago-aquatica** subsp. **plantago-aquatica**

BURNATIA / *1*

syn.: *Rautanenia* Buchenau

Monospecific African genus.

Burnatia enneandra Micheli, incl. var. *linearis* Peter; Burkill, Useful pl. W. Trop. Africa, ed. 2, 1: 41, 1985; Lehtonen, o.c.: 284; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 300, 1994. – Icon.: Fl. Afr. Centr., Alismat.: 15, 1975; Thulin, Fl. Somalia 4: 13, 1995; Fl. Eth. & Eritrea 6: 17, 1997; Cook, Aquat. pl. book, ed. 2: 26, 1996; Cook, Aquat. & wetland pl. south. Africa: 50, 2004; Fl. Zambes. 12/2: 5, 2009.

syn.: *B. oblonga* Peter; *Alisma enneandrum* Hochst., nom. nud.; *Echinodorus schinzii* Buchenau; *Burnatia alismoides* Peter, incl. var. *elliptica* Peter

Perennial (and perhaps annual) glabrous dioecious rhizomatous herb 15-120 cm tall; leaves erect; petiole flattened, 30-60 cm long; blade acute, very variable in shape (ovate with rounded base to linear-lanceolate with decurrent base) from 13 × 7 cm to 16 × 4 cm, and 14 × 1 cm; inflorescences compound, of whorls each with 3 branches or 3 flowers; male ones larger 15-30 cm tall, and more branched than the females; female flower with whitish sepals sometimes tinged violet, petals minute; achenes flattened, 8-20, 1,5-2,5 mm long.

(Margins of muddy) pools; swamps; shallow lakes; edges of rivers; temporary flooded rice fields; 30-1750 m alt.

S. Africa, Namibia, Botswana.

Rhizomes eaten (famine food).

CALDESIA / *2*

Generally four species accepted; in the Old World to N Australia. Only one species does not have a tropical distribution: *C. parnassifolia* (L.) Parl.

Caldesia oligococca (F. Muell.) Buchenau var. **echinata** Hartog; Lehtonen, o.c.: 284. – Icon.: Fl. Males., Ser. 1, 5: 321-322, 1957.

bas.: *Alisma oligococcum* F. Muell.

syn.: *A. glandulosum* Thwaites (syn. of var. **echinata**).

Aquatic herb, perennial, c. 70 cm tall; rhizome short with numerous roots; leaves sometimes heteromorphous; submerged leaves linear phyllodes; floating ones with petiole 15-30 cm long; blade ovate, 6-10 × 5-6 cm, base deeply cordate; scape erect, cylindric, 40-60 cm tall; inflorescence (panicle) pyramidal with superposed whorls of 3-4 twigs on 3 flowers; those with a slender pedicel, 1,8-3 cm long; petals white; nutlets ovoid-reniform with 4 verrucose or spiny dorsal ribs.

Edges of permanent swamps; temporary pond.

Tropical Africa; SE Asia (India, Sri Lanka to Vietnam, Java).

Comprises 3 vars. in the Old World: – var. **acanthocarpa** (F. Muell.) Hartog in Australia; – var. **echinata** (see above); – var. **oligococca** in Australia, Timor.

C. reniformis (D. Don) Makino; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 41, 1985; Figueiredo & Smith, Pl. Angola: 170, 2008 (sub nom. *C. parnassifolia);* Lisowski, Fl. (angiosp.) Rép. Guinée 1: 377, 2009; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 215, 2011. – Icon.: Fl. Afr. Centr., Alismat.: 7, 1975; Fl. Cameroun 26: 11, 1984; Cook, Aquat. pl. book, ed. 2: 26, 1996; Cook, Aquat. & wetland pl. south. Afr.: 50, 2004; Boulos, Fl. Egypt 4: 3, 2005; Akoegninou & al., Fl. analyt. Bénin: 30, 2006; Fl. Zambes. 12/2: 7, 2009.

CALDESIA RENIFORMIS

syn.: *Alisma parnassifolium* Bassi ex L. var. *majus* Micheli; *Caldesia parnassifolia* (Bassi ex L.) Parlatore var. *major* (Micheli) Buchenau and var. *nilotica* Buchenau

Perennial (or annual) aquatic herb 15-80 cm tall; leaves (submerged or) floating; petiole 25-50 cm long; blade broadly ovate, 3-12 × 2-17 cm, leathery, base deeply cordate, apex rounded to broadly obtuse; scape 40-70 cm tall; panicle pyramidal, compound, with 4-8 whorls of branches, the upper ones sometimes with flowers, when submerged flowers sometimes replaced by vegetative buds; flowers bisexual, sepals 3 persisting in fruit, petals 3 white to pale blue; nutlets (c. 8) 3 mm long, with a spongy exocarp (not evident in dried material), endocarp hard with 5-9 longtitudinal ridges.

Swamps, margins of lakes and rivers, shallow lakes; 900-1500 (-1700) m alt.

Botswana; Madagascar; India, China, Malaysia, Japan, Australia. – Not in N Africa; ? Egypt.

In Benin not collected since 1910.

On a worldwide scale this plant seems to merge with the European *C. parnassifolia* (Cook, 2004: l.c.). See also discussion in Fl. Afr. Centr., Alismat.: 6, 1975, and Fl. Males. 1/5: 320, 1957.

SYNONYM:

Caldesia sagittarioides Ostenf. = **Limnophyton obtusifolium**

(DIPSEUDOCHORION)

Dipseudochorion sagittifolium (Willd.) Buchenau = **Limnophyton obtusifolium**

(ECHINODORUS)

Echinodorus guayanensis (Kunth) Griseb. = **Sagittaria guayanensis**

humilis (Rich. ex Kunth) Buchenau = **Ranalisma humile**

schinzii Buchenau = **Burnatia enneandra**

vulgaris Bubani = **Alisma plantago-aquatica** subsp. **plantago-aquatica**

LIMNOPHYTON / *3*

Four species: tropical Africa, S & SE Asia, Australia (cf. Lehtonen in Aquat. Bot. 91: 284, 2009). With a *milky latex.*

Limnophyton angolense Buchenau; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 41-42, 1985; Figueiredo & Smith, Pl. Angola: 170, 2008. – Icon.: Fl. W. Trop. Afr., ed. 2, 3/1: 12, 1968; Fl. Afr. Centr., Alismat.: 13, 1975; Cook, Aquat. & wetland pl. south. Afr.: 51, 2004; Lisowski, Fl. (angiosp.) Rép. Guinée 2: fig. 461, 2009; Fl. Zambes. 12/2: 9, 2009.

syn.: see, Fl. Cameroun 26: 18, 1984; *Lophotocarpus guyanensis* sensu Chevalier, Explor. Bot. Afr. Occ. Franç. 1: 686, 1920, p.p., quoad specim. Chevalier 13327, 14888, non (Kunth) T. Durand & Schinz; see Fl. Zambes. 12/2: 11, 2009.

Perennial aquatic and marsh herb 1,2-2 m tall; leaves in basal rosette, erect, petiole 10-85 cm long; blade sagittate, floating-drifting with the current, usually constricted laterally on a level with the petiole apex, 10-15 cm measured along the midrib, 10-20 cm wide at the constriction; lobes 13-20 cm long, with the sinus between them <90°; petiole and blade pubescent; inflorescences of 4-6 whorls of flowers (15 or more per whorl); nutlets ovoid, longitudinally ridged, 8 × 5 mm when fresh.

Swamps; ditches; shallow lakes; pools; permanent ponds; with *Pistia, Nymphaea;* to 1900 m alt.

Botswana, Namibia.

LIMNOPHYTON

L. fluitans Graebn.

Aquatic, submerged herb; rhizome erect ± elongate; leaves with petiole 22-27 cm long; blade floating, linear-lanceolate, gradually narrowed towards base, 30-50 × 2-5,5 cm, apex acute; scape erect, c. 40 cm tall; inflorescence with 2-4 whorls of 3-9 flowers each; petals white; numerous fruits in heads 1-1,2 cm Ø; nutlets broadly ovoid, keeled, 3 × 2 mm, beaked.

Flowing water.

L. obtusifolium (L.) Miq., incl. var. *lunatum* Peter; Burkill, Useful pl. Trop. W. Afr., ed. 2, 1: 42, 1985. – Icon.: Fl. Males 1/5: 323, 1957; Fl. Cameroun 26: 17, 1984; Thulin, Fl. Somalia 4: 12, 1995; Fl. Eth. & Eritrea 6: 16, 1997; Cook, Aquat. pl. book, ed. 2: 28, 1996; Akoegninou & al., Fl. analyt. Bénin: 30, 2006; Fl. Zambes. 12/2: 9, 2009.

bas.: *Sagittaria obtusifolia* L.

syn.: *Alisma sagittifolium* Willd.; *A. kotschyi* Hochst. ex A. Braun; *A. obtusifolium* (L.) Thwaites; *Dipseudochorion sagittifolium* (Willd.) Buchenau; *Caldesia sagittarioides* Ostenf.; *Limnophyton parvifolium* Peter; *Lophotocarpus guayanensis* sensu A. Chev., Expl. Bot. Afr. Occ. Franç. 1: 686, 1920, quoad specim. Chevalier 2595.

Perennial aquatic herb 0,25 to 1-2 m tall, with short woody rhizome or lacking; leaf petiole 25-50 cm long, triangular in section; blade obovate in the seedling stage (which sometimes flowers and bears fruit) 3,5 × 1,5 cm; mature leaves sagittate, 6-9 cm measured along the midrib, 8-13 cm wide on a level with the petiole apex; lobes 7-11 cm long with the sinus between them > 90°; blade and petiole *rarely* slightly pubescent or scabrid; scape as long as the petiole, inflorescences with 2-7 whorls of flowers (3-10 in each whorl); nutlets ovoid, 4 × 3 mm, with net-like ridges, pale brown.

Swamps, ditches, pools in standing or slow-flowing water; flooded meadows with *Echinochloa, Oryza;* clayey or clayey-sandy soils; temporary pools; sometimes rather common; with *Desmanthus, Cyperus articulatus* in muddy marshy edges of lake; 0-1200 m alt.

Namibia, Botswana, Swaziland, S. Africa; Madagascar; from India, Pakistan, Sri Lanka eastwards to Malaysia.

(LOPHIOCARPUS)

Lophiocarpus cordifolius Miq. var. *madagascariensis* Buchenau = **Sagittaria guayanensis** subsp. **lappula**

guayanensis Micheli = **S. guayanensis** subsp. **lappula**

guayanensis (Kunth) Miq. = **S. guayanensis**

lappula (D. Don) Miq. = **S. guayanensis** subsp. **lappula**

(LOPHOTOCARPUS)

Lophotocarpus guyanensis sensu A. Chev., non (Kunth) T. Durnad & Schinz, p.p. = **Limnophyton angolense, L. obtusifolium**

gourmacus A. Chev., nom. nud. = **Sagittaria guayanensis** subsp. **lappula**

guyanansis (Kunth) T. Durand & Schinz var. *lappula* (D. Don) Buchenau, and var. *madagascariensis* (Buchenau) Buchenau = **S. guayanensis** subsp. **lappula**

RANALISMA / *1*

Two species, one in Africa, one in SE Asia *(R. rostrata* Stapf).

Ranalisma humile (Rich. ex Kunth) Hutch.; Figueiredo & Smith, Pl. Angola: 170, 2008; Lehtonen in Aquat. Bot. 91: 284-285, 2009; Sosef & al., Check-list pl. vascul. Gabon: 43, 2006; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 219, 2002; Lejoly & al., Fl. Tshopo (RD Congo) in Taxonom. 24: 2, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 23, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 215, 2011. – Icon.: Fl. W. Trop. Afr., ed. 2, 3/1: 10, 1968; Fl. Afr. Centr. Alismat.: 3, 1975; Fl. Cameroun 26: 5, 1984; Cook, Aquat. pl. book, ed. 2: 28, 1996; Fl. Gabon 38: 3, 2009; Lisowski & Malaisse in Symoens, Explor. Hydrobiol. Bassin Lac Bangweolo & Luapula 18/1: 36, 1989; Fl. Zambes. 12/2: 12, 2009.

bas.: *Alisma humile* Rich. ex Kunth

syn.: *Sagittaria humilis* (Rich. ex Kunth) Kuntze

Perennial stoloniferous glabrous herb 2-15 cm tall; stolons short; leaves in basal rosette; petiole 1-10 cm long, flattened; blade (ovate-)lanceolate 0,5-1,5 × 1-3 cm (emersed) or linear-lanceolate to 0,5-10 cm (submerged), apex acute, base rounded to cuneate or slightly decurrent; inflorescence pseudo-umbellate, 1-3 flowered, flowers sometimes replaced by vegetative buds, the peduncle bending over stolon-like and buds develop into new plants; flowers bisexual, petals white to pinkish; achenes densely packed forming a globose head 6-10 mm Ø; achenes obliquely obovoid, 2-2,5 × 1,5-2 mm, winged, beaked.

Marshy places near rivers; sources; pools; swamps; swampy forest and meadows; emerged mud banks; still freshwater; clayey soils; temporary pools drying up; to 480-1500 m alt.

Probably undercollected.

(RAUTANENIA)

Rautanenia schinzii (Buchenau) Buchenau = **Burnatia enneandra**

SAGITTARIA / *1*

Genus of some 39-40 species; cosmopolitan but most species in the New World (N. America) some of which spreading in the Old World (cf. Lehtonen in Aquat. Bot. 91: 285, 2009). “Widely known for their extreme morphological plasticity”.

Sagittaria guayanensis Kunth subsp. **lappula** (D. Don) Bogin; Burkill, Useful pl. W. Trop. Afr., ed. 2; 1: 42, 1985. – Icon.: Fl. ill. Senegal 9: 39, 1988 (partial); Fl. Males 1/5: 328, 1957; Kirkia 2: pl. 15C (p. 65-66), 1961.

bas.: *S. lappula* D. Don

syn.: *S. nymphaeifolia* Hochst. ex Steud., nom. nud.; *Lophiocarpus cordifolius* (Roxb.) Miq. var. *madagascariensis* Buchenau; *Lophotocarpus guayanensis* (Kunth) T. Durand & Shinz var. *madagascariensis* (Buchenau) Buchenau; *Lophotocarpus gourmacus* A. Chev., nom. nud. (Chevalier 24486); *Sagittaria pusilla* Blume 1827, non Nutt. 1818; *S. blumei* Kunth; *S. cordifolia* Roxb.; *S. obtusissima* Hassk.; *Alisma cristatum* Wall.; *A. lappula* Buch.-Ham. ex Kunth; *Lophiocarpus lappula* (D. Don) Miq. – Full synonymy in Mem. New York Bot. Gard. 9/2: 192-193, 1955; Fl. Males., l.c.

SAGITTARIA GUAYANENSIS SUBSP. LAPPULA

Aquatic herb, laticiferous; rootstock small, with numerous slender roots; leaves floating, all radical, long-petiolate, ovate, deeply sagittate at base, 5-9 × 8 cm; scape unbranched, few-flowered; flowers polygamous, white, few in each whorl, the lower hermaphrodite; achenes compressed, 2,2-4,5 × 1,8-3,5 mm, with wing ± lobed, sides with a ± echinulate crest, rarely smooth.

Muddy ponds and pools; shallow water; lakes, pools, swamps, aquatic meadows; temporary pools; marigot; clayey soils; to 1800 m alt.

Sagittario guayanensis-Nymphaeion maculatae: littoral zones of flat, seasonal freshwater lakes on sandy loam or clay with *Heteranthera callifolia, Corchorus olitorius, C. fascicularis* (see Syst. Geogr. Pl. 75: 239-257, 2005); also in other associations with *Sagittaria*.

Madagascar; tropical Asia from Pakistan, India (fairly common in freshwater reservoirs and marshes) to China, Taiwan, Indonesia.

Troublesome in irrigated crops (cf. Kirkia 2: 45, 1961).

Subsp. **guayanensis**, with plump achenes, occurs in SE USA, C Mexico, Jamaica, Dominican Rep., C. America, S. America southwards to Paraguay, N Argentina.

As to the spelling of the species epithet, cf. Taxon 51: 575-576, 2002.

MÜLLER, J. V. (2005). Ephemeral vegetation at shorelines of Sahelian seasonal lakes. *Syst. Geogr. Pl.* 75: 239-257.

[**S. montevidensis** Cham. & Schltdl. subsp. **montevidensis**]

Robust glabrous aquatic herb, with stolons ending in a tuberous thickened tip; leaves erect, rarely floating or submerged; blade of erect leaves linear-ovate, 0,5-25 × 2-20 cm, sagittate, lobes to 20 cm long; blade of floating ones ovate, 1,5 × 2,5 cm; submerged ones reduced to phyllodes; scape erect, 7-75 cm tall, with 2-12 whorls of flowers, male or female, petals white with a purple mark at base; achenes in heads 2,5 cm Ø.

Ponds, swamps, edges of slow-flowing streams; 800-900 m alt.

Recorded from NE Tanzania. Native of S. America.

SYNONYMS:

Sagittaria alismifolia Phil. ex Miq. = **Sagittaria montevidensis** subsp. **montevidensis**

blumei Kunth = **S. guayanensis** subsp. **lappula**

chilensis Cham. & Schltdl. = **S. montevidensis** subsp. **montevidensis**

cordifolia Roxb. = **S. guayanensis** subsp. **lappula**

humilis (Rich. ex Kunth) Kuntze = **Ranalisma humile**

incrassata Steud. = **Sagittaria montevidensis** subsp. **montevidensis**

lappula D. Don = **S. guayanensis** subsp. **lappula**

nymphaeifolia Hochst. ex Steud., nom. nud. = **S. guayanensis** subsp. **lappula**

obtusifolia L. = **Limnophyton**

obtusissima Hassk. = **Sagittaria guayanensis** subsp. **lappula**

pusilla Blume = **S. guayanensis** subsp. **lappula**

triflora Noronha = **S. guayanensis** subsp. **lappula**

WIESNERIA / *2*

Three species, from tropical Africa, Madagascar, and India *[W. triandra* (Dalzell) Micheli].

Wiesneria filifolia Hook. f.; Lisowski & al. in Bull. Jard. Bot. Natl. Belg. 45: 388, 1975; Figueiredo & Smith, Pl. Angola: 170, 2008. – Icon.: Cook, Aquat. pl. book, ed. 2: 29, 1996; Cook, Aquat. & wetland pl. south. Africa: 52, 2004; Fl. Zambes. 12/2: 14, 2009.

Perennial aquatic herb sometimes anchored in floating weeds; leaves strap-shaped without an evident notch separating petiole and blade, 2-3,5 mm wide (petiole submerged, 10-60 cm long; blade partly emersed); juvenile leaves retained into maturity of plant; peduncles shorter than petioles; inflorescence 2-5 cm long, with 5-10 whorls of male or female flowers, and vegetative buds with scales having stiff, thickened midribs, to 1,5 cm long; achenes 3-3,5 mm long, slightly indented each side, smooth, beak 1-1,5 mm long.

Soft mud and floating weeds in pools and shallow lakes; still waters; stagnant deep waters (0,5-1,5 m); 930-1700 m alt.

N Botswana; Madagascar.

Perhaps a deep or flowing water state of *W. schweinfurthii* (fide Cook, 2004).

W. schweinfurthii Hook. f.; Figueiredo & Smith, l.c.; Fl. Zambes. 12/2: 13, 15, 2009. – Icon.: Fl. Afr. Centr., Alismat.: 19, 1975; Cook, Aquat. & wetland pl. south. Africa: 51, 2004.

syn.: *W. sparganiifolia* Graebn.

Annual (? or longer lived in deep or flowing water), 20-75 cm tall; roots stout, septate; leaves basal, grass-like in juvenile state, later differentiated into petiole (8-34 cm long, 2-6 mm wide) often inflated and erect or floating, and blade (linear, 9-15 cm long, 3,5-15 mm wide); peduncle 15-30 cm long; inflorescence with 4-12 whorls of female or male flowers; petals white, pink or mauve; sometimes flowers replaced by proliferating buds; achenes 3-6, oboval to ellipsoid, 3-4 mm long, swollen, ± tuberculate, with crests, beak 2 mm long.

(Temporary) pools; swampy meadows; still or slow-flowing water; often on laterite; to 1200 m alt.

N Botswana (Okavango Delta), ? Namibia.

TRIURIDACEAE / *4* g. / *6* spp.

A mycoheterotrophic family of 11 genera and some 50 species, in the tropics and subtropics worldwide. Small inconspicuous and ephemeral plants, unusual in having numerous free carpels in female flowers or bisexual flowers. Often placed in *Alismatidae*, but recently in the *Pandanales.*

CHEEK, M. (2004). Kupeaeae, a new tribe of Triuridaceae from Africa. *Kew Bull.* 58: 939-949.

CHEEK, M. (2006). African saprophytes: new discoveries. *In:* GHAZANFAR, S. A. & H. J. BEENTJE, eds., *Taxonomy and ecology of African plants, their conservation and sustainable use:* 693-697. Royal Botanic Gardens, Kew.

RUDALL, P. J. (2003). Monocot pseudanthia revisited: floral structure of the mycoheterotrophic family Triuridaceae. *Int. J. Pl. Sci.* 164 (5 Suppl.): S307-S320.

RUDALL, P. J. (2008). Fascicles and filamentous structures: comparative ontogeny of morphological novelties in Triuridaceae. *Int. J. Pl. Sci.* 169: 1023-1037.

In our area one species known only from the type.

KIHANSIA / *1*

Monotypic.

Kihansia lovettii Cheek – Icon.: Kew Bull. 58: 942, 945, 946, 2004.

Dioecious achloraphyllous mycotrophic herb 6-11 cm tall, white, translucent, glabrous, with radiating roots from the stem base; stems usually unbranched, erect, 0,7-0,8 mm Ø; scale leaves concave, triangular-elliptic, ± 1,25 × 0,6 mm; inflorescence a spike, basal part fertile, apical part sterile, 2-13-flowered; flowers alternate at intervals of 2-3 mm; lowest flower c. 3,2-6 cm above roots; male inflorescence with 4-14 flowers; female inflorescence with 2-5 flowers; perianth dark brown, 4-lobed; carpels 80-100.

Closed evergreen forest; 720 m alt.

Collected twice: in 1997, 2001. Critically endangered.

KUPEA / *2*

Tropical African genus.

ONANA, J.-M. (2010). Endemisme floristique du Cameroun: inventaire systématique et conservation de la biodiversité. *In:* VAN DER BURGT, X. & al., eds., *Systématique et conservation des plantes africaines:* 50-521. Royal Botanic Gardens, Kew.

Kupea jonii Cheek; Cheek (2006): 695. – Icon. : Kew Bull. 58: 942, 2004.

Dioecious achlorophyllous mycotrophic herb c. 6 cm tall, pale yellow, translucent, glabrous; roots ?; stems usually unbranched, erect or decumbent at base, 0,7-1,2 mm Ø; scale leaves triangular-elliptic, c. 1,8 × 0,8 mm; inflorescence a spike, 20-30-flowered; flowers alternate at intervals of 1-3 mm; male flowers bilaterally symmetrical; female flowers ± radially symmetrical; tepals 4, fleshy; carpels c. 25; fruit resembling the flower.

Closed evergreen forest; 720 m alt.

Collected twice: in 1997, 2001. Critically endangered.

K. martinetugei Cheek & S. A. Williams; Cheek (2006): 695; Kew Bull. 58: 947, 2004 (key to species). – Icon.: Kew Bull. 58: 226, 2003; idem 62: 289-290, 2007.

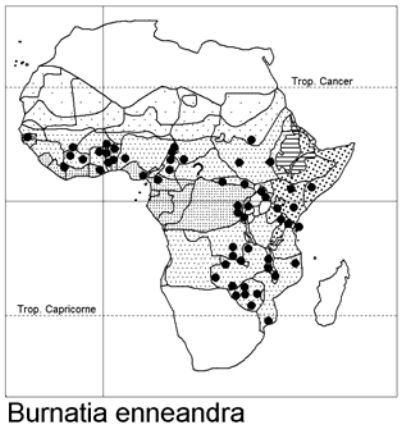
Dioecious achlorophyllous mycotrophic herb 3-7 cm tall, yellow, translucent, glabrous; roots radiating from stem base, stout, with fine root hairs; stems usually unbranched, erect, or decumbent at base, 0,7-1,2 mm Ø; scale leaves triangular-elliptic, 1-1,5 × 0,4 mm; inflorescence a spike, 25-70-flowered, flowers alternate at intervals of 1-4 mm; lowest flower c. 1,2 cm above ground level; male flowers bilaterally symmetrical, c. 5 × 3-3,5 mm; female flowers ± radially symmetrical; tepals 4, fleshy; carpels 25-60; fruit indehiscent, translucent.

Evergreen forest with *Milbraediodendron excelsum, Loesenera talbotii, Diogoa zenkeri, Strychnos staudtii, Musanga cecropioides, Mendoncia* sp., *Angylocalyx oligophyllus, Diospyros montekupensis, Cola cauliflora, Sebaea oligantha, Afrothismia winkleri;* 720 m alt.

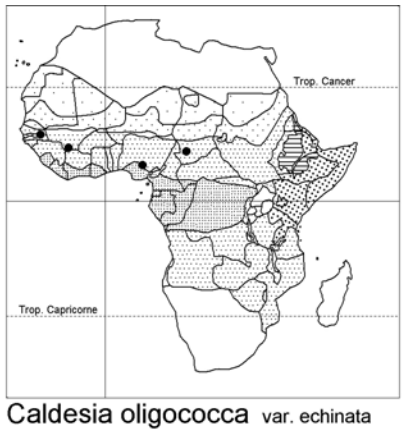
Discovered in 1995 by Martin Etuge. Later found in several locations (Sainge & al., 2010: 286-287).

RUDALL, P. J. & al. (2007). Floral anatomy of Kupea martinetugei (Triuridaceae). *Kew Bull.* 62: 287-292.

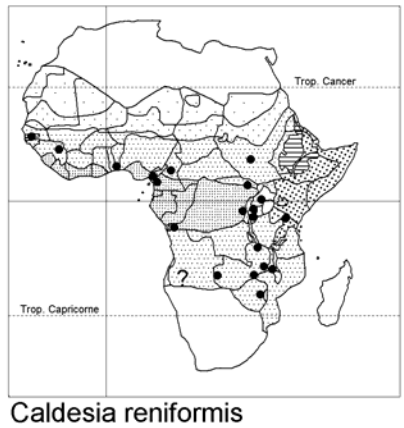
SAINGE, N. M. & al. (2010). Distribution of myco-heterotrophic (saprophytic) plants of Cameroon. *In:* VAN DER BURGT, X. & al., eds., *Systematics and conservation of African plants:* 281-288. Royal Botanic Gardens, Kew.



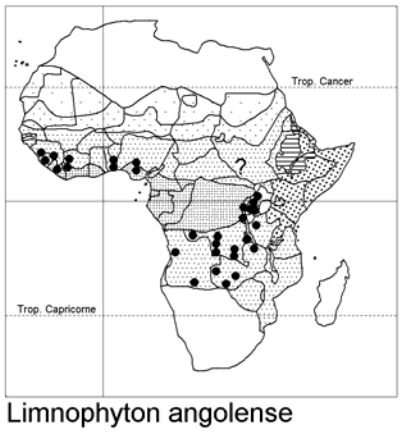
Burnatia enneandra



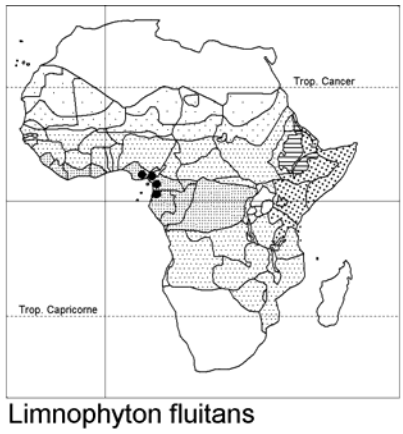
Caldesia oligococca var. echinata



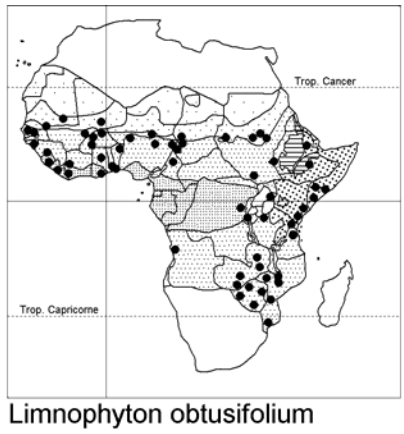
Caldesia reniformis



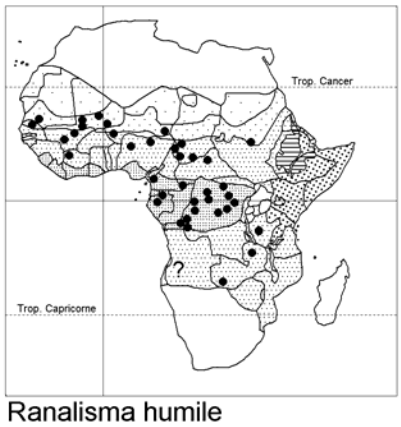
Limnophyton angolense



Limnophyton fluitans



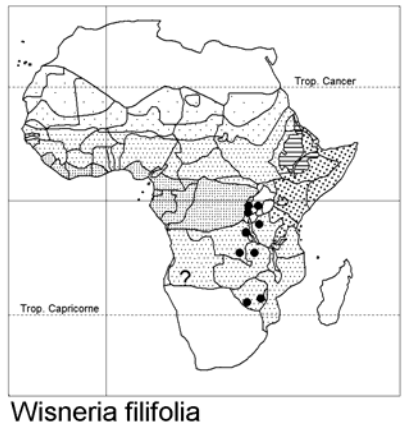
Limnophyton obtusifolium



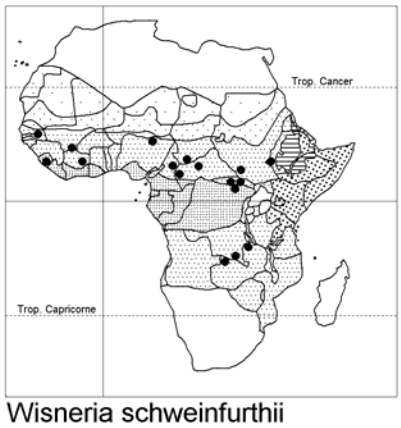
Ranalisma humile



Sagittaria guayanensis subsp. lappula



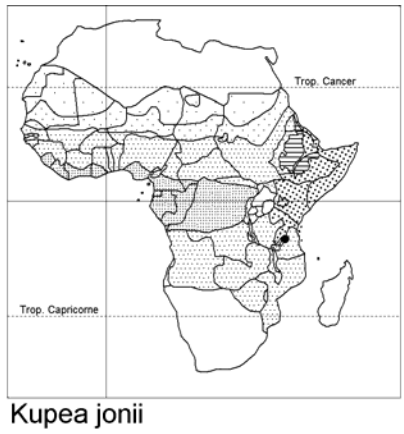
Wisneria filifolia



Wisneria schweinfurthii



Kihansia lovettii



Kupea jonii

SCIAPHILA / *2*

Pantropical genus of 30-37 species: SE Mexico, S tropical America, tropical Afria, tropical-subtropical Asia to W Pacific (map in Fl. Males. 1/10: 110, 1984). Most species in Asia.

Sciaphila africana A. Chev.; Cheek (2006): 694. – Type: Chevalier *19661!*

Slender monoecious saprophyte, rhizomatous, 15-30 cm tall, glabrous, pale purple; roots radiating from base of stem and partly fixed on tree rootlets; stems simple, sometimes 2-3 together, 15-25 cm tall; scale leaves few, 2-3 mm long, on the sterile, yellowish-white part; flowers in a long raceme *12-20 cm long; flowers 80-100*, unisexual, 1,5 mm Ø, borne on straight thread-like pedicels; perianth 6-valvate, bearded, persistent in fruit.

Closed forest on humus in deep shade; 300-350 m alt.

S. ledermannii Engl.; Sainge & al. (2010): 287. – Icon.: Fl. Gabon 41: 65, 2010.

Rigid monoecious saprophyte with a slender rhizome; stem simple or 1-2-branched, red to purple, 15-30 cm tall; scale leaves ± triangular, 2-4 mm long; raceme *5-15 cm long* with *10-50 flowers* borne on *curved pedicels* 0,5-1 cm long; lowermost flower bisexual or female, the upper ones male; tepals 1-2 mm long, reflexed, red to purple ending in a tuft of hairs, persistent in fruit; fruit red to purple, 0,5-1,5 mm long.

Moist rain-forest; among dead leaves in damp sandy places on forest floor; ?-300-720 m alt.

Príncipe.

SEYCHELLARIA / *1*

Four species two of which in Madagascar, 1 in the Seychelles (Mahe), one in Tanzania.

Seychellaria africana Vollesen; Cheek (2006): 694.

Glabrous monoecious saprophytic perennial herb with creeping or semi-erect branched colourless rhizome; stems wiry, dark violet, 5-20 cm tall; scale leaves c. 1 mm long; inflorescence 2-15 cm long, with c. 50 dark violet, unisexual flowers borne on patent or ascending 5-11 mm long pedicels; tepals 1-1,5 mm long; female flowers with c. 25 free carpels forming a sphaerical head in fruit, c. 3 mm Ø.

Rain-forest (floor) with *Parinari excelsa, Erythrophleum suaveolens, Newtonia buchananii, Albizia gummifera*, etc. (vide Kew Bull. 36: 735, 1982); 1000 m alt.

Known only from the type collected in 1980.

APONOGETONACEAE / *1* g. / *12* spp.

Monogeneric family of some 55 species in tropical and subtropical parts of the Old World (map in R. Gua & M. S. Mondal, Wetland phytodiversity…: map 5, 2005). Mostly in freshwater. Pollination by insects. Some species are cultivated for food or for decorative purposes (aquarium plants).

One species in our area known only from the type *(A. fotianus)*.

APONOGETON / *12*

LES, D. H. & al. (2005). Phylogeny and systematics of Aponogeton (Aponogetonaceae): The Australian species. *Syst. Bot.* 30: 503-519.

Aponogeton abyssinicus Hochst. ex A. Rich.; van der Bruggen in Bibl. Bot. 137: 60-61, 1985; Aqua-Planta 21: 81, 1996; Figueiredo & Smith, Pl. Angola: 171, 2008. – Icon.: Fl. Afrique Centr., Aponoget.: frontispiece, 1974 (inflorescence); Fl. Eth. & Eritrea 6: 13, 1997; Agnew & Agnew, Upland Kenya wild flow., ed. 2: pl. 134, 1994.

syn.: *A. leptostachyus* E. Meyer ex Engl. & K. Krause var. *abyssinicus* (Hochst. ex A. Rich.) Engl. & K. Krause, and var. *minor* Baker; *A. boehmii* Engl.; *A. braunii* K. Krause; *A. oblongus* Peter, non Troupin *(= A. troupinii); Ouvirandra hildebrandtii* Eichl. – All of var. **abyssinicus**.

Monoecious herb; tuber obovoid or elongate, 10-30 × 5-20 mm, densely set with whitish roots above; primary leaves submerged, obovate to bandshaped 2-11 × 0,4-1,4 cm, petiole to 10 cm long; secondary leaves few to many, floating; petiole (except in var. **graminifolius**) 3-60 cm long, 0,6-3 mm thick, terete or ± compressed; blade ovate to lanceolate, 3-12 × 0,5-5 cm, sometimes dark spotted beneath (base very cordate in var. **cordatus**); peduncle to 45 cm long, spathe caducous; inflorescence a bifid spike, 10-50 × 2-8 mm; tepals 2, persistent. Apomictic.

Temporary pools; water-filled ditches; dams and other seasonal gatherings of water; in 5-400 mm deep water; rice-fields; waterholes; pools in river; shallow water in boggy part of grassland; hollows on rock; irrigation channels; sandy-salty soils; sometimes growing with *Utricularia* sp., *Nymphaea lotus, Ottelia ulvifolia, Marsilea* sp., green algae; 0-2700 m alt.

Very variable. Four further vars. recognized in Kenya and Tanzania by Lye and described by him: var**. albiflorus**, var. **cordatus** (also in Somalia), var. **glanduliferus**, var. **graminifolius**.

An attractive aquarium plant but eaten by fish and snails. Tubers locally eaten like sweet potatoes.

A record from Malawi is uncertain, as the collection is incomplete; it may represent *A. abyssinicus* or *A. rehmannii* (fide van der Bruggen, l.c.). A collection from India is also incomplete. Recorded by Rendle (1899) from Angola.

A. afroviolaceus Lye; Cook, Aquat. & wetland pl. south. Afr.: 57, 2004; Fl. Zambes. 12/2: 69, 2009.

Monoecious herb; tuber obovate-elongate, 10-25 × c. 15 mm, with numerous whitish roots in upper part; leaves often 3-15 per plant; petiole 5-20 cm long; blade 2-8 cm long × 3-16 mm wide, ovate to linear-oblong; spikes unbranched, 6-30 × 5-10 mm; flowers 10-30, perianth violet, persistent. Apomictic.

Mud in small seasonal streams, ditches, drainage channels; swamps, marshes; in 10-20 cm deep water; locally common in open, temporary pools and rivulets on sand and clay in mixed dry scrub such as *Isoberlinia, Combretum, Acacia;* 1000-1750 m alt.

Perhaps also in Caprivi or Okavango.

Comprises 2 vars. (var. **angustifolius** Lye with few narrow leaves, blade 3-6 mm wide; in SE Kenya).

Closely related to *A. abyssinicus*.

APONOGETON

A. bogneri Van Bruggen – Icon.: Fl. Afr. Centr., Aponoget.: 7, 1974.

Tuber obovoid, c. 2 cm Ø; leaves submerged, petiole 10-50 cm long; blade oblong, narrowly cuneate at base and apex, 24-25 × 2,5-6,5 cm; inflorescence with a peduncle c. 65 cm long and one or two very densely flowered spikes; tepals (greenish) yellow.

Deep, rather fast flowing rivers in sunny places.

A. desertorum Zeyh. ex A. Spreng.; Figueiredo & Smith, Pl. Angola: 172, 2008. – Icon.: Hook. Ic. Pl. 15: pl. 1470, 1884 *(A. holubii);* Fl. south. Afr. 1: 91, 1966; Kirkia 2: pl. 13 B (p. 65-66), 1961; Cook, Aquat. & wetland pl. south. Afr.: 57, 2004.

syn.: *A. kraussianus* Hochst. ex C. Krauss; *A. leptostachyus* E. Mey. ex Engl. & K. Krause [*excl*. var. *abyssinicus* (A. Rich.) Engl. & K. Krause and var. *minor* Baker]; *A. holubii* Oliv.; *A. dinteri* Engl. & K. Krause; *A. eylesii* Rendle

Aquatic herb with globose or obovoid brown tuber, 1-3 cm Ø; leaves 6-9 per plant; petiole flattened, to 1 m long; blade floating, lanceolate to oblong, dimensions variable, 2,6 × 1 cm to 29 × 3-7,5 cm, apex obtuse to apiculate; peduncle to 1 m long; inflorescence of 2 spikes 3-12 cm long; flowers ± loosely arranged; tepals yellow (or white); fruit to 9 × 4 mm, with a long terminal beak.

Often in large quantities in standing, slowly or fast flowing water, to 2 m deep; streams, pools, marshes on granite, shale or diorite which are dry throughout most seasons; 10-2000 m alt.

Namibia, Botswana, S. Africa.

Can be troublesome in dams, rivers, etc.

Tubers edible (Aqua-Planta 28: 143, 2003).

A. fotianus J. Raynal

Tuber ovoid, 1-1,5 cm Ø; leaf petiole 28 cm long; submerged leaves with flat blade, 5-15 × 1,2-2,5 cm; base cuneate, slightly rounded or cordate, apex cuneate; floating leaves with blade 14 × 2,5 cm; peduncle ± 35 cm long; inflorescence of 1 spike c. 5 cm long; tepals yellow, fruit 4-5 × 2-2,5 mm.

Inundated meadows, waterdepth 10 cm.

Only known from the type collected in 1968.

A. junceus Lehm. ex Schltdl. (subsp. **junceus**); Figueiredo & Smith, Pl. Angola: 171, 2008; Fl. Zambes. 12/2: 71-72, 2009. – Icon.: Bot. Mag.: pl. 6399, 1878 *(A. spathaceus);* Fl. south. Afr. 1: 89, 1966; Cook, Aquat. & wetland pl. south. Afr.: 58, 2004. – Excl. subsp. *rehmannii* (Oliv.) Oberm. *(= A. rehmannii* Oliv.), and subsp. *natalensis* (Oliv.) Oberm. *(= A. natalensis).*

syn.: *A. spathaceus* E. Mey. ex Hook. f. var. *junceus* (Lehm. ex Schltdl.) Hook. f. (*A. setaceus* E. Mey. ex Hook. f., sphalm.).

Tuber globular or ovoid to 3 cm Ø; leaves emerged or submerged, 4-43 cm long, mostly without a distinct blade, needle-shaped, 3-angled with a blunt tip, or band-shaped, sometimes expanded into a lanceolate blade up to 9 × 0,5-1 cm, apex and base very narrowly cuneate; blade rarely floating, oblong to 17 × 4,5 cm; peduncle to 44 cm long; inflorescence of 2 spikes to 4-7,5 cm long, with laxly arranged flowers in 2 rows; tepals 2, white or pink, spathe 2 cm long, caducous; fruit to 7 × 3 mm with a long terminal beak.

Locally frequent in shallow water (mostly less than 15 cm deep) in pools, swamps, flood plains, seasonally inundated grassland with *Echinochloa, Setaria sphacelata, Miscanthidium, Loudetia,*

APONOGETON JUNCEUS

Eragrostis; muddy banks of rivers and pools; sometimes with another species of *Aponogeton* (at least in S. Africa); often at high altitudes.

Namibia, Botswana, Lesotho, S. Africa (45-3300 m alt.).

Tubers eaten raw (cf. C. R. Peters in J. Timberlake & S. Kativu, eds., African plants: biodiversity, taxonomy and uses: 488-490, 1999).

A. nudiflorus Peter, incl. var. *angustifolius* Peter; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 302, 1994. – Icon.: Fl. Eth. & Eritrea 6: 13, 1997.

Dioecious herb; tuber globular, oval or irregularly shaped, (yellowish) brown, 8-30 × 8-20 mm with numerous brownish roots in upper part; leaves usually many; petiole 5-40 cm long, 0,5-2 mm thick; blade floating, oblong to rarely linear-lanceolate, 2-13 × 0,3-4,5 cm; *spike bifid;* peduncle 15-50 cm long, 0,5-3 mm thick; male spikes 1-8 cm long, 2-5 mm wide, relatively laxly flowered; female spikes 1-5 cm long, 4-8 mm wide, densely flowered; 2 tepals in male flowers, white or cream, absent in female flowers; follicles green to brown, 3-4 × 1-2 mm including a 1-1,5 mm long beak.

Shallow lakes; seasonal pools; ponds; rivers; rather common in East Africa; 200-1200 m alt.

Confused with *A. abyssinicus, A. natalensis.*

Cited from Djibouti (Audru & al., Pl. vascul. Rép. Djibouti, fl. ill. 2: 782, photo 271 of leaves on dried up muddy pool, 1994).

A. rehmannii Oliv.; Fl. Zambes. 12/2: 72-73, 2009. – Icon.: Fl. south. Afr. 1: 89 fig. 26/a 1966; Cook, Aquat. & wetland pl. south. Afr.: 60, 2004.

syn.: *A. junceus* Lehm. ex Schltdl. subsp. *rehmannii* (Oliv.) Oberm.; *A. hereroensis* Schinz; *A. rehmannii* var. *hereroensis* (Schinz) Engl. & K. Krause

Monoecious herb; tuber ovate or irregularly shaped, 15-40 × 10-25 mm, densely set with white or brownish roots in upper part; submerged leaves linear and needle- to band-shaped, to 18 × 4 mm, or petiolate with petioles to 11 cm long and narrowly ovate blades to 4 × 1,5 cm; floating leaves petiolate, petioles to 30 cm long, blades linear to ovate 5-10 × 0,2-2,5 cm, base and tip tapering; peduncle to 30 cm tall, ending in 2 spikes to 1,5 cm long; flowers densely arranged, tepals 2, white or very pale pink; fruit to 5 × 2,5 mm, with a long terminal beak.

Locally common in temporary, shallow pools, flooded pans, muddy banks on sandy clay; 900-1700 m alt.

Namibia, Caprivi Strip, Botswana, S. Africa.

A. stuhlmannii Engl.; Fl. Zambes. 12/2: 68-69, 2009. – Icon.: Engler, Pflanzenreich 4/13: pl. 9, 1906; Fl. south. Afr. 1: 91, 1966; Cook, Aquat. & wetland pl. south. Afr.: 60, 2004; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 134, 1994.

syn.: *A. gracilis* Schinz ex A. Bennett; *A. gramineus* Lye

Monoecious herb; tuber globular to conical, 6-12 mm long, 4-10 mm Ø; leaves usually 5-10 per tuber; submerged leaves band-shaped, to 7 × 0,7 cm; floating leaves with petiole 5-20 cm long, 0,2-0,6 mm wide; blade narrowly oblong to lanceolate, 2-5 cm long, 4-10 mm wide; flowers white on unbranched somewhat unilateral spikes 1-2 cm long, 5-10 mm wide, on peduncles 5-15 cm long, 1-1,5 mm wide; tepals 2(-3), white, greenish or reddish, early caducous; follicles green to ± bluish, 2-3 × 0,5-0,6 mm, with a ± 1 mm long curved beak.

APONOGETON STUHLMANNII

Seasonally wet grassland; in water in mud; temporary shallow rain-pools, often on rock pavements; sometimes gregarious in 7-15 cm deep water; 500-2100 m alt.

Namibia, S. Africa, Botswana. – Uncertain in S-most Mozambique. Also in Kenya ?

The submerged form *(= A. gramineus)* could be confused with *A. vallisnerioides.*

A. subconjugatus Schumach. & Thonn.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 192, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 302, 1994. – Icon.: Fl. W. Trop. Afr., ed. 2, 3/1: 16, 1968; Andrews, Flow. pl. Sudan 3: 233, 1956.

syn.: *A. heudelotii* (Kunth) Engl.; *Ouvirandra heudelotii* Kunth

Monoecious herb; tuber obovoid or irregularly shaped, 10-40 × 10-30 mm, densely set with brown and whitish roots above; leaves floating, petiole 5-60 cm long, 1-6 mm Ø; blade oblong to oblong-lanceolate, 5-23 × 1,5-6 cm, base prominently cordate; flowers cream to yellow set in bifid spikes on peduncles 10-70 cm long, 2-7 mm Ø; spikes 15-50 × 4-8 mm; tepals 2, yellow; follicles 4-6 mm long, 2-3 mm Ø, beak 1-2 mm long.

Temporary or possibly permanent pools and swamps; shallow water (to 0,6 m deep); with *Najas meiklei, Nymphaea lotus, Eichhornia natans, Heteranthera callifolia, Limnophyton* (Ghana, see Bull. Jard. Bot. Natl. Belg. 43: 212, 1973); to 1300 m alt.

Confused with the closely related *A. desertorum, A. abyssinicus*.

Probably also in Kenya (near Uganda border).

Tubers edible (cf. Aqua-Planta 28: 143, 2003).

A. troupinii J. Raynal

Tuber globular, 5-8 mm Ø; submerged leaves band-shaped, 7-20 cm long, 2,5-5 mm wide, apex blunt; floating leaves narrowly ovate, 6-10 × 0,6-1 cm, apex narrowly cuneate and shortly acuminate, base narrowly cuneate; petiole to 60 cm long; peduncle to 60 cm tall; inflorescence of 1 spike; male inflorescence to 5 cm long, tepals 2, yellow; female inflorescence to ± 3,5 cm long, tepals 0; fruit 3,5-4 × 1,75-2 mm, apex beaked.

Pool on hard lateritious rock with 50 cm deep water; in savanna on a rock.

A. vallisnerioides Baker; Burkill, o.c.: 192-193; Agnew & Agnew, o.c.: 302. – Icon.: Fl. Afr. Centr., Aponoget.: 5, 1974; Fl. Eth. & Eritrea 6: 12, 1997; Aqua-Planta 26: 130-132, 2001 (with describing text); Fl. Zambes. 12/2: 67, 2009.

Monoecious herb; tuber globular to conical, 5-20 mm Ø, upper half with very numerous roots; leaves submerged, 25-50 or more, sessile, 5-20 cm long, 1,5-8 mm wide; flowers white or with a slight violet tinge, drying a warm yellowish brown in unbranched *unilateral* spikes on 5-30 cm long peduncles; spikes curved back, 2-5 cm long, ± 1 cm wide; tepals 2; follicles green, 4,5-6 mm long including a ± 1 mm long beak.

Shallow seasonal rock-pools, lake-edges; usually submerged but sometimes on wet soil; locally abundant; in 1-30 cm deep water; sometimes with *Cyperus* spp., *Heterantha callifolia, Limnanthemum* sp., *Marsilea* sp., *Nitella* sp.; 600-1810 m alt.

SYNONYMS:

Aponogeton boehmii Engl. = **Aponogeton abyssinicus**

braunii K. Krause = **A. abyssinicus**

dinteri Engl. & K. Krause = **A. desertorum**

APONOGETON

eylesii Rendle = **A. desertorum**

gracilis Schinz ex A. Bennett = **A. stuhlmannii**

gramineus Lye = **A. stuhlmannii**

hereroensis Schinz = **A. rehmannii**

heudelotii (Kunth) Engl. = **A. subconjugatus**

holubii Oliv. = **A. desertorum**

junceus Lehm. ex Schltdl. subsp. *natalensis* (Oliv.) Oberm. = **A. natalensis** (S. Africa)

subsp. *rehmannii* (Oliv.) Oberm = **A rehmannii**

kraussianus Hochst. ex C. Krauss = **A. desertorum**

leptostachyus E. Mey. ex Engl. & K. Krause = **A. desertorum**

var. *abyssinicus* (Hochst. ex A. Rich.) Engl. & K. Krause and var. *minor* Baker = **A. abyssinicus**

oblongus Peter = **A. abyssinicus**

oblongus Troupin = **A. troupinii**

setaceus E. Mey. ex Hook. f.(sphalm.) = **A. junceus**

spathaceus E. Mey. ex Hook. f. var. *junceus* Hook. f. = **A. junceus**

violaceus Lye, non Lagerh. = **A. afroviolaceus**

(OUVIRANDRA)

Ouvirandra heudelotii Kunth = **Aponogeton subconjugatus**

hildebrandtii Eichler = **A. abyssinicus**

senegambica Edgeworth, nom. nud. = ?

POTAMOGENTONACEAE / *1* g. / *9* spp.

excl. *Ruppia (= Ruppiaceae)* and *Zannichellia (= Zannichelliaceae).*

The definition of *Potamogetonaceae* has varied according to different authors. It has included *Ruppia* and has been variously combined with taxa of *Zosteraceae, Cymodoceaceae, Zannichelliaceae, Najadaceae.* More recently the family has been considered to consist of three genera, viz., *Potamogeton, Stuckenia* and *Groenlandia* (monotypic). On a morphological basis *Potamogetonaceae* are separated from these other families by their perfect flowers, lack of spathe-like bracts, and sometimes the presence of turions, and drupelets are sessile (stipitate in *Ruppiaceae).* Based on DNA sequence data, *Potamogetonaceae* are closely related to *Najadaceae*. *Potamogetonaceae* incl. *Zannichellia* seem to be a strongly supported group. *Stuckenia* seems to represent a distinct lineage, but the results obtained by Lindqvist & al. (2006) "do not refute the inclusion of *Stuckenia* within the genus *Potamogeton"*.

KAPLAN, Z. (2002). Phenotypic plasticity in Potamogeton (Potamogetonaceae). *Folia Geobot.* 37: 141-170.

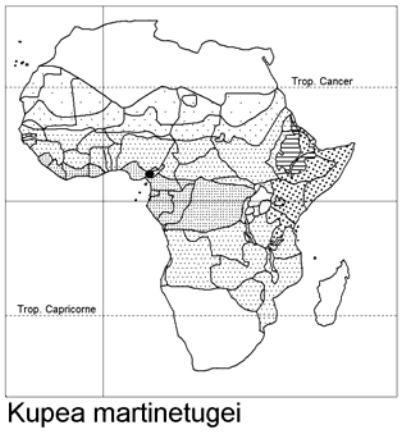
KAPLAN, Z. (2008). A taxonomic revision of Stuckenia (Potamogetonaceae) in Asia, with notes on the diversity and variation of the genus on a worldwide scale. *Folia Geobot.* 43: 159-234.

KAPLAN, Z. (2010). Tiselius' Potamogeton exsiccates: changes in taxonomy and nomenclature from one-century perspective. *Ann. Bot. Fennici* 47: 373-393.

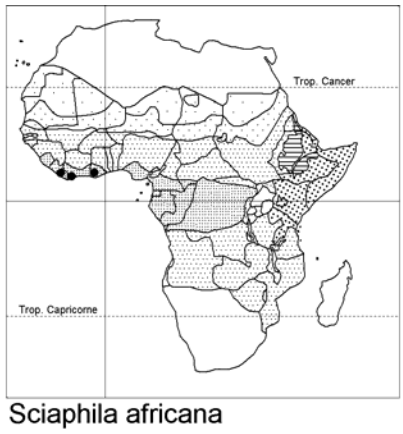
KAPLAN, Z. & J. FEHRER (2011). Erroneous identities of Potamogeton hybrids corrected by molecular analysis of plants from type clones. *Taxon* 60: 758-766.

KAPLAN, Z. & J.-J. SYMOENS (2005). Taxonomy, distribution and nomenclature of three confused broad-leaved Potamogeton species occurring in Africa and on surrounding islands. *Bot. J. Linn. Soc*. 148: 329-357 *[P. nodosus, P. richardii, P. schweinfurthii].*

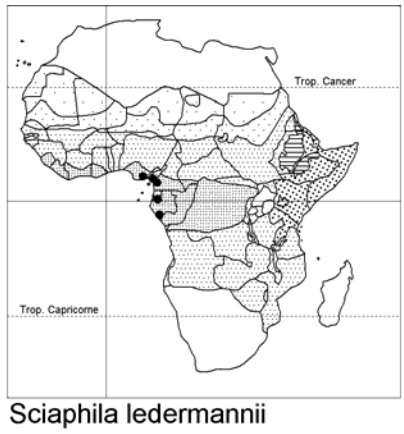
LASTRUCCI, L. & al. (2010). Potamogeton schweinfurthii and similar broad-leaved species in Italy. *Webbia* 65: 147-160.



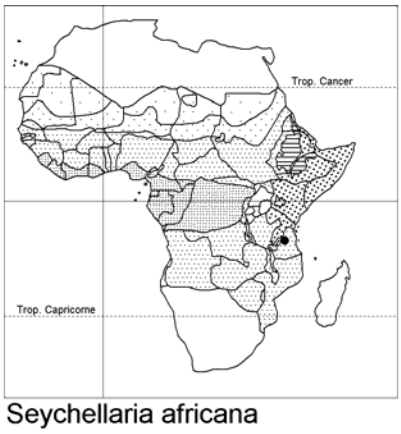
Kupea martinetugei



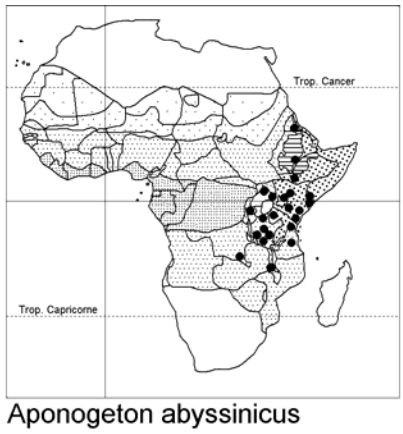
Sciaphila africana



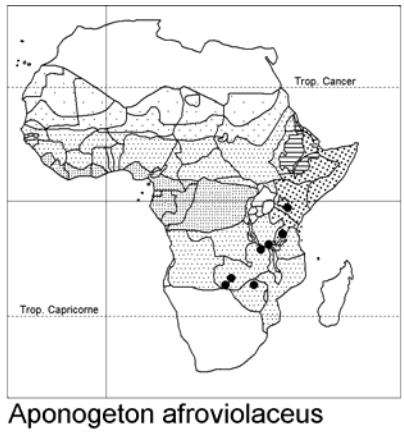
Sciaphila ledermannii



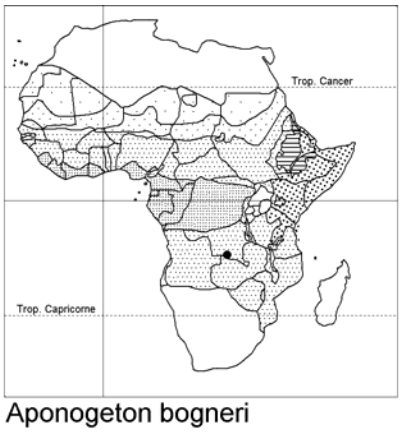
Seychellaria africana



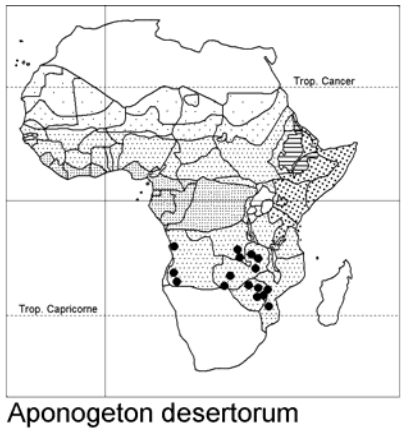
Aponogeton abyssinicus



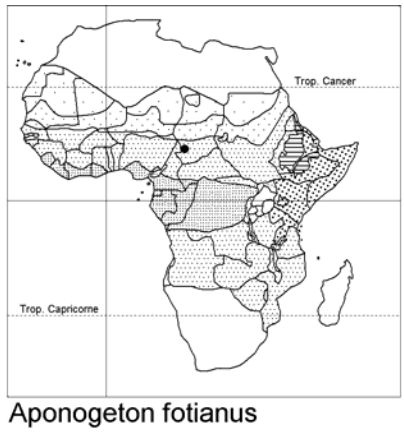
Aponogeton afroviolaceus



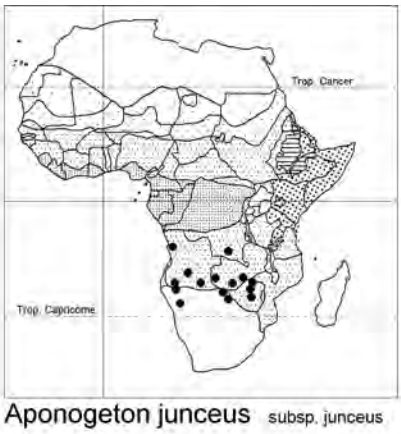
Aponogeton bogneri



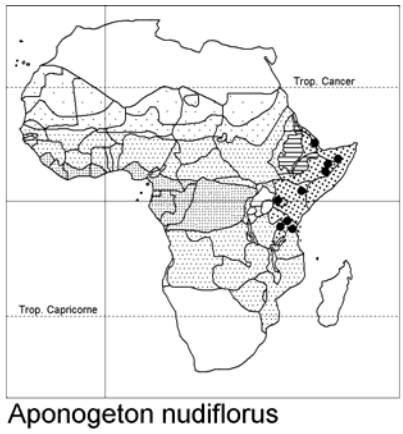
Aponogeton desertorum



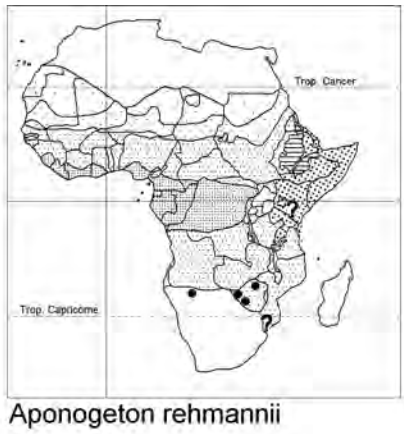
Aponogeton fotianus



Aponogeton junceus subsp. junceus



Aponogeton nudiflorus



Aponogeton rehmannii

LINDQVIST, C. & al. (2006). Molecular phylogenetics of an aquatic plant lineage, Potamogetonaceae. *Cladistics* 22: 568-588.

WIEGLEB, G. & Z. KAPLAN (1998). An account of the species of Potamogeton L. (Potamogetonaceae). *Folia Geobot.* 33: 241-316.

ZALEWSKA-GAŁOSZ, J. & al. (2010). Discovery of a new, recurrently formed Potamogeton hybrid in Europe and Africa: Molecular evidence and morphological comparison of different clones. *Taxon* 59: 559-566.

(BUCCAFERREA)

Buccaferrea pectinata (L.) Bubani = **Potamogeton pectinatus**

pusilla (L.) Bubani = **P. pusillus**

(COLEOGETON)

Coleogeton pectinatus (L.) Les & R. B. Haynes = **Potamogeton pectinatus**

(HYDROGETON)

Hydrogeton heterophyllus Lour. = **Potamogeton octandrus**

(PELTOPSIS)

Peltopsis perfoliata (L.) Raf. = **Potamogeton perfoliatus**

POTAMOGETON / *9*

incl. *Stuckenia* Börner

"Potamogeton is the richest in species and ecologically the most important genus of aquatic vascular plants ". They are food or habitat for aquatic animals, and also indicators for water quality. Some species are cultivated for decorative purposes in ponds, used as aquarium plants, or even as green manure in the tropics.

It is a cosmopolitan genus (the highes species densities in N. America, W Europe, Siberia, Japan) of approximately 80-100 species (94 according to the World Checklist of Monocotyledons, Royal Botanic Gardens, Kew, 2009); only 69 species are regarded as *sufficiently well known* (Wiegleb & Kaplan, o.c.). Over 200 hybrid combinations have been reported, but only about 50 hybrids are well established and distinguishable from their parental species (hybrids are apparently concentrated to Great Britain, Scandinavia, Japan). Most species are considered wind-pollinated.

Potamogeton is one of the most taxonomically difficult groups. These plants show a high degree of phenotypic plasticity, which has led to the description of numerous 'species', 'varieties', forms, or 'hybrids'.

It is difficult to identify sterile specimens of broad-leaved species without checking the stem anatomical characters. Narrow-leaved specimens without fruits or turions often cannot be identified to species level (citations from Lindqvist & al., 2006; Zalewska-Gałosz & al., Preslia 81: 281, 2009; Fl. Males. 1/16: 178, 2002).

Potamogeton crispus L., incl. var. *najadoides* Graebn.; Wiegleb & Kaplan (1998): 284-285; Kaplan (2010): 386; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 385, 2010; Fl. Zambes. 12/2: 85-86, 2009. – Icon.: Stuckey in Bartonia 46: 24, 1979; Cook, Aquat. pl. book, ed. 2: 200, 1996; Fl. Eth. & Eritrea 6: 21, 1997; Fl. Neotrop. 85: 24, 2003; Cook, Aquat. & wetland pl. south. Afr.: 236, 2004; Boulos, Fl. Egypt 4: 17, 2005.

syn.: *P. crenulatus* D. Don; *P. crispatus* Wallman ex Rchb.; *P. tuberosus* Roxb.; *P. serrulatus* Opiz; P. *crispus* var. *serrulatus* (Opiz) Rchb.; for full synonymy, see Wiegleb & Kaplan (1998): 284 (includes several varieties).

POTAMOGETON CRISPUS

Submerged perennial herb with a creeping rhizome; stem repeatedly branched above, 4-angled, 30-150 cm long; leaves all submerged 20-90 × 3-10 mm, sessile, (linear-)lanceolate, *densely serrate* and strongly undulate at the margin; spikes 5-15 mm long with 2-10 flowers, on a peduncle 10-50 mm long; fruit 4-5 mm long with *a beak about 4-5 mm.*

Irrigation canals; ponds; still and flowing water; preference for eutrophic conditions; often gregarious, large populations may be harmful to boating; 0-2800 m alt.

Temperate Europe, N & S. Africa, Asia, Australia. – Introduced in New Zealand and America (distributional history in Bartonia 46: 22-35, 1979).

Turions sometimes constitute the main process of reproduction.

Easily recognized.

(**P. hoggarensis** Dandy); Dobignard & Chatelain, Index synon. fl. Afrique N. 1: 385, 2010. – Icon.: Maire, Fl. Afrique N. 1: 189, 1952.

Collected in 1928 by Maire in S Algeria (Ahaggar: Imarera, 1950-2000 m alt., ± permanent fresh water pools, n° 1226) and referred first to *P. pusillus* L. (Mém. Soc. Hist. Nat. Afrique N. 3, mission du Hoggar II, Etude sur la flore et la végétation du Sahara central I.II: 53, 1933); described by Dandy in 1937 as *P. hoggarensis,* but Maire's specimen is quite sterile; Dandy writes: "In the absence of flowers or fruits the exact position of the new species is doubtful, but the open and convolute stipular sheaths show that its affinities are not with *P. panormitanus*… but with *P. trichoides, P. pusillus* or *P. octandrus.*" In the key to the species Dandy indicates: "Leaves up to about 2,5 mm in breadth, 3-5-nerved; stipular sheaths up to about 2-3 cm long at maturity" (by comparison with *P. trichoides).*

The plant was collected in 1939-40 by Théodore Monod (n° 7931, in N Chad: Tibesti, Yebbi Bou); at that time *P. hoggarensis* was new to Chad (Mém. Inst. Franç. Afrique Noire 8: 24, Etudes sur la flore et la végétation du Tibesti, 1950). The plant is also cited by Gillet from N Chad: Mourdi, mare de Diona (17°52'Nx22°39'E), see Gillet, La végétation du massif de l'Ennedi, Mém. Mus. Natl. Hist. Nat., Sér. B, 17: 58, 1968. Also collected sterile by Leredde in Algeria, Tassili n'ajjer (1949-1952), Université d'Alger, Trav. Inst. Rech. Sahar., Sér. Tassili 2: 366, 1957.

Kaplan (1998: 293-294) regards P. *hoggarensis* as an extreme local morphotype of *P. pusillus* L.

Not mapped.

(**P. lucens** L.)

In Africa confused with *P. schweinfurthii,* and maintained as such by Lye in Fl. Eth. & Eritrea 6: 20, 23, 1997. To quote Symoens (Fl. Trop. E. Afr., Potamoget.: 12, 2006): "The plants with only submerged leaves closely resemble *P. lucens,* which explains why they have long been identified under this name". *P. lucens* has, in fact, more elliptical leaves, with always distinctly mucronate apex. "However some plants (e.g. Lye 5245 from Lake Mutanda, Uganda) are really intermediate between the two, so that it is difficult to assign them to one or the other species".

P. lucens reported by Quézel, Mission bot. Tibesti (Inst. Rech. Sahar., Mém. 4: 105, 1958) from Chad, Borkou, source of the Tigui, needs revision (= ? *P. schweinfurthii).*

POTAMOGETON

P. nodosus Poiret, incl. var. *billotii* (F. W. Schulz) Hagstr. fa. *angustissimus* Hagstr.; Figueiredo & Smith, Pl. Angola: 206, 2008; Lastrucci & al., Webbia 65: 149-151, 2010; Fl. Zambes. 12/2: 89-90, 2009. – Icon.: Maire, Fl. Afrique N. 1: 192, 1952; Boulos Fl. Egypt 4: 17, 413, 2005; Kaplan & Symoens, Bot. J. Linn. Soc. 148: 335-336, 339 (map), 2005; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 10, 2001; Fl. Neotropica 85: 27, 2003; Fl. Afr. Centr., Potamoget.: 11, 1978 *(P. thunbergii).*

syn.: *P. thunbergii* Cham. & Schltdl.; *P. stagnorum* Hagstr.; *P.* × *fluitans* proles *thunbergii* (Cham. & Schltdl.) Graebn.; *P. natans* L. fa. *capensis* Kunth and var. *capensis* T. Durand & Schinz, nom. illegit.; *P. americanus* Cham. & Schltdl. var. *thunbergii* (Cham. & Schltdl.) A. Benn.; *P. canariensis* Link; *P. leschenaultii* Cham. & Schltdl.; *P. mascarensis* Cham. & Schltdl.; *P. americanus* subsp. *mascarensis* (Cham. & Schltdl.) A. Benn.; *P. fluitans* auctt. mult., non Roth; *P. indicus* Roxb. 1820, non Roth ex Roem. & Schult. 1818, nom. illegit.; *P. mexicanus* A. Benn.; *P. occidentalis* Sieber ex Cham. & Schltdl. For full synonymy, see Wiegleb & Kaplan, Folia Geobot. 33: 269-270, 1998, and World Checklist of Monocotyledons, Royal Botanic Gardens, Kew.

Aquatic herb with submerged and floating leaves; rhizome robust, long creeping, much-branched; stems terete, to 2,5 m long; *submerged leaves* with petiole *2-15 cm long;* lamina (oblong-) lanceolate, 5-28 × 1-5 cm, finely denticulate; base cuneate, *apex subacute; floating leaves* (sometimes present) with petiole 3-21 cm long; lamina lanceolate-elliptic to obovate, 4-15 × 2-6 cm; peduncle 4-13 cm long; spikes cylindrical, 14-50 × 4-10 mm, with up to 15 flowers; fruit (reddish) brown, 2,7-4 mm long, dorsal keel sharp; beak 0,3-0,8 mm long. Turions absent.

Shallow parts of lakes, ponds, pools, swamps, guelta; in rivers; often on muddy soil; water depth 1,5-2 m; sometimes in extensive colonies with *Nymphaea coerulea, N. indica;* often in moving water; 750-3100 m alt.

Subcosmopolitan. Macaronesia; N Africa from Morocco to Egypt, incl. Saharan oases; Saudi Arabia, Yemen (Willdenowia 32: 265, 2002); Socotra; Namibia, Botswana, S. Africa; Europe; Comoros, Mauritius, Madagascar, Seychelles; subantarctic islands (Marion); W Siberia, C & S Asia from Pakistan, Afghanistan through to Thailand, China to Indonesia, Philippines, New Guinea, Australia; N. & C. America, West Indies.

According to Symoens (Fl. Trop. E. Afr., Potamoget.: 12-13, 15, 2006) *P. nodosus* has been overlooked in Africa, and often confused with *P. richardii, P. schweinfurthii. P. nodosus* can be recognized by its long-petiolate well developed submerged leaves with a narrowly obtuse apex, but not mucronate. But if in doubt, identification based on stem anatomy is generally successful. Molecular studies are needed.

Plants have also been recorded under the name *"P. fluitans"*. *P. nodosus* Poiret var. "*billotii* (F. W. Schultz) Billot ex Richt." sensu H. Gillet is *P. nodosus,* not *P.* × *fluitans* Roth, the correct name for the hybrid *P. lucens* × *P. natans*. Only one locality is known in Ethiopia: Harer (Robecchi-Brichetti 38).

The hybrid *P. nodosus* × *P. perfoliatus* has been described as *P.* × *assidens* (see below under nothospecies).

P. nodosus fa. *angustissimus* Hagstr. is *P. schweinfurthii.*

POTAMOGETON

P. octandrus Poiret; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 473, 1997; Wiegleb & Kaplan, o.c.: 298-299; Figueiredo & Smith, Pl. Angola: 206, 2008; Lisowski, Fl. (angiosp.) Rép. Guinée 1: 481, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 244, 2010. – Icon.: Fl. Eth. & Eritrea 6: 21, 1997 (subsp. **ethiopicus**); Cook, Aquat. & wetland pl. south. Afr.: 236, 2004.

syn.: *P. preussii* A. Benn. p.p. quoad specim. Preuss 451, Staudt 462; *P. parvifolius* Buchenau; *P. huillensis* Welw. ex Schinz; *P. javanicus* Hassk.; *P. tenuicaulis* F. Muell.; *Hydrogeton heterophyllus* Lour. Full synonymy in Wiegleb & Kaplan, l.c.; World checklist of Monocotyledons, Royal Botanic Gardens, Kew.

Aquatic herb with submerged and floating leaves; rhizomes poorly developed, filiform, terete; stems annual, 20-100 cm long, ± branched, terete with grooves; *submerged leaves* sessile, linear, 25-75 × 0,5-3mm, margins entire, apex acute to acuminate; *floating leaves* present or absent, petiole 3-34 × 0,2-1,1 mm; lamina leathery, narrowly lanceolate to oblong, 5-38 × 2-11 mm, base cuneate, apex acute; intermediate leaves often present, petiolate, oblong to lanceolate; peduncles 9-40 mm long; spikes cylindrical, 5-16 mm long, with 7-9 flowers in 3-7 whorls; tepals green; fruit 1,5-3,5 mm long, green, beak hooked with a dorsal, crenulate keel.

Lakes, ponds, backwaters, swamps, rice fields; swift flowing waters; water depth 0,6-2 m; with *Najas horrida, Potamogeton richardii, Ludwigia stolonifera, Utricularia inflexa;* with *Ottelia, Limnophila;* sea-level to 2100 m alt.

Namibia, Botswana, S. Africa; Madagascar; S & E Asia, in Malesia: Java, New Guinea; Australia.

2 subspecies are recognised: – subsp. **octandrus** in tropical and subtropical Old World; – subsp. **ethiopicus** Lye (C Ethiopia), with large fruits and slender peduncles. – Var. **mizuhikimo** (Makino) H. Hara (bas.: *P. mizuhikimo* Makino) occurs in NE China-Japan.

Eaten by hippopotamus in Kenya; freshwater fish browse it.

P. pectinatus L.; Kaplan (2010): 389-390. – Icon.: Fl. Eth. & Eritrea 6: 21, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 11, 2001; Cook, Aquat. & wetland pl. south. Afr.: 236, 2004; Fl. Trop. E. Afr., Potamog.: 6, 2006; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 134, 1994; Kaplan (2008): 167, 173, 178, 179; Boulos, Fl. Egypt 4: 17, 2005; Fl. Males. 1/16: 189, 2002; Fl. Neotrop. 85: 42, 2003 (sub gen. *Stuckenia);* Fl. Zambes. 12/2: 80, 2009.

syn.: *P. livingstonei* A. Benn.; *Stuckenia pectinata* (L.) Börner; *Coleogeton pectinatus* (L.) Les & R. R. Haynes; – For full synonymy, see Wiegleb & Kaplan (1998): 305-307; Kaplan (2008): 171-177, 180; World checklist Monocotyledons, Royal Botanic Gardens, Kew.

Submerged perennial aquatic herb with adventitious roots at nodes of the horizontal shoots; rhizome terete, whitish; stems 0,3-4 m long, *0,5-2mm Ø,* terete, sometimes pink, usually *richly branched;* submerged leaves sessile, thread-like, 20-300 × 0,2-4 mm, margins entire, apex acute; *floating leaves always absent;* peduncles 2-45 cm long, flexuous; spikes 1,3-6 cm long, interrupted, with 2-7 pairs of whorls of flowers, flowers 4-14; fruit brown, asymmetrically obovoid, hardly 3-keeled, 2,5-5,1 × 2-3,6 mm. *Stipules* persistent, *fused with the leaves* for 8-70 mm, forming a *convolute* and winged *leaf base, later disintegrating* into fibres. Dormant turions absent.

POTAMOGETON PECTINATUS

Still and flowing water in a wide range of habitats; lakes, rivers, irrigation canals; brackish or shallow water; water depth 0,5-3m; often forming extensive patches; often blocking the irrigation and drainage canals; guelta; daya on rocky bottom; with *Typha angustifolia;* 350 (? and less)-2850 m alt.

Extremely polymorphic. Many infraspecific taxa (varieties) were described, but transplantation experiments have shown that distinguishing characters used may be environmentally induced.

Nearly cosmopolitan. N Africa; Namibia, Botswana, S. Africa; Madagascar, Mascarene Isl., Réunion, Mauritius; Asia – Malesia to Hawaii (map in Folia Geobot. 43: 186, 2008); Australia; N., C. & S. America (map in Fl. Neotrop. 85: 43, 2003).

P. perfoliatus L.; Kaplan (2010): 386. – Icon.: Maire, Fl. Afr. N. 1: 195, 1952; Fl. Eth. & Eritrea 6: 21, 1997; Boulos, Fl. Egypt 4: 17, 2005; Fl. Neotrop. 85: 25, 2003.

syn.: *Spirillus perfoliatus* (L.) Nieuwl.; *Peltopsis perfoliata* (L.) Raf.; full synonymy in Wiegleb & Kaplan (1998): 277-278, and World checklist, l.c.

Submerged perennial herb with an extensive creeping rhizome; stems 50-200 cm long, cylindrical, strongly branched; leaves all submerged, 10-40 × 10-30 mm, ovate to orbiculate, margins plane or undulate and minutely denticulate, sessile, *amplexicaule*, base cordate; spikes 1-25 cm long, many-flowered; peduncle 3-9 cm long; fruit broadly ovate, 3-3,5 m long, beak short. Dormant turions absent.

In lakes and reservoirs (0,5-3 m depth); guelta; to 1200 m (Chad: Tibesti) to 2800 m alt. (Ethiopia).

Algeria, Egypt; Madagascar; widespread in temperate and subtropical regions of Europe, Asia and N. America; rare in Australia; known from only 2 localities in the Neotropics: Guatemala, Cuba; recently introduced in Malesia (Sumatra).

Forming hybrids with *P. nodosus* (see below under nothospecies *P. xassidens).*

P. pusillus L. subsp. **pusillus** – Icon.: Thulin, Fl. Somalia 4: 15, 1995; Fl. Eth. & Eritrea 6: 22, 1997; Fl. Cabo Verde 90: 7, 2002; Chaudhary, Fl. King. Saudi Arabia ill. 3: 11, 2001 *(P. panormitanus);* Fl. Neotropica 85: 15, 2003; Cook, Aquat. & wetland pl. south. Africa: 236, 2004; Boulos, Fl. Egypt 4: 17, 2005.

syn.: *P. pusillus* L. var. *africanus* A. Benn.; *P. panormitanus* Guss.; *P. preussii* A. Benn. p.p. (syntypes Eritrea, Ethiopia); *Buccaferrea pusilla* (L.) Bubani; *Spirillus pusillus* (L.) Nieuwl.; *Potamogeton aschersonii* A. Benn.; *P. antaicus* Hagstr.; *P. subjavanicus* Hagstr.; full synonymy in Wiegleb & Kaplan (1998): 292-293; World checklist, l.c.

Submerged annual or perennial aquatic herb; rhizome absent or present at end of growing season, filiform, terete, sometimes with axillary or terminal bulb-like tubers; stems to 1 m long, 0,3-1 mm Ø, terete or compressed, ± branched; leaves submerged, sessile, linear, 9-110 × 0,3-2,5 mm, apex acute or acuminate, margins entire; peduncle filiforme, ± flexuous, 6-15 mm long, ± compressed; spikes cylindrical with 2-7 flowers in 1-4 whorls, 4-15 mm long; fruit obovoid, ± compressed, 1,8-2,7 × 1-1,5 mm, green to pale olive, beak 0,2-0,4 mm long.

Lakes, dams, ponds; slow-flowing waters; sometimes in slightly brackish water; water depth 30-60 cm; guelta; in pools drying out each year the plant survives as seed or tubers; to 600-2900 m alt.

Very polymorphic; varies in shape and aspect of leaves, number of flower whorls in the spike. Cf. also above under *P. hoggarensis.*

POTAMOGETON PUSILLUS

Namibia, Botswana, Swaziland, S. Africa; Macaronesia; Cape Verde Isl.; N Africa; common in Europe, temperate and subtropical parts of Asia, Arabia; Malesia (Philippines, New Guinea); N. America; fairly common from Mexico S to Argentina – Chile (map in Fl. Neotrop. 85: 16, 2003).

Has been divided into 3 subspp. (cf. Novon 6: 370, 1996). Subsp. **gemmiparus** (J. W. Robbins) R. R. Haynes & Hellqv. (bas. *P. pusillus* var. *gemmiparus* J. W. Robbins) in NE USA. Subsp. *flabellatus* (Bab.) Hook. f. is considered a synonym of **P. pectinatus**.

Sometimes difficult to distinguish from the closely related *P. trichoides* (flowers or fruits needed). Sometimes the two species grow together.

P. richardii Solms; Kaplan & Symoens in Bot. J. Linn. Soc. 148: 340-346, 2005. – Icon.: ibid.: 341, 342, 345 (map); Kirkia 2: pl. 8 (p. 56-57), 1961; Fl. Trop. E. Afr., Potamoget.: 14, 2006; Fl. Zambes. 12/2: 78 (stem anatomy), 92, 2009.

syn.: *P. americanus* Cham. & Schltdl. var. *richardii* (Solms) Schweinf.; *P. fibrosus* Hagstr.; *P. thunbergii* sensu Fl. Afr. Centr., Potamoget.: 9, 1978, quoad specim. Overlaet 42, 491, 832; Liben 285; Taton 893; Lebrun 7114; Louis 5472; Symoens 4729; Lisowski & al. 6153, 4187.

Aquatic herb; rhizomes terete, pink to orange brown, much branched; stem terete, to 1 m long, mostly unbranched, rooting at nodes, annual; *submerged leaves* decaying early, with petiole 1-18 cm long; lamina (sometimes reduced to phyllodes), 8-20 × 0,5-2,7 cm, margins entire, base cuneate, apex obtuse; intermediate leaves often present; *floating leaves* always present with petiole 1,8-20 cm long; lamina elliptical to oblong-ovate 3-12,4 × 1,1-4,8 cm, margins entire, apex acute; peduncles in the axils of floating leaves, 0,5-10 cm long; spikes emergent, cylindric, 3-5 cm long; flowers numerous; fruit green to pale brown, 3,2-5,5 × 2,1-3 mm, 3-keeled.

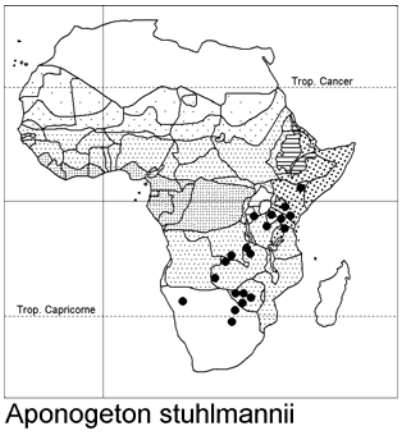
Lakes, ponds, pools; streams; often in acidic water; water depth 30-100 cm; 1150-3450 m alt.

S. Africa, Lesotho; Madagascar. – Not in Namibia *(= P. nodosus).*

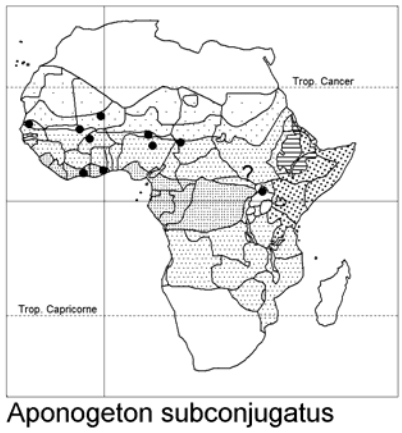
Frequently misidentified as *P. nodosus. P. richardii* can be distinguished by its promptly decaying submerged leaves and the stem anatomy. – Cook, Aquat. & wetland pl. south. Afr.: 238, 2004, treats *P. richardii* as a synonym of *P. thunbergii.*

P. schweinfurthii A. Benn., nom. conserv. (cf. Taxon 53: 837-838, 2004; idem 54: 1100, 2005); Wiegleb & Kaplan in Folia Geobot. 33: 273-274, 1998; Lastrucci & al. in Webbia 65: 147-149, 2010; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 473, 1997; Fl. Zambes. 12/2: 87-89, 2009. – Icon: Thulin, Fl. Somalia 4: 15, 1995; Aqua-Planta 19: 168-169, 1994; Fl. Eth. & Eritrea 6: 22, 1997; Cook, Aquat. & wetland pl. south. Afr.: 237, 2004; Boulos, Fl. Egypt 4: 17, 2005; Kaplan & Symoens in Bot. J. Linn. Soc. 148: 348, 349, 353 (map), 2005; Fl. Trop. E. Afr., Potamoget.: 11, 2006; Kaplan in Preslia 77: 421, 423, 424 map (Mediterr. region), 2005; Fl. Medit. 18: 311, 2008 (Sardinia).

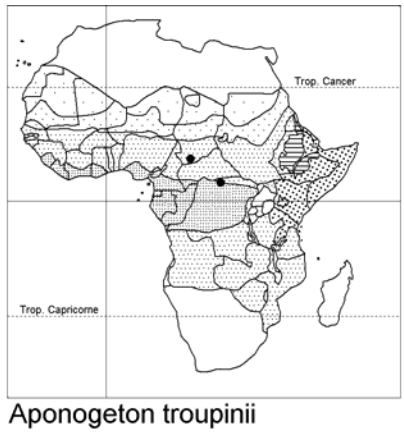
syn.: *P. capensis* Scheele ex A. Benn., nom. nud.; *P. capensis* Scheele ex Hagstr.; *P. lucens* L. var. *azoricus* A. Benn., nom. nud.; *P. azoricus* A. Benn. ex Hagstr., nom. nud.; ? *P. repens* Hagstr.; *P. nodosus* Poiret var. *billotii* fa. *angustissimus* Hagstr.; *P. promontoricus* Hagstr.; *P. venosus* A. Benn.; *P. bunyonyiensis* Denny & Lye (?? = *P. schweinfurthii* × *P. richardii* = *P. thunbergii* sensu Obermayer, Fl. south. Africa 1: 67, 1966, non Cham. & Schldtl.); *P. nodosus* auct., non Poiret; *P. lucens* auct., non L.; see also Fl. Zambes. 12/2: 87, 2009.



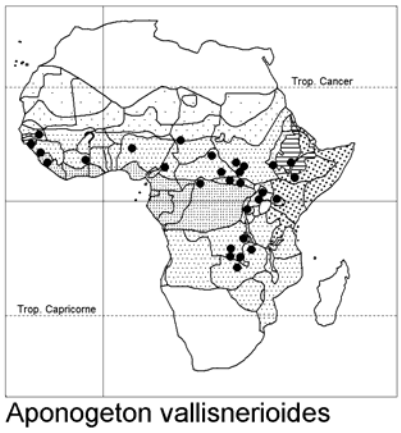
Aponogeton stuhlmannii



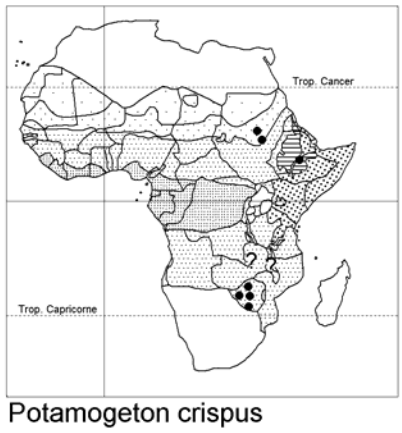
Aponogeton subconjugatus



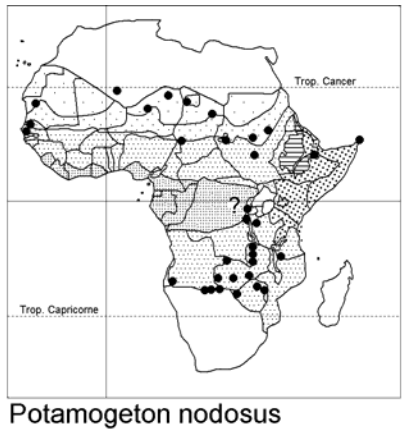
Aponogeton troupinii



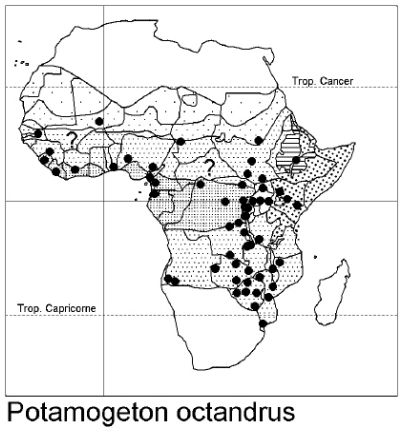
Aponogeton vallisnerioides



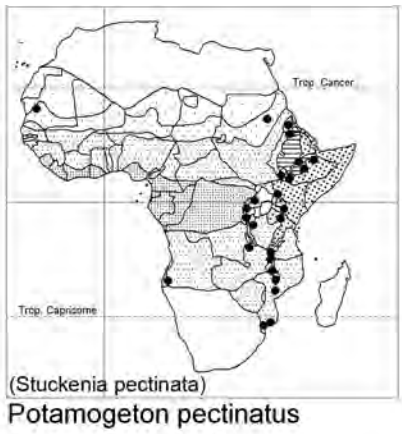
Potamogeton crispus



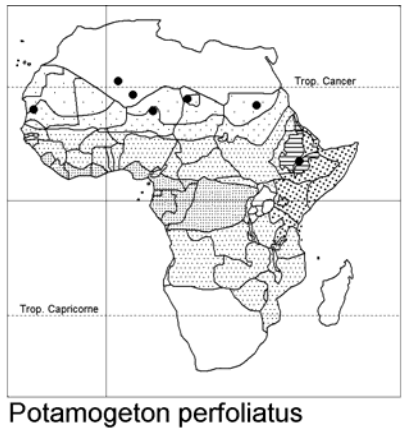
Potamogeton nodosus



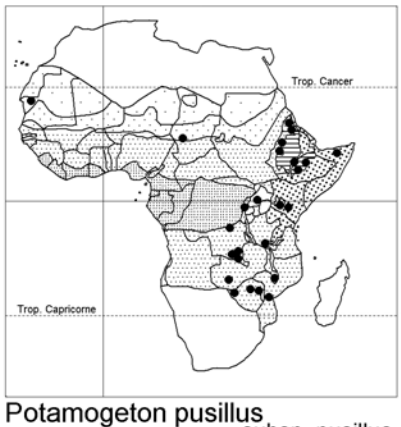
Potamogeton octandrus



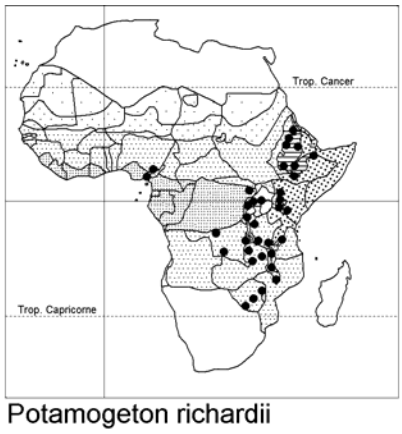
(Stuckenia pectinata)
Potamogeton pectinatus



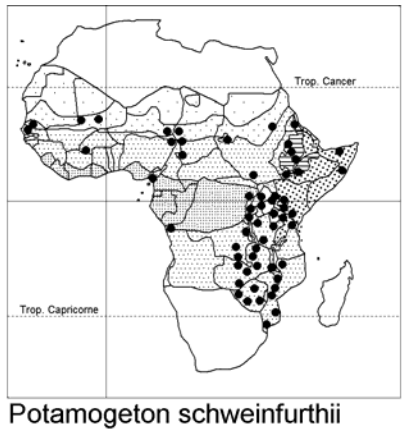
Potamogeton perfoliatus



Potamogeton pusillus
subsp. pusillus



Potamogeton richardii



Potamogeton schweinfurthii

POTAMOGETON SCHWEINFURTHII

Rooted aquatic herb, with submerged and floating leaves; rhizome slender, terete, white; stems annual, ± branched, slender, terete, to 3,5 m long, ± spongy; submerged leaves almost always present, often with a reddish or brownish tinge, often incrusted with calcium carbonate, petiole 0-82 mm long; lamina narrowly lanceolate to oblong-elliptic (or lower leaves reduced to phyllodes), 4,5-26 × 0,3-2,8 cm, apex acute to mucronate, base cuneate, margins often slightly undulate; intermediate leaves sometimes present, instead of floating leaves; floating leaves absent or present with petiole 14-20 cm long; lamina 4,3-13 × 1,2-3 cm, apex obtuse to acute; peduncles 3,5-25 cm long; spikes emergent, cylindric, 3-9 cm long, contiguous, many-flowered; fruit pale brown-green, 2,9-4,1 × 2-2,5 mm, beak short, obtuse.

Ponds, pools, backwaters; running or stagnant waters; water depth 0,2-2 m; with *Najas, Ceratophyllum, Nymphaea, Trapa;* open water in swamps; relatively frequent in large lakes; 0-4250 m alt.

Very variable; confused with other broad-leaved species (for distinction between the species see: Preslia 77: 426-427, 2005).

P. schweinfurthii is perhaps a hybrid *P. lucens* × *P. richardii* or *P. lucens* × *P. nodosus* (see: Fl. Somalia 4: 14, 1997); molecular studies and transplantation experiments needed fide Symoens, Fl. Tropical E. Afr., Potamoget. 13, 2006.

Azores; Algeria, Tunisia, Libya, Egypt; Corsica, Sardinia, Italy (Tuscany, Marche, Apulia), Malta, Greece (Ionian Isl., Crete); Namibia, Botswana, S. Africa; Madagascar; SW Asia ? – The exact geogrpahical delimitation poorly known.

Closely related to *P. lucens*, *P. illinoensis* Morong (American).

Kaplan & Symoens (2005) are unable to distinguish between *P. schweinfurthii* and *P. bunyonyiensis* (thought to be a hybrid); the latter seems to fall within the variation range of the former; a hybrid between *P. schweinfurthii* and *P. richardii* is considered doubtful. They consider *P. chamissoi* A. Benn. as a probable apetiolate form of *P. schweinfurthii*. The type specimen is badly preserved, and later collections represent *P. nodosus.*

Quézel indicated *P. lucens* L. (Mission bot. Tibesti, Inst. Rech. Sahar., Mém. 4: 105, 1958) from Chad, Borkou, source of the Tigui; this needs revision. Perhaps = *P. schweinfurthii.*

(P. thunbergii Cham. & Schltdl., 1827).

See discussion by Kaplan & Symoens in Bot. J. Linn. Soc. 148: 331, 2005. Original material seems to represent *P. nodosus*, and "clearly excludes identity with the African species now called *'P. thunbergii'*". This name "cannot now be used for the African species with big tricarinate fruits…". However, another name, *P. richardii* Solms, is available for this species.

P. trichoides Cham. & Schltdl.; Wiegleb & Kaplan (1998): 297-298; Fl. Trop. E. Afr., Potamoget.: 8-9, 2006; Fl. Zambes. 12/2: 84-85, 2009. – Icon.: Maire, Fl. Afr. N. 1: 187, 1952; Cook, Aquat. & wetland pl. south. Afr.: 238, 2004; Boulos, Fl. Egypt 4: 17, 2005; Dinarvand in Iran J. Bot. 15: 165, 2009.

syn.: *P. monogynus* J. Gay ex Webb & Berthel.; *P. trichoides* var. *tuberculosus* Rchb., Icon. Fl. Germ. Helv. 7: 20, tab. 22 fig. 35, 1845 !, and var. *condylocarpus* (Tausch) Aschers. & Graebn.; *P. condylocarpus* Tausch; *P. pusillus* L. var. *trichoides* (Cham. & Schltdl.) Kunth; *P. tuberculatus* Ten. & Guss.; for full synonymy, see Wiegleb & Kaplan, l.c., World checklist monocotyledons, Royal Botanic Gardens, Kew.

Submerged herb; rhizome absent or only present at the end of the growing season, filiform, terete; stems to 1,5 m long, ± branched, filiform, terete to slightly compressed, fragile; submerged leaves often with a brownish tinge, sessile, 14-130 × 0,3-1,8 mm, base cuneate, apex acuminate, entire; floating leaves absent; peduncles 1-7,5 cm long; spikes 3-9 mm long, with 3-5 flowers; fruit 2,5-3,2 mm long, with dorsal keel, often muriculate, beak 0,3-0,5 mm long, straight. Apical or axillary dormant turions developing.

Dams, ponds, seasonal pools; water depth 30-50 cm; sometimes with *Potamogeton pusillus;* (300-)1200-2450 m alt.

Morocco, Algeria, Egypt; Botswana, S. Africa; Europe, W Asia.

Closely related to *P. pusillus*, and they are sometimes difficult to distinguish, but *P. pusillus* has open, tightly inrolled stipules, and the gynoecium is reduced to 1-2 carpels, and fruits distinctly keeled.

* * *

NOTHOSPECIES:

Potamogeton × **assidens** Z. Kaplan, Zalewska-Gałosz & M. Ronikier – Icon.: Taxon 59: 562, 2010.

A hybrid between *P. nodosus* and *P. perfoliatus*, with combined morphological and anatomical features. African plants develop subacute, rounded or even slightly hooded leaves similar to those of *P. perfoliatus.*

In shallow standing or slowly running water, above clay bottom rich in calcium. Both parental species present at the same sites.

Reported from Sudan, Niger; Madagascar; Poland.

Not mapped.

P. × **bunyonyiensis** Denny & Lye (?? = *P. schweinfurthii* × *P. thunbergii);* Uganda, in water on lake shore, 1-2 m deep. – Cf. above under **P. schweinfurthii**.

SYNONYMS:

Potamogeton americanus Cham. & Schltdl.

var. *mascarensis* (Cham. &Schltdl.) A. Benn. = **Potamogeton nodosus**

var. *richardii* (Solms) Schweinf. = **P. richardii**

var. *thunbergii* (Cham. &Schltdl.) A. Benn. p.p. = **P. nodosus**, **P. schweinfurthii**

antaicus Hagstr. = **P. pusillus** subsp. **pusillus**

aschersonii A. Benn. = **P. pusillus** subsp. **pusillus**

azoricus A. Benn. ex Hagstr., nom. nud. = **P. schweinfurthii**

bunyonyiensis Denny & Lye = **P.** ? **schweinfurthii** (see above under "Nothospecies")

canariensis Link = **P. nodosus**

capensis Scheele ex A. Benn., nom. nud. = **P. schweinfurthii**

capensis Scheele ex Hagstr. = **P. schweinfurthii**

condylocarpus Tausch = **P. trichoides**

contortus Desf. = **Zannichellia palustris** *(Zannichelliaceae)*

crenulatus D. Don = **Potamogeton crispus**

crispatus Wallman ex Rchb. = **P. crispus**

crispus L. var. *serrulatus* (Opiz) Rchb. = **P. crispus**

fibrosus Hagstr. = **P. richardii**

POTAMOGETON

filiformis auct., non Pers. = **P. pectinatus**

fluitans auctt. mult., non Roth = **P. nodosus**

x *fluitans* proles *thunbergii* (Cham. & Schltdl.) Graebn. = **P. nodosus**

huillensis Welw. ex Schinz = **P. octandrus**

indicus Roxb., non Roth ex Roem. = **P. nodosus**

javanicus Hassk. = **P. octandrus**

leschenaultii Cham. & Schltdl. = **P. nodosus**

livingstonei A. Benn. = **P. pectinatus**

lucens auct., non L. = **P. schweinfurthii**

lucens L. var. *azoricus* A. Benn. = **P. schweinfurthii**

mascarensis Cham. & Schltdl. = **P. nodosus**

mexicanus A. Benn. = **P. nodosus**

monogynus J. Gay ex Webb & Berthel. = **P. trichoides**

natans L.

fa. *capensis* Kunth = **P. nodosus**

var. *capensis* T. Durand & Schinz = **P. nodosus**

nodosus auct., non Poiret = **P. schweinfurthii**

nodosus Poiret fa. *angustissimus* Hagstr. = **P. schweinfurthii**

occidentalis Sieber ex Cham. & Schltdl. = **P. nodosus**

panormitanus Guss. = **P. pusillus** subsp. **pusillus**

parvifolius Buchenau = **P. octandrus**

preussii A. Benn. p.p. = **P. octandrus**, **P. pusillus**

promontoricus Hagstr. = **P. schweinfurthii**

pusillus L. subsp. *flabellatus* (Bab.) Hook. f. = **P. pectinatus**

pusillus L. var. *africanus* A. Benn. = **P. pusillus** subsp. **pusillus**

pusillus L. var. *gemmiparus* J. W. Robbins = **P. pusillus** subsp. **gemmiparus**

pusillus L. var. *trichoides* (Cham. & Schltdl.) Kunth = **P. trichoides**

repens Hagstr. = ? **P. schweinfurthii**

serrulatus Opiz = **P. crispus**

stagnorum Hagstr. = **P. nodosus**

subjavanicus Hagstr. = **P. pusillus**

tenuicaulis F. Muell. = **P. octandrus**

thunbergii Cham. & Schltdl. = **P. nodosus**

thunbergii sensu auct. p.p. = **P. richardii**

trichoides Cham. & Schltdl.var. *condylocarpus* (Tausch) Aschers. & Graebn. and var. *tuberosus* Rchb. = **P. trichoides**

tuberculatus Ten. & Guss. = **P. trichoides**

tuberosus Roxb. = **P. crispus**

venosus A. Benn. = **P. schweinfurthii**

(SPIRILLUS)

Spirillus perfoliatus (L.) Nieuwl. = **Potamogeton perfoliatus**

pusillus (L.) Nieuwl. = **P. pusillus**

(STUCKENIA)

Stuckenia pectinata (L.) Börner = **Potamogeton pectinatus**

RUPPIACEAE / *1* g. / *1* sp.

Sometimes included in *Potamogetonaceae*. Monogeneric family, genus *Ruppia*, with 4-10 (7) species with a cosmopolitan distribution although discontinuous; found on all continents, also in many isolated islands from the tropics N-words to Iceland and the White Sea; from sea level up to 4000 m alt. The greatest species diversity occurs in mediterranean-type climates. There is a great morphological variation between populations, in part due to environmental factors, but also genetically determined, so the taxonomy of *Ruppia* is still unsatisfactory (den Hartog & Kuo, in Larkum & al., Seagrasses: 14-15, 2007).

RUPPIA / *1*

ITO, Y. & al. (2010). Hybridization and polyploidy of an aquatic plant, Ruppia (Ruppiaceae), inferred from plastid nuclear DNA phylogenies. *Amer. J. Bot.* 97: 1156-1167.

LINDQVIST, C. & al. (2006). See above under **Potamogetonaceae**.

ZHAO, Liang-Cheng & Zhi-Yi WU (2008). A review on the taxonomy and evolution of Ruppia. *J. Syst. Evol.* 46: 467-478 [with a key to species].

Ruppia maritima L.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 473, 1997; Figueiredo & Smith, Pl. Angola: 206, 2008; Dobignard & Chatelain, Index synon. fl. Afrique N. 1: 387-388, 2010. – Icon.: Maire & Weiler, Fl. Afr. N. 1: 198-199, 1952; Fl. Trop. E. Afr., Ruppiaceae: 2, 1989; Fl. Mascareignes 199: 2, 1984; Fl. Eth. & Eritrea 6: 24, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 13, 2001; Gullström & al. in Ambio 31, 590, 2002; Fl. Males. 1/16: 195, 2002; Dinarvand in Iran. J. Bot. 14: 101, 2008; Boulos, Fl. Egypt 4: 21, 2005; Fl. south. Afr. 1: 72, 1966.

syn.: *R. maritima* L. subsp. *brevirostris* C. Agardh, and proles *brevirostris* (C. Agardh) Aschers. & Graebn., var. *drepanensis* (Tineo) K. Schum., subsp. *drepanensis* (Tineo) Maire & Weiller, subsp. *rostellata* (W. D. J. Koch in Rchb.) Aschers. & Graebn., var. *rostrata* C. Agardh; *R. rostellata* W. D. J. Koch in Rchb.; *R. drepanensis* Tineo; *C. rostrata* (C. Agardh) Pamp.; *C. zosteroides* Lojac.; for full synonymy, see World Checklist Monocotyledons, Royal Botanic Gardens, Kew.

Monoecious submerged perennial herb with thin horizontal rhizomes rooting in the mud; stems 10-50 cm or more long, 0,2-0,8 mm Ø, filiform, much-branched; leaves numerous, set all along the plant, usually alternate below, often opposite above; sheaths light to medium reddish brown, 5-20 × 0,7-1,5 mm, somewhat inflated; blade 2-15 cm long, 0,2-0,9 mm wide, linear-filiform with many small teeth along margin near the acute tip; peduncles 5-60 mm long, 0,2-0,5 mm thick; fruit obliquely ovoid, 2-3 × 1,5-2 mm, with a prominent beak, medium to dark reddish brown or almost black.

Alkaline lakes; shallow brackish water; often forming large colonies; salt continental pools; sandy beach; slowly flowing salt stream; just below low tide level to 800 m alt.

N Africa, Macaronesia; Namibia, S. Africa; Socotra; Madagascar, Mascarene Isl.; temperate regions of Europe, Asia, America.

Zhao & Wu (o.c.) remark that in *R. maritima* the flowers remain under water and pollination occurs below surface, whereas in *R. cirrhosa* (Petagna) Grande [syn.: *R. maritima* subsp. *spiralis* (L. ex Dumortier) Syme] the flowers rise to water surface when pollinated. In Africa the latter species occur in the North and in the South.

ZANNICHELLIACEAE *1* g. / *1* sp.

excl. *Cymodoceaceae.*

Sometimes included in *Potamogetonaceae.*

LINDQVIST, C. & al. (2006). See above under **Potamogetonaceae**.

ZANNICHELLIA / *1*

3 (or 6) or 1 polymorphic species.

Zannichellia palustris L.; Dobignard & Chatelain, Index synon. fl. Afrique N. 1: 392-393, 2010. – Icon. : Maire & Weiller, Fl. Afr. N. 1: 199, 1952; Fl. south. Afr. 1: 78, 1966; Fl. Mascareignes 200: 4, 1984; Cook, Aquat. pl. book, ed. 2: 221, 1996; Fl. Trop. E. Afr., Zannichelliaceae: 2, 2000; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 17, 2001; Cook, Aquat. & wetland pl. south. Afr.: 265, 2004; Boulos, Fl. Egypt 4: 21, 2005; Fl. Eth. & Eritrea 6: 25, 1997; Fl. Zambes. 12/2: 98, 2009.

syn.: *Potamogeton contortus* Desf.; *Zannichellia palustris* var. *contorta* (Desf.) T. Durand & Schinz; *Z. melitensis* Brullo, Giusso & Lanfr.; *Z. obtusifolia* Talavera, García-Mur. & H. Smit; *Z. contorta* (Desf.) Cham. & Schltdl.; *Z. macrostemon* J. Gay ex Coss., in sched., ex Willk. & Lange; *Z. peltata* Bertol.; *Z. pedunculata* Rchb.; *Z. major* Boenn. ex Rchb.; *Z. rostrata* J. Gay, nom. nud.; *Z. repens* Boenn.; *Z. palustris* subsp. *genuina* Aschers.; for full synonymy, see World checklist monocotyledons, Royal Botanic Gardens, Kew.

Submerged annual or perennial brittle herb forming dense tangled mats; rhizome thin, branching freely, but not clearly differentiated from the creeping or erect stem; erect stems to 50 cm long, thin, brittle; leaves 1-3 per node, linear, 1,2-5 cm × 0,5-2 mm, flat, 1-veined, sheaths free from the leaf base, early caducous; male flowers naked, stamen 1; female ones borne in a cup-shaped sheath, ovaries 1-9; fruit reniform, 2-6 mm long, stipitate, with a keel and protuberances, styles persistent. – The submerged flowers are water-pollinated.

Rivers, pools; rocky and stony substrate; fresh to slightly alkaline water 2,5-45 cm deep; locally dominant over small areas; 1450-1800 m alt. (Tanzania).

Very variable (see Lagascalia 14: 241-271, 1986).

N Africa, Canary Isl.; Namibia, Botswana, S. Africa; Madagascar, Rodrigues; almost cosmopolitan (except Australia).

Might occur in Ethiopia: the wetlands there are poorly known.

* * *

Pseudalthenia aschersoniana (Graebn.) Hartog = *Zannichellia aschersoniana* Graebn. (icon.: Engler, Pflanzenreich 4/11: 157, 1907; Cook, Aquat. & wetland pl. south. Afr.: 264, 2004) is endemic to S. Africa (Cape Peninsula and neighbouring coastal areas).

CYMODOCEACEAE *4* g. / *7* spp.

(excluded from *Zannichelliaceae).*

Family of 5 genera and 16 species, mostly in tropical seas.

BANDEIRA, S.O. (2002). Diversity and distribution of seagrasses around Inhaca Island, southern Mozambique. *S. Afric. J. Bot.* 68: 191-198.

GULLSTRÖM, M. & al. (2002). Seagrass ecosystems in the western Indian Ocean. *Ambio* 31: 588-596.

HARTOG, C. DEN & J. KUO (2006).Taxonomy and biography of seagrasses. *In.:* LARKUM, A. W. D. & al., eds., *Seagrasses: Biology, ecology and conservation:* 1-23. Springer, Dordrecht.

In one species the male flower unknown.

CYMODOCEA / *3*

Genus of 4 species, with a mainly tropical distribution. With a wider range in the past: fossils from the Middle Eocene in Florida well preserved, and fossil fruits along the Mediterranean. Also records from the Miocene in Indonesia (Hartog & Kuo, 2006: 9).

For one species in our area: male flower unknown.

Cymodocea nodosa (Ucria) Aschers.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 307, 2000; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 102-103, 2010. – Icon.: Maire & Weiller, Fl. Afr. N. 1: 181, 1952; Cook, Aquat. pl. book, ed. 2: 65, 1996; Boulos, Fl. Egypt 4: 25, 2005; Green & Short, World atlas seagrasses: 271 (with map), 2003.

syn.: *C. aequorea* K. D. Koenig; *Phucagrostis major* Theophr. ex Cavolini, nom. inval.; *Ph. major* Cavol. ex Willd.; *Ph. nodosa* (Ucria) Kuntze; *Cymodocea major* (Willd.) Grande; *C. preauxiana* Webb & Berthel.; *C. webbiana* A. Juss.; *Zostera mediterranea* DC.; *Kernera nodosa* (Ucria) Schult. & Schult. f.

Marine dioecious perennial herb; rhizome c. 2 mm Ø, creeping, branched, rooting at nodes; stems shorts, erect, each bearing 2-5 leaves; leaf-sheath 2,5-6,5 cm, entire when shed; leaf blade 8-100 × 0,2-3,5 mm, entire, ± spinulose near the rounded apex; flowers solitary, terminal; male flowers on a stalk 7-10 cm long; female ones ± sessile; nutlets c. 10 × 6 mm, with 3 entire to crebulate (not dentate) ridges.

Meadows on sandy or muddy banks with *Zostera noltii* (Bull. Soc. Hist. Nat. Afrique N. 29: 111, 1938): Mauritania, Thila; Etudes Sahar. & Ouest-africaines 1/3: 5, 1988: South Iouik, mud hole, most common.

Canary Isl.; Atlantic coast of Africa; Mediterranean Sea.

ALBERTO, F. & al. (2008). Genetic differentiation and secondary contact zone in the seagrass Cymodocea nodosa across the Mediterranean-Atlantic transition region. *J. Biogeogr.* 35: 1279-1294.

CUNHA, A. H. & A. ARAÚJO (2009). New distribution limits of seagrass beds in West Africa. *J. Biogeogr.* 36: 1621.

C. rotundata Ehrenb. & Hemprich ex Aschers.; Cook, Aquat. & wetland pl. south. Afr.: 81, 2004; Fl. Zambes. 12/2: 104-105, 2009. – Icon.: Thulin, Fl. Somal. 4: 17, 1995; Fl. Eth. & Eritrea 6: 28, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 23, 2001; Ambio 31: 590, 2002; Fl. Males. 1/16: 204, 2002; Green & Short, o.c.: 272 (with map); Boulos, Fl. Egypt 4: 25, 2005.

syn.: *Phucagrostis rotundata* Ehrenb. & Hempr. ex Kuntze

Marine dioecious herb; rhizome fleshy, delicate, each node with 1-3 irregularly branched roots and erect stem to 6 cm long with 2-7 leaves; leaf sheath pale purplish, 1,5-5,5 cm long; old sheaths forming a scarious mass; blade linear, often slightly falcate,

7-15 cm × 2-5 mm, entire, rarely slightly spinulose, apex rounded; nutlets 1-2 together, sessile, semicircular and laterally compressed, to 10 × 6 mm, 1,5 mm thick, with 3 dorsal parallel ridges, the middle one with acute teeth, and 1 ventral ridge with 3-4 teeth, beak 2 mm long.

Coral (sand); exposed at low tide or always submerged; rooted in sand or mud, often forming a grass-like carpet.

(Red Sea, Indian and Pacific Oceans:) Egypt; Arabia; Aldabra; Mozambique Channel Isl.; Madagascar; India, E Asia, Malesia, Australia, NW & SW Pacific. – Probably farther N in Somalia than shown on our map.

Seems to flower and fruit rarely. Flowers and fruits have only been reported from the southern hemisphere. Vegatative parts very similar to those of *Thalassia hemprichii (Hydrocharitaceae).*

C. serrulata (R. Br.) Aschers. & Magnus – Icon.: Fl. Eth. & Eritrea 6: 28, 1997; Fl. Trop. E. Afr., Cymodoceaceae: 8, 2002; Ambio 31: 590, 2002; Fl. Males. 1/16: 206, 2002; Green & Short, o.c.: 272 (with map); Boulos, Fl. Egypt 4: 25, 2005; Fl. Zambes. 12/2: 106, 2009.

bas.: *Caulinia serrulata* R. Br.

syn.: ? *C. acaulis* Peter; *Phucagrostis serrulata* (R. Br.) Kuntze; *Cymodocea asiatica* Makino; *Zostera serrulata* (R. Br.) Targ. Tozz.; *Thalassia reptans* Sol. ex Graebn., nom. inval.; Enum. 3: 18, 1995.

Marine dioecious herb; rhizome robust, each node with 2-3 sparsely branched roots and erect stem to 10 cm long bearing 2-5 leaves; leaf sheaths bright purple, broadly triangular, 1,5-3 cm long; blade linear to falcate, 6-15 cm long × 4-9 mm, base narrowed, distal margin slightly spinulose, obtuse, serrate to dentate, apex rounded, serrulate; male flower unknown; nutlet sessile, elliptic, laterally compressed, 7-9 × 3,7-4,5 mm, 2 mm thick, with 3 dorsal blunt ridges, beak 1 mm long.

Tide pools; mud or mud-covered coral, muddy sand; shallow water only below sea-level to 10 m deep.

(Red Sea – Indian Ocean – W Pacific:) Egypt, Arabia; Seychelles, Madagascar; S India – Sri Lanka, Malaysia – New Guinea, Australia, Philippines (distribution similar to that of *C. rotundata).*

Flowers have been rarely observed, and only occasionally in the Indo-Pacific.

SYNONYMS (in other genera):

Cymodocea australis (Miq.) Trimen = **Halodule uninervis**

ciliata (Forssk.) Ehrenb. ex Aschers. = **Thalassodendron ciliatum**

isoetifolia Aschers. = **Syringodium isoetifolium**

(DIPLANTHERA)

Diplanthera dawsonii Hartog = **Halodule wrightii**

indica Steud. = **H. uninervis**

madagascariensis Steud., nom. inval. = **H. uninervis**

tridentata Steinheil = **H. uninvervis**

uninervis (Forssk.) Aschers. 1897 = **H. uninervis**

uninervis (Forssk.) F. N. Williams 1904 = **H. uninervis**

wrightii (Aschers.) Aschers. = **H. wrightii**

HALODULE / *2*

syn.: *Diplanthera* Thouars

Genus of 6 species on tropical and subtropical coasts worldwide. Identification characters difficult: shape of leaf tip and width of leaves.

ITO, Y. & N. TANAKA (2011). Hybridisation in a tropical seagrass genus, Halodule (Cymdoceaceae), inferred from plastid and nuclear DNA phylogenies. *Telopea* 13: 219-231.

Halodule uninervis (Forssk.) Boiss.; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 103, 2010. – Icon.: Fl. south. Afr. 1: 78, 1966; Fl. Mascareignes 200: 4, 1984 *(Zannichelliaceae);* Philipps & Meñez, Seagrasses, Smithson. Contrib. Marine Sci. 34: 54, 1988; Thulin, Fl. Somal. 4: 17, 1995; Fl. Eth. & Eritrea 6: 27, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 23, 2001; Fl. Trop. E. Afr., Cymodoceaceae: 6, 2002; Fl. Males. 1/16: 209, 2002; Green & Short, World atlas seagrasses: 274, 2003 (with map); Cook, Aquat. & wetland pl. south. Afr.: 81, 2004; Boulos, Fl. Egypt 4: 28, 2005; Fl. Zambes. 12/2: 103, 2009.

bas.: *Zostera uninervis* Forssk. – Type lost.

syn.: *Z. tridentata* Solms; *Halodule tridentata* (Steinheil) Endl. ex Unger; *Diplanthera madagascariensis* Steud., nom. invalid.; *D. tridentata* Steinheil; *D. uninervis* (Forssk.) Aschers. 1897; *D. uninervis* (Forssk.) F. N. Williams 1904; *D. indica* Steud.; *Halodule australis* Miq.; *Cymodocea australis* (Miq.) Trimen; *Halodule wrightii* sensu auctt., non Aschers.

Marine perennial dioecious herb; rhizome creeping, 1,5-2,5 cm Ø; each node with 1-6 roots and erect stem to 5 cm long; leaf sheath 1-4 cm long; blade sometimes falcate, 5-18 cm × 0,25-3,5 mm, apex with 2 linear lateral teeth and a median tooth; flowers solitary, terminal; male flower with pedicel 6-20 mm long, anthers red, one borne above the other; female flower with ± ovoid ovary; fruit ovoid to globose, slightly compressed, 1,5-2,5 mm long, 1,7-2 mm Ø, beak 0,2-1 mm long.

Shallow coastal areas; rooted in sand or mud; mangrove creeks; exposed at low tide or always submerged; muddy sand or coral; often above the beds of *Thalassodendron;* sea-level to a few meters deep. – Gregarious. A pioneer species.

Very variable in shape of leaf tip, even on shoots of the same rhizome. Also variable in leaf width, and wide-leaved and narrow-leaved populations can be distinguished.

Indian Ocean, W Pacific: Red Sea (Egypt-Arabia), E Africa, south to S. Africa (Natal), probably farther north in Somalia than indicated on our map, Madagascar, Mauritius, Seychelles; Persian Gulf, India, Sri Lanka, Malaysia, to New Guinea, Philippines, Australia, New Caledonia (maps cited above). – *H. wrightii* (an Atlantic species) reported from the Indian Ocean is *H. uninervis.*

H. wrightii Aschers.; Figueiredo & Smith, Pl. Angola: 177, 2008; J. Biogeogr. 36: 1621, 2009; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 103, 2010. – Icon.: Philipps & Meñez, o.c. 55; Green & Short, l.c. (p.p.).

syn.: *Zostera nana* sensu Rendle, Cat. Afr. Pl. Welwitsch 2/1: 94, 1899, non Mertens ex Roth; *Diplanthera beaudettei* Hartog; *D. dawsonii* Hartog; *Halodule beaudettei* (Hartog) Hartog; *H. brasiliensis* Lipkin

Marine dioecious herb; rhizome having at each node 2-5 roots and 1 leafy shoot; leaf sheath 1,5-4 cm long; blade filiform, 3,5-32 cm × 0,3-2,2 mm; male flower on a stalk 12,5-23 mm long; fruit ovoid or globose, 1,5-2 mm long.

HALODULE WRIGHTII

River mouth, sea shores; broad bay on muddy bottom uncovered at low tide; creeks in mangrove swamps; with *Cymodocea nodosa* and *Zostera noltii;* found from + 0,05-12 m depth (for more information see M. Millon, Etude des herbiers des embouchures du Saloum et du Diombos: 83-88, figs. 42-44, pl. 31, in L'estuaire de la mangrove du Sine Saloum, Rapp. UNESCO sur les services de la mer 32, 1985.

SE USA, Mexico to Venezuela, Caribbean, E Brazil.

The Indo-Pacific *Halodule* is *H. uninervis*, while Atlantic plants are *H. wrightti* (vide R.C. Phillips & E. G. Meñez, Smithsonian Contr. Marine Sciences 34, 1988).

(PHUCAGROSTIS)

Phucagrostis ciliata (Forssk.) Ehrenb. & Hempr. = **Thalassodendron ciliatum**

isoetifolia (Aschers.) Kuntze = **Syringodium isoetifolium**

major Theophr. ex Cavolini = **Cymodocea nodosa**

major Willd. = **C. nodosa**

nodosa (Ucria) Kuntze = **C. nodosa**

rotundata (Aschers. & Schweinf.) Ehrenb. & Hempr. = **C. rotundata**

serrulata (R. Br.) Kuntze = **C. serrulata**

tridentata Ehrenb. & Hempr. ex Boiss. = **Halodule uninervis**

(PHYCOSCHOENUS)

Phycoschoenus isoetifolia (Aschers.) Nakai = **Syringodium isoetifolium**

SYRINGODIUM / *1*

syn.: *Cymodocea* sect. (and subgen.) *Phycoschoenus* Aschers.

Genus of 2 species: 1 in the Caribbean – Gulf of Mexico *(S. filiforme* Kützing), 1 in the Indo-Pacific. – Differs from *Halodule* by cylindrical (not flattened) leaves, and leaf tip rounded, flowers not solitary.

Syringodium isoetifolium (Aschers.) Dandy; Ambio 31: 589, 2002; Cook, Aquat. & wetland pl. south. Afr.: 81, 2004; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 103, 2010. – Icon.: Fl. Mascareignes 200: 4, 1984; Thulin, Fl. Somalia 4: 19, 1995; Cook, Aquat. pl. book, ed. 2: 65, 1996; Fl. Trop. E. Afr., Cymodoceaceae: 4, 2002; Fl. Males. 1/16: 212, 2002; Green & Short, World atlas seagrasses: 275, 2003 (with map); Fl. Zambes. 12/2: 101, 2009.

syn.: *Phucagrostis isoetifolia* (Aschers.) Kuntze; *Phycoschoenus isoetifolia* (Aschers.) Nakai

Marine dioecious perennial herb; rhizome creeping, wiry, 1,5-3 mm Ø; each node with 1-3 roots and erect stem 0,5-7 cm long with 2(-3) distichous leaves; leaf sheath often tinged reddish, 1,5-4 cm long; blade 7-30 cm long, 1-2 mm Ø, narrowed at base; inflorescence a *stalked cyme* to 10 cm long, separate from the leaves; flower enclosed by reduced leaf with inflated sheath.

Muddy sand; coral tide pools, regularly or occasionally exposed; shallow to a few m deep water.

Indian Ocean from the Red Sea, Gulf of Suez, Gulf of Aqaba, Egypt, Sinai, Madagascar, Mauritius, Seychelles, Persian Gulf E-wards, Sri Lanka, S India-Malesia, to W Pacific, Vietnam, Ryukyu Isl.-New Caledonia-Fiji-Tonga Isl.-tropical Australia (map l.c.). – Probably farther N in Somalia than indicated on our map.

Flowering and fruiting seem to occur rarely in E Africa.

THALASSODENDRON / *1*

Genus of 2 species: *T. ciliatum*, and *T. pachyrhizum* Hartog only in a small extratropical area in W Australia. The rhizome is sympodial, whereas it is monopodial in the other genera (treated above).

KAMERMANS, P. & al. (2001). Leaf production, shoot demography, and flowering of Thalassodendron ciliatum along the east African coast. *Aquat. Bot.* 70: 243-258.

Thalassodendron ciliatum (Forssk.) Hartog; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 103, 2010. – Icon.: Fl. south. Afr. 1: 75, 1966 (sub gen. *Cymodocea);* Fl. Mascareignes 200: 4, 1984; Thulin, Fl. Somalia 4: 18, 1995; Fl. Eth. & Eritrea 6: 28, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 24, 2001; Fl. Trop. E. Afr., Cymodoceaceae: 3, 2002; Fl. Males. 1/16: 214, 2002; Ambio 31: 590, 2002; Green & Short, World atlas seagrasses: 276, 2003 (with map); Cook, Aquat. & wetland pl. south. Afr.: 81, 2004; Boulos, Fl. Egypt 4: 25, 2005; Fl. Zambes. 12/2: 108, 2009.

syn.: Enum. 3: 19, 1995; *Thalassia ciliata* K. D. König *(Hydrocharitaceae); Phucagrostis ciliata* (Forssk.) Ehren. & Hempr.

Marine perennial dioecious herb; rhizome mat-forming 4-6 mm Ø, woody, with 1-2 erect, mostly unbranched stems at every fourth node; roots 1-5, much branched, confined to nodes preceding those with shoots; stems erect, orange-brown, 10-70 cm long; leaves 6-10 in 2 rows at tip of erect stems; sheaths cream to pink, 1,5-3 cm long, shed with the blade; blade linear, falcate, 7-15 cm × 6-13 mm, base narrowed, apex rounded, denticulate, sometimes 2-3 furcate; flowers solitary, terminal on short lateral shoots, ± sessile, enclosed by 4 leafy bracts; fruit formed of the fleshy inner bract and the 2 fertilized ovaries (1 usually abortive), ellipsoid, 3,5-5 cm long, often germinating in situ. – Pollinated under water.

Coral or muddy sand over coral (attached) in tidal zone, not or partially exposed at low tide; may form large pure (often circular) stands; also in hyperhyaline rock pools; sea-level to a few m depth.

Red Sea-Indian Ocean, from Egypt to E S. Africa; Socotra; Saudi Arabia, Yemen, Iran; Madagascar, Comores, Mascarenes, Seychelles, Aldabra, Maldives, Chagos Archip. Disjunction; E part of distribution in the Pacific: E Malesia, Solomon Isl., E coast of Queensland, Australia (map in Green & Short, l.c.).

ZOSTERACEAE / *1* g. / *2* spp.

Sometimes included in *Potamogetonaceae.*

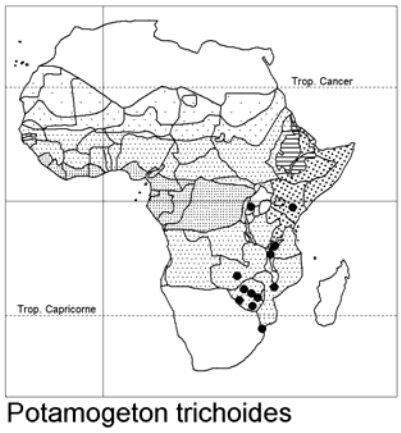
Family of 3-4 genera, and some 22 species, in warm and cool coastal waters worldwide. The generic limits are somewhat disputable (cf. Jacobs & Les in Telopea 12: 419, 2009).

HARTOG, C. DEN & J. KUO (2006). See above under **Cymodoceaceae**.

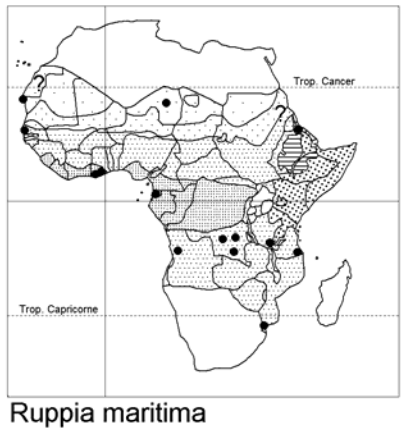
TANAKA, N. & al. (2003). Phylogenetic relationships in the genera Zostera and Heterozostera (Zosteraceae) based on matK sequence data. *J. Pl. Res.* 116: 273-279 [with map].

TOMLINSON, P. B. & U. POSLUZNY (2001). Generic limits in the seagrass family Zosteraceae. *Taxon* 50: 429-437.

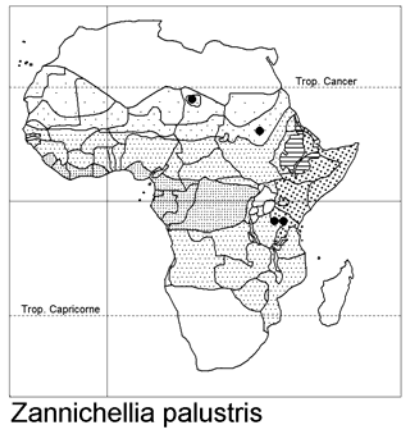
NANOZOSTERA – See under **ZOSTERA**



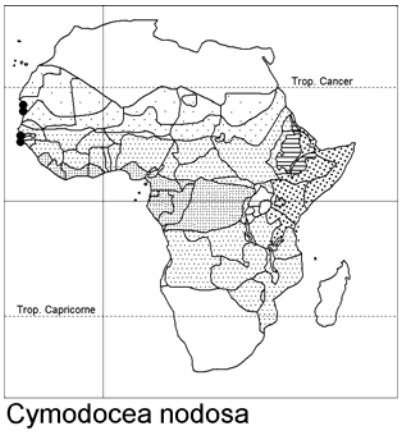
Potamogeton trichoides



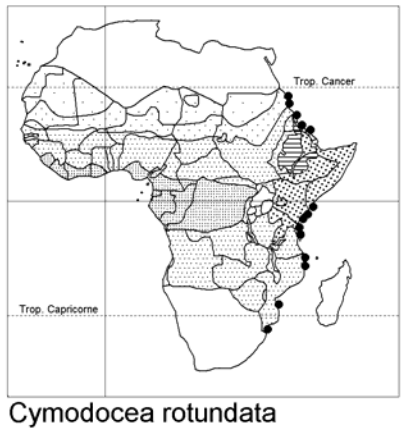
Ruppia maritima



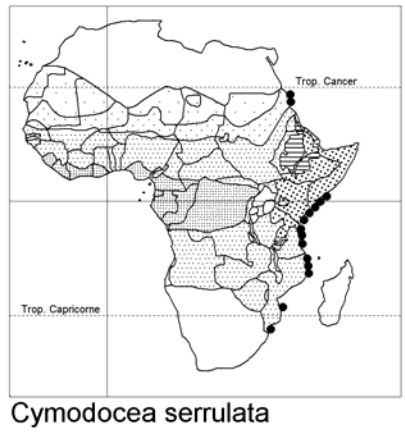
Zannichellia palustris



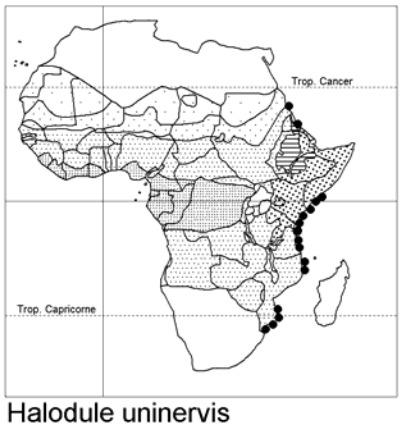
Cymodocea nodosa



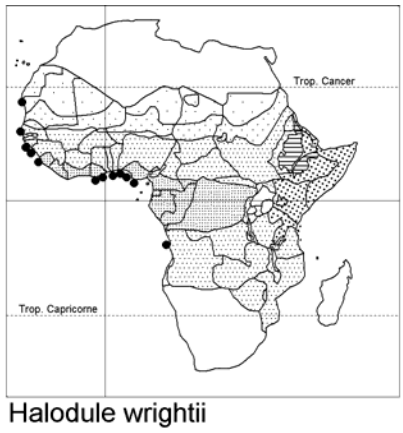
Cymodocea rotundata



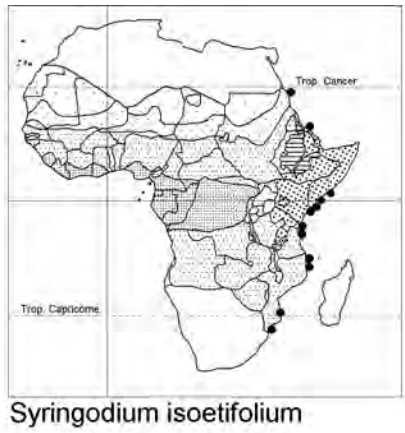
Cymodocea serrulata



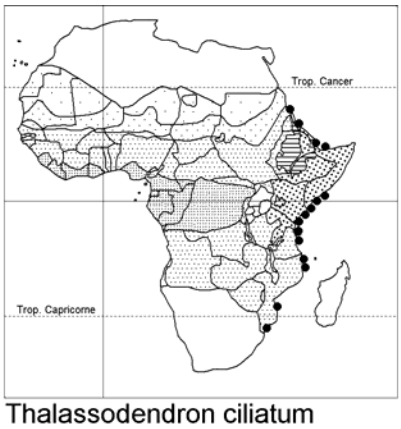
Halodule uninervis



Halodule wrightii



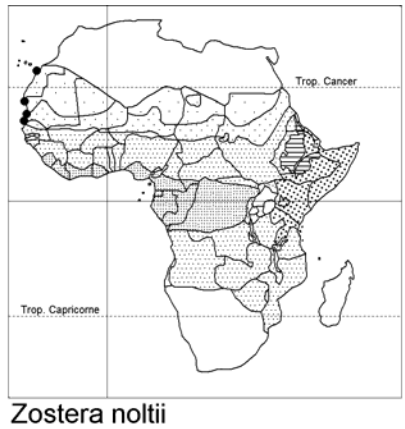
Syringodium isoetifolium



Thalassodendron ciliatum



Zostera (Nanozostera) capensis



Zostera noltii

ZOSTERA / *2*

syn.: *Nanozostera* Toml. & Posl.

Zostera capensis Setchell, incl. fa. *elatior* Setchell – Icon.: Fl. Trop. E. Afr., Zosteraceae: 3, 1999; Ambio 31: 590, 2002; Green & Short, World atlas seagrasses: 281, 2003 (with map); Cook, Aquat. & wetland pl. south. Afr.: 266, 2004; Fl. Zambes. 12/2: 94, 2009.

syn.: *Nanozostera capensis* (Setchell) Toml. & Posl., o.c.: 432; *Zostera nana* sensu auctt., non Roth

Marine perennial ± submerged herb; rhizome creeping, much branched, 0,5-2 mm Ø with 1-3 roots and a prophyllum of leaf at each node; stems of leafy branches arising from axils of rhizomatic leaves, with 2-5 leaves; stems of fertile branches developing from lateral branches, 0,5-25 cm tall, with 1-7 spathes; leaves ribbon-like, 2-135 cm × 0,5-2,5 mm, apex asymmetrically rounded; sheath membranous, 1-7 cm long, open; spathes with a peduncle connate with the stem axis for to 3,5 cm, free for 1,4-3,3 cm; male flowers with 1 stamen, shed after anthesis; female flowers of 1 ovary; fruit a nut c. 2 mm long.

Inshore sandbanks; lagoons, mangrove swamps; mudflats in fairly shallow water; exposed at mean low tide.

S. Africa; NW Madagascar.

Very important plant for stabilizing sand and mud. Forming large monospecific stands, refuge and breeding place for fish, and as food for wildfowl. A decline of *Z. capensis* recently noted in S Mozambique (S. Afric. J. Bot. 68: 191, 2002).

Z. noltii Hornem.; Edmondson & al., Trav. Inst. Sci. Rabat 1988, Mém. hors série: 45, 1989; Cunha & Araújo, J. Biogeogr. 36: 1621, 2009; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 393, 2010. – Icon.: Maire & Weiller, Fl. Afrique N. 1: 178, 1952 (sub nom. *Z. nana);* Boulos, Fl. Egypt 4: 21, 2005; Green & Short, World atlas seagrasses: 283, 2003 (with map); Blyttia 68: 280-281, 2010 (photos).

syn.: *Nanozostera noltii* (Hornem.) Toml. & Posl.; see World checklist Monocotyledons, Roy. Bot. Gardens, Kew.

Submerged marine herb, monoecious, perennial; leaves on sterile stems 4-20 × 0,05-0,2 cm, apex notched; leaf-sheath 0,5-4 cm long, open; flowering stems 8-10 cm long, lateral, unbranched or sparsely branched, with 1-3 spathes with sheaths 1,2-2 cm long.

Tidal flats in circular and semi-circular pools, 0,2-1 m deep sea water (Aquat. Bot. 84: 93-100, 2005); in sandy sediments intermingled with *Cymdocea nodosa*, *Halodule wrightii*, from mid-tide level to 6 m below (J. Biogeogr. 36: 1621, 2009).

Canary Isl. (Vieraea 33: 145-150, 2005; Rev. Acad. Canar. Cienc. 17/4: 13-18, 2006); European and N. African coasts of the Atlantic Ocean; Mediterranean Sea, Black Sea (Anal. Stiint. Univ. A. I. Cuza, N. S., Sect. 2, Biol. Veg. 24/2: 122-127, 2008); Caspian Sea, Aral Sea (map, o.c.).

HERNÁNDEZ FERRER, L. & Mª C. GIL-RODRÍGUEZ (2009). Diversidad genética en el Atlántico templado oriental: el caso de une angiosperma marina Zostera noltii. *Vieraea* 37: 29-40.

According to Tanaka & al., o.c., **Z. noltii** occurs only in W Europe; **Z. marina** L. occurs in NW Africa.

Zostera hornemannii Rouy (syn. *Z. hornemanniana* Tutin) = **Z. angustifolia** (Hornem.) Rchb., a species from N & NE Europe and the Russian Far East (not *Z. angustifolia* Loser = **Z. noltii**).

ZOSTERA

SYNONYMS (see also above):

Zostera ciliata Forssk. = **Thalassodendron** *(Cymodoceaceae)*

mediterranea DC. = **Cymodocea nodosa** *(Cymodoceaceae)*

nana Mertens ex Roth = **Zostera noltii**

nana auct., non Mertens ex Roth = **Halodule wrightii** *(Cymodoceaceae)*

nodosa Ucria = **Cymodocea nodosa** *(Cymodoceaceae)*

stipulacea Forssk. = **Halophila** *(Hydrocharitaceae)*

tridentata Solms = **Halodule uninervis** *(Cymodoceaceae)*

uninervis Forssk. = **Halodule uninervis**

NAJADACEAE / *1* g. / *8* spp.

Sometimes included in *Hydrocharitaceae.*

Monogeneric.

Bottom-rooted submerged herbs in fresh to brackish waters, often detached and free-swimming; leaves in subopposite pairs but often pseudowhorled, blade 1-nerved; inflorescence a solitary unisexual flower, axillary; male flower of a solitary anther, female of an ovary.

LES, D. H. & al. (2006). A reappraisal of phylogenetic relationships in the monocotyledon family Hydrocharitaceae (Alismatidae). *Aliso* 22: 211-230.

(CAULINIA)

Caulinia alagnensis Pollini = **Najas graminea** var. **graminea**

fragilis Willd. var. *intermedia* (Balb. & Nocca) Nyman = **N. graminea** var. **graminea**

graminea (Delile) Tzvelev = **N. graminea**

intermedia Balb. & Nocca = **N. graminea** var. **graminea**

microphylla Balb. & Nocca = **N. graminea** var. **graminea**

ovalis R. Br. = **Halophila ovalis** *(Hydrocharitaceae)*

serristipula (Maxim.) Nakai = **Najas graminea** var. **graminea**

spinulosa R. Br. = **Halophila spinulosa** *(Hydrocharitaceae)*

NAJAS / *8*

A cosmopolitan genus of some 38 species. Plants polymorphic, "expressed in characters which are difficult to observe… It is strongly recommended to check in the field whether the plants are monoecious or dioecious and whether annual or perennial with either turions or rhizomes… Natural annual fluctuations in the number of individuals and even the absence during several years in a particular site are not unusual" (Triest, Fl. Trop. E. Afr., Najadaceae: 1-2, 1989).

At present considerable experience is necessary to identify species in genera such as *Najas…* (Gaudet & al., 1981, fide Triest 1987).

LES, D. H. & al. (2010). Hybridization in hydrophiles: Natural interspecific hybrids in Najas (Hydrocharitaceae). *Syst. Bot.* 35: 736-744.

NAJAS

Najas baldwinii Horn – Icon.: H. Horn af Rantzien, Meddel. Göteborgs Bot. Trädg. 18: 189, 1950; Triest, A revision of the genus Najas, Acad. Roy. Sci. Outre-Mer, Cl. Sci. Nat. Méd., Mém. in – 8°, N.S. 21 (4): pl. 16, 1987; Berhaut, Fl. ill. Sénégal 9: 452, 1988.

syn.: *N. pectinata* auct.: Fl. W. Trop. Afr., ed. 2, 3(1): 20, 1968 quoad specim. Hall cc 420; *N. graminea* Del. var. *minor* A. Chev., nom. in sched. (Chevalier 6582); Enum. 3: 19, 1995.

Submerged herb, monoecious; stems and midrib of leaf unarmed; leaves 0,32-1,05 mm wide; leaf teeth on excrescences; leaf teeth 0,05-0,2 mm long; leaf sheath truncate to auriculate.

Rice fields; temporary pools; fresh, standing water, acid, limpid; sandy soils, backwash of shallow stream at edge of rice swamp.

Near *N. malesiana* W. J. de Wilde from Malesia.

N. graminea Delile var. **graminea**; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 203, 2010; Fl. Zambes. 12/2: 64-65, 2009. – Icon.: Triest, o.c.: pl. 17, 18; Fl. ill. Sénégal 9: 453, 1988; Cook, Aquat. & wetland pl. south. Afr.: 186, 2004; Boulos, Fl. Egypt 4: 12, 2005; Fl. south. Afr. 1: 84, 1966; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 783, 2010.

syn.: Enum.: 3: 19, 1995; *N. graminea* var. *longidentata* L. Triest; *Caulinia alagnensis* Pollini; *C. intermedia* Balb. & Nocca; *C. graminea* (Delile) Tzvelev; *C. microphylla* Balb. & Nocca; *C. fragilis* Willd. var. *intermedia* (Balb. & Nocca) Nyman; *Najas alagnensis* (Pollini) Pollini; *N. microphylla* (Balb. & Nocca) Rchb.; *N. tenuifolia* Aschers.

Monoecious submerged herb; stems to 60 cm tall, 0,4-2,3 mm Ø, and midrib of leaf unarmed; leaves 0,24-1 mm wide; 18-70 leaf teeth on each margin, not on excrescences; leaf teeth 0,2-0,12 mm long; septa absent; leaf sheath truncate to auriculate; distal ends of stems appearing feather-like because of closely packed leaves; male and female flower not in a spathe.

With *N. welwitschii* (Senegal), with *N. schweinfurthii* (Sudan); rice fields; fresh standing water; often on clayey soil; temporary pools; flooded meadows; often locally dominant; to 1400 m alt.

Algeria; Egypt; Botswana, S. Africa; S Europe; Asia to New Caledonia; Australia; naturalized in N. America. – Presence in Ethiopia uncertain (cf. Fl. Eth. & Eritrea 6: 30, 1997).

Var. **robusta** W. H. de Wilde occurs in the Lesser Sunda Isl.

N. hagerupii Horn – Icon.: Triest, o.c.: pl. 14.

syn.: Enum., l.c.

Monoecious submerged herb; stems and midrib of leaf unarmed; leaves 0,37-0,84 mm wide, with 18-50 teeth on each margin, not on excrescences; leaf teeth 0,03-0,06mm long; septa absent; fibres present; leaf sheath truncate to auriculate.

Marshes, pools.

N. horrida A. Br. ex Magnus 1870, non ex Rendle 1899 [= *N. pectinata* (Parl.) Magnus, in Egypt-Sinai]; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 203, 2010. – Icon.: Triest, o.c.: pl. 8; Kirkia 2: pl. 13 C (p. 65-66), 1961 (sub nom. *N. interrupta);* Fl. Afr. Centr., Najadaceae: 7, 1983 (sub nom. *N. pectinata);* Fl. Eth. & Eritrea 6: 32, 1997; Fl. Trop. E. Afr., Najadaceae: 6, 1989; Fl. ill. Sénégal 9: 454, 1988 (sub nom. *N. pectinata);* Cook, Aquat. & wetland pl. south. Afr.: 186, 2004; Boulos, Fl. Egypt 4: 12, 2005; Lisowski, Fl. (angiosp.) Rép. Guinée 2: fig. 509, 2009 (sub nom. *N. pectinata);* Fl. Zambes. 12/2: 62, 2009.

NAJAS HORRIDA

syn.: *N. minor* sensu Fl. Trop. Afr. 8(2): 227, 1901; *N. marina* L. var. *angustifolia* sensu Fries in von Rosen, Schwed. Rhod. Congo Exped. 1: 188, 1916; Enum. 3: l.c.

Submerged monoecious (rarely dioecious) herb; stems to 100 cm long, 0,4-2 mm Ø, and midrib of leaf unarmed; 2-16 leaf teeth on each margin, on excrescences; leaf teeth 0,15-1,38 mm long; septa present; fibres absent; leaf sheath rounded; male flowers in spathe, female (and fruit) not in spathe.

With *Ceratophyllum, Potamogeton;* mixed with *N. marina* subsp. *armata* (Uganda: Tonya); aquatic meadows; principally on sandy soils; sometimes in water with total mineralisation or salinity; channel; shallow lakes; rivers; swamps; river bank; 5-2000 m alt.

Showing considerable placticity in general habit.

Algeria; Egypt; Namibia, Botswana, S. Africa; Madagascar.

Plants very brittle, and often difficult to determine on herbarium specimens if the material was collected from a single plant.

N. marina L. subsp. **armata** (H. Lindb.) Horn; Dobignard & Chatelain, l.c.; Fl. Zambes. 12/2: 59-60, 2009. – Icon.: Triest, o.c.: pl. 1-3; Fl. ill. Sénégal 9: 454, 1988; Fl. Trop. E. Afr., Najadaceae: 3, 1989; Fl. Eth. & Eritrea 6: 32, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 15, 2001 ("maritima", sphalm.); Cook, Aquat. & wetland pl. south. Afr.: 186, 2004; Boulos, Fl. Egypt 4: 12, 2005.

syn.: Enum., l.c.; World checklist monocotyledons, Roy. Bot. Gardens, Kew; *N. marina* L. var. *muricata* (Delile) K. Schum., and subsp. *delilei* (Rouy) Oberm. (not Maire).

Submerged, *dioecious* herb; stems to 100 cm long, 0,6-1,7 mm Ø, unarmed or roughened with spines; leaves 3,6-60 mm long, fleshy, acute, 1,2-5,3 mm wide, margin on each side serrulate with 0-17 conspicuous spiny teeth on broad triangular excrescences; leaf teeth 0,25-1,9 mm long; abaxial side of midrib unarmed or with 1-6 spines; septa and fibres absent; leaf sheath 1,6-4 × 1,2-5,1 mm, rounded, entire or serrulate with 1-3 spine-cells on each side.

Shallow lakes preferably with a high mineral content; irrigation ditches (weed), canals; brakish water; delta; mixed with *N. horrida* (SW Uganda); river; 0-300 m alt. (Ethiopia); 750-1000 m (E Africa).

Very variable in many characters.

Canary Isl.; N Africa, Socotra; Botswana, S. Africa; Madagascar, Réunion, Mauritius (subsp. **commersonii** Triest). – Naturalised in N. America (cf. Stuckey, Bartonia 51: 2-16, 1985).

A cosmopolitan species. 12 subspecies and 4 varieties have been described from the Old World. The World Checklist, Kew, recognizes 5 subspecies and 2 varieties: – subsp. **marina** [syn.: *N. marina* subsp. *microcarpa* (A. Braun) L. Triest] in N Africa, Canary Isl.; – subsp. **arsenariensis** (Maire) L. Triest in Algeria; – subsp. **commersonii** L. Triest in Madagascar, Réunion, Mauritius; – subsp. **sumatrana** (W. J. de Wilde) L. Triest in W Sumatra; – var. **brachycarpa** Trautv. in N China; – var. **zollingeri** Rendle in Bali. – Boulos, Fl. Egypt, l.c., recognizes subsp. **ehrenbergii** (A. Braun) L. Triest in N Africa from Libya E-wards to Arabia, Iraq, Socotra [syn. *N. major* All. var. *ehrenbergii* A. Braun; *N. marina* L. var. *ehrenbergii* (A. Braun) K. Schum., and var. *angustifolia* Rendle, and var. *communis* Maire]; according to the Checklist this name is a synonym of subsp. **marina**.

NAJAS

N. schweinfurthii Magnus – Icon.: Triest, o.c.: pl. 12; Fl. ill. Sénégal 9: 455, 1988.

Submerged, monoecious herb; stems and midrib of leaf unarmed; leaves 1-2,3 cm long, 0,24-1 mm wide; 6-16 leaf teeth on each margin, 0,04-0,31 mm long, mostly on excrescences; leaf sheath truncate to auriculate, spiny to thorny; flowers in a spathe, male and female often on different branches.

Rice fields; often in temporary marshes; pools in boggy grassland; river; shallow water; ? – 1000-1800 m alt.

Very near *N. testui* (flowers and/or fruits needed for distinction).

N. testui Rendle; Fl. Eth. & Eritrea 6: 31, 1997; Fl. Zambes. 12/2: 63-64, 2009. – Icon.: Triest, o.c.: pl. 11.

syn.: *N. meiklei* Horn; Fl. Zambes., l.c.

Monoecious, submerged herb; stems 20 cm long, ± 0,5 mm Ø, and midrib of leaf unarmed; stems often plumose because of closely packed leaves; leaves 6,5-32 mm long, 0,26-1,1 mm wide; leaf teeth mostly on excrescences; leaf teeth 0,05-0,14 mm long; fibres absent or present; leaf sheath truncate to auriculate; male and female flowers generally on different branches, in a spathe.

Marshes, ponds, in and near rivers; rocky stream bed, in pools, 30-60 cm deep; rice fields; to 900-1700 m alt.

Very similar to *N. schweinfurthii*. Could possibly occur in Ethiopia.

N. welwitschii Rendle; Fl. Eth. & Eritrea 6: 31, 1997. – Icon.: Triest, o.c.: pl. 6; Berhaut, Fl. ill. Sénégal 9: 455, 1988; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 784, 2010.

Monoecious, submerged herb; stem 30 cm tall, 0,5 mm Ø, unarmed; leaves without spines on midrib; 6-20 teeth on each margin, leaf teeth 0,14-0,54 mm long, on excrescences; septa present; fibres absent; leaf sheath rounded.

Inundated rice fields; standing fresh water; sometimes mixed with *N. graminea;* lake; in water generally not very deep (20 cm).

Collected in Guinea Bissau in 1997 (Garcia de Orta, Sér. Bot. 17: 79, 2006).

Our map is mainly based on collections cited by L. Triest (Revision Najas, in Africa…: 39-43, 1987). According to the World Checklist Monocotyledons, Royal Botanic Gardens, Kew, this species occurs in NE Africa (E Sudan-W Ethiopia) and in Zaire-Angola. It is also present in India (Ratna Guha & M. S. Mondal, Wetland Phytodiversity: A complete guide to Indian Helobieae: map 9).

General aspect very similar to *N. horrida*.

Najas affinis Rendle is considered as distinct; an American species also recorded from Senegal.

SYNONYMS (See Enum. 3: 20, 1995):

Najas alagnensis (Pollini) Pollini = **Najas graminea** var. **graminea**

graminea Delile var. *longidentata* L. Triest = **N. graminea** var. **graminea**

marina L. var. *angustifolia* sensu Fries 1916 = **N. horrida**

meiklei Horn = **N. testui**

microphylla (Balb. & Nocca) Rchb. = **N. graminea** var. **graminea**

minor sensu F.T.A. 8/2: 227, 1901 = **N. horrida**

tenuifolia Aschers. = **N. graminea** var. **graminea**

JUNCAGINACEAE / *1* g. / *2* spp.

An almost cosmopolitan family of four to five genera, containing 25-35 species; Australia is the centre of specific diversity.

(ABBOTIA)

Abbotia filiformis Raf. = **Triglochin striata**

TRIGLOCHIN / *2*

KÖCKE, A. V. & al. (2010). Revision of the Mediterranean and southern African Triglochin bulbosa complex (Juncaginaceae). *Edinb. J. Bot.* 67: 353-398.

Triglochin milnei Horn; Fl. Eth. & Eritrea 6: 18, 1997; Figueiredo & Smith, Pl. Angola: 187, 2008 *(T. bulbosa* subsp. *bulbosa)*. – Icon.: Fl. Trop. E. Afr., Juncaginaceae: 2, 1971; Fl. Afr. Centr., Juncaginaceae: 3, 1982; Köcke & al., o.c.: 360 (partial); Cook, Aquat. & wetland pl. south. Afr.: 156, 2004 (partial); Fl. Zambes. 12/2: 75, 2009 *(T. bulbosa*).

syn.: *T. bulbosa* L. p.p. ["Most floras…do not recognise *T. milnei*, but treat it as a synonym of *T. bulbosa*…The circumscription of *T. bulbosa* in F.S.A. 1: 93 (1966), which includes *T. milnei*, is less satisfactory", Köcke & al., o.c.: 386].

Erect perennial glabrous herb 15-50 cm tall; rhizome bulbous, conical, solitary or clustered, surrounded by dense layers of fibrous leaf-base remnants; basal leaves linear, 3-25 cm long, 1-3 mm wide, sheaths 4-6 mm wide, blade narrower; leaves few at anthesis, short; inflorescence racemose, lax, with erect peduncle and floriferous part 5-10 cm long; flowers 5-30, perianth tinged purple; mericarps ± lanceolate, 8-1,4 × 3,7 mm.

Marshes; seasonally flooded (sometimes burnt) grasslands; grassy savannas periodically flooded; boggy pastures; river banks; 1000-1900 m alt. (Tanzania).

NE S. Africa (map in Köcke & al., o.c.: 388); only limited material available, and more collecting is needed.

Probably also in Malawi.

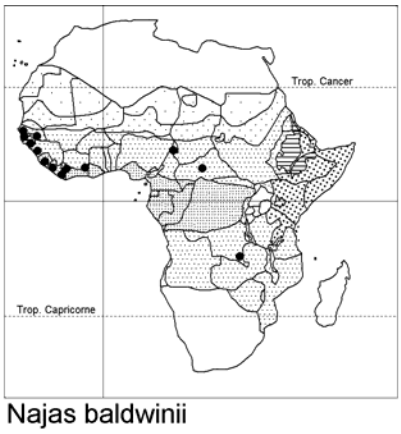
T. striata Ruiz & Pavon; Figueiredo & Smith, l.c; Köcke & al., o.c.: 354, 357, 359. – Icon.: Fl. south. Afr. 1: 95, 1966; Fl. Afr. Centr., Juncagin.: 3, 1982; Cook, Aquat. & wetland pl. south. Afr.: 156, 2004.

syn.: *T. natalensis* Gand.; *T. maritima* sensu Thunb., incl. var. *micrantha* E. Mey., non L.; *Abbotia filiformis* Raf.; *Tristemon triander* (Michx.) Raf.; for full synomny, see World Checklist Monocotyledons, Royal Botanic Gardens, Kew.

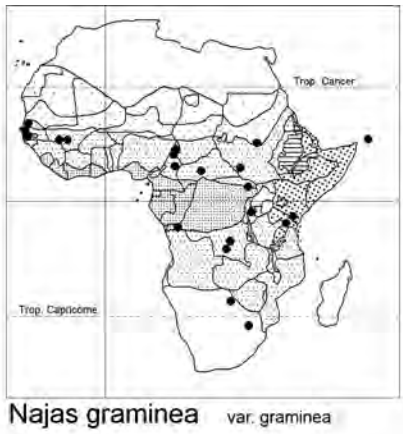
Perennial herb 5-50 cm tall; rhizome slender, sparsely covered with fibres, forming long woody stolons; leaves arranged in a compact fan-shaped manner with the sheaths broad, distinctly ligulate; lamina linear, cylindric, 5-30 cm long, succulent; flowers in dense spiral whorls, pedicels short at anthesis; fruit spherical.

Salty ground; coastal lagoon sides; salt marshes; swampy edges of mangrove; brackish swamps with *Salicorneae, Cressa, Scripoideae;* sometimes rather rare; not far from the sea; 0-10 m alt.

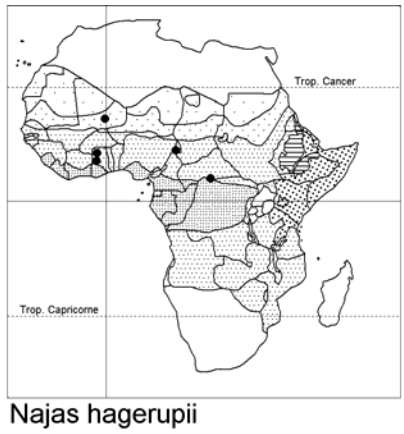
S. Africa; Australia; New Zealand; temperate S. America.



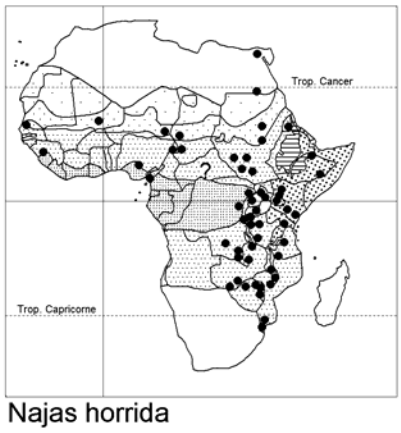
Najas baldwinii



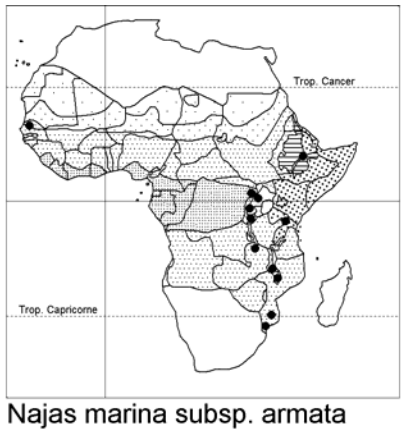
Najas graminea var. graminea



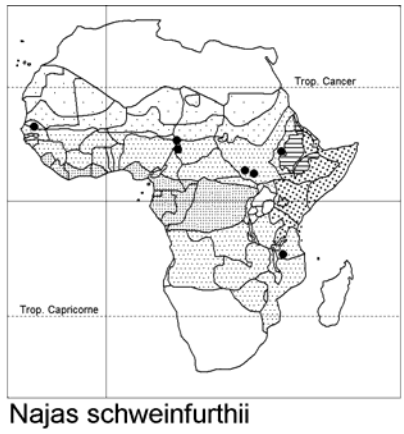
Najas hagerupii



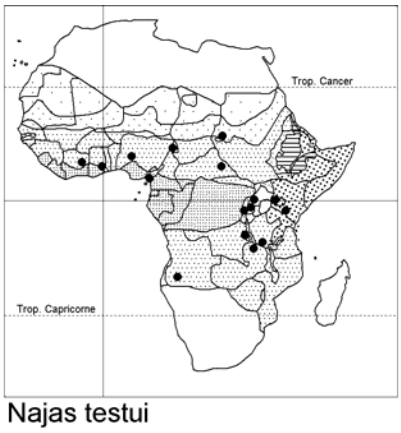
Najas horrida



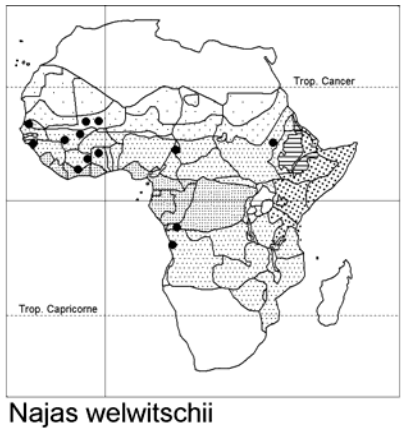
Najas marina subsp. armata



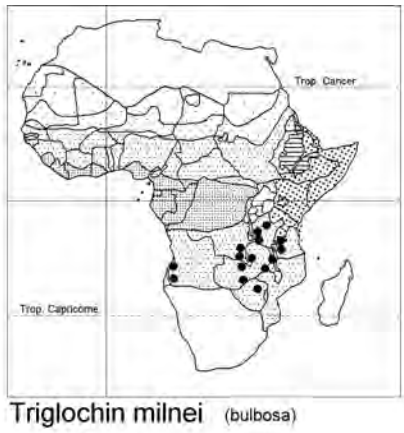
Najas schweinfurthii



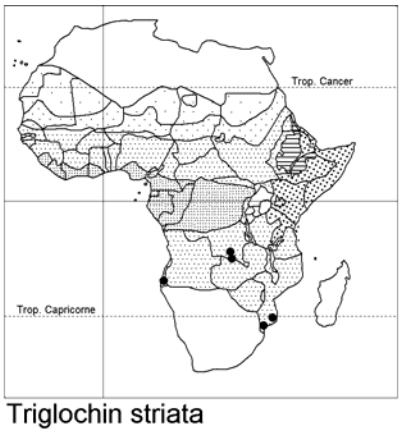
Najas testui



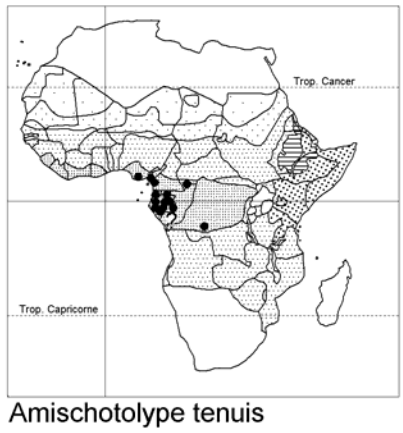
Najas welwitschii



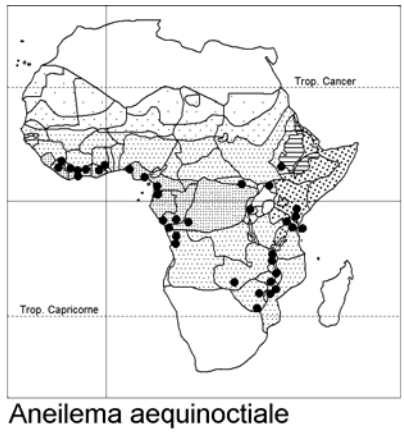
Triglochin milnei (bulbosa)



Triglochin striata



Amischotolype tenuis



Aneilema aequinoctiale

TRIGLOCHIN

Triglochin bulbosa L. is endemic to S. Africa, restricted to the W Cape Province (map in Köcke & al., o.c.: 372). It is a bulbous species with narrowly ovoid fruits. Köcke & al. (o.c.: 370-383) recognize 4 subspecies.

(TRISTEMON)

Tristemon triander (Michx.) Raf. = **Triglochin striata**

COMMELINACEAE / *15* g. / *196* (+ *61*?) spp.

Family of about 42 genera and some 700 species (Joppa & al. in Proc. Roy. Soc. London, Ser. B 278: 557, 2011), mainly in tropical regions, fewer in subtropical and temperate regions.

The family is not yet published for ex-Zaire (Democratic Republic Congo), East Africa and Flora Zambesiaca area.

Plants with leaves sheathing the stem at base, sheaths closed, lamina simple commonly somewhat succulent; inflorescence usually a panicle-like thyrse composed of scorpioid cymes; sepals 3, petals 3; fruit a capsule, rarely indehiscent or a berry.

Many species incompletely known, or undercollected, in our area. Habit of one species unknown; flower colour unknown in 4 (+1) species; corolla or petals lacking in 3 species; flowers unknown in 2 ? species; fruit unknown in 1 (+1 ?) species, no mature fruit seen in 2 (+1 ?) species; ecology not recorded for 9 species (= c. 5%); and 5 (+ 5 ?) species (= c. 2,5%) known only from the type.

BURNS, J. H. & al. (2008). Vegetative morphology and trait correlations in 54 species of Commelinaceae. *Bot. J. Linn. Soc.* 158: 257-268.

BURNS, J. H. & al. (2011). Phylogenetic studies in Commelinaceae subfamily Commelinoideae inferred from nuclear ribosomal and chloroplast DNA sequences. *Syst. Bot.* 36: 268-276.

CABEZAS, F. J. (2009). Checklist of Commelinaceae of Equatorial Guinea (Annobón, Bioko and Río Muni). *Bot. J. Linn. Soc.* 159: 106-122.

EVANS, T. M. & al. (2000). Phylogenetic relationships in the Commelinaceae: I. A cladistic analysis of morphological data. *Syst. Bot.* 25: 668-691.

EVANS, T. M. & al. (2003). Phylogenetic relationships in the Commelinaceae: II. A cladistic analysis of rbcL sequences and morphology. *Syst. Bot.* 28: 270-292.

FADEN, R. B. (1998). Commelinaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 4*: *Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae):* 109-128.

FADEN, R. B. (2000). Floral biology of Commelinaceae. *In:* WILSON, K. L. & D. A. MORRISON, eds., *Monocots: Systematics and evolution:* 309-317. CSIRO Publishing, Collingwood Vic (Australia).

FADEN, R. B. (2001). The Commelinaceae of Northeast Tropical Africa (Eritrea, Ethiopia, Djibouti, Somalia and Kenya): Diversity and phytogeography. *Biol. Skr.* 54: 213-231.

FADEN, R. B. & T. M. EVANS (1999). Reproductive characters, habitat and phylogeny in African Commelinaceae. *In:* TIMBERLAKE, J. & S. KATIVU, eds., *African Plants: Biodiversity, taxonomy and uses:* 23-38. Royal Botanic Gardens, Kew.

NORLINDH, T. & H. WEIMARCK (1948). Beiträge zur Kenntnis der Flora von Süd-Rhodesia VIII. *Bot. Not.* 1948: 17-38 [Commelinaceae p. 17-27, by T. Norlindh].

PANIGO, E. & al. (2011). The inflorescence in Commelinaceae. *Flora* 206: 294-299.

STEENTOFT, M. (2008). *Flowering plants in West Africa*. Cambridge University Press, Cambridge, etc. [*Commelinaceae* – day flower family, p. 264-268].

WADE, D. J. & al. (2006). Subtribal relationships in tribe Tradescantieae (Commelinaceae) based on molecular and morphological data. *Aliso* 22: 520-526.

(ACLISIA)

Aclisia condensata (C. B. Clarke) G. Brückn. = **Pollia**

(AMISCHOPHACELUS)

Amischophacelus axillaris (L.) R. S. Rao & Kammathy = **Cyanotis axillaris**

cucullata (Roth) R. J. Rao & Kammathy = **C. cucullata**

AMISCHOTOLYPE / *1*

Genus of 15-20 species in central tropical Africa, India to New Guinea.

Amischotolype tenuis (C. B. Clarke) R. S. Rao; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 222, 2002; Cable & Cheek, Pl. Mt Cameroon: 150, 1998; Cheek & al., Pl. Kupe…: 430, 2004; Sosef & al., Check-list pl. vascul. Gabon: 114, 2006; Cabezas & al., Checklist Commel. Equat. Guinea: 107-109, 2009; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 218, 2011.

syn.: *Forrestia lescrauwaetii* De Wild.; Enum. 3: 21, 1995.

Erect or ascending herb 30-60 cm tall (? and more); stems glabrous; leaf sheaths 1-2 cm long, ciliate on margin; lamina obovate(-elliptic), 5-15 × 2-6 cm (or more), often rather shortly acuminate at apex, abruptly passing into a false petiole 1-2 cm long; inflorescence perforating the base of the leaf sheath, dividing near base into 2 branches, to 3 cm long; flowers

(reddish-)mauve.

Swampy ground in gully in deep shade in high forest; light gaps in mixed species terra firma and *Gilbertiodendron dewevrei* forest; 1-1200 m alt.

A. *spec. nov.* in Sosef & al., Check-list pl. vascul. Gabon: 114, 2006 (Arends 416, Klaine 3097, de Wilde 9267).

ANEILEMA / *52*

syn.: *Lamprodithyros* Hassk.; *Bauschia* Seubert; *Amelina* C. B. Clarke; *Ballya* Brenan; *Perosanthera* Fenzl, nom. nud.

Genus of c. 64 (or 54) species, occurring both in the Old and the New World, but mainly in tropical Africa; nearly absent from Asia. Flowers strongly zygomorphic.

Some species in our area poorly known: habit unknown in 1 species, roots unknown in 2 species, flower colour unknown in 1 species, ecology unknown for 2 species, and 2 (+1 ?) species known only from the type.

EDEOGA, H. O. & N. O. OGBEBOR (1999). Vegetative anatomy of some Nigerian species of Aneilema (Commelinaceae). *Acta Phytotax. Geobot.* 50: 51-58.

EDEOGA, H. O. & N. O. OGBEBOR (1999). Distribution of calcium oxalate crystals in some Nigerian species of Aneilema R. Br. (Commelinaceae). *Pl. Biosystems* 133: 193-198.

EDEOGA, H. O. & N. O. OGBEBOR (2001). Epidermal features of some Nigerian species of Aneilema R. Br. (Commelinaceae). *J. Econ. Taxon. Bot., Add. Ser.* 19: 117-124, and in MAHESHWARI, J. K. & A. P. JAIN, eds., *Recent researches in plant anatomy and morphology:* 117-124. Scientific Publishers (India), Jodhpur.

Aneilema aequinoctiale (P. Beauv.) G. Don (1830); Burkill, Useful pl. W. Trop. Afr., ed. 2: 426-427, 1985; Cabezas & al., Checklist Commel. Equat. Guinea: 109, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 95, 2010; Figueiredo & Smith, Pl. Angola: 176, 2008. – Icon.: Palisot de Beauvois, Fl. d'Oware 1: pl. 38, 1806; Fl. Pl. Afr. 33: pl. 1302, 1959; Fl. Eth. & Eritrea 6: 352, 1997 (flower); Boulos, Fl. Egypt 4: 122, 2005; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 461, 2008.

bas.: *Commelina aequinoctialis* P. Beauv.

syn.: *Lamprodithyros aequinoctialis* (P. Beauv.) Hassk.; *Aneilema tecazzeanum* Hochst. ex A. Rich., p.p.

Perennial, scrambling or sometimes erect herb to at least 1,8 m tall, with hooked hairs on internodes and leaf sheaths; leaves distichous, short petiolate, lanceolate, acuminate, 4,5-15 × 2-5 cm, densely pubescent; sheath loose, with *whitish hairs at apex;* inflorescences terminal, lax panicles; flowers bisexual, *18-30 mm wide;* petals *rich golden yellow;* capsule truncate, with *2 acute corners.*

Fairly moist conditions in forest, often secondary; track-sides; sometimes weed in farmland; damp shady river banks; rocky outcrop with wet flushes and thin soil with *Selaginella njamnjamensis, Aeollanthus* spp., *Aloe* sp., along small brook between rocks; 950-1700 m alt.

SE Egypt; S. Africa.

Specimens from Ethiopia have largely been misidentified; they belong to *A. hockii* or *A. forskalii* (fide Fl. Eth. & Eritrea, l.c.).

A. angolense C. B. Clarke; Fl. Trop. Afr. 8: 67, 1901; Figueiredo & Smith, Pl. Angola: 176, 2008.

Sparsely hairy herb with fibrous roots; stems 0,75-0,9 m long; internodes long, branches from most axils; leaves broadly ovate, acute, 7,5 × 0,8 cm, *with a quasi-petiole;* inflorescences of several lax panicles, sessile in upper leaf axils, and shorter than the sustending leaf; flowers green, lower petal yellowish; *fruiting pedicels recurved* 270°.

Wood on mountains; shade on rocky places; 300-1140 m alt.

Comprises 2 vars.: – var. **angolense**; – var. **luteum** (C. B. Clarke) Faden (bas.: *A. pedunculosum* C. B. Clarke var. *luteum* C. B. Clarke, 1881; syn.: *A. angolense* var. *magis-lutea* C. B. Clarke, 1901, nom. superfl.).

A. arenicola Faden – Icon.: Bothalia 15: 95, 1984.

Densely branched annual herb to 30 cm tall; stems ascending to decumbent, rooting at the lower nodes; leaves distichous (except on the primary shoots); sheaths 0,5-1 cm long, green, puberulous, sparsely ciliate at apex; blades sessile (upper leaves) to rarely longly petiolate, lanceolate-elliptic to ovate, 1,5-7 × 0,7-2,7 cm, apex acute, base broadly cuneate, puberulous; thyrses terminal (sometimes axillary), 2-5 cm long; flowers pale lilac and white or greenish white.

Sandy soil in full sun; 10-60 m alt.

S. Africa.

Near *A. brunneospermum, A. schlechteri.*

A. benadirense Chiov.; Faden, Smithson. Contr. Bot. 76: 122, 1991; Thulin, Fl. Somalia 4: 86, 1995.

Herb, probably perennial; shoots erect to ascending, to 22 cm long (or more); blades narrowly elliptic to ovate, 3,5-8 × 1,5-3,2 cm; thyrses ovoid, 2,5-3,5 × 2-5,5 cm, terminal or occasionally axillary; flower colour unknown.

Dunes and littoral; just above sea level to c. 100 m alt.

Only 2 collections known.

A. beniniense (P. Beauv.) Kunth, incl. var. *sessilifolium* Benth. and subsp. *leonense* J. K. Morton; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 427, 1985; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 222, 2002; Cable & Cheek, Pl. Mt. Cameroon: 150, 1998; Cheek & al., Pl. Kupe…: 430, 2004; Fischer & al., Annot. checklist vascul. pl. Kakamega Forest: 173, 2011; Sosef & al., Check-list pl. vascul. Gabon: 114, 2006; Figueiredo & Smith, Pl. Angola: 176, 2008; Cabezas & al., Checklist Commel. Equat. Guinea: 109, 2009; Cheek & al., Plants Dom, Bamenda Highl., Cameroon: 148, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 95, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 218, 2011. – Icon.: Palisot de Beauvois, Fl. d'Oware 2: pl. 87, 1816; Icon. Pl. Afric. 4: 76, 1957; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 707, 2010.

bas.: *Commelina beniniensis* P. Beauv.

syn.: *Lamprodithyros beniniensis* (P. Beauv.) Hassk.; *Aneilema beniniense* subsp. *sessilifolium* (Benth.) J. K. Morton

Rank straggling herb rooting at lower nodes; stems glabrous, rarely shortly pubescent, branched, ultimately erect, 0,6-0,9 m tall; leaves lanceolate to ovate, to c. 16 × 5 cm, apex acuminate, base with short petiole; sheath glabrous, to c. 2 cm long; lamina glabrous to ciliate-pubescent; inflorescence terminal, dense, ovoid to globose; petals white or pale mauve pink.

Abundant weedy plant of disturbed ground; openings in moist semi-deciduous forest; forest farms, along road, path sides; occasionally fringing woodland; along watercourses in savanna; primary rain-forest, especially in wet areas around swamps; forest gallery; sandy flooded grounds; forest with *Chrysophyllum albidum, Cola gigantea, Erythrophleum suaveolens, Alstonia boonei, Parinari excelsa, Milicia excelsa;* rocky outcrops with wet flushes and thin soil with *Selaginella njamnjamensis, Aeollanthus* spp., *Aloe* sp.; *Aframomum* thicket; 5-1600 m alt. – Element of the tall herb formation *Marantochloo purpureae – Anubiadetum giganteae* in Togo (Acta. Bot. Gall. 158: 409-423, 2011).

Rather variable.

Bioko/Fernando Poo, Príncipe.

A. brenanianum Faden, o.c.: 73, 1991; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 308, 1994.

Perennial herb; roots tuberous to 20 cm long, to 7 mm thick at base; rhizomes subterranean, moniliform; aerial shoots erect to ascending, rarely straggling, sparsely branched, 15-100 cm tall; *shoot bases persistent, covered by overlapping papery leaf sheaths;* these shoot bases can become very stiff and semi-woody, with the consistency of dead grass culms; leaves spirally arranged, sheaths 1-8,5 cm long; lamina sessile, linear-lanceolate to narrowly lanceolate-elliptic, 3-15 × 0,4-2,1 cm, apex acute to acuminate, base narrowly cuneate, scabrid; thyrses terminal, ovoid to ovoid-ellipsoid, 2,5-7,5 × 1,5-5 cm; flowers white or whitish (very pale bluish purple).

Rocky hillsides with numerous boulders in *Acacia-Grewia* or *Acacia-Commiphora*, thorny, deciduous bushland; occasionally in dry plains; sandy soil; under partial shade.

ANEILEMA

A. brunneospermum Faden, Bothalia 15: 91, 1984.

syn.: *A. dregeanum* Kunth var. *galpinii* C. B. Clarke

Tufted annual herb to c. 60 cm tall; shoots ascending; leaves spirally arranged; sheaths 0,3-1,8 cm long, puberulous, ciliate at apex; blades petiolate (rarely some sessile), lanceolate to ovate 2,5-14 × 0,6-6 cm, apex acute to acuminate, base cuneate to rounded; thyrses terminal, sometimes axillary, ovoid to ellipsoid, 2-7,5 × 1,5-6 cm; flowers pale lilac to lavender and with a medial or subapical reddish purple spot.

Scrub or forest; rarely grassland or poolsides; often on rocky places; usually in partial shade; 150-950 m alt.

S. Africa, Swaziland.

A. calceolus Brenan; Faden, o.c.: 128, 1991.

Annual (rarely perennial) herb; vegetative shoots repent, much branched, forming mats to 1 m or more Ø; flowering shoots to 15-20 cm tall; leaves distichous; sheaths 2-6 mm long, puberulous and generally with a few long, uniseriate hairs, ciliate at apex; lamina sessile or shortly petiolate, ovate to lanceolate-elliptic, 1-5 × 0,5-2 cm, with prickle or uniseriate hairs; inflorescences of 1-6 cincinni appearing fasciculate in the axils of 1-2, alternate or subopposite, sessile, foliaceous bracts; flowers lilac.

Open areas in recently exploited forest patch; limestone gorge, at edge of sisal plantation; dry or moist evergreen forest among limestone rocks; often in shallow soil; in partial or dense shade; 10-450 m alt.

Near *A. clarkei*.

A. chrysopogon Brenan

Annual erect herb, sparsely and chiefly ramose at base, to c. 30 cm tall; stems with some long hairs and hooked short hairs; leaves lanceolate(-elliptic), 2-6,5 × 1-2,4 cm, slightly pubescent, margins slightly serrate, apex acute; sheaths closed, 0,3-0,8 cm long; inflorescence terminal, subcapitate 0,5-1,7 × 1-1,5 cm, on a peduncle 1,5-4,5 cm long; flowers (bright) blue.

Swampy ground; semi-cultivated soil on edge of banana plantation; damp ground close to mushitu; 1520-1680 m alt.

Near *A. hirtum*.

A. clarkei Rendle; Faden, o.c.: 130, 1991. – Icon.: J. Linn. Soc. Bot. 30: tab. 34 figs. 7, 9-12, 1895, but *not* fig. 8 *(= A. tanaense)*.

Perennial herb with fibrous roots; vegetative shoots procumbent to repent, much branched; flowering shoots erect to ascending, generally unbranched, 15-40 cm tall; leaves distichous, usually gradually reduced apically on the flowering shoots; sheaths 2,5-10 mm long, puberulous and generally sparsely pilose with uniseriate hairs; lamina petiolate, (linear-) lanceolate to ovate, 1,5-7,8 × 0,4-2,5 cm, apex acuminate, margins usually planar, occasionally somewhat undulate, scabrid, sparsely ciliate, both surfaces pilose-puberulous; inflorescences terminal, each one consisting of a short, solitary cincinnus partially enclosed in a sub-opposite pair of herbaceous bracts; petals lilac to lavender, claw white or concolorous with limb.

Evergreen forest (sometimes on Kambe limestone; *Brachystegia* forest or woodland on tan sand; river slopes; *Hyphaene*, *Albizia* scrub on sand; moist thickets; in dense or partial shade; 0-220 m alt. – Locally common (tends to form mats).

Near *A. calceolus*.

ANEILEMA

A. dispermum Brenan, Kew Bull. 7: 198, 1952; Fl. W. Trop. Afr., ed. 2, 3/1: 31, 1968; Harvey & al., Pl. Bali Ngemba…: 134, 2004; Cabezas & al., Checklist Commelin. Equat. Guinea: 109, 2009; Harvey & al., Plants Lebialem Highl., Cameroon: 151, 2010; Cable & Cheek, Pl. Mt. Cameroon: 150, 1998; Cheek & al., Pl. Kupe…: 430, 2004; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 218, 2011.

Perennial straggling herb to c. 1 m tall; stem not so much branched, glabrous, but minutely pubescent towards the inflorescence, sulcate, 1-3 mm Ø; leaves ovate(-oblong), 5-12 × 1,5-4 cm, with appressed very minute hairs, apex very acute, margins very finely denticulate; inflorescence terminal, dense, ovoid(-pyramidal), 2-5,5 × 2-4 cm; flowers white but said to be bluish or pinkish.

Marsh in forest; gregarious in rain-forest openings; forest edge; forest-grassland transition; 1100-2130 m alt.

Bioko/Fernando Poo.

West African plants are quite different, and may not be conspecific (Faden 1991: 145), although Faden determined the specimen from Bioko as *A. dispermum* – Also in Togo ?

Confused with *A. beniniense*.

A. dregeanum Kunth, excl. var. *galpinii* C. B. Clarke *(= A. brunneospermum);* Brenan, Kew Bull. 15: 216, 1961; Fl. south. Afr. 4(2): 42, 1985. – Icon.: Fl. south. Afr., o.c.: 45 (details).

syn.: *Lamprodithyros dregeanus* (Kunth) Hassk.

A rather spreading straggling herb with branches 0,6-1 m long and pale blue flowers.

Subsp. **mossambicense** Faden is different in aspect from subsp. **dregeanum** (S. Africa) by: – maximum leaf width 8-22 mm; – cincinnus peduncles 3-15 mm long; bracteoles spaced, 0,6-5,6 mm apart; – stamen filaments conspicuously bearded with yellow hairs more than 0,5 mm long; – seed testa rugose to scrobiculate, with hilum in a groove 1/3-1/2 the width of the seed.

Shady forest.

S. Africa, Swaziland (subsp. **dregeanum**).

Near *A. schlechteri*.

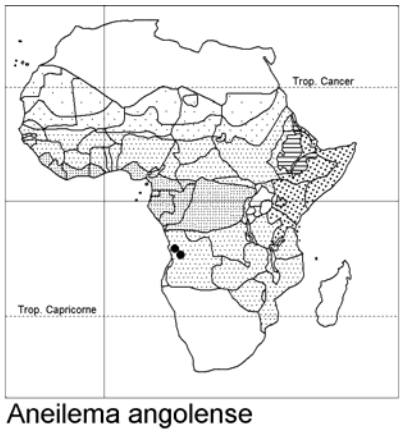
A. forsskalii Kunth (non *Commelina forsskalii* Vahl); Faden, o.c.: 113, 1991. – Icon.: Audru & al., Pl. vascul. Djbouti 2/2: 788, 1994 (sub nom. *A. tacazzeanum);* Fl. Eth. & Eritrea 6: 358, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 46, 2001.

syn.: *Commelina ebracteata* Ehrenb., nom. in sched. and pro syn.; Enum. 3: 21, 1995.

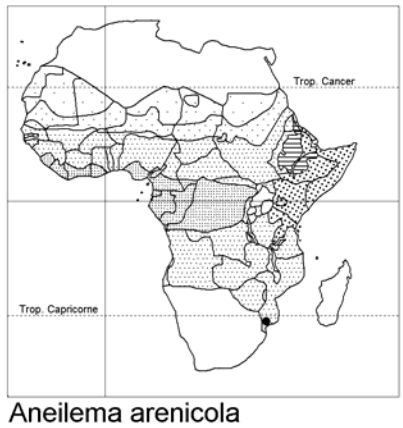
Annual herb; roots fibrous; shoots erect to ascending or shortly decumbent, unbranched or sparsely branched, 20-70 cm tall, sparsely to densely puberulous; leaves spirally arranged; sheaths 0,5-2 cm long, pilose-puberulous; lamina petiolate, mostly lanceolate-elliptic to ovate-elliptic, 2,5-12 × 0,5-4,5 cm, apex acute, margins usually planar, scabrid; thyrses (broadly) ovoid, 2,5-12,8 × 2,5-12 cm; flowers white to pale shades of lilac, lavender, mauve, blue.

Bushland to forest; usually on slope; escarpments; river valley; in partial to dense shade; 15-1800 m alt.

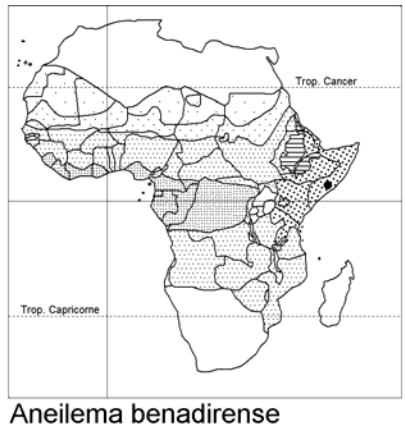
Yemen, Saudi Arabia, Oman.



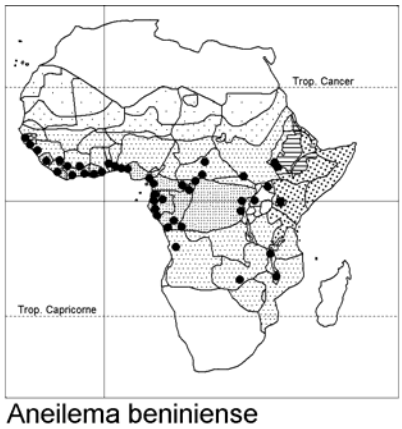
Aneilema angolense



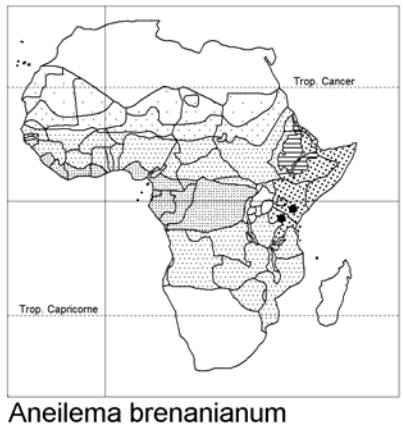
Aneilema arenicola



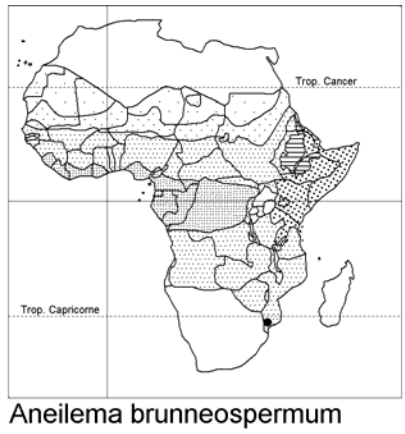
Aneilema benadirense



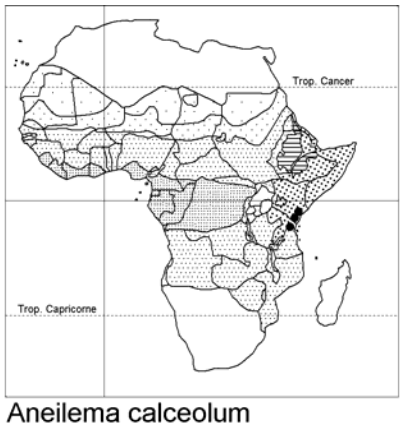
Aneilema beniniense



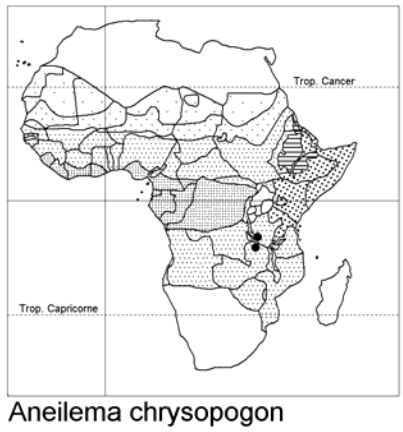
Aneilema brenanianum



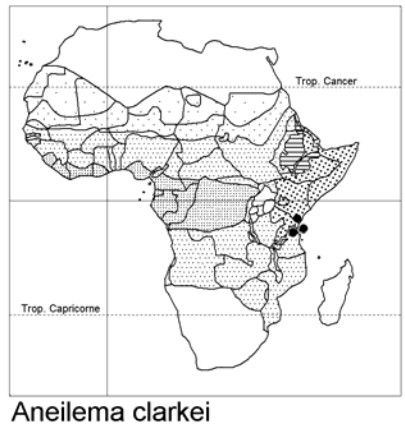
Aneilema brunneospermum



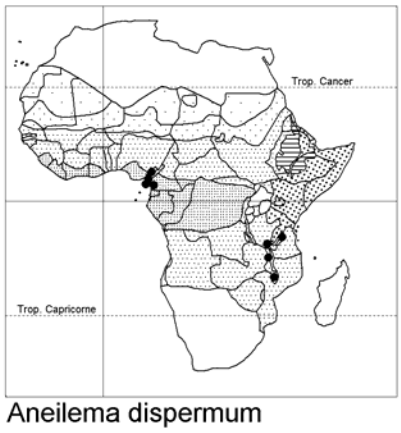
Aneilema calceolum



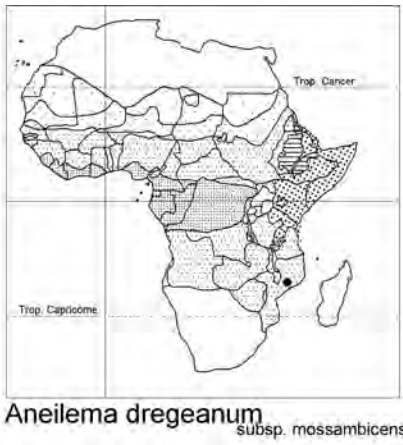
Aneilema chrysopogon



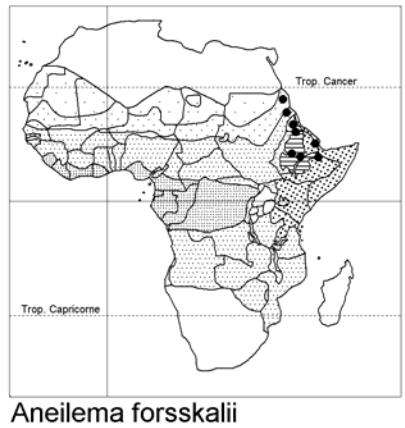
Aneilema clarkei



Aneilema dispermum



Aneilema dregeanum subsp. mossambicense



Aneilema forsskalii

ANEILEMA

A. gillettii Brenan

Perennial herb with tuberous roots; shoots annual, unbranched or sparsely branched, erect to ascending, 0,4-1 m tall; leaves spirally arranged, blade sessile, obovate-elliptic, 7-11 × 3-6,4 cm, pilose-puberulous; thyrses lax, narrowly ovoid to cylindric, 8-23,5 × 4-9 cm; flowers purple to blue or violet.

Acacia woodland; scrubland with *Sterculia, Sesamothamnus, Ochna;* in shade; 1100-1700 m alt.

Very distinctive, but possibly confused with *A. hockii* (lacking tuberous roots !).

A. grandibracteolatum Faden, o.c.: 82, 1991.

Probably perennial herb (habit and roots unknown, probably tuberous); shoots probably annual, erect to ascending, to 15 cm tall, puberulous; leaves spirally arranged, sheaths to 5 mm long, puberulous, sparsely ciliate with hook-hairs at apex; lamina lanceolate(-elliptic), 2,5-7,5 × 1-2,5 cm, margins usually undulate, scabrid with prickle hairs near apex; thyrses terminal, (moderately) dense, ovoid, 2-6 × 2-7 cm; flowers pale blue.

Open areas on sand (probably in bushland).

Only known from the type collected in 1944.

Near *A. obbiadense, A. longicapsa.*

A. hirtum A. Rich.; Kew Bull. 15: 220, 221, 1961. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 138, 1994.

syn.: Enum. 3: 21, 1995.

Branched or simple annual herb; shoots erect to ascending, sometimes rooting near the base, to c. 40 cm tall; leaves spirally arranged; blade *sessile,* ovate-elliptic to lanceolate-elliptic, 2-7,5 × 1-2,5 cm, hirsute-puberulous; bladeless leaf-sheath attached near base of inflorescense stalk; thyrses terminal and axillary, dense, ellipsoid to subspherical, 1-2,5 × 0,7 × 1,5 cm, with long hairs on cymes; bracteoles linear, apex long, glandular; flowers blue to lavender or blue-violet.

Cultivation; wooded grassland; slopes; roadside banks; often in moist soil; sometimes in partial shade; rain-forest with *Albizia, Macaranga, Croton, Ocotea,* forest edges; 1200-1650 m alt.

Shape of capsule and number of seeds variable.

A. hockii De Wild. – Icon.: Agnew & Agnew, l.c.; Fl. Eth. & Eritrea 6: 352, 1997 (flower).

syn.: Enum. 3: 21, 1995.

Perennial herb, occasionally rhizomatous; shoots erect to ascending 0,3-1,5 m tall, with hooked hairs, lower portions usually covered by overlapping sheaths; leaves spirally arranged, blade linear-lanceolate to narrowly elliptic, 4-14 × 0,15-3,5 cm, puberulous; thyrses terminal, lax, ovoid to cylindric, 4,5-10 × 2-6 cm; flowers mauve to blue, lavender or bluish purple, 15-40 mm wide, fragrant.

Marshy land; dry sunny grassland, on red loam with lava; grassland, in shade; bush, edge of scrub; black cracking clay of volcanic derivation under first cultivation with *Bidens* spp., *Acalypha indica, Erlangea calycina, Stachys hildebrandtii* association with other plants; reddish sandy soil on rocks in *Isoberlinia* savanna; *Isoberlinia, Brachystegia* woodland; forest; sometimes common or gregarious; termite mound; rocky places in or at edges of *Acacia-Commiphora-Combretum* or *Euclea-Euphorbia candelabrum* woodland; c. 360-1920 m alt.

Namibia, Botswana, S. Africa. – Cited as "apparently rare in Angola" (Cuanza Sul) by Figueiredo & Smith, Pl. Angola: 176, 2008.

ANEILEMA

A. homblei De Wild.

Perennial herb with tuberous roots; branches ± ramose to 30 cm long, glabrous or sparsely shortly velutinous; leaves elliptic or ovate-lanceolate, 4-10 × 1-3 cm, shortly velutinous, margins ciliate; panicle ramose, dense, terminal, to 4 × 3 cm, peduncle to 5 cm long; flowers yellow.

Ecology unknown.

Near *A. angolense.*

? Only known from the type collected in 1912.

A. indehiscens Faden, Bothalia 15: 96, 1984; Faden, Smiths. Contr. Bot. 76: 100, 1991; Fl. south. Africa 4(2): 40, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 308, 1994. – Icon.: Fl. south Afr., l.c.: 43 (subsp. **lilacinum**).

Perennial herb; roots fibrous; vegetative shoots thick, sparsely branched, trailing and often looping along the ground, occasionally rooting at nodes, sometimes straggling through shrubs, to 3 m long (? and more); flowering shoots unbranched or sparsely branched, erect to ascending, to 60 cm tall or more; leaves spirally arranged, sheaths 0,5-2 cm long, puberulous; lamina shortly petiolate, narrowly lanceolate to lanceolate-elliptic or ovate, 2,5-13 × 0,7-3,5 cm, apex acute, margins frequently undulate, scabrid, both surfaces puberulous; thyrses terminal and frequently axillary, ovoid, 2-8 × 1,5-7 cm; flowers white to very pale lilac; capsule dehiscent or indehiscent, dorsal valve narrowed into a ridge.

Bushland, thickets of varied composition; sandy or clayey soils; usually in partial shade; open forest; woodland; marsh edges; 10-1250 m alt.

S. Africa, Swaziland.

Comprises 3 subspp.: – subsp**. indehiscens** in SE Kenya-NE Tanzania; – subsp. **keniense** Faden in W Kenya; – subsp**. lilacinum** Faden in S part of range.

Can be confused with *A. recurvatum.*

A. johnstonii K. Schum. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 138, 1994; Fl. Eth. & Eritrea 6: 351, 1997 (flower).

Perennial herb; roots with *distal tubers;* shoots annual, tufted, sparsely branched, erect to ascending, 30-60 cm tall; leaves spirally arranged; blade sessile to shortly petiolate, linear-lanceolate to ovate-elliptic, 4-13,5 × 1-3,7 cm, puberulous and often with scattered longer hairs; thyrses terminal, lax, ovoid to ellipsoid, 2,5-11 × 3,7,5 cm, glabrous; flowers orange(-yellow), with paired petals.

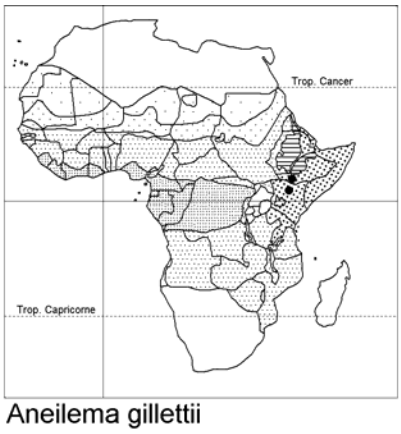
Sometimes locally common in grassland, bushland on sand or black cotton soil; woodland and bushland with *Acacia, Commiphora, Combretum,* often on rocky hillsides or granitic outcrops; grassland, near rivers and brooks; 1250-1650 m alt.

Botswana.

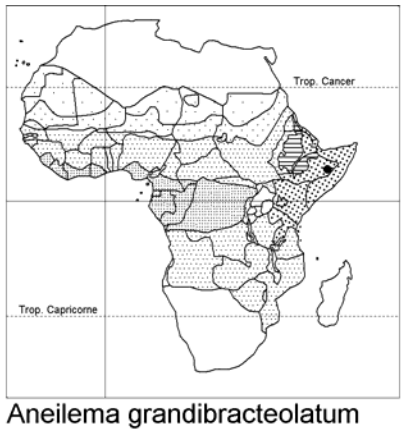
A. lamuense Faden, o.c.: 133, 1991. – Icon.: Thulin, Fl. Somalia 4: 87, 1995.

Much-branched annual herb with mostly erect to ascending shoots to c. 20-40 cm tall; leaves spirally arranged (main shoot) or distichous (lateral shoots); blade sessile or shortly petiolate, ovate-elliptic to lanceolate, 1-5,8 × 1-2,5 cm; inflorescences terminal on main and short axillary shoots, consisting of a short solitary cincinnus partially enclosed in a pair of herbaceous bracts; flowers lilac and whitish.

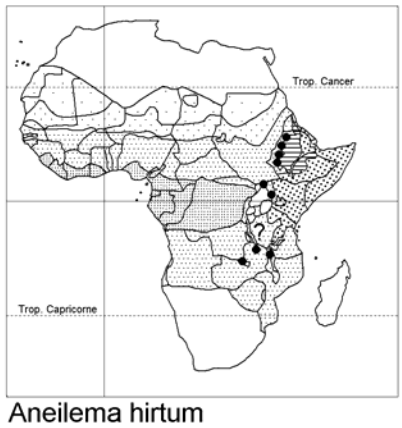
Coastal dunes; 0-50 m alt.



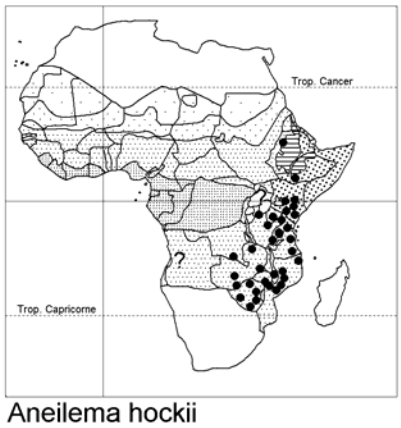
Aneilema gillettii



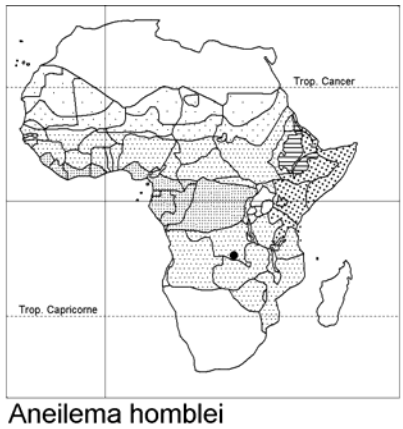
Aneilema grandibracteolatum



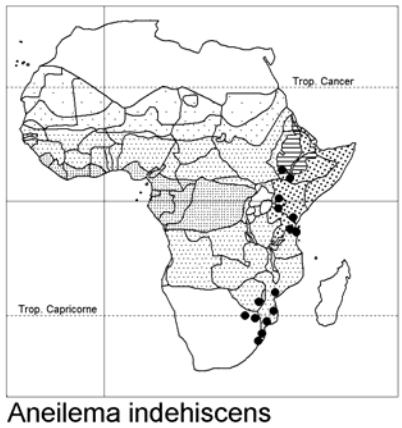
Aneilema hirtum



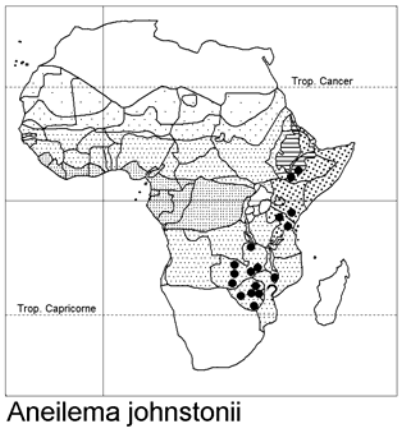
Aneilema hockii



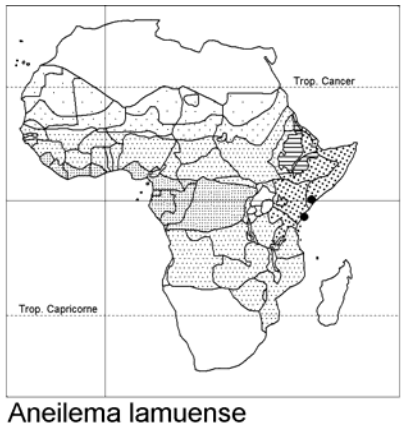
Aneilema homblei



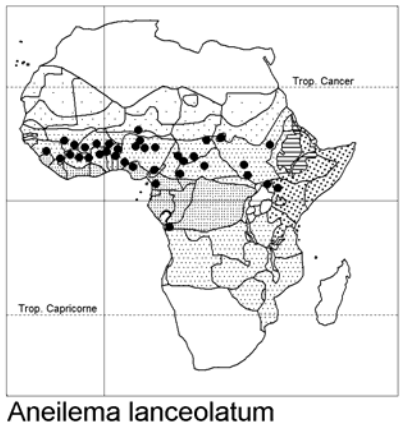
Aneilema indehiscens



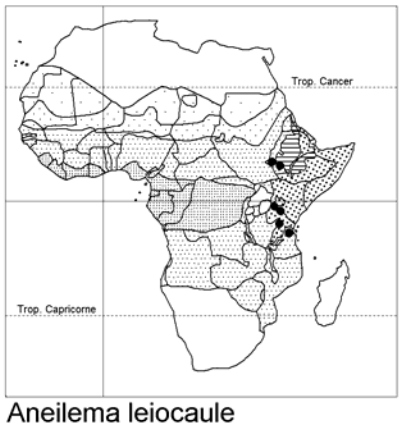
Aneilema johnstonii



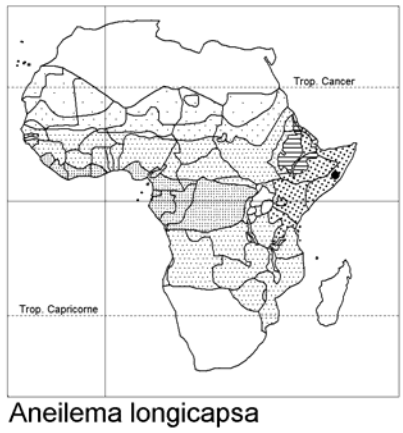
Aneilema lamuense



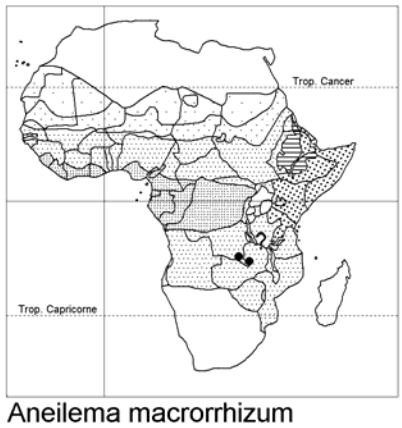
Aneilema lanceolatum



Aneilema leiocaule



Aneilema longicapsa



Aneilema macrorrhizum

ANEILEMA

A. lanceolatum Benth., excl. var. *evolutius* C. B. Clarke *(= A. pomeridianum);* Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 427-428, 1985; Akoegninou & al., Fl. analyt. Bénin: 70, 2006; Renier, Fl. Kwango 1: 87, 1948 *(A. schweinfurthii, A. lujae).* – Icon.: Lisowski, Fl. Rép. Guinée 2: fig. 474, 2009 (subsp. **lanceolatum**).

Perennial herb with fusiform tuberous roots at the rootstock; stems erect, prostrate or ascending, to c. 0,6 m long; leaves sessile, (ovate-)lanceolate, to 15 cm long, acute, *scabrid* above and *on the margins,* glabrous or more rarely pubescent to scabrid on the veins beneath; inflorescences ovate, 3-4 cm Ø, to 6-8 cm long (appearing before the leaves in subsp. **subnudum**); flowers pinkish-mauve or somewhat paler (subsp. **subnudum**).

Combretum woodland; savanna in open or rocky areas; usually favouring friable well-drained soils; forest gallery; deep soil; sands; fields; sandy-clayey soppy soils; termite mound; woodland with *Albizia zygia, Annona senegalensis, Combretum collinum, Lonchocarpus laxiflorus;* to 950 m alt.

Comprises 2 subspp. (linked by intermediates): – subsp. **lanceolatum** (syn.: Enum. 3: 21, 1995; *A. lanceolatum* var. *pilosum* Brenan, Kew Bull. 15: 219, 1961; *A. buaricum* Mildbr., nom. in sched.; *A. tacazzeanum* Baker 1872, non Hochst. ex A. Rich. 1850 *(= A. forsskalii),* nom. illegit.); – subsp. **subnudum** (A. Chev.) J. K. Morton (syn.: Enum. 3: l.c.; *Lamprodithyos gracilis* Kotschy & Peyr.) in W part of range.

"The *Aneilema lanceolatum* complex is clearly in the process of active evolution" (Morton, 1966).

A. leiocaule K. Schum.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 308, 1994.

syn.: *A. pedunculosum* auct., non C. B. Clarke

Sprawling or *spreading perennial* herb with fibrous roots and *glabrous,* decumbent stems to 50 cm tall; leaves spirally arranged; blade mostly petiolate, (lanceolate-)ovate, 2,5-7 × 1-2,7 cm, hirsute-puberulous; thyrses terminal and axillary, dense, ovoid, 1-2,5 × 1-2 cm; flowers lavender to blue-violet.

Forest; open forest; coffee plantations with forest trees; sometimes on roadsides; in shade; between ferns and grasses; 1300-1900 m alt.

Near *A. pedunculosum.*

A. longicapsa Faden; Thulin, Fl. Somalia 4: 85, 1995.

Rhizomatous perennial herb; shoots annual, disarticulating at the nodes and base, usually erect to ascending, simple or sparsely branched, to 50-100 cm tall; leaves spirally arranged; blade sessile, linear-lanceolate to lanceolate-elliptic, 2-9 × 0,35-?2,5 cm, apex acute; thyrses ovoid, 2,5-7,5 × 2,5-9 cm; flowers lilac to blue.

Stable sandhills and level to undulating plains with *Acacia-Commiphora* or *Cordeauxia* bushland, shrubland or dwarf-shrub grassland; red or orange sand or red silty soil; sometimes over limestone; often under bushes; 110-420 (? 450) m alt.

Near *A. obbiadense;* a collection approaching *A. bracteolatum.*

A. macrorrhizum T. C. E. Fries – Icon.: R. E. Fries, Schwed. Rhodesia-Kongo Exped. 1: 221, 1914.

Perennial herb with *tuberous* roots; stems erect, simple, 12-28 cm long, 1-2 mm Ø, densely greyish-white pilose with very short hairs directed principally upwards; cauline leaves reduced, 1-2 cm long, like sheaths, violet; stem leaves with longer sheaths and lamina linear to 8 cm long, *<1cm broad,* extremely short greyish-white pilose on both sides; inflores-

ANEILEMA MACRORRHIZUM

cences subcylindric, moderately dense, 3,5-4 × 1-1,5 cm, terminal, pedunculate (peduncle 1-3 cm long); flowers yellow-greenish and also honey-coloured.

Dry forest.

Near *A. welwitschii.*

A. mortonii Brenan; Brenan in Kew Bull. 24: 353, 1970. – Icon.: J. Linn. Soc. London, Bot. 59: pl. 1, 1966 (sub nom. *A. paludosum).*

Apparently annual herb with fibrous roots, similar in habit to *A. paludosum* s. str., diffuse, 45-60 cm tall, shortly scabrid-pubescent; leaves linear-lanceolate, shortly scabrid-pubescent, apex attenuate to very acute, 5-11 × 0,5-1 cm, lower sheaths to 1,7 cm long, c. 5 mm broad; inflorescence terminal, solitary, long pedunculate, dense, oblong to cylindric, 1-4,5 × 0,8-1,5 cm; flowers white or lilac.

Open grassland, scrambling among grasses beside pond; marshy ground; wet savanna.

A. nicholsonii C. B. Clarke; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 308, 1994.

Branched annual herb with erect to ascending stems and thin, fibrous roots; blades sessile to shortly petiolate, lanceolate-elliptic to ovate-elliptic or ovate, 15-45 × 10-23 mm; thyrses, ovoid, 15-30 × 10-30 mm; flowers blue to blue-purple or lavender.

Bushland, woodland; sometimes in rocky places; occasionally in moist situations; often on sandy soil; usually in partial shade.

Caprivi Strip, Botswana ?, S. Africa.

A. nyasense C. B. Clarke, Fl. Trop. Afr. 8: 66, 1901; Kew Bull. 15: 213, 1961.

Perennial herb with unbranched stem 0,3-3 m long; leaves distichous, elliptic, 7,5 × 2,5 cm, acute; sheaths with *orange* or *reddish orange hairs* at apex; panicle 12,5 × 6,5 cm, loose; flowers yellow.

River banks; tracks; edge of bush near forest; edge of secondary bush; marshy ground near lake-shore among clumps of vegetation; in *Eucalyptus* plantation originally *Papyrus swamp;* damp mud of rice-field; thick forest on sand; edge of semi-permanent water on sandy marl; by water-hole in dry evergreen forest; 150-1220 m alt. – Sometimes forming large masses.

Comprises 2 vars.: – var. **nyasense**; – var. **brevisepalum** Brenan

A. obbiadense Chiov., excl. var. *angustifolium* Chiov. *(= A. longicapsa).* – Icon.: Thulin, Fl. Somalia 4: pl. 4C, 1995.

Rhizomatous perennial herb; rhizome with narrow constrictions; roots spreading horizontally just below the surface, 3-4 mm thick at base, then cord-like, supple, sand-covered; shoots annual, disarticulating at nodes and base, prostrate to erect, unbranched or sparsely branched, to 30-80 cm long (incl. inflorescence); leaves spirally arranged; blade sessile, lanceolate to ovate, 2-6,5 × 1-4 cm; thyrses spheroidal, terminal, 4,5-30 × 5,5-27 cm; flowers lilac or white; the large inflorescence seems to act as tumbleweed.

Open, undulating coastal plains; stabilized dunes; shallow or deep, white or pale tan sand, sometimes over limestone; usually in full sun; sometimes at edges of or under bushes; 15-300 m alt

A. paludosum A. Chev.; Faden, Smiths. Contr. Bot. 76: 145, 1991; Akoegninou & al., Fl. analyt. Bénin: 70-71, 2006; Lisowski, Fl. Rép. Guinée 1: 386, 2009. – Icon.: J. Linn. Soc. London, Bot. 59: tab. 2, 3, 1966, but *excl.* tab. 1 and specimens Morton (p. 447): A 1455, A 2737, GC 6229, GC 9836 = *A. mortonii;* fig. 5 p. 447 (fruit, seed).

± Slender-stemmed straggling *annual* herb, often rooting at lower nodes, 0,2-1,5 m long; leaves 3-12 × 0,3-2,5 cm; inflorescence usually capitate, 0,5-3 × 1-2,5 cm; flowers white or mauve.

Damp or marshy savanna and grassland; sometimes in cultivated ground, flooded meadows; degraded humid forests; termite mounds on rice fields; epiphytic on *Elaeis guineensis;* disturbed ground; laterite hardpan, seasonally marshy; on clay.

Comprises 3 subspp.: – subsp. **paludosum**; subsp. **pauciflorum** J. K. Morton; – subsp. **pseudolanceolatum** J. K. Morton, with a perennial rootstock of narrow fusiform tubers (hybrid with *A. lanceolatum* ?). Intermediates between the subspecies are known.

Cabezas & al., Checklist Commelin. Equat. Guinea report this species from Equatorial Guinea.

A. pedunculosum C. B. Clarke; Fl. Trop. Afr. 8: 73, 1901; Faden, o.c.: 147, 1991; *excl.* var. *luteum* C. B. Clarke (= *A. angolense).*

Annual, weak, trailing and rooting, sparsely hairy herb; stems 15-60 cm long, often branched; leaves petiolate, 5 × 1,8 cm, elliptic to ovate, acuminate, when mature nearly glabrous; thyrse dense 1,8-4 × 1,4-1,6 cm; flowers blue.

Ecology unknown.

Not in Angola nor in Kenya *(= A. leiocaule).*

A. petersii (Hassk.) C. B. Clarke; Kew Bull. 7: 195, 1952; Friis & Vollesen, Willdenowia 14: 360, 1984; Agnew & Agnew, Upl. Kenya wild. flow., ed. 2: 308, 1994; Fl. Eth. & Eritrea 6: 354, 1997; Faden, o.c.: 93, 1991, excl. specim. Thulin & Warfa 5280 *(= A. trispermum).*

bas.: *Lamprodithyos petersii* Hassk.

syn.: *Aneilema leptospermum* K. Schum., in sched.; Enum. 3: 22, 1995.

Annual (subsp. **pallidiflorum**) or perennial (subsp. **petersii**) herb; shoots erect or ascending to decumbent, sparsely to densely branched, 20-100 cm long; leaves usually spirally arranged, blade petiolate or the upper ones sessile, narrowly lanceolate to ovate, 2,5-13,5 × 0,6-4,5 cm, pilose to puberulous; thyrses ovoid, to 7-9,5 × 6,5-9,5 cm; flowers white to lilac or pinkish purple.

Moist woods; grassland with scattered shrubs; bushland with *Commiphora, Acacia;* thicket and forest margins; wooded grassland; woodland; roadsides; cultivations; occasionally in damp situations; rarely in rocky places; sandy soil; full sun to dense shade; *Acacia senegal, Lannea, Commiphora* deciduous bushland on reddish brown loamy soil; 0-1300 m alt.

Not in Somalia *(= A. trispermum).*

Comprises 2 subspp.: – subsp. **petersii** from S Ethiopia to Mozambique; – subsp. **pallidiflorum** Faden from S Sudan to Tanzania.

A. plagiocapsa K. Schum.; Faden, o.c.: 61, 1991; Figueiredo & Smith, Pl. Angola: 176, 2008; Bothalia 39: 194, 2009 (Baum, Kunene Exp.).

Base of plant unknown ?; stem erect, 50 cm long, 2-3 mm Ø, simple or with a single branch upwards, minutely pubescent; leaves sessile, lanceolate, acute, narrowed at base, minutely scabrous on both sides, intermixed *with longer hairs* at *margins;* blade to 12 × 1,5 cm; panicle to 8-16 cm long; flowers lilac or lavender; capsule strongly compressed laterally.

Sandy ground, between low undergrowth; c. 1300 m alt.

A. pomeridianum Stanfield & Brenan; Faden, o.c.: 145, 1991; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 428, 1985; Akoegninou & al., Fl. analyt. Bénin: 71, 2006.

syn.: *A. lanceolatum* Benth. var. *evolutius* C. B. Clarke p.p. as to lectotype.

Perennial herb 0,1-0,9 m tall, with *basal* leaves, erect, similar in appearance to *A. lanceolatum* but with the lower and *basal rosette leaves* elongate and falsely petiolate, 6-30 × 0,7-1,8 cm, margins *ciliate;* stems simple with dense spreading hairs to 1 mm long; from an underground rootstock with tuberous roots; thyrses terminal, 5-10 × 1,5-5 cm, subcylindric to conical; flowers mauve to bluish-purple.

Rocky savanna; grassy plains; wayside; damp waste places; waste ground; gardens; cultivated fields; woodland; silty-sandy soils; very humid places; c. 490 m alt.

A. pusillum Chiov.; Faden, o.c.: 87, 1991; Thulin, Fl. Somalia 4: 85, 1995; Fl. Eth. & Eritrea 6: 353, 1997.

Perennial herb with tuberous roots, rhizomatous or not; shoots annual, unbranched or sparsely branched, 5-18 cm long; leaves spirally arranged or distichous, all cauline to mostly basal; blade sessile, moderately to strongly succulent, flat to conduplicate, linear-lanceolate to ovate-elliptic, 2-12 × 0,1-2,5 cm, apex acute; thyrses 1,5-6,5 × 0,7-3,5 cm; flowers pinkish red, lilac, blue or violet, or *coral red* (unique in the genus, in subsp. **pusillum**).

Boswellia rivae bushland on gypsum hill; limestone pavement with silt pockets; hillslopes in limestone gravel; *Acacia, Commiphora* bushland on red sand or silt/sand over limestone; *Dichrostachys, Acacia* bushland over limestone or gypsum plains; 10-950 m alt.

Comprises 4 subspp.

A. recurvatum Faden; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 308, 1994. – Icon.: Fl. Eth. & Eritrea 6: 355, 1997 (flower).

syn.: Enum. 3: 22, 1995.

Perennial herb with fibrous roots; vegetative shoots decumbent to subscandent, flowering shoots ascending, to 30 cm or more tall; leaves spirally arranged; blade shortly petiolate, narrowly lanceolate-elliptic to ovate-elliptic, 2,5-8 × 0,5-2,9 cm, sparsely puberulous, rarely a few, long, uniseriate hairs also present; thyrses terminal and axillary, ovoid to broadly ovoid, 2-4,5 × 2-6,5 cm; flowers lilac to pale blue.

Glade in *Aningeria* forest; margin of groundwater forest with *Cordia, Ficus;* sometimes near streams; sandy or clayey soils; partial shade; grassland; bushland; bushland thickets; 700-1300 m alt.

Similar to *A. indehiscens* but shoots thinner and upper capsule valve rounded (not a ridge).

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A. rendlei C. B. Clarke; Faden (1991): 71; Agnew & Agnew, l.c.

syn.: Enum. 3: 22, 1995.

Perennial herb with fibrous roots; shoots erect to ascending, rarely decumbent, mostly 25-100 cm tall, bases swollen, persistent; leaves spirally arranged; blade petiolate, narrowly lanceolate to ovate-elliptic, 2,5-11 × 1-3,5 cm, hirsute-puberulous or pilose-puberulous; thyrses terminal or occasionally axillary, ovoid, 2-5,5 × 1,5-6 cm; flowers lilac and greenish white; lateral stamens much longer in male than in bisexual flowers.

Dense *Acacia, Commiphora* bushland; low woodland; bushland thicket; often on rocky slopes; occasionally along seasonal streams; usually in sandy soil; generally in partial shade; 300-1200 m alt.

A. richardsiae Brenan, Kew Bull. 15: 219, 1961; Faden, o.c.: 146, 1991.

Annual erect herb, sparsely ramose chiefly at base, to 30 cm tall; stems *slender,* inconspicuously and shortly pubescent with *hooked hairs;* leaves *linear* (-lanceolate), to 11 × 0,3-1 cm, shortly pubescent or puberulous and scabrid, apex acute, margins sometimes denticulate; thyrses terminal, 0,7-3 × 0,5-2 cm; flowers blue, pale or deep, or metallic blue.

Very wet bog among longish grass; river marsh in mud and water; 1200-1830 m alt.

A. schlechteri K. Schum.; Kew Bull. 15: 216, 1961, excl. specim. Galpin 1187, Compton 26824; Faden, o.c.: 144, 1991; *excl.* syn.: *A. dregeanum* Kunth var. *galpinii* C. B. Clarke *(= A. brunneospermum).*

Tufted annual herb with thin fibrous roots; leaves *sessile* to *shortly petiolate* (0,5-1,5 cm), lanceolate-elliptic to ovate-elliptic or ovate, 15-45 × 10-23 mm; thyrses ovoid, 15-30 × 10-30 mm; flowers *white* (or ? lilac).

Clay soil in valleys; dense ravine forest; forest edge; basaltic soil in woodland; weed in cultivation; 600 m alt.

S. Africa, Swaziland.

Near *A. dregeanum.*

A. sebitense Faden; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 308, 1994. – Icon.: Fl. Eth. & Eritrea 6: 356, 1997.

Perennial herb with fibrous roots; shoots ascending, to c. 1 m tall; leaves spirally arranged; blade petiolate (except distal leaves), lanceolate-elliptic to ovate, 3-15 × 0,7-4 cm, densely puberulous, sometimes with longer hairs intermixed; *margins scabrid* and *ciliate;* thyrses terminal and axillary, ovoid to broadly ovoid, 4-10 × 3,5-10 cm; flowers lilac.

Among rocks at edge of *Acacia, Commiphora, Combretum* woodland; dry hillsides above river; 1120-1550 m alt.

A. setiferum A. Chev.; Faden, o.c.: 145, 1991; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 428, 1985; Akoegninou & al., Fl. analyt. Bénin: 71, 2006; Lisowski, Fl. Rép. Guinée 1: 386-387, 2009.

Perennial herb with fusiform tuberous roots; stems erect or ascending, to c. 60 m tall; leaves linear, sometimes oblong-lanceolate, to c. 15 × 1,6 cm; sheaths with *dark rusty-red* spreading bristly hairs (or colourless); inflorescence terminal, compact, rounded, c. 2-4 × 1,5-2,5 cm; flowers white.

Savanna, grassland; humid place at marigot sides; woodland.

Comprises 2 vars.

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A. silvaticum Brenan; Burkill, Useful pl. W. Trop. Afr., ed. 2: 428, 1985; Cable & Cheek, Pl. Mt Cameroon: 150, 1998; Cheek & al., Pl. Kupe…: 430, 2004; Harvey & al., Pl. Lebialem Highl., Cameroon: 87, 151, 2010.

syn.: *A. affine* De Wild. 1915, non R. Br. 1810; *A. rhodospermum* K. Schum., nom.

Slender, straggling herb, mat-forming, with fibrous roots at lower nodes; flowering stems ascending, to c. 0,3 m tall, leaves elliptic to lanceolate to c. 9 × 3 cm, *ciliate on margins,* with a distinct false petiole; inflorescence terminal, dense, 1-2 cm long and wide; flowers <1 cm, white or very pale blue, or violet.

Margin of forest, in shade; (swamp) forest; 200-880 m alt.

Bioko/Fernando Poo (Cabezas & al., Checklist Commelin. Equat. Guinea: 109-110, 2009).

Comprises 2 vars.; the typical variety resembling a miniature of *A. beniniense.*

Easily overlooked. Very few collections known. Threatened by clearance of forest for timber and/or agriculture (Harvey & al., l.c.).

A. somaliense C. B. Clarke; Faden (1991): 78; Thulin, Fl. Somalia 4: 162, 1995; Fl. Eth. & Eritrea 6: 353, 1997.

syn.: Enum. 3: 22, 1995.

Perennial herb, sometimes shortly rhizomatous; roots with distal tubers; shoots annual, 7,5-40 cm tall; leaves spirally arranged, blade sessile, lanceolate-elliptic to elliptic-ovate, 1,5-13 × 1-5,5 cm; thyrses dense 2-9,5 × 1,5-4,5 cm; flowers white to very pale lilac or pale blue.

Acacia, Commiphora bushland on red sandy soil over limestone; also on silty or loamy soil; *Acacia* bushland or woodland; dwarf shrubland; degraded scrub; sometimes on rocky slopes; generally in partial shade; 350-1700 m alt.

Plants from Somalia unusual: with ± broadly elliptic leaf blades.

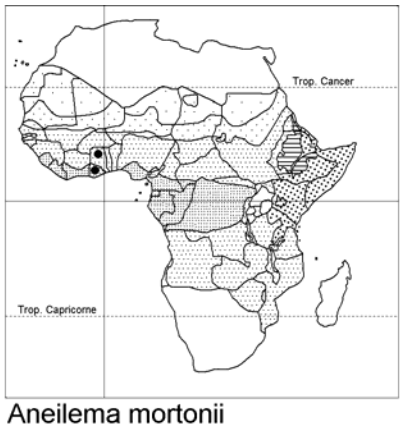
A. spekei C. B. Clarke; Faden (1991): 146; Fl. Eth. & Eritrea 6: 357, 360, 1997; Fischer & al., Annot. checklist vascul. pl. Kakamega Forest: 173, 2011. – Icon.: Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 601, 2008.

Annual herb with fibrous roots; shoots erect or ascending to decumbent, sparsely to densely branched, 15-60 cm tall; leaves spirally arranged; sheaths with long hairs at apex; blade sessile to shortly petiolate, *ovate* to *lanceolate-elliptic,* 3-10 × 1-1,5-3,2 cm, hirsute-puberulous; thyrses terminal and axillary, dense, cylindric to ovoid, 2-4,5 × 1-2,5 cm; flowers bisexual and male, blue-violet to bluish purple and green, sometimes with reddish margins (medial petal).

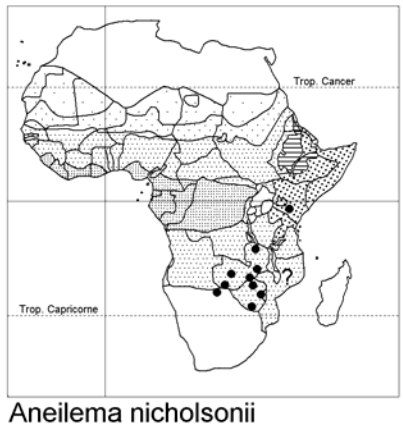
Rocky outcrop with wet flushes and thin soil with *Selaginella njamnjamensis, Aeollanthus* spp., *Aloe* sp. and many annuals; forest glade with short grass over flat rocks; forest gallery; termite mounds; fallows; swamp sides; humid savanna; 600-1700 m alt.

A. succulentum Faden

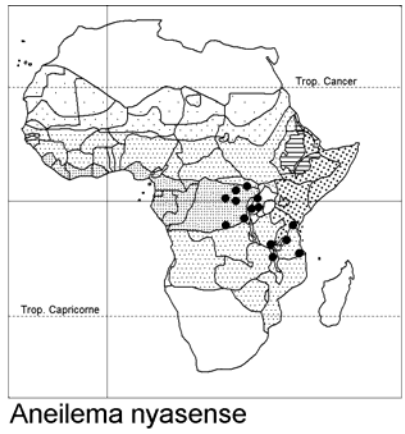
Perennial herb with fibrous roots; vegetative shoots repent, sometimes with looping internodes, much branched, often forming mats; flowering shoots ascending, unbranched or little branched, to 15-30 cm tall, *internodes* very *succulent,* puberulous; leaves distichous with sheaths 2-10 mm long, pilose-puberulous, ciliate at apex; *lamina succulent,* often slightly falcate, often somewhat conduplicate, *sessile,* narrowly lanceolate-elliptic, rarely ovate-elliptic, 1,3-6 × 0,4-1,9 cm, apex acute, base *slightly asymmetric,* margins often maroon, upper surface often mottled with maroon; inflorescences terminal; flowers white to pale lilac.



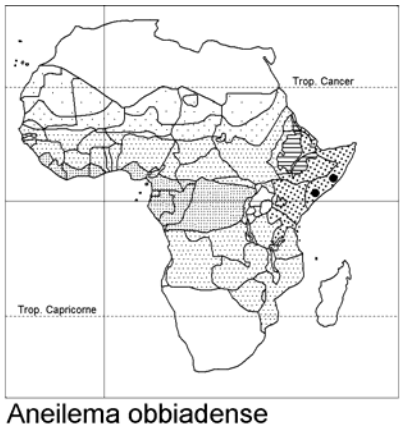
Aneilema mortonii



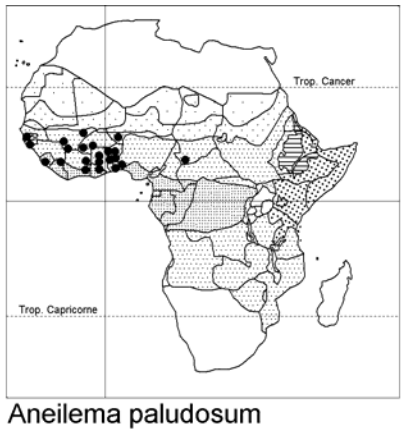
Aneilema nicholsonii



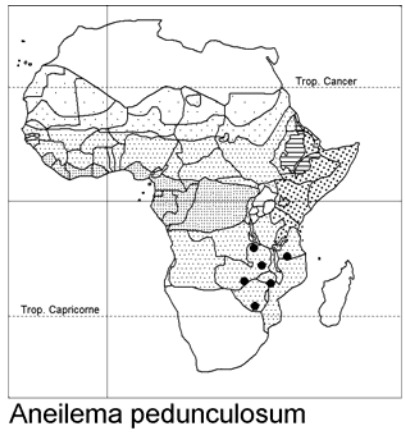
Aneilema nyasense



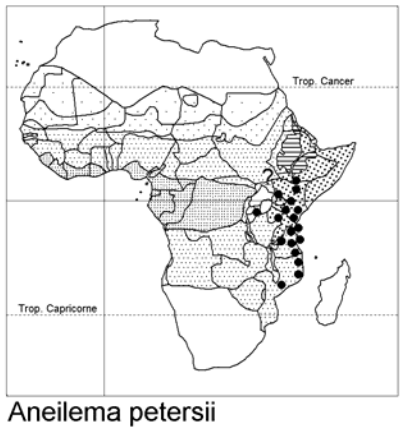
Aneilema obbiadense



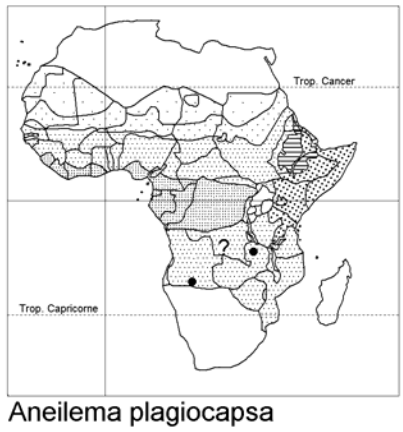
Aneilema paludosum



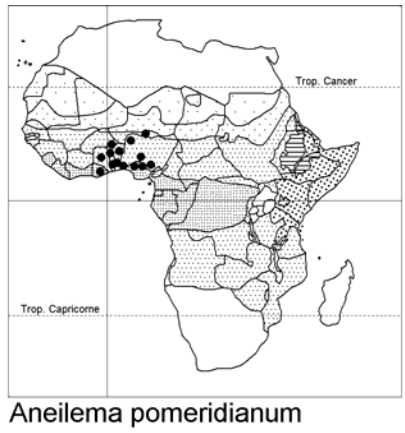
Aneilema pedunculosum



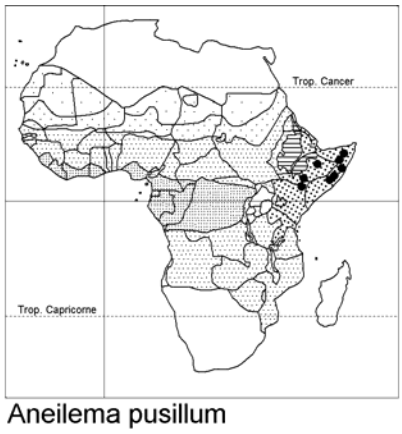
Aneilema petersii



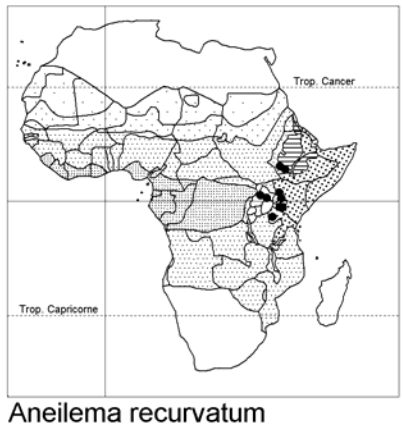
Aneilema plagiocapsa



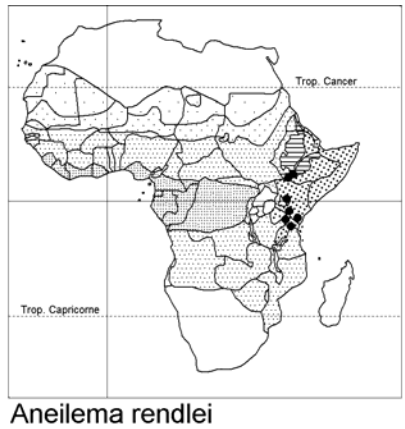
Aneilema pomeridianum



Aneilema pusillum



Aneilema recurvatum



Aneilema rendlei

ANEILEMA SUCCULENTUM

Dry deciduous bushland, bushland thicket with *Commiphora, Euphorbia, Lannea, Boswellia, Combretum, Grewia, Sansevieria* or with *Diospyros* or *Acacia; Brachystegia* forest or woodland; roadsides; sandy or clayey soils; occasionally on rocks; usually in partial shade or full sun; 10-600 m alt.

A. tanaense Faden, o.c.: 125, 1991. – Icon.: J. Linn. Soc., Bot. 30: pl. 34, fig. 8, 1895, sub nom. *A. clarkei.*

syn.: Enum. 3: 22, 1995.

Annual, rarely perennial herb with fibrous roots; primary shoots erect or ascending, much branched at base, 15-30 cm tall, lateral shoots decumbent, or prostrate initially and then ascending, puberulous; leaves spirally arranged on main shoot, distichous at least initially on lateral shoots; sheaths 1-7 mm long, puberulous, apex ciliate; lamina sessile or shortly petiolate, lanceolate to ovate, 1-6,5 × 0,8-3 cm, margins scabrid, both surfaces puberulous, sometimes mottled with maroon; inflorescence thyrses terminal on the main shoots and on very reduced lateral shoots, broadly ovoid, 1-3 × 1,5-5 cm; flowers pink or pale lilac.

Deciduous or semi-evergreen bushland and thickets; seasonally water-logged, grey-brown, clayey alluvium with patches of sand, or better drained soil; 10-250 m alt.

A. taylorii C. B. Clarke; Faden (1991): 64.

syn.: Enum. 3: 22, 1995.

Perennial or annual herb with fibrous roots; shoots decumbent, much branched; flowering shoots ascending, 15-60 cm tall, puberulous; leaves spirally arranged; sheaths 0,5-1,3 cm long, puberulous; lamina petiolate, lanceolate to ovate, 2-10 × 0,7-4,3 cm, apex acute, patently pilose; petioles to 1,5-2 cm long, ciliate on margins; thyrses terminal or occasionally axillary, ovoid, 1,5-7 × 1,5-12 cm; flowers lilac to lavender and greenish white sometimes tinged with lilac (medial petal).

Forests; sometimes associated with limestone outcrops; frequently on boulders along streams; bases of waterfalls; "the first invader in a cleared area in evergreen rain forest" (Greenway); partial or dense shade; 30-900 m alt.

A. trispermum Faden; Thulin, Fl. Somalia 4: 86, 1995.

syn.: *A. petersii* (Hassk.) C. B. Clarke subsp. *pallidiflorum* sensu Faden, Smithson. Contrib. Bot. 76: 91, 1991, specimen from Somalia.

Much-branched annual herb to c. 60 cm tall; leaves linear-lanceolate to narrowly lanceolate-elliptic, 4-9 × 0,4-1,9 cm; thyrses ovoid, to 3,5 × 4 cm; flowers pale blue; sepals with 2-lobed glands near apex but without marginal glands; *capsule* with *3 one-seeded cells* (unique in the genus).

Sandhill and dunes with *Commiphora* or *Acacia* bushland; 150-170 m alt.

A. umbrosum (Vahl) Kunth; Kew Bull. 7: 199, 1952; Faden (1991): 145; M. Renier, Flore du Kwango 1: 87, 1948 (sub nom. *A. ovato-oblongum);* Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 428-429, 1985; Cable & Cheek, Pl. Mt Cameroon: 150, 1998; Cheek & al., Pl. Mt Oku…: 170, 2000; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: C48, 2001; Harris, Vascul. Pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 222-223, 2002; Harvey & al., Pl. Bali Ngemba: 134, 2004; Cheek & al., Pl. Kupe…: 430-431, 2004; Sosef & al., Check-list pl. vascul. Gabon: 114-115, 2006; Akoegninou & al., Fl. analyt. Bénin: 71-72, 2006; Figueiredo & Smith, Pl. Angola: 176, 2008; Lisowski,

ANEILEMA UMBROSUM

Fl. Rép. Guinée 1: 387, 2009; Cabezas & al., Checklist Commelin. Equat. Guinea: 110, 2009 (recorded by Guinea 1946 as *Commelina palisotii = A. umbrosum* subsp. *ovato-oblongum);* Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 95, 2010: Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 218, 2011. – Icon.: Fl. ill. Sénégal 9: 107, 1988; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): photo. 710, 2010.

bas.: *Commelina umbrosa* Vahl

Straggling or week erect perennial herb rooting at nodes; stems subglabrous; flowering branches ascending to 50 cm; leaves ovate to lanceolate, 6-10 × 2-3 cm, acuminate, base round and petiolate, slightly scabrid and usually subglabrous above, puberulous to pubescent at least on veins of the lower surface, sometimes pubescent on both surfaces; thyrses terminal, open; flowers pure white to pale lilac, mauve or purple.

Rain-forest with *Chrysophyllum albidum, Cola gigantea, Erythrophleum suaveolens, Alstonia boonei, Parinari excelsa, Milicia excelsa;* forest streams; lowland farmbush; secondary forest; hardpan (Centr. Afr. Rep.); lagoon; swampy savanna; epiphytic on oil-palm, on rock in forest shade; abundant in clearings; damp flat among grasses; sometimes growing in clumps c. 30-38 cm Ø; 93-1760 m alt.

Bioko/Fernando Poo (both subspp.); S. America from Panama to Brazil (subsp. **ovato-oblongum**). Comprises 2 subspp.: – subsp.: **umbrosum** [syn.: *A. ovato-oblongum* P. Beauv. var. *nigritanum* C. B. Clarke; *A. nigritanum* (C. B. Clarke) Hutch.], straggling herb to 1 m long, leaves to 13 × 4 cm, sheaths with rusty hairs at apex and sometimes on surface, inflorescence lax with 8-30 branches, flowers white, in tropical Africa; – subsp. **ovato-oblongum** (P. Beauv.) J. K. Morton [bas.: *A. ovato-oblongum* P. Beauv.; syn.: *A. umbrosum* var. *ovato-oblongum* Brenan; *Commelina ovato-oblonga* (P. Beauv.) Roem. & Schult.; *C. palisotii* A. Dietr.; *Aneilema bracteolatum* Mart.; *Bauschia bracteolata* (Mart.) Seub. ex Warm.; *Aneilema laxiflorum* Benth. ex C. B. Clarke; *Dithyrocarpus schomburgkianus* Kunth; *D. stenorhachys* Klotsch ex C. B. Clarke], a smaller and more slender straggling plant 10-30 cm tall, leaves to 8 × 3 cm, sheaths lacking rusty hairs, inflorescence with 2-8 branches, in tropical Africa (rarer than subsp. *umbrosum)* and S. America. – Intermediates are known.

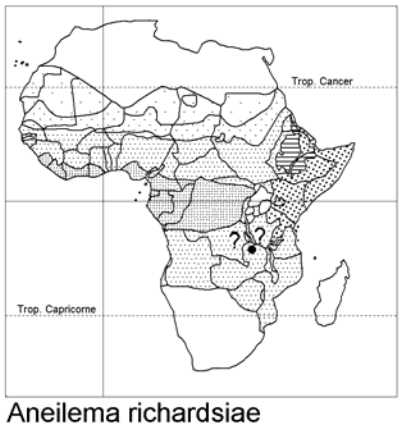
A. usambarense Faden

syn.: Enum. 3: 22, 1995.

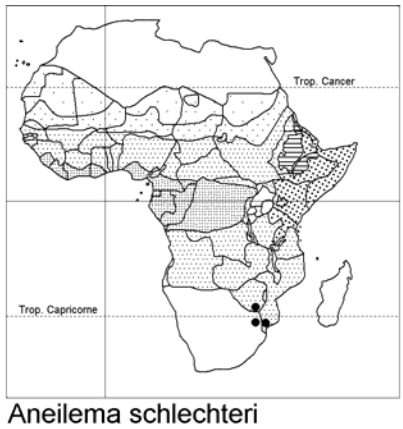
Perennial herb (roots unknown); shoots decumbent, the flowering ascending, to 90 cm tall, glabrescent to puberulous; leaves spirally arranged, sheaths 0,7-2 cm long, puberulous, ciliate at apex; lamina petiolate (petiole to 3,5 cm long), lanceolate-elliptic, 6,5-16 × 2-4,5 cm, apex acuminate, base cuneate, margins scabrid; upper surface patently hirsute-puberulous with scattered uniseriate hairs 1,5-2,5 mm long, lower surface with more numerous and shorter hairs; thyrses terminal (rarely axillary), ovoid, 4-7 × 4,5-6 cm; flowers mauve.

Shady path sides in evergreen forest with *Parinari excelsa, Funtumia latifolia, Sterculia appendiculata, Allanblackia stuhlmannii, Isoberlinia, Schefflera, Sacciolepis curvata;* 620 m alt.

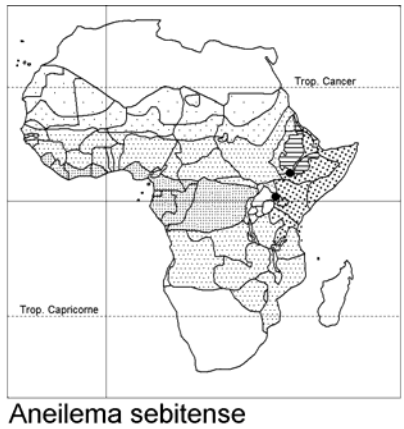
Only known from the type collectd in 1940.



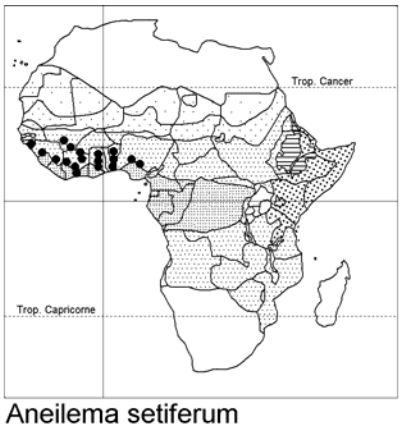
Aneilema richardsiae



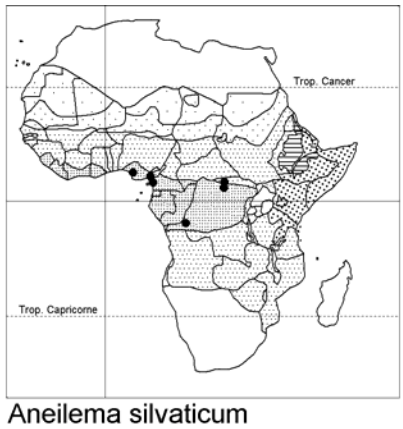
Aneilema schlechteri



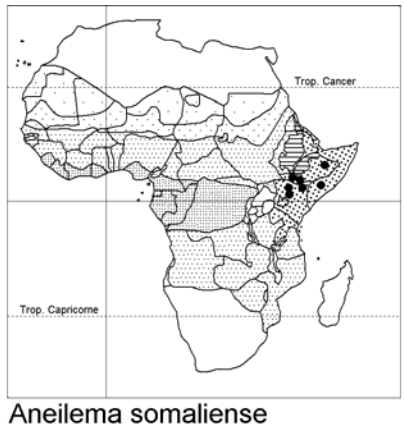
Aneilema sebitense



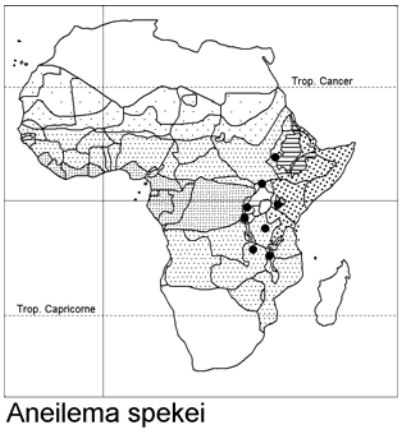
Aneilema setiferum



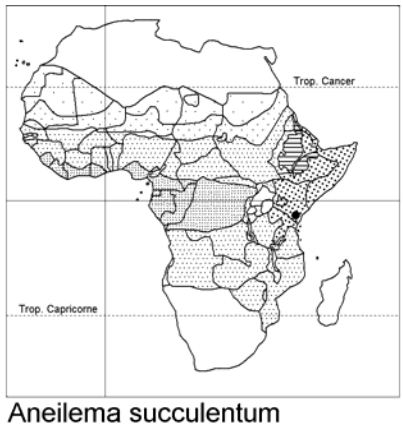
Aneilema silvaticum



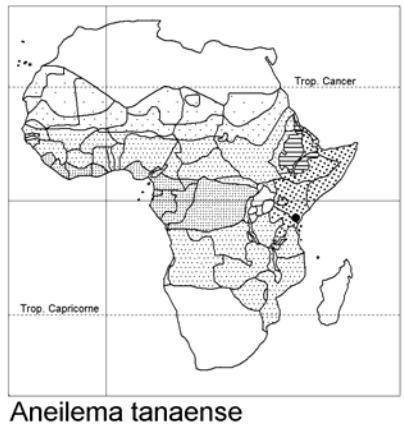
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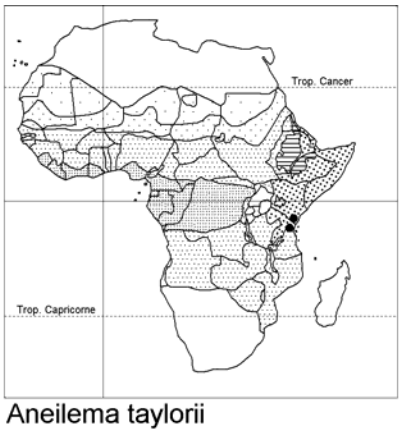
Aneilema spekei



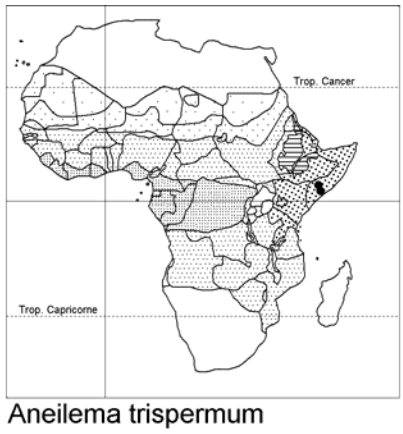
Aneilema succulentum



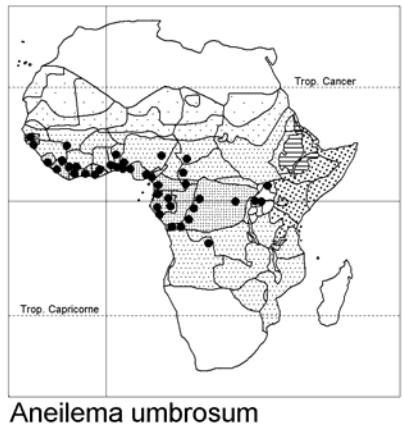
Aneilema tanaense



Aneilema taylorii



Aneilema trispermum



Aneilema umbrosum

ANEILEMA

A. welwitschii C. B. Clarke; Fl. Trop. Afr. 8: 71, 1901; Faden (1991): 144; Figueiredo & Smith, Pl. Angola: 176, 2008.

syn.: Enum. 3: 22, 1995.

Stems caespitose on a bundle of thick clavate roots subtuberose at their extremities; fertile stems 25-40 cm tall, little branched, minutely grey pubescent with many fully developed leaves, oblong or elliptic-lanceolate, 7,5 × to 2,5 cm, sessile, apex obtuse; thyrses c. 2,5 × 1,8 cm; flowers yellow (fide Faden).

Marshy places; edges of woods; 1140-1650 m alt.

A. zebrinum Chiov. ex Chiarugi; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 308, 1994; L. Newton, Check-list Kenyan succ. pl.: 16, 2003. – Icon.: Fl. Eth. & Eritrea 6: 359, 1997; Webbia 8: 37, 1951; Hunt in Eggli, Ill. Handbook succ. pl., Monocotyledons: fig. 26e, 2001.

syn.: *Ballya zebrina* (Chiov. ex Chiarugi) Brenan

Mat-forming perennial herb with fibrous roots; shoots repent, rooting at nodes; leaves distichous; blade moderately succulent, sessile, ovate to ovate-elliptic or elliptic, 1-4 × 0,5-2 cm, puberulous, sometimes mottled with maroon; inflorescences axillary, perforating the sheaths; flowers pale lilac; capsule ± indehiscent.

Acacia mellifera, Commiphora, Boscia bushland with dense ground cover; in partial or deep shade; woodland; woodland thickets; light forest; sometimes in rocky areas; occasionally on steep slopes; sandy or clayey soils; 10-1160 m alt.

S. Africa (Natal).

Aneilema woodii Faden is endemic in Yemen.

IN NEED OF FURTHER STUDY:

Aneilema minutiflorum Faden (1991): 147, nom. in clavi. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 138, 1994. – Specimens Faden & Evans 70/899, Tweedie 759.

Much-branched small annual herb; thyrses small, dense, the terminal one with a cyme at its base widely separated from the other cymes; flower 3-5 mm wide, pale mauve to white (fide Agnew & Agnew, o.c.: 308).

Montane and riverine forests. In Kenya, Uganda, Tanzania.

A. rendlei sensu Chiov., Webbia 8: 38, 1951 (Corradi 2159), non C. B. Clarke; Fl. Eth. & Eritrea 6: 360, 1997.

In a mixed collection with *A. rendlei* C. B. Clarke. Specimen resembling *A. indehiscens* subsp. *keniense*. Differs from *A. rendlei* by e.g. its densely pubescent leaves, and also lacking marginal glands on the bracteoles.

From S Ethiopia (Gamo Gofa region, GG).

A. termitarium Faden (1991): 147, nom. in clavi. – Specimen Faden & Faden 74/139.

Leaves petiolate; inflorescence bracts and bracteoles with linear gland-tipped apices; flowers 4-7,5 mm wide, medial staminode lacking, filaments with reddish or maroon hairs.

In S Tanzania, E Zaire, Zambia.

SYNONYMS (see Enum. 3: 22-23, 1995; additions below):

Aneilema adhaerens Kunth = **Aneilema aequinoctiale**

affine De Wild., non R. Br. = **A. silvaticum**

africanum P. Beauv. = **Floscopa**

allardii De Wild. = **Murdannia**

ANEILEMA

ambiguum (P. Beauv.) Loudon = **Palisota ambigua**

beniniense (P. Beauv.) Kunth var. *sessilifolium* Benth. = **Aneilema beniniense**

blumei (Hassk.) Bakh. f. = **Murdannia**

bracteolatum Mart. = **Aneilema umbrosum** subsp. **ovato-oblongum**

buaricum Mildbr., nom. = **A. lanceolatum** subsp. **lanceolatum**

compressum Dalzell = **Murdannia nudiflora**

delicatulum C. B. Clarke = **M. clarkeana**

dregeanum Kunth var. *galpinii* C. B. Clarke = **Aneilema brunneospermum**

hamiltonianum Wall. ex C. B. Clarke, incl. var. *minus* C. B. Clarke = **Murdannia blumei**

lanceolatum Benth. var. *evolutius* C. B. Clarke = **Aneilema pomeridianum**

lanceolatum var. *pilosum* Brenan = **A. lanceolatum** subsp. **lanceolatum**

laxiflorum Benth. ex C. B. Clarke = **A. umbrosum** subsp. **ovato-oblongum**

leptospermum K. Schum., nom. = **A. petersii**

longifolium Hook. = **Murdannia simplex**

malabaricum (L.) Merr. = **M. nudiflora**

minutiflorum Faden, nom. – see at end of species list

mortehanii De Wild. = **Aneilema beniniense**

nigritanum (C. B. Clarke) Hutch. = **A. umbrosum** subsp. **umbrosum**

nudiflorum (L.) Sweet 1826, and Wall. 1830, incl. var. *compressum* (Dalzell) C. B. Clarke = **Murdannia nudiflora**

obbiadense Chiov. var. *angustifolium* Chiov. = **Aneilema longicapsa**

ovato-oblongum P. Beauv. = **A. umbrosum** subsp. **ovato-oblongum**

var. *nigritanum* C. B. Clarke = **A. umbrosum** subsp. **umbrosum**

paniculatum Wall. (non Wight) ex C. B. Clarke = **Murdannia semiteres**

pedunculosum auct., non C. B. Clarke = **Aneilema leiocaule**

pedunculosum C. B. Clarke var. *luteum* C. B. Clarke = **A. angolense**

subsp. *pallidiflorum* sensu Faden p.p. (Somalia) = **A. trispermum**

rhodospermum K. Schum. = **A. silvaticum**

rigidum Blatt. = **Murdannia simplex**

rivulare A. Rich. = **Floscopa glomerata** subsp. **glomerata**

secundum Wight = **Murdannia simplex**

semiteres Dalzell = **M. semiteres**

sinicum Ker-Gawl., incl. var. *simplex* (Vahl) C. B. Clarke and var. *longifolium* (Hook.) C. B. Clarke = **M. simplex**

tenuissimum (A. Chev.) A. Chev. ex Hutch. & Dalziel = **M. tenuissima**

ANTHERICOPSIS / *1*

syn.: *Gillettia* Rendle

One species in NE tropical Africa.

Anthericopsis sepalosa (C. B. Clarke) Engl.; Faden in Biol. Skr. 54: 218, 2001. – Icon.: J. Bot. 34: pl. 355 fig. B, 1896; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 139, 1994; Thulin, Fl. Somal. 4: 83, 1995; Fl. Eth. & Eritrea 6: 345, 1997.

syn.: *A. tradescantioides* Chiov.; Enum. 3: 23, 1995.

Glabrous perennial herb, 5-20 cm tall with tubers enclosed in a hard, crustaceous layer, ovoid to elliptic, 0,7-2 × 0,4-1 cm; leaves all or mainly in a basal rosette ovate to lanceolate-oblong or oblong-elliptic, 4-31 × 1,2-5,5 cm, apex acute; inflorescence sometimes subsessile at first flowering, eventually long-pedunculate, scapose or subscapose from the rosette or axillary from a leaf on the peduncle, composed of 1 or 2 sessile, contracted, bracteolate cincinni at the summit of the peduncle (6-38 cm long), when 2, opposite; flowers white to pale pink or mauve, rarely bluish. May flower before the leaves are fully expanded.

Low vegetation on sandy soil; grassland; bushland; woodland; ± 200-1850 m alt.

(BALLYA)

Ballya zebrina (Chiov. ex Chiarugi) Brenan = **Aneilema zebrinum**

(BAOULIA)

Baoulia tenuissima A. Chev. = **Murdannia**

(BAUSCHIA)

Bauschia bracteolata (Mart.) Seub. ex Warm. = **Aneilema umbrosum** subsp. **ovato-oblongum**

BUFORRESTIA / *2*

Genus of 3 species: 2 in tropical Africa, *B. candolleana* C. B. Clarke in French Guiana and Surinam.

Buforrestia mannii C. B. Clarke; Cable & Cheek, Pl. Mt Cameroon: 150, 1998; Cheek & al., Pl. Kupe…: 431, 2004; Cabezas & al., Checklist Commelin. Equat. Guinea: 110, 2009. – Icon.: Kew Bull. 14: 282 (figs. 1-10), 1960.

Herb, robust, c. 45-150-200 cm tall; leaf sheaths c. 2-3 cm long, glabrous to very shortly ciliate on margins; lamina elliptic, broadest about middle, 12-30 × 5-11 cm, tapering into an acumen c. 1,5-3 cm long; inflorescence axes glabrous, c. 6-15 cm long, bearing 2-4 clusters of white flowers (more if bifurcate); *axes emerging through* a *hole* in the *leaf-sheath.*

Rain-forest; stream banks; gregarious; <200-1200 m alt.

Bioko/Fernando Poo.

Presence in Gabon doubtful (Sosef & al., Check-list pl. vascul. Gabon: 115, 2006).

B. obovata Brenan; Lisowski, Fl. Rép. Guinée 1: 387, 2009.

syn.: Enum. 3: 23, 1995.

Creeping, fleshy perennial herb c. 10-35 cm tall; leaf sheaths c. 1,5 cm long, densely and conspicuously ciliate on margins; lamina obovate, broadest in upper part, apex with a point c. 2-7 mm long; inflorescence axes pubescent, c. 2-4 cm long, bearing 1 cluster of white flowers; *axes emerging through* a *hole* in the sheath.

Forest floor, in moist ground; locally dominant; in leaf-mould in high forest; in deep shade; schists; damp place; humid rocks on ferruginous hardpan; forest edges; 550-600 m alt.

Presence in Gabon doubtful (cf. above).

SYNONYMS:

Buforrestia brachycarpa Gilg & Ledermann ex Mildbr. = **Stanfieldiella brachycarpa**

var. *hirsuta* Brenan = **S. brachycarpa** var. **hirsuta**

glabrisepala De Wild. = **S. imperforata** var. **glabrisepala**

imperforata C. B. Clarke = **S. imperforata**

var. *glabrisepala* (De Wild.) Brenan = **S. imperforata** var. **glabrisepala**

minor K. Schum. = **S. imperforata** var. **glabrisepala**

oligantha Mildbr. = **S. oligantha**

tenuis C. B. Clarke = **Amischotolype**

(CALLISIA)

Callisia orientalis Buch.-Ham. ex Wall. = **Murdannia blumei**

COLEOTRYPE / *3*

Genus of 9 species 6 of which in Madagascar.

Coleotrype brueckneriana Mildbr.

Ascending herb rooting at base, with a glabrous stem deeply grooved in dry state; leaf sheaths 1,5 cm long, slightly membranous and swollen, almost glabrous, margins with long weak hairs; leaf petiole 2 cm long; lamina glabrous, elliptic to lanceolate, 10 × c. 5 cm, apex acute to acuminate; flowers white in heads piercing the sheaths; fruit unknown; 1000-1100 m alt.

Mist forest; growing in clumps on brook sides or on rocks (moist, shady).

? Known only from the type collected in 1932.

C. laurentii K. Schum.; Kew Bull. 7: 456, 1952; Renier, Flore du Kwango 1: 88, 1948; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 429, 1985; Cable & Cheek, Pl. Mt Cameroon: 150, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 223, 2002; Cheek & al., Pl. Kupe…: 431, 2004; Sosef & al., Check-list pl. vascul. Gabon.: 115, 2006; Lisowski, Fl. Rép. Guinée 1: 387, 2009; Harvey & al., Pl. Lebialem Highl., Cameroon: 151, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 95, 2010.

Straggling herb with stems to c. 1,8-2 m long and 1,2 m high, often stoloniferous, producing aerial roots from the lower nodes, vegetative parts almost glabrous, with short hairs on margins of leaf sheaths and blades; leaves ± undulate, elliptic, 9-20 × 3-6,5 cm, not all rosetted, very acuminate at apex, base gradually tapered to a false petiole; inflorescences axillary, *piercing* the sheaths, appearing as dense clusters of *conspicuous* green *large, ovate, leafy bracts* mixed with *white* flowers; inflorescences mainly from the lower nodes, sometimes on the ground.

Rain-forest; sometimes abundant where clearing has taken place; secondary forest; *Gilbertiodendron dewevrei* forest; in dense shade; 300-1175 m alt. (Uganda).

Easily distinguished from *Amischotolype tenuis.*

C. natalensis C. B. Clarke

Perennial herb with trailing leafy stems, rooting at lower nodes, to 80 cm tall; leaves alternate, spreading, oblong, c. 10 × 1,5-2 cm, apex long acuminate, margins purple or red; inflorescences in axils of uppermost leaves, sessile, contracted, *piercing* the *sheaths*, with 4-6 flowers appearing consecutively in 2 rows; flowers deep purple.

Forested areas often near water; sandy clearing.

S. Africa, Swaziland.

COMMELINA / *70* (+ ? *45-46)*

Genus of some 170 species, almost cosmopolitan, mainly tropical and subtropical, most diverse in Africa (estimated 100 species). Flowers ephemeral, lasting only part of a day. Inflorescence an axillary (leaf-opposed) or terminal cyme, enclosed in a folded spathe-like bract. Sepals 3, petals 3, fertile stamens 3, staminodes (0-)2 or 3, with showy pseudoanthers; filaments naked.

"A very difficult genus" (Faden, 2003).

The capsule characters as a basis for classification in the genus are artificial (Morton, J. Linn. Soc., Bot. 60: 190, 1967).

Approximately 20% of the African species have orange to buff flowers incl. peach, apricot, salmon (Faden, 2003). Except the blue s.l., violet s.l. the other colours are:

WHITE:

- pure white: *C. albiflora, C. cameroonensis, C. congesta* (very pale violet, almost white), *C. clarkeana* (pale bluish white), *C. grandis, C. longicapsa, C. macrosperma, C. praecox;*
- white, whitish: *C. acutispatha, C. aspera* (also yellowish), *C. grandis, C. longicapsa, C. transversifolia;*
- rarely white: *C. bracteosa, C. albescens, C. diffusa, C. lagosensis, C. nairobiensis;*
- almost white to very pale violet (lilac): *C. thomasii.*

YELLOW:

- yellow: *C. africana, C. frutescens, C. luteiflora, C. rhodesica;*
- golden yellow: *C. capitata;*
- palest yellow: *C. pycnospatha* (pale lemon yellow), *C. robynsii* (yellow-violaceus), *C. ruandensis, C. subcucculata* (to brown-red), *C. sylvatica, C. welwitschii;*
- pale yellow salmon: *C. bianoensis.*

PURPLE: *C. somalensis*

Multicoloured flowers also exist, and coloured flowers have also albino forms.

EDEOGA, H. O. & al. (1998). Palynomorphology of species of Commelina L. and Senna Tourn. ex Mill. from Nigeria. *New Botanist* 25: 1-10.

FADEN, R. B. (2003). Orange-flowered species of African Commelina (Commelinaceae): are they all related ? *In:* SEBSEBE DEMISSEW & al., eds., *XVIIth AETFAT Congress 21-26 September 2003, Abstracts*: 21. Addis Ababa University Press.

In our area many species are incompletely known. Among those listed below (and mapped) the material is more or less incomplete: flowers and their colour not recorded for ? 4 species; the fruit is lacking in 1 species and only unripe fruits reported for ? 2 species; for 4 species the ecology is not recorded; and 2 (+ 2 ?) species are known only from the type.

Commelina acutispatha De Wild.; Faden, Kew Bull. 62: 139, 2007.

syn.: *C. thomasii* Hutch. – Icon.: J. Linn. Soc., Bot. 55: 529, 1956.

Perennial herb with stems erect and decumbent, ± ramose, to 50 cm tall, glabrous, but nodes pilose; sheaths often ± spreading-hairy outside or velvety, 15-30 mm long; lamina (linear-)lanceolate, 3,5-14 × 0,8-1,8 cm, apex gradually attenuate-acute, velvety on both sides, margins ciliate-scabrous; spathe with peduncle 15-20 mm long, ovate, acuminate, velvety on both sides, 2,5-5,5 × 0,8-1,3 cm; flowers pedicillate, whitish to very pale violet.

Quite commonly in moist places by roads and in clearings and openings in forest; dry bush; secondary forest; fallows; persisting in farms and plantations.

Bioko/Fernando Poo (Cabezas & al., Checklist Commelin. Equat. Guinea: 112, 2009, sub nom. *C. thomasii).*

Hybrids with *C. diffusa* exist.

Near *C. africana* var. *lancispatha*.

C. africana L., excl. var. *circinata* Chiov. *(= C. arenicola);* De Wildeman, Notes flore Katanga 5: 44, 1920; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 429, 1985; Cable & Cheek, Pl. Mt Cameroon: 150, 1998; Cheek & al., Pl. Mt Oku…: 170, 2000; Harvey & al., Pl. Bali Ngemba…: 135, 2004; Cheek & al., Pl. Kupe…: 431, 2004; Akoegninou & al., Fl. analyt. Bénin: 72-73, 2006; Figueiredo & Smith, Pl. Angola: 176, 2008; Lisowski, Fl. Rép. Guinée 1: 387, 2009; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 149, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 95, 2010; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 101, 2010. – Icon.: Berhaut, Fl. ill. Sénégal 9: 111, 1988 (partial); Tredgold & Biegel, Rhodes. wild flow.: pl. 2, 1979; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 135, 1994; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 47, 2001; Boulos, Fl. Egypt 4: 122, 2005; Fischer & Killman, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 461, 2008.

syn.: *Hedwigia africana* (L.) Medik.; *Stickmannia africana* (L.) Raf.; *Dirtea africana* (L.) Raf.

syn. (not attributed to any variety here): *Commelina edulis* A. Rich.; *C. benghalensis* Forssk. 1775, non L. 1753, nom. illegit.; *C. lutea* Moench.; *C. flava* Salisb.; *C. divaricata* Vahl; *C. polyclada* Welw. ex C. B. Clarke; *C. africana* var. *polyclada* Welw. ex C. B. Clarke; *C. bakueana* A. Chev. ex Hutch. & Dalziel, pro syn.; *C. subamplectens* Hassk.; *C. involucrosa* A. Rich.; *C. cordifolia* A. Rich.; *C. beccariana* Martelli; *C. lutea* Cordemoy (Réunion).

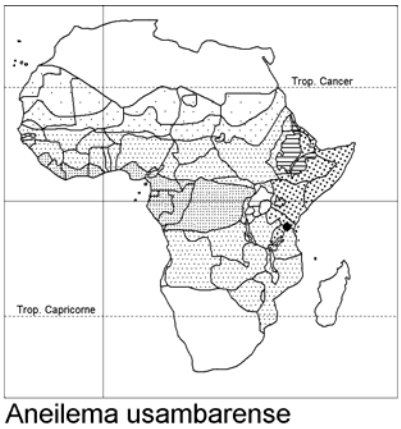
Perennial herb with fusiform (tuberous) fleshy roots; stems to 1 m long, creeping, creeping-ascending or straggling, green with purple tinge, glabrous or pubescent with a row of longitudinal hairs; leaf sheaths 0,8-3 cm, light green with purple tinge, ciliate along margins; blades 6-12 × 0,6-2,2 cm, lanceolate to ovate or rarely linear (margins entire or rarely undulate, ciliate), glabrous or pilose; cymes leaf-opposed, spathes free, 9-45 × 9-24 mm, glabrous or pilose, margins ciliate, with peduncle 8-40 mm long; flowers yellow, open 7-10 am.

Overgrazed areas; *Combretum, Stereospermum, Acacia* woodland; moist grassy places; forests (eventually degraded); swamps; mist forest; sunny places; in shade; riverine forest margins; edge of montane forest; open scrub; hilly rocky slopes; grassland; disturbed areas and a weed; marshy places; 900-3300 m alt.

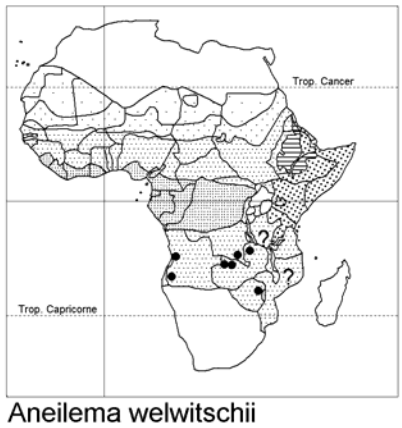
S. Africa, Botswana, Lesotho, Swaziland; Cape Verde Isl.; Madagascar, Mascarene Isl.; Saudi Arabia, Yemen; Australia. Has been reported from Bioko/Fernando Poo and Equat. Guinea without precise locality (Cabezas & al., Checklist Commelin. Equat. Guinea: 100, 2009).

A very variable species. Brenan (Mitt. Bot. Staatssamml. München 5: 201-222, 1964) listed 12 varieties. Faden (Fl. Eth. & Eritrea 6: 364, 1997) found it difficult to maintain these taxa and believes that there may be only 2 varieties, and even between these there are intermediates.

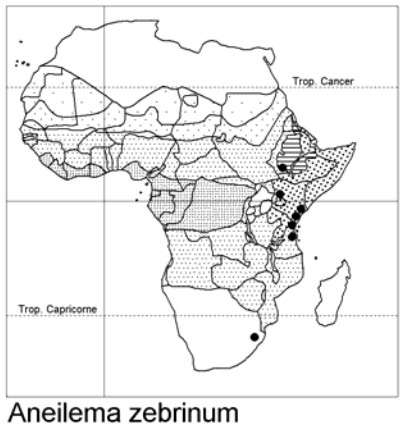
The World Checklist of Monocotyledons (Roy. Bot. Gard., Kew) retains 6 varieties (cf. also our Enum. 3: 23, 1995), viz. – var. **africana**; – var. **diffusa** Brenan (Tanzania-Malawi); – var. **karooica** (C. B. Clarke) Govaerts [bas.: *C. karooica* C. B. Clarke;



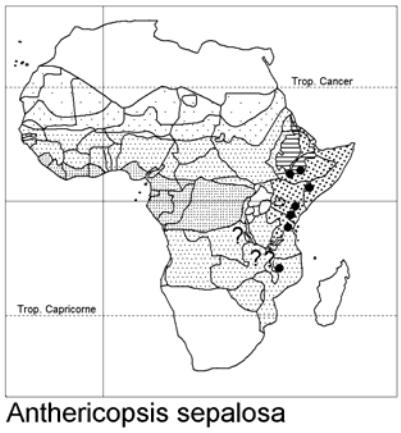
Aneilema usambarense



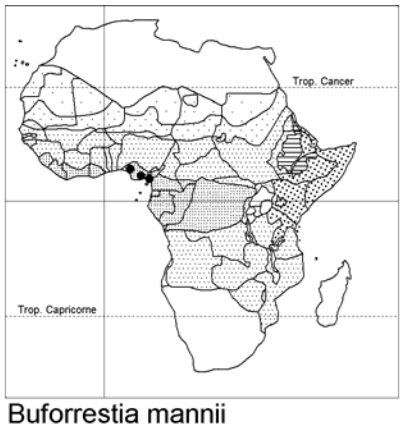
Aneilema welwitschii



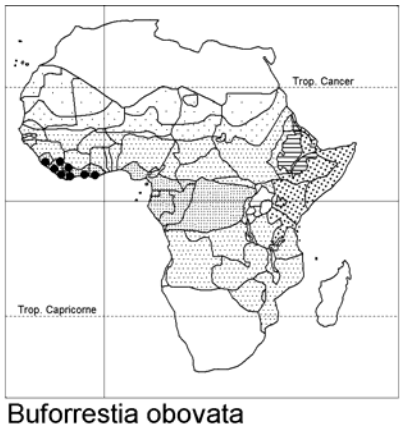
Aneilema zebrinum



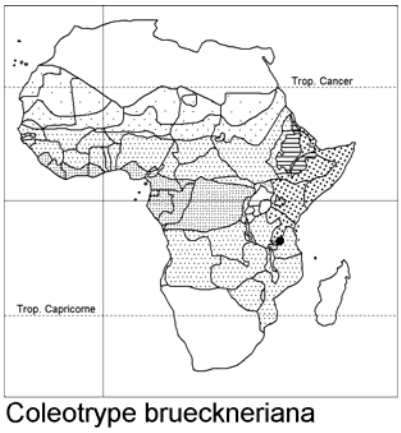
Anthericopsis sepalosa



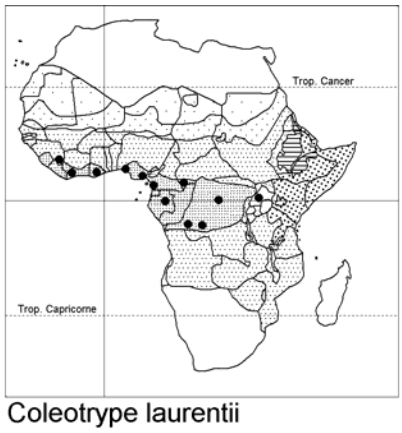
Buforrestia mannii



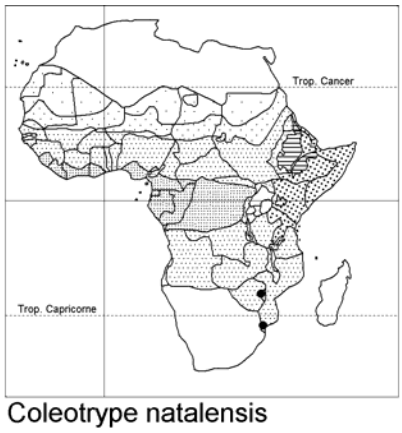
Buforrestia obovata



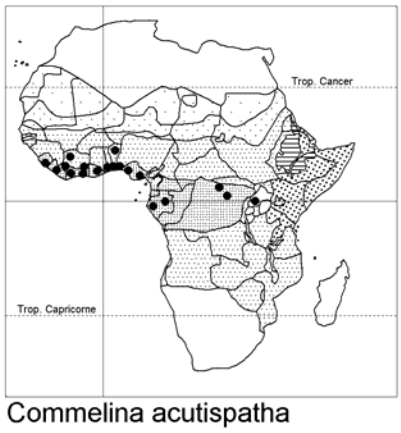
Coleotrype brueckneriana



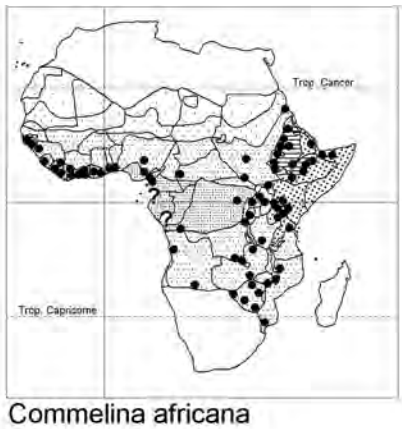
Coleotrype laurentii



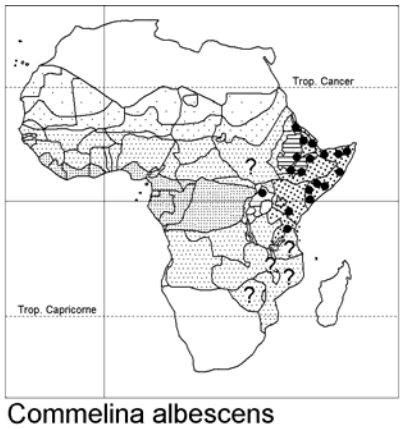
Coleotrype natalensis



Commelina acutispatha



Commelina africana



Commelina albescens

syn.: *C. karooica* var. *barberae* (C. B. Clarke) C. B. Clarke] in S Africa and Botswana, only; – var. **krebsiana** (Kunth) C. B. Clarke [incl. *C. barbata* Lam. var. *villosior* C. B. Clarke, *C. mannii* C. B. Clarke var. *lyallii* C. B. Clarke, *C. boehmiana* K. Schum., *C. africana* var. *boemiana* (K. Schum.) Brenan and var. *brevipila* Brenan and var. *milleri* Brenan]; – var. **lancispatha** C. B. Clarke [incl. *C. kirkii* C. B. Clarke, *C. elliotii* C. B. Clarke, *C. buchananii* C. B. Clarke]; – var. **mannii** (C. B. Clarke) Brenan in Cameroon, Rwanda, Ethiopia.

In their studies on the SW Cameroon flora Cheek & al. have retained var. *africana* (Mt Oku, Mt Kupe, Dom-Bamenda) and var. *mannii* (Mt Cameroon, Bali Ngemba) and var. *krebsiana* [syn.: *C. africana* var. *villosior* (C. B. Clarke) Brenan].

Herbarium material of *C. africana* can be difficult to identify correctly if the flower colour is not indicated (cf. Akoegninou & al., l.c.).

C. albescens Hassk., incl. var. *hirsutissima* Chiov.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994; Thulin, Fl. Somalia 4: 94, 1995; Fl. Eth. & Eritrea 6: 372, 1997. – Icon.: Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 47, 2001.

syn.: *C. multicaulis* Hochst. ex C. B. Clarke; *C. schimperiana* Hochst. ex C. B. Clarke; *C. mensensis* Schweinf.

Scrambling or semi-erect perennial herb with fibrous roots and fleshy rootstock; stems several, to 60 cm tall, grey-green and streaked with purple, glabrous; leaf sheaths 1-3 cm long, grey to hyaline, purple-veined and mostly purple spotted, sparsely pilose, margins ciliate; blade to 8-17 × 0,6-1,1 cm, subulate or linear-lanceolate, broadest at base, glabrous or sparsely pubescent; cymes falsely terminal, leaf-opposed, mostly 2 together; spathe broader than long, 16-22 × 18-26 mm, apex acuminate, strongly falcate and recurved, very pale green, pubescent with hooked hairs or nearly glabrous; flowers very pale mauve to lilac or white.

Acacia, Commiphora, Terminalia open bushland and woodland; rocky volcanic or limestone slopes; roadsides; weed of cultivations; sometimes in alluvial plains; rarely on dunes; silty or sandy soil; 90-1700 m alt.

Botswana; Socotra; Saudi Arabia, Yemen, Oman; Pakistan, W India.

May be difficult to separate from *C. erecta* (with less falcate spathes and not glaucous foliage).

C. albiflora Faden; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994.

Small decumbent perennial herb with glabrescent stems; leaves distichous; leaf sheaths puberulous, 1-1,7 cm long, sparsely ciliate at apex; lamina shortly petiolate, lanceolate(-elliptic), 3,5-7 × 1,5-2,5 cm, apex acuminate, base usually strongly oblique, sometimes subcordate, usually minutely scabrous above, sometimes with 1 or more maroon spots, margins undulate, scabrid; spathe terminal, solitary, 1,7-2,2 × 1-1,5 cm, gibbous, green, puberulous, apex obtuse, ± mucronate, sometimes slightly falcate; peduncle 0,8-1 cm long, puberulous; flowers *pure white.*

Celtis mildbraedii, Croton megalocarpus forest, being cleared; under shade; sometimes growing with *C. erecta* but usually in drier situations; frequently along streams; 1500-1680 m alt. – Locally common. For more ecological details see: Novon 4: 230, 1994.

Discovered in 1969.

Near *C. cameroonensis, C. macrosperma, C. longicapsa*.

C. arenicola Faden; Thulin, Fl. Somalia 4: 89, 91, 1995.

syn.: *C. africana* L. var. *circinata* Chiov. (“circinnata”).

Annual herb with tufted much-branched ascending to prostrate, rarely decumbent shoots to 30-46 cm long, rooting near the base; roots thin, fibrous; leaves spiral or distichous; sheaths 0,5-1 cm long, glabrous or with a line of pubescence along the fused edge, apex ciliate; blade sessile, linear(-lanceolate) or elliptic, usually conduplicate, sometimes strongly recurved, 0,5-5 × 0,4-0,6 cm, apex acute, surfaces glabrous or pubescent; spathe with peduncle 0,4-1,4 cm long, solitary, semilunate, 0,9-2 × 0,45-1 cm, base ± hastate, puberulous to glabrous, margins free, glabrous or ciliate; flowers pale buff, buff-orange, apricot pink.

Margin of dune field stabilized with *Opuntia* and good cover of annuals; littoral; *Acacia tortilis, Combretum* woodland; cassava (*Manihot utilissima*) cultivation; c. 0-80 m alt. – Locally common.

Some specimens with small curled leaves and very compact growth are probably the result of exposure to salt-laden sea breezes (fide Thulin).

C. ascendens J. K. Morton

Herb with *scandent* stem to 2,5 m or more bearing very long adventitious roots in its older parts; internodes with *ascending hooked hairs* when young, becoming glabrous; leaf sheaths c. 2 cm long, pubescent; lamina lanceolate, c. 11 × 3 cm, glabrous apart from the main nerves, shortly petiolate; spathes to 2,2 × 0,9 cm borne on *short bracteate inflorescences* on peduncles which are as long as the spathes, crescent shaped, margins free; flowers pale bluish-violet.

Secondary or open primary forests; uncommon; often by rivers.

C. aspera G. Don ex Benth., *excl*. var. *firma* Welw. ex C. B. Clarke; Akoegninou & al., Fl. analyt. Bénin: 73, 2006; Figueiredo & Smith, Pl. Angola: 176, 2008.

syn.: *Cyanotis hirsuta* Baker

Annual ephemeral, simple or branched herb 7,5-35 cm tall; leaves 7,5 × 0,6 cm, linear(-lanceolate); spathes (>3) in terminal clusters 1,2 × 1,2 cm, ovate, acuminate, much curved; margins shortly connate at base; flowers yellowish to white or pale flesh-coloured, open 9-11 am.

Tall grass savanna: on bare soil between the tufts of grasses; weed of cultivations; under shade.

Botswana. – Not in Senegal *(= C. bracteosa).*

C. aurantiiflora Faden & Raynsf.

Unbranched to densely branched annual herb with prostrate to erect shoots 2-20 cm long, rooting at base; leaves spirally arranged on primary shoot, distichous on lateral shoots; leaf sheaths 3-8,5 mm long, puberulous along the line of fusion, with pubescence continuing onto internode below, often sparsely to densely hirsute elsewhere, ciliate at apex; lamina sessile, oblong-elliptic to lanceolate-elliptic, 2-6 × 0,3-1,4 cm, apex scabrous, acute, base often amplexicaul, glabrous above or sparsely hirsute, hairy on the costa below, margin ciliate; spathes solitary, terminal, 1-1,8 × 0,5-0,85 mm, puberulous along the line of fusion, peduncle 0,7-2,7 cm long; flowers orange, buff-orange, etc. (pinky-buff, yellow, ? white).

Edge of laterite outcrops in miombo woodland; 1-3 cm deep soil over laterite; wooded grassland on tan sand with *Brachystegia, Isoberlinia;* with *Commelina aspera; Terminalia mollis, T. sericea, Combretum grandiflorum, C. zeyheri; Dalbergia nyassae, Julbernardia globifera* woodland; 1330-1550 m alt.

COMMELINA

C. benghalensis L.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 429-430, 1985; Thulin, Fl. Somalia 4: 91-92, 1995; Cable & Cheek, Pl. Mt Cameroon: 150, 1998; Cheek & al., Pl. Mt Oku…: 170, 2000; Martins in Flora Cabo Verde 96, Commelin.: 7, 9, 2002; Cheek & al., Pl. Kupe…: 431, 2004; Harvey & al., Pl. Bali Ngemba…: 135, 2004; Figueiredo & Smith, Pl. Angola: 176, 2008; Lisowski, Fl. Rép. Guinée 1: 387, 2009; Cabezas & al., Checklist Commelin. Equat. Guinea: 110, 2009; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 149, 2010; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 102, 2010. – Icon.: F. Busson, Pl. aliment. Ouest afric.: 440, 1965; Tredgold & Biegel, Rhodes. wild flow.: pl. 2, 1979; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 136, 1994; Berhaut, Fl. ill. Sénégal 9: 112, 1988 (partial); Fl. Eth. & Eritrea 6: 374, 1997; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 48, 2001; Krings & al. in Sida 20: 420, 2002; Boulos, Fl. Egypt 4: 122, 2005; Akoegninou & al., Fl. analyt. Bénin: 73, 2006; Cristóbal & al. in Lilloa 45: 35, 36, 2008; Grabiele & al. in Gayana Bot. 66: 20, 2009; Puff & Sileshi, Pl. Simen: 237, 2005.

syn.: *C. pyrrhoblepharis* Hassk.; *C. uncata* C. B. Clarke; *C. phaeochaeta* Chiov.; *C. cufodontii* Chiov.; *C. senegalensis* Ten.; *C. cucullata* L.; *C. canescens* Vahl; *C. turbinata* Vahl; *C. procurrens* Schltdl.; *C. prostrata* Regel; *C. radiciflora* R. Br. ex C. B. Clarke; *C. rhizocarpa* Afzel. ex C. B. Clarke; *C. forsskaolii* sensu Nogueira & Ormonde (Garcia de Orta, Sér. Bot. 6: 176, 1984) p.p. quoad specim. Barbosa 5690 (Cape Verde).

Erect or creeping-ascending annual or perennial herb with fusiform roots and often with *subterranean cleistogamous flowers* on short shoots from plant base; stems 0,3-2,5 m long, rooting at lower nodes, green with purple tinge, pubescent or rarely hirsute or glabrous; leaf sheaths 0,5-3 cm long with purple veins and purple tinge, ciliate with purple (rarely white) 3-7 mm long bristles along the free edges, rarely all over the surface, otherwise glabrous or pubescent with hooked hairs; blade with pseudopetiole 0,3-1,5 cm, ovate or lanceolate, 9-12 × 2,7-5 cm, broadest below the middle, margins entire or rarely undulate, apex acute, pubescent or glabrous; cymes falsely terminal; spathes broader than long, 14-23 × 18-30 mm, completely fused along their margins, mostly funnel-shaped, sometimes pointed at lower end and curved downwards, pubescent with short hooked hairs and sparsely pilose with straight hairs (sometimes glabrous), nearly sessile; flowers blue.

Open forest; woodland; stream banks; rocky hillsides; partial shade; weed of cultivations (coffee, cotton, groundnut, pepper, teff); waste grounds; gardens; temporary pools; humid sands; savannas; rain-forest with *Albizia, Macaranga, Croton, Ocotea; Buxus* shrub in rich soil; road sides on stable pale orange sand dunes with thick *Acacia senegal -Opuntia* bush; 10-2500 m alt.

Bioko/Fernando Poo, Annobon; Cape Verde Isl.; Madeira, Canary Isl.; S. Africa; Madagascar, Mascarene Isl.; SE Egypt; Saudi Arabia,Yemen, Socotra; India, Korea (icon.: Korean J. Pl. Taxon. 41/1: 60, 2011), tropical Asia, Sumatra, Java; Polynesia; Australia; introduced and naturalised in N., C. & S. America, Hawaii. – Invasive weed. – Element of the segetal vegetation in W Africa: *Ipomoeo eriocarpae-Commelinetalia benghalensis* communities (Phtyocoenologia 41: 107-141, 2011).

Very variable in Africa; 2 varieties have been recognised: – var. **benghalensis**; – var. **hirsuta** C. B. Clarke (syn.: *C. kilimandscharica* K. Schum.) with conspicuous rusty hairs on outside of leaf sheaths (especially mentioned for material from W Cameroon).

Young shoots and leaves cooked as vegetable.

COMMELINA BENGHALENSIS

CRISTÓBAL, M. E. & al. (2008). Nuevas aportes al conocimiento de Commelina benghalensis L. (Commelinaceae). *Lilloa* 45: 34-38.

GRABIELE, M. & al. (2009). Caracterizacion morfologica y chromosomica de Commelina benghalensis L. (Commelinaceae) de Argentina. *Gayana Bot.* 66: 18-27.

KRINGS, A. & al. (2002). Commelina benghalensis (Commelinaceae) new to North Carolina and an updated key to Carolina congeners. *Sida* 20: 419-422 *[C. benghalensis, diffusa, erecta,* etc.].

C. bracteosa Hassk. (excl. syn. *C. bainesii* C. B. Clarke = *C. erecta);* Burkill, Useful pl. W. Trop. Afr., ed. 2: 430, 1985; Cheek & al.; Pl. Kupe…: 431, 2004; Strugnell, Checklist spermatoph. Mt. Mulanje, Malawi: 70, 2006; Akoegninou & al., Fl. analyt. Bénin: 73-74, 2006.

Perennial herb with erect to straggling or even almost prostrate stems, 25-100 cm long, almost glabrous to sparsely villous; blade elliptic to lanceolate, apex acuminate, 5-13 × 2,5-3 cm, base strongly oblique, pseudopetiole 3-10 mm long; spathes pubescent, singly or laxly aggregated by 2-4, peduncle 0,5-2,2 cm long, sides fused, semielliptic, 10-13 × 15-25 mm; flowers bright blue, rarely white, open at 12.00 am.

Stream sides; wooded savanna; weed of cultivations, and path sides; forest; tall grass grassland, with scattered trees; to 600-1450 m alt.

? Namibia. Also in Angola ? (Figueiredo & Smith, Pl. Angola: 176, 2008, Pungo Andongo).

Plants from Benin (and W Africa) have seeds with crests sometimes almost forming a ring (Akoegninou & al., l.c.), and according to Faden these plants would best be placed in *C. erecta.* However the inflorescences correspond to those of *C. bracteosa.*

C. cameroonensis J. K. Morton; Cable & Cheek, Pl. Mt Cameroon: 150-151, 1998; Cheek & al., Pl. Mt Oku…: 170, 2000; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c48, 2001; Harvey & al., Pl. Bali Ngemba…: 135, 2004; Cabezas & al., Checklist Commelin. Equat. Guinea: 110-111, 2009.

Straggling herb with stems 0,5-1 m tall, rooting at lower nodes; leaf sheaths to 2,5 cm long, margins and around apex with long red hairs; lamina ovate-lanceolate, 5,5-11,5 × 1,7-3 cm, strongly unequal at base, apex acuminate, glabrous above, ciliate on main nerves below; spathes sessile, 1-3 together, margins fused, apex acute; flowers white.

Humid forest; edge of rain-forest; forest-grassland transition; gregarious; 950-2500 m alt.

Bioko/Fernando Poo.

Resembling *C. capitata*.

COMMELINA

C. capitata Benth.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 430-431, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 304, 1994; Cable & Cheek, Pl. Mt Cameroon: 151, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 223, 2002; Cheek & al., Pl. Kupe…: 431, 2004; Sosef & al., Check-list pl. vascul. Gabon: 115, 2006; Akoegninou & al., Fl. analyt. Bénin: 74, 2006; Figueiredo & Smith, Pl. Angola: 176, 2008; Cabezas & al., Checklist Commelin. Equat. Guinea: 111, 2009; Lisowski, Fl. Rép. Guinée 1: 387, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 95, 2010; Harvey & al., Pl. Lebialem Highl., Cameroon: 151-152, 2010.

Straggling robust perennial herb 0,2-1,25 m tall, clustering, often rooting from lower nodes; stems glabrous, rarely puberulous; leaf sheaths loose, usually glabrous but with a few dark red bristles on the upper margin and apex, rarely shortly pubescent; lamina shortly petiolate, broadly lanceolate, c. 15 × 4 cm, glabrous; spathes terminal, usually several together, almost sessile, c. 25 × 13 mm, glabrous or with dark red cilia, margins fused at base; flowers pale to *golden yellow,* open 8-11 am.

Common in primary wet forest with *Gilbertiodendron dewevrei*; secondary bush and forest; wooded ravine; forest gallery; pioneer; 1-1500 m alt.

Bioko/Fernando Poo.

C. ceciliae C. B. Clarke; Fl. Trop. Afr. 8: 51, 1901.

syn.: *C. carsonii* C. B. Clarke (fide Mapaura & Timberlake, A checklist of Zimbabwean vascular plants: 86, 2004).

Herb with stem 45 cm long, repeatedly branched towards the top, hairy; leaves broadly triangular-oblong, 5-8,7 × 1,8 cm, hairy, sessile, base rounded or much dilated, sometimes 2,5 cm broad, margins densely fringed; peduncles scattered towards the ends of the branches, white-hirsute, exserted, 1,2-5 cm from the sheaths; spathes broadly ovate-triangular, 1,8-2,5 × 3,7 cm, brown-purple, white-hirsute, margins free to the base; flowers numerous, blue.

Ecology not recorded.

Near *C. spectabilis, C. welwitschii.*

C. congesta C. B. Clarke, incl. var. *hirsuta* (A. Chev.) Hutch.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 431, 1985; Cable & Cheek, Pl. Mt Cameroon: 151, 1998; Cheek & al., Pl Kupe…: 431, 2004; Sosef & al., Check-list pl. vascul. Gabon: 115, 2006; Akoegninou & al., Fl. analyt. Bénin: 74, 2006; Figueiredo & Smith, Pl. Angola: 176, 2008; Lisowski, Fl. Rép. Guinée 1: 387, 2009; Cabezas & al., Checklist Commelin. Equat. Guinea: 111, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 95, 2010; Renier, Fl. Kwango 1: 86, 1948.

syn.: *C. condensata* C. B. Clarke; *C. heudelotii* C. B. Clarke; *C. amphibia* A. Chev., incl. var. *hirsuta* A. Chev.

Creeping perennial herb to 20-60 cm tall, rooting at nodes, glabrous or with long colourless hairs; stems largely covered by the leaf sheaths, large and loose; lamina shortly petiolate, broadly lanceolate c. 80 × 25 mm, glabrous or ciliate on the veins, base strongly asymmetric; spathes sessile and sunk, either singly or several together, in the upper leaf axils, broadly triangular and hardly oblique, c. 19 × 16 mm, margins fused and glabrous; flowers very pale violet, almost white, almost enclosed in the spathes, open from dawn to 12 am.

Common in wet places in forest areas; roadsides, villages; rarely in cultivated land; rice fields, and open places; forest gallery; stream-beds and -sides in forest; pioneer; 1-200 m alt.

Bioko/Fernando Poo, S. Tomé, Príncipe.

Near *C. bracteosa*, but lacking sterile bracts.

COMMELINA

C. crassicaulis C. B. Clarke; Fl. Trop. Afr. 8: 41, 1901; Figueiredo & Smith, Pl. Angola: 176, 2008.

Herb nearly *glabrous*, with stem 15 cm tall, erect, from a bulb; leaves ovate-lanceolate, 8 × 3,5 cm with *ciliate* margins, base subcordate; spathes with *ciliate* margins and peduncle 4-8 cm long, rigid, 4 × 1,5 cm, simply folded, ovate-lanceolate, with numerous raised veins, base cordate; ? flowers.

? Ecology unknown.

C. dekindtiana Fritsch from Angola, Huila is perhaps a synonym (cf. Figueiredo & Smith, l.c.).

C. diffusa Burm. f.; Faden in Taxon 52: 831-832, 2003; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 431-432, 1985; Cable & Cheek, Pl. Mt Cameroon: 151, 1998; Cheek & al., Pl. Mt Oku…: 171, 2000; Harris, Vascul. pl. Dzangha-Sangha Res., Centr. Afr. Rep.: 223, 2002; Cheek & al., Pl. Kupe…: 431, 2004; Sosef & al., Check-list pl. vascul. Gabon: 115, 2006; Cook, Aquat. & wetland pl. south. Afr.: 74-75, 2004; Figueiredo & Smith, Pl. Angola: 176, 2008; Cabezas & al., Checklist Commelin. Equat. Guinea: 111-112, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 95, 2010. – Icon.: Mathew, Fl. Mascareignes 186, Commelin.: 4, 1978; Fl. Eth. & Eritrea 6: 363, 1997; Martins, Fl. Cabo Verde 96, Commelin.: 8, 2002; Akoegninou & al., Fl. analyt. Bénin: 75, 2006; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 603, 2008; Lisowski, Fl. Rép. Guinée 2: pl. 475, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 715, photo 715, 2010.

Annual or perennial hygrophilous spreading nearly hairless herb 0,15-1,5 m long sometimes covering large stretches of ground with creeping stems forming short erect side branches, rooting at nodes; leaves linear to oblong or ovate, 5-14 × 1,5-2,5 cm, apex acuminate, glabrous or pubescent, margins often encrusted with white pustules; cymes leaf-opposed, borne in upper nodes; spathes free with peduncle 1-6 cm, folded along midrib, broad and acute to long and attenuate, 1,5-3 cm long, semi-ovate; flowers blue or white.

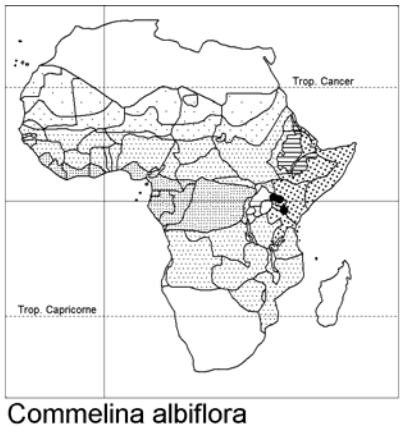
Forest with *Podocarpus latifolius, Olea capensis, Syzygium guineense* in deep shade on floor; forest edge; farmbush; edges of swamps and drainage ditches; wet or inundated soils under light or slight shade; sandy banks; meadows; weed in cultivated fields, plantations: 1-2400 m alt.

Bioko/Fernando Poo, S. Tomé, Príncipe, Annobon. (sub *C. nudiflora, Murdannia nudiflora);* Cape Verde Isl., Canary Isl.; S. Africa, Namibia, Botswana, Swaziland; Madagascar (subsp. **violacea** Faden), Mascarene Isl.; tropical and subtropical Asia, Korea (icon.: Korean J. Pl. Taxon. 41/1: 61, 2011), Pacific Isl., Polynesian Isl.; N., C. and S. tropical America. – Not in Somalia.

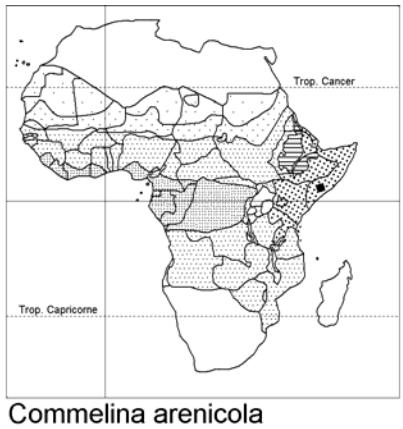
Comprises 3 subspp. in our area (cf. above): – subsp. **diffusa** [syn.: *C. diffusa* fa. *glabra* (G. Mey.) Rohweder, var. *major* Kayama, var. *cordispatha* Rohweder; *C. aquatica* J. K. Morton; *C. diffusa* subsp. *aquatica* (J. K. Morton) Ogwal; *C. werneana* Hassk.; *C. nudiflora* L. var. *werneana* (Hassk.) C. B. Clarke, var. *glabrata* (G. Mey.) C. B. Clarke, fa. *agraria* (Kunth) C. B. Clarke; see World checklist monocotyledons, Roy. Bot. Gard., Kew); – subsp. **montana** C. V. Morton, in WC Africa (from Nigeria to Equat. Guinea); – subsp. × sensu Faden, Taxon 52: 832, 2003 (not *C. scandens*), in Zimbabwe, S. Africa.

"… the total variation in pantropical and warm temperate *C. diffusa* has not been adequately studied" (Faden, l.c.).

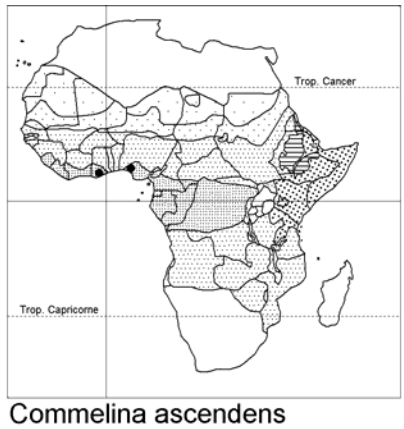
The leaves are very mucilaginous, and the plant resists desiccation (Burkill, l.c.).



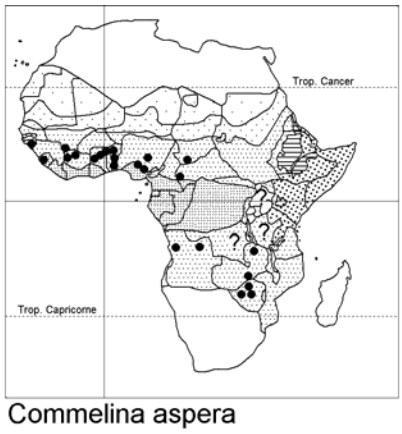
Commelina albiflora



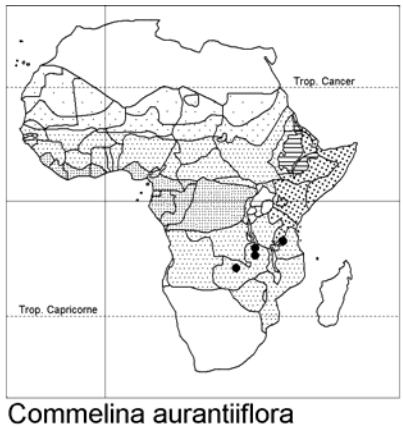
Commelina arenicola



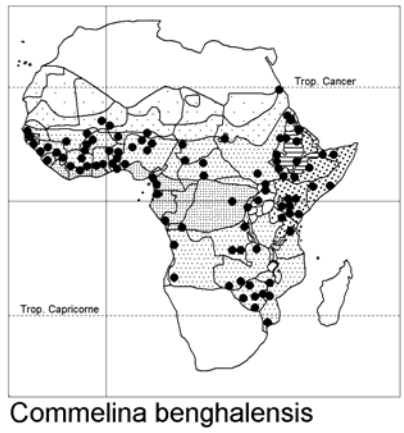
Commelina ascendens



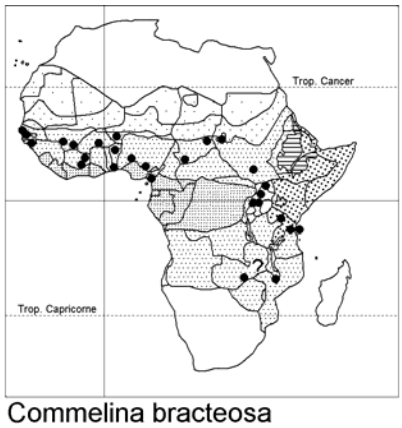
Commelina aspera



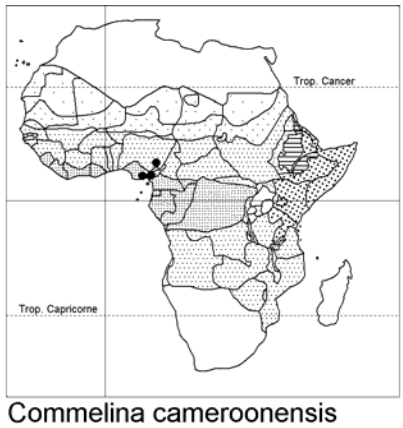
Commelina aurantiiflora



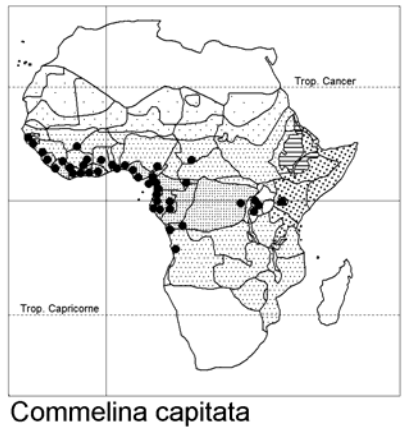
Commelina benghalensis



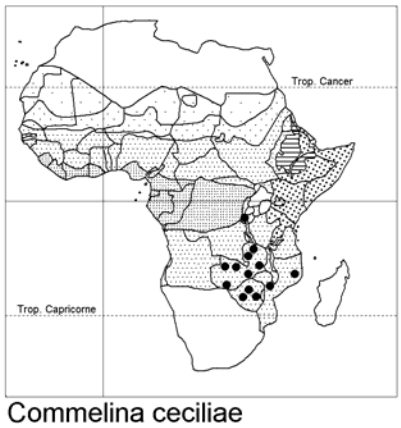
Commelina bracteosa



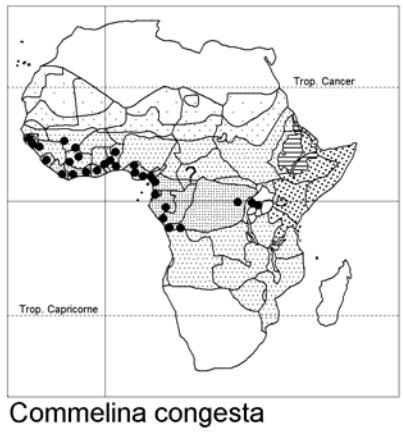
Commelina cameroonensis



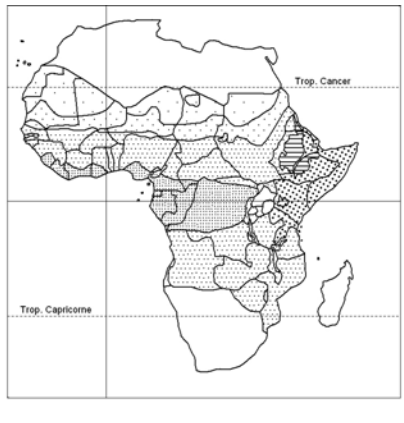
Commelina capitata



Commelina ceciliae



Commelina congesta



COMMELINA

C. disperma Faden – Icon.: Novon 11: 339, 2001; (The) Plant Press, N. S. 4(1): 10, 2001 (Smithson. Natl. Mus. Nat. Hist.).

Perennial herb from a creeping rootstock; roots not tuberous; shoots 1-2 per plant, erect to ascending, usually unbranched, to 60 cm long, with a line of hook-hairs at least distally; leaves distichous; sheaths 1-2,3 cm long, puberulous with hook-hairs; lamina petiolate, lanceolate-elliptic to ovate-elliptic, 5-11 × 2-3 cm, apex acuminate to attenuate, base strongly oblique, one side rounded, the other side cuneate, margins scabrous, adaxial surface scabrous, abaxial shortly hirsute; spathes terminal, solitary, with peduncle 6-10 mm long, puberulous; spathe 12-15 × 8-9 mm, apex mucronate, margins fused for 3-4 mm, surfaces glabrous, green and whitish basally; flowers very pale blue.

Closed forest with *Pterygota, Newtonia, Blighia, Lecanodiscus, Pseudospondias, Sterculia, Parkia, Ficalhoa;* 1100-1200 m alt.

Only known from the type collected in 1997.

C. echinosperma K. Schum.; Fl. Trop. Afr. 8: 54, 1901. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 135, 1994.

Small herb with prostrate or erect stems 30-45 cm tall, glabrous or puberulous; roots swollen; leaf sheaths villous, blades (elongate-)lanceolate, 10-15 × 1-2 cm, glabrous or puberulous, base not lobed or notched; spathes 2 cm long, closed, pubescent outside, containing a pair of inflorescences, stalks c. 1,5 cm long, standing out at right angles to the stem; flowers blue, petals almost equal.

Rocky outcrops; roadsides; "im Pori" (savanna; Schumann in Engler, Pflanzenwelt O.-Afr., C: 135, 1895).

Plants from Kenya and Tanzania = the same species ?

The Tanzania collections seen by K. Schumann are: Boehm 2, 8, 47 exp., 180.

C. eckloniana Kunth; Troupin, Fl. Rwanda 4: 131, 1988; Fl. south. Afr. 4/2: 32, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994; Fl. Eth. & Eritrea 6: 371-372, 1997; Plant Press, N. S. 12/3: 4, 2009.

syn.: *Polyspatha eckloniana* (Kunth) Hassk. ex C. B. Clarke

Annual or short-lived perennial erect herb, glabrous except for some long white straggling hairs c. 3 mm long; stems annual, spreading, c. 20-60 cm long, rooting at lower nodes, arising from a knobby rootstock; roots tuberous; leaf sheaths whitish-green, ribbed, 1-4,5 cm long, pubescent with hook-hairs, ciliate at apex; blade linear-acuminate to ovate-acuminate, 6-10 × 0,3-2,5 cm, pale grey-green; cymes leaf-opposed, borne on side-branches; spathes solitary, obliquely funnel-shaped, recurved, 10-25 mm long, on straight patent peduncles 1-3 cm long, pubescent with minute hooked hairs; flowers blue.

Savanna; pasture; xerophyllous thicket; stony places; woodland along moist creek; wooded grassland; riverine forest and woodland; dry forest; 1300-1900 m alt.

Botswana, S. Africa.

Known from an isolated collection in Cameroon.

C. erecta L., excl. subsp. *livingstonei* (C. B. Clarke) C. V. Morton *(= C. livingstonei);* Burkill, Useful pl. W. Trop. Afr. ed. 2, 1: 432, 1985; Thulin, Fl. Somalia 4: 93-94, 1995; Fl. Eth. & Eritrea 6: 372-373, 1997; Cabezas & al., Checklist Commelin. Equat. Guinea: 112, 2009. – Icon.: Webbia 8: 35, 1951 (sub nom. *C. corradii);* Agnew & Agnew, Upl. Kenya wild. flow., ed. 2: pl. 136, 1994; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 48, 2001; Akoegninou & al., Fl. analyt. Bénin: 75, 2006; Panigo & al., Flora 206: 296, 2011 (inflorescence).

COMMELINA ERECTA

Perennial herb, erect or spreading and rooting at lower nodes 20-50 cm tall; stems light green with purple tinge, glabrous except for the uppermost internode; roots fibrous to fusiform; leaf sheaths 0,2-3,5 cm long, mostly open, glabrous except for 2-4 mm long hairs along free edge; sometimes pubescent with short hooked hairs along the line of fusion; blade 12-19 × 0,9-1,5 cm, linear-lanceolate, margins entire, apex long-acuminate, with a few hairs 2-4 mm long at the very base or sparsely pilose; lower leaves pseudo-petiolate; spathes fused all along margins, 24-36 × 24-30 mm, apex acuminate, pubescent with short hooked hairs and unhooked white, long hairs; peduncle 7-10 mm long, with short hooked hairs; flowers bright blue.

Weedy plant on roadsides, waste, cultivated ground, particularly in forest and woodland areas; thornbush; rocky limestone, granite slopes, valleys; swampy spot in *Acacia, Terminalia* woodland on pale grey quartz sand and yellowish white sand with a large, shallow pool; sometimes in drier habitats; sandy sea-shores under *Cocos nucifera* (subsp. **maritima**; see J. Linn. Soc. London, Bot. 55: 525-526, 1956); 0-1600 m alt.

Exceedingly variable. The distribution of *C. erecta* excl. subsp. *livingstonii* is uncertain.

Bioko/Fernando Poo; Namibia, S. Africa, Swaziland; Arabia; tropical Asia; tropical and temperate America (cf. Sida 20: 421, 2002); West Indies. – Record from Angola reasonable (Figueiredo & Smith, Pl. Angola: 176, 2008).

Comprises two subspp.: – subsp. **erecta**, incl. fa. *alba* Magrath, fa. *albina* Fernald, fa. *cana* Standl. & Steyerm., and fa. *candida* Standl. & Steyerm. (syn.: *C. corradii* Chiov.; *C. sulcata* Hoffmans. ex Spreng. 1820; *C. sulcata* Benth. 1849; *C. angustifolia* Hassk.; *C. aethiopica* C. B. Clarke; *C. bainesii* C. B. Clarke; *C. vogelii* C. B. Clarke, incl. var. *angustior* C. B. Clarke; *C. guineensis* Hua quoad specim. Paroisse 195; *C. gerrardii* C. B. Clarke, *excl*. subsp. *maritima* C. V. Morton; *C. kurzii* C. B. Clarke; ? *C. venusta* C. B. Clarke; see also World Checklist Monocotyledons, Roy. Bot. Gard., Kew); – subsp. **maritima** (C. V. Morton) C. V. Morton (bas.: *C. gerrardii* C. B. Clarke subsp. *maritima* C. V. Morton).

C. firma Welw. ex C. B. Clarke

syn.: *C. aspera* G. Don ex Benth. var. *firma* C. B. Clarke; "taxa in the *C. aspera* group are not fully understood" (fide Figueiredo & Smith, Plants of Angola: 176, 2008).

Erect or ascending, firm, succulent, blood-red-purple herb; stems robust, 30-45 cm tall; leaves 7,5-10 × 1,4 cm, oblong, hairy on both surfaces; spathes clustered, often many in a terminal head; flowers dark blue.

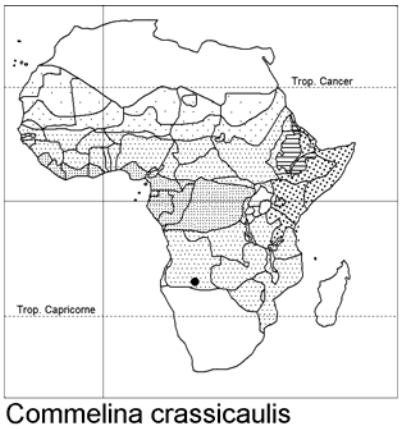
Shady woods; rather rare; 720-1140 m alt.

C. fluviatilis Brenan – Icon.: Cook, Aquat. & wetland pl. south. Africa: 75, 2004 (partial).

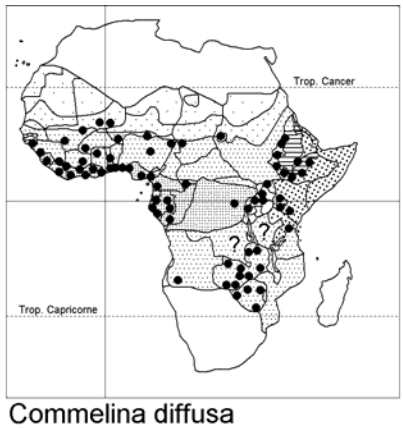
Erect or ± diffuse perennial or ? also annual herb, floating or trailing; stems 0,15-1,8 m long, ± simple or ramose, ± slender, glabrous, rooting at lower nodes; leaf sheaths 0,5-3 cm long, glabrous, with purple stripes, margins ciliate; blade narrowly linear, 5-25 × 0,1-0,4 cm, apex acute, glabrous to shortly pubescent; inflorescences 1-flowered, bracts spathe-like; spathes 1-3 per stem, folded, shortly pubescent, 1-2,8 cm long, 2-9 mm wide, peduncle 1-7 cm long; flowers pale mauve, blue, or white.

Moisty sandy soil in grassy plain; margin of marshy grassland near river; mudflat; shallow water; along rivers; often trailing on the water surface; 900-1680 m alt.

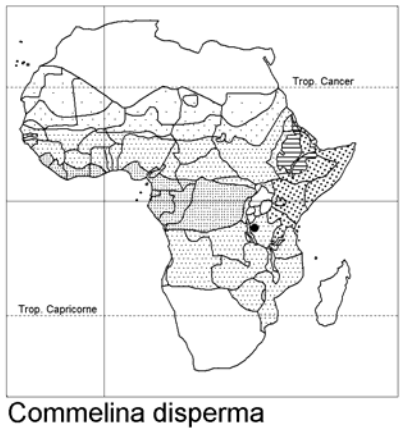
Namibia, Caprivi Strip.



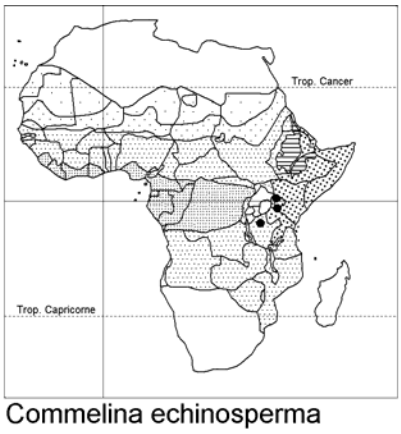
Commelina crassicaulis



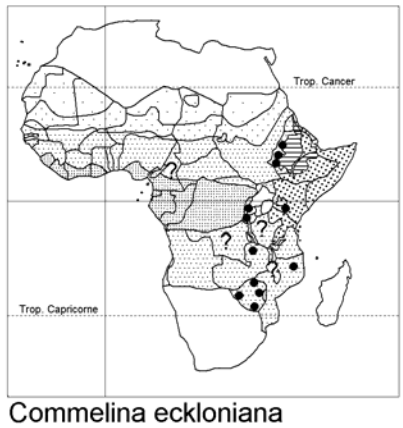
Commelina diffusa



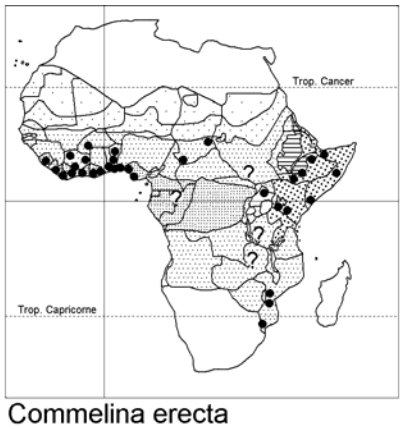
Commelina disperma



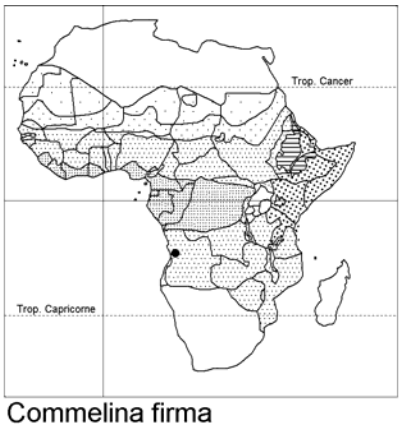
Commelina echinosperma



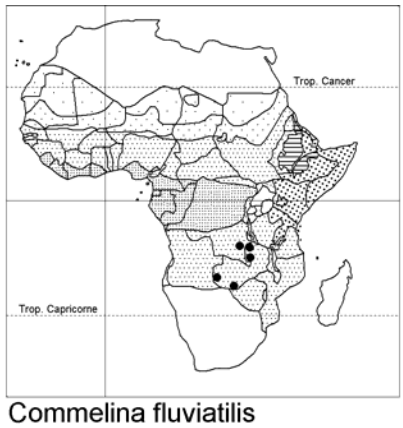
Commelina eckloniana



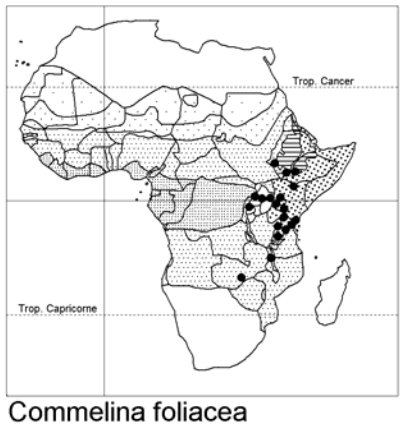
Commelina erecta



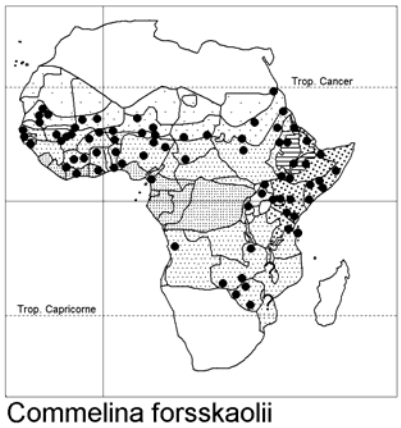
Commelina firma



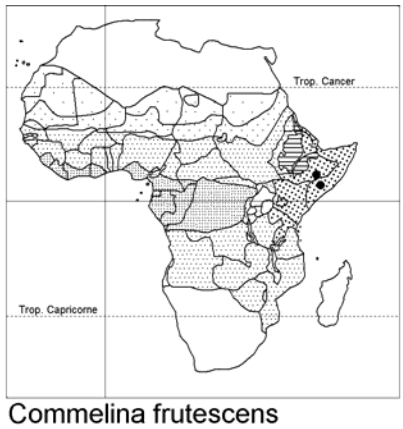
Commelina fluviatilis



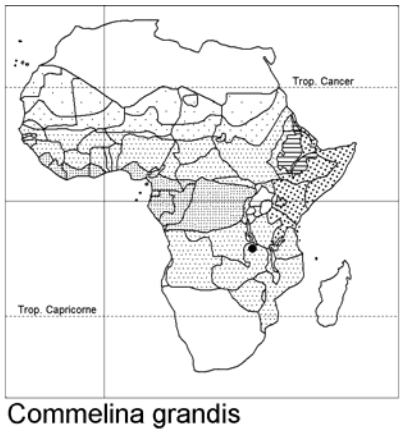
Commelina foliacea



Commelina forsskaolii



Commelina frutescens



Commelina grandis

COMMELINA

C. foliacea Chiov.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994; Fl. Eth. & Eritrea 6: 366, 368, 1997.

Rhizomatous perennial herb with *thick* fleshy rhizomes and tuberous fusiform *yellow* roots in two rows; stems erect or ascending, glabrous or rarely pubescent in upper part; leaf sheaths 1-3 cm long, pubescent on margins; blade pseudo-petiolate or sessile sometimes clasping the stem (var. **amplexicaulis**), 5-7 × 2-4 cm, lanceolate-ovate or rarely linear-lanceolate, base obtuse to cordate, apex acuminate, glabrous or rarely sparsely pubescent beneath; *spathes* fused for 25 mm at base, folded with a pouch above the fused base, *spreading* and *leafy above*, 30-90 × 17-24 mm, ovate-lanceolate, apex long-acuminate, glabrous or with a few long white hairs outside, pilose inside the pouch, peduncle 10-30 mm long, sparsely pubescent; flowers with lower petal hyaline green, paired petals dark blue.

Broadleaved and riverine forest; *Acacia, Commiphora* woodland; open rocky hillsides; grassland; shady places by streams; cultivations; 500-2250 m alt.

Comprises 2 subspp.: – subsp. **foliacea**; – subsp. **amplexicaulis** Faden (syn.: Enum. 3: 293, 1995).

One of the most widespread and ecologically most diverse *Commelina* in its area.

C. forsskaolii Vahl 1805 ("forskalei"), non *C. forskailii* Hochst. ex C. B. Clarke in DC. 1881 *(= C. imberbis);* excl. var. *major* Chiov., nom. nud. *(= C. latifolia)* and excl. var. *ramulosa* C. B. Clarke *(= C. ramulosa);* Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 432-433, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994; Thulin, Fl. Somal. 4: 92, 1995; Fl. Eth. & Eritrea 6: 374, 1997; Akoegninou & al., Fl. analyt. Bénin: 76, 2006; Martins & al. in Garcia de Orta, Sér. Bot. 17: 78, 2006; Martins in Fl. Cabo Verde 96, Commelin.: 9-10, 2002; Figueiredo & Smith, Pl. Angola: 176, 2008; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 102, 2010. – Icon.: Bull. Mus. Natl. Hist. Nat., Sér. 2, 3: 695, 1931 (fruit); Adam, Fl. descr. Mts Nimba 5: 1778, 1981; Berhaut, Fl. ill. Sénégal 9: 120, 1988 (partial); Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 48, 2001; Boulos, Fl. Egypt 4: 122, 2005; Pickering & Roe, Wild flow. Victoria Falls area 51: 2009.

syn.: *C. falcata* Hassk.

Annual or short-lived perennial herb with fibrous roots and often subterranean cleistogamous flowers; stems erect or creeping and rooting at lower nodes, sparsely to densely pubescent with short hooked hairs or nearly glabrous; leaf sheaths 0,5-1,3 cm long, sparsely pubescent with hooked hairs, margins with white hairs 2-3 mm long towards apex; blade pseudo-petiolate, linear (-oblong), 5-7 × 1-1,3 cm, pubescent with short hooked hairs and long straight ones, apex acute; spathe completely fused, 14-15 × 13-15 mm, mostly longer than broad, apex acute, pubescent with short hooked hairs and pilose with long white hairs, mostly purple tinged along the margins, peduncle 5-12 mm long, pubescent; flowers pale or pure blue.

Woodland; rocky hillsides; river banks; coastal sandy plains; evergreen scrub; weed of cultivation (cotton, sorghum, teff, etc.); fallows; dunes; grassland; climbing among the firmer grass; damp meadow; clay plains; weed in irrigated land; 0-1700 m alt. – Element of the segetal vegetation in W Africa: *Commelinetum forsskaolio-subulatae* and *Commelino forsskaolii- Spermacocetum stachydeae* associations of *Ipomoeo eriorcarpae-Commelinetalia benghalensis* alliance (Phytocoenologia 41: 107-141, 2011).

? Algeria, SE Egypt; Socotra, Saudi Arabia, Yemen, Oman; Namibia, Botswana, S. Africa; Cape Verde Isl.; Madagascar, Mauritius; India; Sumatra, Java.

COMMELINA

C. frutescens Faden; Thulin, Fl. Somalia 4: 93, 1995; Fl. Eth. & Eritrea 1: 264, 2009. – Icon.: Brittonia 48: 545, 1997.

"Woody" perennial with tufted, erect or ascending or somewhat climbing, much branched wiry shoots to 1,2 m tall, shoot base swollen; roots cord-like; leaves borne mostly distally; sheaths to 2,7 cm long, glabrous or with a few minute hairs at apex; lamina sessile, linear-lanceolate, 3-8,5 × 0,2-1,1 cm, glabrous or abaxial face sparsely puberulous with hook-hairs along the midrib, apex acute, base cuneate; *spathes clustered,* sessile, semilunate, strongly falcate, 1,3-3 × 0,7-2,5 cm, *glabrous,* apple green, turning brown, apex acute to obtuse, base ± sagittate, margins ± fused; flowers *palest yellow.*

Sand plains with bushland, often dominated by *Cordeauxia edulis;* dwarf shrubland; dwarf-shrub grassland. Xerophytic species with shoots surviving the dry season. Growing *in* shrubs or *among* spiny *Euphorbia; Acacia, Commiphora* bushland on sand; 270-500 m alt.

Floral morphology incompletely known: number of ovules unknown.

C. grandis Brenan

Erect herb to 43 cm tall with *cauline* leaves; stems glabrous; basal leaf sheaths with pubescent lines at base; blade moderately thick-fleshy, narrowly lanceolate to linear-lanceolate, 12-20 × 1,2-4,5 cm (basal leaves), apex acute, base subcordate, glabrous on both sides, margins dense and soft ciliate; sheaths 4-5 cm long; spathe with peduncle glabrous or sparsely puberulent, 3-8 cm long, 3,6-5 × 2,1-3,2 cm, apex shortly acuminate, margins fused on 1,5-1,8 cm; flowers white.

Very thick bush on loamy soil; among grass; roadsides in thick grass and vegetation; woodland in shade on loam soil; open grassland; 900-1520 m alt.

Near *C. grossa;* intermediate specimens known.

C. grossa C. B. Clarke

Herb almost glabrous with many basal leaves; stems erect, 15-25 cm tall, bearing 1-2 leaves and a peduncle; leaves linear, 20-50 × 0,4-1 cm, slightly dilated at the very base; spathes large, glabrous, purple-green, margins connate well above the base; flowers blue; fruit known ! (Kew Bull. 15: 210, 1961).

Ecology not reported; 855-1500 m alt.

Resembling *C. grandis* (cf. above).

C. hockii De Wild.

Perennial herb ± strongly villous, with thick roots in bundles 20 cm long, 5-6 mm Ø; stems erect, not or slightly ramose, glabrous or with short sparse hairs, 30-? 70 cm tall; leaf sheaths ± oblique, slightly inflated, streaked violet, glabrous or with short sparse hairs, 1-2 cm long, more villous on the free margins; blade ± subcordate, 7,5-12 × 2-3 cm, glabrous above and beneath, apex acute; spathes with peduncles 5-11 cm long, very short pubescent, spathes somewhat curved, ovate, 4-6 × 1,3-1,6 cm, base cordate, margins not fused, apex acute, greenish, veins often tinged violet, glabrous outside or with very sparse hairs, margins slightly ciliolate; flowers mauve; capsule unknown ?

Ecology not recorded.

Near *C. kituloensis.*

Also in Angola ?

COMMELINA

C. huillensis Welw. ex C. B. Clarke; Figueiredo & Smith, Pl. Angola: 176, 2008.

Herb stemless with thick roots; leaves 12-25 × 0,6-0,8 cm, base dilated, hairy; spathes with radical peduncles, 10-17,5 cm long, shaggy towards the top; spathes 2,5-3,1 × 3,7 cm, very broadly ovate, shaggy, apex triangular, margins free; flowers blue; ripe fruit unknown ?

Rather damp pastures, dry in winter.

? Only known from the type collected in 1860.

C. imberbis Ehrenb. ex Hassk., excl. var. *loandensis* C. B. Clarke *(= C. petersii* subsp. *loandensis).* – Icon.: Fl. Eth. & Eritrea 6: 370, 1997.

syn.: ? *C. boissieriana* C. B. Clarke; *C. forskailii* Hochst. ex C. B. Clarke in DC 1881, non Vahl 1805 *(= C. forsskaolii); C. latifolia* Hochst. ex C. B. Clarke in DC. 1881, non Hochst. ex A. Rich. 1850 *(= C. latifolia); C. petersii* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 48, 1968.

Perennial herb with fusiform roots; stems straggling or creeping and rooting at lower nodes, to 2 m long; younger parts pubescent, becoming glabrous; leaf sheaths 2,2-4 cm long, closed, sparsely pubescent or nearly glabrous; blade lanceolate to ovate, 10-23 × 1,5-5,3 cm, base very variable, *but* at least uppermost leaves on a shoot with *cordate* to *sagittate bases*, apex long-acuminate, margins entire or undulate below half, glabrous or rarely sparsely pubescent; spathes fused at base on 4-7 mm, 20-36 × 22-32 mm, apex acute, pubescent with short hooked hairs, peduncle 15-35 mm long, pubescent; flowers pale blue.

Forest edges; *Acacia* bushland, woodland, wooded grassland; 700-2200 m alt.

Yemen. – Not in S. Africa *(= C. kotschyi);* not in Somalia *(= C. petersii);* not in India *(= C. petersii).* – Probably introduced in Nigeria (Ibadan, etc.; in plantations; F.W.T.A., l.c.).

C. kituloensis Faden – Icon.: Novon 11: 402, 2001.

syn.: *C.* aff. *purpurea* annotated by Brenan in Herb. K.

Perennial herb; roots numerous, 2-3 mm Ø at base, whitish; stems annual, tufted, arising from a subterranean base, unbranched or sparsely so, 10-45 cm tall, erect to ascending, sometimes recumbent at base, rarely rooting; leaves spirally arranged or distichous; sheaths sometimes clustered at base of stems, 1-3,5 cm long, with a line of fine or long hairs along the fused edge, the surface glabrous to puberulous or hirsute, apex ciliate; lamina sessile, planar or conduplicate, oblong-lanceolate to linear-lanceolate, rarely linear to ovate-elliptic, 4-16 × 0,3-2,5 cm, apex acute, margins ciliate or glabrous, surface densely hirsute to glabrous, base cuneate to rounded; spathes solitary, arising distally with peduncle 2,5-15 cm long, usually densely hirsute, rarely pubescence reduced to a single band; spathes 1,7-5,3 × 0,6-1,8 cm, usually not at all to very slightly falcate (rarely strongly so), apex acute, base cordate to hastate, margins free, usually ciliate, veins broadly striped, or/and the whole spathe flushed with red or reddish purple (rarely entirely green), surface densely to sparsely hirsute; flowers pale blue, lavender or purple to nearly white *[lower petal flat, white* or *cream;* paired petals *strongly undulate, 9-12 × 11-14 mm* (= much more three-dimensional than in typical *Commelina* flowers)]; but *C. livingstonei, C. macrospatha, C. erecta* have also large flowers.

Grassland; sometimes in rocky areas, at roadsides or near streams; rarely in stunted *Brachystegia* woodland; 1600-2880 m alt.

Most closely related to *C. hockii.*

COMMELINA

C. kotschyi Hassk.; Fl. Eth. & Eritrea 6: 368, 1997; Figueiredo & Smith, Pl. Angola: 176, 2008; Faden in Novon 18: 473, 2008. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 136, 1994 (sub nom. *C. imberbis).*

syn.: *C. imberbis* sensu Obermeyer & al. in Fl. south. Afr. 4/2: 32, 1985, non Ehrenb. ex Hassk.

Annual or short-lived perennial herb with fibrous roots; stems erect or ascending to 30 cm tall, pale green, slightly purplish tinged, glabrous; leaf sheaths 0,6-1,5 cm long, mostly open to the extreme base, sparsely pubescent along the lower edge; blade 6-9 × 1,5-2 cm, ovate-lanceolate, base cordate, truncate, rounded, rarely sagittate (vide also *C. imberbis*), margins undulate, apex acuminate, glabrous; spathes with peduncles 8-30 mm long, sparsely pubescent; spathes fused at base on 2-3 mm, 13-19 × 15-24 mm, pale green to yellowish at base with deep green veins, apex rounded, sparsely pubescent; flowers bright blue.

Acacia bushland and woodland, weed in cultivations, irrigated fields; dense thickets; 700-1780 m alt.

S. Africa, Swaziland, Namibia; India.

A largely misinterpreted species, or unrecognized in floras (Faden, Novon 18: 473, 2008).

C. lagosensis C. B. Clakre, incl. var. *subglabra* A. Chev.; Akoegninou & al., Fl. analyt. Bénin: 76, 2006.

Herb with prostrate stems to 20-100 cm long, rooting at nodes; leaf sheaths hirsute or pubescent; lamina ovate to ovate-lanceolate, 3 × 7 cm, sparsely villous on both faces; apex shortly acute, base rounded and abruptly narrowed (very short pseudopetiole); spathes solitary, 1,5-2 cm long, pubescent, peduncles 5-10 mm long, margins fused near the peduncle, apex rounded; flowers blue, rarely white.

Fixed dunes; gallery forest.

Perhaps introduced in Senegal; ? Mozambique.

C. latifolia Hochst. ex A. Rich. 1850, non Hochst. ex C. B. Clarke 1881 *(= C. imberbis),* excl. var. *angustifolia* Schweinf. (ms. ?); Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 102, 2010; EANHS Bull. 30/2: 22, 2000. – Icon.: Mitt. Inst. Allegem. Bot. Hamburg 23b: 589, 1990; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 136, 1994; Fl. Eth. & Eritrea 6: 369, 1997; Boulos, Fl. Egypt 4: 122, 2005.

syn.: *C. forsskaolii* Vahl var. *major* Chiov., nom. invalid.; *C. sagittifolia* Hassk., nom. illegit.

Perennial herb with a fleshy rootstock and fibrous roots; stems semi-prostrate or straggling, to 60 cm long, occasionally rooting at lower nodes, glabrous; leaf sheaths 1,5-3 cm long, green or purple-tinged, sparsely pubescent along the line of fusion or nearly glabrous; blade to 9-17 × 2,2-4,7 cm, (ovate-)lanceolate, broadest at base, clasping the stem, sagittate to cordate at base, margins entire, apex long-acuminate; spathes fused at base 4-5 mm along proximal margins, 19-32 × 16-28 mm, apex acute to obtuse, pubescent or glabrous with peduncle 10-35 mm long, pubescent; flowers blue and whitish (lower petal).

Rocky slopes; riverine forest; woodland; bushland; forest edges; weed of cultivation; rain-forest with *Chrysophyllum albidum, Cola gigantea, Erythrophleum suaveolens, Alstonia boonei, Parinari excelsa, Milicia excelsa* in small clearing; 1-2600 m alt.

SE Egypt. – Not in Somalia (Paoli 303, not seen by Thulin), and Donaldson Smith (fide Fl. Trop. Afr. 8: 50, 1901).

Some resemblance with *C. lukei.*

COMMELINA

C. livingstonei (**livingstonii** ?) C. B. Clarke, incl. var. *villosa* C. B. Clarke; Lisowski, Fl. Rép. Guinée 1: 387-388, 2009; Martins in Fl. Cabo Verde 96, Commel.: 10-11, 2002.

syn.: *C. erecta* L. subsp. *livingstonei* (C. B. Clarke) J. K. Morton; *C. pilosissima* Hutch., nom. inval.; *C. kagerensis* Lebrun & Taton; *C. albescens* Hassk. var. *occidentalis* C. B. Clarke; *C. subalbescens* Berhaut; Enum. 3: 24, 1995 (sub *C. erecta* subsp. *livingstonei).*

Perennial herb in erect clumps, rarely straggling; roots thick and woolly; stems 20-60 cm tall, swollen at base and usually with a reddish coloration; leaf sheaths loose, glabrous or with long pale hairs; lamina usually linear-lanceolate, rarely lanceolate, 7-15 × 0,5-1,5 cm, slightly narrowed into a broad petiole, thick, glabrous with prominent veins, margins scabrid; lower leaves reduced; spathes pedunculate, 1,5-2,5 × 1-1,5 cm, apex acuminate, margins fused; flowers > 20 mm *large*, bright pure blue.

Frequent in savanna woodland; niayes; well drained sand; rather dry places in open forests; cultivations; fallows; sometimes on fine gravel; also humid soils; road sides; very wet sandy-muddy hollows.

Cape Verde Isl.; Namibia, S. Africa, Botswana; Saudi Arabia.

C. longicapsa C. B. Clarke; Cable & Cheek, Pl. Mt Cameroon: 151, 1998; Cheek & al., Pl. Mt Kupe…: 432, 2004; Sosef & al., Check-list pl. vascul. Gabon.: 115, 2006; Cabezas & al., Checklist Commelin. Equat. Guinea: 112, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 96, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 219, 2011.

Decumbent herb to c. 30 cm long; stems greenish-purple, nearly glabrous; leaves 3-4 clustered at tips of stems, obovate, 9-18 × 4-7 cm, ascending; *petiole* 0,5-3-4 cm long, purplish; blade deep green and glossy above, pale green beneath; spathes terminal, inbricate, *2-3 together*, c. 2,5 cm long, glabrous, whitish-green with brown veins; *flowers white;* capsule quadrate-oblong, 1,2 × 1,8 cm with 2 cells and 4 seeds.

Bare floor in closed forest; in semi-shade in clearing in high forest; very local; 10-1000 m alt.

C. lukei Faden – Icon.: Novon 18: 470-471, 2008.

Annual or perennial herb to 2,5 m long; roots thin, fibrous; stems erect to ascending, becoming *trailing* or *straggling*, rooting only near base; leaves mostly distichous, sometimes spirally arranged; sheaths 1-3 cm long, sparsely pubescent with hook-hairs, sometimes flushed or spotted with purple; lamina sessile, linear-lanceolate to oblong-lanceolate or lanceolate, 4-13 × 0,6-1,3 cm, apex acute, *base cordate- amplexicaul*, margins scabrous, often slightly undulate, with a line of very fine, whitish, *acicular hairs on the midrib* above, sparsely pubescent with hook-hairs below; spathes solitary with peduncle 1,6-5,5 cm long, puberulous on a line (hook-hairs) or throughout; spathe 1,4-2,5 × 0,5-1,2 cm (folded), usually slightly to strongly falcate, apex acute, base cordate to truncate, margins fused on 2-5 mm, ciliate, surface pubescent, green marginally, whitish with dark green veins; flowers blue, pale blue, rarely pale rose lilac.

Evergreen forest; forest edges; clearings; plantations; thickets; bushland; grassland; woodland; roadsides; sometimes in rocky places in moist situations; riversides; 0-1700 m alt.

Madagascar (a single collection).

Near *C. kotschyi.* Confused with *C. imberbis* (allopatric), *C. mascarenica;* striking vegetative resemblance to some specimens of *C. latifolia.*

First collected in 1969 (Faden, l.c. p. 474), described in 2008.

COMMELINA

C. macrospatha Gilg & Ledermann ex Mildbr.

Perennial herb with slender erect or suberect stems arising from an elongate, branched rhizome; stems 25-80 cm tall; lowest leaf sheaths brown, with lamina reduced or absent; other sheaths narrow, 20-30 mm long, glabrous apart a few cilia on the upper margin; lamina linear-lanceolate c. 90 × 11 mm, glabrous, margins scabrid; spathes solitary on peduncles c. 30 mm long; *spathe c. 30 × 7 mm* in flower, *60 × 9mm* in fruit; apex gradually acuminate; *flowers large*, c. 19 mm, bright pure blue.

Cultivated savanna; grassland; savanna woodland; flooded hollows; 0-1800 m alt.

C. macrosperma J. K. Morton; Plant Press (Smithson. Natl. Mus. Nat. Hist.), N. S. 4/1: 10 (2001).

Spreading perennial herb with stiff slender stems to c. 0,6 m tall; leaf sheaths slender, shortly pubescent; lamina elliptic-lanceolate, c. 65 × 27 mm, with prominent, transverse veins, very thinly pubescent on both surfaces, base rounded and shortly petiolate, apex acutely acuminate; spathes solitary or several together, c. 17 × 11 mm, with prominent transverse veins, apex obtuse with a very short acumen; flowers *white;* capsule 2-seeded.

Wet forest areas especially under *Cocos nucifera.*

C. mascarenica C. B. Clarke; Faden in Adansonia, Sér. 3, 30: 47-54, 2008; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994 ("C. sp. D"); Thulin, Fl. Somalia 3: 585, 2006; Novon 18: 469-474, 2008. – Icon.: Adansonia, l.c., p. 51; Novon 18: 471.

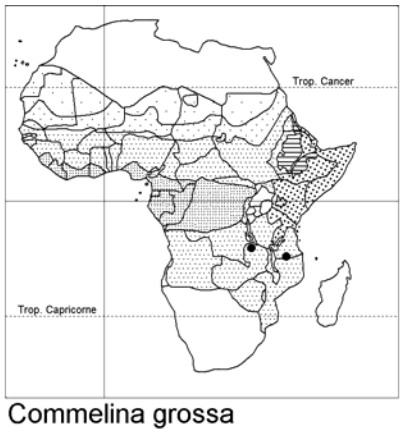
syn.: *C.* sp. D sensu Agnew & Agnew, l.c.; *C.* sp. 5 sensu Thulin, Fl. Somalia 4: 91, 1995 (Beckett 1478).

Perennial herb; roots thin, fibrous; stems occasionally rooting and procumbent; shoots sprawling, scrambling or ± scandent, often straggling through other plants, much branched, to 1,2 m tall or long; leaves distichous or spirally arranged; sheaths to 4 cm long, often split, sometimes tinged with red, with a line of hook-hairs along the fused margins, sometimes subglabrous, apex ciliate or not; lamina linear-lanceolate to ovate-elliptic, 3,5-14,5 × 0,6-3,5 cm, apex acuminate, base cordate to amplexicaul or rounded to cuneate, margins usually planar, rarely finely undulate; blade puberulous above, glabrous to rarely ± densely puberulous beneath; spathes solitary, rarely 2-3 in close proximity, peduncles 1-3,8 cm long, puberulous; spathes usually slightly falcate or not, 1,8-2,9 × 0,9-1,6 cm, apex acute, base cordate to hastate, margins fused for 3-6,5 mm, surface puberulous; flowers blue of different shades (pale, sky, flax, powder, mauve), pale mauve or white.

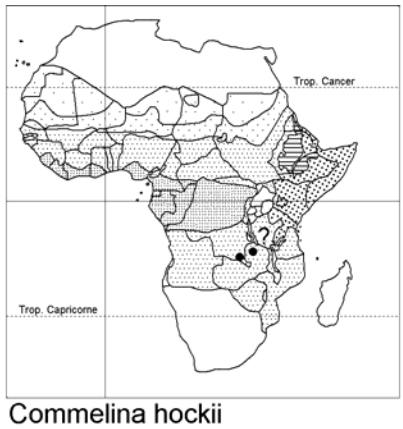
Roadsides; grassland; open bush; scattered trees and shrubs, herbaceous vegetation; wet ground; thicket edge; disturbed riverine areas; 0-1000 m alt.

Madagascar, Comoro Isl.

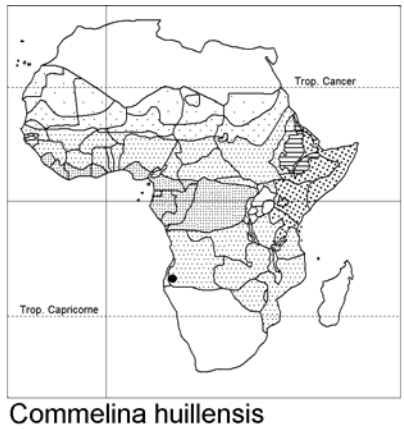
Closely related to and confused with *C. imberbis*, but the two species are geographically separate, except in Kenya, Tanzania, but *C. imberbis* is generally at higher elevations. Cf. also *C. lukei* (also mainly coastal). The inland (Lake Victoria, Kenya) occurrence may be due to an accidental introduction (Faden in Adansonia, l.c., p. 54).



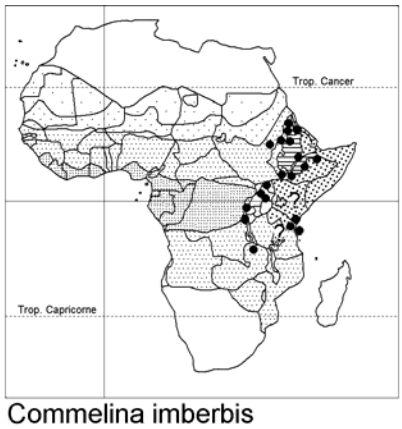
Commelina grossa



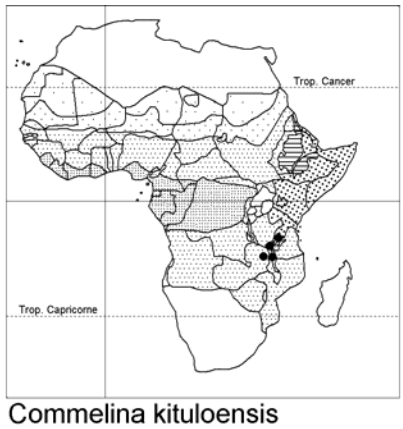
Commelina hockii



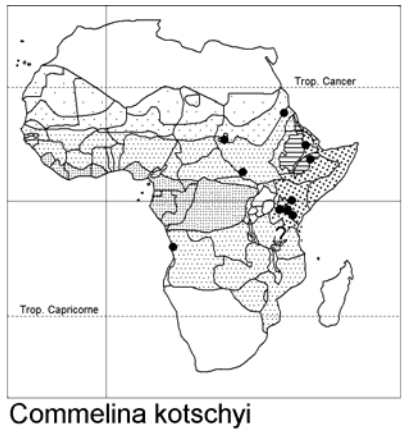
Commelina huillensis



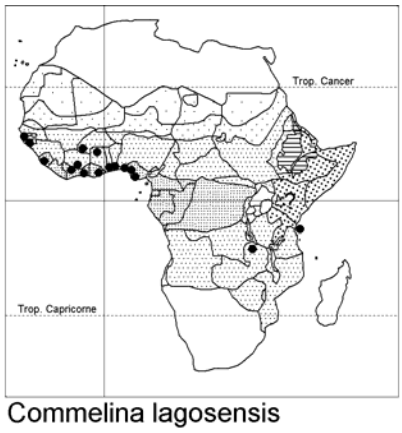
Commelina imberbis



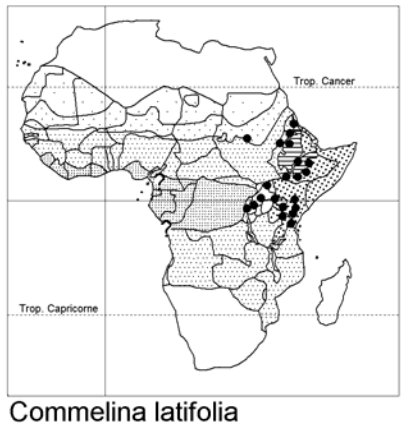
Commelina kituloensis



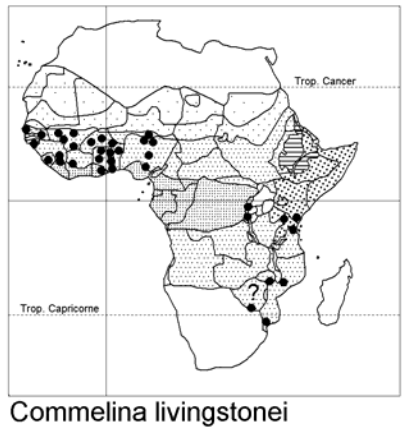
Commelina kotschyi



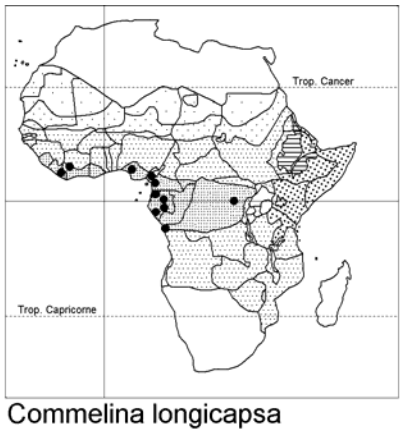
Commelina lagosensis



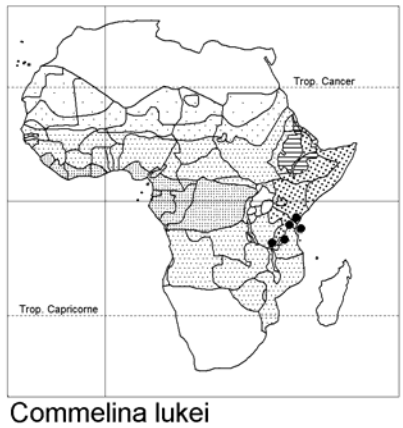
Commelina latifolia



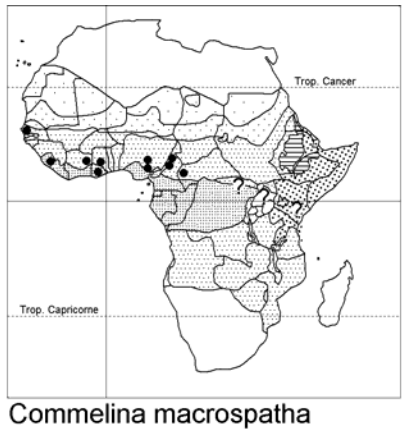
Commelina livingstonei



Commelina longicapsa



Commelina lukei



Commelina macrospatha

COMMELINA

C. melanorrhiza Faden; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994; Enum. 3: 293, 1995.

Rhizomatous perennial herb with annual shoots; roots tufted, tuberous (sweet-potato-shaped), sometimes fusiform, 3-5 mm Ø, black; stems tufted, prostrate, 6-28 cm long; leaves distichous; sheaths 0,3-1,7 cm long, puberulous along the fused margins, sometimes sparsely elsewhere, apex ciliate; lamina sessile or petiolate, lanceolate-elliptic to ovate, 1,5-7 × 0,8-2,5 cm, apex acute, base strongly oblique, both surfaces glabrous to sparsely puberulous, scabrous above, not scabrous below, margins scabrous; spathes funnelform with peduncle 5 mm long, densely crowded in bracteate clusters, 1-1,5 × 0,8-1,3 cm high, subglabrous to sparingly hirsute, fused for half their width; flowers lilac, mauve, pale purple, pale blue (medial petal white).

Shady damp area in moist thicket along trail; idem near lugga edge with *Commelina africana;* roadside through forest, red loam; steep slope near river; basement complex, sandy soil, degraded *Acacia, Commiphora* open bushland; cultivated bushland with *Adansonia* on sand over basement complex; riverine forest; 760-1675 m alt.

Superficial resemblance to small *C. benghalensis;* true affinities with *C. bracteosa, C. erecta.*

C. milne-redheadii Faden; Figueiredo & Smith, Pl. Angola: 176, 2008; Bothalia 39: 194, 2009 (Baum, Kunene-Exp.). – Icon.: Novon 18: 477, 2008.

syn.: *C. welwitschii* C. B. Clarke var. *glabra* K. Schum.

Perennial herb with tuberous roots tufted on a caudex to 4 mm Ø; shoots tufted or apparently solitary, erect to ascending, or decumbent basally, unbranched or sparsely so, 10-48 cm tall, to 10 mm Ø, covered by bladeless or nearly so sheaths; leaves mostly basal on short sterile shoots; basal sheaths to 3,3 cm long, glabrous to sparsely pubescent or with a line of hairs on the fused margins; lamina conduplicate to rolled up, linear to lanceolate, 1,5-16,5 × 3-9 mm, apex acute, margins ciliate, surfaces glabrous; spathes solitary, with peduncles 1,5-20 cm, glabrous to densely puberulous; spathes not at all to slightly falcate, 1,5-3,1 × 0,5-1,1 cm, base rounded to cordate, apex acute, margins free, surfaces usually strongly striped with purple along the veins, usually glabrous, occasionally hirsute; flowers blue to bright blue (lower petal white).

Marshy places, apparently in grassland; sometimes associated with laterite; dry forest; 1250 m alt.

Distinctive in its geophytic habit, short cauline leaves, sky-blue flowers, frequent presence of hook-hairs on pedicels, and strongly dimorphic seeds.

Can be confused with *C. scaposa.*

C. mwatayamvoana P. A. Duvign. & Dewit

Perennial grass-like herb to 10-20 cm tall; leaves basal; sheaths 1-2 cm long, glabrous, ciliate towards apex, breaking up in fibres with age; lamina filiform-linear, erect, fastigiate, 5-15 × 0,3 cm, densely pubescent; spathes flattened-folded, ovate, sub-falcate, 2-2,5 × 1 cm, 7-8-veined, glabrous inside, densely pubescent outside, base rounded, apex acute; flowers blue.

Rocky alignment, cupriferous steppe (Cu 1000-2500 ppm); strictly endemic of Cu-rich soil, oligocuprophyte (absolute metallophyte; Faucon & al., Pl. Ecol. Evol. 143: 8, 2010; cf. *C. zigzag).*

? Known only from the type collected in 1959.

COMMELINA

C. nairobiensis Faden; Enum. 3: 293, 1995. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 137, 1994.

Perennial herb with swollen, moniliform stem bases somewhat resembling orchid pseudobulbs, stems constricted at nodes; roots 1-1,7 mm Ø; flowering shoots erect to ascending, 20-60 cm tall; leaves reduced upwards, sheaths 1-2,5 cm long, puberulous to densely hirsute, ciliate at apex; lamina narrowly lanceolate to lanceolate-elliptic, to ovate-elliptic, 2-8,5 × 1-2,5 cm, apex acute, base cuneate and often distinctly oblique to cordate and ± amplexicaul, both surfaces puberulous to subglabrous, margins undulate; spathes solitary, 1,5-2,6 × 0,9-1,3 cm, green, hirsute-puberulous, fused at base for 6-8 mm, usually somewhat falcate, peduncle 0,9-6 cm long; flowers sky blue to dark blue, rarely white.

Seasonally flooded swampy grassland, grassland on black-cotton soil; shaded grassy slopes with shallow soil over lava rock; grassy fallow land, laterite soil; roadsides, grassland with *Bothriochloa* sp., *Setaria sphacelata, Themeda triandra, Stachys hildebrandtii;* 1465-1800 m alt.

Common around Nairobi (Kenya): along Thika-Nairobi road.

C. neurophylla C. B. Clarke

syn.: *C. bianoensis* De Wild.

Herb nearly glabrous; branches 30-75 cm tall; leaf sheaths ± oblique, slightly swollen, membranous, greenish, split to base, glabrous or with hairs along the free sides, to 2 cm long; blades 3-12,5 × 0,5-0,8 cm, linear-oblong to linear, often dilated at base, apex sharp, glabrous on both surfaces, margins setulose; spathes solitary, with peduncles 1,2-9 cm long, slightly curved, ovate-triangular, obliquely funnel-shaped, green, with obscure green veins, margins connate on 12-14 mm, apex sharp, glabrous, ciliate on fused sides, 20-25 × 15-17 mm; flowers pale-yellow-salmon (not blue).

Sandy ground; rather widespread; 600-1200 m alt.

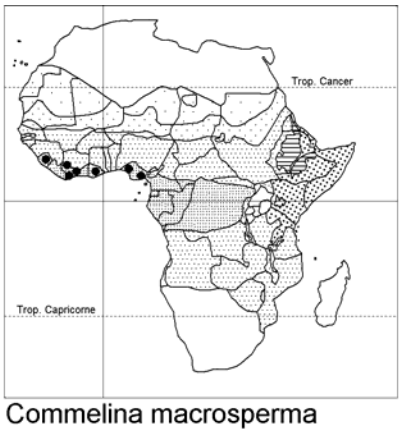
Near *C. subcucullata, C. carsonii (= C. ceciliae).*

C. nigritana Benth.; Akoegninou & al., Fl. analyt. Bénin: 76, 2006; Martins & al. in Garcia de Orta, Sér. Bot. 17: 78, 2006; Lisowski, Fl. Rép. Guinée 1: 388, 2009. – Icon.: Mitt. Inst. Allg. Bot. Hamburg 23b: 592, 1990.

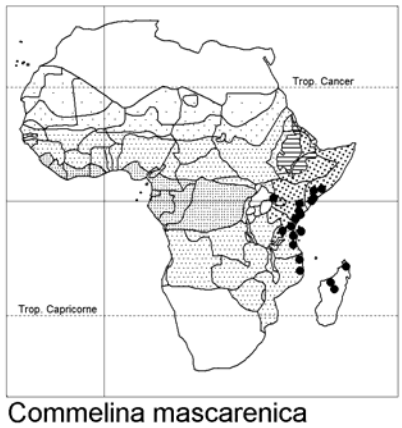
Annual herb, ± pubescent; stems ramose, often creeping-ascending, 10-50 cm long, rooting at lower nodes; roots fibrous; leaf lamina linear(-lanceolate), sometimes slightly curved, 3-12 cm × 4-9 mm; spathes solitary with a peduncle 0,3-1,5 cm; spathe curved to subtriangular, apex acuminate, keel arcuate, 1-2,5 cm long, margins fused near the peduncle; flowers ochre, buff-yellow or orange; *seeds hairy.*

Open forests; savannas; sandy soils; rice-fields; cultivations; fallows; hollow in coastal dunes; meadows; degraded forests; sometimes epiphytic on *Elaeis guineensis;* seasonally wet swamps; roadsides; 700 (? and less)-1140 m alt.

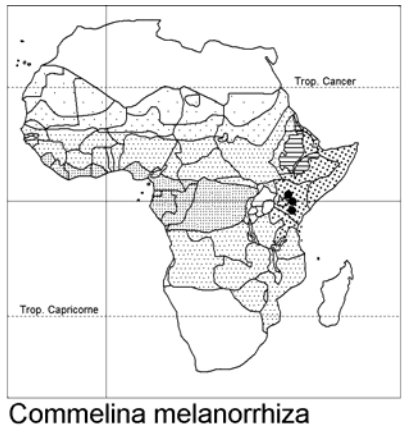
Comprises 2 vars.



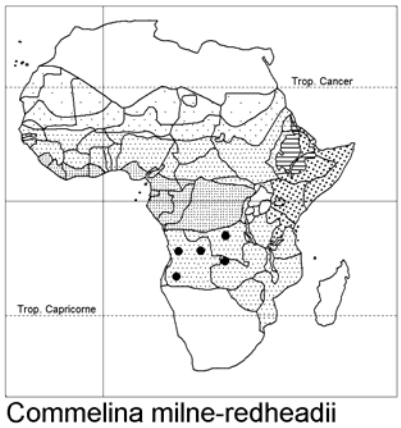
Commelina macrosperma



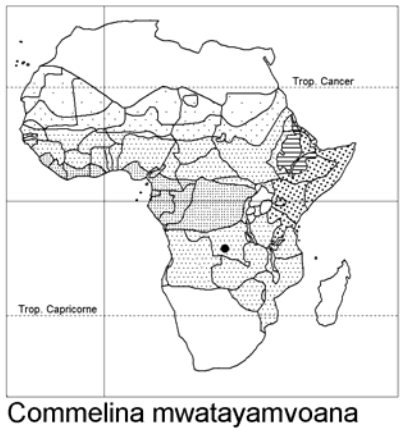
Commelina mascarenica



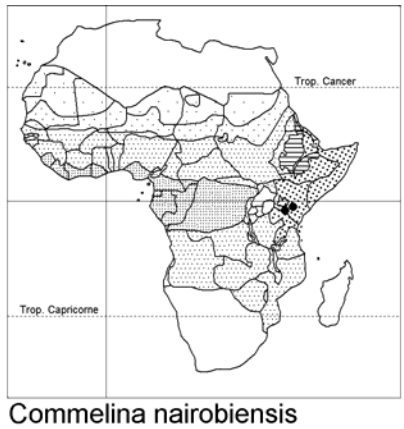
Commelina melanorrhiza



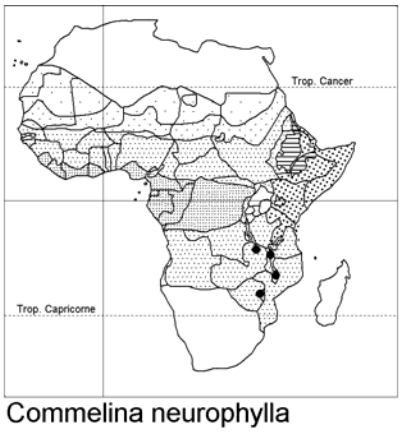
Commelina milne-redheadii



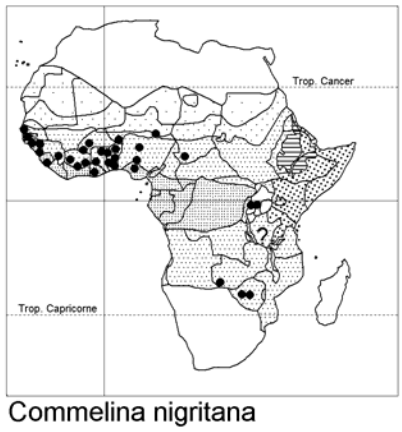
Commelina mwatayamvoana



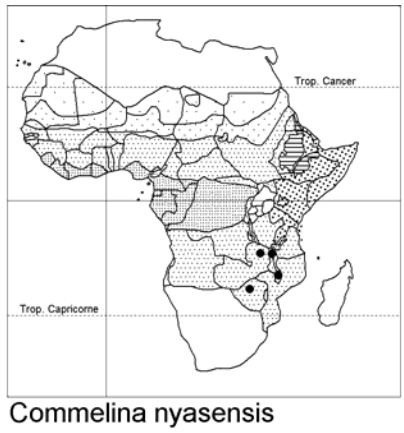
Commelina nairobiensis



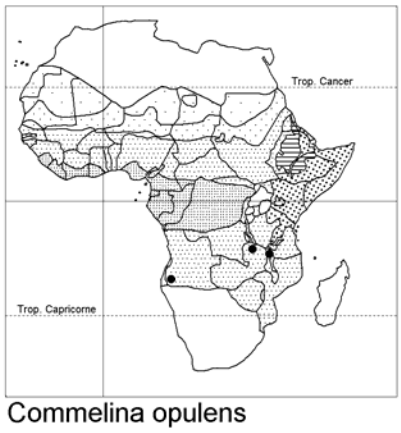
Commelina neurophylla



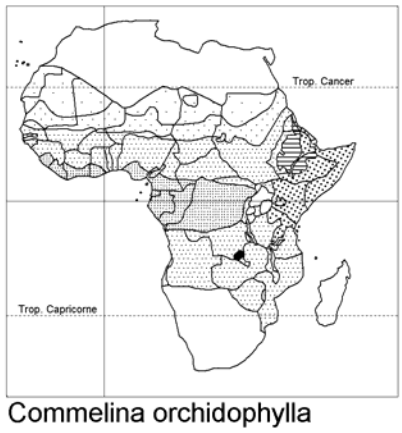
Commelina nigritana



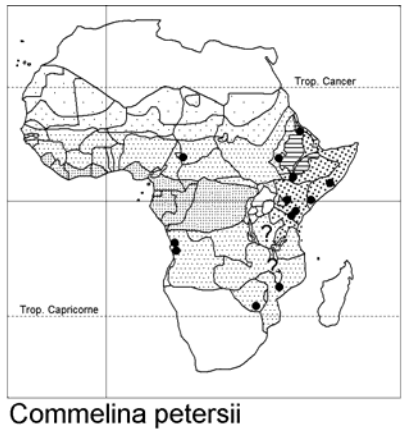
Commelina nyasensis



Commelina opulens



Commelina orchidophylla



Commelina petersii

COMMELINA

C. nyasensis C. B. Clarke; Fl. Trop. Afr. 8: 40, 1901.

Nearly glabrous herb; stems 30-50 cm tall, much divided, rather slender; leaves 15 × 0,4 cm, narrowly linear; spathes scattered on axillary branches, sometimes many in dense clusters, < 1,2 cm long, simply folded, broadly ovate, apex very shortly acute, deflexed, striated by blue to chocolate veins when dry, which are very prominent or nearly disappear in spathes of the same stem; flowers ?

Ecology not recorded; 1050-1200 m alt.

Near *C. purpurea*.

C. opulens C. B. Clarke; Fl. Trop. Afr. 8: 58, 1901.

syn.: *C. aspera* sensu Rendle, Cat. Afr. Pl. Welwitsch 2/1: 78, 1899 (Welwitsch 6592), non G. Don ex Benth.

Herb nearly glabrous; stems 10-15 cm long, decumbent, rooting at base, densely leafy in the upper half; leaves 10 × 1,2 cm, narrowly oblong-lanceolate; upper branches clothed with numerous subsessile spathes, 1,6 cm long, ovate, apex acute, margins fused at base; flowers ?

Among crops of *Pennisetum* sp.; 600-1800 m alt.

Near *C. livingstonii; C. aspera* (a group not fully understood).

C. orchidophylla Faden & Layton – Icon.: Syst. Geogr. Pl. 79: 75, 2009.

Perennial, geophytic herb; roots tufted, tuberous, tubers sessile to shortly stipulate, fusiform, to c. 5 cm long, × c. 0,6 cm Ø, *densely pubescent;* shoots erect, 18-50 cm tall, sparsely branched, subglabrous; leaves rosulate and cauline, *rosette leaves 2* (orchid-like), basal, opposite, *appressed against the soil;* sheaths to 3 cm long, densely puberulous or the hairs confined on the fusion line, densely ciliate at apex; lamina sessile, elliptic to broadly ovate, 6-16 × 4-8 cm, apex acute, base rounded, margins undulate, ciliate, surface glabrous above, uniformly *white tomentose* beneath; cauline leaves with sheaths 0,7-1,3 cm long; lamina sessile, lanceolate to broadly ovate, 3,5-5 × 1,3-3,8 cm, apex acute, base rounded to cordate, margins undulate, ciliate, glabrous above, subglabrous to sparsely pubescent beneath; spathes solitary in upper part of shoots or directly from the base, with peduncles 3,5-10 cm, erect; spathe 2-2,8 × 1-2 cm, apex acute, base cordate to sagittate, margins free, ciliolate at base continuous with hairs on peduncle, surfaces glabrous.

Open woodland; clearing in woodland on sandstone; 1050-1500 m alt.

A single flowering specimen known. Three collections known (1981-1986).

C. petersii Hassk., non *Aneilema petersii* (Hassk.) C. B. Clarke; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994; Thulin, Fl. Somalia 4: 91, 1995; Fl. Eth. & Eritrea 6: 369-370, 1997; Kew Bull. 66: 583, 2012.

Annual or short-lived perennial herb with fibrous or moderately fusiform roots; stems erect or scrambling to 1 m long, glabrous at base, pubescent on their upper part with hooked hairs; leaf sheaths 1-2 cm long, whitish with dark brown veins, pubescent with hooked hairs or nearly glabrous; blade to 8-9 × 1,2-1,8 cm, apex long-acuminate, pubescent beneath, glabrous above, base narrowed in *a quasi-petiole;* spathes with margins fused on 3-4 mm at base, 18-25 × 19-24 mm, apex acute, pubescent, peduncle 16-30 mm long, pubescent; flowers blue, sky blue, dark blue; seeds *reniforme* with *strong, radiate tuberculate ridges.*

Acacia, Combretum, Terminalia woodland; dry grassland; occasionally at forest edges; thickets at base of dune with *Thespesia,*

COMMELINA PETERSII

Acacia sp. on sand/silt interface; stabilized dunes with *Acacia senegal* thickets; roadside thorn fence; shrubby damp places near river; streamsides; thickets near the sea; poor sandy soil; near sea-level to 1700 m alt.

S. Tomé; Botswana, Namibia, S. Africa; India, Sri-Lanka, ? Myanmar.

Comprises 2 subspp.: – subsp. **petersii** (syn. *C. trachysperma* Chiov.; *C. petiolata* Abeyw.; *C. persicariifolia* Wight ex C. B. Clarke, nom. illegit.; *C. jacobii* C. E. C. Fisch.; *C. alisagarensis* Kumar & Deodikar); – subsp. **loandensis** (C. B. Clarke) Faden (bas.: *C. imberbis* Ehrenb. ex Hassk. var. *loandensis* C. B. Clarke; *C. latifolia* sensu Rendle, Cat. Afr. Pl. Welwitsch 2/1: 77, 1899) in Angola (perhaps also in Botswana; Kew Bull. 62: 139-140, 2007).

C. polhillii Faden & Alford – Icon.: Novon 11: 17-18, 2001; Plant Press, N. S. 13/1, 2010 (Natl. Mus. Nat. Hist., Smithson.).

Annual herb with erect or ascending to decumbent shoots 7-45 cm long, sometimes rooting at lower nodes; roots thin, fibrous; stems slightly flattened on one side, often maroon or with maroon stripes, glabrous except for a line of pubescence; leaf sheaths 3-7 mm long, usually split to the base, sometimes purple-veined with a line of hairs along the split edge; lamina sessile, conduplicate, often falcate, linear(-lanceolate), 1-11,4 × 0,3-0,7 cm, apex acuminate, margins often ciliate toward the base, scabrous apically, surfaces glabrous; spathes solitary with peduncle 0,6-5 mm long, with a line of pubescence; spathe slightly to not at all falcate, 3,9-16,5 × 2,6-6 mm, apex acute, base cordate, occasionally truncate to hastate, margins free, ciliate, surfaces glabrous, green (rarely the veins faintly purple); flowers buff-orange.

Woodland on hard lateritic material associated with soils with impeded drainage; pits; woodland with *Terminalia mollis, T. sericea, Combretum grandifolium, C. zeyheri, Dalbergiella nyassae, Julbernardia globifera;* wet sandy soil with some clay admixed, edge of cultivation; ironstone outcrop with shallow soil and *Brachystegia* woodland; c. 1050-1500 m alt.

Near the sympatric *C. subulata* (both species were collected at the type locality of *C. polhillii)* but: – seeds of *C. polhillii* round to slightly elliptic, with a single, central, round, deep dorsal pit; testa covered throughout by white farinose granules.

C. pseudopurpurea Faden

Perennial herb; leaf blade linear to linear-lanceolate, 3-25 cm × 2-6,5 mm, for the most part glabrous; spathes with peduncles 3-36 mm long; spathe 10-24 × 6-10 mm, margins ciliate, surfaces pubescent or glabrous; flowers with upper petals *apricot,* inferior petal *purple.*

In black earth by water courses; 1098 m alt.
Near *C. purpurea* (vide Taxon 52: 835, 2003).

C. purpurea C. B. Clarke; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994 (sub nom. *C. lugardii);* Taxon 52: 832-835, 2003. – Icon.: Mitt. Inst. Allg. Bot. Hamburg 23b: 588-1990.

syn.: *C. kabarensis* De Wild.; *C. lugardii* Bullock

Rhizomatous perennial herb to 60 cm tall; roots ± tuberous; leaf sheaths c. 0,5-4 cm long; lamina linear(-lanceolate), conduplicate or planar, 3-25 cm × 2-6,5 mm, apex acuminate, margins ciliate basally, otherwise glabrous; spathes usually solitary or sometimes 2-3 loosely clustered on peduncles 3-8 mm long; spathe 10-24 × 6-10 mm, apex acute, base cordate, margins free, ciliate, surfaces usually purple-veined or striped, glabrous to densely hirsute outside, glabrous inside; flowers with paired petals dull orange, salmon or orange-brown; lower petal purple; sepals purple.

Acacia drepanolobium bushland; sedge and grass marsh on alluvial flats; *Lannea, Commiphora* glade; *Lannea schimperi* woodland; riverine forest; sometimes near water; *Combretum* woodland usually on black cotton soil; 620-1540 m alt.

Near *C. pseudopurpurea* (Taxon 52: 835, 2003).

C. pycnospatha Brenan

Prostrate herb to 35 cm or more long, rooting at nodes; roots fibrous; stem often ramose, rather slender, inconspicuously and unilaterally pubescent, at least subglabrous; leaves papery, the basal ones lanceolate or elliptic, upper leaves ovate, 2-6 × 0,9-1,8 cm, apex acute, base rounded, both surfaces glabrous or sparsely puberous, margins closely serrate; terminal leaves reduced, ovate, 0,8-2 cm long; sheaths 7-13 mm long, whitish, margins *shortly,* whitish-ciliate; spathes solitary, *subsessile,* c. 1,2-1,6- × 0,6-0,9 cm, concave beneath, widely subfalcate, broadly rounded above, base subcordate, apex subacute, base *sparsely puberulous,* pale greenish, margins free at base; flowers with upper petals *pale lemon-yellow,* lower one transparent.

Damp sandy soil by stream.

Near *C. trilobosperma;* habit, foliage, spathe-shape with some resemblance to *C. diffusa, C. sabatieri.*

C. reptans Brenan; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 304, 1994. – Icon.: Mitt. Inst. Allgem. Bot. Hamburg 23b: 587, 1990; Fl. Eth. & Eritrea 6: 366, 1997.

Perennial herb with tuberous roots; stems 15-45 cm long, mostly creeping, rooting at lower nodes, ascending to erect above, glabrous or pubescent with a row of hairs below flowering nodes; leaf sheaths 0,8-1,5 cm long, purple or whitish with purple tinge, margins with 2-3 mm long hairs, pubescent along the line of fusion; blade lanceolate, linear or falcate, 4-5 × 0,4-0,5 cm, margins ciliate; spathes folded, 16-25 × 18-24 mm, green or sometimes with purple markings along the veins, margins densely fimbriate, pedunculate; flowers > 20 mm wide, with lower petal buff yellow or pinkish orange, paired petals buff or dark brownish-yellow or dull orange (decorative).

Seasonally waterlogged meadows and vlei; evergreen woodland in open grassy places in shallow soil overlying granite rocks; closely grazed ride in *Juniperus* vegetation; termite mounds; roadside in short grass and waste dry land; lava crevices; sometimes very common; 1250-2380 m alt.

Confused with *C. purpurea, C. pseudopurpurea.*

C. rosulata Faden & Layton – Icon.: Syst. Geogr. Pl. 79: 77, 2009.

Subscapose perennial herb; roots thick; shoots solitary, erect, 18-26 cm tall, glabrous; leaf sheaths subglabrous or with a line of hairs on fusion line, 2-3,5 cm long; leaves mainly in a *basal rosette,* 3-6; lamina sessile, elliptic, oblong-elliptic, to ovate, 11,2-18,5 × 3,2-4,9 cm, margins undulate, papillose, smooth, surfaces glabrous; cauline leaves 1-2 per flowering shoot, sheaths to c. 1 cm long, ciliate on fusion line and at the summit; lamina sessile, lanceolate to ovate, apparently falcate, conduplicate, 2,5-10 × 1-3,6 cm; spathes *clustered* at nodes with peduncle 1,2-4,7 cm long, pilose; spathe 1,1-2 × 1,1-1,5 cm, *margins fused basally* for 3-6,5 mm, *glabrous* except along the fused edge, surfaces subglabrous, sometimes striped with maroon; flower colour unknown; mature fruit unknown.

Swamp; 1200 m alt.

Only known from the type collected in 1945.

"May be most closely related to *C. transversifolia, C. grossa, C. grandis"*.

C. scandens Welw. ex C. B. Clarke; Cook, Aquat. & wetland pl. south. Africa: 75, 2004, p.p. – Type: Welwitsch 6642 *only* (not Boivin 2009 from Madagascar); vide Faden, Taxon 52: 831, 2003.

Differs from *C. diffusa* by: – its larger capsules and seeds; – its ventral locule seeds having a middorsal ridge and their testa not or only sparsely farinose; – its antherodes with a dark connective and yellow lobes; – its pedicels usually puberulous distally.

Consistently aquatic *(C. aspera* from mesic to aquatic); among reeds on river banks.

N Botswana, Namibia, Angola (Figueiredo & Smith, Pl. Angola: 176, 2008), Congo Kinshasa, Zambia, S Tanzania.

C. "scandens" from Madagascar is *C. diffusa* subsp. *violacea* Faden.

C. scaposa C. B. Clarke; Fl. Trop. Afr. 8: 38, 1901; De Wildeman, Contrib. étude fl. Katanga, Suppl. 3: 80, 1930; Faden in Syst. Geogr. Pl. 79: 76, 2009; Figueiredo & Smith, Pl. Angola: 177, 2008. – Icon.: R. E. Fries, Wiss. Ergeb. Schwed. Rhod.-Kongo Exp. 1: 221, 1916 (flower; sub nom. *C. praecox*).

syn.: *C. praecox* Th. Fries (fide de Wildeman and Faden).

Almost glabrous herb; roots fasciculate, fibrous, sub-fleshy, 15 cm long; stems red-brown, 25-40 cm tall, simple or branched, cylindrical, leafless, with 2-4 sheaths 2 cm long; leaves "almost never collected…, to the extent that they are known, are much broader than those of *C. milne-redheadii* and are apparently produced on separate shoots after the precocious, more or less leafless flowering shoots arise" (Faden in Novon 18: 478, 2008); spathes 1-4, on peduncle to 6,2 cm long, violet, ovate, solitary, simply folded, 11-13(-16) mm long, shortly acuminate, margins hardly united at base; *flowers white.*

Dembo; bushy savanna; burnt soil.

Flowering before the leafy shoots arise.

Can be confused with *C. milne-redheadii.*

C. schweinfurthii C. B. Clarke; Lisowski, Fl. Rép. Guinée 1: 388, 2009. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994 *(C. elgonensis);* Troupin, Fl. Rwanda 4, 131, 1988 (idem); Fl. Eth. & Eritrea 6: 371, 1997.

syn.: *C. lateriticola* A. Chev.; *C. elgonensis* Bullock

Perennial herb with fusiform roots; stems erect, 0,15-1,6 m tall, pale green with purplish tinge, pilose (or pubescent only on two rows on younger parts); leaf sheaths 0,7-3 cm long, pilose or pubescent along fused margins, ciliate along the free margins; blade 6-18 × 0,6-1,7 cm, linear-subulate or linear-lanceolate, pubescent or glabrous; cymes leaf-opposed; spathe fused on 6-8 mm, 19-14 × 22-44 mm, *midrib bulged outward near the base,* pilose or glabrous, nearly always purple tinged along the margins and major veins, apex short-acuminate; peduncle 2-12 cm long, pilose at least along the channel; flowers with lower petal mauve or lilac, paired petals blue; also brownish-orange flowers ? (cf. Fl. W. Trop. Afr., ed. 2, 3/1: 48, 1968).

Combretum, Acacia mixed woodland; wooded grassland; cultivations; in long grass; meadows; rocky or lateritic soils; swamps; forest edges; roadsides; 250-2000 m alt. – Sometimes appearing after grass fire.

"Commelina sp. B. of FWTA, cf. *schweinfurthii* C. B. Clarke" is cited by Y. Harvey & al. in Pl. Bali Ngemba…: 135, 2004.

COMMELINA

C. somalensis Chiov.; Thulin, Fl. Somalia 4: 93, 1995. – Icon.: Webbia 8: 31, 1951 (sub nom. *C. baidoensis).*

syn.: *C. baidoensis* Chiov.

Perennial herb with tuberous roots to 5 mm Ø; shoots apparently annual, much branched, ascending, 8-40 cm tall; leaves apparently spirally arranged; sheaths 0,3-1,3 cm long, funnel-shaped, glabrous to sparsely puberulous; blade sessile, the lower leaves linear-lanceolate, 4-17 × c. 1 cm, broadest at the rounded base, apex acuminate, margins strongly undulate, especially towards the base; surfaces glabrous, or sparsely pubescent; spathe-subtending leaves narrowly lanceolate to ovate, conduplicate, 2,5-7,5 × 0,6-2 cm, base cordate to sagittate; spathes solitary, subsessile, 1-2 × 0,6-1,5 cm, glabrous, apex slightly to not at all recurved, base longly fused; flowers *purple.*

Bushland on limy soil or limestone pavement with silt pockets; 240 m alt.

C. spectabilis C. B. Clarke; Figueiredo & Smith, Pl. Angola: 177, 2008.

syn.: ? *C. dammeriana* K. Schum.

Herb, very hairy, with erect stem sometimes rooting at nodes, 8,5-25 cm tall, almost woody at base with thick roots; leaf blade 10 × 1,2 cm, oblong, dilated at base; spathes 1,8-3,1 cm, very broadly ovate, with triangular tips; margins free to the base; flowers numerous, sky-blue (var. **spectabilis**), or bright dark blue (var. **ramosa** C. B. Clarke).

Woods near river with *Gloriosa simplex;* grassy places in sandy marshes.

Comprises 2 vars.

C. sphaerorrhizoma Faden & Layton – Icon.: Syst. Geogr. Pl. 79, 70-71, 2009.

Perennial, rhizomatous herb with thin, fibrous roots; rhizome *moniliform,* composed of bead-like spherical segments 1-2,4 cm Ø, sometimes forming a rosary-like chain; shoots erect, 20-70 cm long, unbranched or with an occasional branch, puberulous with hook-hairs or glabrescent; leaves cauline; sheath to 4,1 cm long, with hook-hairs; lamina sessile, often slightly falcate, linear-lanceolate to ovate, rarely linear, 2,5-22 × 0,4-3,6 cm, apex acute, *base cordate* (-amplexicaul) to rounded or auriculate, margins papillose, glabrous above, puberulous below; spathes solitary or subclustered, peduncle 1,1-3,8 cm long, puberulous (hook-hairs); spathe slightly falcate, 1,6-4,9 × 0,9-1,7 cm, apex acute, margins essentially free, surfaces glabrous except at base; flowers blue; *seeds 6-8,6 mm* long (the *largest* known in any *Commelina* species), *hairy* (as in *C. nigritana).*

Kalahari woodland; woodland edges; tropical scrub; *Brachystegia* semi-thicket; grassland; bog edges; roadsides; rocky escarpments; commonly in sandy soils; 1030-1750 m alt.

Near *C. crassicaulis, C. welwitschii.*

C. stefaniniana Chiov. – Icon.: Thulin, Fl. Somalia 4: 90, 1995; Fl. Eth. & Eritrea 6: 367, 1997.

syn.: *C. masculata* Chiov., nom. nud.

Perennial herb, 20-30 cm tall, much branched above the simple base; roots tuberous, dark brown, to c. 5 mm Ø; shoots annual, erect or ascending, not rooting; leaves distichous; sheaths to 1 cm long, sparsely to densely puberulous or strigose, blade sessile or lower ones subpetiolate, linear-lanceolate to lanceolate-elliptic, ovate(- lanceolate), 2,5-7,5 × 0,6-4 cm, apex acute, base oblique, rounded or cordate-amplexicaul, margins undulate or

COMMELINA STEFANINIANA

nearly flat, ciliolate, both surfaces puberulous, or the upper glabrous and often with *c. 3 pairs* of *maroon spots;* spathes solitary, on puberulous peduncles 1,5-4,2 cm long; spathe 1,6-4,5 × 1-1,9 cm, sometimes falcate, apex acute to obtuse, base deeply cordate to sagittate, *margins completely free,* ciliate at least basally, surfaces puberulous to glabrous outside, usually sparsely strigose inside; flowers with blue paired petals, lower petal pale lilac.

Pebbly silt or silt/clay plains over limestone or at base of limestone hills with scrub or low shrubland; dried-up pond; *Acacia* woodland; open riverine vegetation in rocky or stony often flat places; 150-1800 m alt.

C. subulata Roth; Leistner, Fl. south. Afr. 4/2: 25, 1985; Akoegninou & al., Fl. analyt. Bénin: 76-77, 2006; Strugnell, Checklist spermat. Mt Mulanje, Malawi: 70, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Bothalia 39: 194, 2009 (Baum, Kunene Exp.). – Icon.: Mitt. Inst. Allg. Bot. Hamburg 23b: 588, 1990; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 135, 1994; Fl. Eth. & Eritrea 6: 365, 1997; Novon 11: 19, 2001 (seed); Puff & Sileshi, Pl. Simen: 237, 2005.

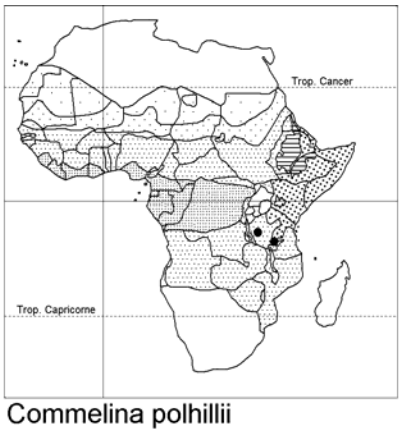
syn.: *C. elegantula* K. Schum.; *C. striata* Hochst. ex Kunth; *C. subaurantiaca* Hochst. ex Kunth; *C. violacea* C. B. Clarke; *C. linearifolia* Kunth; *C. attenuata* B. Heyne ex Steud., nom. inval.; *Tradescantia biflora* Willd. ex Schult. f.

Annual herb with fibrous to slightly fusiform roots; stems erect, 3-45 cm tall, or creeping at base and ascending above, green or usually brown streaked, glabrous or pubescent with a row of hairs; leaf sheaths *mostly open,* rarely closed, 0,5-1 cm long, pale green with purplish veins, pubescent or glabrous except for the ciliate free margins; blade 5-16 × 0,4-0,6 cm, subulate, broadest at base,clasping both stem and peduncle, glabrous or rarely pubescent; *spathes* free, folded, falcate, *sharply recurved,* 7-16 × 6-14 mm, green, occasionally marked with purple along the 4 veins, ciliate along the base and just above the curved part, rarely pubescent, *nearly sessile* or peduncle to 5-8 mm long; flowers with lower petal white with buff sides; paired petals buff yellow with slightly darker claws, orange, pink, apricot or blue; seeds variable in size, ridged, with tubercles and granules.

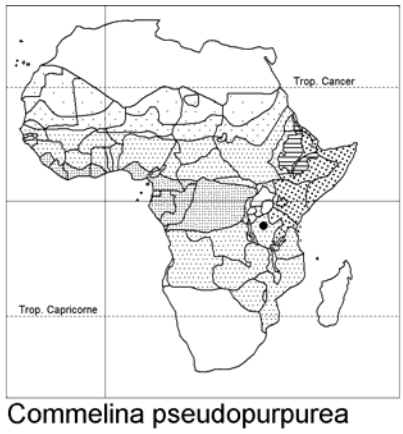
Wooded grassy slopes among rocks; rocky crevices; moist depressions; cultivations (wheat, teff, maize); forest gallery; marshy ground; sand near salt ground; rocky outcrop with wet flushes and thin soil with *Selaginella njamnjamensis, Aeollanthus* spp., *Aloe* sp.; tall-grass formations; clayey moist soil on laterite; sometimes growing in dense masses; poor meadows; river banks; 900 (? and less) – 2500 m alt. – In W Africa element of the segetal vegetation association *Commelinetum forsskaoliosubulatae* (Phtyocoenologia 41: 129, 2011).

Namibia, Caprivi Strip, S. Africa, Botswana, Swaziland; Yemen; India.

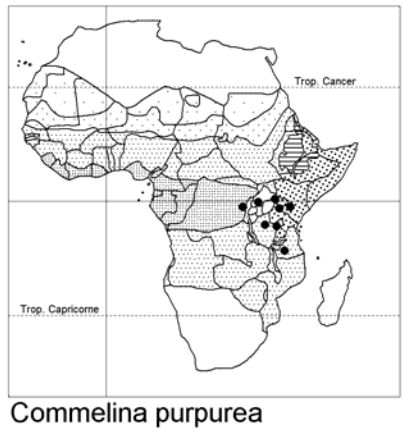
Resembling *C. purpurea* (cf. Taxon 52: 833, 834, 2003), *C. polhillii* (cf. Novon 11: 19, 2001; Plant Press, N. S. 13/1, 2010).



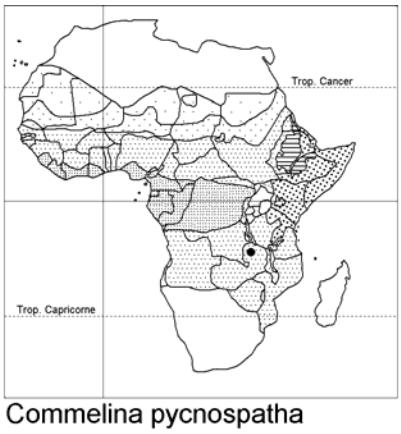
Commelina polhillii



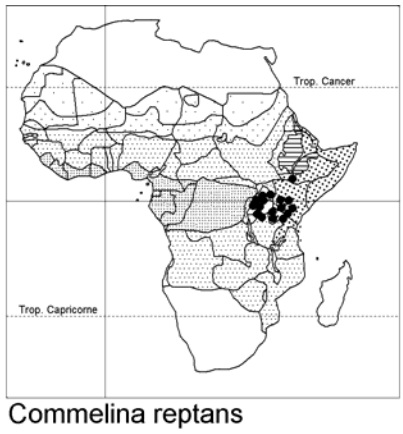
Commelina pseudopurpurea



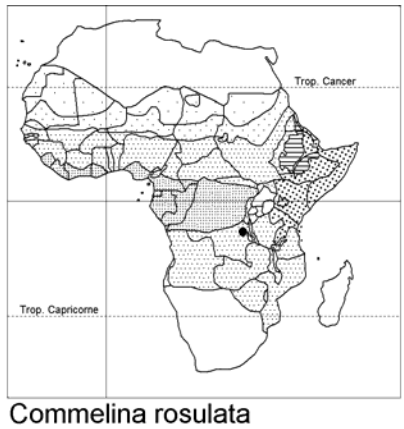
Commelina purpurea



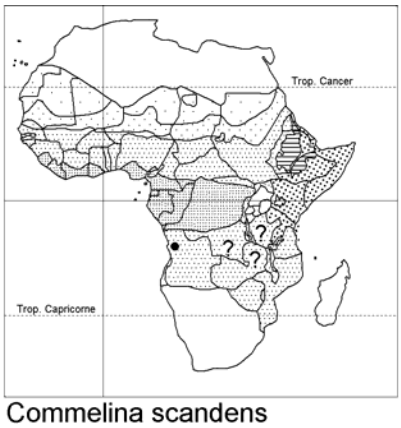
Commelina pycnospatha



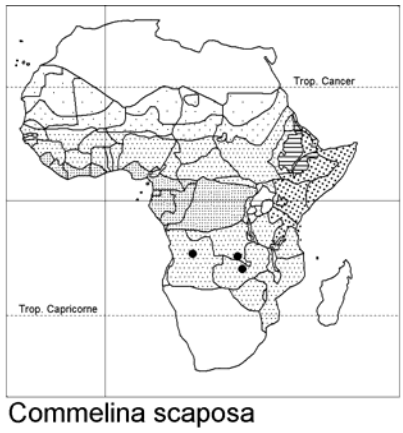
Commelina reptans



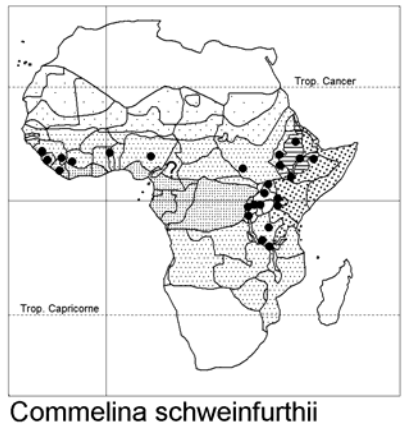
Commelina rosulata



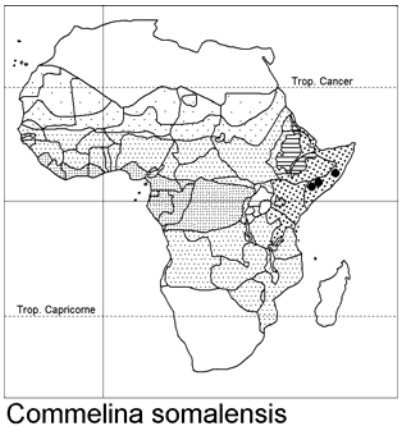
Commelina scandens



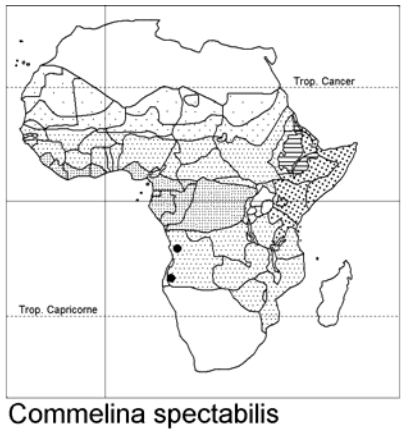
Commelina scaposa



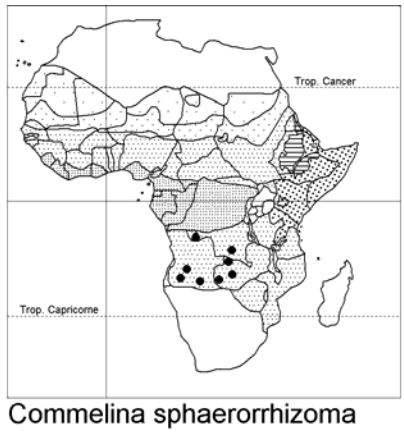
Commelina schweinfurthii



Commelina somalensis



Commelina spectabilis



Commelina sphaerorrhizoma

COMMELINA

C. triangulispatha Mildbr.

Erect herb slightly creeping, with shoots 10-15 cm tall; leaf sheaths slightly swollen, densely and shortly pilose, with also some long hairs, margins ciliate, 1 cm long; lamina lanceolate-linear, 3-6 cm × 3-6 mm, sparsely long pilose above, base slightly broadened, margins undulate, apex acute; spathes several towards the ends of the branches on peduncles < 1 cm long; spathes *clearly triangular*, less than 90° between the folded and fused edges, 10-20 mm long; flowers *brownish-yellow* with *violet middle.*

Scrub; humid places; 1350-1800 m alt.

Also in W Kenya (cf. Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, 1994).

Near *C. schweinfurthii.*

C. trilobosperma K. Schum.; Agnew & Agnew, l.c.

Trailing or erect herb with stems 0,3-0,5 m tall, slender; leaves to 11,5 × 0,8 cm, elongate-lanceolate; sheaths of upper leaves often without or with reduced blade; spathes plentifully scattered, partially surrounded by broadened bases of subtending leaves; peduncle 1-3 mm long; spathe 0,8-1,5 cm long; flowers pale pinky-brown orange, yellow orange, purple or apricot (blue reported in Fl. Trop. Afr. 8: 39, 1901); seeds *trigonous*, nearly flat, conspicuously *3-lobed*, smooth.

Dry grassland liable to flooding near swamp; roadsides; cultivations; 1080 m alt.

Near *C. subulata.*

(**C. velutina** Mildbr.) (section Didymoon).

Perennial herb densely velvety grey hairy, 50-70 cm tall; leaf sheaths somewhat inflated, c. 1,5 cm long; lamina sessile, cordate-auriculate at base, 10-15 × 1-1,8 cm, long-acuminate; spathes hooded, folded, 2-2,5 cm long, 1,2-1,3 cm wide, peduncles c. 7 cm long; flowers pinkish buff (according to Faden in Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 305, and plate 136, 1994), middle petal ribbon-like.

Savanna; seasonally swampy grassland.

Described by Mildbraed (Mildbraed 9604) from SW Centr. Afr. Rep. (not Cameroon), 50 km SE Bouar. Cited from W Kenya (Kitale) by Faden, l.c.

Not mapped.

C. welwitschii C. B. Clarke, excl. var. *glabra* K. Schum. *(= C. milneredheadii);* Figueiredo & Smith, Pl. Angola: 177, 2008; Bothalia 39: 194, 2009 (Baum Kunene Exp.) – Icon.: Bot. Not. 1948: pl. I facing p. 22 (sub nom. *C. rhodesica).*

syn.: *C. filifolia* K. Schum.; *C. rhodesica* Norl.

Herb with stems 10-45 cm tall, erect, glabrous or scabrous-pubescent, simple or generally ramose upwards; rhizome ± *bulbous*, to 1,5 cm Ø; roots fibrous, c. 1 mm Ø; leaf lamina *linear* or *linear-lanceolate*, 10-30 cm × 3-8 mm, base dilated, margins ciliate, glabrous beneath; sheaths scattered, 1-3, with peduncles 2-7 cm long; spathes cordate-ovate or elliptic, ± *acuminate*, 2-4 × 1,8-2,5 cm, hairy or nearly glabrous, margins free, *ciliate, with numerous raised veins;* flowers *yellow* (Welwitsch 6632, 6637, 6638, 6639, 6686; Weimarck 3702, 4134; Baum 814); the specimens Welwitsch 6627, 6586 belong to other species (lower petal dull violet-green or yellow-brown).

Clearing in forest; bushy places on sandy soil; volcanic rocks; damp rocks; damp pastures; 720-1700 m alt.

Near *C. petersii, C. imberbis* but flowers yellow, *C. sphaerorrhizoma* (cf. Syst. Geogr. Pl. 79: 67, 73, 2009).

COMMELINA

C. zambesica C. B. Clarke; Kew Bull. 15: 209, 1961; J. Linn. Soc. London, Bot. 60: 190, 1967; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 434, 1985; Fl. Eth. & Eritrea 6: 370-371, 1997; Leistner, Fl. south. Afr. 4/2: 32-33, 1985.

Perennial herb with weakly upright stems 0,6-1,2 m tall or sometimes widely straggling and rooting at nodes, ± villous pubescent throughout, rarely subglabrous; leaf blade lanceolate, c. 12 × 3 cm, unequal-sided at base; spathes ± solitary, deltoid, obtuse, c. 2-2,5 × 1,5 cm, margins fused; peduncle c. equalling the spathe; flowers blue, very bright blue.

Transition woodland at margin of forest outlier; grassland; plains near water; high valley in the hills near a stream; *Combretum-Terminalia* and *Acacia-Commiphora* woodland; 500-1500 m alt.

Namibia, Caprivi Strip, Botswana, S. Africa.

Near *C. erecta, C. livingstonei* (introgression ?).

C. zenkeri C. B. Clarke; Novon 11: 404-409, 2001. – Icon.: ibid.: 405

syn.: *C.* sp. cf. *bracteosa* Hassk.

Perennial herb 15-40 cm tall; roots thin, fibrous; shoots ± tufted, erect to ascending or decumbent, branching and rooting only near base; leaves distichous with sheaths 1-2 cm long, prominently ribbed, green, puberulous with hook-hairs and uniseriate hairs, at least along the fused margins, ciliate at apex; lamina sessile or with petiole to 6 mm long, lanceolate-oblong to lanceolate-elliptic, or ovate, 2-10,5 × 1-3,7 cm, apex acute, rarely rounded, base strongly oblique, usually one side rounded, the other side cuneate, margins ± planar, scabrous apically, above glabrous to puberulous, sometimes scabrous above, puberulous or glabrous beneath; spathes solitary or 2, with peduncle 4-10 mm long puberulous on a line or glabrous; spathe ± funnel-form, 1,2-2 × 0,8-1,3 cm, not falcate or slightly so, apex acute, base ± truncate to cordate, margins fused at base on 2-5 mm and ciliate, surfaces green, whitish toward base, sparsely puberulous basally or glabrous; flowers with paired petals blue or lavender to white; medial petal white or whitish in basal 3/4, yellow distally.

Primary forest on rocky hillsides; mixed evergreen forest; *Cynometra alexandri, Khaya anthotheca* forest; closed canopy, mature forest; sandy soils; 750-1300 m alt.

Disjunct distribution (? due to under-collecting); sterile specimens from Zaire (Okapi Wildlife Res., Ituri Forest, 1°33'N, 28°32'E, alt. 750 m, mixed forest in open patch) may belong here.

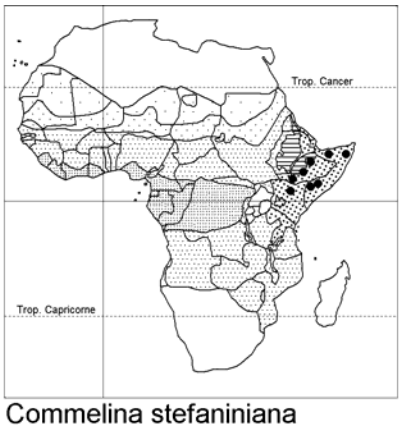
Relationships uncertain (resembling *C. disperma, C. bracteosa, C. erecta);* cf. Plant Press, N. S. 4/1: 10, 2001 (Smithson. Natl. Mus. Nat. Hist.).

C. zigzag P. A. Duvign. & Dewit; Faucon & al. in Pl. Ecol. Evol. 143: 8, 2010.

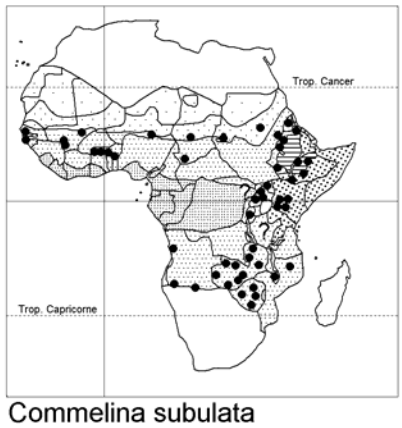
Perennial herb with creeping stems arising from a subterranean rootstock; stems slender, zigzag, hirsute-pilose, simple or sparsely ramose, internodes 1-2 cm long; leaves sessile, subamplexicaul, cordate, folded, falcate; sheaths 3-4 mm long, hirsute-pilose; lamina 1,5-2 × 1-1,5 cm, both surfaces moderately papillose-pubescent, margins narrowly thickened, whitish, sometimes waved; spathe falcate, 10-15 × 7-10 mm, glabrous inside, hirsute-puberulous outside, apex acuminate; flowers dark blue.

Meadow with *Sporobolus, Pandiaka* on colluvial soil very rich in copper; abundant; also on relatively recent piles of malachite.

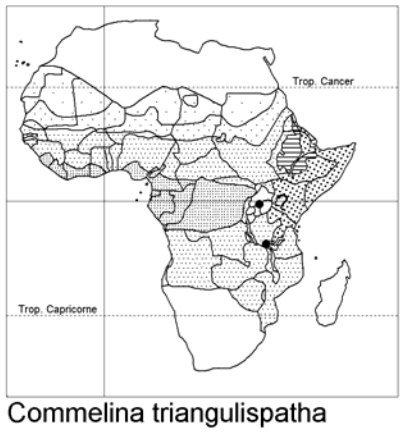
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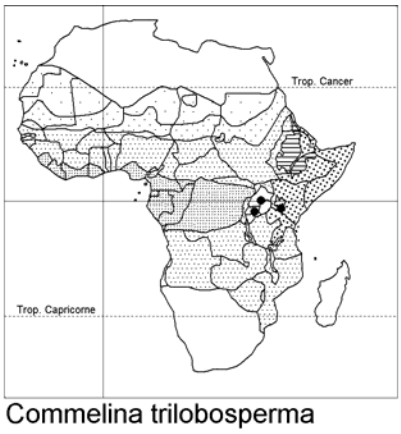
Commelina stefaniniana



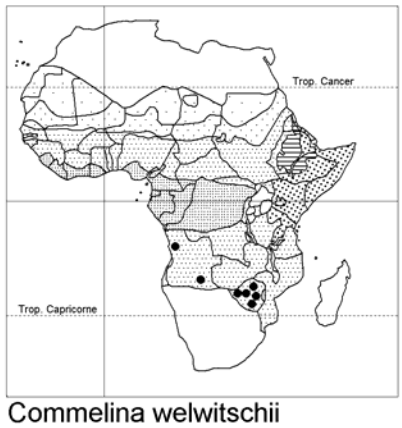
Commelina subulata



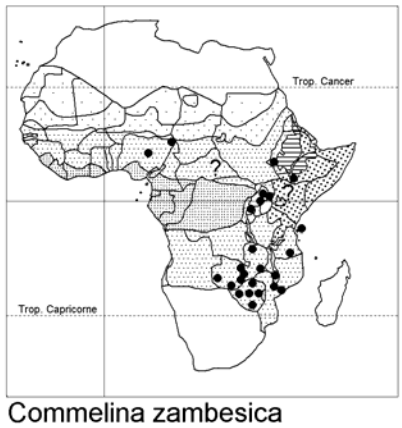
Commelina triangulispatha



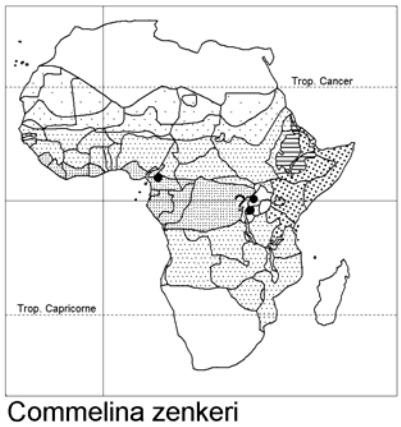
Commelina trilobosperma



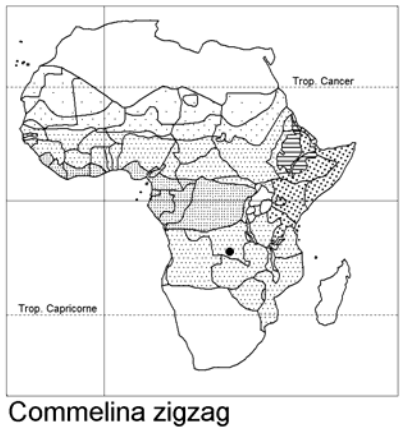
Commelina welwitschii



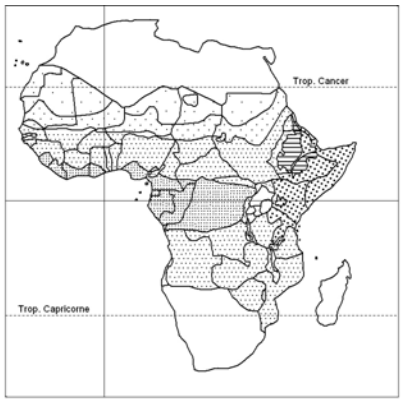
Commelina zambesica

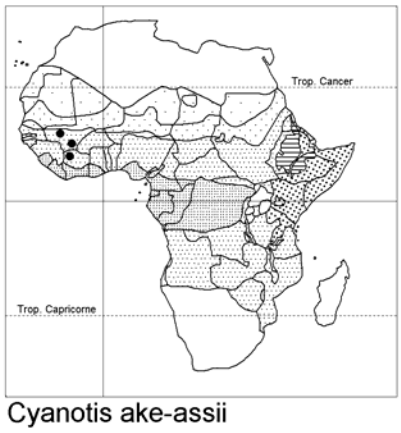


Commelina zenkeri

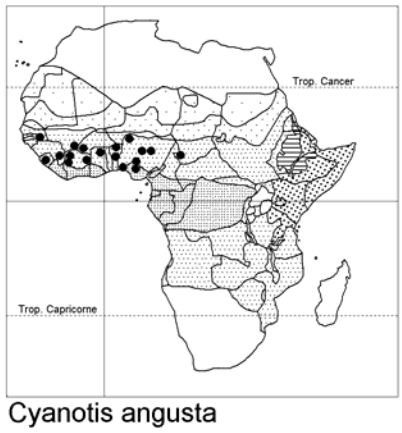


Commelina zigzag

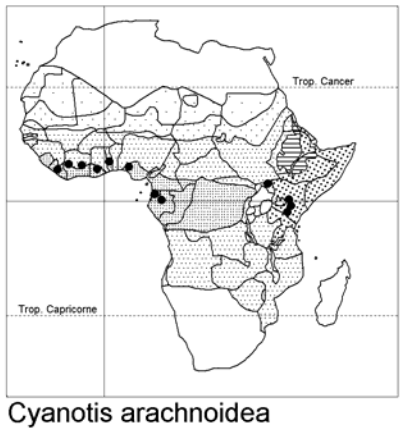




Cyanotis ake-assii



Cyanotis angusta



Cyanotis arachnoidea

COMMELINA

NOMEN:

Commelina montana K.Schum. ex Engl. 1892, *non* Steud. in Nomencl. bot., ed. 2, 1: 401, 1840 = *Dictyospermum montanum* Wight = **Aneilema montanum** (Wight) Wallich ex C. B. Clarke (Asia).

* * *

TAXA IN NEED OF FURTHER STUDY (not mapped):

C. angustissima K. Schum.; Fl. Trop. Afr. 8: 39, 1901; Figueiredo & Smith, Pl. Angola: 176, 2008.

Annual herb with slender stems c. 40 cm tall; leaves very narrowly linear, c. 17 × 0,8 cm; spathes solitary, short, villous; flowers deep blue.

Sandy rocks; wet ground on the edges of streams; 720-1188 m alt.

Tanzania: Usindja; Angola: Pungo Andongo, near Catete, Luxilo, etc.; SW Botswana.

Perhaps not distinct from *C. subulata.*

C. bequaertii De Wild.; idem, Contrib. fl. Katanga, suppl. 3: 61, 1930; Notes fl. Katanga 5: 44, 1920 (Ann. Soc. Sci. Bruxelles 39/3: 44-45, 1920).

Herb villous, with straggling branched stems to c. 30 cm long; leaves lanceolate with sheath 1 cm long, blade 25-90 cm × 6,5 mm, villous on both surfaces, apex acute; peduncle solitary, 3,5 cm long; spathe 14-15-19 mm long, 12 mm wide, base rounded, apex acute, villous; flowers blue, open from 6 pm to 11 am.

Grassy and wooded savanna; c. 1400 m alt.

Zaire: Elisabethville; Likasi (Bequaert 293, Robyns 1705).

Near *C. zambesica.*

C. claessensii De Wild.

Herb with straggling and erect glabrous stems rooting at nodes; roots fibrous; stems tufted, c. 30 cm tall, clothed with sheaths at base; cauline leaves stem-clasping with sheaths ± inflated; blade 7-11 × 1-1,6 cm, scabrous above, shortly velvety on the veins beneath; peduncles 8-17 mm long, often longer than the sheaths; flower colour ?

Savanna; clearings.

Zaire: Duota.

? Known only from the type collected in 1921 (Claessens 1082).

"Belonging to the group *Dissecocarpus"*. Near *(C. cuneata).*

C. clarkeana K. Schum. 1897, non De Wild. & T. Durand 1901 (= ?).

Herb with flowering shoots 25-35 cm long; leaf sheaths 1,5-2 cm long covered with dark brown hairs; blades 5,5-8,5 × 1-1,2 cm, with similar hairs; spathes with peduncles 1-1,5 cm long with patent brown hairs; spathe 4,5-5,5 cm long, 3 cm wide at base, cordate, apex long acuminate; flowers pale bluish white.

Ecology not recorded.

? Known only from the type collected in 1875 (Buchholtz s.n.): Gabon, Eninga on the Ogowe.

Not listed by Sosef & al., Check-list pl. vascul. Gabon, 2006.

COMMELINA

C. corbisieri De Wild.

Herb with rather thick roots; stems erect, ± branched, glabrous but pilose at nodes, c. 30 cm tall; cauline leaves stem-clasping; sheaths glabrous or short-hairy, 1-2,5 cm long; blade ± coriaceous, 5-11 × 2-3,3 cm, glabrous above, sparsely short-hairy beneath, margins not ciliate; spathes with peduncle 1-1,2 cm long; spathe ovate, cordate at base, 1,4-1,8 × 1 cm; flowers blue.

Ecology not recorded.

? Known only from the type collected in 1912 (Corbisier, coll. Homblé 627); from Zaire: Welgelegen.

Near *C. zambesica, (C. kapiriensis).*

C. critica De Wild.

Perennial herb with erect stems, ± branched, glabrous or very short-hairy, 12-30 cm tall, with sheaths at base; cauline leaves stem-clasping, sheaths somewhat inflated, scabrous, free margins ciliate, 7-25 mm long; blade 6-13 × 0,5-0,9 cm, scabrous or glabrous, apex acute; spathes with peduncle 1,5-2 cm long; spathe ovate, cordate at base, 2,7-3,3 × 1,2-1,4 cm, margins not ciliate; flowers blue; fruit unknown.

Wooded valley.

? Known only from the type collected in 1912 (Homblé 728) from Zaire: Katentania, Manika Plateau.

Near *(C. subscabrifolia).*

C. cuneata C. B. Clarke; Fl. Trop. Afr. 8: 51, 1901.

Herb almost glabrous; stem 45 cm long, suberect at base; roots thick; upper leaves lanceolate, c. 11 × 1,8 cm, base cuneate; peduncles at end of branches; spathes (sparsely hispid), flowers, capsule and seeds as of *C. latifolia;* however upper leaves different from those of *C. latifolia.*

Ecology not recorded; 600-1800 m alt. – In Malawi: Kondowe to Karonga (specim. Whyte), Kavali (specim. Carson).

C. dammeriana K. Schum.; Figueiredo & Smith, Pl. Angola: 176, 2008.

Base of plant unknown; stems ascending, geniculate, angular, 17-33 cm long, with sparse whitish hairs; leaf sheaths c. 1,5 cm long with violet veins, scabrid hispid; lamina sessile, linear, 9 × 0,5-0,7 cm, rigid, whitish hairy, margins thickened; peduncles 1-2,5 cm long, spathes 1,5-2 × 2 cm, fused at base on 6-8 mm, reddish toward margins; flowers incomplete, streaked white and red-brown; seeds glabrous.

Stream side.

Known only from the type collected in 1876 (Pogge 454); Angola (Riv. Lulua, 9°30'S).

Seems very close to *C. spectabilis.*

C. dekindtiana Fritsch; Figueiredo & Smith, l.c.

Stems thickish, ramose above, pubescent; leaf sheaths subcylindrical, purple tinged; lamina folded, falcate, 8-10 × 1,5-3 cm, base cordate clasping the stem like the spathe; spathes shorter and wider than the leaves, pubescent, 3-4 × 2 cm; flower c. 7 mm Ø; fruit unknown.

Ecology not recorded.

Known only from the type collected in Huila, Angola (Dekindt).

Possibly a synonym of *C. crassicaulis.*

COMMELINA

C. demissa C. B. Clarke; Fl. Trop. Afr. 8: 52, 1901.

Pubescent herb c. 30 cm long; leaves narrowly oblong, c. 8 × 1,5 cm, attenuate at both ends, both surfaces hairy; peduncles scattered, a little longer than the leaf sheaths; spathes 1,2-1,6 cm long, ovate, acute, much smaller than those of plants of the *C. latifolia* group, hairy, with obscure purple veins; margins free at base; petals blue (when dry); seeds smooth.

Ecology not recorded; 1200-1800 m alt. – Collected by A. Whyte (1896) in Malawi: Mt Malosa.

Near *C. latifolia.*

C. droogmansiana De Wild.

Herb with fibrous roots in dense tufts; stems ± erect, in tufts, ± branched, velutinous, 30-65 cm tall; cauline leaves with sheaths 0,8-2,5 cm long, not inflated, sparsely pilose, ciliate on the free margins; lamina 7-19 × 0,6-1,5 cm, sparsely velutinous on both surfaces, margins ciliolate; spathes solitary in upper part of stems; peduncle 5-13 cm long, velutinous; spathe ovate, 2,5-4 × 1,2-1,8 cm, cordate, velutinous beneath, margins not ciliolate; flowers blue.

Ecology not recorded.

? Known only from 2 specimens: Quarré 7, Homblé 8. From Zaire, Elisabethville.

Said to be a member of the *C. carsonii* group *(= C. ceciliae).*

C. echinosperma K. Schum. – See above p. 74.

C. echinulata Lebrun & Taton

Doubtfully distinct from *C. echinosperma.*

Savanna; 1500 m alt.

? Known only from the type collected in 1938 (Zaire: Kagera Park).

C. giorgii De Wild.

Herb with filiform fibrous roots; stems pilose, erect, in tufts, ± ramose above, to 60 cm tall, covered with sheaths at base; cauline leaves stem-clasping; sheaths densely pubescent, 0,5-2 cm long; lamina 2-9 × 0,6-2,2 cm, rounded at base, subauriculate, densely short-hairy on both surfaces, margins shortly ciliate; spathes numerous, paniculate, ovate, 12-15 × 8-9 mm, velutinous beneath, margins ciliolate, peduncle 7-8 mm long.

Ecology unknown (plateau, plain).

Collected in 1922 (De Giorgi 249, 253); Zaire: Tshaba.

Very close to *(C. pallida);* said to belong to the *Trithyrocarpus* group.

C. homblei De Wild.

Herb with prostrate stems to 15 cm long; leaf sheaths to 6 mm long, velutinous; lamina lanceolate, 7,5 × 1,2 cm, velutinous-hirsute ("leaves twice as large as those of *C. bequaertii");* peduncle solitary, 3 cm long, spathe velutinous-hirsute, c. 2 cm long, apex acute, base rounded, margins fused at base; flowers blue; capsule with 4-5 seeds.

Wooded savanna (De Wildeman, Notes fl. Katanga 5: 44-45, 1920).

? Known only from the type collected in 1912; Zaire: Elisabethville (Homblé 124).

Near *(C. bequaertii), C. zambesica.*

COMMELINA

C. irumuensis De Wild. ("humuensis", sphalm. in our Enum. 3: 24, 1995).

Herb with filiform fibrous roots; stems ± erect, in tufts, ± ramose, glabrous or pilose, to 30 cm tall, covered with sheaths at base; cauline leaves stem-clasping; sheath ± oblique and inflated, short pilose, 1,3-2,5 cm long; lamina subsessile, 3-11,5 × 0,9-3 cm, glabrous above, sparsely pilose beneath; spathes solitary on upper part of stems; peduncle 2-3 cm long, pilose; spathe ovate, 1,7-2,6 × 1-1,6 cm, cordate at base, fused on 8 mm at base, apex acute, margins not ciliate; flowers blue.

Grassy savanna in cool places.

? Known only from the 2 syntypes (Bequaert 2726, 2875), collected in 1914 in Zaire: Irumu.

Near *C. benghalensis, C. zambesica, (C. kapiriensis).*

C. kapiriensis De Wild.

Perennial herb with fibrous roots; stems erect or prostrate, almost glabrous, rooting at nodes, with some hairs at nodes, > 50 cm long, covered with sheaths at base; leaf sheaths stem-clasping, oblique, little inflated, purplish, glabrous or ciliolate on margins, 1-3 cm long; lamina 3,5-12 × 1-2,4 cm, auriculate at base, apex acute, long-pilose above, pilose beneath; 1,5-2 cm long; spathes ovate, 2,3-2,7 × 1-1,4 cm, acute, base cordate, long-pilose beneath, margins ciliolate; flowers blue; seeds glabrous.

Dry schistose soil; rather common.

? Known only from the type collected in 1913 (Homblé 1179); Zaire, Kapiri Valley.

Near *C. zambesica.*

C. kilanga De Wild.

Stems erect, ± ramose, glabrous or sparsely short-hairy, to 35 cm tall; leaf sheaths ± oblique, slightly inflated, purplish, glabrous or ciliate on margins; lamina long-ovate, 2,5-12 × 0,4-0,8 cm, apex acute, base ± rounded, both surfaces glabrous; spathes solitary in leaf axils; peduncle 2,5-4,5 cm long; spathe ovate, 1,3-1,7 × 0,7-1 cm, with purplish veins, margins free; flowers purplish; capsule 4-seeded; seeds glabrous.

Dembo.

? Known only from the type collected in 1912 (Homblé 105); Zaire, Chisangwe.

Near *(C. carsonii =) C. ceciliae.*

C. kisantuensis De Wild.

Herb with stems prostrate at base and rooting at nodes, then erect, > 35 cm tall, ± branched, glabrous; cauline leaves stem-clasping; sheath slightly inflated at base, ± glabrous; lamina rounded at base, apex acute, 4-11 × 1-2,2 cm, glabrous above, scabrous beneath with sparse hairs; spathes solitary in upper leaf axils; peduncle 3-4 cm long, margins fused on 6-8 mm at base; spathe 2-3 × 1,2-1,4 cm; flowers pale blue.

Garden.

? Known only from the type collected in 1925 (Robyns 52); Zaire: Garden at Yndu, Kisantu.

? Near *C. zambesica, C. imberbis (C. boissieriana).*

COMMELINA

C. lukonzolwensis De Wild.

Herb with ± erect stems to 30 cm tall, ± branched, glabrous or shortly pilose when young; cauline leaves stem-clasping; sheath ± oblique, slightly inflated, glabrous or ciliate, 3-4,5 cm long; lamina 17 × 4 cm, both surfaces glabrous but velutinous beneath when young, margins scabrous; spathes with peduncle 3 cm long, ovate, cordate, 2,5-3 × 1,2-1,3 cm, margins not or slightly connate, velutinous beneath, not ciliolate; flowers (pale) blue ?

Ecology not recorded.

Known from the type collected in 1905, and from a doubtful specimen (Blommaert 53, collected in 1920, "on edge of water", Zaire, Bamonombiti). Zaire, Lukonzolwa camp (Moero).

C. luteiflora De Wild.

Annual herb with slender roots; stems apparently erect or prostrate rooting at nodes, ± branched, 25 cm tall, glabrous except at nodes; leaf sheaths little oblique, inflated, 6-12 mm long, shortly pilose, margins ciliate; lamina 1,7-4,5 × 0,6-1,8 cm, sparsely and shortly pilose, base rounded; peduncles 8-16 mm long; spathes slightly falcate, ovate 1,5-2,8 × 0,5-0,7 cm, pilose beneath, margins slightly ciliate; flowers yellow; seeds ridged.

Grassy savanna; humid bush.

? Known only from 2 specimens: Bequaert 3334, collected in 1914, and Bequaert 1526 collected in 1913. From Zaire: Beni and Panga, respectively.

Near *C. africana.*

C. membranacea Robyns

Slender herb 20-40 cm long; stems prostrate, rooting at lower nodes, glabrous or glabrescent; leaf sheaths 1 cm long, puberulous, ciliate at mouth; lamina (oblong-)lanceolate, 2,5-6 × 0,8-1,5 cm, short pedicellate, apex acute, sparsely puberulous on both surfaces; spathes solitary (peduncles 5-8 mm long) toward tips of stems, ovate 1,1,4 cm long, margins connate; flowers blue.

Wooded streamsides; rain-forest on streamside in shade; ± 800 m alt.

? Known from only 2 specimens (Bequaert 3172, 4182) collected in 1914; Zaire, Lesse, Semliki River.

Near *C. bracteosa.*

C. merkeri K. Schum.

Herb with slender, little branched stems 40 cm tall; leaves 6-13 × 0,2 cm; sheath 2-3 mm long, tinged violet at base; inflorescences numerous; spathes acuminate, rounded at base, villous beneath, 2 cm long.

Steppe.

? Known only from the type (Merker s.n.) collected c. 1902; Tanzania: Mt Kilimanjaro, Mt Meru.

Near *C. tribolosperma.*

C. microspatha K. Schum.

Herb with weak branched glabrous stems to 80 cm long, rooting at lower nodes; leaf sheaths 2-2,5 cm long, very thin textured, long-hairy; lamina oblong to lanceolate, (2,5-)7-8(-10)x1-1,8 cm, broadest in the middle, base narrow, both surfaces puberulous; spathes on short shoots 1 cm long; spathe < 1 cm long, fused at base on 5 mm, peduncle 1 cm long.

Mouth of stream (Bahr el Gebel) under *Vossia, Papyrus.*

COMMELINA MICROSPATHA

? Known only from the type (Schweinfurth 1132) collected in 1869; Sudan.

Not cited by Broun & Massey, Flora of Sudan, 1929, nor by Andrews, The flowering plants… Sudan, 1956.

? Near *C. diffusa* ("*C. scandens* C. B. Clarke").

C. obscura K. Schum.; Fl. Trop. Afr. 8: 60, 1901.

Hairy herb with weak branched annual stems 10-15 cm long, rooting at lower nodes; leaves elliptic-oblong, c. 3 × 1,2 cm, shortly acute, both surfaces hairy; sheaths with long spreading red hairs; spathes solitary on very short peduncles, ovate, 6-8 mm long; flowers blue, rarely violet; capsule 2-seeded; seeds wrinkled.

Ecology not recorded.

? Known only from 2 specimens (Volkens 2267, 633); Tanzania Kilimanjaro; Marangu; c. 1650 m alt.

Near *C. benghalensis.*

C. pallida De Wild., Contr. fl. Katanga, Suppl. 3: 74-76, 1930.

Herb with ± erect stems, simple or little branched at base, short velutinous-puberulous, 35-65 cm tall, covered with sheaths at base; cauline leaves alternate or opposite; sheaths ± oblique, little inflated, short puberulous-velutinous, 8-15 mm long, free margins ciliate; lamina 5-12 × 1,3,7 cm, both surfaces ± velutinous, apex triangular; spathes in leaf axils, forming together a leafy panicle; peduncle 1,6 cm long; spathe ovate, 1,7-2,3 × 1-1,5 cm, acute, base cordate, margins connate, densely whitish-hairy beneath; flowers white.

Near pools and sources; locally rather common.

? Known only from the type collected in 1913: Homblé 1272; Zaire, Tshisinka.

Near *(C. giorgii).*

C. pseudoscaposa De Wild.

Similar to *C. scaposa* but flowering stems leafy; fruit and seeds unknown.

Meadow.

? Known only from 2 specimens: Verdick s.n., Quarré 301; Zaire, Katanga: Kafubu, Kambikila meadow.

C. pynaertii De Wild.

Perennial herb; stems erect and prostrate rooting at nodes, branched, glabrous > 40 cm long; cauline leaves with sheaths little oblique, somewhat inflated, glabrous except the ciliate margins, 1,5-2,5 cm long; lamina 5-10 × 2-3,8 cm, apex acute, base ± rounded, glabrous, margins scabrous; peduncles 1,8-2,7 cm long; spathes ovate, 3-4 × 1,2-1,5 cm, acuminate base cordate, glabrous beneath except for the velutinous midrib, margins not ciliate; flowers blue; seed coat reticulate.

Gardens.

? Known only from 4 specimens: Pynaert 798 (collected in 1906), 2 specimens Vanderyst s. n. (1911), Robyns 27 (1925); Zaire, between Lulonga and Coquilhatville, at Sacré-Coeur hospital at Kisantu, and at Kisantu, respectively.

? Belonging to the *C. africana* group (with yellow flowers !).

COMMELINA

C. quarrei De Wild.

Herb with erect ± branched stems, densely hirsute, 30-60 cm tall, covered with sheaths at base; cauline leaves 5, with ± cylindrical sheaths, little inflated, densely velutinous-hirsute, 1-1,7 cm long; lamina 3-11 × 1,6-4 cm, apex acute, base cordate, both surfaces velutinous-hirsute; spathes solitary; peduncle velutinous, 2-3 cm long; spathe ovate, 1,6-2,2 × 1-1,2 cm, margins fused at base on c. 7 mm length, longitudinal veins often purplish tinged, densely velutinous-hirsute beneath, margins ciliolate, apex acute; flowers blue; capsule unknown.

Bush on Prince Leopold's farm.

? Known from only 2 specimens: Quarré 1001, 7bis; Zaire: Prince Leopold's farm, and Katuba, respectively.

Near *C. ceciliae.*

C. ramulosa (C. B. Clarke) H. Perrier; Fl. Madagascar 37, Commelin.: 21, 1938.

bas.: *C. forsskaolii* Vahl var. *ramulosa* C. B. Clarke

Perennial herb with rhizome and fasciculate, fleshy roots; stems ramose, erect or sprawling, rooting at nodes, sometimes with cleistogamous flowers; leaf sheaths slightly pubescent, shortly ciliate; lamina lanceolate, 3-7 × 0,8-2 cm, apex acute, glabrous to glabrescent; spathes solitary; peduncle 8-15 mm long; spathe 8-10 × 6-8 mm, subtruncate at apex, ± pubescent, margins fused on 3-5 mm; flowers very bright blue.

Ecology unknown.

Zanzibar; Seychelles; Madagascar (with several forms).

Status uncertain.

C. reygaertii De Wild.

Herb with erect stems ± branched, > 30 cm tall; cauline leaves with ± oblique sheaths ± inflated, glabrous or sparsely hairy, margins ciliate, 3-4 cm long; lamina 15-19 × 3-3,5 cm, apex long-acuminate, ± cordate at base, scabrous above, glabrous beneath, margins scabrous; spathes solitary in upper leaf axils, few; peduncle c. 2,5 cm long, velutinous; spathe ovate 3-3,2 × 1,2-1,3 cm, sparsely pilous beneath, margins not ciliolate.

Forest.

? Known only from the type collected in 1913 (Reygaert 933); Zaire, near Mobwasa.

"Near *C. dissecocarpus* C. B. Clarke" (what ?, not in Index Kewensis), *C. latifolia.*

C. robynsii De Wild.

Herb with slender fibrous roots; stems erect in tufts, prostrate stems rooting at nodes, ± branched, glabrous or pilose, 20-30 cm tall, covered with sheaths at base; cauline leaves with ± oblique sheaths, inflated, open, purplish, c. 1 cm long; lamina narrowed at base, apex acute, 2,5-6,5 × 0,3-,8 cm, glabrous or papillose above and beneath, margins scabrous; spathes sessile, in fascicles on upper part of stems, ovate, 9-10 × 7 mm, base cordate, margins fused at base on 7 mm length, apex acute, longitudinal veins often purplish, glabrous beneath, margins not ciliolate; flowers small, yellow, slightly purplish; seeds longitudinally grooved.

Weed in an indigenous maize field, near a mine; c. 1275 m alt.

? Known only from the type collected in 1926 (Robyns 1768); Zaire, Ruashi.

Near *C. aspera.*

COMMELINA

C. ruandensis De Wild.

Herb with fibrous filiform roots; stems erect or decumbent, in tufts, branched, velutinous, 30-40 cm tall, covered by sheaths at base; cauline leaves with sheaths ± oblique, inflated, ± densely pilose, 7-14 mm long, free margins ciliate; lamina 2,5-5 × 1-2 cm, apex cuneate, base abruptly attenuate, both surfaces velutinous, margins ciliolate; spathes solitary in leaf axils; peduncles 7-11 mm long; spathes ovate, 17-27 × 8-10 mm, cordate at base, velutinous beneath, margins ciliate; flowers yellow.

Meadow; c. 1600 m alt.

? Known only from the type collected in 1926 (Robyns 2465); Zaire, Cape Muthao.

Near *C. africana* var. *krebsiana.*

C. rufociliata C. B. Clarke; Fl. Trop. Afr. 8: 54, 1901.

Hairy herb with stems 45 cm long; leaves elliptic-lanceolate, 10 × 2,5 cm, both surfaces hairy, base unequal; sheaths reddish ciliate; spathes in dense clusters at ends of branches, broadly and obliquely funnel-shaped, hairy, varying in size (1,7-2,5 cm long), margins connate at base for c. 1 cm; flowers blue; seeds obscurely reticulate-wrinkled.

Ecology not recorded; 600-1800 m alt.

? Known only from 2 specimens (Whyte s. n.) from Malawi, between Mpata and the Plateau, and between Kondowe and Karonga, respectively.

Near *C. capitata* but flowers not yellow.

C. sabatieri C. B. Clarke; Fl. Trop. Afr. 8: 37, 1901.

Almost glabrous herb with fibrous roots; stems decumbent, covered in leaf-sheaths; leaves elliptic-oblong, 2,5 × 0,8-1,7 cm, subsessile, margins wavy; sheaths scarious, inflated, slightly hairy at the mouth; spathes c. 1,8 cm long, folded, ovate, acute, peduncle hardly exserted from the leaf sheaths; "capsule and seeds as of *C. nudiflora" (= Murdannia nudiflora).*

Ecology not recorded.

? Known only from the type (Sabatier s. n.); Sudan, source of the White Nile.

Near *Murdannia nudiflora;* they are perhaps conspecific.

C. saxosa De Wild.

Annual herb with filiform fibrous roots; stems ± erect, in tufts, ± branched, velutinous when young, glabrescent, to 16 cm tall, covered with sheaths at base; cauline leaves with sheaths ± oblique, not inflated, glabrous or shortly pilose, 3-10 mm long; lamina 3-8 cm × 2-4,5 mm, apex acute, both surfaces glabrous, margins scabrous; peduncles 4-5 mm long; spathes ovate, acuminate, base cordate, velutinous beneath, ciliolate, 10-11 × 5-6 mm.

On a rock in grassy savanna.

? Known only from the type collected in 1914 (Bequaert 4812); Zaire, Mboga.

Near *C. umbellata, C. erecta.*

COMMELINA

C. schliebenii Mildbr.

Perennial herb; stems erect (perhaps sometimes decumbent ?), 30-40 cm tall, densely pilose with white patent hairs; leaf sheaths c. 1,5-2,5 cm long, little inflated, with hairs similar to those of the stems, purple streaked; lamina narrowly lanceolate, base unequal, 6,5-10 × 1,2-2 cm, glabrous except for white hairs on midrib; peduncles 3-6 cm long; spathes 3 × 3 cm, connate at base on 4 mm, white-pilose beneath; flowers sky blue.

Savanna ("Pori").

? Known only from the type collected in 1931 (Schlieben 1056); Tanzania, Iringa Distr., Lupembe, on Mpoponzi River.

Resembling *C. latifolia* but pubescence different.

C. shinsendaensis De Wild.

Stems erect, ± branched, > 30 cm long, glabrous or sparsely pilose; leaf sheaths suboblique, inflated, velutinous, ciliate, 1,2-3 cm long; lamina linear, 5-25 × 0,7 cm, apex acute, both surfaces sparsely pilose, margins long ciliate; peduncles 5,5 cm long; spathes ovate, 2,2-2,7 × 1,2-1,4 cm, (greenish-)purplish, ± densely pilose beneath, margins fused at base on c.1 cm, not ciliolate, base cordate; flowers long-pedicellate.

Bush.

? Known from only 2 specimens (incomplete) collected in 1912 (Ringoet 476); Zaire, Shinsenda.

? Near *(C. subcucullata), C. welwitschii, C. neurophylla.*

C. stolzii Mildbr.

Robust herb apparently perennial; stems 2-4 (or more ?), erect, 40-50 cm tall, 8 mm Ø, densely and shortly pilose longitudinally below the dorsal suture; basal leaves few, broadly linear, 22 × 1,2 cm, glabrous; cauline leaves similar but lanceolate-linear, c. 15 × 1,5-1,8 cm; sheaths c. 1,5 cm long, hardly inflated, margins sparsely long-ciliate, midrib densely pilose beneath; spathes large, often 4 at tips of stems in leaf axils; peduncle 4-10 cm long with a line of long white hairs; spathe 2,5-3,5 × 2,5-3 cm, with long white hairs dorsally particularly on the midrib, base broadly cordate, apex shortly acuminate; flowers violet blue; seeds warty.

Forest; c. 1000 m alt.

? Known only from the type collected in 1912 (Stolz 1094); Tanzania ! (Kyimbila).

C. subcucullata C. B. Clarke; Fl. Trop. Afr. 8: 53, 1901.

Herb ± hairy with stems ca 30 cm long, suberect at base; leaves linear, 10-14 × 1,7 cm, dilated at base; spathes solitary towards ends of branches; peduncle exserted 2,5-5 cm from the leaf sheaths; spathes ovate-acuminate, 1,8 cm long, ± hairy, pale brown with purple longitudinal veins, margins connate at base for 2-4 mm; flowers yellow ? to brown-red (dried material); capsule 4-seeded; seeds smooth.

Ecology not recorded; 1200-1800 m alt.

? Known from only 3 specimens, all from Malawi: Whyte s. n. (Mt Malosa), idem (Mt Zomba), Scott-Elliot 8675 (Mt Mulanje).

Perhaps a variety of *(C. carsonii =) C. ceciliae; near C. neurophylla.*

C. subscabrifolia De Wild.

Herb with erect stems or decumbent at base, ± branched, > 25 cm long; leaf sheaths (cauline) ± oblique, little inflated, scabrous hairy, 1-1,8 cm long, margins hairy on free part; lamina 3-12 × 0,5-0,7 cm, apex acute, base attenuate, both surfaces scabrous-velutinous; peduncles solitary in upper leaf axils, 2-4 cm long;

spathes ovate, 2-2,5 × c. 1 cm, acute, tinged violet, margins connate for 6-7 mm, shortly scabrous-velutinous, not ciliate; flowers pale blue; fruit and seeds unknown.

Plateau, in sandy soil.

? Known only from the type collected in 1913 (Homblé 1271); Zaire: Tshisinka.

Near *(C. carsonii =) C. ceciliae, (C. subcucullata).*

C. sylvatica De Wild.

Herb with stems rooting at lower nodes; stems erect or procumbent, ± branched, > 30 cm tall, glabrous except at nodes when young; leaf sheaths little oblique, little inflated, purplish tinged, glabrous or short hairy, free margins hairy, 1,2-2,4 cm long; lamina 1,4-11 × 1,2-2,8 cm, apex acute, both surfaces glabrous, margins short-ciliate; peduncles 1,6-4,5 cm long; spathes sparsely velutinous, ovate, 2,4-4,5 × 1-1,3 cm, base cordate, margins not connate at base, glabrous, margins not ciliate; flowers yellow.

Wooded places on plateau; termite mounds in shrubby places; common; dembo; c. 1250 m alt.

? Known from only 2 specimens: Homblé 1274 collected in 1913, Robyns 1512 in 1926; Zaire: Biano Plateau and Baya Farm, respectively.

Near *C. africana.*

C. transversifolia De Wild.

Herb with erect simple stems, glabrous, 25-50 cm tall, with sheaths at base; cauline leaves 5-6, spreading; sheaths cylindrical, glabrous, margins ciliate, 0,7-2,6 cm long; lamina 5-10 × 2-4 cm, apex acute, base cordate, both surfaces glabrous, margins ciliate; peduncles c. 2 cm long, short-pubescent; spathes ovate, 1,8-2,5 × 1 cm, acute, base subcordate, glabrous outside, margins connate at base for 6 mm, ciliate, tinged purple; flowers white.

Wooded places in moist valley.

? Known only from the type collected in 1912 (Homblé 731); Zaire, Biano Plateau, Katentania.

Near *C. ceciliae* but flowers not blue.

C. vanderystii De Wild.

Glabrous herb; stems > 25 cm long; leaves linear, sheaths to 3 cm long, ciliate at apex; lamina 10 × 0,7 cm; pedicels slender; spathes 4,5-5,5 cm long, narrowly ovate, acuminate, ciliate, base subcordate; flowers streaked brownish.

Ecology not recorded.

? Known only from the type collected in 1910 (Vanderyst s. n.); Zaire, Wombali.

Near *C. welwitschii* but spathes longer.

C. velutina Mildbr. – See above p. 86.

C. vermoesenii De Wild.

Stems apparently erect, ± branched, > 35 cm tall, glabrous when adult; leaf sheaths little oblique, little inflated, velutinous, 0,8-3,5 cm long; lamina 6-12 × 0,6-1,6 cm, base attenuate, apex acute, almost glabrous above, sparsely short-hairy beneath, margins scabrous; peduncles 1,5-2,2 cm long, velutinous; spathes 2,2-3 × 0,7-0,9 cm, velutinous outside, margins connate at base for 3-4 mm, apex acute.

Ecology not stated.

? Known only from the type collected in 1918 (Vermoesen 1085); Zaire, Boma.

Said to be near *C. petersii.*

SYNONYMS (see also Enum. 3: 25, 1995):

Commelina aequinoctialis P. Beauv. = **Aneilema**

aethiopica C. B. Clarke = **Commelina erecta** subsp. **erecta**

africana L. var. *boehmiana* (K. Schum.) Brenan, var. *brevipila* Brenan, var. *milleri* Brenan = **C. africana** var. **krebsiana**

africana L. var. *circinata* Chiov. = **C. arenicola**

albescens Hassk. var. *occidentalis* C. B. Clarke = **C. livingstonei**

albescens auct., non Hassk. = **C. livingstonei**

alisagarensis Kumar & Deodikar = **C. petersii** subsp. **petersii**

ambigua P. Beauv. = **Palisota**

amphibia A. Chev., incl. var. *hirsuta* A. Chev. = **Commelina congesta**

angolensis C. B. Clarke = **C. africana** var. **krebsiana**

angustissima K. Schum. = **C**. sp. ? (listed above)

aquatica J. K. Morton = **C. diffusa** subsp. **diffusa**

aspera G. Don ex Benth. var. *firma* C. B. Clarke = **C. aspera**

aspera sensu Rendle, Cat. Afr. Pl. Welwitsch 2(1): 78, 1899 = **C. opulens**

aspera auct. = **C. bracteosa**

attenuata B. Heyne ex Steud. = **C. subulata**

axillaris L. = **Cyanotis**

baidoensis Chiov. = **Commelina somalensis**

bainesii C. B. Clarke = **C. erecta** subsp. **erecta**

bakueana A. Chev. ex Hutch. & Dalziel = **C. africana**

barbata Lam. var. *villosior* C. B. Clarke = **C. africana** var. **krebsiana**

beccariana Martelli = **C. africana**

benghalensis Forssk., non L. = **C. africana**

beniniensis P. Beauv., incl. subsp. *sessilifolia* (Benth.) J. K. Morton = **Aneilema**

bequaertii De Wild. = **Commelina** sp. ? (listed above)

bianoensis De Wild. = **C. neurophylla**

boehmiana K. Schum. = **C. africana** var. **krebsiana**

boissieriana C. B. Clarke = ? **C. imberbis**

brachysperma Chiov. = **C. petersii**

buchananii C. B. Clarke = **C. africana** var. **lancispatha**

canescens Vahl = **C. benghalensis**

carsonii C. B. Clarke = ? **C. ceciliae**

chantransia Roem. & Schult. = **Floscopa africana** subsp. **africana**

claessensii De Wild. = **Commelina** sp. ? (listed above)

clarkeana De Wild. & T. Durand and K. Schum. = **C**. sp. ? (listed above)

condensata C. B. Clarke = **C. congesta**

corbisieri De Wild. = **C**. sp. ? (listed above)

cordifolia A. Rich. = **C. africana** var. **krebsiana**

corradii Chiov. = **C. erecta** subsp. **erecta**

cristata L. = **Cyanotis cristata**

critica De Wild. = **Commelina** sp. ? (listed above)

cucullata L. = **C. benghalensis**

cufodontii Chiov. = **C. benghalensis**

cuneata C. B. Clarke = **C**. sp. ? (listed above)

dammeriana K. Schum. = ? **C. spectabilis** (cf. also list above)

dekindtiana Fritsch = ? **C. crassicaulis** (idem)

demissa C. B. Clarke = **C**. sp. ? (listed above)

diffusa Burm. f. subsp. *aquatica* (J. K. Morton) Ogwal = **C. diffusa** subsp. **diffusa**

dinteri Mildbr. = **C. africana** var. **lancispatha**

divaricata Vahl = **C. africana**

droogmansiana De Wild. = **C**. ? (listed above)

ebracteata Ehrenb., nom. = **Aneilema forsskalii**

echinosperma K. Schum. = **Commelina** sp. ? (listed above)

echinulata Lebrun & Taton = **C**. sp. ? (listed above)

edulis A. Rich. = **C. africana**

elegantula K. Schum. = **C. subulata**

elgonensis Bullock = **C. schweinfurthii**

elliotii C. B. Clarke = **C. africana** var. **lancispatha**

erecta L. subsp. *livingstonei* (C. B. Clarke) J. K. Morton = **C. livingstonei**

falcata Hassk. = **C. forsskaolii**

filifolia K. Schum. = **C. welwitschii**

flava Salisb. = **C. africana**

flexuosa Welw. ex C. B. Clarke = **Cyanotis flexuosa**

foecunda Hochst. ex C. B. Clarke = **Cy. foecunda**

forsskailii Hochst. ex C. B. Clarke = **Commelina imberbis**

forsskaolii Vahl var. *major* Chiov. = **C. latifolia**

forsskaolii Vahl var. *ramulosa* C. B. Clarke = **C. ramulosa** (incertae sedis)

forsskaolii sensu auctt., p.p., non Vahl = **C. benghalensis**

gerrardii C. B. Clarke = **C. erecta** subsp. **erecta**

subsp. *maritima* C. V. Morton = **C. erecta** subsp. **maritima**

giorgii De Wild. = **C**. sp. ? (listed above)

guineensis Hua, p.p. = **C. erecta** subsp. **erecta**

heterantha Welw. ex C. B. Clarke [syn.: *C. subulata* var. *heterantha* (Welw. ex C. B. Clarke) C. B. Clarke] = "I can discover no difference between this plant and typical *C. subulata*, Roth", "except, however, in the colour of the flower" (light yellow or brownish-yellow), fide F.T.A. 8: 39, 1902 – In need of study

heudelotii C. B. Clarke = **C. congesta**

hirsuta Hochst. ex C. B. Clarke = **Cyanotis vaga**

homblei De Wild. = **Commelina** sp. ? (listed above)

hookeri Dietr. = **Murdannia simplex**

"*humuensis*", sphalm. = **Commelina irumuensis**

imberbis sensu Oberm. & al., 1985, non Ehrenb. ex Hassk. = **C. kotschyi**

imberbis Ehrenb. ex Hassk. var. *loandensis* C. B. Clarke = **C. petersii** subsp. **loandensis**

involucrosa A. Rich. = **C. africana**

irumuensis De Wild. = **C**. sp. ? (listed above)

jacobii C. E. C. Fisch. = **C. petersii** subsp. **petersii**

COMMELINA

kabarensis De Wild. = **C. purpurea**

kagerensis Lebrun & Taton = **C. livingstonei**

kapiriensis De Wild. = **C**. sp. ? (listed above)

karooica C. B. Clarke, incl. var. *barberae* (C. B. Clarke) C. B. Clarke = **C. africana** var. **karooica**

kilanga De Wild. = **C**. sp. ? (listed above)

kilimandscharica K. Schum. = **C. benghalensis** var. **hirsuta**

kirkii C. B. Clarke = **C. africana** var. **lancispatha**

kisantuensis De Wild. = **C**. sp. ? (listed above)

krebsiana Kunth var. *villosior* (C. B. Clarke) C. B. Clarke = **C. africana** var. **krebsiana**

kurzii C. B. Clarke = **C. erecta** subsp. **erecta**

lateriticola A. Chev. = **C. schweinfurthii**

latifolia Hochst. ex C. B. Clarke = **C. imberbis**

latifolia Hochst. ex A. Rich. = **C. latifolia**

latifolia sensu Rendle, Cat. Afr. Pl. Welwitsch 2(1):77, 1899 = **C. petersii** subsp. **loandensis**

linearifolia Kunth = **C. subulata**

longifolia (Hook.) Sprengel = **Murdannia simplex**

lugardii Bullock = **Commelina purpurea**

lukonzolwensis De Wild. = **C**. sp. ? (listed above)

lutea Moench = **C. africana**

luteiflora De Wild. = **C**. sp. ? (listed above)

maculata Chiov. = **C. stefaniniana**

mannii C. B. Clarke var. *lyallii* C. B. Clarke = **C. africana** var. **krebsiana**

membranacea Robyns = **C**. sp. ? (listed above)

mensensis Schweinf. = **C. albescens**

merkeri K. Schum. = **C**. sp. ? (listed above)

microspatha K. Schum. = **C**. sp. ? (listed above)

multicaulis Hochst. ex C. B. Clarke = **Commelina albescens**

nimmoniana J. Graham ex C. B. Clarke = **Murdannia semiteres**

nudiflora L. = **M. nudiflora**

nudiflora L. fa. *agraria* (Kunth) C. B. Clarke, var. *glabrata* (G. Mey.) C. B. Clarke, var. *werneana* (Hassk.) C. B. Clarke = **Commelina diffusa** subsp. **diffusa**

obscura K. Schum. = **C**. sp. ? (listed above)

ovato-oblonga (P. Beauv.) Roem. & Schult. = **Aneilema umbrosum** subsp. **ovato-oblongum**

palisotii A. Dietr. = **A. umbrosum** subsp. **ovato-oblongum**

pallida De Wild. = **Commelina** sp. ? (listed above)

persicariifolia Wight ex C. B. Clarke = **C. petersii** subsp. **petersii**

petersii sensu Fl. W. Trop. Afr., ed. 2 = **C. imberbis**

petiolata Abeyw. = **C. petersii**

phaeochaeta Chiov. = **C. benghalensis**

pilosissima Hutch. = **C. livingstonei**

polyclada Welw. ex C. B. Clarke = **C. africana**

praecox Th. Fries = **C. scaposa**

procurrens Schltdl. = **C. benghalensis**

prostrata Regel = **C. benghalensis**

COMMELINA

pseudoscaposa De Wild. = **C**. sp. ? (listed above)

pynaertii De Wild. = **C**. sp. ? (listed above)

pyrrhoblepharis Hassk. = **C. benghalensis**

quarrei De Wild. = **C**. sp. ? (listed above)

radiciflora R. Br. ex C. B. Clarke = **C. benghalensis**

ramulosa (C. B. Clarke) H. Perrier = **C**. sp. ? (listed above)

reygaertii De Wild. = **C**. sp. ? (listed above)

rhizocarpa Afzel. ex C. B. Clarke = **C. benghalensis**

rhodesica Norl. = **C. welwitschii**

robynsii De Wild. = **C**. sp. ? (listed above)

ruandensis De Wild = **C**. sp. ? (listed above)

rufociliata C. B. Clarke = **C**. sp. ? (listed above)

sabatieri C. B. Clarke = **C**. sp. ? or **Murdannia nudiflora** ? (listed above)

sagittifolia Hassk. = **Commelina latifolia**

saxosa De Wild. = **C**. sp. ? (listed above)

schimperiana Hochst. ex C. B. Clarke = **C. albescens**

schliebenii = **C**. sp. ? (listed above)

senegalensis Ten. = **C. benghalensis**

shinsendaensis De Wild. = **C**. sp. ? (listed above)

simplex Vahl = **Murdannia simplex**

sinica (Ker-Gawl.) Roem. & Schult. = **M. simplex**

sp. cf. *bracteosa* Hassk. = **Commelina zenkeri**

sp. aff. *purpurea* Brenan in Herb. Kew = **C. kituloensis**

sp. D sensu Agnew & Agnew 1994 = **C. mascarenica**

sp. 5 sensu Fl. Somal. 1995 = **C. mascarenica**

speciosa (L. f.) Thunb. = **Cyanotis speciosa**

stolzii Mildbraed = **Commelina** sp.? (listed above)

striata Hochst. ex Kunth = **C. subulata**

subalbescens Berhaut = **C. livingstonei**

subamplectens Hassk. = **C. africana**

subaurantiaca Hochst. ex Kunth = **C. subulata**

subcucullata C. B. Clarke = **C**. sp. ? (listed above)

subscabrifolia De Wild. = **C**. sp. ? (listed above)

sulcata Benth. = **C. erecta** subsp. **erecta**

sulcata Hoffmans. ex Spreng. = **C. erecta** subsp. **erecta**

sylvatica De Wild. = **C**. sp. ? (listed above)

thomasii Hutch. = **C. acutispatha**

trachysperma Chiov. = **C. petersii** subsp. **petersii**

transversifolia De Wild. = **C**. sp. ? (listed above)

turbinata Vahl = **C. benghalensis**

umbrosa Vahl = **Aneilema**

uncata C. B. Clarke = **Commelina benghalensis**

vanderystii De Wild. = **C**. sp. ? (listed above)

venusta C. B. Clarke = ? **C. erecta** subsp. **erecta**

vermoesenii De Wild. = **C**. sp. ? (listed above)

violacea C. B. Clarke = **C. subulata**

vogelii C. B. Clarke, incl. var. *angustior* C. B. Clarke = **C. erecta** subsp. **erecta**

weimarckiana Norlindh = **C. eckloniana**

werneana Hassk. = **C. diffusa** subsp. **diffusa**

welwitschii C. B. Clarke var. *glabra* K. Schum. = **C. milne-redheadii**

CYANOTIS / *21* (+ *4* ?)

syn.: *Tonningia* Necker, non *Thonningia* Vahl *(Balanophoraceae).*

Some 50 species in the tropical and subtropical Old World, to Australia. Flowers are regular, petals fused below into a tube, cincinni compact.

Incompletely known genus in our area. Corolla unknown in 1 species, and only withered in another one; fruit unknown in one species; ? one species known only from the type.

Cyanotis ake-assii Brenan

Perennial herb with hairy stems c. 80 cm long, simple or ramose at base; with densely clustered thickened roots to 1 cm Ø; leaf blade 6-11 × 2-3 cm, oblong-lanceolate to oblong-elliptic, base amplexicaul; inflorescence capitate, c. 1-2 cm long and broad; corolla blue.

Dry woodland; shaded undergrowth; laterite.

C. angusta C. B. Clarke; Bull. Soc. Bot. France 116: 254, 1970; Akoegninou & al., Fl. analyt. Bénin: 77, 2006. – Icon.: Lisowski, Fl. Rép. Guinée 2: fig. 476, 2009.

syn.: *C. bulbifera* Hutch. in Fl. W. Trop. Afr., ed. 1/2: 315, 317, 1936 (English descr. only), in Bull. Misc. Inform. Kew 1939: 242 (Latin descr.); *Tonningia angusta* (C. B. Clarke) Kuntze

Perennial herb 10-25 cm tall; base of stem bulb-like, ovoid, to 3 cm Ø, covered with densely appressed-villous scales; leaves linear, acute, subradial, 8-20 × 0,6-0,8 cm, glabrous; inflorescences 1-3, subumbellate; flowers small, blue or purple.

Savanna; bowé; arid ground; sandstone; abundant.

Senegal ?

Near *C. vaga* ? (cf. under that species).

C. arachnoidea C. B. Clarke; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 435, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2, 306, 1994; Newton, Check-list Kenyan succ.: pl. 16, 2003; Sosef & al., Check-list pl. vascul. Gabon: 115, 2006; Cabezas & al., Commelin. Equat. Guinea: 112, 2009.

syn.: *Tonningia arachnoidea* (C. B. Clarke) Kuntze; *Tradescantia incana* B. Heyne ex C. B. Clarke; *T. lanata* B. Heyne ex C. B. Clarke; *Cyanotis bodinieri* H. Lév. & Vaniot; *C. labordei* H. Lév. and Vaniot

Creeping, perennial, succulent, much branched, prostrate herb; stems to c. 45 cm long; forming loose mats; ± clothed with white indumentum like silk or cotton-wool; creeping sterile stems with the internodes *obscured by the overlapping leaf sheaths;* when these sterile stems are short they give the appearance of a basal rosette of leaves; lamina 2,5-7,5 cm long; with a large terminal inflorescence from the older parts of creeping shoots, smaller ones in the axils of the upper leaves; flowers blue-mauve to pink.

The plant is a character species of the *Cyanotis arachnoidea-Urena lobata*-community, together with *Heterotis decumbens, Anchomanes difformis, Asystasia gangetica,* etc. in herbaceous fringes of inselbergs (Parmentier & Müller in Phytocoenologia 36: 565-597, 2006); rocks; woodland; *Loudetia arundinacea* grassland with scattered trees on rocky outcrop with wet flushes, thin soil with *Selaginella njamnjamensis, Aeollanthus* spp., *Aloe* sp.; thick layer of black soil formed of earth and dead plant remains; to c. 300-750 m alt.

Also in N Tanzania ? – Listed from Angola by Figueiredo & Smith, Pl. Angola: 177, 2008 (specim. Gossweiler 9843) and Succ. fl. Angola (Haseltonia 15: 74), 2009.

India, Laos, Myanmar, Sri Lanka, Thailand, Vietnam, China, Taiwan.

Comprises 2 vars. – Holotype of var. **pilosa** Brenan: Stanfield 98, collected on 15 September 1957 !, with flowers. The same number was also collected on 12 June 1957 (Brenan in Kew Bull. 24: 353, 1970).

Perhaps an African subsp. of *C. lanata;* this perennial form has succeeded in spreading into India (fide Morton, 1967).

C. axillaris (L.) D. Don ex Sweet – Icon.: J. Bombay Nat. Hist. Soc. 59: pl. II, 1962.

bas.: *Commelina axillaris* L.

syn.: *Amischophacelus axillaris* (L.) R. S. Rao & Kammathy; *Tradescantia axillaris* (L.) L., non *T. axillaris* Raf. (= *T. virginiana* L.); *Tonningia axillaris* (L.) Kuntze; *T. axillaris* (L.) Raf.; *Zygomenes axillaris* (L.) Salisb.

Annual herb with fibrous roots; stems erect or creeping, branched, 30-40 cm long; leaves all cauline; blade linear, *5-14 × 0,4-1* cm, glabrous or sparsely pubescent above; cincinni much reduced, in axillary fascicles of 3-6 blue flowers; filaments *bearded.*

Humid place drying up under *Mitragyna;* termite mounds.

Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Philippines, Sri Lanka, Thailand, Vietnam, China, Oceania.

Introduced ? Discovered in Chad in 1969 (Fotius 1757); also indicated by Vollesen in Tanzania (Selous Game Reserve) and from SE Kenya (Opera Bot. 59: 97, 1980). The specimen Fotius1909 from Chad is *C. cucullata.*

Near *C. cucullata* but: – leaves 5-10 × 0,4-1 cm; internodes comparatively longer even in the upper portion; sheath though slightly bulged during flowering and fruiting never cucullate; capsule with a pointed end at the tip without any depression.

C. caespitosa Kotschy & Peyr.; Friis & Vollesen, Willdenowia 14: 360, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 435, 1985; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c48; Akoegninou & al., Fl. analyt. Bénin: 77-78, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008 (specim. Gossweiler 14026), and Succ. fl. Angola (Haseltonia 15: 74), 2009. – Icon.: Kotschy & Peyritsch, Pl. tinn.: pl. 22d, 1867 (sub gen. *Zygomenes);* Boissiera 33: 147, 1981; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 137, 1994; Fl. Eth. & Eritrea 6: 341, 1997.

syn.: *Zygomenes caespitosa* Kotschy & Peyr.

Erect perennial herb with tuberous roots away from the axis, 1-2 cm long; stems somewhat compact, *reddish-purple* with woolly hairs, stem base covered by fibres; rosette leaves ± sessile, linear, 10-20 × 2-3 cm, *dull-purple* beneath, sparsely woolly, usually appearing after the flowering; inflorescence-bearing axis 5-30 cm long; inflorescence (sub-)terminal; flowers blue, occasionally lilac, purple or even white; staminal hairs blue, anthers yellow. Inflorescences frequently arching and may root at nodes. Often *flowering after fires.*

Grassland; open *Combretum* woodland; *Pterocarpus lucens-Anogeissus leiocarpus* deciduous woodland on sandy soil; peat with *Afrotrilepis pilosa;* burnt *Exotheca, Hyparrhenia* grassland; often in shallow soil over rocks; dried up and almost bare ground of seasonally inundated hollows; lake beds; river flood plains; pockets of thin soil; ? 500-2600 m alt.

Variable.

Namibia, Botswana.

(**C. cristata** (L.) D. Don); Fl. Eth. & Eritrea 6: 343, 1997; Fl. Mascareignes 186, Commelin.: 2, 1978. – Icon.: R. Wight, Icones plant. Ind. Or. 6: pl. 2082, 1853.

bas.: *Commelina cristata* L.

syn.: *Tradescantia cristata* (L.) L.; *Tonningia cristata* (L.) Kuntze; World Checklist Monocotyledons, Royal Bot. Gard., Kew.

Annual herb with fibrous roots; stem creeping, rooting at lower nodes, ascending above, rarely erect, 10-30 cm tall, with a longitudinal row of wiry hairs; leaf blade 3,5-4 × 0,9-1,2 cm, linear-oblong or linear-lanceolate, base rounded, apex acute, margins ciliate; flowers purplish-blue in *falcate, very compressed* cincinni.

Slopes with scattered trees; c. 700 m alt.

One single collection made in 1969 (Eritrea East). Probably introduced. – Not mapped.

Madagascar, Mauritius; Socotra; India, Sri Lanka, China, Myanmar, Laos, Cambodia, Thailand, Vietnam, Malaysia, Java, Sumatra, Lesser Sunda Isl., Philippines.

C. cucullata (Roth) Kunth – Icon.: J. Bombay Nat. Hist. Soc. 59: tab. II, 1962.

bas.: *Tradescantia cucullata* Roth

syn.: *Amischophacelus cucullata* (Roth) R. S. Rao & Kammathy; *Zygomenes cucullata* (Roth) R. S. Rao & Kammathy

Annual herb with branched erect or decumbent-ascending stems, glabrous or sparsely hairy; leaves oblong-lanceolate, obtuse, succulent, *3-4(-10) 3 0,6-0,8(-1,2)* cm; sheaths prominently inflated and cucullate; filaments *glabrous.*

Termite mound (Fotius 1909).

SW India: Kanara to Malabar.

Near *C. axillaris.*

Other specimens from tropical Africa of both *C. axillaris* and *C. cucullata* are probably present in herbaria.

C. cupricola P. A. Duvign.

Perennial herb; base inflated-subbulbous with long dark brown silky-woolly hairs; stems slender, 20-30 cm tall, with long whitish ± cobwebby woolly hairs; leaves filiform-linear, 10-15 cm × 1-1,5 mm densely cobwebby hairy; inflorescences solitary, capitate, terminal, 1-1,5 cm wide, with 2-3 filiform-linear bracts 4-5 cm long; corolla unknown.

Meadow on old indigenous works forming a ground rich in copper-cobalt; meadow with *Sporobolus, Vellozia* on colluvium with malachite (vide Bull. Soc. Roy. Bot. Belg. 91: 129-131, 1958; Faucon & al., Pl. Ecol. Evol. 143: 8, 2010).

"Requiring taxonomic re-evaluation".

(**C. dybowskii** Hua)

Herb, hirsute, with subsimple erect stems; leaves linear, glabrous above, hairy beneath, margins minutely scabrous, rosy; cymes terminal or on axillary branches; flowers blue sometimes rosy; fruit unknown.

Ecology unknown.

Collected in 1892 by Dybowski (Nr. 760) and by Chevalier (Nr. 5508) in the same area, and also known from Fort Sibut (Centr. Afr. Rep.). Eleven other localities are cited by De Wildeman in Plantae Bequaertianae 5/2: 229-230, 1931, from Zaire. Also cited by De Wildeman in Contrib. Flora du Katanga, Suppl. 3:

88, 1930, from a copper hill, in a prospecting ground trench between schist, at 1325 m alt. (Robyns Nr. 1741). – Not mapped.

Near *C. longifolia* and perhaps only a variant of this (cf. Kew Bull. 1952: 205).

C. flexuosa C. B. Clarke; Figueiredo & Smith, Pl. Angola: 177, 2008.

syn.: *Commelina flexuosa* Welw. ex C. B. Clarke; *Cyanotis nodiflora* (Lam.) Kunth var. *madagascarica* sensu Rendle, Cat. Afr. Pl. Welwitsch 2(1): 80, 1899, non C. B. Clarke *(= C. speciosa).*

Herb, succulent, with fibrous roots and procumbent purple stems, rooting at lower nodes, with very numerous stout branches to 50 cm long, flexuose; leaves oblong-lanceolate, to 5 cm long, the upper ones by degrees shortened into the floral leaves; inflorescences axillary, very numerous, nearly included in the sheaths, flowers pale blue.

Very rare in damp rocky places.

Questionably distinct from *C. foecunda.*

C. foecunda Hochst. ex Hassk.; Fl. Eth. & Eritrea 6: 342, 1997. – Icon.: Tredgold & Biegel, Rhodes. wild flowers: pl. 2, 1979; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 137, 1994; Thulin, Fl. Somalia 4: 81, 1995 (sub nom. *C. somalensis,* a white-pubescent plant; cf. Fl. Somalia 3: 585, 2006).

syn.: *Commelina foecunda* Hochst. ex C. B. Clarke; *Tonningia foecunda* (Hochst. ex Hassk.) Kuntze

Succulent perennial herb growing from a corm deep in the soil; stems *creeping* and rooting at lower nodes and ascending to 30 cm long with zigzag flowering shoots, hairy; leaf blade (linear-)lanceolate, rarely ovate, 4-8,5 × 0,5-1,5 cm, apex short-acuminate, nearly glabrous to hairy; inflorescences *in 5-12 upper nodes,* terminal and axillary, subtended by leafy spathes; flowers blue or purple.

Juniperus forest among rocks and in rock crevices in mixed woodland; savanna; common in grassland, bushland, forest edges; dry forests; rarely along swamps or torrents; to 900-2300 m alt.

Namibia, Botswana.

C. flexuosa from Angola is perhaps a synonym (see above).

C. ganganensis Schnell; Lisowski, Fl. Rép. Guinée 1: 388, 2009.

Slender perennial herb, 20-40 cm tall, much branched, straggling; stems fleshy, purple, subglabrous to slightly subwoolly; leaves narrow, scattered along the stems, 30-40 × 2-4,5 mm, sheaths 20 mm long; inflorescences terminal, with *falcate very compressed* cincinni on *peduncles* 1,5-5,5 cm long; flowers blue to pink; fruits unknown.

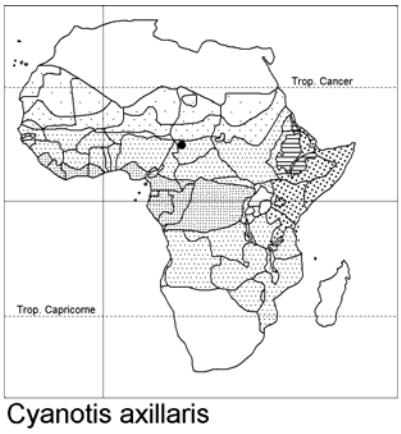
Sandstone rocks on humid slabs. Important populations.

C. hepperi Brenan

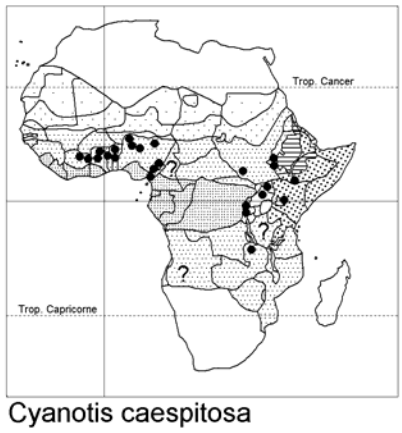
Densely spreading-hairy, apparently perennial herb; roots fibrous; stems, purple, dimorphic: – leafy ones 11-15 cm tall with leaves ± compactly disposed; – floriferous ones 15-40 cm tall, erect or diffuse; leaf blades linear-lanceolate, 5-7 × 0,9-1,2 cm, apex acute, base scarcely narrowed; floriferous stems often ramose; inflorescences axillary or terminal; axillary ones with one cincinnus, terminal ones with several cincinni in a head; only withering flowers known.

Slopes of flat-topped hill, in rock-crevices in cliff and boulders; 1440 m alt.

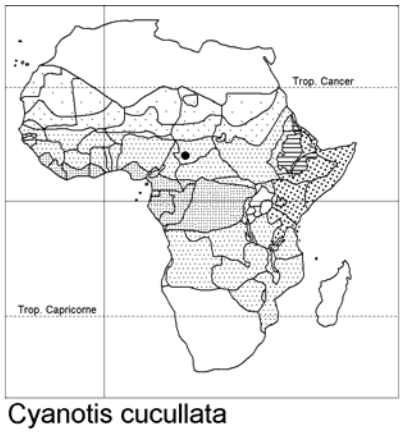
? Only known from the type collected in 1957.



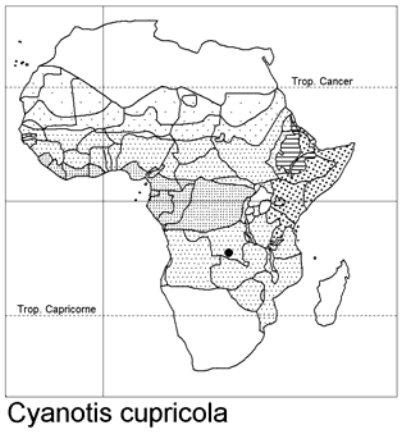
Cyanotis axillaris



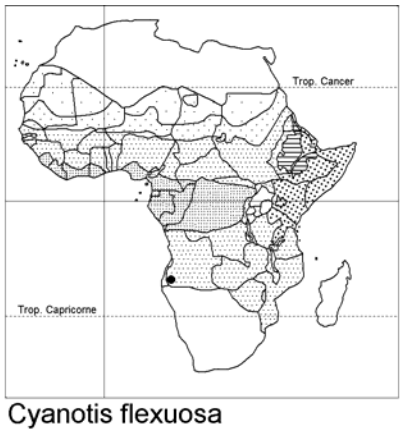
Cyanotis caespitosa



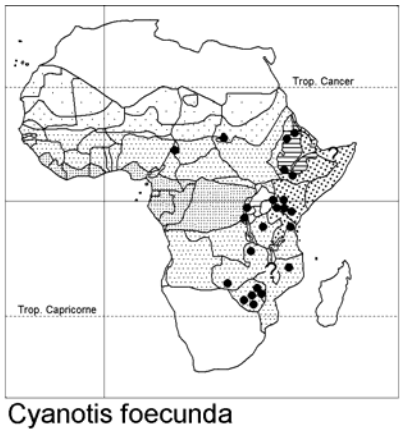
Cyanotis cucullata



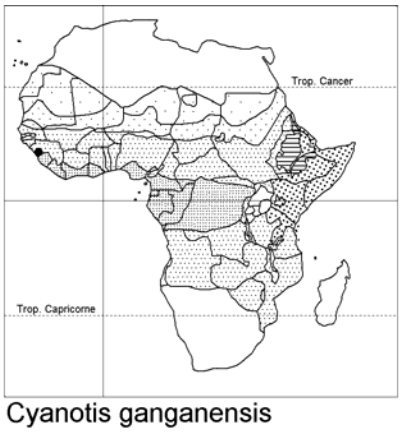
Cyanotis cupricola



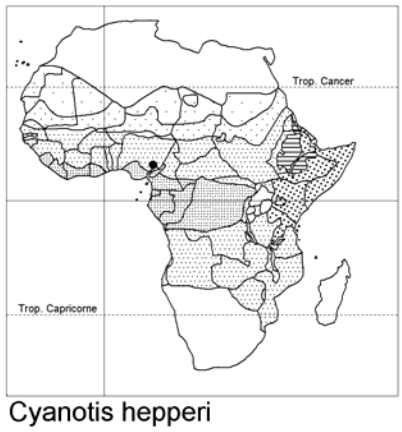
Cyanotis flexuosa



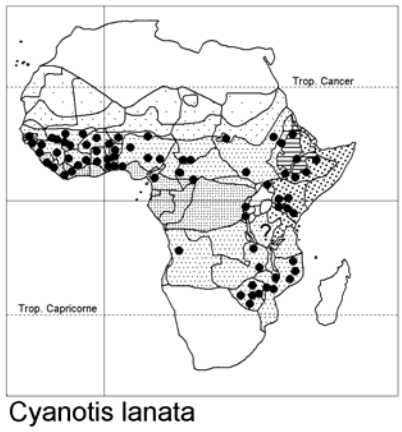
Cyanotis foecunda



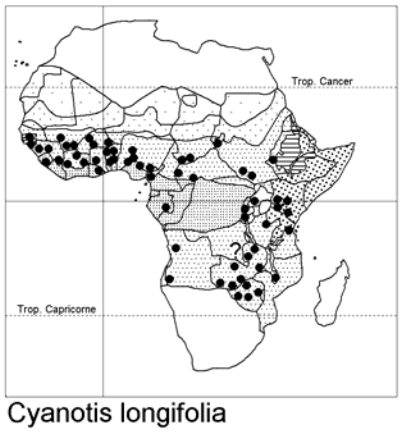
Cyanotis ganganensis



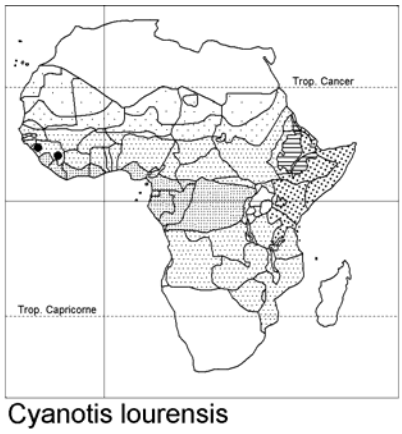
Cyanotis hepperi



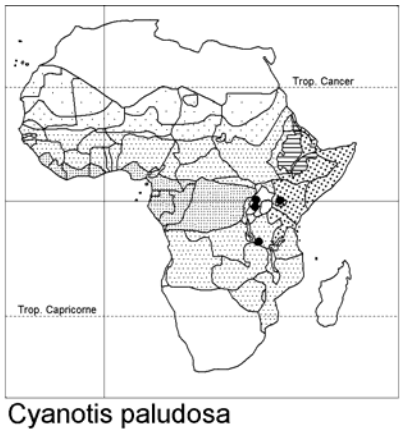
Cyanotis lanata



Cyanotis longifolia



Cyanotis lourensis



Cyanotis paludosa

CYANOTIS

(**C. homblei** De Wild.)

Herb velvety woolly; roots densely fasciculate, fleshy to 6 mm Ø, 10 cm long; sterile stems erect, with 1-2 basal sheaths, and c. 3 leaves; leaf sheaths velvety-woolly outside; lamina 5-25 cm × 5-8 mm; floriferous stems 15-33 cm long, with one basal sheath; leaf lamina 1,2-9 cm × c. 6 cm; inflorescences (sub-)terminal, 2-3; flowers blue.

Wooded valley; plain (Biano Plateau, Zaire).

Near *C. longifolia* and perhaps a synonym of it. – Not mapped.

C. lanata Benth., incl. var. *rubescens* (A. Chev.) Schnell, var. *schweinfurthii* (Hassk.) C. B. Clarke, and var. *sublanata* C. B. Clarke; but excl. var. *gracilis* Schnell (= *C. longifolia* var. *gracilis);* Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 435, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 306, 1994; Fl. Eth. & Eritrea 6: 342-343, 1997; Strugnell, Checklist spermatoph. Mt. Mulanje, Malawi: 71, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008, and Succ. fl. Angola (Haseltonia 15): 74, 2009; Lisowski, Fl. Rép. Guinée 1: 388, 2009; Cabezas & al., Checklist Commelin. Equat. Guinea: 113, 2009. – Icon.: Akoegninou & al. Fl. anal. Bénin: 78, 2006; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 719, 2010.

syn.: *C. rubescens* A. Chev.; *C. schweinfurthiii* Hassk.

Annual herb with fibrous roots; stems creeping, forming mats, rooting at nodes, with several ascending branches 5-30-50 cm tall, red-brown or purple tinged, sparsely to densely hairy with woolly hairs; leaf blade *succulent*, linear(-lanceolate), 3-7 × 0,5-0,7 cm, apex acuminate, glabrous above, woolly beneath; inflorescences borne at 1-3 upper nodes; head rather small with *2 bracts subopposite at base;* flowers blue, purple, pink, rarely white.

The most characteristic element on virtually all inselbergs in W and C Africa (fide W. Barthlott & S. Porembski in C. R. Huxley & al., eds., Chorology, Taxonomy and Ecology of the Floras of Africa and Madagascar, Roy. Bot. Gard., Kew 1998: 119-129). Character species of the *Cyanotido lanatae-Afrotrilepidion pilosae* and *Oreonesiono testui-Afrotrilepidion pilosae* associations (Parmentier & al., Phytocoenologia 36: 554-562, 2006). On savanna inselbergs fires represent an important stress; as a consequence these two communities are species-poor. Often with *Polygala lecardii* (Mt Loma); rock crevices in *Acacia, Balanites* woodland; exposed moist places on shallow soils overlying rocks; steep rocky slopes with open tree-cover *(Acacia, Commiphora, Combretum or Boswellia papyrifera, Terminalia);* savannas; bare soils temporarily flooded; lateritic pans; hollows with clay; sometimes in cultivations; humid sands; rocky outcrops with wet flushes and thin soil with *Selaginella njamnjamensis, Aeollanthus* spp., *Aloe* sp.; 400 (? and less)-1900 m alt.

Bioko/Fernando Poo; Namibia, Botswana, S. Africa; Yemen.

JACKSON, G. & J. DAVIES (1966). A note on Cyanotis lanata and other possible Cyanotis species found on Nigerian inselbergs. *J. W. African Sci. Assoc.* 10: 92-102 (n.v.).

C. longifolia Benth.; Kew Bull. 1952: 205-206; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 436, 1985; Fl. Eth. & Eritrea 6: 340, 1997; Sosef & al., Check-list pl. vascul. Gabon: 115, 2006; Akoegninou & al., Fl. anal. Bénin: 78-79, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008, and Succ. fl. Angola (Haseltonia 15): 74, 2009; Lisowski, Fl. Rép. Guinée 1: 388, 2009; Cheek & al., Plants Dom, Bamenda Highl., Cameroon: 149, 2010; Fischer & al. in J. E. Afric. Nat. Hist. 99/2: 174, 2011. – Icon.: Pickering & Roe, Wild flow. Victoria Falls area: 51, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): photo. 720, 2010.

CYANOTIS LONGIFOLIA

Perennial herb with tuberous roots and a compact woody rootstock; stems 2-3, erect, unbranched, 25-100 cm tall, sparsely woolly; leaf blades strap-like to linear-oblong, 10-12 × 0,6 cm or 20-40 × 0,4-1,5 cm, sparsely wool-hairy; sheath 2-4 cm long; inflorescences terminal and axillary heads, borne at 1-3 upper nodes; cymes subtended by a spathe (1,5-)3-6,5 × 1 cm, woolly at least on broader part; flowers pale to purple blue.

Woodland; clayey grounds; river sides; flooded laterite pan; open forest on sand; grassland sometimes where flooded; damp rocky pastures; quartzite; savanna; meadow with *Afrotrilepis pilosa;* 380-1900 m alt.

Extremely variable: an amazing range of variation (Brenan, 1961), but certain features are constant: numerous tuberously thickened root-fibres radiating from the stock; sepals densely barbate above.

NE Namibia.

Comprises 3 vars. (with intermediates): – var. **longifolia** [syn.: Enum. 3: 26, 1995; *C. djurensis* C. B. Clarke; *C. deightonii* Hutch.; *Tonningia djurensis* (C. B. Clarke) Kuntze; *T. longifolia* (Benth.) Kuntze; ? *Cyanotis homblei* De Wild.; – var. **gracilis** (Schnell) Schnell in W & WC tropical Africa; – var. **rupicola** (Schnell) Schnell in W Africa.

Type of *C. longifolia* Benth. = Curror, "Congo, south of the Line" (= Equator), in Hooker's Niger Flora: 543, 1849.

C. lourensis Schnell; Lisowski, Fl. Rép. Guinée 1: 388-389, 2009.

Perennial herb 2,5-10 cm tall, with tuberously thickened roots; leaves all radical, purplish at least when dry, 2-3 cm × 2-5 mm, pilose on both sides; stems with one leaf nearly reduced to the sheath; inflorescence solitary with one curved bract 12-15 mm long; flowers: petals purple above, roseus below.

On fine gravels at edge of bare rocky pan, on poor, thin soil, seasonally humid; 1500 m alt.

C. scaberula is very close, probably conspecific.

(**C. minima** De Wild.)

Herb with creeping branches to 8 cm long; roots fibrous; stem velvety or hirsute; leaf sheaths to 6 cm long; lamina elliptic or ovate-lanceolate, 12-25 × 5-6 mm, margins long-ciliate; flowers blue.

Ecology unknown.

? Only known from the type collected in 1912 (Zaire, Shinsenda; Homblé 402). – Not mapped.

Said to be near *C. somaliensis* (see this species).

C. paludosa Brenan; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 306, 1994.

Rhizomatous long-hairy (hairs 3-5 mm long) perennial herb with erect to ascending stems 0,6-1,8 m tall, subsimple or sparsely ramose upwards, thickened; leaf blades linear, 4-30 × 1,1,6 cm, glabrous or subglabrous, apex acute; inflorescence capitate, 1,5-3 cm long and wide; flowers pale blue.

Edge of swamp; dense swamp among tall coarse grass; uncommon; 1130-1890 m alt.

Near *C. longifolia* but with numerous tuberously thickened root-fibres radiating from the stock; sepals densely barbate above; growing in swamps.

CYANOTIS

C. polyrrhiza Hochst. ex Hassk.; Fl. Eth. & Eritrea 6: 341, 1997. – Icon.: Puff & Sileshi, Pl. Simen: 235, 2005.

syn.: *Zygomenes polyrrhiza* Hassk.; *Tonningia polyrrhiza* (Hochst. ex Hassk.) Kuntze

Perennial herb; roots fusiform and *carrot-like*, tapering away from the axis; stems creeping, with ascending branches or spreading, to 30 cm long, pubescent with longitudinal row of *wiry hairs;* blades of lower (rosette) leaves 10-13 × 0,8-1,4 cm, linear-subulate, those of flowering branches c. 6 × 0,8 cm, linear, glabrous to sparsely hairy; inflorescences terminal and axillary; flowers blue.

Grassy slopes on rock; very shallow moist soils overlying rock; wet grassland; 1900-3800 m alt.

C. repens Faden & D. M. Cameron – Icon.: Novon 15: 111, 2005.

syn.: *C.* sp. A in Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 306, 1994; *C.* sp. 1 in Troupin, Fl. Rwanda 4: 137, 1988 (see also Novon 15: 114).

Perennial herb usually forming a ± *prostrate mat;* roots thin, fibrous; shoots sparsely to densely branched basally, unbranched distally, repent to decumbent, rooting at nodes; leaves distichous; sheaths 3-13 × 2,5-9 mm, sparsely to densely pilose or slightly woolly, apex ciliate; lamina succulent, ovate to ovate-elliptic or lanceolate-oblong, 0,7-9,5 × 0,5-1,8 cm, apex acute, base broadly cuneate to rounded or cordate, often amplexicaul, margins ciliate, surfaces subglabrous to densely pilose, above often dotted maroon, below maroon; flowering shoots indeterminate; inflorescences *sessile*, axillary, contracted; flowers bluish purple or blue violet, rarely pink.

Dry or moist forest; forest edges; thickets; bushland; river and lake banks; woodland; moist grassland; often associated with rocky outcrops, especially limestone; almost always in shade; sandy soil to clay; near sea-level to 2130 m alt.

Comprises 2 subspp.: – subsp. **repens** with small leaves (blade 1-2,5 cm long) and 1-2(-3)-flowered inflorescences, in SE Kenya-NE Tanzania; – subsp. **robusta** Faden & D. M. Cameron with leaf blades 2-6 cm long and 5-more-flowered inflorescences, from Gabon to W Kenya; polyploid; *C. somaliensis* C. B. Clarke var. *uda* C. B. Clarke from W Zaire (known only from the type, Gillet 2140) is perhaps a synonym.

Most closely related to *C. foecunda* (distribution ranges partly overlapping); also related to *C. somaliensis, C. speciosa, C. hepperi.*

C. repens has been confused with *C. somaliensis*. It differs from *C. somaliensis* in having the flowering shoots arising from a sterile basal rosette; *flowering shoots* with *determinate growth*, with up to 7 (vs. numerous) cincinni per shoot; the leaves of the flowering shoot distally decrescent; obpyriform style swelling with a very narrow stigma (Novon 15: 114-155).

C. repens differs from *C. nyctitropa* Defl. (Arabian Peninsula) by the thick, almost tuberous roots.

C. repens (and probably some other species) are cultivated under the name *"C. somaliensis"*. Cf. also Eggli, Ill. handbook succulent pl., Monocot.: 251 and fig. XXVI. f, 2001.

C. scaberula Hutch., Fl. W. Trop. Afr., ed. 1, 2: 317, 1936 (English description only); Bull. Misc. Inform. Kew 1939: 243, 1939 (Latin description); Schnell, Bull. Inst. Franç. Afrique Noire, Sér. A, 19: 749, 1957, in clavi; Lisowski, Fl. Rép. Guinée 1: 389, 2009.

CYANOTIS SCABERULA

Perennial erect herb 5-10 cm tall, not purplish, with tuberously thickened roots; stems 3-5, glabrous; leaves few, basal ones linear, acute, 5 × 0,7 cm, minutely scabrous; upper leaves much smaller, linear-lanceolate, sheaths 7 mm long; inflorescence head pedunculate, of 1-5 cymes, subtended by one bract; bracteoles and sepals glabrous.

Savanna.

Doubtfully distinct from *C. lourensis.*

C. somaliensis C. B. Clarke, excl. var. *uda* C. B. Clarke (= ? *C. repens* subsp. *robusta);*

Thulin, Fl. Somalia 4: 80, 1995, and 3: 585, 2006 (Fig. 52 in Vol. 4: p. 81, represents *C. foecunda).*

Perennial herb with thin fibrous roots; shoots with small to large sterile *rosettes at base* with rosette leaves lanceolate-oblong, to 15 × 1,5 cm, pilose; flowering shoots to 30 cm long, with bases thick, covered by overlapping sheaths; cauline leaves distichous with blades oblong to lanceolate-ovate, 1,5-24 × 0,6-1 cm, apex acute, margins ciliate; flowering portion of shoot zigzag, to 17 cm long, the leaves gradually reduced distally and becoming more and more reflexed; inflorescences sessile, solitary in the axils of the uppermost 3-7 leaves; flowers pale violet.

Under shrubs among rocks; *Acacia, Euphorbia abyssinica* open woodland on gneiss slopes with scrub; 915-1770 m alt.

Not in Kenya *(= C. foecunda).*

Confused with *C. foecunda,* and with *C. repens* (see above under the latter species).

C. speciosa (L.f.) Hassk. subsp. **speciosa**; Eggli, Ill. handbook succ. pl. Monocot.: 251, 2001; Figueiredo & Smith, Pl. Angola: 177, 2008, and Succ. fl. Angola (Haseltonia 15): 74, 2009. – Icon.: Fl. south. Afr. 4/2: 53, 1985.

bas.: *Tradescantia speciosa* L. f.

syn.: *Commelina speciosa* (L. f.) Thunb.; *Thonningia speciosa* (L. f.) Thunb.; *Cyanotis nodiflora* (Lam.) Kunth, incl. var. *madagascarica* C. B. Clarke in DC., Monogr. Phan. 3: 258, 1881, *excl.* specim. Welwitsch 6584; in Rendle, Cat. Afr. Pl. Welwitsch, 2(1): 8, 1899, *excl.* Welwitsch 6584; in Thiselton-Dyer, Fl. Trop. Afr. 8: 84, 1902, *excl.* Welwitsch 6584 *(= C. flexuosa); Tradescantia nodiflora* Lam.; *T. formosa* Willd.; ? *Cyanotis gryphaea* Dinter, nom. subnud.

Perennial herb with the basal vegetative shoot bearing c. 5 subdecussate leaves and erect flowering stems c. 30-50 cm tall; rhizome well developed, swollen, perpendicular or horizontal, forming a U-shaped body, the older part dying, the new erect shoot sprouting from base; all shoots enclosed in tight sheaths, at first purple-coloured; leaf-bearing shoot forming a cluster of c. 5 subdecussate leaves, linear-acuminate, c. 170 × 8 mm, canaliculate, glabrous above, with long patent hairs below; fertile shoots 1-3, erect, firm, terete, with falcate spathes above subtending c. 3-4 dense axillary cymes; flowers pale to deep blue or mauve.

Often growing as solitary plants or few together; 1200-2100 m alt.

Namibia, S. Africa, Swaziland, Botswana.

Subsp. **madagascarica** (C. B. Clarke) Faden [bas.: *C. nodiflora* (Lam.) Kunth var. *madagascarica* C. B. Clarke] in Madagascar (Kew Bull. 62: 140, 2007), with prostrate, often branching and rooting flowering shoots.

CYANOTIS

C. vaga (Lour.) Schultes & Schultes f.; (cited as *C. barbata):* Cable & Cheek, Pl. Mt Cameroon: 151, 1998; Cheek & al., Pl. Mt Oku…: 171, 2000; Cheek & al., Pl. Mt Kupe: 432, 2004; Harvey & al., Pl. Bali Ngemba… 135, 2004; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 96, 2010 *(C. hirsuta* Louis & Mullenders); Dobignard & Chatelain, Index syn. fl. Afr. N. 1: 102, 2010; Harvey & al., Pl. Lebialem Highl., Cameroon: 152, 2010. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 137, 1994; Fl. Eth. & Eritrea 6: 342, 1997; Fl. China, Illustr. 24: 20, 2002; Boulos, Fl. Egypt 4: 122, 2005; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 601, 2008.

bas.: *Tradescantia vaga* Lour.

syn.: *Tonningia vaga* (Lour.) Kuntze; *T. barbata* (D. Don) Kuntze; *Cyanotis barbata* D. Don; *Tradescantia barbata* (D. Don) Spreng.; *T. radicans* Royle; *Commelina hirsuta* Hochst.; *Cyanotis hirsuta* (Hochst.) Fisch. & C. A. Mey.; *Tonningia hirsuta* (Hochst.) Kuntze; *Cyanotis abyssinica* A. Rich., nom. illegit., incl. var. *glabrescens* A. Rich., nom. illegit.; *C. pauciflora* A. Rich.; *Zygomenes abyssinica* (A. Rich.) Hassk.; *Z. pauciflora* (A. Rich.) Hassk.; *Z. parasitica* Hochst. ex Hassk.; *Cyanotis parasitica* Hochst. ex Hassk.; *Tonningia parasitica* (Hochst. ex Hassk.) Kuntze; *Cyanotis glaberrima* Hassk.; *Tonningia glaberrima* (Hassk.) Kuntze; *Cyanotis mannii* C. B. Clarke; *C. bulbosa* H. Léveillé; *Tonningia mannii* (C. B. Clarke) Kuntze; *Cyanotis nodiflora* C. B. Clarke, nom. illegit.; *C. nobilis* Hassk. – Nomenclature, fide Fl. China 24: 22, 2000.

Erect perennial herb with a corm just below the soil surface; stems unbranched, or branched from base, or distally slightly branched, 5-60 cm tall, hairy on one side or sometimes all over, with wiry golden yellow hairs; leaves all cauline, linear to lanceolate, 5-22 × 0,3-1,5 cm, glabrous above or sparsely pubescent near base, margins ciliate, sheaths 1-2,5 cm long; individual cincinni in terminal or axilllary clusters of 2 or more together; spathes 4-5, c. 1 × 0,5 cm, pedunculate; bracts leafy, ± falcate; flowers (blue-)purple, rarely mauve or white.

Grassland; often marshy places; shaded stream and river banks; under bushes in open bushland and woodland; *Euclea* or *Erica* scrub; roadsides; in gardens and crops as weed; black-clay soils overlying volcanic rocks; rain-forest with *Diospyros abyssinica, Garcinia buchananii, Uvariopsis congoensis, Turraea floribunda, Manilkara butugi,* etc.; swamp in clearing in forest; meadow; in shallow soil over rocks; 1400-4200 m alt.

Bioko/Fernando Poo; Egypt; Yemen; (Himalaya) India, Nepal, Laos, Myanmar, Thailand, Vietnam, China, Taiwan.

Near *C. angusta* ?, or *C. angusta* a synonym of *C. vaga* ? The distinction between a plant with a conspicuously enlarged bulbous base 1,5-3 cm Ø, and a plant with a small corm (tuberously thickened stem) below ground level is questionable.

IN NEED OF FURTHER STUDY:

Cyanotis sp. sensu Ensermu & Faden in Fl. Eth. & Eritrea 6: 343, 1997; specim. Gilbert & Thulin 707.

Ethiopia (Welega region, WG): in crevices of basalt rock in river valley; c. 1300 m alt.

"This apparently endemic and undescribed species is so far only known from one collection" (Sebsebe & al., Biol. Skr. 55: 324, 2005).

CYANOTIS

SYNONYMS:

Cyanotis abyssinica A. Rich., incl. var. *glabrescens* A. Rich. = **Cyanotis vaga**

barbata D. Don = **C. vaga**

bodinieri H. Léveillé & Vaniot = **C. arachnoidea**

bulbifera Hutch. = **C. angusta**

bulbosa H. Léveillé = **C. vaga**

deightonii Hutch. = **C. longifolia** var. **longifolia**

djurensis C. B. Clarke = **C. longifolia** var. **longifolia**

glaberrima Hassk. = **C. vaga**

gryphaea Dinter = ? **C. speciosa**

hirsuta Baker = **Commelina aspera**

hirsuta (Hochst.) Fisch. & C. A. Mey. = **Cyanotis vaga**

homblei De Wild. = ? **C. longifolia** var. **longifolia**

labordei H. Léveillé & Vaniot = **C. arachnoidea**

lanata Benth. var. *gracilis* Schnell = **C. longifolia** var. **gracilis**

lanata Benth. var. *rubescens* (A. Chev.) Schnell = **C. lanata**

lanata sensu Sousa = **C. longifolia** var. **longifolia**

longifolia Benth. var. *albolanescens* Schnell, var. *deightonii* (Hutch.) Schnell, and subsp. *deightonii* (Hutch.) Morton, and subsp. *longifolia* (Hutch.) Morton = **C. longifolia** var. **longifolia**

longifolia Benth. var. *fonensis* Schnell, var. *maliensis* Schnell, and var. *pseudorupicola* Schnell = **C. longifolia** var. **rupestris**

longifolia sensu Berhaut, Fl. Sénégal = **C. lanata**

mannii C. B. Clarke = **C. vaga**

mirabilis A. Chev., nom. nud. = ? (Chevalier 8365, Chad).

nobilis Hassk. = **C. vaga**

nodiflora (Lam.) Kunth = **C. speciosa**

nodiflora var. *madagascarica* sensu C. B. Clarke = **C. speciosa**

nodiflora var. *madagascarica* sensu Rendle = **C. flexuosa**

nodiflora C. B. Clarke = **C. vaga**

parasitica Hochst. ex Hassk. = **C. vaga**

pauciflora A. Rich. = **C. vaga**

rubescens A. Chev. = **C. lanata**

rupicola Schnell = **C. longifolia** var. **rupicola**

schweinfurthii Hassk. = **C. lanata**

somaliensis auctt. = **C. repens**

somaliensis C. B. Clarke var. *uda* C. B. Clarke = ? **C. repens** subsp. **robusta**

sp. A sensu Agnew, 1994 = **C. repens**

sp. 1 in Troupin, 1988 = **C. repens**

sp. sensu Ensermo & Faden = **C.** ?

zebrina (Heynh. ex Bosse) Nees = **Tradescantia zebrina**

(DICHOESPERMUM)

Dichoespermum blumei Hassk. = **Murdannia blumei**

juncoides Wight = **M. semiteres**

paniculatum Hassk. ex C. B. Clarke = **M. semiteres**

repens sensu C. B. Clarke, non Wight = **M. blumei**

semiteres (Dalzell) Hassk. = **M. semiteres**

(DICTYOSPERMUM)

Dictyospermum montanum (Wight) Wallich ex C. B. Clarke = **Aneilema montanum**

(DIRTEA)

Dirtea africana (L.) Raf. = **Commelina africana**

(DITHYROCARPUS)

Dithyrocarpus capensis Kunth = **Floscopa glomerata** subsp. **glomerata**

glomeratus (Willd. ex Schult. & Schult. f.) Kunth = **F. glomerata**

schomburgkianus Kunth = **Aneilema umbrosum** subsp. **ovato-oblongum**

stenorhachys Klotzsch ex C. B. Clarke = **A. umbrosum** subsp. **ovato-oblongum**

(DUCHEKIA)

Duchekia hirsuta Kostel. = **Palisota ambigua**

FLOSCOPA / *12* (+ *3* ?)

Genus of c. 20 species, pantropical. Flowers small, with free, unequal petals.

In our area flower colour unknown in 2 species, and the ecology not recorded for 2 species.

Floscopa africana (P. Beauv.) C. B. Clarke; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 436, 1985; Cable & Cheek, Pl. Mt Cameroon: 151, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 223, 2002; Cheek & al, Pl. Mt Kupe…: 432, 2004; Sosef & al., Check-list pl. vascul. Gabon: 115-116, 2006; Lisowski, Fl. Rép. Guinée 1: 389, 2009; Cabezas & al., Checklist Commel. Equat. Guinea: 113, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 96, 2010; Harvey & al., Pl. Lebialem Highl., Cameroon: 152, 2010. – Icon.: Palisot Beauvois, Fl. d'Oware 2: pl. 98, 1818; Akoegninou & al., Fl. anal. Bénin: 79, 2006.

bas.: *Aneilema africanum* P. Beauv.

Perennial herb, sparsely villous, 15-200 cm tall; stems slightly branched, ascending or creeping at base, rooting at lower nodes; leaf blade lanceolate, 4-15 × 1,3-4 cm, apex acuminate, base with a *pseudo-petiole* 0,4-0,8 cm long; inflorescence terminal, oblong, 1,5-4 cm broad, axis 5-15 cm long, with many twigs, cymes glandular, pubescent; flowers whitish or (pale) pink.

Rain-forest with *Chrysophyllum albidum, Cola gigantea, Erythrophleum suaveolens, Alstonia boonei, Parinari excelsa, Milicia excelsa,* in small swamp along brook; fallow in gallery forest on deep soil; farmbush; lake and stream sides; wet or inundated soils; sometimes under shade; swamps; also in watercourses and ditches where the water is slow moving or semi-stagnant, and where direct sunlight usually penetrates; rocky outcrops; sandy soils; sometimes on rocks; 30-1300 m alt.

Bioko/Fernando Poo (subsp. **petrophila**). – Also in Angola, fide Figueiredo & Smith, Pl. Angola: 177, 2008.

Comprises 3 subspp.: – subsp. **africana** (syn.: *Commelina chantransia* Roem. & Schult.), straggling herb 20-60 cm long with reddish-purple pigment in stems and leaves; – subsp. **majuscula** (C. B. Clarke) Brenan, a more robust plant to 1,2 m tall; – subsp. **petrophila** J. K. Morton, with low creeping stems to 20 cm tall, lacking red pigment. – With some perplexing intermediates.

F. aquatica Hua; Morton in J. Linn. Soc., Bot. 60: 201, 1967; Burkill, l.c.; Sosef & al., l.c.; Cabezas & al., l.c.; Lisowski, l.c.

Herb with creeping or floating stems to 20-50 cm long, rooting freely from the nodes; leaves ovate to lanceolate, mostly 2-7 × 1-3 cm, often wavy-margined, thin, apex acute; inflorescence sparsely villous-glandular, with 1-5 cymes; flowers whitish to lilac or blue.

Floating in standing water or rooted in very wet places; sometimes in formations of several m^2; ferrugineous water; rice fields.

F. axillaris (Poir.) C. B. Clarke; Lisowski, l.c.

bas.: *Polygala axillaris* Poir.; *Floscopa elliotii* C. B. Clarke

Annual herb nearly glabrous except the inflorescence; stems erect, rooting only near the base, 6-30 cm tall; leaf blade (ovate-)lanceolate, 1,5-6 cm × 5-15mm, base subcordate, apex acute; inflorescence with 1-3 cymes the terminal one 2-7 cm long; flowers dull purple-bright violet, blue.

Bare sands temporarily flooded; rice-fields; marshes, swamps; bare drying out wet ground.

(**F. beirensis** Kuntze)

Stems 0,5 cm tall, puberulous; lower leaves with pseudopetioles 2-3 cm long, diminishing upwards to 1,5-0,5 cm; blade ovate-lanceolate, (1-)*3 cm wide,* pilose beneath, margins with few long hairs; inflorescence densely paniculate, 1-2 cm long and wide, branches and pedicels divaricate (not scorpioid) with hook-hairs; bracts glabrous; flowers unknown.

Ecology unknown. No specimen cited. Described from E Mozambique: Beira. – Not mapped.

"Only *F. mannii* has so broad leaves" (Kuntze, Revisio Generum Plantarum 3/2: 319-320, 1898).

F. confusa Brenan; Cabezas & al., Checklist Commel. Equat. Guinea: 113, 2009.

syn.: *F. rivularis* sensu Troupin, Fl. spermat. Parc Natl. Garamba 1: 170, 1956, p.p. quoad specim. De Saeger 1440, non (A. Rich.) C. B. Clarke *(= F. glomerata subsp. glomerata).*

Straggling herb 0,6-1,5 m tall with fibrous roots from the lower nodes; stems solitary, glabrous except for the inflorescences, simple; all leaves cauline, linear-lanceolate, 6,5-13 × 0,5-1,7 cm, *narrowed in their lower part* towards the sheaths, subglabrous or inconspiculously puberulous on both surfaces, apex long attenuate-acute; sheaths to 2,7 cm long, (sub-)glabrous outside, ciliate at mouth, sometimes sparsely pubescent along the fused margins; inflorescences terminal, dense, many-flowered, 5-10 cm long, 1,5-5 cm wide, densely and shortly pubescent; flowers mauve.

Beside stream in muddy ground; papyrus swamp in water; lake side; 750-1650 m alt.

Confused with *F. glomerata* subsp. *glomerata (F. rivularis); F. confusa* is intermediate between *F. africana* and narrow-leaved forms of *F. glomerata.* Also cited in Akoegninou & al., Fl. anal. Bénin: 79, 2006, specim. Maesen 7230 determined by Faden as *F. confusa*, not *F. africana.*

FLOSCOPA

F. flavida C. B. Clarke; Akoegninou & al., l.c.; Figueiredo & Smith, Pl. Angola: 177, 2008, and Kunene Exp. Baum in Bothalia 39: 194, 2009. – Icon.: Lisowski, Fl. Rép. Guinée 2: fig. 478, 2009.

syn.: *F. pusilla* K. Schum.

Annual herb, nearly glabrous except the inflorescence, 4-20 cm tall; stem erect, often much branched from base; leaves rosulate and cauline, (linear-)lanceolate; blade 3-8 cm × 2-8 mm; inflorescence shortly pubescent with 1-3 cymes, 1-4 cm long, with terminal and sometimes some short axillary cymes; flowers *yellow* with sepals dark reddish-purple.

Bare sands temporarily moist; rice-fields; often occurring singly; temporary pool; swamp sides; often in water.

F. glomerata (Willd. ex Schult. & Schult. f.) Hassk; Cheek & al., Pl. Mt Oku…: 171, 2000; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c48, 2001; Cheek & al., Pl. Mt Kupe…: 432, 2004; Sosef & al., Check-list pl. vascul. Gabon: 116, 2006; Akoegninou & al., Fl. anal. Bénin: 80, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Lisowski, Fl. Rép. Guinée 1: 189, 2009; Cabezas & al., Checklist Commel. Equat. Guinea: 113, 2009; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 174, 2011. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 138, 1994; Fl. Eth. & Eritrea 6: 349, 1997; Cook, Aquat. & wetland pl. south. Afr.: 76, 2004; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 603, 2008; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 724, 2010.

bas.: *Tradescantia glomerata* Willd. ex Schult. & Schult. f.

syn.: *Dithyrocarpus glomeratus* (Willd. ex Schult. & Schult. f.) Kunth

(Annual or) perennial herb; stems decumbent and rooting at nodes, ascending above, branched, 0,3-1,5 m long, pubescent; leaf sheaths 0,5-1,5 cm long, pubescent along line of fusion and at mouth; blade linear-lanceolate, 3,5-7,5 × 0,8-1,2 cm, base clasping or rounded, apex acuminate, surfaces glabrous or hairy along the midrib beneath; inflorescences terminal and terminating side branches, 1,5-3,5 cm long, dense, with dense gland-tipped hairs, lilac or mauve; sepals hairy, mauve or lilac; petals purple, mauve or lilac, one flower open per panicle covered in glandular hairs.

Seepage meadow on edge between rain-forest with *Albizia*, *Macaranga*, *Croton*, *Ocotea* and grassland with *Loudetia arundinacea;* ditches; boggy grassland; marshy places near streams; sandy swamps; wooded marshes; with reeds, willows, *Epilobium* spp., *Nymphaea coerulea*, in lake, growing 10-25 cm high, in deep water; often straggling over water; standing water in forest or in full sun; also a weed; (15-)500-2400 m alt.

Rather variable.

Namibia, Botswana, S. Africa, Swaziland; Madagascar.

Comprises 3 subspp.: – subsp. **glomerata** [syn.: *F. capensis* (Kunth) Hassk.; *Dithyrocarpus capensis* Kunth; *Aneilema rivulare* A. Rich.; *Lamprodithyros rivularis* (A. Rich.) Hassk.], in tropical Africa-Madagascar; – subsp. **lelyi** (Hutch.) Brenan in W Africa; – subsp. **pauciflora** (C. B. Clarke) J. K. Morton with narrow leaves, also in W Africa.

F. gossweileri Cavaco is perhaps a synonym.

FLOSCOPA

(**F. gossweileri** Cavaco); Figueiredo & Smith, Pl. Angola: 177, 2008.

Near *F. glomerata*, but: – inflorescence loosely- and few-flowered, slender with more numerous small flowers; – leaf blades narrower and longer; sheaths shorter, etc.

Near stream.

Known only from the type collected in 1948 (Gossweiler 14008).

Not mapped. Described from Angola: Dundo.

"Doubtfully distinct from *F. glomerata*".

F. leiothyrsa Brenan – Icon.: Cook, Aquat. & wetland pl. south. Afr.: 76, 2004.

Annual herb; stems ± erect, 20-60 cm tall, subsimple to much branched; stem geniculate and rooting only at base, glabrous or nearly so; leaves scattered, narrowly lanceolate, 5-8 cm × 6-8 mm, glabrous, apex attenuate-acute, somewhat involute; upper leaves c. 0,4-1,5 cm × 1-1,5 mm; inflorescence of loose *glabrous* panicles, terminal, 8-15 cm long, 3-4,5 cm wide, subterminal ones 2-4 cm long, with few to many branches; flowers purple, pale violet or carmine.

Local on saturated soil of receding lake shore in shade of *Gardenia;* in or near water or marsh (i.e. in 30 cm deep water); sometimes in flowing water; 1250 m alt.

Botswana, ? Zambia.

F. mannii C. B. Clarke; Cheek & al., Pl. Mt Kupe…: 432, 2004; Sosef & al., Check-list pl. vascul. Gabon: 116, 2006; Cabezas & al., Checklist Commel. Equat. Guinea: 113, 2009.

Herb with stems prostrate, ascending, to 5-15 cm tall; leaf lamina elliptic, 3-6,5 × 1,5-3 cm, base cordate, sessile or with a false petiole, densely white-villous as the sheath; inflorescence 4-8 cm long, diffuse, with 5-6 slender patent branches, each 2 cm long, glandular-hairy; flowers white.

Forest clearings near stream; 274-700 m alt.

F. polypleura Brenan

Erect or suberect annual herb, 25-50 cm tall with fibrous roots; stems solitary or few from the base, ± glabrous below, loosely glandular-pubescent towards apex; leaves scattered,

(linear-)lanceolate, to 15 cm × 10-12 mm, margins shortly ciliate, apex attenuate-acute, base not petiolate; upper leaves c. 1,3-2,5 cm × 3-8 mm; inflorescences terminal, glandular-pubescent, 2-9 × 1-6 cm; flowers lilac-purple or sometimes white; *seeds* with *20-23 radiating ribs.*

In stream; in both wet and dry parts of the plains; 1040-1600 m alt.

Near *(F. rivularis =) F. glomerata* subsp. *glomerata.*

Very disjunct area but probably overlooked in between.

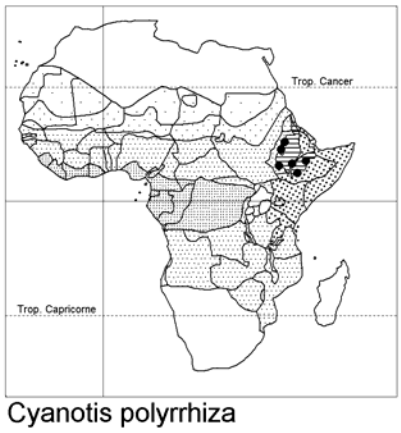
(**F. rivularioides** T. C. E. Fries)

Perennial herb with ascending stems 6-10 cm tall, glabrous or very scattered pilose, densely glandular-pilose upwards; leaves lanceolate, sessile, apex acute, 1,5-3 cm × 8 mm; inflorescence few-flowered; flowers pink.

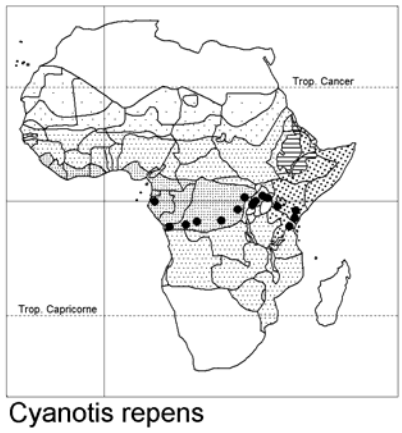
Water falls.

"Between *F. rivularis* and *F. glomerata." (= F. glomerata subsp. glomerata).*

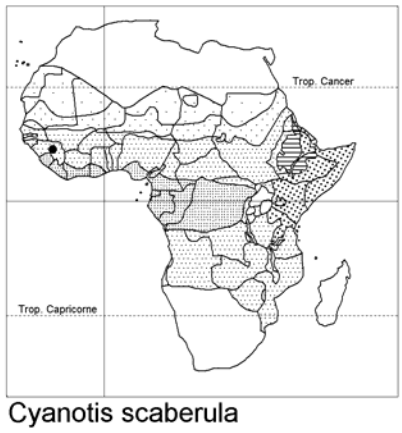
? Only known from the type collected in 1911-1912, in Zambia: Victoria Falls. – Not mapped.



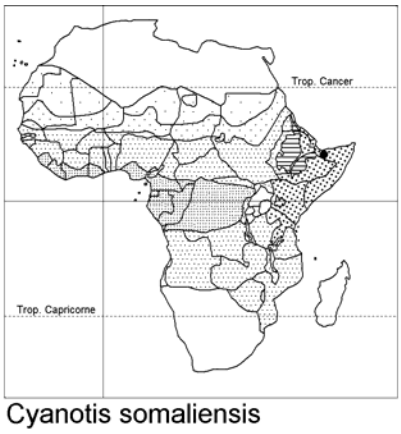
Cyanotis polyrrhiza



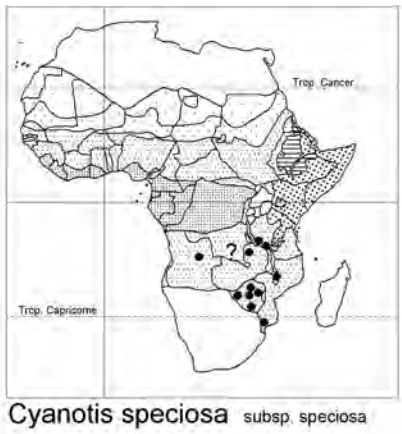
Cyanotis repens



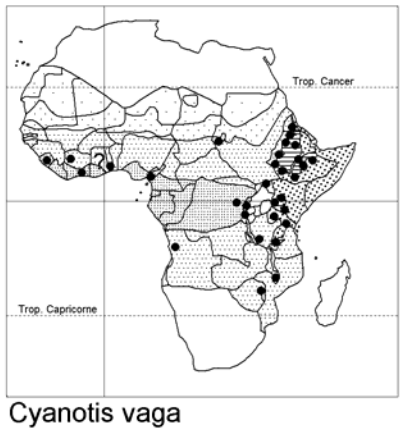
Cyanotis scaberula



Cyanotis somaliensis

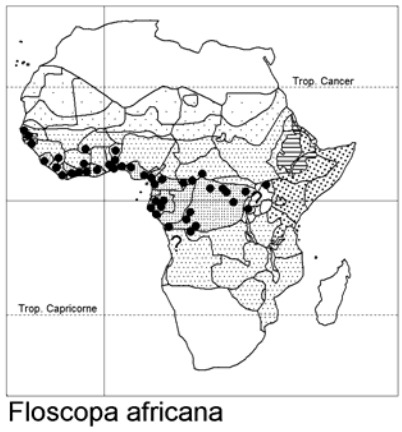


Cyanotis speciosa subsp. speciosa

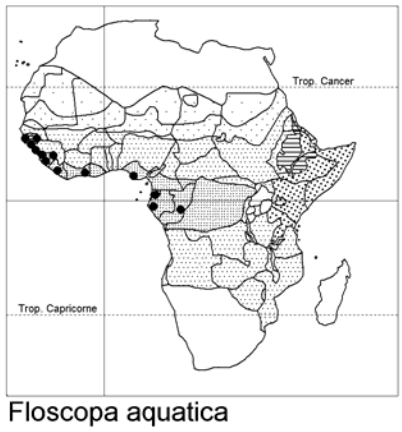


Cyanotis vaga

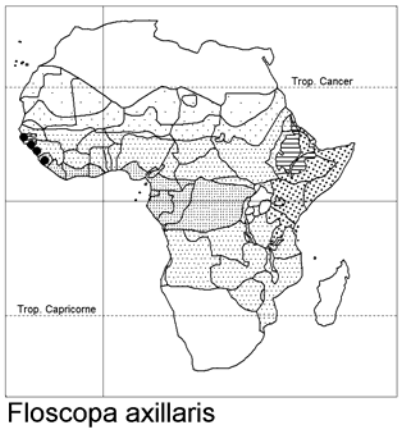




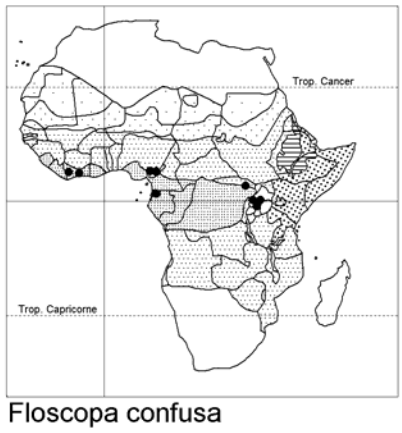
Floscopa africana



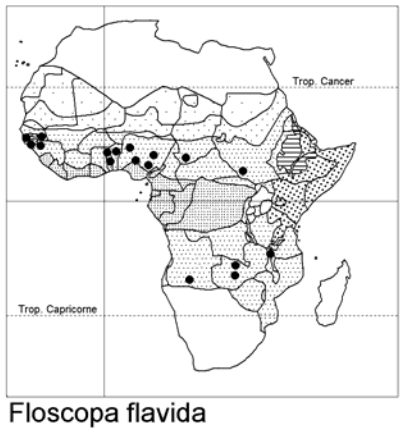
Floscopa aquatica



Floscopa axillaris



Floscopa confusa



Floscopa flavida

FLOSCOPA

F. schweinfurthii C. B. Clarke

Thinly hairy annual herb; stems 15-20 cm tall, erect, repeatedly branched from base; leaves sessile, ovate-lanceolate, 5 × 1,8 cm; panicle terminal, ± leafy, 2,5-6,2 cm Ø; cymes often 2,5-3,7 cm long, villous, dense; flower colour ?

Ecology unknown.

F. tanneri Brenan

Erect herb or only decumbent at base; stems sometimes fleshy, single, subglabrous but pubescent towards apex, 15-45 cm tall; roots thickly fibrous, arising from the stems; basal leaves rosulate, linear-oblanceolate, 9-26 × 1-2,1 cm, glabrous or loosely pubescent, apex shortly attenuate-acute; cauline leaves diminishing upwards; inflorescences terminal, densely glandular-pubescent, 2-8 × 2,5-10 cm; lateral branches 1,5-5,5 cm long; flowers (yellow and) purple.

Lake shore; marsh; fine floury sand, rooting in permanent water seepage in thick grass; seasonal swamp near lake; 1130-1140 m alt.

Near *F. tuberculata* but very much more robust, probably perennial. certainly not annual.

F. tuberculata C. B. Clarke

Thinly hairy annual herb; stems 15-20 cm tall, erect, *simple;* leaves 3,7 × 1,2-1,6 cm, oblong, sessile; panicle terminal, 5 cm long and broad, not leafy, rusty-hispid; cymes > 3,7 cm long, dense; *seeds apparently coarsely tubercled,* the radiating ribs being interrupted by few deep depressions; flower colour ?

Ecology unknown.

Closely related to *F. schweinfurthii.*

Floscopa uniflora A. Chev. is a nom. nud. (Centr. Afr. Rep.: Damara).

SYNONYMS:

Floscopa africana (P. Beauv.) C. B. Clarke var. *majuscula* C. B. Clarke = **Floscopa africana** subsp. **majuscula**

capensis (Kunth) Hassk. = **F. glomerata** subsp. **glomerata**

elliotii C. B. Clarke = **F. axillaris**

glabrata (Kunth) Hassk. = **F. confusa**

lelyi Hutch. = **F. glomerata** subsp. **lelyi**

myosotoides Hutch. = **F. aquatica**

pauciflora C. B. Clarke = **F. glomerata** subsp. **pauciflora**

pusilla K. Schum. = **F. flavida**

rivularis (A. Rich.) C. B. Clarke = **F. glomerata** subsp. **glomerata**

rivularis sensu Troupin 1956, p.p. = **F. confusa**

(FORRESTIA)

Forrestia africana K. Schum. ex C. B. Clarke = **Amischotolype tenuis**

lescrauwaetii De Wild. = **A. tenuis**

preussii K. Schum. = **A. tenuis**

tenuis (C. B. Clarke) Benth. = **A. tenuis**

(GILLETTIA)

Gillettia sepalosa (C. B. Clarke) Rendle = **Anthericopsis sepalosa**

(HEDWIGIA)

Hedwigia africana (L.) Medik. = **Commelina africana**

(LAMPRODITHYROS)

Lamprodithyros adhaerens (Kunth) Hassk. = **Aneilema aequinoctiale**

aequinoctialis (P. Beauv.) Hassk. = **A. aequinoctiale**

beniniensis (P. Beauv.) Hassk. = **A. beniniense**

dregeanus (Kunth) Hassk. = **A. dregeanum**

ehrenbergii Hassk. = **A. forsskalii**

gracilis Kotschy & Peyr. = **A. lanceolatum** subsp. **subnudum**

lanceolatus (Benth.) Hassk. = **A. lanceolatum**

petersii Hassk. = **A. petersii**

rivularis (A. Rich.) Hassk. = **Floscopa glomerata** subsp. **glomerata**

russegeri Fenzl = **Aneilema lanceolatum** subsp. **lanceolatum**

schomburgkianus (Kunth) Hassk. = **A. umbrosum** var. **ovato-oblongum**

tacazzeanus (Hochst. ex A. Rich.) Hassk. = **A. forsskalii**

MURDANNIA / *8* (+ *1*)

Pantropical and warm temperate genus of c. 50 species; exhibits greatest diversity in tropical Asia (i.e. India: 23 spp., China: 20 spp.).

Murdannia allardii (De Wild.) Brenan, Kew Bull. 7: 189, 1952; Lachenaud in Syst. Geogr. Pl. 79: 204, 2009.

Branches erect, glabrous, > 30 cm long; leaves oblong-lanceolate, base ± narrowed; sheaths 12-15 mm long, the upper ones shorter, ± densely velvety outside, margins ciliate; lamina 5,5-16 cm × 17-32 mm, glabrous on both surfaces, apex long cuneate-acute; inflorescences interruptedly verticillate, terminal, 10-12 cm long, rachis glabrous and longitudinally furrowed; branches *verticillate,* (c. 4-7 whorls), simple, glabrous, to 15-16 mm long; sepals persistent; ? petals. *Antesepalous stamens represented only* by *2 fertile ones with glabrous filaments,* and no staminode occupying the place of the missing third member of the whorl; unique among the African *Murdannia* (fide Brenan).

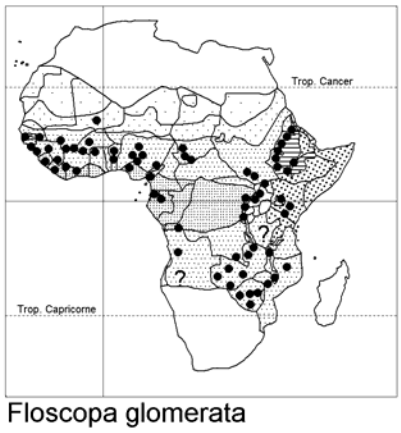
Gallery.

Very remarkable, only known from two syntypes collected in 1909 and 1910, and a collection by Sita (694) from Bas-Congo.

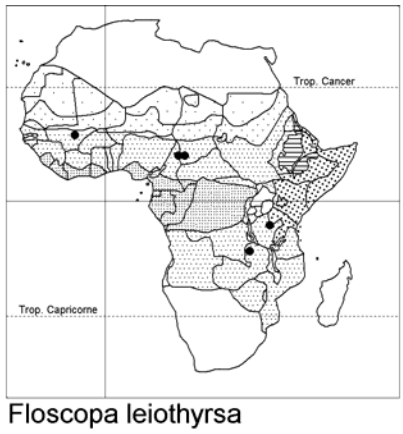
M. blumei (Hassk.) Brenan – Icon.: Hook. Ic. Pl. 36: pl. 3578, 1962 *(M. axillaris);* C. B. Clarke, Commelinaceae & Cyrtandraceae Bengal.: pl. 28 *(Dichoespermum repens* sensu C. B. Clarke, non Wight 1853).

bas.: *Dichoespermum blumei* Hassk.

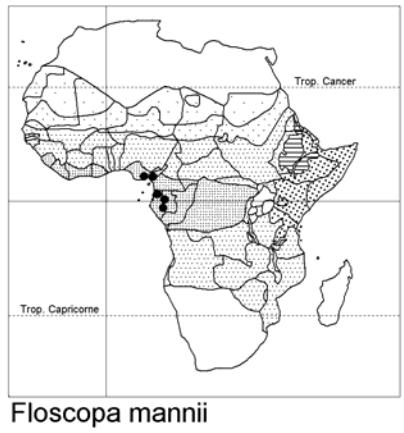
syn.: *Aneilema hamiltonianum* Wall. ex C. B. Clarke, incl. var. *minus* C. B. Clarke; *Murdannia hamiltoniana* (Wall. ex C. B. Clarke) G. Brückn.; *Phaeneilema hamiltonianum* (Wall. ex C. B. Clarke) G. Brückn.; *Aneilema blumei* (Hassk.) Bakh. f.; *Dichoespermum repens* sensu C. B. Clarke 1874, non Wight 1853; *Murdannia axillaris* Brenan; *Callisia orientalis* Buch.-Ham. ex Wall., nom. nud.; *Commelina callisia* Steud. 1840, nom. inval.



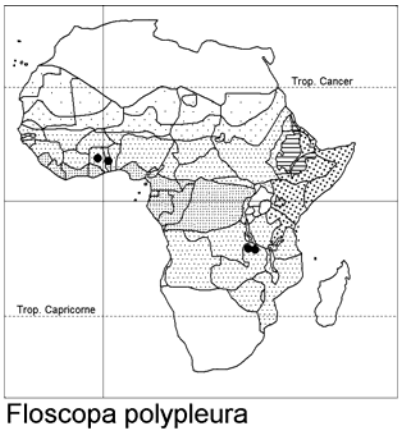
Floscopa glomerata



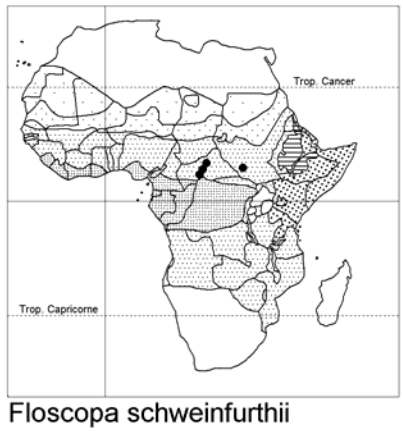
Floscopa leiothyrsa



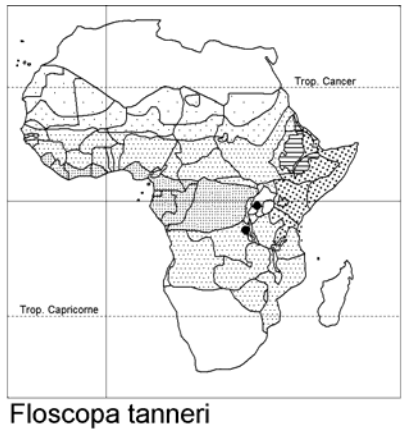
Floscopa mannii



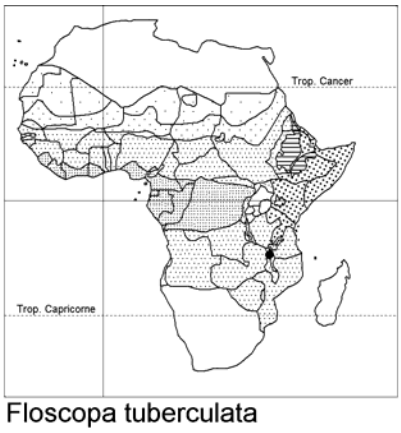
Floscopa polypleura



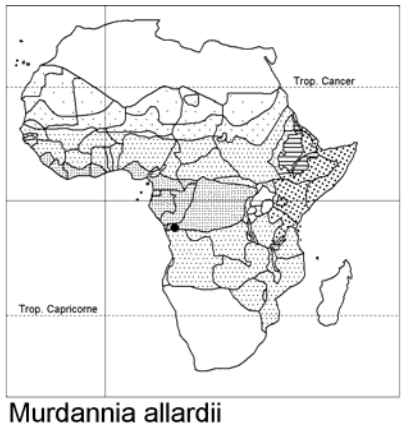
Floscopa schweinfurthii



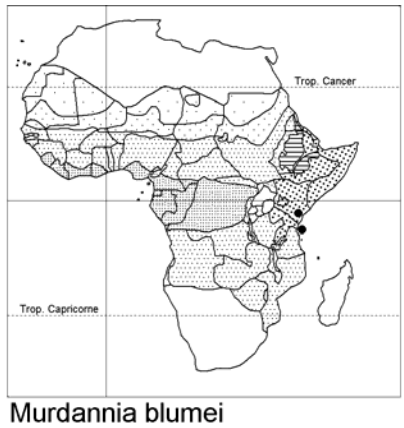
Floscopa tanneri



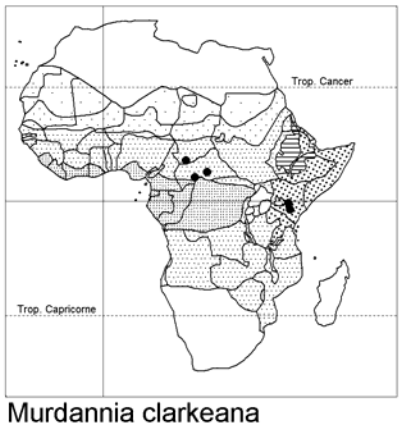
Floscopa tuberculata



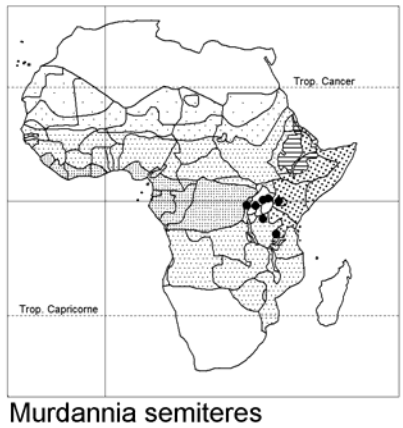
Murdannia allardii



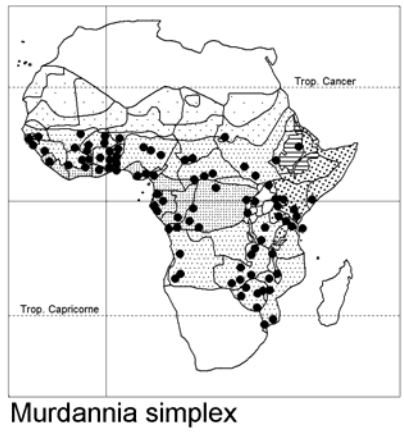
Murdannia blumei



Murdannia clarkeana



Murdannia semiteres



Murdannia simplex

MURDANNIA BLUMEI

Decumbent annual herb with ascending shoots to c. 30 cm tall; shoots glabrous or with a fine line of pubescence below the nodes; leaves distichous or spirally arranged; sheaths to 5 mm long, pubescent along the fused edge, apex ciliate; lamina (narrowly lanceolate-)elliptic, 1,3-6 × 0,25-1,4 cm, apex acute, base rounded to amplexicaul, both surfaces glabrous, margins undulate, scabrous; inflorescences terminal and axillary in the upper leaf axils, composed of solitary or fasicled 1-6 flowered cymes *barely exserted from the sheaths;* petals lilac to pale pink.

Swamp: a rare herb growing among dense grasses, sedges at extreme edge of drying-up ponds; or abundant in the wetter parts of swamp; very local with *Lobelia fervens, Pentodon pentander, Cyperaceae* in a dark grey sandy loam on the margins of a forest nursery.

India, Bangladesh, Sri Lanka, Myanmar, Jawa, Malaysia.

Discovered in Tropical Africa in 1929.

M. clarkeana Brenan; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 309, 1994.

syn.: *Aneilema delicatulum* C. B. Clarke, nom. subnud.

Perennial herb, slender, glabrous, caespitose or with a *rhizome*, 10-30 cm tall; stems erect or ascending, numerous, often simple except for the inflorescence; basal leaves few, crowded, like the cauline ones linear, 6-15 cm × 1-2 mm, semi-circular in section; inflorescences terminal, moderately lax, irregular; basal branches solitary, to ternate in upper axils; flowers blue to mauve.

Swampy ground on damp soil near rivers, soil usually shallow; sometimes common; temporary pools in rocks; shallow yellowish-red soil overlying lava rock, seasonally waterlogged; with *Eragrostis, Sporobolus* spp., *Craterostigma hirsutum;* appearing after rain; 1525(and less)-2010 m alt.

Near *M. semiteres;* also a distinct resemblance to the Indian *M. koenigii* (Wall. ex C. B. Clarke) G. Brückn.

Specimens from Chad and Centr. Afric. Rep. some of which seem to be annual, were determined *M. clarkeana*, confirmed by J. P. M. Brenan.

(**M. nudiflora** (L.) Brenan), Kew Bull. 7: 189, 1952. – Icon.: C. B. Clarke, Commelynaceae & Cyrtandraceae Bengal.: pl. 21, 1874 *(Aneilema nudiflorum);* Panigo & al., Flora 206: 296, 2011 (inflorescence).

syn.: Enum. 3: 27, 1995; *Aneilema compressum* Dalzell; *A. nudiflorum* (L.) Sweet 1826, and Wall. 1830, incl. var. *compressum* (Dalzell) C. B. Clarke; *Phaeneilema nudiflorum* (L.) G. Brückn.; *Tradescantia malabarica* L.; *Aneilema malabaricum* (L.) Merr.; *Murdannia malabarica* (L.) G. Brückn., incl. var. *compressa* (Dalzell) Santapau & S. K. Jain; *Phaeneilema malabaricum* (L.) V. Naray. ex Biswas; ? *Commelina sabatieri* C. B. Clarke; full synonymy in World Chcklist Monocot., Roy. Bot. Gard., Kew.

Weak, prostrate or decumbent herb; stems often rooting at nodes, 7,5-20 cm tall; leaves spirally arranged or distichous; lamina linear-oblong to linear-lanceolate, 2-10 × 0,3-0,8 cm, base rounded to amplexicaul, apex acute, both surfaces glabrous, margins often undulate, scabrous; inflorescences terminal and axillary; flowers (pink-)lilac, blue or white.

Weed in garden introduced with soil from neighbouring forest; roadside near stream (Sierra Leone).

Tropical Asia, Malesia to Caroline Isl., W Australia; introduced in SE USA and Hawaii, through to West Indies and Brazil. – Not mapped.

MURDANNIA

M. semiteres (Dalzell) Santapau; Brenan, Kew Bull. 7: 184, 1952. – Icon.: Wight, Ic. pl. Ind. Or. 6: pl. 2078, 1853 *(Dichoespermum juncoides* Wight); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 138, 1994.

syn.: *Commelina nimmoniana* J. Graham ex C. B. Clarke, nom. subnud.; *Murdannia nimmoniana* (J. Graham ex C. B. Clarke) Bole & M. R. Almeida; *Aneilema paniculatum* Wall. (non Wight) ex C. B. Clarke; *Phaeneilema paniculatum* (Wall. ex C. B. Clarke) G. Brückn.; *Murdannia paniculata* (Wall. ex C. B. Clarke) G. Brückn.; *Dichoespermum paniculatum* Hassk. ex C. B. Clarke 1881, nom. inval.; *D. semiteres* (Dalzell) Hassk.; *D. juncoides* Wight; *Murdannia juncoides* (Wight) R. S. Rao & Kammathy

"Habit reminiscent of *Juncus bufonius"* (fide Brenan, l.c.); succulent slender perennial herb 15-25 cm tall, densely tufted; leaves filiform or narrowly sulcate, 5-12 × 0,1 × 0,15 cm, semicircular in section, with conspicuous sheaths; inflorescences terminal spreading panicles, longer than leaves, laxly cymose-corymbose; flowers small, purple, mauve, pale lavender, white; morning flowering.

In vicinity of rock-outcrops; pool in rock; locally abundant; margin of shallow pool on ironstone in rich humic silt, sometimes slightly submerged; satured soil on edge of a muddy pool on murram rocks in *Brachystegia boehmii* woodland; 1100-2040 m alt.

Yemen; ? Iran to Vietnam.

M. simplex (Vahl) Brenan, Kew Bull. 7: 186, 1952; Friis & Vollesen, Willdenowia 14: 360, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 437, 1985; Cheek & al., Pl. Mt Kupe…: 432, 2004; Sosef & al., Check-list pl. vascul. Gabon: 116, 2006; Strugnell, Checklist spermatoph. Mt Mulanje, Malawi: 71, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Cabezas & al., Checklist Commel. Equat. Guinea: 113, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 96, 2010; Fischer & al., Annot. checklist vascul. pl. Kakamega Forest: 174, 2011. – Icon.: Tredgold & Biegel, Rhodes. wild flow.: pl. 2, 1979; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 138, 1994; Thulin, Fl. Somal. 4: 82, 1995; Fl. Eth. & Eritrea 6: 347, 1997; Kubitzki, Flow. pl. 4, Monocot.: 111, 1998; Akoegninou & al., Fl. anal. Bénin: 80, 2006; Fl. south. Afr. 4/2: 48, 1985; Lisowski, Fl. Rép. Guinée 2: fig. 479, 2009.

syn.: *Aneilema sinicum* Ker-Gawl., incl. var. *simplex* (Vahl) C. B. Clarke and var. *longifolium* (Hook.) C. B. Clarke; *A. simplex* (Vahl) Kunth; *Commelina sinica* (Ker-Gawl.) Roem. & Schult.; *C. longifolia* (Hook.) Spreng.; *C. hookeri* Dietr., nom. illegit.; *Aneilema longifolium* Hook.; *A. secundum* Wight; *A. rigidum* Blatt.; *Phaeneilema rigidum* (Blatt.) Raizada; *P. sinicum* (Ker-Gawl.) G. Brückn.; *Murdannia sinica* (Ker-Gawl.) G. Brückn.

Perennial herb, tufted to shortly rhizomatous; roots fibrous, 2-3 mm Ø; main stem undeveloped, with basal rosulate leaves; fertile stems 2-4 arising from base of main stem, erect or ascending or sprawling, 15-80 cm tall; lower leaf blades linear, 7-40 × 0,3-1,5 cm, glabrous; cauline leaves 2-3 rarely more, widely spaced; sheaths to 4 cm long; cincinni forming narrow panicles c. 5 cm long; axes of cincinni elongating in fruit to c. 0,5-3 cm, with usually *close-set conspicuous scars* left by fallen pedicels; flowers blue to mauve. – Very uniform except in size; common and widely spread.

Acacia senegal, Lannea, Commiphora deciduous bushland on reddish brown loamy soil; humid degraded forests; marigot sides; humid sands; gallery; grassy humid grounds; *Combretum* woodland at rain-water pool; wooded grassland; rocky places; *Combretum, Terminalia* savanna; *Pterocarpus, Anogeissus* woodland, on sandy soil; 1-1300 m alt. – Gregarious.

Namibia, S. Africa, Botswana, Swaziland; Madagascar; India, Sri Lanka, Indonesia, Laos, Malaysia, Thailand, Vietnam, China, to N Australia.

Also cultivated (ornamental).

M. stictosperma Brenan

Perennial *slender* herb, glabrous except for sheaths and leaf blade margins; stems simple or loosely caespitose, 18-30 cm tall, *bulbiform* at base; *leaves*, particularly *the radical* ones, 2-5 together, *linear*, 4-18 cm × 1,5-4 mm, apex acute, base enlarged; inflorescences terminal, 2-3,5 × 1-2 cm; flowers dull mauve.

Edge of *Brachystegia* woodland and lateritic grassland.

? Only known from the type collected in 1937. Other specimens cited by Brenan (Kew Bull. 7: 188, 1952) belong perhaps to this species (from Tanzania: SW of Lake Tanganyika, and Zaire: Katanga ?).

Related to *M. simplex*.

M. stricta Brenan

Erect glabrous herb c. 25 cm tall; roots fibrous; stems simple or slightly branched; leaf sheaths 0,9-3 cm long × 2,5-7 mm wide, ± purple tinged; blade linear, 1-2 mm wide, apex acute, basal leaves to 22 cm long, upper ones c. 2,5-4 cm; inflorescences loose, irregular; branchlets 1-10 cm long, *simple, erect*, with 1-5-flowers; pedicels *erect*, 2-4 mm long (to 9 mm in fruit).

Temporary pool on lateritic pan; c. 1450 m alt.

Near *M. clarkeana* but pedicels erect and inflorescence with ramifications.

M. tenuissima (A. Chev.) Brenan; Fl. Eth. & Eritrea 6: 346, 1997; Sosef & al., Check-list pl. vascul. Gabon: 116, 2006; Akoegninou & al., Fl. anal. Bénin: 81, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Lisowski, Fl. Rép. Guinée 1: 389-390, 2009.

Grass-like, slender, annual ?, simple- or subsimple-stemmed herb, glabrous except for sheaths, margins and lower part of leaves, 30-80 cm tall; leaves *linear-lanceolate*, 3,5-6 cm × 2-6 mm; inflorescences unbranched, consisting of solitary or sometimes paired flowers arising from the axils of 1-3 of the uppermost leaves (bracts); flowers lavender blue (? white) or mauve; unique in having only 3 fertile antesepalous stamens, staminodes lacking.

Grassy swamps; marshy places among grasses and sedges; seasonal marshes in savanna; rice-fields; 100-1900 m alt.

Exceedingly distinct but inconspicuous, and probably overlooked.

SYNONYMS:

Murdannia axillaris Brenan = **Murdannia blumei**

hamiltoniana (Wall ex. C. B. Clarke) G. Brückn. = **M. blumei**

juncoides (Wight) R. S. Rao & Kammathy = **M. semiteres**

malabarica (L.) G. Brückn., incl. var. *compressa* (Dalzell) Santapau & S. K. Jain = **M. nudiflora**

nimmoniana (J. Graham ex C. B. Clarke) Bole & M. R. Almeida = **M. semiteres**

paniculata (Wall. ex C. B. Clarke) G. Brückn. = **M. semiteres**

sinica (Ker-Gawl.) G. Brückn. = **M. simplex**

PALISOTA / *15* (+*5* ?)

An African genus with c. 20 species. Lacking from the Indian Ocean islands and Madagascar. They are mainly rosette plants or shrub-like herbs, important components of the rain-forest understorey (Faden, o.c.: 133). Fruit a berry, sepals petaloid.

Several taxa poorly known. Among the taxa retained by us (and not cited within brackets) one species has no ripe fruit, the ecology is not recorded, and is known only from the type.

FADEN, R. B. (2007). Taxonomic problems in the genus Palisota (Commelinaceae) in Tropical East Africa. *Kew Bull.* 62: 133-138.

Palisota alopecurus Pellegr.; Harris, Vascul. Pl. Dzangha-Sangha Res., Centr. Afr. Rep.: 223-224, 2002; Sosef & al., Check-list pl. vascul. Gabon: 116, 2006.

Shrubby herb with ± geniculate stem, 1,5-2,5 m tall; upper leaves whorled; leaf petiole narrow, 5-25 cm long, base amplexicaule; blade lanceolate 30-50 × 10-12 cm, with very acute apex 1,5 cm long, base attenuate, acute, ± cobwebby-woolly beneath, margins ciliate; inflorescences 1-3, terminal or nearly so, very dense, fox-tail like, 10-20 cm long; bracts longer than flowers; flowers white.

Clearings and path sides in forest; old fields; 110-800 m alt.

Near *P. bracteosa* but caulescent.

P. ambigua (P. Beauv.) C. B. Clarke; J. Linn. Soc., Bot. 60: 204, 1967; Kew Bull. 62: 135, 2007; M. Renier, Flore du Kwango 1: 85, 1948; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 437, 1985; Cable & Cheek, Pl. Mt Cameroon: 151, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 224, 2002; Cheek & al., Pl. Mt Kupe…: 432, 2004; Sosef & al., Check-list pl. vascul. Gabon: 116, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Cabezas & al., Checklist Commelin. Equat. Guinea: 114, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 96, 2010. – Icon.: Palisot de Beauvois, Fl. Oware 1: pl. 15, 1805.

bas.: *Commelina ambigua* P. Beauv.

syn.: *Aneilema ambiguum* (P. Beauv.) Loudon; *Palisota thrysiflora* Benth., nom. tant. excl. listed specimens; *P. prionostachys* C. B. Clarke; *P. congolana* Hua; *P. plagiocarpa* Hua; *P. micrantha* K. Schum. ex C. B. Clarke

Herb 0,3-3 m tall; stems often branched; leaves mostly in rosettes, obovate to oblanceolate or elliptic, 12-23 × 4-10 cm, petiole to 2,5 cm long; inflorescence puberulous, normally 1 per rosette, rather lax and narrow, 3-10 cm long, with lateral peduncles 0-3 mm long; flowers violet, blue, purple, mauve, functionally female or male, open 16h-17.30 h.

Rain-forest; inselberg; 5-1020 m alt. – Element of the tall herb formation *Marantochloo-Anubiadetum giganteae* in Togo (Acta Bot. Gall. 158: 409-423, 2011).

Resembling rather depauperate plants of *P. hirsuta*.

P. barteri Hook.; Burkill, l.c.; Cable & Cheek, l.c.; Cheek & al., l.c.; Hawthorne & Jongkind, Woody pl. west. afric. forests: 874, 2006; Sosef & al., o.c.: 117; Lisowski, Fl. Rép. Guinée 1: 390, 2009; Cabezas & al., l.c.; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 219, 2011. – Icon.: Engler & Prantl, Natürl. Pflanzenfam., ed. 2, 15a: 172, 1930; Kouame & al. in Ann. Bot. Afrique Ouest 3: 4, 2005.

syn.: *P. pseudo-ambigua* A. Chev., Explor. Bot. Afrique Occid. Franç. 1: 662, 1920, nom. subnud.; *P. staudtii* K. Schum.; *P. ombrophila* K. Schum. ex C. B. Clarke in syn.

PALISOTA BARTERI

Herb acaulescent or with a stem to 10 cm tall (whole plant to 1,5 m); leaves forming a basal rosette, glabrous; lamina gradually narrowing at base, elliptic or ovate, 20-60 × 6-15 cm, petiole sometimes short or to 25 cm long; inflorescence with peduncle 10-15 cm long, panicle subglobose, c. 2-9 × 1,5-4 cm; flowers white; fruit red.

Fairly frequent on the floor of mature forest; 1-1600 m alt.

Bioko/Fernando Poo.

A decorative form is cultivated, with many small white flowers in long loose panicles; also for its bright red clusters of berries.

P. bogneri Brenan; Sosef & al., l.c.; Cabezas & al., l.c.

Herb, acaulescent, with rosette of leaves at base; leaves ± crowded, oblong-elliptic, c. 15-20 × 5-6 cm, inconspicuously pilose, margins densely whitish pilose, apex 2-3 mm long, acute, base cuneate; petiole c. 2-5 cm long, densely whitish-woolly, expanded at base; inflorescences axillary and lateral, *decumbent*, with peduncle c. 2-4 cm long; thyrses oblong-subglobose, dense, c. *2-2,5 × 0,5-1* cm; flowers white.

Ecology unknown; 10-230 m alt.

Discovered, and collected in Gabon (exact locality uncertain: ? Ikoy Bandja) as a sterile plant in 1973; flowered in Bot. Gard. München in 1977; c.10 new collections made since then.

Near *P. barteri.*

P. brachythyrsa Mildbr.; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 224, 2002; Sosef & al., l.c.; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 97, 2010.

Herb somewhat "woody", moderately ramose, to 3 m tall; stem with upper internodes 20-60 cm × 2,5-5 mm with short whitish stellate hairs intermixed with long white, ± appressed hairs; leaves at upper nodes of branches, rosulate, sessile, obovate-lanceolate, 12-15 × 3-6 cm; base subcuneate narrowed, apex long caudate-acuminate, glabrous above, sparsely whitish-tomentose beneath and with long dark brown sericeous, appressed hairs on nerves, margins dark brown bearded; panicle terminal, 1,5-5 × c. 1,5 cm, peduncle 1-2,5 cm long; cincinni 7-10 mm long; fruit with a red aril resembling that of *Taxus bacata;* flower colour not recorded.

Secondary bush; *Gilbertiodendron dewevrei* forest; 400-600 m alt.

P. bracteosa C. B. Clarke; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 438, 1985; Cable & Cheek, Pl. Mt Cameroon: 151, 1998; Cheek & al., Pl. Mt Kupe…: 432-433, 2004; Hawthorne & Jongkind, Woody pl. west. Afric. forests: 874, 2006; Sosef & al., Check-list pl. vascul. Gabon: 117, 2006; Lisowski, Fl. Rép. Guinée 1: 390, 2009; Cabezas & al., Checklist Commelin. Equat. Guinea: 114, 2009; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 219, 2011.

Stemless herb with leaves in a rosette on the soil; leaves obovate-oblanceolate-elliptic, nearly sessile or petiole 25 cm long or more, winged; blade 45-60 × 15 cm, finely pubescent at least beneath, apex acute; inflorescence ovoid, 4-20 × 1,5-5 cm, with *ciliate, ovate, acute bracts* 0,5-1 cm long, conspicuously projecting among the flowers; flowers (pinkish) white; fruit with long hairs.

Rain or secondary forests; secondary bush; 200-800 m alt.

São Tomé.

Leaf lamina sometimes with a greenish-white stripe along midrib above. – Similar to *P. hirsuta.*

PALISOTA

P. flagelliflora Faden – Icon.: Novon 5: 247, 248, 1995.

Perennial herb with a rhizome to 15 cm long frequently producing offsets; leaves all or mainly in rosettes; petiole 4-19 cm long, appressed pubescent; lamina (oblong-)elliptic to oblanceolate or obovate, 10-50 × 3,5-11 cm, apex abruptly acute or acuminate, base cuneate to attenuate, surfaces discolorous, adaxial green, glabrous or appressed whitish sericeous and glabrescent, abaxial persistently appressed whitish sericeous; inflorescences terminal, with peduncles 1-8,5 cm long, borne on axillary, leafless, bracteate, *flagelliform shoots* 1,5-175 cm long, at first ascending, soon becoming prostrate and creeping, often *viriparously* producing new rosettes distally; petals white or maroon with white margins; fruit reddish brown or scarlet, densely reddish pilose.

Atlantic forest of the N Western type with *Caesalpiniaceae* rare; or with *Caesalpiniaceae* relatively rare, with *Saccoglottis gabonensis;* exploited forest with understorey vegetation of pure stand of *Cecropia cecropioides;* 10-520 m alt.

May form dense stands.

Probably related to *P. bogneri, P. satabiei.*

P. gracilior Mildbr.

"Woody" herb with upper internodes cobwebby-woolly, 6-7 cm long; leaf petiole 3-5 cm long; lamina (lanceolate-)elliptic, 25-40 × 7-10 cm, base acute to rounded, apex long acuminate, glabrous above, loosely woolly beneath when young, becoming glabrous, margins bearded; panicle pedunculate, 10-15 × 2,5 cm; flowers white; ripe fruit unknown.

Ecology unknown.

? Only known from the type collected in 1911; Cameroon, Lomie Distr., Mildbraed 5425.

P. hirsuta (Thunb.) K. Schum., excl. syn. *P. thyrsiflora* Benth. *(= P. ambigua);* M. Renier, Flore du Kwango 1: 85, 1948; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 438-439, 1985; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c48, 2001; Cheek & al., Pl. Mt Kupe…: 433, 2004; Akoegninou & al., Fl. anal. Bénin: 81, 2006; Sosef & al., Check-list pl. vascul. Gabon: 117, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Cabezas & al., Checklist Commel. Equat. Guinea: 114, 2009. – Icon.: Berhaut, Fl. ill. Sénégal 9: 138, 1988; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 875, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 481, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 725, photo. 725 a-c, 2010.

bas.: *Dracaena hirsuta* Thunb.

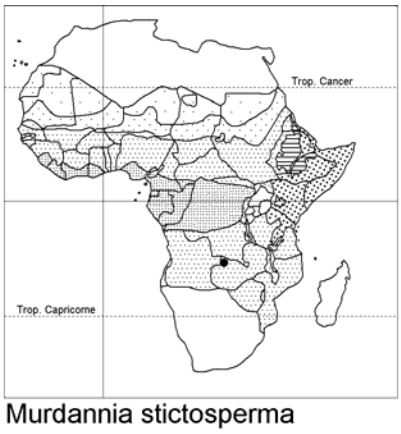
syn.: *Dianella triandra* Afzel.; *Palisota maclaudii* Cornu

Erect cane-like herb with aerial stems 0,5-3-6 m tall; leaves mostly in terminal rosettes with blade ± pubescent, oblanceolate or obovate, 15-40 × 4-12 cm, very hairy towards the base and on the margins; inflorescences lax, 10-30 cm long, with lateral peduncles c. 1-2 cm long, often several per rosette; flowers fragrant, white to purplish; fruit glossy, purplish.

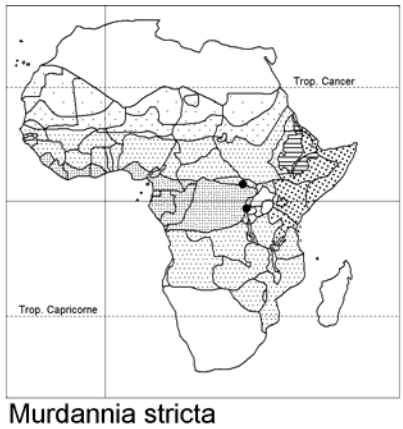
Gregarious in moist places throughout forest (incl. secondary); granitic soil; common pioneer plant in forest gaps; 5-900 m alt. – Element of the tall herb formation *Marantochloo-Anubiadetum giganteae* in Togo (Acta Bot. Gall. 158: 409-423, 2011).

Bioko/Fernando Poo.

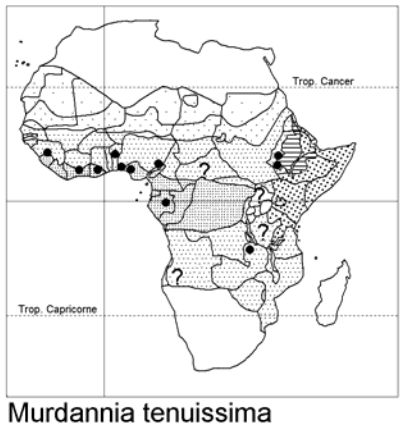
The most commonly used *Commelinaceae* in tropical Africa: ornamental, medicinal.



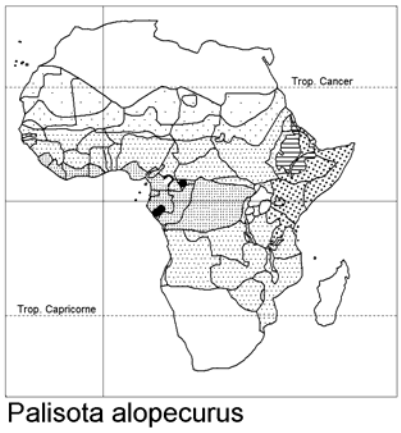
Murdannia stictosperma



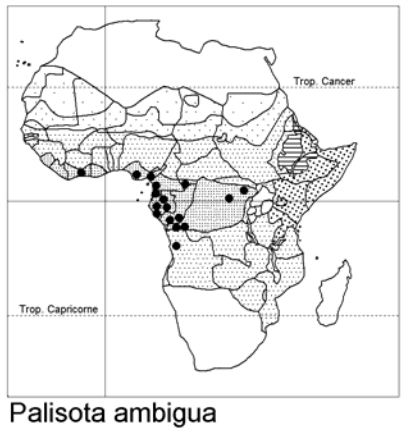
Murdannia stricta



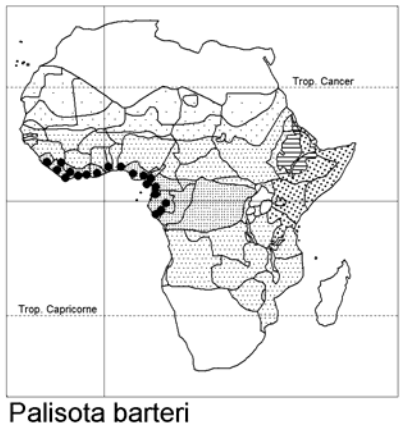
Murdannia tenuissima



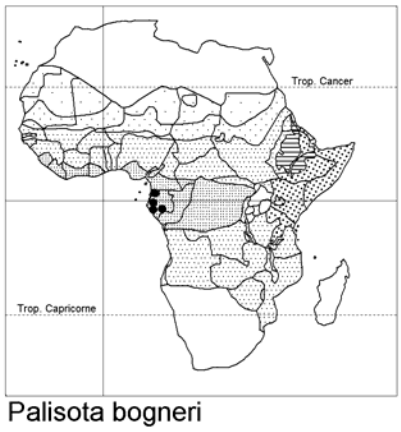
Palisota alopecurus



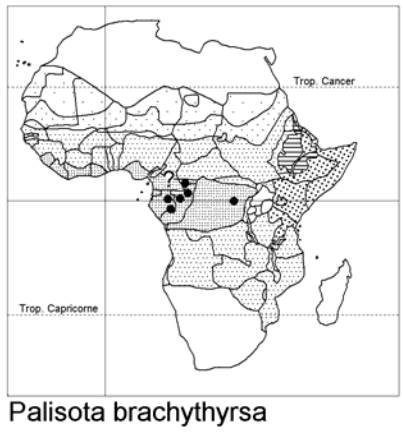
Palisota ambigua



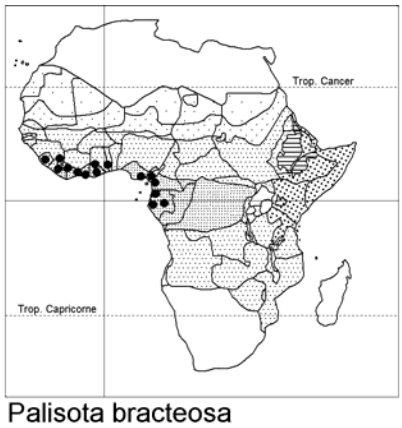
Palisota barteri



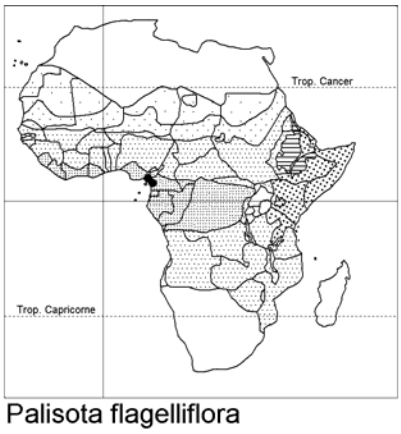
Palisota bogneri



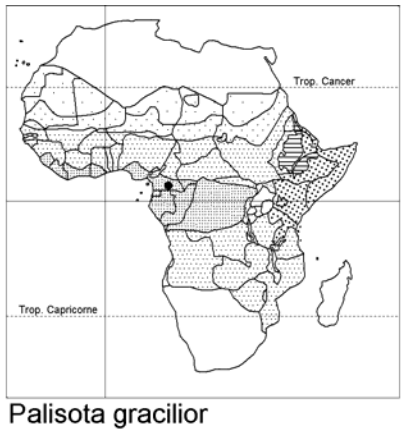
Palisota brachythyrsa



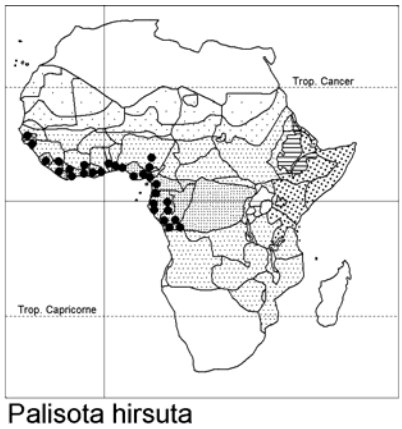
Palisota bracteosa



Palisota flagelliflora



Palisota gracilior



Palisota hirsuta

PALISOTA

P. lagopus Mildbr.; Cable & Cheek, l.c.; Sosef & al., l.c.; Cabezas & al., o.c.: 115.

Acaulescent herb with leaves arising at or near ground-level; leaf lamina obovate-oblanceolate, 15-36 × 8-12 cm, tomentose beneath, petiole c. 5-7 cm long; inflorescence c. 2,5-5 × 2-2,5 cm, completely (peduncles incl.) covered with very long dense very pale brown silky-woolly hairs; flowers white to pink or violet.

Forest floor; 30-1100 m alt.

(**P. laurentii** De Wild.)

Near *P. mannii* but inflorescences to 28 cm long (excl. pedicel c. 10 cm long), not 19 cm; fruit unknown.

Ecology unknown.

Zaire: Dibele. – Not mapped.

P. mannii C. B. Clarke; Faden, Kew Bull. 62: 135-137, 2007; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c48, 2001; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 224, 2002; Harvey & al., Pl. Bali Ngemba…: 135, 2004; Cheek & al., Pl. Mt Kupe…: 433, 2004; Sosef & al., Check-list pl. vascul. Gabon: 117, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Cabezas & al., Checklist Commel. Equat. Guinea: 115, 2009; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 149, 2010; Harvey & al., Pl. Lebialem Highl., Cameroon: 152, 2010. – Icon.: Fischer & Killmann, Ill. Field guide pl. Nyungwe Natl. Park, Rwanda: 361, 2008.

Usually stemless herb, sometimes with stem 0,3-1,8 m tall, deeply fluted; leaves in basal rosette; petiole 10-33 cm long; blade ovate, lanceolate, hairy on both faces and margins, 40-150 × 13-21 cm; spike dense, 7-9 × 1,5-4 cm on peduncles c. 8-15 cm long; flowers white, going pale pink or lilac; fruit red.

Rain-forest; swamp forest; forest-grassland transition; inselberg; 15-2000 m alt.

Bioko/Fernando Poo.

Comprises 2 subspp.: – subsp. **mannii**; – subsp. **megalophylla** (Mildbr.) Faden (bas.: *P. megalophylla* Mildbr.; syn.: *P. megalophylla* var. *robusta* Mildbr.), lacking the matted felt-like whitish or brown indumentum that completely covers the abaxial leaf surface in subsp. *mannii;* the matted pubescence consists of branched hairs and uniseriate rugose hairs.

Cultivated for its long graceful dull-mauve inflorescences, > 90 cm long.

Confused taxonomically with *P. schweinfurthii* (see Faden, l.c.); sometimes difficult to distinguish from *P. barteri.*

(**P. myriantha** K. Schum.); Figueiredo & Smith, Pl. Angola: 177, 2008.

Near *P. mannii* but is distinguished from the latter by its hairy leaves, the hairs on the upper surface being brush-like and almost prickly.

Source ?

The type (B) was apparently destroyed (collected in 1874). Perhaps = *P. mannii* subsp. *megalophylla.*

Angola: Luanda, Tschintoschocho. – Not mapped.

PALISOTA

P. orientalis K. Schum.; Faden, Kew Bull. 62: 133-134, 2007. – Lectotype: Engler 592.

Near *P. ambigua* but can be distinguished from this species by: – its generally larger leaves that lack white pubescence; – cincinni are not at all thickened distally; – white flowers that are all bisexual and open earlier in the day; – persistent fruiting sepals smaller (2-3 mm, not 3-4 mm long). Also near *P. schweinfurthii.*

Evergreen forest.

P. preussiana K. Schum. ex C. B. Clarke; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Cheek & al., Pl. Mt Kupe…: 433, 2004; Cabezas & al., Checklist Commel. Equat. Guinea: 115, 2009.

Perennial herb; stem rather slender, erect, 0,9 m tall, 3-5 mm Ø; leaves scattered in the upper part, 13-27 × 4,5-9 cm, acuminate at either end, glabrous except at the densely fibrous hairy margins; petiole 1-2,5 cm long; uppermost pair close to the inflorescence hardly smaller; inflorescence solitary, terminal, cylindric, 5-9 × 1,5-2 cm, very dense with 200-300 mauve flowers; fruit red.

Forest; *Aframomum* thicket; 800-2000 m alt.

Bioko/Fernando Poo.

Near *P. schweinfurthii* but: – stems slender, c. 0,9 m tall, leaves occurring along the whole length; – inflorescence solitary, terminal, 5-9 × 1,5-2 cm, almost sessile; – leaves with a short but distinct petiole; – not shaggy-pubescence, but has some greyish brown pubescence on the petiole and inflorescence, and on the margins of the leaves.

(**P. pynaertii** De Wild.)

Herb with short stems; leaf petiole strongly grooved, *ciliate-fibrillose* on the margins, with appressed greyish hairs on both faces; blade 15-48 × 7,5-16 cm, glabrous above, appressed grey-hairy beneath, base cuneate, apex rather abruptly acuminate; central inflorescence with peduncle 6-7 cm long; spike dense, 6-7 × 2,5-3 cm, flowers very numerous, densely crowded; partial inflorescence with peduncle c. 1 cm long, bracts ovate-lanceolate not longer than flowers, margins ciliate; flowers pure white; ovary hairy; fruit unknown.

Ecology unknown.

Collected in Zaire, environs of Eala in 1902 (Pynaert); flowered in the Jardin colonial, Laeken, Belgium – Not mapped.

Near *P. barteri.*

P. satabiei Brenan; F. Hallé, Biologie d'une canopée de forêt équatoriale (mission du radeau des Cimes, forêt des Abeilles, Gabon): 80, 1999; Sosef & al., Check-list pl. vascul. Gabon: 117, 2006; Cabezas & al., Checklist Commel. Equat. Guinea: 115, 2009.

Herb with creeping rhizome to 15-40 cm long, c. 2-4 mm Ø when dry, *rooting* at the nodes; leaves ovate-elliptic, c. 7-15 × 3-6 cm, nearly glabrous or sometimes loosely ferruginous-pilose, apex ± rounded but broadly and shortly acute at tip, base cuneate-narrowed into the petiole (c. 1-4 cm long), densely whitish-arachnoid when young, slowly glabrescent; inflorescences axillary with peduncle c. 2,5-7 cm long, densely, patently brownish-pubescent; thyrses *slender, loose* with cincinni shortly pedunculate; flowers white or whitish-violaceous.

Near river; forest; on the ground in dense rain-forest with *Caesalpiniaceae;* sometimes forming patches; 45-850 m alt.

Indumentum rather variable.

Discovered in 1968.

PALISOTA

P. schweinfurthii C. B. Clarke in de Candolle, Monogr. phan. 3: 132, 1881, p.p. excl. Schweinfurth 3281, 3721, 3729 (erroneously 3279) = *P. mannii*, and excl. Welwitsch 6602 (= *P. pedicellata*, São Tomé); Faden, Kew Bull. 62: 135-138, 2007; J. Linn. Soc., Bot. 60: 205-206, 1967; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Cheek & al., Pl. Mt Oku…: 171, 2000; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 224, 2002; Cheek & al., Pl. Mt Kupe…: 433, 2004; Sosef & al., Check-list pl. vascul. Gabon: 117, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Cabezas & al., Checklist Commel. Equat. Guinea: 115, 2009.

Herb, shrub-like, with stout stem 0,9-1,8 m tall; leaves mostly in terminal rosettes; lamina usually (oblong-)elliptic, 15-40 × 4-14,5 cm; petiole 1-8 cm long; spikes *very dense*, c. 6-15 × 1,5-3,5 cm with peduncle 2-6 cm long; flowers dirty white to pink; old flowers persistent; fruit ± round, yellow to red with darker spots, glabrous or sparsely pilose. Densely rusty-shaggy pubescence on the young parts, on the edges of leaves, petioles, underside of the younger leaves, and on the large and conspicuous bracts.

Rain-forest; stream banks in deep shade; shady valleys between the higher rocks; road-sides; 20-2000 m alt.

Bioko/Fernando Poo.

Taxonomic problems exist between *P. mannii* and *P. schweinfurthii* in East Africa.

P. thollonii Hua, Bull. Soc. Bot. France 41: LI (not "51"), (1984) 1985; Harris, l.c.; Sosef, l.c.

Herb with aerial stem, climbing; internodes 4-9 cm long, floccose, soon glabrous; leaves elliptic, 10-15 × 4,6-3,7 cm, whitish beneath, midrib glabrous, c. 5-verticillate, apex acuminate; petiole 8-17 mm along; panicles thyrsoid, terminal or borne in the upper leaf axils, 17-12 cm long, 2-4 cm wide at base, peduncle 6-8 cm long; cymes patent; flowers conspicuous, numerous (12-20) in each cyme, pale violaceous.

Forest edge; mixed species and *Gilbertiodendron* forest; road-sides; 20-870 m alt.

(**P. thyrsostachya** Mildbr.)

Slightly woody herb 4-5 m tall; internodes tomentose-cobwebby, with whitish short hairs and long appressed chestnut-coloured hairs, glabrescent; leaves verticillate at nodes and at apex, obovate-oblong or elliptic, c. 20 × 4,5-7 cm, short-petiolate, glabrous above, whitish-tomentose beneath, loosely and shortly cobwebby and with longer hairs, margins strongly reddish-bearded, base cuneate, apex long caudate-acuminate; panicles 20-35 cm long with numerous lax cincinni; flowers pale lilac; fruit unknown.

Low forest, in slightly humid places.

? Known only from the type collected in 1910 (Mildbraed 3717).

Zaire: Kimuenza south of Leopoldville. – Not mapped.

Seems close to *P. ambigua.*

(**P. waibelii** Mildbr.)

Slightly woody herb 1-1,5 m tall; leaf petiole 5-11 cm long; lamina oblong-elliptic to lanceolate-elliptic, 25-35 × 7-10 cm, glabrous above, sparsely sericeous beneath, midrib sparsely whitish-woolly, base obtuse or shortly decurrent, apex long caudate-acuminate, margins bearded; panicle with peduncle 12-17 cm long, cincinni numerous; flowers very densely crowded, 15-16, white; fruit unknown.

Ravine forest; forest gallery; 850-1000 m alt.

Relationships uncertain.

? Only two collections known (1912): Cameroon, Joko (Waibel 242), Bumbu (248). – Not mapped.

PALISOTA

IN NEED OF REVISION:

Palisota caillei A. Chev., Explor. bot. Afr. Occid. franç. 1: 661, 1920, nom. (Caille in Chevalier 15035, 18756); in Fl. W. Trop. Afr., ed. 1, 2/2: 315, 1936 cited as synonym of *P. bracteosa;* not cited in ed. 2.

SYNONYMS:

Dianella triandra Afzel. *(Phormiaceae)* = **Palisota hirsuta**

Draceana hirsuta Thunb. *(Dracaenaceae)* = **Palisota hirsuta**

Palisota congolana Hua = **Palisota ambigua**

maclaudii Cornu = **P. hirsuta**

megalophylla Mildbr., incl. var. *robusta* Mildbr. = **P. mannii** subsp. **megalophylla**

micrantha K. Schum. = **P. ambigua**

ombrophila K. Schum. ex C. B. Clarke = **P. barteri**

plagiocarpa Hua = **P. ambigua**

prionostachys C. B. Clarke = **P. ambigua**

pseudo-ambigua A. Chev. = **P. barteri**

staudtii K. Schum. = **P. barteri**

thyrsiflora Benth. = **P. ambigua**

(PHAENEILEMA)

Phaeneilema hamiltonianum (Wall. ex C. B. Clarke) G. Brückn. = **Murdannia blumei**

malabaricum (L.) V. Naray = **M. nudiflora**

nudiflorum (L.) G. Brückn. = **M. nudiflora**

paniculatum (Wall. ex C. B. Clarke) G. Brückn. = **M. semiteres**

rigidum (Blatt.) Raizada = **M. simplex**

sinicum (Ker-Gawl.) G. Brückn. = **M. simplex**

POLLIA / *2* (+ *2* ?)

syn.: *Aclisia* Hassk.

About 17 species in tropical, subtropical, and warm-temperate regions of the E Hemisphere. In the W Hemisphere only *P. americana* Faden, 1979 !, discovered in Panama in 1972.

(**Pollia bracteata** ! K. Schum.)

Herb with flowering branches 20-25 cm long, 2,5-3 mm Ø, minutely puberulous towards the apex; leaves lanceolate, 10-22 × 2,2-4,5 cm, upper ones sessile, abruptly narrowed towards the apex, base narrowed, glabrous above, puberulous beneath near the base; uppermost leaves shorter, resembling the 1 cm long bracts; panicle lax, many-flowered, 4-5,5 cm long, peduncle 8-9 cm long; fruit unknown.

Rain-forest; 1000 m alt.

Resembling *P. mannii* but panicle shorter.

Collected in 1894 (Stuhlmann 9031); Tanzania, Uluguru: Tegetiro. – Not mapped.

POLLIA

P. condensata C. B. Clarke; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 440, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 307, 1994; Fl. Eth. & Eritrea 6: 349-350, 1997; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 225, 2002; Cheek & al., Pl. Mt Kupe…: 433, 2004; Sosef & al., Check-list pl. vascul. Gabon: 117, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Cabezas & al., Checklist Commel. Equat. Guinea: 115-116, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 97, 2010; Fischer & al., Annot. checklist vascul. pl. Kakamega For., Kenya: 174, 2011; Kew Bull. 66: 247, 2011; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 220, 2011. – Icon.: Lisowski, Fl. Rép. Guinée 2: fig. 482, 2009.

Perennial herb with aerial stems 0,2-1,2 m tall, erect, or decumbent or stoloniferous, these rooting freely from the nodes; leaves ovate, 13-30 × 5-10 cm, subsessile, long acuminate, (sheaths 3,5-5 cm long), with a tendency to terminal rosetting, so that the plant rather resembles *Palisota* but margins and sheaths *lack* long hairs; inflorescences terminal, compact, paniculate cymes 1,5-6 cm long incl. peduncle 0,5-0,8 cm long; flowers white; fruit indehiscent, hard, round, iridescent blue, c. 5 mm Ø. – Very mucilaginous plant.

Primary and secondary rain-forest, often in small groups in forest gaps; savanna on rocky edges; rain-forest with *Chrysophyllum albidum, Cola gigantea, Erythrophleum suaveolens, Alstonia boonei, Parinari excelsa, Milicia excelsa;* 5-1700 m alt.

São Tomé, Principe, Bioko/Fernando Poo.

Note on specimen Welwitsch 6604, BM (Angola: Cazengo), considered a mixed collection (with *P. mannii):* Faden in Figueiredo & Smith, l.c., has seen this collection and notes that it "is entirely *P. condensata"*.

(**P. cyanocarpa** K. Schum.)

Perennial herb with fertile branches 10 cm tall, 5-6 mm Ø; leaf petiole to 3 cm long; blade oblong-lanceolate, 4-6,5(-10) cm long, apex narrowly-acuminate, base narrowed, margins undulate, minutely pubescent above, glabrous otherwise; panicle dense, condensed, borne in the axis of the uppermost leaf sheath; flowers white; fruit metallic blue, 4-5 mm Ø.

Red soil in forest; laterite; 900 m alt. and more.

Resembling *P. condensata* but flowers less densely packed.

Collected in 1894 (Tanzania: Uluguru; Stuhlmann 9041), and in 1895 (idem: Usambara, Mt Handei, Derema Plantage; Heinsen 24). – Not mapped.

P. mannii C. B. Clarke; Fl. Eth. & Eritrea 6: 348-349, 1997; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c48, 2001; Cheek & al., Pl. Mt Kupe…: 433, 2004; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 220, 2011. – Icon.: Panigo & al., Flora 206: 296, 2011 (inflorescence).

Straggling perennial herb c. 0,3-0-6 m tall, sometimes 1,5 m; stems decumbent below or with stolons rooting freely at lower nodes; leaves oblong-elliptic or oblong-lanceolate, 7-14 × 2-3,5 cm with petiole c. 1-2 cm long, 1-2 mm broad; inflorescence terminal, lax, with well-spaced, distinct lateral branches 0,5-3 cm long; fruit ovoid, 5,5-6 × 3,5-5 mm, glossy grey(-purple).

Herb-layer of primary- and secondary rain-forest; sometimes in extensive colonies over a wide area; rain-forest with *Chrysophyllum albidum,* etc. (vide *P. condensata);* 700-1300 m alt.

São Tomé, perhaps also Bioko/Fernando Poo (cf. Cabezas & al., Checklist Commel. Equat. Guinea: 116, 2009). – Perhaps also in Gabon (Sosef & al., Check-list pl. vascul. Gabon: 117, 2006).

POLYSPATHA / *3*

Tropical African genus.

Polyspatha hirsuta Mildbr., incl. var. *togoensis* Mildbr.; Sosef & al., Check-list pl. vascul. Gabon: 118, 2006; Akoegninou & al., Fl. anal. Bénin: 81, 2006. – Icon.: Phyto Keys 3: 15, 2011 (seed).

Perennial herb with radicant and ascending stems, 30-80 cm long, clothed with erect white hairs; leaves ± scattered-long-pilose with uniseriate long hairs on both surfaces, (oblong-)elliptic, base cuneate, apex acutely acuminate, 6-14 × 2-4,5 cm; inflorescence-*axes* c. *1,5-4 cm* long; inflorescence a short dense cluster of axes bearing *clearly separate* spathes, each spathe surrounding one flower, flowers white; seeds shallowly ribbed-reticulate. – Flowering 2.30 pm until evening.

Rain-forest; sometimes locally abundant and covering extensive areas; humid ground; river mouth; 300-950 m alt.

P. oligospatha Faden, Phyto Keys 3: 10, 2011. – Icon.: ibid.: 13, 15.

Stoloniferous perennial herb; shoots erect, 5-30 cm tall; internodes with hook-hairs, rarely also short uniseriate hairs; leaves ovate(-orbicular) 3-11 × 2-4,5 cm, usually ± clustered near tip of flowering shoots, *upper surface* with *long uniseriate hairs*, puberulous with hook-hairs beneath, apex acuate(-acuminate), base cuneate, margins planar to ± undulate; inflorescence terminal, a simple or compound thyrse *2-7 cm long, 7,5 cm wide*, peduncle short, axis zigzag with hook-hairs, wiht 4-8 distichous well-spaced patent spathes wiht *lustrous brown bead-like surface cells;* flowers bisexual, 3,5-8 mm wide, corolla white, sepals with hook-hairs; capsule 2-seeded; seeds with numerous *radiating knobby ridges transversely interrupted.* Flowering in the morning, fading at noon.

Evergreen and semi-deciduous forests; forest relicts and shaded places in savanna or cultivations (of cacao especially); (15-)600-1200 m alt.

"Overlooked because of its small stature and resemblance to small plants of *P. paniculata*".

Disjunct (cf. *Palisota ambigua).*

P. paniculata Benth., incl. var. *glaucescens* C. B. Clarke; M. Renier, Flore du Kwango 1: 86, 1948; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 440, 1985; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Harris, Vascul. pl. Dzangha-Sangha Res., Centr. Afr. Rep.: 225, 2002; Cheek & al., Pl. Mt Kupe…: 433, 2004; Sosef & al., Check-list pl. vascul. Gabon: 118, 2006; Akoegninou & al., Fl. anal. Bénin: 81, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Cabezas & al., Checklist Commel. Equat. Guinea: 116, 2009; Lisowski, Fl. Rép. Guinée 1: 390, 2009; Lejoly & al., Cat.-fl. Kisangi & Tshopo in Taxonom. 30: 97, 2010. – Icon.: Phyto Keys 3: 15, 2011 (seed).

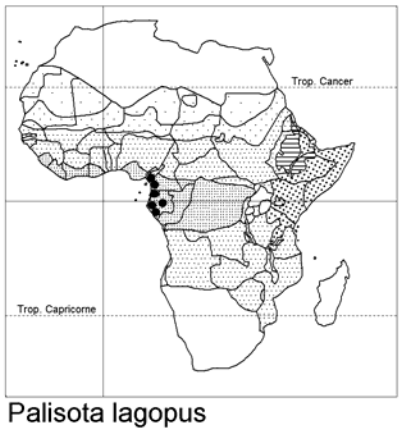
syn.: *P. glaucescens* (C. B. Clarke) Hutch.

Herb similar to *P. hirsuta* but: – leaf lamina lacking long uniseriate hairs; – inflorescence axes ± zigzag, at least the longer ones on each stem *6-20 cm* long; – spathes *contiguous;* – seeds with smooth uninterrupted ribs; – flowering 2.30- 5 pm.

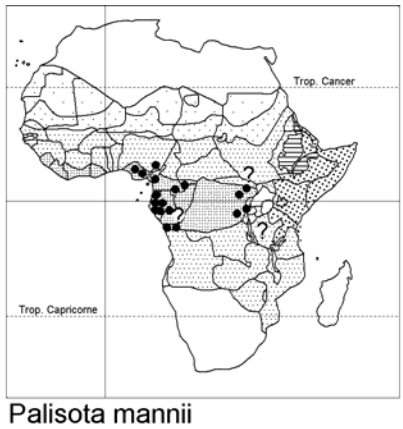
Rain-forest; humid ground; humid rocks in stream; 10-1450 m alt.

Bioko/Fernando Poo.

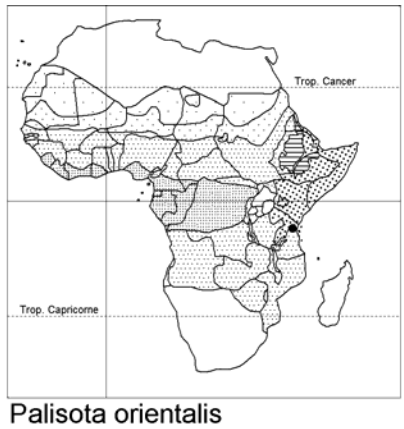
For distinctions between the species, See Faden in Phyto Keys 3: 16-19, 2011, with a key.



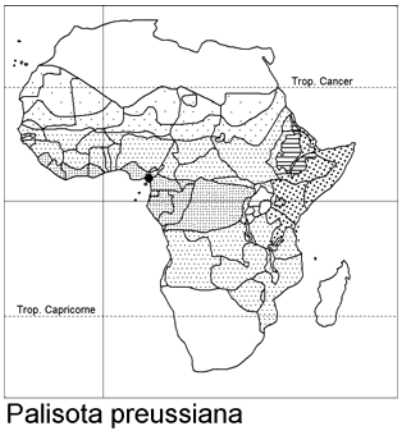
Palisota lagopus



Palisota mannii



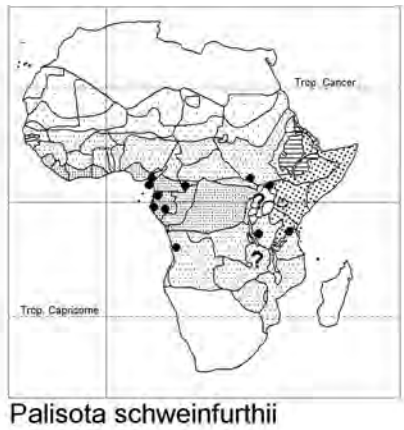
Palisota orientalis



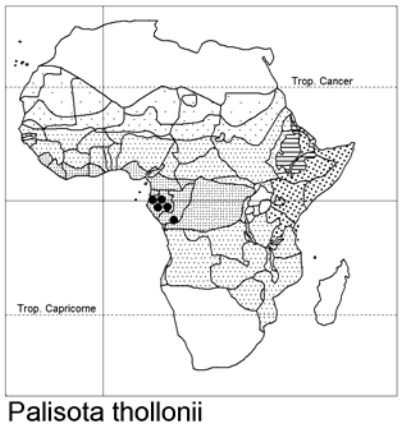
Palisota preussiana



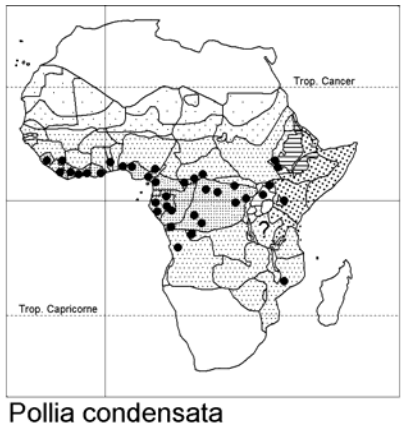
Palisota satabiei



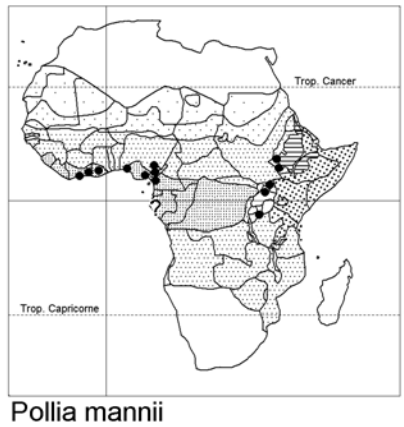
Palisota schweinfurthii



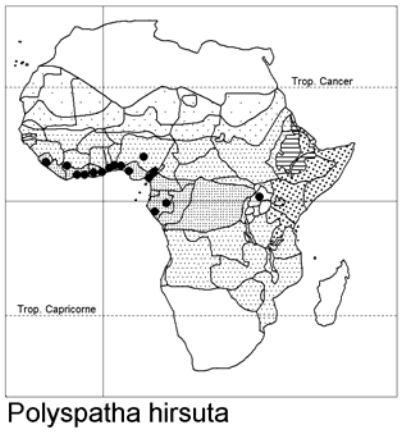
Palisota thollonii



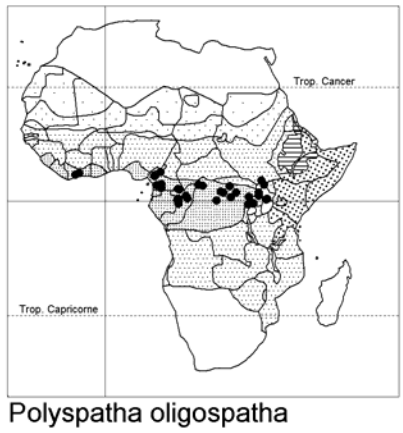
Pollia condensata



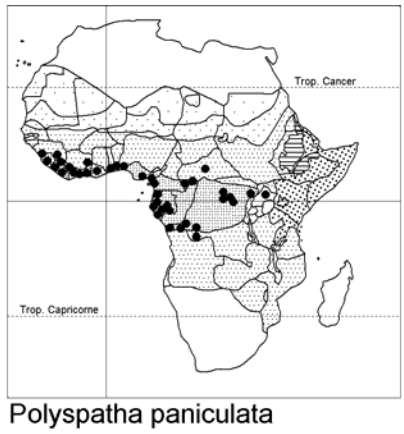
Pollia mannii



Polyspatha hirsuta



Polyspatha oligospatha



Polyspatha paniculata

POLYSPATHA

SYNONYMS:

Polyspatha eckloniana (Kunth) Hassk. ex C. B. Clarke = **Commelina**

glaucescens (C. B. Clarke) Hutch. = **Polyspatha paniculata**

[RHOEO]

Rhoeo discolor (L'Hér.) Hance = **Tradescantia spathacea**

spathacea (Sw.) Stearn = **T. spathacea**

(SETCREASEA)

Setcreasea pallida Rose = **Tradescantia pallida**

purpurea Boom = **T. pallida**

STANFIELDIELLA / *4*

Tropical African genus near *Buforrestia;* described in 1960.

Creeping forest herbs with spatheless cymes with glandular hairs. Flowers opening at different times of day in different species; stamens 6, equal, fertile; fruit a 3-valved capsule.

Stanfieldiella axillaris J. K. Morton

Creeping herb rooting at lower nodes, with erect shoots 10-30 cm tall; stems glabrous; leaves elliptic-lanceolate to ovate, 2-6 × 1-2 cm, acuminate, glabrous or very thinly appressed pilose, with a short pseudo-petiole; inflorescence solitary, axillary, slender, little branched, 3-4 cm long, with small dark red hairs; flowers few, white with dark red veins; fruit indehiscent; the seeds are released when it rots.

Forest floor in mature cocoa farm; very abundant when first discovered in 1954.

S. brachycarpa (Gilg & Ledermann ex Mildbr.) Brenan; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 225, 2002; Cheek & al., Pl. Mt Kupe…: 433, 2004; Sosef & al., Check-list pl. vascul. Gabon: 118, 2006; Cabezas & al., Checklist Commel. Equat. Guinea: 116, 2009.

Trailing herb rooting at nodes, with ascending-erect leafy stems 5-25(-50) cm tall; leaves often aggregated near stem apex; sheaths setose-ciliate, glabrous or sparingly puberulous beneath (var. **brachycarpa**) or densely spreading-villous (var. **hirsuta**); lamina elliptic, 7-11 × 1,5-3 cm, rather densely appressed-hairy on both surfaces, subsessile; inflorescences terminal, c. 1,5 cm, with gland-tipped hairs; flowers (greenish)white; capsule not exceeding sepals; seeds verrucose.

Swamp or riparian forest; rain-forest in damp places; on humus; 200-1230 m alt.

Bioko/Fernando Poo.

Comprises 2 vars.

S. imperforata (C. B. Clarke) Brenan; Fl. Eth. & Eritrea 6: 346, 348, 1997; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Harris, l.c.; Cheek & al., l.c. (2004); Sosef & al., l.c.; Lisowski, Fl. Rép. Guinée: 390, 2009; Figueiredo & Smith, Pl. Angola: 177, 2008; Cabezas & al., o.c.: 116-117; Harvey & al., Pl. Lebialem Highl., Cameroon: 152, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 97-98, 2010; Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 220, 2011.

STANFIELDIELLA IMPERFORATA

Herb resembling *S. brachycarpa;* stems decumbent and stoloniferous below, rooting at lower nodes, 12-90 cm long or tall; leaves not or scarcely aggregated into an apical rosette, (narrowly) elliptic, c. 13 × 4 cm, glabrous but usually long-ciliate on "petiole" and margins of lamina near base, often ± purplish beneath; inflorescences terminal, lax, diffuse, paniculate cymes c. 2-6 cm long, 3-8 cm wide; flowers white to very pale violet; capsule exceeding sepals; seeds smooth.

Open forest on clayey soil; by cataracts or streams (aquatic), riparian forest; flooded forest; marshy places, swamps; old clearings; rain-forest with *Chrysophyllum albidum, Cola gigantea, Erythrophleum suaveolens, Alstonia boonei, Parinari excelsa, Milicia excelsa;* 100-1400 m alt.

S. Tomé, Príncipe, Bioko/Fernando Poo.

Compries 2 vars.

S. ogligantha (Mildbr.) Brenan; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Cheek & al., Pl. Mt Kupe…: 434, 2004; Sosef & al., l.c.; Cabezas & al., o.c.: 117; Harvey & al., l.c. (2010); Cheek & al., Pl. Mefou prop. natl. park Yaoundé, Cameroon: 220, 2011.

Herb very similar in habitat and appearance to *S. imperforata* but: – terminal inflorescence or cluster of inflorescences 2-3 cm long and wide, compact; – seeds verrucose (not smooth); – capsule (exceeding sepals but) 2,25-3 mm wide (not 1,5-2).

Forest; 1-1350 m alt.

Bioko/Fernando Poo.

(STICKMANNIA)

Stickmannia africana (L.) Raf. = **Commelina**

(TONNINGIA)

Tonningia Necker, non *Thonningia* Vahl *(Balanophoraceae)*

Tonningia angusta (C. B. Clarke) Kuntze = **Cyanotis angusta**

arachnoidea (C. B. Clarke) Kuntze = **C. arachnoidea**

axillaris (L.) Raf. = **C. axillaris**

axillaris (L.) Kuntze = **C. axillaris**

barbata (D. Don) Kuntze = **C. vaga**

cristata (L.) Kuntze = **C. cristata**

djurensis (C. B. Clarke) Kuntze = **C. longifolia** var. **longifolia**

foecunda (Hochst. ex Hassk.) Kuntze = **C. foecunda**

glaberrima (Hassk.) Kuntze = **C. vaga**

hirsuta (Hochst.) Kuntze = **C. vaga**

longifolia (Benth.) Kuntze = **C. longifolia**

mannii (C. B. Clarke) Kuntze = **C. vaga**

parasitica (Hochst. ex Hassk.) Kuntze = **C. vaga**

polyrrhiza (Hochst. ex Hassk.) Kuntze = **C. polyrrhiza**

speciosa (L. f.) Thunb. = **C. speciosa**

vaga (Lour.) Kuntze = **C. vaga**

[**TRADESCANTIA**]

syn.: *Setcreasea* K. Schum. & Sydow; *Separotheca* Waterfall

Some 60 species in N., C. and S. America, West Indies. Four taxa are in cultivation in our area.

Perennial herbs with sessile leaves; inflorescence composed of paired sessile cymes, each pair subtended by spathes; stamens 6, fertile; fruit a capsule.

[**Tradescantia fluminensis** Vell.]; Fl. Eth. & Eritrea 6: 344-345, 1997; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 102, 2010; Eggli, Ill. handbook succ. pl., Monocot.: 252, 2001.

syn.: *T. albiflora* Kunth

Procumbent succulent herb; stems creeping, rooting at lower nodes, ascending above, glabrous except for uppermost internode (pubescent along a vertical line); leaves ± sessile, ovate-lanceolate to elliptic, 6-9,5 × 2,5-3,5 cm, broadest at base, green with white variegation; inflorescence terminal and lateral, peduncles 1-5 cm long; outer spathe pubescent or glabrous, but without tuft of hairs; calyx lobes free; petals free, white; filaments borne on receptacle.

Reported from gardens at Addis Ababa (Ethiopia); c. 2400 m alt.

Native of S Brazil through to N Argentina.

[**T. pallida** (Rose) D. R. Hunt]; Fl. Eth. & Eritrea, l.c.; Eggli, l.c.

bas.: *Setcreasea pallida* Rose

syn.: *S. purpurea* Boom

Rhizomatous succulent herb; stems creeping, rooting below, with ascending erect flowering branches, glabrous or rarely woolly-hairy; leaves linear-oblong-elliptic, 6-10-2-3 cm, slightly succulent, dark green above, glabrous or rarely woolly, purple beneath; inflorescence terminal, solitary, peduncle 6-11 cm long; sepals free, densely hairy below; petals fused, white, pink or rose; ovary densely hairy.

Reported from Eritrea, C Ethiopia; 1800-2500 m alt.; Guinea.

Native of Mexico; now grown and naturalized in N., C. and S. America.

[**T. spathacea** SW.]; Burkill; Useful pl. W. Trop. Afr., ed. 2, 1: 440, 1985 (sub gen. *Rhoeo);* Fl. Eth. & Eritrea, l.c.; Eggli, l.c.; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 97, 2010.

syn.: *Rhoeo spathacea* (Swartz) Stearn; *R. discolor* (L'Hér.) Hance; *Tradescantia discolor* L'Hér.; *Ephemerum discolor* (L'Hér.) Moench

Succulent herb with a ± woody rootstock; stems unbranched, stout, erect, glabrous, to 15 cm tall; leaves crowded, linear-lanceolate, 25-40 × 3-6 cm, dark green above, purple beneath, glabrous; inflorescences axillary, peduncles 2-5 cm long; sepals free; petals free, white, broader than long; ovary glabrous.

Reported from Eritrea (sea level), W & E Zaire.

Native of C. America, West Indies.

[**T. zebrina** Heynh. ex Bosse subsp. **zebrina**]; neotype: C. V. Morton & E. Makrinius 2712, Mexico, Daxaca: Cerro Concordia, 800-1000 m alt.; 17.IV. 1933 (Faden in Kew Bull. 63: 679-680, 2008); Burkill, o.c.: 441; Fl. Eth. & Eritrea, l.c.; Eggli, l.c.; Sosef & al., Check-list pl. vascul. Gabon: 118, 2006; Lisowski, Fl. Rép. Guinée 1: 390, 2009; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 30, 1994; Figueiredo & Smith, Pl. Angola: 177, 2008.

TRADESCANTIA ZEBRINA

syn.: *Zebrina pendula* Schnizlein; *Cyanotis zebrina* (Heynh. ex Bosse)Nees; *Tradescantia pendula* (Schinzlein) D. R. Hunt; *Commelina zebrina* C. B. Clarke

Rhizomatous herb with creeping stems rooting at nodes below, ascending above, glabrous; leaves ovate-lanceolate, 5-9 × 2,2-3,4 cm, dark purple beneath, with 2 green and 2 silvery-white longitudinal regions above, glabrous except for a few long hairs at base; inflorescences terminal, peduncles 0,8-5 cm long; outer spathe with a tuft of hairs near base; petals fused, white; stamens borne on corolla tube; ovary glabrous.

Reported from Cape Verde Isl., S. Tomé, Príncipe, W Africa-Zaire-Gabon-Kenya-Ethiopia; Angola; cultivated and/or naturalised.

Indigenous to Mexico, C. America; widely escaped and naturalised in tropical-subtropical countries.

SYNONYMS:

Tradescantia albiflora Kunth = **Tradescantia fluminensis**

axillaris (L.) L. = **Cyanotis axillaris**

barbata (D. Don) Spreng. = **C. vaga**

biflora Willd. ex Schult. f. = **Commelina subulata**

cristata (L.) L. = **Cyanotis cristata**

cucullata Roth = **C. cristata**

discolor L'Hér. = **Tradescantia spathacea**

formosa Willd. = **Cyanotis speciosa**

glomerata Willd. ex Schult. & Schult. f. = **Floscopa**

incana B. Heyne ex C. B. Clarke = **Cyanotis arachnoidea**

lanata B. Heyne ex C. B. Clarke = **C. arachnoidea**

malabarica L. = **Murdannia nudiflora**

nodiflora Lam. = **Cyanotis speciosa**

pendula (Schnizlein) D. R. Hunt = **Tradescantia zebrina**

radicans Royle = **Cyanotis vaga**

speciosa L. f. = **C. speciosa**

vaga Lour. = **C. vaga**

TRICARPELEMA */1*

A genus described in 1966; near *Aneilema* and resembling *Murdannia.* Comprising 8 Asian and 1 African species. A very incompletely known genus.

Tricarpelema africanum Faden; Cabezas & al., Checklist Commel. Equat. Guinea: 117, 2009. – Icon.: Faden in Novon 17: 161, 2007.

syn.: *Tricarpelema* sp. in Sosef & al., Check-list pl. vascul. Gabon: 188, 2006 (? excl. Ngok Banak 352).

Decumbent perennial herb rooting at lower nodes; roots thin, fibrous; leaf sheaths 0,4-2 cm long, glandular-pubescent, ciliate at apex; lamina sessile, strongly conduplicate when dry, moderately succulent, narrowly lanceolate to linear-lanceolate or lanceolate-oblong, broadest at base, 4-11,5 × 1-1,5 cm, apex acuminate, base rounded, amplexicaul, both surfaces sparsely glandular-pubescent, margins scabrid with prickle-hairs, also with glandular hairs basally; inflorescences pedunculate, terminal and sometimes axillary, lax compound or rarely simple thyrses, 5-30 × 4-16 cm; axes all sparsely glandular-puberulous; flowers pale violet, purple, rose, lilac to pink; capsule 3-valved.

With *Solenangis scandens* the plant is a character species of *Solenango-Plectrantherum occidentalis* association in Gabon, inselberg Assep Bengong (1°39'Nx11°38'E). Slopes exposed to the sun, on shallow soils where water availability is low (vide Phytocoenologia 36: 555, 565, 583, 2006); rocky slabs, cliffs and fringes of taller vegetation; less often in thickets or shady, moist situations; 500-950 m alt.

"Needs to be compared with… *Stanfieldiella* and…*Floscopa";* these genera also having compound thyrses, glandular hairs in the inflorescence, and lacking hook-hairs (Faden, o.c.: 170).

"The African species differs from the Asian ones in having succulent, distichous leaves with sessile lamina, and in growing in exposed rocky areas" (Faden in Kubitzki, Flow. pl. 4, Monocot.: 125, 1998).

TRICERATELLA / *1*

Monospecific genus, still poorly understood; only 2 collections known.

BARKER, N. P. & al. (2001). Rediscovery of *Triceratella drummondii*, and comments on its relationships and position within the family. *Bothalia* 31: 37-39.

FADEN, R. B. & T. M. EVANS (1999). Reproductive characters, habitat and phylogeny in African Commelinaceae. *In:* TIMBERLAKE, J. & S. KATIVU, eds., *African Plants: Biodiversity, Taxonomy and Uses:* 23-38. Royal Botanic Gardens, Kew.

Triceratella drummondii Brenan; Kirkia 2: 106, 1961. – Icon.: Bothalia 31: 38, 2001 (details).

Annual herb, grass or rush-like *(Juncus bufonius),* 2,5-13 cm tall, shortly and sparsely glandular-pubescent, hairs articulate; roots fibrous; main stem erect, 0,5-4 cm long, simple; secondary stems several, arising from or near the base; leaves linear, c. 3-18 cm × 1-2,5 mm, apex attenuate-acute, base broadened into a sheath; cincinni *leaf-opposed* (not axillary) with a peduncle to 2-3 cm long; flowers yellow; capsule 3-valved.

Moist sand with *Bacopa floribunda, Fuirena leptostachya, Xyris rubella, Torenia spicata,* on Forest Sandstone; seaward margin of seasonal vlei in the dune sand slack, ± 800 m west of the shoreline; the habitat is a coastal dune scrub/woodland to forest that occurs along a narrow coastal strip, open wet sand immediately behind the coastal dunes, with *Digitaria eriantha, Fimbristylis hispida, Garcinia livingstonei, Strychnos spinosa* (c. 20 plants of *Triceratella* found).

Two collections made (1958 in Zimbabwe and in Mozambique 1997) in two localities with more than 1000 km distance from each other. The first collection is the richest in specimens.

(ZEBRINA)

Zebrina pendula Schnizlein = **Tradescantia zebrina** var. **zebrina**

(ZYGOMENES)

Zygomenes abyssinica (A. Rich.) Hassk. = **Cyanotis vaga**

axillaris (L.) Salisb. = **C. axillaris**

caespitosa Kotschy & Peyr. = **C. caespitosa**

cristata (L.) W. Wight = **C. cristata**

cucullata (Roth) R. S. Rao & Kammathy = **C. vaga**

parasitica (Hochst. ex Hassk.) = **C. vaga**

pauciflora (A. Rich.) Hassk. = **C. vaga**

polyrrhiza (Hochst. ex Hassk.) Hassk. = **C. polyrrhiza**

RESTIONACEAE / *1* g. / *3* spp.

Distinctive family predominantly south-temperate, with very few species reaching the tropics: about 50 genera and 450 (or 520) species. An African clade comprises c. 350 species (incl. Madagascar, 1), mostly in the Cape Floristic Region where they are dominant elements of the fynbos vegetation. There are c. 100 (or 170) species in Australia, with extensions to New Zealand (3), New Guinea, Aru Islands, Malesia, Hainan Island; a single species in S. America (Chile).

BRIGGS, B. G. & H. P. LINDER (2009). A new subfamilial and tribal classification of Restionaceae (Poales). *Telopea* 12: 333-345.

DORRAT HAAKSMA, E. & H. P. LINDER (2000). *Restios of the fynbos.* The Botanical Society of South Africa, Cape Town. XII + 188 pp.

ELDENÄS, P. K. & H. P. LINDER (2000). Consequence and complementarity of morphological and trnL-trnF sequence data and the phylogeny of the African Restionaceae. *Syst. Bot.* 25: 692-707.

HARDY, C. R. & al. (2008). A phylogeny for the African Restionaceae and new perspectives on morphology's role in generating complete species phylogenies for large clades. *Int. J. Pl. Sci.* 169: 377-390.

LINDER, H. P. (2001). The African Restionaceae, an intkey identification and description system. *Contr. Bolus Herb.* 20. CD-ROM, Version 1. [Review by D. Snijman in Veld & Flora 87/3: 142, 2001.]

LINDER, H. P. (2011). New species and combinations in the African Restionaceae. *S. Afric. J. Bot.* 77: 415-424.

LINDER, H. P. & L. R. CADDICK (2001). Restionaceae seedlings: morphology, anatomy and systematic implications. *Feddes Repert.* 112: 59-80.

LINDER, H. P. & C. R. HARDY (2010). A generic classification of the Restioneae (Restionaceae), southern Africa. *Bothalia* 40: 1-35.

LINDER, H. P. & al. (2003). Contrasting patterns of radiation in African and Australian Restionaceae. *Evolution* 57: 2688-2702.

(HYPOLAENA)

Hypolaena mahonii N. E. Br. = **Platycaulos**

PLATYCAULOS / *3*

Some 12 species endemic to Africa and Madagascar.

Platycaulos mahonii (N. E. Br.) H. P. Linder & C. R. Hardy subsp. **mahonii**; Bothalia 40: 8, 2010; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 157, 2006 (sub gen. *Restio);* Kew Bull. 66: 250, 2011. – Icon.: Fl. Trop. E. Afr., Restionaceae: 2, 2005; Fl. Zambes. 13/4 : 92, 2010.

bas.: *Hypolaena mahonii* N. E. Br.

syn.: *Restio madagascariensis* Cherm.; *R. mahonii* (N. E. Br.) Pillans

Herb tufted but spreading, often forming cushions or *mats* to 1 m deep; culms cylindric, 0,3-2 m tall, 1-3 mm Ø at base, branched from the middle, glabrous, rugulose, the terminal branchlets sometimes compressed; sheaths tubular, 8-20 mm long, with broad hyaline upper margins, ending in an awn to 10 mm long (often broken); inflorescences of male plants composed of 1-8 spikelets; those of female plants of 1-4 spikelets; capsule almost lenticular, 2-2,5 mm long, ± 2 mm Ø.

Ecology unknown in East Africa; elsewhere in peaty or marshy habitats; Zaire on volcanic Mt Muhi; common on Mt Mulanje; also on Zomba Mt (Malawi): seepages or wet hollows in grassland; 1500-3475 m alt. – Scattered, isolated species.

Madagascar [subsp. **humbertii** (Cherm.) H. P. Linder & C. R. Hardy; bas.: *Restio madagascariensis* Cherm. var. *humbertii* Cherm.; syn.: *R. mahonii* (N. E. Br.) H. P. Linder subsp. *humbertii* (Cherm.) H. P. Linder].

Not collected in Tanzania since 1913.

PLATYCAULOS

P. mlanjiensis (H. P. Linder) H. P. Linder & C. R. Hardy; Bothalia 40: 8, 2010; Strugnell, l.c.; Fl. Zambes. 13/4: 93-94, 2010.

bas.: *Restio mlanjiensis* H. P. Linder

Tussock-forming herb (caespitose) 0,4-1 m tall, with clusters of culms from a basal root; aerial parts look similar to those of *P. mahonii* but with a larger number of spikelets and a copious production of female flowers.

Grassland in shallow soil over bedrock; 1700-2200 m alt. – Very rare; could be sensitive to changes in fire regime.

Discovered in 1991.

P. quartziticola (H. P. Linder) H. P. Linder & C. R. Hardy; Bothalia 40: 8, 2010; Fl. Zambes. 13/4: 91, 2010.

bas.: *Restio quartziticola* H. P. Linder

Plants ± caespitose, to 1 m tall; closely related to *P. mahonii* (previously included in this species), but: bracts (male) 3-7 × 1-2 mm, slightly longer to twice as long as flowers, and (female) more than twice as long as flowers, 6-12 × 1-2 mm; seed surface rugose with a finely reticulate pattern.

Quartzitic sand, often among quartzite boulders or in quartzitic scree; preferring moist or boggy habitats; 900-1800 m alt. – Fairly common within its (restricted) area.

A fair number of plants are endemic on the Chimanimani Mts, e.g. *Tephrosia chimanimaniana, Xyris asterotricha.*

(RESTIO)

SYNONYMS:

Restio madagascariensis Cherm. = **Platycaulos mahonii**

mahonii (N. E. Br.) Pillans = **P. mahonii**

mlanjiensis H. P. Linder = **P. mlanjiensis**

quartziticola H. P. Linder = **P. quartziticola**

FLAGELLARIACEAE / *1* g. / *2* ? spp.

Monogeneric family *(Flagellaria)* widespread throughout the Old World tropics incl. Australia and the Pacific Islands. Formerly including *Joinvillea*, now in *Joinvilleaceae*.

APPEL, O. & C. BAYER (1998). Flagellariaceae. *In:* KUBITZKI, K., ed.,*The families and genera of vascular plants 4. Flowering plants, monocotyledons: Alismatanae and Commelinanae (except Gramineae):* 208-211. Springer Verlag, Berlin-Heidelberg.

GEERINCK, D. (2012). Contribution à la Flore d'Afrique Centrale: Colchicaceae et Flagellariaceae. *Taxonomania* 33: 1-8.

FLAGELLARIA / *2*

Genus of c. 4 species.

Flagellaria guineensis Schumach.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 164, 1994; M. Renier, Flore du Kwango 1: 79, 1948; Sosef & al., Check-list pl. vascul. Gabon: 179, 2006; Figueiredo & Smith, Pl. Angola: 184, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 152, 2010; Geerinck,, 2012: 7-8. – Icon.: Fl. Gabon 28: 57, 1986; Thulin, Fl. Somalia 4: 148, 1995; Fl. Eth. & Eritrea 6: 512, 1997; Hawthorne & Jongkind, Woody pl. west. Afr. forests: 865, 2006 (partial); Akoegninou & al., Fl. analyt. Bénin: 132, 2006; Fl. Zambes. 13/4: 95, 2010; Appel & Bayer, o.c.: 208 (partial).

FLAGELLARIA GUINEENSIS

Perennial glabrous herb climbing to 5-10 m height by means of leaf-tip tendrils; stems liane-like; leaf sheaths split ± to the base, margins narrow, papery; blade sessile, linear-lanceolate, 7-25 × 1-3 cm, apex continuing into a tendril; panicle terminal, pyramidal, 3-12 cm long; flowers numerous, in short distinct racemes, yellow or white; berries red-orange, 3-5 mm Ø, in dense clusters.

Mostly coastal; often near rivers. Weed in tree crop plantations and rice-fields.

Coastal, swampy, riverine forests; forest edges; periodically flooded forest; bushland; humid coastal sands; 1-400 m alt.

S. Africa. According to Linder in Fl. Zambes. 13/4: 96, 2010, the species is endemic to Africa. Should be common in the Congo Basin (not shown on our map).

Stems used for baskets. Also used in local medicine. – Harvested in S. Africa (S. Afric. J. Bot. 65: 69-74, 1999; ibid. 63: 294-298, 1997).

Confusion possible with *Gloriosa superba (Colchicaceae)* with similar leaf apex tendrils.

F. indica L. – Icon.: Engler & Prantl, Natürl. Pflanzenfam. 2/4: 2, 1888; Appel & Bayer, o.c.: 208 (partial); Fl. Mascareignes 187, Flagellariacées: 2, 1978.

syn.: World checklist Monocotyledons, Royal Botanic Gardens, Kew.

Resembling *F. guineensis* but: leaf sheaths entire, rarely torn with a chartaceous margin opposite the blade; flowers congested in *very short* racemes or glomerules.

Forest and thicket; 0-400 m alt. (Tanzania).

Madagascar, N and E borders of the Indian Ocean through to E Australia: Mascarene Isl., Mauritius, Reunion, Seychelles, Rodriguez, Madagascar; tropical Asia from Sri Lanka to Vietnam, Malaysia, Polynesia, N Australia, Fiji, Caroline, Marianas.

The presence of this species on mainland Africa is doubtful. Linder (Fl. Zambes., l.c.) has not been able to trace any specimens from the continent and cannot confirm "an overlap in their distributions".

MAYACACEAE / *1* g. / *1* sp.

Monogeneric family of amphibious and/or aquatic herbs occurring in the Neotropics and concentrated in S. America, except for one African species (Flora 204: 220, 2009). Their flowers are single or arranged in an umbellate inflorescence.

STEVENSON, D. W. (1998). Mayacaceae. *In:* KUBITZKI, K., ed.,*The families and genera of vascular plants 4. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae):* 294-296. Springer Verlag, Berlin, etc.

MAYACA / *1*

Three (to ten) species in tropical America, and 1 in Africa.

Mayaca baumii Gürke; Figueiredo & Smith, Pl. Angola: 188, 2008; Lachenaud in Syst. Geogr. Pl. 79: 205, 2009. – Icon.: Fl. Congo, Rwanda & Burundi, Mayacaceae: 3, 1971; Fl. Zambes. 13/2: 79, 2010.

Aquatic herb, submerged, erect; stem simple or slightly ramose, densely leafy, to 50 cm long; leaves spirally arranged to verticillate, sessile, linear, 12-17 × 0,7-1 mm, base broadened, apex dentate; inflorescences umbelliform, 1-3-flowered; flowers white, with a pedicel 10-25 mm long, held above water, submerged when in fruit.

Pools on laterite; swiftly flowing streams; permanent pools with *Nymphaea;* association *Bothriocline monocephala, Rotala myriophylloides*, sub-association with *Cyperus waillyi* Lisowski & Malaisse (= *Anagallo-Mayacetum baumii* Malaisse in Schmitz, 1988); < 500-1700 m alt.

Plants that grow creeping above waterline have a modified morphology (Cowley in Fl. Zambes., l.c.).

The collections made in Congo-Brazzaville are situated at 1500 km distance from the eastern populations (Lachenaud, l.c.), and at lower altitude. This kind of disjunction is also found in *Pycnosphaera buchananii*.

XYRIDACEAE / *1* g. / *60* (+*3* ?) spp.

Pantropical family with 5 genera, 260 species (240 in *Xyris)*. Most diverse in S. America, extending into warm temperate parts of N. America (Lock, Fl. Zambes. 13/4: 1, 2010).

Genus *Xyris* in Africa, probably under-collected, many taxa are doubtful, others "remain to be found and described" (Lock, 2010: 2). "The small …taxa…remain in need of detailed study on a continental-wide basis". – Among the taxa listed below the herbarium material is not always complete: flowers unknown in 3 (+1 ?) species (= 5%), and fruit in 5 (+ 1 only unripe fruit) species (= c. 8%); seeds lacking for 2 species; the ecology not recorded for 1 species; 6 species known only from the type (= 10%), and 2 further species known from only 2 collections.

KRAL, R. (1998). Xyridaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 4. Flowering plants, Monocotyledons*: *Alismatanae and Commelinanae (except Gramineae):* 461-469.

LOCK, J. M. (1999). Xyridaceae. *In: Flora of Tropical East Africa.* 24 pp. Royal Botanic Gardens, Kew.

LOCK, J. M. (2010). Xyridaceae. *In*: *Flora Zambesiaca* 13/4: 1-33. Royal Botanic Gardens, Kew.

XYRIS / *60* (+*3* ?)

Some 240 species; the African ones all belong to sect. *Xyris,* the other 2 sections occur in Australia and in C. and S. America. They are rush-like herbs, the "accurate identification depends on the observation of small features for which a × 10 or × 20 lens or, preferably, a binocular microscope is needed" (Lock in Fl. Zambes.). Useful characters are: life-span, i.e., annual or perennial, the latter with a bulb-like base; texture and colour of leaf-sheaths; leaf apices (not grazed or broken off !); leaf surface ornamentation; sections of leaves and peduncles; inflorescence bracts (various ages); shape of lateral sepals; flower and fruit morphology; shape and surface ornamentation of seeds (ripe !).

Leaves are linear, mostly basal; inflorescence a simple terminal bracteate head borne on a naked elongate scape; flowers bisexual; fruit a capsule.

Under-collected and insufficiently studied in Africa. Many taxa are in need of detailed study on a continental basis. Some species grow in mixed populations. Opinions of different authors are divergent as to the concept of some species (e.g., *X. capensis, X. huillensis, X. rubella, X. schliebenii).*

Our treatment is based on Lock's flora accounts, a remarkable synthesis, although Lock states that his "account should be regarded as more preliminary than many in the Flora" [Zambesiaca 13/4: 1-33, 2010].

LOCK, J. M. (1998). Notes on the genus Xyris (Xyridaceae) in East Africa. *Kew Bull.* 53: 883-895.

LOCK, J. M. (1999). A synopsis of Xyris (Xyridaceae) in south-central Africa. *Kew Bull.* 54: 301-326.

LOCK, J. M. (2002). Xyris (Xyridaceae) in Africa – a progress report. *Syst. Geogr. Pl.* 71: 443-448.

MALME, G. O. A:N (1928). Xyridaceae congenses. *Ark. Bot.* 22A/4: 1-12.

MALME, G. O. A:N (1931). Xyridaceae angolenses Gossweilerianae. *Ark. Bot.* 24A/5: 1-10.

RUDALL, P. J. & M. G. SAJO (1999). Systematic position of Xyris: flower and seed anatomy. *Int. J. Pl. Sci.* 160: 795-808.

(**Xyris aberdarica** Malme) – Doubtful species; Fl. Trop. E. Afr., Xyrid.: 23, 199; Kew Bull. 53: 892, 1998. – Icon.: Fl. Trop. E. Afr., Xyrid.: 5, 1999).

Caespitose or subbulbous, perennial herb; base covered by yellowish or yellowish-brown leaf sheaths; leaves flattened or narrowly linear-ensiform, 5-10 cm long, 1 mm wide, acute, transversely *rugulose,* glabrous; ligule absent; scape subterete, 12-18 cm tall, 0,7 mm Ø, smooth; spike few-flowered, (obovoid-) elliptic, c. 5 mm long, 3-4 mm Ø; *bracts subcoriaceous, blackish brown,* shiny.

Wet grassland; described from Kenya: Aberdare Range, Kinangop Forest Station (collected in 1922).

Said to be close to *(X. brunnea =) X. obscura, X. atrata.*

Type poor (holotype apparently grazed). General appearance similar to that of *X. peteri.*

Material named *X. Welwitschii* Rendle from Ethiopia (Fl. Eth. & Eritrea 6: 377, 1997) may correspond to *X. aberdarica.*

X. aberdarica was treated by Lewis in Fl. Cameroun 22: 40, 1981, as a synonym of *X. nivea, X. obscura.*

Not mapped.

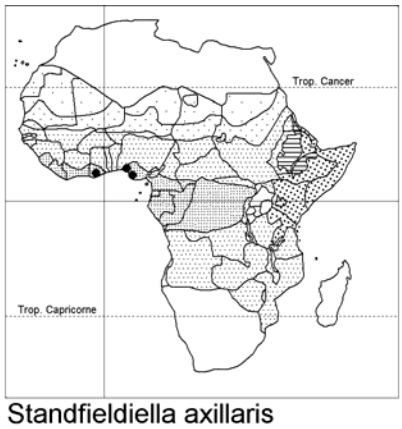
X. affinis Welw. ex Rendle; Figueiredo & Smith, Pl. Angola: 207, 2008. – Icon.: Fl. Afr. Centr., Xyrid.: 88, map 36, 2001.

Herb perennial, caespitose, to 21 cm tall; outer leaves linear, *flat,* 2-7,5 cm × 1-1,7 mm, ± glabrous, apex acute, sheath 1-2,5 cm × 3 mm, ciliate below; inner leaves 4-6,5 cm long; sheath 3,5-5,7 cm × 1-1,5 mm; scape subcylindrical, 7-21 cm long, 0,5-0,7 mm wide, smooth; spikes ellipsoid, 5-6 × 2,5-4 mm, *3-4-flowered;* petals yellow.

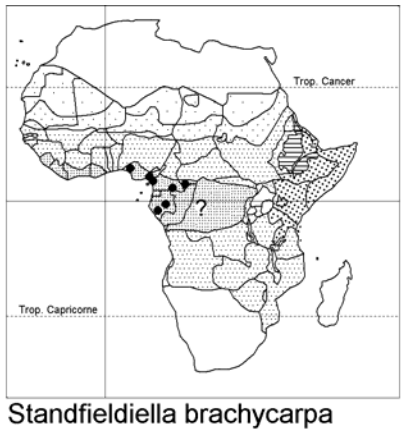
Humid places in steppe-savanna; wet rocks, meadows and pastures; 1500-2600 m alt.

Near *X. nivea.*

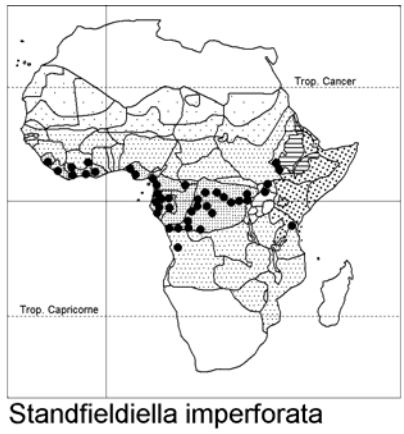
X. anceps Lam.; Fl. south. Afr. 4/2, Xyrid.: 2, 4, 1985; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 325, 1994; Lock, Kew Bull. 53: 890, 1998, and ibid. 54: 316, 1999; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 306, 2000; Sosef & al., Check-list pl. vascul. Gabon: 416, 2006; Akoegninou & al., Fl. analyt. Bénin: 257, 2006; Figueiredo & Smith, Pl. Angola: 207, 2008; Fl. Zambes. 13/4: 22-24, 2010. – Icon.: Fl. Cameroun 22: 43, 1981 (partial); Fl. Trop. E. Afr., Xyrid.: 5, 1999 (partial); Fl. Afr. Centr., Xyrid.:



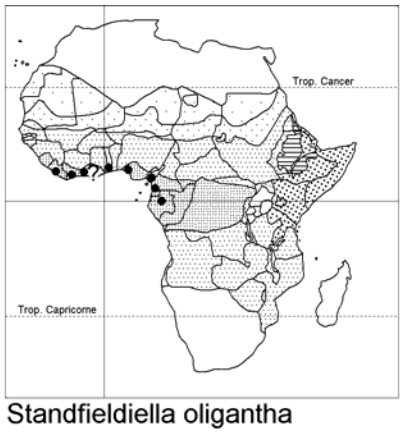
Standfieldiella axillaris



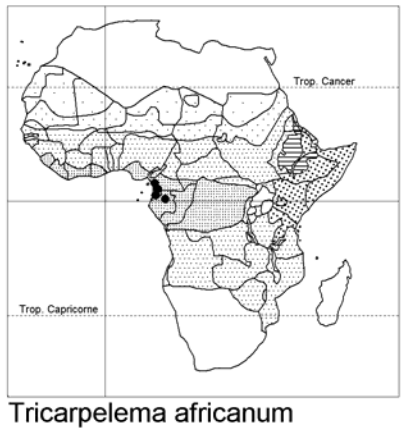
Standfieldiella brachycarpa



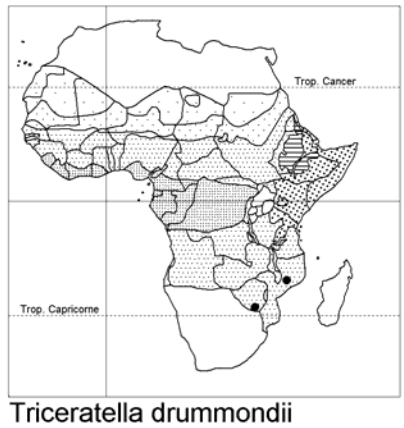
Standfieldiella imperforata



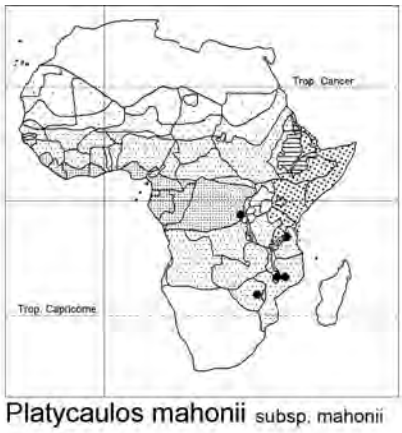
Standfieldiella oligantha



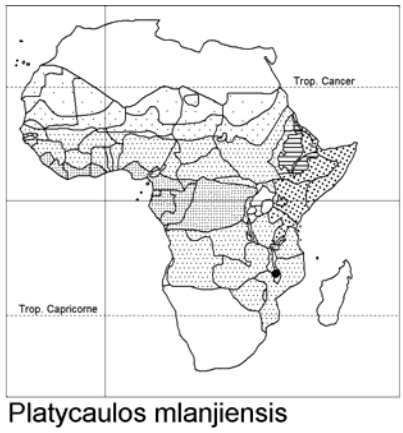
Tricarpelema africanum



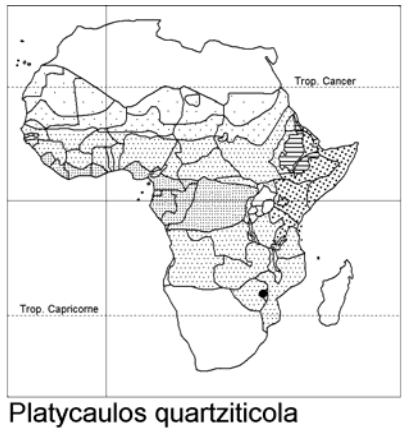
Triceratella drummondii



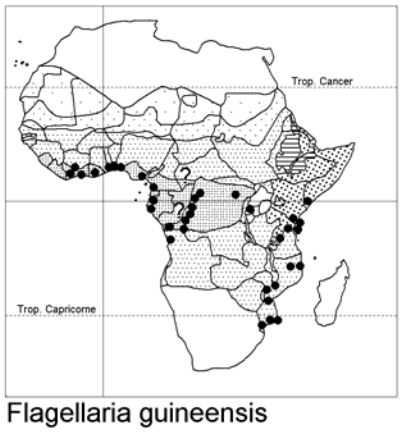
Platycaulos mahonii subsp. mahonii



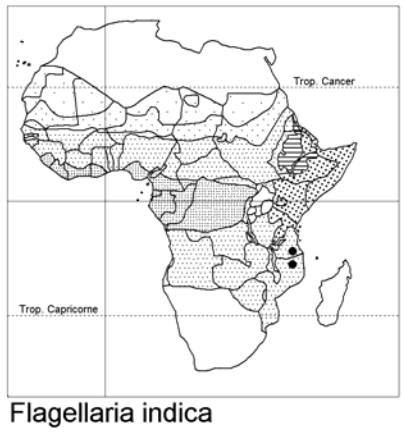
Platycaulos mlanjiensis



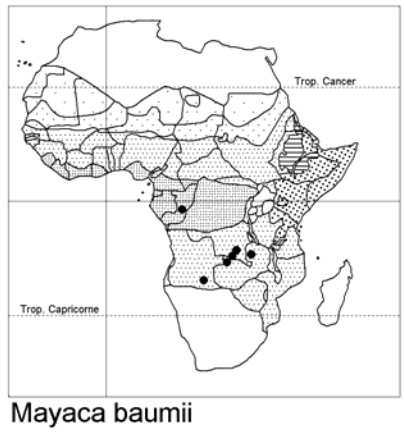
Platycaulos quartziticola



Flagellaria guineensis



Flagellaria indica



Mayaca baumii

98, map 41, 2001 (var. **anceps**); Cook, Aquat. & wetland pl. south. Afr.: 260, 2004; Lisowski, Fl. Rép. Guinée 2: fig. 571, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 867, 2010; Fl. Gabon 42: 94-95, 2011.

Annual (var. **minima**) or perennial (var. **anceps**) caespitose herb 0,5-1 m tall; leaves linear, flattened, glabrous, apex asymmetrically obtuse, base distichous; peduncles glabrous, terete, hollow, 2-winged; spikes ± ovoid, yellowish green, bracts dull brown to grey with a subapical triangular dorsal mark.

Perennial swamps and pools near the coast; often forming large clumps; coastal grassy swamps, on sand (var. **anceps**); mangroves; with *Pandanus* on decomposed hard-pan of ferrugineous sandstone under 50-80 cm water; – coastal and inland seasonal pools and marshes, wet places, rice-fields; ephemeral rock pools and depressions over lateritic crusts (W Africa) in *Drosero indicae-Utricularietalia subulatae* vegetation (Müller in Folia Geobot. 42: 35, 2007); clayey meadow; often a weed (var. **minima**); 0-1250 m alt.

S. Africa; Madagascar; N S. America to Brazil (var. **anceps**). – Angola ?

Comprises 2 vars. that are clearly distinct although intermediates exist: – var. **anceps** [syn.: *X. platycaulis* Poir.; *X. nitida* Willd. ex A. Dietr.; *X. compressa* Willd ex A. Dietr.; *X. insularis* Steud.; *X. thompsonii* Rendle; *X. pallida* Mart.; full synonymy in World checklist moncot., Royal Botanic Gardens, Kew; also Fl. Cameroun 22: 44, 1981], a large perennial forming large clumps; leaves 20-40 × 0,4-0,5 cm, peduncle to 1 m long, inflorescence to 1,5 × 1 cm; – var. **minima** (Steud.) Lock [bas.: *X. minima* Steud.; syn.: *X. perrottetii* Steud.; *X. humilis* Kunth, incl. var. *minima* (Steud.) L. A. Nilsson; *X. capensis* Willd. ex Kunth 1843, non Thunb. 1794], an annual herb; leaves markedly distichous, 8-25 × 0,3-0,5 cm, peduncle 14-25 cm long, inflorescence 7-8 mm Ø.

X. angularis N. E. Br.; Lock, Kew Bull. 54: 315, 1999; Fl. Centr. Afr., Xyrid.: 21 fig. 8, map 8, 2001; Sosef & al., Check-list pl. vascul. Gabon: 416, 2006; Akoegninou & al., Fl. analyt. Bénin: 257, 2006; Figueiredo & Smith, Pl. Angola: 207, 2008; Fl. Zambes. 13/4: 22, 2010; Fl. Gabon 42: 95-96, 2011. – Icon.: Fl. Trop. E. Afr., Xyrid.: 5, 1999 (partial).

syn.: *X. decipiens* sensu Hepper in Fl. W. Trop. Afr., ed. 2, 3/1: 55, 1967, and sensu Lewis in Fl. Camer. 22: 45, 1981, non N. E. Br.; *X. vanderystii* Malme; *X. decipiens* N. E. Br. var. *vanderystii* (Malme) Malme

Perennial herb forming loose clumps; leaves 8-40 cm × 3-4 mm; sheaths glabrous; lamina linear, glabrous, smooth or minutely rugulose on one surface, apex acute; peduncles 20-85 cm long, 1-1,5 mm Ø, terete with 4-6 ridges, glabrous; spikes subspherical to broadly ellipsoid, to 8 × 8 mm at maturity, *reddish brown; inflorescence bracts strongly patterned*, only hairy towards apex, or glabrous; *seeds c. 1 mm long*, ridged and reticulate. – Dryed leaves with numerous *dark brown cells*, giving a speckled appearance.

Seasonally or permanently wet sandy grassland or woodland; swamp edges; extends well into the forest zone in W & C Africa; 10-1700 m alt.

Note: The true *X. decipiens* is similar, but its inflorescences much larger. See note under *X. decipiens*.

X. angustifolia De Wild. & T. Durand; M. Renier, Flore du Kwango 1: 89, 1948; Fl. Zambes. 13/4: 18, 2010; Fl. Gabon 42: 96, 2011. – Icon. : Fl. Afr. Centr., Xyrid: 42, map 17, and p. 75, map 30 *(X. exigua)*, 2001.

syn.: *X. exigua* Malme

Perennial herb, caespitose, 10-38 cm tall with old blackish brown leaf sheaths around the base; leaves linear-filiform, 3-9 cm × 0,3-0,5 mm, *flat*, with rugulose channels on both surfaces; margins of sheaths fimbriate; scapes slightly compressed, 8-10 cm long, 0,5 mm Ø; ferruginous; spikes obovoid-subcylindric, 3-5 × 1,5-4 mm, 3-5-flowered; bracts pale brown, *matt*.

Boggy and grassy humid places, also periodically flooded; swampy meadows; water logged places in savanna; c. 300 m alt. (Gabon).

Superficially similar to *X. capillaris* (with smooth rounded leaves and sheaths ciliate below, and with shining bracts). – When burned, old leaf bases are curved as in *X. elegantula*.

X. anisophylla Welw. ex Rendle; Figueiredo & Smith, Pl. Angola: 207, 2008. – Icon.: Fl. Afr. Centr., Xyrid.: 92, map 38, 2001.

Annual caespitose herb to 28 cm tall; *outer leaves shorter than the inner* ones, linear, flattened, 0,8-4,5 cm × 0,5-1,5 mm, narrowed towards the apex; sheath 0,4-2 cm long, margins hyaline, not ciliate; scapes ± *furrowed*, 6,5-28 cm long, 0,1-0,6 mm Ø; spikes ovoid to ellipsoid, dark yellow to dark brown, 4-5,5 × 2-2,5 mm; corolla yellow.

Swamps, humid meadows; humid rocky outcrops; 1600-2550 m alt.

Near *X. fugaciflora*, *X. scabridula*.

X. aristata N. E. Br.; Lock in Kew Bull. 54: 306-307, 1999; Fl. Zambes. 13/4: 5-6, 2010; – Icon.: Kew Bull. 21: 423, fig. 2 (9-10), and fig. 1-8 *(X. leonensis)*, 1968; Bull. Jard. Bot. Natl. Belg. 60: 141, 1990 *(X. dilungensis)*; Fl. Cameroun 22: 43, 1981 (partial); Fl. Trop. E. Afr., Xyrid.: 5, 1999 (partial); Fl. Afr. Centr., Xyrid.: 6, 8, 12, and maps 1, 2, 4, 2001. – Type immature and atypical.

syn.: *X. laciniata* Hutch.; *X. leonensis* Hepper; *X. subaristata* Malme; *X. dilungensis* Brylska

Perennial herb (or flowering in its first year) forming dense clumps including the fibrous remains of old leaf-sheaths; leaves to 50 cm × 2,5-4 mm; blade linear, flattened, glabrous, tending to be spirally twisted, longitudinally furrowed, apex acute; scapes 60-100 cm × 2-3 mm Ø, terete with 2 longitudinal papillose ridges; spike subglabose, 0,8-1,5 cm Ø; *sterile bracts* markedly papillose, with a *long, black, rigid acumen*.

Peat bog; grass swamps; streamsides; ditches; humid savanna; very wet meadows; 800-2450 m alt.

Variable, e.g. in shape and colour of outer bracts. “Clearly this is a group in which field observations on populations could be informative” (Lock, Kew Bull. 54: 307, 1999). Opinions of different authors are divergent on the value of the taxa cited above under “synonyms”.

X. asterotricha Lock; Fl. Zambes. 13/4 : 16-17, 2010. – Icon. : Kew Bull. 54 : 306, 1999.

Perennial herb; leaves to 42 cm × 0,5 mm; sheaths very glossy, smooth or slightly rugulose above, glabrous; lamina terete, finely longitudinally ribbed and pitted, glabrous, apex acuminate; scapes 30-55 cm long, 0,5-1 mm Ø, terete, smooth; inflorescence

obovoid when young, 5-6 × 3 mm, becoming subspherical, 8 × 7 mm; *lateral sepals* boat-shaped, curved, keel with a *marginal row* of irregularly *stellate hairs;* corolla yellow.

Grass among rocks; grassland in small rocky valleys; wet boggy soil; 1700-2100 m alt.

In the well-known centre of endemism of the Chimanimani Mts.

Resembling *X. congensis* by the stellate hairs on the sepal keels.

(**X. atrata** Malme)

Herb with flattened linear leaves 3-4,5 cm × 0,5 mm, glabrous; sheath 1 cm long, shining; scapes 5-10 cm long, c. 0,3 mm Ø; spike 2-flowered, ± ellipsoid, 5-6 mm long, 2-3 mm wide; lateral sepals 4-5 mm long, narrowly keeled outside, ciliate in lower part; corolla yellow.

In open humid places; c. 2700 m alt.

SW Tanzania: Ukinga Mt (= Njombe), Goetze 977. – Not mapped.

"Apparently related to *X. brunnea" (= X. obscura)* but smaller and with smooth leaves, narrower spikes and lateral sepals glabrous in upper part. Similar to *X. makuensis*, and *X. multicaulis (= X. straminea)* which have, however, glabrous lateral sepals.

Not cited by Lock: nor in Fl. Trop. E. Afr., Xyrid. (1999), nor in Kew Bull. 54: 301-326 (1999), or Fl. Zambes. 13/4 (2010).

X. bampsii Lisowski; Fl. Zambes. 13/4: 12, 2010. – Icon.: Syst. Geogr. Pl. 69: 206, 1999; Fl. Afr. Centr., Xyrid.: 35, map 14, 2001.

Perennial herb, caespitose, to *81 cm tall;* base *bulbous* covered by old blackish brown sheaths; outer leaves longer than the inner ones; leaves linear, 25-50 cm long; lamina flattened, 11-26 cm × 1-2,8 mm, margins minutely fimbriate-dentate, apex acute; sheaths 14-24 cm long, 0,6-1,4 cm wide, margins hyaline, scabrous-ciliate in upper part; inner leaves with linear blade 2-7 × 0,6-1 mm, flattened; scapes 54-81 cm long, 1,5-2 mm Ø, terete below, flattened above, with 1-3 scabrous ridges; spike broadly ovoid or ellipsoid, 8-12 × 5-9 mm, dark brown, 12-22-flowered; corolla yellow.

Damp grassy savanna; steppe-savanna on lateritic plateau; 1600-1650 m alt.

Superficially similar to *X. gossweileri* (with terete smooth glabrous leaves). Also resembling *X. dissimilis.*

Should be looked for in NW Zambia (Lock, 2010: 12).

X. barteri N. E. Br.; Malme, Ark. Bot. 22A/4: 6, 1929; Fl. Cameroun 22: 47-48, 1981; Akoegninou & al., Fl. analyt. Bénin: 257, 2006; Lisowski, Fl. Rép. Guinée 1: 482-483, 2009.

syn.: *X. ledermannii* Malme

Erect perennial shortly rhizomatous herb, much-branched; leaves distichous, linear, 20-30 cm × 0,2-2 mm, striate, apex long-acuminate; sheath 4-5 cm long, dark ferruginous below; scapes 50-70 cm long, 0,75-1 mm Ø, cylindrical, with 1-2 ridges; spikes ellipsoid-spherical, few-flowered, 5-10 mm long, 3-7 mm Ø; bracts not ciliate, the inner ones strongly keeled; corolla yellow.

Permanently humid places, among humid rocks, swamp; c. 300-1200 m alt.

Said to be near *X. congensis, X. rehmannii.*

X. capensis Thunb. 1794, non Baker 1883 *(= X. congensis);* excl. var. *microcephala* Malme and var. *medullosa* N. E. Br. (= *X. huillensis);* Fl. Cameroun 22: 37-39, 1981, p.p.; Lock in Kew Bull. 54: 316-317, 1999; Cheek & al., Pl. Mt Oku…: 192, 2000; Sosef & al., Check-list pl. vascul. Gabon: 416, 2006; Figueiredo & Smith, Pl. Angola: 207, 2008 (excl. var. *medullosa* N. E. Br. = *X. huillensis);* Fl. Zambes. 13/4: 24-25, 2010; Fl. Gabon 42: 96-97, 2011. – Icon.: Fl. south. Afr. 4/2: 3, 1985; Fl. Eth. & Eritrea 6: 376, 1997; Fl. Trop. E. Afr., Xyrid.: 5, 1999 (partial); Fl. Afr. Centr. Xyrid: 66 (fig. 29a), maps 29a, c, d, 2001; Cook, Aquat. & wetland pl. south. Afr.: 260, 2004: Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park, Rwanda: 461, 2008; Lisowski, Fl. Rép. Guinée 2: fig. 572, 2009.

syn.: *X. zombana* N. E. Br.; *X. capensis* var. *pallescens* Malme and var. *nilagiriensis* (Steud.) L. A. Nilsson; *X. nilagiriensis* Steud.; *X. reptans* Rendle; *X. capensis* var. *angolensis* Malme and var. *pallescens* Malme; see also Fl. Afr. Centr., l.c. for varieties and other synonyms, and World Checklist Monocot., Roy. Bot. Gard., Kew.

Annual or sometimes perennial herb, forming loose clumps; leaves flabellate, to 40 cm × 2 mm; lamina linear, glabrous, apex solid, paler, acute, slightly incurved; sheaths smooth throughout; scape 30-75 cm × 2 mm Ø, ± *terete* with low longitudinal ridges; spike *subspherical*, becoming depressed-spherical, 5-12 × 7-14 mm, dark brown; corolla yellow.

Humid meadows; swamps with *Sphagnum;* stream sides; temporary pools; sources; marshy ground or on slopes with oozing water; in rock pools and depressions over lateritic crusts element of *Eriocaulo pumilio-Ophioglossion gomezianum* vegetation alliance, and in *Drosera-Xyrideta; Lindernia schweinfurthii-Xyris capensis* communities; (Müller & Deil in Phytocoenologia 35: 327-388, 2005; Müller in Fol. Geobot. 42: 29-61, 2007). 0-3000 m alt.

Widespread, very variable taxon "which may be a complex of several. There is need for a comprehensive revision throughout its range…" (Lock, Fl. Zambes. 13/4: 25, 2010). Lock distinguishes different regional variations in tropical Africa, viz.: in SC Africa plants seem to be annual with distichous leaf bases and subspherical dark brown spikes, with terete or somewhat ridged scape; in E Africa, mainly in the Uluguru Mts, Tanzania, there is a well-marked perennial form, with similar forms also further south; in E Africa there are also annual plants with strongly distichous leaves with purple bases and obtriangular spikes; such specimens have been confused with *X. straminea* (or its synonym *X. multicaulis);* robust plants in upland areas have been described as *X. zombana*, with intermediates existing to typical *X. capensis*. – Several varieties have been described from SC Africa (cf. Fl. Afr. Centr. l.c.). *X. capensis* "paedogenic variant" sensu Fl. south. Afr. 4/2: 2, 1985, is *X. rubella* according to Lock in Fl. Zambes., l.c.

Botswana, S. Africa, Namibia; Madagascar, Mascarene Isl.; S Asia, India, SE Asia [var. **schoenoides** (Mart.) L. A. Nilsson, or fa. *schoenoides* (Mart.) L. A. Nilsson; *X. schoenoides* Mart.].

X. capillaris Malme; Lock in Kew Bull. 54: 313, 1999; Figueiredo & Smith, Pl. Angola: 207, 2008; Fl. Zambes. 13/4: 17-18, 2010. – Icon.: Fl. Trop. E. Afr., Xyrid.: 5, 1999 (partial); Fl. Afr. Centr., Xyrid.: 64, map 28, 2001.

Perennial herb forming *dense tufts;* leaves *distichous* at base, to 13 cm long; lamina c. 10 cm × 0,5 mm, smooth, ± terete, apex apiculate, symmetric; sheaths c. 2,5 cm long, tinged red when young, margins and keel ciliate below, otherwise glabrous; scape to 30 cm long, 0,5 mm Ø, smooth, terete; spike *few-flowered* (<5; 1 flower open at a time), ellipsoid when young, broader when old, c. 6 × 3 mm, *dark shining brown;* corolla yellow.

Large flat seepage area on grey to white sand; humid grassland; marshy stream banks; sources; swamps; 1400-2350 m alt.

The species belongs to a poorly understood complex of tufted perennials with small spikes.

Superficially similar to *X. angustifolia* (see above). *X. pumila* is very similar but seems to have broader leaves (perhaps not significant according to Lock). Differs from *X. elegantula* by its much smaller inflorescences.

A collection from Burundi (Reekmans 812) is considered as *X. schliebenii* by Lock (Fl. Zamb., l.c.).

X. capnoides Malme; Lock in Kew Bull. 54: 315, 1999; Figueiredo & Smith, Pl. Angola: 207, 2008; Fl. Zambes. 13/4: 21, 2010.

Perennial herb with a bulbous base; leaves weakly developed at anthesis, subterete to somewhat flattened, 9-13 cm × 1 mm, smooth, distinctly longitudinally striate, apex subulate; sheaths c. 3 cm long wider than lamina above, usually glabrous but minutely papillose or transversely rugulose, (red-)brown; scape 20-28 cm tall, 1 cm Ø, flexuous, subterete, smooth; spikes few-flowered, obovoid, 6-7 × 4,5 mm; flowers, fruits and seeds unknown.

In grass; dambos; c. 1400 m alt. (Zambia).

A single collection known from Zambia, mixed with *X. erubescens.*

X. congensis Büttner; Lock in Kew Bull. 54: 309-310, 1999; Cheek & al., Pl. Mt Oku…: 192, 2000; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 187, 2006; Sosef & al., Check-list pl. vascul. Gabon: 416, 2006; Figueiredo & Smith, Pl. Angola: 207, 2008, and Baum, Kunene-Exp. in Bothalia 39: 201, 2009. – Icon.: Fl. Cameroun 22: 43, 1981; Fl. Trop. E. Afr., Xyrid.: 9, 1999; Fl. Afr. Centr., Xyrid.: 30, map 12, and p. 95, map 40 *(X. leptophylla),* 2001; Cook, Aquat. & wetland pl. south. Afr.: 261, 2004; Fl. Zambes. 13/4: 10, 2010; Fl. Gabon 42: 98, 2011.

syn.: *X. hildebrandtii* L. A. Nilsson, incl. var. *angustifolia* Malme; *X. nitida* L. A. Nilsson 1891, non Willd. ex A. Dietr.; *X. umbilonis* L. A. Nilsson; *X. batokana* N. E. Br.; *X. baumii* L. A. Nilsson; *X. leptophylla* Malme, incl. var. *subbatokana* Malme nom. in sched.; *X. extensa* Malme; *X. capensis* Baker 1883, non Thunb. 1794, nom. illegit.; *X. bakeri* L. A. Nilsson; *X. baronii* Malme

Perennial herb from a rhizome clothed with persistent reddish-brown, often shiny leaf bases, forming clumps; leaves 30-60 cm long, 1-6 mm wide, clustered on compact rhizomes; sheaths red-brown, shiny, glabrous, splitting and persisting as bristles; lamina linear, glabrous, often spirally twisted; apex solid, glabrous; scapes terete or somewhat flattened below the heads, 40-120 cm long, 1-2 mm Ø, longitudinally grooved; spike ellipsoid, obtuse, c. 9 × 6 mm, *elongating with age* to c. 20 mm or more (4 times as long as wide); bracts broadly ovate, shiny, dark brown, falling off as the fruits ripen; corolla yellow.

Swampy places (locally dominant), usually grassy; savanna periodically very humid; grassy and swampy savannas; inundated meadows; stream sides; sometimes dominant; 0-2300 m alt.

Taxon very variable in: width of leaves, length of rhizome, length of spikes, aspect of bracts (sometimes densely and heavily papillose).

X. foliolata, X. gossweileri and *X. natalensis* are perhaps only extreme variants of *X. congensis* (fide Lock, Fl. Zambes., l.c.).

S. Africa; Madagascar.

X. decipiens N. E. Br., excl. var. *vanderystii* (Malme) Malme; Kew Bull. 21: 419, 1968 (excl. syn. *X. angularis* N. E. Br.); Figueiredo & Smith, Pl. Angola: 207, 2008.

The true *X. decipiens* is not synonymous with *X. vanderystii* Malme. It is also not a plant from S. Africa but from Angola (Curror, s.n.). Its bracts are very distinct, oblong-lanceolate, with a greyish dorsal area at apex; the spikes are dark brown.

Ecology unknown ?

Only known from the type, s. loc.

Cited from W. Trop. Afr. = probably *X. angularis* (e.g., Lisowski, Fl. Rép. Guinée 1: 483, 2009; Sosef & al., Check-list pl. vascul. Gabon: 416, 2006). Cf. discussion by Lock in Fl. Zambes. 13/4: 22, 2010 (referring to Lisowski's treatment as a synonym of *X. macrophylla* Vahl from S. America).

X. decipiens is listed by Lock in Fl. Gabon 42, Xyridaceae (p. 99-100, 2011). It is cited as widespread in W Africa, from Senegal-Nigeria-Cameroon-Gabon-Angola, growing in sandy coastal marshes at low altitudes (0-500m in Gabon). However, he also notes that this species is close to *X. angularis,* and that further studies are needed in order to elucidate their relationships.

X. densa Malme; Fl. Zambes. 13/4: 18, 2010. – Icon.: Fl. Afr. Centr., Xyrid.: 44, map 18, 2001; Bull. Soc. Bot. Roy. Belg. 87: 101, 105, 1955 (anatomy).

Perennial caespitose herb 30 cm tall with old brown sheaths at base; outer leaves narrowly linear to subfiliform, 8-18 cm × 0,5-1 mm, apex with a yellow mucron, glabrous to slightly scabrous; inner leaves 7,5-11,5 cm long; lamina filiform, 3-15 × 0,2-0,3 mm, glabrous; scape subcylindric, often 1-ribbed, 24-30 cm long, 0,4-0,6 mm Ø, glabrous or sometimes slightly papillose; spike ovoid, 5-6 × 3-5 mm, ellipsoid becoming subspherical, 2-9-flowered, bracts pale brown to dark yellow.

Swamp with *Sphagnum, Xyris;* periodically flooded savannas; pool sides; *Rhynchosporetum* on humid humus-bearing sand.

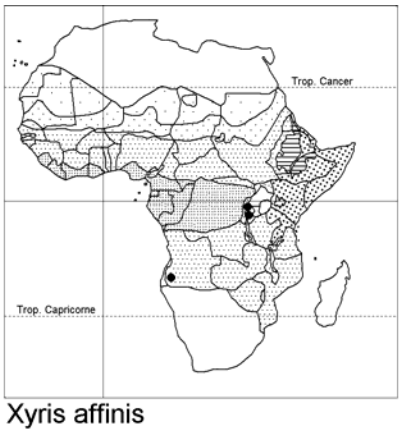
Similar to *X. capillaris;* they may represent the same taxon (Lock, Fl. Zambes., l.c.).

X. dissimilis Malme; Kew Bull. 54: 313-314, 1999; Fl. Zambes. 13/4: 20, 2010. – Icon.: Fl. Afr. Centr., Xyrid.: 33, map 13, 2001.

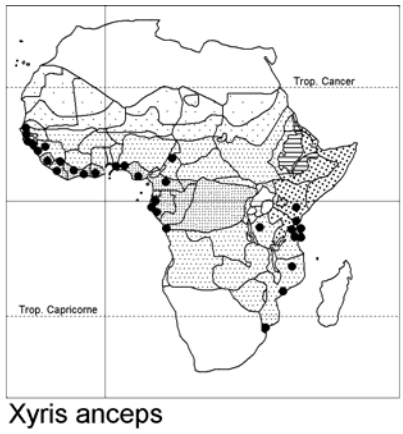
Perennial caespitose herb to 47 cm tall with bulbous shoot bases covered with old brown shining sheaths; leaves linear, *flattened,* 11-24 cm × 0,7-1,5 mm, glabrous, smooth, margins strongly papillose to short-hairy, apex solid, curved to one side; scape subcylindrical, smooth, 1-2-ribbed, 16-50 cm long, 0,5-1 mm Ø; spikes ovoid, *ellipsoid* to nearly spherical, 4-7 × 3-6 mm, 7-17-flowered; corolla yellow; lateral sepals with a spinulose keel.

Humid places in open forests; sandy *Brachystegia* woodland; rocky places; swamps; stream sides; 1350-1800 m alt.

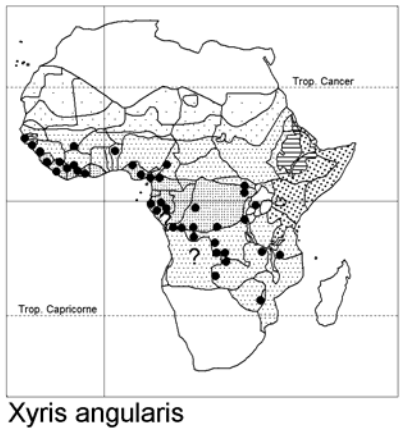
Confused with *X. sphaerocephala, X. erubescens.*



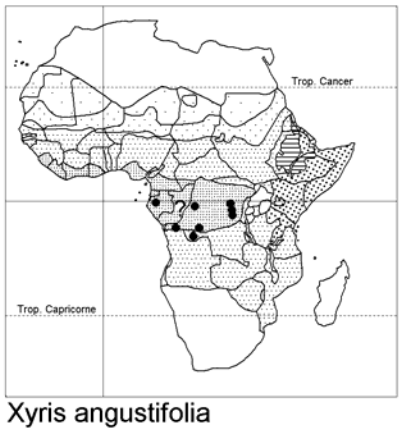
Xyris affinis



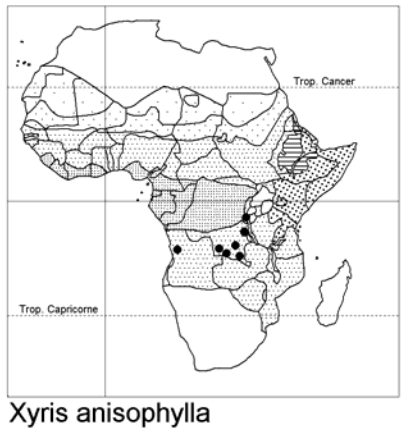
Xyris anceps



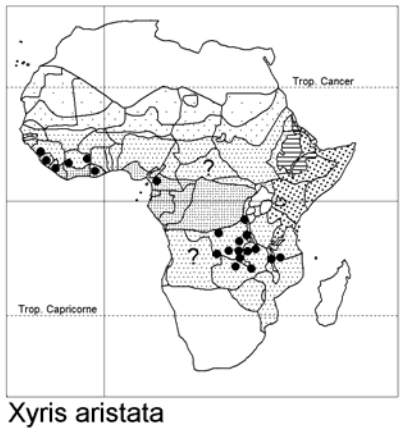
Xyris angularis



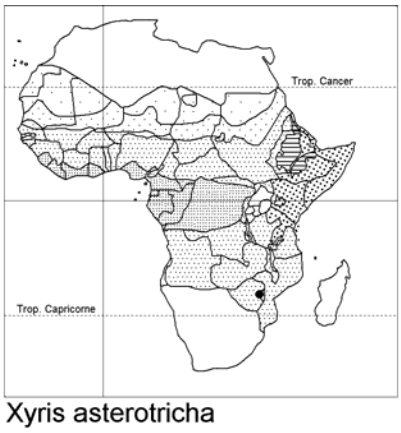
Xyris angustifolia



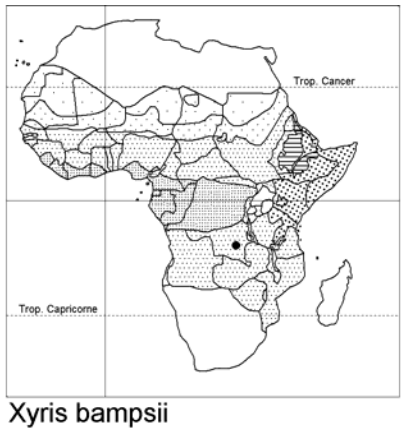
Xyris anisophylla



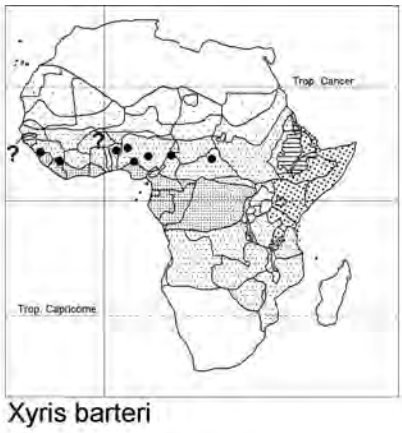
Xyris aristata



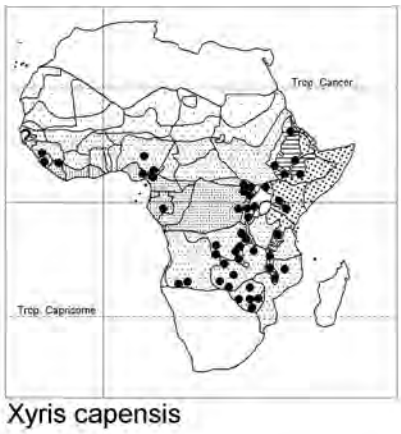
Xyris asterotricha



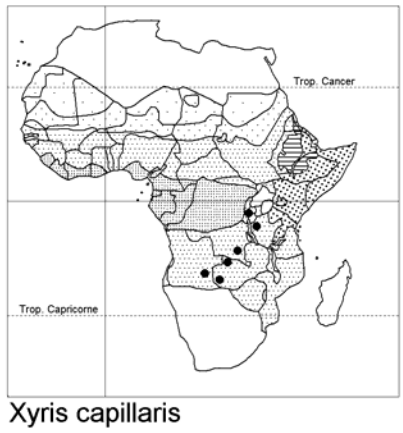
Xyris bampsii



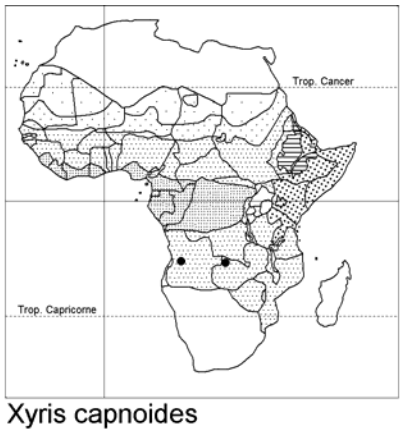
Xyris barteri



Xyris capensis



Xyris capillaris



Xyris capnoides

X. ednae Lock – Icon.: Kew Bull. 53: 884, 1998; Fl. Trop. E. Afr., Xyrid.: 7, 1999.

Perennial herb with short vertical rhizome (2 mm Ø) in drier sites but elongated in floating vegetation mats; leaves *distichous*, 10-24 cm × 0,2-0,4 mm; lamina flat, linear, glabrous, smooth, apex acute, slightly incurved; scape 10-55 cm long, *2-ridged*, slightly flattened; corolla yellow.

Grassy swamps, usualy with *Miscanthidium;* floating vegetation mats; 1100-1250 m alt.

Resembling upland perennial forms of *X. capensis*, but with distinctive pale lower inflorescence bracts. Near *X. erosa*.

X. elegantula Malme; Kew Bull. 54: 312, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 16, 2010. – Icon.: Fl. Afr. Centr., Xyrid.: 46, map 19, 2001.

Perennial herb to c. 45 cm tall, tufted from a short erect rhizome; *shoot bases ± flabellate;* leaf sheaths reddish-brown, 2,5-3 cm long, broadened towards base, transversely rugulose, margins hairy in the type (Angola), but not so in Fl. Zambes. area; leaf blade linear, 4-8,5 cm × c. 1 mm, smooth or minutely tuberculate; scape subcylindrical, 8,5-45 cm long, 0,5-1 mm Ø, 2-ridged above, ridges smooth or papillose; spikes ellipsoid to subspherical, 5-8 × 3-8 mm, 6-9-flowered, bracts *dark brown shiny;* corolla yellow.

Grassy, humid savannas; humid meadows, on rocky soil; swamps; 1500-2680 m alt.

Resembling *X. asterotricha* however distinctive by the presence of teeth on the keel of the lateral calyx lobes; also similar to *X. capillaris* (with much smaller spikes !). Superficially similar to *X. makuensis* distinguished by its lateral sepals with entire keel.

When burned, the old leaf bases are curved in as in *X. angustifolia*.

X. erosa Lock; Fl. Trop. E. Afr., Xyrid.: 6, 1999. – Icon.: Kew Bull. 53: 887, 1998.

Annual or short-lived perennial herb forming loose clumps; leaves linear, to 24 cm × 3 mm, flattened, glabrous, smooth; apex acute, weakly asymmetric, pale brown, solid; scape to 42 cm long, c. 1,5 mm Ø, terete, minutely punctate, grooved; spike obovoid at maturity, to 1,2 cm long, 1 cm Ø; flowers unknown.

Swampy seepage patch on hard alkaline soil in dry *Acacia, Commiphora* thicket; c. 1000 m alt.

Only known from the type collected in 1959.

Near *X. ednae*, and also *X. angularis* but that species has elongated seeds and a much smaller spike.

X. erubescens Rendle; Kew Bull. 54: 314, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 20-21, 2010. – Icon.: Fl. Afr. Centr., Xyrid.: 39, map 16, and p. 50, map 21 *(X. rhodesiana),* and p. 56, map 24 *(X. theodori),* 2001. – Type (Welwitsch 2466) poor, lacking leaves.

syn.: *X. rhodesiana* Malme; *X. theodori* Malme

Perennial caespitose herb to 85 cm tall; base bulbous covered with old brown sheaths; leaves developing at or after flowering; leaf sheaths smooth, coriaceous-scarious, blackish brown, shiny, with a broad base; lamina subterete, to at least 26 cm long, 1 mm Ø, weakly longitudinally ridged, otherwise smooth; apex long-aristate, hyaline; scape erect, glabrous, 14-40-85 cm long, 0,8-1,5 mm Ø; spike obovoid, 4-6-10 mm Ø.

Humid sands; swamps; peat bog with *Sphagnum;* humid hollows; dambos; grassy places periodically flooded; 1220-1850 m alt.

Variable in size of inflorescence. – Lock (Fl. Zamb., l.c.) suggests that more than one taxon may be involved.

Perhaps also in Tanzania.

X. festucifolia Hepper; Lisowski, Fl. Rép. Guinée 1: 483, 2009.

Tufted perennial herb, with stout congested rhizomatous subbulbous base; leaves filiform, 7-35 cm × 0,5-1 mm; scape ± angular, erect, 10-32 cm long; spike ovoid, c. 7-9 × 4-5 mm; flowers yellow.

Marsh with *Afrotrilepis pilosa, Habenaria anaphysema;* swamp on cuirasse; open rock hill in seepage; damp hollows among rocks; with *Eriocaulon pulchellum* or *Bryum* sp. or *Campylopus* sp.; mossy wet places; common on Nimba Mts; 600-1948 m alt.

Confused with *X. straminea;* "near *X. decipiens"* (probably = *X. angularis).*

X. filiformis Lam.; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006; Akoegninou & al., Fl. analyt. Bénin: 257, 2006; Fl. Gabon 42, Xyrid.: 100, 2011. – Icon.: Fl. Afr. Centr., Xyrid.: 48, map 20, 2001; Lisowski, Fl. Rép. Guinée 2: fig. 573, 2009; Bull. Soc. Roy. Bot. Belg. 87: 101, 103, 108, 1955 (anatomy); Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 868, 2010.

Annual herb 6-45 cm tall; leaves often reddish at base, leaves tufted, linear, flat, 2-7,5 cm × 0,7-1,5 mm, apex often curved, with fan-shaped appendix at margin, elsewhere smooth, brown; scapes 1-3 per plant, (half-)cylindric, finely striate, 6-45 cm × 0,2-0,5 mm Ø; spikes ellipsoid or obovoid to subspherical, 3-6 mm long and Ø; flowers yellow, white, blue, violet (unique in *Xyris).*

Seasonal wet flushes; peat bog with *Eriocaulaceae, Sphagnum;* boggy places in savanna; pool sides; temporary pool on lateritic cuirasse; humid sands; 0-50 m alt. (Gabon).

Not in Rwanda or Burundi (misidentifications).

A similar taxon, also annual, is reported from Mt Oku, W Cameroon (2000 m alt.), by Cheek & al. (p. 192, 2000).

X. foliolata L. A. Nilsson; Kew Bull. 54: 311, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 13, 2010. – Icon.: Fl. Afr. Centr., Xyrid.: 24, map 9, 2001; Bull. Soc. Roy. Bot. Belg. 87: 88, 101, 103, 1955 (anatomy).

Perennial caespitose herb to 96 cm tall; leaf sheaths red-brown, hairy towards base, white-puncticulate; lamina cylindrical, glabrous, smooth, 24-80 cm × 0,1-1,8 mm; apex acute, solid; scape terete, longitudinally ridged, glabrous, 47-96 cm long, 0,8-1,5 mm Ø; spikes ovoid, 8-17 × 6-8 mm; outer bracts longer than young inflorescence; corolla yellow.

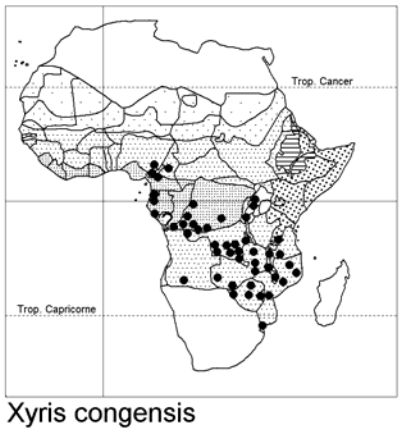
Swampy places in savanna; wet meadows; humid steppe with *Loudetia simplex* on white sand, in valley in contact with gallery and boggy meadow with *Xyris* on humus-bearing sand in a similar situation; c. 1400 m alt.

Similar to *X. natalensis* but distinct; belonging to the *X. congensis* complex but distinguished from the latter by the much longer outer bracts.

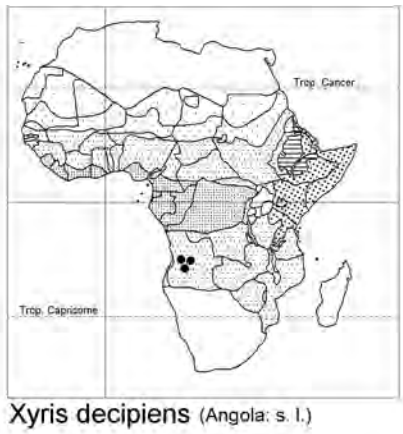
X. friesii Malme; Kew Bull. 53: 892, 1998; ibid. 54: 311, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 13-14, 2010. – Icon.: Fl. Afr. Centr., Xyrid.: 58, map 25 (p.p.), 2001.

syn.: *X. pocockiae ("pocockii")* Malme; *X. welwitschii* Rendle p.p., quoad plantam *perennem* in Welwitsch 2465 (Kew Bull. 53: 891-892, 1998); Lewis in Fl. Cameroun 22: 41, 1981.

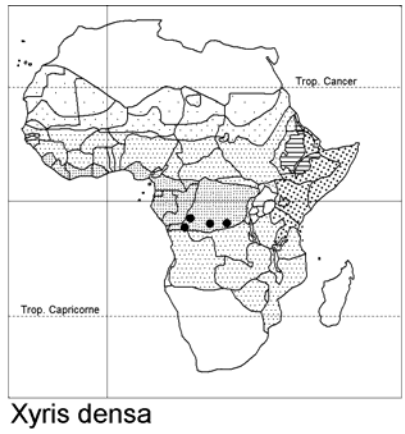
Perennial caespitose glaucous herb to 88 cm tall; leaf sheaths dull green above, sometimes purplish, *transversely rugulose,* expanded below; lamina linear, *transversely rugulose,* flat,



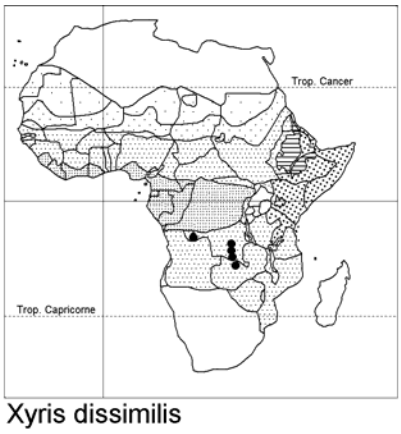
Xyris congensis



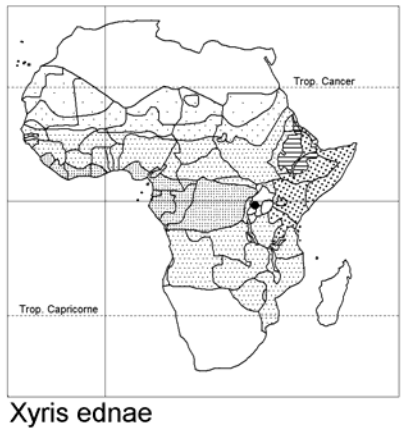
Xyris decipiens (Angola: s. l.)



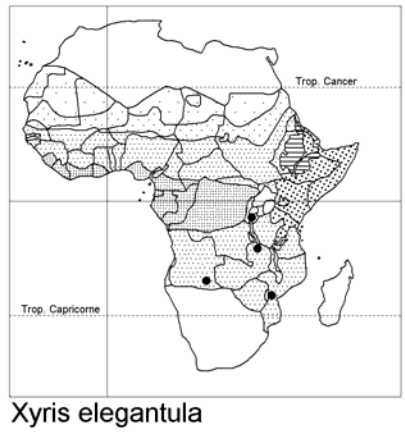
Xyris densa



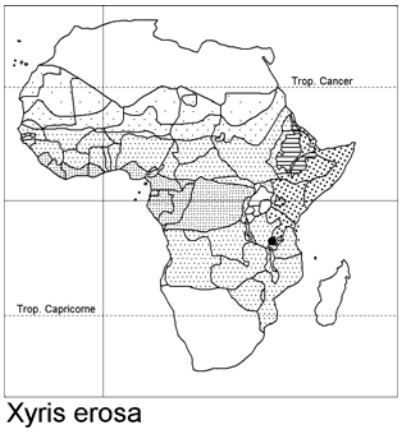
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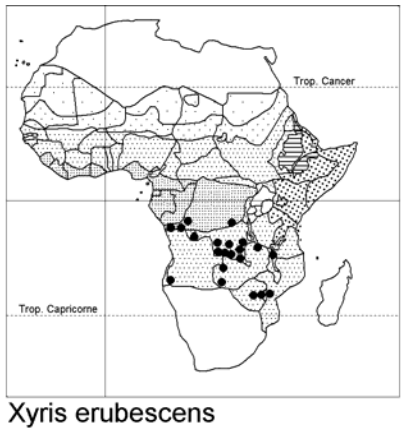
Xyris ednae



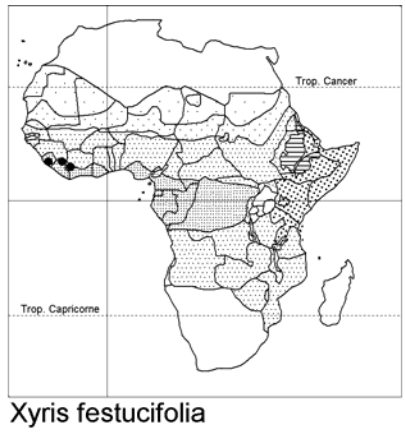
Xyris elegantula



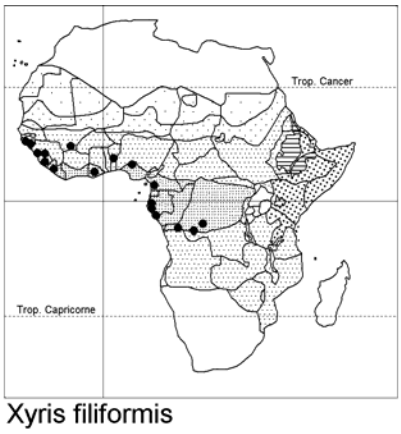
Xyris erosa



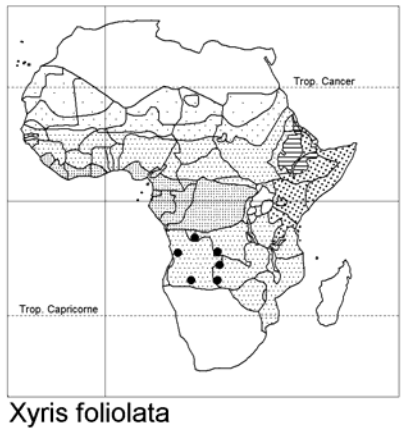
Xyris erubescens



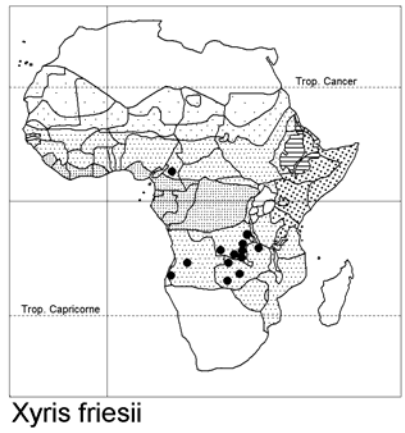
Xyris festucifolia



Xyris filiformis



Xyris foliolata



Xyris friesii

12-25 cm × 1-2 mm, narrowed above, apex obtuse; scape subterete, 14-88 cm long, 0,6-1,3 mm Ø, ± striate, glabrous; spikes ellipsoid (young) to ± round, 5-8 mm long, 3-5 mm Ø, 8-9-flowered; outer bracts *pale yellow, smooth,* subcoriaceous; young bracts with pink-purple tips; corolla yellow.

Swamps; humid or swampy places in savanna; pools; 1300-1600 m alt.

Not in Burundi. Material from Zaire needs further study. – Cf. also below under *X. welwitschii.*

X. fugaciflora Rendle; Kew Bull. 54: 322-323, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 31-32, 2010. – Icon.: Fl. Afr. Centr., Xyrid.: 90, map 37 (p.p.), 2001. – Lectotype: Welwitsch 2461.

Annual glabrous herb; stems solitary, 15-30 cm tall; leaves *flattened,* 2-6,5 cm × 0,5-1 mm, lamina moderately *rugulose,* margins papillose; apex acute, asymmetric; scape terete, 2-ridged, ± flattened above, 5-24 cm long, 0,6-2 mm Ø; spike ellipsoid-subspherical, 3-4,5 × 4,5 mm, 2-5-flowered, bracts *straw-yellow.*

Rocky humid meadows; humid savanna; damp soil over rocky outcrops; swamp or source sides; humid sands; spongy places (Welwitsch 2461 only); 1400-2680 m alt.

Known from a few widely scattered collections. Original material cited by Rendle (Welwitsch 2461, 2462, 2464) not uniform. – Lisowski in Fl. Afr. Centr., l.c., includes specimens of *X. rubella, X. schliebenii,* according to Lock (Fl. Zambes., l.c.). Records from E. Africa are probably not *X. fugaciflora.*

X. gerrardii N. E. Br.; Kew Bull. 54: 308, 1999; Fl. Zambes. 13/4: 7, 2010. – Icon.: Fl. south. Afr. 4/2, Xyrid.: 6, 1985 (detail); Fl. Trop. E. Afr., Xyrid.: 5, 1999 (detail); Cook, Aquat. & wetland pl. south. Afr.: 261, 2004 (partial).

Perennial herb forming clumps of stout horizontal or ascending rhizomes covered by dark brown leaf sheaths; leaves to 25 cm × 0,5-1 mm; lamina flattened, linear, glabrous, longitudinally furrowed, ± spirally twisted, apex acute; scape to 37 cm long, 0,2-0,5 mm Ø, 2-ridged, glabrous; spike ellipsoid to obconical, c. 7 mm long, 4-5 mm Ø; *bracts* broadly ovate, *acute-mucronate,* blackish-brown, *margins paler* and *scarious;* corolla yellow.

Seasonally wet grassland; moist or boggy places in grassland; 1700-2500 m alt. – Uncommon.

S. Africa.

Resembling *X. obscura* but differs in the scarious margins of the spike bracts.

X. gossweileri Malme; Kew Bull. 54: 310, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 12, 2010. – Icon.: Fl. Afr. Centr., Xyrid.: 28, map 11, 2001.

Perennial caespitose herb to 86 cm tall with brown-black old sheaths around the rather *bulbous* base; *leaf sheaths broader than lamina* above, 7-9 cm long, glabrous dark chestnut to black, *shiny;* leaves often absent at anthesis, cylindrical at base, flattened above, 18-67 cm × 0,8-2 mm, glabrous; apex acute, solid; scape ± cylindrical, smooth, 60-85 cm long, 0,8-1,5 mm Ø; spike ellipsoid, 9-15 × 6-10 mm, c. 22-flowered, brown; bracts coriaceous, entire, chestnut, shiny.

Wet meadows; humid savanna on sand; dambos; swamp by sources; permanently wet grassland, often burned during the dry season; 1100-1400 m alt.

Inflorescences similar to those of *X. congensis* but larger. Superficially similar to *X. bampsii.*

X. huillensis Rendle; Kew Bull. 54: 318, 1999; Fl. Zambes. 13/4: 26-27, 2010. – Icon.: Fl. Trop. E. Afr., Xyrid.: 5, 1999 (detail); Cook, Aquat. & wetland pl. south. Afr.: 261, 2004; Fl. Afr. Centr., Xyrid.: 68, map 29b, 2001 (see syn. below).

syn.: *X. capensis* Thunb. var. *medullosa* N. E. Br., and var. *microcephala* Malme

Tufted perennial herb; leaves 5-11 × 0,1 cm; sheaths brown, smooth, glabrous, margins ciliate below; lamina linear, smooth, glabrous; apex acute, solid, smooth; scape terete, glabrous, 20-30 cm long, weakly grooved longitudinally; spike ellipsoid, dark brown, 4-5 mm long; bracts brown, emarginate, mucronate; corolla yellow.

Swamps, bogs; sandy wet river sides; 950-1400 m alt.

Botswana.

Widely distributed, probably much overlooked.

Specimens from Fl. Trop. E. Afr. area (fam. Xyridaceae: 15, 1999) are probably *X. rubella* or *X. schliebenii*. In Fl. Cameroun 22, Xyrid.: 38, 1981, *X. huillensis* and *X. capensis* var. *medullosa* and var. *microcephala* are treated as SYNONYMS of *X. capensis.* Cook (2004, l.c.) does not accept Lock's synonymy, and considers the two varieties cited above as belonging to *X. capensis.*

X. humpatensis N. E. Br., excl. var. *rhodolepis* Malme (= *X. rhodolepis);* Fl. Trop. Afr. 8: 15-16, 1901; Figueiredo & Smith, Pl. Angola: 208, 2008.

Very similar to *X. affinis;* leaves linear, glabrous, acute, 3,5-8 × 0,1-0,2 cm incl. the 1-2,5 cm long, ciliate sheath; scape 15-30 cm long, 0,5-0,1 mm Ø, subterete, striate, glabrous; spike ovoid-ellipsoid, 5-6 mm long, 3-5 mm Ø, subglobose in fruit, 4-10-flowered.

Pool by river.

Differs from *X. affinis* in narrower lateral sepals with very acute and erect apex.

X. imitatrix Malme; Kew Bull. 54: 316, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 24, 2010; Fl. Gabon 42, Xyrid.: 101, 2011. – Icon.: Fl. Afr. Centr., Xyrid.: 18, map 6, 2001; Bull. Soc. Roy. Bot. Belg. 87: 88, 97, 101, 103, 1955 (anatomy).

Perennial herb forming loose clumps, to 70 cm tall; leaves *arranged in a single plane,* linear, 5-30 cm × 2-5 mm, smooth or minutely papillose, glabrous on both faces but *margins* densely and long *pilose* (unique among African *Xyris),* falcate-incurved at acute apex; sheaths 1/3-1/4 length of lamina; scape 30-70 cm long, 1 mm Ø, hollow, 6-8-ridged, brownish, shiny towards base; spike few-flowered, obovoid-ellipsoid, 8-12 × 4-6 mm; bracts entire, unkeeled, apex rounded.

Peat bog with *Xyris, Sphagnum;* natural swampy clearings; boggy places with *Rhynchospora candida, Sphagnum* on kalahari sand; wet dambos; extending far into the forest zone; 1000-1680 m alt. – Widespread but data deficient.

Very distinctive species.

XYRIS

X. kibaraensis Lisowski – Icon.: Syst. Geogr. Pl. 69: 208, 1999; Fl. Afr. Centr., Xyrid.: 54, map 23, 2001.

Perennial rush-like herb to 85 cm tall often forming very dense tufts to 15 cm Ø, with rigid shining brown-blackish scales at base; leaves linear, flat, to > 40 cm long, 1-1,2 mm wide, glabrous, apex acute-long acuminate (2-3 mm); sheaths 4-8 cm long, 0,6-1 cm wide, smooth, glabrous, brown, shining; scape subcylindric, rush-like, 60-85 cm long, 1-1,8 mm wide, striate, glabrous; spikes obovoid-ellipsoid, 7-9 × 5-7 mm, 12-17-flowered; *fertile bracts* with *ciliate margins;* lateral sepals with acute apex; corolla yellow; fruit unknown.

Humid savanna; c. 1800 m alt.

Near *X. rehmannii.*

X. kornasiana Brylska & Lisowski; Kew Bull. 54: 306, 1999; Fl. Zambes. 13/4: 5, 2010. – Icon.: Fl. Trop. E. Afr., Xyrid.: 5, 1999 (detail); Fl. Afr. Centr., Xyrid. : 102-103, map 43, 2001.

Perennial (annual according to original description, but perhaps specimens flowering in the first year) loosely caespitose, erect herb, forming dense clumps, 70-90 cm tall; leaves linear, flattened, 30-40 cm × 2 mm, sheath half as long as lamina; lamina 2-ridged, glabrous, *reticulate-rugulose,* apex acuminate-incurved; *scape* terete, 28-88 cm long, 1-1,5 mm Ø, striate, *rugulose* above; spike ovate-ellipsoid, acute, whitish, 16-20 × 10-15 mm, 18-28-flowered; sterile bracts *membranous, whitish, 20 mm long,* inner ones 13 mm long; corolla yellow to orange.

Sandy banks; periodically flooded sand; swamps; roadside ditches, bogs, dambos; 1000-1650 m alt.

Distinctive species, widespread by rarely collected – perhaps a rare species ?

X. kundelungensis Brylska – Icon.: Fl. Afr. Centr., Xyrid.: 77, map 31, 2001.

Erect *annual* herb to 24,5 cm tall; leaves in small rosettes, flattened, linear, *outer ones 3-5 cm* × 0,9-1,2 mm, *inner ones 4,5-8,5 cm* × 2,5 mm, slightly papillose, greenish yellow, shining; sheath with membranous ciliate margins; scapes solitary or 2-3 together, 8-24 cm long, 0,5-0,7 mm Ø, subcylindrical to ± triangular below, ± twisted, golden yellow, longitudinally striate and papillose, green above; spike broadly obovoid to subglobose 6 × 5-6 mm, smooth, brown; bracts with broad hyaline margins, apex rounded or retuse; corolla yellow; fruit unknown.

Grassy humid savanna; 1620 m alt.

Known only from the type.

X. kwangolana P. A. Duvign. & Homès – Icon.: Fl. Afr. Centr., Xyrid.: 26, map 10, 2001.

Perennial caespitose herb to 111 cm tall; base with persistent old brown leaf sheaths; outer leaves subcylindrical, 30-40 cm long, 0,8-1,5 mm Ø, glabrous, twisted, apex acute; sheaths 5,5-8 cm long, glabrous, shining, margins narrowly hyaline; inner leaves 12-15 cm × 4-6 mm, sheaths 11,8-14 cm long, margins hyaline, apex acute; scape subcylindrical, 60-110 cm tall, 1-1,5 mm Ø, slightly striate, smooth; spikes ellipsoid (young), 5 × 3 mm, ovoid when mature, 10-14 × 6-8 mm, 30-flowered; corolla dark yellow.

Swampy meadow with *Loudetia simplex;* peat bog with *Loudetia, Sphagnum;* pool sides; to 1800 m alt.

XYRIS

X. laniceps Lock – Icon.: Kew Bull. 54: 324, 1999; Fl. Zambes. 13/4: 32, 2010.

Annual herb; leaves to 7 × 0,2 cm; lamina flat, 4,5 cm long, smooth, apex asymmetric and aristate; sheath c. 2,5 cm long, smooth or weakly ridged, green with hyaline margins; scapes terete, to 21 cm long, 0,5 mm Ø, with weak longitudinal ridges; spikes ± broadly ellipsoid, c. 6 × 6 mm; *margins* of *bracts arachnose-ciliate;* flowers, fruits, seeds unknown.

Top of waterfall in very wet white sand; 1260 m alt.

Distinctive species known only from the (immature) type collected in 1957.

Near *X. angularis.*

X. lejolyana Lisowski ("lejolyanus"); Fl. Zambes. 13/4: 14-15, 2010. – Icon.: Syst. Geogr. Pl. 69: 210, 1999; Fl. Afr. Centr., Xyrid.: 60, map 26, 2001.

Perennial caespitose herb to 90 cm tall, with old leaf sheaths at bulbous base; outer leaves linear, flat, 20-50 cm × *2-5 mm,* apex acute; sheath 13-20 cm long, 1-1,4 cm wide; margins hyaline, weakly papillose; inner leaves flat, rugulose, each subtending a flowering scape; lamina linear, 0,5-3,5 cm × 1-1,8 mm, apex acute; sheath 24,5-30,5 cm × 4-5 mm, keeled; scape subcylindric, 2-ridged, 60-90 cm long, 1-3 mm Ø, ridges glabrous or papillose; spike ellipsoid (young), later spherical, 8-14 × 8-14 mm, 16-31-flowered; sterile bracts deep yellow, round, glabrous; corolla yellow.

Swampy places; in *Protea* zone of dambos; 1400-1750 m alt.

Near *X. friesii,* but outer leaves larger, scape *2*-ridged, spike larger and many-flowered.

Lock notes (informed by Bamps) that the collection number Duvigneaud & Timperman 2722 (type) is a relevé number and not a unique specimen. The same number also figures on sheets of *X. aristata* and *X. obscura.*

(**X. macrocephala** sensu Lisowski), Fl. Rép. Guinée 1: 482-483, 2009, non Vahl and excl. *X. jupicai* A. Rich., *X. laxifolia* Mart. – Lock in Fl. Zambes. 13/4: 22, 2010.

The type of *X. macrocephala* Vahl is a mixture of *X. ambigua* Beyr. and *X. jupicai* A. Rich.; the name must be rejected. On the other hand, *X. laxifolia* Martius and *X. jupicai* A. Rich. are two different American species. The differences are: plant base tinged red or purple; scapes not ridged distally or with smooth ridges; seeds fusiform or narrowly ellipsoid, mostly opaque, dark-ribbed, farinous, 0,7-0,9 mm long; plant perennial (fide Kral, Ann. Missouri Bot. Gard. 75: 530, 1988; icon.: ibid.: 539, 541).

Humid bowal; temporary hollow on laterite. – Introduced ?

The Lisowski collections (52042, 52021) need careful examination. – Lock (l.c.) compares Lisowski's *X. macrocephala* with *X. angularis (X. decipiens* sensu F.W.T.A., ed. 2, 3/4: 55, 1967, non N. E. Br.).

Not mapped.

XYRIS

X. makuensis N. E. Br.; Kew Bull. 54: 318, 1999; Fl. Trop. E. Afr., Xyrid.: 15, 1999; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 187, 2006.

Perennial herb forming clumps, much branched, to c. 25 cm tall, with or without an erect or ascending rhizome; leaves *subulate-filiform*, 3,7-20 × 0,1 cm, including (pale brown glabrous) sheaths 1,8-3,7 cm long; scape 7,5-26 cm tall, filiform, subterete or slightly compressed, weakly 2-ridged above, solid, glabrous; spike 3,3-6 mm long, thick, ovoid, becoming somewhat obovoid and flat-topped in fruit, 3-6-flowered, *blackish shining.*

Seepage areas in grassland; swamp; 1600-2000 m alt.; locally common.

Record from Tanzania probably wrong (Lock in Fl. Zambes., l.c.).

Superficially resembling *X. elegantula.*

X. mallocephala Lock – Icon.: Kew Bull. 57: 447, 2002.

Annual herb; leaves 2,5-9 × 0,05-0,12 cm, distichous; lamina smooth, glabrous, apex acute, slightly asymmetrical; scape to 21 × 0,05 cm, terete, weakly 2-ridged towards the apex; spikes broadly ellipsoid, c. 7 × 4 mm, becoming obtriangular; *bracts reddish-brown, papillose, with white-lanate margins;* corolla yellow.

Seepage areas in *Brachystegia* woodland on grey sand; large area of seasonally inundated grassland with scattered *Kotschya bullockii* on grey sandy-loamy soil; 1100-1675 m alt.

Only known from 2 collections (1997, 2000).

Very distinctive. *X. laniceps* also has woolly bracts, but *smooth* and blackish brown, with hairs all over the upper part, and lateral sepals with a terminal tuft of hairs, not a continuous fringe of hairs on the keel.

X. mentiens Lock – Icon.: Kew Bull. 57: 447, 2002.

Annual herb; leaves 8-14 × 0,2-0,3 cm, distichous; lamina smooth, glabrous, apex acute, asymmetrical; scape 20-30 × 0,08-0,1 cm, terete, weakly 2-ridged; spike broadly ovoid, 8-10 × 6-8 mm, becoming subspherical; lateral sepals with irregularly dentate keels; corolla yellow.

Large area of seasonally inundated grassland with scattered *Kotschya bullockii* on grey sandy-loamy soil; 1675 m alt.

Only known from 2 collections (2000) from the same site.

Initially confused ("mentiens") with *X. schliebenii* which is much smaller in all parts, and has lateral sepals with entire keels. However robust specimens of *X. schliebenii* exist.

X. natalensis L. A. Nilsson, *excl.* syn. *X. foliolata* L. A. Nilsson (Angola); Kew Bull. 54: 311, 1999; Fl. Zambes. 13/4: 12-13, 2010. – Icon.: Cook, Aquat. & wetland pl. south. Afr.: 262, 2004.

Tufted perennial herb to 0,85 m tall; *rhizome* subhorizontal, hard, *compact,* covered by persistent shiny brown leaf-bases and cataphyls; leaves clustered, terete, to 50 cm long, c. 1 mm Ø, wiry, widened abruptly below to form an open, auriculate sheath, apex acute; spikes often cone-like, (oblong-)ovoid, c. 10-28 mm long, mid-brown, shiny; outer bracts ± elongated (distinctive but also shared with *X. foliolata);* corolla yellow.

Swamps; river bank; along lakes and in floating mats (S. Africa); near sea-level.

E S. Africa, coastal.

Resembling *X. congensis* (perhaps conspecific).

XYRIS

X. nivea Welw. ex Rendle, excl. syn. *X. obscura* N. E. Br., *X. brunnea* L. A. Nilsson, *X. aberdarica* Malme; Kew Bull. 54: 308, 1999; Fl. Trop. E. Afr., Xyrid.: 11, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 8, 2010.

Perennial herb, base not bulbous; leaves somewhat *stiff, filiform* and even appearing terete (especially from burnt culms) but characteristically flat, to 180 × c. 1 mm, frequently tortuous, minutely cross-striate; scape 18-45 cm long, terete, multistriate, *slender, wiry,* frequently irregularly compressed; spike broadly ellipsoid or subspherical, 6-8 mm long, few-flowered; bracts thin, pale, smooth, without papillae (cf. *X. obscura).*

Sunny wooded places with *Protea* spp., *Gladiolus.*

Plants from Cameroon (Fl. Cameroun 22: 40-41, 1981) named *X. nivea* (with syn. *X. obscura)* appear to be *X. obscura* according to Lock (Fl. Zambes., l.c.).

X. obscura N. E. Br.; Kew Bull. 54: 308, 1999; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 187, 2006; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 8, 2010. – Icon.: Fl. Afr. Centr., Xyrid.: 81, map 33, 2001; Fl. Trop. E. Afr., Xyrid.: 5, 1999 (partial); Cook, Aquat. & wetland pl. south. Afr.: 262, 2004.

syn.: *X. brunnea* L. A. Nilsson; *X. nivea* sensu Lewis in Fl. Cameroun 22: 40, 1981, and Lewis & Obermeyer in Fl. south Afr. 4/2: 5 !, 1985, non Welw. ex Rendle; ?? *X. aberdarica* Malme

Perennial herb, tufted, forming dense clumps to c. 30 cm tall; shoot *bases ± swollen, bulbous,* with persistent reddish-brown leaf bases; leaves rush-like, terete, glabrous, rugulose, 15-18 cm × 1-3 mm Ø, apex aristate; sheaths smooth with ciliate margins below, rugulose above when dry; scape 17-30 cm tall, terete, glabrous, 0,7 mm Ø, longitudinally ridged; spike ellipsoid, 5-6 mm long, 2,5 mm Ø, 3-5-flowered, almost black; sterile bracts *black* with very narrow pale border, rugulose on back; fertile bracts *strongly convex,* apiculate, minutely rugulose on back, *black above, paler below, margins not scarious;* corolla yellow.

Grassland, in moist places; seepage rocks; 1600-2000 m alt.

S. Africa.

Confused with *X. nivea* (see above under this species).

X. gerrardii occurs in similar places.

Specimens from Burundi cited in Fl. Afr. Centr., l.c., seem to belong to a different taxon (fide Lock in Fl. Zambes., l.c.).

X. ornithoptera Lock – Icon.: Kew Bull. 57: 447, 2002.

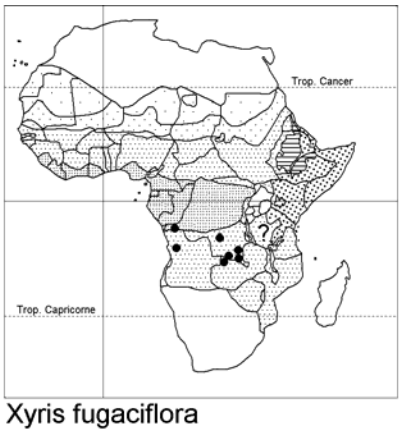
Perennial herb but sometimes flowering in the first year, with a short vertical rhizome; leaves 12-25 × 0,3-0,4 cm; lamina flat, linear, narrowing above, glabrous, smooth; sheath 1/2-1/3 the length of lamina; scape 25-60 cm long, 2-ridged, slightly flattened; spike 9-12 mm long; corolla yellow.

Seepage in large area of seasonally inundated grassland in sandy-loamy soil; 1675 m alt.

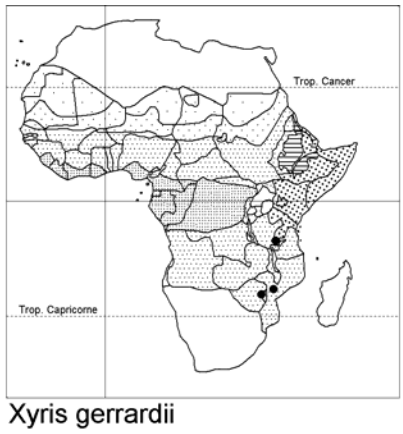
Only known from the type collected in 2000.

Most similar to *X. ednae* but: – inflorescence larger, sterile bracts rigid and brown, fertile bracts with the keel entire, margins denticulate (the reverse in *X. ednae).*

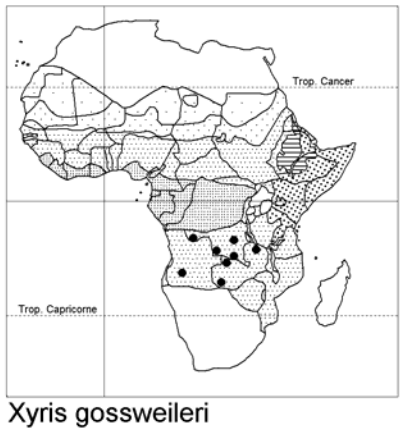
The name refers to the "gull-winged" appearance of the inflorescence when seen from the side.



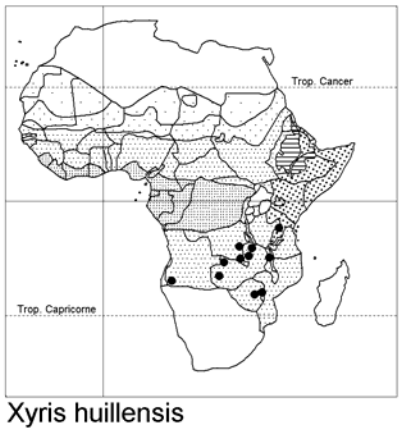
Xyris fugaciflora



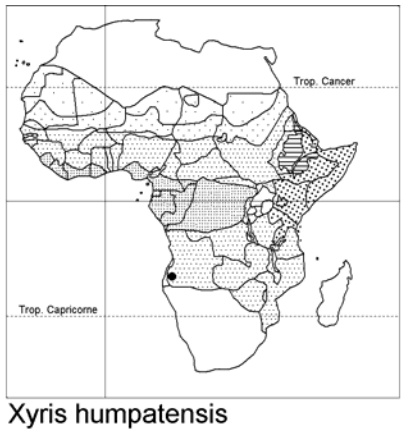
Xyris gerrardii



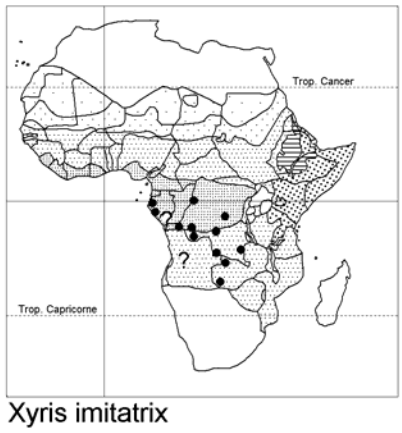
Xyris gossweileri



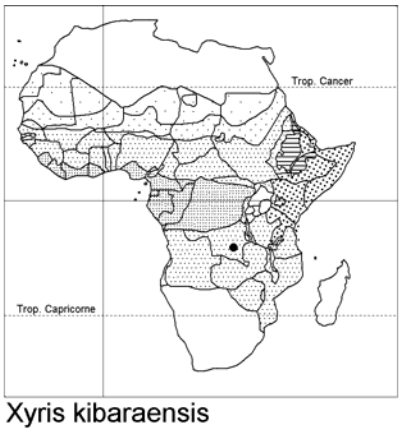
Xyris huillensis



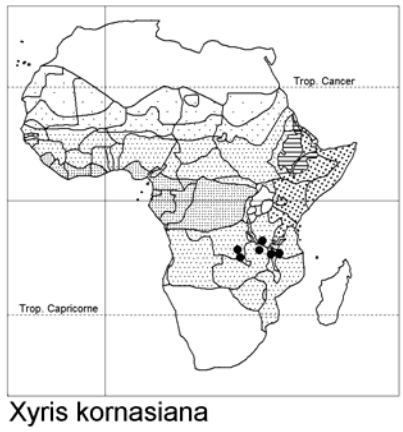
Xyris humpatensis



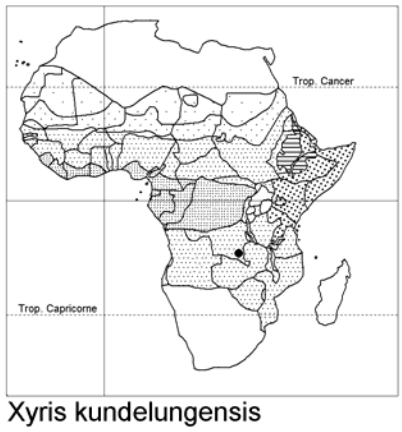
Xyris imitatrix



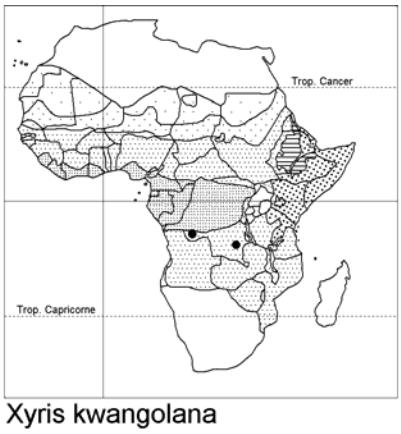
Xyris kibaraensis



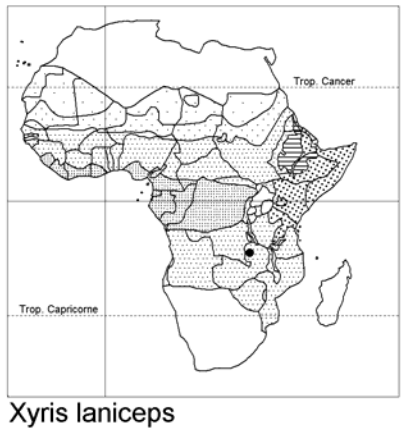
Xyris kornasiana



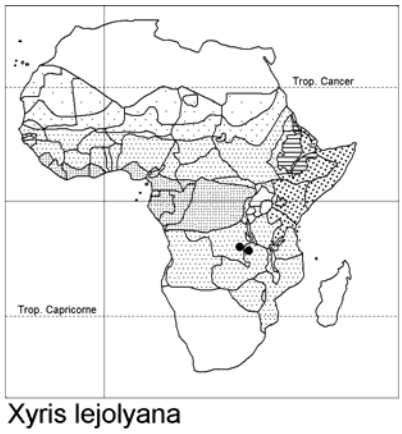
Xyris kundelungensis



Xyris kwangolana



Xyris laniceps



Xyris lejolyana

X. parvula Malme; Kew Bull. 54: 322, 1999; Fl. Zambes. 13/4: 31, 2010. – Icon.: Fl. Trop. E. Afr., Xyrid.: 5, 1999 (detail).

Annual herb; leaves subfiliform to slightly flattened, 2-5 cm × 0,3-0,5 mm, glabrous, smooth; scape rounded or ± 2-ridged, 6-13 cm × 0,25-0,4 mm, smooth; spike few-flowered, ellipsoid, *3-4* × 1,5-2 mm; bracts *chestnut*-coloured; lateral sepals c. *2,5* × *0,5* mm, *linear*, keel *entire.*

Humid sandy humus-rich ground; seasonally wet habitats; coastal; 0-50 m alt.

Very close to *X. schliebenii* but differs in its dark-brown subspherical inflorescence. Lock suggests *X. parvula* may be a coastal ecotype of *X. schliebenii* (with *X. parvula* having priority).

X. peteri Poelln.; Fl. Zambes. 13/4: 18, 2010; Kew Bull. 66: 247, 2011. – Icon.: Fl. Trop. E. Afr., Xyrid.: 5, 1999 (detail); Fl. Afr. Centr., Xyrid.: 79, map 32, 2001.

Perennial caespitose herb to 38 cm tall; base slightly swollen, with persistent leaf-sheaths and leaf bases; leaves 7-25 cm × 1-2,5 mm; sheaths 6,7-17 cm long, c. 1 mm Ø, glabrous, blackish brown, ridged longitudinally, shiny; lamina very short, linear, apex acuminate; scape 17-38 cm long, 0,5-1 mm Ø, subcylindrical, glabrous, *2-ridged* towards tip; spike subspherical, 6-8 mm Ø, 5-7-flowered; bracts thinly coriaceous, dark olive-brown; corolla yellow.

Grassland; swamp; brook sides, source; gallery, peat bog; 1850-2800 m alt. – Fairly widespread but localised.

X. aberdarica is similar in appearance.

X. popeana Lisowski *("popeanus").* – Icon.: Syst. Geogr. Pl. 69: 211, 1999; Fl. Afr. Centr., Xyrid.: 20, map 7, 2001.

Perennial herb, caespitose, to 38 cm tall; leaves all basal, outer ones 6-12 cm long; blade linear, *flat,* 1,5-3 cm wide, acuminate; inner ones 8-11,5 cm long, blade very short, linear, 3-5 × 1 mm; scape subcylindric, 1-2-ridged, 15-18 cm long, 0,1-1 mm Ø; spike *obconical,* 6,5-8,5 × 4-7 mm, 6-13-flowered; bracts *mucronate,* outer ones longer than the inner ones; lateral sepals with *1-4 hairs* at apex; mature fruit unknown.

Swamp with *Sphagnum;* pool and stream sides in savanna; 1600-1680 m alt.

Near *X. valida.*

X. porcata Lock; Fl. Zambes. 13/4: 25-26, 2010. – Icon.: Kew Bull. 54: 319, 1999.

Annual or short-lived perennial herb forming small tussocks, sometimes with a thin vertical rhizome to 7 cm long; leaf sheaths to 10 cm long, pale brown, smooth, glabrous; lamina 20-23 × 0,2-0,3 cm, linear, flat, smooth, acute and slightly asymmetric at apex; scape to c. 45 cm tall, 1 mm Ø, terete, 2-ridged at least in upper part; spike ellipsoid, 9-13 × 5 mm; corolla yellow; capsule unknown (but seeds known).

Lake shores; 1500-1700 m alt.

Distinctive by the strongly ridged *(porcata)* dorsal surfaces of the inflorescence bracts.

Near *X. ednae.*

X. porphyrea Lock – Icon.: Kew Bull. 57: 447, 2002.

Annual herb, glabrous; leaves 8-13 × 0,08-0,12 cm; bases wine-red; lamina smooth, glabrous, apex acute, slightly asymmetrical; scape 15-28 × 0,05 cm, terete, *rather rigid;* spike ellipsoid, *dark red-brown,* 5-6 × 3-3,5 mm, becoming obovate; corolla yellow.

Seepage in large area of seasonally inundated grassland in sandy-loamy soil; 1600-1675 m alt.

Suggesting *X. straminea* but in this plant the spikes are straw-coloured; also resembling *X. schliebenii* (lateral sepals with almost entire keel and plant glabrous).

Collected in 1997 and 2000.

X. pumila Rendle; Lock in Kew Bull. 54: 313, 1999 and Fl. Zambes. 13/4: 17, 2010 (as *X. capillaris).*

Perennial herb with stiff habit and hard woody cylindrical main scape bearing several crowded regularly distichous-leaved branches; persistent sheathing bases of old leaves chestnut-brown, new leaves glabrous, flattened, linear passing above into a very acute or subaristate apex, and below into the stiff dry upwardly tapering sheath; scapes rigid, erect, terete, glabrous; spikes few-3-flowered, narrowly ellipsoidal, slightly drawn out at base; bracts *dark chestnut-brown* (dark shining-brown in *X. capillaris).* – Leaves broader than those of *X. capillaris.*

Short thicket-grown marshes.

Type heavily grazed or burned.

Part of the poorly understood complex of tufted perennials with small spikes. Maintained by Figueiredo & Smith in Strelitzia 22: 208, 2008.

Only known from the type collected in 1860.

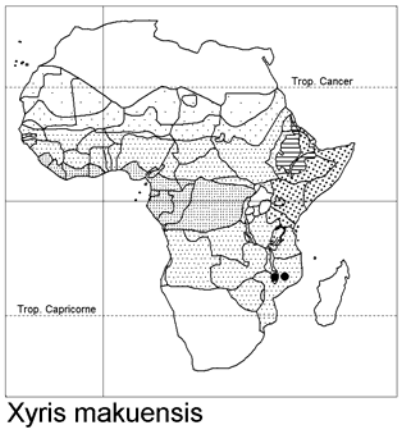
X. rehmannii L. A. Nilsson; Fl. south. Afr. 4/2, Xyrid.: 7-8, 1985; Kew Bull. 54: 307-308, 1999; Cheek & al., Pl. Mt Oku…: 192, 2000; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 6-7, 2010; Fischer & al., Annot. checklist vascul. pl. Kakamega For. (J. E. Afr. Nat. Hist. 99): 225, 2010. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 151, 1994; Fl. Eth. & Eritrea 6: 376, 1997; Fl. Trop. E. Afr., Xyrid.: 5, 1999 (detail); Fl. Afr. Centr., Xyrid.: 52, map 22, 2001; Cook, Aquat. & wetland pl. south. Afr.: 263, 2004.

syn.: Enum. 3: 29, 1995.

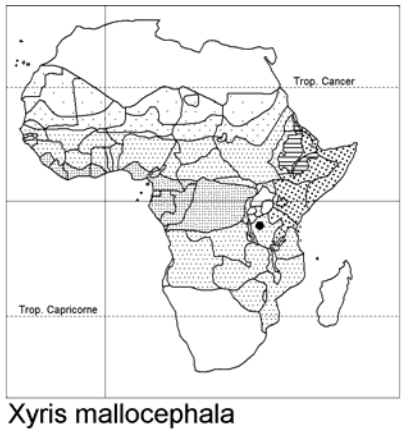
Perennial herb, robust, tussock-forming; rhizome hard, covered with persistent leaf bases; leaves leathery, ribbon-like to 60 cm × 4 mm; sheaths red-brown, grooved, minutely rugulose (old and dry); lamina flat, glabrous, smooth; apex solid, acuminate; scape 50-150 cm long, 0,5 mm Ø above, 2 mm below, somewhat flattened particularly above, lightly longitudinally grooved when dry; spike subspherical, 7-20 mm Ø, ± 20-flowered; bracts black, shiny, margins entire; corolla yellow.

Peaty places; source; stream sides; commonest on river banks; permanent swamps; swampy grassland; temporary pools; spongy places near streams with *Aroides* spp., *Gladiolus* spp.; 1300-1990 m alt. – Sometimes abundant in upland wet places.

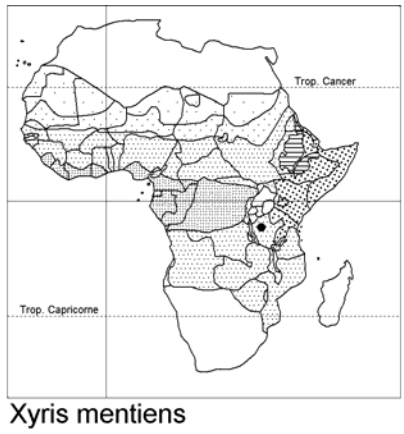
S. Africa, Swaziland.



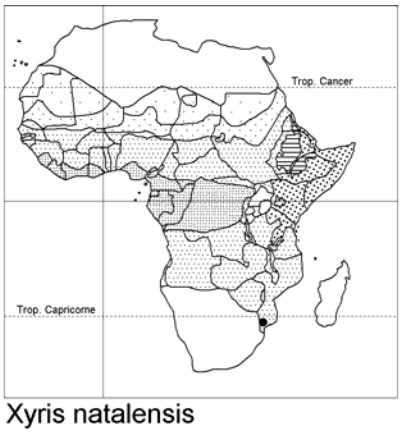
Xyris makuensis



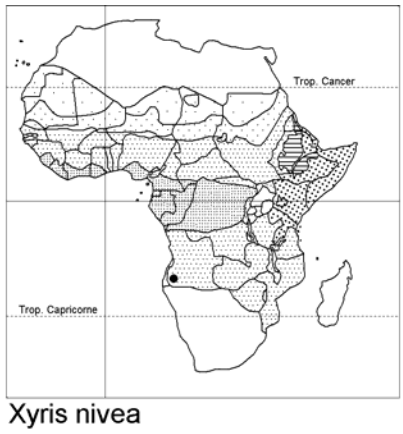
Xyris mallocephala



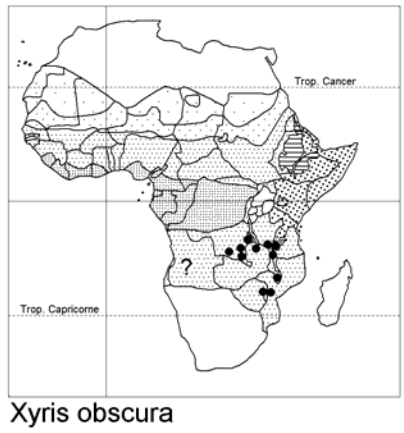
Xyris mentiens



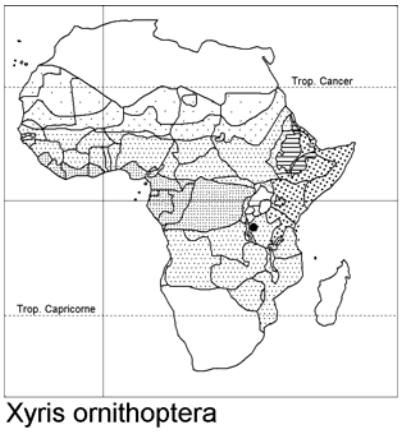
Xyris natalensis



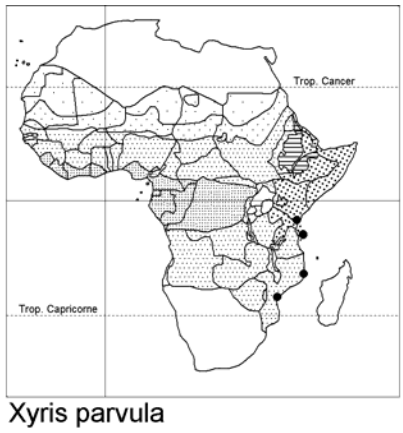
Xyris nivea



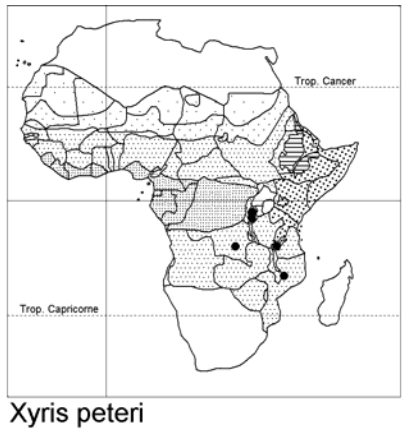
Xyris obscura



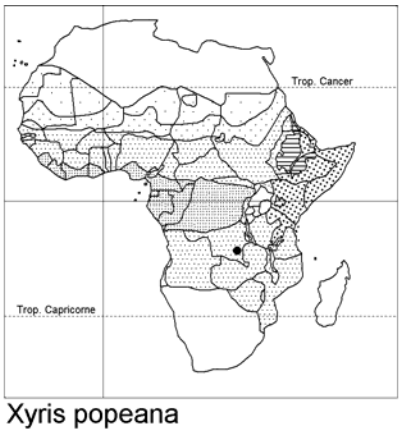
Xyris ornithoptera



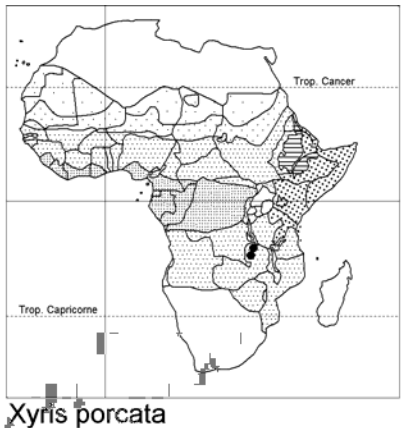
Xyris parvula



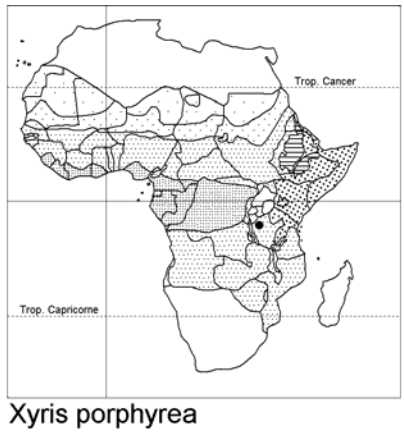
Xyris peteri



Xyris popeana



Xyris porcata



Xyris porphyrea

X. rhodolepis (Malme) Lock; Kew Bull. 53: 886, 1998; ibid. 54: 320, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 27-28, 2010. – Icon.: Fl. Trop. E. Afr., Xyrid.: 5, 1999 (detail); Fl. Afr. Centr., Xyrid.: 86, map 35, 2001.

bas.: *X. humpatensis* N. E. Br. var. *rhodolepis* Malme

Tufted perennial herb to c. 36 cm tall; leaves 3-11 cm × 1-2 mm; sheaths brown, *rugulose,* appressed-rufous-pilose at base, irregularly ciliate on 2 dorsal ridges, margins ciliate; lamina linear, flattened, *rugulose;* apex acute, solid, smooth; scape 14-35 cm long, terete, smooth, glabrous; spike obovoid, 5-6 mm long, dark red-brown; *bracts papillose, reddish;* corolla yellow.

Wet grassland, often near rivers; pools; humid places in savanna; 1000-1500 m alt.

Resembling *X. humpatensis* but this species has smooth yellowish bracts. Differs from *X. huillensis* in the rugulose leaf sheaths and leaves and in the long reddish brown sterile inflorescence bracts, and the irregularly ciliate-dentate keel of the lateral sepals.

Widely distributed; probably much overlooked.

X. rubella Malme; Lock in Kew Bull. 54: 321-322, 1999; Fl. Trop. E. Afr., Xyrid.: 21-22, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 29-30, 2010. – Icon.: Fl. Trop. E. Afr., Xyrid.: 5, 1999 (detail); Cook, Aquat. & wetland pl. south. Afr.: 363, 2004 (partial).

syn.: *X. capensis* 'paedogenic variant' sensu Lewis & Obermeyer in Fl. south. Afr. 4/2: 2, 1985.

Annual herb, loosely tufted, < 30 cm tall; leaves in 2 rows, bases rough and *wrinkled,* brownish, not persistent; lamina flat, 2-6 (-14) cm × 1-1,5 mm, glabrous, *rugulose;* apex solid, apiculate to *aristate;* scape terete, *rugulose,* 8-30 cm long, 0,5 mm Ø, 2-winged near spike; spike ± spherical, c. 3 mm Ø, 1-3-5-flowered; bracts smooth, *wine-red* to reddish brown, keel darker; corolla yellow.

Rocky outcrops in shallow soil; seasonally wet grassland between grass tussocks, often with *X. straminea, Eriocaulon,* and mixed with *X. schliebenii* in many collections; 50-1700 m alt.

Botswana, Namibia, S. Africa. – Detailed distribution not known because of confusion with other species.

Treated as a synonym under (early flowering dwarf state of) *X. capensis* in Fl. south. Afr. (l.c.), but the rugulose vegetative parts are distinctive. Also confused with *X. schliebenii* (cf. below under this species). *X. scabridula* is also very similar.

X. sanguinea Verm. ex Malme; Figueiredo & Smith, Pl. Angola: 208, 2008. – Icon.: Fl. Afr. Centr., Xyrid.: 94, map 39, 2001.

Annual herb, c. 13 cm tall; outer leaves linear, flat, 1-4 cm × 0,5-1 mm, rounded, smooth, often curved at apex, sheaths 0,7-1,9 cm long; inner leaves rolled to form a tube, 2,5-4 cm × 0,5-0,8 mm Ø; scapes 1-2, 4,5-13 cm long, 0,3-0,4 mm Ø, ridged; spike obconical or obovoid-oblanceolate, 2-5-flowered, 3,5-5 × 1-4 mm, light brown; bracts finely papillose, yellowish brown, margins yellowish hyaline; corolla yellow.

Peat bog with *Sphagnum;* humid savanna; to 1600 m alt.

X. scabridula Rendle; Lock in Kew Bull. 54: 321, 1999; Fl. Trop. E. Afr., Xyrid.: 20, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 30, 2010. – Icon.: Fl. Afr. Centr., Xyrid.: 84, map 34, 2001.

Annual caespitose herb to c. 20 cm tall; leaves linear, flattened; sheath 0,5-2,2 cm long; lamina 1-5,8 cm × 0,4-1,2 mm, *finely rugulose* particularly at margins, *apex* solid, *straight, acute, aristate;* hooked; scape 2-4 2(-4)-ridged, 4-19 cm × 0,2-0,6 mm, smooth or irregularly papillose, golden brown below; spike ± spherical to ovoid, 3-4 mm long and wide, 7-9-flowered; bracts glabrous, dark yellow; lateral sepals with a few blunt cilia on the keel; corolla yellow.

Humid rocks; short thicket-grown sandy meadows, sometimes flooded; 960-1400 m alt.

Resembling *X. rubella* (with aristate leaf apex), *X. schliebenii.*

Part of the *X. filiformis – X. parvula – X. fugaciflora* group requiring further study.

X. schliebenii Poelln.; Lock in Kew Bull. 54: 322, 1999; ibid. 57: 449, 450, 2002; Fl. Trop. E. Afr., Xyrid.: 22, 1999; Fl. Zambes. 13/4: 30-31, 2010. – Icon.: Fl. Trop. E. Afr., l.c.: 5, 1999 (detail).

Annual herb to c. 30-40 cm tall, similar to *X. rubella* but with: smooth (not rugulose) leaf sheath and lamina; incurved, obtuse, sometimes mucronate (not straight and aristate) lamina; strongly keeled, emarginate and apiculate fertile bracts (cf. above under *X. rubella).*

Seasonally wet grassland; roadsides; margins of seasonal pools and marshes; on or around rock outcrops; over granite and laterite; often with *X. rubella, X. straminea, Eriocaulon* spp.; 300-2200 m alt.

Confused with *X. rubella,* and collected in mixture with *X. straminea;* also confused with *X. capillaris* (specimen Reekmans 812 from Burundi); robust material resembling *X. mentiens;* also similar to *X. porphyrea; – X. schliebenii* is probably widespread, but its distribution unclear due to such confusions.

X. sphaerocephala Malme; Lock in Fl. Zambes. 13/4: 21, 2010. – Icon.: Bull. Soc. Roy. Bot. Belg. 87: 91, 1955 (anatomy).

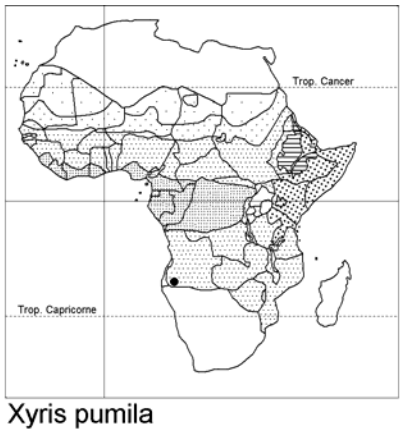
Perennial herb with bulbous base; bulb c. 3 cm Ø, covered with thin greyish brown shiny leaf sheaths; leaves subterete, to 50 cm long, 1-1,5 mm Ø, glabrous, smooth; sheath 10 cm long, *rugulose;* scape 50-80 cm long, 1-1,5 mm Ø, ± angular, glabrous, longitudinally striate particularly below, green; spike few-flowered, subspherical, 6-8 mm long, 5-8 mm Ø; bracts coriaceous, *chestnut-brown;* corolla yellow.

Marsh; pool; peat bogs with *Xyris-Sphagnum*; marshy meadows; periodically flooded savanna.

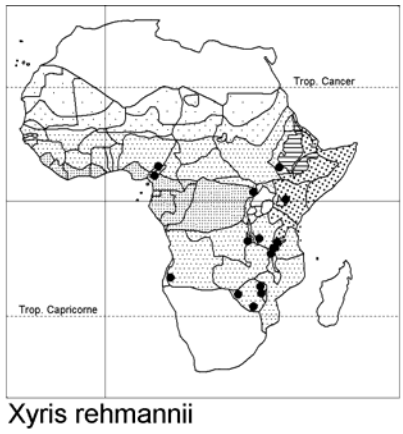
Considered a synonym under *X. erubescens* by Lisowski in Fl. Afr. Centr., Xyrid.: 38, 2001. But according to Lock in Fl. Zambes. (l.c.) it is not a synonym of the latter species: *X. sphaerocephala* differs from *X. erubescens* in the strongly rugulose leaf sheaths and the inflorescence bracts (chestnut-brown, not yellowish).

Malme (Ark. Bot. 22A 4: 8, 1928) described the species from the Kinshasa region, Zaire), and added (Ark. Bot. 24 A 5: 6, 1931) 2 Gossweiler specimens (3232, 3423) from the Kuiriri R., Angola. Not cited by Figueiredo & Smith, Pl. Angola: 208, 2008. From the same River Kuiriri these authors only quote *X. elegantula* (Gossweiler 2843).

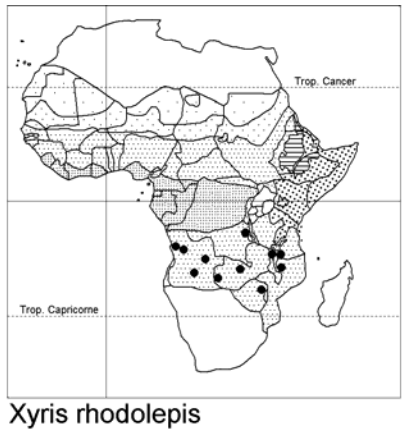
X. straminea L. A. Nilsson; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 325, 1994; Kew Bull. 54: 321, 1999; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 187, 2006; Sosef & al., Checklist pl. vascul. Gabon: 417, 2006; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 28-29, 2010; Fischer & al., Annot. checklist vascul. pl. Kakamega For. (J. E. Afr. Nat. Hist. 99): 225, 2010. – Icon.: Fl. Cameroun 22: 43, 1981; Fl. Eth. & Eritrea 6: 376, 1997; Fl. Trop. E. Afr., Xyrid.: 5, 1999 (detail); Fl. Afr. Centr.,



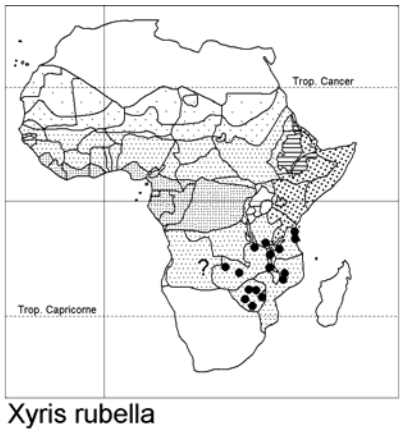
Xyris pumila



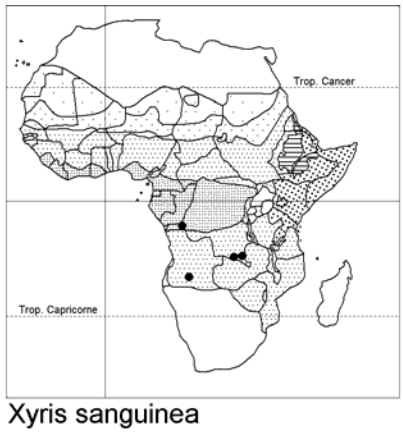
Xyris rehmannii



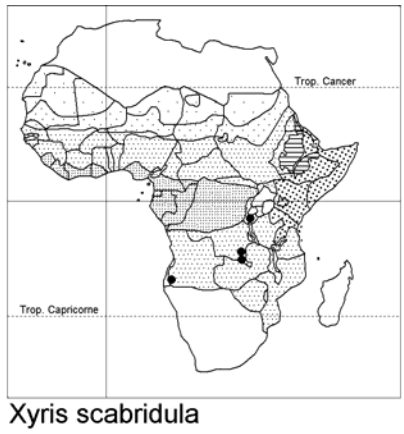
Xyris rhodolepis



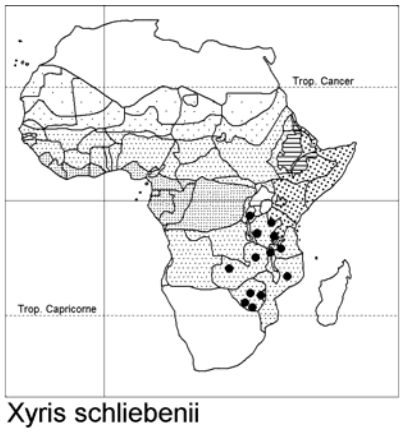
Xyris rubella



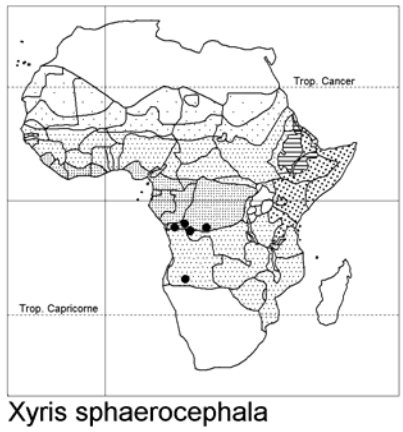
Xyris sanguinea



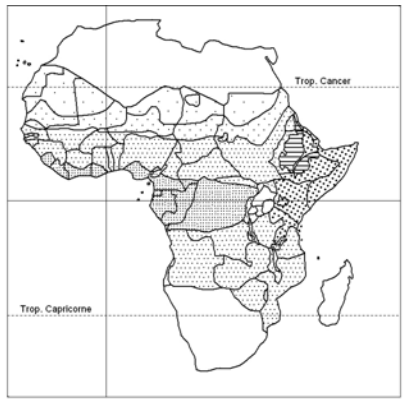
Xyris scabridula

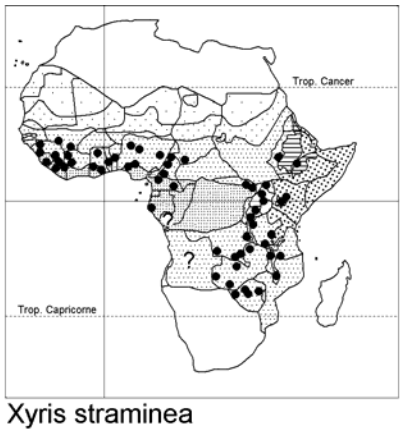


Xyris schliebenii

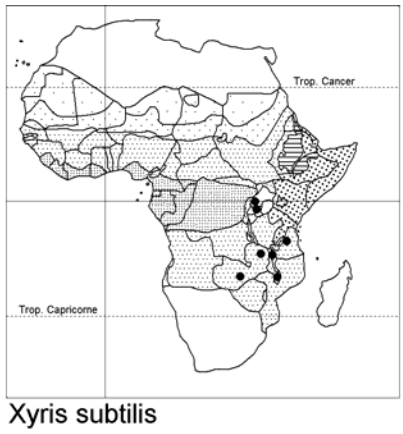


Xyris sphaerocephala

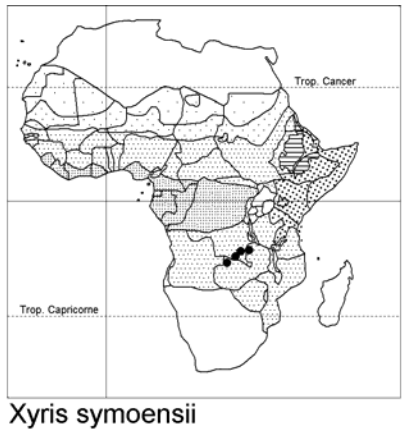




Xyris straminea



Xyris subtilis



Xyris symoensii

XYRIS STRAMINEA

Xyrid.: 100, map 42, 2001; Cook, Aquat. & wetland pl. south. Afr.: 363, 2004 (partial); Akoegninou & al., Fl. analyt. Bénin: 258, 2006; Lisowski, Fl. Rép. Guinée 2: pl. 575, 576, 2009.

syn.: *X. multicaulis* N. E. Br.

Annual tufted slender herb to c. 35 cm tall; leaf bases brownish, rough or wrinkled, not persistent; blade linear, flat or inrolled, 4-8(-15) cm × 0,6-2 mm, glabrous, sometimes rugulose near the base, gradually tapering to weakly curved tip; scapes 1-10, terete, 3-35 cm long, 0,5 mm Ø, weakly 2-ridged above; spike *narrowly ovoid-ellipsoid,* 3,5-6,5 mm long, 1-3,5 mm Ø, 1-4-flowered; *bracts ± translucent, yellow to pale yellowish-brown, acute, apiculate, with a darker keel;* corolla yellow.

Swamps; dambos; humid meadows; shallow soil over rock; seasonal swamps among grass tussocks; peat bog; pools; rocky outcrop with wet flushes and thin soil with *Selaginella njamnjamensis, Aeollanthus* spp., *Aloe* sp.; marshy ground; wet flushes on basalt pavements; growing mixed with other *Xyris* spp., particularly *X. rubella;* inselbergs with *Drosero-Xyridetea* (cf. *X. capensis), Eriocaulo pumili-Ophioglossion gomezianum* (Folia Geobot. 42: 34-37, 2007; Phytocoenologia 35: 327, 353, 2005). 5-2400 m alt.

S. Africa.

The most easily distinguished annual *Xyris* species. The name *X. multicaulis* has been applied to a form of *X. capensis.*

X. subtilis Lock; Kew Bull. 54: 313, 1999. – Icon.: Kew Bull. 53: 893, 1998; Fl. Trop. E. Afr., Xyrid.: 18, 1999; Fl. Zambes. 13/4: 19, 2010.

Slender perennial herb; leaves linear, flattened, *rugulose,* rarely scarcely so or smooth (Malawi, Zambia), 8-12 cm × 0,5-1 mm; sheaths *rugulose,* expanded at base; margins smooth, scarious, ciliate towards base; apex of lamina solid, acuminate; scape 35-50 cm long, c. 0,5 mm Ø, terete, smooth; spike ± round, 5-7 mm Ø, *blackish brown;* bracts suborbicular; corolla yellow.

Seasonally wet grassland; moist sandy places; wet hillside flushes; 450-1900 m alt. – Widespread, inconscipuous, probably overlooked.

Material from Uganda has been named *X. welwitschii* (but with thin straw-coloured inflorescence bracts). Resembling *X. peteri,* but differs in its more delicate stature (scape 0,5 mm Ø, not 1 mm), narrow (0,5-1 mm wide, not 1 mm), rugulose leaves, broader lateral sepals, and the absence of ligule.

X. symoensii Brylska & Lisowski; Fl. Zambes. 13/4: 15-16, 2010. – Icon.: Syst. Geogr. Pl. 69: 213, 1999; Fl. Afr. Centr., Xyrid.: 62, map 26, 2001.

Perennial, caespitose herb, to 75 cm tall with bulbous base surrounded by old brown leaf sheaths; leaves in a basal tuft, outer ones subcylindric or slightly flattened, 20-58 cm × 1-1,7 mm, smooth, glabrous, margins hyaline; inner leaves 15-20 cm long; blade 2-3 cm long, apex acute, sheaths 13-17 cm long; scape ± cylindric, 43-75 cm long, 1-1,5 mm Ø, smooth; spike ellipsoid, 7-8 × 5-6 mm, *deep yellow,* becoming spherical, 8-10 mm long, 9-13-flowered; corolla yellow.

Humid grassy savannas; Kalahari sand; meadows on humid, humus-bearing sand; humid stream and pool sides; moist valley; 1260-1660 m alt.

Resembling *X. lejolyana* but leaves and scapes smooth (not rugulose).

XYRIS

X. unistriata Malme – Icon.: Fl. Afr. Centr., Xyrid.: 37, map 15, 2001.

Perennial caespitose herb to *48 cm* tall; base surrounded by numerous old leaf sheaths; outer leaves subcylindric or subcylindric-1-ridged, 11-35 cm × *0,7-0,8 mm,* apex acute; sheaths 4,5-9 cm long, margins not ciliate; inner leaves 7-18 cm with blade subcylindric, 5-15 × 0,3-0,5 mm, apex acute; sheaths 6,5-16,5 cm long; scape ± cylindric, ± 1-ridged, 18-*48 cm* long, 0,7-0,9 mm Ø, smooth or papillose on the ridge; spike obovoid, or rarely almost spherical, *6-7 cm* long, 5-7 mm Ø, 6-10-flowered; fertile bracts *entire.*

Humid rocks; humid places in savanna; pool margins; 1500-1680 m alt.

Near *X. gossweileri.*

X. valida Malme; Fl. Trop. E. Afr., Xyrid.: 2, 1999. – Icon.: Fl. Afr. Centr., Xyrid.: 15, map 5, 2001; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park, Rwanda: 461, 2008.

Robust perennial herb forming tussocks, to 90 cm tall, surrounded at base by old dark brown to blackish, shiny leaf sheaths; roots thick; outer leaves longer than inner ones, linear, flattened, glabrous, ridged, 20-65 cm × 1-5,5 mm, apex acute and mucronate, margins cartilaginous or ciliate; inner ones sheath-like, rolled into a tube, 6,5-25 cm × 6-10 mm; blade very short, linear, flattened, 4-10 × 1-1,1 mm, apex acute and mucronate; scape subcylindric-flattened, 24-89 cm long, 1-2,5 mm Ø, ± 2-winged, wings pilose above; spike *obovoid,* 8-10 × 6-8 mm, becoming nearly spherical, 12-15 × 10-12 mm; lateral sepals with *aristate apex;* corolla yellow.

Swamps; peat bog with *Xyris, Sphagnum;* humid meadows; in floating mats of lake sides; 1125-3400 m alt.

Perhaps also in W Uganda.

X. welwitschii Rendle; Kew Bull. 53: 890-892, 1998; ibid. 54: 320, 1999; Figueiredo & Smith, Pl. Angola: 208, 2008; Fl. Zambes. 13/4: 28, 2010.

The type (Welwitsch 2465) bears 8 plants of which all but one are clearly annual; Rendle clearly included both elements in his concept of his species. The description by N. E. Brown in Fl. Trop. Afr. 8: 15, 1902, is clearly based only on the *annual* plants. The single perennial specimen of Welwitsch 2465 is *X. friesii.* – Lectotypified formally by Lock 1998 (o.c.).

Annual herb with solitary stems to 35 cm tall; leaf sheaths green-brown, smooth; ligule absent; blade flattened, linear, 5-12 cm × 1,5-2 mm, *smooth,* glabrous, *margins papillose,* apex aristate; scape 7-30 cm long, 0,5-0,7 mm Ø, glabrous, smooth, flattened above and 2-angled with pale ridges; spike *subspherical, yellow to pale brown,* 8-9 × 5-10 mm (larger than that of other annual species); bracts broadly ovate, *papyraceous,* 3,5-5,5 × 2,5-3 mm, *straw-coloured;* seeds *broadly ellipsoid,* blackish, longitudinally ridged, with transverse distinct cross-ridges.

Wooded marshy meadows; damp sandy soils, among rocks; c. 1200 m alt.

Material from Uganda named *X. welwitschii* Rendle is *X. subtilis.*

Plants from Ethiopia (Fl. Eth. & Eritrea 6: 377, 1997) "may be *X. aberdarica* Malme"; they are "certainly not *X. welwitschii…*, nor… *X. friesii"* (Lock, Kew Bull. 53: 892, 1998). Plants cited in Fl. Cameroun 22: 41-42, 1981, and by Cheek & al., Pl. Mt Oku…: 192, 2000, resemble *X. friesii,* or they represent a new species (Lock, l.c.).

XYRIS

SYNONYMS:

Xyris bakeri L. A. Nilsson = **Xyris congensis**

baronii Malme = **X. congensis**

batokana N. E. Br. = **X. congensis**

baumii L. A. Nilsson = **X. congensis**

brunnea L. A. Nilsson = **X. obscura**

capensis Willd. ex Kunth 1843 = **X. anceps** var. **minima**

capensis Baker 1883 = **X. congensis**

capensis Thunb. 1794

var. *medullosa* N. E. Br. = **X. huillensis**

var. *microcephala* Malme = **X. huillensis**

"paedogenic variant" = **X. rubella**

compressa Willd. ex A. Dietr. = **X. anceps** var. **anceps**

decipiens sensu auctt., non N. E. Br. = **X. angularis**

decipiens N. E. Br. var. *vanderystii* (Malme) Malme = **X. angularis**

dilungensis Brylska = **X. aristata**

dispar N. E. Br. = **X. rehmannii**

exigua Malme = **X. angustifolia**

extensa Malme = **X. congensis**

hildebrandtii L. A. Nilsson, incl. var. *angustifolia* Malme = **X. congensis**

humilis Kunth, incl. var. *minima* (Steud.) L. A. Nilsson = **X. anceps** var. **minima**

humpatensis N. E. Br. var. *rhodolepis* Malme = **X. rhodolepis**

insularis Steud. = **X. anceps** var. **anceps**

jupicai A. Rich. – See under **X. macrocephala** sensu Lisowski

laciniata Hutch. = **X. aristata**

ledermannii Malme = **X. barteri**

leonensis Hepper = **X. aristata**

leptophylla Malme, incl. var. *subbatokana* Malme nom. in sched. = **X. congensis**

melanocephala Miq. = **X. capensis**

minima Steud. = **X. anceps** var. **minima**

multicaulis N. E. Br. = **X. straminea**

nilagarensis Steud. ex Hook. f. = **X. capensis**

nilagiriensis Steud. = **X. capensis**

nitida Willd. ex A. Dietr. = **X. anceps** var. **anceps**

nitida L. A. Nilsson 1891 = **X. congensis**

nivea sensu auctt., non Welw. ex Rendle = **X. obscura**

pallida Mart. = **X. anceps** var. **anceps**

perrottetii Steud. = **X. anceps** var. **minima**

platycaulis Poir. = **X. anceps** var. **anceps**

pocockiae Malme (" pocockii ") = **X. friesii**

reptans Rendle = **X. capensis**

rhodesiana Malme = **X. erubescens**

rigidescens Welw. ex Rendle = **X. rehmannii**

subaristata Malme = **X. aristata**

subrubella Malme ex Hutch. & Dalziel = **X. capensis**

theodori Malme = **X. erubescens**

thompsonii Rendle = **X. anceps** var. **anceps**

umbilonis L. A. Nilsson = **X. congensis**

vanderystii Malme = **X. angularis**

welwitschii Rendle, p.p. (perennial plant) = **X. friesii**

zombana N. E. Br. = **X. capensis**

RAPATEACEAE / *1* g. / *1* sp.

Family of 16 (17) genera and some 80 (100) species, mainly in S. America (mostly in the sandstone formations of Venezuela and Guyana); often in moist places or swamps. A single monotypic genus in W Africa (amphiatlantic distribution like *Pitcairnia feliciana, Bromeliaceae).*

Treated under *Marantaceae* by Klopper & al., Checklist flow. pl. Sub-Saharan Africa: 788, 2006.

GIVNISH, T. J. & al. (2004). Ancient vicariance or recent long-distance dispersal ? Inferences about phylogeny and South American-African disjunctions in Rapateaceae and Bromeliaceae based on ndhF sequence data. *Int. J. Plant Sci.* 164 (4 Suppl.): S35-S54.

GIVNISH, T. J. & al. (2011). Phylogeny, adaptive radiation, and historical biogeography in Bromeliaceae: Insights from an eight-locus plastid phylogeny. *Amer. J. Bot*. 98: 872-895.

STEVENSON, D. W. & al. (1998). Rapateateae. *In:* KUBITZKI, K., ed., The families and genera of vascular plants. 4. Flowering plants. *Monocotyledons: Alismatanae and Commelinanae (except Gramineae):* 415-424. Springer Verlag, Berlin, etc.

MASCHALOCEPHALUS / *1*

Maschalocephalus dinklagei Gilg & K. Schum. – Icon.: Engler & Prantl, Natürl. Pflanzenfam., ed. 2, 15a: 64, 1930; Lisowski, Fl. Rép. Guinée 2: fig. 567, 2009; Adam, Fl. descript. Mts Nimba 5: 1953, 1981.

Tufted sedge-like perennial stemless herb with fibrous roots (sometime stilt roots); leaves 10-20 in basal rosette, in one plane, linear-lanceolate, apex subobtuse, 50-80 × 3-5 cm; sheath folded on each side of the next sheath, 15-20 cm long; flower heads sessile in leaf axils; flower yellow, tube c. 4 cm long.

Wet forest areas in sandy savanna; under shade; locally abundant or common; marshy area beside small stream with *Elaeis, Calamus, Dracaena, Nephthytis;* sometimes covering as much as 1 hectare; mucky soil, flooded in rains; 3-700 m alt.

For localities in Liberia, see Amer. J. Bot. 37: 403, 1950.

Biogeographical aspects and dispersal from S. America are treated by Givnish & al., 2004 and 2011.

First collection made in 1861, but described on a specimen collected in 1898-1899 because the oldest specimen had been misplaced in the Kew Herbarium.

EXCLUDED GENERA AND SPECIES:

Apartea letestui Pellegrin, Bull. Soc. Bot. France 77: 473, 1930; corrigendum ibid. 78: 180, 1931 = *Cyperaceae:* **Mapania amplivaginata** K. Schum.

Langerinia monosperma Jacq.-Fél., Bull. Mus. Natl. Hist. Nat., Paris, Sér. 2, 19: 88, fig. p. 89, 1947; Compt. Rend. Acad. Sci. Paris 224 : 211-212, 1947 = *Cyperaceae:* **Mapania amplivaginata** K. Schum.

ERIOCAULACEAE / *4* g. / *111* (+ *3* ?) spp.

Tropical and subtropical family of c. 10 or 11 genera and some 1200 species (1206 according to Joppa & al. in Proceed. Roy. Soc., London, Ser. B 278 : 557, 2011; or c. 1110 according to Echternacht & al. in Bot. J. Linn. Soc. 167 : 137, 2011); a few species also in temperate areas. Growing in marshy or seasonally inundated places, especially in montane areas on sand. Most species-rich in upland parts of S. America. *Eriocaulon* is the only genus in Asia (cf. R. Ansari & N. P. Balakrishnan, The family Eriocaulaceae in India, revised edition, 2009 : 80 species).

These plants are "considered to be one of the most difficult groups due to the minute floral parts…, the species are difficult to diagnose due to the uniformity in the vegetative parts accompanied by a surprising amount of disparity in the floral parts" (Ansari & Balakrishnan, o.c.: 1).

The family can be easily distinguished by its capitula of small crowded flowers reminiscent of *Asteraceae,* but never brightly coloured (occurring in shades of white, dirty grey, brown or black); the long-lasting inflorescences are collected for decorative purposes.

Stem usually shortened to a basal disc; leaves narrow, crowded into a basal rosette; flowers unisexual, often trimerous (or dimerous); male ones with stamens twice as many as sepals; female ones with superior ovary; fruit a dehiscent capsule, each locule with a single seed. The morphology of the seed coat (ripe seeds necessary !) is a useful taxonomic aid.

Several species poorly known and rarely collected in our area : female flowers unknown in 1 species; no ecology recorded for 4 species (= 3,6 %); 15 (+2 ?) species (= c. 13 %) known only from the type. The leaves are unknown in 1 species, and no mature seeds known in 1 species.

COAN, A. I. & al. (2012). Comparative embryology and taxonomic considerations in Eriocaulaceae. *Feddes Repert.* 121: 268-284.

GOMES DE ANDRADE, M. J. & al. (2010). A comprehensive phylogenetic analysis of Eriocaulaceae : Evidence from nuclear (ITS) and plastid (psbA-trnH and trnL-F) DNA sequences. *Taxon* 59 : 379-388.

KIMPOUNI, V. (1996). Les Eriocaulaceae et leurs habitats dans les savanes africaines. *In :* MAESEN, L. J. G. VAN DER & al., eds., *The Biodiversity of African Plants :* 208-213. Kluwer Academic Publishers, Dordrecht, etc.

PHILLIPS, S. [M.] (1997). Eriocaulaceae. *In : Flora of Tropical East Africa.* 43 pp.

PHILLIPS, S. M. (1998). Eriocaulaceae of the Flora Zambesiaca area. *Kirkia* 17 : 11-67.

PHILLIPS, S. M. (2010). Eriocaulaceae. *In: Flora Zambesiaca* 13/4 : 33-85.

POREMBSKI, S. (2005). Floristic diversity of African and South American inselbergs : a comparative analysis. *Acta Bot. Gall.* 152 : 573-580.

STEINECKE, H. (1996). Die Eriocaulaceae – "Compositen" unter den Einkeimblättrigen Pflanzen. *Palmengarten* 60 : 33-39.

STÜTZEL, T. (1998). Eriocaulaceae. *In :* KUBITZKI, K., ed., *The families and genera of vascular plants 4. Flowering plants : Monocotyledons. Alismatanae and Commelinanae (except Gramineae) :* 197-207. Springer Verlag, Berlin, etc.

(DICHROLEPIS)

Dichrolepis pusilla Welw. = **Eriocaulon abyssinicum**

(DUPATYA)

Dupatya lamarckii (Kunth) Kuntze = **Paepalanthus**

wahlbergii (Wikstr. ex Körn.) Kuntze = **Syngonanthus**

ERIOCAULON / *81* (+ *3*) spp.

About 400 species (478 fide Syst. Bot. 36 : 65, 2011) in tropical and subtropical regions, the only genus in the family occurring on all continents. One species *[E. aquaticum* (Hill) Druce; syn. *E. septangulare* With.] in W Ireland, W Scotland, E N. America. *E. cinereum* R. Br. found naturalised in N Italy, from SE & E Asia, N Australia. Characterised by diplostemonous flowers (4 or 6 stamens), petals with glands. Vegetatively the species are rather uniform, but the dimensions of leaves and scapes are influenced by environmental factors, e.g., water level of the wet habitats in which they grow. The tiny flowers are complex, and more variable than sometimes recognised. The flower structures are shown in detail by Kimpouni & al. (1994) : 568 (see Bibliography below under *Syngonanthus).*

Among the African species a few are particular :

absolutely stemless herb to 1 cm tall : *E. sessile ;* submerged herb producing flowers and fruits beneath the water surface : *E. submersum ;* two very rare plants.

In our area an incompletely known genus : leaves unknown in 1 species, female flower unknown in 1 species, ecology not recorded for 2 species; and 12 (+ 2 ?) species known only from the type.

FRIIS, I. & al. (2011). New additions to the Flora of Ethiopia and Eritrea in the families Euphorbiaceae, Fabaceae (Leguminosae), Lamiaceae, Campanulaceae, Eriocaulaceae and Poaceae. *Symb. Bot. Upsal.* 35/2 : 107-128 (see p. 116-120).

KIMPOUNI, V. (1994). Nouvelles ou intéressantes espèces du genre Eriocaulon (Eriocaulaceae) en Afrique. *Fragm. Florist. Geobot.* 39 : 319-352.

PHILLIPS, S. M. (1996). Eriocaulon schimperi (Eriocaulaceae) and some related species in eastern Africa. *Kew Bull.* 51: 333-342.

PHILLIPS, S. M. (1997). The Eriocaulon transvaalicum complex and some other species of Eriocaulon from Africa. *Kew Bull.* 52 : 51-72.

POREMBSKI, S. & A. WATWE (2005). Remarks on the species composition of ephemeral flush communities on paleotropical outcrops. *Phytocoenologia* 35 : 389-401.

Eriocaulon abyssinicum Hochst.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2 : 303, 1994; Kirkia 17 : 34-35, 1998; Figueiredo & Smith, Pl. Angola : 183, 2008. – Icon.: Engler, Pflanzenreich 4/30 : 99, 1903; Fl. south. Afr. 4/2 : 12, 1985; Fl. Trop. E. Afr., Eriocaul.: 20, 29, 1997; Fl. Eth. & Eritrea 6 : 380, 1997; Kirkia 17 : 22, 1998; Cook, Aquat. & wetland pl. south. Afr.: 126, 2004; Fl. Zambes. 13/4 : 44, 2010.

syn.: *E. gilgianum* Ruhland; *E. ciliisepalum* Rendle, non *ciliipetalum* ! Rendle *(= E. truncatum); E. subulatum* N. E. Br.; *Dichrolepis pusilla* Welw.

Small delicate tufted annual herb; leaves few, linear-acute, 1-5 cm × 0,3-2 mm, tapering to a fine point; scapes 4-50, radiating to form a dome-shaped mound, 2-12 cm long, 0,2-0,3 mm Ø, 3-4-ribbed; capitulum globose to ovoid, *2-3 mm Ø,* grey to *blackish with paler bracts,* as wide as the capitulum; flowers 3-merous.

Shallow muddy soil and wet flushes overlying rock outcrops, usually with water flowing over; mist zone of waterfalls; seasonal wet flushes and ponds in grassland; locally abundant with *E. cinereum, E. mutatum ;* often on bare soil; damp fields formerly planted with *Zea mays ;* mucous-boggy soil and slopes; 650-2730 m alt. – Pioneer species.

Variable in degree of hairiness of receptacle and female sepal-margins.

Namibia, S. Africa, Botswana.

Often confused with *E. mutatum* (with shorter broader leaves, broader floral bracts, 2-merous flowers) and *E. cinereum* (with white anthers, oblong obtuse floral bracts). Intergrading with *E. welwitschii.*

ERIOCAULON

E. adamesii Meikle

Caespitose annual herb; leaves numerous, to 4 cm × 1-2,5 mm; scapes 3-20, erect, 3-5-ribbed, to 9 cm tall; capitulum subglobose, 1,5-3,5 mm Ø, greenish or pale grey or whitish; involucral bracts not radiating beyond capitulum; flowers 2-merous.

Wet sandy soil at the uppermost end of a tidal creek; grassland on poor sandy soil; common in wet ditches, often submerged.

Possibly confused with *E. mutatum;* closer affinities with *E. echinospermum* ! C. Wright (not *E. echinospermoideum)* endemic in W Cuba, and its allies.

E. aethiopicum S. M. Phillips; Fl. Eth. & Eritrea 6: 379, 1997. – Icon.: Kew Bull. 52: 65, 67, 1997.

Tiny rosulate herb; leaves tapering from base to acute tip, 6-12 × 0,3-1 mm, spongy, fenestrate; scapes to 12, 10-25 mm long, 0,3-0,4 mm Ø, 3-ribbed; capitulum subglobose, 3,5-4 mm Ø, dark grey; bracts spreading, as wide as capitulum; flowers 3-merous.

Bare wet soil along small stream; c. 2400 m alt.

Only known from the type collected in 1971.

Near *E. wildii* but this has: – longer, narrower involucral bracts; – glabrous receptacle (Kew Bull. 52: 66, 1997).

E. africanum Hochst.; Kirkia 17: 18, 1998; Fl. Zambes. 13/4: 39-40, 2010. – Icon.: Fl. south. Afr. 4/2: 16, 1985; Fragm. Florist. Geobot. 39: 325, 343 (sub nom. *E. parvistoloniferum),* 1994; Symoens, Résultats scientifiques, Exploration hydrobiologique du bassin du Lac Bangweolo et du Luapula 18/1: Groupements végétaux des mares et des anses calmes des rivières du Plateau des Kundelungu: pl. 8, 1989; Stützel in Kubitski, o.c.: 198 (sub *E. woodii);* Cook, Aquat. & wetland pl. south. Afr. : 127, 2004.

syn.: *E. woodii* N. E. Br., incl. var. *minor* Ruhland; *E. antunesii* Engl. & Ruhland; *E. stoloniferum* Welw. ex Rendle; *E. malaissei* Moldenke fa. *malaissei; E. natalensis* Schinz; *E. parvistoloniferum* Kimpouni

Tufted *perennial* herb; stems corm-like, rarely with a slender stem to 5 cm long; leaves linear, 6-35 cm × 2-5mm, glabrous, rather broad at base, curved, sword-like or long ribbon-like; scape single, straight, stout, 6-10-ribbed, 15-40 cm long (usually 1 or more scapes bearing *viviparous capitula* also present), these *arching down* and *rooting* like stolons, and developing bulbils; capitulum subglobose, *4-11* mm wide, bracts shorter than heads; flowers 3-merous.

Submerbed or at edge of swiftly flowing water; rooting in sand among rocks on the river bed, sometimes in rock pools by waterfalls. When submerged it may form grassy-looking patches or mats, with only the flowering heads emergent above the water; (140-)900-1800 m alt.

Very variable in vigour depending on environmental conditions.

S. Africa.

E. antunesii is maintained as a distinct species by Figueiredo & Smith, Pl. Angola: 184, 2008.

E. afzelianum Wikstr. ex Körn.; Fragm. Florist Geobot. 39: 323, 1994; Fl. Trop. E. Afr., Eriocaul.: 26-27, 1997; Kirkia 17: 42-43, 1998; Akoegninou & al., Fl. analyt. Bénin: 130, 2006; Lisowski, Fl. Rép. Guinée 1: 416, 2009; Fl. Zambes. 13/4: 62-63, 2010. – Icon.: Fl. Cabo Verde 97, Eriocaulaceae: 7, 2002; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 776, 2010.

syn.: *E. kouroussense* Lecomte; *E. heterochiton* sensu Lecomte p.p., non Körn.

ERIOCAULON AFZELIANUM

Annual stemless herb; leaves linear(-lanceolate), 7-15 per plant, ascending, 7 cm × 1,5-4 mm, thin, septate, acute; scapes 1-20 per plant, very slender, 7-35 cm tall, sharply 4-5-ribbed; capitulum depressed-globose, 3-6 mm Ø, greyish with mealy white pubescence, flowers hidden; *bracts appressed, regularly imbricated, acute;* flowers 3-merous; *female ones with narrow subequal sepals, and unequal spongy eglandular petals hairy on both sides,* ovary *strikingly blackish;* seeds reticulate.

Marshes, near river mouth; swamps; swampy grassland; sand temporary flooded; rice fields; seepings on granitic rock; inundated hollows; 900-1600 m alt.

Habit variable: smaller specimens very similar to *E. transvaalicum* subsp. *hanningtonii* (dissection needed); well-grown specimens tall with flexuous scapes and thin cellular leaves > 5 cm long. Southern populations have darker grey capitula than in W Africa.

Cape Verde Isl.: São Nicolau.

E. albocapitatum Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 328, 1994; Fl. Trop. E. Afr., Eriocaul.: 17, 1997 (details).

Annual herb 4-6 cm tall; leaves numerous in basal rosette, flattened, broadening at base, sessile, linear, 2,5-3 cm × 1-2,5 mm, acute at apex, glabrous, sheath 1,8-2,5 cm long; scapes in dense terminal tuft, slender, 3-ribbed, glabrous, spirally twisted; capitulum subglobose, 3-4 mm Ø, many-flowered, *whitish* to yellowish; bracts membranous (not cartilaginous), *acute-acuminate, ciliate towards apex;* flowers 3-merous. – The type from Zaire lacking seeds (fide Phillips in F.T.E.A., l.c.).

Pools on bowal.

Near *E. recurvibracteatum.* Closely resembling *E. laniceps* in vegetative and floral morphology, but seed patterning different.

(**E. andongense** Welw. ex Rendle) – See below under **E. buchananii**.

E. angustibracteum Kimpouni; Fl. Trop. E. Afr., Eriocaul.: 28, 1997; Kirkia 17: 45-46, 1998; Fl. Zambes. 13/4: 65, 2010. – Icon.: Fragm. Florist. Geobot. 39: 329, 1994 (details).

Annual herb 10-20 cm tall; leaves numerous in a rosette, linear (-subulate), 6-10 cm × 1-3 mm, septate, tip acuminate, bristly extended; scapes to 20, 7-28 cm tall, 5-7-ribbed, glabrous; capitulum globose, 3-6 mm Ø, blackish when young, bracts paler, grey and buff when mature with white-pilose flowers visible among the bracts; flowers 3-merous, male ones with only *3 stamens* (only species so in the distribution area).

Swamp on brook side, on sand; marshy grassland: rice fields; often with the leaf rosette submerged; 1000-1400 m alt.

Near *E. meiklei.*

E. asteroides S. M. Phillips; Cheek & al., Pl. Mt Oku… Cameroon: 176, 2000; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c 50, 2001. – Icon.: Kew Bull. 53: 945, 946, 1998; Harvey & al., Pl. Bali Ngemba…: pl. 7 E, 2004.

Tiny rosulate annual herb; leaves linear-subulate 0,8-1,5 cm × 1 mm; scapes to 10, 1-2,5 cm × 0,2-0,3 mm, 3-4-ribbed; capitulum 5-7 mm wide, few-flowered, *star-like.*

Basalt pavement, i.e. thin, peaty, seasonally waterlogged soil in the cracks between blocks, with *Utricularia scandens, Loudetia simplex, Scleria interrupta;* boggy area on rock shelf; near to stream around savannah zone; (mixed with *E parvulum);* 1700-2500 m alt.

Only known from 6 collections.

Near *E. pulchellum;* superficially similar to *E. parvulum.*

ERIOCAULON

E. bamendae S. M. Phillips; Cheek & al., o.c.: 176, 2000; Chapman & Chapman, l.c. – Icon.: Kew Bull. 55: 197, 198, 2002.

syn.: *E. zambesiense* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 62, 1968, non Ruhland; *E. zambesiense* var. *bamendae*, nom. in sched. (Meikle).

Perennial robust rosulate herb from a short rhizome; leaves in large clumps, 30-40 cm Ø when fertile, broadly linear, 10-22 cm × 6-16 mm, bright green, opaq, tip rounded; scapes to 15, lax, *30-90 cm tall,* 1,3-1,5 mm Ø, 5-7-ribbed; sheaths equalling leaves; capitulum globose, *4-7 mm Ø,* black and white, often *viviparous;* involucral bracts as wide as capitulum, straw-coloured tinged grey, coriaceous.

Dense mat of vegetation at edge of lake; lava plateau, in boggy patch near streamside; open very wet stagnant flush; swamp, small running stream in prairie; open grassy bog near stream; in a pond; wet disturbed area; 1830-2950 m alt.

Resembling *E. schimperi* forming large clumps but capitula of *E. bamendae* much smaller and viviparous. Similar to *E. zambesiense* Ruhland, less vigorous and smaller in vegetative parts, and seeds very different (Kew Bull. 55: 198, 2000), the latter resembling those of *E. iringense.*

The identity of an *Eriocaulon* from Bioko/Fernando Poo with viviparous capitula, placed by Meikle under *E. zambesiense* is uncertain. This plant seems to be *E. zambiense* but ripe seeds lacking.

E. bicolor Kimpouni; Fl. Zambes. 13/4: 64, 2010. – Icon.: Fragm. Florist. Geobot. 39: 331, 1994 (details).

Annual herb 10-15 cm tall; leaves in basal rosette, filiform to linear-subulate, 2-4 cm × 1 mm, glabrous, not widened at base; sheaths 2,5-3,5 cm long; scapes often numerous, rarely solitary, striate, twisted, glabrous; capitulum globose, 3-4 mm Ø, many-flowered, *base whitish,* apex *black-spotted;* flowers 2-merous.

Edge of pond in grassy savanna.

May occur in N Zambia.

Similar to *E. stenophyllum* (flowers 3-merous), and to *E. sinealaeum.*

Known only from the type.

E. bongense Engl. & Ruhland; Kirkia 17: 33-34, 1998; Akoegninou & al., Fl. analyt. Bénin: 130, 2006. – Icon.: Fl. Trop. E. Afr., Eriocaul.: 20, 29, 1997; Kirkia 17: 22, 1998; Fl. Zambes. 13/4: 44, 2010.

Probably annual rather robust rosulate herb; leaves ensiform, 3-8 cm × 2-7 mm, spongy; scapes 1-16, flexuous, 10-35 cm tall, 5-7-ribbed; sheaths exceeding leaves; capitulum globose to conical, 5-8 mm Ø, *shaggy,* shining *silvery-grey* with *yellowish* involucracl bracts; sometimes capitulum darker-grey (Tanzania, Zambia); flowers 3-merous. – Distinctive species.

Marshy grassland; wet flushes; rice fields; temporary pools on lateritic pans; swamps on sandstone; inselberg; in brook on granite: 250-1700 m alt.

E. buchananii Ruhland s. str.; Kew Bull. 51: 634-636, 1996; Figueiredo & Smith, Pl. Angola: 184, 2008. – Icon.: Kew Bull. 51: 640, 1996 (seed); Fragm. Florist. Geobot. 39: 332, 1994; Fl. Trop. E. Afr., Eriocaul.: 20, 29, 1997; Kirkia 17: 22, 1998; Fl. Zambes. 13/4: 44, 2010.

Annual herb, tufted, 10-20 cm tall; leaves in a small basal rosette, pale bronze-green, linear, 1-6 cm × 0,6-3 mm, spongy, ± acute; scapes 3->*50, erect, slender,* 4-7-ribbed, 7-20 cm tall; sheaths equalling leaves; capitulum globose, 3-5 mm Ø, *pale brown* or

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(when young) blackish, glabrous, glossy; *floral bracts obtuse, loosely arranged,* flowers hardly visible among them; flowers 3-merous; *female sepals very unequal, spongy.*

Swamp in humid savannas and on ferruginous hardpans; pools; shallow water of pans; wet sand or mud of recently flooded, drying hollows; boggy patches dominated by *Loudetia* within *Hyparrhenia* grassland; 380-1900 m alt.

Seeds very similar to those of *E. transvaalicum,* also with round blackish capitula, but with larger leaves and capitula but lacking the gibbous, spongy female sepals.

Closely related to *E. fulvum* (W Africa) with *pale capitula,* and obtuse floral bracts; also near *E. maculatum, E. strictum* with unequal female sepals and similar seeds. "The boundaries between the individual species are not clear cut, and intermediate specimes may be encountered which are not easily assigned" (Phillips in Fl. Zambes., l.c.); introgression with *E. maculatum* in some cases.

Note on *E. buchananii* var. *andongensis*: Kimpouni (Fragm. Florist. Geobot. 39: 333, 1994) reduced *E. andongense* Welw. ex Rendle from Angola to a variety of *E. buchananii*. However, Phillips (Kew Bull. 51: 635-636, 1996) questions this decision. She shows that neither his diagnosis nor his illustration correspond with the type specimens (Welwitsch 2442, 2443, 2443b at BM): the floral bracts of the latter are longer and narrower; the sepals and petals of both flower types are completely glabrous (specimen Lisowski 6617 "which clearly is not… *E. andongense").* These characters rather correspond with those of *E. transvaalicum*. Phillips prefers to maintain **E. andongense** as a separate species, however doubtful. – Our map (p. 141) shows **E. andongense** as a separate unit on that of **E. buchananii**.

E. burttii S. M. Phillips; Fl. Trop. E. Afr., Eriocaul.: 30, 1997. – Icon.: Kew Bull. 51: 640, 1996 (seed).

Annual herb; leaves few in a basal rosette, linear, 2-3,5 cm × 1-2,5 mm, subacute; *scapes 1-5,* erect in a narrow tuft, 7-18 cm long, 4-5 mm Ø, 5-ribbed, very slender, slightly flexuous; *capitulum globose,* 3-5 mm Ø, grey, *hard,* glabrous; involucral bracts small, straw-coloured; flowers (3-merous) visible among floral bracts; lateral female petals *glandular.* Seed morphology different from *E. buchananii.*

Wet sandy places in open bushland; 1300-1400 m alt.

Local segregate of *E. buchananii.*

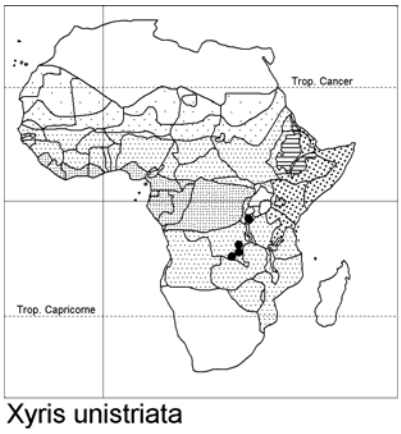
E. chloanthe S. M. Phillips – Icon.: Kew Bull. 51: 627, 1996; Kirkia 17: 26, 1998; Fl. Zambes. 13/4: 69, 2010.

Rosulate herb, probably annual (leaves absent at maturity); scapes c. 20, *stiff,* 18-23 cm long, *0,7-0,9 mm* Ø, 5-ribbed; capitulum globose, hard, 5 mm Ø, *pale grey-brown,* slightly glossy, glabrous; flowers 3-merous; male calyx open at the top (unique in the *E. transvaalicum-E. buchananii* group).

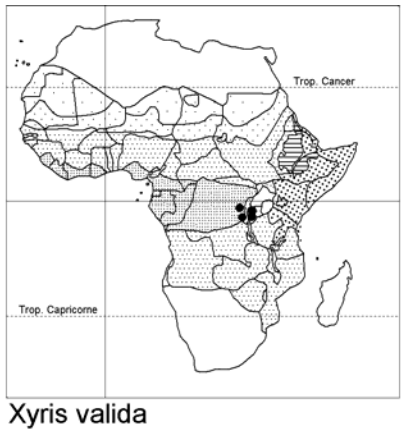
Ecology unknown; c. 600 m alt.

Only known from the type collected in 1963.

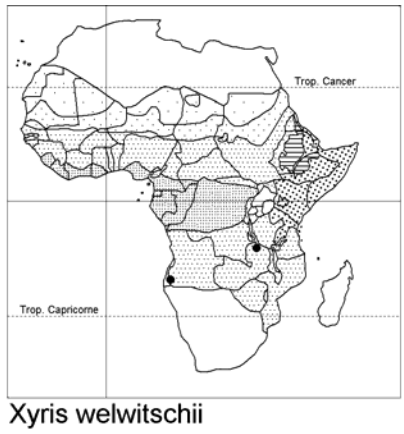
Near *E. buchananii, E. maculatum.*



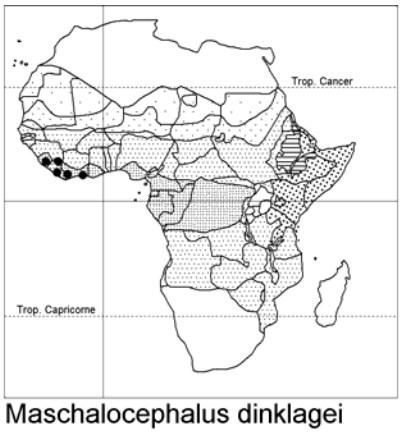
Xyris unistriata



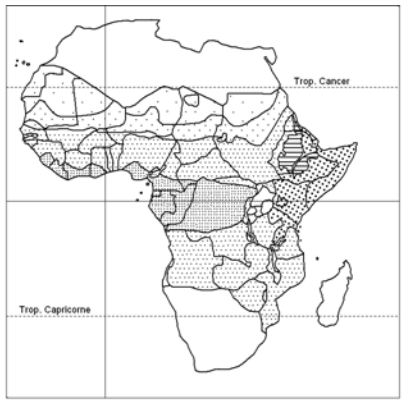
Xyris valida

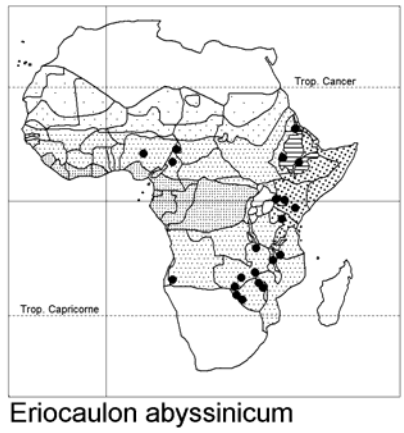


Xyris welwitschii

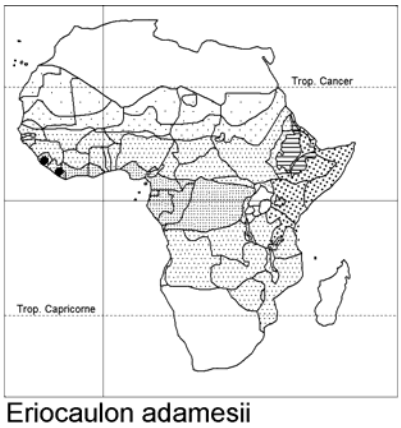


Maschalocephalus dinklagei

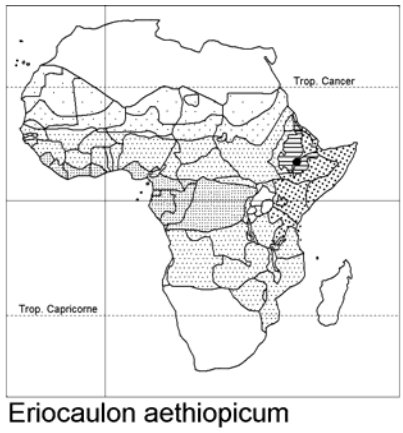




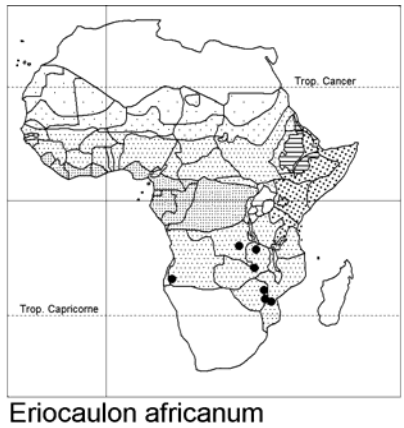
Eriocaulon abyssinicum



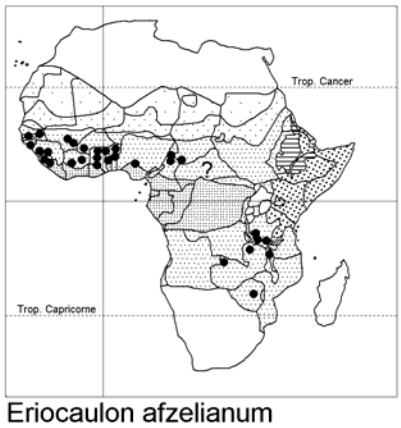
Eriocaulon adamesii



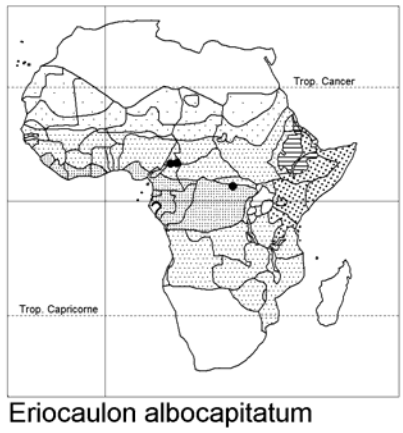
Eriocaulon aethiopicum



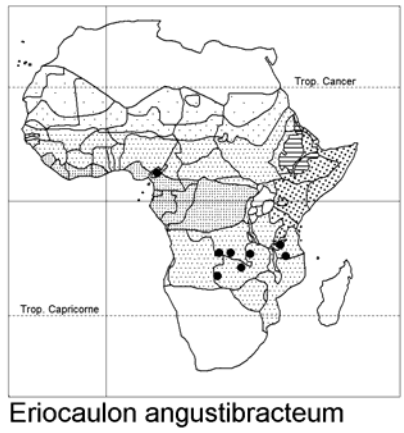
Eriocaulon africanum



Eriocaulon afzelianum



Eriocaulon albocapitatum



Eriocaulon angustibracteum

ERIOCAULON

E. cinereum R. Br., incl. var. *sieboldianum* (Siebold & Zucc. ex Steud.) T. Koyama (in Ohwi, Fl. Japan: 266, 1965, without basionym) ex Yuen P. Yang (Fl. Taiwan 5: 183, 1978; icon.: p. 182); Fl. south. Afr. 4/2: 11, 1985; Fl. Trop E. Afr., Eriocaul.: 6-7, 1997; Kirkia 17: 19-20, 1998; Sosef & al., Check-list pl. vascul. Gabon: 158, 2006; Figueiredo & Smith, Pl. Angola: 183, 2008; Lisowski, Fl. Rép. Guinée 1: 416, 2009; Fl. Zambes. 13/4: 41-42, 2010. – Icon.: Engler, Pflanzenreich 4/30: 112, 1903 (sub nom. *E. sieboldianum);* Fl. Pakistan 142: 2, 1982; Cook, Aquat. & wetland pl. south. Afr.: 127, 2004.

syn.: Enum. 3: 30, 1995; *E. sieboldianum* Siebold & Zucc. ex Steud. *("sieboldtianum"); E. ciliiflorum* F. Muell.; *E. stuhlmannii* N. E. Br.; *E. reductum* Ruhland; see World Checklist, Eriocaulaceae, Royal Botanic Gardens, Kew.

Annual herb, tufted; leaves numerous forming a neat *dense cluster, needle-shaped,* bristle-tipped, *1-3 cm* × 0,2-2 mm; scapes slender, few to many, straight, 4-13 cm tall, 0,3-0,4 mm Ø, 5-ribbed; sheaths equalling or shorter than leaves; capitulum globose to ovoid, 2-4 mm Ø, grey or straw-coloured or becoming darker; flowers 3-merous; male ones with *very small white anthers; female ones much reduced,* mostly to the gynoecium, petals absent.

Drying pool margins and seepages; rice fields; hollows in coastal dunes; badly drained plains with *Rotala tenella;* pools on bowal; shallow temporary water; in *Eriocauletum meikle-cinerei* assoc. in short and shallow indundated sands, poor in organic matter and nutrients (Phytocoenologia 35: 348, 2005); sea-level-1400 m alt.

N Namibia, Botswana. – Probably not native in Africa (but without proofs). Afghanistan, Pakistan, India, Sri Lanka, Burma, China, Japan; Australia. Introduced to warm areas elsewhere as a weed of rice fields.

Although distinctive (short needle-shaped leaves, white minute anthers, reduced female flowers), confused with *E. abyssinicum.*

(**E. congolense** Moldenke), not *C. congense* Moldenke *(= E. schimperi).*

Tufted herb, apparently annual, to 5,5 cm tall; leaves very numerous, 1,3-2,4 cm × <1 mm; scapes several or numerous, erect, 2,5-5 cm tall, 3-ribbed, straw-yellow, glabrous or nearly so, slightly twisted; capitulum oblong-ovate, 2-3 × 1,5-2,5 mm, few-flowered; staminate flowers, fruits, seeds unknown.

Pond.

Only known from the type (Monod 11642) collected in 1956 (type in Inst. Fondam. Afrique Noire, Dakar).

A very reduced form of another species ? In need of further study. Many African taxa described by Moldenke in Phytologia 8: 386-391, 1962, are now synonyms of other species.

Not mapped.

E. crassiusculum Lye; Fl. Trop. E. Afr., Eriocaul.: 27, 1997. – Icon.: Nord. J. Bot. 16: 64, 65, 1996; Fl. Eth. & Eritrea 6: 381, 1997.

Tussocky annual herb; leaves narrowly lanceolate, 20-80 × 2-6 mm, glabrous, fenestrate, all crowded at plant base; scapes 1-12, slender 9-35 cm tall, 0,5-1,3 mm Ø, rounded, with 6-7 obscure ridges; capitulum globose to hemispherical, greyish-white, 4-8 mm Ø; bracts and flowers white-pilose; flowers 3-merous.

Open areas in wet mud of swamps; with sedges and often *Miscanthus;* marshy land with muddy soil, in shallow slowly streaming water; slopes with oozing water; 1100-1800 m alt.

Resembling *E. transvaalicum* but leaves more succulent, involucral bracts larger and more coriaceous.

ERIOCAULON

E. deightonii Meikle; Kirkia 17: 46, 1998; Lisowski, Fl. Rép. Guinée 1: 416, 2009; Fl. Zambes. 13/4: 66, 2010.

syn.: *E. acutifolium* S. M. Phillips

Annual herb; leaves usually very numerous, subulate, with a longer slender acumen, densely rosulate, 4-13 cm long, 1,5-3 mm wide at base, septate; scapes to 50, erect, 10-25 cm long, glabrous, lightly 3-5-ribbed; capitulum subglobose, yellowish or pale brown, 3-4 mm Ø, subglabrous or sparsely pilose; flowers 3-merous.

Plantation; boggy grassland; swamp margins, damp hollows; 1350 m alt. (Zambia).

Resembling *E. buchananii* but leaves much longer and fine-tipped. Also similar to *E. angustibracteatum* but capitula smaller.

E. denticulum Kimpouni – Icon.: Fragm. Florist Geobot. 39: 334, 1994.

Annual plant 3,5-12 cm tall; leaves rosulate, linear-subulate, 0,7-3 cm × 1 mm, apex acute; scapes 3-ribbed, twisted; capitulum hemispherical, 2-3 mm high, 2-3 mm Ø, many-flowered; bracts denticulate, glabrous; flowers 2-merous.

Pools in savanna or on bowal; 1585-1790 m alt.

Near *E. nigrocapitatum.*

E. diloloense Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 336, 1994.

Annual herb 10-20 cm tall; leaves numerous, rosulate, linear-subulate, 6-7 cm × 2-3 mm, glabrous, apex acute; scapes twisted, striate, glabrous; capitulum globose, 3-5 mm Ø, many-flowered, whitish or silvery white; bracts ciliate dorsally towards tip; flowers 3-merous.

Swampy savannas; c. 1125 m alt.

Resembling *E. sinealaeum.*

E. elegantulum Engl.; Kirkia 17: 33, 1998; Fl. Zambes. 13/4: 53, 2010. – Icon.: Fl. Trop. E. Afr., Eriocaul.: 29, 1997 (seed).

Tufted annual herb; leaves linear, acute, 2-7,5 cm × 1,5-6 mm; scapes few to c. 50, often slightly flexuous, 7-25 cm tall, 4-ribbed, ribs forming narrow wings; capitulum globose, greyish-white, 3-5 mm Ø; floral bracts white-hairy; flowers 3-merous.

Seasonal ponds; ditches; drainage lines; swampy grass areas; usually on sand; occasionally in rice fields; 0-1400 m alt.

Introduced in Ghana and Nigeria ?

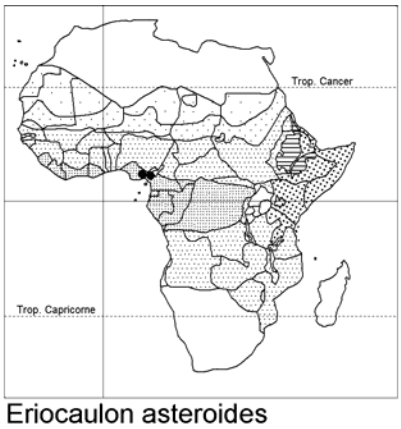
Sometimes difficult to separate from *E. transvaalicum* subsp. *hanningtonii. E. transvaalicum* has 5-ribbed unwinged scapes.

E. fulvum N. E. Br.; Fl. Trop. E. Afr., Eriocaul.: 30, 1997; Akoegninou & al., Fl. anal. Bénin: 130-131, 2006; Lisowski, Fl. Rép. Guinée 1: 416, 2009. – Icon.: Kew Bull. 51: 641, 1996 (seed).

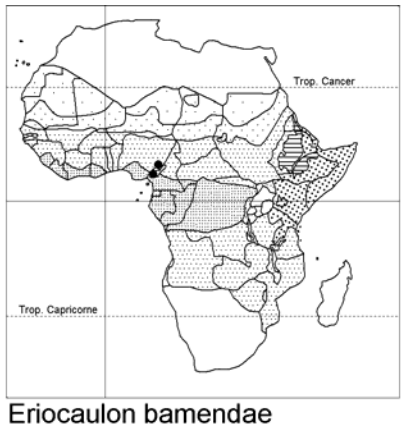
Annual herb; leaves rosulate, linear, 3-5 cm × 2,5-3 mm; scapes numerous, rather rigidly erect, to 6-10 cm tall; capitulum hemispherical becoming globose, 2,5-5 mm Ø, brown-yellow; floral bracts *obtuse;* flowers 3-merous.

Very humid places; humid granitic rocks; inselberg; sometimes abundant.

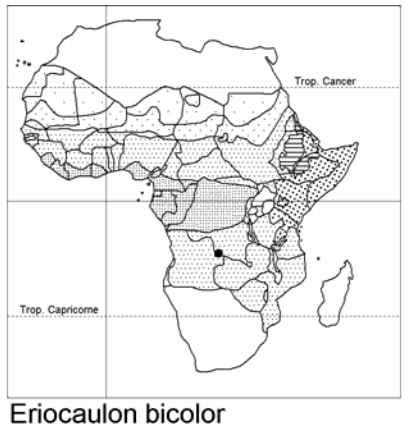
Closely related to *E. buchananii;* also near *E. maculatum, E. strictum.*



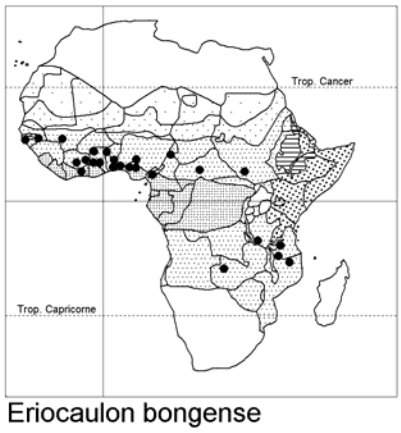
Eriocaulon asteroides



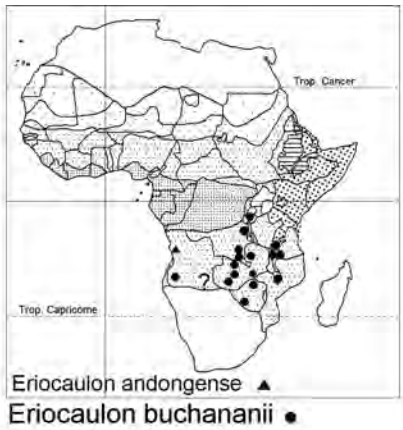
Eriocaulon bamendae



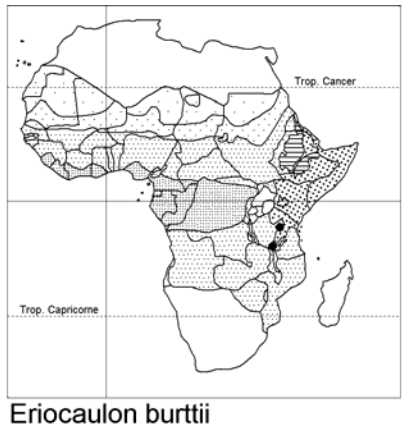
Eriocaulon bicolor



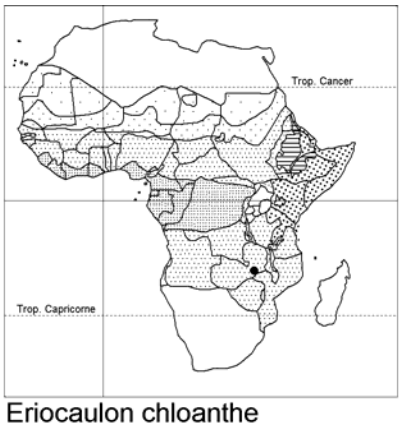
Eriocaulon bongense



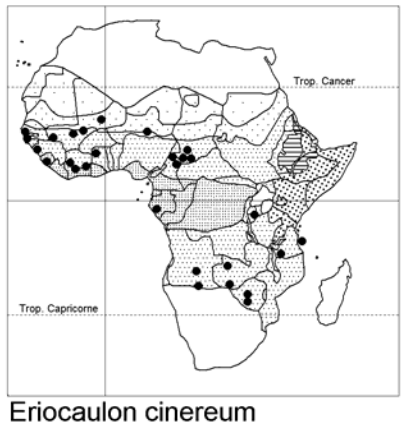
Eriocaulon andongense ▲
Eriocaulon buchananii ●



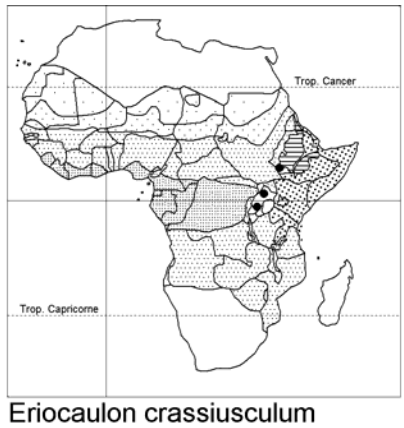
Eriocaulon burttii



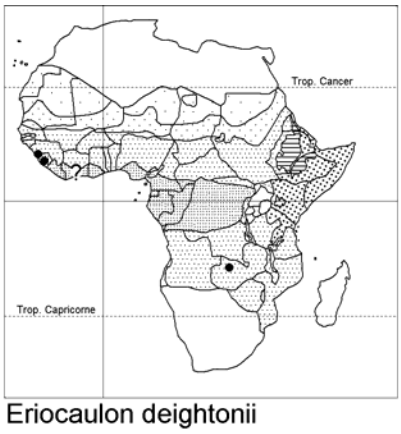
Eriocaulon chloanthe



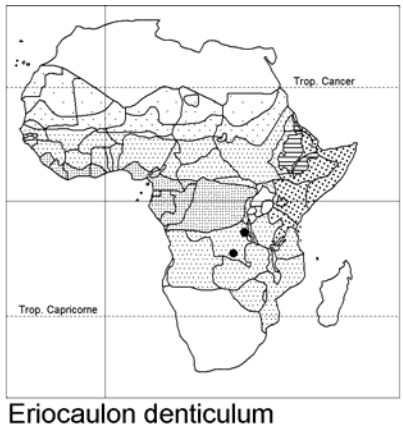
Eriocaulon cinereum



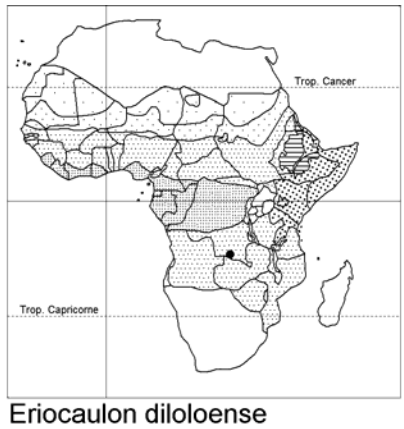
Eriocaulon crassiusculum



Eriocaulon deightonii



Eriocaulon denticulum



Eriocaulon diloloense

ERIOCAULON

E. fuscum S. M. Phillips; Fl. Trop. E. Afr., Eriocaul.: 7, 1997. – Icon.: Kew Bull. 51: 630, 631, 1996; Kirkia 17: 26, 1998; Fl. Zambes. 13/4: 69, 2010.

Annual rosulate herb; leaves subulate, spongy, acute, *1-1,2 cm* × 1-1,5 mm, scapes c. 20, *8-10 cm* × 0,2-0,4 mm Ø, *3-ribbed;* capitulum subglobose, *3-3,5 mm* wide, greyish-brown; female flower with 3 *petals.*

Wet hollow in a vlei, on light grey clay soil; c. 950 m alt.

Only known from the type collected in 1978.

Near *E. polhillii* (female flower lacking petals). Easily confused with *E. cinereum, E. mutatum, E. abyssinicum,* all also dark-headed, but flower details very different (see Kew Bull. 51: 631, 1996).

E. glandulosum Kimpouni; Fl. Trop. E. Afr., Eriocaul.: 9, 1997. – Icon.: Fragm. Florist. Geobot. 39: 337, 1994.

Annual herb 8-10 cm tall; leaves rosulate, filiform, 1-2 cm × c. 0,5 mm, apex setaceous, base not expanded; scapes often numerous, up to c. 25, 4-10 cm tall, 3-ribbed, with numerous *sessile glands;* capitulum hemispherical, 1-2 mm Ø, blackish; bracts straw-coloured; flowers 2-merous.

Hollows on bowal; drying margins of temporary pools; 1000-1650 m alt.

In habit similar to *E. nigrocapitatum* but capitula even smaller.

E. infaustum N. E. Br.; Kirkia 17: 36-37, 1998; Fl. Zambes. 13/4: 57, 2010. – Icon.: Kew Bull. 52: 63, 1997 (seed).

Tufted annual herb; leaves linear, 10-13 cm × 3,5-4 mm; scapes to 20, 15-22 cm tall, 5-ribbed; capitulum subglobose, 5,5-6 mm wide, greyish-white.

Rice fields; c. 10 m alt.

Only known from the type collected in 1887 !; never recollected.

Very similar to *E. transvaalicum* subsp. *hanningtonii* but distinguished by its radiating involucral bracts extending beyond the flower heads. Thus resembling 2 Indian species, viz., *E. trilobum* Körn. and *E. heterolepis* Steud. (frequent annual weeds in rice fields near the Indian Ocean; see Kew Bull. 52: 62, 1997).

E. inundatum Moldenke; Kimpouni in Fragm. Florist. Geobot. 39: 324, 1994.

Annual herb; leaves rosulate, lanceolate, acuminate, 3-5 cm × c. 2,5 mm; scapes 5-15 per plant, 2-30 cm long, ribbed; capitulum subspherical, 4-6 mm Ø, fulvous-brown mottled with whitish-grey; floral bracts ciliate dorsally towards apex; inner tepals densely ciliate in upper half.

Flooded soils; gallery forest.

Discovered in Senegal in 1943: never recollected in this country; collected once in Mali and once in Centr. Afr. Rep.

E. inyangense Arw.; Fl. Trop. E. Afr., Eriocaul.: 22-23, 1997; Kirkia 17: 38-39, 1998; Fl. Zambes. 13/4: 58-59, 2010. – Icon.: Fragm. Florist. Geobot. 39: 338, 1994 (sub nom. *E. katangaense).*

syn.: *E. katangaense* Kimpouni (type very immature); *E. fulvum* sensu Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 303, 1994, non N. E. Br.

Herb probably perennial; leaves rosulate, in a dense tuft, linear-subulate to lanceolate, *outwards curving,* spongy, 2-5,5 cm × 2-3 mm; scapes to 25, 5-7-ribbed, 7-35 cm tall; capitulum dirty white, 4-5 mm wide, initially globose with a flat base, becoming slightly elongated and dome-shaped with intruded base at maturity; flowers 3-merous.

ERIOCAULON INYANGENSE

Marshy grassland and streamsides; humid, sunny rocks; 900-2700 m alt.

Closely related to *E. zambesiense,* a more robust perennial plant. Frequently confused with the tall slender form of *E. transvaalicum* subsp. *hanningtonii* (which seldom occurs above 1500 m alt.).

E. iringense S. M. Phillips – Icon.: Kew Bull. 51: 338, 1996; Fl. Trop. E. Afr., Eriocaul.: 14, 1997.

Robust perennial herb from a stout rhizome; leaves rosulate, linear, tapering, 20-35 × 1,3-1,8 cm, light green, thick, slightly glossy, tip rounded; scapes few, 35-60 cm tall, 10-ribbed; capitulum subglobose, 11-13 mm Ø, greyish white; involucral bracts regular, coriaceous; receptacle and flowers villous; flowers 3-merous.

Marshy streamsides; c. 1900 m alt.

Easily confused with *E. mesanthemoides, E. schimperi.*

E. irregulare Meikle; Lisowski, Fl. Rép. Guinée 1: 416, 2009.

syn.: *E. heterochiton* sensu Lecomte quoad specim. Chevalier 18488, non Koern.

Annual herb with very numerous leaves, densely rosulate, *subulate* or setaceous to 1,3 cm long, 2 mm broad at base; scapes 18 or more, erect, *1-3,5 cm* long, shining, strongly 3-ribbed; capitulum hemispherical, glabrous, shining, 3,5 cm Ø; involucral bracts whitish, glossy; sepals of female flowers 2, petals 2 or 3.

Stream plain; on peat with *Afrotrilepis pilosa,* on dolerite.

E. jordanii (Moldenke) Meikle

Herb with caespitose olivaceous membranous leaves 7-8,5 cm × 4 mm, attenuate-acute; scapes 45 or more, to 16 cm tall, stramineous, 3- or 4-ribbed; capitulum hemispherical, c. 6 mm wide, glossy, stramineous, conspicuously *echinate* with protruding floral bracts (acuminate-cuspidate); flowers 3-merous.

Damp sandy soil at the edge of a swamp.

Togo ?

E. lanatum H. E. Hess; Figueiredo & Smith, Pl. Angola: 184, 2008; Fl. Zambes. 13/4: 49, 2010.

Herb with fasciculate roots; leaves rosulate, 1-4 cm × to 1,5 mm, base densely tomentose, red; scapes 1-4, 10-30 cm tall, 0,3-0,4 mm Ø, 4-6-ribbed, very twisted, *lanate* becoming glabrous, hairs 0,6 mm long; capitulum hemispherical, 4-5 mm Ø; female calyx spathate (rare in the genus).

Sandy-boggy soil, flooded periodically, with *Syngonanthus angolensis, Mesanthemum radicans, Utricularia* spp., *Genlisea* sp., *Buchnera* sp.; 1230-1290 m alt.

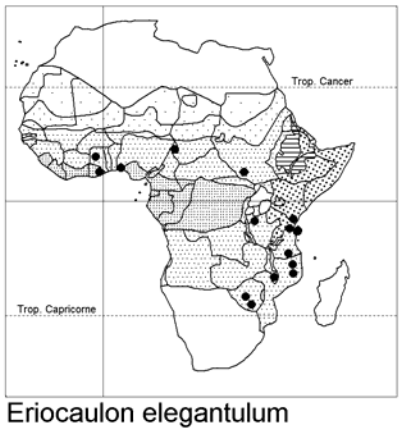
Resembling *E. pictum* in the spathate female calyx (unusual).

E. laniceps S. M. Phillips – Icon.: Kew Bull. 51: 627, 1996; Fl. Trop. E. Afr. Eriocaul.: 8, 1997.

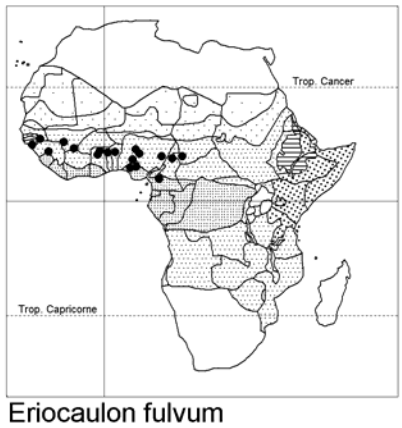
Annual herb; leaves rosulate, subulate, 1-2 cm × c. 1 mm, 5-nerved, fenestrate, acute; scapes to c. 20, 3-5 cm tall, 0,4-0,5 mm Ø, 4-ribbed; capitulum depressed-globose, 4-6 mm wide, dirty white, *woolly* with *fluffy* long, hyaline hairs on involucral bracts; flowers 3-merous.

Seepage area; peaty bog overlying rock; 1100-1700 m alt.

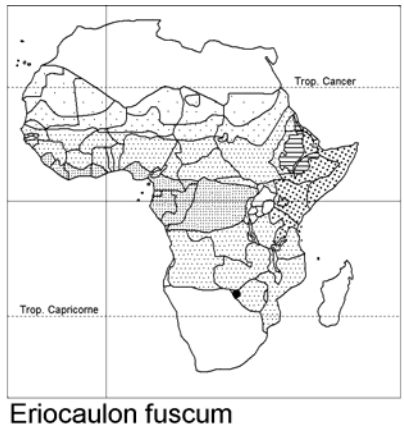
Closely resembling *E. albocapitatum* (type of which lacking seeds).



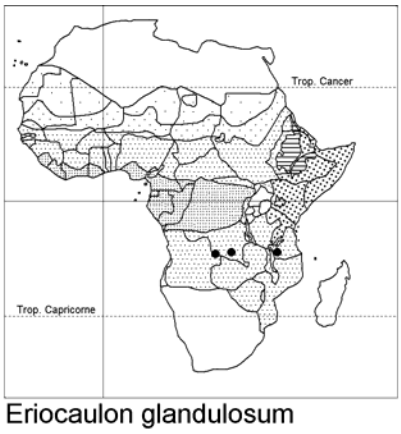
Eriocaulon elegantulum



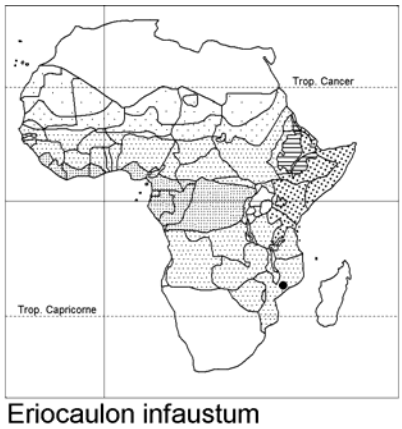
Eriocaulon fulvum



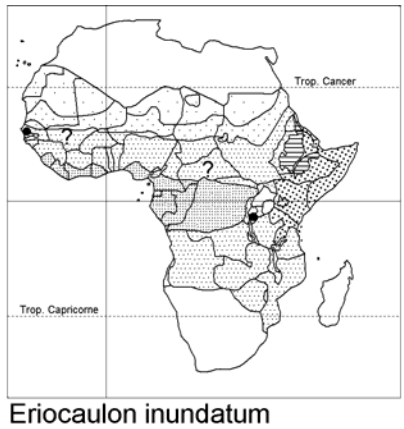
Eriocaulon fuscum



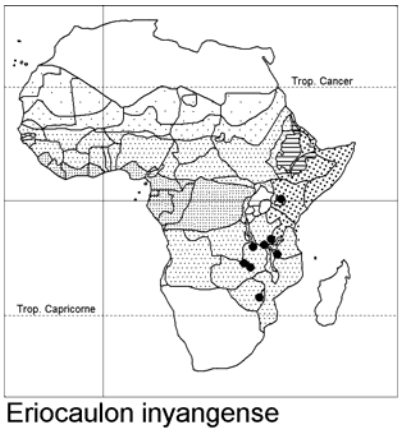
Eriocaulon glandulosum



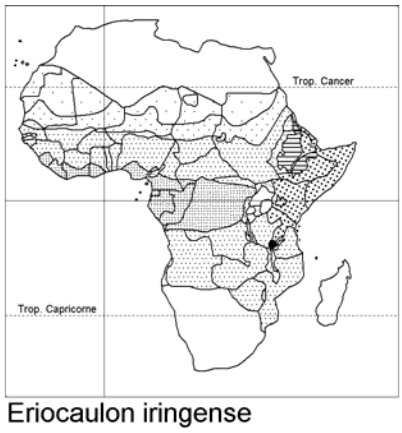
Eriocaulon infaustum



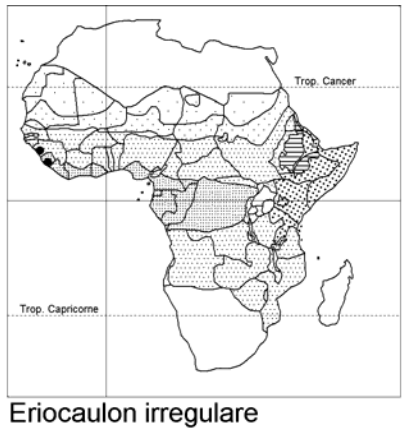
Eriocaulon inundatum



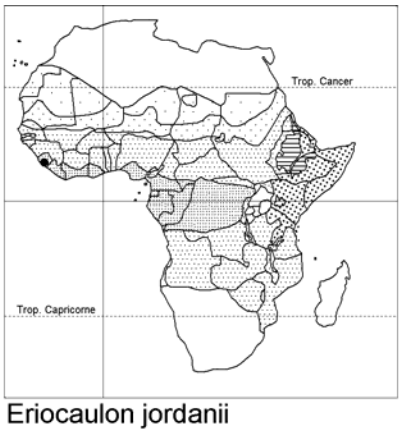
Eriocaulon inyangense



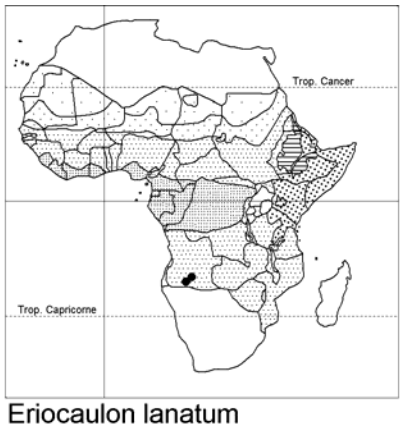
Eriocaulon iringense



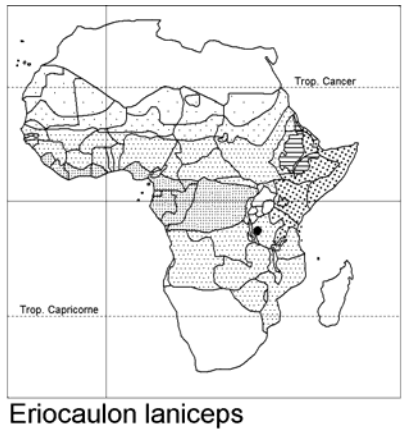
Eriocaulon irregulare



Eriocaulon jordanii



Eriocaulon lanatum



Eriocaulon laniceps

ERIOCAULON

E. latifolium Sm., incl. fa. *proliferum* Moldenke; Kimpouni in Fragm. Florist. Geobot. 39: 322, 1994; Akoegninou & al., Fl. anal. Bénin: 131, 2006; Figueiredo & Smith, Pl. Angola: 184, 2008; Lisowski, Fl. Rép. Guinée 1: 416, 2009; Fl. Zambes. 13/4: 40-41, 2010. – Icon.: Hess in Ber. Schweiz. Bot. Ges. 65: 127, pl. 7 facing p. 128, 1955 (sub nom. *E. vittifolium).*

syn.: *E. rivulare* G. Don ex Benth.; *E. thunbergii* Wickstr. ex Koern.; *E. vittifolium* Lecomte; *E. banani* Lecomte; *Mesanthemum radicans* Stapf, non (Benth.) Koern.

Perennial robust aquatic herb, forming rosettes when young, stem later elongating to form a tough rhizome covered with roots and fibrous leaf remnants; leaves rosulate at rhizome apex, ribbon-like, 2-40 cm long, 3-10 mm wide, with many veins, submerged or floating, base expanded, apex subacute; scapes 1-6, erect, stout, 7-10-ribbed, not twisted, 12-35 cm long, 2-4 mm wide; capitulum hemispherical to subglobose, snow-white, 8-14 mm Ø; bracts pallid or dark, petals white-hairy; flowers 3-merous.

Fast-flowing streams, rocky stream sides; rooted in gravel or among rocks; marigot; gallery; water depth 20-50 cm; 450-1500 m alt.

Variable in floral morphology, colour of floral bracts, hairiness of petals, presence or absence of petal glands.

Resembling *E. africanum* in floral and seed morphology, but much bigger and more vigorous. Areas overlapping in Zambia.

E. linearitepalum Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 339, 1994.

Annual herb c. 12 cm tall; leaves rosulate, flattened, flaccid, linear-subulate, 5-8 cm × 2-3 mm, amplexicaul, glabrous, many-veined, apex acute; scapes striate, twisted, glabrous; capitulum hemispherical, 2-4 mm Ø; flowers 2-merous; involucral bracts often bifid; inner female tepals ciliate at apex; seeds white-ciliate.

Pools (Kundelungu Plateau).

Resemblilng *E. longipetalum.*

Known only from the type.

E. longipetalum Rendle; Kimpouni in Fragm. Florist. Geobot. 39: 321, 1994; Figueiredo & Smith, Pl. Angola: 184, 2008. – Icon.: Engler, Pflanzenreich 4/30: 99, 1903; Stützel in Kubitzki, Fam. & genera vascul. pl. 4: 198, 1998.

Herb with the somewhat *densely congested* habit of stunted forms of *Juncus pygmaeus*, 0,6-1,2 cm tall; leaves numerous, densely rosulate, 0,65-1,75 × 0,11 cm (above the base); scape 1,1 cm tall or less; capitulum greenish white, 0,22 cm Ø or less; flowers 2-merous; female flower with *protruding* petals >0,22 cm broad, strap-shaped, *projecting laterally* from the top of the flower, twisting at the middle; fruit unknown ?

Almost immersed in sticky slime derived from *Algae*, on boggy heights.

? Known only from the type collected in 1860.

E. maculatum Schinz; Kew Bull. 51: 635, 1996; Fl. Trop. E. Afr., Eriocaul.: 31, 1997; Kirkia 17: 49, 1998; Fl. Zambes. 13/4: 68, 70, 2010. – Icon.: Fl. south. Afr. 4/2: 12, 15, 1985; Cook, Aquat. & wetland pl. south. Afr.: 129, 2004.

Annual herb with rosulate leaves 0,5-1,5 cm × 1-2 mm, apiculate; scapes to c. 20, 4-ribbed, 3-12 cm tall; capitulum globose to slightly dome-shaped, brown-grey, 3-4 mm wide; floral bracts loose, darker flowers visible between them; flowers 3-merous; female flower sepals very unequal; seeds with fringed ridges.

ERIOCAULON MACULATUM

Boggy grassland; margins of drying pools on sandy soils; 50-1000 m alt.

S. Africa.

Near *E. strictum* from Tanzania (Mafia Isl.).

E. mamifeense Meikle

Annual herb; leaves rosulate, numerous, flaccid, subulate, long-acuminate, 2,5-7 cm × 2-4 mm at base; scapes very numerous, to 40 cm tall, 3-5-ribbed, glabrous, shiny; capitulum subglobose, densely white-papillose, 5-8 mm Ø; flower 3-merous.

Ecology unknown; 120 m alt.

Near *E. teusczii, E. dregei.*

(**E. mannii** N. E. Br.); Fl. Trop. Afr. 8: 241, 1901; Figueiredo & Smith, Pl. Angola: 184, 2008.

Perennial herb with stem or rhizome elongating, rooting; leaves rosulate, lax, not very numerous, erect or ascending, linear, subacute, 2,5-6,2 × 0,5-1,5 cm, 4-6-nerved, glabrous; scapes 1-3, slender, 6,2-15 cm tall, 6-ribbed; capitulum 4,5-5,5 mm Ø, globose, whitish brown, receptacle glabrous; flowers 3-merous; petals densely bearded above.

Ecology unknown.

Cited in Fl. Trop. Afr., l.c., from Gabon: Sierra del Crystal; Mann 1689.

? Gabon: Crystal Mts (not in Sosef & al., Check-list pl. vascul. Gabon, 2006); ? Equatorial Guinea (not in Aedo & al., Bases documentales Flora Guin. Equat., 1999). – In Angola ?

Near *E. setaceum.*

Not mapped.

E. maronderanum S. M. Phillips; Kirkia 17: 23, 1998; Fl. Zambes. 13/4: 45, 2010. – Icon.: Kew Bull. 51: 645, 1996 (seed).

Annual herb with rosulate, linear to lanceolate leaves 1-2 cm × 0,8-2 mm, spongy, acute; scapes to 50, 6-11 cm long, 0,5 mm Ø, 3-4-ribbed; capitulum globose, 3-4 mm Ø, black, slightly glossy; flowers 2-merous.

Vlei; sandy soil, wet bog; wet dambo grassland; 1400-1500 m alt.

Morphologically similar to *E. mutatum* (a few specimens previously determined as such), but seed and female sepals different (see Kew Bull., l.c.); probably not closely related.

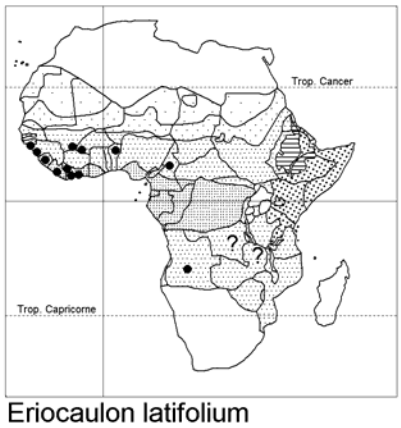
E. matopense Rendle; Kirkia 17: 37, 1998; Fl. Zambes. 13/4: 57-58, 2010. – Icon.: Ber. Schweiz. Bot. Ges. 67: 85, 1957 (sub *E. dehniae).*

syn.: *E. dehniae* H. E. Hess

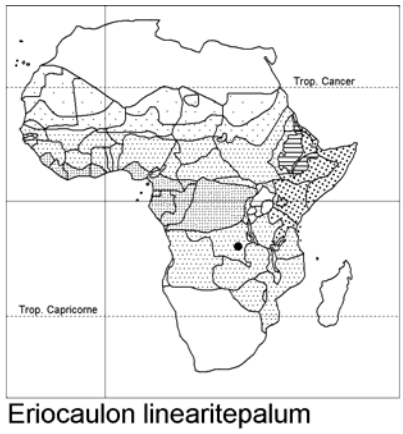
Perennial herb with a short rootstock; leaves many, in a basal tuft, erect, linear, 2-6 cm × 1-2 mm, tapering to a narrow tip with a circular pore on the upper side; scapes 2-20, 5-7-ribbed, to 30 cm tall; capitulum hemispherical, becoming dome-shaped, pale creamy-grey, 4,5-6,5 mm wide; flowers with white-hairy tips, 3-merous.

Marshy ground; shallow water of streams; 1300-2000 m alt.

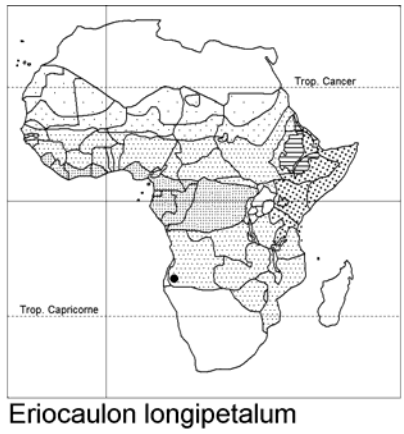
“Endemic to the central watershed of Zimbabwe”.



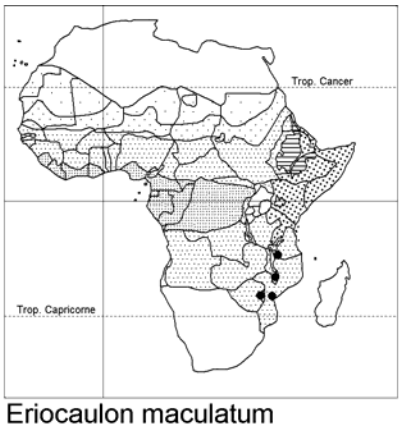
Eriocaulon latifolium



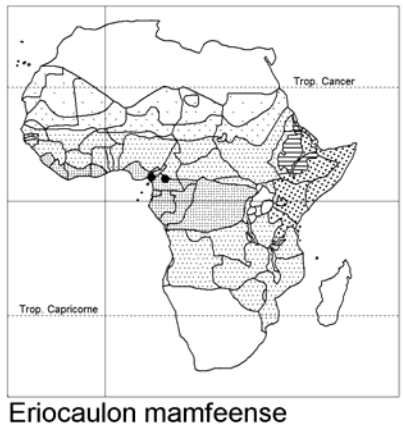
Eriocaulon linearitepalum



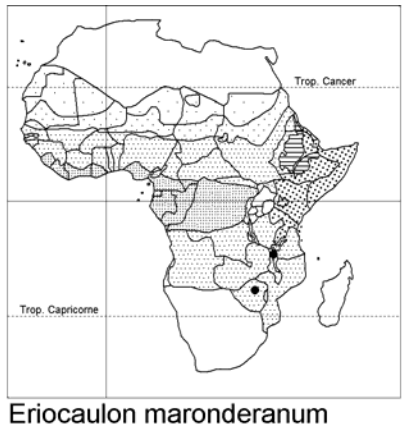
Eriocaulon longipetalum



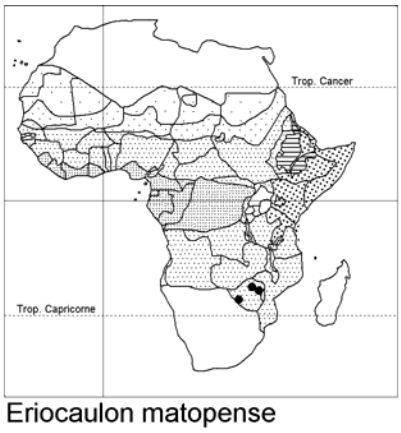
Eriocaulon maculatum



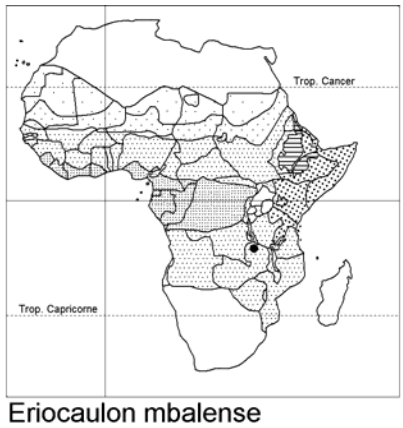
Eriocaulon mamfeense



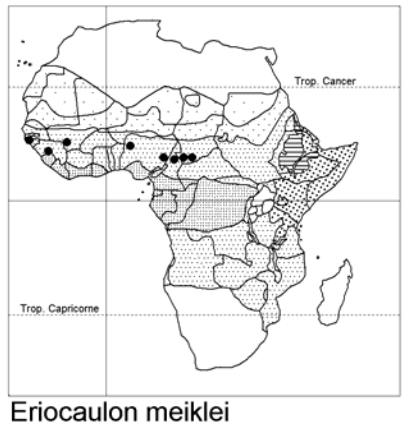
Eriocaulon maronderanum



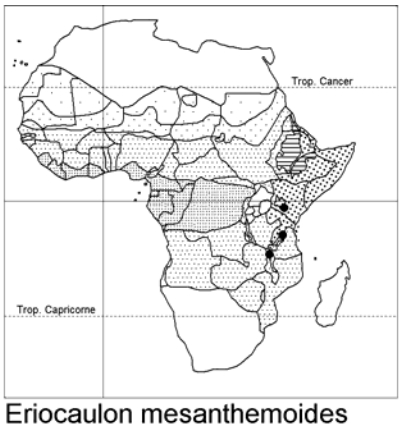
Eriocaulon matopense



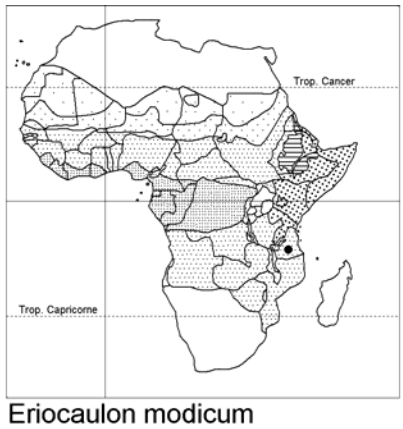
Eriocaulon mbalense



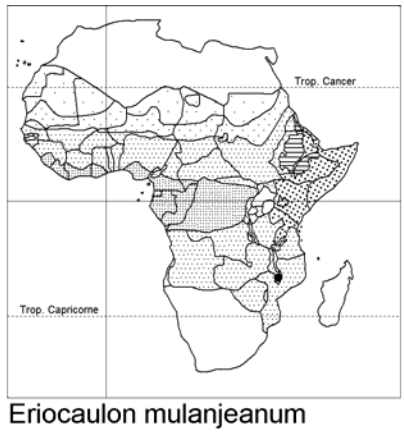
Eriocaulon meiklei



Eriocaulon mesanthemoides



Eriocaulon modicum



Eriocaulon mulanjeanum

ERIOCAULON

E. mbalense S. M. Phillips ("mbalensis"). – Icon.: Kew Bull. 52: 70, 1997 (seed); Kirkia 17: 45, 1998; Fl. Zambes. 13/4: 64, 2010.

Perennial herb forming clusters of rosettes, the fine woolly hairs in the rosette centre extending on to leaves and sheaths; leaves narrowly lanceolate, tapering from base to acute tip, 1-2 cm × 1,5-2 mm; scapes few, 5-ribbed, 3-5 cm tall, glabrous near the capitulum, with scattered fine *silky hairs* below the middle; capitulum hemispherical, 5-5,5 mm wide, dull brown with shaggy white-haired flowers; flowers 3-merous.

Deep mud with *Syngonanthus angolensis;* 1500 m alt.

Only known from the type collected in 1956.

E. meiklei Moldenke; Kimpouni in Fragm. Florist. Geobot. 39: 324, 1994; Lisowski, Fl. Rép. Guinée 1: 416, 2009.

Acaulescent annual herb; leaves basal, rosulate, c. 2-4 cm long, 3-4 mm wide, grass-like, apex subacute; scapes 5-6-7, 2-6-12 cm tall, stramineous, 3-ribbed, slightly twisted; capitulum hemispherical, 2-5 mm wide, yellowish white or fuscescent towards centre, *echinate* with protruding acuminate-cuspidate bracts; flowers 3-merous.

Swamp on bowal; sands temporarily flooded or moist; marshy places in savanna. *Eriocauletum meiklei-cinerei* association: short and shallow (to 10 cm) inundated sands, poor in organic matter and nutrients. Pioneer community in rice fields and on flooded sites prepared for rice (vide Phytocoenologia 35: 348, 2005).

Near *E. jordanii.*

E. mesanthemoides Ruhland; Kirkia 17: 32, 1998; Fl. Zambes. 13/4: 52-53, 2010. – Icon.: Kew Bull. 51: 338, 1996 (details); Fl. Trop. E. Afr., Eriocaul.: 14, 2010 (details).

syn.: *E. friesiorum* Bullock

Perennial robust tufted herb with a short rhizome; leaves narrowly lanceolate, 7-30 cm × 6-10 mm, gradually tapering to a narrowly obtuse tip; scapes 1-5, 10-60 cm tall, 8-9-ribbed; capitulum depressed-globose, 12-19 mm Ø, white speckled with darker bracts that are pointed and radiating across the whole width of the capitulum base; flowers 3-merous; female sepals villous inside.

Swampy ground; wet streamsides in grassland or moorland; forest clearings; 2300-3100 m alt.

Very similar to *E. schimperi,* and perhaps overlooked because of this resemblance. In *E. schimperi* the involucral bracts are smaller and thicker, the leaves less tapering towards apex, and the female sepals never villous inside.

E. modicum S. M. Phillips; Fl. Trop. E. Afr. Eriocaul.: 31, 1997. – Icon.: Kew Bull. 52: 69, 1997.

Annual herb with filiform leaves to 1 cm × 0,1-0,3 mm, spongy, finely acute; scapes c. 10, 3,5-5 cm tall, filiform, 4-ribbed; capitulum depressed-globose, 2,5 mm Ø, fuscous with slightly paler involucral bracts, the white-papillose petal-tips visible; flowers 3-merous.

Muddy edge of drying pan, with *E. mutatum* var. *angustisepalum;* 1020 m alt.

Only known from the type collected in 1956.

Seeds very different from those of *E. mutatum* (flowers 2-merous !); see Kew Bull., l.c. Seed features as in the *E. buchananii* and *E. transvaalicum* groups, but sepals different. Perhaps best placed near *E strictum.*

ERIOCAULON

E. mulanjeanum S. M. Phillips; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 83-84, 2006. – Icon.: Kew Bull. 51: 627, 628, 1996; Kirkia 17: 26, 1998; Fl. Zambes. 13/4: 69, 2010.

Annual herb 5-7 cm tall, with few basal linear thin septate leaves 1-2 cm × c. 1 mm, acute; scapes 1-4, straight, rather stiffly erect, 1-5 cm long, 0,3 mm Ø, 4-ribbed; capitulum globose, *black,* 3,5-4 mm Ø, glabrous, with *overlapping floral bracts,* and *protruding swollen female sepals* more *obvious* than bracts; flowers 3-merous.

Forming colonies in wet moss; 1600-1800 m alt.

Very localised, but growing within protected areas. Known only from 2 collections (dated 1963 and 1971, respectively). Flowers resembling those of *E. maculatum* (but with brownish capitulum and regularly imbricate bracts).

E. mutatum N. E. Br.; Kew Bull. 51: 641-646, 1996; Figueiredo & Smith, Pl. Angola: 184, 2008. – Icon. Kew Bull. 51: 645, 1996 (seed); Fl. Trop. E. Afr., Eriocaul.: 20, 1997; Kirkia 17: 22, 1998; Fl. Zambes. 13/4: 44, 2010; Cook, Aquat. & wetland pl. south. Afr.: 130, 2004; Fragm. Florist. Geobot. 39: 344, 1994 (sub nom. *E. pseudomutatum).* – All of var. **mutatum**. – Hess in Ber. Schweiz. Bot. Ges. 65: p. 160, pl. 9 facing p. 136, 1955 (sub nom. *E. angustisepalum);* of var. **angustisepalum**.

syn.: ? *E.* × *hessii* Moldenke *(= "E. angustisepalum* H. E. Hess × *E. mutatum* N. E. Brown", said to be intermediate between the two with different intermediate female sepal characters).

Annual herb; leaves rosulate, few (fewer than scapes), subulate to filiform, 1-3,5 cm × 0,2-1 mm, tapering to a slender acuminate or setaceous tip; scapes 10- c. 50, filiform, 3-15-22 cm tall, 2-4-ribbed; capitulum globose to slightly dome-shaped, 1,5-3,5-4,5 mm Ø, black, with bracts loose and flowers visible among them; flowers 2-merous.

Humid hollow; shallow margins and muddy edges of drying pools; seepage areas over rocks; almost boggy wooded marsh-meadows with *Gentianaceae, Drosera* spp.; boggy shortly grassed slopes, densely packed with *Scytonema* spp., *Isoetes* spp.; very lofty very short-grassed-pastures flooded in summer; 1000-2000 m alt.

Variable in shape of female sepals: from narrow unwinged to such with broad toothed wings, with every gradation between the extremes.

S. Africa (var. **angustisepalum**). – Precise locality in Katanga unknown (var. **mutatum**).

Comprises 3 vars.: – var. **mutatum** (syn.: *E. pseudomutatum* Kimpouni; *E. huillense* Rendle in Cat. Afr. Pl. Welw. 2: 95, 1899, non Engl. & Ruhland) with winged female sepals; widespread in Africa; – var. **angustisepalum** (H. E. Hess) S. M. Phillips (bas.: *E. angustisepalum* H. E. Hess) with narrow female sepals and unwinged keel, leaves filiform, growing also in mixture with var. *mutatum;* – var. **majus** S. M. Phillips, with scapes to 22 cm tall, capitula 3,5-4,5 mm wide, and winged female sepals; distribution localised (Zambia).

Habit similar to *E. abyssinicum* (but with 3-merous flowers).

ERIOCAULON

E. nadjae S. M. Phillips – Icon.: Kew Bull. 55: 200, 201, 2000.

Annual herb, with numerous acicular leaves 1,5-3 cm × 0,5 mm, tapering to a setaceous tip; scapes to c. 15, slender, erect, 5-12 cm × 0,3-0,4 mm Ø, 5-ribbed; capitulum 2,5-2,7 mm wide with crateriform involucre, straw-coloured, glabrous; flowers with 2(-3) sepals, each tipped by a black gland, ovary 3-merous.

Community with *Utricularia subulata, Sauvagesia erecta, Xyris congensis, Mesanthemum radicans* in coastal white sand savanna (these sandy areas are very patchily distributed and poorly studied).

Belonging to the group *E. aethiopicum, E. fuscum, E. polhillii, E. wildii* defined on the basis of seed-coat morphology (for distinctions, see Kew Bull. 55: 202, 2000); very similar to *E. achiton* Körn. from India.

Known only from the type collected in 1998.

E. nigericum Meikle; Fragm. Florist. Geobot. 39: 324, 1994. – Icon.: Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 777, 2010.

Annual herb with rosulate leaves, linear, 1,5-3 cm × 2-6 mm, apex acute; scapes 3-20, 2-12 cm tall, ribs rounded; capitulum hemispherical to subglobose, 3-4,5 mm Ø, brown-yellow; involucral bracts conspicuous, pale, shiny; flowers 3-merous.

Rock outcrop; "in a close grassy sward in a damp flush at the head of a ravine"; "with terrestrial *Utricularia*, *Drosera indica* and small sedges in a closely felted peat"; c. 490 m alt.

E. nigrocapitatum Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 340, 1994; Fl. Trop. E. Afr., Eriocaul. : 29, 1997 (seed).

Annual herb, with rosulate numerous *setaceous* leaves, flaccid, 1,5-4 cm long; scapes to 50 or more, 5-15 cm tall, 3-4-ribbed; capitulum globose to ovoid, *1,5-2 mm Ø, blackish;* flowers 2-merous.

Boggy margins of drying pools in grassy savannas or bowal; 1000 m alt.

Very similar in floral morphology to *E. mutatum* var. *angustisepalum* (but with very obviously white-reticulate seed).

E. obtriangulare Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 163, 1994.

Annual, acaulescent herb, *10-20* cm tall; leaves numerous, caespitose, rosulate, lanceolate-linear to linear-subulate, 5-10 cm × 2-3 mm, glabrous, apex long-acute; scapes 2-4, 3-ribbed, twisted, glabrous; capitulum campanulate, 4-5 mm wide, 3-4 mm high, white-silvery, glabrous; *involucral bracts obtriangular, joined, radiating beyond the capitulum;* male flowers 3-merous; female flowers unknown.

Humid place on bowal.

Near *E. togoense.*

E. parvitepalum Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 341, 1994.

Annual aquatic herb 20-35 cm tall; leaves numerous, rosulate, linear-subulate, 10-15 cm × c. 1 mm, apex acute; scapes numerous, rarely solitary, striate, glabrous; capitulum subglobose, 0,4-0,5 mm Ø, white-silvery, glabrescent; receptacle glabrous; flowers 3-merous.

Pools.

Near *E. setaceum.*

Only known from the type.

ERIOCAULON

E. parvulum S. M. Phillips; Cheek & al., Pl. Mt Oku…: 177, 2000. – Icon.: Kew Bull. 53: 945, 946, 1998.

Annual herb; leaves rosulate, linear-subulate, *0,8-1,5* cm × c. 1 mm, acute; scapes to c. 7, 1,5-3 cm long, 0,5 mm Ø, 4-5-ribbed; capitulum subglobose, 4-4,5 mm wide, dirty white, ± glabrous; bracts loose, untidy, flowers visible between them; flowers 3-merous; female sepals subequal, unwinged (like *E. asteroides).*

Near to stream around savanna zone; basalt pavement in grassland; mixed with *E. asteroides;* 2500 m alt.

Affinities obscure; seed testa somewhat resembling *E. abyssinicum,* and very similar to *E. asteroides.*

Very short-lived plant, inconspicuous in the vegetation.

E. pictum Fritsch; Fragm. Florist. Geobot. 39: 322, 1994; Fl. Trop. E. Afr., Eriocaul.: 11-12, 1997; Kirkia 17: 27-28, 1998; Fl. Zambes. 13/4: 48-49, 2010; Figueiredo & Smith, Pl. Angola: 184, 2008.

syn.: *E. amphibium* Rendle

Perennial herb forming clusters of leaf rosettes from a short rhizome 2 mm Ø, clothed in roots and old leaves; leaves many, rush-like, lanceolate, 4-10 cm × 3-5 mm, thick, spongy, yellow-green, woolly in the axils with long matted hairs; *tip acute,* hard, *yellow-brown;* scapes few, often solitary, 25-65 cm long, 0,6-0,9 mm Ø, 6-8-ribbed; capitulum depressed-globose, 8-12 mm Ø, grey becoming white; involucral bracts yellow to brown, coppery; flowers 3-merous; female calyx spathate (unusual in the genus).

Seasonal pools; swampy ground; often in peat bogs with *E. teusczii;* alongside streams and also submerged; 1500-2200 m alt.

Often confused with *E. teusczii,* and frequently growing together.

E. plumale N. E. Br.; Lisowski, Fl. Rép. Guinée 1: 416-417, 2009.

syn.: Enum. 3: 31, 1995 (with subspecies); *E. rufum* Lecomte (of subsp. **plumale**).

Annual herb; leaves rosulate, linear, glabrous, 8-15 × 0,5-1,5 mm, sessile, sometimes tinged reddish, apex long-acute; scapes numerous, 5-50 cm tall, 5-6-ribbed, glabrous; capitulum subglobose, becoming oblong, 3-8-10 mm Ø, white, *plumose;* flowers densely *white-papillose,* 3-merous.

Soils temporarily very humid; pools on bowal; in 5-10 cm deep water in vast swamp with *Emilia guineensis* (dominant), *Sebaea luteo-alba, Sopubia parviflora,* various grasses and sedges; part of the *Oryzetum brachyanthae* Vanden Berghen association, with *E. plumale-Oryza brachyanthae* community of lateritic pools in Mali (Phytocoenologia 35: 357-368, 2005); 1000 m alt.

E. polhillii S. M. Phillips; Kew Bull. 55: 202, 2000 (key). – Icon.: Kew Bull. 51: 630, 631, 1996.

Annual herb; leaves rosulate, linear-lanceolate, 3-6 cm × 2,5-3 mm, spongy, acute; scapes to 15, 9-15 cm long, 0,5 mm Ø, 5-ribbed, ribs prominent and sharply angled; capitulum hemispherical becoming slightly dome-shaped, 4-5 mm wide, *blackish* with *pale conspicuous involucral bracts;* flowers much reduced, glabrous; male sepals 2, blackish; female sepals 2, blackish, ovary 3-merous.

Bog on sandy soil and shallow water of seepage and lake margins; 1250-1500 m alt.

Plant with flowers *lacking petals* and with *black* (6) *anthers (unique* among African *Eriocaulon)* (in *E. cinereum* female flowers lacking petals but anthers white).

Closely resembling *E. fuscum* (cf. Fl. Zambes. 13/4: 46, 2010).

ERIOCAULON

E. pulchellum Afzel. ex Körn.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 19, 1994; Kew Bull. 53: 944, 1998; Lisowski, Fl. Rép. Guinée 1: 417, 2009. – Icon.: Engler, Pflanzenreich 4/30: 99, 1903; Kew Bull. 53: 946, 1998 (seed).

syn.: *E. pumilum* Afzel. ex Körn., 1856, non Raf. 1832.

Herb to c. 6-8 cm tall; leaves 1-2 mm broad at base, numerous, narrowly subulate; scapes short in clusters; capitulum glabrous, 3-5 mm Ø, with conspicuous *white-silvery* shining radiating involucral bracts (thus resembling *E. asteroides)*, the latter variable in shape; receptacle glabrous; sepals entire; flowers 3-merous.

Ferruginous hard-pan; oozing rocks; swamp on bowal. Component of the *Utricularia subulatae-Eriocauletum pumili* association: low-growing stands (to 10 cm tall) colonizing seasonally inundated ponds in rock depressions and over lateritic crusts, with soil 1-2 cm deep (vide Folia Geobot. 42: 34-35, 38-39, 2007).

The "foni" of Sierra Leone = "grassy meadow where water trickles over rocks" (Burkill, l.c.).

E. ramocaulon Kimpouni; Kirkia 17: 17, 1998; Fl. Zambes. 13/4: 39, 2010. – Icon.: Fragm. Florist. Geobot. 39: 345, 1994.

syn.: *E. malaissei* Moldenke fa. *viviparum* Moldenke

Submerged aquatic perennial herb from an elongate *rhizome* clothed in roots and old leaves; leaves numerous, *linear-subulate* to *filiform*, closely nerved, acute, woolly in the axils, the matted hairs remaining around the rhizome, 10-15 cm × < 0,5-4 mm; scapes 3-6, 11-12-ribbed, 25-32 cm tall; capitulum subglobose, dirty white (not blackish ?), *sometimes viviparous*, 5-8 mm wide; flowers 3-merous; anthers *black;* female petals *white-villous* inside.

Rocky beds of swift-flowing streams; pools; flooded savannas; 1400-1700 m alt. (leaves submerged forming dense mats, capitulum emergent above the water surface).

Distinguished from the equally submerged *E. africanum* by its finer leaves and black anthers.

E. recurvibracteatum Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 347, 1994.

Aquatic annual herb 7-10 cm tall; leaves rosulate, sessile, amplexicaul, filiform to linear-subulate, 2,5-3,5 cm long, glabrous, apex acute; scapes numerous, twisted, with many ridges, glabrous; capitulum hemispherical, 3-5 mm Ø, many-flowered, *white-silvery*, glabrous; bracts *recurved;* flowers with 2 outer tepals, 3 inner tepals, ovary 3-merous.

Pools on ferruginous hard-pan.

E. remotum Lecomte; Lisowski, Fl. Rép. Guinée 1: 417, 2009.

Herb acaulescent or nearly so; leaves few, erect-caespitose, triangular-lanceolate, subulate, glabrous, 7-9-nerved at base, 1,5 cm long or less × 1,5 mm broad at middle; scapes few to several, 4-ribbed, glabrous, slightly twisted, 2,5 cm tall or less; capitulum 2-4 mm Ø, blackish, subglobose at maturity, almost glabrous; involucral bracts conspicuous, radiating beyond the head of flowers; flowers 2-merous.

Humid places on rocky plateaux; oozing sandstone; 1100-1300 m alt.

ERIOCAULON

E. rosenii (Pax) Lye, Lidia 3: 141-142, 1995. – Icon.: Fl. Eth. & Eritrea 6: 380, 1997.

bas.: *Mesanthemum rosenii* Pax

Tussocky dioecious perennial stemless herb; leaves c. 10, rosulate, 5-12 × 1-2 cm, glabrous, rather thick and leathery, apex obtuse; scapes 5-15 cm × 1-2 mm with prominent ribs; capitulum hemispherical, *pure white*, 10-14 mm Ø; bracts white-hairy on margins and tips; flowers 3-merous; sepals white-hairy at tips.

Boggy marsh; 2800 (2625 ?) m alt.

Only known from the rather immature type collected in 1905.

Closely related to *E. schimperi.*

E. schimperi Körn. ex Ruhland, incl. var. *gigas* Moldenke; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 303, 1994; Fl. Trop. E. Afr., Eriocaul.: 15, 1997; Kirkia 17: 31-32, 1998; Fl. Zambes. 13/4: 50, 52, 2010. – Icon.: Fragm. Florist. Geobot. 39: 349, 1994; Kew Bull. 51: 338, 341, 1996; Fl. Eth. & Eritrea 6: 380, 1997; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 447, 2008.

syn.: *E. congense* Moldenke; *E. volkensii* Engl. var. *mildbraedii* Ruhland; *E. schimperianum* Körn.

Perennial turfted herb from a stout erect rhizome; leaves in a *large rosette* clustered at rhizome tip, broadly linear, 6-40 cm × 4-18 mm, thick, smooth, apex *rounded;* scapes *2-5*, straight, *stout*, 6-60 cm tall, 8-10-ribbed; capitulum globose to hemispherical, *9-18 mm wide*, greyish white, or pure white (Malawi); flowers 3-merous.

Wet grassland, sometimes with *Dendrosenecio;* marshy streamsides; peat bogs with *Sphagnum* and sedges; moor; locally common in upper bamboo and heath zones (Kenya); abundant on Nyika Plateau; places with seepage; 1950-4100 m alt.

Near *E. mesanthemoides.* Sometimes dwarfed as *E. volkensii* (see Kew Bull. 51: 340, 1986).

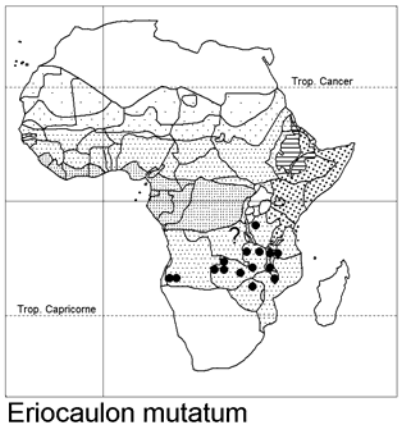
(**E. schippii** sensu H. E. Hess, non Standley ex Moldenke). – Figueiredo & Smith, Pl. Angola: 184, 2008.

The true *E. schippii* Standley ex Moldenke is endemic in E Mexico (Tabasco), Belize (ex-British Honduras) and Costa Rica (M. J. Huft in G. Davidse & al., eds., Flora Mesoamericana 6: 180, 1994). It is a floating plant with stems 20-40 cm long, 1-4 mm Ø, very densely leafy throughout. The leaves are linear, 4-8 cm long, 0,4 mm wide. The sheaths of the scapes are close-fitting, 1,5-2 cm long, glabrous, bilobed at apex; the blades are short and acute. The receptacular bractlets are tufted-pilose on the back at apex. The female flowers lack petals.

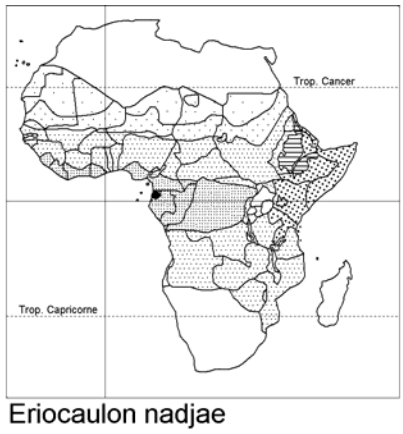
The type (Schipp 647) was collected in shallow pools of brackish swamp. According to Flora Mesoamericana (l.c.) the plant grows in pools and rivers with clear water at 200-400 m alt.

When determining his *Eriocaulon* specimens from Angola/Benguela Province (Vila Mariano Machado, 26 February 1952, Hess 52/837) Hess compared them with the type of *E. schippii* present at the University of Zurich (Switzerland). He found that they were similar in habit, but he recognized certain differences in morphology. He thought that Moldenke's original description did not take into account the variability of the species. So he amplified the diagnosis in adding characters of his own plant material (Ber. Schweiz. Bot. Ges. 65: 126-129, 1955).

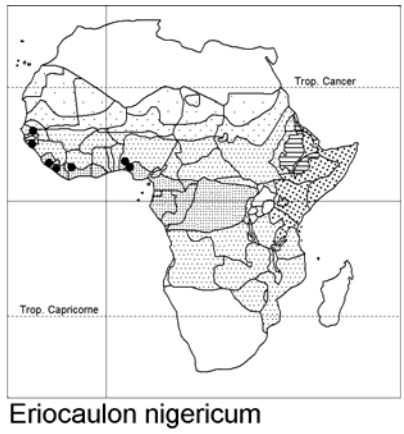
The Angolan plant differs from the American one by its thinner scapes, the somewhat swollen sheaths usually not bilobed at apex, and the female flowers with petals present. Hess considered his Angolan plant as closely related to *E. setaceum* L. They only



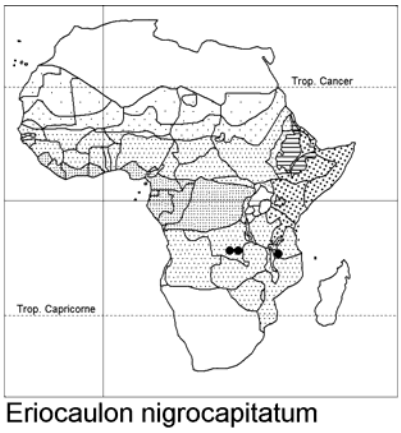
Eriocaulon mutatum



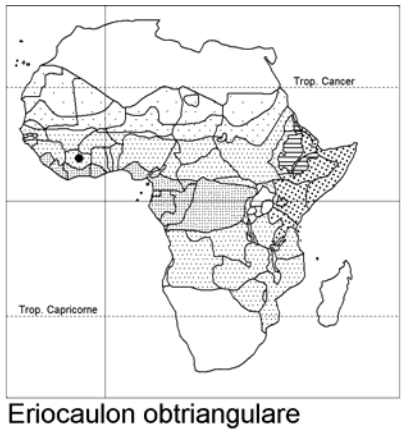
Eriocaulon nadjae



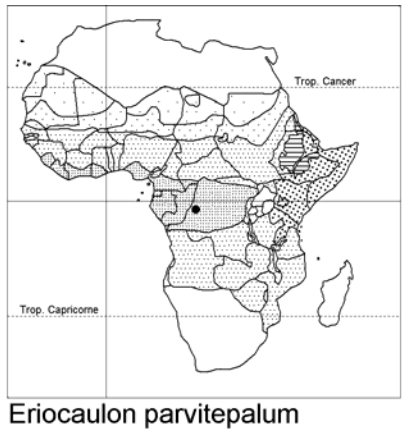
Eriocaulon nigericum



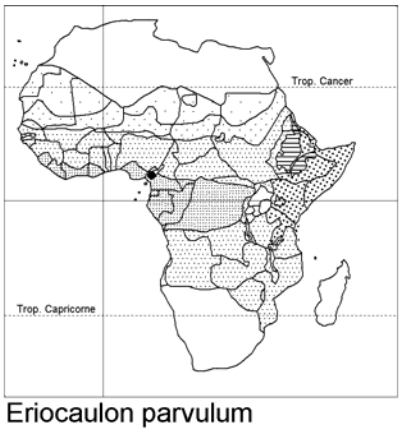
Eriocaulon nigrocapitatum



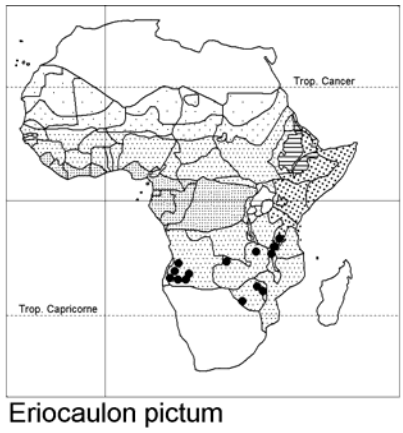
Eriocaulon obtriangulare



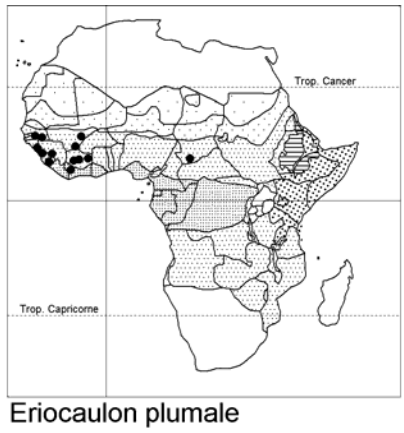
Eriocaulon parvitepalum



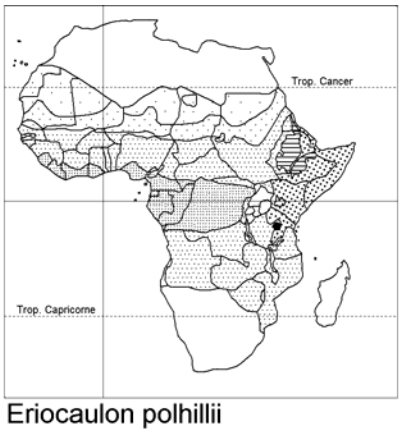
Eriocaulon parvulum



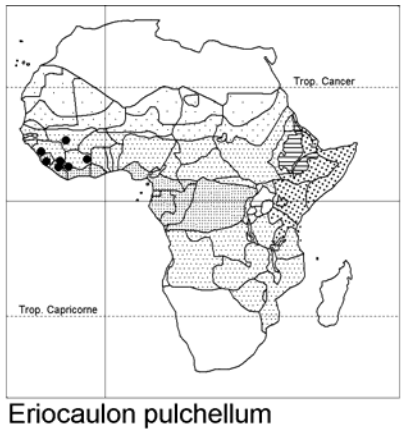
Eriocaulon pictum



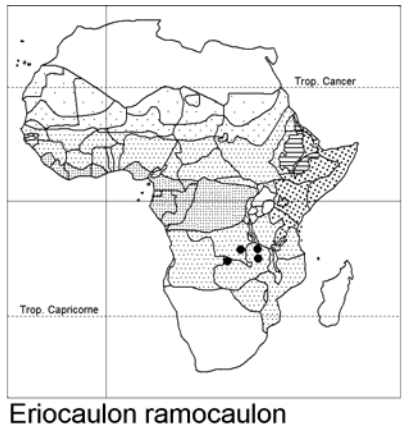
Eriocaulon plumale



Eriocaulon polhillii



Eriocaulon pulchellum



Eriocaulon ramocaulon

differ in hairiness of the perianth. But he did not find *E. submersum* Welw. ex Rendle so close although both species are similar in habit. However, Hess considered *E. bifistulosum* Van Heurck & Müll. Arg. as closely related to his Benguela plant.

In examining Hess's illustrations (l.c.) of *"E. schippii"* and *E. bifistulosum* (Angola/Huila) we think the difference in habit is rather the result of a difference in growing conditions. *"E. schippii"* is a compact plant collected on a large bog with sandy-boggy soil in slowly running water c. 5 cm deep (at c. 1250 m alt.) where it occurs with *E. pictum* and *E. teusczii.* On the other hand, *E. bifistulosum* is a taller plant, the submerged stem is very long (c. 30 cm) and the scapes are longer than those of *"E. schippii"*. Hess collected *E. bifistulosum* at the end of the rainy season in a temporary pool 30-60 cm deep (1830-1850 m alt.). The depth of the water may very well explain the difference in plant height. There seems to be no difference in flower morphology. The plants are only bigger.

To sum up, *E. schippii* sensu Hess seems to be only a variant of *E. setaceum. E. submersum* is perhaps also a variant as suggested by Phillips in Fl. Trop. E. Afr., Eriocaulaceae: 6, 1997. – Not mapped.

E. schlechteri Ruhland; Fl. Trop. E. Afr., Eriocaul.: 11, 1997; Kirkia 17: 25, 27, 1998; Fl. Zambes. 13/4: 47, 2010. – Icon.: Fl. south. Afr. 4/2: 15, 16, 1985 (sub *E. ruhlandii);* Cook, Aquat. & wetland pl. south. Afr.: 130, 2004.

syn.: *E. ruhlandii* Schinz

Tufted annual herb; leaves few, narrowly linear, acute, 2-5 cm × 1-2 mm; scapes 1-5, 5-ribbed, 9-16 cm tall; capitulum hemispherical, light to dark greyish-brown, glabrous, slightly glossy, 3,5-4 mm wide; receptacle villous with silky spirally twisted hairs; petals tipped by a large black gland and with silky ciliate margins; male and female flowers in the same capitulum may have 2 or 3 sepals; ovary 3-merous.

Marshy ground in coastal areas; 5-50 m alt.

S. Africa.

In our area only known from one historic collection (Schlechter 12093, B, P).

Near *E. truncatum* sharing an unusual seed coat pattern (see Fl. Zambes., l.c.).

E. selousii S. M. Phillips; Fl. Trop. E. Afr., Eriocaul.: 25, 1997; Kirkia 17: 42, 1998; Fl. Zambes. 13/4: 62, 2010. – Icon.: Kew Bull. 52: 55, 1997 (seed).

Rosulate annual herb; leaves broadly linear, 1,5-3,5 cm × 1-3 mm, septate, subacute; scapes to c. 15, 6-17 cm tall, 0,3-0,5 mm Ø, 4-5-ribbed; capitulum depressed-globose, 4-5 mm Ø, brownish-grey to dark grey with a slight sheen, glabrous; bracts loose, untidy, flowers visible between them; flowers 3-merous.

Occasional amongst grass; seepage in *Brachystegia* woodland; c. 275-1200 m alt. – In Tanzania growing with *E. bongense* (type mixed).

A segregate from *E. transvaalicum* but distinguished mainly by its *reticulate seeds.*

Collected in 1859, 1950, 1975.

E. sessile Meikle; Lisowski, Fl. Rép. Guinée 1: 417, 2009.

Annual herb, absolutely *stemless,* to 1 cm tall; leaves numerous, often reddish, rosulate, c. 1-1,5 cm × 1-6 mm, subulate; capitulum *sessile* forming a central "disk" surrounded by leaves, glabrous, whitish or pale straw-yellow; anthers black !

On 1-10 cm deep loam at edge of hard-pan, temporarily very humid, with *Eriocaulon remotum, E. plumale, Eragrostis diplachnoides, Utricularia arenaria, Sebaea teuszii,* etc.; 1200-1300 m alt. (or 1225).

? Only known from two collections: Chevalier s.n. (1902), des Abbayes 777 (1948).

Also in Central African Republic ?

E. setaceum L., (non B. Heyne ex Wall. = *E. sexangulare* L.), incl. var. *capillus-naiadis* (Hook. f.) Moldenke; Fragm. Florist. Geobot. 37: 132, 1992; ibid.: 39: 320, 1994; Fl. Trop. E. Afr., Eriocaul.: 5-6, 1997; Kirkia 17: 16-17, 1998; Sosef & al., Check-list pl. vascul. Gabon: 158, 2006; Figueiredo & Smith, Pl. Angola: 184, 2008; Lisowski, Fl. Rép. Guinée 1: 416, 2009 *(E. melanocephalum);* Fl. Zambes. 13/4: 37-38, 2010. – Icon.: Engler, Pflanzenreich 4/30: 90, 1903; Fl. south. Afr. 4/2: 12, 1985; Fl. ill. Sénégal 9: 384, 1988; Stützel in Kubitzki, Fam. & genera vascul. pl. 4, flow. pl., monocot.: 198, 1998; Cook, Aquat. pl. book, ed. 2: 86, 1996 *(E. melanocephalum),* and Aquat. & wetland pl. south. Afr.: 131, 2004; Ansari & Balakrishnan, The family Eriocaulaceae in India, revised ed.: 68, 71 *(E. capillus-naiadis),* 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 778, 2010.

syn.: *E. aquaticum* Sagot ex Körn.; *E. melanocephalum* Kunth; *E. intermedium* Körn.; *E. bifistulosum* Van Heurck & Müll. Arg.; *E. fluitans* Baker; *E. limosum* Engl. & Ruhland; *E. schweinfurthii* Engl. & Ruhland; *E. capillus-naiadis* Hook. f.; *E. usterianum* Beauverd; see also World check-list, Monocot., Eriocaulaceae, Royal Bot. Gard. Kew. – Ansari & Balakrishnan maintain 2 species, viz. *E. setaceum* (with floral bracts as well as male and female sepals glabrous) and *E. capillus-naiadis* (with hairy floral parts).

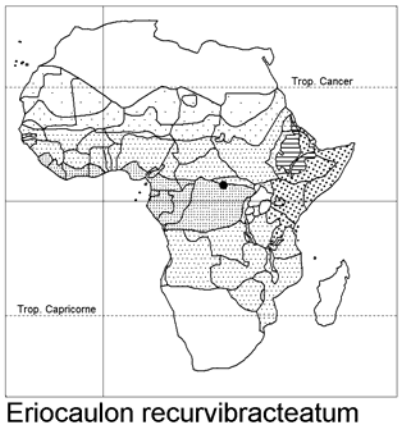
Aquatic rooted herb; stem *floating* below the surface, branching, to 50 cm or more long, densely clothed in *numerous leaves,* terminating in a stiff *umbel* of 1-20 scapes *emerging* above the water surface; leaves *filiform,* yellow-green, flaccid, 3-10 cm × 0,1-0,3 mm, 1-nerved; scapes to 30 cm tall, 5-7-ribbed; capitulum depressed-globose, 2-6 mm Ø, blackish or white-pubescent; flowers 3-merous; *fruit tardily dehiscent:* shed whole, sometimes splitting into 3 mericarps that fall separately; seed appearing blackish due to adhering ovary wall.

Rooting in the mud of slow-moving or stagnant water to 0,5-2 m deep.

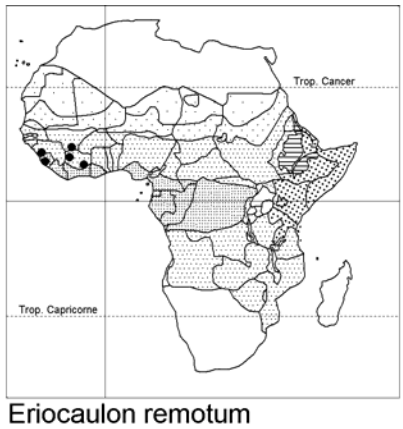
Variable in: colour of capitulum, hairiness of receptacle (glabrous or pilose), presence of white papillae on bracts and sepals, shape of tepals.

Botswana; Madagascar. Tropics, widespread throughout Asia, Australia, S. America.

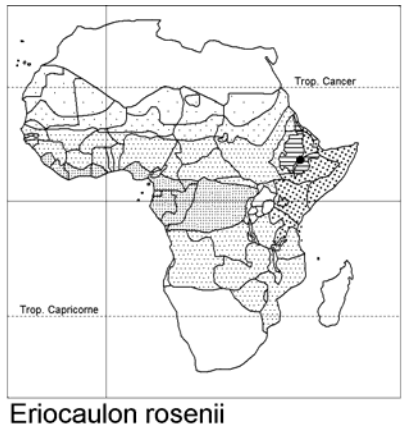
E. submersum Rendle (Angola) differs by larger capitula, bigger flowers, broader 3-nerved leaves. It is perhaps a vigorous form of *E. setaceum* (cf. Fl. Zambes., l.c.). *E. schippii* is perhaps also a variant (see above under this species).



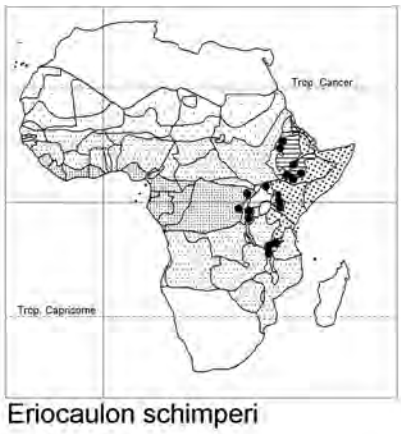
Eriocaulon recurvibracteatum



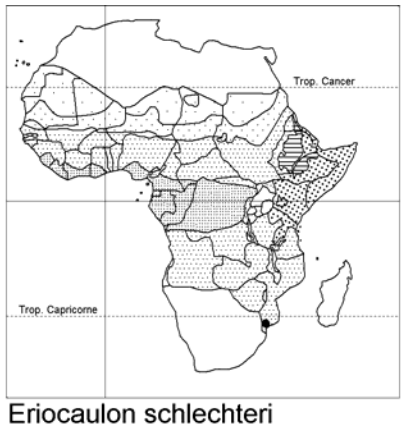
Eriocaulon remotum



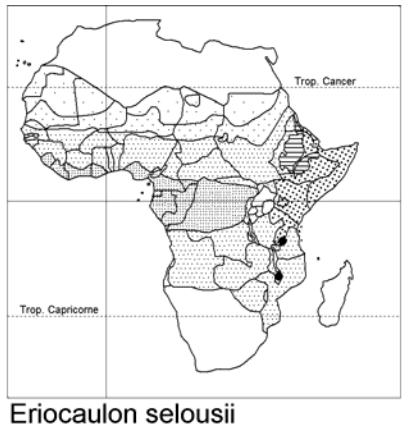
Eriocaulon rosenii



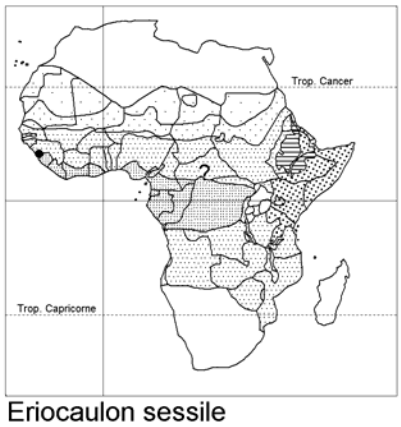
Eriocaulon schimperi



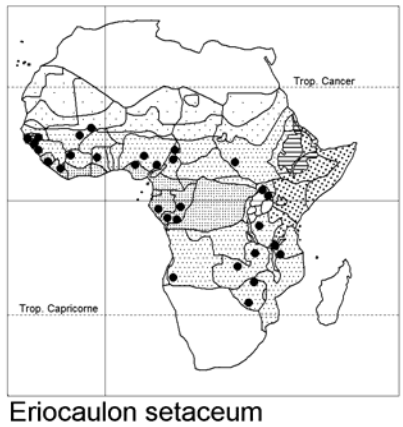
Eriocaulon schlechteri



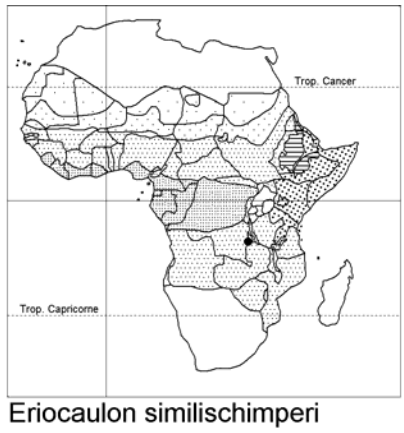
Eriocaulon selousii



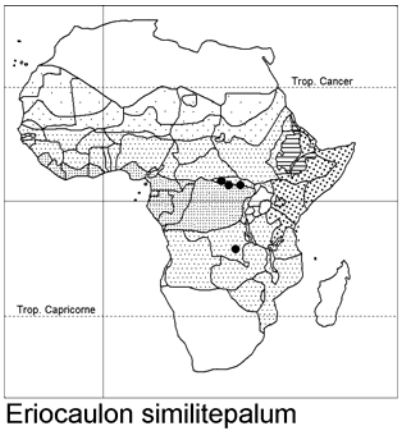
Eriocaulon sessile



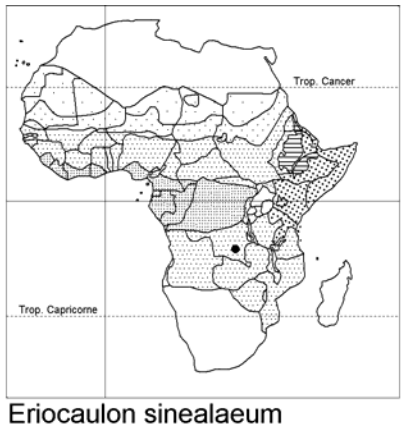
Eriocaulon setaceum



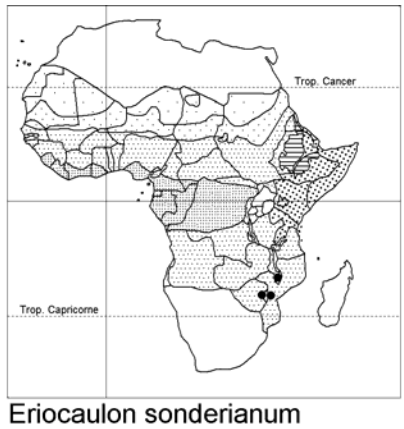
Eriocaulon similischimperi



Eriocaulon similitepalum



Eriocaulon sinealaeum



Eriocaulon sonderianum

ERIOCAULON

E. similischimperi Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 351, 1994.

Annual herb 25-35 cm tall; leaves rosulate, sessile, amplexicaul, linear(-lanceolate), 12-20 × 1-1,5 cm, glabrous; scapes 4-5-ribbed, robust, twisted, glabrous; capitulum hemispherical, 4-5 mm Ø; receptacle white-hairy, floral bracts ciliate dorsally; flowers 3-merous.

Pools in forest; c. 1900 m alt.

Near *E. schimperi.*

E. similitepalum Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 353, 1994.

Annual stemless herb 5-14 cm tall; leaves numerous, caespitose, rosulate, filiform, linear to linear-subulate, 2,5-10 cm × 1 mm, glabrous, apex acute; scapes 3-ribbed, glabrous; capitulum hemispherical, 2-3 mm Ø, blackish at top, whitish-yellowish elsewhere; flowers 3-merous; female tepals unequal; petals ciliate and with black gland at tip.

Boggy places on ferruginous hard-pan; grassy savannas on sand.

"In many features similar to *E. congolense* Moldenke" (uncertain species).

E. sinealaeum Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 354, 1994.

Annual herb 10-15 cm tall; leaves rosulate, sessile, amplexicaul, filiform to narrowly linear-subulate, glabrous, 2-4 × c. 0,1 cm, apex acute; scapes few, rarely 1, striate, twisted, glabrous; capitulum globose, 3-4 mm Ø, *whitish,* glabrous; flowers 3-merous.

Grassy, humid savannas.

Resembling *E. bicolor* (but with 2-merous flowers).

? Known only from the type.

E. sonderianum Körn.; Kirkia 17: 27, 1998; Fl. Zambes. 13/4: 47-48, 2010. – Icon.: Fl. south. Afr. 4/2: 16, 1985; Cook, Aquat. & wetland pl. south. Afr.: 131, 2004.

syn.: *E. baurii* N. E. Br.; *E. decipiens* N. E. Br.; *E. dregei* Hochst. var *sonderianum* (Körn.) Oberm.

Caespitose perennial herb to 37 cm tall, forming colonies; rhizome branching, compact, hard, covered with white soft tomentum of multicellular hairs; leaves rosulate, subulate, spongy, 2-12 cm × 1-4 mm, *long acuminate ending* in a *fine point;* scapes 1-3 per rosette, 6-ribbed, 5-35 cm long, 0,8-1 mm Ø; capitulum globose, 5-12 mm Ø, usually densely covered by a tomentum of hard, short white setae; flowers 3-merous.

Swampy ground along streams and in grassland; 1800-2000 m alt. – Gregarious and very local.

S. Africa.

Closely related to *E. dregei* (in S. Africa), with longer leaves (30 cm × 8 mm) and bigger capitula (8-13 mm Ø), and *leaf tips obtusely rounded.*

E. stenophyllum R. E. Fries; Fl. Trop. E. Afr., Eriocaul.: 25-26, 1997; Kirkia 17: 43-44, 1998; Fl. Zambes. 13/4: 63-64, 2010. – Icon.: Fries, Wiss. Ergebn. Schwed. Rhod.-Kongo-Exped. 1: pl. 16/1-3, 1916; Fragm. Florist. Geobot. 39: 327, 1944 (sub nom. *E. alaeum);* Cook, Aquat. & wetland pl. south. Afr.: 131, 2004. – Lectotype: R. E. Fries 634a (Kew Bull. 53: 245, 1998).

syn.: *E. alaeum* Kimpouni

ERIOCAULON STENOPHYLLUM

Annual herb; leaves rosulate, narrowly *subulate* to *filiform,* extended into a long *setaceous tip,* 1,5-4,5-10 cm × 0,3-0,6 mm, yellowish green; scapes 2-20, slightly flexuous, 4-6-ribbed, 7-25 cm tall; capitulum hemispherical, 3-7 mm Ø, pale buff; bracts sometimes edged in black or occasionally mostly blackish, *glabrous,* cup-shaped, cartilaginous; flowers 3-merous.

Shallow water in boggy grassland; pool-sides in savannas; 500-1900 m alt.

Variable in colour of capitula.

Botswana.

Near *E. bicolor* (a 2-merous offshoot).

E. stipantepalum Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 356, 1994.

Annual (or ? perennial) herb 50-55 cm tall; leaves rosulate, linear(-lanceolate), 4-6 × 0,5-0,8 cm, glabrous, nerves salient, apex acute; scapes numerous, robust, twisted, glabrous, with several nerves; capitulum globose, 0,8-1 cm Ø, densely clothed with white hairs; flowers 3-merous.

Pools on ferruginous hard-pans.

Resembling *E. plumale,* but leaves and sheaths not reddish tinged.

E. strictum Milne-Redh.; Kew Bull. 51: 635, 1996; Fl. Trop. E. Afr., Eriocaul.: 32, 1997; Fl. Zambes. 13/4: 70, 2010.

Tufted annual herb; leaves narrowly linear, to 3 cm × 1 mm, 3-nerved, smooth, tapering into a filiform tip; scapes 4-6, stiffly erect, 6-9 cm × 0,5 mm (Ø), 4-ribbed; capitulum subglobose, slightly longer than wide, 2,5-3 mm Ø, grey with the darker flowers visible between the bracts; female flower with *2* sepals; seed coat with transverse rows of white papillae.

Margins of drying pools; sea-level.

Near *E. maculatum* (with pinkish floral bracts). Seed similar to that of *E. buchananii.*

Only known from the type collected in 1936. Not in Mali *(= E. fulvum).*

E. submersum Welw. ex Rendle 1899, non Tate 1899 *(= E. carsonii* F. Muell., fide Moldenke 1968, Australia); Kimpouni in Fragm. Florist. Geobot. 39: 321, 1994; Figueiredo & Smith, Pl. Angola: 184, 2008.

Completely submerged glabrous annual herb 20-35 cm tall, with numerous densely rosulate, *linear-filiform,* long-pointed leaves, 5-10 cm long, 0,8 mm wide spreading under water in the form of a vividly green star, soon becoming extremely flaccid when exposed to the air; scapes numerous, 15-32,5 cm tall crowded in the centre, erect, stiffish, 5-7-ridged, flattened when dry; capitulum compact, 8 mm wide, depressed-globose, *black,* with a sparse whitish puberulence, monoecious; flowers c. 2 mm.

Here and there by a large pond near river banks; somewhat rare in gently flowing rather deep streams; muddy bottom of slowly flowing stream.

Producing both flowers and fruits beneath the water surface.

Similar to *E. setaceum,* but larger in all parts. According to Phillips of doubtful status and perhaps a vigorous form of *E. setaceum* (see above under this species).

ERIOCAULON

E. taeniophyllum S. M. Phillips – Icon.: Kew Bull. 51: 633, 1996; Kirkia 17: 30, 1998; Fl. Zambes. 13/4: 51, 2010.

Tufted *aquatic* perennial herb from a basal rootstock; leaves all basal, woolly in the axis, *flaccid*, ribbon-like, c. 45 cm × 0,8-1 mm; scapes 70-75 cm tall, 6-ribbed, slightly twisted; capitulum hemispherical, 12 mm wide, fluffy-white; flowers 3-merous.

Floating patches with *Oryza barthii* in water up to 50 cm deep at swampy lake margins; sometimes abundant; 1200-1400 m alt.

Near *E. teusczii* but: with a truly aquatic habit, flowers slightly larger, receptacle glabrous.

Endemic to the Lake Bangweulu basin.

E. teusczii Engl. & Ruhland; Fl. Trop. E. Afr., Eriocaul.: 12-13, 1997; Kirkia 17: 28-29, 1998; Figueiredo & Smith, Pl. Angola: 184, 2008; Fl. Zambes. 13/4: 49-50, 2010. – Icon.: Fl. W. Trop. Afr., ed. 2, 3: 60, 1968 *(E. intrusum).*

syn.: *E. huillense* Engl. & Ruhland, Apr. 1899, non Rendle, May 1899 *(= E. mutatum); E. intrusum* Meikle

Perennial herb from a short rhizome, often robust; leaves many, rush-like, semicylindrical, to 40 cm × 1-3 mm, usually crowded in an erect tuft, woolly in the axis; scapes 1-15, 25-65 cm tall, 6-8-ribbed; capitulum hemispherical becoming globose with intruded base at maturity, white, 8-12 mm Ø; floral bracts ± white-hairy; flowers 3-merous.

Wet swamps among coarse grass; sometimes growing with *E. pictum*; ditches; sometimes in shallow standing water; common and sometimes locally dominant; damp meadows with *Droseraceae, Utricularia* spp.; very lofty spongy pastures with *Swertia welwitschii, Leguminosae;* 450-2000 m alt.

Very variable in: leaf length; colour of bracts, sepal tips, capitulum.

Confused with *E. pictum* (sometimes growing together). But the combination of large fluffy-white capitula, unequal petals, free truncate-tipped male sepals, obtuse leaves tipped with a pore, distinguishes *E. teusczii* from the other robust species.

E. togoense Moldenke; Bull. Soc. Bot. France 116: 256, 1970; Akoegninou & al., Fl. analyt. Bénin: 131, 2006. – Icon.: Engler, Pflanzenreich 4/30: 96, 1903.

syn.: *E. xeranthemoides* Van Heurck & Müll. Arg. 1870, non Bong. 1831.

Stemless tufted annual herb 3-7 cm tall; leaves rosulate, linear, 2,5-3,5 cm long, *2-6 mm* wide at base; scapes numerous, 2,5-5 cm tall, obtusely 4-5-ribbed; capitulum hemispherical, *5-9 mm* Ø with conspicuous whitish involucral bracts; receptacle *pilose;* flowers 3-merous.

Dry swamp ground; meadow near stream; sometimes abundant locally; oozing sandstone; rice fields; inselberg.

E. transvaalicum N. E. Br.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 303, 1994 *("E. transvaalianum");* Kew Bull. 51: 634-635, 1996; ibid. 52: 51-59, 1997; Fl. Trop. E. Afr., Eriocaul.: 23-25, 1997; Kirkia 17: 39-42, 1998; Figueiredo & Smith, Pl. Angola: 184, 2008; Fl. Zambes. 13/4: 59-62, 2010; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 178, 2011. – Icon.: Fl. south. Afr. 4/2: 16, 1985; Kew Bull. 52: 53, 55, 1997; Fl. Eth. & Eritrea 6: 380, 1997 (subsp. **dembianense** !); Cook, Aquat. & wetland pl. south. Afr.: 132, 2004 (subspp. **transvaalicum**, **tofieldifolium**).

ERIOCAULON TRANSVAALICUM

syn.: *E. schweickerdtii* Moldenke (type without seed, designation to subspecies uncertain; from Zimbabwe, not Natal, S. Africa).

Annual or short-lived perennial herb, sometimes forming colonies; leaves rosulate, *broadly* linear to sword-shaped, 2-10 (-25) cm × 2-6,5 mm, subacute; scapes to 30-40, 8-35 cm long, 0,5-1 mm Ø, 5-ribbed; capitulum globose, *shiny black*, greyish-white or infrequently brownish-grey, 3-9 mm Ø; flowers 3-merous.

Wet muddy places of shallow water, ditches; wet flushes in grassland, with the *leaves often submerged;* dambos; seepages; 0-2350 m alt.

Namibia, Botswana, S. Africa.

E. transvaalicum is a widespread and variable complex occurring in E and S tropical Africa, and S. Africa. Phillips (cf. Kew Bull. 52: 51-63, 1997) recognises 4 subspecies and 3 similar species, viz. *E. acutifolium, E. infaustum, E. selousii.* This species complex is often confused with the *E. buchananii* complex.

The subdivision of *E. transvaalicum* is based on floral and seed characters, but these are sometimes overlapping, and introgression with *E. selousii* seems possible: – subsp. **transvaalicum**, with shiny black capitula on stout stiff scapes, in S. Africa, Botswana; – subsp. **dembianense** (Chiov.) S. M. Phillips [bas.: *E. dembianense* Chiov.; *E. transvaalicum* N. E. Br. var. *transvaalicum* sensu Lye in Fl. Eth. & Eritrea 6: 382 and fig. 209, 1997] with shiny black or sometimes brownish-grey glabrous capitula on stout stiff scapes, denticulate (margins) female sepals, in E part of range; – subsp. **hanningtonii** (N. E. Br.) S. M. Phillips [bas.: *E. hanningtonii* N. E. Br.; syn.: *E. transvaalicum* N. E. Br. var. *hanningtonii* (N. E. Br.) Meikle; *E. monodii* Moldenke, nom. invalid.; *E.* sp. B sensu Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 303, 1994], with greyish-white capitula on slender flexuous scapes, floral bracts white-pilose, in E part of range at low altitudes; – subsp. **tofieldifolium** (Schinz) S. M. Phillips [bas.: *E. tofieldifolium* Schinz] with pilose greyish-white capitula on robust stiff scapes, in S part of range, incl. Namibia.

Also similar to *E. crassiusculum.*

Introduced in Mali ? Also in NE Angola, fide Cavaco (det. Meikle), perhaps doubtful.

E. truncatum Mart.; Fl. Trop. E. Afr., Eriocaul.: 11, 1997; Kirkia 17: 24-25, 1998; Fl. Zambes. 13/4: 46-47, 2010. – Icon.: Ber. Schweiz. Bot. Ges. 65: 265, 1955; Fl. China 24, illustr.: 13, 2002; Hooker's Ic. Pl. 34: pl. 3389, 1939 *(E. annuum).*

syn.: *E. annuum* Milne-Redh.; *E. ciliipetalum* H. E. Hess

Tufted annual herb; leaves (linear-)lanceolate, to 6 cm × 1,5-3 mm, subacute and apiculate; scapes many, stiff, stout, to 15 cm tall, 5-ribbed; capitulum crateriform, c. 5 mm Ø, glistering white to yellowish-grey; male flowers 2-merous; female sepals 2, petals 3 (hairy), ovary 3-merous.

Wet sandy or muddy pool and stream; acid bogs; near sea-level.

India, Thailand, China, Japan, Indonesia, Philippines.

Plants from E. Africa have more densely hairy female flowers than the Asian ones.

Near *E. schlechteri,* both sharing an unusual seed patterning of longitudinally thickened cells.

ERIOCAULON

E. varium Kimpouni; Kirkia 17: 20, 1994; Fl. Zambes. 13/4: 42, 2010. – Icon.: Fragm. Florist. Geobot. 39: 357, 1994.

Tufted annual herb; leaves subulate, 2-5 cm × 0,5-1,5 mm, apex setaceous; scapes to 10, slightly flexuous, 6-ribbed, 14-20 cm tall; capitulum subglobose with flattened base, white and grey, 3-4 mm wide; bracts loose, flowers visible between them; flowers 3-merous.

Pools on grassy savannas or ferruginous hard-pans and rock outcrops; 1600-1800 m alt.

Distinguished by its pale anthers and seeds lacking papillae.

Near *E. cinereum* (lacking female petals).

E. volkensii Engl., excl. var. *mildbraedii* Ruhland *(= E. schimperi);* Fl. Trop. E. Afr., Eriocaul.: 16-17, 1997. – Icon.: Engler, Pflanzenreich 4/30: 71, 1903; Kew Bull. 51: 341, 1996 (seed).

Perennial herb forming clusters of rosettes from a branching rhizome; leaves lanceolate, tapering from a broad base to a narrow obtuse tip, *3-7* cm × 5-8 mm, outwardly curving; scapes to c. 6, *very short*, the capitula remaining in the leaf rosette and sometimes *subsessile*, 3-4-ribbed; capitulum dark grey with straw-coloured involucral *campanulate* bracts, *5-9* mm Ø; flowers 3-merous.

Grassland; moor; boggy places; wet streamsides; forest clearings; 2500-3900 m alt.

Confused with dwarfed *E. schimperi* (Ethiopian highlands).

For a discussion of distinguishing characters between *E. volkensii* and the *E. schimperi* complex, see Kew Bull. 51: 339-340, 1996.

E. welwitschii Rendle, incl. var. *pygmaeum* Rendle; Fl. Trop. E. Afr., Eriocaul.: 21, 1997; Kirkia 17: 35-36, 1998; Figueiredo & Smith, Pl. Angola: 184, 2008; Fl. Zambes. 13/4: 55-56, 2010. – Icon.: Engler, Pflanzenreich 4/30: 99, 1903; Fl. south. Afr. 4/2: 12, 1985; Cook, Aquat. & wetland pl. south. Afr.: 133, 2004.

syn.: *E. pseudopygmaeum* Dinter

Rosulate annual herb; leaves acicular, 1-5 cm × 0,2-1 mm; scapes numerous, radiating to form a dome-shaped mound, 3-4-ribbed, 1-12 cm tall; capitulum hemispherical to dome-shaped, echinate, 2,5-4 mm wide, scarious, whitish to grey, the upper bracts often darker grey; flowers 3-merous, *petals* almost *translucent.*

Open places, on wet sandy ground; bushland; *Brachystegia* woodland; seepage places; boggy grassed places with species of *Lythraceae;* damp sandy fields; 600-1850 m alt.

Namibia, Botswana, S. Africa.

"E. welwitschii and *E. abyssinicum* represent different facets of a single intergrading complex"; intermediates exist (cf. Fl. Trop. E. Afr., l.c.; Fl. Zambes., l.c.).

Distinctive by its finely pointed bracts; heads pale with a spiny appearance.

E. wildii S. M. Phillips; Kirkia 17: 36, 1998; Kew Bull. 55: 202, 2000; Fl. Zambes. 13/4: 56-57, 2010. – Icon.: Kew Bull. 52: 65, 67, 1997.

Rosulate annual herb; leaves subulate, subacute, 1-2 cm × c. 1 mm; scapes to c. 10, stiff, 4-ribbed; capitulum hemispherical, 5 mm wide; bracts narrow pointed; flowers 3-merous, glabrous.

By river, on wet sand; 1200 m alt.

Most closely related to *E. aethiopicum* (see Kew Bull. 52: 66, 1997; and 55: 202, 2000).

Confused with *E. welwitschii* which has similar narrow pointed bracts, but never winged sepals.

ERIOCAULON

E. zambesiense Ruhland; Fragm. Florist. Geobot. 39: 323, 1994; Fl. Trop. E. Afr., Eriocaul.: 21-22, 1997; Kirkia 17: 38, 1998; Fl. Zambes. 13/4: 58, 2010; Kew Bull. 66: 247, 2011. – Icon.: Kew Bull. 55: 198, 2000 (seed).

Perennial herb from a short rhizome; leaves rosulate, linear, subacute, 5-8 cm × 3-4 mm; scapes 5-15, 5-6-ribbed, 10-35 cm tall; capitulum subglobose, 5,5-7 mm wide, black and white, the white-hairy petal tips intermingling with the darker bracts; flowers 3-merous; female sepals with hairy margins and spongy winged keel (cf. *E. sonderianum);* sometimes viviparous.

Marshy grassland; wet mud of streamsides; c. 1800 m alt.

Poorly known species. Plants from Burundi differ slightly from those from Malawi-Mozambique.

Expected in S Tanzania at c. 2000 m alt.

SYNONYMS:

Eriocaulon acutifolium S. M. Phillips = **Eriocaulon deightonii**

alaeum Kimpouni = **E. stenophyllum**

amboense Schinz = **E. cinereum**

amphibium Rendle = **E. pictum**

angustisepalum H. E. Hess = **E. mutatum** var.

annuum Milne-Redh. = **E. truncatum**

antunesii Engl. & Ruhland = **E. africanum**

aquaticum Sagot ex Körn. = **E. setaceum**

aristatum H. E. Hess = **E. welwitschii**

banani Lecomte = **E. latifolium**

baurii N. E. Br. = **E. sonderianum**

bifistulosum Van Heurck & Müll. Arg. = **E. setaceum**

capillus-naiadis Hook. f. = **E. setaceum**

ciliiflorum F. Muell. = **E. cinereum**

ciliipetalum H. E. Hess = **E. truncatum**

ciliisepalum Rendle = **E. abyssinicum**

congense Moldenke = **E. schimperi**

decipiens N. E. Br. = **E. sonderianum**

dehniae H. E. Hess = **E. matopense**

dembianense Chiov. = **E. transvaalicum** subsp.

diaguissense Bourdu = **E. sessile**

dregei Hochst. var. *sonderianum* (Körn.) Oberm. = **E. sonderianum**

fasciculatum Lam. = **Paepalanthus lamarckii**

fluitans Baker = **Eriocaulon setaceum**

friesiorum Bullock = **E. mesanthemoides**

fulvum sensu Upl. Kenya Wild. Fl., éd. 2, non N. E. Br. = **E. inyangense**

giganteum Afz. ex Körn. = **Mesanthemum radicans**

gilgianum Ruhland = **Eriocaulon abyssinicum**

guineense Moldenke = **Mesanthemum albidum**

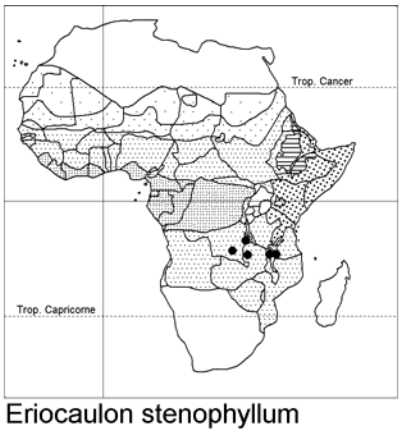
guineense Steud. = **M. radicans**

hanningtonii N. E. Br. = **Eriocaulon transvaalicum** subsp.

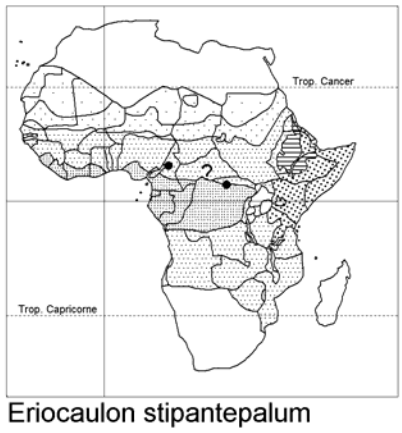
x *hessii* Moldenke = **E. mutatum**

heterochiton sensu Lecomte quoad Chevalier 18488, non Körn. = **E. irregulare**

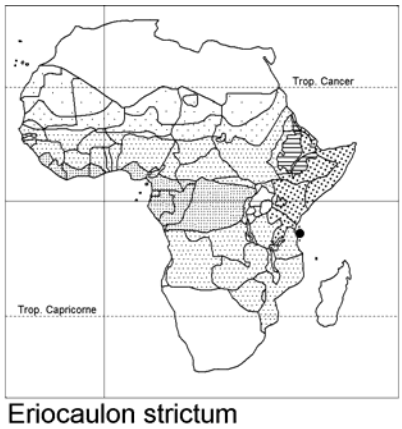
heterochiton sensu Lecomte, p.p., non Körn. = **E. afzelianum**



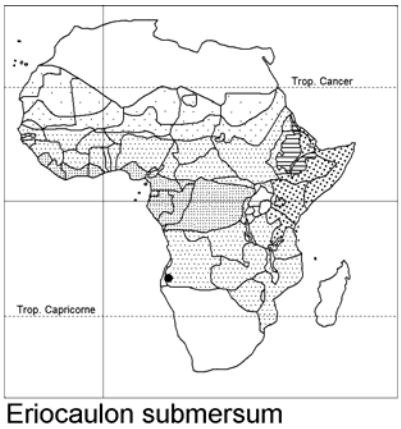
Eriocaulon stenophyllum



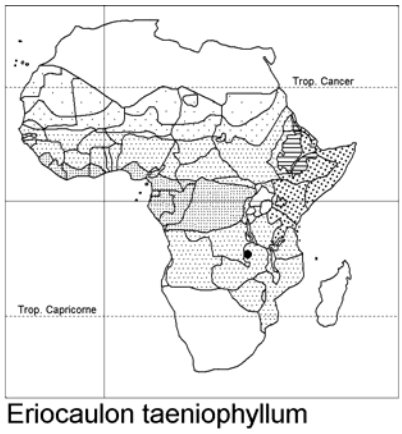
Eriocaulon stipantepalum



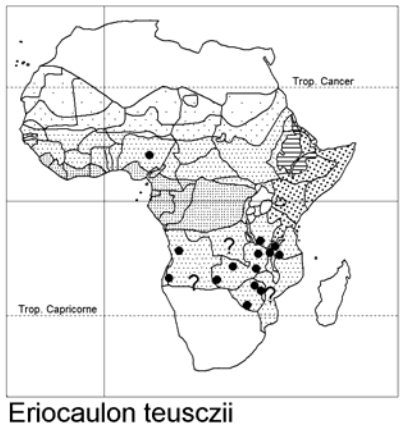
Eriocaulon strictum



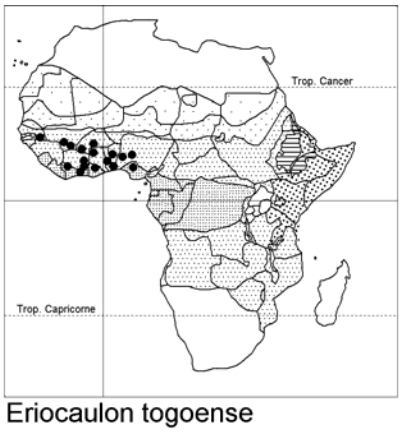
Eriocaulon submersum



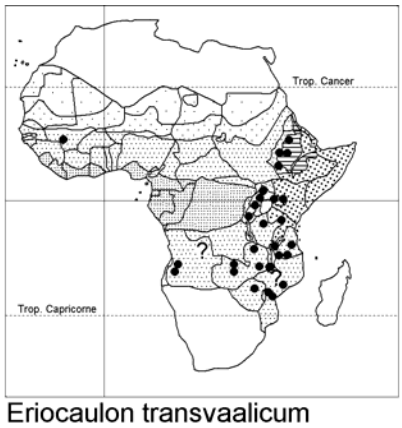
Eriocaulon taeniophyllum



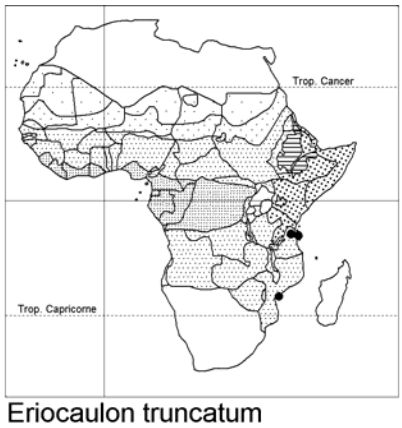
Eriocaulon teusczii



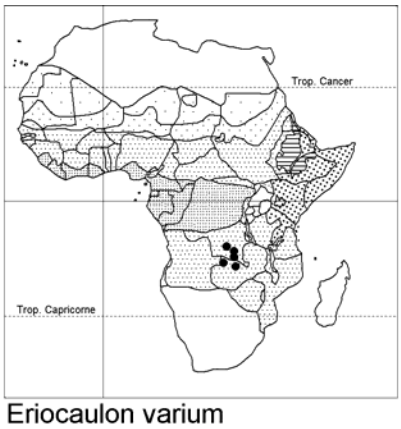
Eriocaulon togoense



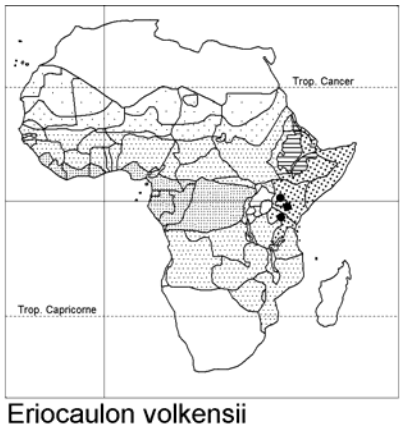
Eriocaulon transvaalicum



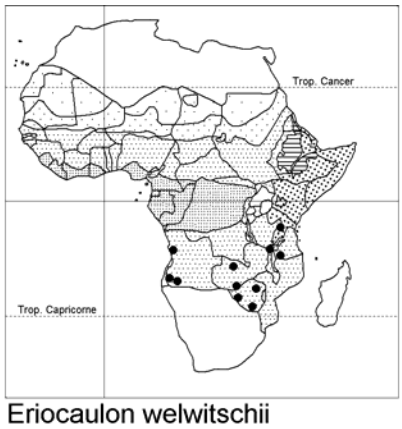
Eriocaulon truncatum



Eriocaulon varium



Eriocaulon volkensii



Eriocaulon welwitschii

heudelotii N. E. Br. = **E. cinereum**

hirsutulum Moldenke = **Mesanthemum albidum**

huillense Engl. & Ruhland, non Rendle = **Eriocaulon teusczii**

huillense Rendle 1899 = **E. mutatum** var. **mutatum**

intermedium Körn. = **E. setaceum**

intrusum Meikle = **E. teusczii**

jaegeri Moldenke = **E. plumale** subsp.

katangaense Kimpouni = **E. inyangense**

kindiae Lecomte = **E. plumale** subsp.

kouroussense Lecomte = **E. afzelianum**

lacteum Rendle = **E. teusczii**

lamarckii (Kunth) Steud. = **Paepalanthus**

limosum Engl. & Ruhland = **Eriocaulon setaceum**

malaissei Moldenke fa. *malaissei* = **E. africanum**

malaissei fa. *viviparum* Moldenke = **E. ramocaulon**

melanocephalum Kunth = **E. setaceum**

monodii Moldenke = **E. transvaalense** subsp. **hanningtonii**

natalensis Schinz = **E. africanum**

natans Müller ex Schomburgk = **E. setaceum**

parvistoloniferum Kimpouni = **E. africanum**

prescottianum (Bong.) Körn. = **Mesanthemum**

pseudomutatum Kimpouni = **Eriocaulon mutatum** var. **mutatum**

pseudopygmaeum Dinter = **E. welwitschii**

pumilum Afzel. ex Körn., non Raf. = **E. pulchellum**

radicans Benth. = **Mesanthemum**

recurvifolium C. H. Wright = **Syngonanthus wahlbergii** var. **wahlbergii**

reductum Ruhland = **Eriocaulon cinereum**

rivulare G. Don ex Benth. = **E. latifolium**

rufum Lecomte = **E. plumale** subsp. **plumale**

ruhlandii Schinz = **E. schlechteri**

schimperianum Körn. = **E. schimperi**

schweickerdtii Moldenke = **E. transvaalicum**

schweinfurthii Engl. & Ruhland = **E. setaceum**

sieboldianum Siebold & Zucc. ex Steud. *("sieboldtianum")* = **E. cinereum**

sierraleonense Moldenke = **E. pulchellum**

sp. B sensu Agnew & Agnew, Upl. Kenya wild flow., ed. 2 = **E. transvaalicum** subsp. **hanningtonii**

stoloniferum Welw. ex Rendle = **E. africanum**

strictum sensu J. Raynal 1961, non Milne-Redh. = **E. fulvum**

stuhlmannii N. E. Br. = **E. cinereum**

subulatum N. E. Br. = **E. abyssinicum**

thunbergii Wickstr. ex Körn. = **E. latifolium**

tofieldifolium Schinz = **E. transvaalicum** subsp.

toumouense Moldenke = **Mesanthemum albidum**

transvaalianum, sphalm. = **Eriocaulon transvaalicum**

transvaalicum N. E. Br. var. *hanningtonii* (N. E. Br.) Meikle = **E. transvaalicum** subsp. **hanningtonii**

transvaalicum N. E. Br. var. *transvaalicum* sensu Lye, Fl. Ethiop. 6 = **E. transvaalicum** subsp. **dembianense**

usterianum Beauverd = **E. setaceum**

volkensii Engl. var. *mildbraedii* Ruhland = **E. schimperi**

woodii N. E. Br., incl. var. *minor* Ruhland = **E. africanum**

xeranthemoides Van Heurck & Müll. Arg., non Bong. = **E. togoense**

zambesiense sensu Fl. W. Trop. Afr., ed. 2, 3/1, non Ruhland = **E. bamendae**

zambesiense Ruhland var. *bamendae*, nom. = **E. bamendae**

(LASIOLEPIS)

Lasiolepis aquatica (Sagot ex Körn.) Boeckeler = **Eriocaulon setaceum**

pilosa Boeckeler = **Paepalanthus lamarckii**

(LEUCOCEPHALA)

Leucocephala spathacea Roxb. = **Eriocaulon cinereum**

MESANTHEMUM / *13*

Genus of 15 species in tropical Africa, and Madagascar (2 endemic); annual species only in W Africa. Records from S. America erroneous.

Male flowers with united petals; female ones with petals free at base and apex but united in the middle; flowers 3-merous.

In our area the ecology is not recorded for 9 species, and 1 species in known only from the type.

Mesanthemum africanum Moldenke; Kirkia 17: 54-55, 1998; Fl. Zambes. 13/4: 74-75, 2010.

Perennial herb from a woody rootstock; leaves rosulate, broadly linear, softly and rather thinly pilose, 10-35 cm × 9-12 mm; scapes glabrous except below the capitulum, 30-60 cm tall; capitulum hemispherical, becoming depressed-globose, densely white-hairy with intermingling black sepals, 10-14 mm Ø; female petal-tube with long grey hairs arising near base of petals (as in *M. pilosum).*

Ecology unknown; 1200-2400 m alt.

M. albidum Lecomte; Lisowski, Fl. Rép. Guinée 1: 417, 2009.

syn.: Enum. 3: 32, 1995; *Eriocaulon* (not *Mesanthemum* !) *hirsutulum* Moldenke

Annual herb; leaves rosulate, lanceolate, 1-5 cm × 1-5 mm, sparsely pubescent when young; scapes 3-8, 4-14 cm, 5-ribbed, sparsely hirsute; capitulum hemispherical with truncate apex, 3-6 mm Ø, *whitish.*

Siliceous bare humid sands, scattered in open colonies.

M. angustitepalum Kimpouni – Icon.: Fragm. Florist. Geobot. 39: 150, 1994.

Perennial herb 20-52 cm tall, with a well-developed rhizome; leaves rosulate, sessile, amplexicaul, rigid, lanceolate-linear, 16-32 × 1,5-2 cm, many-nerved, veins prominent, apex acute and scarious; scapes axillary, 1-3-channelled and multistriate, twisted, pubescent; capitulum hemispherical, 1-1,5 cm Ø, whitish, base subtruncate; female tepals ciliate near apex, margins entire.

Pools on ferruginous hard-pans in grassy savanna; 1680-1750 m alt.

Very near *M. jaegeri*.

MESANTHEMUM

M. auratum Lecomte; Boissiera 33: 151, 1981; Lisowski, Fl. Rép. Guinée 1: 417, 2009.

Annual herb often in rather loose tufts; leaves rosulate, lanceolate, 2-3 cm × 2-3 mm, villous at first, becoming glabrous; scapes 8-10, 6-20 cm tall, striate, sparsely hirsute; capitulum hemispherical with truncate apex, 4-5 mm broad, *yellowish* or *reddish;* floral bracts filiform, plumose.

Temporary pools on rocky outcrops or on mossy granitic hard-pan; swamps; in colonies; to c. 1600 m alt.

M. bennae Jacq.-Fél.; Lisowski, Fl. Rép. Guinée 1: 417, 2009.

Tufted perennial herb, 40-45 cm tall; leaves numerous, linear-lanceolate to linear, to 35 × 2 cm pubescent on both sides; scapes 5-6, thinly pilose to villous with spreading hairs, 30-45 cm tall; capitulum 2-2,5 cm Ø, whitish, campanulate, involucral bracts *dirty white* or *pale brown, rather densely appressed-pilose;* florets pallid immersed in a cushion of long whitish receptacular hairs; inner bracts longer than flowers, resembling ligulate flowers of *Asteraceae*.

Sandstone walls, humid.

M. cupricola Kimpouni; Fl. Zambes. 13/4: 71, 2010. – Icon.: Fragm. Florist. Geobot. 39: 152, 1994 (the suffix *–cola* is treated correctly by Kimpouni as a noun, derived from Greek, not as adjectival ending; cf. Stearn, Botanical Latin, ed. 4: 387, 1992).

Perennial rhizomatous herb 47-60 cm tall; leaves rosulate, sessile, amplexicaul, linear, 10-35 × 0,5-0,8 cm, densely pubescent on both surfaces, *often bicolorous;* scapes axillary, channelled, mutistriate, pubescent; capitulum campanulate, rarely hemispherical to subglobose, 0,6-0,8 cm high, 1-1,2 mm Ø, whitish at the top; *outer bracts acute;* inner involucral bracts exceeding floral disc (as *M. radicans);* female petals glabrous inside (villous in *M. radicans).*

Pools on ferruginous hard-pans.

Close to *M. radicans.*

M. glabrum Kimpouni; Kirkia 17: 53, 1998; Fl. Zambes. 13/4: 73-74, 2010. – Icon.: Fragm. Florist. Geobot. 39: 154, 1994.

Perennial slender herb with rhizomatous stock; leaves rosulate, sessile, amplexicaul, rigid, many-nerved, lanceolate-linear, 18-40 × 1-6 cm, glabrous beneath, hirsute or glabrescent above, apex thick, rounded; scapes axillary, striate, twisted, 40-75 cm tall, glabrous to hirsute; capitulum campanulate to hemispherical, 0,8-1 cm high, 0,2-1,4 cm Ø; bracts narrow, conspicuously pale-margined, prominently nerved, glabrous.

Grassy, humid savanna on boggy soil; wet soil of dambos; 1200-1500 m alt.

M. jaegeri Jacq.-Fél.; Cheek & al., Pl. Kupe…: 442, 2004. – Icon.: Boissiera 33: 153, 154, 1981.

Perennial robust herb, caespitose, 30-35 cm tall, *often* with a *swollen, bulbous base;* leaves 12-13, linear-lanceolate, 15-30 × 2 cm, villous on both faces, becoming glabrescent; scapes 8-10, puberulous, 6-ribbed, 25-45 × 1,5 cm; capitulum hemispherical, 1-1,8 cm Ø; florets *whitish*, immersed in a cushion of long *black* receptacular *hairs;* involucral bracts dirty whitish; flowers densely white-hairy.

Usually terrestrial (roots in humus or moss); on granitic boulder with bush: *Dissotis leonensis, Eugenia pobeguinii*, the *Mesanthemum* under shade; humid or mossy rockfaces of sandstone inselbergs; 300-1825 m alt.

According to Cheek & al. (2004), then known from only 8 sites, 5 of which in Sierra Leone.

MESANTHEMUM

M. pilosum Kimpouni; Kirkia 17: 54, 1998; Figueiredo & Smith, Pl. Angola: 184, 2008; Fl. Zambes. 13/4: 74, 2010. – Icon.: Fragm. Florist. Geobot. 39: 154, 1994.

Tussocky perennial herb from a woody rootstock or short rhizome, 25-76 cm tall; leaves rosulate, sessile, amplexicaul, lanceolate-linear or elliptic to linear, 13-22 × 0,8-1,2 cm, minutely pubescent on both surfaces, veins salient; scapes axillary, multistriate, channelled, twisted, pubescence variable; capitulum subglobose, 1-1,6 cm Ø, subtruncate at base when mature, apex flat, whitish; female flowers with long grey hairs arising from base of sepals; female petals villous outside. – Often with old burned leaf remains at base.

Humid savannas; boggy areas in grassland; pools on ferruginous hard-pan; 1000-1700 m alt.

Very near *M. rutenbergianum, M. africanum.*

M. prescottianum (Bong.) Koern.; Sosef & al., Check-list pl. vascul. Gabon: 158, 2006; Lisowski, Fl. Rép. Guinée 1: 417, 2009.

bas.: *Eriocaulon prescottianum* Bong.

Perennial slender herb, erect, 20-50 cm tall, with a tuber; leaves to 5 mm broad, grass-like, thinly clothed with spreading hairs; scapes to 45 cm tall, erect, with numerous stellate hairs; capitulum hemispherical, truncate at top, 4-5 mm Ø; involucral bracts shining, white, thinly appressed-pilose, longer than flowers and radiating like a white daisy *(Asteraceae).*

Swamps on rocks in meadows: meadow on rocky ground; on peat with *Afrotrilepis pilosa;* 600-1600 m alt.

Erroneously described from Brazil.

M. radicans (Benth.) Körn.; M. Renier, Fl. Kwango 1: 79, 1948; Burkill, Useful pl. W. Trop. Afr., ed. 2, 2: 19, 1994; Kirkia 17: 50-51, 1998; Sosef & al., Check-list pl. vascul. Gabon: 158, 2006; Figueiredo & Smith, Pl. Angola: 184, 2008; Lejoly & al., Fl. Tshopo (RD Congo) in Taxonom. 25: 27, 2008. – Icon.: Fl. Trop. E. Afr., Eriocaul.: 33, 1997; Akoegninou & al., Fl. analyt. Bénin: 131, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 494B, 2009; Fl. Zambes. 13/4: 72, 2010.

bas.: *Eriocaulon radicans* Benth.

syn.: Enum. 3: 32, 1995; *Mesanthemum erici-rosenii* T. C. E. Fries

Tussocky robust perennial herb from a rhizome; leaves clustered at the rhizome tip, linear-lanceolate, scattered-pilose or glabrescent, 12-50 cm × 5-15 mm; scapes 30-60 cm tall; capitulum creamy-white, flat-topped, 10-15 mm Ø; inner involucral bracts longer than disc, appressed silky-hairy, with broad pale margins; floral bracts capillary with white-pilose subulate tip; female flowers villous on both surfaces.

Swampy grassland and forest; lake margins; acid sand near the coast; often forming loose mats; sphagnum bog; running waters; 0-1500 m alt. – The most widespread *Mesanthemum.*

Bioko/Fernando Poo.

Resembling *M. variabile, M. cupricola.*

MESANTHEMUM

M. reductum H. E. Hess; Figueiredo & Smith, Pl. Angola: 184, 2008. – Icon.: Ber. Schweiz. Bot. Ges. 65: 179, 1955; Cook, Aquat. pl. book, ed. 2: 86, 1996.

Completely submerged herb with short rhizome and rosulate leaves to 20 cm long, to 12 mm broad at base, flaccid, 3-5-nerved, glabrous; scapes 1-8, to 40 cm tall, 1,3-1,7 mm Ø, 10-15-ribbed, twisted, glabrous; capitulum campanulate, 6-8 mm Ø; receptacle densely pilose; flowers *without sepals.*

Submerged like *Eriocaulon submersum* but perennial with remains of dead leaves. In colony on beds and side (quartz sand) of streams where water is swift; in dry periods the plant emerges from 1-2 m deep water; 1290 m alt.

Only known from the type collected in 1952.

M. variabile Kimpouni; Kirkia 17: 51, 53, 1998; Fl. Zambes. 13/4: 73, 2010. – Icon.: Fragm. Florist. Geobot. 39: 158, 1994.

Perennial herb, rhizomatous, 40-80 cm tall; leaves rarely numerous, rosulate, sessile, amplexicaul, narrowly lanceolate to linear, 13-42 × 0,4-1 cm, acute, glabrescent to pubescent on both faces, veins slightly salient; scapes axillary, often solitary, 40-80 cm tall, pubescent; capitulum subglobose, flat-topped, 1-2 cm Ø, base truncate; disc whitish, with *wiry blackish hairs*; sepals blackish; female petals hairy outside only.

Grassy, humid savannas; swampy savannas on sandy alluvions; wet hollows; 1000-1600 m alt.

Resembling *M. radicans*, but more slender and leaves narrower and hairier; involucre not extending beyond floral disc.

SYNONYMS:

Mesanthemum chilloui Moldenke = **Eriocaulon plumale** subsp. **kindiae**.

erici-rosenii T. C. E. Fries = **Mesanthemum radicans**

necopinatum Moldenke = **Eriocaulon plumale** subsp. **jaegeri**

radicans Stapf, non (Benth.) Körn. = **E. latifolium**

rosenii Pax = **E. rosenii**

rubrum Moldenke = **Mesanthemum auratum**

tuberosum Lecomte = **M. prescottianum**

PAEPALANTHUS / *2*

Paepalanthus Mart. (replaced for Kunth), nom. cons. is the largest genus of *Eriocaulaceae;* very heterogeneous in all aspects. Almost entirely confined to tropical America (Mexico, Central America, West Indies, tropical and subtropical South America), with 2 species in Africa. A record from Japan is due to confusion of labels. The number of species varies according to authors: 420 (Taxon 59: 385, 2010) or 450 (Novon 19: 412, 2009) or 500 (Fl. Zambes. 13/4: 84, 2010), to 550 (Kew Bull. 65: 275, 2010).

According to Phillips in Flora of Tropical East Africa, Eriocaulaceae: 41 (1997), the seed dispersal is distinctive: " the hardened grey-white-striped female sepals coil outwards, hence raising the petals and ovary to the capitulum surface where they are shed. The 3-armed empty calyces with a central hole remain clinging to the capitulum". This is a good character for distinguishing species of *Eriocaulon*, without need for dissection. The male and female sepals of *Paepalanthus* are free except the extreme base. The male petals are fused into a funnel-shaped tube, with the stamens on upper margin; the female petals are free. – The dry brown fibrous roots and villous scapes are also distinctive from *Eriocaulon.*

PAEPALANTHUS

Type of *Paepalanthus*, nom. cons. emend.: *P. erigeron* Mart. ex Körn., Blanchet 2601 (Giulietti & al., Taxon 47: 743-744, 1998; ibid. 49 : 274, 2000). To be listed as published in Ann. Sci. Nat., Bot. II, 2: 28, 1834. "Since the listed type, *P. lamarckii* is now referred to the genus *Blastocaulon…".*

GOMES DE ANDRADE, M. J. & al. (2011). Blastocaulon (Eriocaulaceae), a synonym of Paepalanthus: morphological and molecular evidence. *Taxon* 60: 178-184.

ROSA, M. M. & V. L. SCATENA (2007). Floral anatomy of Paepalanthoideae (Eriocaulaceae, Poales) and their nectariferous structures. *Ann. Bot.* 99: 131-139.

TISSOT-SQUALLI HOUSSAINI, M. L. (1997). Monographische Bearbeitung von Paepalanthus subgenus Platycaulon. *Diss. Bot.* 280: 1-242.

Paepalanthus lamarckii Kunth; Lisowski, Fl. Rép. Guinée 1: 418, 2009. – Icon.: Fragm. Florist. Geobot. 37: 138, 1992; Fl. Trop. E. Afr., Eriocaul.: 40, 1997; Kirkia 17: 66, 1998; Fl. Zambes. 13/4: 85, 2010; Taxon 60: 180, 2011 (male flower).

syn.: *Eriocaulon fasciculatum* Lam. 1789, non Rottb. 1778; *E. lamarckii* (Kunth) Steud.; *Dupatia lamarckii* (Kunth) O. Kuntze; *Lasiolepis pilosa* Boeckeler; *Paepalanthus ottonis* Klotzsch; *P. pilosus* (Kunth) Kunth var. *microcephalus* Moldenke; *P. cearaensis* Ruhland

Annual herb, with age developing an unbranched wiry stem 0,5-8 cm tall, clothed in old leaves and *fibrous roots*, the new leaves forming a loose rosette at the stem tip; leaves linear to lanceolate, 1-3 cm × 0,5-4 mm, spongy, scattered-pilose to glabrescent, tip subacute and hardened; scapes 2-20 in a terminal tuft, *villous*, 1-7 cm high, 3-ribbed; capitulum 2-4 mm Ø, subglobose, grey, densely villous, the immature central flowers completely obscured by white hairs.

Around the drying margins of temporary pools and open places on damp sand and seepage areas; rice fields; humid bare sands near the sea; swampy steppe; sea-level to 1100 m alt.

Madagascar; C. America, S. America: Belize, Brazil, Colombia, Guyanas, Bolivia.

Gomes de Andrade & al (Taxon 60: 183, 2011) remark that specimens from the Americas have glabrous or hairy leaves, whereas African specimens have leaves and scapes with long trichomes.

P. pulvinatus N. E. Br.; Kew Bull. 37: 291-293, 1982.

syn.: ? *P. hispidissimus* Herzog (from NE Brazil).

Herb with extremely short, thick stem, forming dense cushions; leaves very densely rosulate, greyish, strongly recurved, filiform, subterete, very numerous, 2-4 cm × 0,2-0,8 mm, with long patent hairs; scapes to 50, 3-7 cm × 0,1-0,2 mm, 3-ribbed, glabrous, arising laterally from the rosettes; capitulum subglobose, greyish-pilose, hemispherical, 5-7 mm Ø.

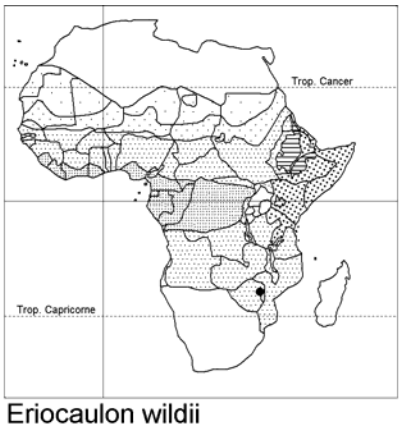
Ecology unknown.

Only once collected, in Sierra Leone. According to Phillips in Fl. Zambes. 13/4: 84, 2010, endemic to Sierra Leone. – Or introduced from Brazil ? but the occurrence of *P. lamarckii* in Africa means that the possibility of a disjunct area (America-Africa) of *P. pulvinatus* exists (fide Giulietti & Meikle in Kew Bull., l.c.).

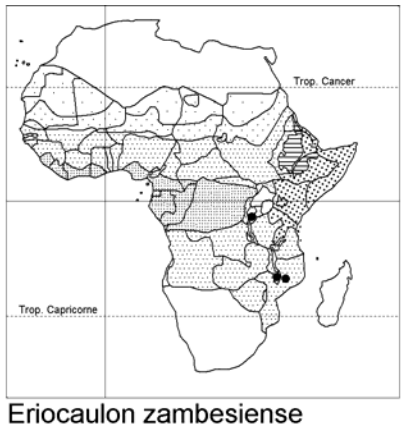
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SYNONYMS:

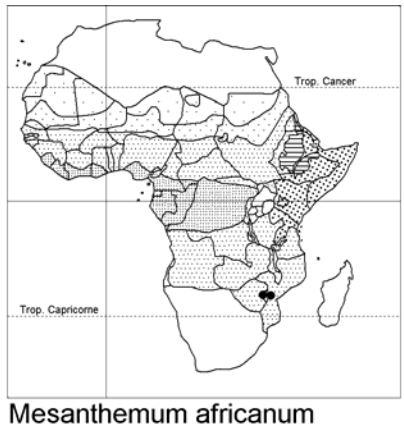
See Enum. 3: 32, 1995, and above under the species.



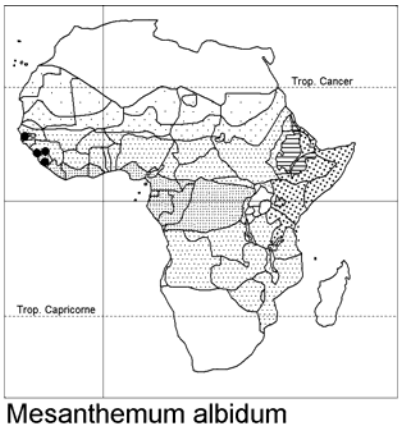
Eriocaulon wildii



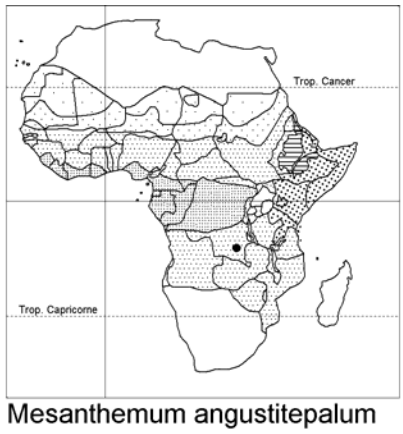
Eriocaulon zambesiense



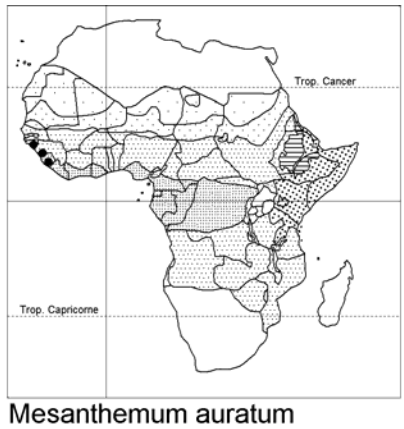
Mesanthemum africanum



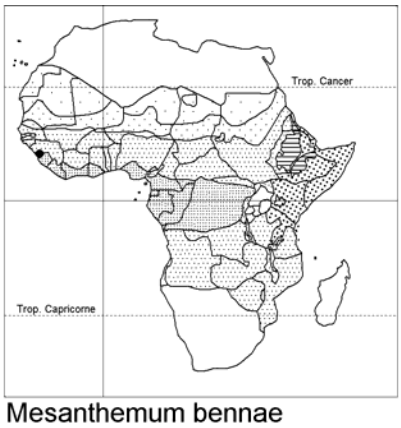
Mesanthemum albidum



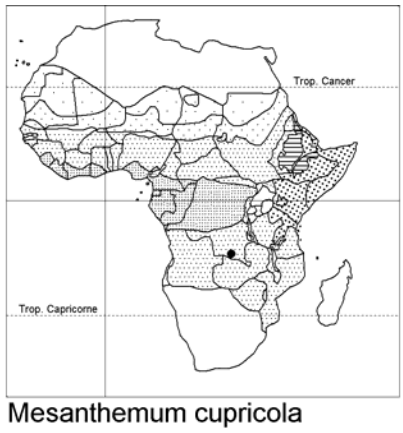
Mesanthemum angustitepalum



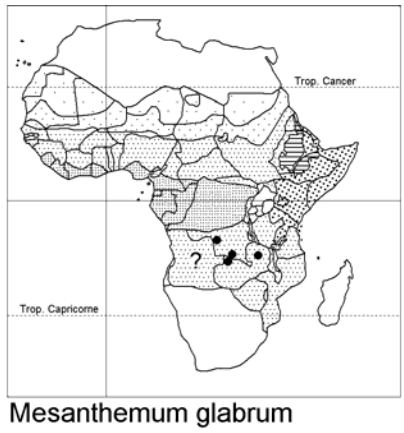
Mesanthemum auratum



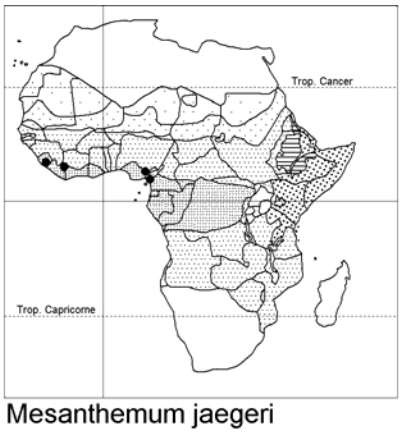
Mesanthemum bennae



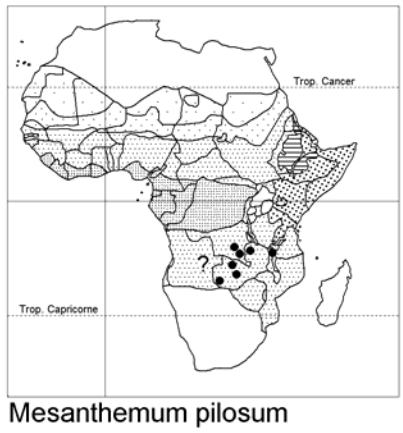
Mesanthemum cupricola



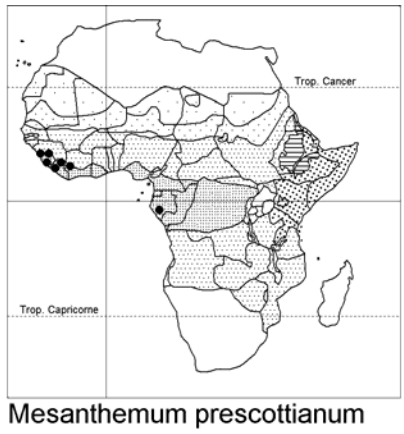
Mesanthemum glabrum



Mesanthemum jaegeri



Mesanthemum pilosum



Mesanthemum prescottianum

SYNGONANTHUS / *15*

Syngonanthus Ruhland: proposal to conserve this name against *Philodice* Mart. (a genus with only 2 species in C. & S. America, but an earlier name); Guilietti & al., proposal (1902) in Taxon 60: 1204, 2011.

Genus of c. 200 species; occurs disjunctly in the Americas (most of the species) and Africa. Diverse in habit and inflorescence-floral morphology in America; in Africa "a critical genus of closely related species, mostly difficult to distinguish from one another…flower structure is uniform and specific limitation rests mainly on small differences in vegetative and capitulum morphology" (Phillips in Fl. Zambes. 13/4: 75, 2010).

Flowers are trimerous, on villous pedicels. Male ones with sepals joined below into a funnel-shaped tube with free lobes; petals completely united; stamens 3 fixed inside the corolla. Female ones with sepals free; petals joined near the tips, usually with 3 alternating swollen-tipped glandular appendages alternating with the 3 stigmatic branches (important taxonomically). Inspection of the female sepals is useful: presence or absence of tubercle-based hairs, even if these fall off their position can be seen by the remaining tubercles.

The morphology of the seed-coat is also uniform. Specific limitation rests largely on a combination of characters. "The situation is exacerbated by a paucity of collections, so that the significance of individual variants is difficult to assess. There is evidence from some mixed collections of hybridazation between species…" (Phillips in Kew Bull. 52:73, 1997).

In our area 2 species are known only from the type, one of which without ripe seeds *(S. paleaceus).*

FRIIS, I. & al. (2011). See above under **Eriocaulon**.

GIULIETTI, A. M. & al. (2009). (1902) Proposal to conserve the name Syngonanthus against Philodice (Eriocaulaceae). *Taxon* 58: 1008-1009.

KIMPOUNI, V. & al. (1994). Le genre Syngonanthus Ruhl. (Eriocaulaceae) en Afrique centrale. *In:* SEYANI, J. H. & A. C. CHIKUNI, eds., *Proceedings of the XIIIth Plenary Meeting of AETFAT, Zomba, Malawi, 2-11 April 1991:* 567-581. National Herbarium and Botanic Gardens of Malawi, Zomba.

PHILLIPS, S. M. (1997). The genus Syngonanthus (Eriocaulaceae) in eastern and southern Africa. *Kew Bull.* 52: 73-89.

Syngonanthus angolensis H. E. Hess; Figueiredo & Smith, Pl. Angola: 184, 2008. – Icon.: Fl. Trop. E. Afr., Eriocaul.: 37, 1997; Kew Bull. 52: 78, 1997 (seed); Kirkia 17: 58, 1998.

syn.: Enum. 3: 32, 1995.

Tufted *perennial* herb from a short rootstock; leaves narrowly linear, loosely erect or curving outwards, 1,5-7 cm × 0,6-1,7 mm, pilose on both surfaces becoming glabrescent, acute; scapes to c. 8, 20-60 cm tall, 3-ribbed, pilose with pointed hairs, densely so below the capitulum, appressed-pilose between the ribs lower down, glandular hairs absent or sparse, scapes occasionally glabrous; sheaths softly pilose, limb evenly tapering; capitulum 7-9,5 mm Ø, ivory-white to cream with a *brown base.*

Temporary or permanent pools in grassy savanna; on humid hard-pans, ferruginous or rocky; boggy seepages on slopes in grassland; boggy hollows; marshy areas adjoining watercourses; sometimes in marshes with *Eriocaulon teusczii;* sandy and sandy-swampy soil along stream; on dry or flooded ground; 950-2200 m alt.

Confused with *S. poggeanus* but this has: – paler, more obtuse involucral bracts; – abruptly acute or cuspidate limb to the sheath; – female sepals pilose only on the margins: – seed ellipsoid.

S. bianoensis Kimpouni

Perennial caespitose herb 8-15 cm tall; leaves numerous, rosulate, linear, 2,4-4 cm × 1-1,5 mm, acute and hardened at apex, sessile, amplexicaul, pubescent on both surfaces; scapes in a terminal tuft, 3-ribbed, twisted, with glandular hairs; capitulum hemispherical becoming globose, 3-4 mm high, 5-6 mm Ø, brownish, usually densely woolly; outer involucral bracts acute at apex.

Eroded kalahari sands; c. 1600 m alt.

Near *S. upembaensis.*

S. exilis S. M. Phillips – Icon.: Kew Bull. 52: 84, 1997; Kirkia 17: 62, 1998; Fl. Zambes. 13/4: 81, 2010.

Rosulate, (probably short-lived) *perennial* herb from a basal rootstock; leaves in an *untidy tuft*, linear, 0,5-1 cm × 0,3-0,7 mm, *loosely erect*, appressed-pilose with white hairs above, subacute; scapes 2-4, 2,5-4 cm tall, 3-ribbed, with glandular and pointed hairs intermixed; sheaths glandular-pilose; capitulum whitish, 4-4,5 mm Ø, obviously hairy; involucral bracts pale buff (? or yellowish).

Wet peaty mud near exposed laterite; c. 1300 m alt.

Near *S. longibracteatus.*

Only known from the type collected in 1938 (1937 ?).

S. lisowskii Kimpouni

Annual herb 7-29 cm tall; leaves rosulate, linear to narrowly linear-subulate, 0,7-4 cm × 0,4-1 mm, sessile, base amplexicaul, with glandular and eglandular hairs on both faces, sheaths with glandular hairs and appressed eglandular hairs, long attenuate at apex; scapes 1-3, 3-gonous, 3-ribbed, twisted, hairs as on leaves; capitulum hemispherical becoming globular, 3-5 mm high, 5-8 mm Ø.

Edges of pools and sources; humid meadows; seasonally wet hollows on rocky or ferruginous hard-pans; wet kalahari sands; 1500-2100 m alt.

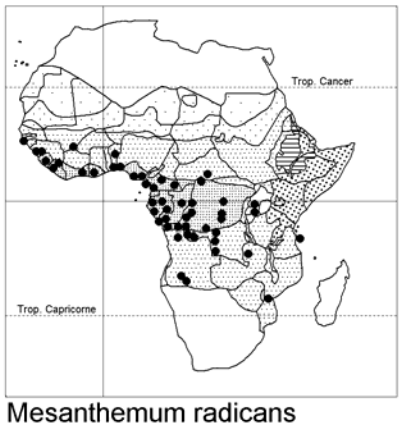
Comprises 2 subspp.

S. longibracteatus Kimpouni; Fl. Trop. E. Afr., Eriocaul.: 38, 1997; Kirkia 17: 61, 63, 1998. – Icon.: Kew Bull. 52: 78, 1997 (seed).

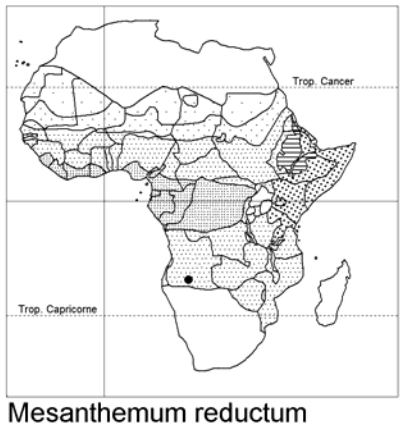
Stemless *annual* herb 6-11 cm tall; leaves densely rosulate, sessile, linear to subulate, 0,5-2 cm × 0,5-1 mm, subacute, pilose with glandular and pointed hairs; scapes to 20, 3-ribbed, twisted, with *white glandular* and *pointed hairs* between the ribs; sheaths equalling or longer than leaves, glandular-hairy; capitulum hemispherical, 3-6 mm Ø, ± campanulate, *shiny cream-white* or yellowish; involucral bracts yellowish to golden-brown, lanceolate oblong.

Ditches; streamsides; wet depressions on sandy soil; waterlogged sandy soils; pools in grassy savannas; ferruginous hard-pans; weed of rice fields; locally common; 900-1900 m alt.

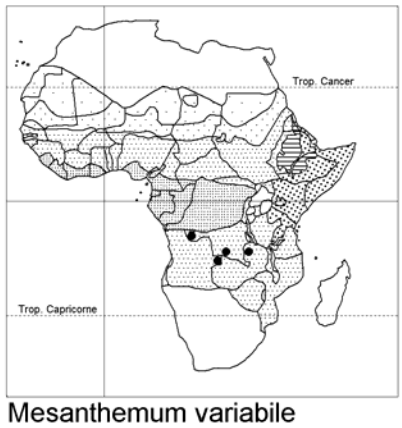
Confused with *S. wahlbergii* (a perennial from a branched rhizome, but capitula similar to *S. longibracteatus;* leaves broader in *S. longibracteatus;* sheaths with spathe-like limb characteristic of *S. wahlbergii).*



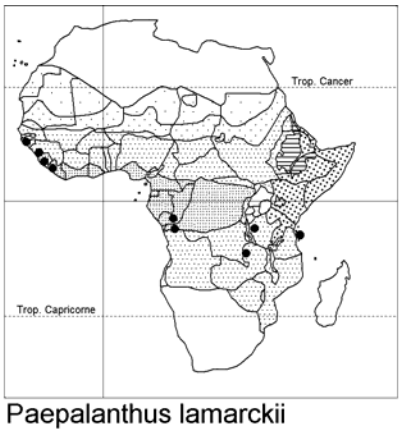
Mesanthemum radicans



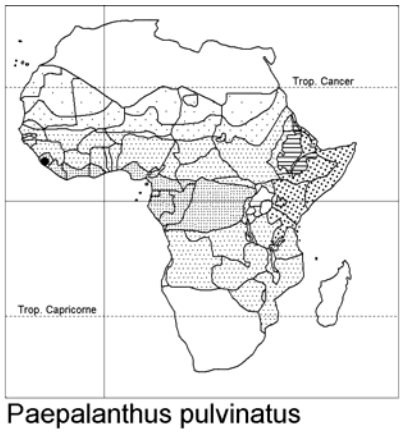
Mesanthemum reductum



Mesanthemum variabile

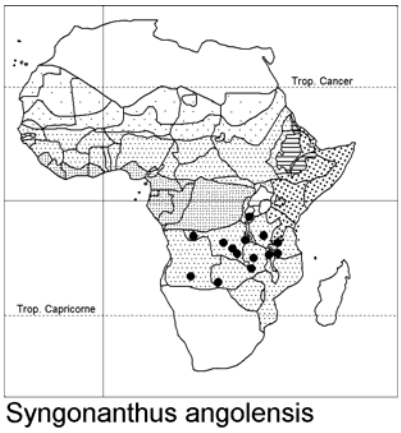


Paepalanthus lamarckii

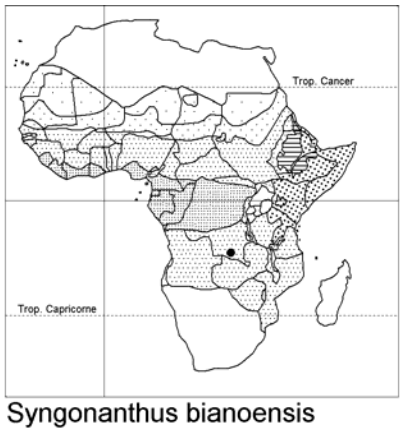


Paepalanthus pulvinatus

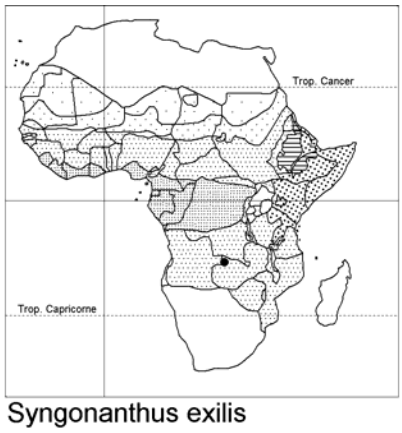




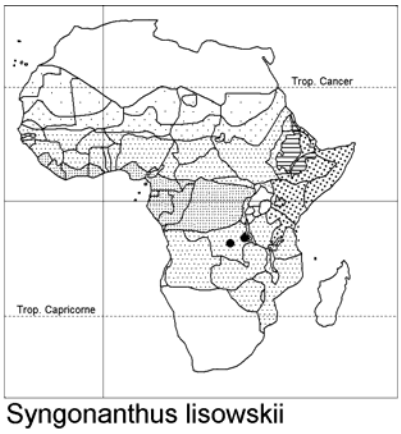
Syngonanthus angolensis



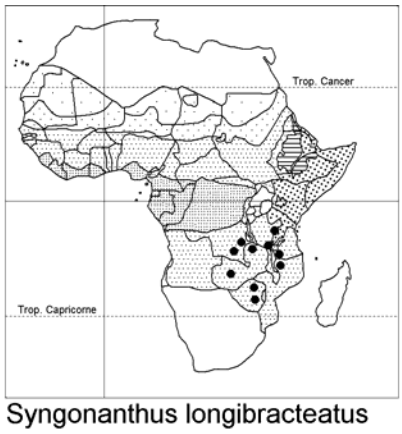
Syngonanthus bianoensis



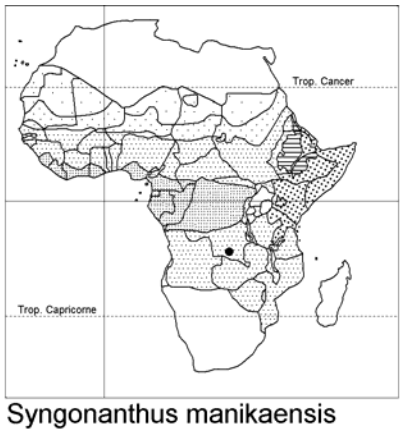
Syngonanthus exilis



Syngonanthus lisowskii



Syngonanthus longibracteatus



Syngonanthus manikaensis

S. manikaensis Kimpouni

Annual herb 15-20 cm tall; leaves rosulate, narrowly linear-subulate, 0,6-2 cm × 0,8-1 mm, sessile, amplexicaul, slightly minutely pubescent on both faces, apex acute; scapes 3-gonous, 3-ribbed, twisted, with glandular and eglandular hairs; capitulum hemispherical becoming subglobose, 3-5 mm high, 5-8 mm Ø.

Humid grassy savanna on sandy soil; c. 1500 m alt.

Near *S. lisowskii.*

S. mwinilungensis S. M. Phillips – Icon.: Kew Bull. 52: 82, 1997 (seed); Kirkia 17: 62, 1998; Fl. Zambes. 13/4: 81, 2010.

Annual herb; leaves many in a small basal rosette, linear, recurving, c. 1 cm × 0,3-0,6 mm, appressed-hispid, narrowly obtuse; scapes 2-7, 17-20 cm tall, 3-ribbed, thinly glandular-hairy with patent hairs; sheaths longer than leaves; capitulum *ivory-white*, 5 mm Ø, thinly hairy at periphery; involucral bracts white, sharply acute radiating across the capitulum base.

Damp soil over rocky outcrops; c. 1400 m alt.

Flowers similar to those of *S. robinsonii* with acute sepals pilose on both faces.

Known from 2 collections from Mwinilunga, Zambia.

S. ngoweensis Lecomte; Figueiredo & Smith, Pl. Angola: 184, 2008; Kimpouni (1994): 572-573; Moldenke in Phytologia 37: 266-267, 1977.

Nearly stemless herb; leaves caespitose, linear, *subulate*, 3-nerved, with short patent hairs on both surfaces, becoming glabrous, 3-6 cm × *1 mm;* scapes 6-10, 4-ribbed, scarcely twisted, glandular-pilose, 20-25 cm tall; sheaths slightly longer than leaves, pilose; capitulum hemispherical, 5 mm wide, straw-coloured.

Plain; swamps; rock ledges; c. 1950 m alt.

Kimpouni also cites the species from S. Africa (not figuring in Fl. south. Afr. 4/2, 1985); perhaps confusion with *S. wahlbergii* ? – Locality cited from Congo Brazzaville is today situated in Gabon. Not cited by Lisowski (2009) for Guinea, nor from Gabon by Sosef & al., Check-list pl. vascul. Gabon, 2008.

Near *S. poggeanus* (with linear-subulate to long-linear leaves 1,5-2 mm wide).

S. paleaceus S. M. Phillips; Kew Bull. 53: 491-492, 1998; Kirkia 17: 64, 1998; Fl. Zambes. 13/4: 82, 2010.

Probably annual herb; leaves rosulate, many, linear-subulate, recurving, c. 1 cm × 0,5-0,7 mm; scapes to 50 or more, 1-6 cm tall, developing in close succession, 3-ribbed, with patent glandular hairs intermixed with some shorter pointed hairs; sheaths densely glandular-pilose, equalling the leaves, limb spathe-like, tip recurved; capitulum *3-3,8* mm Ø; involucral bracts *straw-coloured*, longer than flowers.

Dambo; 1250 m alt.

Only known from the type collected in 1960; without mature seeds.

Near *S. welwitschii.*

S. poggeanus Ruhland; Kirkia 17: 59, 1998; Figueiredo & Smith, Pl. Angola: 184, 2008; Fl. Zambes. 13/4: 77-78, 2010; M. Renier, Flore du Kwango 1: 79, 1948 (as *S. poggei).* – Icon.: Kew Bull. 52: 78, 1997 (seed).

Perennial herb forming clusters of leaf-rosettes from a tough rootstock; leaves linear, 1,5-8 cm × 1-2,5 mm; young leaves usually densely pilose with pointed and glandular hairs, becoming glabrescent, outwardly curving, apex *acute;* scapes 1-10 or more, to 40-60 cm tall, 3-ribbed, villous with pointed hairs intermixed with glandular hairs, appressed between the ribs lower down, becoming glabrescent; sheaths pilose with glandular hairs, equalling or exceeding the leaves, limb abruptly acute; capitulum *whitish*, 5-8 mm Ø, hemispherical to globose, glabrous; involucral bracts pallid from a pale yellowish base, shorter than capitulum width.

Swampy grassland on sandy soils; wet boggy ground bordering rivers, waterfalls and pools; flooded plains; humid hollows; 600-1800 m alt.

Confused with *S. angolensis;* the two are the largest African species in the genus, with similar distribution. But seeds distinctive. *S. poggeanus* has more obtuse involucral bracts and an abruptly acute limb to the sheaths.

S. robinsonii Moldenke; Fl. Trop. E. Afr., Eriocaul.: 38, 1997; Kirkia 17: 60-61, 1998; Fl. Zambes. 13/4: 80, 2010. – Icon.: Kew Bull. 52: 82, 1997 (seed).

Annual herb; leaves rosulate, generally numerous, recurving, appressed-hispid, obtuse, 0,5-2,5 cm × 0,3-1 mm; scapes 1- c. 10, 3-ribbed, glandular-pilose with patent hairs, 12-25 cm tall; sheaths longer than leaves, glandular-pilose, limb acuminate; capitulum shiny white, 4-8 mm Ø, densely *hairy;* involucral bracts white to *creamy-buff* (around the capitulum periphery) to *light golden* (near the scape), mostly *pilose* on the *back;* seeds *lack white striae* (unusual).

Damp sand; often among rocks or near waterfalls; frequently forming large colonies; hollows; 1250-1600 m alt.

Near *S. mwinilungensis.*

Type from Zambia, not Nigeria (confusion by Moldenke).

Expected in S Tanzania.

S. schlechteri Ruhland; Fragm. Florist. Geobot. 37: 139, 1992; Fl. Trop. E. Afr., Eriocaul.: 38-39, 1997; Fl. Zambes. 13/4: 84, 2010; Walters & al. in Edinb. J. Bot. 68: 428-429, 2011. – Icon.: Kew Bull. 52: 78, 1997 (seed).

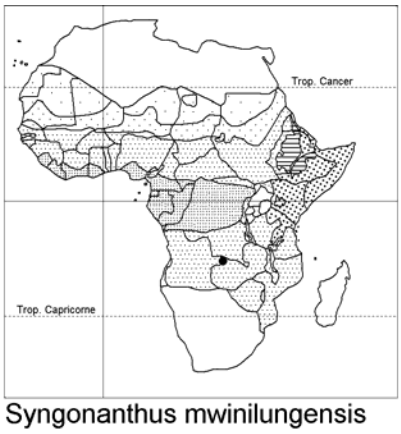
syn.: *Paepalanthus schlechteri* (Ruhland) J. F. Macbr.

Tufted herb, with subfiliform leaves 1,5-2 cm × 0,3-0,6 mm, glabrous; scapes several to many, 5-15 cm tall, 3-ribbed, shortly pilose with patent glandular hairs and some pointed hairs; sheaths as long as leaves, with glandular and pointed hairs, limb straight; capitulum white, glabrous, *3,5-4,5* mm Ø, *many-flowered;* involucral bracts pale yellow to golden brown; subsp. **schlechteri** with female flowers lacking swollen-tipped appendages between the stigmas (also so in *S. welwitschii*, a smaller species).

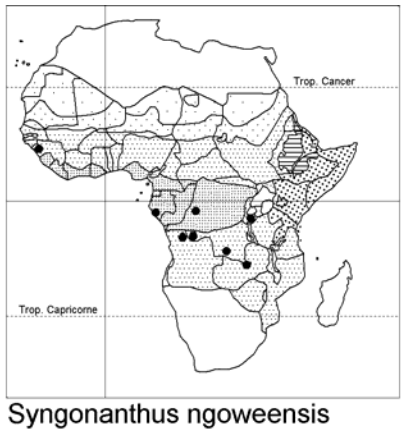
Marsh; humid places in savannas on white sand; wet meadows; sometimes growing with *S. wahlbergii;* c. 450-1500 m alt.

Comprises 2 subspp. Subsp. **appendiculatus** Kimpouni with swollen appendages between the stigmas occurs in S Zaire, expected also in S Tanzania uplands.

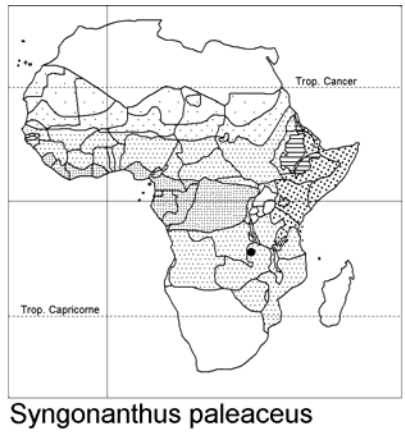
Hybridizes with *S. wahlbergii* (such hybrids also cited by Hess from Angola).



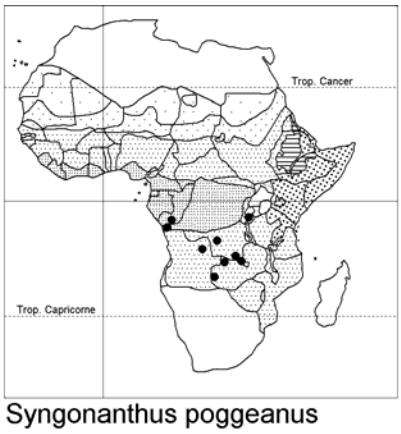
Syngonanthus mwinilungensis



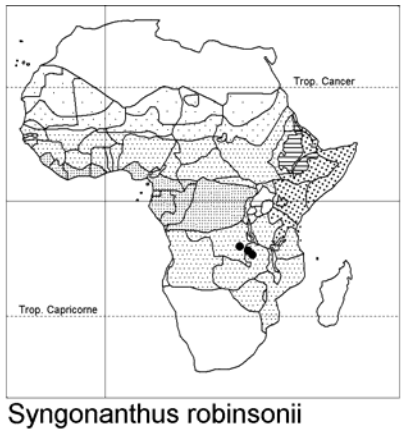
Syngonanthus ngoweensis



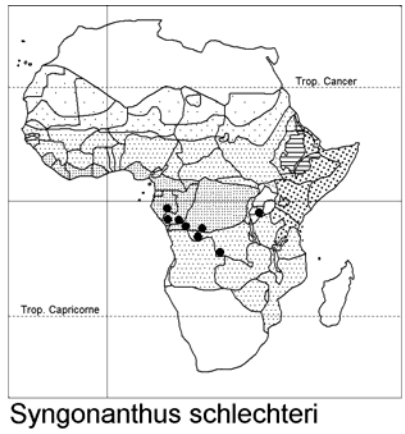
Syngonanthus paleaceus



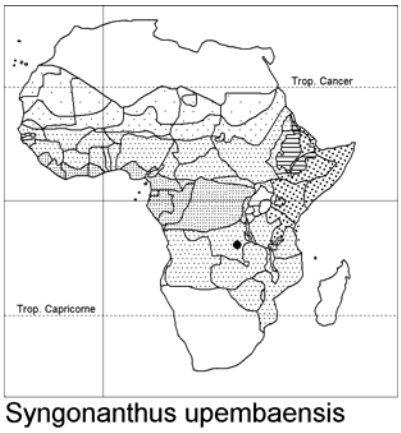
Syngonanthus poggeanus



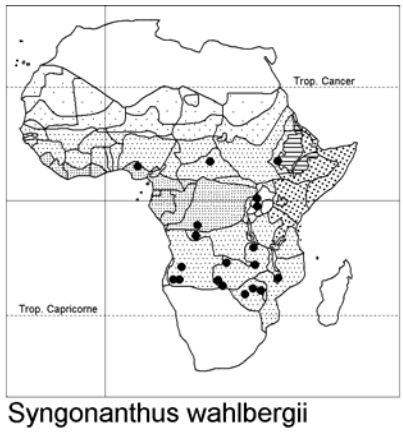
Syngonanthus robinsonii



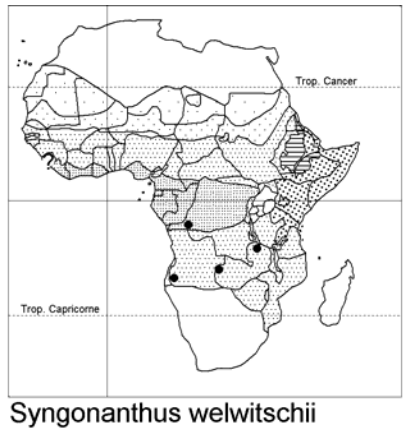
Syngonanthus schlechteri



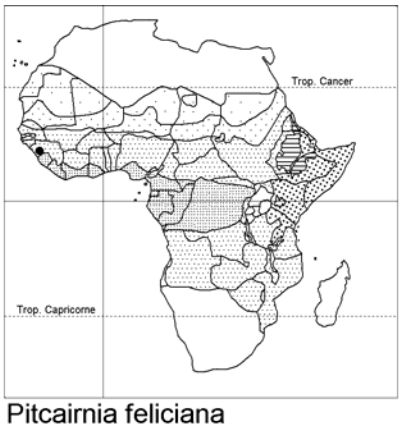
Syngonanthus upembaensis



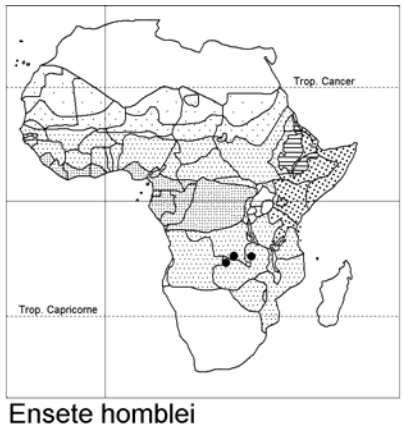
Syngonanthus wahlbergii



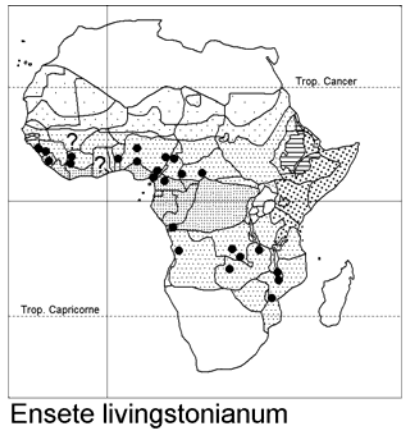
Syngonanthus welwitschii



Pitcairnia feliciana



Ensete homblei



Ensete livingstonianum

SYNGONANTHUS

S. upembaensis Kimpouni

Annual herb 10-14 cm tall; leaves numerous, rosulate, linear to linear-subulate, 1,2-1,4 cm × 0,5-0,8 mm, sessile, amplexicaul, multinerved, with pointed appressed white hairs and erect glandular hairs on both faces, sheaths 1,8-2 cm long, with glandular and pointed hairs outside, limb acute; scapes in tuft (rarely 1), 3-ribbed, twisted, hairy as leaves; capitulum subglobose, 3-5 mm high, 5-6 mm Ø, sometimes viviparous, pale brown; bracts obtuse at apex.

Swampy savannas; c. 1750 m alt.

Resembling *S. lisowskii.*

S. wahlbergii (Wikstr. ex Körn.) Ruhland; Figueiredo & Smith, Pl. Angola: 184, 2008. – Icon.: Fl. south. Africa 4/2: 20, 1985; Kew Bull. 52: 77, 1997 (seed); Fl. Trop. E. Afr., Eriocaul.: 37, 1997; Kirkia 17: 58, 1998; Cook, Aquat. & wetland plants south. Africa: 133, 2004; Fl. Zambes. 13/4: 79, 2010; Symb. Bot. Upsal. 35/2: 119, 2011.

Tussocky *perennial* herb; leaf-rosettes conspicuously *woolly* in the centre, growing in clusters from a branching rhizome; leaves numerous, acicular, 1-3 cm × 0,4-0,8 mm, thinly appressed-pilose to subglabrous, apex narrowly obtuse often curving inwards; scapes several to many, flowering in succession, < 25-30 cm tall, 3-ribbed, with patent *glandular* hairs and some appressed pointed hairs; capitulum ± spherical, *golden* to dark golden-brown, 5-6 mm Ø, bracts and sepals concolorous with white petal-tubes visible between.

Marshy places in open grassland; open parts of peat bogs; swampy or muddy margins of lakes, rivers and streams; leaf rosettes sometimes submerged in shallow water; locally dominant; roadside; sources; often with *Sphagnum;* marshy, scarcely spongy, wooded meadows with *Burmannia, Anagallis elegantula;* sometimes growing mixed with *S. schlechteri;* 1000 (? and less)-2200 m alt.

Populations from Zambia southwards have leaves with markedly incurving tips, whereas more northern populations *(S. chevalieri)* have leaves curving outwards.

S. Africa. Type not from Cape of Good Hope, but probably in former Transvaal or Natal visited by J. A. Wahlberg 1841-1844 (see Symb. Bot. Upsal. l.c.).

Comprises 2 vars.: – var. **wahlbergii** [bas.: *Paepalanthus wahlbergii* Wikstr. ex Körn. 1863; syn.: *Dupatya wahlbergii* (Wikstr. ex Körn.) O. Kuntze; *Eriocaulon recurvifolium* C. H. Wright; *Syngonanthus chevalieri* Lecomte] with glandular-pilose scapes below capitulum, widespread; – var. **sinkabolensis** S. M. Phillips, with glabrous scapes below capitulum, in W Zambia-C Zimbabwe.

Sometimes difficult to distinguish from *S. longibracteatus*, and specimens from Zimbabwe of the latter have sometimes been named as *S. wahlbergii* (cf. Fl. Zambes. 13/4: 82, 2010): capitula of *S. longibracteatus* are paler than golden brown, leaves are broader and the sheaths lack a spathe-like limb. *S. wahlbergii* differs from *S. paleaceus* in its dense tussocks from a branching rhizome, and the capitula are much larger.

S. wahlbergii may hybridise with *S. schlechteri.*

S. welwitschii (Rendle) Ruhland; Kirkia 17: 64, 1998; Kew Bull. 53: 492, 1998; Figueiredo & Smith, Pl. Angola: 184, 2008; Fl. Zambes. 13/4: 83-84, 2010. – Icon.: Kew Bull. 52: 78, 1997 (seed).

Small annual herb; leaves rosulate, numerous, narrowly linear-subulate, < 1 cm × c. 0,5 mm, glabrous or thinly pilose, subacute; scapes c. 50, 3-ribbed, 1-4 cm tall, with long patent glandular hairs intermixed with some shorter pointed hairs; sheaths

SYNGONANTHUS WELWITSCHII

glandular-pilose, with a *long limb* and recurved tip; capitulum *1,5-2,5 mm* Ø, few-flowered; involucral bracts few, *shiny white*, longer than flowers; flower tiny, stylar appendages alternating with the 3 stigmas *lacking* (cf. *S. schlechteri).*

Wet ground in grassy and weedy places; wet ground on sandy or gritty soils; rather damp field formerly cultivated with *Sorghum*, with tiny *Cyperaceae* and *Commelinaceae* (Angola); 1500-1920 m alt. – Seldom collected.

Distinguished by its extremely small size and tiny capitula.

Near *S. paleaceus.*

SYNONYMS:

Syngonanthus chevalieri Lecomte = **Syngonanthus wahlbergii** var. **wahlbergii**

× *hessii* Moldenke = **S. angolensis**

× *hybridus* Moldenke = **S. angolensis**

jordanii Moldenke = **Eriocaulon**

BROMELIACEAE / *1* g. / *1* sp.

The largest Neotropical monocot family of 58 genera and 3172 recognized species most of which in Brazil (Louzada & al. in Phytotaxa 13: 1, 2010; cf. also Joppa & al. in Proc. Roy. Soc., London, Ser. B 278: 557, 2011). Only one species native in Africa (the map in Benzing, o.c.: 4 is erroneous, whereas the map in Int. J. Plant Sci. 165, Suppl. 4: S 36, 2004, is correct).

BENZING, D. H. (2000). *Bromeliaceae*: *Profile of an adaptive radiation.* Cambridge University Press. XVIII + 690 pp.

GIVNISH, T. J. & al. (2011). Phylogeny, adaptive radiation, and historical biogeography in Bromeliaceae: Insights from an eight-locus plastid phylogeny. *Amer. J. Bot.* 98: 872-895.

GOUDA, E. J. & al. (2009). *Encyclopaedia of Bromeliads,* Version 2. CD/DVD. Bromelia Contact Groep Nederlands/Belgische Bromelia Vereniging; Botanische Tuinen, Utrecht (cf. *Bromelie* 2011/1: 45, 2011).

GRANT, J. R. & G. ZIJLSTRA (1998). An annotated catalogue of the generic names of the Bromeliaceae. *Selbyana* 19: 91-121.

http://herbarium.univie.ac.at/database/search.php. Virtual herbaria. Bromeliaceae of Africa (heimo.rainer@univie.ac.at, ernst.vitek @nhm-wien.ac.at (cf. *Ann. Naturhist. Mus. Wien* B 112: 318, 2011).

For species cultivated in tropical Africa, see Enum. 3: 33, 1995, viz. **Ananas**, **Billbergia**, and **Neoregelia**; cf. also World Checklist of Monocotyledons, Royal Botanic Gardens, Kew, for Africa.

PITCAIRNIA / *1*

A genus of c. 280 species in Mexico, Central America, West Indies, South America except Chile and Uruguay. Only one species native in W Africa, discovered in 1937 by the French botanist Henri Jacques-Félix (1907-2008 !).

GIVNISH, T. J. & al. (2004). Ancient vicariance or recent long-distance dispersal ? Inferences about phylogeny and South American-African disjunctions in Rapateaceae and Bromeliaceae based on ndhF sequence data. *Int. J. Plant. Sci.* 165, Suppl. 4: S35-S54.

GIVNISH, T. J. & al. (2007). Phylogeny, adaptive radiation, and historical biogeography of Bromeliaceae inferred from ndhF sequence data. *Aliso* 23: 3-26.

HORRES, R. & al. (2007). Systematics of Bromelioideae (Bromeliaceae) – Evidence from molecular and anatomical studies. *Aliso* 23: 27-43 [see p. 34-35].

JACQUES-FÉLIX, H. (2000). The discovery of a Bromeliad in Africa: Pitcairnia feliciana. *Selbyana* 21: 118-124.

PITCAIRNIA

Pitcairnia feliciana (A. Chev.) Harms & Mildbr.; Givnish & al. (2011): 889. – Icon.: Flora 189: 320 fig. 6, 1994; Natur & Mus. 125: 148, 1995; Selbyana 21: 120, 121, 2000; Lisowski, Fl. Rép. Guinée 2: fig. 472, 2009.

bas.: *Willrussellia feliciana* A. Chev.

Tufted herb with bulbous rhizome covered with dentate scales, glabrous, to 70-80 cm tall; basal leaves linear, 30-50 cm × 5-9 mm, with spinescent recurved teeth; cauline leaves narrowly lanceolate, base amplexicaul, margins entire; inflorescence terminal, racemose, 8-15 cm long, borne on an erect leafy scape c. 30 cm long; flowers 3-merous, orange-yellow.

The caespitose tufts are heavily anchored by their roots in the cracks of sandstone rock faces, and pass the dry season in a state of dormancy (fide Jacques-Félix, 2000); the plant combines drought-deciduousness (blades shrivel simultaneously over a period of few weeks; Benzig, o.c.: 57, 2000).

Foliage with pronounced armature and a generally xeromorphic character suggests closer affinities between this plant and certain Caribbean populations (ibid.: 465).

Reached tropical West Africa via recent long-distance dispersal no earlier than about 9,3 Mya (fide Givnish & al. in Aliso 23: 3, 2007, and Amer. J. Bot. 98: 889, 2011). "This accords with *Maschalocephalus dinklagei* of Rapateaceae…, not ancient vicariance via continental drift" (Givnish & al., o.c., 2011). Another example: genus *Pucciniosira* Lagerh. (rust fungi) has 4 American species and 2 African. – Or perhaps introduced recently with *Ananas* ?

(WILLRUSSELLIA)

Willrussellia feliciana A. Chev. = **Pitcairnia**

MUSACEAE / *2* ? g. / *4* ? spp.

The family is part of the old grouping *Scitamineae* including plants now placed in *Musaceae, Strelitziaceae, Heliconiaceae, Lowiaceae, Zingiberaceae, Costaceae, Marantaceae* and *Cannaceae* (Lock in Fl. Trop. E. Afr., Musaceae: 1, 1993; with a key to the families).

Musaceae s. str. comprises 2 genera (Liu & al., o.c.: 20): *Ensete* (5 species), *Musa* (35), with c. 40 accepted species. Only *Ensete* is wild in Africa, or perhaps also *Musa acuminata* in Pemba Island (Lock & Diniz in Fl. Zambes. 13/4: 105, 2010). The family is of great economic importance; cultivars of *Musa* (bananas and plantains), are widely grown for their fruit and fibre (see Burkill, Useful pl. W. Trop.Afr., ed. 2, 4: 225-233, 1997). Cultivars and their origin (SE Asia) are discussed by Lock & Diniz, o.c.: 110-111.

Musaceae are giant herbs with unbranched *(Ensete)* or branched *(Musa)* vegetative shoots from a rootstock; the cylindrical pseudostems are formed of overlapping leaf bases.

LASSOUDIÈRE, A. (2010). *L'histoire du bananier.* Editions Quae, Versailles. 351 pp.

LIU, A.-Z. & al. (2010). Phylogenetic analysis of the banana family (Musaceae) based on nuclear ribosomal (ITS) and chloroplast (trnL-F) evidence. *Taxon* 59: 20-28.

ROSSEL, G. (1998). *Taxonomic-linguistic study of plantain in Africa*. Research School CNWS, School of Asian, African and Amerindian Studies, Leiden. VII+278+89 pp. [reviews in *Kew Bull.* 54: 253, 1999, and *Econ. Bot.* 54: 238, 2000].

ENSETE / *3*

According to Liu & al. (2010) there are 6 species of *Ensete* [incl. *Musella lasiocarpa* (Franchet) C. Y. Wu ex H. W. Li, now recognized as *Ensete lasiocarpum* (Franchet) E. E. Chessman], 3 are distributed in Africa, and 2 in Asia *[E. glaucum* (Roxb.) E. E. Cheesman, *E. superbum* (Roxb.) E. E. Cheesman]. They do not mention a seventh species, *E. perrieri* (Claverie) E. E. Cheesman from Madagascar. There is fossil record of *E. oregonense* Manchester & Kress in N. America (early Tertiary).

HÄKKINEN, M. & H. VÄRE (2008). Typification and check-list of Musa L. names (Musaceae) with nomenclatural notes. *Adansonia*, Sér. 3, 30: 63-112.

HILDEBRAND, E. (2001). Morphological characterization of domestic vs. forest-growing Ensete ventricosum (Welw.) Cheesman, Musaceae, in Sheko district, Bench-Maji Zone, southwest Ethiopia. *Biol. Skr.* 54: 287-309.

VÄRE, H. & M. HÄKKINEN (2011). Typification and check-list of Ensete Horan. names (Musaceae) with nomenclatural notes. *Adansonia, Sér.3,* 33: 191-200.

Ensete homblei (Bequaert ex De Wild.) E. E. Cheesman; Häkkinen & Väre, o.c.: 78; Väre & Häkkinen, o.c.: 196. – Icon.: Fl. Zambes. 13/4: 109, 2010.

Monocarpic deciduous perennial herb 1,5 (flowering) -2,4 (sterile) m tall from a bulbiform rootstock covered with brown cataphylls; pseudostems annual, erect; leaf blades spreading, spaced on pseudostem, elliptic, 17-40 × 7-11 cm, green above, glaucous beneath, apex acute to obtuse; leaves of flowering stems smaller; inflorescence terminal, ovoid, dense, compact, to 13 × 8 cm; bracts to7 × 5 cm, ovate, concave, the lower ones subtending female flowers, the middle 1-2 hermaphrodite flowers, the upper ones male flowers; seeds 6-7 mm Ø.

Termite mound, on or around, and rocky slopes in *Brachystegia* woodland; 1000-1200 m alt.

The smallest banana known and also the completely herbaceous one, able to withstand 5 or 6 months of drought, during which it is quite leafless. Thick hard rather leathery scale leaves protect the perennial rootstock and the growing point from damage due to grass fires, and these scale leaves are the only visible signs of the plant during the dry season after the withered leaves and the old scape have been burnt off (fide Milne-Redhead, Hook, Ic. Pl. 35: 2 after tab. 3479, 1952). If suckers are really produced at the base of the plant needs careful observations (cf. under *E. ventricosum).*

E. livingstonianum (J. Kirk) E. E. Cheesman; (quotations usually under the name *E. gilletii);* Burkill, Useful. pl. W. Trop. Afr., ed. 2, 4: 224-225, 1997; Cheek & al., Pl. Mt Oku…: 185, 2000; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c51, 2001; Cheek & al., Pl. Kupe…: 451, 2004; Häkkinen & Väre, o.c.: 82, 89, 73, 75, 77; Figueiredo & Smith, Pl. Angola: 188, 2008; Fl. Zambes. 13/4: 108, 2010; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 152, 2010; Väre & Häkkinen, o.c.: 197. – Icon.: Fl. W.Trop. Afr., ed. 2, 3/1: 68, 1968; Akoegninou & al., Fl. anal. Bénin: 146, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 508, 2009.

bas.: *Musa livingstoniana* J. Kirk

syn.: *M. religiosa* Dyb.; *M. gilletii* De Wild.; *M. chevalieri* Gagnep.; *Ensete gilletii* (De Wild.) E. E. Cheesman; *E. religiosum* E. E. Cheesman; ? *E. elephantorum* (K. Schum. & Warb.) E. E. Cheesman; ? *Musa elephantorum* K. Schum. & Warb.

Perennial monocarpic herb 1,5-4 m tall; young stems dying back to a hard round corm c. 30 cm Ø remaining on the soil surface during the dry season; lacking suckers; leaves spread along the stem, sessile, and not aggregated towards apex; lower

ENSETE LIVINGSTONIANUM

ones elliptic-oblong, 0,5-1,5 × 0,25-0,4 m, reducing in size upwards; fertile stem nodding, bracts broadly ovate, 5-9 × 17-25 cm; flowers in lines of 8 in axils, female ones at base, males at apex, infrutescence 50 × 25 cm; fruit 5-8 cm long; seeds hard, 7-9 mm Ø, in orange pulp.

Forest edge; hilly grasslands and woodlands, often with *Pteridium;* old clearings; rocky escarpments; *Pouteria altissima* forest; to 920-1900 m alt.

Also grown as an ornamental. Seeds inedible, used to make rosaries, necklaces, etc.

A subsp. of *E. ventricosum* ? Relationship with *E. homblei* "deserves further study in the field. It is possible that they are forms of a single variable species; the differences appear to be mainly quantative" (Fl. Zambes., l.c.).

E. ventricosum (Welw.) E. E. Cheesman, incl. var. *montbeliardii* (Bois) Cufod.; Lovett & al., Field guide moist forest trees Tanzania: 289, 2006; Figueiredo & Smith, Pl. Angola: 188, 2008; Häkkinen and Väre, o.c.: see below under *Musa* SYNONYMS; E. Fischer & al., Annot. checklist vascul. pl. Kakamega Forest: 197, 2011; Väre & Häkkinen, o.c.: 199. – Icon.: Robyns, Fl. spermat. Parc Albert 3: 403, 1955; Fl. Eth. & Eritrea 6: 319, 1997; Hildebrand, o.c.: 290; Oyen & Lemmens, eds., Ressources végétales de l'Afrique tropicale. Précurseur: 86, 2002; Latham, Plants visited by bees… of Umalila, south. Tanzania, ed. 3: 78-79, 2007; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 755, 2008; Fl. Zambes. 13/4: 106, 2010; Puff & Sileshi, Pl. Simen: 235, 2005.

syn.: Enum. 3: 33, 1995; *Mnasium theophrasti* Pritz., nom. nud.; *Musa buchananii* Baker; *M. schweinfurthii* K. Schum. & Warb.; *M. ensete* J. F. Gmel., incl. var. *montbeliardii* Bois; *M. arnoldiana* De Wild.; *M. holstii* K. Schum.; *M. ulugurensis* Warb. & Moritz; *M. fecunda* Stapf; *M. laurentii* De Wild.; *M. bagshawei* Rendle & Greves; *M. davyae* Stapf; *M. ruandensis* De Wild.; *M. rubronervata* De Wild.; *M. martretiana* A. Chev.; *M. kaguna* Chiov.

Herb 2-12 m tall, arising from a short upright rhizome; base swollen to 1 m Ø, 3 m in girth; pseudostem formed of overlapping leaf bases, 1,5-12 m tall; blades erect or spreading, forming a large rosette, oblong-lanceolate, to 5 × 1,5 m, glaucous or not, midrib red or green; exserted part of inflorescence axis 1-2 m long, drooping; bracts of male part persistent or partially deciduous, to 55 × 18 cm, each subtending 30-40 flowers (very rich in pollen); bracts of hermaphrodite or female flowers persistent; fruits 5-20 in axil of each bract, 8-15 × 3-5 cm, orange; seeds subspherical, 10-23 mm Ø, black, hard, in orange pulp.

Wild plants occur in forests; often in clearings, gullies and near streams and cataracts; disturbed places in forest; steep slopes; swamps; drier forests; damp rocky places; disturbed places in rain-forest with *Albizia, Macaranga, Croton, Ocotea;* 500-2400 m alt.

S. Africa.

Widely cultivated in Ethiopia SW of Addis Ababa (map in Hildebrand, o.c.: 288); domesticated since at least c. 8000 years. The plant produces flowers and fruit after about 8 years, then dies. It is a staple food. Harvested for the starch stored in the stem and leaf bases. Stems and leaves are used for fibre or fodder for cattle. Seeds are used for making necklaces and for playing. The herb is also planted for ornament and shade. – The domestic cloned enset is distinct from seed-propagated forest enset and from naturalized enset (see Hildebrand, o.c.).

ENSETE VENTRICOSUM

DIRO, M. & J. VAN STADEN (2004). Propagation of Ensete in vitro: a review. *S. Afric. J. Bot.* 70: 497-501.

DIRO, M. & J. VAN STADEN (2004). Germination of zygotic embryos and in vitro growth of seedlings of wild types of Ensete ventricosum *S. Afric. J. Bot.* 70: 635-639.

DIRO, M. & J. VAN STADEN (2005). The type of explant plays a determining role in the micropropagation of Ensete ventricosum. *S. Afric. J. Bot.* 71: 154-159.

DIRO, M. & al. (2002). Growth of enset (Ensete ventricosum) suckers under different horticultural practices. *S. Afric. J. Bot.* 68: 430-433.

DUPUYOO, J.-M. (2008). L'utilisation alimentaire d'Ensete ventricosum. *Hommes & Plantes* 67: 40-42.

SCHIPPERS, R. R. (2004). *Légumes africains indigènes. Présentation des espèces cultivées*. Margraf Publishers, Weikersheim [see p. 447-449].

SIEBERT, S. & S. RAMDHANI (2004). The Bale Mountains of Ethiopia. *Veld & Flora.* 90: 54-59.

VIETMEYER, N., ed. (2006). *Lost crops of Africa* 2. *Vegetables.* The National Academies Press, Washington, D.C. [see p. 173-189].

Poorly represented in herbaria (difficult to make collections), and under-collected because of confusion with cultivated bananas.

SYNONYMS:

Ensete arnoldianum (De Wild.) E. E. Cheesman = **Ensete ventricosum**

bagshawei (Rendle & Greves) E. E. Cheesman = **E. ventricosum**

buchananii (Baker) E. E. Cheesman = **E. ventricosum**

davyae (Stapf) E. E. Cheesman = **E. ventricosum**

edule Bruce ex Haran. = **E. ventricosum**

elephantorum (K. Schum. & Warb.) E. E. Cheesman = **E. livingstonianum**

fecundum (Stapf) E. E.Cheesman = **E. ventricosum**

gilletii (De Wild.) E. E. Cheesman = **E. livingstonianum**

holstii (K. Schum.) E. E. Cheesman = **E. ventricosum**

laurentii (De Wild.) E. E. Cheesman = **E. ventricosum**

proboscideum (Oliv.) E. E. Cheesman = **E. ventricosum**

religiosum E. E. Cheesman = **E. livingstonianum**

ruandense (De Wild.) E. E. Cheesman = **E. ventricosum**

rubronervatum (De Wild.) E. E. Cheesman = **E. ventricosum**

schweinfurthii (K. Schum. & Warb.) E. E. Cheesman = **E. ventricosum**

ulugurense (Warb. & Moritz) E. E. Cheesman = **E. ventricosum**

(MNASIUM)

Mnasium theophrasti Pritz., nom. nud. = **Ensete ventricosum**

MUSA / *1* ?

No wild species in Africa, with the possible exception of *M. acuminata* from Pemba Island (Fl. Zambes. 13/4: 110, 2010).

Genus of c. 50 species (70 according to Häkkinen & H. Wang in Nord. J. Bot. 26: 317, 2008) in SE Asia; cultivated throughout the tropics.

Perennial giant herbs 3-7 m tall, with a branching corm-like rhizome, with basal suckers; each aerial shoot dying after flowering. Leaf sheaths imbricate forming a pseudostem.

The cultivated bananas (with seedless fruits) are of SE Asian origin. They are diploids, triploids or tetraploids derived from *M. acuminata* Colla or from hybrids with *M. balbisiana* Colla (Fl. Zambes. 13/4: 110, 2010). The Linnean names *M. sapientium* and *M. paradisiaca* are based on hybrid cultivars (cf. Fl. Trop. E. Afr., Musaceae: 6, 1993); a system of cultivar classification based on ploidy has been proposed.

Linnaeus located the origin of wild bananas to the "warmest regions of Africa and Asia" (S. Müller-Wille in Linnaeus, Musa Cliffortiana: 28, 2007). It is likely that they were first domesticated in the Highlands of New Guinea around 5000 BC." They were first mentioned in writing in India (6th century BC), where the Europeans first knew them through Alexander the Great's military campaigns in 327 BC. Edible bananas had spread to tropical Africa much earlier (3000-1500 BC) along The Red Sea, and possibly Madagascar. When the Portuguese established their trading post on the W African coast, bananas were already grown there. Bananas were present in Uganda (Munsa) already around 3000 BC, based on recent archaeological findings.

COGHLAN, A. (2001). Slippery customer. How did an infertile fruit get to Africa so soon ? *New Scient.* 2305: 15.

DE LANGHE, E. & al. (2005). Integrating morphological and molecular taxonomy in Musa: the African plantains (Musa spp. AAB group). *Pl. Syst. Evol.* 255: 225-236.

DE LANGHE, E. & al. (2010). Did backcrossing contribute to the origin of hybrid edible bananas ? *Ann. Bot.* 106: 849-857.

HESLOP-HARRISON, J. S. & T. SCHWARZACHER (2007). Domestication, genomics and the future for banana. *Ann. Bot.* 100: 1073-1084.

IRISH, B. M. & al. (2009). Ploidy level and genomic composition of Musa spp. accessions at the USDA-ARS Tropical Agriculture Research Station. *J. Agric. Univ. Puerto Rico* 93: 1-21.

LINNAEUS, C. (1736) [2007]. Musa Cliffortiana. Clifford's Banana plant. *Regn. Veg.* 148. Introduction by S. Müller-Wille.

MBIDA MINDZIE, C. & al. (2001). First archaeological evidence of banana cultivation in central Africa during the third millennium before present. *Veget. Hist. Archaeobot.* 10: 1-6 (central Cameroon, c. 2500 BP).

PICKERSGILL, B. & D. A. KARAMURA (1999). Issues and options in the classification of cultivated bananas, with particular reference to the East African highland bananas. *In: ANDREWS, S. & al., eds., Taxonomy of cultivated plants: Third International Symposium:* 159-167. Royal Botanic Gardens, Kew.

ROSSEL, G. (1998). See above under **Musaceae**.

UMA, S. & S. SATHIAMOORTHY (2002). *Names and SYNONYMS of bananas and plantains of India.* National Research Centre for Banana (ICAR), Tiruchirapalli, India. 62 pp.

Musa acuminata Colla subsp. **acuminata**; Fl. Trop. E. Afr., Musaceae: 5, 1993; Häkkinen & Väre (2008): 65. – Icon.: Rumphius, Herb. Amboinense 5: pl. 6/1, 1750 (lectotype).

syn.: see World checklist of monocotyledons, Royal Botanic Gardens, Kew.

Giant herb from a short horizontal rhizome; pseudostems formed from overlapping leaf bases, to 5 m tall, to c. 25 cm Ø; leaf blades oblong-oblanceolate, to 2-2,5 × 0,4-0,6 m, base rounded, apex truncate, petiole and midrib green, ± glaucous; inflorescence appearing from top of pseudostem, horizontal or deflexed; bracts of male flower bundles (c. 20 flowers) red, soon deciduous;

MUSA ACUMINATA

bracts of female part red, deciduous, each subtending to c. 16 flowers; fruits 10-20 in each group, 8-13 cm long, 1,5-3 cm Ø, first green, yellow when ripe; seeds depressed-spherical, 6-7 × 3 mm, dull black.

Swamp forest; sea-level.

Tanzania: Pemba Isl., Ngezi Forest; SE Asia, Indonesia, Philippines. – Not mapped.

Truly native in Pemba Isl. ?, or an early introduction ?

As Lock has pointed out (Fl. Trop. E. Afr., l.c.) – the Ngezi Forest contains unusual phytogeographic elements, with Madagascan affinities. Material grown from Pemba seeds are phenotypically similar to Malaysia specimens from Selangor, but genetically closer to Bogor (Indonesia) plants. – There "is no clear reason why the seeded bananas should have been introduced, and if it is introduced, why is it so restricted ?"

SYNONYMS:

Musa arnoldiana De Wild. = **Ensete ventricosum**

bagshawei Rendle & Greves = **E. ventricosum**

buchananii Baker = **E. ventricosum**

chevalieri Gagnep. = **E. livingstonianum**

davyae Stapf = **E. ventricosum**

elephantorum K. Schum. & Warb. = ? **E. livingstonianum**

ensete J. F. Gmel., incl. var. *montbeliardii* Bois = **E. ventricosum**

fecunda Stapf = **E. ventricosum**

gilletii De Wild. = **E. livingstonianum**

holstii K. Schum. = **E. ventricosum**

homblei Bequaert ex De Wild. = **E. homblei**

kaguna Chiov. = **E. ventricosum**

laurentii De Wild. = **E. livingstonianum**

livingstoniana J. Kirk = **E. livingstonianum**

martretiana A. Chev. = **E. ventricosum**

proboscidea Oliv. = **E. ventricosum**

religiosa Dyb. = **E. livingstonianum**

ruandensis De Wild. = **E. ventricosum**

rubronervata De Wild. = **E. ventricosum**

schweinfurthii K. Schum. & Warb. = **E. ventricosum**

ulugurensis Warb. & Moritz = **E. ventricosum**

ventricosa Welw. = **E. ventricosum**

STRELITZIACEAE / *1* g. / *2* spp.

The family is part of the old grouping *Scitamineae* (cf. *Musaceae* above); with 3 genera and some 7 species in tropical S. America *(Phenakospermum)*, southern Africa *(Strelitzia)* and Madagascar *(Ravenala)*. The two latter genera are often cultivated as ornamentals.

Fleshy banana-like plants with large distichously arranged leaves; flowers bisexual, large, showy, in axils of a leathery bract and arising from a boat-shaped spathe.

ANDERSSON, L. (1998). Strelitziaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 4. Flowering plants: Monocotyledons. Alismatanae and Commelinanae (except Gramineae):* 451-455. Springer Verlag, Berlin, etc.

STRELITZIA / *2*

Five species in southern Africa. Diniz & Lock in Fl. Zambes. 13/4: 111, 2010, comment on the difficulty to obtain complete herbarium specimens; specimens of parts of leaves are more common than flowering material; incomplete material is difficult to identify correctly.

Strelitzia caudata R. A. Dyer; Coates-Palgrave, Trees south. Afr., ed. 3: 118-119, 2002. – Icon.: Flow. Pl. Africa 25: pl. 997, 1946; Schmidt & al., Trees & shrubs Mpumalanga & Kruger Natl. Park, ed. 2: 65, 2007; Fl. Zambes. 13/4: 112, 2010.

Perennial tree-like plant; stem unbranched, to c. 2(-6-10) m tall, 10-15 cm Ø, producing suckers at base; leaves distichous, in an apical tuft; petiole 1,5-1,8 m long; lamina ovate to oblong, 1,5-2 × 0,5-0,8 m; inflorescence terminal, peduncle pink, bracteate, 30 cm long or more, 1,5-2 cm Ø; bracts lanceolate, to 45 × 10 cm; spathe solitary, boat-shaped, at right angles to peduncle, coriaceous, 25-30 × 6,6,5 cm, claret-coloured, glaucous, tapering to a slender tip, exuding mucilage near base; *flower heads simple*, with many flowers exserting successively from spathe; sepals 3, white; petals 3, blue or light mauve, 2 lower ones united, 10-16 cm long, with *short obtuse lobes at base;* capsule hard, 4-6 cm long; seeds with tufted (yellow to) red hairs.

Rocky places, ravines; savanna grassland, in moist rich soil; inland montane forest; 1200-2100 m alt.

S. Africa, Swaziland.

Cultivated as an ornamental.

Previously misidentified as *S. nicolai* in Zimbabwe.

S. nicolai Regel & Körn.; Fl. Zambes. 13/4: 113-114, 2010. – Icon.: Gartenflora 7: pl. 235, 1859; Fl. Eth. & Eritrea 6: 323, 1997; Coates Palgrave, Trees south. Africa, ed. 3: 119, pl. 13, 2002; B. van Wyk & P. van Wyk, How to identify trees in south. Afr.: 71, 2007 (photo.).

syn.: *S. alba* (L. f.) Skeels subsp. *nicolai* (Regel & Körn.) Maire & Weiller; *S. quensonii* Lem.; *S. angusta* sensu Wright in Fl. Cap. 5/3: 318, 1913, p.p. quoad specim. Natal.

Tree-like perennial herb to c. 10 m tall, producing suckers at base, clump-forming; leaves distichous in apical fan-shaped tuft; petiole to 2 m long; lamina (ovate-)oblong, to 1,5 × 0,6 m, shiny green, rounded at base, often split by the wind; inflorescence apical, *compound*, many-flowered; peduncle horizontal, 30-45 cm long, bracteate; bracts lanceolate, long-acuminate, glaucous; spathe boat-shaped, spreading-ascending, 40-45 cm long, acuminate, coriaceous, claret-coloured, glaucous, followed inside by a second and third or up to 5 spathes, producing a "multi-storey" structure; sepals 3, white; petals 3, light blue to white, 2 lower ones united, 10-12 cm long, with long *sagittate* lobes at base; capsule c. 6 cm long; seeds with tufted orange hairs.

Riverine forest, riverbanks; forming small colonies; up to c. 1140 m alt.

S. Africa, E Botswana.

Cultivated in the subtropics. Plant eaten by dogs; but seeds poisonous, causing vomiting.

COSTACEAE / *1* g. / *25* (*+10* ?) spp.

Formerly included in *Zingiberaceae*, part of the old grouping *Scitamineae* (cf. *Musaceae* above). It differs from *Zingiberaceae* in having spirally, not distichous leaves, in lacking oil cells (not aromatic), in the form of the stamen, and in the labellum formed from 5 (not 2) staminodes.

A pantropical family comprising 4 genera and 100-120 species, most diverse in S. America, also in SE Asia. Only one genus, *Costus*, in Africa. Poorly known in our area: fruit unknown in 1+9 ? species, seeds unknown in 2 species; ecology not recorded for 4+5 ? species; one species known only from the type.

KRESS, W. J. & al. (2002). The phylogeny and a new classification of the gingers (Zingiberaceae): Evidence from molecular data. *Amer. J. Bot.* 89: 1682-1696.

LARSEN, K. (1998). Costaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants* 4. *Flowering plants. Monocotyledons*: *Alismatanae and Commelinanae (except Gramineae):* 128-132. Springer Verlag, Berlin, etc.

LOCK, J. M. (1985). Zingiberaceae. *In: Flora of Tropical East Africa*. A. A. Balkema, Rotterdam & Boston.

LOCK, [J.] M. & M. A. DINIZ (2010). Costaceae. *In: Flora Zambesiaca* 13/4: 114-120. Royal Botanic Gardens, Kew.

SPECHT, C. D. (2006). Gondwanan vicariance or dispersal in the tropics ? The biogeographic history of the tropical monocot family Costaceae (Zingiberales). *Aliso* 22: 633-644.

SPECHT, C. D. & D. WM. STEVENSON (2006). A new phylogeny-based generic classification of Costaceae (Zingiberales). *Taxon:* 55: 153-163.

(CADALVENA)

Cadalvena dalzielii C. H. Wright = **Costus spectabilis**

pistiifolia (K. Schum.) Baker = **C. spectabilis**

spectabilis Fenzl = **C. spectabilis**

spectabilis sensu C. H. Wright, non Fenzl = **C. macranthus**

COSTUS / *25* (*+10* ?)

Genus of 150 species (60 according to Meekiong & al. in Rheedea 18: 87, 2008) in the Old and New World Tropics, the largest in the family. Many species are poorly collected, their distribution is local, the flowers are fragile. The study of herbarium material is difficult. In need of detailed revision.

Flowers are large, strongly zygomorphic, with 3 similar petals, the labellum is formed by fusion of 5 petaloid staminodes producing a large colourful structure, and a single free petaloid stamen. The fruit is poorly known in a few species, bacciform or capsules, usually covered by bracts and crowned by a persistent calyx (with 3 apical teeth); seeds black with white laciniate aril.

EDEOGA, H. O. & B. E. OKOLI (1997). Anatomy and systematics in the Costus afer-C. lucanusianus complex (Costaceae). *Acta Phytotax. Geobot.* 48: 151-158.

EDEOGA, H. O. & B. E. OKOLI (2000). Chromosome numbers of Costus lucanusianus (Costaceae) in Nigeria. *Fol. Geobot.* 35: 315-318 [with a list of chromosome numbers in *Costus]*.

GAGNEPAIN, F. (1902). Zingibéracées nouvelles de l'herbier du Muséum; genre Costus. *Bull. Soc. Bot. France* 49: 93-106.

Costus afer Ker Gawl., ? excl. var. *maculatus* (Roscoe) Baker (cf. below under *C. maculatus);* Lock, Kew Bull. 39: 842, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 553-555, 1985; Fl. Eth. & Eritrea 6: 330-331, 1997; Cable & Cheek, Pl. Mt Cameroon: 152, 1998; Cheek & al., Pl. Mt Oku…: 171, 2000; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 225, 2002; Cheek & al., Pl. Mt Kupe…: 434, 2004; Sosef & al., Check-list pl. vascul. Gabon: 418, 2006; Figueiredo & Smith, Pl. Angola: 177, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30:

COSTUS AFER

301, 2010 ; Fl. Zambes. 13/4 : 117-118, 2010. – Icon.: Adam, Fl. Mts Nimba 5 : 1805, 1981; Akoegninou & al., Fl. anal. Bénin : 261, 2006 ; Flow. Pl. Africa 60 : pl. 2228, 2007 ; Lisowski, Fl. Rép. Guinée 2 : fig. 577, 2009 ; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau) : pl. 871, photo. 871 a-b, 2010.

syn.: *C. pterometra* K. Schum.; *C. oblitterans* K. Schum.; *C. anomocalyx* K. Schum.; *C. bingervillensis* A. Chev. p.p. quoad specim. 15214 (excl. specim. 17280) ; *C. insularis* A. Chev. nom. nud.; *C. luteus* A. Chev.; *C. prodigiosus* A. Chev., nom. in sched.; *C. littoralis* K. Schum.

Perennial herb with erect *spirally twisted* leafy shoots 2-4 m tall ; blades elliptic to obovate, 15-35 × 3,5-9,5 cm, narrowed below to the rounded or subcordate base, margins sparsely ascending-ciliate, sometimes sparsely appressed pubescent below, apex acuminate, petiole 4-12 mm long ; infloresence terminal, as large as a cone of *Pinus maritimus*, on leafy shoots ; petals white ; labellum white, sometimes tinged pink, with a rich orange-yellow central line ; stamen white ; fruit a globose capsule.

Moist places in forest ; forest edges ; roadsides ; swampy places in transitional forest with *Aningeria altissima;* riverine forest ; wet muddy area in ravine ; rain-forest with *Chrysophyllum albidum, Cola gigantea, Erythrophleum suaveolens, Alstonia boonei, Parinari excelsa, Milicia excelsa,* forming *dense, large stands* along rivers ; also with dense stands of *Marantochloa* in closed forest ; 50-1700 m alt.

Variable. Single cone-like inflorescences arise terminally either on leafy shoots or on leafless shoots directly from the rhizome (named *C. prodigiosus).* The inflorescence bracts bear either 2, or only 1 flower (named *C. littoralis).*

Bioko/Fernando Poo, S. Tomé, Príncipe.

Distinctive, decorative species with considerable horticultural appeal (cf. Flow. Pl. Afr., l.c.). Often planted in gardens ; with a few cultivars. Stems are used to weave table mats. Plant also used in traditional medicine (see Burkill, l.c.).

Close to *C. lucanusianus* (for anatomy, see Edeoga & Okoli, 1997).

(**C. araneosus** Gagnep.)

Slender flexuous herb, with softly pilosulous sheaths ; stems 7 mm Ø ; leaves lanceolate, 12-20 × 4-6 cm, glabrous above, softly tomentose beneath, apex acuminate ; inflorescence lateral, 2,5 cm long, 1,5-1,8 cm wide, few-flowered, bracts 1-1,2 cm long and wide ; calyx c. 1,5 cm long ; flower 6 cm long, 3-4 cm wide ; petals 3,5 cm long, 0,8-1 cm wide.

Collected in Congo, at Brazzaville, by J. de Brazza (n° 100).

Said to resemble *C. fissiligulatus, C. ligularis* or *C. lateriflorus ;* perhaps related to C. *phyllocephalus*.

Taxonomic status uncertain. Not mapped.

(**C. bicolor** J. Braun & K. Schum.)

Herb with slender leafy stems 25-50 cm tall ; leaves oblong-lanceolate, 5-10 cm long, glabrous, narrowed to the base, apex acuminate ; flowering peduncle short ; spike produced from the rootstock, not leafy, 2-flowered, bracts not longer than ovary ; calyx violet, 1,2 cm long, corolla 2,5 cm long ; labellum obovate, golden yellow, 5 cm long, margins crenulate.

Cameroon, Muha near Malimba : flooded places along river, epiphyte on thick tree (Braun 91) ; on mountain top near Bangwa station ; 1400-1500 m alt. Type : J. Braun 91, Conrau 55, lost.

Taxonomic status uncertain. Not mapped.

COSTUS

C. deistelii K. Schum.; Specht (2006) : 636. – Icon.: Adam, Fl. Mts Nimba 5 : 1806, 1981.

syn.: *C. pulcherrimus* A. Chev., nom. subnud.

Perennial herb with several slender leafy shoots 1-2,5 m tall ; leaf blade ovate, glabrous, base rounded, apex acute ; leaf sheaths prolonged into a cylindrical ochrea at least 1 cm long ; inflorescences spherical-cylindrical, terminal, 5-12 × 5-5,5 cm ; flowers yellow to orange ; fruit unknown ?

Primary and secondary forests and edges ; tracks in forest ; river banks ; 450-900 m alt.

(**C. dendrophilus** K. Schum.)

Slender epiphytic perennial herb ; leafy stems 40-45 cm tall, erect, glabrous ; leaves short-petiolate (8-12 mm), elliptic, 10-18 × 5-9 cm, with long appressed hairs above, appressed short hairy beneath ; spike 4-flowered with oblong-ovate acuminate bracts 3 cm long ; calyx clavate ; corolla, labellum and stamen unknown.

Cameroon, Batanga : in shady forests. Type : Dinklage 1138, lost.

Resembling *C. pauciflorum* in habit, indumentum and spikes. Near *C. tappenbeckianus.*

Taxonomic status uncertain. Not mapped.

C. dewevrei De Wild. & T. Durand ; Sosef & al., Check-list pl. vascul. Gabon : 418, 2006 ; Fl. Zambes. 13/4 : 120, 2010.

Perennial herb to c. 2-3 m tall ; leaf blade with petiole c. 8 mm long, oblong to linear-lanceolate, apex very acuminate, base attenuate to lightly subcordate, 25-30 × 5-8 cm, subglabrous above, with long brown hairs ; inflorescence terminal, capitate to cylindrical, many-flowered, c. 10 × 5 cm ; labellum pink ; fruit unknown ?

Ecology unknown ; 380-800 m alt.

Near *C. ligularis.*

A collection Mildbraed 6060 known from Cameroon, leaf blades only.

Compared with an unnamed *Costus* sp. A from W, C and N Zambia (Fl. Zambes., l.c.).

C. dinklagei K. Schum.; Cable & Cheek, Pl. Mt Cameroon : 152, 1998 ; Sosef & al., Check-list pl. vascul. Gabon : 418, 2006 ; Specht (2006) ; 636 ; Cheek & al., Pl. Mefou proposed natl. park Yaoundé, Cameroon : 220, 2011.

Perennial herb ; leafy stems erect, spirally twisting, 1,5-2,5 m tall, pilose ; shoot base covered with pubescent sheaths ; leaf blades elliptic-oblong, 14-25 × 4,5-5,5 cm, glabrous or nearly so above, *densely pubescent beneath*, apex caudate-acuminate, base cuneate, pseudopetiole 3-5 mm long, brown pubescent ; ligule sheath 5 mm, brown, hairy ; inflorescence arising from the rhizome on a peduncle 6-10 cm long covered in imbricate bracts ; spike 15 cm long, 2-4 cm Ø ; calyx violaceus ; corolla *whitish-pink,* with dark base, 4,5 × 3,5 cm ; labellum *pale pink ;* fruit unknown ?

Forest, in humid or swampy undergrowth ; 600-700 m alt.

Not in Nigeria : specim. Talbot 839 is a mixed collection.

COSTUS

C. dubius (Afzel.) K. Schum.; Kew Bull. 39: 842, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 555, 1985; Cable & Cheek, Pl. Mt Cameroon: 153, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 226, 2002; Cheek & al., Pl. Mt Kupe…: 434, 2004; Sosef & al., Check-list pl. vascul. Gabon: 418, 2006; Specht (2006): 636; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 301-302, 2010; Cheek & al., Pl. Mefou proposed natl. park Yaoundé, Cameroon: 220, 2011; M. Renier, Fl. Kwango 1: 105, 1948 *(C. edulis).* – Icon.: Adam, Fl. Mts Nimba 5: 1807, 1808, 1981.

bas.: *Zingiber dubium* Afzel.

syn.: *Costus adolphi-friderici* Loes. (fide Robyns, Fl. Spermat. Parc Natl. Albert: 410, 1955); *C. zechii* K. Schum.; Enum. 3: 37, 1995.

Perennial herb with spirally twisting leafy shoots 1,5-3,5 m tall; leaf blades elliptic, 24-26 × 6-9 cm, apex acuminate, base cuneate, margin ascending-ciliate, midrib usually *appressed pubescent* below, otherwise glabrous; inflorescences *succulent, like* a *pine-cone*, 20 cm long, many-flowered, on *separate* bracteate *shoots* from the leafy shoot base, or *occasionally terminating* the latter; petals white, labellum *white* with a *central lemon-yellow mark*; fruit obovoid, pale green, 1,5-2 cm long.

Moist places at forest edges and in light gaps; roadsides; riparian forest; rain-forest with *Chrysophyllum albidum, Cola gigantea, Erythrophleum sauveolens, Alstonia boonei, Parinari excelsa, Milicia excelsa,* in swampy area; old humid fallows; 1-1250 m alt.

C. englerianus K. Schum.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 555, 1985; Cable & Cheek, Pl. Mt Cameroon: 153, 1998; Cheek & al., Pl. Mt Kupe…: 434, 2004; Sosef & al., Check-list pl. vascul. Gabon: 418, 2006; Cheek & al., Pl. Mefou proposed natl. park Yaoundé, Cameroon: 221, 2011 (subgen. *Paracostus).* – Icon.: Engler, Pflanzenreich 4/46: 422, 1904; Bot. Jahrb. Syst. 15: pl. 13, 1893.

syn.: *Paracostus englerianus* (K. Schum.) C. Specht; *Costus unifolius* N. E. Br.

Fleshy perennial herb, stoloniferous, mat-forming; shoots rooting at nodes, covered with sheaths, and with 1 *leaf* at apex; leaves leathery, glossy, glabrous, held at 45°, broadly elliptic, 8-15 × 6-11 cm, sheathing at base, apex obtusely acuminate; spike short, 2-3-flowered, borne in the leaf axil (not terminal !); flowers white, centre yellow.

Forming dense ground cover in rain-forest; in bed of brook on rocks with *Anubia afzelii;* 1-850 m alt.

Bioko/Fernando Poo. – Also in Sierra Leone ?

Introduced from the Gold Coast (Ghana) by F. Sander & Co. of St. Albans who sent a plant to Kew, which flowered in September 1892 (Gard. Chron., Ser. 3, 12: 696, 1892).

Paracostus C. Specht (*Costus* subgen. *Paracostus* K. Schum., Bot. Jahrb. Syst. 27: 343, 1899) comprises 2 species: *P. englerianus*, type, in Africa, and *P. paradoxus* (K. Schum.) C. Specht in Malaysia, Sarawak (Taxon 55: 162, 2006).

C. fissiligulatus Gagnep.; Sosef & al., Check-list pl. vascul. Gabon: 418, 2006; Specht (2006): 636; Fl. Zambes. 13/4: 120, 2010. – Icon.: Fl. Cameroun 4: 85, 1965.

Slender herb, 50 cm tall, with spirally twisted shoots; leaf blades oblanceolate, asymmetric, 10-15 × 4-6 cm, glabrous above except for a few hairs on midrib, ± pubescent beneath particularly on the nerves, base attenuate, apex acuminate; ligules long, brown, membranous, 3-4 cm long, *laterally split;* inflorescence terminal, c. 3,5 cm Ø; flowers pink with a yellow base; fruit unknown ?

COSTUS FISSILIGULATUS

Ecology not recorded; 5-800 m alt.

Comprises 2 vars.: – var. **fissiligulatus**; – var. **major** Gagnep. with longer ligule, blade 20-22 × 7-12 cm, lower bracts 11-20 cm long.

Resembling *C. foliaceus.*

An unnamed *Costus*, sp. A sensu Fl. Zambes., l.c., from W, C & N Zambia, seems close to *C. fissiligulatus* (cf. above under *C. dewevrei).*

C. foliaceus Lock & A. D. Poulsen – Icon.: Kew Bull. 52: 112-133, 1997.

syn.: *C.* sp. A sensu Fl. Trop. E. Afr., Zingiberaceae: 10, 1985.

Perennial herb with leafy shoots to 2 m tall; leaf petiole 4-6 mm long; blade elliptic, acuminate, narrowed to the cuneate or rounded base, to 30 × 7,5 cm, glabrous except for a few ascending hairs on the margin beneath; inflorescence terminal on a leafy shoot; petals white; labellum white with a yellow centre; fruit enclosed within the bracts of the elongated inflorescence and apparently dehiscing there, calyx persistent.

Wet forest, in gaps or open vegetation along streams; 1180-1250 m alt.

Superficially resembling *C. fissiligulatus.*

C. gabonensis J. Koechlin; Sosef & al., Check-list pl. vascul. Gabon: 418, 419, 2006; Specht (2006): 636.

Perennial robust herb with leafy shoots 1-2 m tall; leaf blade subsessile, ovate-lanceolate, 10-20 × 5-10 cm, apex long-acuminate, base attenuate and subcordate, loosely pubescent with yellowish brown hairs on both faces; inflorescence terminal, cylindric, to c. 5 cm long; bracts pubescent; labellum *yellow.*

Ecology unknown; 350-700 m alt.

(**C. giganteus** Welw. ex Ridl.)

Known from São Tomé, Príncipe.

C. lateriflorus Baker; Sosef & al., Check-list pl. vascul. Gabon: 419, 2006; Specht (2006): 636.

Epiphyte with leafy shoots apparently sarmentose; leaf blade *ovate,* glabrous, c. 8-18 × 3-8 cm, apex shortly acuminate, base attenuate; flowers many in a cluster from *the side* of the shoot, with *bracts at the base* c. 5 mm long, head *shortly stalked;* corolla pink, labellum *pale yellow* with a *red patch* inside; fruit unknown ?

Ecology unknown (? forest); 5-975 m alt.

Near *C. letestui.*

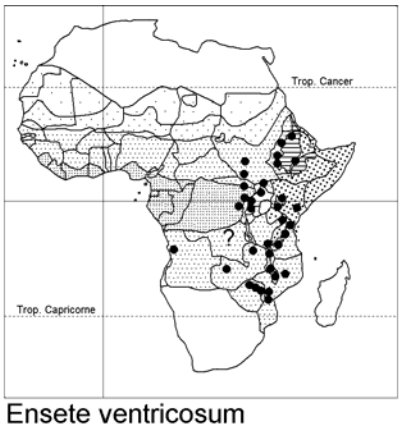
(**C. ledermannii** Loes.)

Robust herb 3-4 m tall; leaf petiole 6-7 mm long; blade oblanceolate, 21-33 × 5-7 cm, sparsely pilose-ciliate, apex caudate-acuminate, narrowed and ± subrotundate at base; ligule to 1,5 cm long; inflorescence c. 32 cm long, 4 cm Ø; peduncle 24 cm long; lower bracts 1,5-3,5 cm long; flowers white, throat yellow.

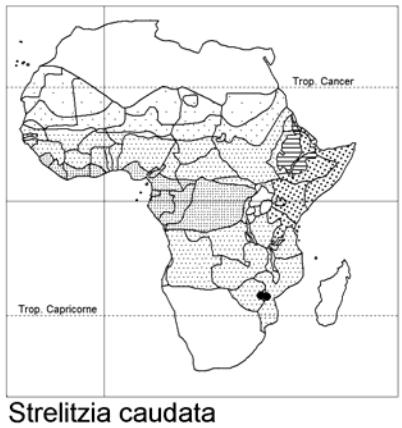
Cameroon, Bodje (2°33'Nx9°49'E): coastal forest with ferns, *Aframomum.*

Type: Ledermann 344, lost. Not mapped.

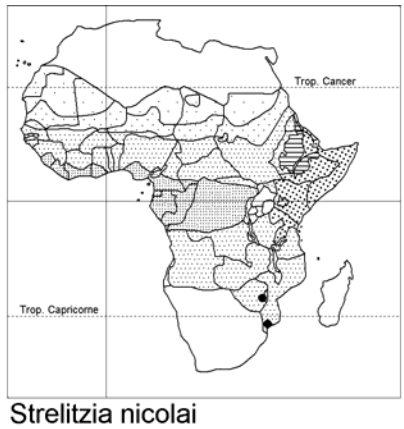
Taxonomic status uncertain. Described as close to *(C. zechii =) C. dubius.*



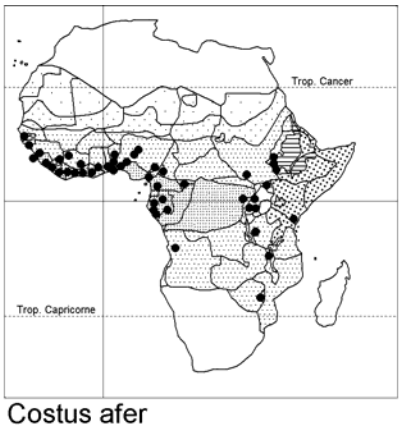
Ensete ventricosum



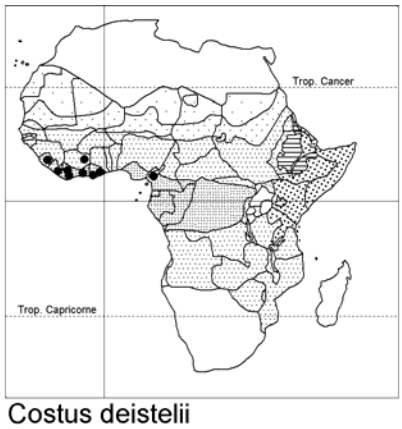
Strelitzia caudata



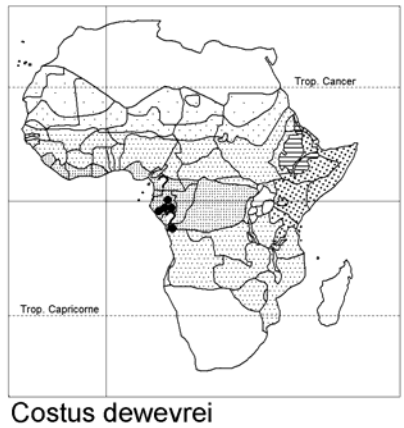
Strelitzia nicolai



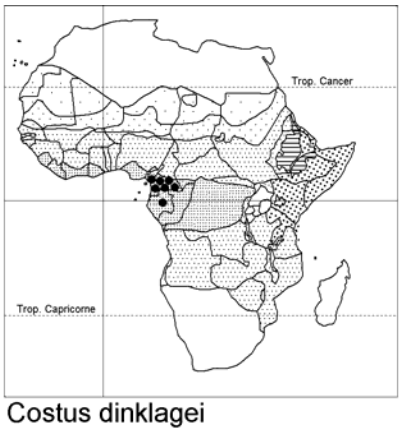
Costus afer



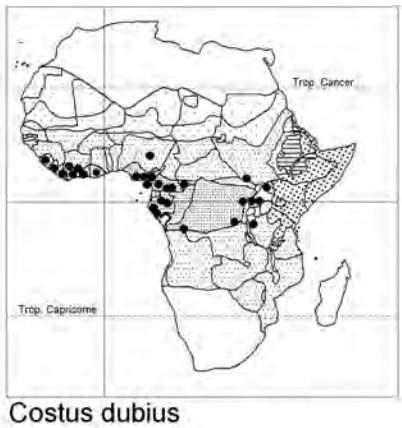
Costus deistelii



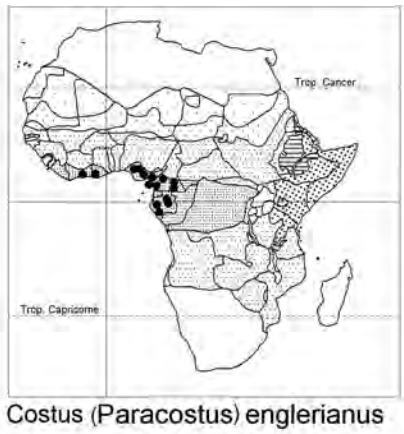
Costus dewevrei



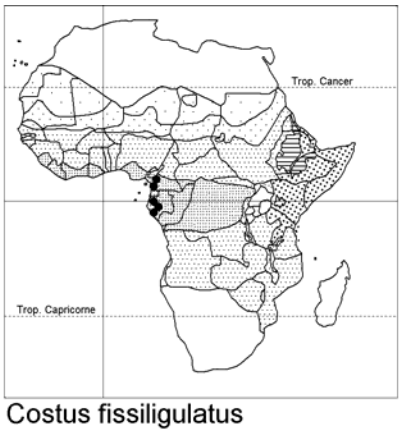
Costus dinklagei



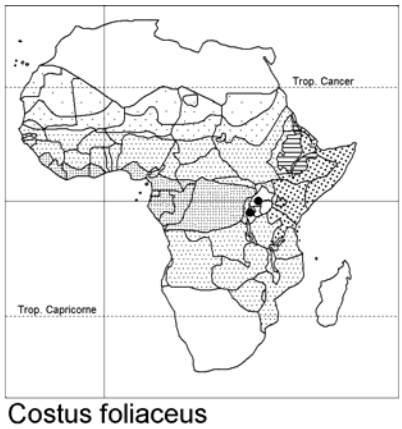
Costus dubius



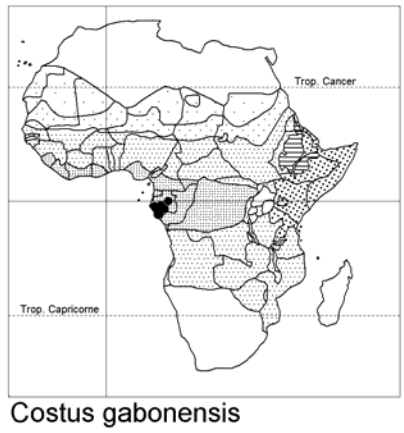
Costus (Paracostus) englerianus



Costus fissiligulatus



Costus foliaceus



Costus gabonensis

COSTUS

C. letestui Pellegr.; Cable & Cheek, Pl. Mt Cameroon: 153, 1998; Cheek & al., Pl. Mt Kupe…: 434, 2004; Sosef & al., Check-list pl. vascul. Gabon: 419, 2006; Specht (2006): 636; Harvey & al., Pl. Lebialem Highl., Cameroon: 152, 2010. – Icon.: Fl. Gabon: 9: 17, 79, 1964.

Epiphytic herb; stems pendulous, 0,5-2-6 m long, spirally twisted towards tips; leaves elliptic to *narrowly oblanceolate*, 9-15 × 2-5 cm, glabrous; ligule cylindrical, truncate, at least 3 cm long; inflorescence *axillary* with 2-3 spikes, each 3-10-flowered; bracts shorter than calyces; corolla pale pink; labellum *pink* with yellow centre.

Forest, epiphyte; 70-1550 m alt.

Near *C. lateriflorus*. – Cf. below under *C. talbotii*.

C. ligularis Pellegr.; Sosef & al., l.c. – Icon.: Pellegr., Flore du Mayombé 3: pl. 5, 1938 (Mém. Soc. Linn. Normandie, N.S., Bot. 1/4).

syn.: *C. fimbriatus* Pellegr.; *C. ngouniensis* Pellegr.

Erect herb to 1,5 m tall, slightly succulent, with well developed leaves towards the apex, and only with red sheaths towards the base; blade broadly oblanceolate, attenuate at both ends, *pubescent on both faces*, 12 × 7 cm; ligule *to 3,5 cm* long; inflorescence terminal or arising from the rhizome; spike ovoid, 1-2 cm long; 1 flower per bract; corolla and labellum *pinkish violet*, margins *long-fimbriate*.

Ecology unknown ?; 25-600 m alt.

Near *C. nudicaulis*, *C. fissiligulatus*.

C. lucanusianus J. Braun & K. Schum., incl. var. *major* K. Schum.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 555-556, 1985; Cable & Cheek, Pl. Mt Cameroon: 153, 1998; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c48, 2001; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 226, 2002; Cheek & al., Pl. Mt Kupe…: 434, 2004; Specht (2006): 636; Sosef & al., Check-list pl. vascul. Gabon: 419, 2006; Lisowski, Fl. Rép. Guinée 1: 485, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 302, 2010; Cheek & al., Pl. Mefou proposed natl. park Yaoundé, Cameroon: 220-221, 2011; M. Renier, Flore du Kwango 1: 105, 1948. – Icon.: Engler, Pflanzenreich 4/46: 391, 1904; Adam, Fl. Mts Nimba 5: 1809, 1981; Fl. Eth. & Eritrea 6: 331, 1997; L. White & K. Abernethy, Guide végét. Rés. Lopé: 100, 1996; Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 104, 2007.

syn.: *C. bingervillensis* A. Chev., nom. subnud., p.p. quoad specim. Chevalier 17280.

Perennial herb with spirally leafy shoots 1,5-3 m tall; leaf blade elliptic, 21-35 × 4,5-10 cm, narrowed to the rounded or subcordate base, *appressed-pubescent beneath* with hairy rim, hairs c. 5 mm long, glabrous above, apex acuminate; pseudopetiole 5-10 mm long; ligule sheath united to the leaf sheath by a long-hairy raised ridge; inflorescence terminal, globose, c. 10 cm Ø; calyces much longer than bracts; petals white, labellum dark red towards margin, with a central yellow streak; fruit 1,2-1,4 cm long.

Seasonally or permanently wet areas in forest; gallery north of forest limit; regrowth; degraded forest; disturbed secondary forest with much undergrowth; forest edge; swampy hollow; moist ground in forest with *Aningeria altissima;* roadsides; river sides; 4-1400m alt.

Bioko/Fernando Poo. – Reported from Angola by Gossweiler (cf. Figueiredo & Smith, Pl. Angola: 177, 2008).

Very close to *C. afer* (really distinct ?). The hybrid *C. afer*-*C. lucanusianus* is cited by Edeoga & Okoli (1997). For chromosome numbers, see Edeoga & Okoli (2000).

COSTUS

C. maboumiensis Pellegr.; Sosef & al., Check-list pl. vascul. Gabon: 419, 2006.

Perennial herb with spirally twisted leafy shoots *and* flowering shoots, to 1,6 m tall and more; leaf petiole c. 5 mm long, shortly pubescent; blade glabrous except for the margins, oblanceolate, c. 20 × 9 cm, apex caudate-acuminate, narrowed towards the rounded base; ligule obliquely truncate, 1,2-1,5 cm long, somewhat pubescent like the petiole; flowering shoots arising from the rhizome; peduncle to c. 35 cm long, covered by sheaths 2-4 cm long, transversely red-streaked; spike 4-5 × 3-4 cm, bracts with *1 flower* each; corolla *dark red-brown*, c. 4,5 cm long; labellum *yellow*.

Ecology not recorded; 200 m alt.

C. macranthus K. Schum.; Kew Bull. 39: 841-842, 1984; Fl. Zambes. 13/4: 117, 2010.

syn.: *Cadalvena spectabilis* sensu C. H. Wright in Bot. Mag. 131: pl. 7992, 1905, non Fenzl

Perennial herb to c. 20 cm tall; leafy stems borne laterally on the rhizome, with a few reduced leaves and 3-4 cross-shaped leaves *appressed to the ground;* blade obovate (to rounded), 7-19 × 5-22 cm, glabrous above, appressed-pubescent beneath, green with pink-reddish margin, apex obtuse, base broad cuneate; inflorescence terminal in centre of leaf rosette, 6-10-flowered, one flower open at a time; calyx 3,5-5 cm long, glabrous; corolla tube 7-9 cm long; petals narrowly elliptic, 6-8 cm long, yellow; labellum large, yellow, 8-11 cm long; anthers 9-13 mm long; fruit subterranean, otherwise unknown; seeds unknown.

Deciduous woodland; open bush; wooded grassland; often on rocky hillsides; in sandy soil; 250-1700 m alt.

Confused with *C. spectabilis* but flower parts larger (cf. below under this species).

(**C. maculatus** Roscoe); Sosef & al., Check-list pl. vascul. Gabon: 419, 2006.

syn.: *C. afer* Ker Gawl. var. *maculatus* (Roscoe) Baker

New combination by Baker, Fl. Trop. Afr. 7: 299, 1898. According to him, this variety differs from *C. afer* by the "flowering stems produced direct from the root [rhizome], covered by imbricate leaf sheaths". Cited by him from Sierra Leone, Don; "dried specimens of a plant cultivated at Kew in 1883 show the tall leafy stems of the type, and the short leafless stems of the variety from the same root".

Specimens from Gabon (Klaine 3559, Libreville; Le Testu s.n., Mayumba) and Cameroon (J. Braun s.n., Batanga), cited by Koechlin in Fl. Gabon 9: 70, 1964, and Fl. Cameroun 4: 80, 1965, respectively, key out with *C. albus (= C. dubius)*. Spike ovoid, 3-5 cm Ø, each bract subtending 2 flowers; calyx glabrous; corolla white; labellum 5 cm long, white with pink spots near the tip. These specimens are in need of further study.

This variety does not figure in Fl. W. Trop. Afr., ed. 2, 3/1: 77-79, 1968. Taxonomic status uncertain.

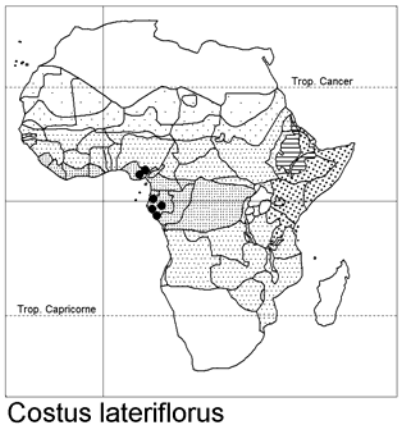
Not mapped.

(**C. megalobractea** K. Schum.)

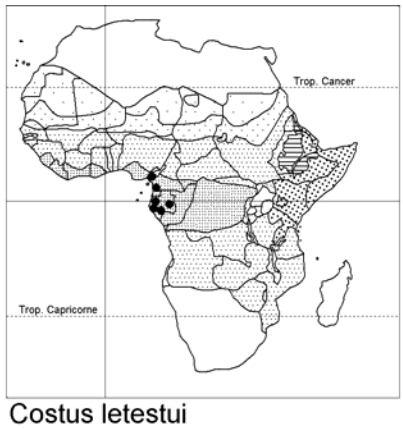
Robust perennial herb with distinct leafy and flowering shoots; leafy stems 20-30 cm tall, 1,5 cm Ø, glabrous; leaves short petiolate (4-5 mm long), lanceolate-suboblanceolate, acuminate-caudate, base shortly rounded; ligule 5 mm long, obliquely truncate; corolla probably white, with a tube 1,2 cm long; labellum unknown; fruit unknown, but ovary glabrous, 6 mm long.

Cameroon: Gross-Batanga; type: J. Braun 1888, lost.

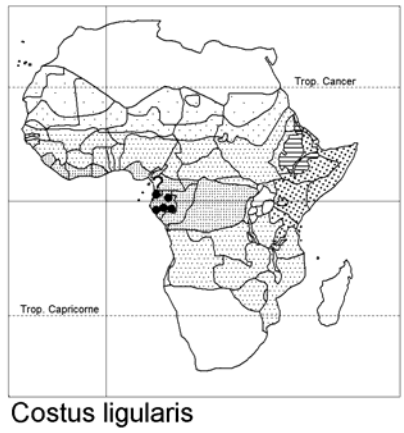
According to Braun could be near *C. lucanusianum* but not approved by K. Schumann. But perhaps near *C. dinklagei*. – Taxonomic status uncertain. Not mapped.



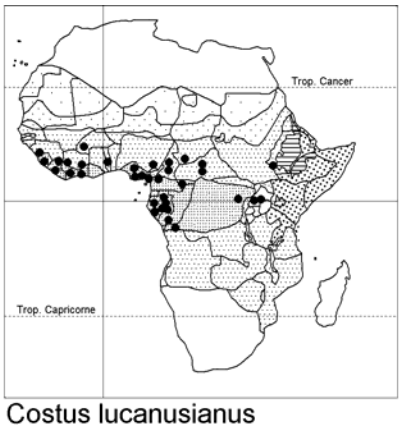
Costus lateriflorus



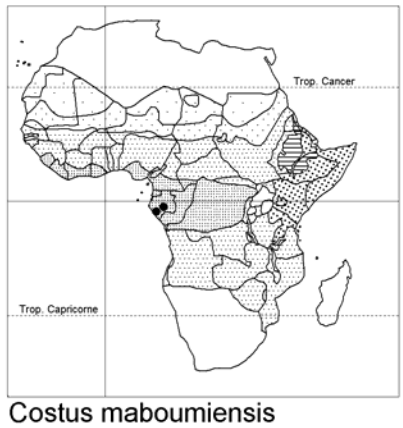
Costus letestui



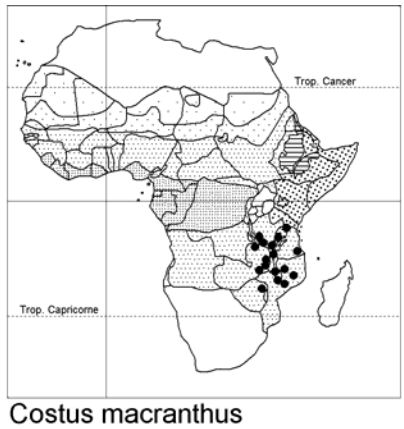
Costus ligularis



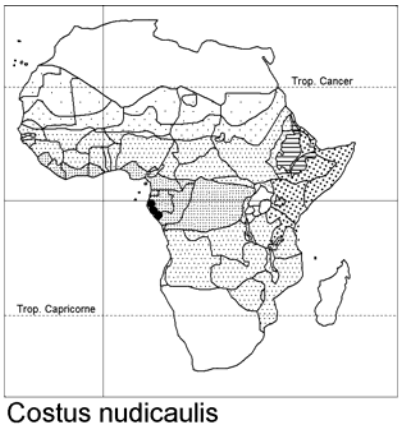
Costus lucanusianus



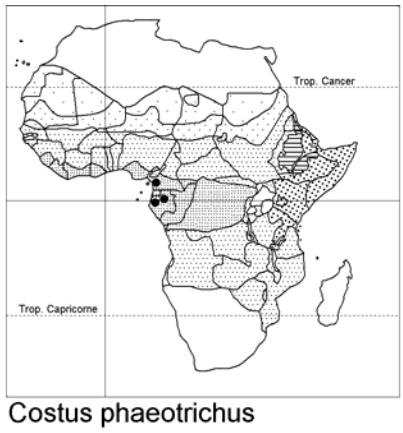
Costus maboumiensis



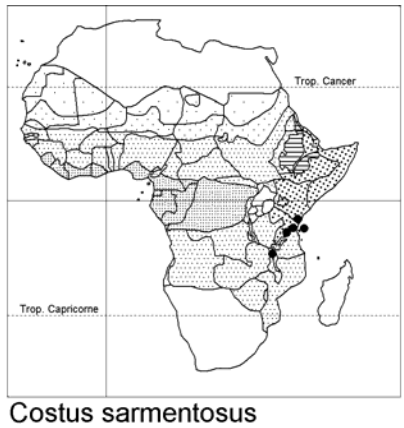
Costus macranthus



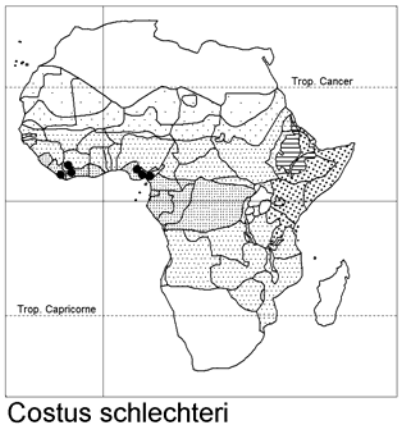
Costus nudicaulis



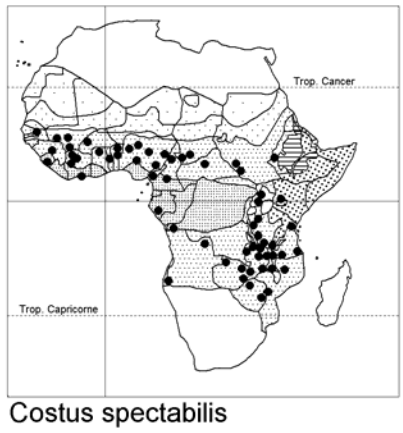
Costus phaeotrichus



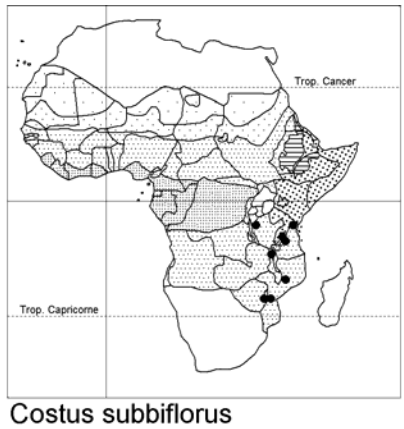
Costus sarmentosus



Costus schlechteri



Costus spectabilis



Costus subbiflorus

COSTUS

(**C. mosaicus** W. Bull), A Catalogue of New, Beautiful and Rare Plants and Orchids offered by William Bull, 536, King's Road, Chelsea (and Ashburnham Park), London, S.W.: 10, 1887.

"The obliquely lanceolate leaves, which are from three to four inches [7,5-10 cm] long, are arranged in a spiral manner on succulent stems, and have a central irregular band of dark green, the remaining portion being ornamented with a pretty mosaic variegation of silvery grey."

Imported from Congo. No dried specimen known.

William Bull introduced "many interesting plants, especially warm-house plants of decorative character…" (Gard. Chron., Ser. 3, 31: 381, 1902).

Taxonomic status unknown. Not mapped.

(**C. nemotrichus** K. Schum.) – Icon.: Engler, Pflanzenreich 4/46: 415, 1904.

Epiphyte with leafy shoots to 60 cm long; leaves shortly petiolate, oblong(-lanceolate), 8-12 × 4-5 cm, acute, base cuneate, ciliate beneath and on petiole and sheath with long hairs; spikes arising from the rhizome, 2,5 cm long, on 4 cm long peduncle, 4-flowered; corolla tube 1,5 cm long, lobes acute, lanceolate, 1,5 cm long; labellum 3,7 cm long with flaccid hairs.

Forest.

Cameroon: Gross-Batanga; type: Dinklage 954, lost.

Said to have the habit of *C. bicolor.* Perhaps near *C. tappenbeckianus.* Taxonomic status uncertain. – Not mapped.

C. nudicaulis Baker; Sosef & al., Check-list pl. vascul. Gabon: 419, 2006. – Icon.: Fl. Gabon 9: 77, 1964.

Epiphytic herb with shoots to c. 30 cm tall covered with tubulous pubescent sheaths; leaves subverticillate, crowded at the shoot-apex; blade ovate-lanceolate, glabrous, attenuate at both ends, c. 10 × 4,5 cm; inflorescence terminal, a dense spike c. 4 cm long; bracts with 1 flower each; corolla-tube yellow, lobes c. 3,7 cm long, oblanceolate, pink; labellum yellow with red spots in the throat; fruit unknown.

Ecology unknown ?; 310-480 m alt.

Near *C. ligularis, C. fissiligulatus;* living material needed.

Var. *pilosa* Gagnep. (Lecomte B25) needs further study.

C. phaeotrichus Loes.; Sosef & al., l.c.; Specht (2006): 636. – Icon.: Fl. Gabon 9: 79, 1964.

Rhizomatous herb with leafy shoots 35-70 cm tall; leaves few, sometimes 1; petiole 1-6 mm long, brown pubescent; blade broadly elliptic, 10-16 × 4,2-8,5 cm, apex shortly acuminate, base attenuate, long brown pubescent on both faces; inflorescence arising from the rhizome, a spike 10 cm long, 2 cm Ø; bracts pink, 3 cm long, each with 2 flowers; corolla 6 cm long, white; labellum fimbriate, pink with a median yellow line; fruit unknown ?

Flooded open forest; rocky slope in forest; 180-200 m alt.

(**C. phyllocephalus** K. Schum.); Fl. Trop. Afr. 7: 298, 1898; Bull. Soc. Roy. Bot. Belg. 37: 126, 1898; Ann. Mus. Congo, Bot., Sér. 3, 1/2: 230, 1901; Engler, Pflanzenreich 4/46: 386, 1904; Figueiredo & Smith, Pl. Angola: 177, 2008; M. Renier, Flore du Kwango 1: 106, 1948. – Icon.: Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 105, 2007.

COSTUS PHYLLOCEPHALUS

Resembling *C. fissiligulatus* but leaves glabrous; spike globose, many-flowered, 5 cm Ø; corolla tube 1,5 cm long; lobes lanceolate, 4 cm long; labellum obovate, white and pale pink, 5,5 cm long; fruit unknown ?

Angola: Quango River, on banks (type: Teucsz in Mechow n° 508). Also reported from Zaire: Equateur (Dewèvre n° 556; Bingila (Dupuis s.n.); Bas-Congo (Kinshasa, cf. Latham & Konda, l.c.; Kikongo and Kimbala, cf. Renier, l.c.).
Taxonomic status uncertain. Not mapped.

C. sarmentosus Bojer; Fl. Zambes. 13/4: 118, 2010.

syn.: *C. ulugurensis* K. Schum.

Perennial herb with erect leafy shoots 1,5-3,5 m tall; leaf blades elliptic to obovate, 14-31 × 4-10 cm, narrowed below to the rounded or subcordate base, appressed *pubescent on midrib below* and ascending pilose on margins, apex acuminate; petiole 3-10 mm long; ligule with an *arachnose margin* and a *ring of hairs at the junction of* the *petiole;* inflorescences *usually terminal,* but sometimes borne on *separate leafless* bracteate shoots; petals white; labellum white, flushed pink at apex with a yellow patch in the centre; fruit obovoid, c. 12 × 9 mm.

Forest, usually near water; woodland; evergreen forest, forest margins; 0-1100 m alt.

Near *C. subbiflorus.* May be confused with *C. afer.*

C. schlechteri H. J. P. Winkler; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 556, 1985; Cable & Cheek, Pl. Mt Cameroon: 153, 1998.

Semi-woody herb to 1,8-2 m tall with leafy shoots 1-1,2 cm Ø; stem and leaves densely setose and with fine short pubescence below (i.e. two kinds of hairs); edge of sheaths lanate with long matted hairs; petiole 5 mm long; lamina oblong, c. 30 × 30 cm, apex acuminate, base attenuate; inflorescences terminal (? or also basal); flowers uniform pale pink (? or also white); fruit unknown ?

Rain-forest.

In Fl. Cameroun 4: 95, 1965, treated as an imperfectly known spec.

C. spectabilis (Fenzl) K. Schum.; Burkill, l.c.; Kew Bull. 39: 841, 1984; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 309, 1994; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c48, 2001; Sosef & al., Check-list pl. vascul. Gabon: 419, 2006; Specht (2006): 636; Figueiredo & Smith, Pl. Angola: 177, 2008; Lisowski, Fl. Rép. Guinée 1: 485, 2009; E. Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 175, 2011; M. Renier, Flore du Kwango 1: 105, 1948. – Icon.: Hook. Ic. Pl. 31: pl. 3013, 1915 *(C. dalzielii);* Bot. Mag. 131: p. 7992, 1905 (sub gen. *Cadalvena);* Fl. Trop. E. Afr., Zingiberaceae: 5, 1985; Fl. Eth. & Eritrea 6: 331, 1997; Akoegninou & al., Fl. analyt. Bénin: 261, 2006; Fl. Zambes. 13/4: 116, 2010.

bas.: *Cadalvena spectabilis* Fenzl

syn.: *C. dalzielii* C. H. Wright; *C. pistiifolia* (K. Schum.) Baker; *Costus pistiifolius* K. Schum.; *Kaempferia spectabilis* (Fenzl) Baker

Perennial herb with a rhizome covered in brown papery scales, hairy in their lower half; leafy stem below ground, lateral on rhizome, with several reduced leaves and 3-4 *normal leaves* spread *flat on the ground* in a *cross-like pattern,* 4-17 cm broad and long, obovate-orbicular, rounded to a mucronate apex with fairly *numerous ascending nerves* and *fine parallel transverse veins,* pubescent below; inflorescence terminal, 6-12-flowered, arising from the centre of the rosette, usually one flower open at one time; petals yellow to bright orange; labellum large, yellow; fruit subterranean, poorly known; seeds unknown.

COSTUS SPECTABILIS

Rocky savanna; black soil in *Oxytenanthera* thicket with some *Combretum-Terminalia* woodland; in shade on sandy soil in open *Combretum-Terminalia* or *Isoberlinia* woodland; elsewhere in seasonal grassland; often around termitaria; among rocks; flooded plateau with black soil, under shade; sometimes in shallow soil over granite; 150-1850 m alt.

S. Tomé.

Sometimes cultivated as an ornamental, but not particularly easy.

Resembling *C. macranthus* (see above under this species), but calyx 2-3 cm long, corolla tube length 2,5-4,5 cm, petal length 2-4,5 cm, labellum length 2-5 cm, stamen 4,5-6 cm long; flowers deeper yellow.

C. subbiflorus K. Schum. – Icon.: Fl. Zambes. 13/4: 119, 2010.

Perennial herb with erect leafy stems 2-5 m tall; leaves elliptic, 20-25 × 4,5-7 cm, narrowed below to the cuneate to subcordate base, glabrous except for a line of ascending marginal hairs, apex acuminate; petiole 3-5 mm long; inflorescences terminal on leafy shoots, or sometimes terminating separate basal shoots; bracts subtending a single flower; petals white, oblong, c. 3,5 cm long; labellum c. 3,5 × 3 cm, white with reddish tip and central yellow mark; stamen c. 3 × 1 cm.

Riverine forest; evergreen forest; 40-1070 m alt.

Close to *C. sarmentosus* but ligule and midrib glabrous below. May be confused with *C. afer*.

C. talbotii Ridl.; Fl. W. Trop. Afr., ed. 2, 3/1: 78, 1968; Specht (2006): 636.

Epiphytic herb with ramose wiry stem covered with very long cylindrical ligules, reaching nearly to the next leaf; leaf oblong, 12-20 × 4,5-5 cm, glabrous, petiole 4 mm long, acumen 2 cm long; inflorescence lateral with few flowers, on leafy shoots, surrounded by a few imbricated ovate bracts to 2 cm long, forming a compact subsessile head c. 2 cm across.

Ecology unknown.

Near *C. lateriflorus.*

Only known from Talbot 1521. The specimen Zenker 3823 cited by Ridley in Rendle, Catalogue of the plants collected by Mr. & Mrs P. A. Talbot in the Oban district South Nigeria: 111, 1913, is *C. letestui*.

C. tappenbeckianus J. Braun & K. Schum.; Sosef & al., Check-list pl. vascul. Gabon: 419, 2006.

syn.: *C. radicans* Gagnep.; *C. pauciflorus* K. Schum.

Rhizomatous perennial herb with leafy shoots 17-35 cm tall, 4-6 mm Ø, covered at base with cylindrical sheaths; leaves crowded towards the apex, 4-5, with short petiole; blade broadly oblanceolate to elliptic, 10-14 × 4,5-7,5 cm, pubescent above along the main nerve, *very sparsely elsewhere;* apex acuminate, attenuate becoming rounded at base; blade *violet* to *red*, below, very finely appressed pubescent; inflorescence arising from the rhizome, a spike 2-7 cm long, 2-4-flowered, on a peduncle 1-3 cm long; corolla white, labellum pink with a white median zone; fruit unknown ?

Swampy or humid open forest; 800 m alt.

Near *C. phaeotrichus.*

COSTUS

C. ubangiensis Gagnep.; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 226, 2002. – Icon.: Fl. Cameroun 4: 89, 1965.

Herb with leafy stems to 1 m tall, 1 cm Ø; leaf petiole 4 mm long, pubescent; blade lanceolate, to 17 × 7,5 cm, glabrous above, *pubescent beneath*, base attenuate, apex acuminate; spike terminal, subglobose, *3-6 cm long;* bracts subtending a single flower each; fruit unknown ?

Forest with *Gilbertiodendron dewevrei*, and occasionally mixed species terra firma forest.

Probably also in S Cameroon. Known from only 2-3 specimens from Centr. Afr. Rep., one without locality (and perhaps Chevalier 11010, Centr. Afr. Rep. or Congo-Brazzaville).

Near *C. ligularis.*

C. violaceus J. Koechlin; Sosef & al., Check-list pl. vascul. Gabon: 419, 2006.

Herb with erect spirally twisted leafy shoots; leaf petiole c. 5 mm long; blade oblanceolate, 20-25 × 4,5 cm, glabrous except for a light pubescence on the midrib beneath, apex long acuminate, base attenuate; spike terminal, dense, c. 6 × 3 cm; *bracts dark violet-garnet-red*, subtending *a single flower* each, c. 2 cm long; calyx *violet;* corolla yellowish-white, tinged pinkish towards tips; labellum a little longer than petals, pinkish white, throat yellow; fruit unknown ?

Ecology not recorded; 5 m alt.

Described as near *C. dubius, C. afer.*

SYNONYMS:

Costus adolphi-friderici Loes. = **Costus dubius**

afer Ker Gawl. var. *maculatus* (Roscoe) Baker = (**C. maculatus**)

anomocalyx K. Schum. = **C. afer**

bingervillensis A. Chev. p.p. (Chevalier 15214) = **C. afer**

bingervillensis A. Chev. p.p. (Chevalier 17280) = **C. lucanusianus**

bingervillensis A. Chev. p.p. (Chevalier 19883) = **?**

fimbriatus Pellegr. = **C. ligularis**

insularis A. Chev. = **C. afer**

littoralis K. Schum. = **C. afer**

luteus A. Chev. = **C. afer**

ngouniensis Pellegr. = **C. ligularis**

oblitterans K. Schum. = **C. afer**

pauciflorus K. Schum. = **C. tappenbeckianus**

pistiifolius K. Schum. = **C. spectabilis**

prodigiosus A. Chev. = **C. afer**

pterometra K. Schum. = **C. afer**

pulcherrimus A. Chev. = **C. deistelii**

radicans Gagnep. = **C. tappenbeckianus**

sp. A. sensu F.T.E.A., Zingiber.: 10, 1985 = **C. foliaceus**

ulugurensis K. Schum. = **C. sarmentosus**

unifolius N. E. Br. = **C. englerianus**

zechii K. Schum. = **C. dubius**

(PARACOSTUS)

Paracostus englerianus (K. Schum.) C. Specht = **Costus englerianus**

ZINGIBERACEAE / *4* g. / *75+1* ? spp.

excl. *Costus (Costaceae).*

The family is part of the old grouping *Scitamineae* (cf. *Musaceae* above). Pantropical with c. 50 genera and some 1300 species (there are substantial differences between the various authors); the centre of diversity is S & SE Asia, with some species in America.

Differs from *Costaceae* (see above), e.g., in the phyllotaxy (leaves distichous), in the presence of oil cells (aromatic plants), in the form of the stamen (single, often petaloid), in the labellum formed from 2 (not 5) fused staminodes.

Several species are cultivated. Some are important spices, e.g. root ginger *(Zingiber officinale* Roscoe) and turmeric *(Curcuma longa* L.) for their aromatic rhizomes; cardamoms *[Elettaria cardamomum* (L.) Maton] and grains of paradise or melegueta *(Aframomum melegueta* K. Schum.) for their spicy seeds. Locally many species are used as condiment *(Aframomum,* etc.) and perfumes *(Hedychium).* Others are grown as ornamentals, e.g. *Etlingera elatior* (Jack) R. M. Sm. with cone-like heads, *Hedychium coronarium* Koenig, ginger lily, with large white sweet-scented flowers in loose inflorescences, and *Alpinia purpurata* (Vieill.) K. Schum. with persistent purple-red bracts around the spike (cf. Lock in Fl. Zambes. 13/4: 121, 2010). The family is not revised for Flore d'Afrique Centrale.

Several species in our area are imperfectly known: flowers are unknown in 1+1 ? species; fruit unknown in 6+ 2 ? species (= c. 9%) and in 7 further species the *mature* fruit is unknown (= c. 9%; in all = c. 19%); the ecology is not recorded for 2 species.

KRESS, W. J. & al. (2002). The phylogeny and a new classification of the gingers (Zingiberaceae): evidence from molecular data. *Amer. J. Bot.* 89: 1682-1696.

KRESS, W. J. & al. (2007). An analysis of generic circumscriptions in tribe Alpinieae (Alpinioideae: Zingiberaceae). *Gard. Bull. Singapore* 59: 113-128.

LARSEN, K. & al. (1998). Zingiberaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants* 4. *Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae):* 474-495.

LOCK, M. (2010). Zingiberaceae. *In: Flora Zambesiaca* 13/4: 120-140. Royal Botanic Gardens, Kew.

POULSEN, A. D. & J. M. LOCK (1997). New species and new records of Zingiberaceae and Costaceae from Tropical East Africa. *Kew Bull.* 52: 601-616.

POULSEN, A. D. & J. M. LOCK (1999). A review of African forest Zingiberaceae. *In:* TIMBERLAKE, J. & S. KATIVU, eds., *African Plants: Biodiversity, Taxonomy and Uses:* 51-64. Royal Botanic Gardens, Kew.

SCHUMANN, K. (1904). Zingiberaceae. *In:* ENGLER, A., ed., *Das Pflanzenreich* 4/46: 1-458. Verlag von Wilhelm Engelmann, Leipzig.

SHI, Lin-Chun & al. (2011). Testing the potential of proposed DNA barcodes for species identification of Zingiberaceae. *J. Syst. Evol.* 49: 261-266.

SMITH, R. M. (1998). FSA Contributions 11: Zingiberaceae. *Bothalia* 28: 35-39.

AFRAMOMUM / *49*

The largest genus of African *Zingiberaceae,* of c. 50 species, mainly growing in forest, well known because of the red fleshy fruits containing a sweet juicy pulp (appreciated as refreshment), which are dispersed by primates and other mammals (see Harris & al., o.c.). Closely related to some tropical Asian *Amomum.*

Variable in vegetative morphology as well as in floral characters. The flowers are very delicate and open for a single day at the most. The "genus is difficult to understand on the basis of herbarium specimens alone, …there are probably more species than are presently recognized" (Poulsen & Lock, 1999: 52). It is important that leaves, flowers and fruits be very carefully correlated by collectors (Lock & Hall in Kew Bull. 28: 441-449, 1973).

Reticulation pattern of variation is widespread. A new key (by Lock) to the West African species figures in Kew Bull. 35: 299-301, 1980.

Many species in our area are poorly known; also are there undescribed taxa (cf. at end of the genus). Flowers are lacking in 1+ 1 ? species, fruits in 1+1 ? species, and in 3 species only unripe fruits are known; the ecology is not recorded for 2 species.

HARRIS, D. J. & al. (2000). Rapid radiation in Aframomum (Zingiberaceae): Evidence from nuclear ribosomal DNA internal transcribed spacer (ITS) sequences. *Edinb. J. Bot.* 57: 377-395.

Aframomum albiflorum Lock; Kew Bull. 39: 839, 1984; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 187, 2006; Fl. Zambes. 13/4: 139-140, 2010. – Icon.: Notes Roy. Bot. Gard. Edinb. 31: 191, 1972 (sub nom. *A. luteoalbum).*

Perennial herb with extensive rhizomes 6-8 mm Ø; scales coriaceous, reddish brown; leafy shoots 2-3 m tall; leaves narrowly elliptic, acuminate, somewhat asymetrically rounded to cuneate at base, 25-33 × 4,5-8 cm, densely hairy on the *midrib beneath;* inflorescences 2-3-flowered, borne on the rhizomes between the leafy shoots; flowers white; fruit and seeds not (certainly) known.

Stream-fringing forest; *Eucalyptus* plantation; forest in understorey; forest margins; 900-1550 m alt.

Near *A. luteoalbum.*

A. alboviolaceum (Ridl.) K. Schum.; Bull. Jard. Bot. Natl. Belg. 49: 181-183, 1979; Kew Bull. 35: 307, 1980; Fl. Eth. & Eritrea 6: 325, 1997; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 308-309, 2000; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006; Figueiredo & Smith, Pl. Angola: 208, 2008; Lisowski, Fl. Rép. Guinée 1: 484, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 300, 2010. – Icon.: Fl. Cameroun 4: 67 figs. 5-6, 1965 *(A. kayserianum);* Fl. Gabon 9: 47, 1964 *(A. stipulatum);* Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 16, 2007; Fl. Zambes. 13/4: 138, 2010; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): photos. 869 a-b, 2010.

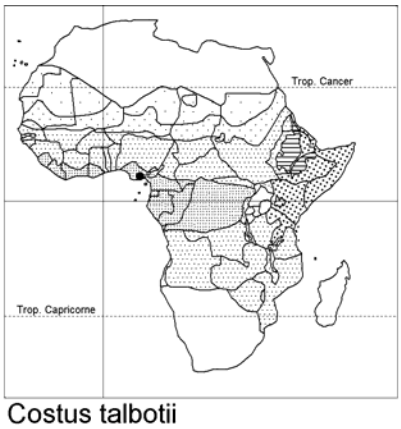
bas.: *Amomum alboviolaceum* Ridl.

syn.: Enum. 3: 35, 1995; *Cardamomum latifolium* Kuntze; *Ceratanthera beaumetzii* Heckel; ? *Aframomum macrospermum* (Sm.) Burkill

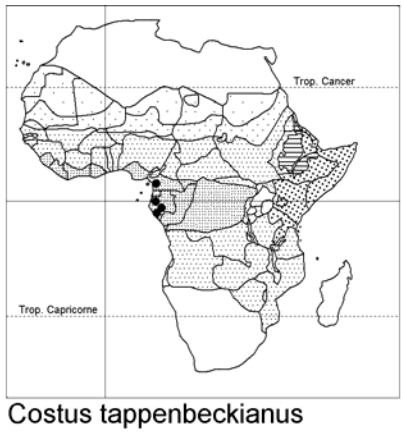
Perennial herb with extensive creeping rhizome c. 8 mm Ø buried at least 5 cm deep in the soil; leafy shoots 1,5-2,5 m tall; leaves ovate-lanceolate, to 32 × 9 cm, acuminate, base cuneate, glabrous except for a row of minute tooth-like hairs arising from raised bases on the margin; inflorescence 2-5-flowered, arising at base of an old leafy shoot which is often represented only by its charred based; flowers pale mauve to almost white; labellum (c. 8 cm long) with a yellow patch at base; fruit ovoid, to 10 × 7 cm (larger than any other *Aframomum).*

Moist savannas; often in *Brachystegia* woodland in the south, often with *Borassus aethiopum* in the north; often very abundant in savanna; open, well-drained grassland and woodland; wooded grassland with *Combretum molle, C. collinum, Entada abyssinica, Erythrina abyssinica, Hyparrhenia rufa, Pennisetum purpureum* (the both dominant); 100-1500 m alt. – The only *Aframomum* species occurring in woodland and grassland.

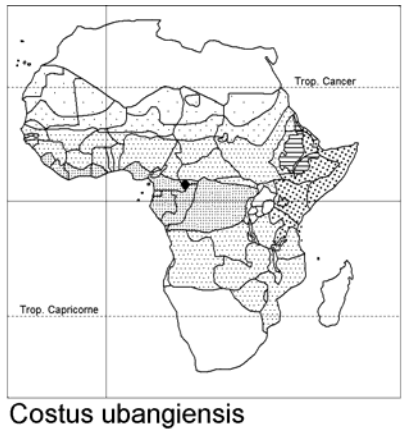
Probably under-recorded. Flowering early in the wet season.



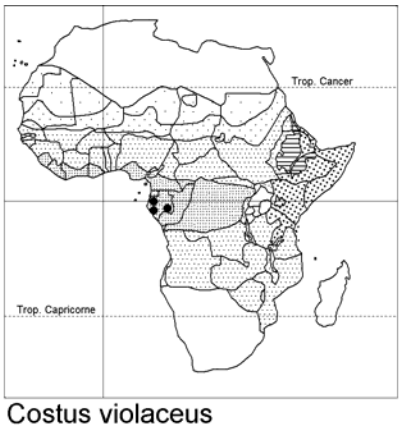
Costus talbotii



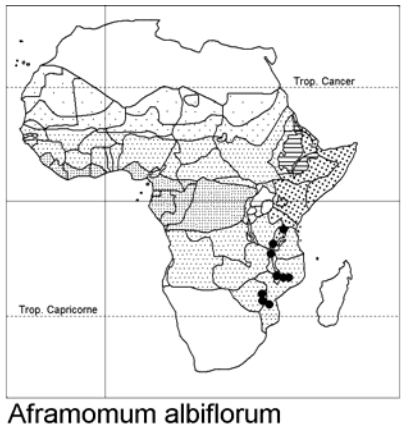
Costus tappenbeckianus



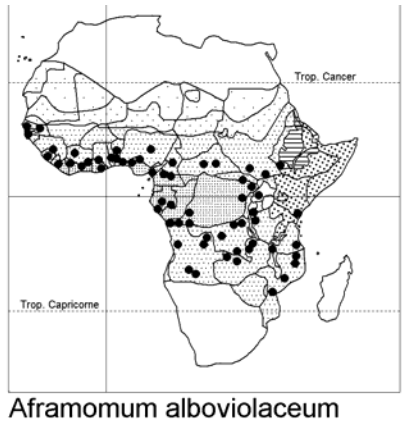
Costus ubangiensis



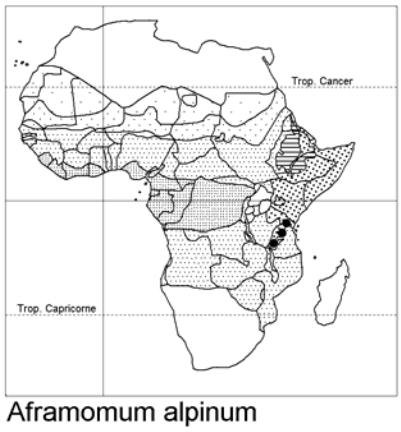
Costus violaceus



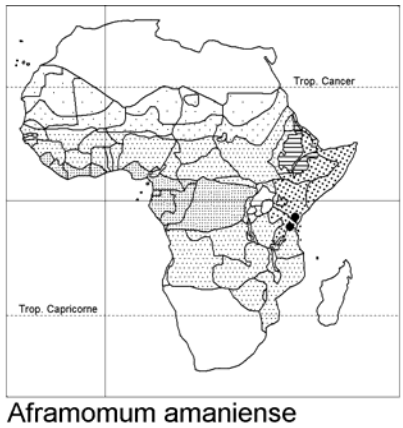
Aframomum albiflorum



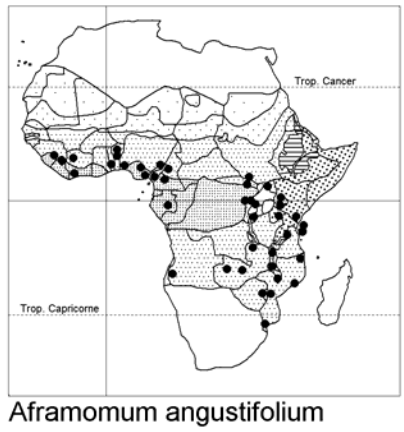
Aframomum alboviolaceum



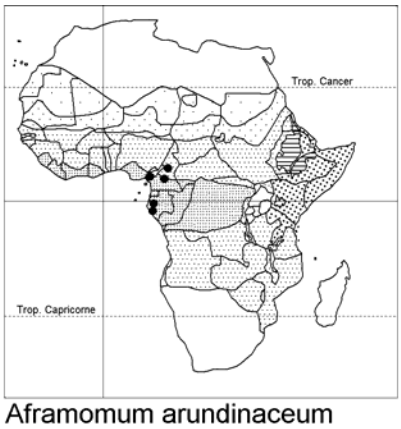
Aframomum alpinum



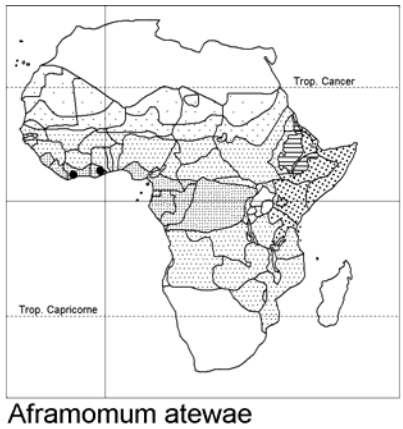
Aframomum amaniense



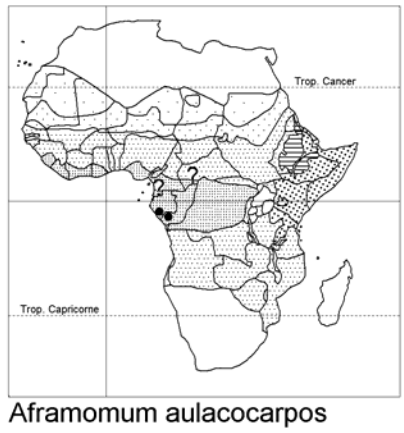
Aframomum angustifolium



Aframomum arundinaceum



Aframomum atewae



Aframomum aulacocarpos

A. alpinum (Gagnep.) K. Schum.

bas.: *Amomum alpinum* Gagnep.

Perennial herb with extensive rhizomes; scales chartaceous, brown; leafy shoots 1,5-2 m tall; leaves narrowly elliptic, 17-24 × 3-4 cm, caudate-acuminate, glabrous except for some sparse pubescence near apex of the midrib beneath; base cuneate, slightly asymmetric; inflorescences mostly on the rhizome but sometimes at base of the leafy shoot, 2-flowered; petals mauve to white; labellum 8-11 cm long, pale mauve or whitish with a yellow patch at base; fruit smooth, only known in immature state, partly or completely buried in the leaf litter.

Forest in undergrowth; 1200-1700 m alt.

Near *A. orientale.*

A. amaniense Loes.

Perennial herb with extensive rhizome; scales membraneous, pale brown, not persistent; leafy shoots 2-5 m tall; leaves narrowly obovate to elliptic, 25-33 × 5-6,5 cm, rather abruptly caudate-acuminate, glabrous above, sparsely appressed-pilose on lamina beneath, *margins* and *midrib beneath* with *dense rufous* appressed ascending hairs, base asymmetrical, cuneate; inflorescences 2-3-flowered, on the rhizome, ascending, only the apices of the calyx and the petaloid parts emerging from the soil; petals and labellum pale mauve or whitish with an orange-yellow patch at base of labellum; fruit *subterranean,* depressed-spherical, 3-lobed, ± 4 × 2,5 cm, with an apical projection ± 4 mm long.

Moist forest, probably where disturbed: 250-800 m alt.

A. angustifolium (Sonnerat) K. Schum.; Kew Bull. 35: 302, 1980; ibid. 39: 840, 1984; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 309, 1994; Harris & al. (2000): 382; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 309, 2000; Chapman & Chapman, Forests of Taraba & Adamawa States, Nigeria: c54, 2001; Akoegninou & al., Fl. analyt. Bénin: 259-260, 2006; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 187, 2006; Figueiredo & Smith, Pl. Angola: 208, 2008; Lisowski, Fl. Rép. Guinée 1: 484, 2009; Fl. Zambes. 13/4: 136-137, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 300-301, 2010; E. Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 225, 2011; Edinb. J. Bot.: 438, 2011 (Gabon). – Icon.: Engler, Pflanzenreich 4/46: 211 and 208, 1904 (details; sub nom. *A. baumannii);* A. Birnie & al. in Bull. EANHS 28/2: 11, 1998.

bas.: *Amomum angustifolium* Sonnerat

syn.: Enum. 3: 335, 1995; *A. madagascariense* Lam., nom. illegit.; *Zingiber melegueta* Gaertn., nom. illegit.; *Amomum meleguetta* ! Giseke, 1792, nom. illegit., non *A. melegueta* ! Roscoe, 1828 (= *Aframomum melegueta* K. Schum., 1904); *Marogna paludosa* Salisb., nom. illegit.; *Amomum clusii* Smith (cf. Bull. Jard. Bot. Belg. 48: 393-394, 1978); *A. nemorosum* Bojer, nom. nud.; *A. sansibaricum* Werth; *Aframomum hanburyi* K. Schum.; *Cardamomum angustifolium* (Sonnerat) Kuntze; *Amomum erythrocarpum* Ridl.; *Afromomum sceleratum* A. Chev. (Chevalier 24210) who explains how this name was given to the plant he collected in the Atacora Mts, at Bocorona (Bull. Soc. Bot. France 61, Mém. 8: 304, 1917): on pulling out this plant I was bitten by a little snake that was nestled among the dead leaves around; I narrowly escaped dying.

Perennial herb with extensive rhizome; scales coriaceous, red-brown; leafy shoots 1,5-4 m tall; leaves oblong-elliptic, 30-55 × 6,5-12,5 cm, abruptly acuminate, ± pubescent on the midrib beneath, base cuneate, slightly asymmetric; inflorescences 4-10-

flowered, simple or branched, arising at base of leafy shoots; petals red; labellum c. 7,5 cm long, yellow or pale orange; fruit ovoid to subglobose, 7-9,5 cm long, 3,2-3,7 cm Ø.

Forest and margins; moist shady places in hill savanna; forest gallery; often in pure stands at edge of stream fringing forest; open woodland; fallows; ground-water forests; seasonally dry forests near the savanna-forest boundary; 0-1829 m alt.

Some variations in this species near *A. daniellii, A. mala.* – "These two species *[A. angustifolium, A. daniellii]* form an extremely difficult and confusing group" (vide Lock, Kew Bull. 35: 303, 1980).

Madagascar; Mascarenes (probably introduced).

"The fruits were formerly traded as cardamoms and the range may have been artificially extended" (Fl. Zamb., l.c.).

A. arundinaceum (Oliv. & D. Hanb.) K. Schum.; Cheek & al., Pl. Kupe…: 473, 2004; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006. – Icon.: Fl. Gabon 9: 59, 1964.

bas.: *Amomum arundinaceum* Oliv. & D. Hanb.

Herb with creeping rhizome and leafy shoots 1,5-6 m tall, often pendent; leaf blade linear-lanceolate, apex acuminate, 30 × 5 cm, glabrous except on midrib beneath; inflorescence ? 1-flowered (or 2-3 ?), arising from the rhizome; bracts mucronate; corolla lobes 7 cm long, mauve; labellum mauve with yellow throat; fruit 7 × 4 cm.

Forest; 700 m alt. (Mt Kupe).

Bioko/Fernando Poo ?

A. atewae Lock & J. B. Hall (1974).

Perennial herb; rhizome 50 cm long; leafy shoots to 1 m tall; leaf lamina oblanceolate to elliptic, 18-25 × 4-5 cm, glabrous above, *densely pilose beneath,* apex acuminate; inflorescence *1-flowered,* arising from the rhizome, scattered; bracts brownish purple; flower *white;* labellum white or with yellow fine parallel lines in the throat; fruit *subterranean,* smooth, glabrous, *subspherical,* 1,5-2 cm Ø, pale straw-coloured, apex purplish, indehiscent, bacciform.

Quite common on the upper mountain range slopes, growing in forest openings with species of disturbed situations: *Anthocleista nobilis, Terminalia ivorensis, Erythroxylum mannii, Sabicea discolor, Scleria boivinii, Marantochloa purpurea, Pityrogramma calomelanos;* 600 m alt.

Near *A. subsericeum, A. limbatum.*

A. aulacocarpos Pellegr. ex Koechlin; Sosef & al., Check-list pl. vascul. Gabon : 417, 2006. – Icon.: Fl. Gabon 9: 43, 1964.

Erect herb with leafy shoots 1,5-2 m tall, pendent; leaf blade oblanceolate, c. 30-35 × 6-9 cm, glabrous, apex caudate-acuminate, base asymmetric; inflorescence *1-few-flowered* arising from the shoot-base; flowers mauve, arising at ground-level or just above; corolla lobes 5-6 cm long; fruit red, *9-ribbed,* 5-6 × 2,5 cm.

Ecology unknown.

Near *A. citratum.*

The specimen Le Testu 1717, Nguenda is from Gabon, but Le Testu 1756, Ndenga, is from Congo-Brazzaville.

A. cereum (Hook. f.) K. Schum.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 315-316, 2000; Kew Bull. 35: 310, 1980 *(A. sceptrum);* Akoegninou & al., Fl. analyt. Bénin: 260, 2006; Sosef & al., Check-list pl. vascul. Gabon: 418, 2006; Figueiredo & Smith,

AFRAMOMUM CEREUM

Pl. Angola: 208, 2008. – Icon.: Hook. Ic. Pl. 25: pl. 2477, 1896 (type Daniell s.n.); Bot. Mag. 95: pl. 5761, 1869; Boissiera 24a: 228, 1975 (leaf sheath surface).

bas.: *Amomum cereum* Hook. f.

syn.: *A. sceptrum* Oliv. & D. Hanb.; *A. masuianum* De Wild. & T. Durand; *Aframomum sceptrum* (Oliv. & D. Hanb.) K. Schum.; *A. masuianum* (De Wild. & T. Durand) K. Schum.; *Cardamomum cereum* (Hook. f.) Kuntze; *C. sceptrum* (Oliv. & D. Hanb.) Kuntze; *Zerumbet autranii* Heckel; *Amomum granum-paradisi* K. Schum.

Rhizomatous herb with leafy shoots to 2 m tall; leaf petiole to 8 mm long; blade glabrous, *narrowly lanceolate,* c. 25 × 6 cm, apex caudate-acuminate, base attenuate; ligule *membranous, bifid,* to 2 cm long; inflorescence a spike, 3-4-flowered, on a *peduncle* sometimes *to 30 cm* long, covered with *narrow* bracts, c. *2-4 × 0,7-1 cm;* flowers pale *mauve;* fruit 6,5-7,5 cm, *smooth.*

Often abundant just behind the sand beach (as *A. rostratum);* also in swampy places c. 15 km from the coast (Ghana); 2-600 m alt.

Variable species. Within *A. sceptrum* "a number of apparently distinct taxa may be distinguished…They differ, however, only in very small details, and their nature is poorly understood…" (Lock, Kew Bull. 35: 310, 1980). Cultivation is needed.

A. chrysanthum Lock; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 309, 2000.

syn.: Enum. 3: 35, 1995; *A. daniellii* sensu Hepper in Fl. W. Trop. Afr., ed. 2, 3/1: 76, 1968, quoad specim. Morton SL 3663, Chevalier 19639, non (Hook. f.) K. Schum.; *A. sulcatum,* idem, quoad specim. Deighton 4528, 4288, Baldwin 11002, Adames 422.

Rhizomatous perennial herb with leafy shoots to 3 m tall; leaves narrowly elliptic, 26-33 × 5,5-7 cm, glabrous, margins scariose and minutely and sparsely dentate towards apex, apex acuminate; inflorescences 1-3-flowered, *both* on *rhizome and* at base of *leafy shoots;* perianth *entirely yellow;* fruit c. 7,5 cm long, *purple spotted* or orange-red with darker spotting (eaten raw).

Disturbed places in forests, such as pathsides, clearings, logging tracks.

Similar to *A. sulcatum.*

A. citratum (J. Pereira) K. Schum.; Lock in Kew Bull. 35: 303-304, 1980; Burkilll, Useful pl. W. Trop. Afr., ed. 2, 5: 309-310, 2000; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006; Cheek & al., Pl. Kupe…: 473, 2004; Kew Bull. 66: 583, 2012.

bas.: *Amomum citratum* J. Pereira (Jonathan P., English pharmacologist, 1804-1853) see Kew Bull. 66: l. c.

syn.: *A. macrolepis* K. Schum.

Rhizomatous perennial herb with leafy shoots to *5 m* tall, red when young; leaves with false *petiole 1,5-3 cm* long; blade linear-oblong, apex acuminate, base rounded and asymmetric; inflorescence borne at shoot-base, a *globose* capitate spike, many-flowered, c. *7 cm Ø;* flower mauve; fruit 3 cm Ø.

Forest; river banks; 700 m alt. (Mt. Kupe).

From SE Nigeria to Gabon fide Lock, l.c.; but reported also from Guinea by Adam, 1981 (Schnell 3622).

(**A. colosseum** K. Schum.) Engler, Pflanzenreich 4/46: 206, 1904.

Giant herb; leafy shoots to 8 m tall; leaves sessile, lanceolate, 30-50 × 8-10 cm, glabrous above, soft subtomentose beneath, base acute; spike 1-flowered on peduncle 18 cm long clothed with ovate scales; outer inflorescence bracts similar to the latter; fruit 6 cm long.

AFRAMOMUM COLOSSEUM

Forest.

In S Zaire, Mukenge (6°S × 22°20'E). Type: Pogge 1472, collected in fruit in May, 1882.

Taxonomic status uncertain. Not mapped.

A. cordifolium Lock & J. B. Hall; Lock, Kew Bull. 35: 309, 1980. – Icon.: Boissiera 24a: 226, 1975.

syn.: *A. longiscapum* sensu Hepper, Fl. W. Trop. Afr., ed. 2, 3/1: 75, 1968, quoad specim. Dawe 540, Morton & Gledhill SL 3226, ? Baldwin 6240, non (Hook. f.) K. Schum.

Perennial, rhizomatous herb; leafy shoots to 3 m tall; leaf lamina oblong(-elliptic), c. 35 × 9 cm, glabrous, base *cordate,* apex attenuate-acuminate; inflorescences *arising* at *base* of shoots, to 6-flowered; peduncle 7-25 cm long, spreading horizontally, producing *flowers at soil level;* petals pale mauve, 5 × 3,5 cm; labellum ovate, to 6 cm wide, to 9 cm long, throat yellowish-brown; fruit *longitudinally ridged,* flask-shaped, to 4 cm long, 3 cm Ø, epicarp crimson, shiny; *seeds tuberculate, brown.*

Probably secondary forest.

Resembling *A. longiscapum* in vegetative parts, but different in inflorescence, fruit and seeds.

The specimen Baldwin 6240 from Liberia is too young for certain identification.

A. corrorima (A. Braun) P. C. M. Jansen; Kew Bull. 52: 603-605, 1997; Poulsen & Lock (1999): 59. – Icon.: Fl. Eth. & Eritrea 6: 326, 1997; L. P. A. Oyen & R. H. M. J. Lemmens, eds., Ressources végétales de l'Afrique tropicale. Précurseur: 47, 2002; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 605, 2008.

bas.: *Amomum corrorima* A. Braun

syn.: *A. korarima* J. Pereira; *Aframomum korarima* (J. Pereira) K. Schum. ex Engl.; *A. usambarense* Lock; *A. crassilabium* (K. Schum. ex Engl.) K. Schum., p.p., quoad folia (see below).

Perennial herb with leafy shoots to 2 m tall; leaves elliptic, 10-30 × 2,5-6 cm, almost glabrous, apex acuminate, base cuneate; inflorescence *4-6-flowered,* arising singly or 2 together at *base of leafy shoots,* ascending; fruit ovoid, c. 4 cm long, 2 cm Ø, compressed and flattened with 2 longitudinal furrows, red.

Frequent in moist forests, usually in open places and/or in valley; margins of rain-forest; often along streams; *Eucalyptus* plantations; 800-2000 m alt.

Sometimes cultivated in some areas in Ethiopia (seeds widely used as a spice for red pepper sauce and coffee; dried fruits traded); natural range in Ethiopia may have been extended by cultivation. See Kew Bull. 66: 583, 2012.

EYOB, S. & al. (2008). Traditional medicinal uses and essential oil composition of leaves and rhizomes of korarima *(Aframomum corrorima* (Braun) P. C. M. Jansen) from southern Ethiopia. *S. Afric. J. Bot.* 74: 181-185.

Near *A. alboviolaceum.*

Aframomum crassilabium (K. Schum. ex Engl.) K. Schum. is based on Holst 4240 (B, destroyed) from Usambara Mts, Tanzania. "From the description it appears to be a mixture of inflorescences of *A. mala* and leaves of *A. usambarense" (= A. corrorima)"* (Lock in Fl. Trop. E. Afr., Zingiber.: 27, 1985).

AFRAMOMUM

A. daniellii (Hook. f.) K. Schum., incl. var. *purpureum* Hook., Fl. W. Trop. Afr., ed. 2, 3/1: 76, 1968, *excl.* specim. Morton SL 3663, Chevalier 19639 *(= A. chrysanthum);* Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 310, 2000; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c54, 2001; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006; Figueiredo & Smith, Pl. Angola: 208, 2008; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 245, 2002. – Icon.: Boissiera 24a: 226, 1975.

syn.: Enum. 3: 35, 1995; *Amomum angustifolium* T. Hanb. 1873, nom. illegit., non Sonn. 1782 *(= Aframomum angustifolium)* nec Salisb. 1796 *(= Zingiber officinale).*

Herb with leafy shoots to 3-4 m tall; leaves narrowly lanceolate, *glabrous,* c. 20-40 × 6-9 cm, apex acuminate, base attenuate; inflorescence at base of the shoots in short cluster with a main axis to c. 10 cm long, with spikes to 6-flowered; petals *waxy red,* to 5 cm long; labellum white tinged *yellow* and pink; fruits red, smooth, c. 7 cm long in erect bunches.

Moist shady places; forest regrowth; seasonally flooded sedge meadows; fallows; open places with poor drainage; transition woodland/young secondary forest; 242 m alt. (E Nigeria).

São Tomé, Principe, Bioko/Fernando Poo.

Decorative in flower and fruit – ornamental.

Near *A. angustifolium.*

A. elegans Lock – Icon.: Adam, Fl. descr. Mts Nimba 5: 1801, 1981 (sub nom. *A. subsericeum,* Adam 20381).

syn.: *A. subsericeum* sensu Hepper, Fl. W. Trop. Afr., ed. 2, 3/1: 75, 1968, quoad specim. Adam 20381, Adames 604, non (Oliv. & D. Hanb.) K. Schum.; Adam, o.c.: 1613.

Perennial herb with leafy shoots to 1,5 m tall; leaves oblong or lanceolate, c. 25 × 3,5 cm, apex acuminate, base asymmetrical (one side cuneate, other side almost circular), sparsely pubescent above, *densely* so below; sheaths hairy; inflorescence 2-4-flowered, borne at base of shoots to 50 cm long, incl. long peduncle; corolla pure glossy white; labellum white; fruit c. 6 cm long, 2 cm Ø, narrowly ovoid.

Secondary forest; 450-500 m alt.

The underside of the leaf has straight or curved hairs mixed with small bladder-like hairs (studied under scanning electron microscope; figure in Kew Bull. 35: pl. 8 fig. C, 1980).

Near *A. rostratum.*

A. elliottii (Baker) K. Schum.; Hepper in Fl. W. Trop. Afr., ed. 2, 3/1: 75, 1968, *excl.* specim. Leprieur s.n., Perrottet s.n., Chevalier 19954, Leeuwenberg 2711 & 2371, Morton A 1642 *(= A. rostratum);* Lock in Kew Bull. 35: 304, 1980; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 310, 2000.

bas.: *Amomum elliottii* Baker

Herb with *hairy* leaf sheaths and oblong leaf blades, 20-35 × 5-10 cm, broadest at the middle, glabrous above, softly hairy beneath, petiole *yellowish pubescent,* base asymmetrically *cordate;* inflorescence from the base of the leafy shoots, c. 30 cm long, a globose head on a peduncle 10-25 cm long with bracts c. 5 cm long; flowers rather few, hidden by large oblong imbricate obtuse brown scariose bract-leaves; outer bracts ovate, acute, 5-7,5 cm long; labellum *c. 4 cm* long; fruits ovoid, 2-4, glabrous, red, shining, 5-7,5 cm long.

Inland plant: shady woods; wet grassland.

Not in Senegal, Liberia, Ghana *(= A. rostratum).*

Poorly known species, confused with *A. rostratum* (a coastal plant).

AFRAMOMUM

A. exscapum (Sm.) Hepper; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 310-311, 2000.

bas.: *Amomum exscapum* Sims p.p. quoad tab. 13 in Ann. Bot. 1, *excl.* specim. Afzelius 4 *(= Aframomum strobilaceum),* 1805.

syn.: *Amomum grandiflorum* Smith; *A. afzelii* Roscoe, nom. illegit.; *Aframomum oleraceum* A. Chev., nom.; *Amomum granum-paradisi* sensu J. Pereira, Mat. Med. 2: fig. 234, 1850 and Hook. in Curtis, Bot. Mag.: tab. 4603, 1851, non *Amomum granum-paradisi* K. Schum. *(= Aframomum cereum); Alexis bifurca* Salisb.

Herb with leafy stems 1,2-2 m tall; leaves borne in the upper part of stem, oblong-lanceolate, 20 × 6 cm, rounded at each end, apex tailed; flowers erect, white flushed with pink, throat yellow; fruit *densely pubescent,* strikingly corrugated (fresh state), c. 8 cm long, several clustered at apex of 8-18 cm long infrutescence.

Forest; clearings; gallery; 600-1000 m alt.

A. flavum Lock; Cable & Cheek, Pl. Mt Cameroon: 180, 1998; Harris & al. in Edinb. J. Bot. 57: 383, 2000; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 245, 2002; Cheek & al., Pl. Kupe…: 473, 2004; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006; Harvey & al., Pl. Lebialem Highl., Cameroon: 159, 2010; Cheek & al., Pl. Mefou proposed natl. park Yaoundé, Cameroon: 232, 2011.

syn.: *A. hanburyi* sensu Koechlin, Fl. Cameroun 4: 65, 1965, non K. Schum.

Herb with leafy shoots to 4 m tall; leaf blade narrowly elliptic, 45 × 8-11 cm, glabrous on both sides, base cuneate, apex acuminate, margin minutely dentate towards the apex; inflorescence arising from the shoot base, 4-6-flowered, often ramose, peduncle 4-20 cm long; corolla golden-yellow; fruit c. 8,5 cm long, smooth, deep red.

Roadsides; forest; degraded forest; *Aframomum* thickets; cleared land; 1-1500 m alt.

Similar to *A. daniellii* from which it can only be reliably separated when in flower.

The locality in SW Centr. Afr. Rep. represents an easterly range extension of 600 km.

A. geocarpum Lock & J. B. Hall; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 311, 2000. – Icon.: Boissiera 24a : 226, 230, 1975.

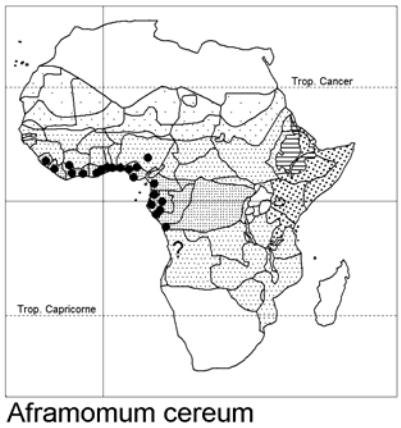
syn.: *A. leptolepis* sensu Hepper in Fl. W. Trop. Afr., ed. 2, 3/1: 76, 1968, p.p., quoad specim. Chipp 129, Adams 2590 & 2456, Johnson 866, Morton GC 9172, non (K. Schum.) K. Schum.; *A sulcatum* sensu A. Chev., Explor. Bot. Afr. Occ. Franç. 1: 626, p.p., quoad specim. Chevalier 20953, 1920, non (Oliv. & D. Hanb. ex Baker) K. Schum.

Perennial herb with extensive rhizome; leafy stems to 2,5 m tall; leaf blade *narrowly ovate,* 25-35 × 4,5-6 cm, base asymmetric, apex acuminate; ligule to *2 cm* long, *spirally twisted;* inflorescence arising *from* the *rhizome,* peduncle 1,5-2,5 cm long; corolla lilac, labellum lilac, throat dull yellow; fruit *subterranean, subspherical,* lightly 3-lobed, to 4,5 cm Ø, 3,5 long, *dull-coloured.*

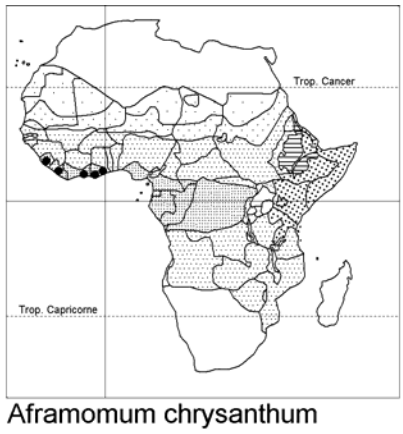
Forest.

Closely related to *A. amaniense*. Confused with *A. cereum (A. spectrum), A. limbatum, A. atewae* (see key in Kew Bull. 28: 447, 1973).

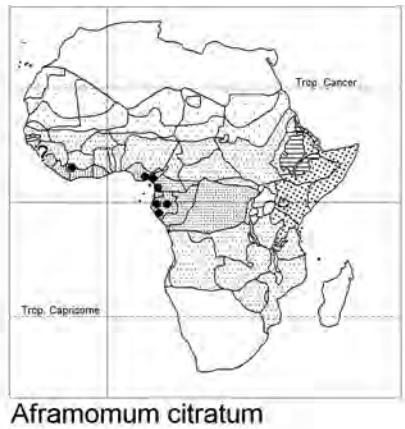
The commonest *Aframomum* species in W Africa, and well characterized by its subterranean fruit that has been entirely overlooked by recent collectors but found already by A. Chevalier in 1909. The latter gave it a manuscript name describing the fruit shape (Kew Bull. 28: 446, 1973).



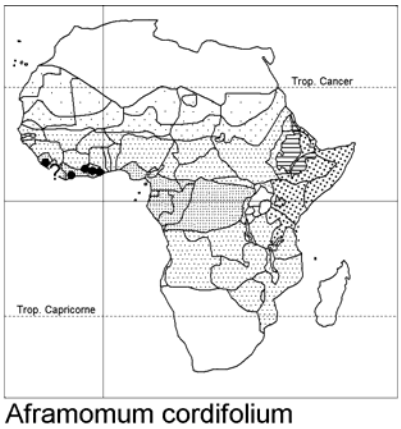
Aframomum cereum



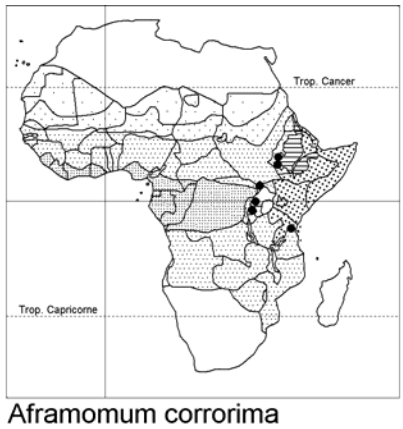
Aframomum chrysanthum



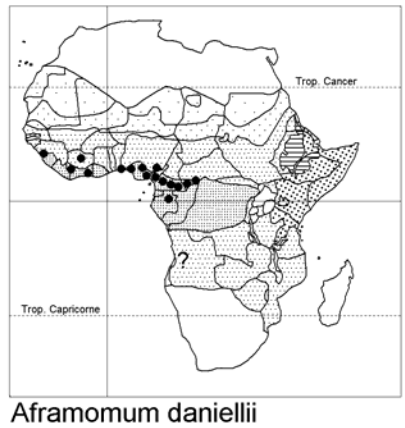
Aframomum citratum



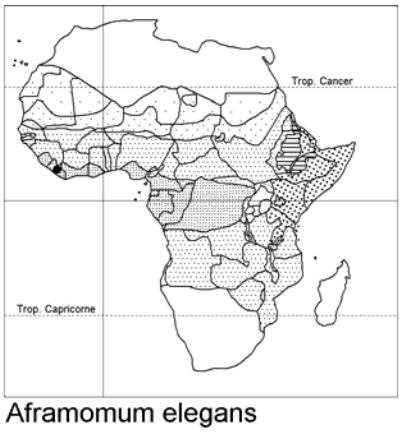
Aframomum cordifolium



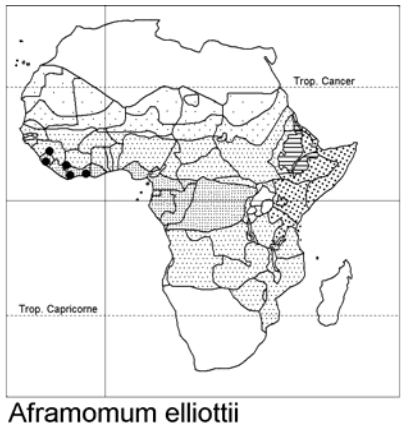
Aframomum corrorima



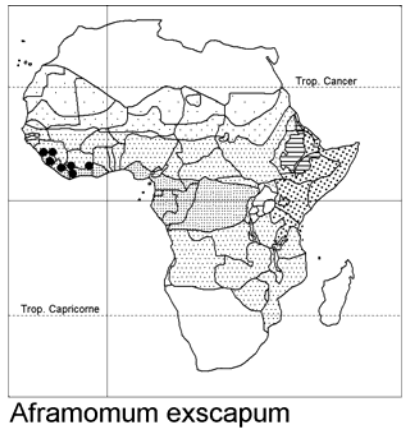
Aframomum daniellii



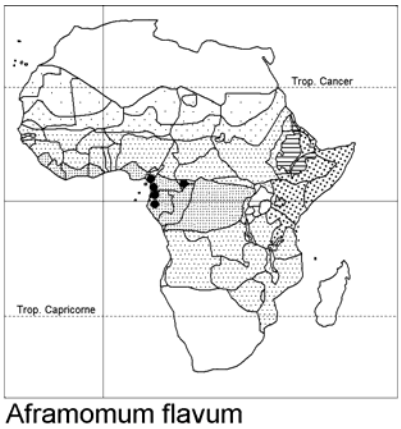
Aframomum elegans



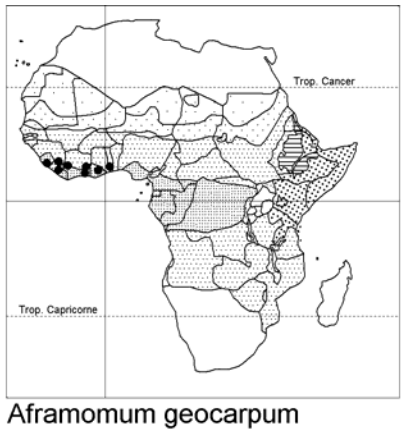
Aframomum elliottii



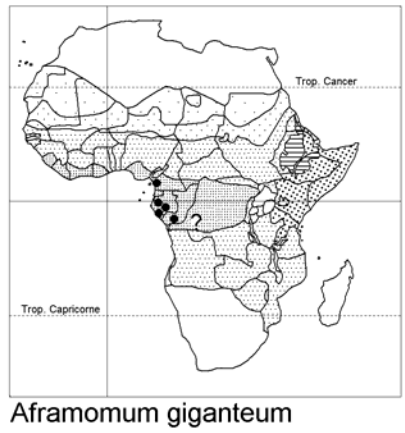
Aframomum exscapum



Aframomum flavum



Aframomum geocarpum



Aframomum giganteum

AFRAMOMUM

A. giganteum (Oliv. & D. Hanb.) K. Schum., incl. var. *puberulifolium* Koechlin; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006. – Icon.: Boissiera 24a: 228, 1975 (leaf sheath surfaces).

bas.: *Amomum giganteum* Oliv. & D. Hanb.

syn.: *Cardamomum giganteum* (Oliv. & D. Hanb.) Kuntze

Perennial rhizomatous herb; leafy shoots to 6 m tall and more; leaf petiole to *1,5 cm* long; blade elliptic, *60-70* × *15-18* cm, glabrous on both faces, apex acuminate, slightly asymmetric at base; inflorescence shoot robust, axis to c. 60 cm long with many leafy bracts below and, upwards, many distichous sessile erecto-patent spikes containing several flowers each; flowers red; fruit ovoid, glabrous, smooth, c. 7,5 cm long.

Forming dense thickets in rain-forest or at forest edges; secondary thicket; 80-850 m alt.

São Tomé; Nigeria ? – Also in Zaire ? (see below under *A. laurentii).* Var. *puberulifolium* described from Lastoursville (Gabon) has sparse tubercle-based hairs on lower leaf surface.

(**Aframomum inversiflorum** Dhetchuvi ined. in Sosef & al., Check-list pl. vascul. Gabon: 417, 2006).

Nomen nudum based on specim. Dhetchuvi 1694 from Ogooué-Maritime = SW Gabon.

(**A. kayserianum** (K. Schum.) K. Schum.); Lock in Kew Bull. 35: 311-312, 1980.

bas.: *Amomum kayserianum* K. Schum.

syn.: *Aframomum latifolium* (Afzel.) K. Schum. in Hepper, Fl. W. Trop. Afr., ed. 2, 3/1: 77, 1968, *excl.* specim. Preuss 826, and *A. kayserianum* sensu Koechlin in Fl. Cameroun 4: 66, 1965, excl. same specimen (the other specimens cited by Koechlin belong to *A. alboviolaceum).*

A. keyserianum s. str., with type Preuss 826 (collected in 1891) from Buea, Cameroon, 900-1000 m alt., white-flowered, is considered by Lock, l.c., as different from *A. alboviolaceum:* "the anther dehiscence, the rather narrow labellum, and the abundant hypodermal sclerenchyma suggest a relationship with *A. daniellii,* but all known relatives of this group have red or yellow flowers", not white.

Forest plant, not found in savanna.

Perhaps a rare species "which will be found again…on the lower slopes of Mt Cameroon…". New collections needed. – Not mapped.

(**A. laurentii** (De Wild. & T. Durand) K. Schum.); Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 301, 2010.

bas.: *Amomum laurentii* De Wild. & T. Durand

Perennial herb with leafy shoots 4-5 m tall; leaves sessile or short petiolate, oblong-lanceolate, 32-52 × 9-15 cm, glabrous on both faces, attenuate-acuminate at apex, base narrowed; sheath impressed reticulate; inflorescence branched, branches ± distichous, with many flowers each; corolla lobes red-violet, 8 cm long, 3 cm wide; labellum obovoid, 8 cm long, deep violet; fruit 5-6 cm long, 1,6 cm Ø.

Undergrowth in forest.

Known only from the type ? (Dewèvre 314), collected in 1895 at Chimbete, Zaire (5° 02' S × 12° 36'E) – Not mapped.

Plant used locally, the leafy shoots as roof thatching, the seeds as a spice. The whole plant smells like a mixture of camphor and lemon oil (Engler, Pflanzenreich 4/46: 213, 1904).

Very close to *A. giganteum.*

AFRAMOMUM

A. laxiflorum Lock; Harris & al., Edinb. J. Bot. 57: 382, 2000.

Perennial herb with leafy stems to 1,5 m tall from a thin rhizome; leaf lamina narrowly elliptic, 12,5-20 × 2-3 cm, glabrous, base cuneate; inflorescences 8-10-flowered, arising from the base of stems; *fertile portion elongated* so that the *bases of* individual *flowers* are *clearly visible;* petals mauve with darker striations; fruit ovoid, 4-5 cm long, 2,5-3 cm Ø, with *irregular longitudinal* and *transverse ridges.*

Mist forest; growing in large groups; 1310-1900 m alt.

Very distinctive. Resembling somewhat *A. exscapum.*

A. leptolepis (K. Schum.) K. Schum.; Kew Bull. 28: 444, 1973; ibid. 35: 309, 1980; Cable & Cheek, Pl. Mt Cameroon: 180, 1998; Harris & al. in Edinb. J. Bot. 57: 383, 2000; Cheek & al., Pl. Kupe…: 473, 2004. – Icon.: Boissiera 24a: 228, 1975 (leaf sheath surface).

bas.: *Amomum leptolepis* K. Schum.

syn.: Enum. 3: 36, 1995.

Perennial herb, rhizomatous, with solitary leafy stems to 4 m tall; leaf blade oblong, 30 × 4-5 cm, glabrous *except on main nerve below,* puberulous, apex caudate-acuminate, base obtuse or cuneate; inflorescences arising solitary from rhizome away from stems, *3-5-flowered;* petals purple; labellum pale violet, throat yellow; fruit borne above the ground surface (only one fruit is normally produced), *smooth* to subridged, ovoid, red.

Forest; 700-1400 m alt.

Bioko/Fernando Poo.

In Fl. Cameroun 4: 70, 1965 cited as an imperfectly known species. – Near *A. sulcatum.*

A. letestuanum Gagnep.; Kew Bull. 52: 603, 1997; Poulsen & Lock (1999): 59, Harris & al., Edinb. J. Bot. 57: 382, 2000; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 245, 2002.

Herb with leafy stems 2-5 m tall, often pendent; leaf sheaths red; blade *sessile,* oblanceolate, glabrous, c. 20-50 × 3-10 cm, apex acuminate, base cordate to cordate-auriculate, often asymmetrical; inflorescences arising from shoot-base; peduncle *50-100 cm* long, usually with *1-flowered distichously arranged branches* towards the apex, but sometimes bearing only a single terminal 1-2-flowered inflorescence; petals and labellum pale mauve; fruit narrowly fusiform, 8-11 cm long, 1,5-2 cm Ø.

Small light gaps and tree falls in mixed species terra firma forest, often in *Gilbertiodendron dewevrei* forest; occasionally beside roads; moist places in forest; 700-1300 m alt.

A. limbatum (Oliv. & D. Hanb.) K. Schum.; Kew Bull. 35: 307, 312 *(A. lycobasis),* 1980; ibid. 52: 605-606, 1997; Cable & Cheek, Pl. Mt Cameroon: 180, 1998; Poulsen & Lock (1999): 59; Harris & al., Edinb. J. Bot. 57: 382-383, 2000; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c54, 2001; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 245-246, 2002; Cheek & al., Pl. Kupe…: 474, 2004; Sosef & al., Check-list pl. vascul Gabon: 417, 2006; Cheek & al., Pl. Mefou proposed natl. park Yaoundé, Cameroon: 232-233, 2011.

bas.: *Amomum limbatum* Oliv. & D. Hanb.

syn.: *Aframomum lycobasis* K. Schum.; *Cardamomum limbatum* (Oliv. & D. Hanb.) Kuntze

Perennial rhizomatous herb with leafy shoots 3-5 m tall; leaf blade *linear-lanceolate,* c. 40 × 10 cm, glabrous above, pubescent below and *on margins,* apex caudate-acuminate, base asymmetrical; inflorescence of short spikes, *2-3-flowered,* arising from the rhizome; corolla lobes purple, c. 2,5 cm long; labellum obovate, undulate, 4,5-5 cm Ø; fruit globose, smooth, underground.

AFRAMOMUM LIMBATUM

Forest; road sides; humid and dry places in open bush; tall secondary forest; 1-1000 m alt.

Bioko/Fernando Poo. – In Fl. Cameroun 4: 50, 1965, cited as possibly present in that country; erroneously cited from Guinea and Ivory Coast.

A. amaniense, *A. geocarpum* and *A. limbatum* are closely related; they may be better treated as subspecies of one widespread species [Lock, Kew Bull. 52: 606, 1997; Harris (2002): l.c.].

A. longiligulatum Koechlin; Harris & al., Edinb. J. Bot. 57: 383, 2000; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 246, 2002; Cheek & al., Pl. Mefou proposed natl. park Yaoundé, Cameroon: 233, 2011.

Herb with leafy stems 1,5-2,5 m tall; leaves alternate; sheaths deeply ridged, ligule *8-15 mm* long, 5 mm wide, *very brittle;* pseudopetiole dark brown, 3 mm long; blade oblong-elliptic, 20-23 × 5-7,5 cm, glabrous above, sparsely and shortly *pubescent beneath*, midrib white, apex *caudate-acuminate*, base acute; infrutescence arising from the leafy shoot base, 3-flowered; peduncle stout 15-28 cm long; flower unknown; fruit red, smooth, 5-7 × 1,5 cm.

Forests with *Gilbertiodendron dewevrei;* occasionally in mixed species terra firma forest; secondary forest; 700 m alt. (Cameroon).

A. longipetiolatum Koechlin; Harris & al., Edinb. J. Bot. 57: 383, 2000; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006.

Herb with leafy shoots 2-3 m tall; leaf petiole c. *4 cm long*, reddish; blade ovate-lanceolate, c. 25 × 5,5 cm, glabrous, red-spotted below, apex acuminate, *base rounded;* inflorescence with peduncle to 1 m long; *spikes few*, 1-4-flowered, 6-10 cm long, *crowded at tip of peduncle;* flower known ?; fruit red, smooth, 7 cm long (fruit body), crowned by the 4 cm long persistent calyx.

Ecology not recorded; 750-800 m alt.

A. longiscapum (Hook. f.) K. Schum.; Burkill, Useful pl. W. Trop. Afr., ed. 2,5: 311, 2000.

bas.: *Amomum longiscapum* Hook. f.

syn.: *Cardamomum longiscapum* (Hook. f.) Kuntze

Herb with leafy shoots 1,5-3 m tall; leaf blade oblong, 30 × 5 cm, glabrous or sometimes slightly pubescent on nerves below and on margins, apex acuminate; inflorescences with *peduncle 1 m long*, simple or branched at top: flowers mauve; fruit dark red, glabrous, *smooth.*

Secondary forest; ravine; forest gallery; old secondary humid regrowth; 450-1300 m alt.

Near *A. cordifolium.*

A. luteoalbum (K. Schum.) K. Schum.; Kew Bull. 31: 270, 1976; ibid. 52: 605, 1997; Poulsen & Lock (1999): 59; Harris & al., Edinb. J. Bot. 57: 383, 2000.

bas.: *Amomum luteoalbum* K. Schum.

Rhizomatous herb with leafy shoots 2-2,5 m tall; leaf sheaths *reticulate;* blade narrowly oblong-elliptic to narrowly obovate, 24-40 × 5-8 cm, acuminate, *glabrous above* except for the sparsely pubescent midrib, sparsely *pilose beneath* (more densely so on the midrib), base slightly asymmetric, cuneate; inflorescences 3-5-flowered, arising from the base of shoots (rarely from the rhizome), 20 cm long; peduncle usually unbranched, *2-10 cm long;* petals 3,5-4,5 cm long, *white;* labellum c. 7 cm long, white with a yellow patch at base; fruit fusiform, 7 cm long, smooth, shiny.

Swamp; gallery forest; ground-water forest; 1000-1550 m alt.

AFRAMOMUM

A. makandense Dhetchuvi; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006. – Icon.: Bull. Jard. Bot. Natl. Belg. 64: 199, 1995; Kew Bull. 52: 609, 1997.

Rhizomatous herb; leafy shoots 2-3 m tall with 6-8 basal bladeless sheaths, with long and short red-orange hairs; blade with swollen red petiole 5 mm long; ligule *4-8* × 1 cm, purple-violet; blade asymmetric, elliptic to lanceolate, 20-35 × 8-10 cm, base ± decurrent along petiole, apex abruptly triangular, 2 cm long, midrib with brown short hairs beneath; inflorescence arising from the shoot base or sometimes on the rhizome; peduncle with one or sometimes 2 spikes at tip, 5-20 cm long, horizontal, subterranean, rooting; spike 5-10-flowered, 10 cm Ø, at ground level, sterile bracts with mixed dense short and sparse long hairs outside; flowers appearing on soil level; petals pink, lobes 7-8 cm long; labellum c. 8 cm long; fruits 5-8, pyriform, 4-6 cm long, 3-4 cm Ø, deep pink to red, *5-11-ridged*, ridges rounded, *irregular* and unequal.

Forest regrowth; road sides on deep embankments.

Resembling *A. citratum*, *A. alboviolaceum*, *A. spiroligulatum.*

A. mala (K. Schum. ex Engl.) K. Schum.; Poulsen & Lock, Kew Bull. 52: 603, 1997; Poulsen & Lock (1999): 59; Harris & al., Edinb. J. Bot. 57: 383, 2000; E. Fischer & al., Annotat. checklist pl. Kakamega For.: 225, 2011. – Icon.: E. Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 463, 2008; Kew Bull. 52: 610, 1997.

bas.: *Amomum mala* K. Schum. ex Engl.

syn.: *A. crassilabium* K. Schum. ex Engl., p.p., quoad inflor.; *Aframomum crassilabium* (K. Schum. ex Engl.) K. Schum., p.p. (idem).

Perennial herb with extensive rhizome with red-brown chartaceous scales; leafy shoots 2-4 m tall; leaf blade narrowly elliptic, 20-50 × 5-11 cm, *glabrous*, apex acuminate, base cuneate; inflorescence 5-6-flowered, often much branched, arising at base of shoots; peduncle *<10 cm long;* petals c. 3 cm long, *yellow;* labellum yellow, c. 5,5 cm long; fruit ovoid, 4,5 cm long, 2 cm Ø, *grooved*, crowned by the persistent calyx.

Moist forest undergrowth and margins; 1000-1700 m alt.

In E. Africa easily distinguishable from *A. angustifolium* (peduncle >20 cm long, midrib pubescent beneath, fruit smooth, flowers red or orange) but material of *A. mala* from S Tanzania (Iringa, and southwards) difficult to place and more approaching *A. angustifolium.*

(**A. mannii** (Oliv. & D. Hanb.) K. Schum.); Sosef & al., Checklist pl. vascul. Gabon: 417, 2006. – Icon.: Hook. Ic. Pl. 25: pl. 2482, 1896; Fl. Gabon 9: 59, 1964.

bas.: *Amomum mannii* Oliv. & D. Hanb.

syn.: *Cardamomum mannii* (Oliv. & D. Hanb.) Kuntze

Herb with a wide creeping rhizome; leafy stems 1,2-1,5 m tall; leaf blade oblong, chartaceous, glabrous, strongly cuspidate, c. 20 × 7 cm, narrowed to a distinct petiole 2 cm long above the sheath; ligule 2 mm long, brown, scarious, truncate; spikes 2-3-flowered, peduncle very short (c. 3 cm long), hidden by the much imbricated oblong obtuse green bracts which are conspicuously brown-spotted; corolla lobes c. 5 cm long; labellum ovate, c. 4,5-5 cm long, reddish; fruit and seeds unknown.

Ecology unknown.

Known only from the type (Mann 1902) collected at Corisco Bay (1°N), Gabon. – Not mapped.

Taxonomic status uncertain. Perhaps near *A. alboviolaceum.*

AFRAMOMUM

A. melegueta K. Schum.; Kew Bull. 35: 303, 1980; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 312-314, 2000; Harris & al., Edinb. J. Bot. 57: 383, 2000; Cheek & al., Pl. Kupe…: 474, 2004; Akoegninou & al., Fl. analyt. Bénin: 200, 2006; Sosef & al., Check-list pl. vascul. Gabon: 417, 2006; Lisowski, Fl. Rép. Guinée 1: 485, 2009. – Icon.: Fl. Gabon 9: 59, 1964; Econ. Bot. 31: 327, 1977.

syn.: Enum. 3: 36, 1995.

Herb with a short rhizome; leafy shoots 1-2 m tall forming loose clumps; leaves subsessile, narrowly elliptic, 15-25 × *1,5-3 cm*, glabrous, apex caudate-acuminate, base cuneate; inflorescences from base of shoots, *1-flowered;* petals pale mauve, or pink to purple, tube 5 cm long, lobes 4,5 cm long; labellum obovate, to 10 cm wide, throat yellow; fruit ovoid, to 12,5 cm long, incl. a tubular beak 5,5 cm long formed from the accrescent persistent calyx, 5 cm wide, smooth, red when ripe.

Forest, forest margins and clearings.

S. Tomé, Príncipe.

Widely cultivated in W. Africa, and also in S. America. In Ghana at least rarely found in the wild; it has an ancient history of cultivation (cf. Econ. Bot. 31: 321-330, 1977). The centre of first exploitation lies in the Upper Niger River (ancient Guinea); the produce was brought down to the coast by trade.

The type is from Demerara, Guyana. Like *Parkia globosa* the plant was carried across the Atlantic with the slave trade, and subsequently first described from S. America, and not from its native range. – Not mapped.

The plant is aromatic, grown in village gardens and on farms; sold in markets. Used as flavouring in food, brewing and medicines. The roots taste of cardomom; the fruit flesh is edible; seeds (Grains of Paradise, Guinea Grains, Melegueta Pepper) are strongly aromatic due to the prescence of a yellow essential oil.

Note: Var. *violaceum* ("violacea") (Ridl.) Baker (bas.: *Amomum violaceum* Ridl.) is described as having a densely and transversly folded corolla tube and beautifully purplish flowers. The specimens from Angola (Golungo Alto, streamsides), i.e. Welwitsch 6457, 6458 are treated as of "var. α" by K. Schum. in Engler, Pflanzenreich 4/46: 205, 1904 (cf. Figueiredo & Smith, Pl. Angola: 208, 2008).

A. mildbraedii Loes.; Bull. Jard. Bot. Etat, Brux. 25: 255, 1955; Kew Bull. 31: 268, 1976; Poulsen & Lock (1999): 59; Harris & al., Edinb. J. Bot. 57: 383, 2000. – Icon.: Robyns, Fl. Spermat. Parc Natl. Albert 3: 407, 1955; Bull. EANHS 28/2: 11, 1998. – Type lost.

Herb with extensive rhizome; leafy shoots *70-100 cm* tall; leaf blades with petiole *<3 mm long*, narrowly elliptic, 14-23 × 2,5-4 cm, glabrous except for very sparse minute white hairs and scattered brown hairs on midrib beneath, apex caudate-acuminate, base cuneate; inflorescence 2-4-flowered, arising singly or to 3 together from the shoot-base; petals pale mauve, pink or white; labellum *3-4 cm broad*, same colour with a yellow patch at base; fruit fusiform, red, smooth, c. 6-7 cm long (incl. a beak c. 1 cm long).

Moist forest, often by paths and in clearings; gallery in savanna; 700-1200 m alt.

Near *A. corrorima.*

AFRAMOMUM

A. orientale Lock

Herb with extensive slender rhizome; leafy shoots to 2,5 m tall; leaf blade narrowly elliptic, to 29 × 4,5 cm, glabrous, apex acuminate, base cuneate; inflorescences 2-4-flowered, arising from the rhizome and shoot-base; petals white, labellum 9 cm long, with a basal yellow patch; mature fruit unknown (immature: subglobose, subterranean).

Coastal forest; abandoned cultivation; 100-400 m alt.

Near *A. alboviolaceum, A. alpinum.*

A. pilosum (Oliv. & D. Hanb.) K. Schum.; Kew Bull. 35: 302, 1980; Cable & Cheek, Pl. Mt Cameroon: 180, 1998; Harris & al., Edinb. J. Bot. 57: 383, 2000; Cheek & al., Pl. Kupe…: 474, 2004. – Icon.: Hook. Ic. Pl. 25: pl. 2483, 1896.

bas.: *Amomum pilosum* Oliv. & D. Hanb.

syn.: *Cardamomum pilosum* (Oliv. & D. Hanb.) Kuntze

Rhizomatous herb with leafy shoots 1,8-3 m tall; leaf blade (oblong-)lanceolate, to 25-30 × 6 cm, apex caudate-acuminate, base slightly asymmetric, with sparse *long stiff hairs* on petiole and surfaces; ligule inconspicuous; inflorescence from shoot-base, 1-flowered spikes in *clusters* of up to 20; corolla lobes 2 cm long, *yellow;* labellum obovate, 1,5 cm wide; fruit smooth, c. *2 cm long*, pinkish; seeds with *transverse wrinkles.*

Swampy forest (rare); 200-1400 m alt.

Bioko/Fernando Poo.

A. polyanthum (K. Schum.) K. Schum.; Bull. Jard. Bot. Natl. Belg. 48: 130, 1978; Kew Bull. 35: 302, 1980; Poulsen & Lock (1999): 59; Harris & al., Edinb. J. Bot. 57: 383, 2000; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 246, 2002; Sosef & al., Check-list pl. vascul. Gabon: 418, 2006; Fl. Zambes. 13/4: 136, 2010.

bas.: *Amomum polyanthum* K. Schum.

Perennial herb with extensive rhizome; leafy shoots to 3-4 m tall; leaf petiole 1-2 cm long, *densely pubescent* as blade beneath on margins and on midrib; blade oblong, to c. *55 × 19 cm*, apex caudate-acuminate, base ± asymmetrical; inflorescence arising from shoot-base, *capitate*, 10-26-flowered; bracts distant, glabrous; corolla pale red (lateral lobes) and dark red (posterior lobe), 2 cm longer than calyx; labellum reflexed, with frilly margin, orange-yellow; fruits several at apex of peduncle, longitudinally 9-ribbed, spherical to ovoid, 5 × 3 cm, red; seeds shiny, finely striate, irregularly covered in small rounded protuberances.

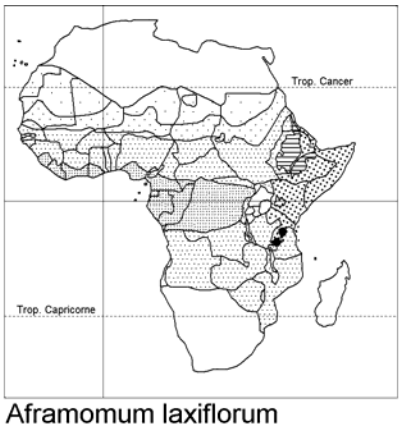
Swampy or gallery forest; flooded forest; forest streams; deep muddy soil fringed by a brook, in half shade; the plant can cover several m^2 in pure stands; 530-1400 m alt.

A. pruinosum Gagnep.; Sosef & al., Check-list pl. vascul; Gabon: 418, 2006; Cheek & al., Pl. Mefou proposed natl. park Yaoundé, Cameroon: 233, 2011.

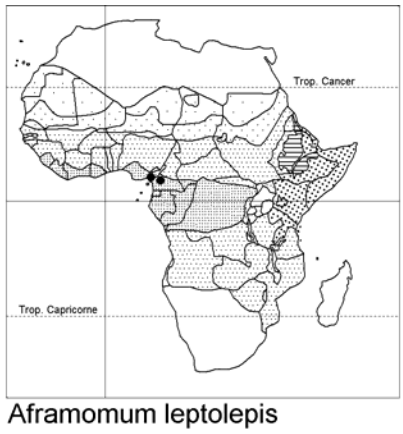
Herb with leafy slender shoots, pendent, to 2-5 m tall, covered with a *whitish waxy bloom;* leaf blade narrowly oblanceolate, glabrous, to 30-50 × 4-10 cm, apex acuminate (acumen 3 cm), base *strongly asymmetric;* inflorescences in a spike, main axis 50-100 cm long covered in slightly imbricate bracts up to 9 cm long; lateral branches to 12, distichous, erect (= *1-flowered spikes*, 9-15 cm long); corolla mauve; fruit fusiform, 5-10 × 1,5-2,5 cm, red spotted purple, 3/4 covered in papery oblong bracts c. 4 cm long; calyx persistent, 4 cm long.

Evergreen forest; forest undergrowth in shade; 300-710 m alt.

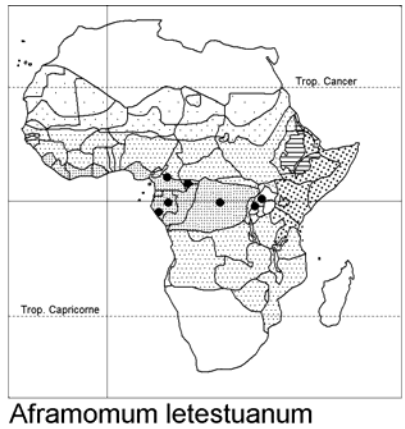
Near *A. letestuanum.*



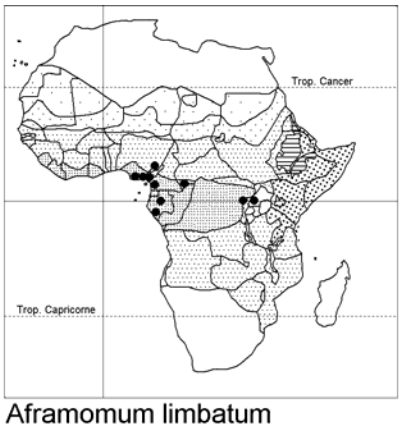
Aframomum laxiflorum



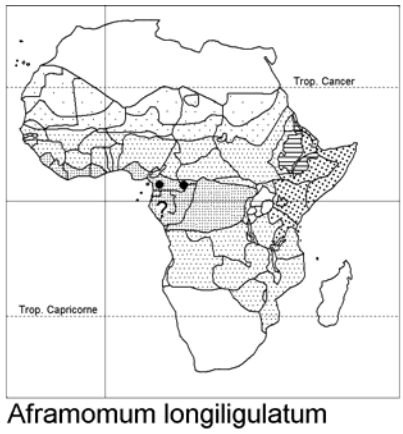
Aframomum leptolepis



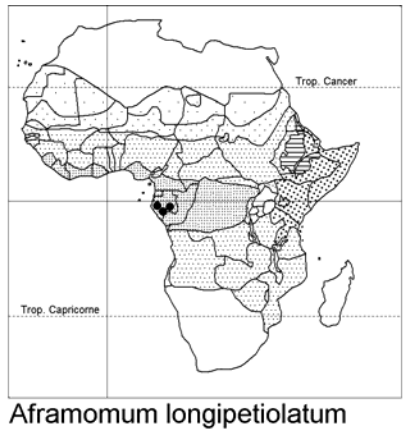
Aframomum letestuanum



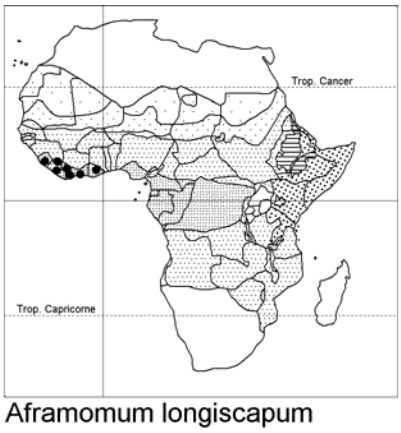
Aframomum limbatum



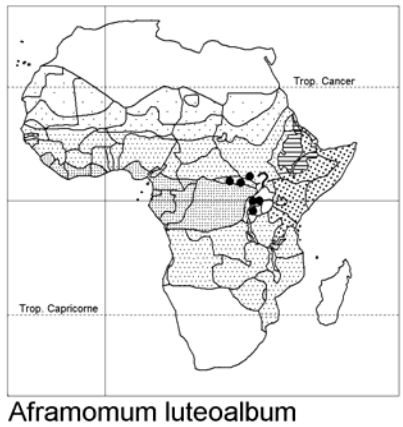
Aframomum longiligulatum



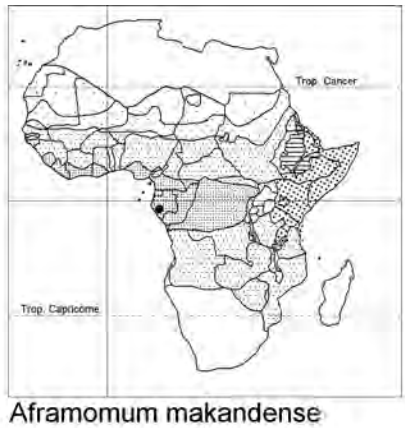
Aframomum longipetiolatum



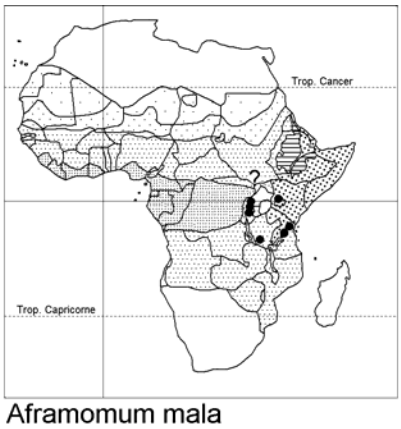
Aframomum longiscapum



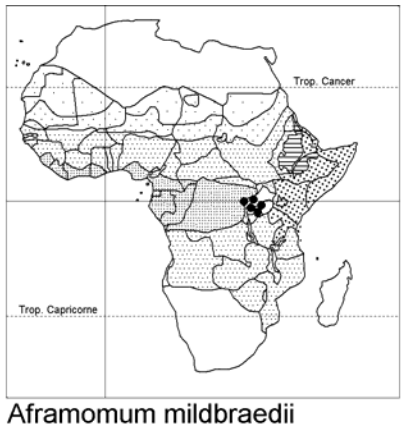
Aframomum luteoalbum



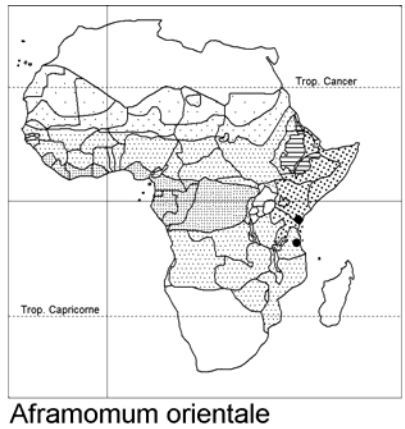
Aframomum makandense



Aframomum mala



Aframomum mildbraedii



Aframomum orientale

AFRAMOMUM

A. pseudostipulare Loes. & Mildbr. ex Koechlin; Harris & al., Edinb. J. Bot. 57: 383, 2000; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 246, 2002; Sosef & al., Check-list pl. vascul. Gabon: 418, 2006. – Icon.: Fl. Gabon 9: 47, 1964.

Herb with a slender creeping rhizome; leafy shoots 1,5 m tall; leaf blade *subsessile,* glabrous, linear-lanceolate, c. 18-22 × 1,5-2,5 cm, apex acuminate, base *attenuate;* inflorescences in a *subsessile spike* from base of shoots, peduncle 1-2 cm long; petals *mauve* to pink-purplish; labellum mauve, throat yellow; fruit unknown ?

Periodically flooded forest; forming extensive stands.

A. rostratum K. Schum.; Kew Bull. 35: 304-305, 1980.

syn.: *Amomum rostratum* Oliv. & D. Hanb., nom. in sched.; *A. cereum* sensu Baker, Fl. Trop. Afr. 7: 309, 1898, p.p. quoad spec. Crummel s.n., non Hook. f. *(= ? Aframomum cereum).*

Herb with leafy shoots 2 m tall; leaf sheaths *glabrous;* blade linear(-lanceolate) with petiole *0,5-5 mm,* to 28 × 5 cm, apex acuminate, base caudate, glabrous above, *erect pilose* below; inflorescence a few-flowered spike, peduncle to 40 cm long; flower colour ?; fruit 6 cm long, glabrous.

Coastal plains, sandy ground; forming loose clumps of leafy shoots interconnected by thick rhizomes; brackish lagoon banks; near sea-level.

Near *A. elegans.*

A. sericeum Dhetchuvi & D. J. Harris, Phytotaxa 28: 31, 2011; Sosef & al., Check-list pl. vascul. Gabon: 418, 2006 (nom. ined.). – Icon.: Phytotaxa 28: 32, 2011.

syn.: *A.* sp. A sensu Harris & al., Edinb. J. Bot. 57: 384, 2000; *A.* sp. D sensu Harris, Vascul. Pl. Dzanga-Sangha Res., Centr. Afric. Rep.: 247, 2002.

Rhizomatous herb to 6 m tall forming clumps; stems often swollen, to 4 cm Ø at base; leaf sheaths transversely and longitudinally ridged, glabrous, sometimes ciliate at base; ligules rounded, bilobed towards apex, glabrous; *leaves* narrowly elliptic, *55 × 11 cm,* glabrous above, *tomentose with erect swollen-based trichomes* (0,5 mm long) *beneath, midrib tomentose,* apex caudate with acumen 1 cm long, base slightly asymmetric; pseudopetiole c. 1 cm long, glabrous; inflorescences borne at or close to the leaf bases, occasionally on rhizome to 40 cm away, usually branched, each branch with c. 2 flowers; peduncles to 20 cm long, at or below ground level for most of their length; flowers trumpet-shaped; calyx greenish to purple; *corolla* tubular, *dark reddish purple,* dorsal petal to 7 cm long, lateral ones c. 4 cm long; labellum pale purple, 7 × 5 cm, forming a tube with the dorsal petal; *fruit* ellipsoid, 6 × 3,5 cm, *ridged,* red, with persistent calyx c. 3 cm long, and persistent bracts at base.

Cleared land; around villages; fields, roads; inselberg; sometimes in *Gilbertiodendron dewevrei* forest; 350-620 m alt.

Variable in leaf sheath surface pattern; young leaves almost sessile.

A. singulariflorum Dhetchuvi

Herb, rhizomatous, with leafy shoots to *80 cm tall;* leaf blade glabrous, lanceolate to narrowly elliptic, c. 14 × 3,5 cm, apex with *acumen 1,5 cm long,* base asymmetrical; inflorescence *1-flowered* arising from shoot-base or on rhizome; peduncle generally subterranean and flower half-subterranean; lateral petals white; labellum yellowish at the middle, white-pinkish at tip; fruit spherical, pericarp pale pink.

Flooded forests along river; clearings; savannas; gallery.

Near *A. melegueta.*

AFRAMOMUM

A. spiroligulatum A. D. Poulsen & Lock; Poulsen & Lock (1999): 59. – Icon.: Kew Bull. 52: 610, 611, 1997; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 369, 2008.

Perennial herb with far-creeping rhizome; leafy shoots 2,8-5 m tall; leaf blade narrowly elliptical to narrowly obovate, 34-50 × 6-10 cm, base cuneate, apex acuminate, glabrous above, midrib beneath with orange-brown hairs on each side, margin beneath hairy; ligule 2,5-4 cm long sometimes *curling* 1-1,5 times round the shoot; inflorescence *10-14-flowered,* arising from the shoot-base, peduncle *4-12 cm long;* petals white; labellum white tinged pink, with a central yellow patch; fruits 3-6 per infrutescence, obpyriform, 5 cm long, 3,5-4 cm Ø, *grooved* when fresh, green becoming light red.

Moist forest, usually by paths or in old clearings; c. 1300-1900 m alt.

Near *A. makendensis* (see Kew Bull. 52: 609 Table 1, 1997) and *A. corrorima.*

A. stanfieldii Hepper; Kew Bull. 35: 310, 1980.

Herb, rhizomatous, with leafy shoots 0,75-1 m tall; leaf blade glabrous, elliptic, c. 20 × 7 cm, base rounded, apex acuminate or 2 cm long-attenuate; inflorescence solitary from shoot-base, 5-flowered; petals *white;* labellum with yellow throat; fruit trigonal, 5 × 3 cm *not rostrate,* shining, scarlet.

Rather dry forest; forest edge; forest with *Celtis, Ficus* sp.; high forest with *Ficus* sp., *Triplochiton scleroxylon, Terminalia superba, Cordia millenii.*

Near *A. sceptrum* (but flowers white), *A. strobilaceum* (but rhizomatous), *A. alboviolaceum* (but veins of blade more widely spaced: 23-33 per 5 mm below, usually obscured).

A. strobilaceum (Sm.) Hepper; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 316, 2000; Lisowski, Fl. Rép. Guinée 1: 485, 2009. – Icon.: Boissiera 24a: 226, 1975; Adam, Fl. Mts Nimba 5: 1797-1800, 1981.

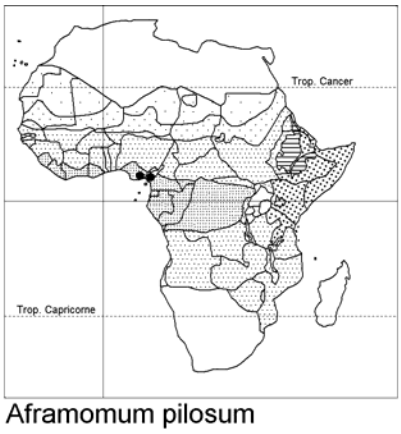
syn.: Enum. 3: 36, 1995; *Cardamomum palustre* Kuntze, nom. illegit.; *Amomum exscapum* Sims p.p., quoad specim. Afzelius 4; *Aframomum citratum* sensu A. Chev., Explor. Bot. Afr. Occ. Franç. 1: 625, 1920, non (J. Pereira) K. Schum. (Chevalier 20943); ? *Amomum afzelii* Roscoe; *Aframomum simiarum* A. Chev.

Herb with a tussocky habit, forming a *dense clump;* leafy shoots 0,8-1,75 m tall; leaf blade lanceolate, 38 × 8 cm, apex cuspidate, base attenuate-truncate, glabrous on both sides, margins red, ciliolate; inflorescence a *spike,* 13 × 3 cm, 2-3-flowered, each flower to 10 cm long, white; fruit smooth with a *long* sterile beak, scarlet.

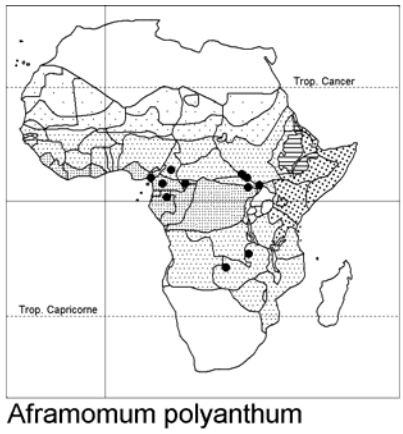
Along water courses; wet forests; degraded forest; humid ravine with *Cyathea;* 800-1600 m alt.

No obvious close relatives.

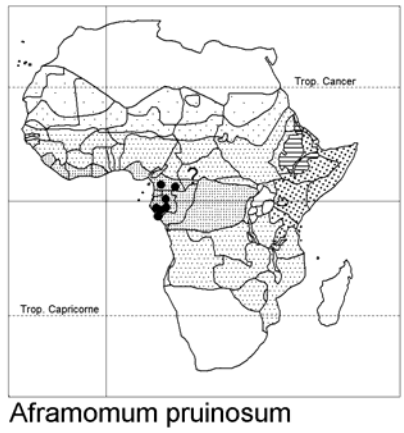
A. subsericeum (Oliv. & D. Hanb.) K. Schum.; Fl. W. Trop. Afr., ed. 2, 3/1: 75, 1968, *excl.* specim. Mangenot & Aké Assi IA 543, Adam 20381, Adames 604; Cable & Cheek, Pl. Mt. Cameroon: 180, 1998; Poulsen & Lock (1999): 59; Harris & al., Edinb. J. Bot. 57: 384, 2000; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 316, 2000; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 246, 2002; Cheek & al., Pl. Kupe…: 474, 2004; Sosef & al., Check-list pl. vascul. Gabon: 418, 2006; Figueiredo & Smith, Pl. Angola: 208, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 301, 2010;



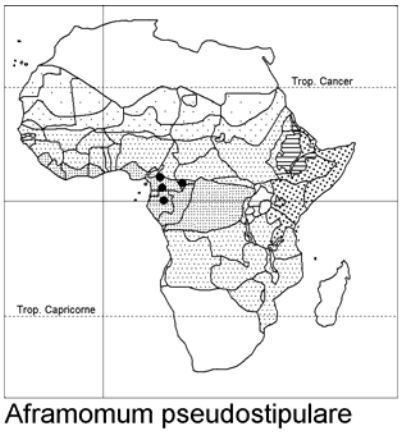
Aframomum pilosum



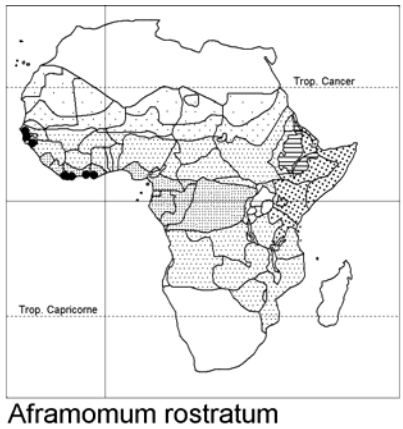
Aframomum polyanthum



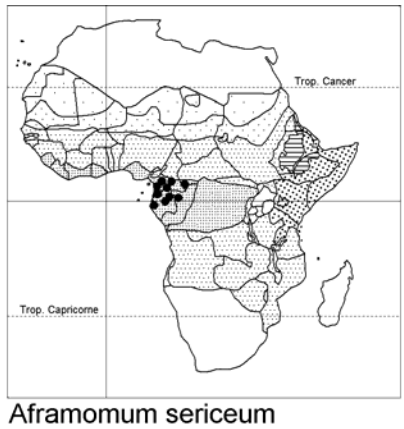
Aframomum pruinosum



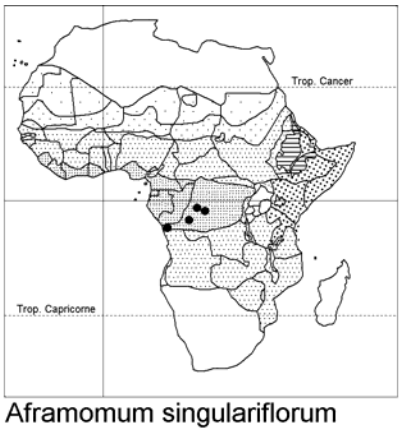
Aframomum pseudostipulare



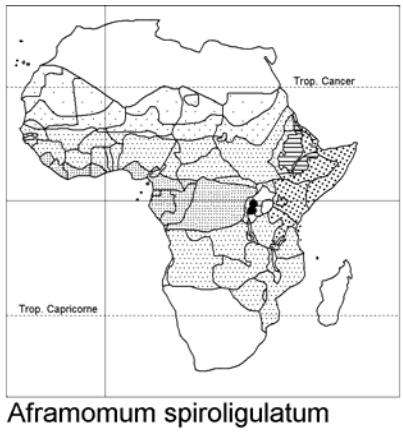
Aframomum rostratum



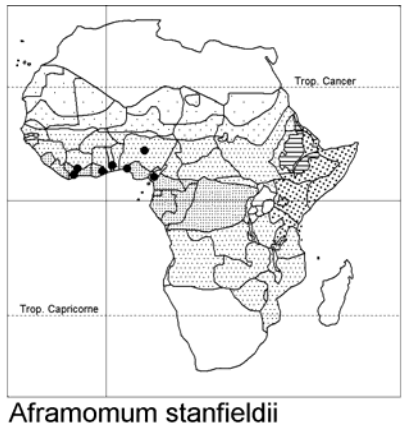
Aframomum sericeum



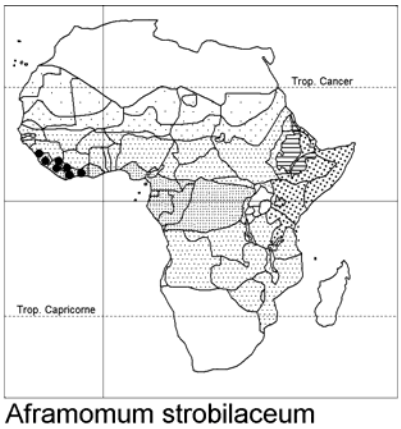
Aframomum singulariflorum



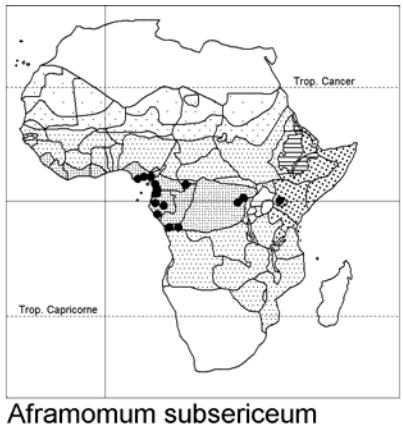
Aframomum spiroligulatum



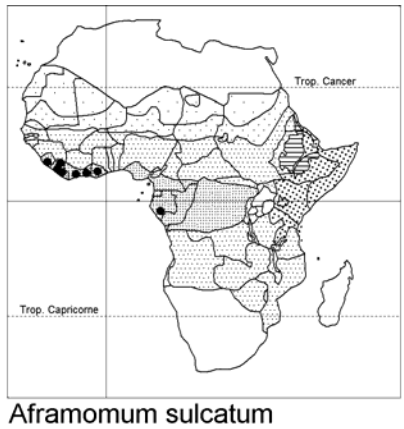
Aframomum stanfieldii



Aframomum strobilaceum



Aframomum subsericeum



Aframomum sulcatum

AFRAMOMUM SUBSERICEUM

Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 233, 2011; Fischer & al., Annot. checklist vascul pl. Kakamega For.: 225, 2011. – Icon.: Hook. Ic. Pl. 25: pl. 2484, 1896.

bas.: *Amomum subsericeum* Oliv. & D. Hanb.

syn.: *Cardamomum subsericeum* (Oliv. & D. Hanb.) Kuntze; Enum. 3: 36, 1995 (subsp. **glaucophyllum**).

Herb with a long creeping rhizome; leafy shoots to 4 m tall; leaf blade linear-lanceolate, c. 35 × 6,5 cm, apex caudate-acuminate, base attenuate, glabrous above; surface beneath: – hairs between the nerves spreading ± at right angles to them = subsp. **subsericeum**; – hairs parallel to the nerves, lying closely appressed to the leaf surface = subsp. **glaucophyllum** (K. Schum.) Lock (vide Kew Bull. 35: pl. 8, 1980); inflorescence a simple or compound spike, peduncle 8-10 cm long, each spike 2-3-flowered; corolla pink; labellum obovate, 6 cm Ø, purple with yellow throat; fruit 6 × 3 cm, smooth, red.

Slightly humid forest; *Gilbertiodendron dewevrei* forest; occasionally on roadsides; 0-1400 m alt.

Comprises 2 subspp.

Smelling of citron (mesocarp pulp); used as a condiment.

A. sulcatum (Oliv. & D. Hanb. ex Baker) K. Schum.; Kew Bull. 35: 308, 1980; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 316-317, 2000; Sosef & al., Check-list pl. vascul. Gabon: 418, 2006; Lisowski, Fl. Rép. Guinée 1: 485, 2009. – Icon.: K. Schumann in Engler, Pflanzenreich 4/46: 208, 1904.

bas.: *Amomum sulcatum* Oliv. & D. Hanb. ex Baker

syn.: *Aframomum sulcatum* sensu Hepper, Fl. W. Trop. Afr., ed. 2, 3/1: 75-76, 1968, quoad specim. Chevalier 21043, Hoffman 14, Gibson s.n., Harley 1553a, Baldwin 11006, non (Oliv. & D. Hanb.) K. Schum. (cf. above under *A. chrysanthum).*

Herb with wide-creeping rhizome; leafy shoots to 3 m tall; leaf blade oblong-lanceolate, c. 26-33 × 5,5-7 cm, glabrous except for the midrib that is *pubescent beneath;* inflorescence a 2(3)-flowered spike; flower with *broad mauve labellum;* fruit often *solitary*, *prominently grooved* at apex, in life deep rich red, 5 × 2,5 cm, flask-shaped, glabrous.

Forest and derived farmland; 300-1200 m alt.

In Adam, Fl. descript. Monts Nimba 5: 1614, 1981, the description of *A. sulcatum* is a mixture of characters between *A. sulcatum* and *A. chrysanthum* and the cited specimen Adames 422 is *A. chrysanthum;* the other specimens cited are in need of further study.

Near *A. leptolepis.*

(**A. tectorum** K. Schum.) in Engler, Pflanzenreich 4/46: 210, 1904; Fl. Cameroun 4: 70, 1965 (imperfectly known species).

Leafy stems to 8 m tall; leaves sessile, broadly linear-lanceolate, 60 × 16 cm, shortly acuminate, glabrous; ligule short, rounded; spike 2-flowered, 6 cm long (excluding flowers), peduncle short, clothed in oblong obtuse apiculate ciliolate bracts; corolla pale pink, tube 2,8 cm long, lobes narrowly linear, 5,5 cm long; labellum obovate, 6,5 cm long, deep pink; ovary glabrous; fruit unknown.

Rain-forest, common; 450-700 m alt. – Not mapped.

Collected in 1895 (Staudt 412; lost).

Taxonomic status uncertain.

AFRAMOMUM

(**A. thonneri** De Wild., Plantae Thonnerianae congolenses, Sér. 2: 209, 1911); Harris & al., Edinb. J. Bot. 57: 384, 2000. – Icon.: De Wildeman, o.c.: pl. 20.

Perennial herb; leafy shoots c. 3 m tall; leaf sheath longitudinally striate, margins ciliate; petiole c. 1,5 cm long; blade oblong-lanceolate, 30-40 × 9-11 cm, glabrous, apex attenuate-acuminate, base ± rounded; ligule truncate, glabrous, c. 8 mm long; inflorescence a spike, many-flowered, c. 20 cm long, obovate, bracts 4 cm long, 4 cm wide, velutinous outside, margins ciliate; petal lobes 6,5 cm long, pale violet; labellum ?; fruit unknown.

Rolling plain, in brushwood; growing in groups, rather common; 440 m alt.

Said to be near *A. laurentii* and *A. giganteum.*

Taxonomic status uncertain. – Described from Zaire, Mongala: Abumombazi (3°34'N × 22°03'E). Also cited by Harris & al. (2000): 384 from Centr. Afr. Rep., Bayanga (Harris 5724). According to Walters & al. (in Edinb. J. Bot. 68: 438, 2011) this plant occurs in Cameroon, Centr. Afr. Rep., Gabon, and Congo-Brazzavile, listed as "Species A" in Harris's Vascul. pl. Dzanga-Sangha Res, and localities given there.

A. uniflorum Lock & A. D. Poulsen; Poulsen & Lock (1999): 59; Harris & al., Edinb. J. Bot. 57: 384, 2000. – Icon.: Kew Bull. 52: 607, 1997.

Perennial herb with extensive rhizome; leafy shoots *40-140 cm tall;* lamina elliptic to slightly obovate, to 29 × 9 cm, apex acuminate, base cuneate, slightly asymmetrical, glabrous except for rufous hairs in a dense submarginal line, and pale pubescence on midrib beneath; inflorescence on rhizome or at shoot-base, *1-flowered;* petals pale *mauve* to pink; labellum pale mauve to pink with a yellow patch at base; fruit *subterranean,* depressed-spherical, 3-lobed, unknown mature.

Moist forest; small clearings; 750-1000 m alt.

Near *A. atewae* and *A. amaniense,* also with subterranean fruits.

A. verrucosum Lock; Kew Bull. 52: 608, 1997; Poulsen & Harris (1999): 59; Harris & al., Edinb. J. Bot. 57: 384, 2000; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 247, 2002.

Herb with extensive rhizome; leafy shoots 2-3 m tall; leaf blade narrowly elliptic, 25-30 × 6-7 cm, glabrous, acuminate; inflorescence *2-4-flowered,* arising from shoot-base or on the rhizome close to it; peduncles 5-30 cm long, spreading at or below the soil, then abruptly ascending; petals and labellum pale mauve; fruit ovoid, to 9 cm long, including the beak (= accrescent calyx) c. 4 cm long, red, shiny, with 10-12 pronounced ridges when fresh.

Swampy terra firma forest; 1100-1450 m alt. – Widespread around NW corner of Lake Victoria.

Near *A. cordifolium* but leaf base rounded, not cordate.

(**A. violaceum** K. Schum.) cited as an indigenous perennial plant from Zaire by Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 301, 2010; citation unclear.

There exists *Amomum violaceum* Ridl.; considered as a variety of *Aframomum melegueta* (Roscoe) K. Schum. var. *violaceum* (Ridl.) Baker occurring in, e.g., Angola (cf. above under these taxa).

Not figuring in World Checklist of Monocotyledons, Royal Botanic Gardens, Kew.

A. wuerthii Dhetchuvi & Eb. Fischer – Icon.: Syst. Geogr. Pl. 76: 243, 244, 2006; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 367, 2008.

Herb with elongated rhizome; leafy shoots *90-200 cm tall;* leaf blade ovate-lanceolate, pubescent with caducous hairs, to 20 × 8-10 cm, glabrous above, also beneath except for brownish hairs on midrib and margin; base cuneate, slightly asymmetric, apex acuminate; petiole 1,5 cm long; inflorescence to 7-flowered, arising at base of shoots; peduncle 10-15 cm long; petals *white*, labellum also so, with *cream spot* at middle; fruit light red, broadly ovate, 6 × 4 cm, 3-sulcate, eaten by monkeys.

Swamp forest edge with *Anthocleista grandiflora, Syzygium guineense, Carapa grandiflora*, etc.; 2000 m alt.

In Rwanda the Nyungwe forest is one of the most species-rich montane forests in Central and Eastern Africa with: *Impatiens nyungwensis, Begonia pulcherrima,* etc. (vide Bouxin G., Bull. Jard. Bot. Belg. 44: 149-159, 1974).

Near *A. angustifolium*, but smaller. Also related to *A. luteoalbum.*

A. zambesiacum (Baker) K. Schum.; Bull. Jard. Bot. Natl. Belg. 48: 130, 1978; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 309, 1994; Fl. Eth. & Eritrea 6: 325, 1997 (var. **puberulum** Lock); Kew Bull. 52: 602-603, 1997; Cable & Cheek, Pl. Mt. Cameroon: 180-181, 1998; Poulsen & Lock (1999): 59; Cheek & al., Pl. Kupe…: 474, 2004; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 187, 2006; Harvey & al., Pl. Lebialem Highl., Cameroon: 160, 2010; Fl. Zambes. 13/4: 135-136, 2010; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 226, 2011. – Icon.: Boissiera 24a: 226, 230, 1975 (sub nom. *A. chlamydanthum);* Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 369, 2008.

bas.: *Amomum zambesiacum* Baker

syn.: Enum. 3: 36, 1995.

Rhizomatous perennial herb; leafy shoots in clumps, to 2 m tall; leaf blade broadly lanceolate, 20-45 × 5-14 cm, caudate-acuminate, base cuneate, glabrous except for the margins and midrib which bear dense appressed ascending hairs beneath; inflorescence *capitate, 25-50-flowered*, arising from shoot-base; peduncle 10-40 cm long; petals whitish (? or also pink) the laterals creamy white, labellum creamy white with a large dull crimson patch at base; fruit ovoid, c. 7 × 4,5 cm, thick-walled, with prominent ridges, red when fresh, edible.

Forest and secondary growth; often near paths or streams; 1120-2200 m alt.

The flower colour is perhaps variable: in Kenya, Uganda sometimes described as having pink flowers; in E Nigeria with cream flowers and a deep red patch on the labellum; further observations needed (fide Lock, Fl. Trop. E. Afr., Zingiber.: 27, 1985).

A. zambesiacum has a disjunct montane distribution like many other plants.

A. zambesiacum and *A. polyanthum* differ from most other *Aframomum* in their very wide distribution; *A. angustifolium* and *A. alboviolaceum* approach or exceed their extent.

Comprises 2 vars.: – var. **zambesiacum**; – var. **puberulum** Lock with peduncle bracts densely puberulous; occurs only in SW Ethiopia.

* * *

Recent collections from Cameroon, Central African Republic and Gabon enumerate several unnamed species, some probably undescribed up to now; see:

Cameroon:

- Cable & Cheek, Plants Mt Cameroon: 181, 1998; species 2, 5-14;
- Cheek & al., Plants Mt Oku…: 192, 2000; species A, B;
- Cheek & al., Plants Kupe…: 474, 2004; species 1-4 of Kupe-Bakossi, sp. 4 sensu Harris 1997;
- Cheek & al., Plants Dom, Bamenda Highl.: 154, 2010; species of Dom;
- Cheek & al., Plants Mefou proposed national park Yaoundé: species 1 of Mefou;
- Harris & al. in Edinb. J. Bot. 57: 384, 2000; species nov. C, D.
- Harvey & al., Plants Lebialem Highl.: 160, 2010; species 1-3 of Fosimondi;

Central African Republic:

- Harris, Vascular plants Dzanga-Sangha Reserve: 247, 2002: species B-C.

Gabon:

- Harris & al. in Edinb. J. Bot. 57: 384, 2000; species nov. B, E (Lopé Reserve).

* * *

SYNONYMS:

Aframomum baumannii K. Schum. = **Aframomum angustifolium**

biauriculatum K. Schum. = **A. alboviolaceum**

candidum Gagnep. = **A. alboviolaceum**

chlamydanthum Loes. & Mildbr. = **A. zambesiacum** subsp. **zambesiacum**

citratum sensu A. Chev., non (J. Pereira) K. Schum. = **A. strobilaceum**

crassilabium (K. Schum. ex Engl.) K. Schum. = **A. mala** (inflor.), **A. corrorima** (leaves)

cuspidatum (Gagnep.) K. Schum. = **A. exscapum**

dalzielii Hutch. = **A. leptolepis**

daniellii sensu Hepper, p.p., non (Hook. f.) K. Schum. = **A. chrysanthum**

erythrostachyum Gagnep. = **A. strobilaceum**

glaucophyllum (K. Schum.) K. Schum. = **A. subsericeum** subsp.

granum-paradisi (L.) K. Schum. = **A. cereum**

hamburgii nom. in sched. *(= A. hanburyi)* = ? **A. angustifolium**

hanburyi K. Schum. = ? **A. angustifolium**

hanburyi sensu Koechlin = **A. flavum**

hanburyi sensu Lock & J. B. Hall = **A. chrysanthum**

kayserianum sensu Koechlin, Fl. Camer., non (K. Schum.) K. Schum. = **A. alboviolaceum**

keniense R. E. Fr. = **A. zambesiacum** subsp. **zambesiacum**

korarima (J. Pereira) K. Schum. ex Engl. = **A. corrorima**

latifolium (Afzel.) K. Schum. = **A. alboviolaceum**

latifolium sensu Hepper, p.p. = (**A. kayserianum**)

leonense K. Schum. = **A. exscapum**

leptolepis sensu Hepper, p.p., non (K. Schum.) K. Schum. = **A. geocarpum**, **A. leptolepis**

AFRAMOMUM

longiscapum sensu Hepper, p.p., non (Hook. f.) K. Schum. = **A. cordifolium**
lycobasis K. Schum. = **A. limbatum**
macrospermum (Sm.) Burkill = ? **A. alboviolaceum**
masuianum (De Wild. & T. Durand) K. Schum. = **A. cereum**
meleguetella K. Schum. = **A. melegueta**
oleraceum A. Chev. = **E. exscapum**
sanguineum (K. Schum.) K. Schum. = **A. angustifolium**
sceleratum A. Chev. = **A. angustifolium**
sceptrum (Oliv. & D. Hanb.) K. Schum. = **A. cereum**
simiarum A. Chev. = **A. strobilaceum**
sp. 1 in Fl. W. Trop. Afr., ed. 2 = **A. leptolepis**
sp. A sensu Harris & al., 2000 = **A. sericeum**
sp. A sensu Harris & al., 2002 = **(A. thonneri)**
sp. D sensu Harris, 2002 = **A. sericeum**
stipulatum (Gagnep.) K. Schum. = **A. alboviolaceum**
subcericeum sensu Hepper, p.p., non (Oliv. & D. Hanb.) K. Schum. = **A. elegans**, **A. cereum**
sulcatum sensu Hepper, p.p., non (Oliv. & D. Hanb. ex Baker) K. Schum. = **A. chrysanthum**, **A. sulcatum**
sulcatum sensu A. Chev., p.p. = **A. geocarpum**
usambarense Lock = **A. corrorima**
zimmermannii K. Schum. = **A. alpinum**

(ALEXIS)

Alexis bifurca Salisb. = **Aframomum exscapum**
grandiflora (Sm.) Salisb. = **A. melegueta**

(AMOMUM)

Amomum afzelii Roscoe = **Aframomum exscapum** fide Hepper, Kew Bull. 21: 133, 1967, but = **Afr. strobilaceum** fide Hepper, Fl. W. Trop. Afr., ed. 2, 3/1: 76, 1968
alboviolaceum Ridl. = **Afr. alboviolaceum**
alpinum Gagnep. = **Afr. alpinum**
angustifolium Sonnerat = **Afr. angustifolium**
angustifolium T. Hanb. = **Afr. daniellii**
angustifolium Salisb. = **Zingiber officinale**
arundinaceum Oliv. & D. Hanb. = **Aframomum arundinaceum**
bitacoum Gagnep. = **Afr. alboviolaceum**
cereum Hook. f. = **Afr. cereum**
cereum sensu Baker, p.p. = **Afr. rostratum**
citratum J. Pereira = **Afr. citratum**
clusii Sm. = **Afr. angustifolium**
clusii T. Hanb. = ? **Afr. angustifolium**
corrorima A. Braun = **Afr. corrorima**
crassilabium K. Schum. ex Engl., p.p. = **Afr. corrorima** (leaves), **Afr. mala** (inflor.)
cuspidatum Gagnep. = **Afr. exscapum**
daniellii Hook. f. = **Afr. daniellii**
elatum Salisb. = ? **Afr. melegueta**
elliottii Baker = **Afr. elliottii**
erythrocarpum Ridl. = **Afr. angustifolium**
exscapum Sims, p.p., quoad Ann. Bot. 1: pl. 13, 1805 = **Afr. exscapum**
exscapum Sims, p.p., quoad spec. Afzelius 4, l.c., 1805 = **Afr. strobilaceum**
giganteum Oliv. & D. Hanb. = **Afr. giganteum**

AMOMUM

glaucophyllum K. Schum. = **Afr. subsericeum** subsp.
grandiflorum Sm. = **Afr. exscapum**
granum-paradisi K. Schum. (type) = **Afr. cereum**
granum-paradisi sensu J. Pereira = **Afr. exscapum**
kayserianum K. Schum. = (**Afr. kayserianum**)
korarima J. Pereira = **Afr. corrorima**
latifolium Afzel., non Lam. = **Afr. alboviolaceum**
laurentii De Wild. & T. Durand = **Afr. laurentii**
leptolepis K. Schum. = **Afr. leptolepis**
limbatum Oliv. & D. Hanb. = **Afr. limbatum**
longiscapum Hook. f. = **Afr. longiscapum**
luteoalbum K. Schum. = **Afr. luteoalbum**
macrolepis Sm. = **Afr. citratum**
macrospermum Sm. = ? **A. alboviolaceum**
madagascariense Lam. = **Afr. angustifolium**
mala K. Schum. ex Engl. = **Afr. mala**
mannii Oliv. & D. Hanb. = (**Afr. mannii**)
masuianum De Wild. & T. Durand = **Afr. cereum**
melegueta Roscoe, ? and var. *violaceum* Ridl. = **Afr. melegueta**
meleguetta Giseke = **Afr. angustifolium**
nemorosum Bojer = **Afr. angustifolium**
palustre Afzel. = **Afr. strobilaceum**
pilosum Oliv. & D. Hanb. = **Afr. pilosum**
polyanthum K. Schum. = **Afr. polyanthum**
rostratum Oliv. & D. Hanb. = **Afr. rostratum**
sanguineum K. Schum. = **Afr. angustifolium**
sansibaricum Werth = **Afr. angustifolium**
sceptrum Oliv. & D. Hanb. = **Afr. cereum**
stipulatum Gagnep. = **Afr. alboviolaceum**
strobilaceum Sm. = **Afr. strobilaceum**
subsericeum Oliv. & D. Hanb. = **Afr. subsericeum**
sulcatum Oliv. & D. Hanb. ex Baker = **Afr. sulcatum**
violaceum Ridl. = **Afr. melegueta** var. **violaceum**
zambesiacum Baker = **Afr. zambesiacum**

AULOTANDRA / *1*

Genus of 6 species: 1 in Africa, 5 in Madagascar. Near *Siphonochilus*.

HARRIS, D. J. & al. (2006). The phylogenetic position of Aulotandra Gagnep. (Zingiberaceae). *Nord. J. Bot.* 23: 725-734.

NEWMAN, M. F. (2007). Materials towards a revision of Aulotandra Gagnep. (Zingiberaceae). *Gard. Bull. Singapore* 59: 139-144.

Aulotandra kamerunensis Loes.; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 99, 233, 2011.

Glabrous perennial herb lacking aerial stem, with solitary erect leaves arising from a stout horizontal rhizome; leaf pseudopetiole 12-35 cm long; blade lanceolate, 20-26 × 6,5-8,8 cm, apex acuminate, base attenuate, secondary and transverse nerves forming squares with black dots on lower surface, translucent in transmitted light; leaf sheath cylindrical, erect, 7-8 cm long, papery; inflorescence from rhizome, 2-3-flowered, loosely racemose; peduncle 5-7 cm long clothed with sheathing papery oblong bracts 3-4 cm long; inner tepals purple and white forming a tube 7 cm long; fruit unknown ?

Evergreen *Gilbertiodendron dewevrei* forest, in understorey; c. 650 m alt.

AULOTANDRA KAMERUNENSIS

First collect in 1908 at Bipinde (type: Zenker 3696/not 36908!/ lost in Berlin, but probably present at US, WU, WRSL), the plant was not seen again until 1973 from Eséka (Letouzey 12504). Then recorded in 2004 by Tchoutou from Nyabesan Campo area (specimen not seen by Cheek & al., l.c.). "The Mefou record (Tadjouteu 630 4/2004) "is only the fourth global location for this very rare species". At a later visit to this area, the species was not refound.

(CARDAMOMUM)

Cardamomum afzelii (Roscoe) Kuntze = **Aframomum strobilaceum**
angustifolium (Sonn.) Kuntze = **A. angustifolium**
arundinaceum (Oliv. & D. Hanb.) Kuntze = **A. arundinaceum**
cereum (Hook. f.) Kuntze = **A. cereum**
citratum (J. Pereira) Kuntze = **A. citratum**
clusii (Sm.) Kuntze = **A. angustifolium**
daniellii (Hook. f.) Kuntze = **A. daniellii**
giganteum (Oliv. & D. Hanb.) Kuntze = **A. giganteum**
grandiflorum (Sm.) Kuntze = ? **A. melegueta**
latifolium Kuntze = **A. alboviolaceum**
limbatum (Oliv. & D. Hanb.) Kuntze = **A. limbatum**
longiscapum (Hook. f.) Kuntze = **A. longiscapum**
mannii (Oliv. & D. Hanb.) Kuntze = **(A. mannii)**
melegueta Kuntze = **A. angustifolium**
palustre Kuntze = **A. strobilaceum**
pilosum (Oliv. & D. Hanb.) Kuntze = **A. pilosum**
sceptrum (Oliv. & D. Hanb.) Kuntze = **A. cereum**
subsericeum (Oliv. & D. Hanb.) Kuntze = **A. subsericeum**

(CERATANTHERA)

Ceratanthera beaumetzii Heckel = **Aframomum alboviolaceum**

(CIENKOWSKIA)

Cienkowskia aethiopica Schweinf. = **Siphonochilus aethiopicus**
kirkii Hook. f. = **S. kirkii**
nitida Regel & Rach = ?

(CIENKOWSKIELLA)

Cienkowskiella aethiopica (Schweinf.) Y. K. Kam = **Siphonochilus aethiopicus**
brachystemon (K. Schum.) Y. K. Kam = **S. brachystemon**
evae (Briq.) Y. K. Kam = **S. aethiopicus**
kilimanensis (Gagnep.) Y. K. Kam = **S. kilimanensis**
kirkii (Hook. f.) Y. K. Kam = **S. kirkii**
nigerica (Hutch. ex Hepper) Y. K Kam = **S. nigericus**

COSTUS see **Costaceae**

[CURCUMA]

One of the largest genera in *Zingiberaceae,* with some 80 species throughout tropical Asia, from India E-wards to New Guinea and N Australia (map in Sirirugsa & al., 2007: 204). Identities of many species described in earlier taxonomic publications from India, including those commonly used and cultivated, are often unclear (Škorničková & Sabu, 2005: 199). Taxonomic knowledge of the genus is necessary for the taxa used commercially as spices, ornamentals and medicines.

LARSEN, K. & al. (1999). *Gingers of Peninsular Malaysia and Singapore*. Natural History Publications (Borneo), Kota Kinabulu. XII+135 pp.

LEONG-ŠKORNIČKOVÁ, J. & al. (2008). On the identity of turmeric: the typification of Curcuma longa L. (Zingiberaceae). *Bot. J. Linn. Soc.* 157: 37-46.

LEONG-ŠKORNIČKOVÁ, J. & al. (2010). Back to types ! Towards stability of names in Indian Curcuma L. (Zingiberaceae). *Taxon* 59: 269-282.

RAVINDRAN, P. N. & al., eds. (2007). *Turmeric: The genus Curcuma.* (Medicinal and Aromatic Plants – Industrial Profiles) CRC Press, Boca Raton, etc. 484 pp.

SIRIRUGSA, P. & al. (2007). The genus Curcuma L. (Zingiberaceae): distribution and classification with reference to species diversity in Thailand. *Gard. Bull. Singapore* 59: 203-220.

ŠKORNIČKOVÁ, J. & M. SABU (2005). The identity and distribution of Curcuma zanthorrhiza Roxb. (Zingiberaceae). *Gard. Bull. Singapore* 57: 199-210.

[**Curcuma longa** L.] – Icon.: Fl. Eth. & Eritrea 6: 328, 1997.

Perennial herb from a short erect rhizome, bright orange-yellow internally, with numerous similar lateral rhizomes; leaves in a rosette, petioles sometimes forming a pseudostem to 1 m tall; lamina c. 30 × 7-8 cm, apex acute; inflorescence terminal on leafy shoot, 10-15 × 5-7 cm; bracts 5-6 cm long, curved outwards, green with often pinkish tips; petals white; labellum white with yellow central band; fruits not produced.

Grown for its aromatic rhizomes (turmeric).

In Fl. Ethiopia l.c. Lock indicates that *C. domestica* Valeton is the most satisfactory name for the cultivated plant (syn.: *C. longa* sensu auct., non L.; see Burtt & Smith in Notes Roy. Bot. Gard. Edinb. 31: 185, 1972). However, in Fl. Zambes. 13/4: 121, 2010, Lock uses the name *C. longa* L.

Curcuma L. is a conserved name, with *C. longa* L. as its conserved type, the type of *C. longa* is still uncertain (Leong-Škorničková & al., 2008: 37). A lectotype has been selected from extant material examined by Linnaeus; an epitype collected near the type locality was designated. Lectotype: Herb. Hermann 3: 5, no 7 (BM). Epitype: Sri Lanka, Kandy Dt., Peradeniya vicinity, Škorničková 73222 (BM; isoepi: E, K, PDA, SING). The following synonyms are given (Bot. J. Linn. Soc. 157: 42, 2008): *Kua domestica* Medik. 1790, nom. superfl.; *Amomum curcuma* Jacq. 1776; *Curcuma tinctoria* Guibourt 1876; *Stissera curcuma* Giseke 1792; *Curcuma domestica* Valeton 1918 (see discussion in Bot. J. Linn. Soc., l.c.: 40-44).

C. longa "displays a certain level of both phenotypic and genotypic variation…certainly the result of targeted selection… carried out all over the Indian subcontinent since times immemorial. Yet this variation…does not cover the wide phenotypic range…in the descriptions and drawings of various authors."

Names of taxa currently recognized under *Curcuma* from India and Sri Lanka were investigated by Leong-Škorničková & al. (Taxon 59: 269-282, 2010; ibid. 60: 1214-1215, 2011) who list the species of the "Longa" group sensu Sirirugsa & al. (2007): 211. This group also includes *C. zanthorrhiza* Roxb. These authors cite material thus named from Zaire, Eala; but indicate that they had

found plants looking identical to the latter species from different parts of Africa as well. Most of this material was of cultivated origin. Its native country is difficult to establish because the plant "is so widely distributed, cultivated and naturalized for centuries all over Asia and can now be found as far away as West Africa".

An account of *C. amada* Roxb., *C. angustifolia* Roxb., *C. aromatica* Salisb., *C. caesia* Roxb., and *C. zedoaria* (Christm.) Roscoe, is given by Ravindran in Ravindran & al (2007): 1-12, as well as by Leong-Škorničková & al. in Taxon, l.c. (2010).

(ETHANIUM)

Ethanium africanum (Benth.) Kuntze = **Renealmia africana**

cincinnatum K. Schum. = **R. cincinnata**

mannii (Hook. f.) Kuntze = **R. mannii**

(KAEMPFERIA)

NEWMAN, M. F. (2007). See above under **Aulotandra**.

Kaempferia aethiopica (Schweinf.) Ridl. = **Siphonochilus aethiopicus**

var. *angustifolia* Ridl. = ?

brachystemon K. Schum. = **S. brachystemon**

carsonii Baker = **S. kirkii**

ceciliae N. E. Br. = **S. kilimanensis**

decora Druten = **S. kirkii**

dewevrei De Wild. & T. Durand = **S. aethiopicus**

ethelae J. M. Wood = **S. aethiopicus**

evae Briq. = **S. aethiopicus**

homblei De Wild. = **S. puncticulatus**

kilimanensis Gagnep. = **S. kilimanensis**

kirkii (Hook. f.) Wittm. & Peering, incl. var. *elatior* Stapf = **S. kirkii**

macrosiphon Baker = **S. brachystemon**

montagui F. M. Leight. = **S. kirkii**

natalensis Schltr. & K. Schum. = **S. aethiopicus**

nigerica Hutch. ex Hepper = **S. nigericus**

pallida De Wild. = **S. kirkii**

pleiantha K. Schum. = **S. pleianthus**

puncticulata Gagnep. = **S. puncticulatus**

rhodesica T. C. E. Fr. = **S. rhodesicus**

rosea Baker = **S. kirkii**

spectabilis (Fenzl) Baker = **Costus spectabilis** *(Costaceae)*

stenopetala K. Schum. = **Siphonochilus aethiopicus**

zambeziaca Gagnep. = **S. aethiopicus**

(MAROGNA)

Marogna paludosa Salisb. = **Aframomum angustifolium**

RENEALMIA / *15*

Genus of some 78 species (tropical America: 59; tropical Africa 18 + 1 São Tomé). The taxonomy of the African species is still unsatisfactory (Lock, Fl. Zambes. 13/4: 123, 2010). They have not been studied since 1898 (Baker in Fl. Trop. Africa 7: 311-313). The recent revisionary work by Dhetchuvi (2011) still remains unpublished. "A revision of the African species can only be achieved by studying as many living populations as possible. Important characters are especially inflorescence (flowers per partial florescence), calyx, fruit and leaves while the corolla seems to be quite uniform" (Dhetchuvi & Fischer, l.c.). A diversity centre is situated in the Monts Crystals, Gabon. Most species grow in lowland rain-forest.Two species from Rwanda grow in montane forest, 1800-2000 m alt. *Renealmia* species appear to be more shade-tolerant than *Aframomum.* They grow, flower and fruit beneath an intact forest canopy (Poulsen & Lock, 1999).

These perennial herbs have leaves in 2 rows with long sheathing bases forming a pseudostem; ligule very short and stiff; inflorescence paniculate; corolla 3-lobed; androecium of a 3-lobed labellum and a single subsessile stamen; fruit a fleshy capsule. The flowers are small and delicate, usually poorly preserved in herbarium material. In the list retained by us (see below, excl. taxa within brackets) the fruit is unknown in one species *(R. albo-rosea).*

DHETCHUVI, J.-B. M. M. & E. FISCHER (2007). A revision of Renealmia (Zingiberaceae) in Tropical Africa. *In.:* ACHOUNDONG, G., ed., *XVIIIth AETFAT Congress 26 February-2 March 2007 Yaoundé, Cameroon, Abstracts:* 25. L'Herbier National du Cameroun, Yaoundé.

Renealmia africana Benth. ex Hook. f., 1883; Cable & Cheek, Pl. Mt Cameroon: 181, 1998; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 320, 2000; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 248, 2002; Cheek & al., Pl. Kupe…: 474, 2004; Sosef & al., Check-list pl. vascul. Gabon: 419, 2006; Figueiredo & Smith, Pl. Angola: 208, 2008; Harvey & al., Pl. Lebialem Highl., Cameroon: 160, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 302, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 233, 2011; M. Renier, Flore du Kwango 1: 105, 1948. – Icon.: Fl. Gabon 9: 27, 1964.

syn.: *R. talbotii* Hutch. 1936, nom. (English descr. only); *Ethanium africanum* (Benth. ex Hook. f.) Kuntze

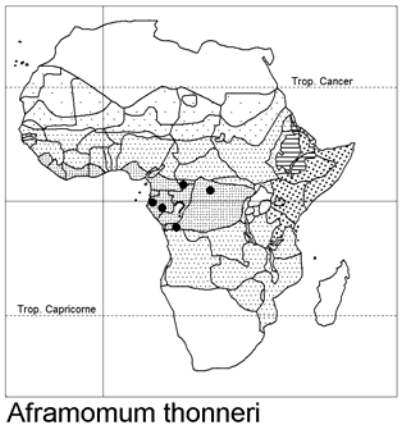
Herb 1,2-2 m tall, with a thick rhizome; leaves with false petiole 7-8 cm long; blade narrowly oblanceolate-elliptic, glabrous, 30-60 × 8-10 cm, apex caudate-acuminate, base narrowly cuneate, veins prominent on both surfaces; inflorescence from the rhizome, near the leaves, rather dense, 30-40 cm long; *peduncle* grey, c. 10 cm long, *covered by glabrous sheaths* c. 5 cm long; rhachis red, finely pubescent; lateral inflorescence branches spreading to upright; flowers small, whitish-translucent; capsule ellipsoidal, 9-10 mm long, *black.*

Swampy forest gallery; fallows in forest; shady primitive woods; 350-1950 m alt.

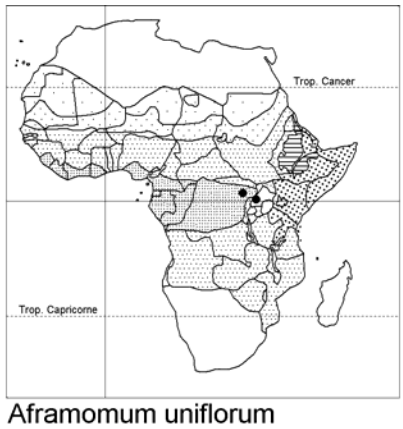
Bioko/Fernando Poo.

The plant has a strong aromatic smell; seeds a pungent taste. Sometimes grown as an ornamental.

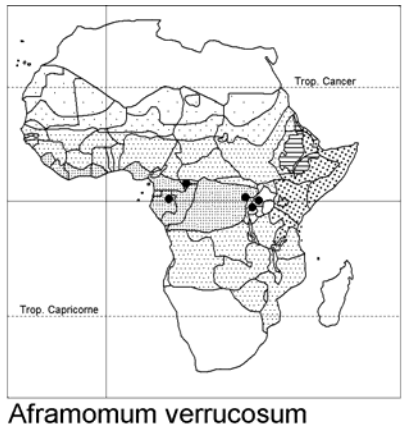
"It is not clear how this species differs from *R. congolana,* or from *R. macrocolea"* (Harris, l.c.). Also resembling *R. polyantha* and *R. polypus* (see below under these species).



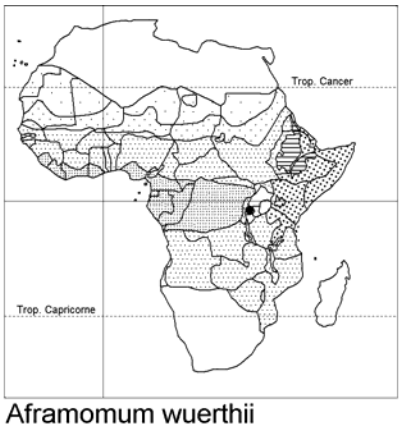
Aframomum thonneri



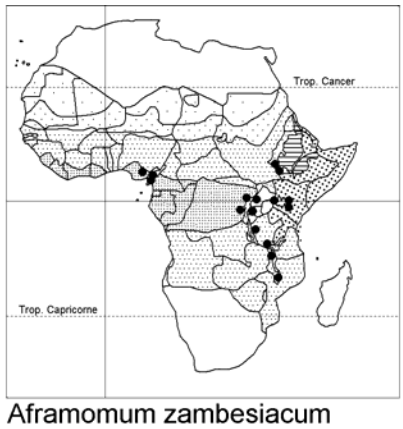
Aframomum uniflorum



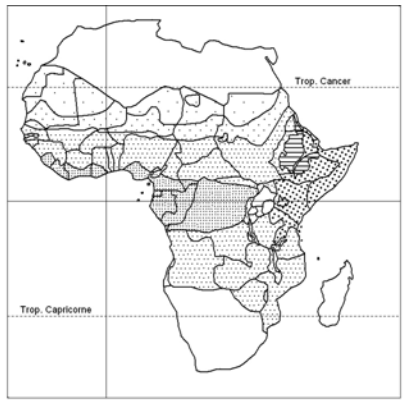
Aframomum verrucosum

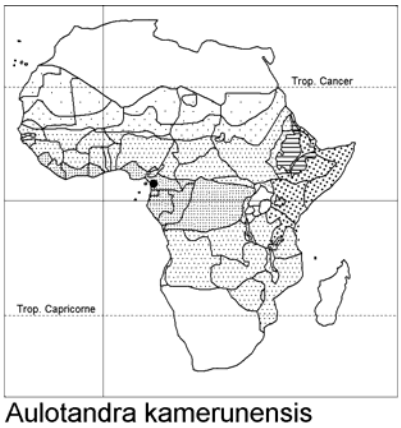


Aframomum wuerthii

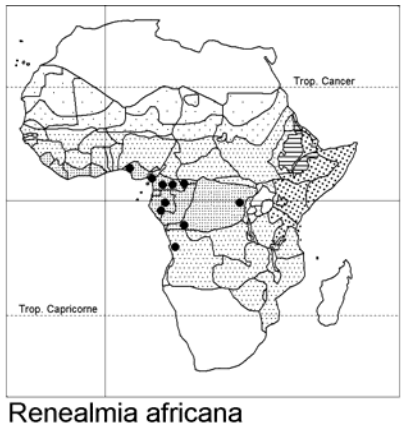


Aframomum zambesiacum

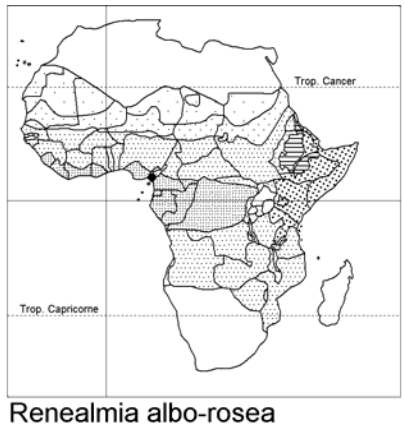




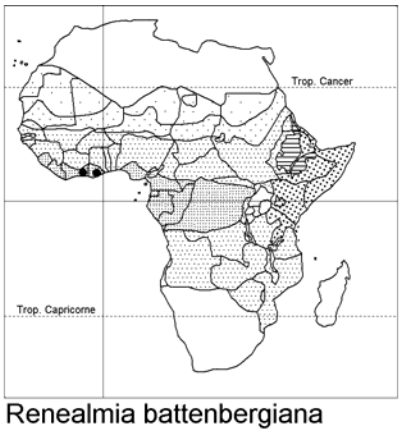
Aulotandra kamerunensis



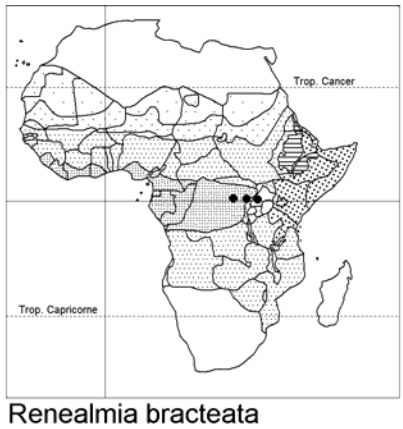
Renealmia africana



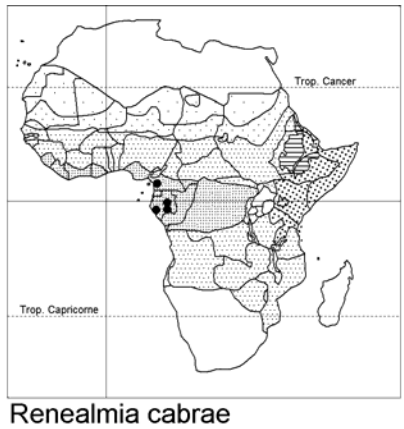
Renealmia albo-rosea



Renealmia battenbergiana



Renealmia bracteata



Renealmia cabrae

R. albo-rosea K. Schum.; Cable & Cheek, Pl. Mt Cameroon: 181, 1998. Type: Cameroon, Ikassa: Rudatis 6, flowering on 6 May 1900; lost.

Perennial herb, moderately robust; leaf petiole 4-6 cm long; blade oblanceolate, 28-32 × 5-9 cm, shortly acuminate, glabrous, base narrowed; panicle lax, 11-15 cm long on peduncle 13-16 cm long; bracts oblong-oblanceolate, 1,2-1,7 cm long; flowers white, 4-5 mm long; ovarium fusiform, glabrous; fruit unknown.

Humid bush on river bank; 100 m alt.

This species differs from all the other ones by its very large, proportionately many-flowered cincinni sustended by large white bracteoles, 8-9 mm long.

Cable & Cheek, l.c., cite specimen Winkler 357 from Etinde (Victoria). According to Hepper in Fl. W. Trop. Afr., ed. 2, 3/1: 71, 1968, this specimen is also lost.

(**R. batangana** K. Schum.) – Type: Cameroon, Gross-Batanga: Dinklage 701b.

Perennial, less robust herb; leafy shoots 1-1,5 m tall; leaf petiole 2-8 cm long; blade oblanceolate, acuminate, 20-27 × 5-8 cm, glabrous, base cuneate; panicle *straight*, very narrow, 12-20 cm long on peduncle 12-25 cm long; bracts 1,5-2 cm long, spreading, striate; flowers 2 mm long, in 3-flowered cincinni, colour ?; capsule subfusiform, 2 cm long, 6 mm Ø, glabrous; seeds 3 mm Ø, dark grey, within a white membranous aril.

Ecology unknown.

Differs from all the other *Renealmia* species, except for *R. cincinnata*, by its *erect* inflorescence scape, its narrow panicle due to the suberect appressed bracts. Also near *R. polyantha.* – Not mapped.

R. battenbergiana Cummins ex Baker

Slender perennial herb 0,3-1,3 m tall; leaf petiole 2,5 cm long; blade *broadly oblanceolate, acutely acuminate, 13,5-20 3 3,5-5,5* cm with *very numerous ascending parallel lateral nerves*; sheath *broadened in contact with the stem*, not ligulate; panicle simple, lax, few-flowered, *terminal*; fruit *oblong, 1,5-2 cm long*, subtorulose, red.

Humid places in rain-forest, sometimes near the coast.

Very near *R. longifolia.*

(**R. brachythyrsa** Loes.) – Type: Cameroon, Nkolebunde: Ledermann 876; flowers and fruits in October; lost.

Rather slender perennial herb; leafy stems to 1,5 m tall; leaf sheaths longitudinally striate, in upper part also transversely striate; petiole 1,5-2,5 cm long; leaves oblanceolate, 45 × 2,5-6,3 cm; inflorescence 18 cm long, 3,5 cm Ø, on peduncle 8 cm long; bracts 1 cm long; corolla whitish-violet; capsule ± ellipsoid, 9 mm long, 7 mm Ø, red becoming blackish.

Open forest in a flooded place; 200 m alt.

Apparently near *(R. batangana);* near *R. cincinnata, R. polyantha.* – Not mapped.

R. bracteata De Wild. & T. Durand; Kew Bull. 52: 615, 1997; Poulsen & Lock (1999): 59; Lejoly & al., Cat.-fl. Kisangani & Tshopo: 302, 2010. – Icon.: Kew Bull. 52: 612, 1997.

syn.: *R.* sp. A sensu Lock, Fl. Trop. E. Afr., Zingiber.: 11, 1985.

Perennial herb, glabrous, 1,3-2 m tall, forming dense clumps; leaves oblanceolate-narrowly elliptic, 24-60 × 4,5-13 cm, acuminate, *purplish beneath*, base gradually attenuate, petiole 2-3 cm long; panicle arising separately from the leafy shoot, 16-25 cm long, many-flowered; flowers in lateral 4-6-flowered branches, pedicels c. 8 mm long; posterior petal pink, labellum white, fertile stamen red; capsule obovoid, c. 1 cm long, obtusely 3-gonous, longitudinally striate, brown; calyx persistent, funnel-shaped, c. 8 mm long, glaucous, with 3 erect lobes.

Forest; ravine in forest; 770-1200 m alt.

Close to *R. densispica*.

R. cabrae De Wild. & T. Durand; Sosef & al., Check-list pl. vascul. Gabon: 419-420, 2006.

syn.: *R. erythroneura* Gagnep.

Perennial slender herb, glabrous, < 1 m tall; leaf petiole 1-4 cm long; blade narrowly oblanceolate, attenuate at both ends, 25-40 × 3,8-6,8 cm; panicle arising from the rhizome or terminal, very lax, 12-25 cm long on a peduncle 60-70 cm long; *bracts c. 8, spaced*, spaces at least 6 cm between them, particularly towards the axis-base; secondary inflorescences 2-3-flowered; corolla and labellum white; capsule c. 1,6-2 × 0,6-1,2 cm long, long pedicellate.

Forest; in shady places; c. 100 m alt.

Very near *R. congoensis.*

R. cincinnata (K. Schum.) T. Durand ("circinnata") (in Durand & Schinz, Consp. fl. Afric. 5: 130, 1894); Baker, Fl. Trop. Afr. 7: 312, 1898. – Cable & Cheek, Pl. Mt Cameroon: 181, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 248, 2002; Sosef & al., Check-list pl. vascul. Gabon: 420, 2006.

bas.: *Ethanium cincinnatum* K. Schum.

Perennial robust herb to 1,5 m tall; leaf petiole 4-7 cm long; blade narrowly oblanceolate, 15-40 × 4-7 cm, glabrous, *purplish beneath*, apex short-acuminate, base attenuate; inflorescence paniculate, lax, to 1 m long (incl. peduncle c. 50 cm); axis zigzag, finely pubescent; *1st secondary* inflorescence 4-6-flowered, sessile, in *axil of bract;* corolla white; fruit red, subcylindrical, 12-13 × 5-6 mm, *erect.*

Humid forests; *Gilbertiodendron dewevrei* forest; 1-900 m alt.

Príncipe. Not in Ivory Coast.

R. congoensis Gagnep.; Sosef & al., Check-list pl. vascul. Gabon: 420, 2006; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 302, 2010. – Icon.: Fl. Gabon 9: 27, 1964.

Rhizomatous herb with leafy shoots to 60(-100) cm tall; leaf petiole 3-6 cm long; blade narrowly oblanceolate, attenuate at both ends, c. 17-30 × 3,5-8 cm, glabrous; panicle very loose, 25-28 cm long, on peduncle 30-35 cm long, sheaths to 6 cm long; axis brown with *15-20 brown bracts to each inflorescence;* corolla yellowish-white, labellum also so but with a yellow spot towards base; fruit ovoid, red, c. *12 mm long.*

Humid and swampy forests; terra firma rain-forest; 30-900 m alt.

R. congolana De Wild. & T. Durand; Poulsen & Lock (1999): 56, 59.

Perennial herb with leafy shoots 1-3 m tall in dense tufts; leaves narrowly elliptic to narrowly obovate, 35-75 × 5-11 cm, glabrous, apex acuminate, base gradually attenuate, petiole to 2 cm long; inflorescence from the shoot base, 10-20 cm long; calyx pale orange becoming *in fruit markedly thickened* at apex below the inrolled teeth (or teeth deciduous); petals c. *6 mm* long; fruit *subglobose* 6-11 × 6-8 mm, crowned by the persistent calyx 6-10 mm long.

Moist places in forest; 1200-2100 m alt.

According to Figueiredo & Smith, Pl. Angola: 208, 2006, recorded at LISC.

Not in Rwanda (see below under *R. montana* ined. and *R. orophila* ined.).

RENEALMIA

R. densispica Koechlin; Sosef & al., Check-list pl. vascul. Gabon: 420, 2006; Fl. Trop. E. Afr., Zingiber.: 11, 1985.

Herb to 80 cm tall; leaves nearly sessile, lanceolate, to 30-40 × 7 cm; apex caudate-acuminate, base attenuate; panicle *spiciform* from leafy shoot-base on a peduncle 10-20 cm long, covered by pubescent persistent bracts; panicle *very dense*, 15-20 cm long; calyx dark green, pubescent; fruit subglobose, red, c. 7 mm Ø.

Swampy place in forest; 450 m alt. (Gabon).

(**R. dewevrei** De Wild. & T. Durand); K. Schumann in Engler, Pflanzenreich 4/46: 293, 1904; descr. ampl. Bull. Soc. Bot. France 52: 543, 1905.

Robust rhizomatous herb; leafy shoots 0,75-1,5 m tall; leaf petiole 3 cm long; blade oblanceolate, 43-52 × 12-13 cm, glabrous on both faces, apex abruptly short-acuminate, base long-attenuate; panicle from shoot-base, 12-18 cm long, lax, many-flowered, on peduncle 20 cm long, densely bracteolate; flower ?; fruit brownish *black*, subglobose, 14 mm long, crowned by the calyx 7 mm long.

Ecology not recorded.

From Zaire: near Lukolela, c. 1°Sx17°12'E (Dewèvre s.n., 1896).

Taxonomic status uncertain. Seems near *R. congolana* (but leaves petiolate). – Not mapped.

R. engleri K. Schum.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 309, 1994; E. Fischer & al., Annot. checklist vascul. pl. Kakamega For., W. Province, Kenya: 226, 2011. – Icon.: Fl. Zambes. 13/4: 122, 2010.

syn.: *R. fischeri* K. Schum.

Perennial herb with leafy shoots to 2,5 m tall, forming a dense clump; leaves narrowly obovate, 30-35 × 5,5-9 cm, glabrous, apex abruptly caudate-acuminate, base attenuate, petiole 2-5 cm long; inflorescence arising at leafy shoot-base, 20-30 cm or more long; peduncle bracts 6-12 × 1,5-2 cm, papery, persistent, shortly pubescent; calyx pale orange-brown, in fruit *not* markedly thickened at apex; petals whitish, c. *3,5 mm long;* fruit subglobose to cylindrical, 6-12 × 5-7 mm, glossy black, persistent calyx 6-7 mm long.

Rain-forest; swamp forest; 900-1200 m alt.

Perhaps not distinct from *R. congolana* (more material needed).

(**R. laxa** K. Schum.)

Perennial herb; leaf petiole 4-10 cm long; blade oblanceolate, 30-40 × 6-7 cm, glabrous, short-acuminate-caudate, base attenuate; panicle 13-25 cm long, lax, on peduncle 7-20 cm long; bracts 0,8-1,5 cm long; calyx obconical, 5-6 mm long, glabrous, truncate; corolla and fruit unknown.

Ecology unknown.

Described from Cameroon: near Tinto, Banyang Region. Type: Conrau 118, 20 April 1899, lost. – Not mapped.

Near *R. congoensis*.

R. longifolia K. Schum. – Icon.: Adam, Fl. Mts Nimba 5: 1812, 1981.

syn.: *R. ivorensis* A. Chev.

Rhizomatous herb with leafy shoots 1,2-1,8 m tall; leaves *elongate-lanceolate*, 35-75 × 4-7 cm with *numerous very closely set parallel lateral ascending nerves*; *sheath abruptly broadened* in contact with the stem; petiole 15-22 mm long; inflorescence terminal or arising from rhizome, simple, rigid, 15-25 cm long; bracts *densely pubescent;* flowers pink; fruit red, turning black, ellipsoid, 1-1,3 × c. 0,5 cm.

On gneiss on brook sides; humid forest; track in forest; near hollow in forest; 100-700 m alt.

RENEALMIA

R. macrocolea K. Schum.; Sosef & al., Check-list pl. vascul. Gabon: 420, 2006. – Icon.: K. Schum. in Engler, Pflanzenreich 4/46: 285, 1904; Fl. Gabon 9: 31, 1964.

Rhizomatous herb with leafy shoots 1,5-2 m tall; leaf petiole 2-3,5 cm long or absent; blade narrowly lanceolate, 37-70 × 12-15 cm; apex caudate-acuminate, base attenuate; panicle rather dense on a peduncle 8-30 cm long *covered* with ± *pubescent sheaths* to c. *10* cm long; panicle 16-40 cm long, axis red, *pubescent;* calyx *whitish* when dry; corolla white, labellum yellow, stamens pink; fruit ellipsoid or subglobose, 1-1,5 cm long, orange-*red.*

Humid forest; 110-1000 m alt.

According to Figueiredo & Smith, Pl. Angola: 208, 2008, recorded by Gossweiler (1953).

R. maculata Stapf – Icon.: Adam, Fl. Mts Nimba 5: 1813, 1981.

Herb with leafy shoots 1,5-1,75 m tall; leaves *spotted-purplish-red* (lie-de-vin), obovate-elliptic, *20-30 × 6-10 cm*, apex shortly acuminate, base rather shortly cuneate; petiole 5 cm long, broadened at base; inflorescence 10-35 cm long, ramifications red; flowers white or orange with an inner yellow stripe; fruit 2,5-0,4 cm, *red* like the long persistent calyx, with *black centre*, on a *swollen pedicel.*

Humid forest, in understorey and along tracks; 450-700 m alt.

(**R. mannii** Hook. f.)

syn.: *Ethanium mannii* (Hook. f.) Kuntze

Known only from Bioko/Fernando Poo.

(**R. montana** Dhetchuvi & E. Fischer, ined.), in Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 364, 2008. – Icon.: ibid.: 365.

Perennial herb; leafy shoots single, few, 0,4-1 m tall; leaves elliptic, 12-27 cm long; panicle 17-25 cm tall, *lax*, secondary axes 1-3-flowered; flowers white, marked purple; fruit *elliptic*, 1-0,5 cm, glabrous, red-orange, shiny black at maturity.

Rain-forest with *Pentadesma reyndersii, Newtonia buchananii, Carapa grandiflora, Parinari excelsa, Strombosia scheffleri;* 1900-2000 m alt.

Around Lake Kivi, Rwanda, Zaire (Kahuzi-Biega Natl. Park and Masisi). – Not mapped.

Has been confused with *R. congolana* (not present in Rwanda). Can be confused with *(R. orophila* ined.), a much more robust plant with larger leaves, dense inflorescence and globose fruits.

(**R. orophila** Dhetchuvi & E. Fischer, ined.) in Fischer & Killmann, o.c.: 362. – Icon.: ibid.: 363.

Perennial herb with leafy shoots 1-2 m tall, forming a dense clump; leaves oblanceolate, c. 60 cm long; panicle 20-40 cm tall, *dense*, secondary axes subsessile, 1-4-flowered; flowers white marked purple; fruit ± *globose*, 5-8 mm Ø, glabrous, shiny black.

Rain-forest, near small streams; 1700-1900 m alt.

Known only from Rwanda (Nyungwe) and Burundi (Kibira Natl. Park). – Not mapped.

Has been confused with *R. congolana.* Can be confused with *(R. montana* ined.), a more slender plant.

RENEALMIA

R. polyantha K. Schum.; Cheek & al., Pl. Kupe…: 475, 2004; Sosef & al., Check-list pl. vascul. Gabon: 420, 2006. – Icon.: Fl. Gabon 9: 25, 1964.

Rhizomatous herb with leafy shoots 0,5-3 m tall; leaf petiole 3-5 cm long; blade *narrowly lanceolate,* 17-40 × 3,5-4 cm, glabrous, often glaucous, acuminate at both ends; panicle loose, slender, glabrous, with peduncle covered with sheaths, 20-30 cm long; inflorescence 25-35 cm long (? and more); bracts conspicuous, *erect, green;* secondary inflorescences with peduncles c. *10 mm long* and *4-6 flowers;* flowers white; fruit ellipsoid, 1-0,5 cm, red, *pendent.*

Rain-forest, in open swampy places; 20-1100 m alt.

Resembling *R. africana,* but leaves narrower and with veins prominent beneath only and inflorescence branches longer, bracteates. Near *R. cincinnata.*

R. polypus Gagnep.; Cheek & al., Pl. Kupe…: 475, 2006; Sosef & al., l.c. – Icon.: Fl. Gabon 9: 31, 1964.

Herb resembling *R. africana* but smaller; leafy shoots to 1,8-2 m tall; leaf petiole 13-25 cm long; blade oblanceolate, 50-60 × 10-15 cm, glabrous, apex caudate-acuminate, base attenuate; panicles dense, arising 2 together from shoot-base; panicle 15-20 cm long, axis *red, glabrous,* on peduncle c. 20 cm long covered with bracts; secondary inflorescences rather dense-flowered, with peduncles *3-4 mm long;* calyx subcylindric, *abruptly narrowed* towards the base, c. 7 mm long; corolla white or pink; fruit ellipsoid, black when mature, 10-12 × 5-7 mm.

Forest; 500-1600 m alt.

According to Figueiredo & Smith, Pl. Angola: 208, 2008, recorded at LISC.

(**R. sancti-thomae** I. M. Turner); Edinb. J. Bot. 56: 149, 1999, nom. nov. pro:

syn.: *Alpinia africana* Ridl. 1888, non *Renealmia africana* Benth. 1883; *R. grandiflora* Baker 1898, non R. Br. 1810.

Known only from São Tomé.

(**R. stenostachys** K. Schum.); Cheek & al., Pl. Kupe…: 475, 2004.

Habit of *R. cincinnata.* Slender perennial herb; leaf petiole 1,5-3 cm long; blade oblong-lanceolate to oblanceolate, 19-37 × 6-10 cm, glabrous, apex short-acuminate, base narrowed; *inflorescence spiciform, simple, each bract sustending a single flower;* calyx turbinate, 5 mm long, coriaceous, glabrous.

Forest, in humid soil.

Poorly known. Type: Cameroon, Batanga (Dinklage 717b, in flower 8 August 1890; lost). The specimen Letouzey 481 from Mt Kupe, collected in 1970, differs in certain characters from the description in Engler, Pflanzenreich 4/46: 306, 1904 (Fl. Cameroun 4: 41, 1965). – Not mapped.

(**R. tchimbeleana** Dhetchuvi, ined.) in Sosef & al., Check-list pl. vascul. Gabon: 420, 2006. "Type": Wieringa 255, WAG, from N Gabon: Woleu-Ntem, WN.

Ecology unknown; 600 m alt. – Not mapped.

(**R. tenuis** Dhetchuvi, ined.) in Sosef & al., l.c. "Type": J. J. F. E. de Wilde 9804, WAG, from W Gabon: Ogooué-Maritime, OM.

Ecology unknown; 13 m alt. – Not mapped.

RENEALMIA

IN NEED OF FURTHER STUDY:

Renealmia chariensis A. Chev., nom. – Central African Republic : Chevalier 10558, 10559, 10620, 10628 and bis, 10629 bis. – Rather common, fide Tisserant, Cat. fl. Oubangui-Chari : 112, 1950.

* * *

A number of undescribed *Renealmia* species are cited above, under a provisional specific name. A *R.* spec. nov. is also mentioned by E. Fischer & al., endemic to Kakamega Forest, Kenya (0°08'Nx34°50'E); J. E. Afric. Nat. Hist. 99: 226, 2011.

* * *

Renealmia sessilifolia Gagnep., listed in our "Enumération" 3: 38, 1995, is a plant from Ecuador (syn.: *R. porphyrobractea* K. Schum.); cf. Harling & Sparre, eds., Flora of Ecuador, N° 6, fam. 222, Zingiberaceae: 18-19, 1976.

SYNONYMS:

Renealmia chariensis A. Chev., nom. = ?

erecta (Vellozo) D. Dietr. = **Thalia geniculata** *(Marantaceae)*

erythroneura = **Renealmia cabrae**

fischeri K. Schum. = **R. engleri**

geniculata (L.) D. Dietr. = **Thalia geniculata**

grandiflora Baker = **Renealmia sancti-thomae**

ivorensis A. Chev. = **R. longifolia**

sp. A sensu Lock 1985 = **R. bracteata**

talbotii Hutch. = **R. africana**

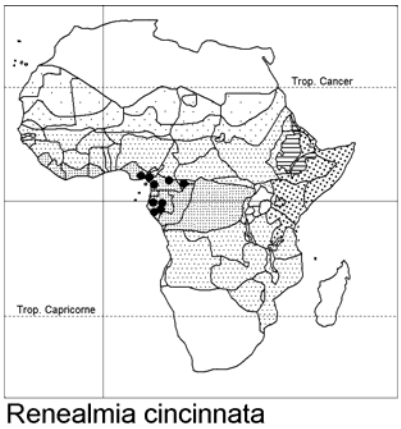
SIPHONOCHILUS / *10 + 1* ?

African plants, formerly placed in *Kaempferia,* "now… convincingly separated, leaving *Kaempferia* exclusively Asian" (Lock, Kew Bull. 54: 346, 1999; cf. Lock in Fl. Trop. E. Afr., Zingiber.: 14, 1985). There are 12-15 species found mainly in grasslands and woodlands; 2 species occur in moist forests; the latter ones flower while bearing green leaves. Many of the species are incompletely known because of their precocious flowering (before the leaves appear). Mature leaves are often absent from collections; the flowers are extremely delicate and dissections of dried material is difficult. Collectors are urged to pay attention to underground parts. "Material dug up in the field will often establish well in cultivation, and local botanists could contribute valuable data by growing these species and collecting mature leaves. Extra flowers, dried separately, and dissections, particularly ones showing the form of the stamen, are very useful" (Lock, Fl. Zambes. 13/4: 124, 2010).

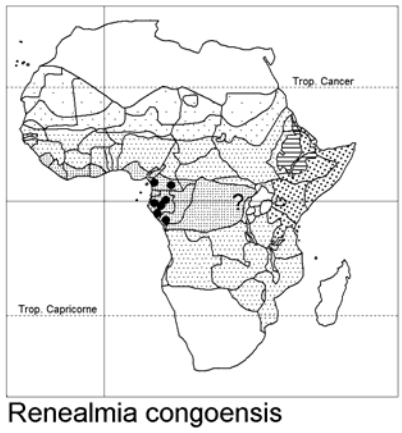
Plants with swollen rhizomes or corms, roots often tuberous; leafy shoots produced after flowering; inflorescences racemose, separate from leafy shoots; calyx tubular; corolla with a basal tube and 3 subequal petals; androecium comprising a 3-lobed labellum and a single stamen; fruit often ± subterranean, generally poorly known; mature seeds unknown (Lock, 2010, l.c.).

Many of the species listed below are poorly known: 4 species without fruit (= 40%), further 4 species with only immature fruit (= 40%).

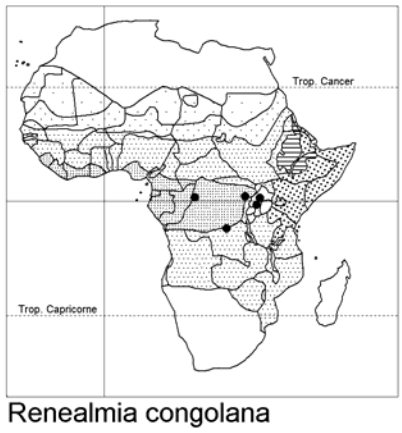
NEWMAN, M. F. (2007). See above under **Aulotandra**.



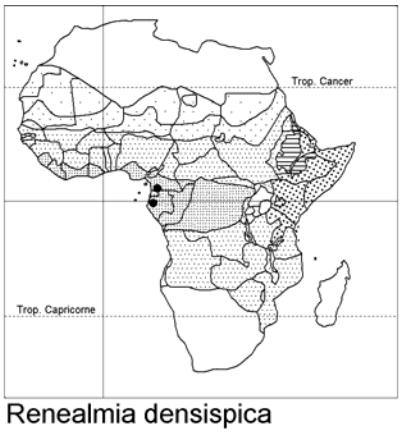
Renealmia cincinnata



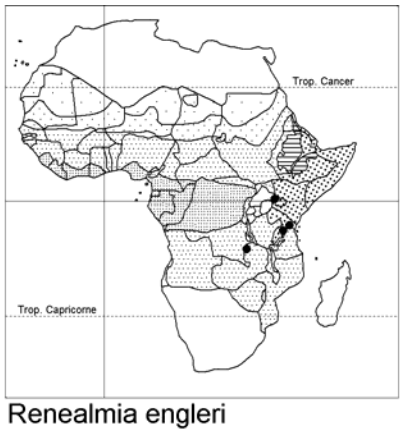
Renealmia congoensis



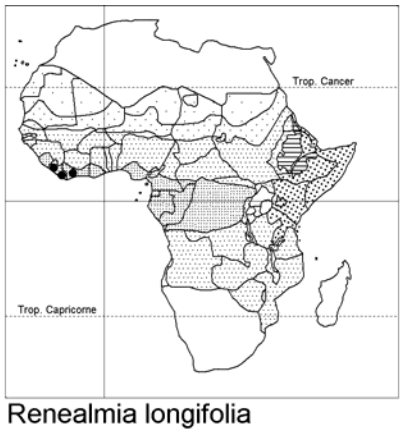
Renealmia congolana



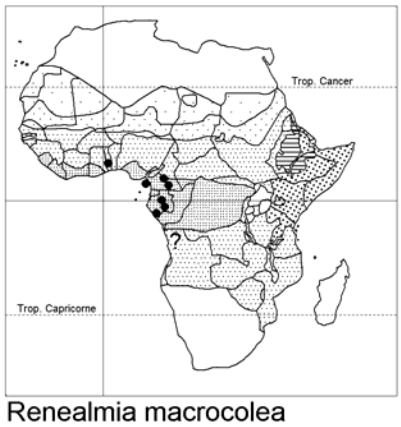
Renealmia densispica



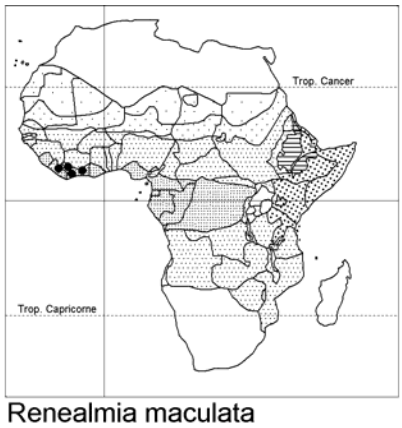
Renealmia engleri



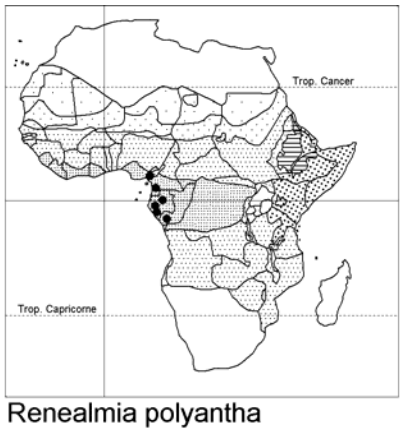
Renealmia longifolia



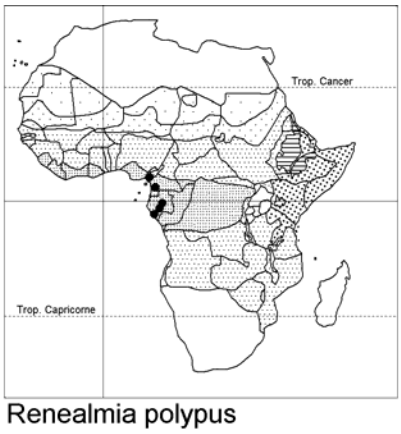
Renealmia macrocolea



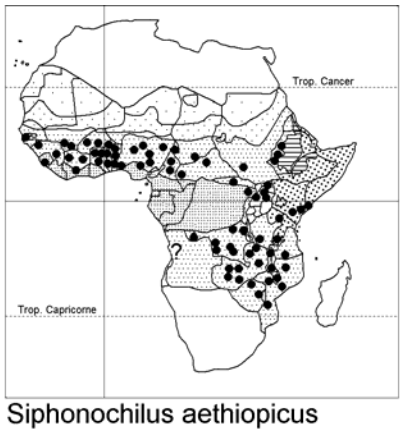
Renealmia maculata



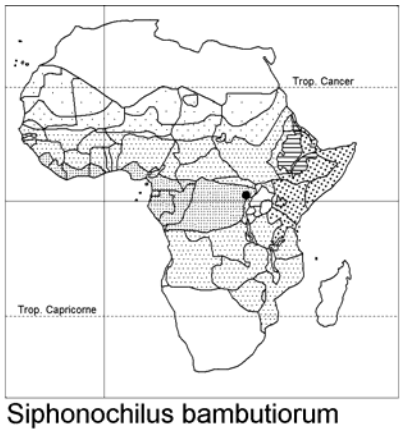
Renealmia polyantha



Renealmia polypus



Siphonochilus aethiopicus



Siphonochilus bambutiorum

SIPHONOCHILUS

Siphonochilus aethiopicus (Schweinf.) B. L. Burtt, excl. *Kaempferia aethiopica* var. *angustifolia* Ridl. (= ?, a related undescribed species, fide Lock, Fl. Zambes. 13/4: 130, 2010); Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 309, 1994; Fl. Eth. & Eritrea 6: 329, 1997; Burkill, Useful pl. W. Trop. Afr., ed. 2, 5: 320-321, 2000; Akoegninou & al., Fl. analyt. Bénin: 262, 2006; Fl. Zambes. 13/4: 129-130, 2010; M. Renier, Flore du Kwango 1: 106, 1948. – Icon.: Engler, Pflanzenreich 4/46: 66, 1904; Thulin, Fl. Somalia 4: 79, 1995; Bothalia 28: 36, 1998; Flow. Pl. Africa 58: pl. 2190, 2003; Bulbs 6: cover page and p. 4, 5, 2004; Lisowski, Fl. Rép. Guinée 2: fig. 578, 2009; B.-E. Van Wyk & al., Medicin. pl. S. Afr., ed. 2: 275, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 872, photographies. 872 a-b, 2010.

syn.: Enum. 3: 38, 1995; *Kaempferia aethiopica* (Schweinf.) Ridl.; *K. dewevrei* De Wild. & T. Durand; *K. evae* Briq.; *K. zambesiaca* Gagnep.; *K. stenopetela* K. Schum.; *K. natalensis* Schltr. & K. Schum.; *Siphonochilus natalensis* (Schltr. & K. Schum.) J. M. Wood & Franks; *S. evae* (Briq.) B. L. Burtt; *Cienkowskiella aethiopica* (Schweinf.) Y. K. Kam

Perennial herb with a short ovoid rhizome 3-5 cm long; roots with fusiform tubers 3-10 cm long; leafy shoots with a pseudostem 0,3-1 m tall; leaves undeveloped or developing at or after flowering; blade narrowly elliptic, 17-36 × 2-4,5 cm, glabrous, apex acuminate, base narrowly cuneate, without false petiole, *margins* distinctly *white translucent;* sheaths forming the pseudostem; inflorescence arising at base of leafy shoot, 4-12-flowered, mostly below ground, peduncle 2 cm long; corolla lobes whitish, translucent, 3-5,5 × 0,6-0,8 cm; labellum mauve to purple, 3-lobed, 5-11 cm long, with a central deep-yellow mark at base; fruit (berry) subterranean, ± globose, c. 1,5 cm Ø, weakly 3-lobed. – Flowers rather famously polygamous (fide Crouch & al., Flow. Pl. Afr., l.c.).

Bushland; red clayey soil; wooded grassland; sandy muddy soil; hollows; savanna; termite mounds; *Combretum* woodland with scattered evergreen tangle; seasonally wet (but not water-logged) grasslands and woodlands; flowering after the first rains, often appearing in considerable numbers (and can be mistaken for ground orchids); damp meadows near river bank; c. 10-1830 m alt.

Taken in a broad sense the species is variable, e.g., in size, colour and depth of lobing of labellum, in length of tuber, size of ligule. "Field studies, combined with cultivation… may reveal that there is more than one taxon in the region" (Lock, Fl. Zambes., l.c.).

NE S. Africa, not found in the wild in KwaZula-Natal for over 90 years (Flow. Pl. Afr., l.c.: 59). However, "it seems likely that the species never occurred naturally in [S Africa] but that it was introduced from tropical Africa and widely cultivated" (Bothalia 28: 37, 1998).

A much sought-after medicinal plant in S. Africa (articles by Crouch & al. in Herbertia 55: 115-129, 2001; by Light & al. in S. Afric. J. Bot. 68: 55-61, 2002; by Makhuvha & al. in Biochem. Syst. Ecol. 25: 343-351, 1997; by Viljoen & al. in S. Afric. J. Bot. 68: 115-116, 2002).

According to Lock (Fl. Zambes., l.c.) var. *angustifolia* Ridl. (type: Welwitsch 683) is a related undescribed species (marked by ? on our map p. 197). This specimen lacks flowers, but "the lack of an elongated pseudostem excludes *K. aethiopica.* Two other specimens from Angola may well be the same" (Lynes 329e, Missão de Luz 1933 and Machado ANG. XII. 54-50, Cameia 1954).

May be confused with white forms of *S. rhodesicus.*

See also under *S. puncticulatus* below.

SIPHONOCHILUS

S. bambutiorum A. D. Poulsen & Lock – Icon.: Kew Bull. 54: 205, 206, 1999.

Rhizomatous herb to 50 cm tall with 1-5 leafy shoots clustered alternately along the rhizome which is horizontal, 1-5 cm long; roots thin but distal parts with 2-4 cm long swellings (tubers); shoots with 1-3 bladeless sheaths at base and 1-7 leaves, 14-60 cm long; petiole *4-16 cm long;* lamina ovate to elliptic, asymmetrical, 6-29 × 2,5-9,5 cm, apex acute, base unequal; inflorescence *1-2-flowered*, arising from rhizome at base of shoot; peduncle 2-10 cm long, creeping ± subterranean; bracts orange-brown when dry; floral bract to 18 mm long, purple; pedicels to 4-6 mm long; calyx purple; lateral petals 37 × 7 mm, white, labellum *white* to *pink*, with 2 narrow yellow lines at base; fruit triquetrous, glabrous, reddish to purple when fresh, 16-23 × 7-13 mm (excl. the persistent calyx).

Mixed *forest* with *Uapaca guineensis;* 750-800 m alt.

In habit and leaf shape most similar to *S. brachystemon* (also in forest); also resembling *S. aethiopicus.*

S. brachystemon (K. Schum.) B. L. Burtt; Poulsen & Lock (1999): 59; Fl. Zambes. 13/4: 134, 2010.

syn.: Enum. 3: 38, 1995.

Perennial herb; rhizome short; roots with subspherical tubers; pseudostem short or absent; leaves clustered, *fully developed at flowering time* (plants with much smaller flowers produced before the leaves are known); lamina elliptic, 16-37 × 6,5-12 cm, glabrous, somewhat asymmetrical, apex acuminate, base cuneate, false petiole 3-8 cm long; inflorescence arising at shoot-base, 5-12-flowered; peduncle 0,5-4 cm long; petals *blue,* labellum *blue;* fruit and seeds unknown.

Herb layer of gallery forest and *drier* evergreen *forests;* on forest floor in shade of *Coffea comephora;* 50-1070 m alt.

In habit and leaf shape similar to *S. bambutiorum* also occurring in forest.

S. kilimanensis (Gagnep.) B. L. Burtt; Fl. Trop. E. Afr., Zingiber.: 18, 1985; Fl. Zambes. 13/4: 128-129, 2010.

bas.: *Kaempferia kilimanensis* Gagnep. (July 1906).

syn.: *K. ceciliae* N. E. Br. (31 July 1906); *Cienkowskiella kilimanensis* (Gagnep.) Y. K. Kam

Perennial herb; rhizome short; ? root tubers present; leaves ± fully developed at flowering time; pseudostem absent; leaf blade *very narrowly elliptic*, 12-22 × 1,2-2,2 cm, glabrous, acute, base gradually tapering into a false petiole c. 11 cm long; inflorescence arising from base of leafy shoot, 4-10-flowered on terete glabrous peduncle 19-38 cm long; petals elliptic-ovate, acute, 1,8-2,2 × 1 cm, violet ?; labellum *violet;* mature fruit and seeds unknown ?

Grassland, sometimes seasonally flooded, sometimes with shrubs; on sandy or black alluvial soils near the coast; 20-50 m alt.

Lock (Fl. Zambes., l.c.) discusses the dates of publication for the above-mentioned taxa. The copy of Bulletin de la Société Botanique de France N° 53/5 (with Gagnepain's description, p. 352) present at G, has no date of arrival. Leussink listed the publication dates for parts of this Bulletin (Taxon 37: 35-62, 1988). As to Vol. 53 part 5 he cited "July 1906", the same as printed on the cover page. However, Gagnepain's paper was presented at the Society's Session of 11th May 1906.

S. kirkii (Hook. f.) B. L. Burtt; Bothalia 28: 37, 1998. – Icon.: Gartenflora 41: pl. 1364, 1892; Tredgold & Biegel, Rhodes. wild flowers: 13, 1979 *(Kaempferia rosea* "Benth. & Hook. f.", recte Baker); Flow. Pl. Afr. 30: pl. 1199, 1955 *(K. decora* Druten); ibid. 60: pl. 2227, 2007; Bull. Jard. Bot. Etat, Brux. 25: 266, 1955 *(K. pallida* De Wild.); Pickering & Roe, Wild flow. Victoria Falls area: 115, 2009; Fl. Zambes. 13/4: 126, 2010.

syn.: Enum. 3: 38, 1995; *Cienkowskiella kirkii* (Hook. f.) Y. K. Kam; *Kaempferia montagui* F. M. Leighton; *K. kirkii* (Hook. f.) Wittm. & Peering, incl. var. *elatior* Stapf; *K. carsonii* Baker; *K. pallida* De Wild.; *K. decora* Druten; *Siphonochilus carsonii* (Baker) Lock; *S. decorus* (Druten) Lock (cf. Kew Bull. 54: 346, 1999).

Perennial herb 50-80 cm tall; rhizome short, thick (not strongly aromatic); roots with tuberous swellings towards apex; pseudostem short or absent; leaves developing or fully developed at anthesis; blade glabrous, ovate to elliptic, 17-31 × 5,5-10 cm, apex acuminate, gradually tapering at base into a false petiole to 25 cm long (including sheath); inflorescence arising at shoot-base, *7-20-flowered*, peduncle to 20-35 cm long, glabrous, bracts 3-4, *greenish*; petals usually *< 2,5 cm long*, whitish, tinged with green or mauve; labellum with median lobe usually c. *4,5 cm long*, mauve with a central yellow mark with or without a dark purple mark on each side; fruit obovoid, trigonous, winged, to 2,5 cm long but unknown fully mature. – Flowers constantly hermaphroditic.

Deciduous woodland; wooded grassland; termite mound; riverine forest and scrub; grassland; shallow soil over rock; marshy places; 0-1350 m alt.

Very variable in size and colour of flowers: mauve and yellow-flowered individuals occur in the same population, "collected from the same site on the same day…" (Fl. Zambes. l.c.); in plants named *S. carsonii* yellow flowered plants seem more likely to have smaller flowers, and to flower when leafless (Lock in Fl. Trop. E. Afr., Zingiber.: 18, 1985).

Caprivi Strip, NE S. Africa. As to the distribution in SE Chad, see Poilecot & al. in Sécheresse 20/3: 287, 2009.

S. kilimanensis and *S. pleianthus* are very close, but treated as distinct taxa by Lock (Fl. Zambes., l.c.).

S. longitubus Lock – Icon.: Fl. Zambes. 13/4: 132, 2010.

Perennial herb; roots with ellipsoid tubers 1,5-2,5 × 0,6-1 cm, 5-8 cm from base of stem; young leaves often present at anthesis; blade narrowly ovate-elliptic, 11,5-20 × 2,4-4,5 cm, glabrous, apex acuminate, base narrowly cuneate with false petiole c. 1 cm long; inflorescence very short, condensed, peduncle not visible; *corolla tube 6-9 cm long;* lobes narrowly oblong, 24-39 × 4-7 mm, reddish brown with darker dots near apex and margins, often spirally reflexed after anthesis; labellum white, suborbicular; fruit and seeds unknown. Flowers reported as *opening in the evening.* Probably undercollected.

Woodland, often on termite mounds; 980-1100 m alt.

S. nigericus (Hutch. ex Hepper) B. L. Burtt; Burkill, Useful pl. W. Trop; Afr., ed. 2, 5: 321, 2000; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c54, 2001.

Tuberous rooted herb with precocious flowers; tubers fusiform to 12 × 1 cm; mature leaves to *40 × 15 cm;* petioles forming a pseudostem c. *20 cm long* when fully grown; calyx 10-15 mm long; corolla lobes 3,5-4 cm × 7 mm; mature fruit unknown (unripe bright cherry red).

Forest on slopes of scarp; damp savanna; sometimes growing with *S. aethiopicus;* sometimes fairly common; shady parts of moist *Piliostigma thonningii, Acacia campylacantha* woodland above stream; ravine; loamy soil where bush has been cleared; savanna and high forest borders, on bare soil in slight shade; 180-310 m, 914-1067 m (E Nigeria) alt.

Corolla varying in size and colour; pale blue to deep mauve-purple; tube white with 2 longitudinal yellow stripes; upper lobe white or very pale mauve, lower lobe with yellow streak down.

Similar to *S. aethiopicus.*

S. parvus Lock; Fl. Zambes. 13/4: 130-131, 2010.

syn.: *S.* sp. D sensu Lock, Fl. Trop. E. Afr., Zingiber.: 21-22, 1985.

Perennial herb; rhizome erect, short; roots with fusiform tubers, 8 × 0,5 cm; leaves developing after flowering; lamina narrowly elliptic, 24-30 × 2-2,5 cm, glabrous, apex acuminate, base narrowly cuneate, *sessile;* inflorescence arising at shoot-base, 9-14-flowered, peduncle very short; corolla tube 2,1-2,5 cm long; lobes narrowly elliptic, 2-2,5 × 0,4-0,6 cm; labellum dull mauve, suborbicular, *2,2-3,2 cm long; stamen narrowly rectangular,* c. 1,7-0,2 cm; mature fruit unknown (young: spherical, 1 cm Ø).

Inselberg; sandy red soil among short grass; rocky grassland in deciduous woodland; 1300-1900 m alt.

S. pleianthus (K. Schum.) Lock, Fl. Zambes. 13/4: 127, 2010; Schumann, Bot. Jahrb. Syst. 15: 425-426, 1892; Troupin, Bull. Jard. Bot. Etat, Brux. 25: 266, 1955; De Wildeman, Ann. Mus. Congo 4: 20, 1902; M. Renier, Flore du Kwango 1: 106, 1948.

bas.: *Kaempferia pleiantha* K. Schum.

Perennial herb 30-50 cm tall with an underground rhizome; roots tuberous (not tuberous fide Schumann 1892, l.c.); leaves in a loose rosette (without pseudostem), present or developing at anthesis; lowest leaves reduced to bracts 5-16 × 1,2-1,6 cm; foliage leaves 2-4, narrowly elliptic-ovate, 22-30 × 2-3,5 cm, glabrous, glaucous, apex narrowly acute, base gradually narrowing into a broad flattened sheath, brownish with darker upper surface and margins when dried; inflorescence arising beside the leafy shoot, 3-4-7-flowered, 35-50 cm tall; sterile bracts oblong, 4-11,5 × 1,5 cm, uppermost the largest; floral bracts brown, apiculate, sheathing; free perianth lobes (3) narrowly oblong, 3,5-4,5 × 0,6-0,8 cm; labellum to 9 cm long incl. tube, median one purple with orange central markings, lateral ones smaller and purple; fruit and seeds unknown.

Moist grassland; 900-1200 m alt. (Fl. Zambes. area).

Very close to *S. kirkii*, but "more clearly differentiated from the variable 'core'… of *S. kirkii"* and with a distinct distribution (Lock, Fl. Zambes., l.c.); cf. above under *S. kilimanensis*. Lock also notes that *S.* sp. A sensu Fl. Trop. E. Afr., Zingiber.: 18, 1985, "is certainly part of the same complex" although the flower colour seems to be different (collected in Tanzania, Mpanda Distr., near Kabungu, T4; in seasonally flooded grassland on black clay soil, at 1100 m alt.). – Schumann (1892) placed his *Kaempferia pleiantha* "between *K. aethiopica* Solms and *K. rosea* Schweinf.".

SIPHONOCHILUS

(**S. puncticulatus** (Gagnep.) Lock, Fl. Zambes. 13/4: 131, 133, 2010).

bas.: *Kaempferia puncticulata* Gagnep.

syn.: *K. homblei* De Wild.

Herb with a creeping rhizome; roots tuberous, napiform; leafy shoot to c. 20 cm tall, with short sheaths at base; pseudostem absent; leaf blade lanceolate, 15-18 × 2,5-3 cm, smooth, glabrous, apex acute, base narrowed into a petiole; inflorescences from base of leafy shoot, few or solitary, bracts below short but longer above; flowers precocious, solitary or few, *very large;* calyx tube 1,8 cm long, *brown-punctulate,* 3-lobed; corolla *brown-punctulate* outside, petals subequal, ovate or oblong, 2,5-3 cm long; labellum very broad, 4 cm longer than petals, *lobes erose-crenulate, lilac-pink;* fruit unknown.

Kalahari sands; 1200-1400 m alt.

Poorly known, "data deficient". Included by Lock with great hesitation. However, he considers the plants he cites as distinct from *S. aethiopicus.* – Our map is provisional.

S. rhodesicus (T. C. E. Fr.) Lock; Fl. Trop. E. Afr., Zingiber.: 20, 1985; Fl. Zambes. 13/4: 130, 2010.

bas.: *Kaempferia rhodesica* T. C. E. Fr.

Perennial herb; rhizome short, ± spherical; roots apparently not tuberous; leaves (immature) narrowly elliptic-obovate, base cuneate, apex acute-aristate; sheaths furrowed, probably forming a pseudostem; flowering before the leaves; inflorescence congested, c. 6-flowered; floral bracts glabrous, chestnut-brown, narrowly ovate, 4,5 × 1 cm; calyx tube 3-7 cm long; corolla tube 3,5-13 cm long; petals narrowly oblong-elliptic, 4,4-6 × 0,7-1 cm; labellum rhomboid, 3,5-5 × 2,3-4 cm, white with 2 central yellow marks; fruit and seeds unknown.

Deciduous woodland, often with *Brachystegia;* hillsides; 1350-1950 m alt.

Poorly known; similar to *S. aethiopicus* but the length of corolla tube (2,5-5,5 cm) and labellum (5-11,5 cm long) different (may be confused with white-flowered forms of *S. aethiopicus); flowering at night* as does *S. longitubus.*

SYNONYMS:

Siphonochilus carsonii (Baker) Lock = **Siphonochilus kirkii**

decorus (Druten) Lock = **S. kirkii**

evae (Briq.) B. L. Burtt = **S. aethiopicus**

natalensis (K. Schum.) J. M. Wood & Franks = **S. aethiopicus**

sp. A sensu Lock, 1985 = cf. under **S. pleianthus**

sp. D sensu Lock, 1985 = **S. parvus**

(ZERUMBET)

Zerumbet autrani Heckel = **Aframomum cereum**

[ZINGIBER]

Cultivated in Africa for their spicy seeds or rhizomes, or as ornamentals.

[**Zingiber officinale** Roscoe] with narrowly elliptic leaves, borne in 2 rows on an elongated stem to 1 m tall and inflorescence (from the rhizome) with bracteate head of dark purple-brown flowers; rhizome (aromatic) used (root ginger). Native in tropical Asia. Cultivated in tropical countries since ancient times.

[**Z. zerumbet** (L.) Sm.], larger than *Z. officinale,* leaves broader, flowers with a pale yellow labellum; used as an ornamental. Supposed to be native of India.

OKWUOWULU, P. A. (2004). Ginger in Africa and the Pacific Ocean Islands. *In:* RAVINDRAN, P. N. & K. NIRMAL BABU, eds., Ginger: The genus Zingiber: 279-303. (Medicinal and Aromatic Plants – Industrial Profiles) CRC Press, Boca Raton, etc.

SABU, M. (2006). *Zingiberaceae and Costaceae of South India.* Indian Association for Angiosperm Taxonomy, Kerala. XII + 282 pp. [with fine illustrations].

THEILADE, I. (1998). Revision of the genus Zingiber in Peninsular Malaysia. *Gard. Bull. Singapore* 48/1-2: 207-236.

SYNONYMS:

Zingiber dubium Afzel. = **Costus dubius** *(Costaceae)*

melegueta Gaertn. = **Aframomum angustifolium**

[CANNACEAE]

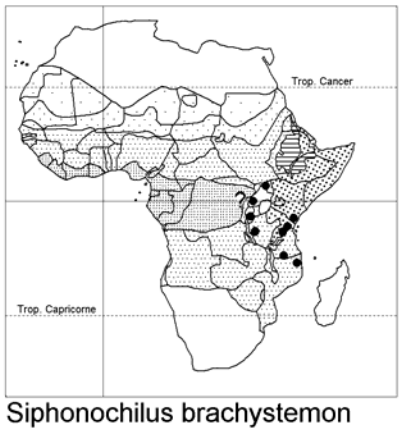
The family is part of the old grouping *Scitamineae* (cf. *Musaceae* above). Comprising one genus, *Canna,* "with a problem-free circumscription, in contrast with its internal taxonomic and nomenclatural disarray" (Maas -van de Kamer & Maas, o.c.: 252). With 10 accepted species, including "one huge *C. indica*-complex". Wild in the Neotropics, from Virginia (USA) to the West Indies and N Argentina, early introduced into the Old World and naturalized there in the tropics and subtropics. So all species from Africa and Asia are "derived from plants, rhizomes or seeds that have been imported from the Neotropics." Many "have been been naturalized so long ago that they behave like indigenous taxa"… and "can form a serious threat, turning into an invasive…". Maas-van de Kamer & Maas include almost all the Asian and African species in the synonymy of *C. indica.* There are apparently no differences in characters "invariable enough to create different species within the *C. indica-complex.*" These authors accept 10 species, including "one huge C. *indica*-complex."

Rhizomes are cultivated for food (edible starch), seeds are used as beads for rosaries etc. Also cultivated for horticultural purpose, with innumerable cultivars.

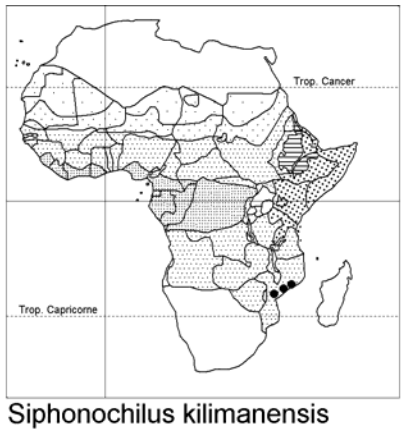
HAYWARD, K. (2011). Developments in Canna. *Plantsman, N.S.* 10: 146-151.

MAAS-VAN DE KAMER, H. & P.-J. M. MAAS (2008). The Cannaceae of the World. *Blumea* 53: 247-318.

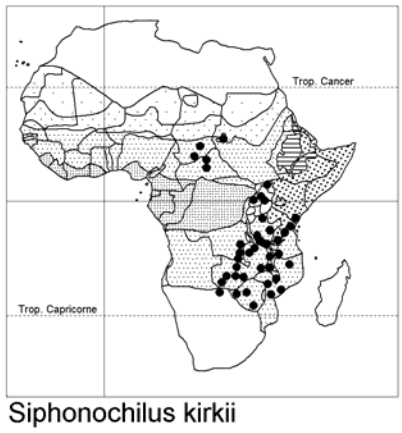
TANAKA, N. & al. (2009). Karyological analysis of the genus Canna (Cannaceae). *Pl. Syst. Evol.* 280: 45-51.



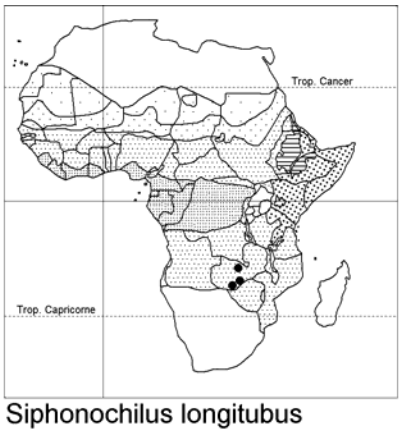
Siphonochilus brachystemon



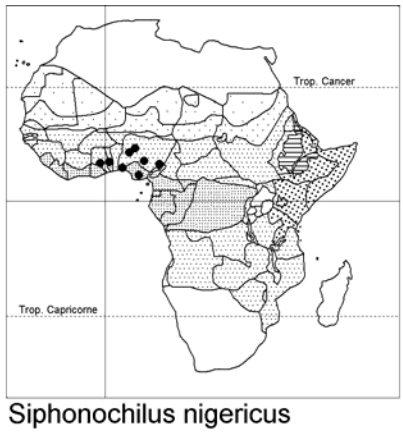
Siphonochilus kilimanensis



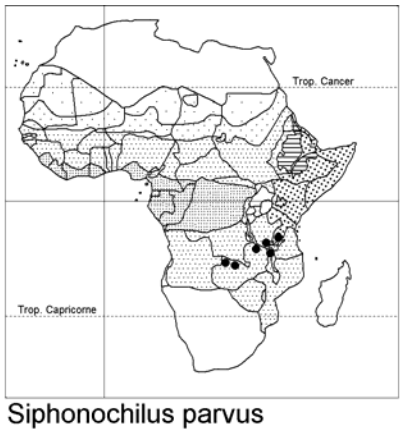
Siphonochilus kirkii



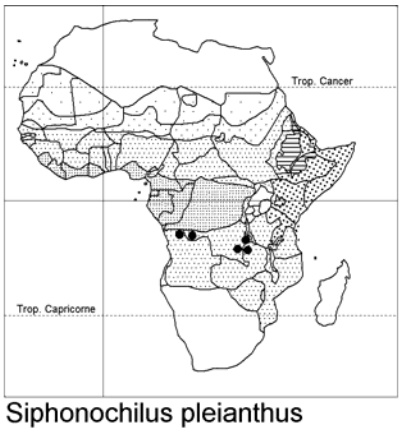
Siphonochilus longitubus



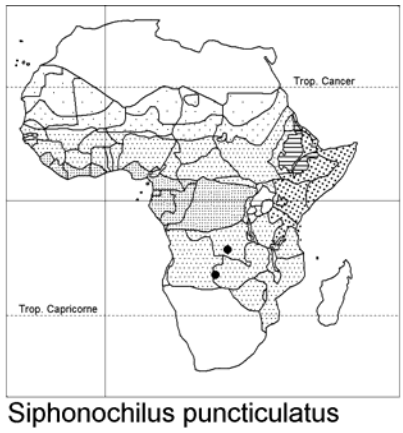
Siphonochilus nigericus



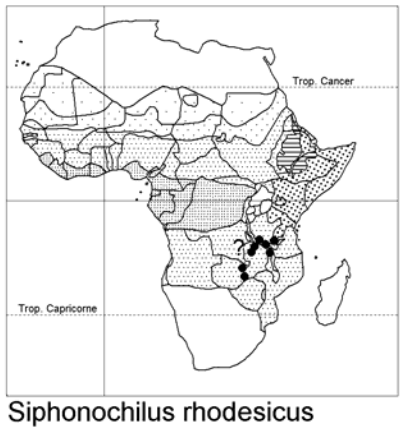
Siphonochilus parvus



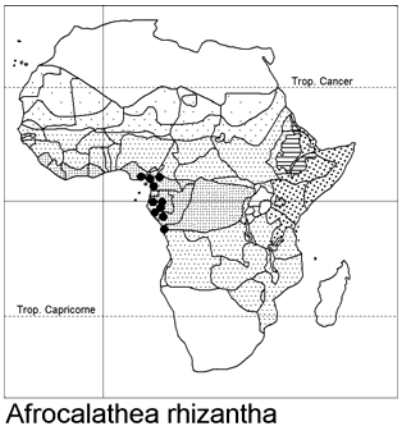
Siphonochilus pleianthus



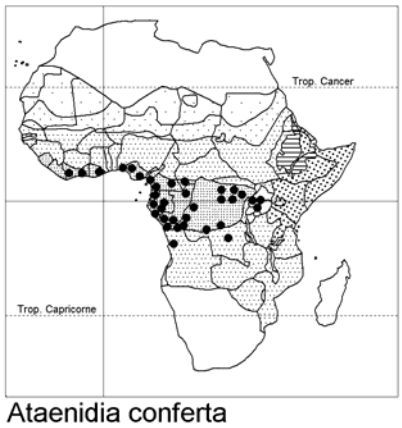
Siphonochilus puncticulatus



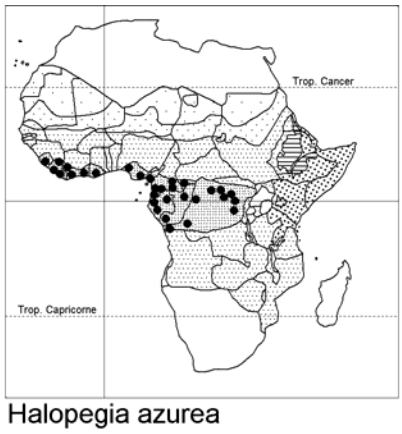
Siphonochilus rhodesicus



Afrocalathea rhizantha



Ataenidia conferta



Halopegia azurea

CANNA

[**Canna indica** L.] – Icon.: Fl. Eth. & Eritrea 6: 334, 1997; Fl. Zambes. 13/4: 141, 2010; Blumea 53: 284, 287, 2008 (see note below); Hayward, o.c.: 147.

syn.: Blumea 53: 277-280, 2008; incl. *C. generalis* L. H. Bailey & E. Z. Bailey; *C. edulis* Ker Gawl.; *C. orientalis* Roscoe; *C. bidentata* Bertol.; World Checklist of Monocotyledons, Royal Botanic Gardens, Kew.

Perennial erect herb from a horizontal short tuberous rhizome; stems 1-2 m tall; leaves sessile, narrowly to broadly ovate to elliptic, 15-50 × 8-25 cm, with many closely spaced lateral nerves curved to the apex, apex acute to acuminate, base rounded to cuneate tapering to the sheath; inflorescence terminal, racemose, pedunculate, simple (to branched) bearing single to paired flowers; bracts obovate, 1-2,5 × 1-1,5 cm; flowers deep red to yellow, erect; sepals 3, free, acute, 1-1,5 cm long, greenish to red or purple; corolla 4-6 cm long, with 3 narrowly oblong segments, shortly united at base; adroecium petaloid: staminodes (2-)3, reddish, 4-6 × 1-1,5 cm, united at base, free part narrowly triangular, erect, 1 recurved and sometimes dotted; stamen red to yellow, 4-5 cm long, with anther adnate to sterile portion for 1/3 of length; style 4-5 cm long, red or yellow; capsule ovoid, 1,5-3,5 × 1,3-2 cm, with a softly spinose green outer layer falling off before opening; seeds round, 0,5 cm Ø, dark brown to blackish, smooth, very hard.

Stream and dam banks; among ruins; road sides; gardens; villages; granite rocky places; 0-1650 m alt. – Cited in most African floras and flora lists.

Very variable in size of leaves, flower colour, persistence of bracts, shape of staminodes.

Native to an area from the southern states of the USA, West Indies, through to N Argentina (but absent from Central Amazon Basin); 0-2700 m alt; map in Blumea 53: 281, 2008.

Note: The first illustration of a *Canna* is probably the plate in Leonhart Fuchs' unpublished "Vienna Codex" (1536-1566) named "*Gladiolus indicus*, Indischer Schwertel" (Cod. 11122, p. 321); reproduced by Lack (Ein Garten Eden: 43, 2001). According to Clusius, in his herbal of 1601, "a plant named 'Canna indica or Flos Cancri' (because the closed flowers resemble the claw of a lobster) had already been cultivated for a long time in cloister gardens in Portugal". It probably arrived there with the early discoverers of the New World like Columbus (1492). Clusius also writes that the plant was grown in pots in Austria and in Belgium (Blumea 53: 248, 2008).

MARANTACEAE / *11* g. / *38* spp.

The family is part of the old grouping *Scitamineae* (cf. *Musaceae* above).

Pantropical (but absent from Australia) with c. 80% in America (a few taxa outside the tropics: in N. & S. America); with 31 genera and c. 550 species. Flowers asymmetrical attracting their pollinators with conspicuous staminodes and nectar; with a unique pollination mechanism: proterandry, secondary pollen presentation, an explosive irreversible style movement (Ley & Classen-Bockhoff 2009: 41). However, the least is known about the African species Cf. Bot. J. Linn. Soc. 168: 300-322, 2012.

Maranta arundinacea L. is cultivated for its edible tubers, the source of "arrowroot" of commerce (thickening agent in cooking); other *Maranta* and species of *Calathea*, e.g., *C. ornata* (Lindl.) Korn. are cultivated as ornamentals.

In our area the fruit is unknown in 1 (+1?) species.

MARANTACEAE

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AFROCALATHEA / *1*

Monotypic genus which has been considered close to American *Calathea*, but agrees better with *Marantochloa.*

Afrocalathea rhizantha (K. Schum.) K. Schum.; Cable & Cheek, Pl. Mt Cameroon: 167, 1998; Sosef & al., Check-list pl. vascul. Gabon: 263, 2006; Figueiredo & Smith, Pl. Angola: 187, 2008. – Icon.: Engler, Pflanzenreich 4/48: 47, 1902; Fragm. Florist. Geobot. 38/2: 407, 408, 1993; Ann. Bot. 104: 49, 2009 (sunbird visiting flower); Taxon 59: 1116, 2010.

bas.: *Calathea rhizantha* K. Schum.

Rhizomatous perennial acaulescent herb with 1-2 *leaves from the* knotty *rhizome;* petiole to c. 50-65 cm long; blade elliptic-lanceolate, slightly asymmetric, c. 35 × 10 cm, glabrous; raceme *from the rhizome,* 8-17 cm long on a peduncle 7-10 cm long; flowers white; fruit unknown.

Rain-forest; 10-510 m alt.

(ARUNDASTRUM)

Arundastrum cuspidatum (Roscoe) Kuntze = **Marantochloa cuspidata**

filipes (Benth.) Kuntze = **M. filipes**

ramosissimum (Benth.) Kuntze = **M. ramosissima**

schweinfurthianum Kuntze = **Sarcophrynium**

ATAENIDIA / *1*

Monotypic.

Ataenidia conferta (Benth.) Milne-Redh.; Bull. Soc. Roy. Bot. Belg. 83: 24, 1950; Bull. Inst. Franç. Afrique Noire, Sér. A, Sci. Nat. 19: 1127, 1957; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 58, 1997; Cable & Cheek, Pl. Mt Cameroon: 167, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 232, 2002; Cabezas & al. (2005): 176; Sosef & al., Check-list pl. vascul. Gabon: 263, 2006; Figueiredo & Smith, Pl. Angola: 187, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 174, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 226, 2011. – Icon.: Fragm. Florist. Geobot. 38/2: 446, 1993; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 885, 2006; Taxon 59: 117, 2010 (detail); Cook, Aquat. pl. book, ed. 2: 126, 1996 (sub gen. *Phrynium).*

syn.: Enum. 3: 39, 1995; *Phyllodes conferta* (Benth.) Kuntze; *P. textilis* (Ridl.) T. Durand & Schinz; *Phrynium textile* Ridl.; *P. gabonense* (Gagnep.) Loes.; *P. crista-galli* A. Chev., nom. nud.; *Donax conferta* (Benth.) Roberty; *Marantochloa conferta* (Benth.) A. C. Ley, Syst. Bot. 36: 287, 2011.

Perennial erect rhizomatous tufted herb 1-3 m tall forming tangled communities, with ramose shoots; leaf petiole glabrous, 20-50 cm long, calloused portion c. 2-4 cm; sheath c. 30 cm long; blade elliptic, 35-48 × 14,5-20 cm, asymmetric, hairy beneath with hairs arising from pale spots, *purplish-red* beneath or at least along margins; inflorescence lateral with *internodes c. 1 mm long,* in branch near to ground; *bracts* bearing sickles of cymes c. 2,5 cm long, *reddish-purple*, clustered, 2-3 cm long; flowers white to pink; fruit ellipsoid, c. 10 × 6-7 mm, indehiscent, dark red, 1-3-seeded, pubescent towards apex, perianth persistent.

Humid forest; near rivers in primitive woods; forming tangles in gaps in moist high forest; secondary forest; 1-1000 m alt.

Bioko/Fernando Poo.

SYNONYM:

Ataenidia gabonensis Gagnep. = **Ataenidia conferta**

(BAMBURANTA)

Bamburanta arnoldiana L. Linden = **Trachyphrynium braunianum**

(CALATHEA)

Calatea conferta Benth. = **Ataenidia**
mannii Benth. = **Marantochloa**
rhizantha K. Schum. = **Afrocalathea**
vaginata A. Chev. = **Halopegia azurea**

(CLINOGYNE)

Clinogyne arcta Stapf = **Marantochloa cuspidata**
arillata (K. Schum.) K. Schum. = **M. purpurea**
azurea (K. Schum.) K. Schum. = **Halopegia azurea**
baumannii K. Schum. = **Marantochloa purpurea**
chrysantha Gagnep. = **M. cuspidata**
congensis (K. Schum.) K. Schum. = **M. congensis**
cordifolia K. Schum. = **M. cordifolia**
cuspidata (Roscoe) K. Schum. ex A. Chev. = **M. cuspidata**

eburnea A. Chev., p.p. = **M. filipes**
filipes (Benth.) Benth. & Hook. f. = **M. filipes**
flexuosa (Benth.) K. Schum. = **M. cuspidata**
hensii (Baker) K. Schum. = **M. mannii**
holostachya (Baker) K. Schum. = **M. monophylla**
inaequilatera (Baker) K. Schum. = **M. congensis** var. **pubescens**
lasiocolea K. Schum. = **M. leucantha** var. **lasiocolea**
ledermannii Loes. = **M. congensis** var. **pubescens**
leucantha (K. Schum.) K. Schum. = **M. leucantha**
mildbraedii Loes. = **M. mildbraedii**
monophylla K. Schum. = **M. monophylla**
oligantha (K. Schum.) K. Schum. = **M. filipes**
pubescens Loes. = **M. congensis** var. **pubescens**
purpurea Ridl. = **M. purpurea**
ramosissima (Benth.) K. Schum. = **M. ramosissima**
rubescens Gagnep. = **M. leucantha** var. **leucantha**
schweinfurthiana (Kuntze) K. Schum. = **Sarcophrynium schweinfurthianum**
similis Gagnep. = **Marantochloa similis**
sulphurea (Baker) K. Schum. = **M. sulphurea**
trichomyle K. Schum. = ?
ubangiensis Gagnep. = **M. congensis** var. **pubescens**
ugandensis (K. Schum.) K. Schum. = **M. leucantha** var. **leucantha**

(DONAX)

Donax arillata K. Schum. = **Marantochloa purpurea**
azurea K. Schum. = **Halopegia azurea**
brachystachys (Benth.) Roberty = **Sarcophrynium brachystachys**
conferta (Benth.) Roberty = **Ataenidia conferta**
congensis K. Schum. = **Marantochloa congensis**
cuspidata Baker = **M. cuspidata**
daniellii (Benn.) Roberty = **Thaumatococcus daniellii**
filipes (Benth.) K. Schum. = **Marantochloa filipes**
leucantha K. Schum. = **M. leucantha**
oligantha K. Schum. = **M. filipes**
purpurea (Ridl.) K. Schum. = **M. purpurea**
schweinfurthiana (Kuntze) K. Schum. = **Sarcophrynium schweinfurthianum**
ugandensis K. Schum. = **Marantochloa leucantha** var. **leucantha**
violacea (Ridl.) Roberty = **Hypselodelphys violacea**

HALOPEGIA / *1*

Rosulate marsh plants, 3-4 species, occurring in Africa, Madagascar (*H. perrieri* Guillaumin) and Indo-China, Indonesia. An isolated genus within the family, showing some resemblance to *Thalia.* Flowers short-tubed with very large callose staminodes and caryopsislike fruits (Andersson, 1998: 292).

Halopegia azurea (K. Schum.) K. Schum.; Bull. Soc. Roy. Bot. Belg. 83: 30, 1950; ibid. 84: 68, 1951; Bull. Inst. Franç. Afrique Noire, Sér. A, Sci. Nat. 19: 1129, 1957; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 59, 1997; Cable & Cheek, Pl. Mt Cameroon: 167, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 232, 2002; Cheek & al., Pl. Kupe…: 449, 2004; Cabezas & al. (2005): 177; Sosef & al., Check-list pl. vascul. Gabon: 263, 2006; Figueiredo & Smith, Pl. Angola: 187, 2008; Lisowski, Fl. Rép. Guinée 1: 425, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30:174, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 226, 2011; M. Renier, Flore du Kwango 1: 109, 1948. – Icon.: Adam, Fl. descript. Mts Nimba 5: 1814, 1815, 1981; L. White & Abernethy, Guide vég. Réserve Lopé, Gabon: 197, 1996; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 885, 2006; Ann. Bot. 104: 49, 2009 (pollination); Taxon 59: 1118, 2010 (detail).

bas.: *Donax azurea* K. Schum.

syn.: *Calathea vaginata* A. Chev.; *Phrynium coriscense* Baker; *Clinogyne azurea* (K. Schum.) K. Schum.

Perennial erect herb 0,5-3 m tall, in dense tufts; leaves several from the rhizome; blade linear-oblong, to 50 × 11-15 cm, sometimes reddish beneath, *margins ± parallel;* apex *abruptly long-acuminate* (1-2 cm); *petiole* to *1 m long,* calloused portion 2-5 cm; sheaths ± pubescent; inflorescence ramose, spiciform, of 1-3 racemes, 20-25 cm long (shorter than leaves), axes pubescent; flowers appearing 1 to 2 at a time, a decorative *purple* with *blue and yellow staminodes* exserted; fruit cylindrical, 11-12 × 3-4 mm.

Marshy places by streams in forest; sometimes in large number; humid hollow in wet forest with *Mapania rhynchocarpa* or with *Heritiera utilis;* swampy hollow with *Mitragyna stipulosa;* 1-1000 m alt.

Bioko/Fernando Poo.

HAUMANIA / *3*

African genus.

Haumania danckelmaniana (J. Braun & K. Schum.) Milne-Redh.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 59, 1997; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 232, 2002; Cabezas & al. (2005): 177; Sosef & al., Check-list pl. vascul. Gabon: 263, 2006; Lachenaud in Syst. Geogr. Pl. 79: 205, 2009; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 226, 2011; Syst. Bot. 36: 287, 2011 (map). – Icon.: Ann. Bot. 104: 47, 49, 2009 (flower, pollination); Taxon 59: 1115, 2010 (detail).

syn.: Enum. 3: 40, 1995; *Trachyphrynium spinulosum* Pierre, nom. nud.

Climbing herb to 5 m long, with branches densely covered with *short recurved spines,* bamboo-like; leaf petiole glabrous, calloused portion 5-15 mm long; blade ovate or oblong-elliptic, 7-15 × 3-7 cm, pubescent at base (2 short hair tufts), apex acute-acuminate; inflorescence < 10 cm long, pendulous, axis *zigzag,* pubescent; flowers white; fruit *trigonous, tuberculate,* c. 2 × 3 cm.

Shady, dense, impenetrable forest; semi-deciduous forest; light gaps in forest; roadside vegetation, old fields; 1-900 m alt.

Bioko/Fernando Poo.

H. leonardiana C. M. Evrard & Bamps; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 174, 2010; Syst. Bot. 36: 287, 2011 (map).

Climbing herb several meters long; branches rounded, *smooth;* leaf petiole 10-16 cm long; blade elliptic-oblong to ovate-oblong, 15-35 × 5-12 cm, glabrous except *long cilia* around midrib base beneath; inflorescence of multi-flowered cymes in spike; rachis zigzag; abaxial bracts *2-2,5 cm Ø, orbicular;* flowers white; sepals linear, *8-9 mm long;* fruit 3-lobed, brown, 3,5 cm Ø, 3 cm high, covered with small smooth cone-like structures on the longitudinal ridges.

Open forest with *Marantaceae;* gaps in primary dense forest.

H. liebrechtsiana (De Wild. & T. Durand) J. Léonard; Sosef & al., Check-list pl. vascul. Gabon: 263-264, 2006; Figueiredo & Smith, Pl. Angola: 187, 2008; Syst. Bot. 36: 287, 2011 (map); M. Renier, Flore du Kwango 1: 109, 1948 (sub gen. *Trachyphrynium).* – Icon.: Bull. Soc. Roy. Bot. Belg. 83: 13, 1950.

Climbing herb 6-14 m long, with puberulous branches; leaves c. 10 × 30-6-15 cm; callus 2-6 cm long, often puberulous; blade ± *pubescent beneath, often reduced* to 2 lines of cilia along midrib; inflorescence to c. 10 cm long, rachis pubescent, brown; abaxial bracts *2,5-3,5 cm long;* flowers white; fruit globose covered with rounded granular structures, yellow when ripe (figs. in Bull. Jard. Bot. Etat, Brux. 29: 369, 1959).

Swampy forests; also in dry or ± humid places; 25-280 m alt.

(HYBOPHRYNIUM)

Hybophrynium brauniaum K. Schum. = **Trachyphrynium braunianum**

var. *violaceum* De Wild. & T. Durand = **Hypselodelphys poggeana**

congense A. Chev. = **H. poggeana**

HYPSELODELPHYS / *7*

syn.: *Trachyphrynium* subgen. *Hypselodelphys* K. Schum.

African genus of bamboo-like much-branched plants, branches often zigzagging; leaves with a distinct interruption between the petiole and the midrib on lower side of blade. Flowers are very difficult to study on herbarium material. It is likely that there are differences in flower colour between the species, and there may also be colour variation within the species, but field observations are needed. The inflorescences of *Hypselodelphys* may produce up to 70 flowers with one or two flowers open every day (Ley & Classen-Bockhoff, 2010: 851). Leaves on sterile shoots are usually much larger than those on flowering shoots (Jongkind, Adansonia, Sér. 3, 30: 58, 2008). A key to the species figures in Hawthorne & Jongkind, Woody plants of west. African forests: 886, 2006.

Hypselodelphys hirsuta (Loes.) Koechlin; Cabezas & al. (2005): 177; Sosef & al., Check-list pl. vascul. Gabon: 264, 2006. – Icon.: Ann. Bot. 104: 43, 47, 2009 (flower).

Ramose climbing herb with pubescent branches, to 4 m tall; leaf sheaths long-pubescent or hirsute; petiole slightly pubescent, c. 1 cm long; blade ovate to narrowly ovate-elliptic, to 26 × 6 cm, sparsely pubescent beneath with 2 lines of hairs along the midrib; inflorescence a simple spike or 2-3-branched, rachis densely pubescent; flowers whitish tinged pink; fruit green, pendulous, 3-lobed, echinulate, 2 cm high, 3 cm wide.

Bush; edge of open forest; 200-530 m alt.

H. poggeana (K. Schum.) Milne-Redh.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 59-60, 1997; Cheek & al., Pl. Kupe…: 449, 2004; Harvey & al., Pl. Bali Ngemba…: 141, 2004; Cabezas & al. (2005): 177; Sosef & al., l.c.; Figueiredo & Smith, Pl. Angola: 187, 2008; Lisowski, Fl. Rép. Guinée 1: 425, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 175, 2010; Harvey & al., Pl. Lebialem Highl., Cameroon: 154, 2010; M. Renier, Fl. Kwango 1: 109, 1948 (sub gen. *Trachyphrynium).* – Icon.: Bull. Soc. Roy. Bot. Belg. 83: 13, 1950; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 884, 885, 2006; Ann. Bot. 104: 49, 2009 (flower).

syn.: *Hybophrynium congense* A. Chev., nom. nud.; *H. brauniaum* K. Schum. var. *violaceum* De Wild. & T. Durand

Climbing herb 4-8-12 m tall; leaf *petiole absent,* calloused portion 1-2 cm; blade linear-oblong, *7-25 × 2,5-10 cm,* with a *line of short hairs* along *one side only* of the midrib beneath; inflorescences loose little-branched spikes, ± straight, 5-9 cm long, flowers violet and white; fruit 3-lobed, 4,5-5 × 3-3,5 cm, muricate, with short, dense, not curved tubercles c. 1 mm long.

Swampy forest; along water; rather common in forest regrowth and gallery; 30-1550 m alt.

H. scandens Louis & Mullend.; Burkill, o.c.: 60; Cable & Cheek, Pl. Mt Cameroon: 167, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 233, 2002; Cheek & al., Pl. Kupe…: 449-450, 2004; Harvey & al. (2004): l.c.; Cabezas & al., (2005): 177; Sosef & al. (2006): l.c.; Figueiredo & Smith (2008): l.c.; Lejoly & al. (2010): l.c.; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 226, 2011; M. Renier (1948): l.c. (sub gen. *Trachyphrynium).* – Icon.: Bull. Soc. Roy. Bot. Belg. 83: 13, 1950; ibid. 84: 66, 1951; Taxon 59: 1114, 2010 (detail).

syn.: *Trachyphrynium scandens* Louis & Mullend., nom. in sched.

Lianescent herb 3-10 m long, ramose, in thick tufts arising from a rhizome; leaf petiole absent or 2-9 cm long, calloused portion above point of articulation 3 cm, conspicuously beaked at junction with midrib above; blade ovate to *linear-oblong,* 11-35 × 4-17 cm, shortly acuminate, with 2 lines of hairs along midrib beneath, or glabrous; inflorescence pendulous, dichotomously branched, 20-25 cm long, rachis glabrous or hirsute; bracts and pedicels *dull purplish brown;* flowers pale violet, white and brown; fruit 3-lobed, 2-3 cm high, 5 cm Ø, muricate with long, often curved tubercles 5 mm long.

Forest formations periodically flooded; *Raphia* swamp; regrowths; secondary bush; swampy forest; terra firma forest; sometimes rather common; 1-1430 m alt.

? Not in Guinea, Uganda.

H. triangularis Jongkind – Icon.: Adansonia, Sér. 3, 30: 59, 2008; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 885, 887, 2006.

syn.: *Trachyphrynium braunianum* sensu Fl. W. Trop. Afr., ed. 2, 3(1): 89, 1968 quoad specim. Leeuwenberg 2258; *Hyselodelphys violacea* sensu Aké Assi, Boissiera 58: 252, 2002 quoad specim. Chevalier 19144; Flore Togo in Englera 4: 661, 1984, quoad specim. Ern 3153.

Liane, scrambling, to 5 m high; leaves slightly asymmetric; blade 3,5-12,5 × 2-4 cm, with *some hairs at base beneath; inflorescence* terminal, simple or branched at base, to *17 cm long,* indumentum of half-erect short hairs; flowers white with pink or violet; fruit yellow and green, strongly acute 3-lobed, flattened, muricate, 4 mm wide.

Regrowth in wet evergreen forest.

H. velutina Jongkind – Icon.: Adansonia, Sér. 3, 30: 60, 61, 2008; Hawthorne & Jongkind, o.c.: 887.

syn.: *H. poggeana* sensu Fl. W. Trop. Afr., ed. 2, 3(1): 88, 1968, quoad specim. Barter s.n. (Sierra Leone), Adam 20826; Boissiera 33: 159, 1981, quoad specim. Jaeger 9181; *H. violacea* ibid.: 159, quoad specim. Jaeger 9101.

Liane, scrambling, to 10 m long; leaves slightly asymmetric; blade 2,2-11 × 5-25 cm, with some hairs close to the midrib beneath; inflorescence terminal, simple or branched at base, to 12 cm long with a *dense cover of half-erect* short *hairs;* bracts *densely velutinous* outside; flowers white, sometimes with yellow and violet; fruit yellow and green, 3-lobed, muricate.

Wet evergreen forest.

H. violacea (Ridl.) Milne-Redh.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 60, 1997; Cable & Cheek, Pl. Mt Cameroon: 167, 1998; Cheek & al., Pl. Kupe…: 450, 2004; Cabezas & al. (2005): 177; Sosef & al., Check-list pl. vascul. Gabon: 264, 2006; Akoegninou & al., Fl. analyt. Bénin: 143-144, 2006; Lisowski, Fl. Rép. Guinée 1: 425, 2009. – Icon.: Bull. Soc. Roy. Bot. Belg. 84: 66, 1951; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 884, 886, 2006; Adansonia, Sér. 3, 30: 59, 2008; Ley & Classen-Bockhoff (2010): 850 (flower); Fl. Gabon 9: 105, 1964.

syn.: *Trachyphrynium preussianum* K. Schum.; *T. muricatum* Poivre, nom.; *Donax violacea* (Ridl.) Roberty

Straggling climber with slender stems branching at all angles forming a tangle; leaf petiole sometimes 1-3 cm long, sometimes entirely calloused; blade ovate to linear-oblong, 10-22 × 2-10 cm, with *2 lines of hairs beneath* along midrib, tip abruptly acuminate; inflorescence a simple or dichotomously ramose spike; flowers white, staminodes pink; fruit sharply triangular, c. 5 cm Ø, 2-3 cm high, with pyramidal bumps.

Primitive woods often near water; secondary jungle, humid places; 0-900 m alt. – Common.

H. zenkeriana (K. Schum.) Milne-Redh.; Cable & Cheek, Pl. Mt Cameroon: 167, 1998; Cabezas & al., l.c.; Sosef & al., l.c. – Icon.: Fl. Gabon 9: 105, 1964.

Ramose, bamboo-like herb, scrambling to 10 m high; leaf petiole c. 2,5 cm long, entirely calloused; blade linear-oblong to lanceolate, 25 × 10 cm; with 2 lines of hairs along midrib beneath, ± caducous; inflorescence very dense, very ramose (panicle of racemes) with imbricate sterile bracts 6-10 cm long at base; fruit 3-lobed, 1,7 cm high, 5 cm Ø, muricate.

Rain-forest, at edge of water; dense bush; 350-700 m alt.

Bioko/Fernando Poo.

SYNONYM:

Hypselodelphys violacea sensu Aké Assi, 2002, p.p., and Flore Togo in Englera 4, 1984, p.p. = **Hypselodelphys triangularis**

[MARANTA]

[**Maranta arundinacea** L.] Arrowroot (of commerce). – Icon.: Andersson (1998): 281; Fl. Gabon 9: 133, 1964; Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 197, 2007.

Perennial herb to 1,5-2,5 m tall, with fleshy white rhizome; leaves distichous; blade ovate to oblong, 6-30 × 3-10 cm, green above, glaucous beneath, glabrous or pubescent; inflorescences 0,15-1 m tall; flowers white, corolla c. 2 cm long; fruit dehiscent.

Cited as cultivated in most floras and flora lists of our area. Native in tropical America from Mexico to S. America.

SYNONYMS:

Maranta arundinacea Billb. ex Beurl. = **Thalia geniculata**
var. *indica* (Tussac) Petersen = **Maranta arundinacea**
fa. *sylvestris* Matuda = **M. arundinacea**
brachystachys Benth. = **Sarcophrynium**
cuspidata Roscoe = **Marantochloa cuspidata**
flexuosa G. Don ex Benth. = **M. cuspidata**
flexuosa C. Presl = **Thalia geniculata**
geniculata (L.) Lam. = **T. geniculata**
indica Tussac = **Maranta arundinacea**
ramosissima Wall. = **M. arundinacea**
sylvatica Roscoe ex Sm. = **M. arundinacea**

MARANTOCHLOA / *13*

Genus of c. 15 species distributed in the wetter parts of tropical Africa, and in Madagascar-Comoro Isl. Shrub-shaped plants; corolla tube very short; fruit dehiscent, seeds arillate.

DHETCHUVI, M. M. (1996). Le genre Marantochloa (Marantaceae) en Afrique. *Bull. Jard. Bot. Natl. Belg.* 65: 369-398.

LEY, A. C. & R. CLASSEN-BOCKHOFF (2011a). See above under the family.

(Marantochloa conferta (Benth.) A. C. Ley). See under **Ataenidia**.

Marantochloa congensis (K. Schum.) J. Léonard & Mullend., excl. var. *microphylla* Koechlin *(= M. microphylla);* Dhetchuvi (1996): 376-381; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 61-62, 1997; Cable & Cheek, Pl. Mt Cameroon: 167, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 233, 2002 (as "congoensis"); Cheek & al., Pl. Kupe…: 450, 2004; Cabezas & al. (2005); 179; Sosef & al., Check-list pl. vascul. Gabon: 264, 2006; Figueiredo & Smith, Pl. Angola: 187, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 175, 2010. – Icon.: Fragm. Florist. Geobot. 38/2: 437, 1993; Fl. Gabon 9: 123, 1964; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 884, 885, 2006; Ann. Bot. 104: 49, 2009 (pollination); Ley & Classen-Bockhoff (2010): 850 (flower); Taxon 59: 1117, 2010 (detail).

syn.: *Clinogyne congensis* (K. Schum.) K. Schum. (see below under the varieties); Enum. 3: 40, 1995; *Marantochloa similis* (Gagnep.) Pellegr. sensu Pellegrin 1938.

Branched erect *sarmentose* slender herb forming thickets, usually only c.1 m tall; leaves *antitropic* (successively bent to one side, then the other), strongly asymmetric; blade 7-25 × 4-10 cm, *pilose,* apex progressively acuminate; petiole with sheath-winged part joining directly to the calloused portion (3-6 mm), bulging, hairy above; branchlets and nodes usually glabrous, *sometimes villous;* inflorescence lax, delicate, simple or little branched, to c. 10 cm long; flowers (yellowish) *white;* fruit round, smooth, c. 5 mm Ø.

allery forest; terra firma forest; *Gilbertiodendron dewevrei* forest; occasionally seasonally flooded forest; occasionally gregarious; secondary forest; swamps; dry primitive wood; 1-1300 m alt.

Comprises 3 vars.: – var. **congensis**, a glabrous plant, often in swampy places; – var. **nitida** J. Léonard & Mullend., with shiny coriaceous leaves, in Zaire; – var. **pubescens** (Loes.) J. Léonard & Mullend. [bas.: *Clinogyne pubescens* Loes.; syn.: *C. ledermannii* Loes., incl. var. *pubescens* Loes.; *C. ubangiensis* Gagnep.; *C. inaequilatera* (Baker) K. Schum.; *Phrynium inaequilaterum* (Baker) K. Schum.; *Marantochloa inaequilatera* (Baker) Hutch.], with long hairs on leaves etc.

Near *M. microphylla.*

Cf. below under *M. similis.*

M. cordifolia (K. Schum.) Koechlin; Dhetchuvi (1996): 396-397; Cheek & al., Pl. Kupe…: 450, 2004; Sosef & al., Check-list pl. vascul. Gabon: 264-265, 2006; Figueiredo & Smith, Pl. Angola: 187, 2008. – Icon.: Fl. Gabon 9: 127, 1964; L. White & Abernethy, Guide vég. Réserve Lopé, Gabon: 197, 1996.

Ramose herb; leaves *homotropic;* blade glabrous, variable in size, broadly ovate or ovate-oblong, to 30-32 × 15-18 cm, often violet beneath, apex abruptly narrowed into a fine acumen; petiole callus c. 1 cm, non-calloused part c. 4 cm long; inflorescence of dense racemes, simple or sometimes bifurcate, 5-15 cm long; bracts large, 3-3,5 × 0,8-1 cm, pinkish violet, *margins glabrous; flower pedicels glabrous;* corolla white, staminodes yellow; fruit c. 7 mm Ø, *red.*

Old secondary forest; swampy clearing and river sides in forest; swampy forest; disturbed forest; 10-670 m alt.

Near *M. mildbraedii.*

M. cuspidata (Roscoe) Milne-Redh.; Dhetchuvi (1996): 394-396; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 62, 1997; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 890, 2006; Lisowski, Fl. Rép. Guinée 1: 425, 2009. – Icon.: Ic. Pl. Afric. 7: pl. 159, 1965; Adam, Fl. descript. Mts Nimba 5: 1821, 1981; Fl. ill. Sénégal 9: 444, 1988.

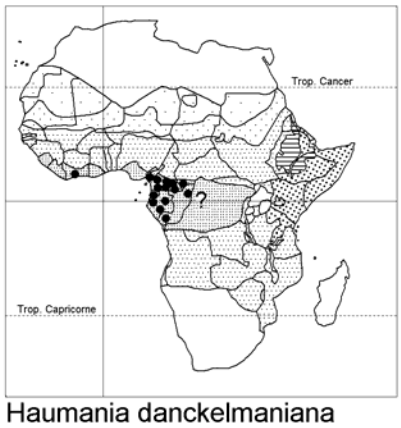
syn.: *Donax cuspidata* Baker 1898, non (Roscoe) K. Schum. 1892; *Arundastrum cuspidatum* (Roscoe) Kuntze; *Clinogyne cuspidata* (Roscoe) K. Schum. ex A. Chev.; *C. chrysantha* Gagnep.; *C. arcta* Stapf; *C. flexuosa* (G. Don ex Benth.) K. Schum.; *Phrynium flexuosum* Benth.; *Marantochloa flexuosa* (Benth.) Hutch.; *Maranta flexuosa* G. Don ex Benth.; *Phyllodes flexuosa* (G. Don ex Benth.) Kuntze

Perennial rhizomatous herb with erect usually simple shoots 0,6-2 m tall, with *1* or *2 leaves;* leaf petiole *15-20 cm long,* callus 1-3 cm; blade ovate-lanceolate, to 40 × 25 cm, pubescent beneath on midrib, apex abruptly drip-tipped; inflorescence terminal, 10-25 cm long, with 1 to several slender racemes, *peduncle 8-11 cm long,* rachis >10 cm long; bracts ± overlapping; *flowers one per cyme,* yellow; fruit round, ivory-white, tomentose.

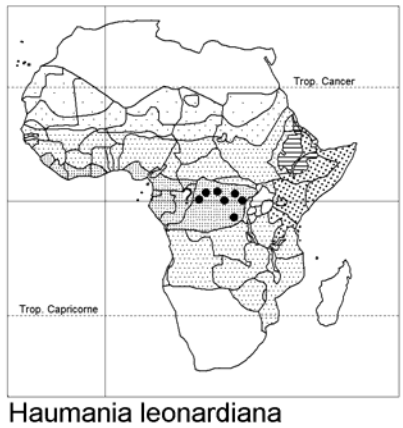
Semi-deciduous dense forests; very dry forest; forest edges; by rivers in savanna; secondary forest; often in rocky areas; 650-700 m alt.

Records from Equatorial Guinea and Bioko are erroneous, based on specimens representing *M. purpurea* (Cf. Cabezas & al., 2005: 183).

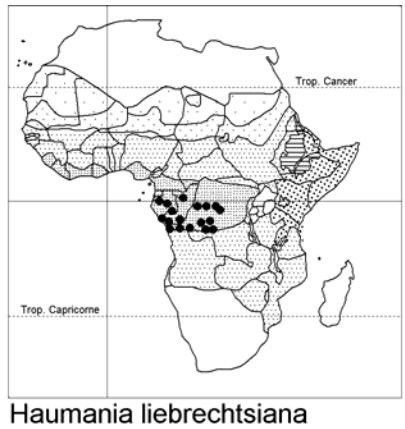
Near *M. ramosissima.*



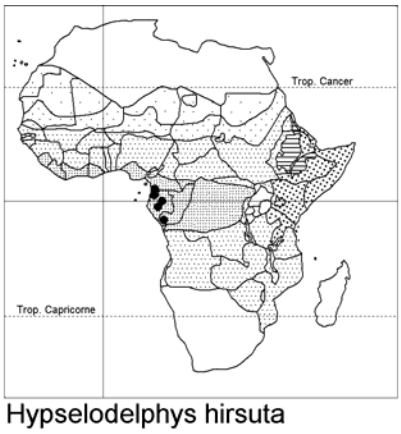
Haumania danckelmaniana



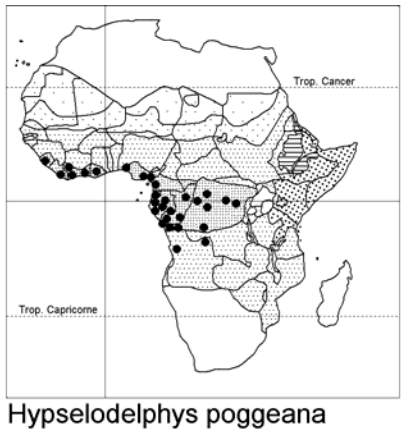
Haumania leonardiana



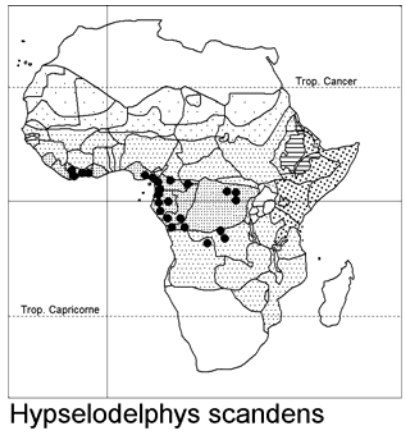
Haumania liebrechtsiana



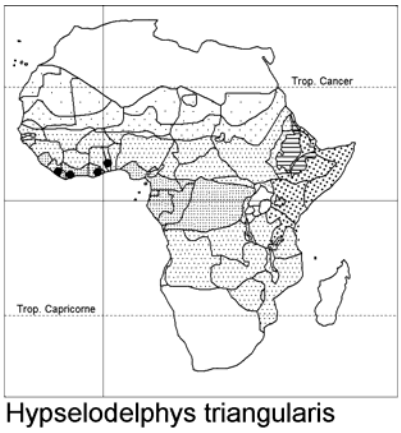
Hypselodelphys hirsuta



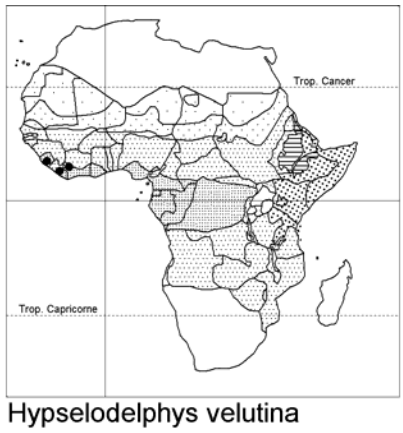
Hypselodelphys poggeana



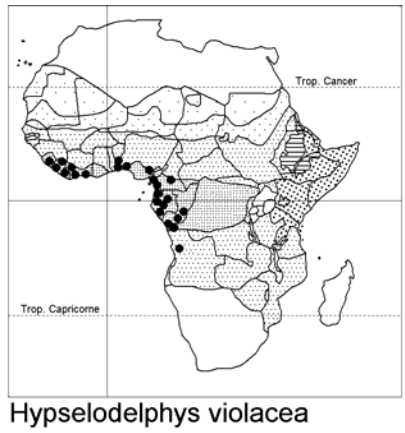
Hypselodelphys scandens



Hypselodelphys triangularis



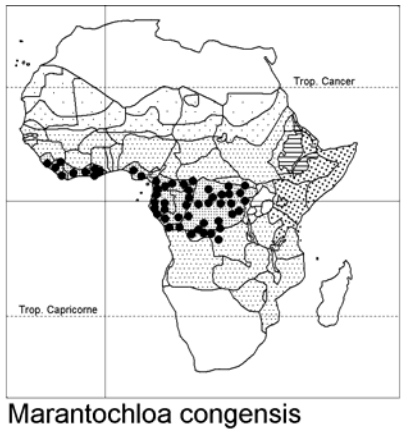
Hypselodelphys velutina



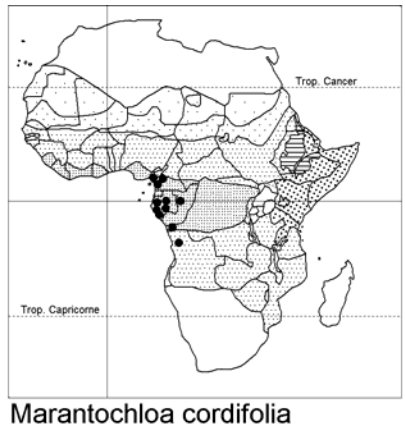
Hypselodelphys violacea



Hypselodelphys zenkeriana



Marantochloa congensis



Marantochloa cordifolia

M. filipes (Benth.) Hutch.; Dhetchuvi (1996): 381-384; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 62, 1997; Cable & Cheek, Pl. Mt Cameroon: 167, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 233, 2002; Cheek & al., Pl. Kupe…: 450, 2004; Cabezas & al. (2005): 179; Sosef & al., Check-list pl. vascul. Gabon: 265, 2006; Figueiredo & Smith, Pl. Angola: 187, 2008; Lisowski, Fl. Rép. Guinée 1: 425, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 176, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 227, 2011; M. Renier, Flore du Kwango 1: 110, 1948 (sub gen. *Clinogyne).* – Icon.: Fragm. Florist. Geobot. 38/2: 437, 1993; Fl. Gabon 9: 123, 1964; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 884, 2006.

bas.: *Phrynium filipes* Benth.

syn.: *Donax filipes* (Benth.) K. Schum.; *Clinogyne filipes* (Benth.) Benth. & Hook. f.; *C. oligantha* (K. Schum.) K. Schum.; *Arundastrum filipes* (Benth.) Kuntze; *Clinogyne eburnea* A. Chev. p.p., quoad specim. Chevalier 15397.

Sarmentose ramose perennial herb ± climbing, to 2,5 m tall; leaves homotrophic, ± asymmetric; petiole with a calloused part c. 5 mm long; *blade* ovate-lanceolate, *7-16(-20) × 3-11 cm, dull whitish beneath,* apex abruptly acuminate; blade often pustulate beneath, but plant glabrous; inflorescence a very slender lax panicle, *slightly ramose,* of 1-3-racemes; inflorescence *internodes extremely long; bracts persistent;* flowers few, white or pinkish; fruit red (becoming yellow when dry), c. 7 mm Ø, splitting and *exposing 3 black seeds.*

Generally frequent in forests; open forest on clayey soil; light gaps in terra firma forest; streambanks; dense and dry forest; secondary forest; often on hills; 10-1200 m alt.

Bioko/Fernando Poo.

Autogamous reproduction, fide Kennedy in K. L. Wilson & D. A. Morrison, eds., Monocots: Systematics and Evolution: 343, 2000.

M. incertifolia Dhetchuvi (1996): 374; Sosef & al., Check-list pl. vascul. Gabon: 265, 2006.

Rhizomatous herb 30-150 cm tall; shoots simple, glabrous to pubescent, with *2-4-leaves;* petiole 0,3-3 cm long; leaves *antitropic; blade cordate* at base, *purple beneath;* midrib *glabrous above, puberulous beneath,* 9-27 × 4-12 cm; petiole 0,3-3 cm long, callus c. 1,8 cm long; inflorescence terminal, of 1-3 erect racemes; peduncle branched from the base, 1,3-5 cm long, puberulous; bracts with 2-5 2-flowered cymes; corolla short, staminodes white and yellow; capsule c. 0,5 cm Ø, yellow, with *one* orange seed.

Disturbed terra firma forest; 50 m alt.

Near *M. sulphurea.*

M. leucantha (K. Schum.) Milne-Redh.; Dhetchuvi (1996): 387-391; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 63-64, 1997; Cable & Cheek, Pl. Mt Cameroon: 167-168, 1998; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: 50, 2001; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 233, 2002; Harvey & al., Pl. Bali Ngemba…: 141, 2004; Cheek & al., Pl. Kupe…: 450, 2004; Cabezas & al. (2005): 179; Sosef & al., Check-list pl. vascul. Gabon: 265, 2006; Figueiredo & Smith, Pl. Angola: 188, 2008; Lisowski, Fl. Rép. Guinée 1: 425, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 176, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 227, 2011. – Icon.: Engler, Pflanzenreich 4/48: 61,

1902; Adam, Fl. descript. Mts Nimba 5: 823, 826, 1981; Fl. Gabon 9: 123, 1964; Fragm. Florist. Geobot. 38/2: 442, 1993; Fl. Eth. & Eritrea 6: 336, 1997; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 885, 2006.

Erect or ± scrambling-climbing, ramose, perennial herb to 5 m tall; nodes swollen; leaves homotropic; calloused part of petiole 5-14 mm long, often joining directly to sheath (3-25 cm long); blade ± asymmetric, *6-25 × 3-16 cm,* abruptly long-acuminate, *whitish* green *beneath*; inflorescence of long loose panicles, much branched, pendent, 30-40 cm long; flowers greenish white or pink; *sepals 5 mm long;* bracts and perianth caducous before fruit is ripe; fruit reddish, yellowish on drying, sparsely pubescent, c. 1 cm Ø.

Secondary regrowths; road sides; moist places in forest; often in swamps or gallery; forest with *Triplochiton scleroxylon;* heterogenous primary forest with *Pericopsis elata;* fallow with *Triumfetta, Selaginella;* periodically flooded forest; rain-forest with *Chrysophyllum albidum, Cola gigantea, Erythrophleum suaveolens, Alstonia boonei, Parinari excelsa, Milicia excelsa* in swampy clearings and along trails; in closed forest under *Coffea;* common in drier forests; 0-1500 m alt.

Bioko/Feranando Poo.

Comprises 2 vars.: – var. **leucantha** [syn.: *Donax ugandensis* K. Schum.; *Clinogyne ugandensis* (K. Schum.) K. Schum.; *C. rubescens* Gagnep.; Enum. 3: 40, 1995], with leaf sheath and blade glabrous, widespread and very common in dry forests; – var. **lasiocolea** (K. Schum.) Koechlin, with densely hairy leaves, but hairs caducous beneath.

Leaves (large) often used as roof-thatch, stems for weaving into mats.

Reproduction autogamous fide Kennedy (see above under *M. filipes).*

Near *M. purpurea.*

M. mannii (Benth.) Milne-Redh.; Dhetchuvi (1996): 391-393; Cable & Cheek, Pl. Mt Cameroon: 168, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 234, 2002; Sosef & al., Check-list pl. vascul. Gabon: 265, 2006; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 176, 2010. – Icon.: Fl. Gabon 9: 117, 1964; Fl. Eth. & Eritrea 6: 336, 1997; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 885, 2006.

syn.: Enum. 3: 40, 1995; *Phyllodes mannii* (Benth.) Kuntze; *Phrynium hensii* Baker; Bull. Soc. Roy. Bot. Belg. 83: 22, 1950. – Cabezas & al (2005) cite *Marantochloa mannii* (Benth.) Milne-Redh. var. *lasiocolea* (K. Schum.) Koechlin as a synonym.

Perennial herb, erect, ramose, 1-2,5 m tall; young stems, especially at nodes, very hairy; petiole to 30 cm long, calloused part 3,5 cm; blade ovate-elliptic to lanceolate, 10-40 × 4-20 cm, *purple beneath* and little hairy, with very numerous parallel lateral nerves; inflorescence *paniculate, congested,* erect, sessile, branched, 9 cm long and nearly as broad, composed of numerous *branches 9-15 mm long*; *rhachis and bracts pink or bright red;* flowers clustered, pinkish or white, bracts overlapping, 3-4 cm long, pointed; fruit dehiscent, *pubescent, round,* c. 6 mm Ø.

Moist forest; swampy forest; clearings; secondary growth; riparian forest; in or along rivulet with stagnant pools in forest; 1-1500 m alt.

Bioko/Fernando Poo.

MARANTOCHLOA

M. microphylla (Koechlin) Dhetchuvi (1996): 375-376; Sosef & al., Check-list pl. vascul. Gabon: 265, 2006; Figueiredo & Smith, Pl. Angola: 188, 2008.

bas.: *M. congensis* (K. Schum.) J. Léonard & Mullend. var. *microphylla* Koechlin

Similar to *M. congensis* but plant entirely *pubescent* with *short persistent hairs* (not long and sometimes downy and caducous); leaf blade *3,5-8,5 × 1-4,5 cm* (not ± 10-25 × 5-10 cm).

Forest ?; 350-850 m alt.

M. mildbraedii Koechlin; Dhetchuvi (1996): 397-398; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 234, 2002; Cheek & al., Pl. Kupe…: 450, 2004; Cabezas & al. (2005): 180; Sosef & al. (2006): l.c.

syn.: *Clinogyne mildbraedii* Loes., nom. nud.

Erect branched herb to 1 m tall; leaves *homotropic*, to c. 30 × 15 cm, often purplish beneath, apex abruptly narrowly acuminate; calloused part of petiole 1-4 cm long; inflorescence a dense raceme, simple or 2-furcate at base, bracts persistent, imbricate; similar to *M. cordifolia* but leaf sheaths, margins of bracts and flower pedicels *pubescent*, and fruit *pale yellowish pink* (not red); fruit pubescent, round, c. 7 mm Ø. – Poorly known species.

Light gaps in terra firma forest; seasonally flooded forest; *Gilbertiodendron dewevrei* forest; gallery; 50-210 m alt.

M. monophylla (K. Schum.) D'Orey, incl. var. *holostachya* (Baker) D'Orey; Dhetchuvi (1996): 371-373; Cable & Cheek, Pl. Mt Cameroon: 168, 1998; Harris (2002): l.c.; Cabezas & al. (2005): l.c.; Sosef & al. (2006): l.c.; Figueiredo & Smith, Pl. Angola: 188, 2008; Harvey & al., Pl. Lebialem Highl., Cameroon: 155, 2010; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 176, 2010. – Icon.: Fl. Gabon 9: 117, 1964; Fragm. Florist Geobot. 38/2: 434-435 (both sub nom. *M. holostachya).*

bas.: *Clinogyne monophylla* K. Schum., 1902.

syn.: *Phyllodes monophylla* K. Schum., 1892, nom. illeg.; *Phrynium monophyllum* (K. Schum.) Baker, 1898, nom. illegit.; *P. holostachyum* Baker; *Clinogyne holostachya* (Baker) K. Schum.; *Marantochloa holostachya* (Baker) Hutch.

Erect rhizomatous perennial herb, tufted; stems simple, c. 50-70 cm tall; leaves solitary (rarely 2); petiole to c. 20 cm long; callus swollen, 5-10 mm; *blade narrowly lanceolate*, 25-30 × 7-12 cm, violet beneath with midnerve ± pubescent, base rounded to subcordate, apex acuminate; inflorescence terminal, *a spike or dense panicle* 8-24 mm long; bracts persistent; corolla *white;* fruit pearly *white*, c. 6 mm Ø, calyx persistent.

Forest on granitic outcrops; secondary forest; high forest; forest edges; seasonally flooded *Gilbertiodendron* forest; 100-1000 m alt.

Bioko/Fernando Poo.

M. purpurea (Ridl.) Milne-Redh.; Dhetchuvi (1996): 384-387; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 65, 1997; Cable & Cheek, Pl. Mt Cameroon: 168, 1998; Chapman & Chapman, Forests Taraba & Adamawa States, Nigeria: c50, 2001; Harris (2002): l.c.; Cheek & al., Pl. Kupe…: 450, 2004; Cabezas & al. (2005): l.c.; Sosef & al. (2006): l.c.; Figueiredo & Smith (2008): l.c.; Lejoly & al. (2010): l.c.; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 227, 2011. – Icon.: Ic. Plant. Afric. 7: 160, 1964; Fl. Trop. E. Africa, Marant.: 7, 1952; Fl. Gabon 9: 127, 1964; Adam, Fl. descript. Mts Nimba 5: 1823, 1981; L. White & Abernethy, Guide vég. Réserve Lopé, Gabon: 196, 1996; Fl. Eth. & Eritrea 6: 336, 1997; Akoegninou & al., Fl. analyt. Bénin: 144, 2006; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 885, 891, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 506, 2009; Ann. Bot. 104: 52, 2009 (pollination); Taxon 59: 1117, 2010 (flower); Ley & Classen-Bockhoff (2010): 850.

MARANTOCHLOA PURPUREA

syn.: *Donax purpurea* (Ridl.) K. Schum.; *D. arillata* K. Schum.; *Clinogyne arillata* (K. Schum.) K. Schum.; Enum. 3: 41, 1995.

Erect or sarmentose rhizomatous perennial herb, ramose, 0,9-3 m tall; shoots *pubescent;* leaf petiole with calloused part 1,5-6 cm long; blade ovate(-oblong), 10-50 × 5-20 cm, wine-red or with *snow-like powder* beneath, with a *greener band* along the edge; inflorescence loose, *branched*, 20-30 cm long; axis pink, *pubescent*; secondary axis with *2 cymes, 2-flowered;* corolla *deep purple*, or sometimes pale pink or almost white (cf. Harris, 2002: l.c.); fruit red, round, pubescent, 8 mm Ø, *bracts and perianth persistent.*

Brook sides and wet areas in forest; gallery; flooded forest with *Uapaca guineensis;* high forest with *Cynometra alexandri, Gilbertiodendron dewevrei, Uapaca;* secondary forest; dry forest; forest edges; semi-flooded meadow; densely wooded savanna on sandy soil; clearings; humid hollow with *Pseudospondias microcarpa;* swamp with *Mitragyna stipulosa;* locally abundant on roadsides; sometimes in stands; 200-1500 m alt. – Element of the tall herb formation *Marantochloo purpureae-Anubiadetum giganteae* association in Togo (Acta Bot. Gall. 158: 409-423, 2011).

For Equatorial Guinea, see Cabezas & al. (2005): 183 (plant misidentified as *M. cuspidata).*

Stems are used to make mats, leaves as wrappers.

Near, and has been confused with *M. leucantha.*

M. ramosissima (Benth.) Hutch.; Dhetchuvi (1996): 393-394; Cable & Cheek, Pl. Mt Cameroon: 168, 1998; Cabezas & al. (2005): 180.

bas.: *Phrynium ramosissimum* Benth.

syn.: *Clinogyne ramosissima* (Benth.) K. Schum.; *Arundastrum ramosissimum* (Benth.) Kuntze

Erect much branched herb, 1,2-2,4 m tall; leaves homotropic; blade oblong-elliptic, to 26 × 15 cm, inflorescence *unbranched* or usually only divided at base, *3-4 cm long* on a *peduncle 5-20 cm long;* calyx pinkish white; corolla white tinged pink with yellow centre; spathes with *3 2-flowered cymes;* fruit globose, ? c. 6 mm Ø.

Forest; stream banks; *Aframomum* thickets; 1-800 m alt.

Bioko/Fernando Poo.

Near *M. cuspidata.*

(**M. similis** (Gagnep.) Pellegr.)

bas.: *Clinogyne similis* Gagnep.

Described from a plant flowering in 1903 at the Muséum national d'histoire naturelle, Paris, of unknown (but African !) origin. Type ? – Placed by Gagnepain near *Clinogyne oligantha* (= *Marantochloa filipes),* but with lower stems (80 cm), narrower leaves (8-12 × 3-4 cm) tinged violet beneath but not white-powdery, short hairs on stems, nodes, sheaths and midrib on lower leaf surface, and with white (not pink) flowers. Also compared with *C. ugandensis (= M. leucantha)* but inflorescence smaller (12 cm long) and leaves smaller.

MARANTOCHLOA SIMILIS

In 1938 Pellegrin made the new combination in the genus *Marantochloa*, citing 2 specimens, viz., Le Testu 1402 (= *M. congensis*, fide Sosef & al., Check-list pl. vascul. Gabon: 264, 2006, and cited by Dhetchuvi, 1996: 380 under *M. congensis* var. *pubescens)*, and Le Testu 2377 (not figuring in the latter list, but cited by Dhetchuvi in Bull. Jard. Bot. Natl. Belg. 65: 377, 1996) under *M. congensis* var. *congensis*. Both are from Gabon, growing on stream banks in forest. – Not mapped.

M. sulphurea (Baker) Koechlin; Dhetchuvi (1996): 373; Sosef & al., Check-list pl. vascul. Gabon: 265, 2006.

syn.: *Clinogyne sulphurea* (Baker) K. Schum.

Erect herb with simple shoots 70 cm tall with *3 leaves* at apex; leaf petiole entirely calloused, 5 mm long; blade asymmetric, oblong, 16 × 7 cm, midrib pubescent above, glabrous beneath; inflorescence of 2-3 erect racemes; bract with *2 2-flowered cymes* at the most; flowers yellow; fruit unknown ?

Dense forest; 100 m alt. (and probably more).

Only known from 2 specimens.

Near *M. incertifolia.*

SYNONYMS:

Marantochloa conferta (Benth.) A. C. Ley = **Ataenidia conferta**

congensis (K. Schum.) J. Léonard & Mullend. var. *microphylla* Koechlin = **Marantochloa microphylla**

flexuosa (Benth.) Hutch. = **M. cuspidata**

hensii (Baker) Pellegr. = **M. mannii**

holostachya (Baker) Hutch. = **M. monophylla**

inaequilatera (Baker) Hutch. = **M. congensis** var. **pubescens**

oligantha (K. Schum.) Milne-Redh. = **M. filipes**

similis (Gagnep.) Pellegr. s. str. = ?

similis sensu Pellegr. 1938 = **M. congensis** var. **congensis** and var. **pubescens**

ubangiensis (Gagnep.) Pellegr. = **M. congensis** var. **pubescens**

MEGAPHRYNIUM / *5*

Tropical African genus; inflorescence a richly branched congested synflorescence; fruit dehiscent. Very close to *Sarcophrynium* (Andersson, 1998: 289-290).

Megaphrynium distans Hepper; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 66, 1997; Cabezas & al. (2005): 181; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 888, 2006.

Perennial semi-woody herb with erect *simple* flowering *shoots 1-1,2 m tall,* bearing only *one leaf* per stem; petiole to c. 1 m high; lamina broadly ovate, 30-55 × 19-35 cm; sheath hairy; inflorescence *arising from a sheath 50-80 cm long,* c. 8 cm long, compact, with few short branches; flowers yellow with a red spot; fruit globose, red or orange, 3-edged, 2 cm Ø, *ciliate* when young; *seed keeled* or *angular.*

In dense shade in deciduous forest; open part of forest; secondary forest; inselberg.

Very distinctive, but confused with *M. macrostachyum.*

MEGAPHRYNIUM

M. gabonense Koechlin; Sosef & al., Check-list pl. vascul. Gabon: 265, 2006.

Herb 1-2 m tall; leaf blade 25-60 × 12-40 cm, sometimes slightly pubescent on midrib beneath; inflorescence ramose, raceme with *50 or more internodes (slender, flexuous,* to 20 cm long and more); *1 outer staminode well developed* (the second reduced to a tooth or filiform); fruit smooth, red, 15-20 mm Ø.

Forest ?; 10-650 m alt.

M. macrostachyum (K. Schum.) Milne-Redh.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 66-67, 1997; Cable & Cheek, Pl. Mt Cameroon: 168, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 235, 2002; Cheek & al., Pl. Kupe…: 450-451, 2004; Cabezas & al. (2005): 181; Sosef & al. (2006): l.c.; Figueiredo & Smith, Pl. Angola: 188, 2008; Lisowski, Fl. Rép. Guinée 1: 425-426, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 176, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 227, 2011; M. Renier, Flore du Kwango 1: 108, 1948 *(Sarcophrynium arnoldianum).* – Icon.: Bull. Soc. Roy. Bot. Belg. 83: 27, 1950; Fl. Trop. E. Afr., Marant.: 3, 1952; Adam, Fl. descript. Mts Nimba 5: 1824, 1981; Fragm. Florist. Geobot. 38/2: 429, 1993; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 884, 889, 2006; Latham & Konda, Pl. utiles Bas-Congo, ed. 2: 198, 2007; Ann. Bot. 104: 47, 49, 2009 (pollination); Taxon 59: 1114, 2010.

bas.: *Phyllodes macrostachya* K. Schum. 1892.

syn.: *Phrynium macrostachyum* Benth. 1883, non Wall. 1828, nom. illegit.; *P. benthamii* Baker; *P. adenocarpum* (K. Schum.) Baker; *Phyllodes adenocarpa* K. Schum.; *P. macrophylla* K. Schum.; *Phrynium macrophyllum* (K. Schum.) Baker; *P. oxycarpum* (K. Schum.) Baker; *Phyllodes oxycarpa* K. Schum.; *Sarcophrynium macrophyllum* (K. Schum.) Hutch.; *S. spicatum* K. Schum.; *S. macrostachyum* (K. Schum.) K. Schum.; Enum. 3: 41, 1995.

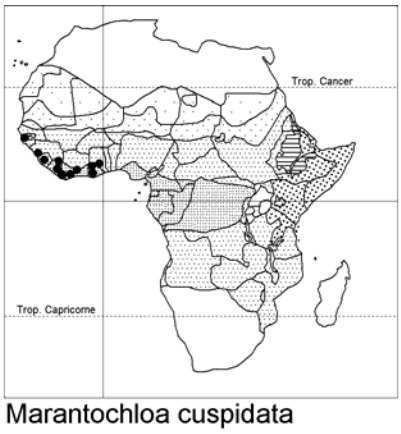
Erect perennial herb 2-4 m tall with a very long rhizome (5-6 m), forming dense monospecific stands; stems simple bearing a single terminal leaf; blade elliptic, 30-90 × 12-30 cm; sheath glabrous; petiole 1-5 m long, with calloused portion 15-25 cm long; inflorescence lateral, to 25 cm long, arising from a sheath 10-30 cm below the calloused part, much-branched, each raceme with up to 30 short (5 mm) internodes; bracts only at top of branches, the others caducous; calyx red or purplish, corolla whitish tinged yellow or orange; fruit glossy red, smooth, *glabrous,* 3-lobed, c. 2,5 cm Ø; seeds black, arillate (pulp sweet, edible), *smoothly rounded.*

Wet places in rain-forest; wooded swamp; 1-1500 m alt. Element of the tall herb formation *Marantochloo purpureae-Anubiadetum giganteae* association in Togo (Acta Bot. Gall. 158: 409-423, 2011).

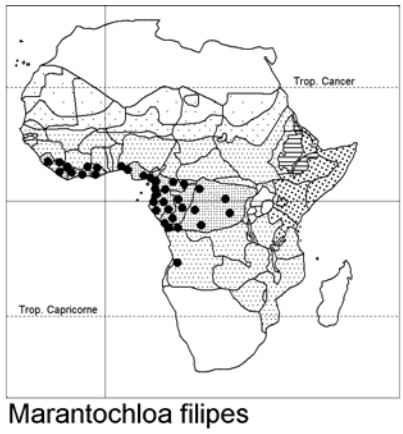
M. trichogynum Koechlin; Cable & Cheek, Pl. Mt Cameroon: 168, 1998; Harris (2002): l.c.; Cabezas & al. (2005): 181; Sosef & al. (2006): l.c.; Figueiredo & Smith (2008): l.c.; Lachenaud in Syst. Geogr. Pl. 79: 205, 2009. – Icon.: Fl. Gabon 9: 155, 1964.

Herb 1-2 m tall; leaf petiole variable in length, calloused part 5-15 cm long; blade ovate-elliptic, 25-40 × 10-25 cm; sheath pubescent; inflorescence ramose, peduncles and axes of racemes *brown velvety pubescent* (± caducous); internodes c. 15; racemes c. 10 cm long; flowers yellow; one outer staminode (or absent); *ovary densely velvety pubescent;* fruit red, smooth, c. 1,5 cm Ø.

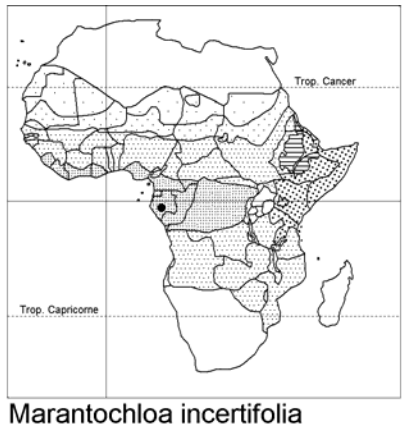
Terra firma forest; forest gallery, 10-670 m alt.



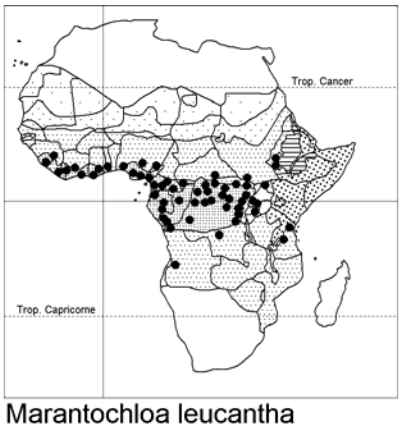
Marantochloa cuspidata



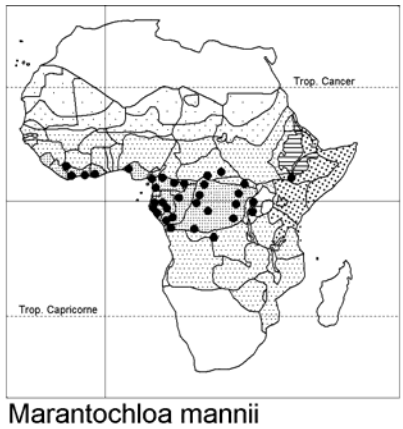
Marantochloa filipes



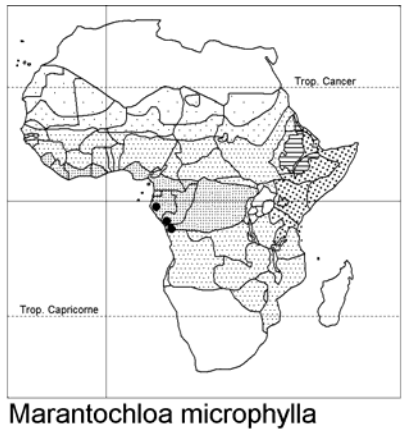
Marantochloa incertifolia



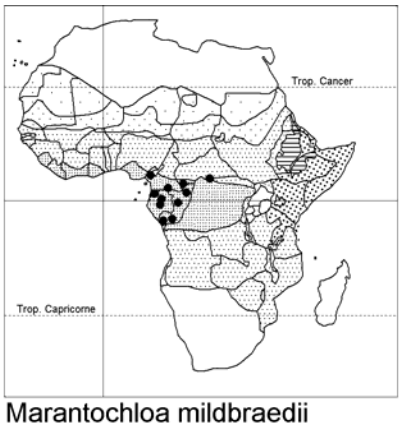
Marantochloa leucantha



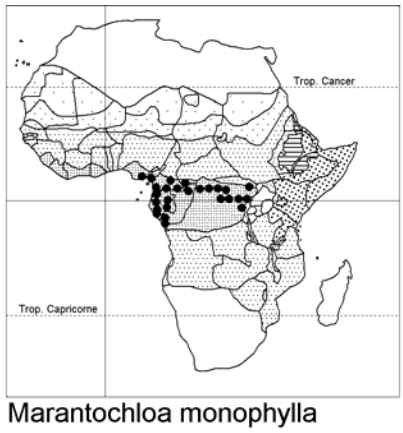
Marantochloa mannii



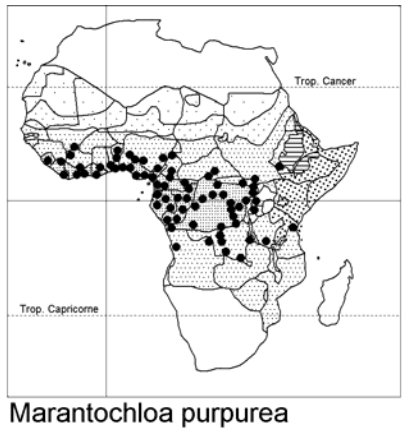
Marantochloa microphylla



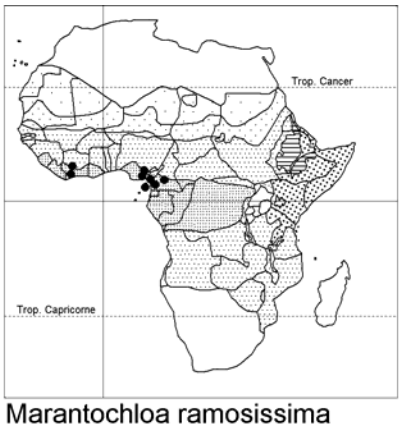
Marantochloa mildbraedii



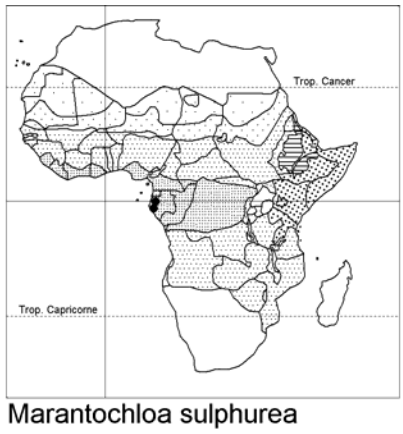
Marantochloa monophylla



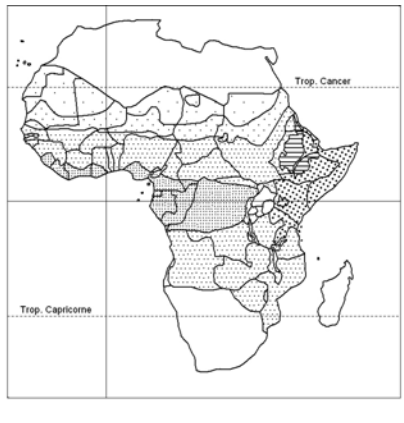
Marantochloa purpurea



Marantochloa ramosissima



Marantochloa sulphurea



MEGAPHRYNIUM

M. velutinum (K. Schum.) Koechlin; Cabezas & al. (2005): 181. – Icon.: Fl. Gabon 9: 155, 1964; Fragm. Florist. Geobot. 38/2: 429, 1993.

bas.: *Sarcophrynium velutinum* K. Schum. 1902.

syn.: *Phrynium velutinum* Baker 1898, non Poepp. & Endl. 1837, nom. illegit.

Herb growing in stout tufts; stems simple with a leaf and an inflorescence at tip; leaves 1,5-2 m long; sheaths and nodes ± pubescent; blade oblong-lanceolate, 30-50 × 15-30 cm, glabrous; petiole c. 1 m long, callus 10 cm long, glabrous; inflorescence ramose, c. 14 cm long, peduncle c. 7 cm, internodes c. 15, 3-7 mm long; peduncle and axes *shortly brown velvety-pubescent; bracts pubescent;* flowers yellow, *pubescent*, with *one* outer staminode; ovary glabrous, *crowned by a dense fringe of white or golden hairs;* fruit red, c. 2 cm Ø.

Terra firma forest, fallows in forest; inselberg; 10-490 m alt.

Not in Ivory Coast.

UNPLACED TAXA (perhaps belonging to *Megaphrynium):*

Sarcophrynium bisubulatum (K. Schum.) K. Schum.

Seems near *Megaphrynium macrostachyum* and is perhaps a synonym of this species. For details see below under **Sarcophrynium**.

Sarcophrynium congolense Loes.

Described as related to *S. macrostachyum* (= *Megaphrynium macrostachyum)* and *S. bisubulatum*, but with shorter inflorescence and longer outer staminodes. For details see below under **Sarcophrynium**.

(MONOSTICHE)

Monostiche daniellii (Benn.) Horan. = **Thaumatococcus**

(PHRYNIUM)

Phrynium adenocarpum (K. Schum.) Baker = **Megaphrynium macrostachyum**

baccatum (K. Schum.) Baker = **Sarcophrynium schweinfurthianum** var. **schweinfurthianum**

benthamii Baker = **Megaphrynium macrostachyum**

bisubulatum (K. Schum.) Baker = **Sarcophrynium bisubulatum**

brachystachys (Benth.) Körn. = **S. brachystachys**

cerasiferum A. Chev., p.p. = **S. prionogonium** var. **prionogonium** and var. **puberulifolium**

confertum (Benth.) K. Schum. = **Ataenidia conferta**

coriscense Baker = **Halopegia azurea**

crista-galli A. Chev. = **Ataenidia conferta**

daniellii Benn. = **Thaumatococcus daniellii**

filipes Benth. = **Marantochloa filipes**

flexuosum Benth. = **M. cuspidata**

gabonense (Gagnep.) Loes. = **Ataenidia conferta**

hensii Baker = **Marantochloa mannii**

holostachyum Baker = **M. monophylla**

inaequilaterum Baker = **M. congensis** var. **pubescens**

leiogonium (K. Schum.) Baker = **Sarcophrynium prionogonium** var. **prionogonium**

macrophyllum (K. Schum.) Baker = **Megaphrynium macrostachyum**

macrostachyum Benth. = **M. macrostachyum**

PHRYNIUM

mannii (Benth.) K. Schum. = **Marantochloa mannii**

molle A. Chev. = **Sarcophrynium brachystachys** var. **brachystachys**

monophyllum (K. Schum.) Baker = **Marantochloa monophylla**

oxycarpum (K. Schum.) Baker = **Megaphrynium macrostachyum**

prionogonium (K. Schum.) Baker = **Sarcophrynium prionogonium**

ramosissimum Benth. = **Marantochloa ramosissima**

sulphureum Baker. = **M. sulphurea**

textile Ridl. = **Ataenidia conferta**

velutinum Baker = **Megaphrynium velutinum**

villosum K. Schum. = **Sarcophrynium brachystachys** var. **brachystachys**

villosum Benth. = **S. villosum**

(PHYLLODES)

Phyllodes Lour. vs. *Stachyphrynium* K. Schum.; see Taxon 54: 833-834, 2005.

Phyllodes adenocarpa K. Schum. = **Megaphrynium macrostachyum**

baccata K. Schum. = **Sarcophrynium schweinfurthianum** var. **schweinfurthianum**

bisubulata K. Schum. = **S. bisubulatum**

brachystachys (Benth.) Kuntze 1891, K. Schum. 1892 = **S. brachystachys**

conferta (Benth.) Kuntze = **Ataenidia conferta**

flexuosa (Benth.) Kuntze = **Marantochloa cuspidata**

leiogonia K. Schum. = **Sarcophrynium prionogonium** var. **prionogonium**

macrophylla K. Schum. = **Megaphrynium macrostachyum**

macrostachya K. Schum. = **M. macrostachyum**

mannii (Benth.) Kuntze = **Marantochloa mannii**

mollis Kuntze = **Sarcophrynium villosum**

monophylla K. Schum. = **Marantochloa monophylla**

oxycarpa K. Schum. = **Megaphrynium macrostachyum**

prionogonia K. Schum. = **Sarcophrynium prionogonium**

textilis (Ridl.) T. Durand & Schinz = **Ataenidia conferta**

villosa (Benth.) K. Schum. = **Sarcophrynium villosum**

SARCOPHRYNIUM / *4*

Tropical African genus; plants with fleshy indehiscent fruits and seeds with mucilaginous mantlelike aril (Andersson, 1998: 290).

(**Sarcophrynium bisubulatum** (K. Schum.) K. Schum.); Bol. Soc. Brot. 11: 83-84, 1896; Fl. Trop. Afr. 7: 325, 1898; Engler, Pflanzenreich 4/48: 37, 1902.

bas.: *Phyllodes bisubulata* K. Schum.

syn.: *Phrynium bisubulatum* (K. Schum.) Baker

Herb at least 2 m tall; leaf petiole long, terete and callose in upper part; sheath long; blade oblong-cuspidate, 40-50 × 32-35 cm, glabrous, base rounded; inflorescence paniculate, 15 cm long, peduncle 5 cm long, ultimate branchlets c. 5 cm long, much thickened at nodes; bracts c. 15, ovate, acute, c. 1,5 cm long and wide,

SARCOPHRYNIUM BISUBULATUM

glabrous; flowers 2 to a bract, peduncle as long as bract or exserted, with 2 perfect and some rudimentary flowers; bracteols 1 or 2 ? (not stated), glandular; sepals free, glabrous, 3-4 mm long; petals 7-8 mm long, tube very short; outer staminodes 5 and 7 mm long, subulate; ovary glabrous, 3-gonous; fruit unknown.

Shady and humid valleys; 800 m alt.

Only known from the type, Sizenando Marques, s.n., s.d. (collected in NE Angola, 1884-1888).

NE Angola on the actual Zaire borders, between the Rivers Luachim/Luatschim and Quihunbo/Quilombo, between latitudes 7°-8°S, longitudes 20°-22°E. – Not mapped.

In addition, Loesener (in Mildbraed, Wiss. Ergebn. Deutsch. Zentral-Afrika-Exped. 1907-1908, 2, Bot.: 67, 1910) cites a collection n° 2844a, from NE Zaire (between Fort Beni and Irumu, at Pojo-Angalla, 0°50'Nx29°37'E, in an open place in forest, at 1100 m alt.) which would correspond with *S. bisubulatum* rather than *S. macrostachyum (= Megaphrynium macrostachyum),* in spite of the long distance between the collection sites.

Not cited by Figueiredo & Smith, Plants of Angola, 2008.

K. Schumann remarked that the habit of this plant resembles that of *Phyllodes macrophylla (= Megaphrynium macrostachyum),* but in other characters it does not correspond with any other African species, and that it is distinguished by its staminodes.

This plant keys out near *Megaphrynium macrostachyum* and may well be close to this species, if not identical.

S. brachystachys (Benth.) K. Schum.; Bull. Soc. Bot. Roy. Belg. 83: 29, 1950; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 67, 1997; Cable & Cheek, Pl. Mt Cameroon: 168, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 235, 2002; Cheek & al., Pl. Kupe…: 451, 2004; Cabezas & al. (2005): 181-182; Sosef & al., Check-list pl. vascul. Gabon: 266, 2006; Akoegninou & al., Fl. analyt. Bénin: 145, 2006; Lisowski, Fl. Rép. Guinée 1: 426, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 177, 2010; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 155, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 227, 2011; M. Renier, Flore du Kwango 1: 108, 1948. – Harris (l.c.) remarks that the specific epithet *"brachystachyum"* (used by Koechlin, Fl. Cameroun 4: 154, 1965, and other authors) is incorrect, as the epithet of the basionym *(brachystachys)* is a *noun.* – Icon.: Fl. Gabon 9: 149, 1964; Adam, Fl. descript. Mts Nimba 5: 1825-1827, 1981; Fragm. Florist. Geobot. 38/2: 422, 1993; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 889, 2006; Taxon 59: 1114, 2010 (detail).

bas.: *Maranta brachystachys* Benth.

syn.: *Phrynium brachystachys* (Benth.) Körnicke; *Phyllodes brachystachys* (Benth.) Kuntze 1891, K. Schum. 1892; *Thalia brachystachys* (Benth.) K. Koch; *Donax brachystachys* (Benth.) Roberty; *Phrynium molle* A. Chev.; *P. villosum* K. Schum. 1892, nom. illegit., non Benth. 1883 *(= Sarcophrynium villosum); Sarcophrynium strictifolium* Schnell – all of var. **brachystachys**.

Erect herb 0,5-1,5 m tall, unbranched; culms several, arising in groups from a rhizome, each with a *single terminal leaf;* petiole 0,3-1,5 m long, calloused part 4-6 cm long; blade ovate-elliptic, 20-35 × 10-17 cm, pustulate beneath, glabrous, with many closely parallel lateral nerves; *inflorescence sessile,* branched from the base, of cone-like spikes, 4-7 cm long, resembling a wheat ear; *bracts overlapping, distichous,* chaffy, c. 2 cm long; flowers pinkish white to pale orange; fruit round-bilobed, shiny red, smooth, glabrous, 1,5-1,8 cm Ø (pulp edible).

SARCOPHRYNIUM BRACHYSTACHYS

Rain-forest; damp swampy forest, riverine forest; secondary forest; 10-900 m alt. – Element of the tall herb formation *Marantochloo purpureae-Anubiadetum giganteae* association in Togo (Acta Bot. Gall. 158: 409-423, 2011).

Bioko/Fernando Poo.

Comprises 2 vars. Var. **puberulifolium** Koechlin, with lower surface of blade or midrib only hairy; widespread.

Leaves used as roof-thatch.

(**S. congolense** Loes.) in Mildbraed, Wiss. Ergebn. Deutsch. Zentral-Afrika-Exped. 1907-1908, 2, Bot.: 67-68, 1910.

Herb c. 1 m tall with large leaves; petiole terete, glabrous, calloused in upper part (c. 9,5 cm long); blade glabrous, ovate, to 35 × 19 cm, short acuminate, base rounded; sheath 12 cm long, glabrous; panicle c. 11,5 cm long, peduncle 2,3-2,8 cm long, racemes short-powdery-puberulous; bracts c. 1,5 cm long, pale yellow; sepals ± free ("sublibera"), 3-5 mm long; corolla tube yellow at tip, dark purplish at base, c. 2,5 mm long, lobes c. 9 mm long; outer staminodes unequal, subulate, 4 and 7 mm long; ovary glabrous; fruit unknown.

Tall forest.

Known only from the type collected in 1908 (Mildbraed 3163); from NE Zaire: Ituri, Lenda (1°05'Nx28°05'E). – Not mapped.

Said to be close to *S. bisubulatum* (with shorter corolla and smaller outer staminodes) and *S. macrostachyum (= Megaphrynium macrostachyum)* (with larger inflorescences, longer pedicels to the pairs of flowers, and shorter outer staminodes). – This plant may well be close to *Megaphrynium macrostachyum,* if not identical.

S. prionogonium (K. Schum.) K. Schum.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 68, 1997; Cable & Cheek, Pl. Mt Cameroon: 168, 1998; Sosef & al., Check-list pl. vascul. Gabon: 266, 2006; Figueiredo & Smith, Pl. Angola: 188, 2008; Lisowski, Fl. Rép. Guinée 1: 426, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 177, 2010. – Icon.: Bull. Soc. Roy. Bot. Belg. 83: 27, 1950; Adam, Fl. descript. Mts Nimba 5: 1828, 1981; Fragm. Florist. Geobot. 38/2: 424, 1993; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 884, 2006; Ann. Bot. 104: 49, 2009 (pollination).

bas.: *Phyllodes prionogonia* K. Schum.

syn.: *Phrynium prionogonium* (K. Schum.) Baker

Erect perennial rhizomatous herb 1-2,5 m tall, with c. 10 leaves in a clump around the main shoot; petiole to c. 2 m high, calloused part 5-9 cm long; blade broadly elliptic, 25->50 × 10-c. 20 cm, glabrous or puberulous; inflorescence branched, lax, paniculate, pedunculate; bracts not closely overlapping, 2,5-3 cm long; flowers whitish-yellowish or pale pink; fruit *round,* glabrous, smooth, 2 cm Ø, red, when *fresh* clearly *parallel-sided* and *plum-shaped* (not pear-shaped = *S. schweinfurthianum).*

Evergreen forest, rain-forest; secondary forest; road sides; river sides; 1-1000 m alt.

Comprises 3 vars.: – var. **prionogonium** [syn.: *Phrynium cerasiferum* A. Chev., nom. subnud., p.p.; *P. leiogonium* (K. Schum.) Baker; *Phyllodes leiogonia* K. Schum.; *Sarcophrynium leiogonium* (K. Schum.) K. Schum.], with leaves ± glabrous beneath; – var. **ivorense** Schnell, with sparse tuberculate hairs 1 mm long on leaves, densely villous inflorescence axes and long fruits; – var. **puberulifolium** Schnell [syn.: *Phrynium cerasiferum* A. Chev., p.p.], with leaves short-powdery-puberulous beneath (sometimes put into synonymy under var. **prionogonium**).

Near *S. schweinfurthianum.*

SARCOPHRYNIUM

S. schweinfurthianum (Kuntze) Milne-Redh.; Bull. Soc. Roy. Bot. Belg. 83: 30, 1950; Cable & Cheek, Pl. Mt Cameroon: 168, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 235-236, 2002; Cheek & al., Pl. Kupe…: 451, 2004; Cabezas & al. (2005): 182; Sosef & al., Check-list pl. vascul. Gabon: 266, 2006; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 177, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 227-228, 2011. – Icon.: Fl. Trop. E. Afr., Marant.: 3, 1952; Fl. Gabon 9: 149, 1964; Ley & Classen-Bockhoff (2010): 850 (flower).

syn.: *Donax schweinfurthiana* (Kuntze) K. Schum.; *Clinogyne schweinfurthiana* (Kuntze) K. Schum.

Erect rhizomatous herb 1-2 m tall, with leaves in tufts surrounding the leaf subtending the inflorescence; shoots c. 40 cm long; leaf petiole, 0,25-1,5 m long, calloused part 3-11 cm long; sheath pubescent; blade ovate-elliptic, 20-50 × 15 cm, glabrous, apex cuspidate, base cordate; inflorescence arising half-way up plant, branched, to 20 cm long; rachis zigzag, slender, glabrous, each *node* with *2-4-cymules;* bracts subtending cymules *fleshy*, boat-shaped, 3 cm long; flowers white with red patch in throat; fruit *pear-shaped* (see *S. prionogonium)*, resembling an avocado, c. 15 mm Ø, orange or bright scarlet, smooth.

Swamp forest on sand; clearings in forest; forest gallery; sometimes rather common in terra firma forest; 250-1140 m alt.

Bioko/Fernando Poo.

Comprises 2 vars.: – var. **schweinfurthianum** [syn.: *S. baccatum* (K. Schum.) K. Schum.; *Phyllodes baccata* K. Schum.; *Phrynium baccatum* (K. Schum.) Baker]; – var. **puberulifolium** Koechlin differing in having dense pubescence on lower surface of leaf blade, endemic in Cameroon.

Resembling *S. prionogonium:* best distinguishing character = shape of fruit (Harris, l.c.); length of bracts variable !

S. villosum (Benth.) K. Schum.; Cheek & al., Pl. Kupe…: 451, 2004 (Bakossi Mts); Sosef & al., Check-list pl. vascul. Gabon: 451, 2006.

bas.: *Phrynium villosum* Benth., non K. Schum. (= *Sarcophrynium brachystachys*).

syn.: *Phyllodes villosa* (Benth.) K. Schum.

Erect herb to 2 m tall; leaf petiole long; blade oblong-lanceolate, to 27 × 6 cm, shortly acuminate, with short pubescence beneath (tubercle-based hairs); *sheath densely villose;* panicle large, with *peduncle, rachis and flower pedicels very pubescent; bracts pubescent*, 2-3 cm long, *with a single 2-flowered cyme;* corolla pinkish red; fruit red.

Forest; river sides; 100-400 m alt. (Gabon), 1250-1500 m (Cameroon).

SYNONYMS:

Sarcophrynium adenocarpum (K. Schum.) K. Schum. = **Megaphrynium macrostachyum**

arnoldianum De Wild. = **M. macrostachyum**

baccatum (K. Schum.) K. Schum. = **Sarcophrynium schweinfurthianum** var. **schweinfurthianum**

leiogonium (K. Schum.) K. Schum. = **S. prionogonium** var. **prionogonium**

macrophyllum (K. Schum.) Hutch. = **Megaphrynium macrostachyum**

macrostachyum (K. Schum.) K. Schum. = **M. macrostachyum**

SARCOPHRYNIUM

oxycarpum (K. Schum.) K. Schum. = **M. macrostachyum**

spicatum K. Schum. = **M. macrostachyum**

strictifolium Schnell = **Sarcophrynium brachystachys**

velutinum K. Schum. = **Megaphrynium velutinum**

THALIA / *1*

Eight species have been recognized, all American but for one in Africa *(T. welwitschii* Ridl.). Andersson (1981), who made a careful morphometric analysis of the S. African and African plants, has shown that they are part of a single complex, although the African ones are slightly different in petal and aril features. In addition, the variation within Africa is much less than in America, and Andersson suggests that this is due to a relatively recent introduction into Africa. But Lock & Diniz (Fl. Zambes. 13/4: 143-144, 2010) point out that the species occurs both in the northern and southern parts of Africa with a marked disjunction between the two regions, and that it grows in "apparently natural habitats. If the species reached Africa relatively recently, this would seem more likely to have been through natural dispersal".

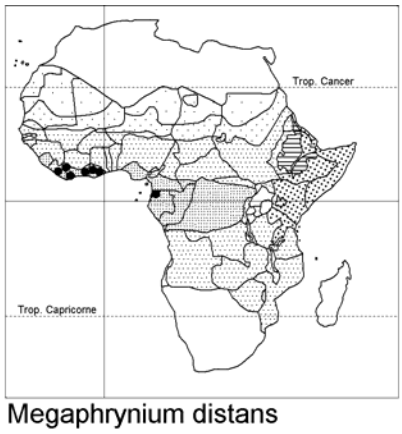
Andersson (1998: 292) cites "five to seven spp. [of *Thalia*], mainly in seasonally humid parts of S America, two spp. also in southern USA."

Thalia species are marsh plants. The flowers have 3 petaloid staminodes, and a 1-locular ovary; the fruit is capsular, 1-seeded.

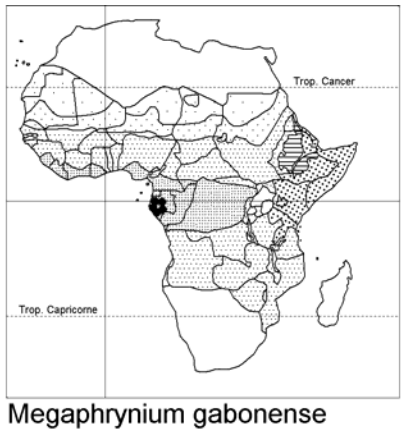
Thalia geniculata L.; Bull. Soc. Roy. Bot. Belg. 83: 25, 1950; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 69, 1997; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 236, 2002; Akoegninou & al., Fl. analyt. Bénin: 144-145, 2006; Sosef & al., Check-list pl. vascul. Gabon: 266, 2006; Figueiredo & Smith, Pl. Angola: 188, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 177, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 228, 2011; M. Renier, Flore du Kwango 1: 108, 1948. – Icon.: Fl. Gabon 9: 137, 1964; Fl. Cameroun 4: 141, 1965; Nord. J. Bot. 1: 49, 50, 1981; Berhaut, Fl. ill. Sénégal 9: 447, 1988 *(T. welwitschii);* Cook, Aquat. pl. book, ed. 2: 126, 1996; Fl. Eth. & Eritrea 6: 337, 1997; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 889, 2006; Lisowski, Fl. Rép. Guinée 2: fig. 507, 2009; Fl. Zambes. 13/4: 144, 2010; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 782, photo. 782, 2010; Taxon 59: 1113, 2010 (flower detail).

syn.: *T. caerulea* Ridl.; *T. welwitschii* Ridl.; *Maranta geniculata* (L.) Lam.; *Thalia erecta* Vellozo; *Maranta flexuosa* C. Presl; *Thalia altissima* Klotzsch, nom. inval.; *T. geniculata* var. *pubescens* Koernicke and var. *villosa* Koernicke; *T. divaricata* Chapman; *T. angustifolia* C. Wright ex Griseb.; *T. trichocalyx* Gagnep.; *T. dipetala* Gagnep.; *T. geniculata* fa. *rheumoides* Shuey; *T. schumanniana* De Wild.; *Maranta arundinacea* Billb. ex Beurl., nom. illegit.; *Renealmia erecta* (Vellozo) D. Dietr. *(Zingiberaceae); R. geniculata* (L.) D. Dietr.

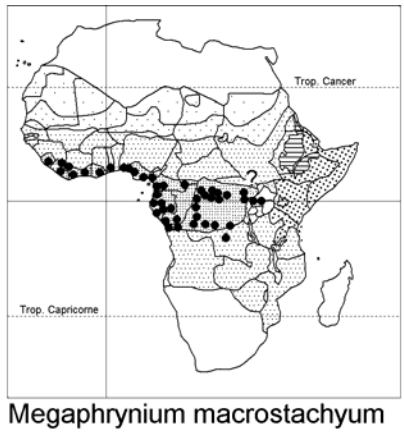
Rhizomatous herb 1-3 m tall; shoots tufted, unbranched, with a few sheaths and 2-3 petiolate leaves at base; blade ovate, symmetric, 19-63 × 4-26 cm, glabrous, gradually narrowing with cuspidate apex, base ± cordate; petiole >25 cm long, calloused part 0,3-1,5 cm; upper stem leaves epetiolate; *inflorescence much-branched*, lax, *panicle-like*, spreading, to c. 24 cm long, at first with overlapping glabrous to densely hirsute spathes, not persisting; spathes 11-22 cm long, often glabrous; petals pale mauve to purple, 3-13 mm long; staminodes (3), the outer petaloid, 1,5-2 cm long, mauve, the others firm and fleshy; fruit ellipsoid to ± round, c. 1 cm long, indehiscent.



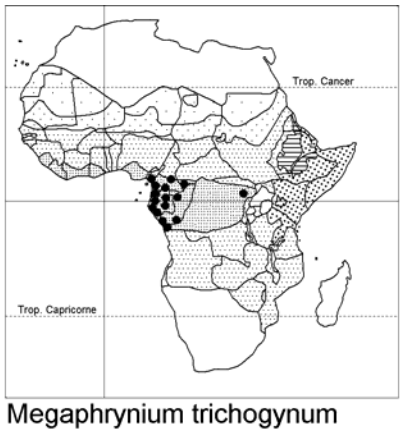
Megaphrynium distans



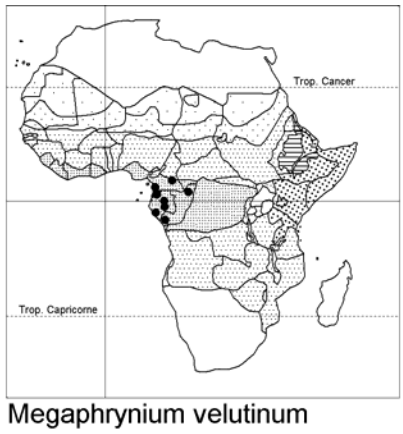
Megaphrynium gabonense



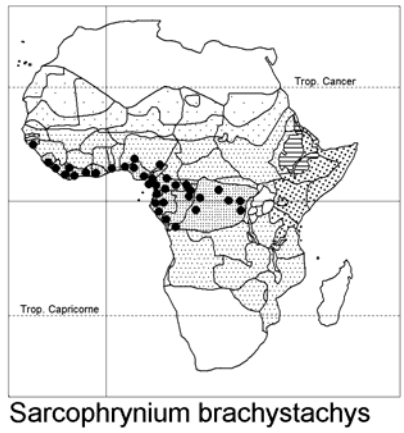
Megaphrynium macrostachyum



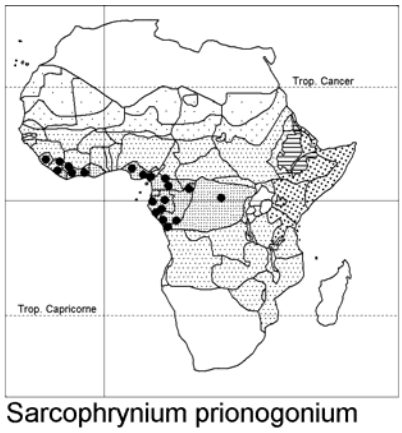
Megaphrynium trichogynum



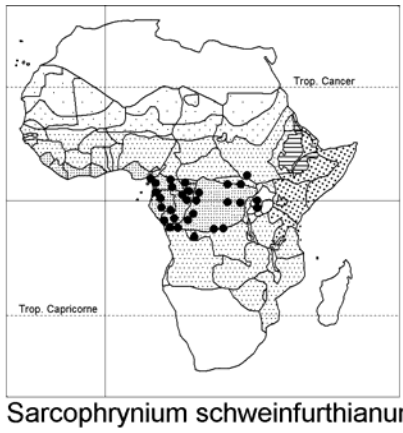
Megaphrynium velutinum



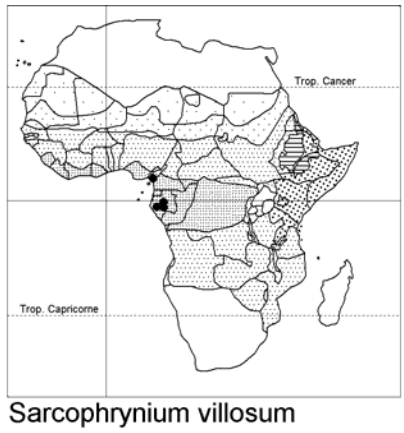
Sarcophrynium brachystachys



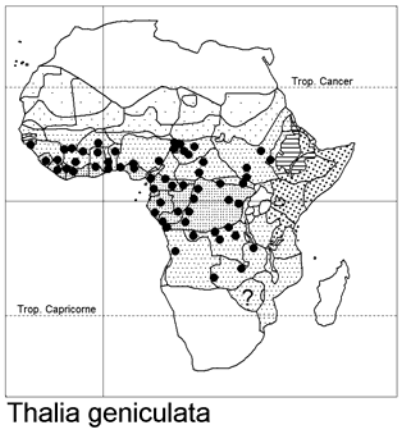
Sarcophrynium prionogonium



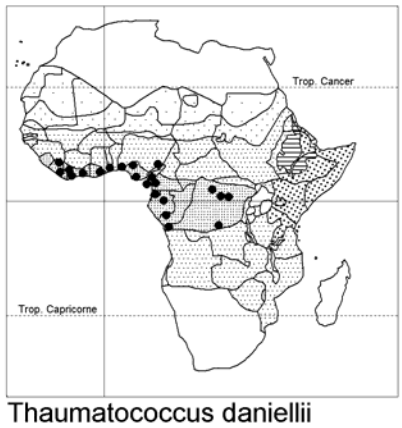
Sarcophrynium schweinfurthianum



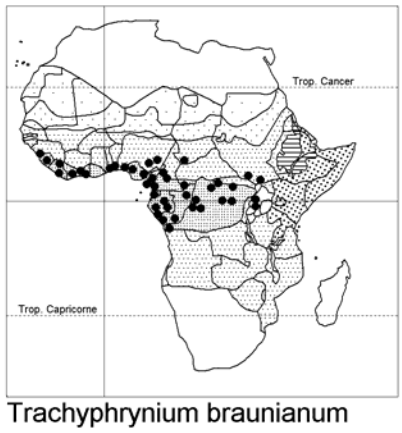
Sarcophrynium villosum



Thalia geniculata



Thaumatococcus daniellii



Trachyphrynium braunianum

THALIA GENICULATA

Swamps in open country and savannas; by lakes, rivers and channels; often very frequent; rice fields; streams; standing water; swampy hollow with *Ceratopteris cornuta;* clayey plain periodically flooded; sometimes in large stands; 6-600 m alt. – A possible weed of rice cultivation. – Stems and petioles are spongy in the lower part.

May occur in Equatorial Guinea (Cabezas & al., 2005: 182). Not yet reported from Fl. Trop. E. Africa- area, but may be expected in W Tanzania and Uganda. In Zimbabwe ?

Americas: from S Floria and C Mexico through to Argentina and S Ecuador; absent from the larger part of the Amazon Basin and the C Brasilian Plateau.

"A very beautiful plant" (Welwitsch, 1899). Decorative plant for ponds ("espèce convenant, pour l'ornementation de pièces d'eau ensoleillées"; Léonard & al., 1950). Invasive.

SYNONYMS:

See above under **Thalia geniculata**.

Thalia brachystachys (Benth.) K. Koch = **Sarcophrynium**

THAUMATOCOCCUS / *1*

Monotypic African genus.

WOJCIECH, S. & al. (2005). Implications of local knowledge of the ecology of a wild super sweetener for its domestication and commercialization in west and central Africa. *Econ. Bot.* 59: 231-243 [with map].

Thaumatococcus daniellii (Benn.) Benth.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 70-71, 1997; Cable & Cheek, Pl. Mt Cameroon: 168-169, 1998; Cheek & al., Pl. Kupe…: 451, 2004; Cabezas & al. (2005): 182; Sosef & al., Check-list pl. vascul. Gabon: 266, 2006; Figueiredo & Smith, Pl. Angola: 188, 2008; Lisowski, Fl. Rép. Guinée 1: 426, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 177, 2010. – Icon.: Engler, Pflanzenreich 4/48: 40, 1902; Ic. Pl. Afr. 4: N° 95, 1957; Fl. Gabon 9: 143, 1964; F. Busson, Pl. aliment. Ouest afric.: 499, 1965; Adam, Fl. descript. Mts Nimba 5: 1829-1830, 1981; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 889, 2006; Ann. Bot. 104: 47, 2009 (flower); Taxon 59: 1114, 2010; Ley & Classen-Bockhoff (2010): 850.

bas.: *Phrynium daniellii* Benn.

syn.: *Monostiche daniellii* (Benn.) Horan.; *Donax daniellii* (Benn.) Roberty

Erect herb 2-3 m tall; rhizome slender, single or forked, a single leaf arising from each node; forming extensive dense colonies; leaf petiole 2-3 m long, calloused part c. 10 cm; blade ovate-elliptic, 30-60 × 20-40 cm, papery; *inflorescence* a simple or sparsely branched synflorescence *emerging at ground level,* 10-20 cm long, rough with scars of fallen flowers; flowers white-lilac or violet with short corolla tube; outer staminodes absent; fruit indehiscent, 3-5 cm Ø, crimson, *3-winged,* at or below ground-level.

In shade in secondary forests and scrub on sandy soils; road sides; waste places; overstorey in cocoa or cola nut, or other perennial plantation crops; forest pioneer; primary forest; ? swampy localities (good drainage is constantly noted by other recent authors); loamy soil; the distribution suggests an association with ferralsols (Oxisols); more details in Wojciech & al.: l.c.; 200-1200 m alt.

Bioko/Fernando Poo; São Tomé, Príncipe. Not in Senegal, Uganda (old records doubtful). Introduced in Sierra Leone. Seems also introduced in SE Asia.

Comprises 2 vars.

The fruit has a soft jelly-like aril around the seeds, *very sweet* ("nature's sweetest substance"), used as food additive (traded).

TRACHYPHRYNIUM / *1*

Monotypic African genus.

Trachyphrynium braunianum (K. Schum.) Baker; Bull. Soc. Roy. Bot. Belg. 83: 11, 1950; Burkill, Useful pl. W. Trop. Afr., ed. 2, 4: 71-72, 1997; Cable & Cheek, Pl. Mt Cameroon: 169, 1998; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 236, 2002; Sosef & al., Check-list pl. vascul. Gabon: 266, 2006; Cabezas & al. (2005): 182-183; Figueiredo & Smith, Pl. Angola: 188, 2008; Lisowski, Fl. Rép. Guinée 1: 426, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 177, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 228, 2011. – Icon.: Engler, Pflanzenreich 4/48: 43, 1902; Fl. Trop. E. Afr., Marant.: 3, 1952 (partial); Fl. Gabon 9: 99, 1964; L. White & Abernethy, Guide vég. Réserve Lopé, Gabon: 197, 1996; Hawthorne & Jongkind, Woody pl. west. Afr. for.: 884, 887, 2006; Steentoft, Flowering plants West Africa: 276, 2008; Taxon 59: 1114, 2010 (flower detail).

bas.: *Hybophrynium braunianum* K. Schum. (note: var. *violaceum* De Wild. & T. Durand = *Hypselodelphys poggeana).*

syn.: *Bamburanta arnoldiana* L. Linden

Climbing herb with bamboo-like shoots 2-7,5 m tall, forming thickets; shoots erect or straggling, simple below, clothed with sheathing cataphylls to 21 cm long, branched and leafy above; leaves ± distichous; blade ± sessile, ovate-oblong, slightly asymmetric, 5,5-19 × 2-10 cm, glabrous, base cordate, apex acuminate; inflorescences pendulous, terminal, to 20 cm long, simple or slightly branched, shorter than leaves; corolla white, sometimes tinged pink or purple; fruit dehiscent, deeply 3-lobed, lobes rounded, densely muricate, orange, 1,3 × 1,5 cm; seeds glossy black with white basal aril (edible).

Wet places in rain-forest; forest gallery; regrowths; near water; common; secondary forest; seasonally flooded forest; 11-1170 m alt.

Bioko/Fernando Poo.

SYNONYMS:

Trachyphrynium braunianum sensu Fl. W. Trop. Afr., ed. 2, 3/1, p.p. = **Hypselodelphys triangularis**

danckelmanianum J. Braun & K. Schum. = **Haumania danckelmaniana**

hirsutum Loes. = **Hypselodelphys hirsuta**

liebrechtsianum De Wild. & T. Durand = **Haumania liebrechtsiana**

muricatum Pierre = **Hypselodelphys violacea**

poggeanum K. Schum. = **H. poggeana**

preussianum K. Schum. = **H. violacea**

scandens Louis & Mullend. = **H. scandens**

spinulosum Pierre = **Haumania danckelmaniana**

violaceum Ridl. = **Hypselodelphys violacea**

zenkerianum K. Schum. = **H. zenkeriana**

[LILIACEAE]

Fifteen genera and 850 species of mostly temperate bulbous plants (Taxon 58: 1359).

PERUZZI, L. & C. E. JARVIS (2009). Typification of Linnaean names in Liliaceae. Taxon 58: 1359-1365.

[LILIUM]

About 100 species in the Northern Hemisphere, abundant in E Asia. One species naturalized in C, E and SE Africa.

[**Lilium formosanum** (Baker) Wallace] – Icon.: Fl. Trop. E. Afr., Liliaceae: 2, 2005; Fl. Zambes. 12/2 : 196, 2009.

syn.: *L. zairei* Mynett & Mackiewicz, nom. inval., English description only (Acta Hort. 177: 667, 1986).

Single-stemmed erect plant 0,8-1,7 m tall; bulb multi-scaled, subglobose, lacking a tunic, 2-4 cm wide; stem often purplish; leaves linear, 4-18 × 0,2-1 cm; flowers 1-3, horizontal, white, bronze-red coloured on the reverse, funnel-shaped, scented; tepals forming a tube, in apical third reflexed; stamens and stigma (3-lobed) exserted from tube; capsule erect.

Semi-disturbed habitats (in and around plantations) among shrubs and grasses, roadsides; (500-)1000-2000 m alt.

Endemic to Taiwan; naturalized in parts of Africa, Australia (noxious weed) and the Neotropics. – The Zaire collection *(L. zairei)* was made on the border Zaire/Burundi, Virunga mountain range in 1983 (seeds).

ALLIACEAE / *3* g. / *11* spp.

incl. *Agapanthus (Agapanthaceae).*

About 20 genera and some 650 species widely distributed in temperate and tropical regions. Most genera in S. America.

Often included in a broad *Liliaceae*, or occasionally included in *Amaryllidaceae* St. Hil. The name *Alliaceae* DC. has priority (by 8 years) over *Amaryllidaceae.* Superconservation of *Amaryllidaceae* against *Alliaceae* has been proposed (Taxon 59: 1271, 2010). It is recommended to use *Amaryllidaceae* if the two groups are combined.

Alliaceae are devoid of alkaloids common in related families, e.g., *Amaryllidaceae*, but many have the characteristic alliaceous odour (lacking in *Agapanthus);* and certain species of *Allium* have a lachrymatory factor (all sulphur compounds).

Many species are of economic importance. The cultivated *Allium* species are used as vegetables or for flavouring, or as ornamentals like species of the other genera figuring below.

RAHN, K. (1998). Alliaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 3. Flowering plants*: *Monocotyledons, Lilianae (except Orchidaceae):* 70-78. Springer, Berlin, etc.

One species in our area known only from the type locality *(Tulbaghia macrocarpa).* No seeds seen in *T. friesii.*

AGAPANTHUS / *1*

Variously placed in *Liliaceae*, *Amaryllidaceae* and *Alliaceae*. Recently recognized as being separate (Kativu in Fl. Zambes. 13/1: 95, 2008), placed in *Agapanthaceae.*

Genus of 6 species endemic in southern Africa, ranging from the Cape Peninsula N-wards to the Limpopo River; only one reaching SW Mozambique (map in *Pl. Syst. Evol*. 241: 120, 2003). These plants are gaining more and more horticultural interest, and numerous cultivars exist, derived principally from the deciduous *A. campanulatus* F. M. Leight. and the evergreen *A. praecox* Willd.

Very little morphological variation exists in the genus; the delimitation of species is mainly based on flower type and whether they are deciduous or not. The species also hybridize freely (Muzila & Spies in Bothalia 35: 109, 2005).

AGAPANTHUS

ALLEMAND, P. & al. (2001). *L'agapanthe. Botanique, physiologie, pathologie et culture pour la fleur coupée*. Association Nationale des Structures d'Expérimentation et de Démonstration en Horticulture & Institut National de la Recherche Agronomique (INRA), Paris. 80 pp.

DIJK, H. VAN (2004). *Agapanthus for gardeners.* Timber Press, Portland/Oregon & Cambridge/UK. 96 pp.

DUNCAN, G. D. (2005). Agapanthaceae: Synonymy in Agapanthus. *Bothalia* 35: 87-89.

KUBITZKI, K. (1998). Agapanthaceae. *In:* KUBITZKI, K., o.c.: 58-60.

MOULLER, J.-M. (2010). Le genre Agapanthus. *Hommes & Plantes* 75: 4-9.

MUZILA, M. & J. J. SPIES (2005). Agapanthaceae: Chromosome counts in the genus Agapanthus. *Bothalia* 35: 109-110.

SNOEIJER, W. (1998). *Agapanthus: A review.* Published by the author, Gouda. 253 pp.

SNOEIJER, W. (2004). *Agapanthus: A revision of the genus.* Royal Boskoop Horticultural Society, published by Timber Press, Inc., Portland/Oregon & Cambridge/UK. 320 pp.

ZONNEVELD, B. J. M. & G. D. DUNCAN (2003). Taxonomic implications of genome size and pollen colour and vitality for species of Agapanthus L'Héritier (Agapanthaceae). *Pl. Syst. Evol*. 241: 115-123.

Agapanthus inapertus Beauverd subsp. **intermedius** F. M. Leight.; Duncan (2005): 88-89. – Icon.: Fl. Pl. Afr. 52: pl. 2062, 1993 (sub *A. dyeri);* Fl. Zambes. 13/1: 96, 2008.

syn.: *A. dyeri* F. M. Leight.

Perennial deciduous summer-growing geophyte with thick rhizome; leaves 5-11 per shoot, linear, to 48 × 1,5 cm; peduncle 76 cm long, stout, with 2 deciduous spatheate valves at tip; inflorescence of contracted cymes, umbellate, moderately dense; pedicels c. 4 cm long; perianth deep bright blue, c. 3 cm long, segments somewhat spreading; stamens and style as long as perianth.

Open grassland in seasonally wet places; c. 600 m alt.

S. Africa, Swaziland (widespread).

A. africanus (L.) Hoffmans. is cited by Figueiredo & Smith, Plants of Angola: 170, 2008, based on the specimen Barbosa 12201 recorded at LISC.

ALLIUM / *2*

Probably the largest genus of petaloid monocotyledons excluding orchids; characterised by the presence of bulbs enclosed in membranous tunics and free or almost free tepals. Taxonomically difficult, there is disagreement on taxonomic characters for species boundaries, and proliferation of SYNONYMS. The taxonomic history involves 1800 specific epithets, often based on inadequate or incomplete specimens; at least half of these names are considered to be SYNONYMS. Recent classifications accepted c. 500-600 species, or c. 550, or 600-700 species, or even 800 species (Choi & al., Bot. J. Linn. Soc. 167: 153-154, 2011; Demirelma & Uysal in Nord. J. Bot. 25: 315, 2007).

Naturally distributed over the N Hemisphere, with the greatest diversity in SW & C Asia and the Mediterranean region, with a smaller secondary area of diversification in N. America.

Several species are economically important, cultivated for food or ornamental purposes. African floras or checklists enumerate such as onions, garlic, leeks, chives.

BLOCK, E. (2010). *Garlic and other Alliums: The lore and the science.* The Royal Society of Chemistry, Cambridge/UK. XX + 454 pp.

DAVIES, D. (1992). *Alliums: The ornamental onions.* B. T. Batsford Ltd, London. 168 pp.

FRIESEN, N. & al. (2006). Phylogeny and new intrageneric classification of Allium (Alliaceae) based on nuclear ribosomal DNA ITS sequences. *Aliso* 22: 372-395.

FRITSCH, R. M. (1996). Neue Ergebnisse zur Taxonomie und Evolution von Allium L. *in:* FRITSCH, R. & K. HAMMER, eds., *Evolution und Taxonomie von pflanzengenetischen Ressourcen – Festschrift für PETER HANELT –* Tagungsband eines Internationalen Festkolloquiums anlässlich des 65. Geburtstages von Dr. Peter Hanelt am 5. und 6. Dezember 1995 in Gatersleben im Institut für Pflanzengenetik und Kulturpflanzenforschung: 19-46. Informationszentrum für Genetische Ressourcen (IGR) & Zentralstelle für Agrardokumentation und -information (ZADI), Bonn.

FRITSCH, R. M. (2002). Taxonomy of the genus Allium L.: Contributions from IPK Gatersleben. *Herbertia* 56: 19-50.

GREGORY, M. & al. (1998). *Nomenclator Alliorum: Allium names and* SYNONYMS *– a world guide.* The Trustees, Royal Botanic Gardens, Kew. 83 pp.

MATTHEW, B. (1996). *A review of Allium sect. Allium.* The Trustees, Royal Botanic Gardens, Kew. IX + 176 pp.

QIN-QIN LI & al. (2010). Phylogeny and biogeography of Allium (Amaryllidaceae: Allieae) based on nuclear ribosomal internal transcribed spacer and chloroplast rps16 sequences, focusing on the inclusion of species endemic to China. *Ann. Bot.* 106: 709-733.

Allium alibile Steud. ex A. Rich.; De Wilde-Duyfjes, Revision gen. Allium in Africa: 72, 1976; Mathew (1996): 93-94; Gregory & al. (1998): 5; Nordal & al. in Biol. Skr. 54: 254-255, 2001 [map]; Sebsebe Demissew & al., Flow. Eth. & Eritrea, Aloes & other lilies: 129, 2003; idem, ed. 2: 209, 2010. – Icon.: Fl. Eth. & Eritrea 6: 155, 1997; Chaudhari, Fl. Kingd. Saudi Arabia ill. 3: 140, 2001.

syn.: *A. asirense* B. Mathew (fide Chaudhary, o.c.).

Herb with strong smell of garlic when crushed; bulb globose to oblong, corm-like, 0,5-1,5 cm Ø; coat papery, removed as a single unit; new bulb produced *below the old current flowering bulb;* bulblets few, globose, sessile at base of flowering bulb; leaves 2-5, in 2 ranks, glabrous, sheaths enclosing the lower 1/3 of inflorescence stalk; blade *flat*, *smooth;* inflorescence stalk slender, 30-60 cm tall; spathe single, 2-4 cm long, opening on one side, soon falling off, leaving a *conspicuous ring* of scarious bracts around flower bases; umbel dense, round; flowers white flushed pale purple with dark green mid-veins, segments 3,5-5 mm long; *anthers longer than perianth.*

Dry *Acacia* open bushland on light gypsum soil with a rich herb flora; grassland; rocky grassy slopes often among *Juniperus;* c. 1600 m alt.

? Sudan, Jebel Marra; Saudi Arabia.

Near *A. ampeloprasum* L.; "it is highly unlikely that this is an escape from cultivation as claimed by De Wilde-Duyfjes (1976)" (Fl. Eth., l.c.).

A. subhirsutum L. subsp. **spathaceum** (Steud. ex A. Rich.) Duyfjes; Gregory & al. (1998): [54-]55; Nordal & al. (2001): 245-255 [map]; Sebsebe Demissew & al. (2003): 128-129. – Icon.: De Wilde-Duyfjes, o.c.: 128; Thulin, Fl. Somalia 4: 57, 1995; Fl. Eth. & Eritrea 6: 153, 1997; Audru & al., Plantes vascul. Rép. Djibouti 2/2: 794, 1994; Sebsebe Demissew & Nordal, Aloes & lilies of Ethiopia & Eritrea, ed. 2: 209, 2010; Puff & Sileshi, Pl. Simen: 225, 2005.

syn.: *A. subhirsutum* var. *spathaceum* (Steud. ex A. Rich.) Regel

Similar to *A. alibile*, but: – *leaves hairy* at least on margins; – leaf sheaths 1,5-14 cm long, mostly below ground; – flower umbel *without bracteoles; – anthers shorter* than tepals.

Uncut grassy meadow; rocky outcrops; c. 1500-3500 m alt.

De Wilde-Duyfjes (1976) recognised 2 further subspecies of *A. subhirsutum*, viz. subsp. **subhirsutum**, and subsp. **subvillosum** (Salzm. ex Schult. & Schult. f.) Duyfjes (bas.: *A. subvillosum* Salzm. ex Schult. & Schult f.), based on the outer covering

of the bulb, length of stamens relative to tepals, and geographic distribution. Subsp. **subhirsutum** occurs in S Europe, N Africa, Middle East. Subsp. **subvillosum** occurs in the Canary Isl., N Africa,

S Spain, Portugal, Mallorca, Sicily; subsp. *album* sensu Maire & Weiller, and *A. album* sensu auct. afric. sept., non Santi are SYNONYMS of subsp. *subvillosum.* – For SYNONYMS, see Gregory & al. (1998): 54-55.

Allium spathaceum Steud. ex A. Rich. is considered to be a good species in World Checklist of selected plant families, Royal Botanic Gardens, Kew.

SYNONYMS (see also above under the species):

Allium borbonicum Regel = **Nothoscordum gracile**

fragrans Vent. = **N. gracile**

gracile Aiton = **N. gracile**

inodorum sensu Ker-Gawler in Bot. Mag. 28: pl. 1129, 1808, non Aiton = **N. gracile**

[NOTHOSCORDUM]

Some 20 species in S. America; in N. America: one species *(B. bivalve)* extending to Canada. Plants without alliaceous odour.

RAHN, K. (1998). See above under **Alliaceae**.

STEARN, W. T. (1986). *Nothoscordum gracile*, the correct name of N. fragrans and the N. inodorum of authors (Alliaceae). *Taxon* 35: 335-338.

[**Nothoscordum gracile** (Aiton) W. T. Stearn]; Fl. Zambes. 13/1: 85, 2008 *(N. inodorum).* – Icon.: Redouté, Liliac., 2: pl. 68, 1804 (*Allium fragrans*); Coste, Fl. France 3: 342, 1905 (idem); Ker Gawler in Bot. Mag. 28: pl. 1129, 1808 *(Allium inodorum);* Taxon 35: 336, 1986 *(Allium gracile);* Fl. Trop. E. Afr., Alliaceae: 7, 2003 *(Nothoscordum inodorum).*

bas.: *Allium gracile* Aiton

syn.: *A. fragrans* Vent.; *A. inodorum* auct., non Aiton; *A. borbonicum* Regel; *Maligia gracilis* (Aiton) Rafin.; *Nothoscordum fragrans* (Vent.) Kunth; *N. inodorum* sensu auctt., non (Aiton) G. Nicholson, e.g. sensu Fl. Trop. E. Afr., Alliaceae: 7, 2003, Fl. Zambes. 13/1: 95, 2008; *N. bivalve* (L.) Britton var. *fragrans (*Vent.) Kuntze. For SYNONYMS in other genera, see World checklist of selected families, Royal Botanic Gardens, Kew.

Perennial herb 20-85 cm tall; bulb c. 1-2,5 cm Ø, with bulbils around the base; leaves in rosette, linear, glaucous, 8-50 × 0,5-c. 1 cm; scape 11-76 cm long; inflorescence lax, umbellate; *bracts 2, overlapping at base,* triangular, acuminate, 1-3 cm long; flowers 12-15, on unequal pedicels 1-7 cm long; tepals 7-15 mm long, 4 mm wide, white, greenish-purple in bud, midrib purplish; stamens included in corolla.

Gardens, parks, along roads; disturbed ground; often near houses; naturalised weed in E Africa (1000-2150 m alt.); S. Africa; Madagascar; SW Europe. Spread from nurseries.

Resembling an *Allium*, but distinguished by the overlapping bracts and lack of pungent smell.

The basionym of *Nothoscordum inodorum* (Aiton) G. Nicholson is conspecific with **Allium neapolitanum** Cyrillo (1788); syn.: *Allium inodorum* Aiton.

(OMENTARIA)

Omentaria acutiloba (Harv.) Kuntze = **Tulbaghia acutiloba**

aequinoctialis (Welw. ex Baker) Kuntze = **T. aequinoctialis**

TULBAGHIA / *8*

Genus of 22 species, mainly in S. Africa. Geophytes with usually a strong, very persistent garlicky smell. Perianth segments united into a tube for c. half the length, bearing 3 or more free scales or a fleshy tubular corona. Important in indigenous folk-medicine (S. Africa).

KATIVU, S. (2002). Alliaceae of the Flora Zambesiaca area. *Kirkia* 18: 72-76.

VOSA, C. G. (2007). The annoted bibliography (1966-2006) of the genus Tulbaghia. *Caryologia* 60: 69-72 [with key].

VOSA, C. G. (2009). An updated and illustrated taxonomic synopsis of the genus Tulbaghia L. (Alliaceae). *Herbertia* 63: 208-219.

Tulbaghia acutiloba Harv.; Vosa (2007): 70, and (2009): 211. – Icon.: Ann. Bot. (Roma) 34: 89, 92, 1975 [1977]; Plantsman 15: 100, 1993; Fl. Pl. Afr. 57: pl. 2164, 2001.

syn.: *Omentaria acutiloba* (Harv.) Kuntze

Bulb on a rhizomatous base, 20-30 × 10-20 mm; leaves lanceolate-acute, 5-25 cm × 3-8 mm; scape 15-30 cm long; umbel 3-6-flowered; pedicels 1-4 cm long; flowers pendulous; perianth tube urceolate, green, 8 mm long, 4 mm broad; segments 4-5 mm long, 1-1,5 mm wide, green, in 2 whorls, usually *recurved;* corona 1,5-2 mm long, 3-crenate, orange or red-brown.

Begins to flower after veld fires; often occurs as widely scattered single plants; dry grassland; rocky areas.

E S. Africa, Botswana, Swaziland, Lesotho.

Not in Fl. Zambes. 13/1, 2008.

"Frequently a 'hopeless' species from the point of herbarium identification. The distinctive appearance of the flowers in living material is usually completely obscured on drying" (Burbidge in Notes Roy. Bot. Gard. Edinb. 36: 96, 1978).

T. aequinoctialis Welw. ex Baker; Figueiredo & Smith, Pl. Angola: 170, 2008; Bothalia 39: 191, 2009 (Baum; Kunene-Sambesi Exp.; subsp. **monantha**); Fl. Zambes. 13/1: 92, 2008.

syn.: *Omentaria aequinoctialis* (Welw. ex Baker) Kuntze

Rootstock a corm 3 cm long; leaves filiform, 10-15 cm long; scape 15-20 cm long; umbel 4-6-flowered; pedicels 1-2 cm long; perianth tube cylindrical, 4-5 × 2 mm, *greenish* yellow; segments lanceolate, 4-5 × 1 mm, acute; corona 1 mm long, irregularly 3-lobed, or crenate.

Rather damp shady places, meadows and thickets. Habitat recalling that of a *Leucojum*; 700-1200 m alt.

Comprises 2 subspp.: – subsp. **aequinoctialis** with 3-lobed corona; – subsp. **monantha** (Engl. & Gilg) R. B. Burb. with crenate corona.

Kativu in Fl. Zambes., l.c., remarks that the type of *T. aequinoctialis* is sterile, with a bulb and 2 grasslike leaves. Other specimens from the type locality closely approach *T. cameronii* in inflorescence characters. *T. aequinoctialis* might be a variant of *T. cameronii.*

T. alliacea L. f.; Ann. Bot. (Roma) 34: 69, 70, 1975 [1977]; Vosa (2007): 71, and (2009): 210; Fl. Zambes. 13/1: 92-93, 2008. – Icon.: Plantsman 15/2: 94, 1993.

syn.: Enum. 3: 42, 1995; *T. narcissifolia* (!) Salisb.; *T. affinis* Link; *T. cernua* [Avé-Lall. ex] Fisch., C. A. Mey. & Avé-Lall.; ? *T. campanulata* N. E. Br.

Rhizomatous herb, 4-50 cm tall; rhizome swollen, to 10 cm long; leaves linear, 9-25 × *0,3-2 cm,* glaucous; scape 15-30 cm long; umbel 3-10-flowered, flowers opening in succession; pedicels to 2 cm long; perianth tube 6 × 3-4 mm, green; segments lanceolate, 2-4 × 1,5-2 mm, in 2 whorls, arising from base of corona; corona 2-3 mm long, *obscurely 3-6-crenate, orange* or *brown;* capsule *obcordate,* to *8 mm long;* seeds to *2 mm long.*

In a variety of habitats, from swampy places to barren ground; woodland to grassland; 1000-2000 m alt.

Variable species with complex variation, particularly at lower altitudes.

S. Africa, Botswana, Swaziland.

Near *T. cameronii.*

T. cameronii Baker – Icon.: Ann. Bot. (Roma) 34: 109, 110, 1975 [1977]; Fl. Trop. E. Afr., Alliaceae: 3, 2003; Fl. Zambes. 13/1: 91, 2008.

syn.: *T. hockii* De Wild.

Rootstock a corm with a rhizomatous base, 1,5-2,5 cm Ø; leaves linear(-lanceolate), 10-37 × 0,2-1 cm, apex rounded, base sheathing and persistent, glabrous; scapes 1-2 per plant, 8-32 cm long; umbel 6-12-flowered; pedicels spreading, 18-44 mm long; flowers scented, bracts pinkish, unequal; perianth greenish-white to purplish; tube cylindrical, 5-8 × 2,5-3,5 mm; lobes lanceolate-elliptic, 5-10 × 1-2 mm, apex acute, with median nerve tinged purple or green; corona cylindrical-campanulate, *distinctly 3-lobed,* often deeply so, bright yellow to orange, *2-5 mm long;* capsule *oblong, c. 15 mm long,* 3-lobed; seeds *3-4 mm long.*

Brachystegia woodland; wooded grassland; *Combretum* thicket; burnt grassland; sandy soil; 1000-1550(-2400) m alt.

Very variable in vegetative characters, with broad-leaved and narrow-leaved plants (but no geographical disjunctions).

Namibia. – Not in Cameroon: confusion with the collector V. L. Cameron (travels in Kinshasa or Tanzania).

Near *T. alliacea*. *T. aequinoctialis* is perhaps a synonym (see above under this species).

T. friesii Suess.; Fl. Zambes. 13/1: 94, 2008. – Icon.: Proceed. Trans. Rhodes. Sci. Ass. 43: fig. 15, 1951 !

syn.: Enum. 3: 42, 1995.

Slender herb 18-30 cm tall with a small corm, 2-2,5 × 1-1,5 cm; leaves filiform, 2-9 × *0,1-0,2 cm;* scape 10-25 cm long; umbel 2-6-flowered; perianth tube cylindrical, greenish-white, 4-6 mm long; segments white sometimes tinged with purple, 4-4,5 × 1,5-2 mm; corona *entire, slightly crenate, green, 1,5-2 mm long;* capsule subglobose, 5 mm long; seeds unknown.

Steep rocky grassland; also damp grassland; 1500-2100 m alt.

A high altitude variant of *T. alliacea* ?

Vosa (in Ann. Bot. Roma 34, 1975/1977) places *T. friesii* under *T. leucantha;* however, the two species are morphologically distinct and geographically separated (fide Fl. Zamb. 13/1: 94, 2008).

T. leucantha Baker; Kirkia 18: 74-75, 2002; Fl. Zambes. 13/1: 93, 2008. – Icon.: Ann. Bot. (Roma) 34: 97, 98, 1975 [1977]; Plantsman 15: 98, 99, 1993.

syn.: *T. dieterlenii* E. Phillips

Herb 8-28 cm tall arising from fasciculated corms 6-12 mm Ø, on a rhizomatous base; leaves linear, 13-38 × 4-6 cm; peduncle slender, 10-25 cm long; inflorescence 4-10-flowered, pedicels 10-20 mm long; perianth tube whitish-green, 6-7 mm long; segments greenish-white, with white edges, 5-6 mm long, 1,5 mm wide at base, *strongly reflexed;* corona fleshy, 4-6 mm long, not exserted, *orange-crimson;* capsule obcordate, 1 cm long.

TULBAGHIA LEUCANTHA

Grassland; open woodland; sandy soils; 1000-1400 m alt.

Botswana, S. Africa, Swaziland.

Seeds angled, very similar to those of *T. alliaceae*.

In Fl. Trop. E. Afr., Alliaceae, Smith & Stansbie remark on the possible presence of *T. leucantha* in S Tanzania, Ufipa Distr., and an eventual specimen collected in Malawi. This is not confirmed by Kativu in Fl. Zambes., l.c. The ranges of *T. leucantha* and *T. cameronii* overlap in the southern part of their ranges, and there seems to be intermediates between the two.

T. macrocarpa Vosa; Fl. Zambes. 13/1: 94, 2008; Vosa (2007): 70.

Herb arising from a corm, 2,5-3,5 cm Ø; leaves linear, *keeled below*, 30-50 × 0,5-1 cm; scape 30-55 cm long; pedicels 2-3 cm long; inflorescence 5-10-flowered, 1-1,2 cm long; perianth segments lanceolate, 4-5 mm long, green, strongly reflexed; corona *fleshy, laterally expanded*, 4-5 mm long, *shallowly trilobate at apex*, forming a Y-shaped slit, reddish to greenish-brown; capsule *18-20 mm long;* seeds unknown ?

Open miombo woodland; red loamy soils among rocks; 1300 m alt.

Near *T. dregeana* Kunth.

Known only from the type specimen, Vosa 132, which is a cultivated plant from seeds of Biegel 2859 collected in 1969 in an undeveloped part of the National Botanic Garden, Harare (Salisbury), Zimbabwe.

"This new species represents one of the *Tulbaghia* types which are usually labelled 'alliacea' in herbarium collections. It is however very distinct…" [Vosa in Ann. Bot. (Roma) 34: 86, 1975/1977].

T. rhodesica R. E. Fr. 1916, non Weim. 1937 *(= T. friesii);* Fl. Trop. E. Afr., Alliaceae: 4, 2003; Vosa (2007): 70; Fl. Zambes. 13/1: 93, 2008. – Icon.: R. E. Fries, Wiss. Ergebn. Schwed. Rhod.-Kongo Exp. 1: 228, 1916; Fl. Pl. S. Afr. 35: pl. 1383, 1962; Vosa, Ann. Bot. (Roma) 34: 111, 1975 [1977]; Herbertia 63: 218, 2009.

Herb with bulb-like rootstock arising from a rhizomatous base; leaves linear, 10-20 × 0,4 cm; peduncle to 20 cm long; inflorescence 6-10-flowered, usually flowering before leaves; pedicels to 2,5 cm long in fruit; perianth *rose-purple* (rarely pure white), tube cylindrical, 7-9 × 2-3 mm, segments ovate, acute, 6-8 × 3,5-4,5 mm; corona not fleshy, *obscurely 3-lobed, lobes separated by a minute bright red secondary lobe;* capsule subglobose, 4 × 5 mm long.

Open places; bush; rocky shallow soil; dry forest on dry burnt soil; sometimes very abundant; woodland, in dry gritty soil; 1000-1500 m alt.

Near *T. tenuior* K. Krause & Dinter.

TAXON OF UNCERTAIN STATUS:

Tulbaghia bragae Engl.; Fl. Zambes. 13/1: 94-95, 2008.

Plant with thick rhizome; leaves narrowly linear, somewhat obtuse, reaching 1/3 of the scape; bracts lanceolate, acuminate, as long as pedicels; pedicels slender, longer than flowers; perianth pink; corona urceolate, orange.

Collected at Beira by Braga (s.n., c. 1894-1895; probably destroyed).

TULBAGHIA

SYNONYMS:

Tulbaghia affinis Link = **Tulbaghia alliacea**

brachystemma Kunth = **T. alliacea**

bragae Engl. = ? (cf. above)

campanulata N. E. Br. = **T.** ? **alliacea**

cernua [Avé-Lall. ex] Fisch., C. A. Mey. & Avé-Lall. = **T. alliacea**

dieterlenii E. Phillips = **T. leucantha**

hockii De Wild. = **T. cameronii**

inodora Gaertn. = **T. alliacea**

monantha Engl. & Gilg = **T. aequinoctialis** subsp.

narcissifolia Salisb. = **T. alliacea**

rhodesica Weim., non R. E. Fr. = **T. friesii**

AMARYLLIDACEAE /*8* g. / *62* spp.

A widespread family of 60-70 genera and some 850 species, in temperate regions, with centres of diversity in S. America (particularly Andean region), the Mediterranean and S. Africa. "In southern Africa alone, as many as 29 new species of *Amaryllidaceae* have been described since 1980" (Snijman, Plantlife 24: 9, 2001). *Crinum* is the only genus represented in both the Old and the New Worlds.

"The limits of the family are controversial, and parts of the *Agavaceae*… and *Liliaceae*… are sometimes included within it. The delimitation of genera within the family is also difficult, frequently based on the presence or absence of a corona (and, if present, its nature)" (The European Garden Flora, ed. 2, 1: 196, 2011). Superconservation of *Amaryllidaceae* against *Alliaceae* has been proposed (see above under **Alliaceae**).

Herbs with bulbs, rhizomes or corms; leaves basal, often in 2 rows; fruit a capsule or a berry. They are well marked by the presence of a group of alkaloids. Many species are of great horticultural and ornamental value. Exotic cultivated genera in Africa are, e.g., the American *Hippeastrum, Hymenocallis* (incl. *Ismene*), *Zephyranthes*. The taxonomy of the cultivated species is complex.

Certain species in our area are incompletely known: bulbs lacking in 3 species (= > 4%; *Crinum*), leaves unknown in 1 species *(Crinum);* fruit lacking in 9+1 ? species (= 14-15%); ecology not recorded for 2 species (= c. 3%); and 4 species (= c. 6%; *Crinum)* known only from the type.

CONRAD, F. & al. (2006). Generic relationships within the tribe Haemantheae (Amaryllidaceae) based on plastid DNA sequence data. *In:* GHAZANFAR, S.A. & H. J. BEENTJE, eds., *Taxonomy and ecology of African plants, their conservation and sustainable use:* 73-83. Royal Botanic Gardens, Kew.

ITO, M. & al. (1999). Phylogenetic relationships of Amaryllidaceae based on matK sequence data. *J. Plant Res.* 112: 207-216.

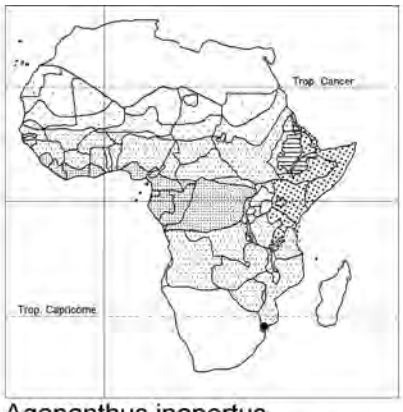
MEEROW, A. W. & J. R. Clayton (2004). Generic relationships among the baccate-fruited Amaryllidaceae (tribe Haemantheae) inferred from plastid and nuclear non-coding DNA sequences. *Plant Syst. Evol.* 244: 141-155.

MEEROW, A. W. & D. A. SNIJMAN (1998). Amaryllidaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 3. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae):* 83-110. Springer Verlag, Berlin, etc.

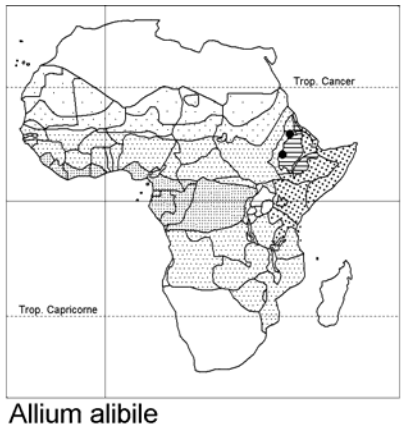
MEEROW, A. W. & D. A. SNIJMAN (2001). Phylogeny of Amaryllidaceae tribe Amaryllideae based on nrDNA ITS sequences and morphology. *Amer. J. Bot.* 88: 2321-2330.

MEEROW, A. W. & D. A. SNIJMAN (2006). The never-ending story: multigene approaches to the phylogeny of Amaryllidaceae. *Aliso* 22: 355-366.

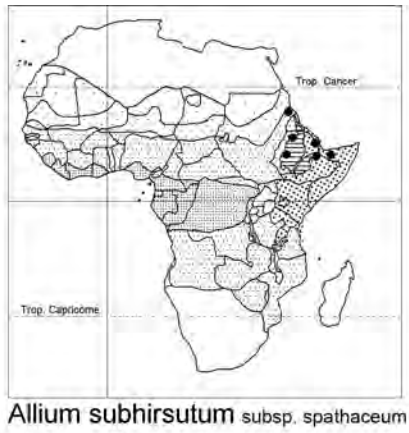
MEEROW, A. W. & al. (1999). The new phylogeny of the Amaryllidaceae. *Herbertia* 54: 180-203.



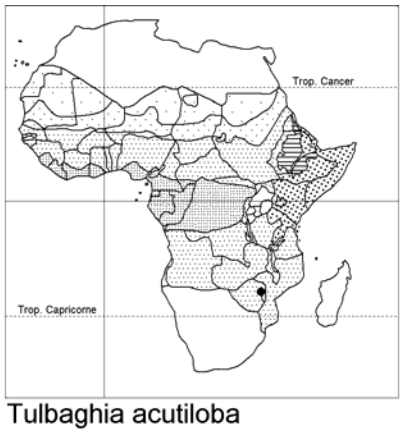
Agapanthus inapertus subsp. intermedius



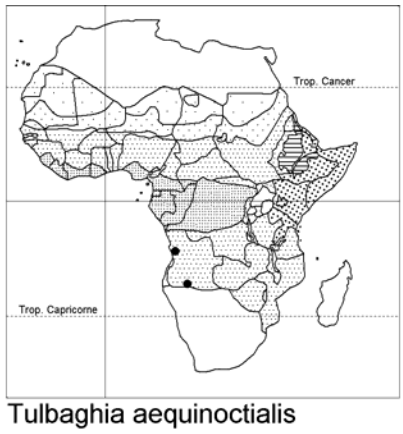
Allium alibile



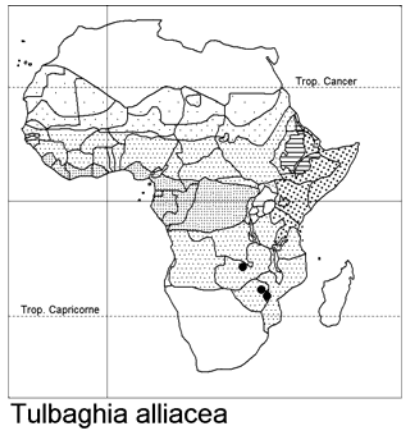
Allium subhirsutum subsp. spathaceum



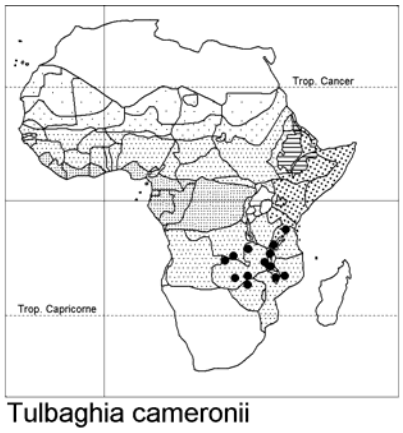
Tulbaghia acutiloba



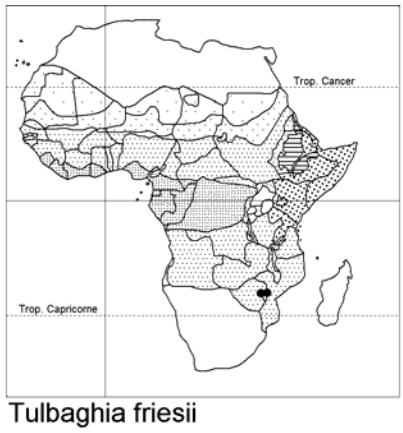
Tulbaghia aequinoctialis



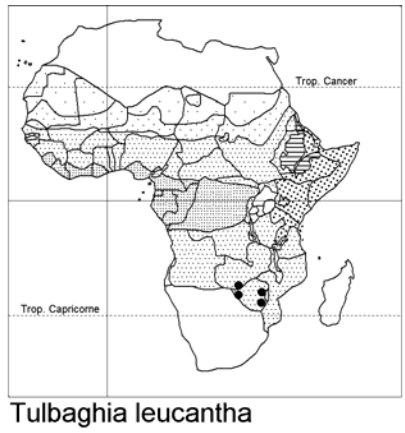
Tulbaghia alliacea



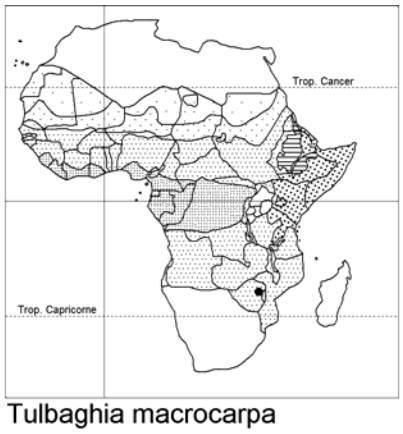
Tulbaghia cameronii



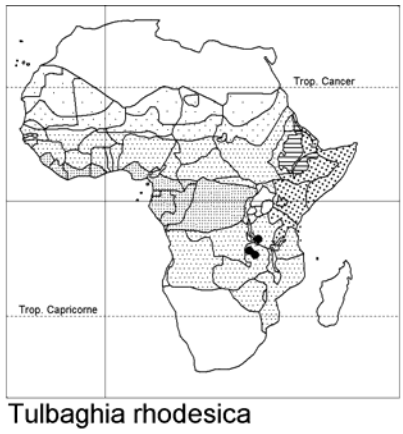
Tulbaghia friesii



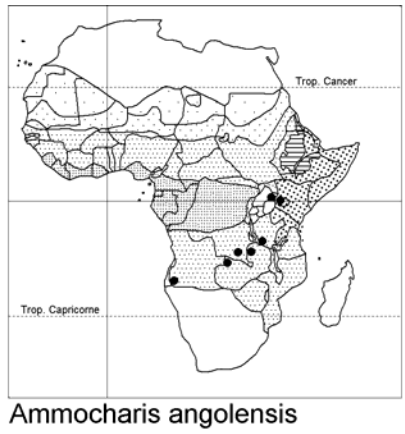
Tulbaghia leucantha



Tulbaghia macrocarpa



Tulbaghia rhodesica



Ammocharis angolensis

MEEROW, A. W. & al. (1999). Systematics of Amaryllidaceae based on cladistic analysis of plastid rbcL and trnL-F sequence data. *Amer. J. Bot.* 86: 1325-1345.

SNIJMAN, D. A. (1999). Growth periodicity, flowering and phylogeny of the African Amaryllideae (Amaryllidaceae). *In:* TIMBERLAKE, J. & S. KATIVU, eds., *African plants: Biodiversity, taxonomy and uses:* 389-404. Royal Botanic Gardens, Kew.

SNIJMAN, D. A. (2001). Amaryllidaceae: Specialists of the underworld. *Plantlife* 24: 5-9.

VORSTER, P. (1999). The geographical distribution of Amaryllidaceae in the flora of southern Africa area. *In:* TIMBERLAKE, J. & S. KATIVU, eds., *African plants*: *Biodiversity, taxonomy and uses:* 171-177. Royal Botanic Gardens, Kew.

[AMARYLLIS]

Amaryllis L., nom. cons.

Genus of 2 species in S. Africa. "Since… Linnaeus named *Amaryllis belladonna* in the eighteenth century there has been a lot of tedious argument as to whether the name should apply to the familiar South African plant or to the South American amaryllids now known as *Hippeastrum"* (Bulb Newsl. 28: 8, 1999). Cullen (in The European Garden Flora, ed. 2, 1: 201, 2011) gives a summary of the controversy over the nomenclature under genus *Hippeastrum.*

[**Amaryllis belladonna** L., nom. cons.]; Cullen, o.c.: 204; K. King in Herbertia 54: 214-227, 2000. – Icon.: Taxonomania 20: 10, 2007.

syn.: *A. rosea* Lam.; *Coburgia belladonna* (L.) Herbert; *Brunsvigia rosea* (Lam.) L. S. Hannibal; *Belladonna blanda* (Ker Gawl.) Sweet; see World Checklist Monocotyledons, Royal Botanic Gardens, Kew.

Perennial herb with bulb c. 5 cm Ø; leaves appearing after the flowers, oblong, 50 × 3-4,5 cm, glabrous, distichous; scape to 40-70 cm tall; umbel c. 6-flowered, spathes 2, to 8 cm long; flowers ascending to erect, tube 1,5-2,5 cm long, lobes 6,5-10 cm long, (purplish) pink (colour variable), whitish towards base; capsule splitting irregularly.

Cultivations, fallows, sometimes in scrub; ± naturalised or as an escape from cultivation in Africa. Introduced from S. Africa.

Bulbs and seeds toxic.

In Zaire confused with *Hippeastrum puniceum* (Lam.) Kuntze (Taxonomania, l.c.). A range of hybrids with *Crinum, Brunsvigia, Nerine* exists (cf. Cullen in Europ. Gard. Flora, l.c.).

SYNONYMS:

Amaryllis candica Tratt. = ? **Crinum jagus**

coranica Ker Gawl., incl. var. *pallida* Lindl. = **Ammocharis coranica**

broussonetii DC. in Redouté = **Crinum ornatum**

disticha L. f. = **Boophone disticha**

equestris L. f. ex Aiton = **Hippeastrum puniceum**

forbesii Lindl. = **Crinum stuhlmannii** subsp. **delagoense**

gigantea W. T. Aiton = **Crinum jagus**

jagus J. Thomps. = **C. jagus**

laticoma Ker Gawl. = **Nerine**

latifolia Lam. = **Crinum jagus**

lucida (Herb.) D. Dietr. = **Nerine laticoma**

moorei (Hook. f.) Stapf = **Crinum moorei**

multiflora (Martyn) Tratt. = **Scadoxus**

ornata L. f. ex Aiton = **Crinum ornatum**

punicea Lam. = **Hippeastrum**

scillifolia Schult. & Schult. f. = **Crinum biflorum**

toxicaria (L. f. ex Aiton) D. Dietr. = **Boophone disticha**

yuccioides J. Thomps. = **Crinum ornatum**

AMMOCHARIS / *4*

Six to eight species in Africa. Herbs with large thickly tunicated bulb, leaves in 2 opposite fans (biflabellate), flowers umbellate subtended by 2 spathe valves, scape solid arising laterally, fruit indehiscent or bursting irregularly, seeds fleshy.

Ammocharis angolensis (Baker) Milne-Redh. & Schweick.; Figueiredo & Smith, Pl. Angola: 170, 2008; Fl. Zambes. 13/1: 132, 2008; Fl. Trop. E. Afr., Amaryl.: 5, 1973; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 148, 1994; Aloe 47: 12, 2010.

syn.: Enum. 3: 82, 1995.

Herb to 15 cm tall; bulb to 8 cm Ø, neck to 5,5 cm long; leaves perennial, length varying with age, 1,4-5,6 cm wide, grey-green, leathery, semi-succulent, margins toothed; scapes 8-14 cm long, sometimes subterranean; flower pedicels *< 0,5 cm long;* umbel 3-22-flowered; tepals white or ± pinkish outside; tube 6,4-7,5 cm long; segments 15-45 × 2-4 mm, spreading or recurved at apex; filaments *< 3 cm long;* style *included inside the tube,* c. 4 cm long; fruit fleshy. Leaves appearing after the flowers.

Fairly dry habitats; shallow soils among rocks; rocky bushland; also in thicket-grown rather damp pastures; 1200-2600 m alt.

Distribution disjunct.

A. baumii (Harms) Milne-Redh. & Schweick.; Fl. Zambes. 13/1: 131-132, 2008; Figueiredo & Smith, Pl. Angola: 170, 2008; Bothalia 39: 191, 2009 (Baum, Kunene Exp.). – Icon.: Flow. Pl. Afr. 36: pl. 1432, 1964.

bas.: *Crinum baumii* Harms

Herb 10-20 cm tall; bulb to 2,5 cm Ø, neck to 4,5 cm long; leaves narrowly linear, *erect, 2-4 mm wide;* scape to 12 cm long at anthesis; flowers sessile, 1-2; perianth tube erect, 10,5-12,7 cm long at anthesis; segments linear, white with a deep red keel, abruptly spreading, revolute, 3,5-5,6 × 0,4-0,5 cm; fruit subglobose, tinged with red, not beaked, to 0,5 cm broad.

Arid areas; 1000-1200 m alt.

Namibia, Caprivi Strip, Botswana, S. Africa.

Near *Crinum*, see Bot. J. Linn. Soc. 141: 349-363, 2003. In the absence of fresh material, it is difficult to ascertain whether leaf arrangement is biflabellate *(Ammocharis)* or distichous or rosulate *(Crinum).*

A. coranica (Ker Gawl.) Herb., incl. var. *pallida* (Lindl.) Herb.; Zimudzi & Polaki in X. van der Burgt & al., Systematics and Conservation of African Plants: 110, 2010 (Fl. Lesotho). – Icon.: Flow. Pl. S. Afr. 18: pl. 712, 1938; Aloe 46: 53, 2009.

bas.: *Amaryllis coranica* Ker Gawl.

syn.: *Brunsvigia coranica* (Ker Gawl.) Ker Gawl.; *Palinetes coranica* (Ker Gawl.) Salisb., nom. invalid.; *Amaryllis coranica* var. *pallida* Lindl.; *Ammocharis coccinea* Pax; *Crinum tavelianum* (Schinz) Fritsch; *C. coccineum* (Pax) Fritsch; *Brunsvigia uitenhagensis* Eckl., nom.

Herb with ovoid bulb to 16 cm Ø, 25 cm long incl. 5 cm long neck; leaves strap-shaped, 12-34 × 2,5-6,5 cm, prominently nerved, lying flat on the ground; scapes 6-35 cm long (2 successive inflorescences produced per season); flowers 5-19(-56), pedicels *2,2-4 cm long;* perianth *tube 1-2,5 cm long;* segments

4-5 × 0,3-0,6 cm, pink to pinkish copper-brown or carmine, at time with a white median line; filaments 3-4 cm long; style exserted; fruit subglobose, c. 2,5 cm Ø, seeds germinating while still in capsule.

Ecology not recorded for Zimbabwe; in grassland, often in large populations (Lesotho); 600-1000 m alt.

Namibia, Caprivi Strip, S. Africa, Lesotho, Swaziland. – "One of the most widespread amaryllids of the summer-rainfall region of southern Africa" (Crouch & al., Delpinoa 45: 264, 2004). – Figueiredo & Smith (Pl. Angola: 170, 2008) cite a specimen from Angola at LISC (Mendes 1345).

A. tinneana (Kotschy & Peyr.) Milne-Redh. & Schweick.; Figueiredo & Smith, Pl. Angola: 170, 2008. – Icon.: Troupin, Syll. Fl. Rwanda: 274, 1971; Fl. Trop. E. Afr., Amaryl.: 20, 1982; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 148, 1994; Thulin, Fl. Somal. 4: 61, pl. 2F, 1995; Fl. Eth. & Eritrea 6: 162, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 107, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 178, 2010; Fl. Zambes. 13/1: 133, 2008.

syn.: Enum. 3: 82, 1995; *Crinum cordofanum* Kotschy & Peyr.; *C. poggei* Pax; *C. odongense* Baker; *Stenolirion chariense* A. Chev., nom. in sched.

Herb 20-40 cm tall; bulb 12-18 cm Ø, neck 2-10 cm long; leaves to 13, length varying with age, 35 × 0,5-6 cm; scapes 3,5-25 cm long; umbel 4-30-flowered; *pedicels 0,4-5 cm* long; flowers pink, sweetly scented; *perianth tube 5,6-13 cm* long; segments purplish, prominently nerved, 3,4-13 cm × 2-6 mm, spreading and *spirally curved towards apex;* style exserted; fruit reddish, subglobose, 2-2,5 cm Ø.

Savanna after fires; grassland; wooded grassland; coastal areas on open plains on coral sand or on fixed dunes; mainly on sandy soil; dry bush; grassy, shady green; on ferruginous sandstone; cultivated ground; plateau; fallows; sometimes very common; black clays; open *Acacia-Commiphora* bushland, on ± bare red to brown soil; tolerating heavy grazing and also erosion; coastal-1850 m alt.

Botswana, Namibia. – In Sudan at Gondokoro in a garden from near El Obeid.

SYNONYMS:

Ammocharis coccinea Pax = **Ammocharis coranica**

heterostyla (Bullock) Milne-Redh. & Schweick. = **A. angolensis**

taveliana Schinz (inflorescence) = **A. coranica**

taveliana Schinz (leaves) = **Boophone disticha**

(ANOIGANTHUS)

The following names are synonyms of **Cyrtanthus breviflorus**: *Anoiganthus breviflorus* (Harv.) Baker, incl. var. *minor* Baker; *A. gracilis* Harms; *A. luteus* (Baker) Baker

[APODOLIRION]

Six species confined to the Flora of S. Africa area.

Apodolirion buchananii Baker listed in our Enum. 3: 83, 1995, does not occur in our area.

BOOPHONE / *1*

Original spelling *Boophane* by W. Herbert, 4 years later *Buphane* and *Buphone*. "In the last 50 years, *Boophone* has found favour with many authors in floristic literature…" (Archer & al. in Taxon 50: 570, 2001). Proposal to conserve the spelling *Boophone* in Taxon 51: 797, 2002.

African genus of 2 species one of which, *B. haemanthoides* F. M. Leight. only in Namibia and S. Africa (W Cape Prov.).

ANDERSON, T. A. (1997). Do vultures eat plants ? *Plantlife* 17: 7-8 *[B. disticha,* with SYNONYMS].

Boophone disticha (L. f.) Herb.; Tumbleweed; De Wildeman, Contribution Fl. Katanga, Suppl. 3: 37-38, 1930; Figueiredo & Smith, Pl. Angola: 170, 2008; idem, Succ. fl. Angola in Haseltonia 15: 71, 2009; M. Renier, Flore du Kwango 1: 96, 1948. – Icon.: Bot. Mag. 52: pl. 2578, 1825; Warburg, Kunene-Sambesi-Exp.: 198, 1903; Tredgold & Biegel, Rhodes. wild flowers: pl. 5 fig. 2, 1979; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 148, 1994; Eggli, Ill. handbook succ. pl., monocot.: fig. XXIVa, 2001; Burrows & Willis, Pl. Nyika Plateau: 268, 2005; Kaktusy 41: 112-113, 2005; Veld & Flora 94: 38, 39, 2008; Fl. Zambes. 13/1: 115, 2008; B.-E. van Wyk & al., Medicin. pl. S. Afr., ed. 2: 67, 2009, Cactus Sukk. J. (US) 84: 89-91, 2012.

bas.: *Amaryllis disticha* L. f.

syn.: *Haemanthus ciliaris* L.; *Brunsvigia ciliaris* (L.) Ker Gawl.; *Haemanthus toxicarius* L. f. ex Aiton, nom. superfl.; *Boophone toxicaria* (L. f. ex Aiton) Herb.; *Brunsvigia toxicaria* (L. f. ex Aiton) Ker Gawl.; *Amaryllis toxicaria* (L. f. ex Aiton) D. Dietr.; *Brunsvigia disticha* (L. f.) Sweet; *Haemanthus distichus* (L. f.) L. f. ex Savage; *H. sinuatus* Schult. & Schult. f., nom. nud.; *Boophone intermedia* M. Roem.; *B. longipedicellata* Pax; *Haemanthus robustus* Pax; *Brunsvigia rautanenii* Baker; *B. kirkii* Baker

Herb with bulb (capable of living for a hundred years or more = the common name "century plant") to 25 cm Ø, upper part with dry loose tunics of old leaf-bases, often emergent from the ground; leaves strap-shaped, distichous, glabrous, stiff, to 60 × 1,5-4 cm, developing after the flowers; scape 5-30 cm long, solid; inflorescence globose, 50- to > 100-flowered, subtended by 2 free bracts; *pedicels* angular, 3-*8 cm long*, to *40 cm in fruit;* flowers pink to dark purple; tube shorter than segments; segments recurved towards apex, 2-3 cm long, 2-4 mm wide; capsule *triquetrous*, to 3 cm long, irregularly dehiscent (often sterile), with 1 fleshy round seed. The entire fruiting inflorescence can break away and roll on the ground, tumbled by wind ("tumbleweed"). – A beautiful plant (Welwitsch, 1899).

Grassland; wooded grassland; rocky places; often on well drained soils; open forests; *Mimosa* woods; thicket-grown hills; pastures and less dense grassy thickets; 200-2700 m alt.

Namibia, S. Africa, Botswana, Swaziland, Lesotho.

Bulbs highly toxic; toxic to cattle; source of medicine and poison: used as arrow poison, to help a spirit medium into trance (cf. S. Afric. J. Bot. 75: 371-374, 2009).

SYNONYMS:

Boophone (Boophane, Buphane) angolensis Baker = **Ammocharis**

fischeri Baker = **Sansevieria** *(Dracaenaceae)*

intermedia M. Roem. = **Boophone disticha**

longipedicellata Pax = **B. disticha**

toxicaria (L. f. ex Aiton) Herb. = **B. disticha**

[BRUNSVIGIA]

Genus of some 20 species from S. Africa, one of which reaching Flora Zambesiaca area in Botswana, viz. *Brunsvigia radulosa* Herb.

Brunsvigia ciliaris (L.) Ker Gawl. = **Boophone disticha**

coranica (Ker Gawl.) Ker Gawl. = **Ammocharis coranica**

disticha (L. f.) Sweet = **Boophone disticha**

kirkii Baker = **Boophone disticha**

laticoma (Ker Gawl.) Sweet = **Nerine**

massaiana Lindl. & Rod. = **Crinum** ? **zeylanicum** or **C. ornatum**

rautanenii Baker = **Boophone disticha**

rosea (Lam.) L. S. Hannibal = **Amaryllis belladonna**

toxicaria (L. f. ex Aiton) Ker Gawl. = **Boophone disticha**

uitenhagensis Eckl., nom. = **Ammocharis coranica**

(CHAPMANOLIRION)

Chapmanolirion juttae Dinter = **Pancratium tenuifolium**

(CHOANANTHUS)

Choananthus cyrtanthiflorus (C. H. Wright) Rendle = **Scadoxus cyrtanthiflorus**

wollastonii Rendle = **S. cyrtanthiflorus**

[CLIVIA]

Six (or four) species in S. Africa. *C. caulescens* R. A. Dyer occurs in NE S. Africa and S Swaziland (map in Swanevelder & Fisher, o.c.: 50). Cf. European Garden Flora, ed. 2, 1: 221-222, 2011.

HAMMETT, K. (2002). Clivia. *Bulbs* 4/1: 20-28.

KOOPOWITZ, H. (2002). *Clivias.* Timber Press, Portland & Cambridge / USA. 384 pp.

SWANEVELDER, D. & R. FISHER (2009). *Clivia: Nature and nurture*. Briza Publications, Pretoria. 220 pp.

ZONNEVELD, B. J. M. (2004). The systematic value of nuclear DNA content in Clivia. *Herbertia* 57: 41-48.

[**Clivia miniata** (Lindl.) Bosse, Vollst. Handb. Blumengart., ed. 3, 1: 768, 1859]; European Garden Flora, l.c. – Icon.: Gartenflora 13: pl. 434, 1864; Flow. Pl. S. Afr. 11: pl. 411, 1931; Hammett, o.c.: 22; Koopowitz, o.c.: 46, 49, 79, 82, 85; Swanevelder & Fisher, o.c.: 33-39; B.-E. van Wyk & al., Medicin pl. S. Afr., ed. 2: 97, 2009.

syn.: *C. miniata* (Lindl.) Regel, Gartenflora 13: 131, 1864; World Checklist Monocotyledons, Royal Botanic Gardens Kew.

Herb with thick short rhizome, without stem; leaves evergreen, clustered at end of rhizome, ± in 2 ranks, strap-shaped, 40-60 × 3,5-6,5 cm, margins slightly toothed; scape 30-45 cm long; umbel of 12-20 flowers; perianth broadly funnel-shaped, straight; lobes orange, rarely yellow; fruit a red berry.

Cultivated in E Africa. Native in E S. Africa, E. Swaziland, reaching the Mozambique border (map in Swanefelder & Fisher, o.c.: 36). Most widely distributed species in *Clivia.* In mountain grassland; on sandstone and dolorite; on top of or between rocks, boulders, roots; in well-drained humus-rich debris on screes or between roots of high canopy trees.

The most commonly cultivated *Clivia* with many clones and hybrids.

CRINUM / *36*

The only pantropical genus of *Amaryllidaceae*, with 60-70 species, most species-rich in southern Africa. The most commonly cultivated plant in Africa seems to be the S. African cultivar *C.* × *powellii* Baker with a distinct false stem, and pinkish flowers without distinct bands on the tepals.

The taxonomic history of *Crinum* is outlined by Yakandawala & Samarakoon in Ceylon J. Sci. (Biol. Sci.) 35: 54-55, 2006.

Crinum species have commercial, economical and medicinal importance. Hybridization is widespread. Many are popular garden plants with beautiful flowers. Few species possess unique features that are readily identified in herbaria (fide Lehmiller, 2004), where fruits and seeds are particularly rare.

A few species in our area are incompletely known: bulb is lacking in 3 species (= c. 8%), so leaves in 1 species, the fruit is unknown in 7+1 ? species (= c. 20%), the ecology is not recorded for 2 species, and 4 species (= c. 11%) are known only from the type gathering. Other taxa listed below within parentheses are of uncertain status.

FENNELL, C. W. & J. VAN STADEN (2001). Crinum species in traditional and modern medicine. *J. Ethnopharmacol.* 78: 15-26.

GROSSI, A. (2008). Crinum in cultivation. *Plantsman, N.S.* 7: 222-229.

HANNIBAL, L. S. (s.d., c. 1998). *A systematic review of the genus Crinum (Amaryllidaceae).* http://www.crinum.org/review.html, 73 pp. [cf. Aaron Williams Revised: January 28, 2005, http://www.doofus.org/Crinum/copyright 1998-2001; and Aaron Williams, November 14, 2001: (In Memory of) Lester Stuart Hannibal, 1906-2001; http://www.doofus.org/Crinum/lesinfo.html.].

KWEMBEYA, E. G. & B. STEDJE (2008). A numerical taxonomy of the pan species of Crinum based on morphological characters. *Nord. J. Bot.* 25: 137-144 *[C. carolo-schmidtii, C. lugardiae, C. macowanii, C. paludosum, C. rautanenianum].*

KWEMBEYA, E. G. & al. (2007). Phylogenetic relationships in the genus Crinum (Amaryllidaceae) with emphasis on tropical African species: evidence from trnL-F and nuclear ITS DNA sequence data. *Taxon* 56: 801-810.

LEHMILLER, D. J. (1997a). Synopsis of the genus Crinum (Amaryllidaceae) in Namibia. *Herbertia* 52: 44-65 [with a key].

LEHMILLER, D. J. (1997b). Crinum subgenus Codonocrinum in southern Tchad and extreme northern Cameroon. *Herbertia* 52: 119-133 [with a key].

MEEROW, A. W. & al. (2003). Phylogeny and biogeography of Crinum L. (Amaryllidaceae) inferred from nuclear and limited plastid non-coding DNA sequences. *Bot. J. Linn. Soc.* 141: 349-363.

NORDAL, I. & al. (2010). Seed coat as straightjacket ? – On seed development and dispersal in the genus Crinum (Amaryllidaceae). *In:* BURGT, X. VAN DER & al., eds., *Systematics and conservation of African plants:* 855-864. Royal Botanic Gardens, Kew.

SHAW, J. & M. SHEPPARD (2009). Crinums. *Bulbs* 10-11: 296-318.

TRAM, N. T. N. & al. (2002). Crinum L. (Amaryllidaceae). *Fitoterapia* 73: 183-208.

YAKANDAWALA, D. M. D. & T. M. SAMARAKOON (2006). An empirical study on the taxonomy of Crinum zeylanicum (L.) L. and Crinum latifolium L. (Amaryllidaceae) occurring in Sri Lanka. *Ceylon J. Sci. (Biol. Sci.)* 35: 53-72.

Crinum abyssinicum Hochst. ex A. Rich.; Thulin, Fl. Somalia 4: 59, 1995; Fl. Eth. & Eritrea 6: 161, 1997; Nordal & al. in Biol. Skr. 54: 254, 2001 (map). – Icon.: Gartenflora 38: pl. 1309, 1889 *(C. schimperi);* Lehmiller in Herbertia 59: 86-87, 89, 91-93, 2005; Sebsebe Demissew & al., Flowers Eth. & Eritrea…: 105, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 176, 2010; Symb. Bot. Upsal. 35/2: 100, 2011.

syn.: *C. schimperi* Vatke ex K. Schum.

Bulb 3,5-15 cm Ø, with a neck 9-32 cm long, often propagating vegetatively to form dense clusters; leaves in rosette, *erect, glaucous* to grey-green, linear to narrowly lanceolate, 25-78 × 1-5 cm; scape 9-80 cm tall, contemporary with leaves or somewhat

earlier; flowers 2-6, sessile or nearly so, heavily scented; perianth segments 8-11 × c. 2 cm, *pure white* or slightly pink flushed outside in apical parts, pure white inside; tube 3-13 cm long; fruit green, sometimes tinged red, globular, 3-5 cm Ø, pericarp fleshy.

Waterlogged valley grassland; swampy depressions; along stream banks; fallow; black clay soils; in the central Ethiopian plateau towards Debra Birham flourishing in numerous localities (fide Lehmiller, 2005); rocky hillsides; sandy clayish loam; 1650-3300 m alt.

(**C. acaule** Baker); Fl. Zambes. 13/1: 131, 2008; Herbertia 52: 90-94, 1997 (with map). – Icon.: Flow. Pl. Afr. 56: pl. 2147, 1999 (with map).

Bulb 7-12 cm long, 5-15 cm Ø, with a neck 4-10 cm long; leaves c. 10, stiff, erect, linear, deeply channelled, 20-50 × 0,5-2 cm, minutely papillate beneath, margins ciliate with minute teeth; spathe underground; umbel 2-5-flowered; flowers ± sessile; perianth tube 10-15 cm long; segments thick, fleshy, white flushed pink, keeled with deep pink, 10-13 cm long; fruit ± globose, beaked, 2 cm Ø.

Roadsides, fire-breaks regularly mowed and ploughed. Occurs in E S. Africa (endemic to Zululand) near to the S Mozambique border (map, l.c.), but "it might also occur in southern Mozambique". – Not mapped.

The presence of *C. acaule* in Namibia is disputable (Lehmiller in Herbertia 52: 49, 1997). According to Archer (Herbertia 52: 90-94) the name *C. parvibulbosum* Dinter ex Overkott should be applied to the Namibian taxon.

Resembling *C. minimum* but bulb and flowers larger. Cf. also below under *(C. parvum).*

C. amphibium Bjorå & Nordal – Icon.: Taxon 58: 564-565, 2009.

Bulb subglobose, c. 5 cm Ø, with a moderately elongated rhizomatous part; leaves in rosette, strap-shaped, erect, 20-40 × *2-2,5 cm;* scape 25-40 cm long; involucral bracts 2, green, supporting 1-2 sweet scented flowers; perianth tube greenish, erect, 12-14 cm long; segments white, greenish apically, lanceolate, semipatent, 6-7 × 1,5-2,5 cm; flower shape *radially symmetrical* or almost so (perianth segments forming a cup); fruit green, subglobose, beak 3-4 cm long.

Plant inundated in narrow crevices on small islets (in rainy season), on dry land in dry season.

This plant combines characters of *C. jagus* and *C. natans* (? hybrid or result of allopatric speciation in the *C. jagus* aggregate, with possible introgression from the *C. natans* complex) (fide Bjorå & Nordal, 2009).

[**C. asiaticum** L.]; Fl. Trop. E. Afr., Amaryllid.: 9, 1982; Kew Bull. 59: 603, 2004.

A large robust plant 1,5-2 m tall and as broad; bulb rather small; with prominent pseudostem; leaf blades strap-shaped, not channelled, c. 1 m long, 8-12 cm wide; umbel 20-50-flowered on scape 40-60 cm tall; flowers star-shaped, radially symmetrical, fragrant; tube straight, 7-10 cm long; segments linear, 6,5-7,5 cm long; fruit irregularly globose, greyish green, not beaked.

Native to tropical SE Asia. Cultivated all over the world, also in E Africa; often around hotels, pedestrian walkways. Salt-tolerant.

C. aurantiacum Lehmiller; Fl. Zambes. 13/1: 123-124, 2008; Timberlake & al. in Pl. Ecol. Evol. 144: 132, 2011 (new records Mozambique). – Icon.: Herbertia 57: 73-75, 2002 [2004].

Bulb globular, 10-25 cm Ø, with a neck to 9 cm long; leaves slightly *undulate,* strap-shaped, to 70 × 8-18 cm, without midrib, margins *ciliate;* scapes 1-3, compressed, 8-30 cm long; inflorescence 8-31-flowered; pedicels *2,7-6,5 cm* long; perianth tube dull reddish-green, 9-13 cm long; segments white with pinkish-red dorsal keel, 8-13,5 cm long; anthers *greyish;* fruit subglobose, *orange* to bright yellow, 2-4 cm Ø, *without beak.*

Wooded savanna; disturbed area on sandy loam soils; coastal dry forest (NE Mozambique); 500-1200 m alt.

Near *C. stuhlmannii;* looks like a giant *C. macowanii.* Sympatric with *C. crassicaule;* the two are difficult to separate without fruits and seeds.

Leaves with a peach-like smell when torn.

C. bambusetum Nordal & Sebsebe; Kew Bull. 59: 603, 2004; Sebsebe & al. in Biol. Skr. 55: 323, 2005; Fl. Eth. & Eritrea 6, 247, 2009. – Icon.: Kew Bull. 57: 468, 2002; Sebsebe & al., Flowers Ethiopia & Eritrea…: 103, 2003; idem, Aloes & lilies Eth & Eritrea, ed. 2: 173, 2010; Symb. Bot. Upsal. 35/2: 100, 2011.

syn.: *C. purpurascens* sensu Andrews, Flow. pl. Angl.-Eg. Sudan 3: 287, 1956, non Herb. 1837.

Bulb ovoid, stoloniferous, 5 cm Ø; leaves strap-shaped, 35-90 × 6-20 cm, without distinct midrib, *erect* to *suberect* forming a false stem; scapes terete, 60-75 cm long; umbel with *12-42 star-shaped flowers;* pedicels *2,5-4,5 cm long;* perianth tube straight, 10-12 cm long; segments 6-7 × 0,7-1 cm, *reflexed,* inner surface whitish, outer surface reddish tinged; fruit unknown.

Bamboo thicket with rocky outcrops; *Oxythenanthera abyssinica* thicket and *Combretum-Terminalia* woodland; grassy khor, alluvium; locally very abundant or common; 1490-1510 m alt. in Ethiopia.

Near *C. subcernuum.*

C. biflorum Rottb. 1773, non Baker 1903 *(= C. nordaliae);* Akoegninou & al., Fl. analyt. Bénin: 32-33, 2006; Lisowski, Fl. Rép. Guinée 1: 378, 2009. – Icon.: Herbertia 52: 131, 1997 (sub nom. *C. pauciflorum, C. distichum).*

syn.: *Amaryllis scillifolia* Schult. & Schult. f.; *Crinum distichum* Herb. 1837, nom. illegit., non Herb. 1820 *(= C. zeylanicum); C. pauciflorum* Baker (a distinct species according to Lehmiller in Herbertia 52: 128, 129, 132, p. 131 fig. 6, 1997); *C. samuelii* Worsley

Bulb globose, 5-7,5 cm Ø, neck very short; leaves 6-8, ± linear, stiffly erect, firm, 30-45 × *0,6 cm;* scape 15-50 cm long; *umbel 1-4-flowered;* perianth tube curved, 10-12,5 cm long; segments oblong, acute, ascending 7,5 × 2,5 cm, white with a red keel; fruit irregularly ovoid or elongated, dark reddish purple.

Seasonally flooded places with a thin soil layer over rock in transitional grassland; drainage in *Combretum* woodland.

The difference given by Lehmiller for distinguishing *C. pauciflorum* and *C. distichum* are disputable, i.e. leaves rosulate vs. distichous; here we follow Kew's World Checklist of Monocotyledons. In some species, e.g. *C. jasonii,* the leaves are in a distichous arrangement in an early developmental stage, whereas in a later stage the leaves produced turn rosulate.

CRINUM

C. binghamii Nordal & Kwembeya; Kew Bull. 59: 601, 2004. – Icon.: Kew Bull. 59: 600-602, 2004; Fl. Zambes. 13/1: 120, 2008.

Bulbs white, bottle-shaped, 25 cm long, 9 cm Ø, with a prominent rhizomatous part below, aggregated due to efficient vegetative propagation, upper part gradually narrowing to a neck; leaves 9-11 per bulb, rigid, *thickly succulent, 75 × 2,5 cm*, ± distichous, deeply channelled or canaliculate, gradually narrowing upwards, *tip entire;* scape lateral, reddish, 55-70 cm long; umbel ± 11-flowered, pedicels 0-1 cm long; flowers *star-shaped*, tube 12-16 cm long, 8 mm Ø, reddish green; segments pure white, 10-12 × 1,6-2 cm, drooping at anthesis; style dark red; fruit and seeds unknown.

Seasonally swampy areas on black soil, swamp bordering river; c. 1035 m alt. – Locally abundant.

Resembling *C. buphanoides* and *C. subcernuum* (flowers star-shaped), but apparently more closely related to W African species (molecular analysis).

C. buphanoides Welw. ex Baker; Kew Bull. 59: 601, 2004; Fl. Zambes. 13/1: 122, 2008; Figueiredo & Smith, Pl. Angola: 170, 2008. – Icon.: Flow. Pl. S. Africa 23: pl. 887, 1943; Herbertia 43: 57, 1987; Mitt. Namibia Wiss. Ges. 38: 8, 1997.

syn.: *C. amboense* Baker; *C. belkianum* Schinz

Bulb 10-15 cm Ø, neck to 11 cm long; leaves *distichous*, ensiform, 40-50 cm long, *forming a false stem* to 30 cm long; broadest leaves 6,5-14 cm broad, each successive leaf above narrower, uppermost leaves c. 1 cm broad, *not thickly succulent, without entire apex* (necrotic), margin ciliate; scape 35-45 cm long, compressed; umbel 13-40-flowered; pedicels 1,5-4,5 cm; flowers star-shaped; tube 7-12 cm long; segments white to pink, usually with a deep red keel, recurved, c. 6-7 × 1 cm; style deep red above; fruit beaked.

Frequently on river banks or beds of temporary streams; sandy woods; *dry sandy habitats;* 800-1200 m alt.

Namibia, S. Africa, NW Botswana. – Fairly widespread.

Near *C. binghamii.*

C. calamistratum Bogner & Heine; Taxon 58: 566, 569, 2009.

Amphibious, bulbous herb; leaves rosulate, ± *suberect*, 70-200 × 0,4-0,5 cm, *intensely crisped*, margins entire; peduncle c. 80 cm long, 0,6 mm Ø; umbel *1-3-flowered*; flowers radial symmetrical; perianth tube 10-12 cm long, c. 3 mm Ø, light green; segments *recurved*, white, 6-7 × 0,5-0,8 cm; fruit unknown.

Stream banks temporarily flooded but probably dry sometimes; 325 m alt.

Near *C. natans.*

Only known from the type collected in 1948 (Gregory 332) and by cultivated specimens in München (Bogner 1747).

C. crassicaule Baker; Fl. Zambes. 13/1: 126, 2008. – Icon.: Flow. Pl. S. Afr. 42: pl. 1676, 1973; Herbertia 60: 121-123, 125-127, 2006; idem 54: 132, 2000 (as *C. foetidum);* Pickering & Roe, Wild flowers Victoria Falls area: 24, 2009.

syn.: *C. foetidum* I. Verd.

Bulb to 15-20 cm Ø, narrowing into a neck; leaves ciliate, spreading on ground, *glaucous*, to 83 × 4,8-16 cm, lacking keel or midrib, often necrotic apically, with a repelling smell when crushed; scapes 1-2, suberect, lateral, 9-30 cm long; spathe valves

CRINUM CRASSICAULE

5,5-9 cm long, greenish yellow, drooping at anthesis; umbel 3-10(-17 ? -)flowered; pedicels 0,2-1,5 cm long; perianth tube 10-11 cm long; segments acuminate, connivent into a bell 8,5-11 cm long, apex whitish or reddish *(inner* segments *> 2 cm broad);* fruit subglobose, beaked.

Disturbed areas on sandy soils; 800-1200 m alt.

Botswana, S. Africa.

Near *C. papillosum.* – Sympatric with *C. aurantiacum;* they may be difficult to separate without fruits and seeds.

C. crassicaule sensu I. Verdoorn in Bothalia 10: 56, 1969, and 11: 42, 1973, is *C. subcernuum.*

There is a photograph of a *Crinum* from the Victoria Falls published in Bulb Newsl. 30: 4, 2000. It may represent *C. crassicaule.*

I. Nordal & al. (Taxon 51: 187-188, 2004) proposed to reject the name *C. crassicaule* arguing that the type (Baines s.n., Botswana, Köbis, etc., 1861) is a poor specimen and that the illustration, paintings by T. Baines in October 1861, were made "long after the flowers had faded". Ultimately an epitype was proposed by Lehmiller (article in Herbertia 60: 120-129, 2006) and Nordal & al.'s proposal was not accepted (Taxon 53: 819, 2004).

C. fimbriatulum Baker; Figueiredo & Smith, Pl. Angola: 170, 2008. – Icon.: Bull. Louisiana Soc. Hort. Res. 3: 248, 1970; Herbertia 60: 71-73, 75-77, 79-81, 2006.

Bulb ovoid, 7-16 cm Ø, with an above-ground false stem 7-15 cm long (always ?); leaves 12-16, *undulate*, in rosette, suberect, arching 90-145 × 7,5 cm, margins *finely serrate;* scape *appearing during early leaf development*, c. 1-1,4 m long; umbel 3-21-flowered; flowers bell-shaped, sessile; perianth tube curved only in the distal 2-3 cm portion, light green, 12-15 cm long; segments white, 11,4-13,3 × 2,7-3,8 cm, with a ventral *dark-pink stripe*; flowers drooping after anthesis; fruit bulky, ±globular, *beak 5-11,5 cm long*, light green, turning dull yellowish, indehiscent, 4-6 cm Ø.

Flooded meadows; also growing with *Flagellaria indica;* periodically flooded depressions in dry forest with *Adansonia digitata*, *Euphorbia conspicua*, in full sun; 160 to < 300 m alt.

Near *C. kirkii.*

C. glaucum A. Chev.; Herbertia 52: 123, 1997; Akoegninou & al., Fl. analyt. Bénin: 32-33, 2006; Taxon 58: 569, 2009. – Icon.: Gard. Chron. 1905/2: plate facing p. 10, 1905 (sub nom. *C. rattrayi;* from Uganda); Fl. Cameroun 30: 13, 1987.

syn.: Enum. 3: 83, 1995.

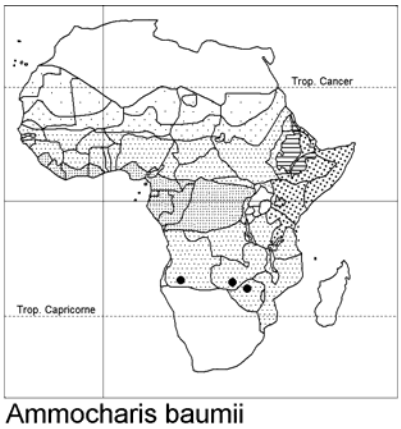
Bulb ovoid, c. 20 × 20 cm, multiplying to form clumps; tunic white, papery; leaves *glaucous*, ± *succulent*, broadly lanceolate, 70-120 × *10-15 cm*, with a midrib and *>50* closely *parallel* nerves, margins not undulate; scape 0,6-1,2 m long; umbel 7-10-flowered; flowers sessile, tulip-shaped, pure white; fruit ovoid, green with beak to 15 cm long; seeds large, few per fruit. – Leaves developing after flowering.

Grassy swamp sides; riverine vegetation and humid places in savanna; sometimes common; c. 1200 m alt. in Uganda.

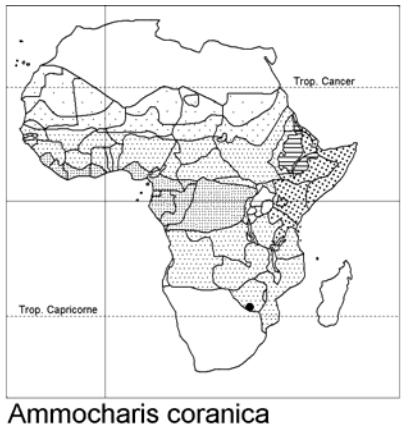
Near *C. jagus.*

C. harmsii Baker; Figueiredo & Smith, Pl. Angola: 170, 2008. – Icon.: Heath, Field guide pl. N Botswana: 340, 2009. – Type: Baum 330, Angola, Kuebe River, Matunguë (not Malangue).

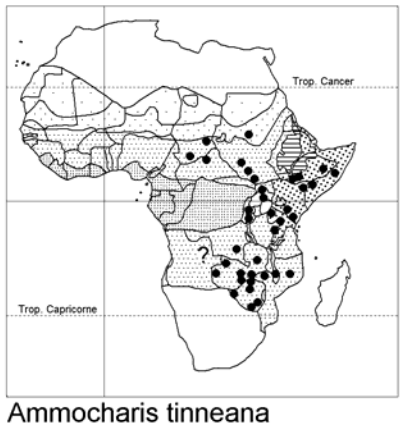
syn.: *C. graminicola* sensu Sölch in Merxmüller, Prodr. Fl. S. W. Africa 150: 6, 1969, and sensu Roessler in Mitt. Bot. Staatssamml. München 11: 536, 1974, non I. Verd. 1953.



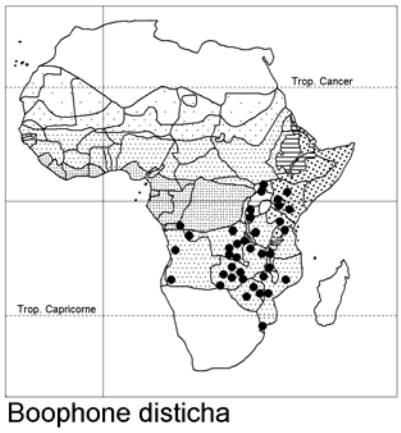
Ammocharis baumii



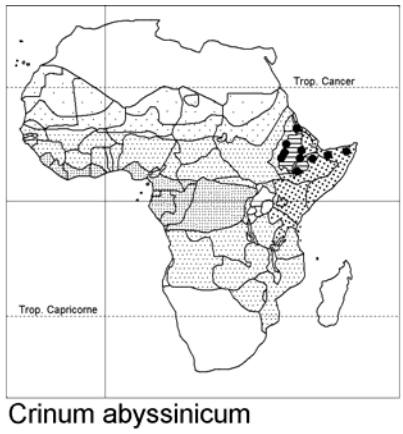
Ammocharis coranica



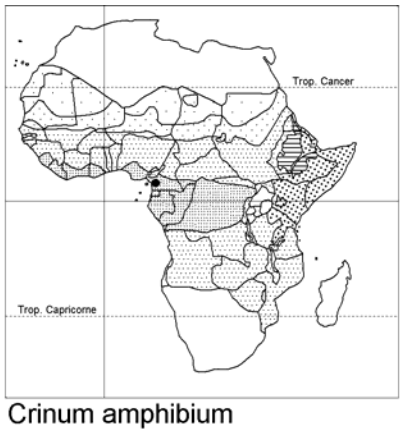
Ammocharis tinneana



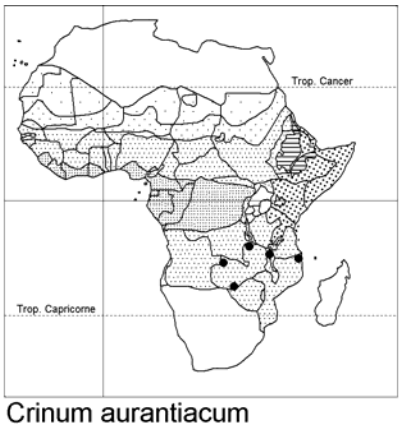
Boophone disticha



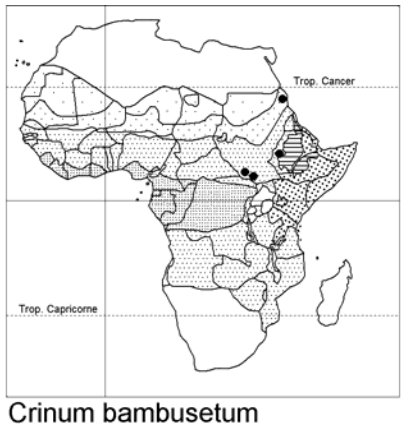
Crinum abyssinicum



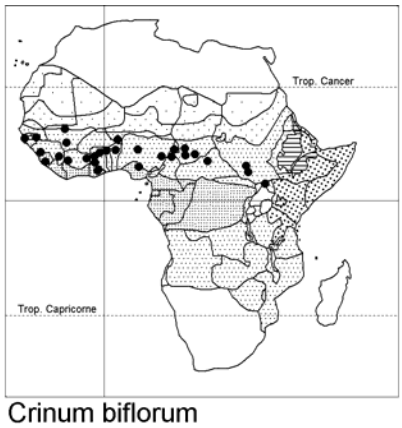
Crinum amphibium



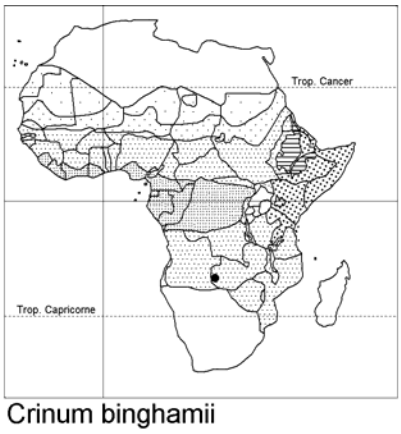
Crinum aurantiacum



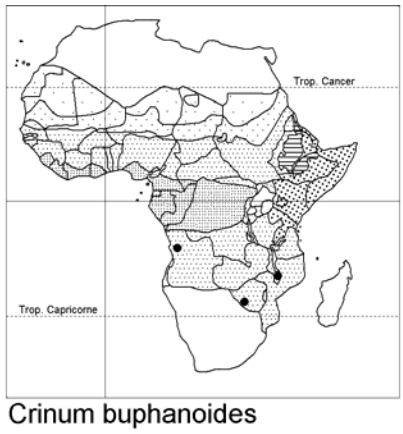
Crinum bambusetum



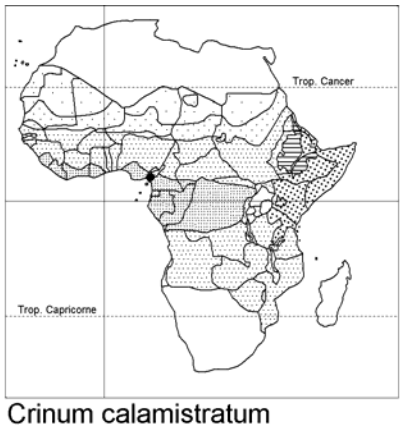
Crinum biflorum



Crinum binghamii



Crinum buphanoides



Crinum calamistratum

CRINUM HARMSII

Bulbous herb c. 85 cm tall; leaves *8-12 cm broad, green,* sprawling, bearing prominent nerves, *not undulate*; umbel *2-7*(? 20)-*flowered;* perianth segments with *a pink dorsal stripe;* seeds *papillose,* tan coloured, turning *black* at maturity.

Sandy plateau near a tributary of the Okavango River; 1250 m alt.

Botswana (Plowes 7029, fide Lehmiller in Herbertia 52: 53, 1997), Namibia (grassland).

Has been confused with *C. graminicola* I. Verd., which differs by its smooth green seeds; umbels 15-20-flowered; perianth segments diffusely pinkish red or with a brightly pigmented dorsal stripe. Both species have flowers with a perfume-like scent.

We do not know the locality in Angola of the specimen Mendes 427.

The plant is cited from Zambia by P. S. M. Phiri, A checklist of Zambian vascular plants: 104, 2005, but does not figure in Fl. Zambes. 13/1, 2008.

C. jagus (J. Thomps.) Dandy; Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 219-220, 2002; Cheek & al., Pl. Kupe…: 425, 2004; Sosef & al., Check-list pl. vascul. Gabon: 44, 2006; Lejoly & al., Fl. Tshopo in Taxonom. 24: 3, 2008; idem Cat.-fl. Kisangani & Tshopo in Taxonom 30: 29, 2010; Figueiredo & Smith, Pl. Angola: 170, 2008; Lisowski, Fl. Rép. Guinée 1: 378, 2009; Taxon 58: 569, 2009; Harvey & al., Pl. Lebialem Highl., Cameroon: 150, 2010. – Icon.: Fl. Afr. Centr., Amaryll.: 8, 1973; Adansonia, Sér. 2, 20: 181, 185, 187, 1980; Fl. Cameroun 30: 13, 1987; Akoegninou & al., Fl. analyt. Bénin: 33, 2006; Plantsman, N. S. 7: 226, 2008.

bas.: *Amaryllis jagus* J. Thomps.

syn.: *A. latifolia* Lam.; *A. gigantea* W. T. Aiton; *Crinum petiolatum* Herb., incl. var. *spectabile* Herb.; *C. spectabile* Herb. ex Steud.; *C. vanillodorum* Welw. ex Baker; *C. suaveolens* A. Chev.; *Taenais ampla* Salisb., nom. inval.; Enum. 3: 83, 1995; ? *Amaryllis candida* Tratt.

Bulb 2,5-14 cm Ø, without neck; leaves variously petiolate, lanceolate to oblanceolate, 20-45 × *4-7 cm, bright green, thin,* with to *30 discrete nerves,* margins often undulate; scape 10-90 cm long; umbel above leaves 2-3(-12-)flowered; flowers sweetly scented, subsessile, irregular, bell-shaped; perianth tube green, slightly curved, 10-20 cm long; segments pure white or with pale green midrib dorsally, oblong to obovate, 5-10 × 2-4 cm, spreading widely; filaments white, anthers black, style white; fruit green, ellipsoid, 3-5 × 3-4 cm, beak 5-13 cm long; seeds green, smooth, 1-2 cm Ø, irregular in shape.

Riverine vegetation; swamps in forest; weed in cultivations; seasonally flooded sedge meadow; often in water; boggy places by river; near boggy river banks with orchids, *Raphia* sp.; sometimes in humid meadows; 0-1800 m alt.

S. Tomé.

Medicinal plant (Fitoterapia 74: 23-28, 2003). Cultivated in African gardens, and in other tropical countries. "Does not seem to escape" in Kenya (Fl. Trop. E. Afr., Amaryll.: 17, 1982).

C. jasonii Bjorå, Kwembeya & Nordal; Fl. Zambes. 13/1: 128, 2008. – Icon.: Kew Bull. 61: 572, 574, 575, 2006.

Bulb surrounded by dark scales, c. 10 × 10 cm, neck c. 10 cm long; leaves arcuate, c. 30 × 6 cm, *scabrid,* margins slightly undulate, apex often necrotic, *exuding white sap* when torn; for arrangement of leaves young and adult, see below under *C. biflorum;* scape to 25 cm long, spathe valves early withering; flowers *3-6* per inflorescence; pedicels *2,5-3,5 cm long;* perianth tube

CRINUM JASONII

greenish, 12-14 cm long; segments connivent to a bell, white with a *green keel* and *pink reticulation* in sun-exposed areas; anthers *black* with a *cream-coloured stripe;* fruit greenish, to 3 × 2,5 cm, *without beak;* seeds floating in water.

Seasonally flooded heavy clays within mopane woodland; c. 600 m alt.

Resembling *C. macowanii* but inflorescence, flower colour, and fruit-shape different.

Discovered in 2004.

C. kirkii Baker; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 321, 1994. – Icon.: Lehmiller in Bulbs 8 & 9: 17, 2006-2007.

syn.: *C. zeylanicum* (L.) L. var. *reductum* Baker; *C. zeylanicum* sensu Nordal, Norweg. J. Bot. 24: 188, 1977, p.p., non (L.) L.

Bulb 15-20 cm Ø, neck often considerable; leaves *flaccid,* to 120 × 4-13 cm, keeled, margins *scabrous* to *serrulate, crispate*; scape 30-50 cm long, contemporary with the leaves; flowers > *8 per inflorescence* (3-24), scented, night-opening; perianth tube greenish, 9-15 cm long; segments green becoming pure white with a broad sharply bordered purple dorsal streak, *9-14* × 2-3,5 cm, connivent to a funnel; fruit *globose,* without beak, *crimson* to *rose.*

Grassland; *Acacia, Commiphora* bushland; 0-2300 m alt.

C. zeylanicum was often sold as *C. kirkii* (fide Lehmiller, l.c.).

Has been confused with *C. fimbriatulum.*

C. kirkii sensu I. Verdoorn in Bothalia 11: 38, 1973, non Baker, is *C. verdoorniae.*

C. longitubum Pax; Figueiredo & Smith, Pl. Angola: 170, 2008.

Bulb and leaves unknown; scape short, 0,8-1,2 cm Ø; umbel dense, > 20-flowered, spathes 8 cm long, 3 cm wide; pedicels c. 4 cm long; "flowers probably white"; perianth tube straight, cylindrical, c. 12 cm long, 2 mm Ø, segments linear, 7 cm × 4 mm, spreading; ovary 12 mm long, 6 mm Ø; fruit unknown.

Ecology unknown.

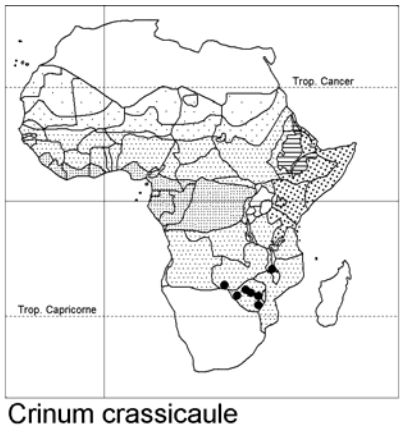
Known only from the type collected in 1879, flowering (Teuscz 294).

Near *C. buphanoides.*

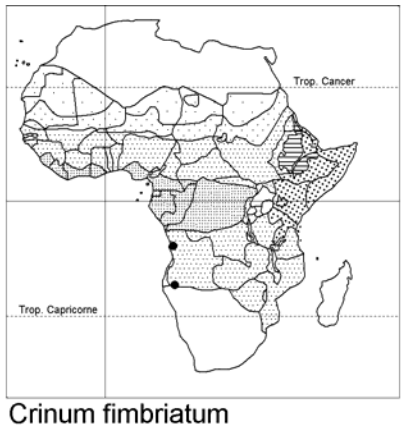
C. macowanii Baker, incl. subsp. *confusum* I. Verd. and subsp. *kalahariense* L. S. Hannibal, nom. inval. (without Latin description); Strugnell, Checklist spermat. Mt. Mulanje, Malawi 37, 2006; Nord. J. Bot. 25: 141-142, 2008 [map]; Fl. Zambes. 13/1: 129-130, 2008; Figueiredo & Smith, Pl. Angola: 170, 2008; Fl. Eth. & Eritrea 1: 247, 2009 [in key]; Sebsebe Demissew & al., Flowers Eth. & Eritrea…: 104, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 174, 2010. – Icon.: Bot. Mag. 29: pl. 1178, 1809, sub nom. *Amaryllis revoluta* auct., non L'Hér.; idem 128: pl. 7812, 1902 (sub nom. *C. johnstonii);* Tredgold & Biegel, Rhodes. wild flow.: pl. 5/4, 1979; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 148, 1994; Thulin, Fl. Somalia 4: 60, 1995; Fl. Eth. & Eritrea 6: 160, 1997; Flow. Pl. Africa 56: pl. 2146, 1999; Kew Bull. 61: 574, 2006; Plantsman, N. S. 7: 227, 2008; Kakteen & Sukk. 59: 50-51, 2008; B.-E. van Wyk & al., Medicin. pl. S. Afr., ed. 2: 107, 2009.

syn.: Enum. 3: 83, 1995; *C. corradii* Chiov. ex Chiarugi (type in herb. Firenze/Florence, Tardelli & al. 1: 12, 2001).

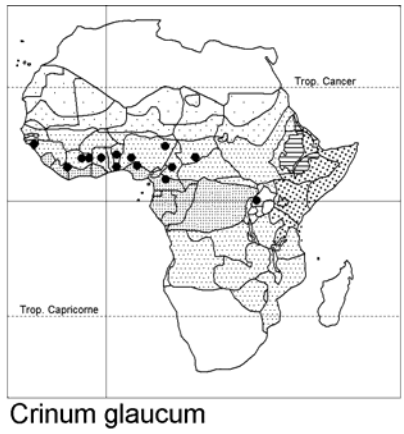
Herb with a globose bulb 10-25 cm Ø, neck often to 30 cm long; leaves strap-shaped in rosette, papery, *glaucous,* rarely pure green, variable, without distinct midrib, 10-130 × 2-10 cm, ± prostrate, central ones arcuate or *erect;* margins ± undulate, *scabrous,* tips often necrotic; scapes 1-3, 10-60 cm long, ± erect, usually



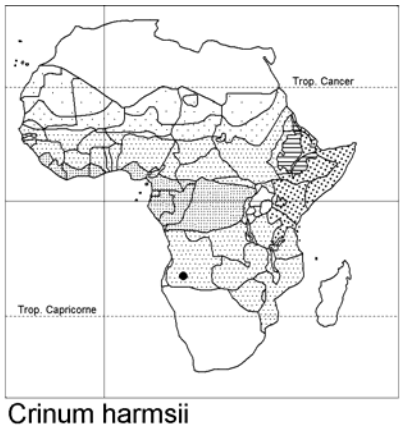
Crinum crassicaule



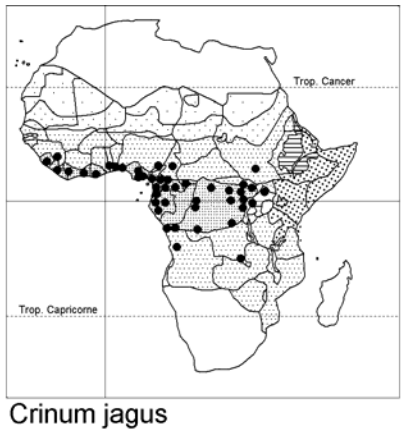
Crinum fimbriatum



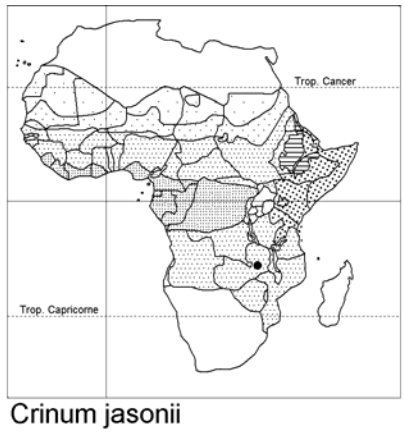
Crinum glaucum



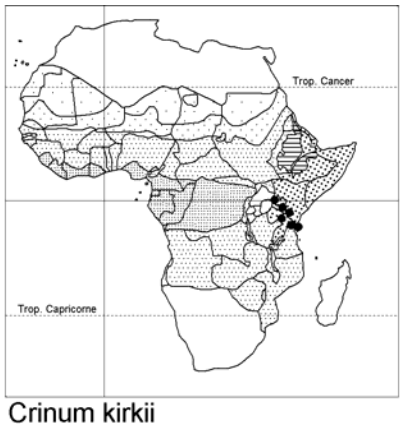
Crinum harmsii



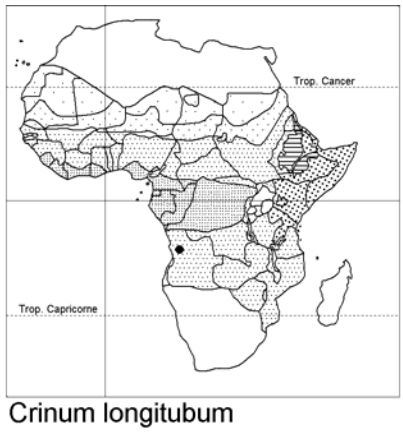
Crinum jagus



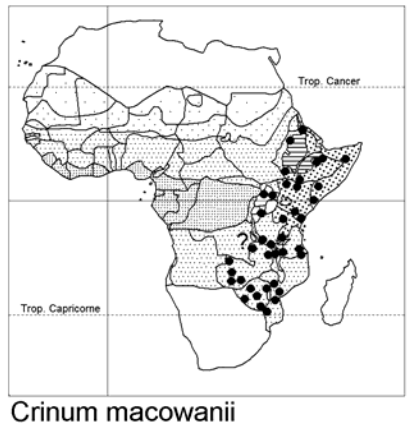
Crinum jasonii



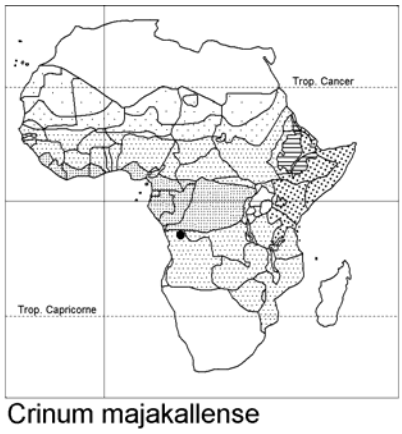
Crinum kirkii



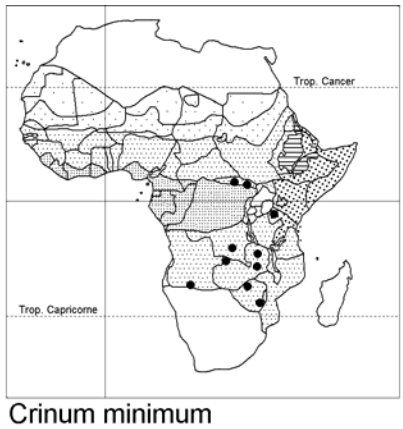
Crinum longitubum



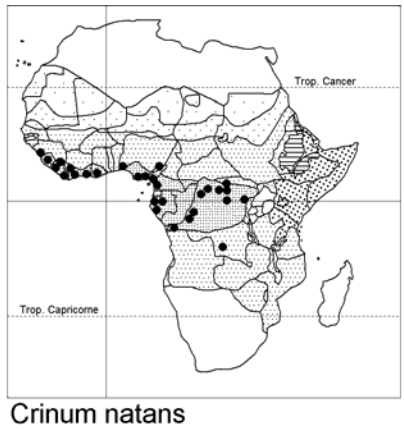
Crinum macowanii



Crinum majakallense



Crinum minimum



Crinum natans

contemporary with the leaves; valves papery, 5-12 × 1-3 cm, withering early; umbel 2-4-20-flowered; pedicels 0,5-6,5 cm long; flowers often scented, nodding; tube greenish to brownish crimson, curved, 7-15 cm long; segments white, with pink to rose, dull crimson or red midrib on the back (rarely white with faint green midrib), 7-13 × 2-4 cm, forming a bell; fruit green to dull yellow, surface irregular undulate, *beaked;* seeds viviparous, floating in water.

In various habitats. Grassland on heavy black soil; woodland; often in disturbed places; open *Acacia* bushland; often on heavily grazed or degraded land; sandy red soils; gritty silt; dambos; 500-2700 m alt.

Variable plant. Very robust specimens are frequent in Kenya Highlands, with e.g. large bulbs (cf. Kakteen & Sukk., l.c.). Different cytological forms occur, diploid ($2n = 22$) and tetraploid ($2n = 44$), the latter more robust.

Namibia, S. Africa, Botswana, Swaziland.

Has been confused with *C. moorei* Hook f. in S. Africa (cultivated in tropical Africa).

C. majakallense Baker; Figueiredo & Smith, Pl. Angola: 170, 2008.

Bulb unknown; leaf linear, firm, 1, 8 cm wide, margins denticulate; umbel 1-3-flowered; scape ± slender; spathe valves oblong, acute, c. 7,5 cm long; pedicels very short; perianth tube curved, 10 cm long; segments oblong, acute, connivent, *7,5 cm long,* with a broad bright red band dorsally; fruit unknown.

Near river.

Known only from the type collected in 1880 (Mechow 529).

Near *C. zeylanicum*.

C. minimum Milne-Redh.; Fl. Afr. Centr., Amaryll.: 9, 1973; Herbertia 52: 90-94, 101-108, 1997, and 54: 130, 2000; Fl. Zambes. 13/1: 122, 2008; Figueiredo & Smith, Pl. Angola: 170, 2008. – Icon.: Herbertia 52: 51, 1997, and 54: 132, 2000 (seed).

syn.: *C.* aff. *minimum* Milne-Redh. sensu Troupin, Fl. spermat. Parc. Nat. Garamba 1: 205, 1956; *C. stenophyllum* Baker 1903, nom. illeg., non 1881 (Asiatic species).

Bulb 3-8 cm Ø, neck 5-8 cm long; leaves linear, erect, rosulate, *involute,* c. 7-32 × *0,2-0,4(-0,8) cm,* margins glabrous; scape above ground in flower, 4-19 cm long; flower 1(-2), sessile; perianth tube pinkish, curved, 8,5-15 cm long; segments acuminate, widely reflexed, resembling star-shaped *Crinum,* white with a pink dorsal streak, 8-13 × 1,2-2,5 cm; fruit not beaked, subglobose, 1,5-3 cm Ø.

Deep sand; stony soils; savanna; arid stony hillsides in *Acacia-Combretum* woodland; 1000-1400 m alt.

S. Africa.

C. parvibulbosum Dinter ex Overkott is a distinct species occurring in Namibia (cf. Norweg. J. Bot. 26: 151-152, 1979; Flow. Pl. Afr. 56: 36, 1999).

[**C. moorei** Hook. f.]; Fl. Trop. E. Afr., Amaryll.: 9, 1982; Fl. Zambes. 13/1: 118, 2008. – Icon.: Bot. Mag. 100: pl. 6113, 1874, and 153: pl. 9162, 1929 *[Amaryllis moorei* (Hook. f.) Stapf].

Robust plant with a false stem; bulb 15-19 cm Ø, neck 30-120 cm long; leaves bright green 1 × 0,2 m with a prominent midrib; scape 45-70 cm tall ending in 5-10 white to pink bell-shaped flowers, perianth tube 8-10 cm long, curved; lobes 8-10 × 2-4 cm.

Native of S. Africa. Cultivated in E and south. African gardens; not naturalizing.

C. natans Baker, incl. subsp. *inundatum* Kwembeya & Nordal; Fl. Afr. Centr., Amaryll.: 9-10, 1973; Cable & Cheek, Pl. Mt Cameroon: 145, 1998; Kew Bull. 59: 603, 2004 (in key); Cheek & al., Pl. Kupe…: 425, 2004; Sosef & al., Check-list pl. vascul. Gabon: 44, 2006; Lejoly & al., Flore de la Tshopo (RD Congo) in Taxonom. 24: 3, 2008; idem, Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 29, 2010. – Icon.: Aqua-Planta 87: 124, 126, 1987; Fl. Cameroun 30: 13, 1987; Fl. Gabon 28: 35, 1986; Taxon 58: 564-565, 2009; Lisowski, Fl. Rép. Guinée 2: fig. 462, 2009.

Submerged aquatic herb 30-75 cm tall; bulb cylindrical, 1-4,5 cm Ø in mud; leaves in a rosette, sessile, strap-shaped, 20-180 × 0,8-5 cm, floating like ribbons in the stream, fleshy, glabrous, midrib ± prominent above, distinctly undulate or not, margins denticulate; scape (9-)35-75 cm tall, erect; umbel 3-6 flowered; flowers borne above the water, sweetly scented, white, stellate; perianth tube 10-20 cm long; segments spreading, 5-9 × 0,7-1,6 cm; fruit ellipsoid, 2,3-3 × 1,5-2 cm, beak 0,5-6 cm long.

Flooded forests; water holes in savanna; partially shaded (permanent) rivers and streams; between rocks; sandy or pebbly soils; a component of the *Eichhornieto-Ranalismetum* association; 0-1500 m alt.

Bioko/Fernando Poo.

Sometimes ? introgression with *C. purpurascens:* inflorescence pink, stamens and style red (Cameroon, Letouzey 9222, 25 km N Campo).

C. nordaliae Mabb.; Figueiredo & Smith, Pl. Angola: 170, 2008.

syn.: *C. biflorum* Baker 1903, non Rottb. 1773, nom. illeg.

Bulb unknown; leaves 1,75-2 cm broad; scape 1,3 cm Ø; umbel 2-flowered; perianth tube straight, 12,5 cm long; segments lanceolate 6,2 × 7,5 cm; fruit unknown.

Ecology unknown; 1150 m alt.

C. nubicum L. S. Hannibal, 1972; Akoegninou & al., Fl. analyt. Bénin: 33-34, 2006; Lisowski, Fl. Rép. Guinée 1: 378, 2009. – Icon.: Lehmiller in Herbertia 52: 130, 1997 (sub nom. *C. humilis).*

syn.: *C. exile* Bjorå & Nordal in Taxon 58: 569, 2009, nom. nov. superfl.

Small herb with ovoid bulb *3-5 cm Ø*; *neck tubular,* tunics breaking up into stiff fibres at top; leaves in rosette, sub-erect, grass-like, 15-25 × *0,2-0,8 cm; scape 4-18 cm tall*; umbel 1(-2)-flowered; perianth tube 6-11 cm long; segments narrow, *6-8 × 1-1,5 cm,* white with a dark red median streak; fruit ovoid, shiny green turning reddish brown, beak 0,3-1 cm long.

Savanna woodland in thin soil overlying rock; dry grassy savanna; alluvion on hardpan; thin soil on sandstone slab with *Sporobolus pectinellus;* riparian woodland along creek with *Berlinia* sp., *Breonadia salicina, Syzygium guineense; Setaria sphacelata* meadow bordering riparian vegetation; 600 m alt.

Lehmiller (o.c.: 124-125) argues that the specific epithet *[Crinum] humilis* [A. Chev.] is a noun in the genitive case chosen by A. Chevalier, and not an adjective for which the latter had erroneously selected the wrong gender (masculine and not neuter). We do not see why Chevalier had chosen a noun in this case, as *humilis* seems to refer to the small size of the plant. The Latin noun *humilis*, normally used in plural, refers to a "man of common extraction". So we still believe that *Crinum humilis* is an orthographic error; it was also interpreted in this way by earlier authors, e.g., Hepper (Fl. W. Trop. Afr. 3/1: 136, 1968). Thus we maintain that Hannibal's nomen novum is correct. According to the International Code of Botanical Nomenclature (Vienna Code), Article 53.3, "epithets so similar that

they are likely to be confused if combined under the same generic or specific name" are treated as homonyms. We think that this is applicable in this case: *Crinum humile* Herb. and *Crinum humilis* A. Chev. could easily be confused.

C. ornatum (L. f. ex Aiton) Herb. / **C. zeylanicum** (L.) L. / **C. latifolium** L.

How to interpret this species complex in tropical Africa ? Lehmiller (Herbertia 61: 144-145, 2007) concluded that *C. latifolium* L. (1753) is a distinct plant which has its origins in India, name based on van Reede's illustration (11: 78, t. 39, 1692, sjovanna pola tali). He rejects the proposal by Dassanayake (Taxon 30: 481-482, 1981) that "for practical reasons… the name *C. zeylanicum* should be retained until the identity of *C. latifolium* has been established". Yakandawala & Samarakoon (Ceylon J. Sci./Biol. Sci. 35: 53-72, 2006) argued that *C. latifolium* and *C. zeylanicum* are two distinct species native in Sri Lanka. To this Lehmiller (o.c.: 140-145) gave a "taxonomic reclassification" in publishing "*Crinum* × *zeylanicum* (L.) Lehmiller, hyb. comb. novo", with the lectotype: Commelin 1: 73, t. 37, 1697 (Moninckx Atlas 1: t. 34, 1690). "Apparently this hybrid has been in cultivation in Sri Lanka for centuries…but there do not appear to be indigenous species available to fully account for its origin…The pattern is similar to the widely distributed, sterile, triploid *Crinum* hybrid in West Africa". Nordal & Wahlström (Nord. J. Bot. 2: 465-473, 1982) showed that *C. zeylanicum* in tropical Africa is heterogeneous and that different cytotypes occur. Material from Kenya (Elgon), Uganda and Cameroon, forest and savanna habitats included, is triploid (3n = 33), another collection from Cameroon, also from savanna, is diploid (2n = 22).

"But the greatest confusion exists over the true identity of the *Amaryllis ornata* L. f." (Hannibal in his "Systematic review of the genus Crinum": p. 9). The latter work summarises the nomenclatural history (p. 9-12) and presents a reprint of the key texts relating to *A. ornata* (p. 59-63). Hannibal's view of "*Crinum* series *Ornatae:* African portion" is also given (p. 35-40).

I. Nordal and B. M. Fangan (in Seyani & Chikuni, Proceed. XIIIth Plenary Meeting AETFAT, Malawi, 1991, published in 1994) summed up the difficulty in naming *C. zeylanicum-C. ornatum.* They revealed that the two morphologically similar taxa are distinct. They decided to use *C. ornatum* for the African plant, with *C. zeylanicum* L. p.p. as a synonym. *C. zeylanicum* is an Asiatic species. This was followed for the treatments of *Crinum* in, e.g., Flora of Somalia (4, 1995) Flora of Ethiopia (6, 1997), Sebsebe & Nordal for Flowers of Ethiopia and Eritrea, Aloes and other Lilies (2003, 2010), as well as in Taxon 58 (p. 561-571, p. 569, in clavi, 2009). *C. ornatum* is also used in Flora Zambes. 13/1: 127, 2008, cited under *C. verdoorniae,* a species very similar to *C. ornatum.* It was already used by Geerinck for Flore d'Afrique Centrale, Amaryllidaceae (1973). This is the concept we chose for our present listing.

However, The World Checklist of Monocotyledons, Royal Botanic Gardens, Kew, has lumped the species complex under *C. zeylanicum* (L.) L., with a distribution area ranging from tropical and S. Africa, through to Seychelles, India, Sri Lanka. The numerous SYNONYMS figure there. Recent checklists relating to West and Central Africa adopt this wide view, e.g., Harvey & al., Plants Bali Ngemba…: 133, 2004 (with illustration pl. 7A); Sosef & al., Check-list plantes vasculaires du Gabon: 44, 2006; Akoegninou & al., Flore analytique du Bénin: 34, 2006; Lisowski, Flore de la Rép. Guinée 1: 379, 2009; Lejoly & al., Flore de la Tshopo in Taxonom. 24: 3, 2008, and Catalogue-flore Kisangani et Tshopo in Taxonom. 3: 29, 2010.

C. ornatum (L. f. ex Aiton) P. S. Bury – Icon.: Sebsebe & Nordal, Flowers Eth. & Eritrea: 104, 2003, and Aloes & Lilies Eth. & Eritrea, ed. 2: 175, 2010.

bas.: *Amaryllis ornata* L. f. ex Aiton

syn.: *Crinum zeylanicum* auct., e.g., Nordal in Fl. Trop. E. Afr., Amaryll.: 15, 1982, non L. (based on *Amaryllis ornata* L. f. ex Aiton); *Crinum toxicarium* A. Chev. 1910, non Rumph. ex Roxb. 1814, nec Roxb. ex Hornem. 1819; *C. veneficium* L. S. Hannibal; *C. yuccioides* (J. Thomps.) Herb. (based on *Amaryllis yuccioides* J. Thomps.); *C. broussonetii* (DC. in Redouté) Herb. (based on *Amaryllis broussonetii* DC. in Redouté); *C. yucciflorum* Salisb.; *Taenais yucciflorum* (Salisb.) Salisb.; *Crinum speciosissimum* Herb.; *C. undulifolium* Herb.; *C. scaberrimum* Herb.; *C. careyanum* Herb.; *C. broussonetianum* Herb.; *C. rueppelianum* Fresen.; *C. doriae* auct., Bull. Soc. Tosc. Ortic. 1894: 19, 1894; *C. scabrum* Herb.

Bulb 10-15 cm Ø, neck often considerable; often propagating vegetatively, forming clusters; leaves erect, *dull,* not glaucous, narrowly lanceolate, to 60-75 × 1,5-6-9 cm, keeled, margins glabrous to slightly scabrous; scape 20-65 cm long, contemporary with the leaves; bracts persistent, greenish tinged red; umbel 1-9-flowered; flowers sessile, dark greenish red in bud; tube greenish to reddish, curved, 8-13 cm long; segments first green, becoming pure white with a broad sharply bordered mauve to purple streak visible on both faces, lanceolate, 8-11 × 2-3 cm, connivent to a zygomorphic bell; fruit *greenish tinged red,* subglobose, beak to 0,5 cm long, 15-45-seeded.

Grassland; forest or riverine vegetation; abandoned cultivations: disturbed places; roadsides; rice-fields; humid soils on sides of hollows; inundated places; clayey humid soils; gallery; savannas; woodland; open forests; swampy depressions; red sandy or dark brown loamy soils; component of the *Eriocaulo pumili-Ophioglossion gomezianum* alliance of seasonal ponds in W Africa (Müller & Deil in Phytocoenologia 35: 327-388, 2005; see p. 353); 500 (? and less) -2240 m alt.

Not in Namibia.

"C. zeylanicum" is often sold as *C. kirkii* in USA/Florida (Lehmiller in Bulbs 8 & 9: 16, 2006-2007).

For *Crinum ornatum,* see also:

LEHMILLER, D. J. (1997). Amaryllis ornata L. f. in Aiton, unpublished manuscripts of Linnaeus filius, and Crinum series Ornata Herbert. *Herbertia* 52: 112-118.

HYBRIDS:

(Cultivated) **Hybrid A** in Lehmiller, Herbertia 52: 125-126, 1997. – Icon.: ibid.: 130, fig. 4.

syn.: *C. scabrum* sensu A. Chevalier in Rev. Int. Bot. Appl. Agric. Trop. 30: 618, 1950; *C. zeylanicum* sensu Wahlström & Laane in Hereditas 91: 183-203, 1979, p.p.

Forming large clumps of 20-50 bulbs. Triploid sterile hybrid with scape 21-33 cm long and 1-6-flowered umbel with funnel-shaped zygomorphic unscented flowers occurring in Chad and Cameroon.

In disturbed soils near agrarian dwellings.

Widely distributed according to Lehmiller in Herbertia 61: 145, 2007, and similar to his *C.* × *zeylanicum* (L.) Lehmiller (cf. above).

CRINUM ORNATUM-HYBRIDS

Crinum sp. A sensu Nordal in Fl. Cameroun 30: 24, 1987.

Scape 25-45 cm tall; umbel 1-2-flowered; flowers sessile, scented, variable in shape; tube greenish; fruit subglobose, beak 3-4 cm long.

On islands in river mouth.

Seems to be a hybrid *C. jagus* × *C. natans,* formerly determined as *C. biflorum.*

Lehmiller in Herbertia 62: 246, 2008, quotes 2 hybrids seen during field expeditions. One supposed to be *C. broussonetii* × *C. humilis (= C. ornatum* × *C. nubicum)* from Cameroon; the other one *C. broussonetii* × *C. pauciflorum (= C. ornatum* × *C. biflorum)* from Chad.

C. paludosum I. Verd.; Herbertia 54: 122, 1999; Nord. J. Bot. 25: 141-142, 2008 (maps); Fl. Zambes. 13/1: 128-129, 2008. – Icon.: Mitt. Namibia Wiss. Ges. 38: 9, 1997; Cook, Aquat. & wetland pl. south. Afr.: 54, 2004.

Bulb round, 5-16 cm Ø, with a neck; leaves rosulate, arching, outer ± prostrate, sparsely scabrid, undulate, light green with ± metallic sheen, *3-5,5 cm wide;* scape 40 cm long, 1,8 cm Ø; flowers subsessile, suberect, *3-11;* pedicels 5-10 mm long; perianth tube 7-12 cm long; segments predominantly white inside, often pink-flushed outside; flower turning pink, trumpet-shaped, 8-12 cm long, inner segments 2,5-3 cm, outer 2-2,5 cm wide; stigmas crimson; fruit 3 cm Ø, not beaked; seeds floating in water.

Seasonally flooded pans; along periodic streams; 400-1000 m alt.

Botswana, Namibia, S. Africa, Swaziland.

Crinum sp. A in Fl. Trop. E. Afr., Amaryllid.: 18, 1982 and Norweg. J. Bot. 24: 190, 1977, from W Tanzania, is perhaps *C. paludosum* but more field studies needed.

C. papillosum Nordal; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 321, 1994; Fl. Somal. 4: 59, 65, 1995; Fl. Eth. & Eritrea 6: 159, 1997.

Bulb subglobose, 7-12 cm Ø, with a neck; leaves *green,* not glaucous, *ciliate,* lacking midrib, ± spreading on ground, to 40 × 6 cm; scapes 1-2, suberect, lateral, 3-30 cm long; umbel 3-7-flowered; pedicels 1,5-3 cm long; perianth tube 11-12 cm long, greenish; segments linear-oblong, acuminate, connivent into a funnel 10-20 cm long, outer c. 1,1 cm broad, *inner 1,5 cm broad,* whitish, with faint pink keel; fruit subglobose, c. 4 cm Ø, greenish tinged reddish, turning dull yellow, beak 0-9 cm long; seeds papillose, sinking in water.

Sand dunes along lake in almost pure sand; deciduous bushland; valley or wooded grassland; common in disturbed places; 450-1100 m alt.

Only known from one large population in Zambia. Material from SW Tanzania (type material) is slightly different in colour of perianth segments and seed surface structure. “Recent DNA analysis shows they are distinct” (Fl. Zambes., l.c.).

Near *C. crassicaule.*

(**C. parvum** Baker); Fl. Zambes. 13/1: 131, 2008.

Type: Buchanan s.n., 1896; banks of Zambezi Riv., Mozambique. Consisting of a single leaf and flower: leaf margin toothed; flower sessile, tube 7 cm long, segment 8,5 cm long; anthers yellow. These characters correspond to those of *C. acaule* Baker (cf. above).

CRINUM

C. piliferum Nordal

Bulb 3-7 cm Ø, neck c. 6 cm long; leaves spirally arranged, *canaliculate,* ± flaccid, linear, to 30 × *0,6-1 cm,* margin with scattered *hairs* 2-3 mm long; scape short, often below ground; umbel 1-3-flowered; flowers sessile; tube erect, almost straight, 9-11 cm long; segments white with faint pink midstripe, narrowly lanceolate, 7-11 × c. 1 cm; fruit subglobose, greenish, beak small; seeds few, smooth.

Open deciduous bushland, on red sandy soil; 250 m alt.

Near *C. minimum.*

C. politifolium R. Wahlström; Aliso 22: 362, 2006.

Bulb 5-16 cm Ø; with a neck often to 30 cm long; often propagating vegetatively, forming large clusters; leaves erect or spreading, *glossy,* lanceolate, 30-75 × 3-9 cm, glabrous to slightly scabrous on margin and wavy; scape 30-70 cm tall, contemporary with leaves; flowers 4-10, sessile; perianth tube greenish, 9-16 cm long; segments green becoming pure white with a broad sharply bordered mauve to purple dorsal streak, 8,5-11 × 2,5-3,5 cm, all connivent to a bell; fruit *green,* globose, without beak; seeds 5-20 *(usually < 15),* green, very irregular.

Forest; riverine vegetation; damp places in grassland; 0-2500 m alt.

Near *C. ornatum.*

Reproductively isolated: 2n = 30; related species have 2n = 22.

C. purpurascens Herb., incl. var. *angustilobium* De Wild.; Fl. Afr. Centr., Amaryll.: 11, 1973; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 66, 1985; Cable & Cheek, Pl. Mt Cameroon: 145, 1998; Kew Bull. 57: 467, 2002, and 59: 603, 2004 (in key); Cheek & al., Pl. Kupe…: 425, 2004; Sosef & al., Check-list pl. vascul. Gabon: 44, 2006; Figueiredo & Smith, Pl. Angola: 170, 2008; Taxon 58: 569, 2009 (in key); Lisowski, Fl. Rép. Guinée 1: 378-379, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 145, 2010; Cheek & al., Pl. Mefou prop. natl. Park Yaoundé, Cameroon: 215, 2011. – Icon.: Bot. Mag. 106: pl. 6525, 1880; Aqua-Planta 30: 101-107, 2005, and 35: 10, 13, 2010.

syn.: *C. koutiense* A. Chev., nom.

Bulb subglobose, 3-5 cm Ø, often with stolons on the rhizomatous part, neck very short; leaves with the flowers, strap-shaped, rosulate, *erect,* dark green, thin, 20-100 × 1-4 cm, midrib distinct, margins *rarely denticulate,* undulate; scape 20-50 cm tall, reddish; umbel 2-10-flowered; flowers subsessile; tube purple tinged, erect, 12-20 cm long, segments spreading; outer reddish purple, narrow, 5-9 × 0,3-0,7 cm; inner white; filaments purple distally, stamens orange; fruit subglobose, 1-3 cm Ø, red tinged greenish, veined, beak 8-15 cm long.

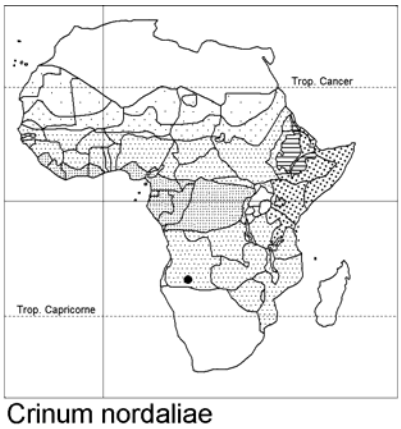
Swampy areas; in loamy soil; farmbush, cultivations; on forest floor, not submerged; 0-800 m alt.

Sometimes introgression with *C. natans* ? (see above under this species).

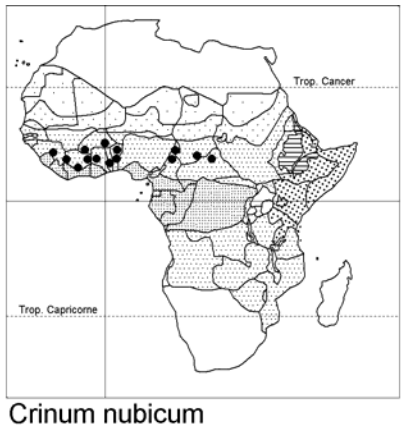
C. rautanenianum Schinz; Cook, Aquat. & wetland pl. south. Afr.: 54, 2004; Fl. Zambes. 13/1: 127-128, 2008. – Icon.: Flow. Pl. Africa 42: pl. 1642, pl. 1643, 1972 *(C. eucrophyllum);* Kew Bull. 61: 574, 2007; Veld & Flora 97: 83, 2011.

syn.: *C. euchrophyllum* I. Verd.

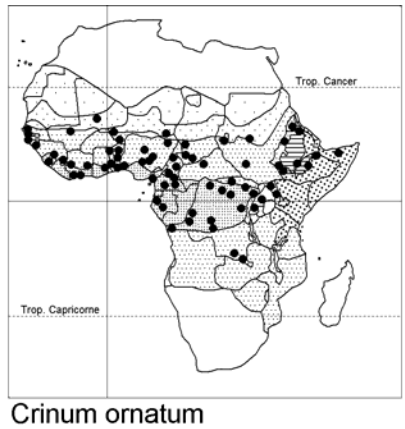
Bulb 7-10 cm Ø, neck to 13 cm long; leaves *U-shaped,* distichous, *suberect,* green or glaucous, 40-100 × *1,5-3,5 cm,* margins scabrous; scape erect, reddish below, 25-65 cm tall; flowers *1-10, white, turning pink;* pedicels 0,5-3 cm long; tube 10-14 cm long; segments 9-12 cm long, inner 3-3,5 cm broad, outer to



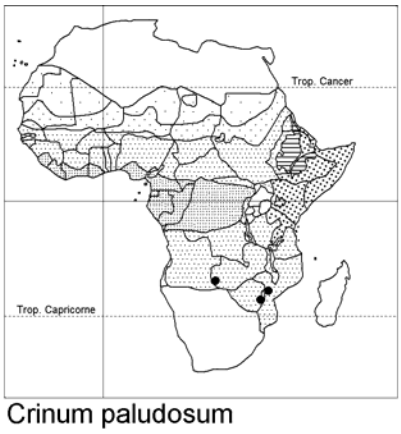
Crinum nordaliae



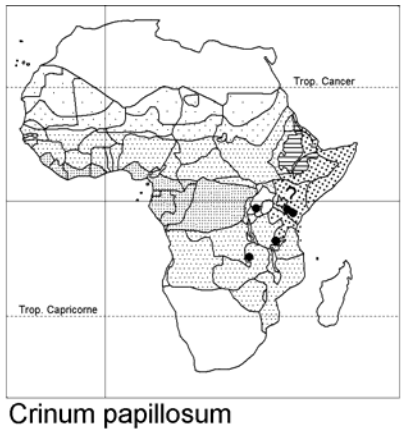
Crinum nubicum



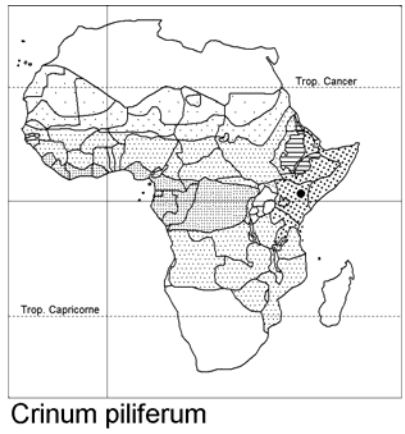
Crinum ornatum



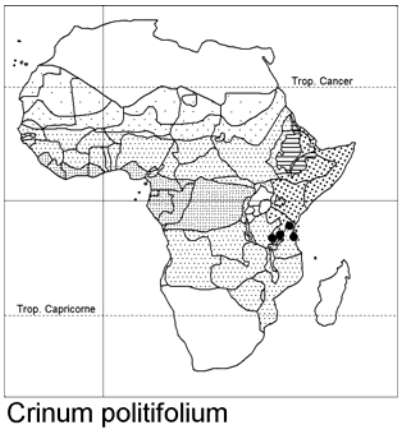
Crinum paludosum



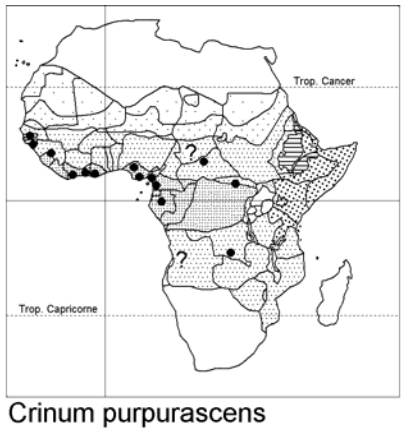
Crinum papillosum



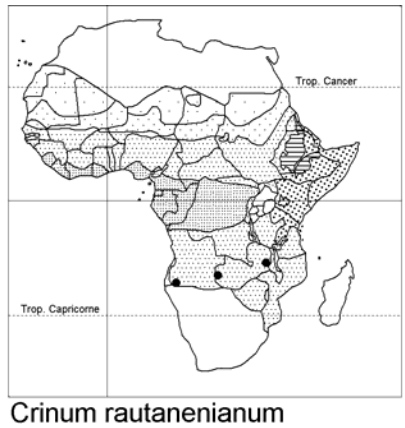
Crinum piliferum



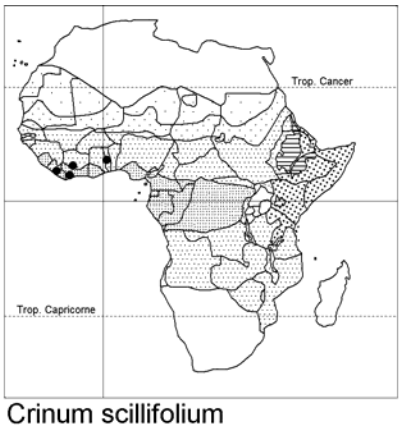
Crinum politifolium



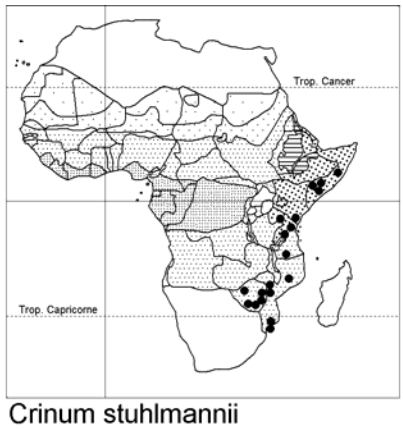
Crinum purpurascens



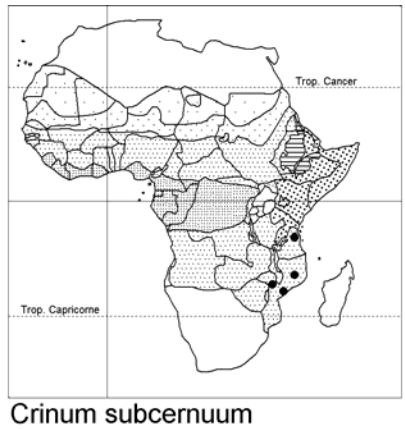
Crinum rautanenianum



Crinum scillifolium



Crinum stuhlmannii



Crinum subcernuum

CRINUM RAUTANENIANUM

2,6 cm wide, connivent into a bell, only apices reflexed; anthers black; fruit reddish, 4-6 cm long, 3,8-4,3 cm Ø, unbeaked or nearly so; seeds floating in water.

Seasonally flooded grassland; water-filled pans (vlei or shonas); c. 1000 m alt.

N Namibia, Caprivi Strip (cf. Aloe 47: 7, 2010; Nord. J. Bot. 25: 142, 2008), Botswana.

C. scillifolium A. Chev.; Rev. Int. Bot. Appl. Agric. Trop. 30: 622, 1950; Fl. analyt. Togo in Englera 4: 509-510, 1984.

Bulb c. 10 cm long, *c. 3 cm Ø*, neck c. 10 cm long; leaves canaliculate, folded, filiform, *50 × 0,9-1,5 cm*, margins *scabrous;* scape 30-40 cm long, 1,2-1,5 cm Ø; umbel 1-4-flowered; perianth tube *16-20 cm long;* segments *8-9 × 1,5-4 cm*, white with a median red streak; fruit known ?

Seasonally flooded ground on river sides in forest or clearings. Rare.

C. stuhlmannii Baker – Icon.: Flow. Pl. Africa 35: pl. 1389, 1962 (subsp. **delagoense**); Sabonet News 7: 19, 2002 (subsp. **delagoense**); Thulin, Fl. Somalia 4: pl. 2E, 1995; Fl. Zambes. 13/1: 125, 2008.

Bulb globose, 12-25 cm Ø, often with a neck; leaves glossy, strap-shaped, ± prostrate on ground, outer ones 90 × 8-19 cm, *ciliate*, without midrib; scapes 1-3, 15-65 cm tall; umbel 8-31-flowered; pedicels 2-7,5 cm long; perianth tube red, 8-13 cm long, curved; segments with a red to purplish central part fading into white or pink near margin, or the whole flushed rose or purplish with the keel a deeper rose, 7,5-13,5 × 1-1,8 cm (the outer), 1,2-2,5 cm (the inner), all connivent; fruit orange to reddish to scarlet red, globose to ovoid, 3-13 cm Ø, usually without beak; seeds smooth, greyish.

Sandy soils in grassland or wooded grassland; frequently on sandy soils along the eastern coast (often apparently pure sand); 0-1400 m alt.

Botswana, S. Africa. – Also in Zambia ? (not cited so in Fl. Zambes., l.c.).

Comprises 2 subspp.: – subsp. **stuhlmannii**, (syn.: *C. somalense* Chiov.; type in Firenze, see Tardelli & al., The types of the tropical herbarium…1: 12, 2001) with narrower perianth segments (to 1,8 cm wide), in N part of range, to Tanzania; – subsp. **delagoense** (I. Verd.) Kwembeya & Nordal (bas.: *C. delagoense* I. Verd.), with wide perianth segments (> 2 cm)

in S part of range (vicariance).

Note: The name *C. forbesii* (Lindl.) Schult. & Schult. f. emend. Herb. (bas.: *Amaryllis forbesii* Lindl., but misspelled as *C. forbesianum* by Herbert) is a nomen confusum; see Fl. Zambes. 13/1: 125, 2008). However, Lehmiller in Herbertia 48: 86-90, 1992, and 52: 46, 1997, argued for this name instead of *C. delagoense*.

C. subcernuum Baker; Nord. J. Bot. 2: 472, 1982 (in key); Herbertia 52: 47, 1997; Kew Bull. 52: 466-467, 2002, and 59: 603, 2004, and 61: 576, 2007; Fl. Zambes. 13/1: 120, 2008.

syn.: *C. menyharthii* Baker; *C. crassicaule* sensu I. Verdoorn, Bothalia 10: 56, 1969; idem 11: 42, 1973, non Baker

Bulb to 14 cm wide, ending in a thick neck; leaves in a rosette, the lower ones ± prostrate, central suberect, median to 60 × 6-7 cm; margin scabrid, undulate; scape suberect, c. 50 cm long, compressed, often tinged purplish brown; flowers 6-11, erect, star-shaped; pedicels 1,3-4 cm long; perianth tube *straight*, 9-15 cm long, usually tinged brownish; segments *spreading, recurving*, white or pale pink with a dorsal purplish or brownish-red band down middle, 5,5-8 × *1-1,3 cm;* fruit long beaked.

CRINUM SUBCERNUUM

Black cotton soil in valley grassland; alluvial soils; floodplains mainly; swamps, riverine vegetation; 10-1000 m alt.

Namibia, Caprivi Strip, Botswana, S. Africa.

More closely related to W African "Stenaster" species than to *C. buphanoides*.

C. trifidum Nordal; Kew Bull. 59: 601, 2004 (in key). – Icon. Norweg. J. Bot. 26: 280, 1979.

Bulb large with a considerable neck; leaves *contemporary with flowering*, erect, distichous, c. 60 × *1,5 cm;* scape lateral, to 70 cm long, with 5-9 flowers, hypocrateriform, sessile; perianth tube *9-13 cm* long; segments white to rose, spreading, 4,5-5,5 × 0,8-1,2 cm; filaments < 1 cm long; stigma trifid; fruit unknown.

In large clumps, always in swampy ground.

Near the Indian *C. brachynema* Herb. (convergent evolution).

(**C. vassei** Bois); Fl. Zambes. 13/1: 131, 2008. – Icon.: Rev. Hort. 1908: plate facing p. 132, 1908.

Description (1907) and a painting show: Bulb ovoid, 10 cm Ø, without a distinct neck; leaves 10, linear, in rosette, 50-60 × 5 cm (at base), arching, with a midrib, margins scabrid; scape lateral, c. 25 cm long, compressed, green tinged brownish; pedicels of variable length, from 2,5 cm long to less; umbel with 16 flowers lightly scented; perianth funnel-shaped; tube pink, cylindrical, curved, 10-12 cm long; segments linear, 9-10 × 1-2 cm, curved backwards, white with a red streak visible on both faces.

Riverside; 750 m alt.

Collected by G. Vasse in Mozambique, Manica & Sofala, River Pungué (19°50'Sx34°48'E), and at Andrada (Revoué Valley; 18°53'Sx32°50'E), in 1905; flowering in the greenhouses at Paris (Muséum National d'Histoire Naturelle) in 1907.

May belong to *C. stuhlmannii*, but status uncertain.

C. verdoorniae Lehmiller; Fl. Zambes. 13/1: 127, 2008. – Icon.: Herbertia 52: 55, 1997.

syn.: *C. kirkii* sensu Verdoorn in Bothalia 11: 38, 1973, non Baker 1880.

Bulb spherical, 7-16 cm Ø, neck to 13 cm long; leaves V-shaped in cross section, 7-10 × 6-12 cm, erect to suberect, exposing thick *woolly fibres when torn*, with a *scabrous dorsal median sharp ridge* traversing the dorsal apex of the V; scape to 80 cm long; flowers *sessile*, 2-11 in umbel; perianth tube curved, 12-15 cm long; segments whitish with a purplish dorsal streak on keel, lanceolate, 10-13 × 2-3,5 cm, connivent; fruit oblong to ovoid, shortly beaked, shiny green turning yellowish or tinged with red; seeds smooth.

Sandy to sandy clay soils on floodplains; 10-1000 m alt.

Caprivi Strip.

Resembling *C. ornatum* but differs by the aspect of the leaf median ridge: scabrous in *C. verdoorniae*, glabrous in *C. ornatum* "a difficult character to interpret from herbarium specimens".

C. walteri Overkott; Fl. Zambes. 13/1: 122-123, 2008. – Icon.: Flow. Pl. Afr. 40: pl. 1577, 1969, and Bothalia 11: pl. 8, 1969 (sub nom. *C. minimum);* Herbertia 52: 51, 1997.

syn.: *C. minimum* sensu Sölch & Roessler in Merxmüller, Prodr. Fl. SW Afr., 150: 5, 1969, and sensu Verdoorn in Bothalia 11: 40, 1973, non Milne-Redh.; ? *C. parvibulbosum* Dinter ex Overkott from Namibia ("but more field work is necessary") fide Fl. Zambes., l.c.; but according to Lehmiller in Herbertia 52: 49, 1979, *C. parvibulbosum* is a synonym of *C. acaule* Baker from Natal.

CRINUM WALTERI

Bulb to 8 cm Ø, neck to 8 cm long; leaves erect to arching or sprawling on the ground, rosulate, linear, 10-18 × 0,2-0,8 cm, margins *glabrous* (scabrous in *C. parvibulbosum);* scape 5-19 cm long *(below ground when flowering);* flowers 1-(2), sessile; perianth tube pinkish, curved, 8,5-15 cm long, zygomorphic; segments *connivent* into a bell, with a pale pink to deep rose dorsal keel, 8-13 × 2-3 cm; fruit *beaked,* subglobose, to 2 cm Ø; seed papillose, sinking in water.

Deep sand or stony soils; 600-1200 m alt.

S. Africa, Botswana, Namibia.

As to *C. parvibulbosum,* see also Nordal in Norweg. J. Bot. 26: 152-153, 1979 (in key & herbarium specimen photograph).

C. welwitschii Baker, Gard. Chron. 1881/16, N° 392: 40, 1881 !; Figueiredo & Smith, Pl. Angola: 170, 2008.

Bulb ovate-spherical, "as big as a child's head"; scape 30 cm tall, subascending, compressed; leaves linear, 45 × 0,6-0,8 cm, margins slightly scabrous; umbel many-flowered; perianth tube cylindrical, curved, 10 cm long; segments linear, ascending, nearly *as long as the tube;* capsule depressed-spherical, ± angled, bulbiferous.

Rare in sandy places on river.

Only known from the very incomplete type collected in 1859.

(**C. wimbushii** Worsley), Gard. Chron. 1902/2, N° 826: 303-304, 1902.

Bulb c. 6 cm long, 7,5 cm Ø, neck short but distinct; leaves 11-12, deeply channelled, spreading, with a very long tapering finely-point apex, 120 × c. 6 cm, margins entire; scape erect, c. 45 cm tall; umbel 2-6-flowered; flowers sub-erect, sub-campanulate, faintly fragrant, cone-shaped, white with a slight flush of pink on external keel of segments; pedicels erect, < 1 cm long; perianth tube slightly curved, 3-3,5 cm long; segments as long as tube, only tips recurved.

Collected by Rev. John Wimbush ("several years ago") at Kota Kota/Lake Nyasa (C. Malawi, 12°56'Sx34°18'E). First flowering in A. Worsley's vinery at Isleworth, in June 1898, and flowering further three times there, after 5 years' cultivation. Fruit never developed.

C. wimbushii does not figure in Fl. Zambes. 13/1, 2008. The identity of this plant is uncertain.

Worsley first compares this *Crinum* with *C. pauciflorum* Baker *(= C. biflorum),* but then adding that the resemblance is rather with "*C. longifolium*… figured in Bot. Mag., 1178". The latter illustration represents *Amaryllis revoluta* L'Hér. (Bot. Mag. 24: pl. 1178, 1809), a synonym of *Crinum lineare* L. f. from E. Cape Prov., S. Africa. The description of the latter species given by Manning & al. in "The color encyclopedia of Cape bulbs": 111, 2002, corresponds rather well with that given by Worsley. Illustrations are published in Bot. Reg. 8: pl. 615 and pl. 623, 1822. Worsley also compares his *C. wimbushii* with *"C. longifolium",* probably *C. longifolium* Thunb., non Roxb. (an Asian species), a synonym of *C. capense* Herb. = *C. bulbispermum* (Burm. f.) Milne-Redh. & Schweick., a S. African plant, "characterized as the commonest and hardiest *Crinum* in our garden" (Worsley, l.c.).

CRINUM

SYNONYMS:

Crinum amboense Baker = **Crinum buphanoides**

ammocharoides Baker = **Ammocharis tinneana**

angolense (Baker) Benth. ex Baker = **A. angolensis**

bainesii Baker = **A. tinneana**

baumii Harms = **A. baumii**

belkianum Schinz = **Crinum buphanoides**

bequaertii De Wild. = **C. jagus**

biflorum Baker 1903, non Rottb. 1773 = **C. nordaliae**

broussonetianum Herb. = **C. ornatum**

broussonetii (DC. in Redouté) Herb. = **C. ornatum**

careyanum Herb. = **C. ornatum**

coccineum (Pax) Fritsch = **Ammocharis coranica**

congolense De Wild. = **Crinum jagus**

cordofanum Kotschy & Peyr. = **Ammocharis tinneana**

corradii Chiov. ex Chiarugi = **Crinum macowanii**

crassicaule sensu I. Verd., non Baker = **C. subcernuum**

curvifolium Baker = **Ammocharis angolensis**

delagoense I. Verd. = **Crinum stuhlmannii** subsp.

distichum Herb. 1837 = **C. biflorum**

distichum Herb. 1820 = **C. zeylanicum**

doriae auct. = **C. ornatum**

euchrophyllum I. Verd. = **C. rautanenianum**

exile Bjorå & Nordal = **C. nubicum**

foetidum I. Verd. = **C. crassicaule**

forbesii (Lindl.) Schult. & Schult. f. emend. Herb. ("forbesianum") – see under **C. stuhlmannii** subsp. **delagoense**

giganteum Andrews = **C. jagus**

giganteum var. *nobile* Baker = ? **C. jagus** (country not stated)

gouwsii Traub = **C. macowanii**

graminicola sensu Sölch 1969 and sensu Roessler 1974, non I. Verd. = **C. harmsii**

heterostylum Bullock = **Ammocharis angolensis**

humile A. Chev. = **Crinum nubicum**

jagus sensu Nordal 1977 p.p., non (J. Thomps.) Dandy = **C. glaucum**

johnstonii Baker = **C. macowanii**

kirkii sensu I. Verd. 1973, non Baker 1880 = **C. verdoorniae**

koutiense A. Chev., nom. = **C. purpurascens**

lastii Baker = **Ammocharis tinneana**

laurentii T. Durand & De Wild. = **Crinum jagus**

leucophyllum Baker = **C. buphanoides**

menyharthii Baker = **C. subcernuum**

minimum sensu Sölch & Roessler (Namibia), non Milne-Redh. = **C. walteri**

nobile W. Bull 1888 = ? **C. jagus** (country not stated)

nobile Hort. ex Gentil 1907 = ? **C. jagus**

odongense Baker = **Ammocharis tinneana**

parvibulbosum Dinter ex Overkott = **Crinum** ? **walteri** or **C.** ? **acaule** Baker

parvum Baker = **Crinum** ? **acaule**

pauciflorum Baker = **C. biflorum**
pedicellatum Pax = **C. macowanii**
petiolatum Herb., incl. var. *spectabile* Herb. = **C. jagus**
podophyllum Baker = **C. jagus**
poggei Pax = **Ammocharis tinneana**
purpurascens sensu Andrews 1956, non Herb. 1837 = **Crinum bambusetum**
rattrayi Hort. = **C. glaucum**
rhodanthum Baker = **Ammocharis tinneana**
rueppellianum Fresen. = **Crinum ornatum**
samuelii Worsley = **C. biflorum**
scaberrimum Herb. = **C. ornatum**
scabrum Herb. = **C. ornatum**
schimperi Vatke ex K. Schum. = **C. abyssinicum**
somalense Chiov. = **C. stuhlmannii** subsp. **stuhlmannii**
sp. aff. *minimum* Milne-Redh. sensu Troupin 1956 = **C. minimum**
speciosissimum Herb. = **C. ornatum**
spectabile Herb. ex Steud. = **C. jagus**
stenophyllum Baker 1903, non 1881 = **C. minimum**
sauveolens A. Chev. = **C. jagus**
tavelianum (Schinz) Fritsch = **Ammocharis coranica**
thruppii Baker = **A. tinneana**
tinneae Kotschy & Peyr. = **A. tinneana**
tinneanum Kotschy & Peyr. = **A. tinnneana**
toxicarium A. Chev. 1910, non Rumph. ex Roxb. 1814, nec Roxb. ex Hornem. 1819 = **Crinum ornatum**
toxicarium Rumph. ex Roxb. = **C. asiaticum**
toxicarium Roxb. ex Hornem. = **C. asiaticum**
undulatifolium Herb. = **C. ornatum**
vanillodorum Welw. ex Baker = **C. jagus**
vassei Bois = **C.** ?? **stuhlmannii** subsp. **delagoense**
veneficium L. S. Hannibal = **C. ornatum**
wimbushii Worsley = **C.** ?
yucciflorum Salisb. = **C. ornatum**
yuccioides (J. Thomps.) Herb. = **C. ornatum**
zeylanicum (L.) L. var. *reductum* Baker = **C. kirkii**
zeylanicum sensu Nordal 1977, p.p. = **C. kirkii**, **C. politifolium**, **C. ornatum**
zeylanicum sensu Fl. Trop. E. Afr., 1982 = **C. ornatum**

CRYPTOSTEPHANUS / *3*

African genus comprising 3 disjunct species, rhizomatous herbs with leaves without midrib; scape flattened, narrowly winged; flowers small, in dense umbels, with a corona of free linear appendages attached to the inner apex of the perianth tube; fruit a berry.

Only *C. vansonii* in cultivation.

CONRAD, F. & al. (2006). See above under the family.

DUNCAN, G. (2010a). The genus Cryptostephanus Welw. ex Baker. *Herbertia* 64: 136-149.

DUNCAN, G. (2010b). 666. Cryptostephanus densiflorus. *Bot. Mag.* 27: 10-22.

KOOPOWITZ, H. (2002). *Clivias.* Timber Press, Portland & Cambridge [see p. 56-65].

MEEROW, A. W. & J. R. CLAYTON (2004). See above under the family.

Cryptostephanus densiflorus Welw. ex Baker; Koopowitz, o.c.: 58; Figueiredo & Smith, Pl. Angola: 170, 2008; van Jaarsveld in Aloe 47: 34, 2010. – Icon.: Duncan (2010a): 139, 140; idem (2010b): pl. 666 and p. 15.

Deciduous geophyte 25-68 cm tall; rhizome erect, 1-2 cm long, covered with papery light brown tunics; roots fleshy; leaves 6-8, lanceolate, *erect* to *suberect, glaucous,* 10-60 × 1-1,7 cm, lower three leaf bases tightly sheathing and marbled with deep purplish-maroon streaks; scape compressed, slightly twisted, 32-37 × 0,8-1,5 cm; umbel dense, 9-30-flowered, contemporary with leaves; pedicels 6-15 mm long; perianth tube *curved,* 8-22 mm long, *purplish maroon;* corona of 6 segments; stamens 6, and style included within perianth tube; flowers very short-lived, unscented; berry fleshy, globose, scarlet.

Bushy places, open forest, in dry, sandy soil; c. 1321-1500 m alt.

NW Namibia ("in a rock crack in dappled shade of evergreen forest").

Poorly known species.

C. haemanthoides Pax; Duncan (2010b): 16, 18. – Icon.: Bot. Mag. 182: pl. 772, 1979; Koopowitz (2002): 60-61; Duncan (2010a): 141.

Deciduous geophyte to 75 cm tall; rhizome short, to 5 cm Ø, with *tuberous* fleshy roots; leaves *glaucous, erect* (in sun) to *spreading* (in shade), lanceolate, 30-75 × 1,5-4,5 cm, somewhat distichous; scape compressed, narrowly winged; umbel *spherical* of up to 100 dark *purplish* to *almost black* flowers, subtended by many bracts of unequal size; pedicels 1-2,5 mm long; perianth *tube straight, 20 mm long;* corona of 12 separate lobes, often cream-white; stamens and style *exserted* beyond perianth tube; berry red with a yellowish spot.

Deciduous bushland; in open places in full sun; or between granite rocks or occasionally as a lithophyte in deep shade of evergreen woodland; 625-1524 m alt.

Possibly found in Angola (Benguella Prov., "not far from the West Coast"), information sent by R. H. Archer to M. Thulin and R. Gereau, comm. H. Beentje to C. Chatelain (Genève) in a message dated 14 Janaury 2011.

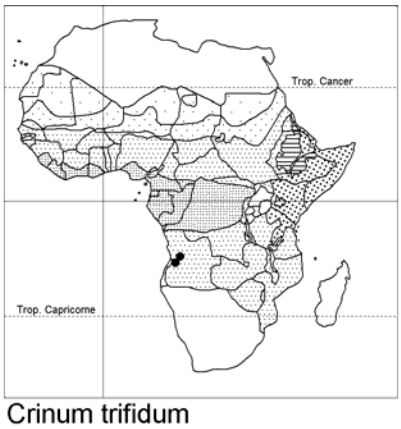
C. vansonii I. Verd.; Duncan (2010b): 17-18. – Icon.: Veld & Flora 88: 18-19, 2000; Koopowitz (2002): 65; Fl. Zambes. 13/1: 102, 2008; Duncan (2010a): 142-143.

Evergreen clump-forming geophyte; rhizome short, heavily tunicated; roots fleshy; leaves strap-shaped, *evergreen, dark green, arcuate,* 53-62 × 1,5-5 cm; scape sharply edged, to 20-27-38 cm long, 1,5 cm wide; umbel 4-40-flowered, flat-topped; perianth *white* to *light pink;* pedicels 0,8-3 cm long; tepals *spreading to suberect;* corona of 12 segments, white, pink or apricot, very small; berry subglobose, red, 4-10 mm Ø.

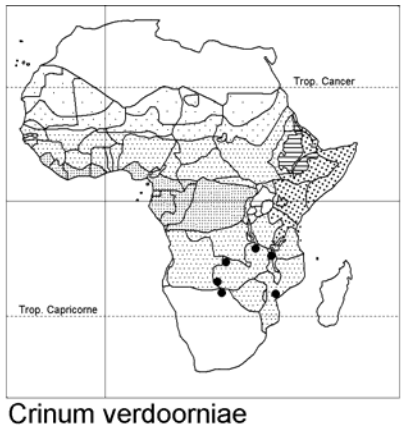
In forest growing between rocks; many specimens under the trees and among rocks on a southern slope of the Vumba Mountains, c. 1650 m alt.; 1600-2000 m alt.

Resembling a slender leafed *Clivia,* or a white-flowered form of *Tulbaghia simmleri.*

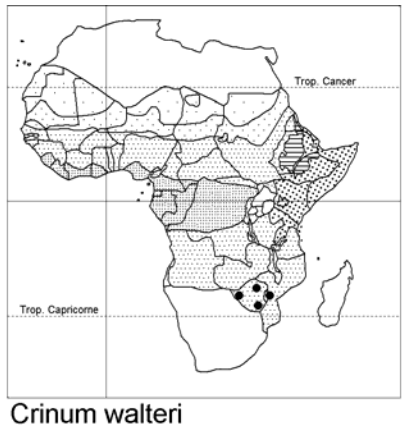
Easy to grow and flower; propagated by seed or division of offsets from thick clumps.



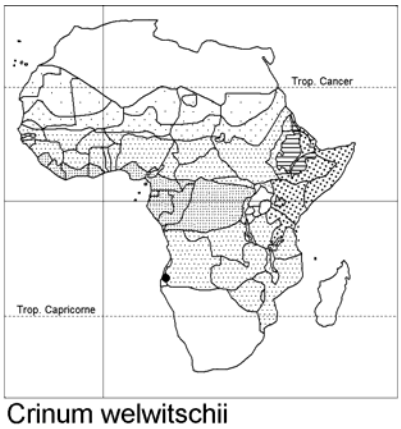
Crinum trifidum



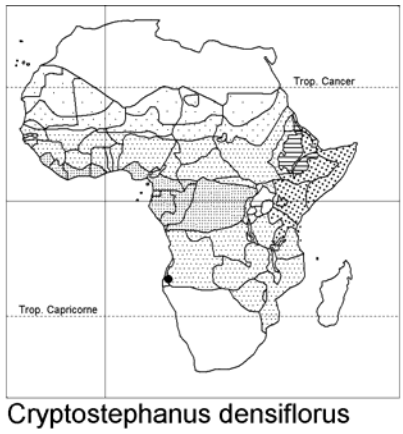
Crinum verdoorniae



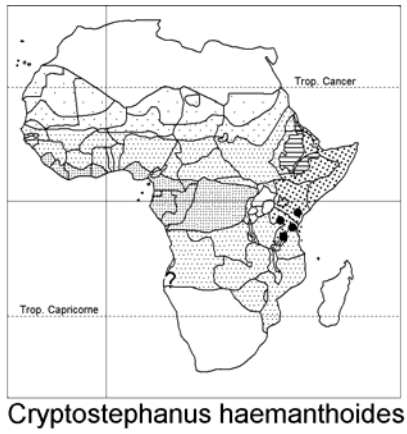
Crinum walteri



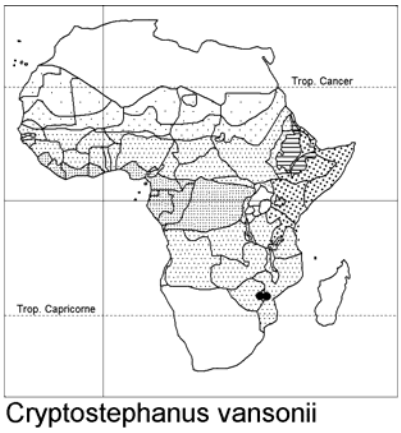
Crinum welwitschii



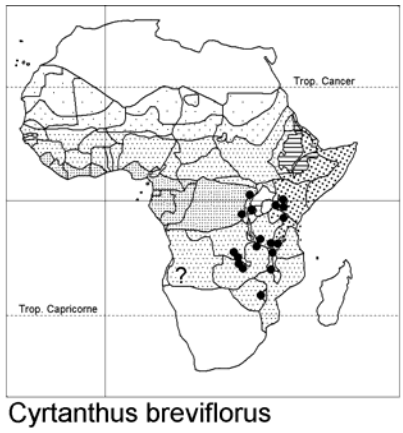
Cryptostephanus densiflorus



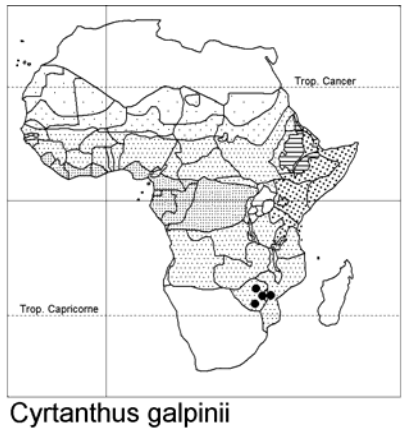
Cryptostephanus haemanthoides



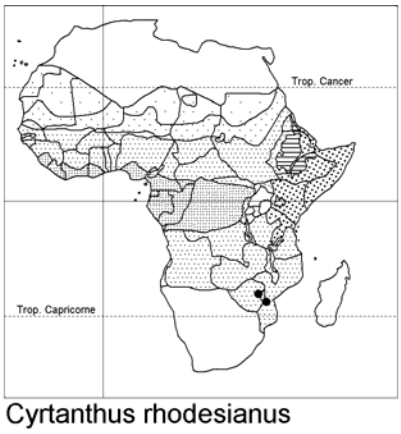
Cryptostephanus vansonii



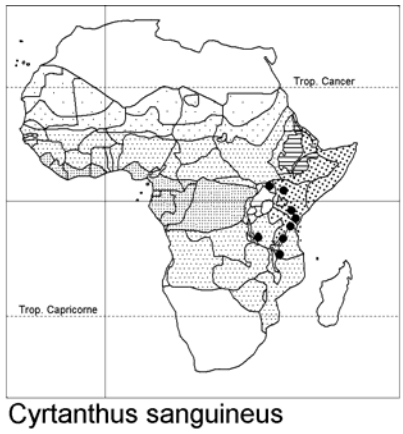
Cyrtanthus breviflorus



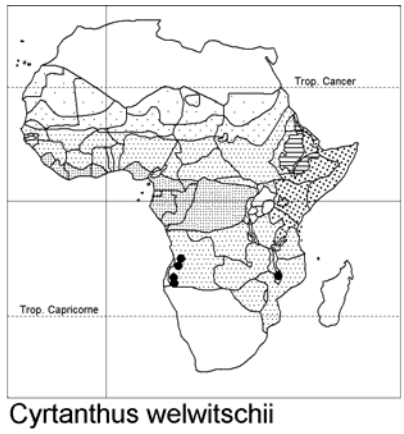
Cyrtanthus galpinii



Cyrtanthus rhodesianus



Cyrtanthus sanguineus



Cyrtanthus welwitschii

CYRTANTHUS / *5*

One of the most diverse and one of the largest genera in *Amaryllidaceae*, with 55 or 56 species, mostly (90%) in S. Africa.

Herbs with tunicated bulbous rootstock; leaves linear to strap-shaped, in basal rosette; scape hollow supported by 2 spathe valves; umbels 1-3-flowered; flower tubular to funnel-shaped, tube short; capsule loculicidal; seeds many, black, flattened, with a wing.

ISING, G. (1997). Hybridization in Cyrtanthus. *Herbertia* 52: 153-165.

MULLER, S. (1997). Cyrtanthus: my favourite flower. *Plantlife* 17: 11-14.

SNIJMAN, D. A. & A. W. MEEROW (2010). Floral and macroecological evolution within Cyrtanthus (Amaryllidaceae): Inferences from combined analyses of plastid ndhF and nrDNA ITS sequences. *S. Afric. J. Bot.* 76: 217-238.

STRYDOM, A. & al. (2007). Amaryllidaceae. Chromosome studies on African plants. 20. Karyotypes of some Cyrtanthus species. *Bothalia* 37: 103-108.

Cyrtanthus breviflorus Harv.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 321, 1994; Figueiredo & Smith, Pl. Angola: 170, 2008; Zimudzi & Polaki, Amaryllidaceae in the flora of Lesotho, in X. van der Burgt & al., Systematics and conservation of African plants: 104, 2010. – Icon.: Reid & Dyer, Review south. Afric. spec. Cyrtanthus: 61, 1984; Herbertia 52: 157, 1997; Burrows & Willis, Pl. Nyika Plateau: 286, 2005; Fl. Zambes. 13/1: 110, 2008.

syn.: *Anoiganthus breviflorus* (Harv.) Baker, incl. var. *minor* Baker; Enum. 3: 85, 1995.

Herb with elongated bulb 1-3 cm Ø, with a distinct neck; leaves dark green or slightly glaucous, linear, to 30 × 0,2-0,4 cm, folded, appearing with or after the flowers; scapes 3-30 cm tall; pedicels 0,3-4 cm long; flowers *bright yellow*, 1-6, 2-3 cm long, with funnel-shaped tube and free ± erect segments, 0,2-0,5 cm broad, mostly longer than the tube, outer ones with apical glandular hairs; capsule round, with remnants of perianth segments.

Along rivers; marshes; swampy grassland; moor; heath vegetation; 1000-3200 m alt.

S. Africa, Swaziland, Lesotho.

C. galpinii Baker – Icon.: Flow. Pl. S. Afr. 4: pl. 159, 1924; idem 9: pl. 343, 1929 (sub *C. balenii);* Reid & Dyer, o.c.: 60, 1984; Fl. Zambes. 13/1: 110, 2008.

syn.: *C. balenii* E. Phillips

Herb with ovoid bulb 1,8-4 cm Ø; leaves linear, to 35 × 0,5-2,5 cm, usually one from each bulb; scape 4,5-20 cm long; pedicels 0,6-2 cm long; flower 1(-2), purplish pink to orange brown; perianth tube and segments 3-5 cm long, segments 0,4-0,8 cm wide; perianth tube *narrow at base, widening to an open funnel.*

Ecology ? Veld, in long grass; amongst rocks (S. Africa); 1400-1800 m alt.

S. Africa, Swaziland.

Near *C. sanguineus*, a very variable plant.

C. rhodesianus Rendle; Fl. Zambes. 13/1: 112, 114, 2008. – Icon.: Lindley & Baker, Flowers of the Veld: pl. 7, fig. 13, 1972; Tredgold & Biegel, Rhodes. wild flowers: pl. 5/3, 1979.

Herb with bulb to 3 cm Ø; leaves linear, to 30 × 0,4-0,6 cm, most often appearing after flowering; scape to 30 cm tall; pedicels 1,5-4 cm long; umbel 2-4-flowered; perianth 3,5-5,5 cm long; flowers bright red; tube slender, curved; segments c. 1/4 length of tube; fruit unknown.

Grassland; swamps; along rivers; 1200-1800 m alt.

C. sanguineus (Lindl.) Walp. – Icon.: Reid & Dyer, o.c.: 68, 1984; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 148, 1994; Herbertia 52: 157, 1997.

bas.: *Gastronema sanguineum* Lindl.

Herb with ovoid bulb 2-5 Ø; leaves linear, 10-40 × 0,4-2,4 cm; scape 6-40 cm long; flowers 1-3; pedicels 0,3-4,5 cm long; perianth tube and segments 3,5-12,5 cm long; perianth tube *with two parts*, one tubular (below), one infundibuliform; segments 0,5-2,3 cm broad; corolla *pink* to scarlet or orange, often tinged green in lower part.

Sandy soils in deciduous woodland; rocky slopes; grassland; black cotton soil in open grassland, often with *Acacia drepanolobium; Loudetia arundinacea* grassland with scattered trees, recently burnt; hillsides among boulders; 1300-2800 m alt.

S. Africa.

Comprises 5 subspp. (see Enum. 3: 85, 1995), but subsp. **sanguineus** only in S. Africa.

C. galpinii is closely related.

C. welwitschii Hiern ex Baker; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 37, 2006; Figueiredo & Smith, Pl. Angola: 170, 2008; Fl. Zambes. 13/1: 112, 2008. – Icon.: Bull. Soc. Brot., Sér. 2, 44: pl. II facing p. 295, 1970.

Herb with bulb to 2,5 cm Ø; leaves linear, to 33 × 0,7 cm, appearing after the flowers; scape 9-30 cm tall; pedicels 1-4,9 cm long; flowers *purplish-red*, 2-8 in umbel, often erect; perianth *3-4,2 cm long*, reddish, *straight*, narrowly *funnel-shaped*, segments c. half length of tube.

Marshy places on banks of stream, along with *Aroides hastata*, *Typha angustifolia;* burnt grassland, often in damp hollows; sporadic but locally abundant; c. 2000 m alt. (Malawi).

Known from 6 collections ! – Disjunct area.

Resembling *C. breviflorus* but flowers *red.*

SYNONYMS:

Cyrtanthus balenii E. Philips = **Cyrtanthus galpinii**

luteus Baker = **C. breviflorus**

salmonoides P. R. O. Bally & S. Carter = **C. sanguineus** subsp.

sanguineus (Lindl.) Walp. var. *wakefieldii* Sealy = **C. sanguineus** subsp. **wakefieldii**

sp. sensu Andrews, Fl. Pl. Anglo-Eg. Sudan 3: 287, 1956 = **C. sanguineus** subsp. **minor**

(DEMEUSEA)

Demeusea longifolia De Wild. & T. Durand = **Scadoxus longifolia**

(GASTRONEMA)

Gastronema sanguineum Lindl. = **Cyrtanthus**

(GYAXIS)

Gyaxis puniceus (L.) Salisb. = **Scadoxus**

[HABRANTHUS]

American genus of 30-40 species in SW USA-Mexico-S S. America. **Habranthus robustus** Herb. ex Sweet sometimes cultivated in tropical Africa, ± naturalised locally in Tanzania (T3, Amani and Muheza). Bulbous plant (bulb 2,5-3 cm Ø), with linear leaves, 15-35 × 0,5-1,5 cm, usually developing after the flowers which are zygomorphic, oblique, pinkish or white, 6-8 cm long, with a short tube, borne on a hollow scape, single-flowered, c. 15-30 cm tall. Native in Brazil-Argentina. – See World Checklist of Monocotyledons, Royal Botanic Gardens, Kew for synonyms.

[HAEMANTHUS]

S. African genus of c. 22 species, one *(H. montanus* Baker) reaching Botswana (Fl. Zambes. 13/1: 107, 2008).

IN NEED OF FURTHER STUDY:

Haemanthus humilis A. Chev., nom. nud., 1913, non Jacq. 1804 (in S. Africa).

SYNONYMS (see also Enum. 3: 86, 1995; additions below):

Haemanthus abyssinicus Herb. = **Scadoxus multiflorus** subsp. **multiflorus**

arabicus M. Roem. = **S. multiflorus** subsp. **multiflorus**

brachyandrus Baker = **S. cinnabarinus**

bivalvis G. Beck = **S. multiflorus** subsp. **multiflorus** (see note at end of the species)

ciliaris L. = **Boophone disticha**

colchicifolius Salisb. = **Scadoxus multiflorus** subsp. **multiflorus**

diadema Linden = **S. cinnabarinus**

distichus (L. f.) L. f. ex Savage = **Boophone disticha**

fascinator Linden = **Scadoxus cinnabarinus**

fax-imperii Cufod. = **S. puniceus**

filiflorus Baker ex Hiern = **S. multiflorus** subsp. **multiflorus**

germarianus J. Braun & K. Schum. = **S. cinnabarinus**

goetzei Harms = **S. puniceus**

insignis Hook. = **S. puniceus**

humilis A. Chev., nom. nud., 1913, non Jacq. 1804 = ?

katherinae Baker = **S. multiflorus** subsp.

kundianus J. Braun & K. Schum. = **S. cinnabarinus**

lemairei De Wild. = **Boophone disticha**

lescrauwaetii De Wild. in Gentil = **Scadoxus cinnabarinus**

longipes Engl. = **S. cinnabarinus**

longitubus C. H. Wright = **S. multiflorus** subsp.

lynesii Stapf = **S. multiflorus** subsp. **multiflorus**

magnificus (Herb.) Herb., incl. fa. *gumbletonii* Baker, fa. *insignis* (Hook.) Traub and subsp. *superbus* (Baker) Traub = **S. puniceus**

mannii Baker = **S. multiflorus** subsp. **longitubus**

mildbraedii Perkins = **S. multiflorus** subsp. **multiflorus**

mirabilis Linden = **S. cinnabarinus**

multiflorus Martyn = **S. multiflorus**

subsp. *katherinae* (Baker) I. Bjørnstad & Friis = **S. multiflorus** subsp. **katherinae**

subsp. *longitubus* (C. H. Wright) I. Bjørnstad & Friis = **S. multiflorus** subsp. **longitubus**

natalensis Pappe ex Hook. = **S. puniceus**

nutans Friis & I. Bjørnstad = **S. nutans**

orchidifolius Salisb. = **S. puniceus**

otaviensis Dinter = **S. multiflorus** subsp. **multiflorus**

pole-evansii Oberm. = **S. pole-evansii**

pseudocaulus I. Bjørnstad & Friis, incl. subsp. *prorumpens* I. Bjørnstad & Friis = **S. pseudocaulus**

puniceus L. var. *fortuita* Herb. and var. *magnificus* Herb. = **S. puniceus**

redouteanus M. Roem., incl. var. *subalbus* M. Roem. = **S. puniceus**

robustus Pax = **Boophone disticha**

rotularis Baker = **Scadoxus cinnabarinus**

rouperi auct. = **S. puniceus**

rupestris Baker = **S. multiflorus** subsp. **multiflorus**

sacculus E. Philipps = **S. multiflorus** subsp. **multiflorus**

sinuatus Schult. & Schult. f., nom. nud. = **Boophone disticha**

somaliensis Baker = **Scadoxus multiflorus** subsp. **multiflorus**

sp. A. sensu Fl. W. Trop. Afr., ed. 2, 1968 = **S. pseudocaulus**

superbus Baker = **S. puniceus**

tenuiflorus Herb., incl. var. *coccineus* Hook. f. and var. *mocambicensis* Herb. = **S. multiflorus** subsp. **multiflorus**

toxicarius L. f. ex Aiton = **Boophone disticha**

[HIPPEASTRUM]

Some 50 species native in America from Mexico-West Indies, S to Argentina-Bolivia.

[**Hippeastrum puniceum** (Lam.) Voss]; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 67, 1985; Lisowski, Fl. Rép. Guinée 1: 379, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 29, 2010; Fl. Zambes. 13/1: 98, 2008. – Icon.: Taxonoman. 20: 9-10, 2007.

bas.: *Amaryllis punicea* Lam.

syn.: *Hippeastrum equestre* (L. f. ex Aiton) Herb.; *Amaryllis equestris* L. f. ex Aiton; World Checklist of selected plant families, Royal Botanic Gardens, Kew.

Bulb globose covered by brown papery tunics; leaves 6-8, c. 45 × 3 cm; scape to 60 cm tall, hollow, 2-4-flowered; pedicels 4-5 cm long; perianth funnel-shaped, zygomorphic, red, c. 10 cm long, tube 2-2,5 cm long.

Native in South Tropical America. Widely cultivated as an ornamental, "probably the first introduced American ornamental to Africa". Sold under the name *Amaryllis* (cf. Fl. Zambes., l.c.). In Congo-Kinshasa has been confused with *Amaryllis belladonna* L.

According to Burkill (l.c.) commonly grown in cemeteries in W Africa, "and its persistence in the bush may mark the site of abandoned villages".

[HYMENOCALLIS]

American genus, from SE USA to NE S. America, incl. the West Indies, of c. 50 species.

[**Hymenocallis littoralis** (Jacq.) Salisb.]; Spider Lily; Fl. Afr. Centr., Amaryll.: 19-20, 1973; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 68, 1985; Plantsman, N. S. 6: 222-226, 2007; Fl. Zambes. 13/1: 98, 2008; Figueiredo & Smith, Pl. Angola: 170, 2008; Lisowski, Fl. Rép. Guinée 1: 379, 2009. – Icon.: Aqua Planta 35: 8-10, 13, 2010.

bas.: *Pancratium littorale* Jacq.

syn.: *Hymenocallis americana* (Mill.) M. Roem.; *H. senegambica* Kunth & C. D. Bouché, p.p. (cf. Burkill, l.c.); *Pancratium americanum* Mill.; World Checklist of selected plant families, Royal Botanic Gardens, Kew.

Tough vigorous plant; bulb to c. 8 cm Ø; leaves numerous, persistent, 40-100 × 2-6 cm; scape to 60 cm tall bearing 4-7 sessile flowers, pure white, fragrant; perianth tube 10-20 cm long, segments 9-12 cm long, 5 mm wide; filaments enlarged in lower part and fused into a conspicuous funnel-shaped corona (similar to that of *Pancratium);* free part of filaments straight, spreading outward, 4-6 cm long.

Native in Mexico S-wards to Peru, Brazil. Grown as an ornamental; naturalised in W. Africa.

MEEROW, A. W. & al. (2002). Phylogeny of the tribe Hymenocallideae (Amaryllidaceae) based on morphology and molecular characters. *Ann. Missouri Bot. Gard.* 89: 400-413.

(IMHOFIA)

Imhofia duparquetiana Baill. = **Nerine laticoma**

filifolia (Baker) Kuntze, non Herb. = **N. filifolia**

laticoma (Ker Gawl.) Schinz = **N. laticoma**

(LATICOMA)

Laticoma compressa Raf. = **Nerine laticoma**

(LOXANTHES)

Loxanthes laticoma (Ker Gawl.) Salisb. = **Nerine**

(MIZONIA)

Mizonia centralis A. Chev. = **Pancratium centrale**

maxima (Forssk.) A. Chev. = **P. maximum**

NERINE / *1*

A southern African genus of c. 25 species, important in horticulture because of its colourful long-lasting flowers. *N. sarniensis* (L.) Herb. is cultivated in Europe since at least 1634 (Duncan in Bot. Mag. 26: 200, 2009). Some species are very variable. Identification difficult due to intergradations between species. In urgent need of revision.

ANONYMOUS (2007). *Report of the Proceedings of a Hardy Nerine Study Day held at the RHS Garden, Wisley, on 26 October 2007.* A 64-page booklet announced in Plantsman, N. S. 7: 210, 2008 *(www.rhs.org.uk/plants/plant-groups/nerine.asp).*

BROWN, N. R. & al. (2000). Reproductive biology of Nerine (Amaryllidaceae) I: The annual growth cycle, floral development and gamete production. *Herbertia* 54: 139-152.

DUNCAN, G. (2002). The genus Nerine. *Bulbs* 4/1: 9-15.

SAUNDERS, R. (1997). Nerines in South Africa. *Herbertia* 52: 88-89, 186-187.

ZONNEVELD, B. J. M. & G. D. DUNCAN (2006). Genome size for the species of Nerine Herb. (Amaryllidaceae) and its evident correlation with growth cycle, leaf width and other morphological characters. *Pl. Syst. Evol.* 257: 251-260.

[**Nerine filifolia** Baker, incl. var. *parviflora* W. F. Barker]; Saunders, o.c.: 88. – Icon.: Duncan, o.c.: 13.

syn.: *N. parviflora* (W. F. Barker) Traub; *Imhofia filifolia* (Barker) Kuntze 1891, non Herb. 1837, nom. illegit.

Summer-growing bulbous herb with filiform leaves; inflorescence to c. 50 cm tall; flowers bright mauve-pink or white, tube very short, segments undulate.

Native in S. Africa. Cultivated in E tropical Africa.

N. laticoma (Ker Gawl.) T. Durand & Schinz., incl. subsp. *falcata* (W. F. Barker) Traub and subsp. *sandersonii* (Baker) Traub; Saunders, o.c.: 89; Duncan, o.c.: 11. – Icon.: Flow. Pl. S. Afr. 13: pl. 511, 1933 (sub nom. *N. falcata);* Fl. Zambes. 13/1: 117, 2008.

bas.: *Amaryllis laticoma* Ker Gawl.

syn.: *Brunsvigia laticoma* (Ker Gawl.) Sweet; *B. lucida* Herb.; *Loxanthes laticoma* (Ker Gawl.) Salisb.; *Imhofia laticoma* (Ker Gawl.) Schinz; *I. lucida* (Herb.) Kuntze; *I. duparquetiana* (Baill.); *Nerine lucida* (Herb.) Herb.; *N. flexuosa* (Jacq.) Herb. var. *sandersonii* Baker; *N. duparquetiana* (Baill.) Baker; *N. falcata* W. F. Barker; *Amaryllis lucida* (Herb.) D. Dietr.; *Laticoma compressa* Raf.

Herb with bulbs 3-5 cm Ø, neck 6-7 cm long; leaves strap-shaped, 12-30 × 1-2 cm, glossy, falcate, prostrate; scapes 1-2, apical or lateral, flattened, 15-19 cm tall, 1-1,2 cm wide; umbel with 15-50 zygomorphic flowers; pedicels thick, 3-12 cm long; perianth tube c. 2 mm long; segments narrow, 3,5-7 × 0,4-0,5 cm, slightly undulate, with 3 central nerves, pink with darker mid-vein; filaments 4-5 cm long; style to 5 cm long; capsule 3-lobed, seeds reddish-green.

Grass pan (Botswana); 600-1000 m alt.

Namibia, S. Africa, Botswana. Possibly also in Angola.

In cultivation difficult to maintain, rotting soon under wet winter conditions.

(NERISSA)

Nerissa multiflorus (Martyn) Salisb., nom. inval. = **Scadoxus multiflorus**

PANCRATIUM / *5*

About 10 species distributed in tropical Africa, the Mediterranean and southern Asia to Malesia.

Bulbous herbs with annual leaves, linear or strap-shaped, and solid scape. Flowers with a slender tube and funnel-shaped tip; segments linear, equal; filaments borne in throat of perianth tube, filiform, and united to a staminal cup, pseudocorona, usually toothed between each free part of filament (cf. *Hymenocallis).* Fruit a loculicidal capsule; seeds black, angled. The genus is in need of revision.

The fruit is unknown in one of our species *(P. parvicoronatum).*

PANCRATIUM

Pancratium centrale (A. Chev.) Traub; Sebsebe Demissew & al. in S. A. Ghazanfar & H. J. Beentje, eds., Taxonomy and ecology of African plants…: 247-258, 2006 (with map p. 254). – Icon.: Fl. Cameroun 30: 27, 1987; Kew Bull. 59: 119, 2004; Sebsebe Demissew & al., Flowers Ethiopia & Eritrea…: 109, 2003; idem, Aloes & lilies Ethiopia & Eritrea, ed. 2: 181, 2010; Fl. Eth. & Eritrea 1: 249, 2009.

bas.: *Mizonia centralis* A. Chev.

Bulb globose, 4-6 cm Ø, neck 5-10 cm long; leaves contemporary with the flowers, rosulate; blade 30-50 × 1-3,5 cm, erect, gradually deflexing, *glabrous;* scapes lateral *18-20 cm long*, glabrous, 1-2 to a bulb; umbel 1-3-flowered; pedicels *1-2,5 cm long*, flowers pure white; perianth *tube 1-2 cm long;* segments 3-3,5 × 0,5-0,8 cm, spreading; corona *reduced* to *12 triangular teeth* each tooth to *5* mm long, 3,5 mm wide at base; capsule 3,5-4 × 1,1,5 cm.

Open *Combretum-Terminalia* bushland; open savanna with herbs. Also cultivated in Chad (1903); 1370 m alt. (Ethiopia).

Only known from 6 collections. Not recollected between 1939 and 2001.

Near *P. illyricum* L. from Corsica, Sardinia, Elba, Capraia (Bulbs 5/2: 26-27, 2004).

(**P. maximum** Forssk.) – Icon.: Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 149, 2001.

syn.: *Mizonia maxima* (Forssk.) A. Chev.

An Arabian species with single-flowered inflorescence. Cited by A. Chevalier in Rev. Int. Bot. Appl. Agric. Trop. 30: 626, 1950, as from Arabia and Nubia. The World checklist of selected plant families, Royal Botanic Gardens, Kew, indicates the presence of the species also in NE Sudan.

Perhaps a synonym of *P. trianthum* (see below).

P. parvicoronatum Geerinck; Fl. Afr. Centr., Amaryll.: 21, 1973; Fl Zambes. 13/1: 108-109, 2008. – Icon.: Norweg. J. Bot. 20: 286, 1973.

Herb to 35 cm tall; bulb to 2,4 cm Ø; leaves 4-7, 11,5-14,5 × 0,2-0,3 cm, pubescent at base; scape 4-8,5 cm long, minutely pubescent; perianth tube 9,5-13 cm long; segments 5,8-7,4 × 0,2-0,4 cm; *pseudocorona c. 1,5 cm* long, shorter than free part of filaments (= 3,5-4 cm long); anthers *1,3-1,4 cm long;* fruit and seeds unknown.

Acacia-Combretum bushland; road sides; c. 1200 m alt. in Malawi.

Only known from 2 collections in Malawi, 1 in Zaire.

Closely related to *P. tenuifolium;* more material needed to elucidate relationships between these 2 taxa.

P. tenuifolium Hochst. ex A. Rich.; Fl. Afr. Centr., Amaryll.: 20-21, 1973; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 68, 1985. – Icon.: Kew Bull. 19: 338, 340, 1965 (sub nom. *P. hirtum);* Fl. W. Trop. Afr., ed. 2, 3/1: 137, 1968 (idem); Norweg. J. Bot. 20: 286, 1973; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: fig. 149, 1994; Thulin, Fl. Somalia 4: 62, pl. 3, 1995; Fl. Eth. & Eritrea 6: 163, 1997; Herbertia 56: 99, 2002; Veld & Flora 93: 210-212, 2007; Akoegninou & al., Fl. analyt. Bénin: 34, 2006; Sebsebe Demissew & al., Flowers Ethiopia & Eritrea…: 108, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 180, 2010; Fl. Zambes. 13/1: 109, 2008; Lisowski, Fl. Rép. Guinée 2: fig. 463, 2009; Pickering & Roe, Wild flowers Victoria Falls area: 24, 2009.

PANCRATIUM TENUIFOLIUM

syn.: *P. chapmanii* Harv.; *P. hirtum* A. Chev.; *P. hirtum* sensu Fl. W. Trop. Afr., ed. 2, 3/1: 136, 1968, excl. specim. Scott Elliot 5213, 5287 *(= P. trianthum); P. trianthum* sensu Andrews, Flow. pl. Anglo-Eg. Sudan 3: 289, 1956, non Herb.; *Chapmanolirion juttae* Dinter; Enum. 3: 85, 1995.

Herb to 40 cm tall; bulb to 4 cm Ø, with a long neck; leaves to 2,5 × 0,3-1,5 cm, base pubescent; scapes lateral, 1-2 per bulb, to 11 cm tall, often pubescent, single-flowered; perianth tube 8-15 cm long; segments 5-11 × to 1 cm, recurved, white with a darker median stripe; *pseudocorona 3-6 cm long*, longer than free part of filaments (= 1-2 cm long); anthers 0,5-1 cm long; fruit globose, to 2,5 cm long.

Inselberg in *Trilepis pilosa* mats on gently sloping rock surfaces; in zone of water enrichment at roadsides; deciduous bushland; semi-desert; sandy areas seasonally marshy; sandy soils; open forests; savannas; sometimes very common; open woodland; thorn scrub; sparsely vegetated grassland; silt and clay soils; lateritic plateau; sandy regs; rock cracks; 0-1800 m alt.

Namibia, Botswana, S. Africa.

Has been confused with *P. trianthum* in Fl. Zambes. area; the latter often has more than 1 flower per inflorescence, and leaves and scapes always glabrous.

Night-flowering plant, growing solitary but flowering synchronously over an area (Burkill, l.c.).

P. tortuosum Herb. – Icon.: Andrews, Flow. pl. Anglo-Eg. Sudan 3: 290, 1956; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 150, 2001; Boulos, Fl. Egypt 4: 85, 2005.

syn.: *P. tortifolium* Boiss.

Herb 40-60 cm tall; bulb 3,5-5 cm Ø, globose, with neck; leaves 6-12, 12-40 × *0,4-0,8 cm, spirally twisted*, long-attenuate to an acuminate apex; scape 20-30 cm tall; umbel 2-7-flowered; pedicels 2-3 mm long; flowers fragrant; perianth tube *9-12 cm* long, greenish; segments 5-6 cm long, white; pseudocorona 3 cm long, cup-shaped, white, 12-lobed between short free ends of filaments; filaments 7 mm long, anthers 5 mm long; capsule 2,4-2,8 × 1,8-2 cm, broadly elliptic-ovoid.

Desert sandy soil in Egypt.

SE Egypt, W Saudi Arabia. – Perhaps in Ethiopia but only one specimen known.

P. trianthum Herb., incl. var. *chatinianum* (Batt.) Maire & Weiller and var. *saharae* (Coss. ex Batt. & Trab.) Maire; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 68-69, 1985; Akoegninou & al., Fl. analyt. Bénin: 35, 2006; Tattou & Fennane, Fl. vascul. Maroc 2: 139, 2008; Le Floc'h & Boulos, Fl. Tunisie: catalogue synom.: 309, 2008; Dobignard & Chatelain, Index synon. flore Afr. N. 1: 81, 2010. – Icon.: Maire, Fl. Afr. N. 6: 40, 1959; Kew Bull. 19: 339, 340, pl. 13, 1965; Norweg. J. Bot. 20: 286, 1973.

syn.: *P. saharae* Coss. ex Batt. & Trab., incl. var. *chatinianum* Batt.

Herb with bulb to 4 cm Ø; leaves *glabrous*, to 40 × c. 0,5 cm, contemporary with the flowers; scape *glabrous, 10-25cm* tall; flowers *1-3*, sessile; perianth tube cylindrical, 12-17 cm long and with a broadened funnel part a few cm long; segments 4-7 × 1 cm; capsule globose to cylindrical, to 2,5 cm long.

Hardpan, among rocks and in seasonally marshy sites in savannas; occurring in large numbers; thin sandy soils on lateritic concretions; sandy regs; dunes; cultivated sandy grounds; often indicating degradation or overgrazing; in Cameroon with *Crinum nubicum;* 100 m alt. (? and more).

PANCRATIUM TRIANTHUM

Morocco, Algeria, Tunisia.

Flowers opening at dusk, fading by the following morning (Burkill, l.c.).

Has been confused with *P. tenuifolium* in the Flora Zambes. area (see above under this species).

Closely related to and doubtfully dinstinct from *P. maximum* Forssk. (fide Wood, A handbook of the Yemen flora: 406, 1997).

SYNONYMS:

Pancratium americanum Mill. = **Hymenocallis littoralis**

chapmanii Harv. = **Pancratium tenuifolium**

hirtum A. Chev. = **P. tenuifolium**

hirtum sensu Fl. W. Trop. Afr., ed. 2, 3/1: 136, 1968, p.p. = **P. tenuifolium**, **P. trianthum**

littorale Jacq. = **Hymenocallis littoralis**

saharae Coss. ex Batt. & Trab., incl. var. *chatinianum* Batt. = **Pancratium trianthum**

tortifolium Boiss. = **P. tortuosum**

trianthum sensu auctt., non Herb. = **P. tenuifolium**

(PALINETES)

Palinetes coranica (Ker Gawl.) Salisb. = **Ammocharis**

SCADOXUS / *7*

Eight species from tropical and southern Africa *[S. membranaceus* (Baker) Friis & Nordal in S. Africa], 1 reaching Yemen, Saudi Arabia and possibly Oman. Previously included in *Haemanthus*, which is now treated in its strict sense, *Scadoxus* is restricted to S. Africa-Namibia. *Scadoxus* species are distinguished by their membranous leaves with a distinct midrib (leaves thick and distichous without distinct midrib in *Haemanthus);* their bases form a thick false stem.

The bulb, spherical, is borne on a compact rhizome formed from old bulb-bases; leaves spirally arranged, blade elliptic to ovate. Scape solid. Flowers without corona, actinomorphic; fruit a berry.

Flower heads ornamental. A few species have been in cultivation since centuries, but they are not widely grown in collections. Horticultural hyrbrids are rare.

CONRAD, F. & al. (2006). See above under the family.

DAVID, J. C. (2006). Hybrids in Haemanthus and Scadoxus. *Hanburyana* 1: 9-13.

DUNCAN, G. (2001). Spectacular rewarding Scadoxus. *Veld & Flora* 87: 60-63.

HUTCHISON, J. (2007). Scadoxus of South Africa. *Plantsman*, N.S. 6: 10-14.

KNIPPELS, P. (1996). The genus Scadoxus and Scadoxus multiflorus. *Herbertia* 51: 30-32.

MEEROW, A. W. & J. R. CLAYTON (2004). See above under the family.

NORDAL, I. & al. (2010). The genus Scadoxus (Amaryllidaceae): phylogeny, speciation and species delimitation – with a discussion on morphology versus molecules. *Scripta Bot. Belg.* 46: 331.

VIGNERON, P. (2008). Aperçu du genre Scadoxus. *Iris & Bulbeuses* 158: 58-61.

Scadoxus cinnabarinus (Decne.) Friis & Nordal; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 69, 1985; Cable & Cheek, Pl. Mt Cameroon: 145-146, 1998; Sosef & al., Check-list pl. vascul. Gabon: 44, 2006; Figueiredo & Smith, Pl. Angola: 170, 2008; Lejoly & al., Fl. Tshopo (RD Congo) in Taxonom. 24: 3, 2008; idem, Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 30, 2010; Harvey & al., Pl. Lebialem Highl., Cameroon: 150, 2010. – Icon.: Fl. Serres Jard. Eur., Sér. 2, 12: pl. 1195, 1857.

SCADOXUS CINNABARINUS

syn.: Enum. 3: 85, 1995 (with corrections here); *Haemanthus diadema* Linden (J. Soc. Natl. Hort. France, 1902: 294); *H. fascinator* Linden (ibid.: 288); *H. lescrauwaetii* De Wild. in Gentil; *H. rotularis* Baker; *H. longipes* Engl.; *H. germarianus* J. Braun & K. Schum.; *H. kundianus* J. Braun & K. Schum.; *H. brachyandrus* Baker; *H. mirabilis* Linden

Herb 40-60 cm tall; bulb underdeveloped, 1-2 cm Ø; *rhizome* bearing almost distichously arranged leaves, contemporary with flowers, petiole *not forming a false stem;* blade narrowly lanceolate to ovate, 5-20 × 4,5-14 cm, acute, truncate or obtuse; scape *central* (terminal), 15-40 cm tall; umbel conical to globose, 10-15 cm Ø, with c. 15-100 pale red flowers; pedicels 1,5-4,5 cm long; perianth tube cylindrical, 0,3-1,5 cm long, segments spreading 1-3 cm × *1,5-7 mm, 5-nerved;* berry 1-2 cm Ø, orange.

High bush; *Mitragyna-Raphia* marsh; secondary rain-forest; *Sacoglottis gabonensis* forest; *Gilbertiodendron dewevrei* forest; forest with *Celtis* and *Sterculiaceae;* forest with *Monopetalanthus, Diospyros, Mapania, Raphia regalis;* forest with *Scorodophloeus zenkeri; Lannea* forest; on stream side in dense *Parkia, Albizia* forest; *Celtis* spp., *Piptadenia buchananii* evergreen rain-forest; riverine forest; mixed deciduous forest near streams; rather dry stony places; marshy banks of streams; inundated forests; on and between rocks; 1-1500 m alt.

Bioko/Fernando Poo.

Ornamental; planted in villages (W Africa).

S. cyrtanthiflorus (C. H. Wright) Friis & Nordal; Fl. Trop. E. Afr., Amaryll.: 7, 1982; Vigneron, o.c.: 60.

syn.: *Choananthus wollastonii* Rendle; Enum. 3: 86, 1995.

Herb to 75 cm tall, with an elongated rhizome; petiole *forming a false stem* to 60 cm tall, with swollen base; blade lanceolate, acute, basally attenuate, contemporary with flowers; scape 15-45 cm long, *initiated within the false stem, but* early *breaking through the sheath;* flowers pendulous, 10-25; pedicels 1,5-3,5 cm; perianth greenish at base, salmon pink to scarlet distally, whitish between; perianth tube *funnel-shaped, 2,5-4 cm long;* segments not spreading, ovate, 1-1,5 cm × 4-8 mm, with glandular hairs at apex; *filaments flattened,* shorter than segments; berry 1,5-2 cm Ø.

Dense rain-forest; 2300-3000 m alt. (only on Ruwenzori).

(**S. longifolius** (De Wild. & T. Durand) Friis & Nordal); Vigneron, o.c.: 60.

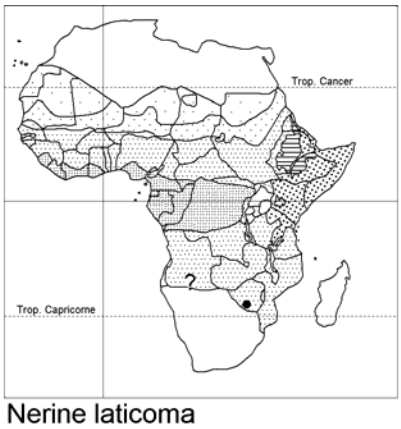
syn.: Enum. 3: 86, 1995.

Only known from one incomplete and young specimen. Near *S. cinnabarinus* but lamina c. 10 times longer than broad (? blade too young), 40 cm long; rhizome thick; umbel 2-3 cm wide; pedicels 7 mm long; perianth tube cylindrical, 0,8 mm long; segments linear-elliptic, 4,4-5,5 × 0,6 mm, 3-nerved; fruit unknown.

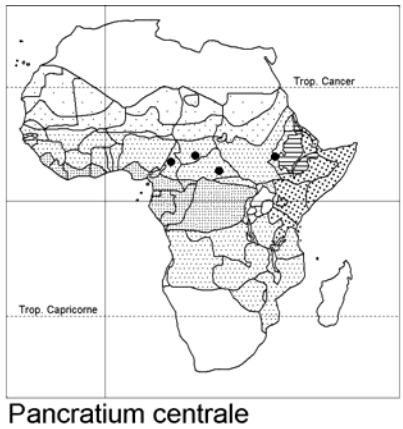
Known only from the type (F. Demeuse) collected in 1891, in Zaire, without locality.

Not mapped.

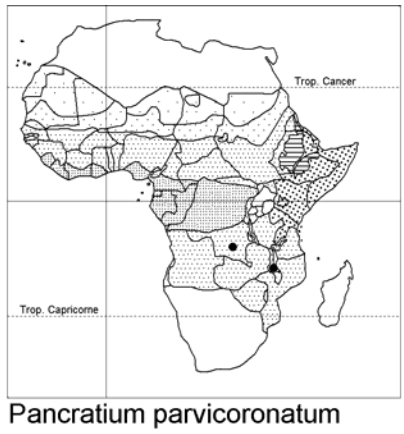
S. multiflorus (Martyn) Raf.; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 69-70, 1985; Cheek & al., Pl. Mt Oku…: 170, 2000; Cheek & al., Pl. Kupe…: 425, 2004; Harvey & al., Pl. Bali Ngemba…: 133, 2004; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 37, 2006; Sosef & al., Check-list pl. vascul. Gabon: 45, 2006; Hutchinson, o.c.: 10-11; Figueiredo & Smith, Pl. Angola: 170, 2008; Cheek & al., Pl. Dom, Bamenda Highl.,



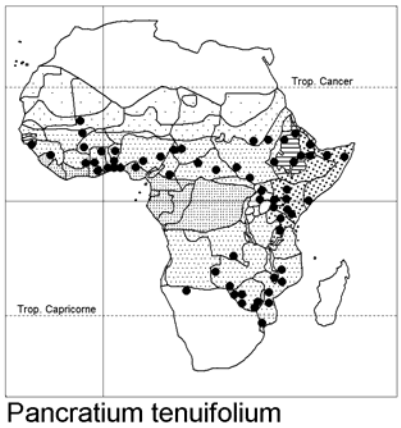
Nerine laticoma



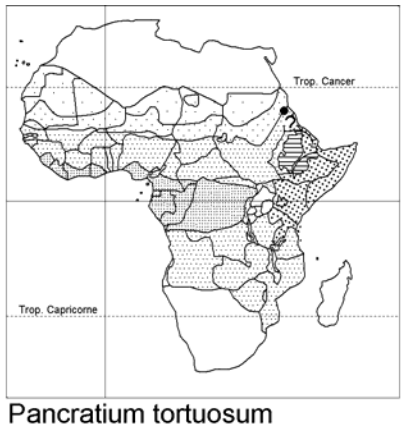
Pancratium centrale



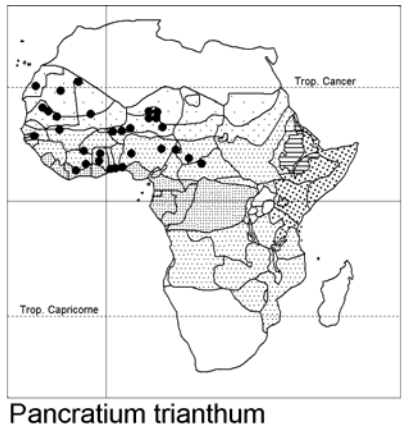
Pancratium parvicoronatum



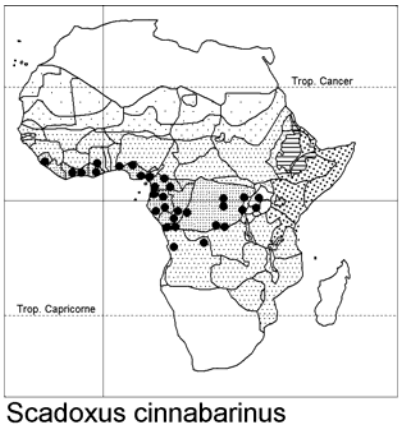
Pancratium tenuifolium



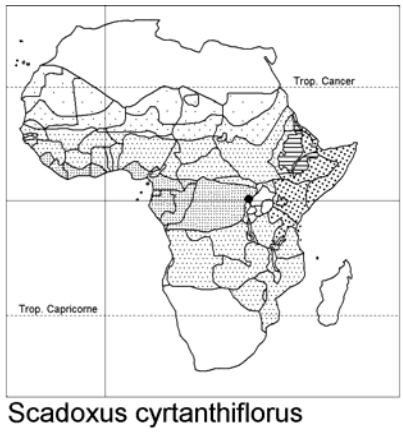
Pancratium tortuosum



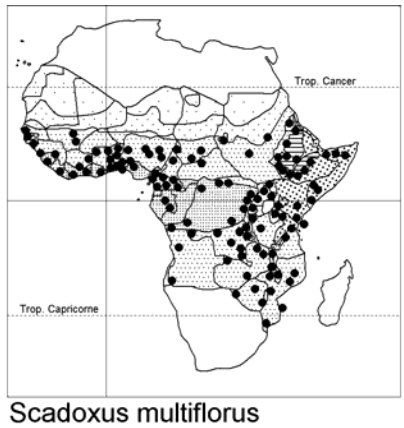
Pancratium trianthum



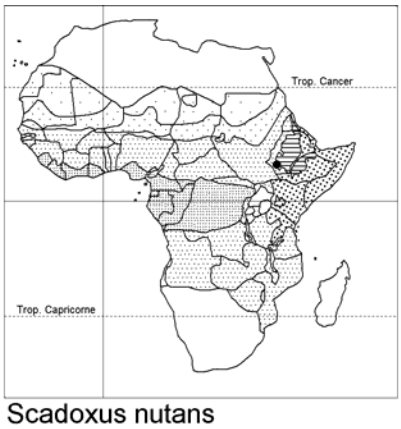
Scadoxus cinnabarinus



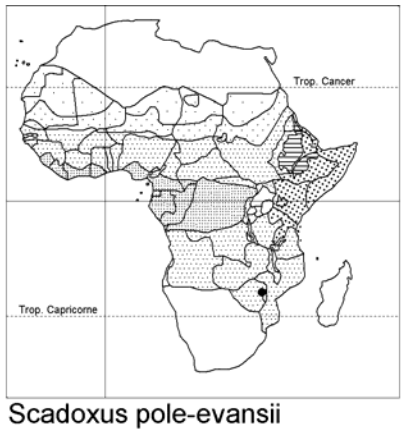
Scadoxus cyrtanthiflorus



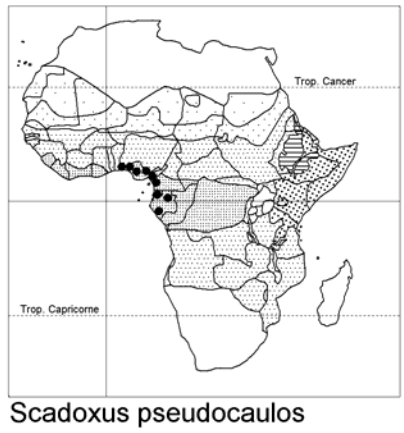
Scadoxus multiflorus



Scadoxus nutans



Scadoxus pole-evansii



Scadoxus pseudocaulos

Cameroon: 148, 2010; van Jaarsveld in Aloe 47: 14, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 215, 2011. – Icon.: Bot. Mag.: pl. 3870, 1841, and pl. 8975, 1923; Tredgold & Biegel, Rhodes. wild flowers: pl. 5, 1979; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 147, 1994; Thulin, Fl. Somalia 4: 58, 1995; Fl. Eth. & Eritrea 6: 159, 1997; Kakteen & Succ. 50: 20, 1999; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 147, 2001; Harvey & al., o.c.: pl. 7/B; Akoegninou & al., Fl. analyt. Bénin: 35, 2006; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 567, 2008; Sebsebe Demissew & al., Flow. Ethiopia & Eritrea…: 99, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 168, 2010; Fl. Zambes. 13/1: 104, 2008; Lisowski, Fl. Rép. Guinée 2: fig. 464, 2009; Pickering & Roe, Wild. flow. Victoria Falls area: 25, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): pl. 688, photo. 688, 2010.

bas.: *Haemanthus multiflorus* Martyn

syn.: Enum. 3: 86, 1995; *Amaryllis multiflora* (Martyn) Tratt.; *Nerissa multiflorus* (Martyn) Salisb., nom. inval.; *Haemanthus colchicifolius* Salisb.; *H. abyssinicus* Herb.; *H. tenuiflorus* Herb., nom. superfl., incl. var. *mocambicensis* Herb. and var. *coccineus* Hook. f.; *H. arabicus* M. Roem.; *H. filiflorus* Baker ex Hiern; *H. lynesii* Stapf; *H. otaviensis* Dinter; *H. sacculus* E. Phillips [all of subsp. **multiflorus**].

Herb 0,25-1 m tall, with a distinct elongated rhizome; bulb cylindrical, c. 2 × 1,5 cm; pseudo-stem 5-20 cm long; leaf blade (ovate-)lanceolate, expanding after flowering, 25 × 8 cm, acute or obtuse, basally attenuate, margins often somewhat undulating; scape lateral, 12-50 cm long, often purple-spotted; involucral *bracts < 1,6 mm wide, membranous,* most often *colourless, caducous;* umbel globose, dense, 10-200-flowered, to 15 cm Ø; pedicels 1,6-5,3 cm long; perianth tube 0,4-1,4 cm long; segments linear, 11-44 × 1-3,2 mm, spreading, scarlet, *3-5-nerved*; berry red, c. 1 cm Ø.

Acacia, Commiphora woodland or bushland; *Buxus* scrubland; loamy soils; deep muddy-clayey soil; moist shady sites in savannas; niayes; woody savannas; degraded thicket; under isolated trees; well drained soils; forest margins; secondary forest; forest gallery; thin soil on hardpan; meadows; wooded meadow; among humid rocks; grassland; rain-forest with *Arundinaria, Hagenia, Podocarpus* or *Juniperus*; rain-forest with *Albizia, Macaranga, Croton, Ocotea;* 0-3000 m alt.

Cape Verde Isl.; Bioko/Fernando Poo; Namibia, S. Africa, Botswana, Swaziland; Saudi Arabia, Yemen (Kilian & al. in Willdenovia 34; 162, 2004), ? Oman.

Comprises 3 subspp.: – subsp. **multiflorus** (synonyms above), widespread in Africa, and variable, with perianth tube usually shorter than 1,5 cm, and segments narrower than 2,5 mm; – subsp. **longitubus** (C. H. Wright) Friis & Nordal [bas.: *Haemanthus longitubus* C. H. Wright; syn.: *H. multiflorus* subsp. *longitubus* (C. H. Wright) I. Bjørnstad & Friis; *H. mannii* Baker], with perianth tube 1,5-2 cm long and segments 1,4-3,5 mm wide, occurring in lowland rain-forests of Sierre Leone through to Ghana (icon.: Bot. Mag.: pl. 6364, 1878); – subsp. **katherinae** (Baker) Friis & Nordal [bas.: *Haemanthus katherinae* Baker; syn.: *H. multiflorus* subsp. *katherinae* (Baker) I. Bjørnstad & Friis], a very tall plant, occurring in coastal areas from Swaziland S-wards to E. Cape (S. Africa) (icon.: Bot. Mag.: pl. 6778, 1884; Veld & Flora 87: 63, 2001).

Flowers very decorative; often grown as an ornamental. Subsp. *multiflorus* is the only commonly cultivated, and widely offered in the commerce; produced in huge quantities by the Dutch nursery industry (Hutchinson, o.c.).

Haemanthus bivalvis G. Beck is a characteristic form in Ethiopia, differing by having stolons and partly fused involucral bracts (should it be re-erected ?; cf. Nordal & al., 2010).

S. nutans (Friis & I. Bjørnstad) Friis & Nordal; Nordal & al. in Biol. Skr. 54: 254-255, 2001; Vigneron (2008): 60. – Icon.: Fl. Eth. & Eritrea 6: 159, 1997; Meerow & Snijman (1998): 84; Sebsebe Demissew & al., Flowers Ethiopia & Eritrea…: 98, 2003; idem, Aloes & Lilies of Ethiopia & Eritrea, ed. 2: 166, 2010; Bot. Mag. 28: pl. 699, and p. 27-30, 2011.

Rhizomatous herb 30-50-100 cm tall; roots thick, fleshy; leaves contemporary with flowers; false stem 25-40 cm tall, often with red to brown spotting at base and on cataphylls; new shoots and inflorescence pierce base of the false stem; blade 30-40 × 6-8 cm; scape 10-30 cm tall; inflorescence *nodding,* conical, 20-30-flowered; bracts short, partly fused; pedicels 0,3-1 cm long; perianth pink, pale red, red, scarlet to orange-red; tube 0,8 cm long; segments erect, 1,8-2 × 0,2-0,3 cm, 3-veined; berry *ovoid,* deep red, 1,5-1,8 cm long, taking a full year to ripen.

Shady evergreen forest; on ground, amongst rocks, or epiphytic on, e.g., *Elaeodendron buchananii, Sapium ellipticum, Schefflera abyssinica, S. volkensii, Ilex mitis,* on the trunk among other epiphytes, in clefts, deeply fissured bark, crotches of branches accumulating large amounts of organic matter; 1000-2300 m alt.

S. pole-evansii (Oberm.) Friis & Nordal; Fl. Zambes. 13/1: 103, 2008.

Herb to 1,2 m tall; bulb 2-3,5 cm wide; pseudostem prominent; leaves 4-8, petiole short, lamina 25-50 × 5-16 cm, developing after anthesis; scape 0,4-1,1 m long spotted as the false stem on lower part; umbel globose, 13-30 cm Ø, 8-45-flowered; pedicels 4,5-8,5 cm long; perianth tube *2-5 mm* long, segments elliptical, 16-25 × *5-8,5 mm*, pink to vermillion; filaments *7-14 mm* long, anthers *4,5-7 mm* long; berry orange to red, to 2,5 cm wide.

Evergreen moist forest; c. 1800 m alt.

Perhaps also in adjacent Mozambique. Considered vulnerable for Zimbabwe (Sabonet News 9/1: 52-53, 2004).

S. pseudocaulus (I. Bjørnstad & Friis) Friis & Nordal; Cable & Cheek, Pl. Mt Cameroon: 146, 1998; Cheek & al., Pl. Kupe…: 425, 2004; Sosef & al., Check-list pl. vascul. Gabon: 45, 2006. – Icon.: Bot. Mag.: pl. 5314, 1862 (sub nom. *Haemanthus cinnabarinus);* Bulb Newsl. 31: 9, 2000.

syn.: Enum. 3: 86, 1995.

Rhizomatous herb to 80 cm tall; leaves terminal, 6-10, sheaths forming a 15-45 cm long *false stem;* lamina elliptic-lanceolate, glabrous, 15-45 × 5-12 cm; scape 30-65 cm long, rupturing the leaf sheath, *remaining central* among leaves; umbel conical to globose, 20-50-flowered; pedicels < 1,5-4,5 cm long; perianth tube *10-18 mm long;* segments spreading, 5-nerved, 12-26 × 2-4,5 mm; berry 1,5-2 cm Ø, red.

Moist forest; near sea level to 1500 m alt.

S. puniceus (L.) Friis & Nordal; Fl. Eth. & Eritrea 6: 158, 1997; Fl. Zambes. 13/1: 103-104, 2008; Tardelli & al. The types of the Tropical Herbarium of Florence 1: Monocotyledons: 12, 2001. – Icon.: Bot. Mag.: pl. 5378, 1863; Hutchinson (2007): 14; Sebsebe Demissew & al., Flowers of Eth. & Eritrea…: 100, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 169, 2010; B.-E. van Wyk & al., Medicin. pl. S. Afr., ed. 2: 261, 2009.

SCADOXUS PUNICEUS

syn.: Enum. 3: 86, 1995; *Gyaxis puniceus* (L.) Salisb.; *Haemanthus orchidifolius* Salisb.; *H. puniceus* L. var. *fortuita* Herb. and var. *magnificus* Herb.; *H. redouteanus* M. Roem., incl. var. *subalbus* M. Roem.; *H. insignis* Hook.; *H. superbus* Baker; *H. rouperi* auct., Florist's Mag. (London), N. S., 1875: pl. 148, 1875.

Bulbous herb to 60-80 cm tall with a pseudostem 30-50 cm long, with dark red coloration; bulb to 8 cm Ø; leaf blade similar to that of *S. multiflorus;* scape 20-75 cm tall; umbel *conical* 30-100-flowered; involucral bracts *herbaceous, persistent,* ± *erect,* green or more often *spotted* or *tinged with deep purple,* forming a cup-like structure; pedicels 0,5-2,5 cm long; perianth ± erect at anthesis; tube 0,3-1,2 cm long; segments linear, 1,3-2,7 cm long, 1-3 nerved, pink to scarlet, most often yellow-green outside; berry globose, 0,5-1 cm Ø.

Deciduous woodland, grassland on heavy black clay soils; often on basalt; forest stream valleys; swamp on ground or epiphytic; also in drier vegetation types; 10-2600 m alt.

Species variable in size and shape of leaves. Also heterogeneous as to colour of bracts and flowers. Possibly a polyphyletic species.

S. Africa, Botswana, Lesotho. Distribution disjunct.

May be difficult to distinguish from *S. multiflorus* in younger stages (involucral bracts erect in both) and when fruiting. Hybrids *S. multiflorus-S. puniceus* are recorded from SW Tanzania (fide Fl. Trop. E. Afr., Amaryll.: 7, 1982).

IN NEED OF FURTHER STUDY:

Haemanthus humilis A. Chev., nom. nud., 1913, non Jacq. 1804.

(STENOLIRION)

Stenolirion chariense A. Chev., nom. in sched. = **Ammocharis tinneana**

elliotii Baker = **A. tinneana**

(TAENAIS)

Taenais ampla Salisb. = **Crinum jagus**

yucciflorum (Salisb.) Salisb. = **C. ornatum**

[ZEPHYRANTHES]

Plants with small bulb, hollow scape, a single flower which is erect, actinomorphic; and fruit a papery capsule. Some 50 species native to tropical and subtropical America, incl. the West Indies. Resembling *Cyrtanthus;* also confused with *Habranthus.*

The most commonly cultivated species in tropical Africa are listed in our Enumération 3: 86-87, 1995. See also Fl. Trop. E. Afr., Amaryllidaceae: 2, 1982 [with a key], and Fl. Zambes. 13/1: 98, 2008; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 70-71, 1985.

ALOACEAE / *3* g. / *247* spp.

A family segregate of *Liliaceae* distinguished by their succulent leaves; 6 or 7 genera *(Lomatophyllum* Willd., with berries, included as a section or not in *Aloe*), over 500 species, from Africa, Madagascar-Mascarenes, Arabia. Later included in *Asphodelaceae* (e.g. APG II, 1998), and finally *Xanthorrhoeaceae* (APG III, 2009), subfamily *Asphodeloideae* (cf. Bot. J. Linn. Soc. 161: 135, 2009).

The aloes in our area are not always well known: 20 (+1?) species are known (= c. 8%) only from the type gathering, and a further 5 species only from the type locality (in all = 10%).

ALOACEAE

GENERAL LITERATURE:

BAYER, M. B. (2006). Some thoughts on recent literature of the Alooideae (Asphodelaceae). *Alsterworthia Int.* 6/1: 9-12.

FORSTER, P. I. (2004). Aloaceae versus Asphodelaceae. *Haworthiad* 18/2: 66-69.

NEWTON, L. E. (2004). The status of the family Aloaceae. *Haworthiad* 18/1: 3-4.

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ALOE / *244*

By Christian Defferrard *

Revised by Susan Carter Holmes.

syn.: *Agriodendron* Endl.; *Aloinella* (A. Berger) Lemée; *Atevala* Raf.; *Busipho* Salisb.; *Chamaealoe* A. Berger; *Guillauminia* A. Bertrand; *Kumara* Medik.; *Lemeea* P. V. Heath; *Leptaloe* Stapf; *Lomatophyllum* Willd.; *Pachidendron* Haw.; *Phylloma* Ker Gawl.; *Rhipidodendrum* Willd.

A genus of ± 600 species to which more than 1000 names (1250 according to the Aloe database; cf. Taxon 59: 1945, 2010) have been applied and is a prominent component of the landscape throughout its distribution range. Occurs in Africa (majority of species), Arabian Peninsula, Socotra, Madagascar, Mascarene Islands.

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The following descriptions are mainly borrowed or adapted from the floras or papers cited, in particular Susan Carter Holmes.

Aloe aageodonta L. E. Newton – Icon.: Cact. & Succ. J. (US) 65: 138-139, 1993.

Shrubby perennial, branching from the base to form groups to 3 m Ø; branches erect to 1 m high, or decumbent to 2 m long; leaves laxly crowded at the branch apices, lanceolate, to 50-60 × 8-10 cm broad at base, dull greyish green, reddish tinged when exposed, young leaves with a few scattered whitish spots; margin with pungent, deltoid, pale brown-tipped teeth 3-4 mm long, l0-15 mm apart; sap yellow, drying brown; inflorescence erect to 70 cm high, with 6-10 widely spreading branches, the lowest sometimes rebranched, racemes 6-15 cm long, ± densely flowered; perianth yellow, or sometimes red, green-tipped, cylindric-trigonous, 27-30 mm long, apices spreading.

Among rocks in forest clearings or edge of thickets, usually in shade; 960-1250 m alt.

A. aculeata Pole-Evans – Icon.: Fl. Pl. S. Afr. 10: pl. 371, 1930; Reynolds, 1950: 448-449; Van Wyk, B. E. & G. F. Smith, 2003: 127; Alsterworthia Int. 9/2: 23, 2009.

Perennial herb, solitary, medium-sized, acaulescent; leaves in a dense rosette, erect and often slightly incurved, 30-60 × 9-14 cm towards base, ovate-lanceolate, greyish-green, bronzed in dry conditions, with scattered reddish-brown prickles from a pale circular base on the lower surface and usually near the apex of the upper surface, otherwise unmarked; margin with pungent, reddish-brown deltoid teeth 3-4 mm long and 10-15 mm apart; inflorescence erect to 1,25 m high; peduncle simple or 1-3-branched; branches erect, subtended by deltoid scarious bracts c. 12 × 12 mm, with scattered sterile bracts below the racemes; racemes 20-50 × 7 cm, cylindric, very densely flowered; perianth bright red in bud rapidly turning orange to greenish-yellow on opening, 28-35 mm long; outer segments free for two-thirds with tips slightly spreading.

In bare or sparsely grassed areas, among boulders or near rocky outcrops, and in open deciduous woodland; 300-1525 m alt.

S. Africa, Botswana (border with Zimbabwe).

Hybrids with *A. globuligemma* are common.

A. adigratana Reynolds – Icon.: J. S. Afric. Bot. 23: pl. 1-2, 1957; Bot. Mag. 126: pl. 7712, 1900 (sub nom. *A. abyssinica*); Reynolds, 1966: 215-216.

syn.: *A. abyssinica* sensu Hook. f., 1900, non Lam.; *A. eru* A. Berger var. *hookeri* A. Berger

Shrub, stem erect to 1 m tall or decumbent to 2 m long; leaves crowded, 40-60 × 7-15 cm, deeply canaliculate, dull-green with numerous pale-green spots on the lower third to quarter of both surfaces, margin with 4-5 spines per 10 cm, spines 3-4 mm long, red-brown; inflorescence to 1 m high, branched; racemes 3-5, cylindrical-conical, 12-22 cm long, densely flowered; perianth subclavate, 25-27(-33) × 6-8 mm when pressed, orange or yellow, outer segments free for 13-16mm.

Rocky places, mostly on sandstone, also on basement complex; 2000-2700 m alt.

Near *A. camperi* (see below).

A. albovestita S. Carter & Brandham

Plants stemless, forming small groups; leaves lanceolate, spreading, 20-30 × to 12 cm, glaucous green, longitudinally striated with a few indistinct pale spots above; margins narrowly cartilaginous with red-brown teeth, 1,5 mm long, 5-10 mm apart; inflorescences to 75 cm tall with 2-3 branches; racemes erect,

cylindrical to subcapitate, rather lax; flowers obliquely spreading, dull pink with very pronounced bloom; perianth cylindric with pronounced basal swelling, 25-33 mm long, abruptly constricted, outer tepals free for 7 mm.

Juniperus forest and shady rock faces, on limestone: 1400-2000 m alt.

A. ambigens Chiov.

Plants shrubby, with stems to 40 cm long; leaves 5-15 in a lax rosette, to 20 × 2-3 cm, fleshy and rigid, glaucous green, sparsely spotted at times; margins with white cartilaginous teeth, to 1 mm long, 10-20 mm apart; inflorescences to 1 m long, with up to 8 spreading branches; racemes 4-12 cm long, lax; flowers red or yellow, perianth 20 mm long, outer tepals free for 6 mm.

Acacia-Commiphora bushland on steep limestone rock faces; c. 250 m alt.

A. amicorum L. E. Newton

Sprawling shrub, branching sparsely from the base; branches to ± 110 cm long, decumbent or pendulous over rock-faces; leaves laxly crowded at branch apices, with a few persistent dried remains below; lamina flexuose, hanging down, narrowly lanceolate-attenuate, to 46 × 5,5 cm at base, bluish green with scattered, elongated, whitish spots, tinged purplish red when exposed, both surfaces slightly rough; margin cartilaginous with minutely red-tipped teeth 1-2 mm long, 8-10 mm apart; sap drying brownish yellow; inflorescence oblique, 45-76 cm long, with 6-11 spreading branches, the lower ones often rebranched; racemes 8-27 cm long, laxly flowered; perianth crimson, with a bloom, paler towards the mouth, cylindric-trigonous, 23-28 mm long, with apices spreading.

Steep rocky slopes and rock faces, with deciduous scrub; 800-1450 m alt.

Known only from the type locality.

A. amudatensis Reynolds – Icon.: J. S. Afric. Bot. 22: pl. 23, 1956; Reynolds, 1966: 77; Sajeva, M. & M. Costanzo, Succulents II – The new illustrated dictionary: 42, 2000.

Acaulescent perennial herb, suckering to form dense groups; leaves in a rosette, erect to spreading, lanceolate-attenuate, 20-25 × 4-5(-6) cm towards base, fleshy, yellowish green, heavily spotted on both surfaces, the spots elongated and ± arranged in transverse bands; margin cartilaginous, with minutely brown-tipped teeth ± 2 mm long, 3-8 mm apart; inflorescence 50-65 cm high, occasionally with 1-2 branches; branches curving upwards, subtended by scarious linear bracts; racemes conical-cylindric, 6-12 × 7 cm, ± laxly flowered; perianth bright glossy coral-pink to red, cylindric-trigonous, 20-25 mm long; outer segments free for ± 1/3, apices spreading, yellowish.

Sandy soils in deciduous bushland; 914-1340 m alt.

Put in synonymy under *A. ellenbeckii* by Wabuyele (2006, Part 2: 21).

Forms hybrids with *A. tweedieae* in E Uganda (Amudat).

A. andongensis Baker – Icon.: Reynolds, 1966: 347; Court, G. D., Succulent flora of Southern Africa: 139, 1981.

Caulescent, branching shrub; stem ascending, sometimes becoming decumbent, 30-60 cm high; leaves ± 14, rosulate, persistent for 30 cm below, lanceolate-attenuate, 20-25 × 6-7 cm, dull grey-green, mostly without spots or sometimes sparingly spotted above, usually with many crowded white spots near base below, with slight cartilaginous margin; marginal teeth 2-3 mm, 5-7 mm

apart; inflorescence 30-40 cm high, with 2-3 branches; racemes subcapitate to cylindrical-acuminate, 6-12 × 6-8 cm; flowers pale orange-scarlet, paler at mouth, 25 mm long, base shortly attenuate; tepals free for 8 mm.

Exposed rocky places; 1050-1525 m alt.

Comprises 2 var.: – var. **andongensis;**

– var. **repens** L. C. Leach differs from var. *andongensis:* stem prostrate, forming large spreading clumps; leaves smaller, proportionately narrower, more copiously white-spotted, the spots tending to be in wavy transverse bands; marginal teeth more crowded.

Slopes of rounded granite hills.

(**A. angolensis** Baker). Maintained as a distinct species by Klopper & al., Aloe in Angola (Bothalia 39: 23-24, 2009), also as such in Strelitzia 22: 174, 2008, and Haseltonia 15: 73, 2009. – See below under **A. littoralis** and at end of species list p. 308.

A. ankoberensis M. G. Gilbert & Sebsebe – Icon.: Smith & al. in Aloe 45: 19, 2008.

Prostrate or pendent shrub, mostly unbranched, stem to 1 m long, c. 8 cm thick, sometimes branching dichotomously at apex within leaf rosette, especially when cultivated; leaves 35-50 in dense rosette, arcuate, up to 50 × 12 cm, pale blue-green, slightly glaucous, with fine but distinct longitudinal lines and, especially in dry season, red margin; marginal teeth almost absent, up to 3 per 10 cm, 0,2-0,3 mm high, hardly visible; sap turning purple, as do old leaves; inflorescence at first descending then ascending forming a U-shape, branched; racemes 3-6(-11), erect, 12-28 cm long, lax (3-5 flowers per cm); perianth cylindrical, 32-33 × 6-8,5 mm when pressed, red; outer lobes free for c. 20 mm.

Steep basalt slopes or cliffs with sparse cover of evergreen bushland, often near seasonally running water; 3000-3500 m alt.

A. arborescens Mill. – Icon.: Candolle, A. P. de, Plantarum historia succulentarum, Histoire des plantes grasses: 38, 1799; Bot. Mag. 32: pl. 1306, 1810; Reynolds, 1950: 408-411; Van Wyk & Smith, 2003: 79; Notes Rec. Roy. Soc. 64/2: Frontispiece, 2010. – First illustrated by Jan Moninckx in 1700 in Hort. Amst.

syn.: *A. arborea* Medik.; *A. arborescens* var. *frutescens* (Salm-Dyck) Link; *A. arborescens* var. *milleri* A. Berger; *A. arborescens* var. *natalensis* (J. M. Wood & M. S. Evans) A. Berger; *A. arborescens* var. *pachythyrsa* A. Berger; *A. arborescens* var. *viridifolia* A. Berger; *A. frutescens* Salm-Dyck; *A. fruticosa* Lam.; *A. natalensis* J. M. Wood & M. S. Evans; *A. perfoliata* Meyen; *A. perfoliata* L. var. η L. in Spec. Plant.: 320, 1753; *A. perfoliata* var. *arborescens* (Mill.) Aiton; *Catevala arborescens* (Mill.) Medik.

Shrub 3-5 m high; stem to 30 cm Ø, branching at or near the base, much branched above; stem and branches usually covered with persistent dried leaf remains; leaves in a dense rosette at apex of each branch, spreading becoming recurved; lamina up to 60 × 5-7 cm at the base, lanceolate-attenuate, greyish-green, without spots, tinged reddish in dry conditions; margin with firm forward-pointing yellow deltoid teeth 3-5 mm long and 10-15 mm apart; inflorescences 1-4 from each rosette, erect, up to c. 60 cm tall; peduncle simple or rarely with one short branch, with a few sterile bracts below the raceme; raceme 20-40 × c. 10 cm, cylindric-acuminate, very densely flowered, the buds covered by the bracts; perianth bright orange-scarlet, paler towards the mouth, green-tipped in bud, 35-40 mm long; outer segments free to the base, tips scarcely spreading.

ALOE ARBORESCENS

Mainly in mountainous areas, forest margins, occasionally in dense bush, or on exposed ridges or krantzes; woodland; moist habitats; rocky river valleys; 0-2000 m alt.

Very variable, with many local forms; some have been selected and cultivated, 9 cultivar names; Veld & Flora 88: 63-65, 2002; Alsterworthia Int. 9/2: 6-9, 2009.

Smith & al. (Haseltonia 14: 191, 2008) distinguish 2 subspp.: – subsp. **arborescens** (the varieties cited above under "syn." belong here); – subsp. **mzimnyati** van Jaarsv. & A. E. van Wyk, in KwaZulu-Natal.

S. Africa, Swaziland. Naturalized, e.g., in Portugal (Bradleya 27: 165, 2009), Australia.

Often cultivated; already in the 17th century, first record of seed received abroad in Amsterdam in 1698.

Note on nomenclature in Bothalia 38: 70-71, 2008 *[A. natalensis]*.

A. archeri Lavranos; excl. subsp. *tugenensis* (L. E. Newton & Lavranos) Wabuyele *(= A. tugenensis).* – Newton in Taxon 41: 30, 1992, descr. emend.

Shrubby perennial, branching from the base to form loose clumps, or scrambling in surrounding vegetation; branches decumbent to 4 m long, the apices erect to 70 cm high; leaves crowded at branch apices, more lax below for 50 cm, spreading and slightly recurved; lamina lanceolate-attenuate, to 45 × 12 cm at base, surfaces rough, dark green, tinged reddish in dry conditions, with scattered whitish spots on young leaves; margin with deltoid, brown-tipped teeth 3-5 mm long, 6-15 mm apart; sap drying brownish yellow; inflorescence erect to 1,4 m high, with 6-12 branches curving upwards, the lowest sometimes rebranched; racemes cylindrical, 10-22 cm long, ± densely flowered, the buds enveloped by the bracts; perianth red with yellow tips, cylindric-trigonous, 20-25 mm long, narrowing at the base, widening slightly towards the mouth; outer segments free to more than halfway, apices recurved.

In shade among shrubs in *Acacia* bushland; 1220-1825 m alt.

Different from *A. doddsiorum* and *A. tugenensis* (comparative table in CactusWorld 25: 210, 2007).

A. babatiensis Christian & I. Verd. – Icon.: Reynolds, 1966: 358-359.

Shrub 1-2 m high, with erect or sprawling stems, branching freely from the base and forming dense clumps to 4 m Ø; leaves densely rosulate, spreading and recurved; lamina lanceolate-attenuate, to 30 cm × 9 cm towards base, uniformly dull green and shiny, often tinged reddish; sheathing base strongly fibrous; margin with prominent pungent teeth 4-5 mm long and 1-1,5 cm apart; inflorescence erect to 1,25 m with 1-4 erect branches, and several sterile bracts below the racemes; racemes cylindrical, 15-30 × 7-10 cm, densely flowered, the buds enveloped by the bracts; perianth pink to crimson, cylindrical, 35-40 mm long, very slightly narrowed above; outer segments free for ± 1/4, apices very slightly spreading.

On rocky slopes and bushed grassland; 1825-2100 m alt.

Seems to form hybrids with *A. secundiflora.*

A. ballii Reynolds, non *A. ballyi* Reynolds; Excelsa 20: 53-54, 2003. – Icon.: J. S. Afric. Bot. 30: pl. 21, 1964; Reynolds, 1966: 11-12; Fl. Pl. Afr. 40: pl. 1589, 1971; West, 1992: pl. 6a & b.

Perennial herb, suckering to produce numerous stems in a dense cluster. Stems to 12 mm Ø, erect to 3 cm high, or elongating to become pendent and sometimes loosely spirally twisted to 150 cm long; leaves distichous to subrosulate in a loose spiral,

ALOE BALLII

deciduous below the apical 20-30 cm of the stem, grass-like and weakly erect to arching over, 30-50 cm × 5-10 mm, linear, expanded to c. 15 mm at the clasping base, rather fleshy, channelled on the upper surface, light green with whitish spots scattered on the upper surface, the spotting more dense on the lower surface especially at the base; margin with minute, white, cartilaginous teeth 2-5 mm apart in the lower half, obsolescent above; inflorescence unbranched, erect and 40-75 cm high, or oblique to c. 65 cm long with the raceme hanging down or slightly upturned on pendulous plants; peduncle with a few small sterile papery bracts, below the raceme; raceme 12-18 × 4 cm, cylindrical, laxly flowered; flowers spreading; perianth orange-scarlet, 12-16 mm long, cylindric-campanulate, widening slightly towards the mouth, base tapering into the pedicel; outer segments free to the base with tips slightly spreading; capsule 12-18 × 7-9 mm, ovoid.

Amongst grass on steep slopes or on cliff-faces; hanging down from rock-faces or lying on the ground; 370-380 m alt.

Comprises 2 vars.: – var. **ballii** in the south. Chimanimani Mts., Haroni River gorge; – var. **makurupiniensis** Ellert – Icon.: Cact. & Succ. J. (US) 70: 131, 1998; stems 1-5(20) per rootstock, erect, 1-3 cm high; leaves erect, to 50 cm long; inflorescence erect, to c. 75 cm high; capsules to 18 × 9 mm (fide Ellert).

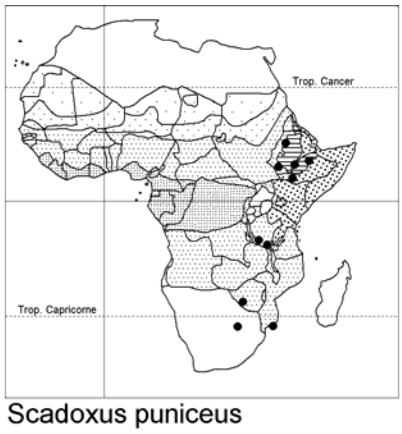
Known only from the lower mountain slopes at the south eastern tip of the Chimanimani Mts., in the Makurupini R. area. In open grassy woodland on relatively flat ground on sandy quartzite soils, among rocks; 400-900 m alt.

A. ballyi Reynolds, excl. specim. Bally 10607 *(= A. elata)*, non *A. ballii* Reynolds – Icon.: J. S. Afric. Bot. 19: pl. 1-2, 1953; Reynolds, 1966: 325-326; Carter, 1994: 55; Newton, in CactusWorld 25 Suppl.: 45-46, 2007.

Small tree to 8 m high, with an unbranched naked stem to 15 cm Ø thick, usually solitary; leaves densely rosulate at the stem apex, arching, then strongly recurved; lamina narrowly lanceolate to 90 × 14 cm towards base, thickly fleshy, upper surface canaliculate, greyish green; margin with whitish pungent teeth 8-12 mm apart, 2-3 mm long, the lower ones sometimes recurved; sap poisonous, smelling strongly of rats; inflorescence produced obliquely, to 60 cm long, with up to 9 or more spreading branches, the lower ones rebranching; racemes cylindric, 7-15 × 8 cm., laxly flowered; flowers spreading on side branches; perianth dull, dark pink to orange-red, with a waxy bloom, tipped with greyish green, cylindric, 30-33 mm; outer segments free for ± 2/3, apices rounded and spreading.

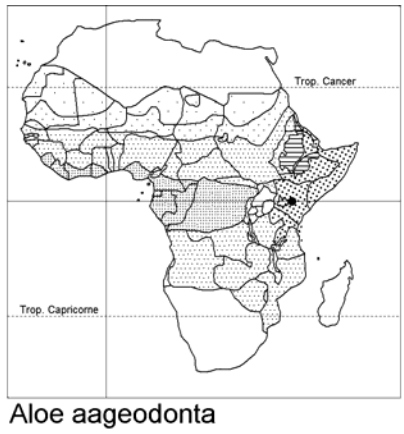
Deciduous bushland, with *Acacia* and succulents; 760-1000 m alt.

Type locality (Kenya, Taita Distr., Mwatate) destroyed (ante Dec. 2003), cleared for farmland.

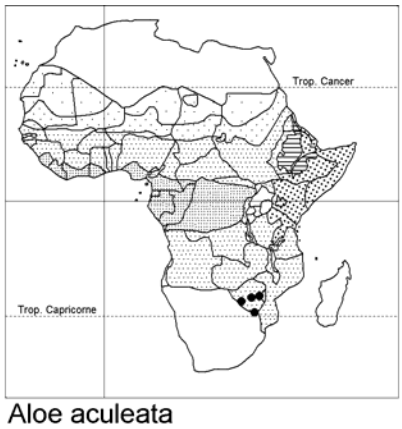


Scadoxus puniceus

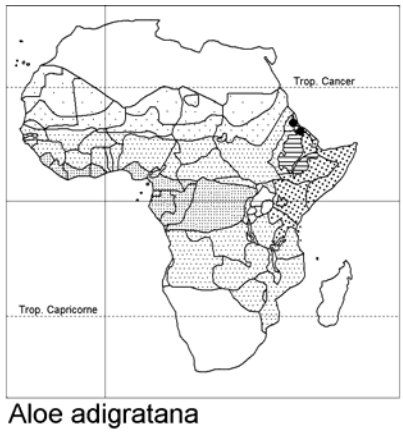




Aloe aageodonta



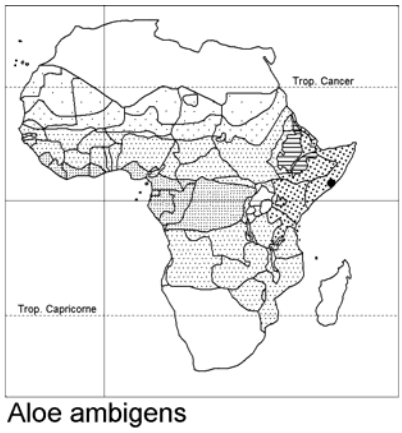
Aloe aculeata



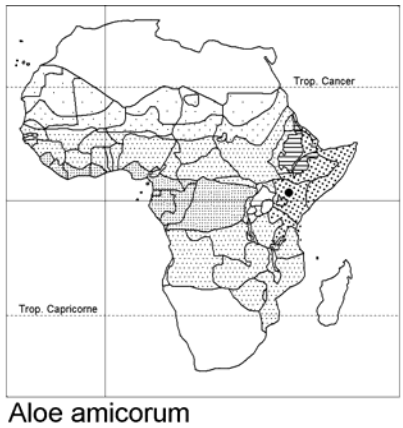
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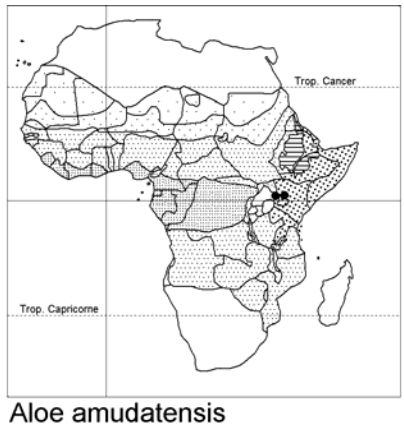
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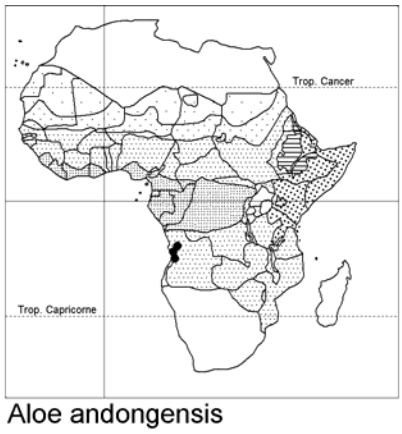
Aloe ambigens



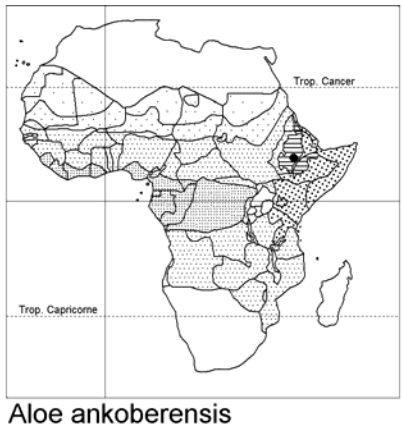
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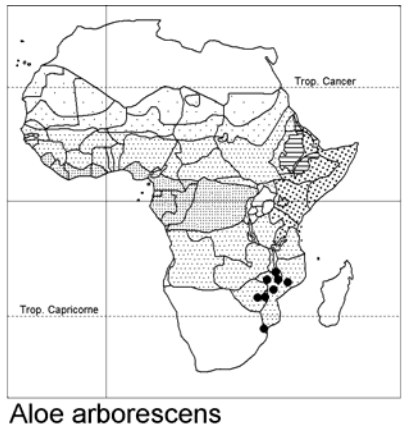
Aloe amudatensis



Aloe andongensis



Aloe ankoberensis



Aloe arborescens

ALOE

A. barberae Dyer – Icon.: Reynolds, 1950: 499-501 (sub nom. *A. bainesii);* Bot. Mag. 111: pl. 6848, 1885 (sub nom. *A. bainesii);* Van Wyk & Smith, 2003: 35.

syn.: *A. bainesii* Dyer, incl. var. *barberae* (Dyer) Baker; *A. zeyheri* Baker

Tree 10-15(18) m high, branching dichotomously many times from a stout trunk; trunk 2-5 m high, 1-3 m Ø; leaves in a compact rosette at the apex of each branch, spreading and recurved, withered leaves deciduous; lamina 60-90 × 7-9 cm near base, lanceolate-attenuate, deeply channelled, uniformly dull green; margin cartilaginous, with firm whitish teeth occasionally minutely brown-tipped, 0,5-1,5 mm long and 7-15 mm apart; inflorescence 1 from each rosette, up to 60 cm tall; peduncle stout, usually 2-4-branched; branches subtended by scarious linear bracts c. 7 mm long from an expanded base c. 5 mm wide, with a few sterile bracts below each raceme. Racemes erect, 10-20(30) × c. 8(10) cm, cylindric, densely flowered; bracts scarious, linear; perianth varying from pale yellow to orange-yellow or salmon-pink, 30-37 mm long, cylindric-trigonous; outer segments free for c. two-thirds, with tips very slightly spreading; capsule stipitate for 3-4 mm, up to c. 40 × 17 mm, oblong-ovoid, brown.

Essentially a forest dweller and favours dense, tall bush and low forests; rocky slopes of wooded valleys; 20-600 m alt.

S. Africa, Swaziland.

A. bargalensis Lavranos

Plants solitary or suckering sparingly; leaves up to 20, 30-60 × 6-20 cm, narrowly lanceolate, somewhat curved, dark glaucous green, prominently white striate on both sides; margins almost entire or with rigid 1-2 mm long teeth, sometimes as close as 12-15 mm; inflorescences to 1,5 m tall, simple or with 1-2 branches; racemes very narrowly cylindric, 30-40 cm long, fairly lax; flowers reddish with yellow mouth, pendulous; perianth narrow, 30 mm long, outer tepals free for 16 mm.

Hills and mountains, on limestone; 0-1100 m alt.

A. bella Rowley – Icon.: Lavranos, in Cact. & Succ. J. (US) 45: 118-119, 1973 (sub nom. *A. pulchra).*

syn.: *A. pulchra* Lavranos, nom. illeg.

Plants solitary or forming fairly large groups; leaves c. 20, 50 × 11 cm, lanceolate-triangular, ascending-erect, somewhat curved, rigid, pinkish-brown; margins with red teeth, 2 mm long, 20 mm apart; inflorescences 1 m tall, with up to 5 branches; racemes shortly conical to subcapitate, 6-11 cm long, dense; flowers brillant red, shiny, pendent; perianth 27 mm long, outer tepals free for 7-9 mm.

Coastal semi-desert with low shrubs and scattered low trees, mainly *Commiphora,* on limestone; 0-100 m alt.

A. benishangulana Sebsebe & Tesfaye – Icon.: Kew Bull 66: 114, 2011.

Acaulescent plant, rosette coming out between rock crevices or from rock bottoms that partly shelter the lower parts of the aloe plant; root system massive; leaves laxly rosulate, 20-46 × 1-4,5 cm; leaf surface dull green with smooth surface; marginal teeth 1-1,5 mm, white, 3-8 mm apart or 10-12 per 10 cm length; inflorescence 50-60 cm long, simple raceme cylindrical, c. 28 cm long; bracts ovate, 8-10 × 4 mm, acuminate at the apex; pedicel 8-10 mm long; perianth bright scarlet, paler to almost white towards mouth, 37-40 mm, base truncate, 8 mm across; outer tepals free for 10 mm long.

ALOE BENISHANGULANA

Bamboo *(Oxytenanthera abyssinica)* thicket with open rocky outcrops or partially covered by slanting rocks giving them protection during fire season; 1490-1500 m alt.

Resembling *A. schweinfurthii.*

A. bertemariae Sebsebe & Dioli; Fl. Eth. & Eritrea 1: 246, 2009. – Icon.: Kew Bull. 55: 680, 2000.

Plants medium to large, suckering to form small groups of 3-4 rosettes; acaulescent with 13-15 leaves per rosette in adult plants; leaves 50-65 × 8-9 cm, erect or slightly recurved, triangular to narrowly ovate, strongly inrolled, becoming tubular in dry condition, longitudinally striped and with profuse whitish green blotches, 2 × 0,5-0,8 mm on both surfaces; marginal teeth triangular, uniformly brown, 1-2 mm long, 1,5-2,5 cm apart, with larger intervals towards the apex of leaves, 4-6 teeth per 10 cm; lower surface of most leaves bearing 3-5 brown spines, 1-2 mm long; exudate dark yellow, brown when dry; inflorescence simple, 1-2 m high; racemes cylindric-conical, 50-80 cm long (3 flowers per cm); perianth dark coral-red, whitish at the mouth, green-tipped in bud, cylindric-trigonous, 20-23 × ± 2,5 mm in herbarium specimens (26-28 mm long, ± 5 mm in fresh flowers), slightly constricted above the ovary, minutely pubescent; outer lobes free for one third of their length; capsule ovoid, 14-17 × 5-6 mm, shortly pubescent, transversely ridged.

Acacia bushland on sandy clay soil; 300 – 400 m alt.

Resembling *A. citrina.*

Known only from the type.

A. bicomitum L. C. Leach – Icon.: Reynolds, 1966: 174-175 (sub nom. *A. venusta);* Carter, 1994: pl. 3; Aloe 39: 88, 2002.

syn.: *A. venusta* Reynolds, 1959, nom. illeg., non Schult. & Schult. f., 1829.

Perennial herb, solitary or suckering to form small groups of plants, acaulescent; leaves in a compact rosette, erect and curving slightly inwards; lamina to c. 50 × 9 cm at base, lanceolate-attenuate, dull yellowish-green, reddening in dry conditions, densely covered on both surfaces with small, pale spots; margin with pungent deltoid, minutely brown-tipped teeth to 3 mm long and 5-10 mm apart; inflorescence 1-1,2 m high, erect; peduncle 6-10-branched or more; branches obliquely spreading, subtended by ovate scarious bracts c. 15 × 12 mm; racemes 10-25 × 6 cm, cylindric, ± densely flowered, minutely pubescent on the perianths, bracts, pedicels and rhachis; perianth coral-pink, paler towards the mouth, 25-32 mm long; outer segments free to nearly halfway, with slightly recurved tips.

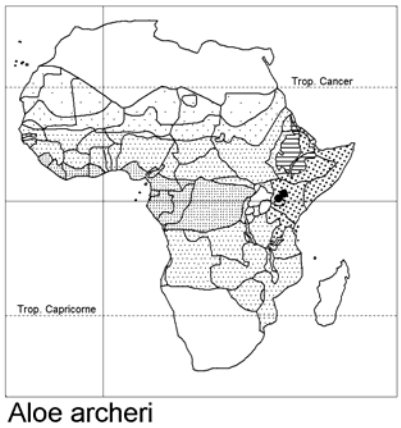
Tanganyika shore, between Kalambo R. and Kituta Bay.

Steep rocky outcrops in *Brachystegia* woodland; 780-1400 m alt.

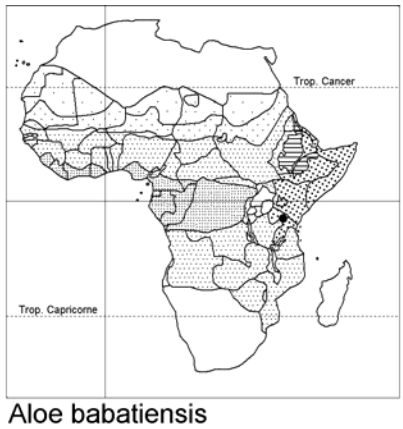
A. boscawenii Christian – Icon.: J. S. Afric. Bot. 8: pl. 1, 1942; Reynolds, 1966: 365.

Sprawling shrub 1-2 m. high, branching from near the base; leaves laxly crowded, spreading, persistent and clothing the stem; lamina lanceolate-attenuate, 35-50 × 4-8 cm broad at base, dull green, sometimes slightly red-tinged; margin with cartilaginous minutely brown-tipped teeth 2-3 mm long and 1-2 cm apart; inflorescence erect, to 1 m high, with 3-9 branches curving upwards, the lowest sometimes rebranched; racemes cylindrical, 7-15 × 7 cm, ± densely flowered above, more lax below; perianth yellow with green tips, cylindric-trigonous, ± 30 mm long; outer segments free to more than halfway, spreading slightly at the apices; capsule ovoid, 15 × 10 mm, stipitate for 2-4 mm., dark brown.

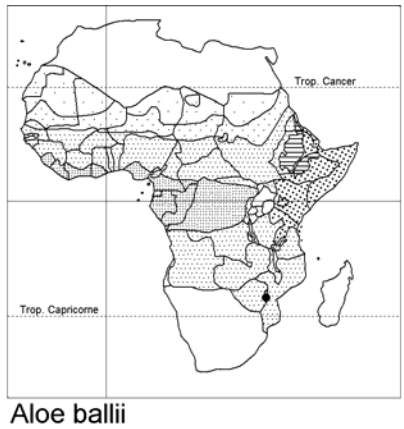
Deciduous bushland near the sea-shore; 0-60 m alt.



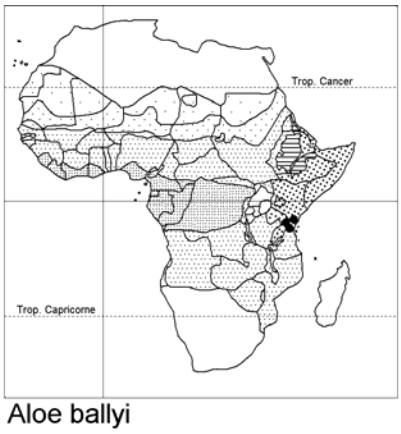
Aloe archeri



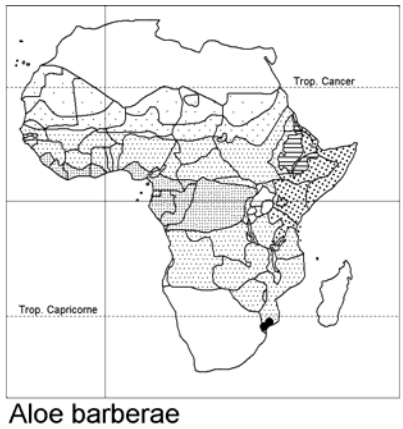
Aloe babatiensis



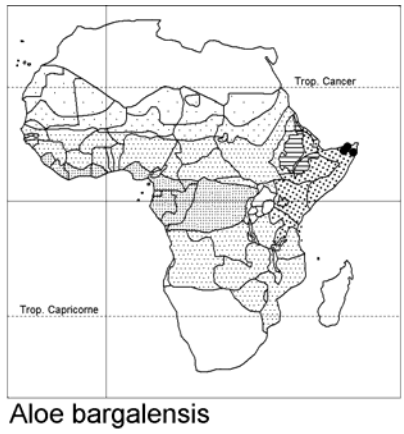
Aloe ballii



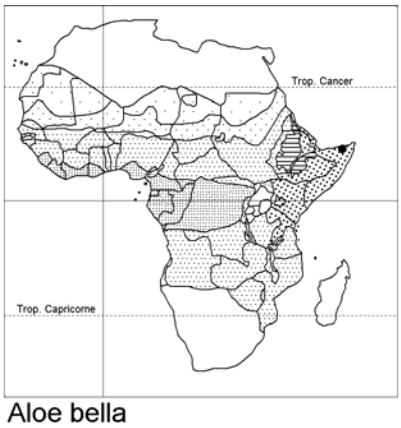
Aloe ballyi



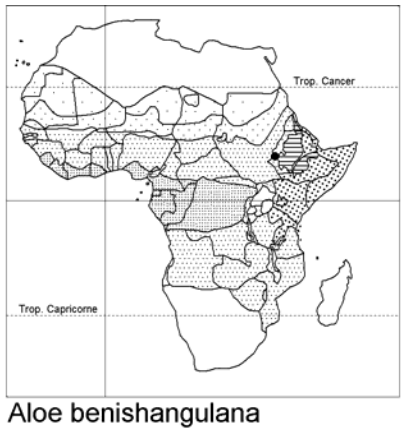
Aloe barberae



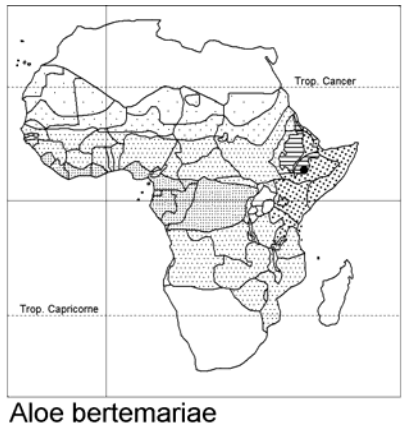
Aloe bargalensis



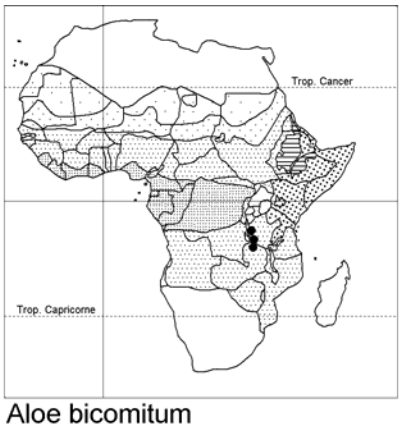
Aloe bella



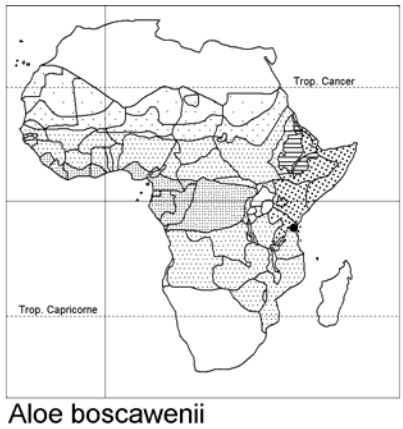
Aloe benishangulana



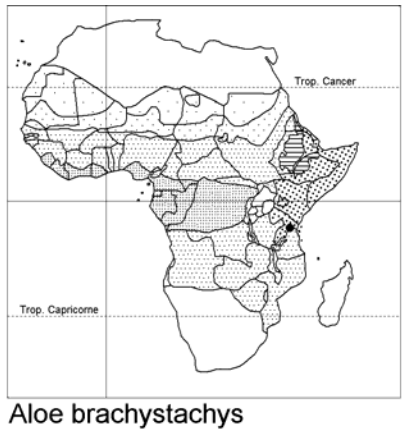
Aloe bertemariae



Aloe bicomitum



Aloe boscawenii



Aloe brachystachys

ALOE BOSCAWENII

Possibly also in Kenya near the Tanzania border on the coast.

First collected in 1937; flowering in Christian's garden in 1939. Rediscovered on the Tanga coast in 1993/1994. H. B. Christian (1871-1950) had a private botanical garden with aloes in actual Zimbabwe; Ballya 4/3: 74-75, 1997. "This garden is Ewanrigg, now a National Park, bequeathed by Christian" (S. Carter in litt. 21.02.2012).

A. brachystachys Baker – Icon.: Bot. Mag. 121: t. 7399, 1895; Lavranos & Newton in Cact. & Succ. J. (US) 48: 279-280, 1976 (sub nom. *A. schliebenii);* Fl. Pl. Afr. 45: pl. 1765, 1978 (sub nom. *A. schliebenii);* Carter, 1994: 50.

syn.: *A. lastii* Baker; *A. schliebenii* Lavranos

Perennial herb, solitary or apparently suckering to form small groups, acaulescent or with a short, procumbent stem; leaves in a ± compact rosette, spreading and recurved; lamina lanceolate-attenuate, 30-60 × 4-8 cm at base, yellowish green, longitudinally lineate on both surfaces, often pink-tinged towards the apex and margins; margin pinkish cartilaginous, with pale, minutely brown-tipped teeth 1-3 mm long, 5-12 mm apart; inflorescence erect, 40-100 cm high, simple or occasionally with one short branch; racemes cylindric, 15-20 cm long, densely flowered, the buds enveloped by large broad bracts, 12 × 10 mm and with a few sterile bracts below the raceme; perianth pale orange-red, yellow-green at the mouth, cylindric, 25-32 mm; outer segments free for ± 1/3, with spreading apices.

Rocky outcrops in montane bushland; 1450-2100 m alt.

A. brandhamii S. Carter

Perennial herb, suckering to form small clumps of large rosettes, older plants occasionally with suberect stems to 1 m long; leaves in a compact rosette, spreading and recurved; lamina lanceolate, 50-80 × 10-20 cm towards the base, dull dark green and often bronzed, firm but not glossy and without spots; margin with sharp brown-tipped teeth 2-3 mm long and 1-2 cm apart; inflorescence erect, 1,5-2 m high, with up to 25 widely spaced branches, obliquely spreading, the lower ones sometimes rebranching; racemes 15-30 cm long, sublaxly flowered, with buds and capsules secund, or cylindrical when the flowers are open and ± pendulous; barcts conspicuous; perianth coral-pink, paler at the mouth, minutely white-flecked, cylindrical, 30-40 mm; outer segments free for ± 1/3, with recurved apices.

Among rocks in light shade in deciduous riverine forest; 750-1200 m alt.

Resembling both varieties of *A. secundiflora.*

A. breviscapa Reynolds & P. R. O. Bally – Icon.: J. S. Afric. Bot. 24: pl. 19, 1958; Reynolds, 1966: 267-268.

Plants forming small or large groups; leaves c. 24, in dense rosettes, 30-35 × 8-10 cm, lanceolate-attenuate, ascending-spreading, rigid, bluish-grey with red tinge; margins entire or with a few very short teeth near the base; inflorescences to 50 cm tall, with 3-6 spreading branches; racemes cylindric, lax, 20-25 cm long; flowers scarlet, glabrous, nutant; perianth 26-30 mm long, outer tepals free for 10 mm.

Semi-desert, on gypsum; c. 1400 m alt.

A. brunneostriata Lavranos & S. Carter – Icon.: Carter & al., 2011.

Plants suckering and forming small groups; stems to 40 cm tall, obliquely ascending; leaves c. 10, to 30 × 7 cm, lanceolate, horizontally spreading to recurved, creamy yellow, with numerous longitudinal red-brown lines; margins cartilaginous, sharply

ALOE BRUNNEOSTRIATA

edged, with or without blunt, cartilaginous teeth less than 0,5 mm long; inflorescences with up to 12 branches, 50-60 cm high; racemes elongate, lax; flowers yellow, subsecund; perianth 16-20 mm long.

Semi-desert flats, on limestone; c. 640 m alt.

A. buchananii Baker – Icon.: Fl. Pl. S. Afr. 20: pl. 763, 1940; Reynolds, 1966: 29-31; Lane, A field guide to the aloes of Malawi: 9, 2004.

Acaulescent or shortly caulescent, usually simple or with 2-3 (rarely to 9) stems in clumps; roots fusiform; stem to 20 cm long, 5 cm Ø; leaves distichous or becoming rosulate, triangular, grasslike, 60 × 4-6 cm, green with few scattered elongated dull white spots towards base, lower face more copiously spotted, with narrow translucent cartilaginous margin; marginal teeth 0,5 mm, 8-15 mm apart, absent towards leaf tip; inflorescence 60-80 cm, simple; raceme cylindrical-acuminate, 15-20 × 7 cm, dense; flowers salmon-pink or light coral-red, greenish at mouth, 30 mm, base shortly attenuate; tepals free to base or almost to base.

Montane grassland, open *Brachystegia* woodland, 1150-1940 m alt.

Perhaps also over the Malawi border to Mozambique.

Seriously endangered, existing only in widely separated populations in Malawi.

A. buettneri A. Berger – Icon.: Reynolds, 1966: 45, 46 fig. 43; Newton in Cact. & Succ. J. (US) 46: 57, 1974; Akoegninou & al., Fl. anal. Bénin: 65, 2006.

syn.: *A. barteri* Baker; *A. barteri* var. *dahomensis* A. Chev. (nom. inval.); *A. barteri* var. *sudanica* A. Chev. (nom. inval.); *A. congolensis* De Wild. & T. Durand; *A. paludicola* A. Chev. (nom. inval.); *A paedogona* A. Berger (in Index Kewensis, Suppl. 4 (1906-1910) cited as *A. paedogona* **Rendle**, J. Bot. 44: 57, 1906).

Acaulescent plant, simple (or rarely suckering) at base forming small groups, the base enlarging to form a bulb towards the end of the growing season; leaves ± 16, rosulate, usually dying back in dry season, triangular, 35-55 cm long, green, obscurely lineate, sometimes with few scattered whitish spots, with very narrow white to pale pink cartilaginous margin, surface smooth; marginal teeth 3-4 mm, firm, 10-15 mm apart; inflorescence 70-90 cm high, with 3-5 branches; racemes cylindrical-conical to subcapitate, 15 × 7 cm, sub-dense; flowers greenish-yellow to dull red, 38 mm long, base rounded; tepals free for 12-13 mm.

Reynolds (1966) included *A. bulbicaulis* and *A. paedogona* in this taxon, but Carter, Fl. Trop. E. Afr., Aloaceae: 12, 1994, treated them as 3 geographically distinct species. Further studies are required to determine their relationships. However, in their recent treatment of *Aloe* Carter & al. (2011: 151) consider *A. paedogona* as synonym of *A. buettneri*, with *A. bulbicaulis* as a distinct species.

Grassland and savanna woodland; savanna with *Isoberlinia doka;* 250-900 (-1800) m alt.

N Namibia.

Treated as a synonym under *A. tenuifolia* Lam. in World Checklist Monocotyledons, Kew. "However, Lamarck's description includes *very slender, very pale green* leaves with spots, which does not appear to match well with *A. buettneri"* (S. Carter in litt. 21.02.2012).

ALOE

A. bukobana Reynolds – Icon.: J. S. Afric. Bot. 20: pl. 12, 1954; Reynolds, 1966: 108-109; Newton in Haworthiad 13: 139, fig. 5, 1999.

Perennial herb, acaulescent, suckering to form small dense groups; leaves in a compact rosette, erect-spreading; lamina ovate-lanceolate, to 30 × 10 cm at base, greyish green, usually unspotted on mature plants, young plants spotted especially below; margin cartilaginous, with deltoid pale brown-tipped teeth 1,5-4 mm long, 7-10 mm apart; inflorescence erect, 0,5-1 m high, with 3-10 widely spaced slender branches spreading widely then curving upwards, the lowest occasionally rebranched; racemes cylindrical, 20-40 cm long, very laxly flowered; perianth bright coral-pink to dull scarlet, paler at the mouth, 25-35 mm long; outer segments free for ± 1/4, with apices very slightly spreading.

On rock-outcrops; 1150-1470 m alt.

A. bulbicaulis Christian; Klopper & al. in Bothalia 39: 24, 2009. – Icon.: Fl. Pl. S. Afr. 16: pl. 630, 1936; Lane, A field guide to the aloes of Malawi: 14, 2004; Williamson in Aloe 39: 84, 2002.

syn.: *A. buettneri* sensu Reynolds p.p. quoad locs. in Malawi, Zaire (Katanga), Zambia, et Fl. South. Afr. 5/1/1: 11, 2000 p.p. quoad locs. in Malawi, Mozambique, Zambia.

The poorly known *A. trothae* A. Berger from W Tanzania (Kigoma Distr.) is perhaps synonymous.

Perennial herb, solitary, acaulescent; roots thick fleshy; leaves drying back in dry season, rosulate, spreading, the expanded bases forming a bulb-like swelling c. 10 cm Ø below ground-level; lamina up to 50 × 15 cm, ovate-lanceolate, slightly fleshy, bright green, longitudinally striate; margin cartilaginous, 1-2 mm wide, with whitish densely crowded teeth 1 mm long and 1-5 mm apart; inflorescence erect to 60 cm high; peduncle with 3-4(7) obliquely spreading branches, and with a few sterile, ovate bracts below the racemes; racemes 10-20 × 8 cm, cylindric, ± laxly flowered; perianth pale yellow to pinkish or brownish-yellow darker nerves, 35-40 mm long; outer segments free for 1/3 with tips very slightly spreading.

Seasonally wet grassland in open *Brachystegia* woodland; c. 1200-1620 m alt.

Cultivated in S. Africa. In Zaire not occurring N of 5° 30' S lat., nor W of 19° 30' E long.

Separated geographically from *A. buettneri*, but also morphologically: the latter has much longer leaves with pungent marginal teeth, and much longer bracts.

Certain specimens from W Zambia (Kalenda Dambo) represent a possible hybrid with *A. christianii*.

A. bullockii Reynolds – Icon.: J. S. Afric. Bot. 27: pl. 11-12, 1961; Reynolds, 1966: 39-40; Carter, 1994: 8.

Acaulescent herb with thick fleshy roots; leaves expanded at the base below ground-level into a bulb-like swelling 3-4 cm Ø, spreading; lamina linear-lanceolate to 20 × 2,5 cm. towards base, ± fleshy, upper surface canaliculate; margin with densely crowded pinkish white cartilaginous teeth ± 1 mm long; inflorescence erect to 50 cm high, simple or with 1-2 erect branches; racemes cylindric, 10-15 × 6 cm, with flowers to 2 cm apart at base, crowded towards apex; perianth bright pinkish red; outer segments free for ± 1/3, apices rounded.

In grass in open woodland, appearing after burning; 1220 m alt.

ALOE

A. bussei A. Berger – Icon.: Fl. Pl. S. Afr. 25: pl. 991, 1946 (sub nom. *A. morogoroensis);* Reynolds, 1966: 72-74 (idem); Newton in Haworthiad 13/4: 138, 1999.

syn.: *A. morogoroensis* Christian

Perennial herb, acaulescent, suckering to form large dense groups; leaves in a compact rosette, spreading and curving upwards; lamina ovate-lanceolate, 20-30 × 5-6 cm at base, glossy green and usually flushed with coppery red, unspotted or with a few whitish spots on the lower surface; margin with pale yellowish cartilaginous deltoid teeth 2-4 mm long, 7-15 mm apart, to 25 mm apart towards the apex; inflorescence erect, 40-60(-75) cm high, simple or usually with 1-4 branches curving upwards; racemes conical-cylindrical, 15-25 cm long, ± densely flowered; perianth dark coral-pink, yellowish at the mouth, cylindric, 28-35 mm long; outer segments free to nearly halfway, with spreading apices.

Rocky outcrops; 580-1500 m alt.

A. butiabana T. C. Cole & T. G. Forrest – Icon.: Cact. & Succ. J. (US) 83: 28-31, 2011.

Perennial leaf succulent, acaulescent or occasionally with a stout stem to 50 cm long, 7 cm Ø, suckering to form large groups; leaves up to 32, rosette to 1,5 m Ø, erect to spreading, recurving outwards, lanceolate-attenuate, to 95 × 9 cm towards base, to 1,5 cm thick at mid point, uniformly mid-green without markings, surface smooth, teeth pungent, deltoid, 3-4 mm long, 12-16 mm apart, brick red, often with continuous red cartilaginous margin; sap yellow; inflorescence erect to 1,8 m high, with (6-) 8-12 (-16) erect branches, the lower ones sometimes rebranched; racemes cylindrical, sub-dense, the terminal to 26 cm long, to 5 cm Ø, laterals to 20 cm long; perianth red, turning yellow and paler at the mouth, 26-30 mm long, base cylindrical, 8-9 mm Ø, constricted at mid-point to 6 mm, trigonous and laterally flattened above, base slightly rounded; outer lobes free for 15-21 mm, with three, red mid-stripes and wide, white margins, inner lobes with margins free to base, with red mid-stripe.

Rock outcrop on escarpment, grassland and on cliffs above lake; *Combretum-Rhus-Sansevieria* thickets; 680-920 m alt.

Closest to the Kenyan species, *A. lolwensis.* Young plants are superficially similar. *A. butiabana* has longer leaves and a less compact, less erect growth habit.

A. calidophila Reynolds – Icon.: J. S. Afric. Bot. 20: pl. 3, 1954; Reynolds, 1966: 217-218; Sebsebe & Gilbert, 1997: 131 (Fl. Eth. & Eritrea 6).

Succulent shrub; stems 1-1,5 m high, erect or basally decumbent, branching from the base to form small to large groups; leaves crowded, 60-80 × 16 cm, spreading with recurved tip, deeply canaliculate, uniformly dull green to grey-green; margin with c. 5 spines per 10 cm, spines 3-5 mm high, dull white; inflorescence branched; racemes up to 20, cylindrical, 5,5-24 cm long, densely flowered with 6-7 flowers per cm; perianth clavate, 17-20(-22) mm long, widest part 6-7 mm when pressed, scarlet turning orange towards throat; outer segments free for 8-10 mm.

Acacia-Commiphora open woodland to bushland or open wooded grassland; sandy limestone, sometimes gypsaceous soils; 360-1620 m alt.

ALOE

A. cameronii Hemsley – Icon.: Bot. Mag. 129: t. 7915, 1903; Reynolds, 1966: 349-351; West, 1992: pl. 28-30; Carter, 2001: 90; Lane, A field guide to the aloes of Malawi: 12-13, 2004; Williamson in Aloe 39: 91, 2002.

Shrub up to 1,5 m high, rarely to 2,5 m when supported by surrounding vegetation; stem erect, branching from the base and above; branches numerous, ascending or the basal ones shortly decumbent, all clothed in persistent leaf remains; leaves in a lax rosette, erect-spreading; lamina to 40-50 × 5-7 cm near base, lanceolate-attenuate, uniformly green or occasionally with a few whitish spots especially on young leaves, becoming bright coppery-red in the dry season; margin with pungent deltoid minutely brown-tipped teeth 2-4 mm long and 8-15 mm apart; inflorescences 1-3 from each leaf rosette, erect to 1 m tall above the rosette; peduncle 1-3-branched; branches curving upwards and subtended by pale scarious deltoid bracts c. 5 × 10 mm; racemes 10-30 × 5-8 cm, cylindrical, ± densely flowered; perianth bright glossy red with paler tips, to orange or occasionally creamy-yellow, 35-45 mm long, slightly curved; outer segments free to nearly halfway, with tips spreading.

On bare granite outcrops or quartzite rocks, in cracks and hollows, and amongst boulders, in exposed situations with grass tussocks or in light *Brachystegia* woodland; 480-2200 m alt.

Not in Botswana, but cultivated there.

As to the type locality, near Blantyre, see Campbell-Barker in Haworthiad 17/2: 47-50, 2003; cf. also Lane in Ingens Bull. 22: 18-20, 2000.

Forming hybrids with other species where occurring together, e.g. with *A. christianii* and *A. greatheadii* (in Zimbabwe).

Comprises 3 vars.: – var. **cameronii** (syn.: *A. cameronii* var. *dedzana* sensu Reynolds, Aloes Trop. & Madag.: 353 quoad specim. Leach 415); very variable in habit; – var. **bondana** Reynolds – Icon.: Steffens in Aloe 25: 21, 1988; Fl. Pl. Afr. 51: pl. 2011, 1990; Kimberley in Aloe 30: 116, 1993.

Plant caulescent, forming a robust shrub; stem and branches erect, to 1 m high; racemes with flowers varying in colour from red to orange, creamy-yellow or often bicoloured with buds and young flowers red becoming yellow at maturity, 10-15 cm long, 7-8 cm Ø; perianths widening ± obviously towards the mouth (clavate) to 9-10 mm Ø.

On bare granite outcrops in cracks and hollows, and amongst boulders, in exposed situations with grass tussocks; 1700-2200 m alt. – Known only from E Zimbabwe: Nyanga Distr.

– var. **dedzana** Reynolds

Plants caulescent, forming dense sprawling shrubs; stem and branches to 1 m high; racemes with flowers red, 20-25 cm long, 5-6 cm Ø; pedicels c. 5 mm long; perianths slender, scarcely widening towards the mouth to c. 6 mm Ø.

Among rocks in open woodland; c. 480-2100 m alt. – Known only from C & S Malawi. Description based on cultivated material from Dedza Mt. Apparently now absent from the wild where it was last seen in 1980 (fide Hargreaves in Alsterworthia Int. 7/1: 6, 2007).

A. camperi Schweinf. – Icon.: Reynolds, 1966: 212-213; Smith & al. in Bradleya 21:19, 2003.

syn.: *A. abyssinica* sensu Salm-Dyck 1817 & 1842 et Baker 1898 & A. Berger 1908 p.p., non Lam. 1783; *A. albopicta* A. Berger; *A. eru* A. Berger; *A. eru* var. *cornuta* hort. ex A. Berger; *A. spicata* Baker 1896, non L. f. 1781 (nom. illeg.).

ALOE CAMPERI

Succulent shrub; stems erect or ascending, 0,5-1 m long, 6-10 cm Ø; leaves crowded, 40-60 × 5,5-8(-12) cm, recurved, canaliculate, dark green or brownish, often spotted especially towards base, margin with 6-7 spines per 10 cm, spines 3-5 mm long, brown tipped; inflorescence branched; racemes 2-6, cylindrical, 3-14 cm long, dense, 8-12 flowers per cm; perianth clavate, 180-220 × 3-4 mm near base when pressed, 7-8 mm at widest point, yellow, orange or scarlet, outer segments free for 7-8 mm.

The separation from *A. adigratana* and *A. sinana* is not clear cut and intermediate populations almost certainly occur (Fikre Dessalegn & al., XVIIIth AETFAT Congress, Yaoundé, Cameroon, Abstracts: 25, 2007).

Locally abundant on rocky slopes and sandy alluvial plains along eastern escarpment; 550-2700 m alt.

Polymorphic species, e.g., in pedicel length; specimens falling into 2 non-overlapping size classes; but their distributions overlap. Naturalised in S. Africa (Bradleya 21: 17-20, 2003).

A. canarina S. Carter – Icon.: Reynolds, 1966: 304-305 (sub nom. *A. marsabitensis);* Miller in Cact. & Succ. J. (US) 83: 87, 2011.

syn.: *A. marsabitensis* sensu Reynolds, 1966: 303, non I. Verd. & Christian

Perennial plant to 50 cm high, suckering to form small groups, with decumbent stems to 80 cm long clothed with persistent leaf remains; leaves in a compact rosette, spreading and recurved; lamina lanceolate-attenuate, 50-80 cm × 10-15 cm at base, the upper surface channelled, firm and dull greyish green tinged reddish; margin cartilaginous, with deltoid, pungent, brown-tipped teeth 2-3 mm long, 10-18 mm apart; inflorescence erect to ± 1 m high, with 15-20 widely spreading branches, the lower ones rebranching and often branching again; racemes cylindric, 10-15 cm long, laxly flowered; perianth yellow, greenish in bud, cylindric-trigonous with truncate base, 25-30 mm long; outer segments free for ± 1/3, with slightly recurved apices.

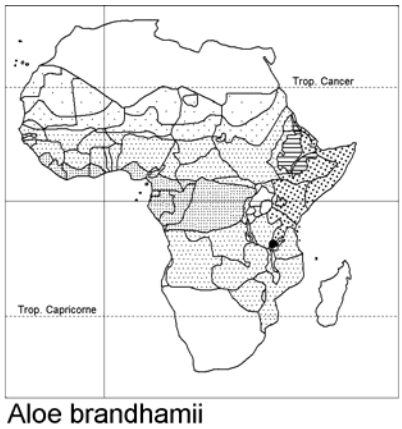
Open deciduous bushland; 1345-1570 m alt.; possibly also SE Sudan (Kamathia).

Resembling *A. microdonta* with, however, less branched inflorescences and smaller coral pinkish flowers.

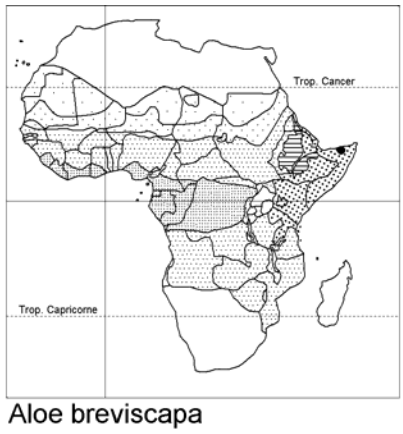
A. canis S. Lane (as *canii* in Aloe 38: 72, 2001, no holotype cited, nom. inval.), Aloe 40: 55, 2003 (validation); – Icon.: Lane in Aloe 38: 72-73, 2001 (sub nom. *A. canii);* Lane, A field guide to the aloes of Malawi: 29, 2004; Campbell-Barker in Haworthiad 23: 68, 70, 2009.

Plants caulescent, mostly solitary, stems 4-5 cm Ø, upright, up to 2,5 m tall, old leaves persistent around the base, leaves 15-20, densely rosulate, 25 × 6 cm at base, dark green above (rainy season), red in dry season towards tips, olive green beneath; inflorescences 1-3, 1-1,5 m high, branching near the middle with 4-5 (arcuate-) ascending branches; racemes cylindrical, 14 cm long, 5 cm wide; perianth pinkish-scarlet with conspicuous dark veins to base, 34 mm long, narrowing and expanding; outer segments free for 10 mm.

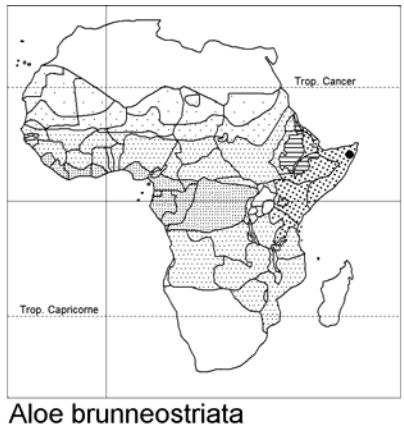
Aloe canis resembles *A. cameronii*, particularly in the morphology of the flowers, and in the shape and colour of the leaves. It differs, however, in growing individually and in having a single thick stem with densely rosulate leaves at the apex only. The multi-branched inflorescence bears conical densely-flowered racemes. It is an altogether larger species than *A. cameronii* at that species' largest and both capsules and seeds, though similar in form, are larger as well. A few white scattered elliptical spots



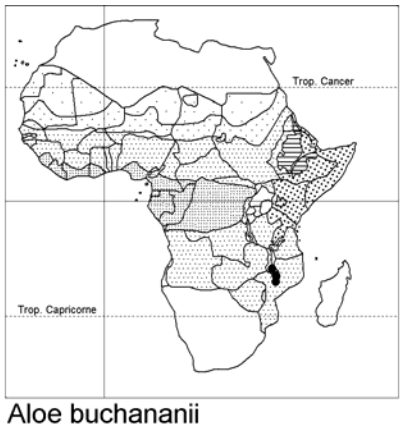
Aloe brandhamii



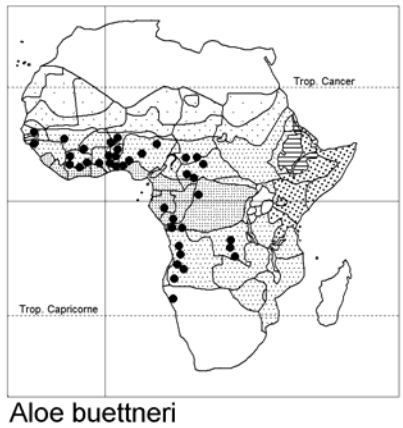
Aloe breviscapa



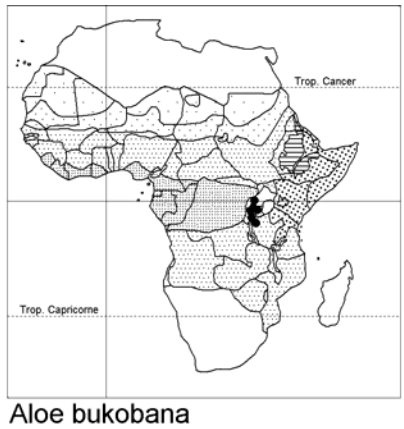
Aloe brunneostriata



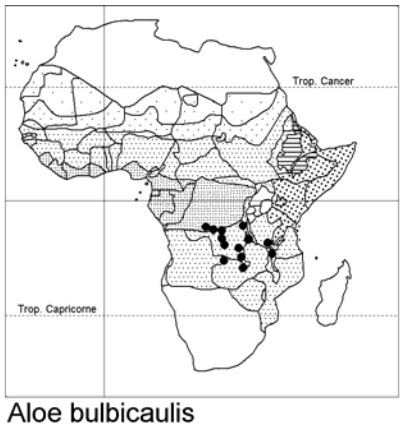
Aloe buchananii



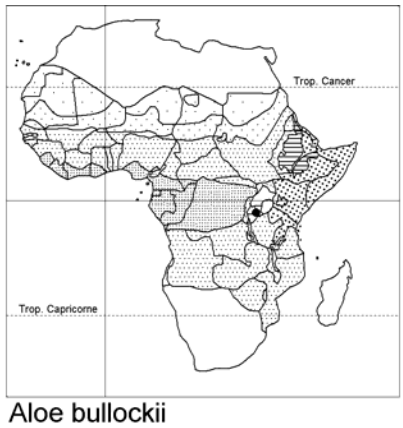
Aloe buettneri



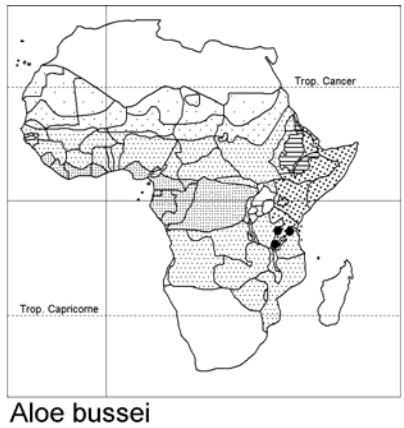
Aloe bukobana



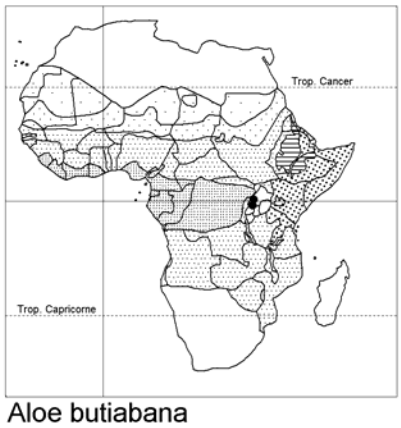
Aloe bulbicaulis



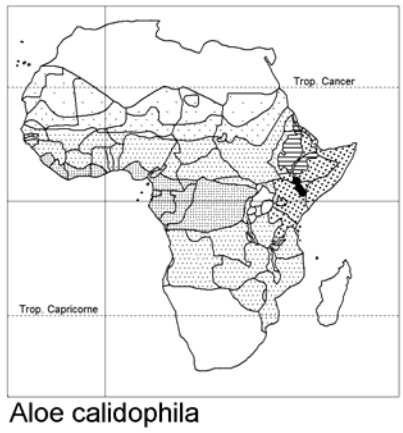
Aloe bullockii



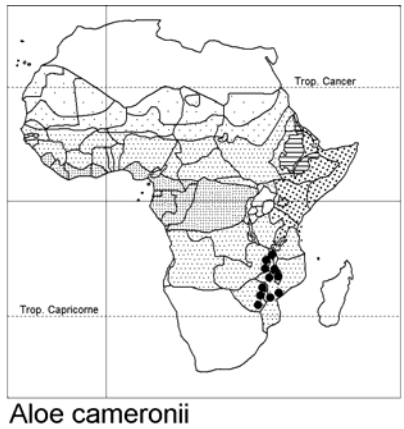
Aloe bussei



Aloe butiabana



Aloe calidophila



Aloe cameronii

consistently appear near the base of both surfaces of the leaves and along the midrib of the lower surface, a characteristic only rarely found in *A. cameronii*. The sap dries vermillion, unlike that of *A. cameronii*, which dries light brown.

In light forest among rocks; c. 500 m alt.

Known from very few plants only in cultivation.

A. cannellii L. C. Leach – Icon.: J. S. Afric. Bot. 37: 42-45, 1971; Capela in Alsterworthia Int. 8/1: 5, 2008.

Perennial herb, suckering to produce clusters of slender spreading stems c. 5 cm long; leaves rosulate, weakly erect to spreading, grass-like, up to c. 25 cm × 4-8 mm, linear, expanded to c. 15 mm at the clasping base, slightly channelled on the upper surface, rather fleshy, green or tinged brownish, with whitish spots near the base and scattered on the upper surface, the spotting more crowded on the lower surface; margins narrowly cartilaginous with minute teeth 1-3 mm apart; inflorescence simple, erect to 20-30 cm high; peduncle with a few sterile, brownish, papery bracts 2-3 cm apart; raceme c. 10 × 3,5 cm, cylindrical, laxly flowered; perianth orange-scarlet, green-tipped, 20-25 mm long; outer segments free to the base with tips widely spreading above the constriction.

In grass tufts on steep rock slopes or in zones with significant wet or shade; c. 1500 m alt.

Known only from the type locality where flowering is now rare. Trees have disappeared to permit the population to produce charcoal. The essential element of shade has thus disappeared.

A. carnea S. Carter – Icon.: Carter, 2001: tab. 16 fig. B.

Perennial herb, solitary or suckering to form small groups of plants, acaulescent or with a stout stem to 20 cm tall clothed in dead leaf remains; leaves in a dense rosette, spreading; lamina to c. 30 × 6-10 cm, ovate-lanceolate, usually withered and twisted in the apical c. 10 cm, dark greyish-green above, conspicuously marked with large elongated whitish spots often in transverse bands toward the base, pale milky-green beneath and without spots but ± lineate and distinctly so near the margin; margin horny, reddish-brown, with pungent deltoid red-brown teeth c. 6 mm long, 8-15 mm apart; inflorescences 1-3, erect, 0,75-2 m high; peduncle 6-12(15)-branched, the lower branches sometimes rebranched; branches curving widely upwards, subtended by scarious, many-nerved bracts to c. 2,5 cm long; racemes 3-5 × 7 cm, capitate, flat-topped in bud, densely flowered, with a few flowers more widely spaced at the base; perianth pale pink, with paler margins to the segments running to the base of the perianth, 25-30 mm long; outer segments free for up to 1/3, with scarcely spreading tips.

Foothills and outliers of the Eastern Zimbabwe Highlands: Stony or rocky grassland in open patches of light *Brachystegia* woodland; 900-1375 m alt.

Distinguished from the western *A. greatheadii* by its widely spreading inflorescence, capitate racemes, and longer pedicels.

A. carolineae L. E. Newton – Icon.: Brit. Cact. Succ. J. 20: 204-205, 2002.

Caulescent plant, branching freely to form a dense clump to 2 m Ø; stems to 1 m long, to 2 cm Ø, the longer ones sprawling or pendulous; leaves laxly rosulate, persistent for up to 15 cm below shoot apex with up to 2 cm of leaf sheath exposed between leaves, lanceolate, to 22 cm × 3,5 cm near base, light green with numerous elongated whitish spots, mostly in irregular transverse bands, especially towards base of leaf, marginal teeth 1 mm long, 1 mm wide, white, sometimes with brownish apex, 3-6 mm apart, surface smooth, exudate yellow, drying brownish; inflorescence to 55 cm long, with 4-7 branches, racemes lax with flowers secund, terminal raceme to 19 cm, laterals 4-13 cm; flowers 27 mm long, 7 mm Ø across the ovary, narrowing to 5 mm above, widening to 6 mm at mouth, terete across the ovary, becoming trigonous and slightly compressed laterally above, the lobes free for 10,5-12 mm, base scarlet, outer lobes with margins paler, almost whitish, inner lobes yellow with brownish mid-stripe.

Stream bank, steep rocky slopes of gorge on rock ledges; longer stems becoming pendulous; c. 460 m alt.

In habit resembling *A. vituensis.*

A. cataractarum McCoy & Lavranos – Icon.: Aloe 44: 53, 2007.

Plant cremnophytic, succulent, producing many pendent stems from the base; stems up to 50 cm long, 2,5 cm Ø at base, thickening slightly towards the stem apices; leaves 12-15, produced at stem apices, ensiform, falcately decurved, up to 35 × 4,5 cm at base, epidermis smooth, upper surface dark green (to reddish in dry season), with a few elliptical white spots mostly confined to the lower two thirds of the leaves, which are covered in a waxy bloom, lower surface like the upper but slightly paler in colour and with fewer spots; leaf-margins armed with white, deltoid, 2 × 2 mm teeth, spaced 4-5 mm apart; sap bright yellow, drying dark yellow; inflorescences produced laterally, up to 40 cm long, with up to 10 branches, from below the middle, with white, 9 × 3.5 mm, sterile bracts subtending the lower branches; peduncle brown, covered by a heavy waxy coating, 7 mm wide at the base; racemes horizontal, markedly secund, sub-densely flowered, the terminal raceme up to 15 cm long, the lateral shorter; perianth bright red, glabrous, 20-25 mm long, 7 mm wide across the ovary, trigonous, widening to 8 mm at the middle, then gradually constricted toward the mouth, outer segments free for up to 8 mm.

On vertical rock faces next to a waterfall; c.1180 m alt.

Resembling *A. veseyi* but stems longer, leaves shorter.

Known only from the type collected in 2001.

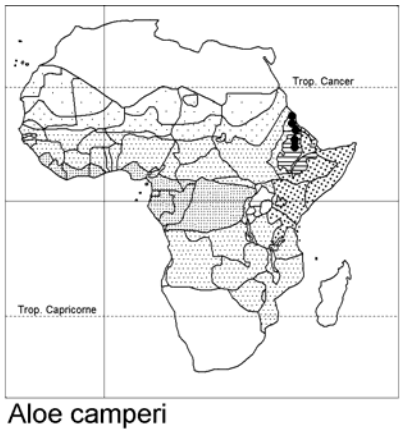
A. catengiana Reynolds, Kirkia 1: 160, 1961; Bothalia 39: 24-25, Aloe 45: 56-64, 2008. – Icon.: Reynolds, 1966: 373-374; Van Jaarsveld in Aloe 45: 58, 2008.

Arborescent, much-branched, spreading pendent shrub up to 1 m wide; stem 1,5-2 m long, simple or branching low; leafy branches 8-12 mm Ø; leaves tending to be crowded in apical rosettes; leaves linear-lanceolate, 30 × 3 cm long, spreading, pale green but turning reddish in the dry season; upper surface flat to convex; lower surface convex, spotted in the lower half, striate towards the base and stem; margin armed with yellowish teeth 2-4 mm long, 8-10 mm apart; apices recurved, acute; inflorescence up to 40 cm long; branched in the lower half, first pendent and the apices bending up with conical cylindrical-acuminate racemes up to 16 cm long and 4 cm Ø; perianth scarlet, cylindrical, slightly decurved, up to 28 × 7 mm; outer segments free for 10 mm; inner segments broader, bearing rounded tips.

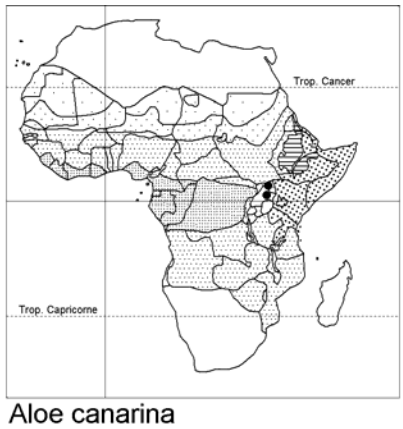
In Namibia known only from the upper, east-facing, quartzitic sandstone cliffs along the eastern part of the Omavanda (eastern Baynes Mountains); at an altitude of 1700-1900 m. First known from Catengue, southern Angolan highlands, and, according to Reynolds (1966), about 60 miles southeast of Benguela (alt. 600 m). At Omavanda, Namibia, plants occur scattered in sandstone rock crevices among savanna vegetation and are difficult to reach (Van Jaarsveld, 2008).

N Namibia.

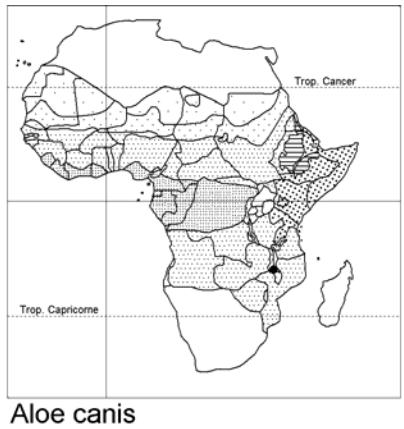
Related to *A. arborescens* but at once distinguished by its smaller size, spotted leaves and differently shaped flowers.



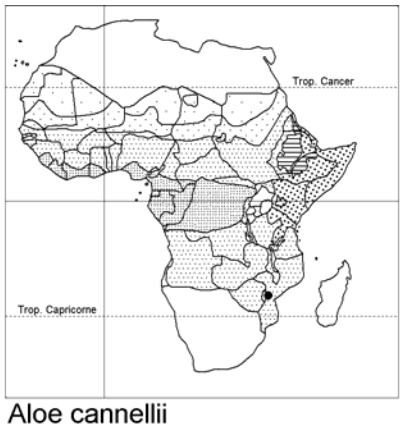
Aloe camperi



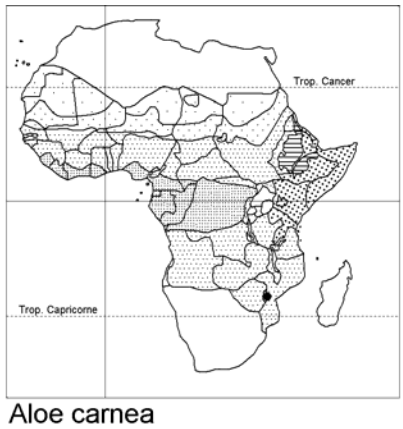
Aloe canarina



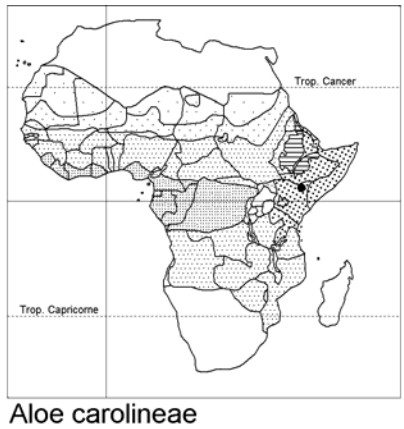
Aloe canis



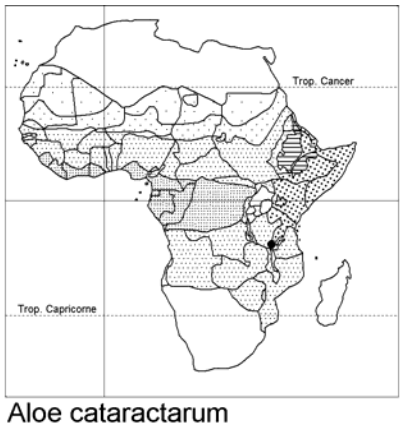
Aloe cannellii



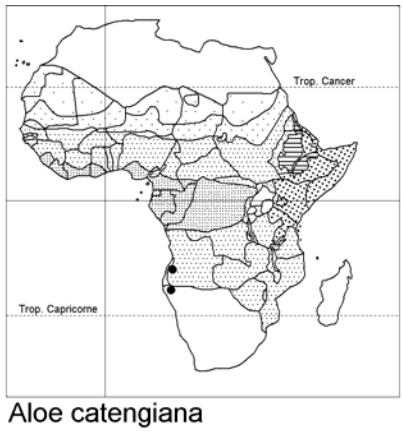
Aloe carnea



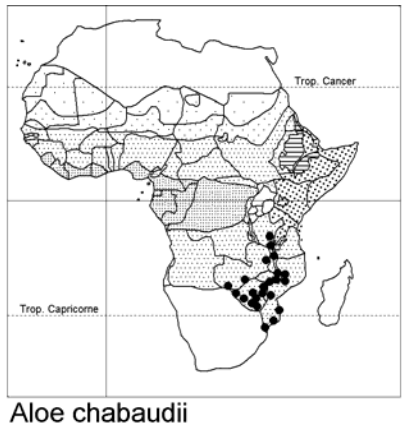
Aloe carolineae



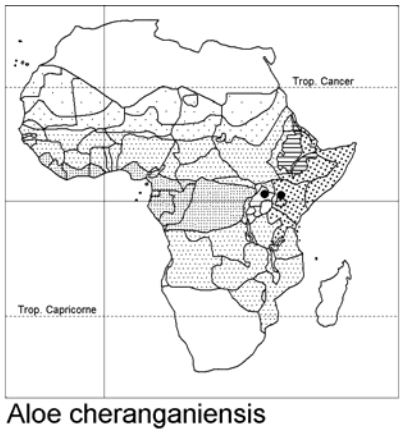
Aloe cataractarum



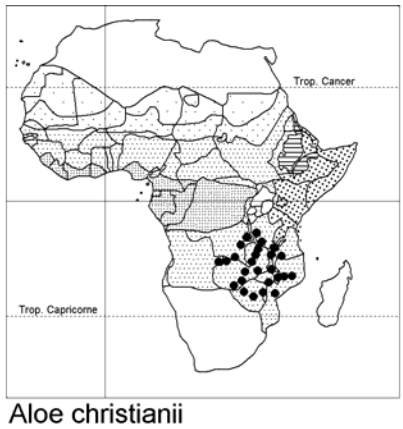
Aloe catengiana



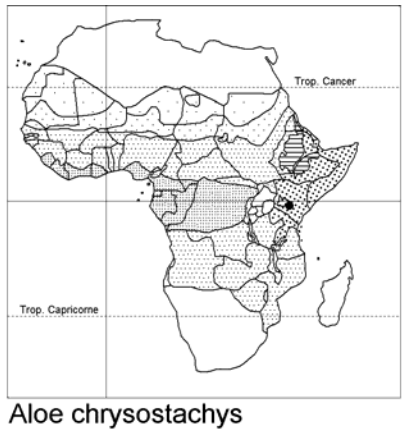
Aloe chabaudii



Aloe cheranganiensis



Aloe christianii



Aloe chrysostachys

ALOE

A. chabaudii Schönland – Icon.: Gard. Chron. ser. 3, 38: 102, Fig. 34, 1905; Fl. Pl. S. Afr. 5: pl. 164, 1925; Fl. Pl. S. Afr. 18: pl. 699, 1938 (sub nom. *A. chabaudii* var. *verekeri);* Reynolds, 1950: 340-341; Reynolds, 1966: 103-104; Van Wyk & Smith, 2003: 133; Williamson in Aloe 39: 86, 2002; Alsterworthia Int. 7/1: 20, 2007.

syn.: *A. dyeri* sensu Wild, Victoria Falls Handb.: 139, 1952; *A. chabaudii* var. *verekeri* Christian (both of var. **chabaudii**).

Perennial herb, suckering to form dense groups of plants, acaulescent or with a short stem; leaves in a dense rosette, erect, or spreading in shady habitats; lamina 30-60 × 8-15 cm at base, ovate-lanceolate, greyish-green to dark olive-green, with a bloom, often flushed with pinkish-red, obscurely lineate and occasionally sparsely spotted especially in young plants; margin cartilaginous with deltoid minutely brown-tipped teeth 1-3 mm long and 5-10(15) mm apart; inflorescence erect to oblique, 0,5-1,5 m high; peduncle many-branched from low down, the lower branches often rebranching; branches spreading and usually curving upwards; racemes 5-15(20) × 8 cm, broadly cylindric, occasionally subcapitate, very laxly flowered or occasionally ± densely flowered; perianth bright coral-pink or sometimes pale orange to yellow, 30-40 mm long; outer segments free for ± ¼, with tips slightly spreading.

In a wide range of habitats. On exposed rock outcrops, rocky hillsides and among rocks in *Brachystegia* woodland; growing with *Eulophia petersii, Sansevieria kirkii;* quartzite formations, granitic domes; shallow soil pockets; 30-2130 m alt.

S. Africa, Swaziland, eastern tip of Botswana.

Very variable. Comprises 2 vars.: – var. **chabaudii;** – var. **mlanjeana** Christian – Icon.: Fl. Pl. S. Afr. 18: pl. 698, 1938; Reynolds, 1966: 106; Lane in Aloe 37: 91, 2000; Lane, A field guide to the aloes of Malawi: 17, 2004.

Leaves apparently bright green; inflorescence oblique, to 80 cm high; branches spreading widely, with racemes often horizontal and flowers subsecund; flowers pink, orange or yellow.

Confined to Mulanje Mt. (Malawi) and surrounding hills. Open rock faces; 900-1525 m alt.

A. cheranganiensis S. Carter & Brandham

Shrub 1-2 m high; stems branching at or near the base, erect or sprawling, ± 4 cm Ø; leaves laxly crowded at apex, spreading, then recurved and clothing the stem with persistent dried remains, finally deciduous below; lamina lanceolate-attenuate, to 40 × 5 cm towards base, fleshy, greyish green, young leaves spotted on both surfaces; margin with reddish brown teeth ± 3 mm long, 3-15 mm apart; sap amber-yellow; inflorescence erect, 45-75(-100) cm high, with usually 2 branches curving upwards; racemes cylindric, 6-20 × 7 cm, fairly densely flowered; perianth orange-red, yellow at the mouth, cylindric-trigonous, 27-30 mm long; outer segments free for ¾, apices ± reflexed.

Rocky sandy soils, with open deciduous woodland on mountain summit; 1220-1980 m alt.

A. christianii Reynolds; Klopper & al. in Bothalia 39: 25, 2009. – Icon.: J. S. Afric. Bot. 2: pl. 20, 1936; Reynolds, 1950: 309-310; Reynolds, 1966: 187-188; Carter, 2001: 77. Lane, A field guide to the aloes of Malawi: 32, 2004; Williamson in Aloe 39: 89, 2002.

Perennial herb, usually solitary, rarely suckering to form small groups of plants, acaulescent, or older plants with a stem; stem when present up to c. 1 m high and up to 12 cm Ø, covered with persistent light brown withered leaves; leaves in a compact rosette up to c. 1 m Ø, erect-spreading; lamina to 60 × 12 cm at base,

ALOE CHRISTIANII

lanceolate, thinly fleshy, uniformly light bluish-green, tinged pinkish in dry conditions, unspotted except in young plants, obscurely lineate; margin cartilaginous, with pungent brown-tipped deltoid teeth 2-5 mm long, 10-15 mm apart; inflorescence erect, 1-2 m tall above the leaf rosette; peduncle 6-10-branched, the lower branches rebranching; branches erect; racemes 15-30 × 6 cm, cylindrical, ± densely flowered; perianth thick, fleshy, bright coral-pink with a bloom, a little paler at the mouth, 35-45 mm long, 8-10 mm Ø across the ovary, cylindric-trigonous; outer segments free for ± 1/3 with slightly recurved tips.

In wooded tall grassland subject to annual burning, and in *Brachystegia* woodland, usually in shade; frost and fire tolerant; 300-2000 m alt.

Botswana (cf. Hargreaves in Alsterworthia Int. 7/1: 6, 2007; 8/3: 16, 2008).

Reynolds (1966) confused this species with *A. pretoriensis.* The closest relative is *A. luapulana* (Carter & al., Aloes, the definitive guide: 624, 2011).

Susceptible to rust and does not do well in cultivation.

Forming hybrids with *A. bulbicaulis* (W Zambia) and *A. cameronii* (Zimbabwe).

A. chrysostachys Lavranos & L. E. Newton – Icon.: Lavranos in Cact. & Succ. J. (US) 52: 242, 1980 (sub nom. *A. meruana);* Carter, 1994: 23; Newton in Cact. & Succ. J. (US) 68: 127-129, 1996.

syn.: *A. meruana* Lavranos

Perennial herb, acaulescent or with a very short stem, solitary or suckering sparsely in large clumps, suckers to 60 cm long; leaves in a dense rosette, erect-spreading and slightly incurved; lamina ovate-lanceolate, 25-35 × 8-10 cm at base, greyish green, often flushed with purple; margin cartilaginous, red-tinged, with deltoid, pungent, brown-tipped teeth 2-4 mm long, 6-12 mm apart; inflorescence erect, 30-60 cm high, with 5-10 spreading branches, the lowest sometimes rebranched; racemes cylindric, ± secund in bud, 5-10 cm long, ± densely flowered, more lax toward the base; perianth golden yellow, or sometimes red, with brownish yellow tips, cylindric-trigonous, 25-35 mm long; outer segments free for ± 1/3, with slightly spreading apices.

In soil pockets on rock outcrops; cracks in granite, with very tough tussock-forming grass with other xerophytes, e.g. *Euphorbia, Xerophyta,* young *Adansonia digitata;* 900-1200 m alt.

Forms with yellow flowers or with red flowers occur in the same populations, with yellow predominating.

A. citrina S. Carter & Brandham; Sebsebe & al., Biol. Skr. 54: 239, 2001 (map). – Icon.: Sebsebe & Gilbert, 1997: 121 (Fl. Eth. & Eritrea 6).

syn.: *A. trichosantha* Reynolds, ms. (cf. Carter & al., Aloes, the definitive guide: 372, 2011).

Perennial herb; rosettes stemless, solitary or with short suckers forming small groups; leaves in a dense rosette, c. 16, erect to slightly incurved, 36-60 × 8.5-12 cm, pale grey-green with numerous pale spots often in transverse bands, canaliculate; marginal teeth 5-9 per 10 cm, 1,5-3 mm long with brown tips; inflorescence to 2 m high; racemes 2-6, (25-)40-50 cm long or longer, cylindrical-conical, dense (2-5 flowers per cm); pedicel 8,5-15 mm long; perianth similar in form to that of *A. trichosantha*, 26-34 × 4-4,5 mm when pressed, grey-green to greenish-yellow, tomentose; outer lobes free for 14-18 mm.

Open *Acacia* or *Acacia-Commiphora* (deciduous) bushland or dry forest on deep sandy soils; 90-1000 m alt.

ALOE

A. clarkei L. E. Newton, Haseltonia 9: 15, dated 2002, publ. 2003. – Icon.: ibid.

Dwarf caulescent plant; stems to c. 30 cm long, erect at first, leaning over when longer, freely branching at base to form a dense clump; leaves laxly rosulate, persistent below shoot apex, 1-1,5 cm apart, lanceolate, to 18 × 3 cm at base, apex acute, green with a light waxy bloom and scattered elongated whitish spots, sometimes dense and in irregular transverse bands, more numerous on lower side; surface smooth; marginal teeth hooked and pointing towards leaf apex, 3 mm long, firm, pungent, green with white tip, 6-9 mm apart; sheaths green with whitish longitudinal striations; exudate yellow; inflorescence to 52 cm long, with 2-6 branches, peduncle arching upwards with racemes erect; racemes cylindrical, terminal to 10 cm × c. 6 cm diameter, laterals 4-7 cm, lax; flowers 25-26 mm long, with red tube, outer lobes with pink midrib and yellowish margins, inner lobes with green midrib and yellowish margins, base shortly attenuate, tepals free for 10-12 mm.

Light shade in small opening in montane forest, ± 200 meters north of the summit of Naita Mountain; ± 1980 m alt.

Known only from the type gathering made in 1998. Cultivated near Nairobi (Kenya).

Close to *A. friisii*.

A. classenii Reynolds – Icon.: J. S. Afric. Bot. 31: 272, 1965; Reynolds, 1966: 255-256.

Perennial herb, acaulescent or with procumbent suckering stems to 50 cm long forming dense groups; leaves in a compact rosette, spreading-erect, with slightly recurved apices; lamina ovate-lanceolate, 35-40 × 7-8 cm at base, dark green becoming bronzed in dry conditions, with sometimes a few scattered whitish spots on the lower surface towards the base; margin with pungent, deltoid, minutely brown-tipped teeth 2-3 mm long, 10-15 mm apart; inflorescence erect to 60 cm high, with up to 10 obliquely spreading branches, the lower ones rebranching; racemes cylindric, ± 7 cm long, laxly flowered, the buds ± globose; perianth dark wine-red with a powdery bloom, cylindric-trigonous, 18-25 mm. long; outer segments free to halfway, with slightly spreading apices.

Rocky outcrops in deciduous bushland; ± 600 m alt.

A. collina S. Carter – Icon.: Reynolds, 1966: 88-89 (sub nom. *A. saponaria);* West, 1992: 51 (sub nom. *A. saponaria).* Van Wyk & Smith, Regions of floristic endemism in Southern Africa: 144, 2001.

syn.: *A. saponaria* auctt. non (Aiton) Haw.

Perennial herb, solitary, acaulescent; leaves in a dense rosette, spreading; lamina to c. 25 × 7-11 cm at base, ovate-lanceolate, plus a dried twisted apical portion c. 10 cm long, dark green and conspicuously marked with transverse bands of elongated whitish spots on the upper surface, pale green and usually unspotted on the lower surface; margin with pungent deltoid red-brown teeth c. 6 mm long and 10-15 mm apart; inflorescence erect to 75 cm high; peduncle stout, 3-4(7)-branched, the lowest branch occasionally rebranched; racemes 3-4 × 10-12 cm, broadly capitate-corymbose, very densely flowered. Perianth bright orange-red, 35-40 mm long, c. 9 mm Ø across the ovary, abruptly constricted just above then gradually widening, cylindric-trigonous; outer segments free for c. ¼, tips spreading.

Known only from Nyanga Downs and reported from Mt. Nyangani (E Zimbabwe). Rocky hillsides, usually in the shelter of bushes; grassland; fire tolerant; 1980-2200 m alt.

Related to *A. maculata, A. swynnertonii.*

ALOE

A. confusa Engl.; Powys in Ballya 4/3:57, 1997; – Icon.: Reynolds, 1966: 166-167; Newton in Aloe 33: 99, 1996.

Sprawling shrub, branching mostly from the base, forming tangled masses; branches to 1 m long or more, decumbent to 30 cm high, or usually pendulous over rock faces, naked, with the leaves laxly crowded at the apices; leaves flexuose, hanging down; lamina narrowly lanceolate-attenuate, to 35 × 4 cm at base; greyish green with a few pale spots on the lower surface; margin with whitish cartilaginous teeth 1-2 mm long, 10-15 mm apart; sap yellow, rapidly turning purple; inflorescence erect or turning upwards, to ± 45 cm long, simple or 1-3-branched, the branches often abortive; racemes cylindrical, 10-20 × 7 cm, ± densely flowered, more lax below; perianth yellow or sometimes red, cylindrical, 25-30 mm long; outer segments free for ± 1/3, apices slightly spreading.

Rocky slopes and cliff faces, with riverine forest and dense deciduous bushland; 885-1000 m alt.

A. congdonii S. Carter – Icon.: Miller in Cact. & Succ. J. (US) 83: 88, 2011.

Perennial herb, acaulescent, suckering to form large dense groups; leaves in a compact rosette, spreading, or erect when in a tight group; lamina ovate-lanceolate, 15-25 × 3-5 cm at base, greyish green tinged with red, with numerous, elongated whitish spots on both surfaces; margin with pale, minutely brown-tipped teeth 1-2 mm long, 5-8 mm apart; inflorescence erect, 20-30(-50) cm high, simple or occasionally 1-2-branched; racemes subcapitate to cylindric, 5-10 cm long, ± densely flowered, with several sterile bracts below the racemes; perianth orange-pink, 32-38 mm long, 8 mm Ø across the ovary, trigonously narrowed above then slightly curved and widening towards the mouth; outer segments free for ± 1/3, with apices very slightly spreading.

Rock outcrops; 1500-2375 m alt.

A. congdonii differs from *A. mzimbana* in a shorter inflorescence, with 0-2 branches, more laxly flowered racemes, and smaller leaves with more closely set marginal teeth.

A. cooperi Baker, Gard. Chron. n.s. 1: 628, 1874. – Icon.: Bot. Mag. 104: pl. 6377, 1878; Gartenflora 1879: pl. 970 *(A. schmidtiana*, lecto-iconotype); Fl. Pl. S. Afr. 15: pl. 578, 1935; Reynolds, 1950: 151-152; Van Wyk & Smith, 2003: 261; Craib, Grass Aloes in the South African Veld: 41, 43, 2005, and Cact. & Succ. J. (US) 78: 84, 2006.

syn.: *A. schmidtiana* Regel (subsp. **cooperi**).

Perennial herb, solitary, or occasionally older plants suckering to form small clusters of stems; stems to 15 cm high; leaves distichous, or sometimes becoming rosulate, erect, grass-like, 60-80 cm long, linear, 1.5-2 cm wide, expanded to 5-6 cm wide at the base, tapering to the apex, deeply channelled on upper surface, keeled on lower surface, ± fleshy, mid-green, white-spotted towards the base especially on the lower, brownish surface; margin cartilaginous, with whitish teeth 0.5-2 mm long, the teeth crowded near the base, more distant above and obsolescent at the apex; inflorescence simple, erect, 70-100 cm high or more; peduncle with large, pink-tinged, sterile bracts on the upper half, 2-7 cm apart; raceme 10-20 × 10-14 cm, conical, ± densely flowered; perianth salmon-pink, green-tipped, 35-40 mm long; outer segments free almost to the base with tips slightly spreading.

In grassland, amongst rocks; rocky-hills; 0-800 m alt.

S. Africa (0-2000 m alt.), Swaziland, Lesotho.

In S. Africa 2 subspp.: – subsp. **cooperi**; – subsp. **pulchra** Glen & D. S. Hardy [elevated to the rank of species as *A. sharoniae* N. R. Crouch & Gideon F. Smith in Bradleya 29: 115-120; to the north it reaches the border S Mozambique-Swaziland (map, l.c.)].

A. corallina I. Verd. – Icon.: Fl. Pl. Afr. 45: pl. 1788, 1978; Aloe 37: 78, 2000; Veld & Flora 88: 156, 2002; Rothmann, Aloes, Aristocrats of Namibian Flora: 52-53, 2004.

Plant caulescent, usually simple, with a stout stem, to c. 50 cm long, 5 cm thick; leaves 16-20, densely rosulate, spreading to slightly recurved, lanceolate-acuminate, c. 50 × 11 cm, grey-green with a light bloom, upper surface obscurely lineate with somewhat prominent central nerve; margins with teeth on young leaves minute, red-brown, on mature leaves absent except for reddish-brown bases; inflorescence to 60 cm long, with 2-4 branches, pendent with arcuately ascending racemes; racemes erect, cylindrical, 17-28 cm long, subdensely flowered; floral bracts narrowly oblong, acute, c. 10-15 × 4 mm; pedicels l0-17 mm long; perianth coral-red, 28-35 mm long, base shortly attenuate, slightly enlarged above the ovary to the middle, then narrowing to the mouth; outer tepals free for 20 mm; stamens and style exserted to c. 5 mm.

On dolomite cliffs of the Baynes Mountains, Kaokoland, Namibia; distributed along the precipices in the gorges on both banks of the Kunene River.

N Namibia.

A. crassipes Baker – Icon.: Reynolds, 1966: 185.

Acaulescent or very shortly caulescent; leaves ± 20-24, densely rosulate, triangular, 40 × 7 cm, dull glaucous-green; marginal teeth 5 mm, firm, brown-tipped, 15 mm apart; inflorescence 50-60 cm high, with ± 5 branches; racemes cylindrical-conical, 17-25 × 8 cm, dense; flowers dull yellowish-green, 38 mm, base truncate; tepals free for 13 mm.

Rock outcrops in grass-woodland; ± 1280 m alt.

Occurrence in Zaire (Katanga) and NW Zambia (Mwinilunga) doubtful (reported by Reynolds, l.c., and Williamson in Aloe 39: 89, 2002). S. Carter (Fl. Zambes. 12/3: 83, 2001) suggests the Zambia plant to be a hybrid *A. christianii* × *A. bulbicaulis.*

The type of *A. crassipes* (Schweinfurth 3765) has long bracts and stipitate ovaries. It is perhaps close to (or identical with) *A. buettneri.*

A. cremnophila Reynolds & P. R. O. Bally – Icon.: J. S. Afric. Bot. 27: pl. 13-14, 1961; Thulin, Fl. Somal. 4: pl. 2 C, 1995.

Plants pendent, with stems to 40 cm long, branched mainly from the base; leaves 6-8, 10-15 × 2-3 cm, grey-green, without spots; margins with hard light brown teeth, 2 mm long, 3-5 mm apart; inflorescences 25-30 cm long, simple; racemes cylindrical-conical, to 12 cm long, fairly dense; flowers scarlet with yellowish-green mouth, pendent; perianth slightly clavate, 25 mm long, 5 mm across the ovary, outer tepals free for 5 mm.

Cliff faces in *Juniperus-Pistacia* forest; generally above 2000 m alt.

A. cryptopoda Baker – Icon.: Reynolds, 1966: 181-182; Carter, 2001: 95; Carter & al., 2011: 383.

Perennial herb, solitary or suckering to form small groups of plants, acaulescent or with a very short decumbent stem; leaves in a compact rosette, stiffly erect and curving slightly inwards; lamina to 60(90) × 7-10(13) cm toward base, lanceolate-attenuate, dull dark greyish-green, tinged purplish in dry conditions, without spots, slightly rough on the surface; margin with pungent deltoid brown-tipped teeth 1-3 mm long and 5-8 mm apart; sap bright yellow, drying purplish; inflorescences 1-3, erect, 1-1,75 m high; peduncle 1-4-branched; branches erect; racemes 20-45 × 6-7 cm, narrowly cylindric-acuminate, densely flowered, the buds covered by the bracts; perianth bright orange-scarlet, paler- to yellowish-tipped when fully open, green-tipped in bud, 28-35 mm long, c. 9 mm Ø across the ovary, cylindric-trigonous; outer segments free to the base, tips scarcely spreading.

In a variety of habitats. Rocky slopes, usually steep and exposed; 61-1525 m alt.

Perhaps also in S Tanzania on the Mozambique border. Plants from S. Africa are *A. pienaarii* according to S. Carter (Fl. Zambes. 12/3: 96, 2001). Certain authors include *A. wickensii* Pole-Evans; *A. wickensii* var. *lutea* Reynolds, and also *A. pienaarii* Pole-Evans as SYNONYMS, see the latter species below.

Carter & al., 2011: 383, maintain that *A. wickensii* and *A. pienaarii* are distinct species.

Variable in habit, size and colour.

A. dawei A. Berger – Icon.: Fl. Pl. S. Afr. 20: pl. 782, 1940 (sub nom. *A. pole-evansii);* Reynolds, 1966: 369-370.

syn.: *A. beniensis* De Wild.; *A. pole-evansii* Christian

Shrub 1-2 m high, with stems branching and suckering from the base, forming large clumps; stems erect or decumbent, 6-8 cm thick; leaves laxly crowded, spreading at the stem apices, then recurved, and clothing the lower part of the stem with dried persistent remains; lamina lanceolate-attenuate, 40-60 × 6-9 cm towards base, fleshy, darkish grey-green, sometimes tinged reddish, young leaves spotted on both surfaces; margin with reddish brown-tipped teeth 2-4 mm long, 1-1,5 cm apart; sap yellow, with an unpleasant smell; inflorescence erect, 60-90 cm high, with 3-8 branches curving upwards; racemes conical-cylindric, 8-20 × 8 cm, fairly densely flowered; perianth bright red, yellowish at the mouth, green-tipped in bud, cylindric-trigonous, 30-35 mm long; outer segments free for ± 1/3, apices slightly spreading.

In grassland and at edge of thickets, usually by lake shore; 800-1525 m alt.

A. debrana Christian; Sebsebe & al., Biol. Skr. 54: 241, 2001 (map). – Icon.: Fl. Pl. Afr. 26: pl. 1016, 1947; Reynolds, 1966: 279-280 (sub nom. *A. berhana);* Sebsebe & Gilbert, 1997: 127.

syn.: *A. berhana* Reynolds

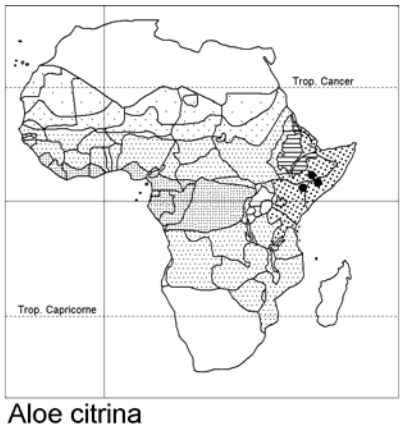
Succulent herb, suckering from base to form small groups, mostly stemless but some old plants developing thick, prostrate stems; leaves in very dense rosette, spreading-recurved, 25-60 × 7,5-15 cm, dull-green, old leaves drying brown; marginal teeth 7-10(-14) per 10 cm, 2-4 mm long, red tipped; inflorescence c. 1 m high, compoundly branched; racemes 8-15, capitate to cylindrical, 5-15 cm long, lax or dense (4-9 flowers per cm); perianth cylindrical, 17-30 × 4-6 mm when pressed; outer lobes free for 5-10 mm.

Common in grassland on thin soil overlying basalt, usually on gentle slopes; 2000-2700 m alt.

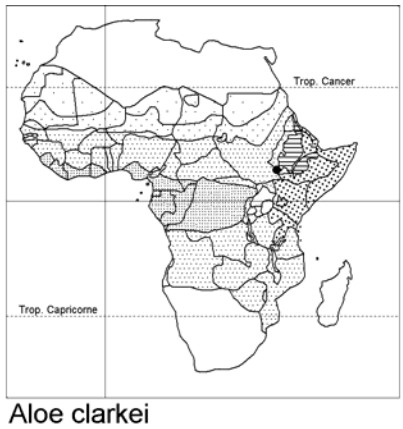
Reynolds treated *A. debrana* as a synonym of *A. percrassa*, presumably on the basis of the similar sized flowers.

A. decurva Reynolds – Icon.: J. S. Afric. Bot. 23: pl. 12-13, 1957; Reynolds, 1966: 247-248; Fl. Pl. Afr. 46: pl. 1802, 1980.

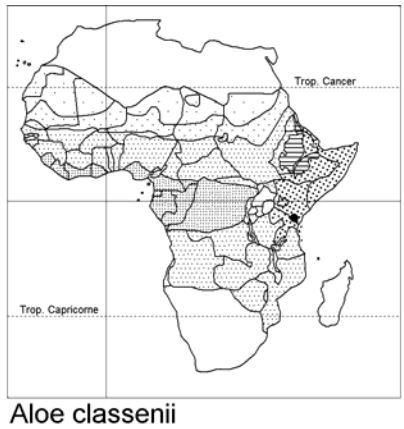
Perennial herb, usually solitary, acaulescent or with a very short stem; leaves in a dense rosette, erect-spreading; lamina 40-55 × 8-10 cm at base, lanceolate-attenuate, dull green with a reddish tinge, without spots; margin with pungent deltoid minutely orange-tipped teeth 2-3 mm long and c. 10 mm apart; inflorescences 1-3, to c. 90 cm long; peduncle simple or occasionally 1-branched, oblique; raceme 10-20 × 10-12 cm, curved down-



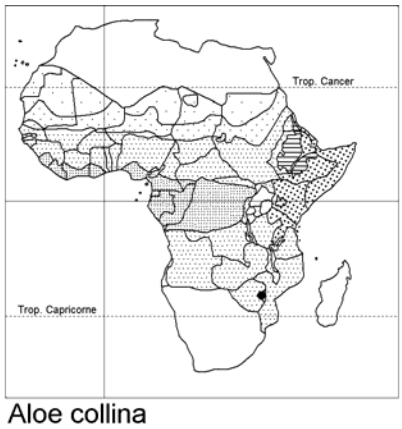
Aloe citrina



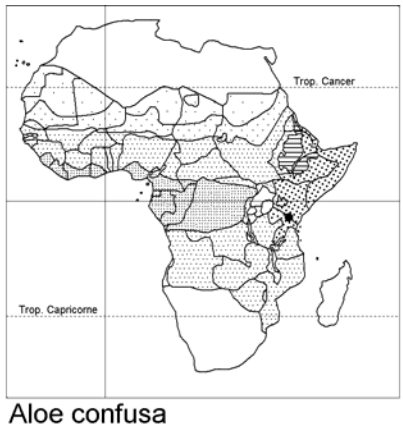
Aloe clarkei



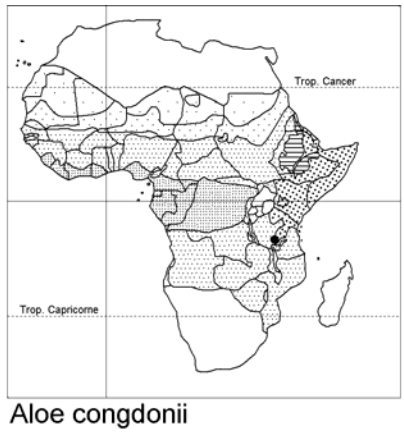
Aloe classenii



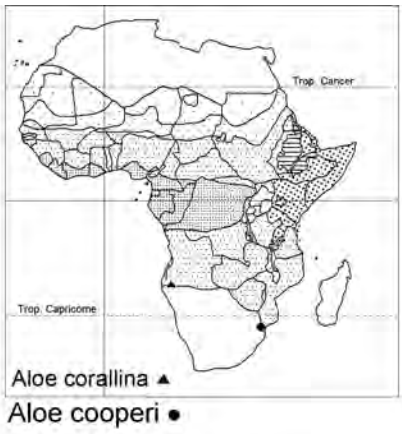
Aloe collina



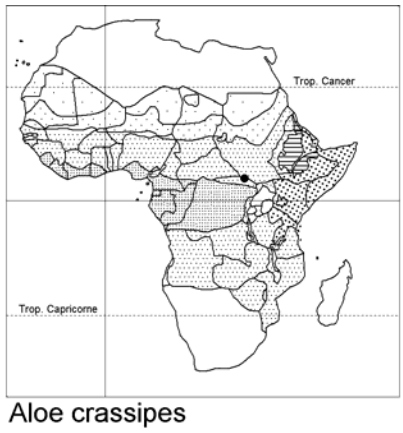
Aloe confusa



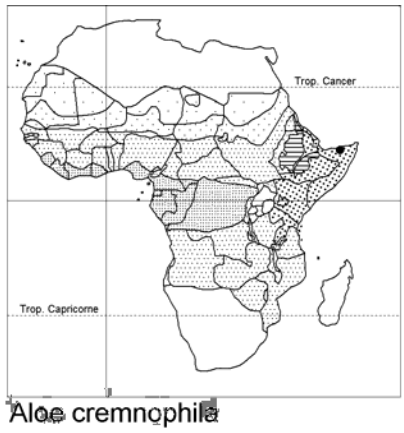
Aloe congdonii



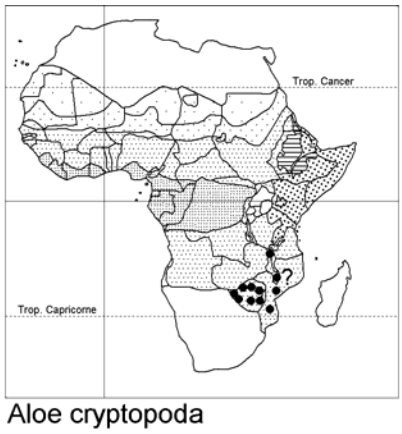
Aloe cooperi ●



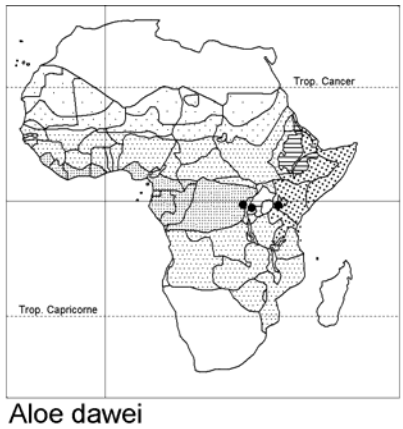
Aloe crassipes



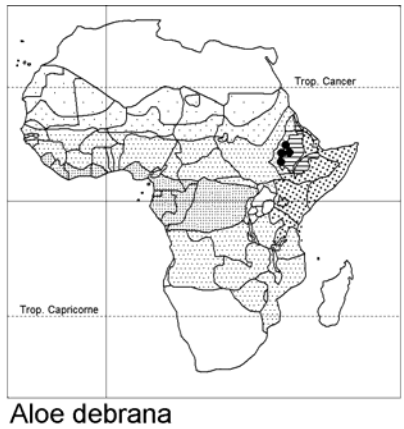
Aloe cremnophila



Aloe cryptopoda



Aloe dawei



Aloe debrana

wards, very densely flowered; perianth bright red to orange-red, 30-40 mm long, c. 5 mm Ø across the ovary, widening to c. 11 mm at the middle then narrowing at the mouth, cylindrical-ellipsoid; outer segments free almost to the base.

Montane grassland on steep rocky slopes; 915-1030 m alt.

Known only from Zembe Mt. (Mozambique).

A. deserti A. Berger – Icon.: Fl. Pl. S. Afr. 29: pl. 1151, 1952; Reynolds, 1966: 338-340; Carter 1994: 44.

Shrubby perennial, branching from the base to form small groups, with stems erect to ± 75 cm high, or decumbent to 1 m long; leaves in a fairly loose rosette, erect to spreading and recurved; lamina lanceolate-attenuate, to 45 × 8 cm at base, surface slightly rough, dark green, becoming reddish brown in dry conditions, with scattered elongated whitish spots on both surfaces; margin with pungent brown-tipped teeth 2-3 mm long and 10-15 mm apart; inflorescence erect to 1,5 m high, with 3-8 widely spaced branches, curving upwards, the racemes drooping in bud, becoming erect when the flowers start to open; racemes to 25 cm long, laxly flowered, with the buds enveloped by the bracts; perianth dull rose-pink with a bloom, paler at the mouth, grey-tipped in bud, cylindric, 28-35 mm long; outer segments free to halfway, apices recurved.

On sandy stony soil, in grass often at the edge of deciduous thickets; 550-1825 m alt.

A. dinteri A. Berger; Klopper & al. in Bothalia 39: 25-26, 2009. – Icon.: Fl. Pl. S. Afr. 16: pl. 637, 1936; Rothmann, Aloes, Aristocrats of Namibian Flora: 58-59, 2004.

Plant acaulescent, 15-20 cm tall, with solitary rosettes; leaves 9-12, in 3 rows, spreading to ± horizontal, narrowly lanceolate-deltoid, 20-30 × 4-8 cm, V-shaped in section, deep grey-green or chocolate-brown, with elongated white spots in broken transverse bands; margin narrow, white with minute teeth, c. 0,5 mm long, 1-2 mm apart; inflorescence 50-85 cm high, erect, 3-8-branched; raceme cylindric-acuminate, 15-20 cm long, terminal raceme the longest, lax; floral bracts 7-12 × 2 mm; perianth pale rose-pink with bluish bloom, pale to almost white at mouth, 28-30 mm long, 6,5 mm across ovary, abruptly narrowed above ovary, enlarging towards mouth; outers segments free for 5-10 mm.

On low stony ridges; stony desert areas.

Namibia (600-1500 m alt.).

No herbarium specimen can confirm the Angolan distribution, based on a sight record. The opinions are divided on the correct identification of the Angolan specimens. A plant collected (and cultivated) did not show the characteristics of *A. dinteri* according to Lavranos, who considers it to be closer to *A. sladeniana.*

A. diolii L. E. Newton – Icon.: Trager in Cact. & Succ. J. (US) 73: 92, 2001, and Cactus Aventures Int. 50: 30, 2001.

Caulescent plant, branching at base to form loose clumps; stem sprawling, rooting on contact with soil, to 35 cm long; leaves 8-10, laxly rosulate, triangular to slightly falcate, 25 × 2,5 cm, dull green with few scattered elongated white spots in young growth, few spots near base or none on older shoots, surface slightly rough; marginal teeth 1 mm, firm, uncinate, red-tipped, 2-8 mm apart, to 13 mm apart towards leaf tip; exudate yellow, drying brown; inflorescence 36 cm long, simple or usually with 2-6 branches; racemes cylindrical, 9 cm, lax; flowers light scarlet with light bloom at base, becoming pale yellow with red midstripe above, 20-25 mm long, base truncate, narrowed gradually to 6 mm above, lobes spreading to 8 mm; tepals free for 5-8 mm.

Forest, in deep shade; c. 1700 m alt.

Resembling *A. jacksonii* (tetraploid; *A. diolii* diploid).

A. djiboutiensis McCoy – Icon.: Cact. & Succ. J. (US) 79: 269-270, 2007.

Plants solitary or offsetting to form small groups, acaulescent; leaves up to c. 30 × 4 cm at base, dark jade green with long, elliptical white spots 2,5-3 cm long on both surfaces, more strongly spotted beneath (rarely, individuals with unspotted leaves occur), with white cartilaginous margins and red-tipped, white teeth, 3 × 2 mm; sap orange-yellow, drying brownish-yellow; inflorescences 25-35 cm long, produced horizontally; peduncle 6-8 mm wide at base, brown with green markings, up to 12 branches, with branching beginning near the base and large (to 12 mm) brownish-white sterile bracts; racemes secund to subsecund, subdensely flowered, 5-25 cm long; perianth pink with small white spots, which are actually bubbles of gas formed in the sub-epidermal layers, 18-22 mm long, outer segments free for 6 mm.

Rocky basalt hill; 780 m alt.

Related to *A. somaliensis.*

A. doddsiorum McCoy & Lavranos – Icon.: CactusWorld 25: 209-211, 2007.

Succulent, decumbent plant or more often pendent, solitary or rarely branching from the base; stem to 2 m long, 6 cm Ø, dried leaves not persistent, leaving clean stems; leaves 16-20, crowded at the stem apices, deltoid-acute, to 30 × 11 cm at base, with smooth epidermis, bluish-grey, unspotted or with a very few (5-10) spots near the leaf base; leaf margins with red, deltoid, 5-6 mm long teeth, the tips incurved and facing towards the leaf apices; sap clear, drying clear; inflorescence 80-100 cm tall, ascending, with 1-4 branches arising from below the midpoint, subtended by white, 20 mm long, 8mm wide sterile bracts; peduncle pinkish brown, covered with a pruinose coating, 10-12 mm wide at its base; racemes erect, cylindrical, the terminal to 25 cm long, the lateral shorter; perianth bright orange-pink with cream coloured mouth, 30-35 mm long, 4,5 mm across the ovary, 6 mm wide at the slightly flared mouth, outer segments free for 12 mm with 3 orange nerves, inner segments pale cream coloured with one dark orange-red nerve.

On the near-vertical Rift wall (north end of the Laikipia Plateau); c. 2675 m alt.

Close to *A. archeri.*

Known only from the type collected in 2001.

A. dorotheae A. Berger – Icon.: Reynolds, 1966: 69-70; Brossier in Cactus Aventures Int. 68: 18-19, 2005.

syn.: *A. harmsii* A. Berger

Perennial herb, suckering and branching from the base to form large dense groups; branches to ± 25 cm long; leaves in a ± compact rosette, spreading-erect; lamina ovate-lanceolate, 20-30 × 4-5 cm at base, glossy light green, turning red in dry conditions, with elongated whitish spots scattered above, dense beneath; margin with pale yellowish cartilaginous deltoid teeth 3-5 mm long, 10-15 mm apart; inflorescence erect, 40-60 cm high, simple or rarely with 1 branch; raceme cylindrical, 10-15 cm long, ± densely flowered, with a few sterile bracts below the raceme; perianth bright pinkish red and yellowish green at the mouth, or sometimes entirely yellow, cylindric, 27-33 mm long; outer segments free to nearly halfway, with slightly spreading apices.

Bare rock slabs; 600-685 m alt.

ALOE

A. downsiana McCoy & Lavranos – Icon.: CactusWorld 25: 137-139, 2007.

Plants decumbent, usually solitary, or occasionally with two or three branches from the base; stems 5-7 cm Ø and up 1,5 m long; leaves 12-15, 50 × 15 cm at base, dull dark green, unspotted, the marginal teeth 7 × 5 mm, reddish-brown tipped, spaced 20 mm apart; sap yellow, drying nearly clear; inflorescences to 120 cm tall, erect, usually 2, simultaneously or consecutively; peduncle 12-16 mm Ø at base, green, with up to 5 branches from about the middle, subtended by white sterile bracts to 15 mm long; racemes cylindric-acuminate, subdensely flowered, the terminal to 35 cm long, the lateral shorter; perianth pink with a yellow mouth, slightly puberulent, 30-35 mm long, 7 mm across the ovary, the outer segments free for 12 mm; flower buds bluish-grey tipped.

Vertical, well-vegetated rock face; c. 2175 m alt.

Known only from the type collected in 2001.

A. duckeri Christian – Icon.: J. S. Afric. Bot. 6: pl. 19, 1940; Reynolds, 1966: 87; Carter 2001: 76; Lane, A field guide to the aloes of Malawi: 33, 2004; Williamson in Aloe 39: 85, 2002; Aloe 43: 57, 2006.

syn.: *A. lateritia* sensu Leedal 1982, non Engl. 1895; *A. chimanimaniensis* sensu auctt., non Christian

Perennial herb, acaulescent or with a short thick stem to 30 cm high, solitary or in small groups from suckers; leaves in a dense rosette, spreading; lamina lanceolate-attenuate, 50-80 × 8-12 cm towards base, fleshy, dull green, usually lightly spotted with pale blotches or sometimes without spots, both surfaces often ± obscurely striated; margin cartilaginous, with pungent red-brown teeth 4-5 mm long, 1-2(-4) cm apart; inflorescence erect, 1-2 m high, with 3-9 branches, the lower ones often rebranching; branches curving widely upwards, subtended by scarious lanceolate bracts to 4 cm long; racemes capitate, 5-6 × 8-10 cm, very densely flowered; perianth varying from orange-red to coral-pink, sometimes with a greyish bloom, cylindric-trigonous, 35-40 mm long, ± 10 mm Ø at base, constricted above the ovary; outer segments free for ± 1/3, apices slightly spreading.

Grassland; in grass in open *Brachystegia* woodland; termite mounds; 1000-2440 m alt.

A. elata S. Carter & L. E. Newton, in Fl. Trop. E. Afr., Aloac.: 56, 1994. – Icon.: Reynolds, 1966: 325, fig. 321 (sub nom. *A. ballyi);* Fl. Pl. Afr. 58: pl. 2182, 2003; Aloe 42/4: inside front cover, 2005.

syn.: *A. ballyi* Reynolds p.p.

Small tree to 6(-10) m high, with an unbranched naked stem to 12 cm Ø, usually solitary; leaves densely rosulate at the stem apex, suberect becoming strongly recurved; lamina narrowly lanceolate, to 100 × 10 cm towards base, fleshy, upper surface deeply canaliculate, dark greyish green; margin with white-tipped forward pointing teeth 4-5 mm long, 10-26 mm apart; sap colourless, smelling slightly of rats; inflorescence ± erect, to 65 cm long, with up to 9 spreading branches, the lower ones rebranching; racemes cylindric, 6-14 cm long, laxly flowered; perianth scarlet in bud, becoming yellow at maturity, cylindric, 30-32 mm long, 10 mm Ø, base rounded; outer segments free for ± 4/5, apices rounded and recurved.

Rocky slope of the Rift Valley or of Nguruman and Manyara Escarpments with dense deciduous bushland; dry forest; 1065-1500 m alt.

Resembling *A. ballyi.*

ALOE

A. elegans Tod. – Icon.: Hort. Bot. Panorm. 2: 25, t. 29, 1882; Bot. Mag. 108: pl. 6620, 1882 (sub nom. *A. abyssinica* var. *peacockii);* Berger, 1908: 244-255 (sub nom. *A. aethiopica);* Reynolds, 1966: 204-206.

syn.: *A. abyssinica* var. *peacockii* Baker; *A. aethiopica* (Schweinf.) A. Berger; *A. vera* var. *aethiopica* Schweinf.

Plant solitary or forming small groups, rarely developing decumbent stem to 30 cm long; leaves dense, 16-20(-30) per rosette, up to 60 × 15-18 cm, usually incurved, grey- to blue-green, sometimes obscurely spotted near base, slightly canaliculate towards tip; marginal spines 4-7(-9) per 10 cm, 2-3(-4) mm high, brownish-red; inflorescences with 3-11 racemes, often corymbose; racemes subcapitate to cylindrical, 5-15 cm long, dense (more than 10 flowers per cm); perianth subclavate, 21-26 mm long, 3-6/6-9 mm wide when pressed, yellow, orange or scarlet; outer segments free for 7-13 mm.

Rocky slopes, mostly on sandstone or limestone, in areas of evergreen bushland or wooded grassland; 1500-2400 m alt.

Very variable in form and colour of racemes.

A. sinkatana from NE Sudan is perhaps not specifically distinct.

A. elegantissima McCoy & Lavranos – Icon.: Cact. & Succ. J. (US) 80: 116-117, 2008.

Plant solitary or offsetting to form small groups of 3-5 rosettes, acaulescent; leaves 12-15, densely rosulate, spreading, lanceolate-attenuate, 30 × 8 cm at base, epidermis smooth; upper surface bright green with elliptical white spots 5-9 mm long, more heavily spotted near the leaf base, lower surface less heavily spotted; apices typically reddish and terminating in an apical tooth; margins white, cartilaginous, armed with retrospicient, red, deltoid, 3 × 3 mm teeth, spaced 5-8 mm apart; sap orange-yellow, drying brown; inflorescence a branched panicle to 70 cm tall, with 12-15 branches, the lower ones often rebranching from below the midpoint with white, 12 × 4 mm sterile bracts subtending the branches; peduncle bright green, 10 mm wide at base; racemes capitate, densely flowered, the terminal to 6 cm long, the lateral slightly longer; perianth lemon yellow with extremely prominent green nerves, 25 mm long, 7 mm wide across the ovary; outer segments free to 10 mm, glabrous.

Rocky, heavily forested hillside, (upper south slope of the Mait Escarpment); 2050 m alt.

Known only from the type collected in 2003.

Related to *A. somaliensis.*

A. elgonica Bullock – Icon.: Reynolds, 1966: 360-361.

Shrubs with stems erect or decumbent to 1 m or more long, branching from the base to form often large dense clumps; leaves densely rosulate at stem apex, curving upwards with recurved apices, deciduous below; lamina triangular, attenuate, to 40 cm × 9 cm towards base, thickly fleshy, uniformly dull green, often red-tinged; margin with very prominent reddish brown-tipped pungent teeth 5-9 mm long, 1-2 cm apart; sap yellow; inflorescence erect, 50-70 cm high, simple or with 1-3(-5) branches, curving upwards; racemes conical-cylindric, 10-18 × 8-9 cm, fairly densely flowered; perianth orange-scarlet, yellowish at mouth, green-tipped in bud, cylindric-trigonous, 30-40 mm long, 7-8 mm Ø across the ovary; outer segments free to nearly halfway, apices reflexed.

Rocky grass-covered slopes; 1980-2380 m alt.

Hybrids with *A. wollastonii* are reported (Newton, J. E. Afric. Nat. Hist. 84: 142, 1995).

ALOE

A. elkerriana Dioli & McCoy – Icon.: Haseltonia 13: 36-37, 2007.

Plant dwarf to medium-sized found in small groups or solitary, flat on the ground, or hanging vertically at the edge of rocky cliffs; offsetting profusely in cultivation; stem single, rarely branched, 10-20 mm thick, up to 3-5 meters long in mature plants; old leaves discarded; mature plants have a long stem completely free of leaf remains; leaves 9-23, smooth, green to bluish-green, separated along the stem with internodes of 2-4 cm and, as the plant ages, distinctly crowded at the stem apex, triangular lanceolate, arching outward, erect and curving inward when juvenile, to 20-30 × 4,5 cm; juvenile plants have small whitish spots mainly on the lower leaf surface; marginal teeth 1-2 mm long, whitish-pink, forward pointing, ± 4 mm apart, distance increasing toward leaf apex, becoming ± 8 mm apart, completely absent in the apical 1/4 of the leaf (± 13-20 per 10 cm), with 1-2 apical teeth; sap yellow-orange when fresh, black when dry; inflorescences 1-2, a branched panicle, 50-60 cm long, produced subobliquely with 4-5 racemes, peduncle basally flattened, ± 9 mm wide at base; racemes horizontal to erect, 10-15 cm long, sublaxly flowered, cylindric or with sub-secund flowers; pedicels 10-17 mm long; perianth dark coral red with yellow mouth, glabrous, cylindric trigonous, ± 25 mm in length, 5 mm wide, slightly constricted above the ovary, flaring at mouth, outer segments free to nearly halfway, apices recurved, stamens and stigmas exserted by ± 4 mm.

Bare rock cliff-face (overlooking the village of El Kerre); ± 1000 m alt.

Known only from the type collected in 2000. El Kerre is also the type locality of *A. jacksonii*, a close relative. Resembling also *A. hildebrandtii*.

A. ellenbeckii A. Berger; Fl. Somalia 4: 42, 1995. – Icon.: Fl. Pl. Afr. 51: pl. 2012, 1990 (sub nom. *A. dumetorum);* Haworthiad 13: 139, 1999.

syn.: *A. dumetorum* B. Mathew & Brandham; *A. amudatensis* Reynolds is a synonym according to Wabuyele (see above under this species).

Acaulescent perennial herb, suckering to form low clumps; leaves spreading in a rosette from a swollen almost bulb-like base; lamina linear-lanceolate, 15-27 × 1-2,5 (-3) cm towards base, fleshy, with the upper surface channelled or sometimes ± flat, yellowish green, ± densely covered with white spots occasionally arranged in transverse bands; margin cartilaginous, with fringe-like teeth 0,5-1 mm long and 2-6 mm apart; inflorescence simple, 50-75 cm high; raceme conical-cylindric, 5-8 × 6 cm, ± laxly flowered; perianth orange-red tipped with yellow, cylindric, 2,4-3 mm long, 7-10 mm Ø at base, abruptly constricted above the ovary to ± 5 mm; outer segments free for ± 1/3, apices spreading, yellow.

Sandy soils, in shade of deciduous bushland (overlying limestone); 700-1600 m alt.

Live plants and extract exported from Kenya to China (Medicin. Plant Conserv. 11: 21, 2005.) A nataloin derivative recently found (S. Afr. J. Bot. 74: 761-763, 2008).

Lavranos (1995) treats this as a "species of uncertain position", preferring to reserve judgement on its relationship with *A. dumetorum* until more material is found at or near the type locality.

ALOE

A. eminens Reynolds & P. R. O. Bally – Icon.: J. S. Afric. Bot. 24: pl. 30-32, 1958; Reynolds, 1966: 386-388; Plant Talk 36: 24, 2004; Fauna & Flora 101/3: 41, 2006; Cact. Succ. J. (US) 83: 12, 2011.

Irregularly branched shrub or tree to 15 m tall; stem up to 1,5 m Ø at base; leaves 16-20, to 45 × 5 cm, lanceolate, recurved, furrowed above, green; margins with cartilaginous white teeth, 1-3 mm long, 3-10 mm apart; inflorescences 50-60 cm tall, with 2-5 branches; racemes cylindric, 12-20 cm long, fairly dense; flowers red, fleshy, nutant; perianth 30-42 mm long, 12 mm across the ovary, outer tepals free for 25-32 mm.

Juniperus forest or evergreen bushland, on limestone; 1300-1800 m alt.

Pollinated by sunbirds.

A. erensii Christian – Icon.: Fl. Pl. S. Afr. 20: pl. 797, 1940; Reynolds, 1966: 59-60.

Perennial herb, acaulescent, solitary or with a few short suckers forming small groups; leaves in a dense rosette, erect-spreading with slightly recurved apices; lamina ovate-lanceolate, to 21 × 9 cm at base, firm, grey-green with numerous elongated whitish spots in transverse bands on both surfaces; margin narrowly cartilaginous, with whitish deltoid teeth 1-1,5 mm long and 4-6 mm apart; inflorescence erect to 50 cm high, with 2-7 obliquely spreading branches; racemes cylindric, 8-18 cm long, rather laxly flowered; perianth dark dusty pink, with a bloom, cylindric-trigonous, 23-29 mm long, 7-10 mm Ø across the ovary; outer segments free to nearly halfway, with slightly spreading apices.

Rocky slopes and vertical cliffs, with very open succulent scrub and deciduous bushland; 800 m alt.

A. ericahenriettae McCoy – Icon.: Cact. & Succ. J. (US) 79: 270-271, 2007.

Plants solitary or occasionally dividing into two or three rosettes, acaulescent; leaves 15-25, ascending or erectly spreading, deltoid, acute, unicoloured gray-green, to 1 m long, 25 cm wide at the base; margins with retrospicient teeth, white with red tips, 4 × 3 mm, spaced 20-30 mm apart; sap yellow, drying greenish-yellow; leaves of young plants heavily white-spotted on both surfaces; inflorescences to 2,4 m tall, 1-4 branched; peduncle purplish-brown, covered in a waxy coating, glabrous, 3 cm wide at the flattened base, branching at about the middle; racemes cylindrical, terminal up to 1 m long, lateral racemes shorter; perianth dark pink with yellow or green mouth, covered with a light waxy coating, 30 mm long, 6-7 mm wide across the ovary, minutely puberulent near the base of the flower, outer segments free to 15 mm, inner segments free, flower buds markedly green tipped.

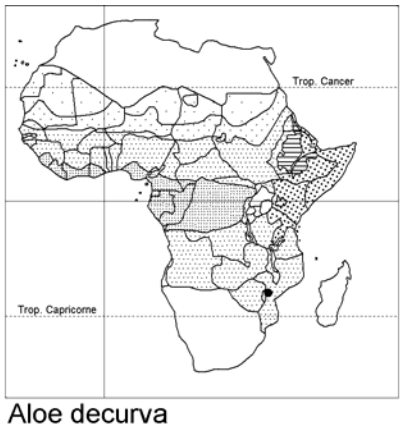
Lava plateau in sandy, lava soil; 200 m alt.

Known only from the type collected in 2006.

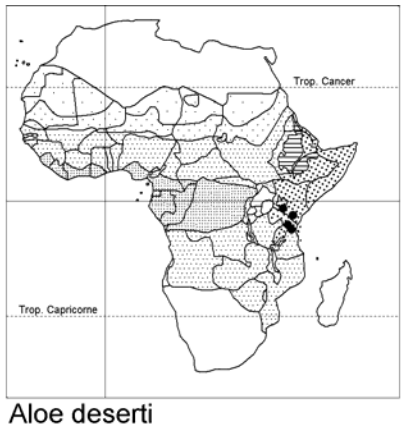
A. esculenta L. C. Leach; Bothalia 39: 26-27, 2009. – Icon.: J. S. Afric. Bot. 37: 249, figs. 1-4, 1971: Rothmann, Aloes, Aristocrats of Namibian Flora: 62-63, 2004; Aloe 39: 90, 2002; Haseltonia 15: 72, 2009.

syn.: *A. baumii* sensu Warburg quoad loc. Humbe, non Engl. & Gilg; *A. littoralis* sensu auct. e.g. Reynolds p.p., Fanshawe, non Baker

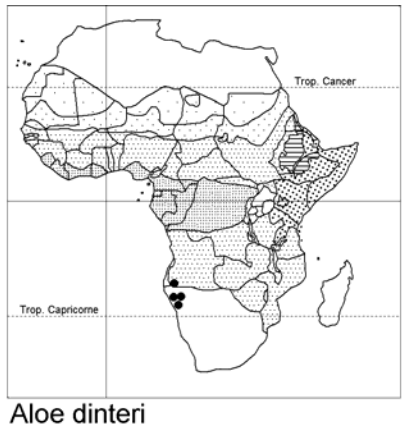
By some authors considered as a synonym under *A. littoralis* Baker.



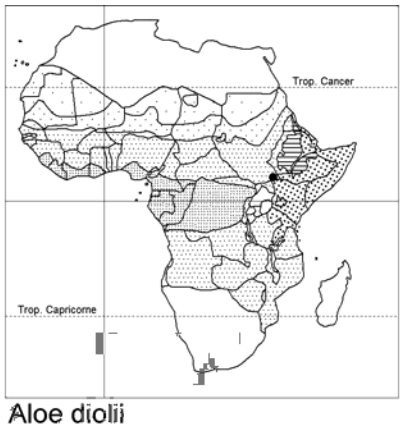
Aloe decurva



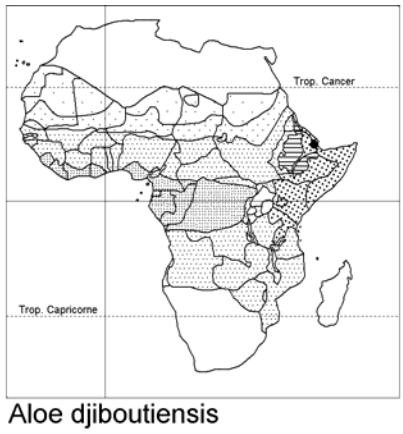
Aloe deserti



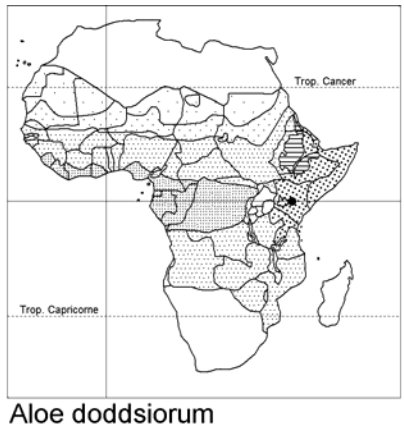
Aloe dinteri



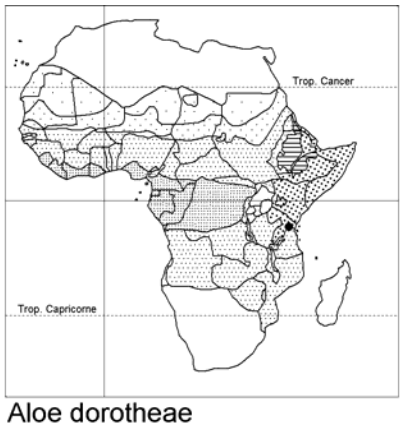
Aloe diolii



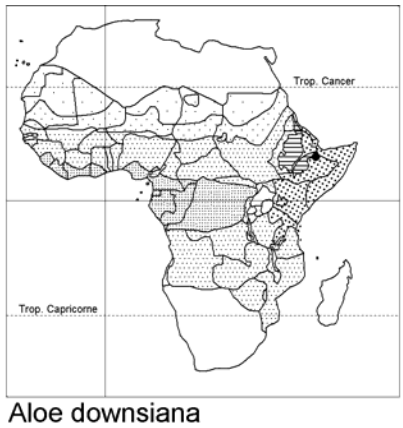
Aloe djiboutiensis



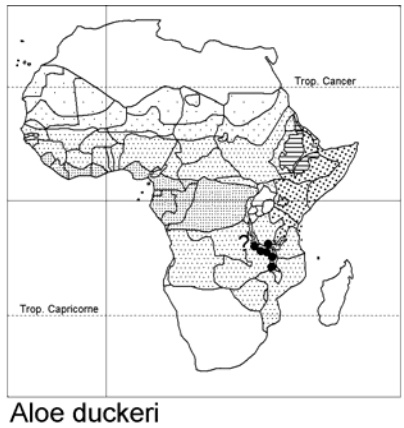
Aloe doddsiorum



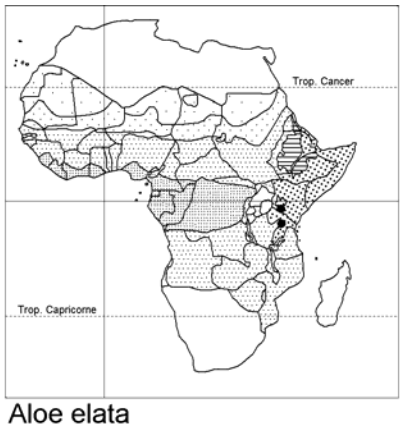
Aloe dorotheae



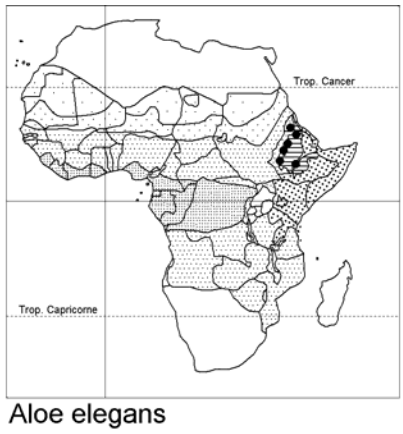
Aloe downsiana



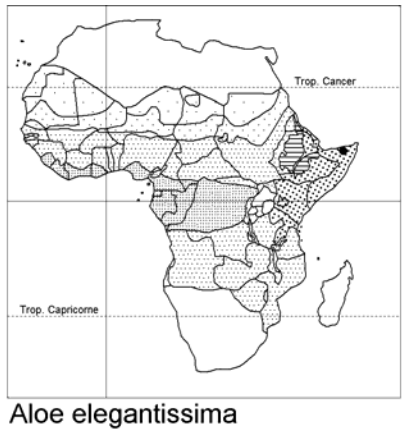
Aloe duckeri



Aloe elata



Aloe elegans



Aloe elegantissima

ALOE ESCULENTA

Perennial herb, suckering to form dense clumps of plants, acaulescent or sometimes with a short thick often decumbent stem to 40 cm long; leaves in a compact rosette, erect-spreading; lamina to 50(60) × 8(10) cm at base, lanceolate, greyish-green, tinged pinkish-brown in dry conditions, densely white-spotted on both surfaces with the spots in irregular transverse bands, the lower surface with scattered pungent, blackish-brown prickles mostly along the median line; margin with pungent, deltoid blackish-brown teeth 3-5 mm long and 10-20 mm apart; inflorescences 1-3, erect, to 2 m high; peduncle 3-5-branched; branches curving upwards bearing the racemes erect, subtended by deltoid scarious bracts c. 15 × 15 mm, with a few sterile bracts below each raceme; racemes 30-50 × 6 cm, cylindric-acuminate, ± laxly flowered; perianth pink with cream-coloured stripes, becoming yellowish when mature, 25-30 mm long, c. 6 mm Ø across the ovary, widening slightly toward the mouth, cylindric-trigonous; outer segments free to halfway with slightly recurved tips.

In hot dry country, in open sandy pan-like areas and stunted mopane woodlands; c. 1000 m alt.

NW Botswana, N Namibia, Caprivi Strip.

Flowers (edible) are stripped off, eaten as a spinach-like vegetable.

Closely allied to *A. littoralis*, and resembling a stemless form of the latter.

A. eumassawana S. Carter, M. G. Gilbert & Sebsebe; Sebsebe & al., Biol. Skr. 54: 239, 2001 (map). – Icon.: Medhanie & Dioli in Cact. & Succ. J. (US) 78: 41, 2006; McCoy in Cact. & Succ. J. (US) 79: 272, 2007.

syn.: *A. massawana* Reynolds p.p., quoad specim. Reynolds 8047 et fig. 154.

Rosettes stemless or nearly so, suckering to form large clusters; leaves erect, c. 16, 45-50 × 9,5-18 cm, tips slightly incurved to slightly recurved, shallowly canaliculate, dull grey-green sometimes with a few pale spots; marginal teeth c. 7 per 10 cm, 3 mm long, reddish-brown at tip only; inflorescence erect, 120-150 cm high; racemes 1-3, (15-)20-25 cm long, cylindrical-conical, dense (8-16 flowers per 5 cm); perianth cylindrical-trigonous, (8-)20-21-28 × c. 7 mm when pressed, pale scarlet or orange with pale margins to lobes; outer lobes free for 9-12 mm.

Coastal bushland with *Euphorbia cactus* on sandy soil; near sea level.

The real home of this species seems to be Djibouti (Gulf of Tanjoura), where a fertile population occurs, with natural regeneration and fertile seed capsules. The Eritrean populations are sterile (aloes are normally self-sterile), apparently forming a single clone. This species, like other aloes, are planted on graveyards in tropical Arabia and Africa.

A. excelsa A. Berger – Icon.: Fl. Pl. S. Afr. 2: pl. 62, 1922; Reynolds, 1966: 315-316; Van Wyk & Smith, 2003: 54; Aloe 39: 90, 2002; Alsterworthia Int. 10/2: backcover, 2010; idem 6/1: 6-8; Trees & shrubs Mpumalanga ...: 61, 2007.

Small tree, 2-6 m high, stem simple, clothed in withered leaf remains; leaves in a compact rosette at the stem apex, spreading becoming recurved; lamina to 1 m × 15 cm at base, lanceolate-attenuate, deeply channelled, dull green often tinged reddish, without spots, usually with scattered reddish-brown prickles on the lower surface; margin with pungent deltoid reddish-brown teeth 4-6 mm long and 15-25 mm apart; inflorescences 1-4, erect, to 1 m tall above the leaf rosette; peduncle stout, up to c. 6-branched, the lower branches rebranched; branches spreading upwards, subtended by brown

ALOE EXCELSA

scarious deltoid bracts to c. 10 × 15 mm, with scattered sterile bracts below each raceme; racemes erect, 15-25 × 5-7 cm, cylindric, very densely flowered; perianth bright glossy red to reddish-orange or occasionally almost white, 20-32 mm long, c. 5 mm Ø across the ovary, widening to c. 7 mm at the middle and narrowing slightly toward the mouth, cylindrical-ellipsoid; outer segments free for c. three-quarters, with tips recurved.

Granite outcrops, usually on steep rocky slopes, hillsides, thick bush or open *Brachystegia glaucescens* woodland; gregarious; 450-1500 m alt.

Comprises 2 vars.: – var. **excelsa** with a wide distributions; Botswana, S. Africa; – var. **breviflora** L. C. Leach, Kirkia 10: 387, 1977. – Icon.: Lane, A field guide to the aloes of Malawi: 40, 2004.

Leaves up to c. 12 cm wide, usually without prickles; racemes c. 5 cm Ø; perianths c. 20 mm long.

Rocky slopes with deciduous woodland; 230-615 m alt.; in Malawi, Mozambique.

Forming hybrids with *A. aculeata, A. chabaudii, A. ortholopha.*

A. fibrosa Lavranos & L. E. Newton, Cact. & Succ. J. (US) 48: 273, 1976.

Shrub with stems erect when supported, to 2 m high, or decumbent to 2,5 m, branching from the base; leaves spreading, then recurved and clothing the stem with persistent dried remains; lamina lanceolate-acuminate, to 35 × 3-6 cm at base, slightly spotted when young; sheathing base distinctly fibrous; margin with brown-tipped, often pungent teeth 3-4 mm long and 10-20 mm apart; inflorescence erect to 1 m high, simple or 1-2-branched, with a few sterile bracts below the racemes: racemes conical-cylindrical, 10-20 × 10 cm, densely flowered, the buds at first enveloped by the bracts; perianth orange-red, yellowish at the mouth, cylindrical, but slightly constricted above the ovary, 30-35 mm long, 8 mm Ø across the ovary; outer segments free for ± l/3, apices spreading.

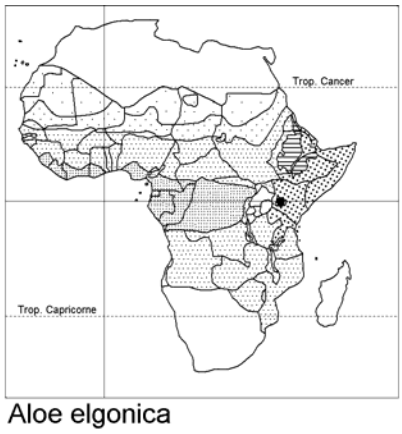
In shallow soil on rocky slopes, with densely bushed grassland; 1500-2000 m alt.

A. fimbrialis S. Carter. – Icon.: Carter, 2001: 68; Williamson in Cact. & Succ. J. (US) 77: 313-316, 2005; Retief in Aloe 42: 79, 2005; Aloe 39: 84, 2002; Excelsa 20: 22, 33, 2003.

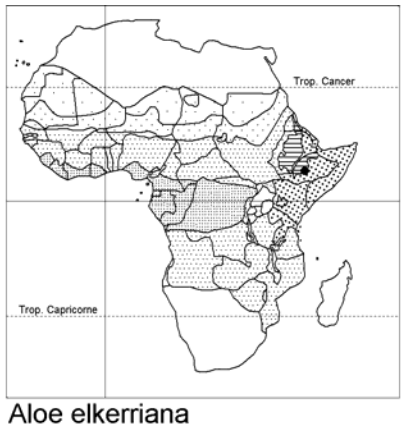
Perennial herb, solitary, acaulescent with fleshy leaves in a compact rosette, the expanded bases of the leaves forming a bulb-like swelling below ground c. 5 cm Ø; roots fibrous plus 7-10 thickened ones to 1 cm Ø; leaves 40 × 2-3 cm toward base, lanceolate, fleshy with a scabrid surface; margin very densely fimbriate, with flexible white cartilaginous teeth c. 1,5 mm long; inflorescence simple, erect to 90 cm high; peduncle with several white, papery, sterile bracts below the raceme, the bracts to 3,5 cm long and 2-5 cm apart; raceme 20-30 × 6 cm, cylindric, rather densely flowered, the buds enveloped by bracts; perianth coral-pink, paler at the mouth, 30-35 mm long, c. 5 mm Ø across the ovary, cylindric, widening slightly toward the mouth, base rounded; outer segments free for 1/3 with tips slightly spreading.

Termitaria with *Costus* sp. in *Brachystegia* woodland or on the ground in miombo woodland; 900-1100 m alt.

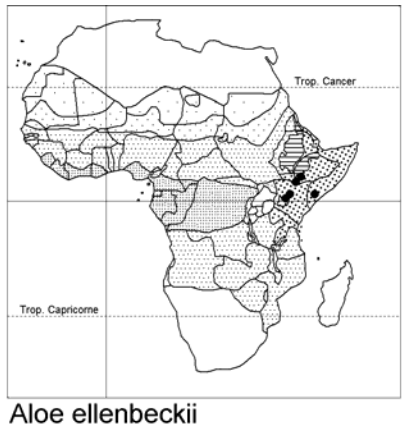
Discovered by Fanshawe in 1964, described in 1996 (one gathering, W Zambia); rediscovered there in 2002 by Williamson. Found by Newton in SW Tanzania (= 1000 km to the NE) in 1995.



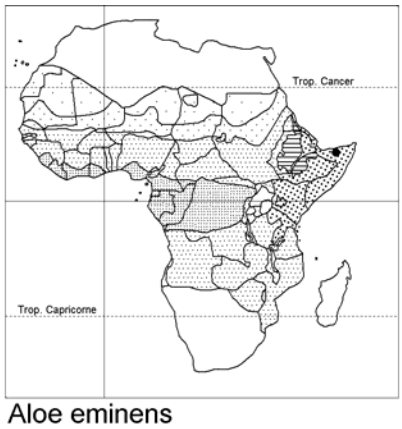
Aloe elgonica



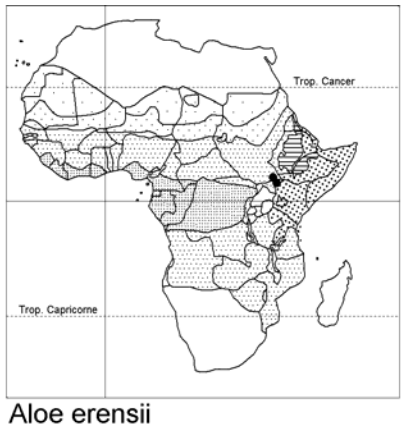
Aloe elkerriana



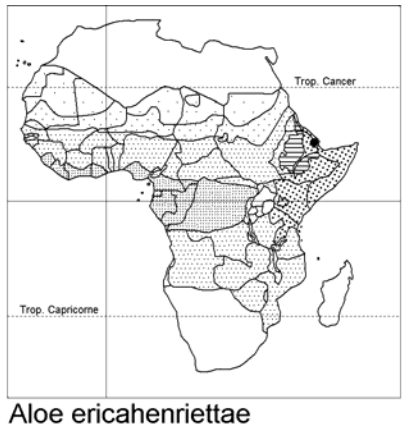
Aloe ellenbeckii



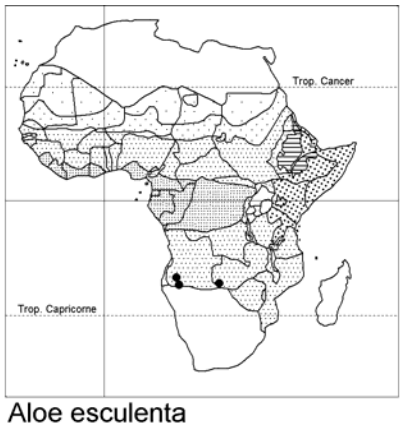
Aloe eminens



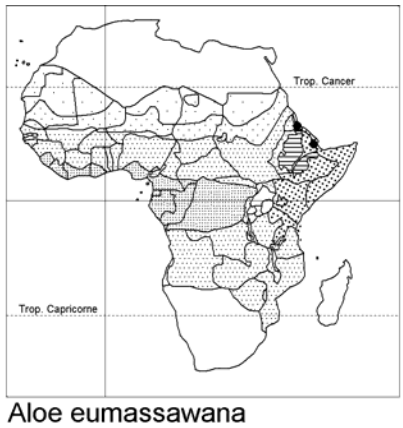
Aloe erensii



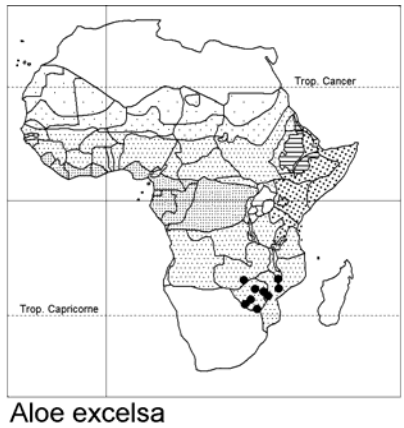
Aloe ericahenriettae



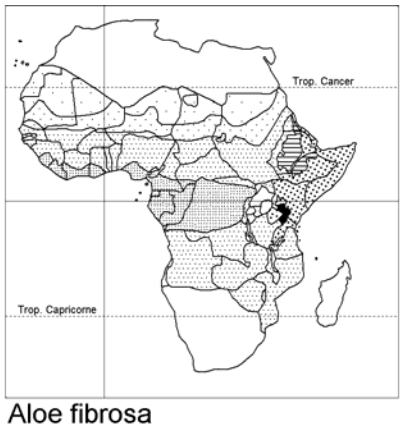
Aloe esculenta



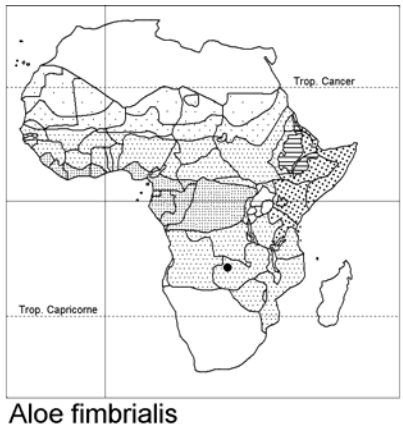
Aloe eumassawana



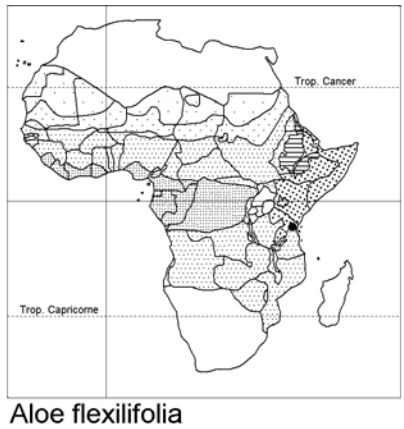
Aloe excelsa



Aloe fibrosa



Aloe fimbrialis



Aloe flexilifolia

ALOE FIMBRIALIS

Note: Newton published an amplified description and figures (Bradleya 16: 112-113, 1998) based on a gathering he made in 1995 in SW Tanzania (= 1000 km to the NE of the Zambian site of *H. fimbrialis)*. He reports that "regular bush fires burn off leaves, and a new batch of leaves grows each year from the bulb". This collection has been identified by S. Carter as *A. richardsiae* (Carter & al., Aloes: 149, 2011, and Carter in litt. 21.02.2012).

A. flexilifolia Christian – Icon.: J. S. Afric. Bot. 8: pl. 1, 1942; Reynolds, 1966: 363-364; Carter, 1994: 40.

Sprawling shrub branching from the base, forming large clumps, branches stout to 1 m. high, or more slender and pendulous over rock faces, to 2 m long; leaves laxly crowded at the branch apices, with a few persistent dried remains beneath, the branches otherwise naked; lamina flexuose, hanging down, narrowly lanceolate-attenuate, to 50 × 6-7 cm at base, pale bluish green, with a few whitish spots when young; margin cartilaginous, with pale brown-tipped teeth 1-2 mm long and 1-2 cm apart; sap drying brown; inflorescence 60 cm long or more, horizontal to downcurved with the racemes erect, up to 8-branched, branches spreading widely, the lowest occasionally rebranched; racemes cylindrical, 10-15 × 8 cm, ± densely flowered, more lax below; perianth bright pinkish red, or sometimes yellow, with greenish tips, cylindrical, 28-35 mm long, 7-9 mm Ø across the ovary, very slightly narrowed above; outer segments free for ± 1/3, apices slightly spreading.

Rocky slopes and cliff-faces; 1000-1220 m alt.

A. francombei L. E. Newton

Small shrub, branching sparsely from the base to form small groups; branches decumbent, to 40 cm long; leaves in a compact rosette at the branch apices; lamina lanceolate, 26-31 × 6-7 cm at base, dull, dark green with whitish spots especially on the lower surface; dark red-tinged in exposed situations, both surfaces rough; margin with deltoid, brown-tipped teeth, 3-4 mm long, 7-9 mm apart; sap yellow; inflorescence erect to 60-80 cm high, with up to 10 branches curving upwards, the lowest occasionally rebranched; racemes cylindrical, 6-20 cm long, subdensely flowered, with buds enveloped by the bracts; perianth pale pink with pustulate surface, cylindric-trigonous, 21-25 mm long, 5,5 mm Ø across the ovary, widening slightly above, rounded at the base; outer segments free to halfway, with spreading apices.

(Laikipia District: Mukutan) Gorge, above highest waterfall; rocky slopes with *Acacia* bushland; 1520-1650 m alt.

A. friisii Sebsebe & M. G. Gilbert; Fl. Eth. & Eritrea 1: 246-247, 2009. – Icon.: Kew Bull. 55: 685, 2000.

Erect or sprawling shrublet, unbranched or forming small clumps of up to 3 stems; stems to 20 cm long, 2-4 cm Ø; leaves narrowly elliptic, 25-35 × 3,5-5 cm, pale green with sparse whitish spots, these sometimes rather obscure; marginal teeth 2-8 mm apart, 1-2 mm long, whitish, sometimes with brownish tips; inflorescence ascending, 50-75 cm high, with 8-13 branches, lowermost with short secondary branches; racemes 3-14 cm long, lax (2 to 3 flowers per cm); perianth ± cylindrical, widest near base, 22-25 × 7-10 mm when dried, yellow with darker longitudinal veins; outer lobes free for 1/3 of their length.

Rocky slope in *Acacia horrida* bushland; under *Euclea schimperi* and *Acacia hockii* thickets in *Acacia-Combretum-Terminalia* woodland; 600-1600 m alt.

Related to *A. kulalensis, A. clarkei.*

ALOE

A. ghibensis Sebsebe & Friis – Icon.: Kew Bull. 66: 116, 2011.

Caulescent plant with scandent stems to 1 m long and 5-7 cm wide; leaves rosulate, 35-50 × 7-10 cm; leaf surface dull green-with smooth surface; marginal teeth 3 mm long, white with brown tips, 7-10 mm apart or 6-8 per 10 cm length; sap drying yellow; inflorescence 45-55 cm long, 7-8 branched; raceme cylindrical, 10-22 cm long, lax, with 1-2 flowers per cm length; flowers subsecund on the raceme. Bracts ovate-acuminate at the apex, 3-4 × 2,5 mm; pedicel 5-6 mm long (elongating to 10 mm in fruit); perianth scarlet, (yellow-flowered according to Ash 1757) 28-30 mm long, base truncate, 6 mm across; outer tepals free for 6-8 mm long.

Combretum-Terminalia woodland on edge of cliffs on volcanic outcrops. Associated plants include *Combretum collinum, Acacia polyacantha* subsp. *campylacantha, Ficus sycomorus*, etc.; 1365-1700 m alt.

Resembling *A. schelpei.*

A. gilbertii T. Reynolds ex Sebsebe & Brandham, Kew Bull. 47: 509, 1992.

Usually a succulent shrub, stem erect to 1-1,5 m long, occasionally stemless; leaves crowded, 40-60 × 9-11 cm, canaliculate, recurved towards tip, dark green or glaucous, often flushed brown or mauve above and below; marginal teeth 7-10 per 10 cm, 3-5 mm high, tips brown; inflorescence up to 120 cm high, compoundly branched; racemes 15-25 or more, cylindrical, 6-15 cm long, lax, 2-4(-5) flowers per cm; bracts ovate, acute, 4-6 × 2-3 mm; pedicels 9-10 mm long; perianth cylindrical to subclavate, trigonously indented, 23-27 × 4,5-8 mm when pressed, orange to red; outer segments free for 8-11 mm.

Acacia woodland, often found in hedges and along field margins; 1300-1800(-1900) m alt.

Comprises 2 subspp.: – subsp. **gilbertii**; – subsp. **megalacanthoides** M. G. Gilbert & Sebsebe, Kew Bull. 52: 151, 1997.

Closely resembling *A. megalacantha* in habit; "Apart from the difference in the sizes of the marginal teeth and bracts, there is also a striking difference in the epidermis when seen at very high magnification; it is strongly papillate in *A. megalacantha* but smooth in *A. gilbertii"*.

Open or dense *Acacia-Commiphora* bushland, with *Adenia* on rocky slopes; 1200-1350 m alt. – Ethiopia (Gamo Gofa Reg.).

A. gillettii S. Carter

Plants decumbent, sparsely branched, the stems to 20 cm or more long; leaves 6 or 7 in a lax rosette, to 15 × 1,5 cm, dark grey-green with very numerous white spots; margins with cartilaginous teeth to 1 mm long, 3-5 mm apart; inflorescences to 25 cm tall, simple; racemes 3-5 cm long, lax; bracts 4-5 × 2 mm; pedicels to 10 mm long; flowers coral red; perianth 20-26 mm long, 7 mm across the ovary, outer tepals free for 6-8 mm.

Rocky slopes, on limestone with *Juniperus* in open *Commiphora* bushland; 1350-1650 m alt.

A. glabrescens (Reynolds & P. R. O. Bally) S. Carter & Brandham – Icon.: Reynolds, 1966: 126 (sub nom. *A. rigens* var. *glabrescens);* Thulin, Fl. Somal. 4: pl. 2 B, 1995.

bas.: *A. rigens* Reynolds & P. R. O. Bally var. *glabrescens* Reynolds & P. R. O. Bally, J. S. Afric. Bot. 24: 179, 1958.

Plants in groups of various sizes, stemless or with decumbent stems to 50 cm; leaves c. 20, 40-50 × 10-12 cm, lanceolate-triangular, ascending to spreading, grey green with reddish tinge;

margins with brown pungent teeth, 3 mm long, 10-20 mm apart; inflorescences to 1 m tall with 2 to 4 branches; racemes cylindric-acuminate, subdense, to 25 cm long; flowers bright reddish-pink, minutely pubescent, pendent; perianth 32 mm long, 6 mm across the ovary, outer tepals free for 9 mm.

Semi-desert flats, mainly on gypsum or limestone; 800-1000 m alt.

A. globuligemma Pole-Evans – Icon.: Fl. Pl. S. Afr. 1: pl. 2, 1921; Reynolds, 1950: 444-447; Reynolds, 1966: 223-224; Van Wyk & Smith, 2003: 143; Alsterworthia Int. 11: 22, 2011.

Perennial herb, suckering to form large dense groups of plants with suckers to 50 cm long, acaulescent; leaves in a dense rosette, spreading-erect with apices slightly recurved; lamina 40-60 × 8-11 cm at base, lanceolate-attenuate, greyish-green, pink-tinged in dry conditions, without spots; margin cartilaginous with firm deltoid pale brown-tipped teeth c. 2 mm long and 5-10 mm apart; inflorescences 1-2, erect to 1,75 m high; peduncle 5-12-branched, the lowest branches occasionally rebranched; branches oblique to horizontally spreading; racemes 30-40 × 3 cm, ± densely flowered, ± horizontal with the flowers secund along the upper side of the rhachis; perianth dull-red with a bloom, and ivory to yellowish towards the mouth, 22-25 mm long, 5-6 mm Ø across the ovary, clavate and widening to c. 10 mm Ø, then narrowing slightly at the mouth; outer segments free for c. 2/3 with tips not recurved; buds almost globose.

Hot dry areas often in large colonies, in bare or sparsely grassed places, often in eroded areas and in open deciduous woodland; 600-1325 m alt. (Carter, S., 2001).

Botswana, S. Africa.

Sap poisonous, fide Hargreaves, Alsterworthia Int. 11: 22-23, 2011.

Hybrids with *A. aculeata* common in W Zimbabwe (Nata Valley).

A. gossweileri Reynolds – Icon.: J. S. Afric. Bot. 28: pl. 5-6, 1962; Reynolds, 1966: 372; Van Jaarsveld in Aloe 47: 34, 2010; Bothalia 39: 25, 2009 (map).

Shrub caulescent, branching at base, forming thickets to several m Ø; stem ascending or divergent, 1-1,5 m long, 3-4 cm Ø; leaves ± 16, rosulate, persistent for 10-20 cm below, lanceolate-attenuate, 30 × 5 cm, green, sometimes with spots; marginal teeth 3-4 mm, 15 mm apart; inflorescence 40-50 cm high, with 6-8 branches; racemes with secund flowers, 10-15 cm long, 5-6 cm Ø, sub-dense; flowers scarlet, paler at mouth, 30 mm long, base rounded, 6 mm Ø across ovary, slightly narrowed above, then enlarging slightly to mouth; tepals free for 10 -12 mm.

Rocky hills; 850-1100 m alt.

A. gracilicaulis Reynolds & P. R. O. Bally; Carter in Nord. J. Bot. 24: 247, 2006 – Icon.: J. S. Afric. Bot. 24: pl. 27-28, 1958; Reynolds, 1966: 309-310.

Plants sparsely branched from base with stout stems to 4 m tall; leaves c. 20, crowded in a rosette at apex of stems, sword-like, furrowed above, acute, to 60 × 8 cm, grey-green, unspotted; margins with white cartilaginous border and blunt white teeth, 1 mm long, 2-10 mm apart; inflorescences 60 cm high, with 8-10 spreading branches; racemes cylindric, 5-6 cm long, fairly dense; flowers yellow, nutant; perianth 18 mm long, 5 mm Ø across the ovary, outer tepals free for 12 mm.

Juniperus-Buxus-Dracaena forest; c. 1250 m alt. – 30 km N of "Erigavo" on "Mait" road; not known elsewhere. Plants observed further E (near 49° E) at c. 1600 m alt. are *A. miskatana.*

A. grata Reynolds; Klopper & al. in Bothalia 39: 25-27, 2009. – Icon.: J. S. Afric. Bot. 26: pl. 8-9, 1960; Reynolds, 1966: 117-118.

Acaulescent or shortly caulescent, suckering to form dense groups; leaves 16-20, densely rosulate, lanceolate-attenuate, ± 20-25 × 7-8 cm, upper face green tinged reddish-brown, lower face paler glaucous green with many crowded pale green 1 mm Ø spots in lower 1/4; marginal teeth 2-3 mm, 5-8 mm apart; exudate drying pale yellow; inflorescence 70-90 cm long, with 2-3 branches; racemes capitate or sub-capitate, 8-10 cm long, 8 cm Ø; flowers scarlet, 25-28 mm long, base shortly attenuate, 6 mm Ø across ovary, narrowed to 5 mm above, then enlarging, narrowing slightly at mouth; tepals free for 7 mm.

Hillsides, mostly on rocks; 1770 m alt.

A. greatheadii Schönland, with var. *davyana* (Schönland) Glen & D. S. Hardy as a separate entity. – Icon.: Bot. Mag. 133: pl. 8122, 1907 (sub nom. *A. pallidiflora);* Reynolds, 1950: 232-233; Reynolds, 1966: 83; Carter, 2001: tab. 16 fig. A; Carter & al., 2011: 176-177.

syn.: *A. pallidiflora* A. Berger (cult. La Mortola); *A. termetophila* De Wild.

Perennial herb, solitary or suckering to form small groups of plants, acaulescent or with a stout stem to 30 cm tall covered with dead leaf remains; leaves in a compact rosette, spreading; lamina 20-40 × 6-12 cm, broadly lanceolate, usually dried and twisted in the apical 5-15 cm, dull greyish-green, with conspicuous elongated whitish spots arranged in irregular transverse bands on the upper surface, pale greyish-green and unspotted on the lower surface, lineate especially near the margins; margin horny and often brownish with pungent deltoid red-brown teeth 4-6 mm long and 10-15 mm apart; sap drying yellow; inflorescences 1-3, erect, 1,25-1,75 m high; peduncle sturdy, 3-10-branched, the lowest branches sometimes rebranched; branches suberect, subtended by deltoid, scarious, many-nerved bracts 2-3 cm long; racemes 8-20 × 7 cm, conical-cylindric, ± densely flowered; perianth pale pink, with paler margins to the segments running to the base of the perianth, 25-32 mm long; outer segments free for more than one-third, scarcely spreading at the tips.

Stony grassland and open *Brachystegia* woodland; 1000-1500 m alt.

SE Botswana, S. Africa.

Var. **davyana** is considered a good variety by Carter & al., 2011: 177, occurring in S. Africa north to the borders of Zimbabwe. The synonym *A. graciliflora* Groenew. is reinstated at specific rank by Klopper & al. in Bradleya 29: 125-130, 2011. Grace & al. (2010) also maintain that this variety is a distinct species (Carter in litt. 21.02.2012).

Hybrids with *A. cameronii* known from C Zimbabwe.

The type material is poor. According to Carter in Fl. Zambes. 12/3: 71-73, 2001, plants from Zambia are more readily identified as *A. zebrina* s. lat.; plants from S. Africa "could possibly be referred to a mixture of *A. greatheadii* and *A. davyana"*.

A. greenii Baker – Icon.: Bot. Mag. 106: pl. 6520, 1880; Reynolds, 1950: 247-248; Van Wyk & Smith, 2003: 203.

Plants usually stemless forming thick stands by means of basal suckers; leaves up to 20, lance-shaped, recurved, in a dense rosette; bright green, 50 cm long, densely white-spotted on both surfaces; spots oblong in shape and confluent in irregular wavy bands; margins armed with pinkish brown prickles; inflorescences 1-2, each about 1,3 m tall, formed consecutively; flowers dark pinkish, constricted above the ovary and with a basal swelling.

ALOE GREENII

A. greenii occurs in central KwaZulu-Natal from near Pietermaritzburg northwards to southern Mozambique. It usually grows in the shade of trees and shrubs; and occurs at near sea level – 1000 m alt.

A. grisea S. Carter & Brandham

Plants stemless, solitary or in small groups; leaves spreading, triangular, 25 × 15 cm, glaucous, heavily white spotted, not shiny; margins horny, brown with sharp teeth, 1-3 mm long, 2-8 mm apart; inflorescences erect, to 60 cm tall with 2-3 branches; racemes erect, conical to subcapitate, rather dense; flowers obliquely spreading, orange-scarlet with yellow mouth; perianth cylindric with pronounced basal swelling, 23 mm long, 6 mm across the ovary, abruptly constricted to 3,5 mm, outer tepals free for 5 mm.

Juniperus-Buxus forest and scrub; *Acacia etbaica* scrub, frequently much degraded, on limestone or basement rocks; 1200-1700 m alt.

A. guerrae Reynolds; Klopper & al. in Bothalia 39: 27, 2009. – Icon.: J. S. Afric. Bot. 26: pl. 6, 1960. Reynolds, 1966: 228-229.

Plant acaulescent or shortly caulescent, simple; rosette usually tilted slightly to one side; leaves ± 24, densely rosulate, lanceolate-attenuate, 40 × 6-7 cm, dull green, obscurely lineate; marginal teeth 4-5 mm, pungent, pale brown or reddish-brown, 10-15 mm apart; exudate drying yellow; inflorescence 90-100 cm, with 8-10 branches, lower branches sometimes rebranched; racemes with secund flowers, oblique to almost horizontal, 20 cm, sub-dense; flowers scarlet with a bloom, 40 mm long, base truncate, 8 mm Ø across ovary, scarcely narrowed above; tepals free for 10-12 mm.

Grassland with scattered bushes; 1220-1670 m alt.

A. harlana Reynolds; Sebsebe & al., Biol. Skr. 54: 239, 2001 (map). – Icon.: J. S. Afric. Bot. 23: pl. 9, 1957; Reynolds, 1966: 276; Fl. Pl. Afr. 51: pl. 2009, 1990.

Plant mostly stemless but eventually developing a stem up to 30 cm long; leaves numerous, 40-50 × 8-12 cm, glossy dark-green, sometimes spotted when young; marginal spines 8-10 per 10 cm, 4-5 mm long, dark brown with horny layer often continuous along margin between spines; inflorescence with 3-8 racemes; racemes subcapitate to cylindrical, 4-9(-20) cm long, densely flowered; perianth cylindrical-trigonous, 22-28 × 4,5-7 mm when pressed, bright yellow or red; outer lobes free for 10-15 mm.

Sparsely vegetated slopes, often on limestone; 1650-2100 m alt.

A. hazeliana Reynolds; Kimberley in Excelsa 20: 48, 55-56, 2003. – Icon.: J. S. Afric. Bot. 25: pl. 25-26, 1959; Reynolds, 1966: 25-26; Kimberley in Cact. & Succ. J. (US) 62: 223, 1990; West, 1992: pl. 4d; Kimberley in Haworthiad 18/3: 83-84, 2004 (both vars.).

Perennial herb, suckering to produce a cluster of several stems, erect to 50 cm high, or, pendent to 75 cm long and up to 2 cm thick; leaves distichous, laxly crowded at the stem apices, erect, spreading or pendent, 15-20 × 1-2 cm, linear, 10-15 mm apart at the sheathing bases, slightly channelled on the upper surface, very fleshy, greyish-green, white-spotted on the basal half of the lower surface; margins with a hyaline border and minute whitish teeth to 5 mm apart, or teeth often obsolete; apex bluntly obtuse to rounded; inflorescence simple, erect, 30-50 cm high, or on pendent stems curving upwards with the raceme erect; raceme 4-10 × 4 cm, cylindric to subcapitate, ± laxly flowered; perianth scarlet, tipped with green, c. 25 mm long and 5-6 mm Ø across the ovary, cylindrical, tapering at the base; outer segments free to the base with tips slightly spreading.

ALOE HAZELIANA

Montane grassland, among rocks and in crevices out of the reach of fire; 1200-2100 m alt.

Comprises 2 vars.: – var. **hazeliana** with erect stems and leaves; – var. **howmanii** (Reynolds) S. Carter – Icon.: Reynolds, 1966: 17-18 (sub nom. *A. howmanii);* Kimberley in Cact. & Succ. J. (US) 62: 223, 1990 (sub nom. *A. howmanii);* West, 1992: pl. 4c (sub nom. *A. howmanii).*

bas.: *A. howmanii* Reynolds, Kirkia 1: 156, 1961.

Stems and leaves pendent, leaves 12-20 mm broad, without spots, or with a few scattered spots at the base of the lower surface; hyaline margin up to 1,5 mm wide, with teeth very obscure, usually only towards the base and sometimes at the rounded apex; inflorescence curving upwards from the pendent stem; raceme erect, 4-5 cm long, subcapitate.

Pendent on quartzite rock faces shaded from the sun; 1500-2300 m alt.

A. heliderana Lavranos, Cact. & Succ. J. (US) 45: 114, 1973.

Plants shrubby, sparingly branched from the base; stems erect, to 1 m tall; leaves c. 20, 25 × 6 cm, grey-green with violet tinge, variously white spotted; margins with hard, white, triangular teeth, 2 mm long, 5-10 mm apart; inflorescences to 60 cm tall, spreadingly branched; racemes subcapitate, 5-8 cm long, lax; flowers usually yellow, rarely red, nutant to subsecund; perianth 20-22 mm long, 6 mm across the ovary, outer tepals free for 5-7 mm.

Semi-desert, on limestone; c. 500 m alt.

A. hemmingii Reynolds & P. R. O. Bally – Icon.: J. S. Afric. Bot. 30: pl. 28-29, 1964; Reynolds, 1966: 51-52.

Treated by S. Carter in Kew Bull. 39: 631, 1984, as a synonym under *A. somaliensis* W. Watson var. *somaliensis.*

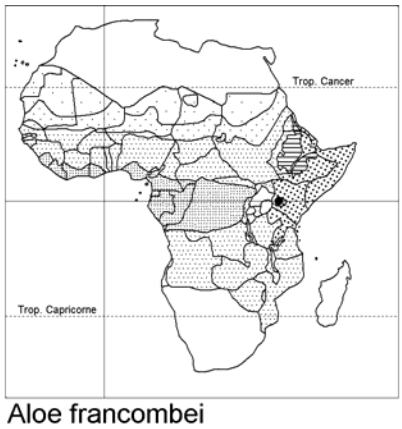
Plants stemless, solitary or in small groups; leaves about 10, lanceolate, spreading, 10-12 × 3-4 cm, shiny dark green with numerous elongated white spots; margins with hard dark brown triangular teeth, 1,5 mm long, 5 mm apart; inflorescence simple, to 40 cm tall; racemes cylindric, to 15 cm long, lax; flowers reddish pink, pendulous; perianth 24 mm long, 8 mm across the ovary, outer tepals free for 8 mm.

Semi-deciduous dwarf scrub on limestone; 700-1000 m alt.

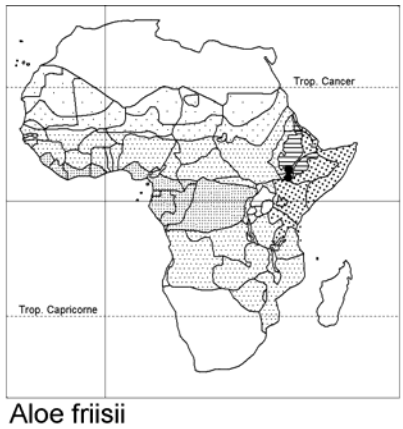
A. hendrickxii Reynolds – Icon.: J. S. Afric. Bot. 21: figs. 1-3 after p. 53, 1955; Reynolds, 1966: 336-337.

Under-shrub, acaulescent or shortly caulescent, branching freely to form dense groups; leaves ± 16, rosulate, lanceolate-attenuate, 22 × 4 cm, upper face dull green with greyish bloom, without spots, lower face grey-green sometimes with a few obscure dull greyish elongated spots; marginal teeth 3 mm, firm, greenish-white in lower 1/2 of leaves, brownish-tipped above, 5-8 mm apart; exudate drying yellow; inflorescence 40-50 cm long, with 4-5 branches; racemes cylindrical-conical, 12-15 cm long, laterals shorter, sub-dense; flowers dull scarlet, 30 mm long, base rounded, 4,5 mm Ø across ovary, slightly narrowed above ovary, then enlarging to mouth; tepals free for 10 mm.

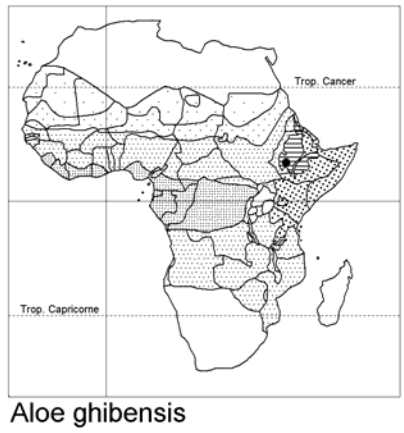
Granite outcrops, in fissures; c. 2450 m alt.



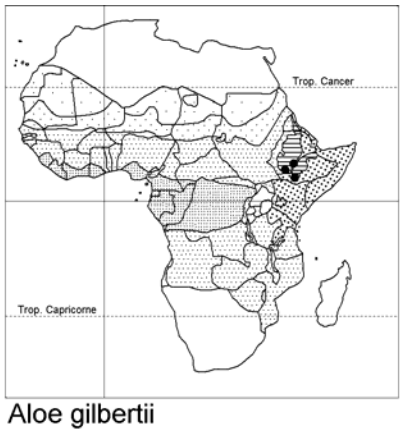
Aloe francombei



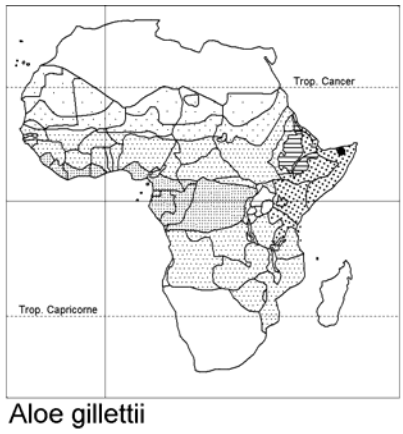
Aloe friisii



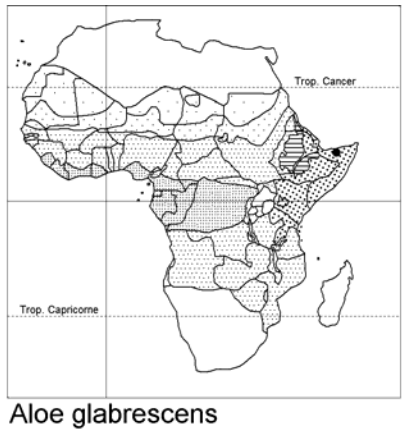
Aloe ghibensis



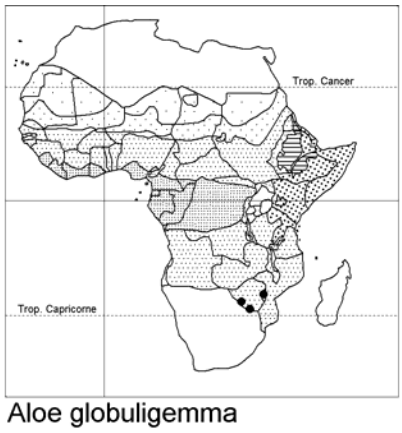
Aloe gilbertii



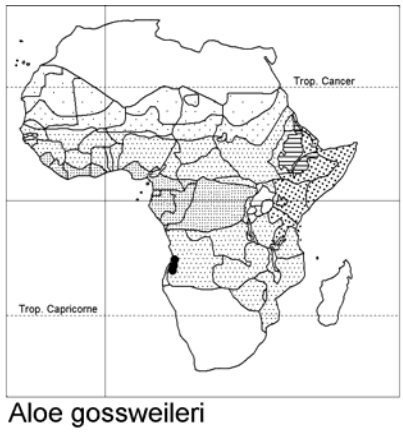
Aloe gillettii



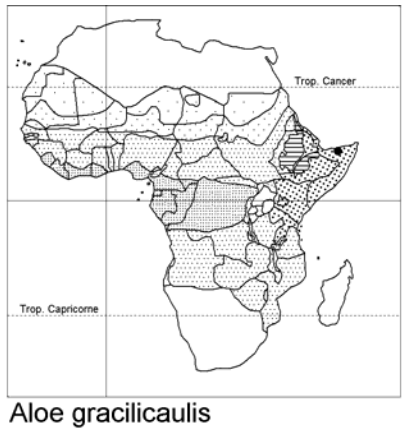
Aloe glabrescens



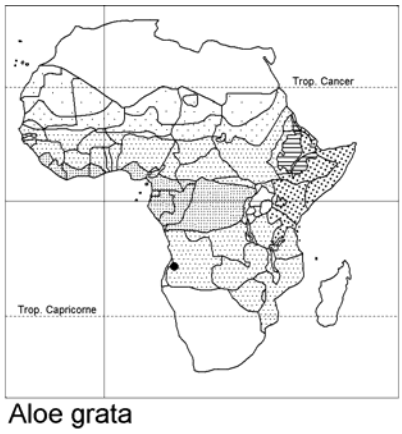
Aloe globuligemma



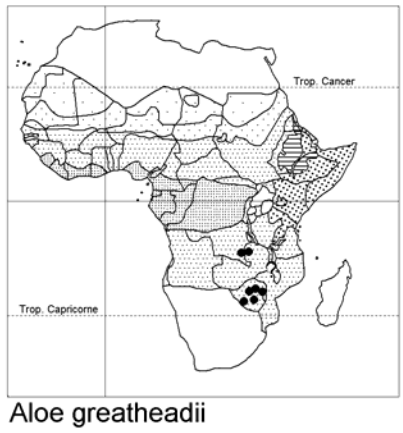
Aloe gossweileri



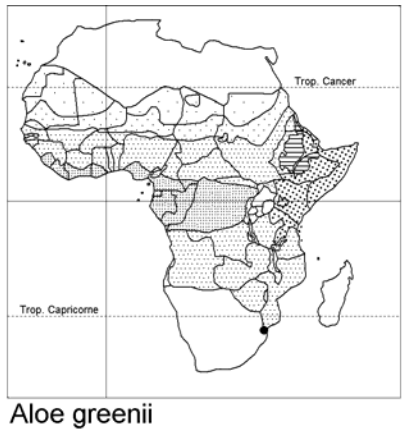
Aloe gracilicaulis



Aloe grata



Aloe greatheadii



Aloe greenii

ALOE

A. hereroensis Engl., incl. var. *lutea* A. Berger; Klopper & al. in Bothalia 39: 27-28, 2009, and Haseltonia 15: 49, 2009. – Icon.: Fl. Pl. S. Afr. 8: pl. 281, 1928 (sub nom. *A. hereroensis var. orpeniae);* Reynolds, 1950: 324-325; Reynolds, 1966: 101; Van Wyk & Smith, 2003: 147; Rothmann, Aloes, Aristocrats of Namibian Flora: 66-67, 2004; Hargreaves in Alsterworthia Int. 8/3: 2-3, 2008.

syn.: *A. orpeniae* Schönland; *A. hereroensis* var. *orpeniae* (Schönland) A. Berger

Perennial herb, solitary, or suckering to form small groups of plants, acaulescent or older plants with a very short stem; leaves in a dense rosette, erect and curving inwards, 30-40 × 6-9 cm toward base, ovate-lanceolate, greyish-green or often bronzed, obscurely lineate and usually without spots on the upper surface, with few to many whitish spots scattered or arranged in transverse bands on the lower surface; margins cartilaginous with pungent deltoid red-brown teeth 3-4 mm long, 8-12 mm apart; inflorescences 1-3, erect to 1 m high; peduncle up to 12-branched, the lower branches rebranched; branches widely spreading; racemes 6-8 × 8-10 cm, corymbose-capitate, very densely flowered; perianth scarlet or yellow (var. *lutea),* 25-33 mm long, 8-9 mm Ø across the ovary, narrowing slightly toward upturned mouth, cylindric-trigonous; outer segments free to halfway, tips slightly spreading.

Exposed dry rocky slopes; usually on quartzite; c. 900 m alt.

Botswana, Namibia, S. Africa; widespread.

Closely allied to *A. viridiflora* Reynolds (S. Africa).

Forming hybrids with other species.

A. heybensis Lavranos – Icon.: Cact. Succ. J. (US) 71: 159, 1999.

syn.: specimen Lavranos & Bauer 22847, "may be an undescribed taxon" cited under *A. rabaiensis* in Thulin, Fl. Somal. 4: 41-42, 1995.

Plants shrubby, offsetting from the base, to 45 cm tall; stems weak, 30 mm Ø, becoming decumbent; leaves about 12 per rosette, horizontally spreading, recurved in their upper half; to 35 × 7 cm at base, upper surface concave, lower surface convex, both surfaces glossy, glaucous to brownish-green, often with pale spots; margins broad, cartilaginous, with very close-set, large, brown-tipped deltoid teeth 4 mm long, set 5-12 mm apart, separated by rounded interstices; inflorescence 45 cm tall, with up to 6 racemes, the lateral branches of which are simple, brittle, spread obliquely; peduncle reddish-brown, adaxially flat, abaxially rounded, 10 mm Ø low down; racemes cylindrical, very lax at first but subcapitate towards the apex, mature flowers nodding; perianths straight, 25 mm long, 9 mm broad, dull red, glossy, shading to dull green towards the segment-apices, the outer segments free for 10-12 mm, the lower one somewhat longer with slightly upturned apex.

Near top of inselberg, granitic; ± 560m alt.

Known only from the type collected in 1989, but offsets cultivated (Johannesburg Bot. Gard.). – Perhaps present also on other similar granite tops within the same region.

Related to *A. boscawenii.*

ALOE

A. hildebrandtii Baker – Icon.: Bot. Mag. t. 6981, 1888; Reynolds, 1966: 341-343.

syn.: *A. gloveri* Reynolds & P. R. O. Bally

Plants shrubby, branched from the base, with stems 50-100 cm long, decumbent to erect; leaves 10-20, in a lax rosette covering the apical 30-35 cm of the stem, to 30 × 6 cm, spreading, dull green or glaucous with a few spots; margins with triangular sharp teeth, 2-3 mm long, 8-10 mm apart; inflorescences to 60 cm tall, spreadingly branched; racemes cylindric, to 18 cm long, lax; flowers red or yellow, nutant to subsecund; perianth 26-30 mm long, 8 mm across the ovary, outer tepals free for 12 mm.

Juniperus-Pistacia-Buxus forest, in scattered patches, on limestone; 1150-1700 m alt.

A. ikiorum Dioli & G. Powys – Icon.: Cactus Succ. J. (US) 83: 270, 272-274, 2011.

Solitary "medium-sized" perennial; *stem single;* leaves 12-24, densely rosulate, spreading, lanceolate, 20-40 × 4-6 cm, smooth, bright green and sometimes reddish above, paler grey-green beneath with white-greenish longitudinal streaks, spotted when young, adult ones usually unspotted; margins whitish with soft brown-tipped teeth 2 mm long, 4-16 mm apart; exudate pale yellow, turning chestnut brown when drying; inflorescence erect, 0,85-1,55 m tall, with 4-5 spreading branches; bracts ca. 30 × 8 mm subtending the branches; racemes erect, capitate, 3-8 cm long; floral bracts 18 mm long; pedicels 10-13 mm long; perianth *pinkish red,* fading to pale yellow in upper 1/3, 24 mm long, with basal swelling 6 mm Ø, curved, glabrous, constricted above ovary to c. 4 mm Ø, outer tepals free for 8-10 mm, tips slightly spreading, buds green-tipped.

Rift Valley escarpment with grassland dominated by tall *Hyparrhenia* spp.; ca. 1900 m alt.

Resembling *A. lateritia* var. *graminicola* (but with longer pedicels and perianth, scarlet to orange-yellow), and also *A. wollastonii* (but stemless, leaves longer, perianth longer).

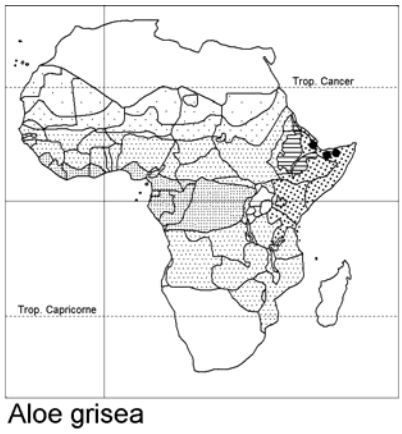
Known only from the type locality in NE Uganda; type collected in 2006.

A. inamara L. C. Leach – Icon.: J. S. Afric. Bot. 37: 260-264, 1971.

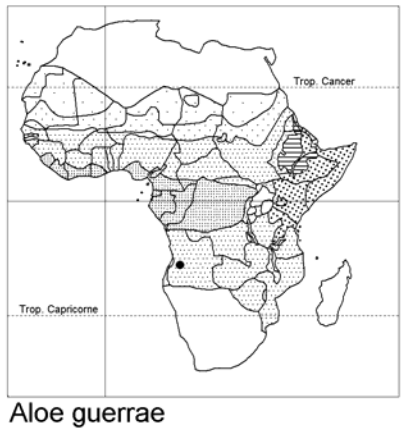
Plant hanging on cliff faces, caulescent, branching at base and more sparingly above, sometimes forming dense mats to 3 m; stem pendulous, to 2 m long, 2 cm Ø, covered by dried leaf bases; leaves ± 9, rosulate, falcate, pointing donwards, 45-60(-90) × 4-5 cm, pale yellowish-green, brown when exposed to sun, obscurely lineate with few to many small ± H-shaped whitish spots, lower face with more spots in ± transverse bands, with whitish or faint pink margin; marginal teeth 0,3-1 mm long, whitish, often brown-tipped, 4-20 mm apart; exudate yellow, not bitter; inflorescence 40-55 cm long, descending and upturned towards tip, with 4-6 branches; racemes cylindrical-conical to almost capitate, to 7,5 × 7,5 cm, sub-lax; flowers dull red with greenish tip, 26-29 mm, base truncate; tepals free for 6,5-8 mm.

Almost vertical cliff faces (at the mouth of Quicombo River).

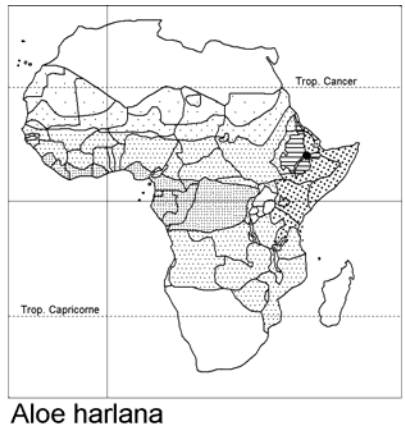
Known only from the type locality.



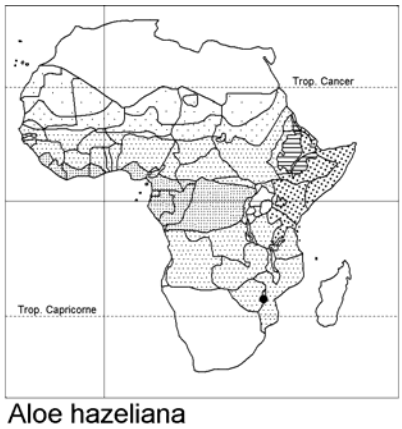
Aloe grisea



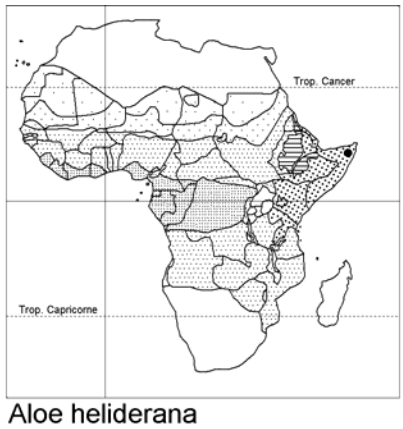
Aloe guerrae



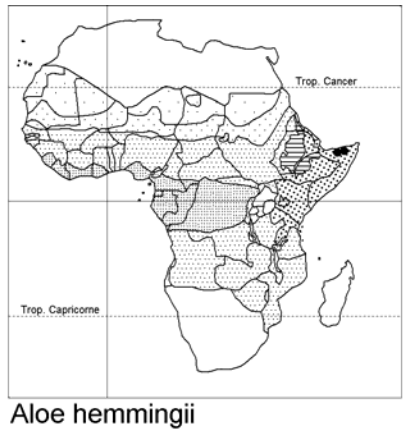
Aloe harlana



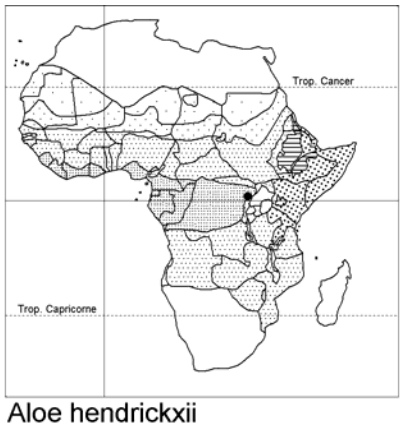
Aloe hazeliana



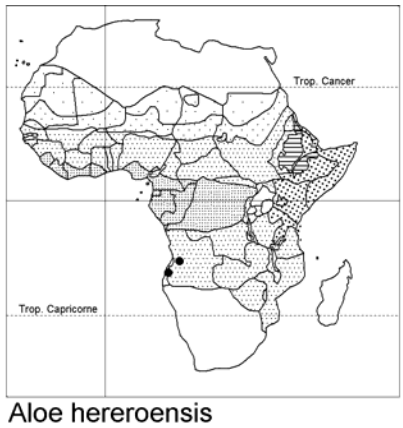
Aloe heliderana



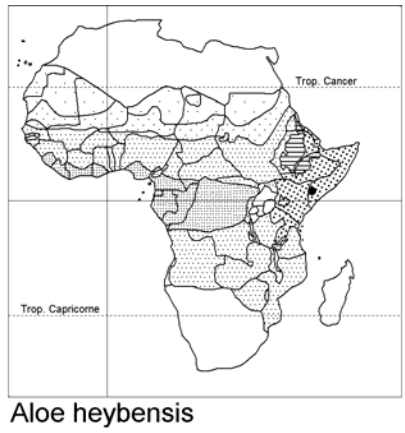
Aloe hemmingii



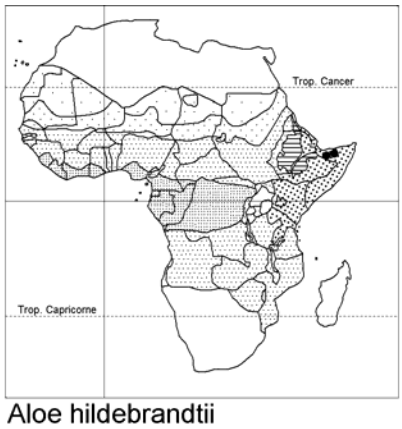
Aloe hendrickxii



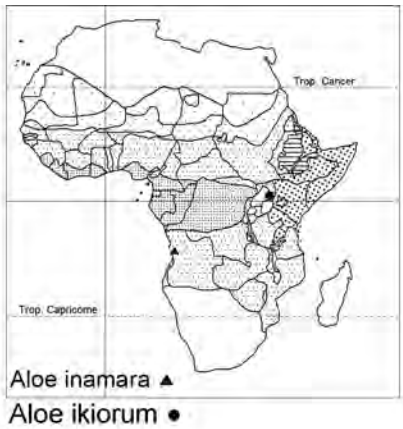
Aloe hereroensis



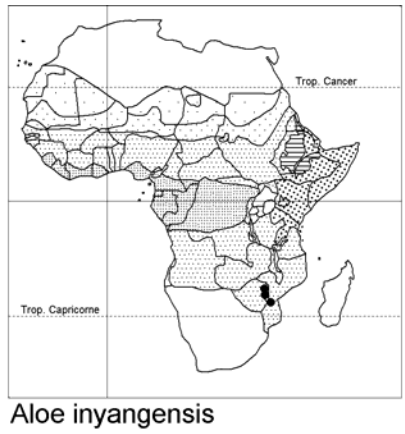
Aloe heybensis



Aloe hildebrandtii



Aloe inamara ▲
Aloe ikiorum ●



Aloe inyangensis

A. inyangensis Christian; Kimberley in Excelsa 20: 48, 56-57, 2003. – Icon.: Fl. Pl. S. Afr. 16: pl. 640, 1936. Reynolds, 1966: 23-24; West, 1992: pl. 3a – 4b; Kimberley in Haworthiad 18/3: 85, 2004.

Perennial herb, suckering to produce dense clusters of erect, spreading or pendent stems 1-2 m Ø; stems up to 30 cm long or more, 1-2 cm Ø; leaves distichous to subrosulate, spreading, 15-35 × 0,5-2,5 cm, linear, expanded to c. 4 cm at the clasping base, tapering to the apex, slightly channelled on the upper surface, fleshy, dark dull-green, purplish-tinged when dried, both surfaces with dense pale spotting near the base; margin cartilaginous, with fringe-like teeth 0,5-1 mm long, 1-2 mm apart; inflorescence simple, erect to 30-50 cm high, or pendent and curving upward to bear the raceme erect; peduncle with several large, sterile, broadly ovate, papery brown bracts on the upper half, 2-4 cm apart; raceme 6-10 × 6 cm, cylindric, ± laxly flowered, with overlapping bracts in bud; perianth vermilion-red tipped with green, 30-37 mm long; outer segments free to the base with tips slightly spreading.

In peaty soils on rocks out of reach of fire; in cracks and crevices on exposed rock surfaces; 1825-2560 m alt.

Comprises 2 vars.: – var. **inyangensis** with erect to spreading stems 30 cm long and erect leaves; – var. **kimberleyana** S. Carter, Kew Bull. 51: 777, 1996. – Icon.: Carter, 2001: 63; Van Wyk & Smith, Regions of floristic endemism in Southern Africa: 141, 2001.

syn.: *A. inyangensis* "very robust forms" sensu reynolds 1966: 24.

Stems to 1 m long, spreading and pendent; leaves pendent, distichous, laxly crowded at the stem apices and 10-15 mm apart, to 40 × 2,5 cm; inflorescence curved with raceme erect.

Mountain slopes, usually in damp situations, near waterfalls or among evergreen forest, and in vertical rock faces shaded from the sun; 1220-1900 m alt.

The report of var. *inyangensis* from Mozambique, Chimanimani Mts, needs verification.

A. jacksonii Reynolds – Icon.: J. S. Afric. Bot. 21: pl. 5, 1955; Reynolds, 1966: 54-55; Sebsebe & Gilbert, 1997: 134.

Dwarf succulent shrub; stems erect or sprawling, 10-20 cm long; leaves separated along stem, linear-lanceolate, 11-15 × 1,2-2,2 cm, upper surface almost flat, dull green, with pale spots above and below; marginal teeth 16-20 per 10 cm, c. 1 mm long, pale pink; inflorescence not branched, c. 30 cm high; raceme lax, 9-11 cm long, 3-4 flowers per cm; perianth cylindrical, c. 23 × 7-8 mm when pressed, scarlet; outer segments free for 5-6 mm.

Along the edge of a narrow limestone ravine, area generally with *Acacia-Commiphora* bushland; 1050 m alt.

A. elkerriana described from the same area.

Known only from the original collection made by T. H. E. Jackson in 1943 (Haseltonia 13: 34-35, 2007) (cultivated at Johannesburg). Later widely distributed among botanical gardens. Very similar plants are known from Somalia.

A. jibisana L. E. Newton – Icon.: Haseltonia 12: 19-20, (2006, publ. 2007).

Plant caulescent, branching freely at and near base. Stems 1 cm Ø, erect to c. 45 cm, then becoming decumbent, to 1,5 m long; leaves scattered along stem and persistent for 60 cm or more, lanceolate, to 14 × 2,5 cm near base, 1 cm thick near base, adaxial surface uniformly dull green with light waxy bloom, abaxial surface dull green with light waxy bloom, with scattered whitish spots, becoming restricted to near leaf base on leaves towards ends of longer stems, surface smooth, marginal teeth pungent, forward-pointing, 2 mm long, green at base, white above with dark red tip, 6-8 mm apart; sap yellow; leaf sheath 1,5-2 cm long, dull green; inflorescence to 25 cm long, erect, simple or with one branch, peduncle gray-green, 5 mm wide at base, with 6 sterile bracts; racemes cylindrical, semi-dense, terminal to 8 cm long, 4 cm Ø with 20-25 flowers, lateral 3 cm long; flowers 20 mm long, yellow with reddish tips to lobes, base very shortly attenuate, 7 mm Ø at base, narrowing to 6 mm above ovary, slightly trigonous above, not widening at mouth, tepals free for 10 mm.

Rock ledges near main summit of mountain; c. 1370 m alt.

A. jucunda Reynolds – Icon.: J. S. Afric. Bot. 19: pl. 11, 1953; Fl. Pl. S. Afr. 35: pl. 1390, 1962; Reynolds, 1966: 49-50.

Plants small, stemless, suckering from base and forming small groups; leaves c. 12, triangular, spreading, 4-6 × 2-5 cm, shiny dark green, copiously spotted; margins armed with hard triangular teeth; inflorescences simple, to 35 cm high; racemes cylindric, fairly lax; flowers rose-pink, pendulous; perianth 20 mm long, 7 mm across the ovary, outer tepals free for c. 7 mm.

Juniperus-Buxus forest on limestone; 1100-1700 m alt.

A. juvenna Brandham & S. Carter

Succulent shrublet, with stems branching and suckering densely from the base, erect to 25 cm high, or decumbent to 45 cm long; leaves densely crowded, spreading, persistent; lamina deltoid, to 4 × 2 cm at base, bright green, often suffused with red, spotted on both surfaces, especially the lower, and many of the spots with raised denticles; sheathing base weakly fibrous; margin, and occasionally the denticles of the lower surface, with prominent cartilaginous, usually brown-tipped teeth 2-4 mm long, 4-6 mm apart; inflorescence simple or occasionally 1-branched, erect to 25 cm high, with several sterile scarious bracts below the raceme; racemes conical, to 8 × 6 cm, subdensely flowered; perianth coral-pink tipped with greenish yellow, cylindrical, 27 mm long; outer segments free for ± 1/3, scarcely spreading at the apices.

Rocky ridge, in grass; 2300 m alt.

Common in cultivation

A. kahinii McCoy & Lavranos, Haseltonia 13: 32, 2007 (published early January 2008). – Icon.: ibid.: 29-30.

syn.: *A. inermis* sensu Reynolds 1966, non Forssk.; *A. luntii* sensu Lavranos 1995, non Baker

Plant succulent, forming groups of up to 15 rosettes; stem decumbent to 15 cm long; leaves 9-12 rosulate, spreading horizontally, persistent after drying, lanceolate or ensiform, attenuate, 20-30 × 4-5 cm at base; upper surface flat until near apex, then slightly canaliculate, smooth, olive-green, unspotted; lower surface convex, same colour as above; margins entire except near apex where occasionally there are 4-8 white, obsolete teeth, 4 mm wide, 0,5 mm long; leaf edge lime-green, cartilaginous; inflorescence to 45 cm tall, usually one per rosette, 6-12 racemes, branched from before middle of peduncle; peduncle 5 mm wide at base, covered in waxy coating, dark green; racemes oblique, subtended by sterile bracts 1 cm long, 4 mm wide, sub-laxly flowered with flowers secund, the terminal raceme to 15 cm long; perianth glabrous, cylindric-trigonous, 20-25 mm long, pink or with yellow mouth, 4-5 mm wide and slightly constricted above ovary, flower buds green tipped; outer segments free for 5 mm with 3-5 green nerves and yellowish margins; inner segments lighter in

colour with three brownish nerves. Juvenile plants strongly distichous, their leaves bearing white oblong spots. Exudate dark orange brown when fresh, drying brown.

Gypsum flats (near Las Anod, Somalia).

A. kaokoensis van Jaarsv., Swanepoel & A.E. van Wyk, Bothalia 36: 75, 2006; Aloe 47/1: 4 2010. – Icon.: Bothalia 36: 76, 2006; Veld & Flora 93: 200-201, 203, 2007.

Plants solitary, rosulate, up to 0,7 m tall, 1,3 m Ø, shortly caulescent; stem to 1 m long, 10 cm Ø, erect when young, later decumbent, covered with remains of old dry leaves; juvenile leaves distichous at first, lorate-triangular, biconvex, spotted above and beneath, some spots with short spines, apex mucronate; mature leaves 35-40, in a dense rosette, arcuate-ascending, lower ones spreading, tough, with asymmetric keel near apex, triangular-lanceolate, 38-67 × 7-14 cm; pale glaucous above and slightly rough to touch, sparsely white-spotted in basal 1/3, occasionally without spots; lower surface flat-± convex at first, becoming convex, copiously white-spotted; margin yellowish green, translucent, with deltoid-acuminate, small, black teeth 3-4 × 4-5 mm, 7-15 mm apart, projecting towards apex; apex acute, ending in 1-3 teeth; sap yellowish, drying honey-coloured to dark brown-black; inflorescences 1-2, much-branched, 1,2-1,4 × 0.6-0.8 (-1.12) m, with many lateral branches above, peduncle with powdery bloom; racemes 33-47 × 70 cm, flowers laxly arranged; perianth orange-red becoming yellowish, cylindrical-trigonous, 35 × 6 mm, outer segments free to halfway down; inner segments free but dorsally adnate.

Arid mopane woodland on granitic soil and quartz fragments in full sunshine.

NW Namibia (700-2000 m. alt.); locally abundant.

Related to *A. littoralis.*

A. ×keayi Reynolds – Icon.: J. S. Afric. Bot. 29: pl. 6 & 7, 1963.

Acaulescent plant, sometimes with a few suckers; leaves 20-30, densely rosulate, 60 × 10-12 cm at base, apex acute; inflorescence 2-3 branched, 1 m high, developing 10 branches in cultivation at the end of the rains; racemes densely flowered, 15-20 cm long, c. 9 cm Ø, bracts deltoid-acute, 5-7 × 2 mm; perianth pale apricot-scarlet to pinkish-apricot, 35 mm long, 8 mm Ø across the ovary, outer segments free for 14 mm, inner ones broader, dorsally adnate.

Ghana: Accra Plains.

According to Newton in IOS Bull. 3/3: 100-102, 1974, the plant is commonly cultivated in Ghanaian gardens. He also proved this plant to be a hybrid; probable parents: *A. buettneri* and *A. schweinfurthii.*

A. kedongensis Reynolds – Icon.: J. S. Afric. Bot. 19: pl. 3-4, 1953; Reynolds, 1966: 375-376; Carter, 1994: 55; Cactus Aventures Int. 65: 37, 2005.

syn.: *A. nyeriensis* Christian ex I. Verd. subsp. *kedongensis* (Reynolds) S. Carter

Shrub 1-3 m high; stems branching at or near the base, erect or sprawling, 3-7 cm Ø; leaves laxly crowded at the apex, spreading and recurved, then clothing the stem with dried persistent remains, finally deciduous to leave the stem naked below; lamina narrowly lanceolate to 30 × 4 cm towards the base, fleshy, yellowish green, young leaves sometimes with a few pale spots on both surfaces; margin with pale, brown-tipped, forward-pointing teeth 2-4 mm long, 10-15 mm apart; sap yellowish; inflo-

rescence erect, 40-75 cm high, simple or with 1-2(-4) branches curving upwards; racemes cylindric, 10-20 × 8 cm, fairly densely flowered; perianth bright orange-red, cylindric, ± 36 mm long; outer segments free for 1/3, apices spreading.

Fairly open savanna woodland, usually on rocky ground; top of Kedong Escarpment; 1825-2300 m alt.

Natural hybrids with *A. secundiflora* occur near Narok, a variable population including perhaps back-crosses (Newton in Journ. E. Afr. Nat. Hist. 84: 142, 1995).

Resembling *A. nyeriensis* but leaves narrower, inflorescence with fewer branches. Chemical composition of sap also different.

A. kefaensis M. G. Gilbert & Sebsebe

Rosettes stemless; leaves 35-45 × 8-11 cm, less fleshy than usual for genus, green with obscure longitudinal dark-lines and sparse or no pale spots; marginal teeth 12-19 per 10 cm, 3-4,5 mm long, pale, sometimes with minute dark tip; inflorescence c. 150 cm high, little branched; racemes 30-35 cm long, lax; perianth as in *A. macrocarpa* but with basal swelling not so sharply delimited and not clearly globose, 28-32 mm long, base c. 6 mm wide, limb 4,5-5 mm wide when pressed.

Wooded grassland; c. 1800 m alt.

Apparently widely cultivated in Addis Ababa and Jimma.

A. ketabrowniorum L. E. Newton – Icon.: Newton, 2001: fig. XV a.

Sprawling shrublet, branching from the base to form a clump to ± 1 m Ø; branches decumbent, to 30 cm long; leaves crowded at the branch apices, spreading; lamina lanceolate-attenuate, to 38 × 4,5 cm at base, mid-green, often reddish tinged, with scattered whitish spots on both surfaces; margin pale-cartilaginous, with firm, often red-tipped teeth 0,5 mm long, 5-10 mm apart; sap pale yellow, drying brown; inflorescence erect to 70 cm high, with 7-8 obliquely spreading branches; racemes ± secund, 3-14 cm long, laxly flowered; perianth pale red, whitish at the mouth, cylindric-trigonous, 23-28 mm long; outer segments free for ± 1/3, with spreading apices.

Exposed rocky slope, on lava; 760 m alt. – Critically endangered.

Known only from the type collected in 1987.

A. kilifiensis Christian; Raymer in Ballya 5/2: 44-47, 1998. – Icon.: J. S. Afric. Bot. 8: pl. 3, 1942; Reynolds, 1966: 81; Newton, 2001: fig. XV.b; Wabuyele in J. E. Afric. Nat. Hist. 95: 227, 2006.

Perennial herb, acaulescent or with a short thick stem to 30 cm high, solitary or in small groups from suckers; leaves in a rosette, spreading; lamina lanceolate-attenuate, 30-60 × 7-8 cm towards the base, rather thinly fleshy, dull yellowish green, turning reddish, usually with small scattered white spots, sometimes dense, on both surfaces; margin cartilaginous, with brown-tipped teeth 1-3 mm. long, 5-10(-15) mm apart; sap yellow, turning brown; inflorescence 40-70 cm high, with 1-6 branches; branches curving widely upwards, the lowest subtended by ± fleshy bracts to 5 cm long and with a few marginal teeth; racemes subcapitate, ± 8 × 8 cm, fairly densely flowered; perianth varying in colour from dull pink to wine-red, cylindric-trigonous, ± 30 mm long and 10 mm Ø at the base, constricted above the ovary to 6 mm; outer segments free for 1/4-1/3, apices scarcely spreading.

On coral rocks and white gritty soils, usually in sheltered positions in open dry bushland; 3-380 m alt.

At the coast the wine-red flower colour is distinctive, paler red at higher altitudes.

ALOE

A. kulalensis L. E. Newton & Beentje, Cact. Succ. J. (US) 62: 251, 1990. – Icon.: Carter, 1994: 40.

Sprawling shrub branching from the base, forming large clumps pendulous over rock faces; branches slender, to 2 m long; leaves laxly crowded at the upturned branch apices, the branches naked below; lamina hanging down, flexuose, narrowly lanceolate-attenuate, 18-40 × 1,8-3 cm at base, mid-green, sometimes with scattered pale streaks; margin with pale, cartilaginous, occasionally minutely brown-tipped teeth 1 mm long, 2-13 mm apart; sap drying yellow; inflorescence erect, or down-curved with racemes ascending, 15-40 cm long, with 1-4 widely spreading branches; racemes cylindrical, 2,5-15 cm long, laxly flowered; perianth bright orange-red with yellow tips, green-tipped in bud, cylindric, 20-25 mm long; outer segments free to nearly halfway, apices slightly spreading.

Steep, rocky slopes and cliff-faces, in shade, in *Olea-Juniperus* woodland; 1585-1890 m alt.

Known only from Mt. Kulal. Critically endangered.

A. kwasimbana McCoy & Lavranos – Icon.: Aloe 44: 50, 2007.

Erect to sprawling shrub to 1,5 m tall; stems 2-3 cm Ø; leaves 12-15, 45 × 3 cm at base, dark green, unspotted on both surfaces, recurved for about the apical third, margins armed with red deltoid teeth 2 × 3 mm, 10 mm apart; sap brownish yellow, drying brown; inflorescences paniculate, 30-40 cm tall, mostly erect, often several produced simultaneously; peduncle 10 mm wide at the base, green, branched below the middle, with 10 or more ascending branches; racemes capitate, the terminal up to 10 cm long, apical buds spreading horizontally, open flowers nutant; perianth 25-28 mm long, 8 mm Ø across the ovary, outer segments free for 7 mm, glabrous, glossy orange, flecked with white translucent spots caused by air spaces in the sub-epidermal layers.

Steppe plateau, on granite; 830 m alt.

Known only from the type collected in 1997.

Kwa (Swahili) = place of; Simba = lion. In the middle of a large stand of this *Aloe*, the Maasai people had created a blind. Here they were waiting, in the light of a full moon, to bag a most magnificent Black Maned Lion. So was this aloe found.

A. labworana (Reynolds) S. Carter, Fl. Trop. E. Afr., Aloac.: 28, 1994. – Icon.: Reynolds, 1966: 292-293 (sub nom. *A. schweinfurthii* var. *labworana);* Carter, 1994: 26.

bas.: *A. schweinfurthii* Baker var. *labworana* Reynolds

Perennial herb, acaulescent, suckering to form small groups; leaves in a compact rosette, erect-spreading and recurved at the apex; lamina lanceolate-attenuate, to 50-80 × 7-12 cm at base, greyish green with small elongated whitish spots on both surfaces; margin with deltoid, pungent, minutely brown-tipped teeth 3-6 mm long, 8-20 mm apart; inflorescence erect to 1 m high, with 10-12 widely spaced spreading branches curving upwards, the lower ones rebranched; racemes cylindrical, 5-12 cm long, ± densely flowered; perianth bright yellow, 22-28 mm long; outer segments free to almost halfway, with apices very slightly spreading.

Rocky outcrops; 1300-1500 m alt.

ALOE

A. latens McCoy & Lavranos – Icon.: Aloe 44: 52-53, 2007.

Cremnophyte, producing many stems from the base; stems 1 cm thick, up to 2,5 m long; leaves 10-12, 17 × 3 cm at base, shiny light green, unspotted on both surfaces, margins with green teeth with red forward-facing apices, 5 × 3 mm, spaced 10 mm apart; sap clear, drying clear; inflorescences simple or rarely with a short, lateral branch, up to 60 cm tall; peduncle 8-10 mm wide at the base, green with many small white spots, ascending; raceme erect, bearing several sterile bracts 12 × 5 mm, white, with 5-8 brown nerves; racemes cylindrical, up to 16 cm long, 6-8 cm wide, densely flowered, the apical buds crowded, open flowers nutant; perianth orange, with numerous minute white spots caused by sub-epidermal air chambers, paler towards the mouth, 40 mm long, 7 mm wide across the ovary, the outer segments free for 10 mm.

On conglomerate rock faces of a narrow, steep walled gully; 1500 m alt.

Similar to *A. babatiensis.*

A. lateritia Engl., excl. var. *kitaliensis* (Reynolds) Reynolds (= *A. wollastonii)* – Icon.: Carter, 1994: 16, pl. 1; Lane, A field guide to the aloes of Malawi: 24, 2004; Štarha in Kaktusy 47/3: 94-96, 2011.

syn.: *A. amanensis* A. Berger; *A. boehmii* Engl.; *A. campylosiphon* A. Berger (all of var. **lateritia).**

– According to Wabuyele (2006, part II: 20-21) *A. lateritia* is a synonym under *A. macrocarpa* subsp. *macrocarpa*.

Perennial herb, acaulescent or with a short thick stem, solitary or in small groups from suckers; leaves in a dense rosette, suberect to spreading; lamina lanceolate-attenuate, 20-50 × 5-10 cm towards the base, thick and fleshy, bright yellowish green, usually heavily spotted with elongated whitish blotches arranged in irregular transverse bands; apex often dry, shrivelled and curled; margin white-horny, with pungent brown teeth 2-5 mm long, 7-15 mm apart; inflorescence erect to 1,25 m high, with 3-8 branches, the lowest occasionally rebranching; branches curving widely upwards, the lowest subtended by sometimes fleshy, lanceolate bracts to 7 cm long, often with a few marginal spiny teeth; racemes capitate to subcapitate, 4-12 × 8 cm, densely flowered, occasionally more lax to 15(-20) cm long; perianth orange-red or occasionally entirely yellow, usually glossy, green-tipped in bud, cylindric-trigonous, 30-38 mm long; outer segments free for 1/3, apices slightly spreading.

Grassland with scattered *Acacia* bushland on black cotton soils, open deciduous bushland, or rocky places, often on hillsides; 250-2125 m alt.

Comprises 2 vars.: – var. **lateritia** (see above); – var. **graminicola** (Reynolds) S. Carter – Icon.: Fl. Trop. E. Afr., Aloac.: pl. 1, 1994; Fl. Pl. S. Afr. 20: pl. 781, 1940 (sub nom. *A. solaiana);* Reynolds, 1966: 79-80 (sub nom. *A. graminicola).*

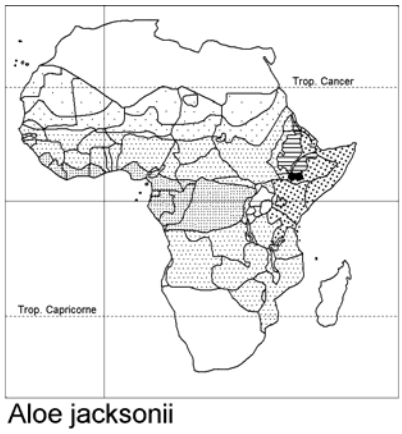
S. Carter's treatment of *A. graminicola* as a variety of *A. lateritia* is not accepted by Sebsebe & Gilbert, 1997: 122.

bas.: *A. graminicola* Reynolds, J. S. Afric. Bot. 19: 9, 1953.

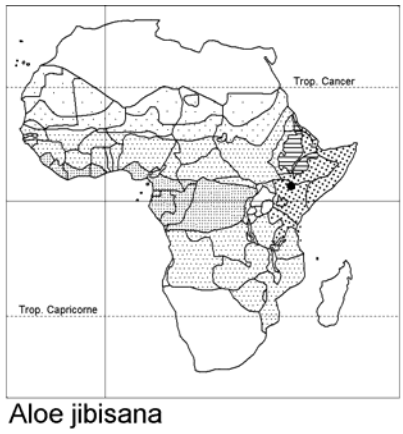
syn.: *A. solaiana* Christian

Acaulescent herb, or sometimes with a stout stem to 50 cm high covered with withered leaf remains; leaves 20-40 cm long, with marginal teeth 4-5 mm long; racemes capitate 4-6 cm long, rarely elongating to 8 cm; pedicels 30-40 mm. long, occasionally to 45 mm. – In S C Kenya.

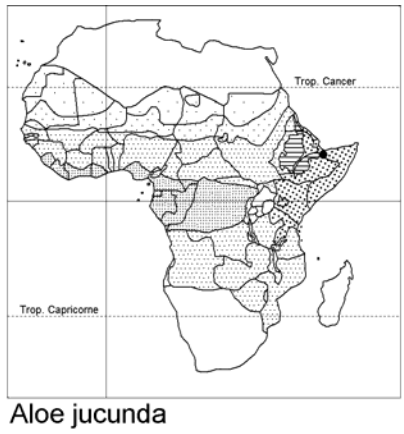
In grassland and in open bushland; 1675-2530 m alt.



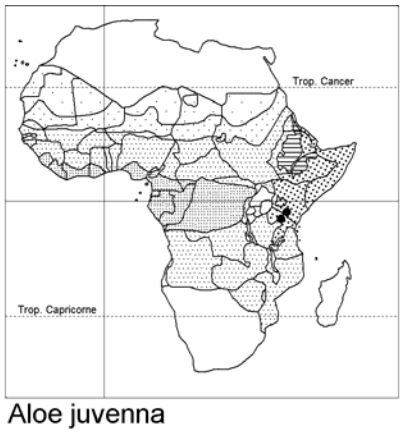
Aloe jacksonii



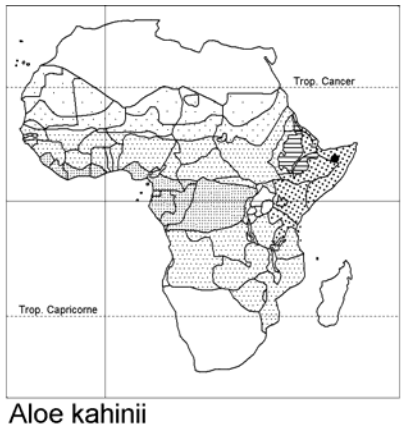
Aloe jibisana



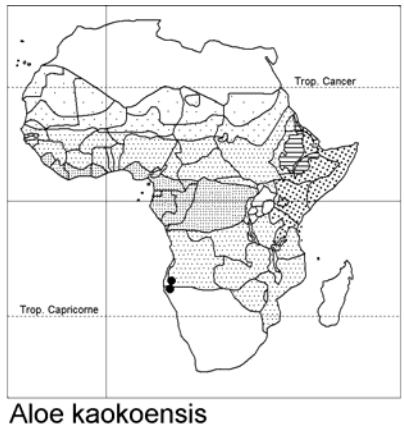
Aloe jucunda



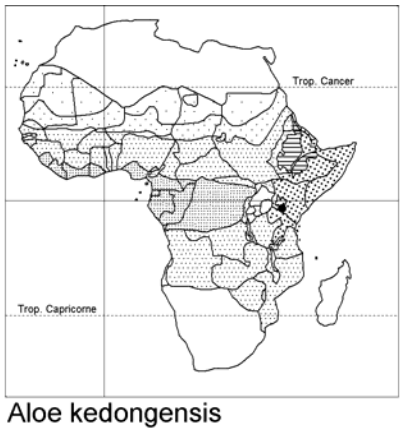
Aloe juvenna



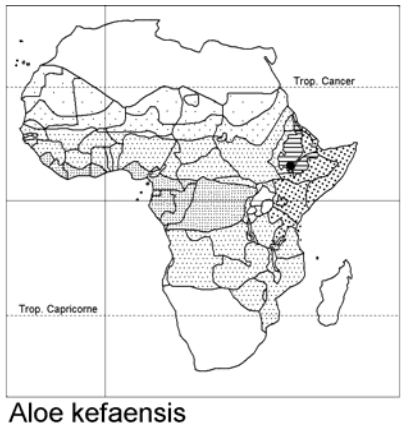
Aloe kahinii



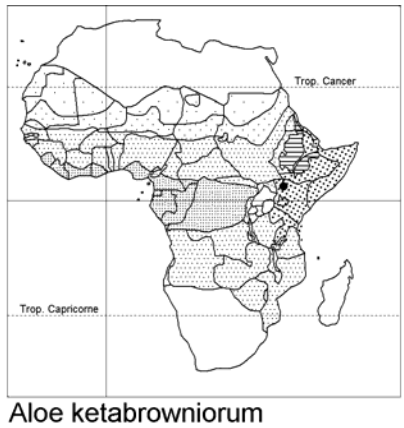
Aloe kaokoensis



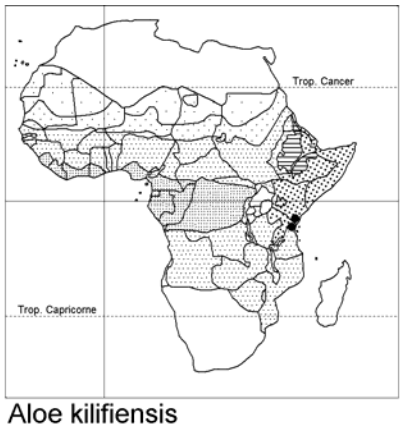
Aloe kedongensis



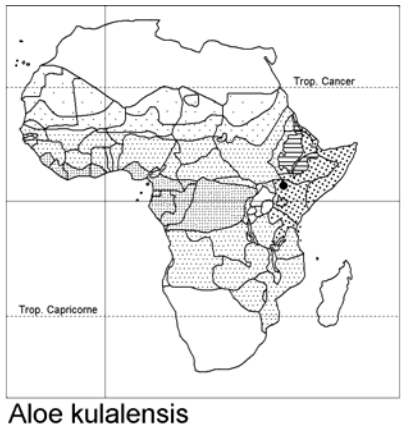
Aloe kefaensis



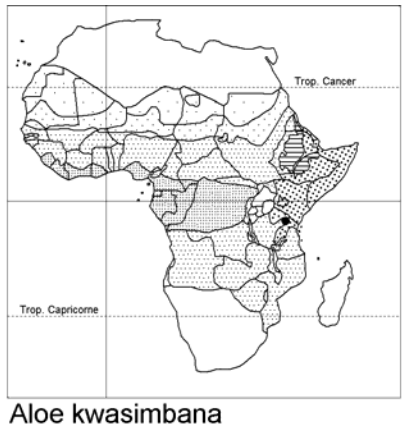
Aloe ketabrowniorum



Aloe kilifiensis



Aloe kulalensis



Aloe kwasimbana

ALOE LATERITIA

Extreme forms (of var. *lateritia)* with laxly flowered elongated racemes (Harris 4687) from Dar es Salaam are considered as closely related to *A. zebrina* by Carter. As to phenotype variation, see Kolm & Newton in Haworthiad 25:18-21, 2011.

Reynolds included Zaire material (3 species) in synonymy under a wide concept of *A. lateritia* but retained var. *kitaliensis* (Reynolds) Reynolds. They have laxly flowered elongated racemes and long bracts. Carter consider these taxa to be synonymous with *A. wollastonii*. This treatment is followed in the present volume. Cf. also *A. mzimbana*. "The perianth of this species has a globose base, as in the Maculate species, but the inflorescence differs importantly from all the Maculate species in the comparison of bract to pedicel length. Its bracts are very much smaller and ovate, with a pedicel many times its length, whereas in the Maculate species the scarious bracts are usually somewhat linear and are always at least half the length of the pedicels. *A. mzimbana* is most closely related to *A. chabaudii*, which also has a bulbous base to the perianth" (Carter in litt. 21.01.2012).

Closely related to *A. macrocarpa* but larger.

Natural hybrid var. *graminicola* × *A. nyeriensis* reported.

A. leachii Reynolds – Icon.: J. S. Afric. Bot. 31: pl. 42-43, 1965; Reynolds, 1966: 227.

Perennial herb, acaulescent, solitary or with a few short suckers forming small groups; leaves in a compact rosette, erect-spreading, 30-45 × 5-7 cm at base, dark green tinged with red; margin with pungent brown deltoid teeth 3-5 mm long, 1-2 cm apart; inflorescence erect, 1(-2) m. high, with 8-15 branches, the lowest ones usually rebranching; racemes 10-20 cm long, laxly flowered, flowers secund on the widely spreading branches; perianth scarlet, paler at the mouth and on the segment edges, cylindric-trigonous, 28-30 mm long, ± 7 mm Ø across the ovary; outer segments free to halfway, with slightly spreading apices.

Open wooded grassland; 275-500 m alt.

Perhaps a synonym under *A. secundiflora* var. *sobolifera* S. Carter according to S. Carter (cf. under this taxon).

A. nordaliae Wabuyele (Studies on eastern African aloes, part V: 18-19, 2006) is perhaps a synonym. The type locality lies within the small distribution area of *A. leachii*. But Wabuyele "did not examine any material, or mention *A. leachii* in her thesis…" (Carter in litt. 23.02.2012).

A. leedalii S. Carter – Icon.: Fl. Trop. E. Afr., Aloac.: 10, 1994.

Tufted perennial, with woody suckers to 5 cm long and 5-10 mm Ø; leaves erect, linear, fleshy, to 30 cm × 1 cm at base, with sheathing bases of fallen leaves persistent; margin with almost invisible, densely crowded, white cartilaginous teeth; inflorescence erect to 30 cm high, unbranched; peduncle with a few sterile, brown, papery bracts below the raceme, 1-3 cm apart; raceme cylindrical, 5-8 cm long, ± densely flowered, the bracts overlapping; perianth bright orange, green at the tip, cylindric-trigonous, 25-30 mm long; outer segment free nearly to the base, with rounded apices.

Among rocks in crevices and on ledges; 2133-2950 m alt.

Resembling *A. nuttii* but smaller.

ALOE

A. lensayuensis Lavranos & L. E. Newton

Perennial herb, suckering to form small groups, with decumbent, sprawling stems to 1 m long; leaves spreading, loosely crowded towards the apex, more lax below; lamina lanceolate-acute, to 30 × 7 cm at base, surface rough, greyish green, often tinged pinkish, with scattered, elongated, whitish spots on the lower surface and sometimes the upper; margin with minute, cartilaginous, red-brown to whitish teeth 3-5 mm apart, more distant towards the apex; inflorescence erect to 75 cm high, with 8-12 widely spreading and widely spaced branches, the lowest ones sometimes rebranching; racemes cylindrical, 10-15 cm long, laxly flowered; perianth dusty pink, yellowish at the mouth, cylindric-trigonous, 20-24 mm long; outer segments free to ± halfway, with recurved apices.

Among rocks and on rocky slopes (of the unusual rock formation at Lensayu Hills), with dry *Commiphora* bushland; 700-2000 m alt. – Critically endangered.

A. lepida L. C. Leach – Icon.: J. S. Afric. Bot. 40: 103-105, 1974.

Caulescent shrub, branching at base; stem erect, to 30 cm high; leaves rosulate, ovate-attenuate, 20-28 × 7,5-9 cm, bright to dark yellowish deep green, with white spots in wavy transverse bands, smaller and more numerous on lower face; marginal teeth 3-7 mm, pungent, often hooked, brown-tipped, 6-12 mm apart; inflorescence 30-50 cm high, with 1-2 branches; racemes cylindrical-acuminate, 20 × 7-8 cm, lax; flowers pale orange-scarlet, somewhat yellowish-striped, 25-29 mm, base truncate; tepals free for 5-6 mm.

Rock slopes in shade of trees.

Related to *A. andongensis*.

A. leptosiphon A. Berger – Icon.: J. S. Afric. Bot. 30: pl. 33, 1964; Reynolds, 1966: 74 (sub nom. *A. greenwayi);* Carter, 1994: 23, pl. 3.

syn.: *A. greenwayi* Reynolds

Perennial herb, solitary or suckering and branching from the base to form small groups; branches 30-50 cm long; leaves in a compact rosette, spreading and slightly recurved; lamina ovate-lanceolate, 20-35 × 5-7 cm at base, glossy green, unspotted or with scattered elongated whitish spots on the upper surface, copiously spotted on the lower surface; margin with pale, pungent, deltoid teeth 2 mm long, 8-10 mm apart; inflorescence erect, 40-60 cm high, simple or usually with 1-2 erect branches; racemes conical-cylindric, 10-20 cm long, 5-6 cm wide, ± densely flowered; perianth colour variable from bright red to orange-scarlet and greenish yellow at the mouth, or entirely yellow, glossy or not, cylindric, 25-30 mm long; outer segments free for ± × 1/3, with slightly spreading apices.

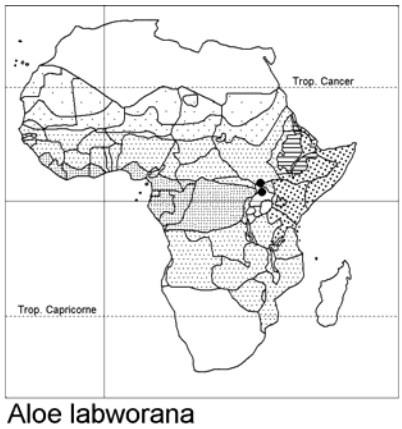
Grassed rocky slopes; 1200-1675 m alt.

A. lindenii Lavranos; Thulin, Fl. Somal. 2: 289, 1999. – Icon.: Cact. Succ. J. (US) 78/2: 55, 2006.

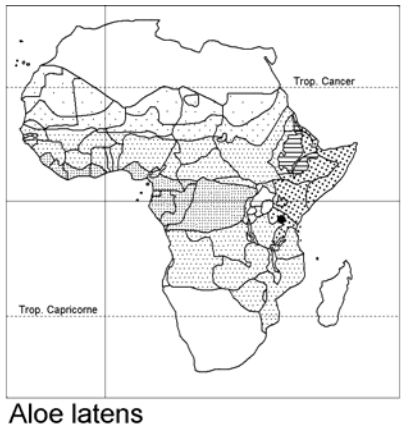
syn.: a possibly undescribed taxon mentioned under *A. glabrescens* in Fl. Somal. 4: 39, 1995.

Plants solitary, stemless; leaves to c. 20, strongly ascending, fleshy, acute, 40-45 × 7-8 cm at base, upper surface broadly channelled, lower surface convex, both surfaces bluish grey, sometimes with scattered pale spots, distinctly striate; margins cartilaginous, bearing hard, triangular teeth 1-2 mm long and 15-22(-60) mm distant but set closer near the base; inflorescence to 70 cm tall, almost invariably simple but very occasionally with 1-2 lateral branches; racemes elongate conical, rather dense, 18-22 cm long; perianths pale red, very slightly curved, scarcely enlarged at base, 30 mm long, 5 mm broad across the ovary, the mouth slightly wider, the outer segments free for 6-7 mm.

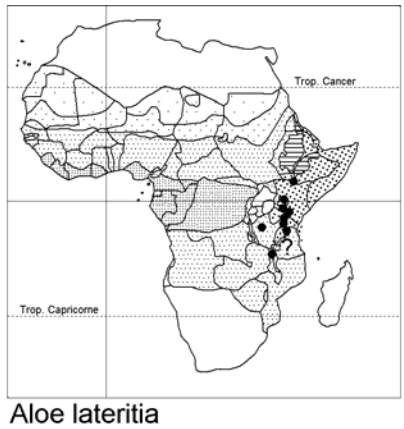
Rocky places on gypsum or limestone; c. 200-700 m alt.



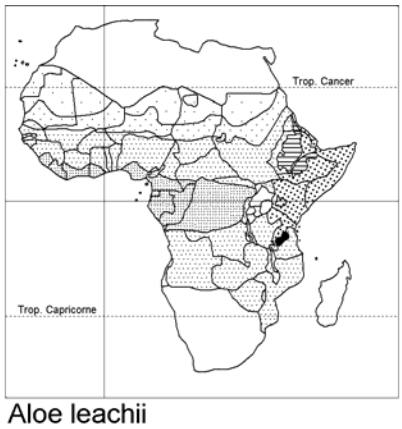
Aloe labworana



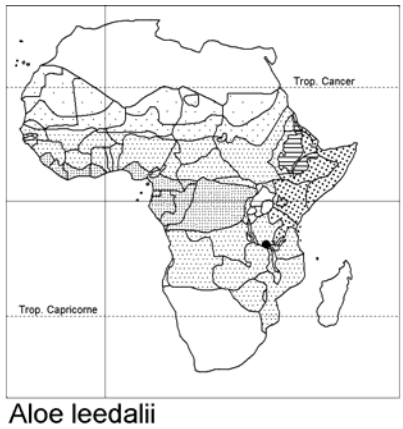
Aloe latens



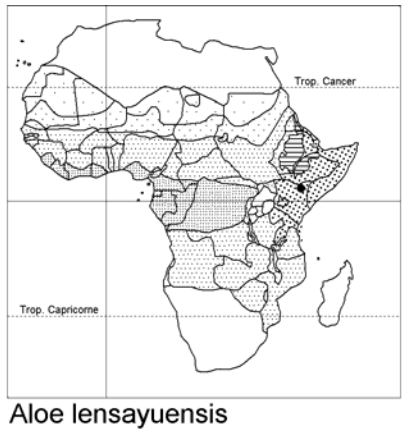
Aloe lateritia



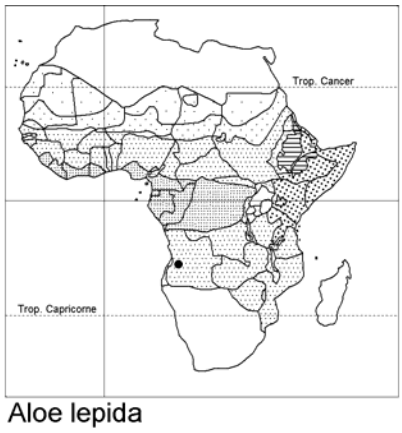
Aloe leachii



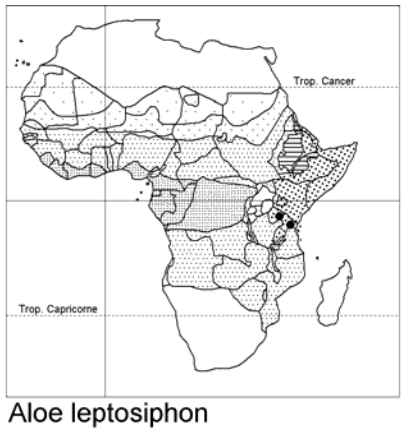
Aloe leedalii



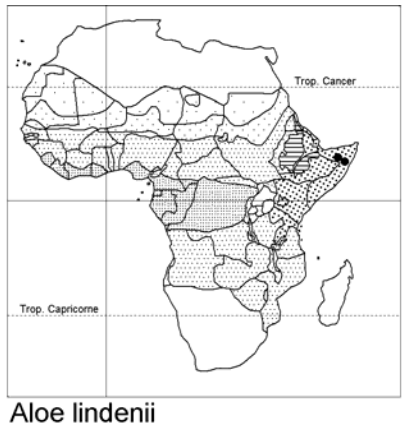
Aloe lensayuensis



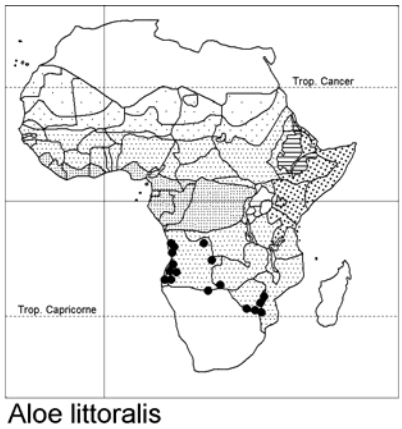
Aloe lepida



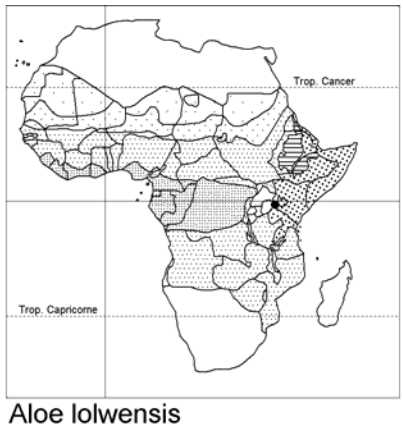
Aloe leptosiphon



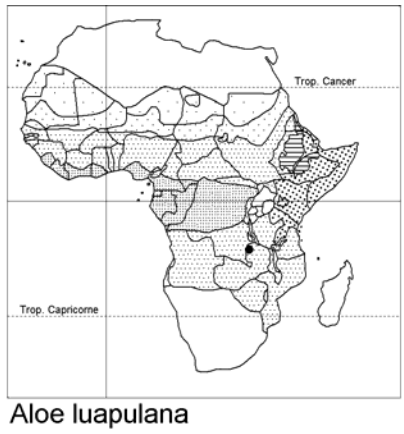
Aloe lindenii



Aloe littoralis



Aloe lolwensis



Aloe luapulana

ALOE

A. littoralis Baker – Icon.: Bot. Mag. 135: pl. 8263, 1909 (sub nom. *A. rubrolutea);* Fl. Pl. S. Afr. 21: pl. 802, 1941; Reynolds, 1966: 317-319; Van Wyk & Smith, 2003: 61; Rothmann, Aloes, Aristocrats of Namibian Flora: 68-69, 2004; Curtis & Mannheimer, Tree atlas Nambia: 42, 2005.

syn.: *A. angolensis* Baker (uncertain synonymy, cf. above under this name); *A. rubrolutea* Schinz p.p., excl. specim. Hahn s.n. in Reynolds 2423 et distrib. Ovamboland; *A. schinzii* Baker. – *A. esculenta* L. C. Leach is sometimes considered as a synonym.

Perennial herb or small tree, solitary, usually caulescent, with a thick simple erect stem to 2(4) m high covered with persistent withered leaves; leaves in a compact rosette, erect-spreading; lamina to 60 × c. 12 cm at base, lanceolate, pale greyish-green, tinged reddish in dry conditions, without spots when mature but a few spots present on young plants; margin cartilaginous, yellow, with pungent deltoid, red-brown teeth 2-4 mm long and 10-15 mm apart; sap drying yellow; inflorescence erect, 1-2 m tall above the leaf rosette; peduncle up to 10-branched, the lower branches usually rebranching; branches curving upwards bearing the racemes erect; racemes 30-60 × 6 cm, cylindrical-acuminate, ± laxly flowered; perianth pinkish-red, yellowish toward the mouth, with a bloom, 27-34 mm long; outer segments free to c. halfway, with slightly recurved tips.

Shallow depressions and open seasonal pans, in sandy soils in dry deciduous shrubland and woodland; 200-1065 m alt.

Botswana, Namibia, S. Africa.

A. lolwensis L. E. Newton – Icon.: Cact. Succ. J. (US) 73: 156-157, 2001.

Acaulescent, suckering to form dense clumps; leaves ± 30, densely rosulate, erect to slightly spreading, lanceolate, to 50 × 11 cm, glossy mid-green, surface smooth; marginal teeth 3 mm, pungent with tips pointing forwards, green with red-brown tips, 12-15 mm apart; exudate brownish-yellow, drying pale brown; inflorescence to 1,3 m high, erect, with 7-9 branches, lower branches rebranched; racemes cylindrical, terminal raceme to 20 cm, 6 cm Ø, lateral racemes 6-15 cm, subdense; flowers bright coral-red, lobes with pale margins, 28-33 mm long, base rounded and very shortly attenuate; tepals free for 13-14 mm.

Grassland; abandoned agricultural land with grasses and *Acacia;* cliffs on island; rocky hill with tall grasses and few scattered shrubs; 1220-1550 m alt.

A. luapulana L. C. Leach – Icon.: J. S. Afric. Bot. 38: 188, 1972; Williamson in Aloe 43: 57, 2006.

Perennial herb, solitary, acaulescent; leaves in a compact rosette, spreading; lamina 30-50 × 6-7 cm at base, lanceolate, usually dried and twisted in the apical half or more, pale green, tinged purplish towards the apex and margins, obscurely striate and unspotted on both surfaces; margin cartilaginous with pungent deltoid minutely brown-tipped teeth 1-4 mm long and 8-20 mm apart; inflorescence erect to c. 1,1 m high; peduncle c. 6-branched; racemes 15-25 × 6 cm, cylindrical, laxly flowered; perianth coral-red with a slight bloom, paler toward the mouth, 28-33 mm long; outer segments free to almost halfway, with slightly recurved tips.

Among rocks (Luongo R.) and on termite mounds (Mansa); 1150-1280 m alt.

Known only from this part of the Luapula Escarpment (Zambia).

A. luntii Baker – occurs only in Yemen (Hadramaut) and Oman (Dhofar). "Its reference to Somalia, and also that of *A. inermis* were made before the Somali plant was described as a distinct species, *A. kahinii"* (see under this species; Carter in litt. 21.02.2012).

ALOE

A. lutescens Groenew. – Icon.: Fl. Pl. S. Afr. 18: pl. 707, 1938. Reynolds, 1950: 338; West, 1992: pl. 17b, 18; Van Wyk & Smith, 2003: 151; Todd & Rambuda in Veld & Flora 85: 87, 1999.

syn.: *A. cryptopoda* sensu Barnes & Turton, List pl. Botswana: 46, 1986; sensu Hargreaves, Succulents Botswana: 18, 1990.

Perennial herb, solitary, ± acaulescent, or with a short stem, or usually suckering with decumbent branching stems to 80 cm long, forming dense groups of plants; leaves in a compact rosette, erect-spreading; lamina to 75 × 9 cm toward the base, lanceolate-attenuate, mid-green, slightly reddening then becoming yellow in dry conditions, not glossy, without spots; margin with pungent deltoid orange-brown teeth 1-2 mm long and 5-8 mm apart; sap yellow; inflorescences 1-4, erect, 1-1,5 m high; peduncle 1-2-branched; branches erect; racemes 30-40 × 7 cm, narrowly cylindric-acuminate, very densely flowered; perianth bright orange-scarlet, green-tipped in bud, entirely palish-yellow when fully open or rarely slightly red at the base, 27-33 mm long; outer segments free to the base, tips slightly spreading.

Steep sandy slopes of river banks, scarps and rocky outcrops; in hot dry localities, in light dry deciduous scrub and woodland; 200-1060 m alt.

S. Africa, Botswana (Alsterworthia Int. 11/3: 7-8, 2011).

Resembling *A. cryptopoda* but suckering, leaves paler, flowers yellow.

A. macleayi Reynolds – Icon.: J. S. Afric. Bot. 21: pl. 3-4, 1955; Reynolds, 1966: 299-300; Fl. Pl. Afr. 45: pl. 1789, 1978.

Large acaulescent, solitary plant; leaves ± 24, densely rosulate, lanceolate-attenuate, to 50 × 12 cm, deep green to olive-green, obscurely lineate, unspotted, with yellowish-white margins; marginal teeth 4 mm, firm, white, uncinate, 8-15 mm apart; exudate drying yellow; inflorescence 90 cm, slightly oblique but with racemes erect, with ± 9 branches; racemes cylindrical-conical, 22 × 5,5 cm, lax; flowers scarlet at base, becoming orange to yellowish towards mouth, 36 mm, base rounded; tepals free to base.

Amongst rocks in grassland; 1525-2440 m alt.

A. macrocarpa Tod., excl. subsp. *wollastonii* (Rendle) Wabuyele (= *A. wollastonii)* – Icon.: Reynolds, 1966: 92-95; Sebsebe & Gilbert, 1997: 123.

syn.: *A. barteri* sensu Schnell non Baker; *A. borziana* A. Terracc. (ambiguous synonym); *A. commutata* sensu Engl., non Tod.; *A. edulis* A. Chev.; *A. macrocarpa* var. *major* A. Berger – Wabuyele (2006, part II: 19-20) include *A. lateritia* var. *lateritia* and var. *graminicola* in *A. macrocarpa* subsp. *macrocarpa;* and var. *kitaliensis* in *A. macrocarpa* subsp. *wollastonii*.

Rosettes stemless, rarely developing short erect stems in shaded sites, solitary or forming small groups; leaves 16-20, (10-)20-35 × 3-11,5 cm, very soft, green, usually with numerous pale spots, always with distinct darker longitudinal lines; marginal teeth 10-24 per 10 cm, 2-3 mm long, tipped with brown; inflorescence erect, up to 1 m high; racemes (1-)3-5(-7), (2-)4-22 cm long, lax to capitate; perianth 19-30(-35) mm long, with a distinct globose basal swelling, 4,5-7 mm wide when pressed, abruptly constricted into subcylindrical limb, 2,3-5 mm wide, red with paler margins to lobes, very rarely yellow; outer lobes free for 5-6 mm.

Open grassland, often between clumps of evergreen bushes, on rocky slopes to level areas with darker soil; 500-2200(-3000) m alt.

Very variable, "perhaps only dubiously separable from *A. lateritia* … and *A. saponaria* …" – Plants from high altitudes are smaller with very broad leaves.

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A. macrosiphon Baker – Icon.: J. S. Afric. Bot. 6: pl. 22, 1940 (sub nom. *A. mwanzana)* Reynolds, 1966: 177-179.

syn.: *A. compacta* Reynolds; *A. mwanzana* Christian

Perennial herb, suckering to form dense groups, often large; leaves in a compact rosette, erect and arching outwards; lamina lanceolate-attenuate, 50-70 × 5-10 cm at base, dark green and usually glossy, becoming bronzed in dry conditions, both surfaces with elongated whitish spots, small and dense on the lower surface; margin with pungent, forward-pointing, minutely brown-tipped teeth, 2-4 mm long, 8-15 mm apart, or more towards the apex; inflorescence erect, 0,75-1,5 m. high, rarely simple, usually with 2-8 erect branches from above the middle; racemes cylindric, 15-30 cm long, ± densely flowered; perianth bright red to pinkish red, yellow at the mouth, cylindric-trigonous, 27-33 mm long; outer segments free for ± l/3, with slightly recurved apices.

In shade at edge of thickets in grassland, often among rocks; 1125-1585 m alt.

Hybrids with *A. secundiflora* are reported from Tanzania (Bukoba).

(**A. maculata** All. 1773, non Medik. 1786, nec Forssk. 1775).

Guglielmone & al. (Bothalia 39: 177-183, 2009) have elucidated the nomenclature and typification of this species often put into synonymy under *A. obscura* Mill. 1768 (now considered to be of an unresolved application) or *A. saponaria* (Aiton) Haw. proposed by Gilbert & Sebsebe (1997) for conservation. The latter binomial has, however, not been conserved.

A. maculata "has one of the widest known distribution ranges of all aloes" occurring commonly from the Cape Peninsula (S. Africa) NE-wards to Swaziland – Lesotho – Mpumalanga "but apparently does not enter neighbouring Mozambique".

Glen & Hardy (Fl. south. Afr. 5/1: 53-55, 2000) reported *A. maculata* from Zimbabwe (Inyanga District). So did also Van Wyk & Smith, Guide to Aloes S. Africa: 206, 1996.

A. marlothii A. Berger – Icon.: Bot. Mag. 139: pl. 8484, 1913; Fl. Pl. S. Afr. 5: pl. 171, 1925; Reynolds, 1950: 480-482; Van Wyk & Smith, 2003: 63; J. S. Afric. Bot. 3: pl. 18, 1937 (sub nom. *A. spectabilis*); Cact. Succ. J. (US) 83: 5-8, 2011.

syn.: *A. ferox* var. *xanthostachys* A. Berger; *A. marlothii* var. *bicolor* Reynolds; *A. spectabilis* Reynolds; *A. supralaevis* var. *hanburyi* Baker (all of subsp. **marlothii**).

Note: *A. spectabilis* was reinstated as a good species by Klopper & Smith in Bothalia 40: 91-92, 2010. It occurs in NE S. Africa (Kwa-Zulu-Natal; map. l.c.).

Small tree 2-4(6) m high, usually solitary or sometimes suckering to form small groups of plants; stem simple, erect or decumbent, 1-3 m long, clothed in withered leaf remains; leaves in a dense rosette at the stem apex, spreading-erect to somewhat incurved; lamina to 1-1,5 m × 20-25 cm at base, lanceolate-attenuate, deeply channelled, dull greyish-green, often tinged reddish, without spots, both surfaces but especially the lower surface with scattered reddish-brown prickles 3-4 mm long, or both surfaces smooth; margin with pungent deltoid reddish-brown teeth 3-6 mm long and 10-20 mm apart; inflorescence erect to c. 80 cm tall above the leaf rosette; peduncle stout, 10-branched or more, the lower branches rebranched; branches spreading horizontally, subtended by brown scarious bracts c. 2 × 15 mm, with scattered sterile bracts below each raceme; racemes 30 or more, 15-50 × 5,5 cm, ± horizontal, densely flowered with the flowers secund along the upper edge of the rhachis; perianth golden-yellow to

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orange or reddish-orange, 25-35 mm long, c. 7 mm Ø across the ovary, enlarging to c. 11 mm at the middle then narrowing toward the mouth, cylindrical-ellipsoid; outer segments free for c. two-thirds, with tips spreading.

In stony, usually bare soils, often as the dominant species; 1000-1200 m alt.

Often cultivated.

SE Botswana, S. Africa, Swaziland.

Comprises 2 subspp.: – subsp. **marlothii** (see above); – subsp. **orientalis** Glen & D. S. Hardy – Icon.: Fl. Pl. Afr. 49: pl. 1943, 1987.

Plant suckering, with stems erect or decumbent, to 2(3) m long; leaf surfaces smooth, or the lower surface only with a few prickles; racemes 15-25 cm long.

Coastal grassland in sandy soil; 15-45 m alt.

S. Africa, Swaziland.

The pollination has been studied by Symes & Nicolson (S. Afric. J. Bot. 74:598-605, 2008; ibid 75: 668-674,2009).

Putative hybrids with. *A. greatheadii* and *A. lutescens* are reported by Hargreaves (Alsterworthia Int. 5/3: 6-15, 2005).

A. massawana Reynolds – Icon.: J. S. Afric. Bot. 25: pl. 18, 1959; Reynolds, 1966: 154; Newton, 2001: fig. XV f.

syn.: *A. kirkii* Baker (ambiguous synonym), cf. under *A. leptosiphon* above.

Perennial herb, acaulescent, solitary or suckering to form small groups; leaves in a compact rosette, erect then spreading and slightly recurved; lamina lanceolate-attenuate, 50-90 cm × 6-10 cm at base, bright green, sparsely white-spotted when young; margin with pungent, minutely brown-tipped, deltoid teeth, 1,5-5 mm long, 15-25 mm apart; inflorescence erect, 60-200(-230) cm. high, with 2-7 erect branches, rarely simple; racemes cylindrical, 15-35 cm long, subdensely flowered, the youngest buds ± enveloped by the bracts, with a few sterile bracts below each raceme; perianth pale red to dusty pink, pale yellow to whitish towards the mouth, cylindric-trigonous, 26-32 mm long; outer segments free to nearly halfway, with slightly spreading apices.

Sandy soils, in grass and open thickets near the sea-shore; 0-20 m alt.

According to Reynolds also from Mozambique and Eritrea. Carter (Fl. Trop. E. Afr., Aloaceae: 24, 1994) notes that the Eritrean material should be regarded with caution, and that it is more probable that *A. massawana* is synonymous with the poorly known *A. kirkii* Baker (Bot. Mag. 120: pl. 7386, 1894). She also notes that an unidentified species occurs along the seashore of Misali Isl. off the coast of Pemba Isl., Greenway 2766 (FTEA, l.c.: pl. 3).

Comprises 2 subspp.: – subsp. **massawana;** – subsp. **sakoankeke** (J.-B. Castillon) J.-B. Castillon (bas.: *A. sakoankenke* J.-B. Castillon) on Madagascar. Including this subspecies *A. massawana* is the only mainland African species also occurring on Madagascar (cf. Carter & al., 2011: 707).

However, *A. massawana* was most probably introduced, as suggested by Castillon (Carter in litt. 21.02.2012).

A. mawii Christian; Haworthiad 13/3: 94-95, 1999. – Icon.: J. S. Afric. Bot. 6: pl. 23, 1940; Reynolds, 1966: 237-240; Carter, 2001: 88; Lane, A field guide to the aloes of Malawi: 40, 2004.

Small tree 1-2(3) m high; stem erect, 5-12 cm Ø, simple to 1 m high then sometimes sparsely branched above, or sometimes decumbent, with a few suckers from the base forming a small group of plants; leaves in a dense rosette, erect-spreading with withered leaf remains persistent below the rosette; lamina 40-60 × 8-10 cm at base, lanceolate-attenuate, greyish-green, often with scattered spots on both surfaces of young leaves; margin pinkish, cartilaginous, with pungent orange-brown deltoid teeth 3-4 mm long and 7-14 mm apart; inflorescence 1 or occasionally 2, oblique, to 1 m long; peduncle simple or 1-branched, with a few sterile bracts below the racemes; raceme 25-45 × 5 cm, densely flowered, toothbrush-like, horizontal or almost so, with the flowers secund along the upper side of the rhachis; perianth bright red or orange, 20-40 mm long; outer segments free almost to the base.

On bare granite slopes, and in open grassland on rocky mountain slopes; on rocks in *Brachystegia* woodland; 300-1950 m alt.

Commonly grown in Zimbabwe gardens.

A. mcloughlinii Christian – Icon.: Fl. Pl. Afr. 28: pl. 1112, 1951; Reynolds, 1966: 64-65.

Rosettes solitary or in small groups, stemless or nearly so; leaves 40-50 × 7-8 cm, ascending to spreading with recurved tips, upper surface convex, dark green with numerous elongated pale spots; marginal teeth 7-10 per 10 cm, 3-4,5 mm long, with small reddish-brown tips; inflorescence 1-1,2 m high overall, branching above middle; racemes 6-11, erect, cylindrical, 11-20 cm long, lax (2-3 flowers per cm), sometimes secund on branches; perianth cylindrical to slightly conical, 17-20 × 5-7,5 mm when pressed, truncate at base, pink, lobes with paler margins so flower looks to be striped; outer lobes free for 10-16 mm.

Level stony ground with disturbed *Acacia* bushland, often growing with *Aloe megalacantha* and large *Sansevieria;* 1060-1250 m alt.

A. medishiana Reynolds & P. R. O. Bally – Icon.: J. S. Afric. Bot. 24: pl. 29, 1958; Reynolds, 1966: 307-308.; Lavranos in L. Russo, The Succulent Plants of Eastern Africa: 138, 2004.

Plants usually branched from the base, with slender stem to 2 m tall; leaves c. 24, crowded in a rosette at apex of stems, to 30 × 6 cm, sword-like, recurved, grey-green, unspotted; margins with white cartilaginous border and teeth, less than 1 mm long and 5-10 mm apart; inflorescences to 50 cm tall, with 3-8 ascending branches; racemes cylindric, 5-6 cm long, fairly dense; flowers dull red, nutant; perianth 19 mm long, 5 mm across the ovary, outer tepals free for 5-6 mm.

Hillsides with small shrubs and succulents, on limestone; "in large numbers on exposed rocky slopes"; 1400-1800 m alt.

The specimen Gillet & Watson 23506 cited by Lavranos in Fl. Somal. 4: 41, 1995, is a large-flowered *A. miskatana* (cf. Carter in Nord. J. Bot. 24: 247, 2006).

A. megalacantha Baker – Icon.: Fl. Pl. S. Afr. 26: pl. 1015, 1947; Reynolds, 1966: 295-297; Lavranos, 1995: 38.

Succulent shrub, 0,5-2 m high; leaves crowded, 60-80 × 13-15 cm, deeply canaliculate (impossible to flatten when making herbarium specimens), recurved, dull light-green to blue-green, marginal spines 5-7 per 10 cm, 5-6 mm long, pink- to red-brown; inflorescence 50-100 cm high; racemes 6-13, cylindrical to conical, 5-14 cm long, lax or dense; perianth cylindrical-trigonous, 23-30 × 4-7 mm when pressed, yellow orange or scarlet; outer segments free for 10-14 mm.

Comprises 2 subspp.: – subsp. **megalacantha** (syn.: *A. magnidentata* I. Verd. & Christian): bracts 4-7 mm long; racemes dense with (6-)7-10 flowers per cm; plant sessile or with sprawling stems.

On rocky hillsides and sandy alluvial plains in open (degraded) *Acacia-Commiphora-Balanites* bushland; on limestone or sand; frequently planted on graves; 1100-1850 m alt.

– subsp. **alticola** M. G. Gilbert & Sebsebe, Kew Bull. 52: 150, 1997.

Plant forming compact erect shrubs; bracts 11-12 mm long; racemes lax, 3-5 flowers per cm.

Margins of evergreen thickets on limestone slopes; 2100-2150 m alt. – In NC Ethiopia.

A. mendesii Reynolds; Van Jaarsveld in Aloe 47: 10-11, 2010; Bothalia 39: 29-30, 2009. – Icon.: J. S. Afric. Bot. 30: pl. 10, pl. 11, 1964; Reynolds, 1966: 170-171; Fl. Pl. Afr. 45: pl. 1764, 1978; Bradleya 29: 64-65, 2011.

Plant caulescent; stem pendulous, to 1 m long, 4 cm Ø; leaves ± 10, falcate, hanging downwards, 50 × 7-8 cm, green, obscurely lineate; marginal teeth 1-2 mm, blunt, cartilaginous, 10-15 mm apart; inflorescence to 60 cm long, pendulous with racemes arcuate-ascending, with 3-4 branches; racemes cylindrical-acuminate, 10 × 6 cm, sub-dense; flowers scarlet, 25 mm long, slightly ventricose, base rounded; tepals free for 20 mm.

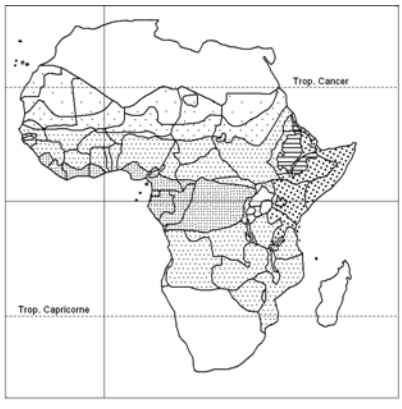
Vertical cliff faces; 2220 m alt.

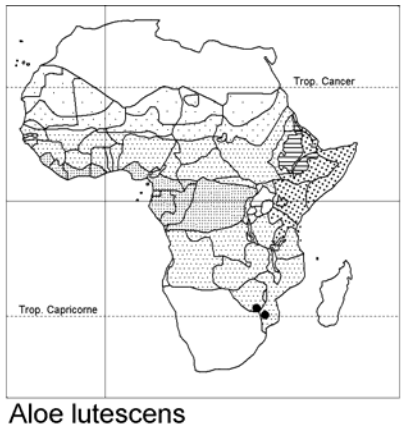
Not in Namibia (= *A. corallina* I. Verd).

A. menyharthii Baker – Icon.: Reynolds, 1966: 85, fig. 85 (sub nom. *A. swynnertonii);* Lane, A field guide to the aloes of Malawi: 28, 2004.

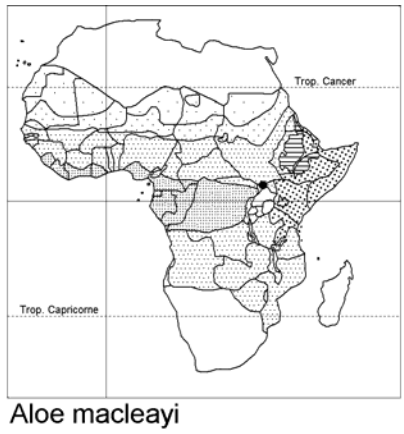
syn.: *A. swynnertonii* sensu Reynolds p.p. quoad locs. in Malawi and Mozambique, non Rendle

Perennial herb, solitary, or suckering to form small groups of plants, acaulescent; leaves in a compact rosette, spreading; lamina 20-60 × 4-9 cm toward the base, lanceolate or lanceolate-attenuate, the apical portion usually withered and twisted for up to 10 cm, dark greyish-green, conspicuously marked with elongated whitish blotches on the upper surface, obscurely lineate on the lower surface and usually without spots; margin cartilaginous and sometimes horny, with pungent deltoid red-brown teeth 2-5 mm long and 7-10 mm apart; inflorescence erect, 1-2 m high; peduncle up to 10-branched, the lowest branches sometimes rebranching; branches curving upwards, subtended by scarious, or sometimes leafy bracts to 9 cm long, the upper racemes ± on a level with the terminal one and with 1-2 small sterile bracts below each raceme; racemes 3-10 × 7 cm, capitate, ± densely flowered, becoming more lax below as the flowers develop; perianth coral-red to pinkish-scarlet, 25-30 mm long; outer segments free for c. 1/3 with tips scarcely spreading.

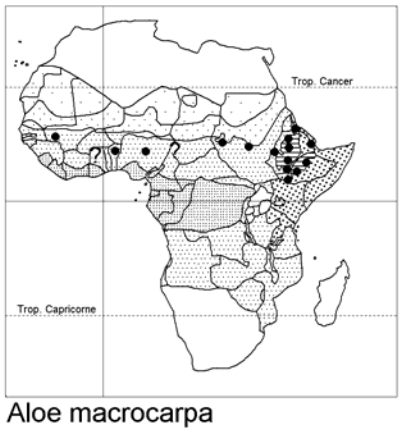




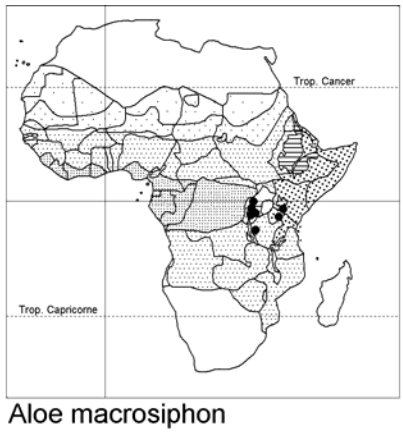
Aloe lutescens



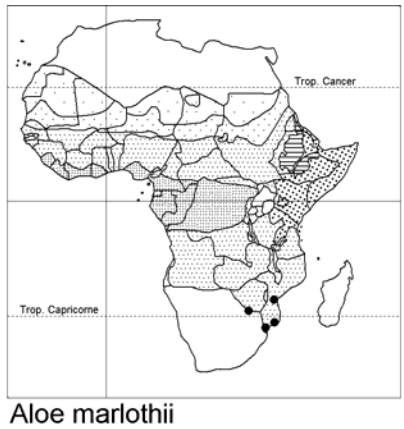
Aloe macleayi



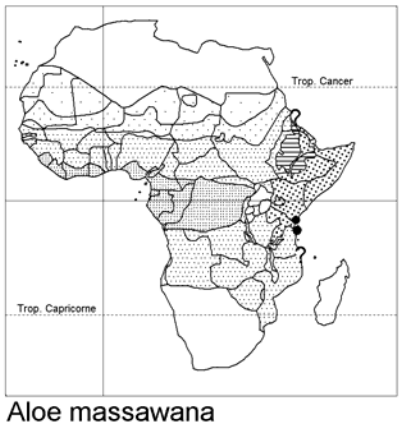
Aloe macrocarpa



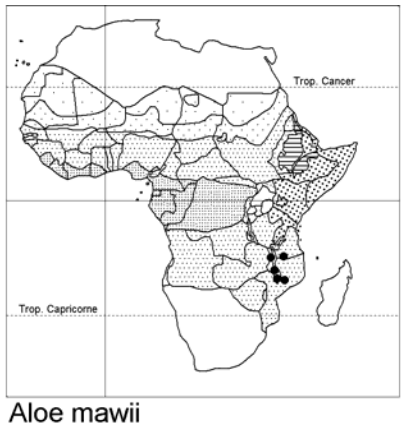
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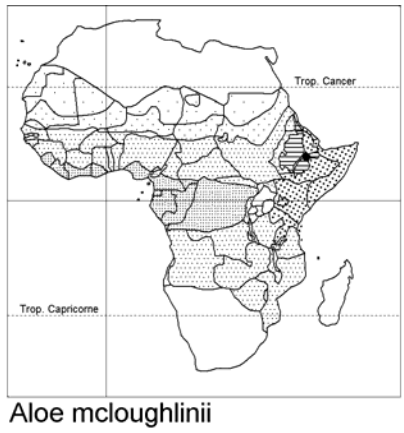
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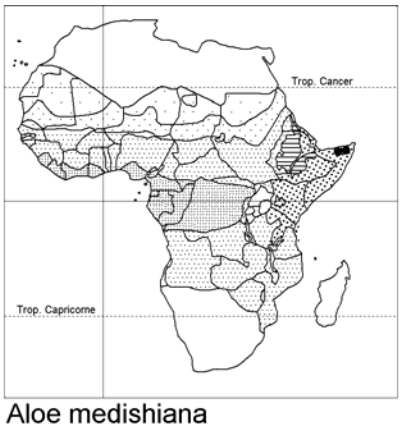
Aloe massawana



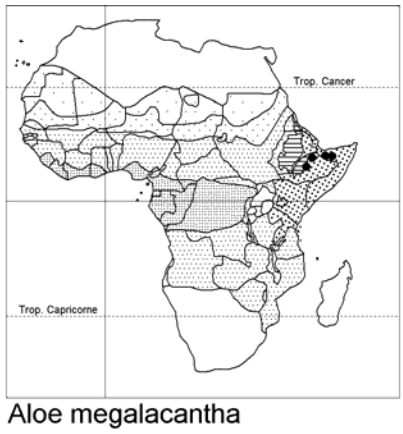
Aloe mawii



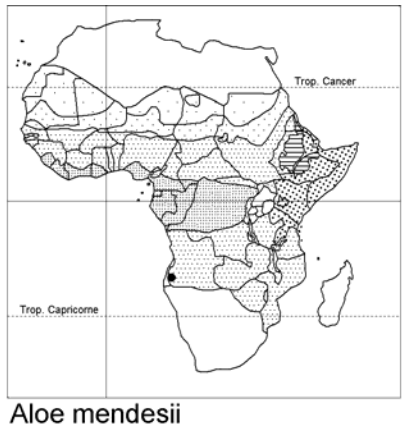
Aloe mcloughlinii



Aloe medishiana



Aloe megalacantha



Aloe mendesii

ALOE MENYHARTHII

In grass in open bush and *Brachystegia* woodland; 300-1500 m alt. (only in S. Malawi and adjacent Tete Prov.)

Copmprises 2 subspp.: – subsp. **menyharthii** (see above); – subsp. **ensifolia** S. Carter

Leaves 35-60 cm long, lanceolate-attenuate (ensiform), apical portion not usually withered, 3-5.5 cm wide toward the base; margin with teeth 2-4 mm long; racemes 4-12 cm long.

Grassland in sandy soil in open *Brachystegia* woodland; 130-700 m alt.

The closely related *A. swynnertonii*, with much longer leaves distinctly lineate on the lower surface and with marginal teeth much further apart, is separated geographically from this species by the Zambezi R. valley (Carter, 2001).

A. metallica Engl. & Gilg; Klopper & al. in Bothalia 39: 30, 2009. – Icon.: Reynolds, 1966: 152.

Plant acaulescent or shortly caulescent, simple; rosettes single; leaves ± 15, densely rosulate, lanceolate-attenuate, 25-40 × 7-9 cm, bluish-grey with metallic sheen, with slightly reddish-brown horny margin; marginal teeth 2-3 mm, pungent, reddish-brown, 10-20 mm apart; inflorescence to 1,2 m long, simple or with few branches; racemes cylindrical-acuminate, to 35 × 6 cm, subdense; bracts long, white, prominently nerved; flowers reddish-pink, 32 mm long, base rounded; tepals free for 13 mm.

Top of rocky gorge, between high sandstone rocks; 1300-1430 m alt.

A. microdonta Chiov. – Icon.: Reynolds, 1966: 301-302.

syn.: *A. defalcata* Chiov. (ambiguous synonym).

Perennial, shrubby herb, usually suckering to form eventually large groups, with slender decumbent stems to 1 m long; leaves in a compact rosette, spreading and strongly recurved; lamina lanceolate-attenuate, 50-70 × ± 10 cm at base, firm and dull dark green with a few pale streaks towards the base, upper surface deeply channelled; margin cartilaginous, with deltoid, sometimes minutely brown-tipped teeth 1-2,5 mm long, 1-2 cm apart; inflorescence erect to 2 m high, with 8-12 widely spreading branches, the lower ones rebranched; racemes cylindrical, 5-15 cm long, laxly flowered; perianth bright coral-pink, paler at the mouth, cylindric-trigonous, 18-23 mm long; outer segments free to ± halfway, with slightly spreading apices.

Sandy soils or on limestone in open *Acacia-Commiphora* bushland; 60-500 m alt.

Note: Very common in southern Somalia, especially near the Kenya border. It has been collected in Kenya only in the Galole area, but it should also occur throughout the bushland toward the eastern border (Carter, 1994).

A. defalcata Chiov. (Guidotti 64) from S Somalia (S3), seems to be a mixture of *A. microdonta* and *A. ruspoliana*, the only aloe species occurring in the area.

A. milne-redheadii Christian; Klopper & al. in Bothalia 39: 30, 2009. – Icon.: J. S. Afric. Bot. 6: pl. 18, 1940; Reynolds, 1966: 110-111; Williamson in Aloe 39: 86, 2002.

Perennial herb, suckering to form dense groups of plants, acaulescent or with a short stem; leaves in a dense rosette, erect and curving inwards; lamina 20-30 × 6-8 cm toward the base, ovate-lanceolate, greyish-green to brownish-green, densely whitish-spotted on both surfaces especially the lower with spots arranged in transverse bands; margin cartilaginous, with minutely brown-tipped teeth 2-3 mm long and 10-15 mm apart; inflorescence

ALOE MILNE-REDHEADII

erect, 60-90 cm high; peduncle 1-7-branched; branches spreading, subtended by deltoid-acuminate scarious many-nerved bracts 1,5-4 cm long, with several sterile bracts below each raceme; racemes 15-25 × 7-8 cm, cylindric, ± densely flowered; perianth bright coral-red, 28-35 mm long, c. 8 mm Ø across the ovary, slightly narrowed above, then slightly curved and widening toward the mouth, cylindric-trigonous; outer segments free for ± 1/3, with tips spreading.

On rock outcrops, ridges of hills; 1220-1375 m alt.

A. miskatana S. Carter – Icon.: Nordic J. Bot. 24: 246, 2006; Thulin, Fl. Somal. 3: 584, 2006.

syn.: *A. medishiana* sensu Lavranos in Fl. Somal. 4: 41,1995, p.p. quoad specim. Gillett & Watson 23506, non Reynolds & P. R. O. Bally

Plant tree-like, with stem erect to 2 m, naked below, simple or with several stems branching from the base; leaves lanceolate-attenuate, 30-36 × 3-7 cm, green, young leaves with a few scattered whitish spots on the upper surface, more dense on the lower surface; margins narrowly whitish cartilaginous, with forward-pointing triangular teeth c. 1 mm long, 5-9 mm apart; inflorescence to 70 cm long, erect, with 7-18 horizontally spreading branches in the upper part; peduncle with ovate scarious bracts to 6 mm long subtending the branches; racemes 4-12 cm long, rather lax; perianths pale yellow with greenish tips of segments, cylindrical-trigonous, 25-27 × 7-8 mm, base rounded, narrowing slightly above; outer segments free, c. 9 mm long; inner segments whitish with a dark median line.

Open rocky limestone slopes; 1000-1620 m alt.

This is close to *A. medishiana* and *A. gracilicaulis*, but has larger flowers (perianth 25-27 mm versus up to 19 mm long). Also inflorescences and bracts are larger, and pedicels are slightly longer (Lavranos in Flora of Somalia 3: 585, 2006).

A. molederana Lavranos & Glen – Icon.: Fl. Pl. Afr. 50: pl. 1982, 1989; Reynolds, 1966: 128-129 (sub nom. *A. tomentosa).*

syn.: *A. tomentosa* sensu Reynolds p.p. quoad locs. in Somalia, non Deflers (from N Yemen).

Plants stemless or with short decumbent stems, forming groups; leaves 16-20, 35 × 9 cm, lanceolate-triangular, spreading to falcately upcurved, bluish-grey to reddish; margins with very small teeth, 0,5 mm long, 20-80 mm apart, sometimes entire; inflorescences 60-70 cm tall with up to 4 branches; racemes elongate-conical, to 18 cm long, subdense; flowers rose-pink or reddish, tomentose, oblique-nutant; perianth 24-28 mm long, outer tepals free for 9 mm.

Low desert scrub, on gypsum; c. 1450 m alt.

A. monticola Reynolds – Icon.: J. S. Afric. Bot. 23: pl. 7-8, 1957; Reynolds, 1966: 281-282.

Plant stemless, usually solitary; leaves many, 43-52(-60) × 12-13,5(-18,5) cm, gently recurved, slightly canaliculate, glossy olive-green; marginal spines 9-16 per 10 cm, 3-5 mm long, brown with the horny tissue usually forming continuous edge between spines; inflorescence with 3-6(-8) racemes; racemes subcapitate to conical, 6-18 cm long, densely flowered; perianth cylindrical-trigonous, 26-32 × 6-7 mm when pressed, usually yellow, occasionally bright red; outer lobes free for 12-14 mm.

On steep bare mountain slopes of volcanic rock, with *A. percrassa* nearby; 2460 m alt.

Closely related to *A. harlana.*

ALOE

A. morijensis S. Carter & Brandham – Icon.: Newton in Haworthiad 13: 139, fig. 7, 1999.

Succulent shrub with stems to 1 m long, branching from the base and erect to 60 cm high, or decumbent and forming ± dense clumps; leaves crowded, spreading and slightly recurved, persistent; lamina ovate-attenuate, to 17 × 3 cm at base, bright green, spotted on both surfaces, especially the lower, often suffused with red; sheathing base weakly fibrous; margin with brown-tipped teeth 2-5 mm long and 5-15 mm apart; inflorescence erect to 50 cm high, simple or 1-2-branched, with a few sterile bracts below the racemes; racemes conical-cylindrical, to 20 × 6 cm, subdensely flowered; perianth bright orange-red, yellowish at the mouth, cylindrical, ± 28 mm. long; outer segments free for ± 7 mm., apices scarcely spreading.

Rocky slopes in grassed bushland; ± 2500 m alt.

A. mossurilensis Ellert; Alsterworthia Int. 8/1: 24, 2008, nom. inval. (type not indicated); Ellert in Alsterworthia Int. 10/1: 6, 2010 (validation of name). – Icon.: Alsterworthia Int. 8/1: 26-27, cover page.

syn.: *A. mossurilensis* Ellert in Succulenta 86: 127-132, 2007, nom. prov. inval.

A succulent herb forming clumps with 50-60 heads; stem caulescent, erect 40-60 cm, 1-4 cm Ø. suckering from the base at or below ground level; leaves smooth to the touch 25-50 per rosette and stems foliate 30-40 cm; inflorescence produced singly, erect up to 1,6 m tall, with up to seven branches 2-10 cm apart, each branch subtended by a roughly rectangular prominent bract; peduncle up to 1,06 m long very slender c. 12 mm Ø; perianth c. 30 mm long cylindric trigonous and slightly curved, c. 8 mm Ø. over the ovary; outer segments joined to about 2/3 from the base; inner segments with a prominent midvein from the base to very near the tip.

Coastal woodland; near sea level.

Resembling *A. vituensis*, but suckers profusely. Carter & al. (2011: 707) suggest it closer to *A. suffulta.*

Known only from the type gathering made during the early 1960s. The same clone cultivated in Bulawago (Zimbabwe), Tucson (Arizona, USA) and Port Edward (S. Africa).

A. mubendiensis Christian; Newton in Cactus & Succ. J. (US) 73: 157, 2001. – Icon.: J. S. Afric. Bot. 8: pl. 5, 1942; Reynolds, 1966: 260-261.

Perennial herb, acaulescent, suckering to form large, dense groups; leaves in a compact rosette, erect-spreading; lamina lanceolate, to 36 × 6,5 cm at base, greyish green, unspotted or usually sparsely spotted and obscurely lineate; margin cartilaginous, with deltoid, minutely brown-tipped teeth 3-4 mm long, 1-1,5 cm apart; inflorescence erect to 1 m high, with 5-10 widely spaced spreading branches, the lower ones rebranched; racemes cylindrical, 6-15 cm long, ± densely flowered; perianth red, yellowish at the mouth, 25-30 mm long; outer segments free for ± 1/3, with apices very slightly spreading.

Granite outcrops; 1220-1370 m alt.

Resembling *A. ngongensis* but much smaller and suckering more profusely. Also resembling *A. lolwensis* but smaller.

ALOE

A. multicolor L. E. Newton, Brit. Cact. Succ. J. 12: 51, 1994.

Shrubby perennial plant, branching from the base to form small clumps; stems erect to 1 m high, or decumbent to 2 m long; leaves in a compact rosette, spreading and recurved, with dried remains persistent below for ± 20 cm; lamina lanceolate-attenuate, 36-70 × 6,5-10 cm at base, very smooth and shiny, mid-green, becoming red-tinged in exposed situations, often with a few, scattered, whitish spots near the base of the lower surface; margin with deltoid, pungent teeth, 3-4 mm long, 8-10 mm apart; sap yellow; inflorescence erect to 60-75 cm high, with 5-8 spreading branches, the lowest ones sometimes rebranched; racemes cylindrical to subcapitate, 5-11 cm long, ± densely flowered; perianth multicoloured, with midribs of outer segments crimson and margins paler orange-red, midrib of inner segments red-brown and margins yellow to white, cylindric-trigonous, 20-25 mm long; outer segments free to more than halfway, with scarcely spreading apices.

Among rocks and low deciduous bushland; 1530-1800 m alt. – Only known from Mt. Kulal and Furrole Mt.

Critically endangered.

A. munchii Christian; Kimberley in Excelsa 20: 47, 2003. – Icon.: Fl. Pl. Afr. 28: pl. 1091, 1950; Reynolds, 1966: 320-322; West, 1992: pl. 28a & b; Munch in Excelsa 20: 43, 2003.

Shrub 3-5 m high, sparingly branched from near the base; leaves relatively thin, in a dense rosette at the apex of each branch, spreading, becoming recurved, persisting as dried leaf remains, but finally deciduous to leave the branch naked; lamina to c. 50 × 8 cm at base, lanceolate-attenuate, greyish-green, without spots, usually tinged pinkish-red; margin pinkish, cartilaginous with forward pointing teeth 1-1,5 mm long and 10-20 mm apart; inflorescences 1-2 from each rosette, erect, up to 60 cm tall; peduncle very stout, 2-3-branched; branches subtended by broad, deltoid, scarious bracts c. 1,5 × 1,5 mm, with a few sterile bracts below each raceme; racemes 10-12 × 10-14 cm, subcapitate, very densely flowered; "young racemes shaped like a pagoda"; perianth bright orange-scarlet, 35-45 mm long; outer segments free to the base, tips slightly spreading.

Woodland on mountain slopes, throughout quartzine, amongst large rocks; 1525-2135 m alt. – Endemic to the Chimanimani Mts.).

Partially fire resistent.

A. murina L. E. Newton, Taxon 41: 31, 1992.

Perennial herb, solitary, acaulescent or with a short prostrate stem to 15 cm long; leaves in a compact rosette, spreading; lamina lanceolate, 30-40 × 5-10 cm at base, dull dark green flushed reddish in exposed situations, surfaces rough; margin with pungent, deltoid, dark brown teeth 2-3 mm long, 7-12 mm apart; sap very pale yellow; inflorescence erect to 1 m high, with up to 13 widely spaced, spreading branches, the base of the flattened peduncle edged with several minute, forward-pointing spines; racemes 5-20 cm long, laxly flowered, secund in bud; perianth dull brownish red, heavily bloomed and appearing reddish grey, cylindric-trigonous, 23-25 mm long; outer segments free for ± 1/3, with slightly spreading apices.

Rocky slope above waterfall in deciduous woodland; 1500 m alt. – Masai District: Nguruman Escarpment.

First cited as holotype of *A. archeri* (living but sterile collection of P. Archer, but no specimen prepared). Holotype: cult. Newton 3497, K.

Known only from the type.

ALOE

A. musapana Reynolds – Icon.: J. S. Afric. Bot. 30: pl. 22, 1964; Reynolds, 1966: 21-22; West, 1992: pl. 5; Kimberley in Haworthiad 18/3: 86, 2004, and in Excelsa 20: 61, 2003.

Perennial herb, suckering to produce a dense cluster of pendent stems, branching from the base and above, forming clumps to 2,5 m Ø; stems 20-100 cm long, c. 1 cm Ø; leaves distichous, pendent, crowded at the stem apex, 25-40 × 1-1,5 cm, linear, tapering to a bluntly acute apex, slightly channelled on the upper surface, fleshy, dark green, dark purplish in times of drought, dull white-spotted on both surfaces near the base, more densely so on the lower surface; margin with minute, white, cartilaginous teeth 1-2 mm apart, often absent toward the apex; inflorescence simple, to 30-45 cm long, pendent and curving upward to bear the raceme erect; peduncle with several small, sterile, broadly ovate brownish bracts 2-4 cm apart on the upper half; raceme 5-15 × 6 cm, conical-cylindric, ± laxly flowered; perianth scarlet, green-tipped, 28-30 mm long; outer segments free to the base with tips slightly spreading.

On sheer rock faces with southern and western aspects, in sun; 1900-2060 m alt.

Known from Zimbabwe (Chimanimani Mts.); could occur in Mozambique.

Easily propagated from cuttings. "In cultivation, plants increase rather quickly, especially if watered, and flower prolifically".

A natural hybrid with *A. arborescens* is recorded.

A. myriacantha (Haw.) Schult. & Schult. f., excl. var. *minor* (Baker) A. Berger (= *A. albida* in S. Africa). – Icon.: Fl. Pl. S. Afr. 20: pl. 799, 1940 (sub nom. *A. johnstonii);* Reynolds, 1950: 116-117; Van Wyk & Smith, 2003: 287; Craib, Grass Aloes in the South African Veld: 95, 2005; Newton in Ballya 5/3: 58, 1998.

bas.: *Bowiea myriacantha* Haw., as *"myriocantha" (Hyacinthaceae).*

syn.: *Aloe caricina* A. Berger; *A. graminifolia* A. Berger; *A. johnstonii* Baker; *Leptaloe caricina* (A. Berger) Stapf; *Leptaloe graminifolia* (A. Berger) Stapf; *Leptaloe johnstonii* (Baker) Christian; *Leptaloe myriacantha* (Haw.) Stapf; *Leptaloe schliebenii* Poelln. – *A. caricina* A. Berger is based upon probably immature material of the gathering Uhlig 1079, the mature portion of which Berger used as one of the syntypes of *A. graminifolia* (Carter 1994: 9).

Perennial herb, solitary, acaulescent, with thick fleshy roots from a corm-like base c. 3 cm long; leaves rosulate, grass-like, sheathing the stem for 2-5 cm at and below ground-level; lamina erect, up to 40 × 0,4-1 cm, linear, ± fleshy, channelled on the upper surface, usually densely white-spotted on the lower surface towards the base and sometimes spinulescent; margin with minute cartilaginous teeth 1-2 mm apart at the base, more distant towards the apex; inflorescence erect, up to 50 cm high, unbranched; peduncle with sterile papery bracts on the upper half 2-3 cm apart; raceme to 8 × 6 cm, capitate, densely flowered; perianth greenish-white to pink, 15-20 mm long; outer segments free to the base with tips rounded.

Widespread but not common in montane grassland subject to periodical fires; among rocks in short high-altitude grassland; 600-2630 m alt.

Variable in colour of flowers: greenish white to greyish, mauve or pink.

S. Africa, Swaziland.

One of the most widespread of all aloes with a N-S range of > 5000 km.

ALOE

A. mzimbana I. Verd. & Christian – Icon.: Fl. Pl. S. Afr. 21: pl. 838, 1941; Reynolds, 1966: 112-113; Carter, 2001: 78; Lane, A field guide to the aloes of Malawi: 21, 23, 2004; Williamson in Aloe 39: 87, 2002; ibid. 43: 54, 56, 2006.

Perennial herb, suckering to form dense groups of plants, acaulescent; leaves in a dense rosette, erect-spreading but curving inwards in the dry season; lamina 20-35 × 7-8 cm toward the base, ovate-lanceolate, greyish-green, with few to many large, elongated, whitish spots on both surfaces; margin with pungent deltoid brown-tipped teeth 2-3 mm long and 8-10(15) mm apart; sap yellow; inflorescence erect to 60 cm high; peduncle 1-3(6)-branched; branches spreading, with several sterile bracts below each raceme; racemes 8-15 × 6 cm, subcapitate, very densely flowered; perianth bright coral-red, 30-35 mm long; outer segments free for c. 1/3, with tips scarcely spreading.

Montane and watershed grassland, *Brachystegia* woodland, on rock outcrops; 800-2300 m alt.

Variable in colour of leaves and shape of racemes; populations from Tanzania – Zambia tend to have spotted leaves and capitate racemes; those from near the type locality in Malawi have ± unspotted leaves and more cylindrical racemes.

A. namibensis Giess – Icon.: Fl. Pl. Afr. 44: pl. 1730, 1977; Rothmann, Aloes, Aristocrats of Namibian Flora: 74-75, 2004; Van Jaarsveld in Aloe 47: 23, 2010.

Stemless erect plant 0,6-1 m tall (excluded inflorescence), usually solitary; leaves 20-32, arcuate-ascending, 37-50 × 6-7cm, glaucous; inflorescence 2-4-branched from c. the middle, to c. 1 m tall; raceme dense, cylindric; flowers brilliant red, 20-30 mm long, cylindric-ventricose; outer segments free to base, inner segments free but dorsally adnate to outer ones in lower half.

Quartz outcrop; c. 190 m. alt.

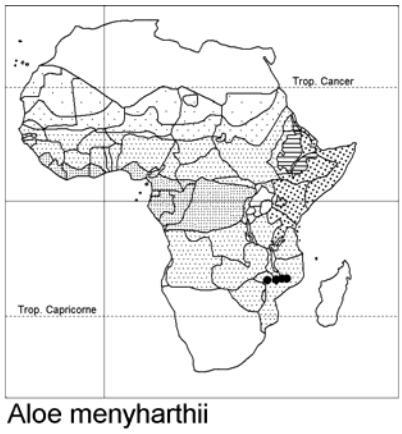
Namibia (edge of the central Namib Desert, N of c. 23° S). Not figuring in any recent list for Angola, such as Figueiredo & Smith, Pl. Angola: 22 (2008) or Klopper & al. in Bothalia 39: 30 (2009). But found recently by Van Jaarsveld & al. (Aloe 47: 23, 24, 26, 2010) during their expedition to SW Angola. It is said to be "widespread along the coast from Namibia to southern Angola".

A. neosteudneri Lavranos & McCoy – Icon.: Bradleya 25: 11, 14, 2007; Bot. Mag. 138: pl. 8448, 1912 (sub nom. *A. steudneri).*

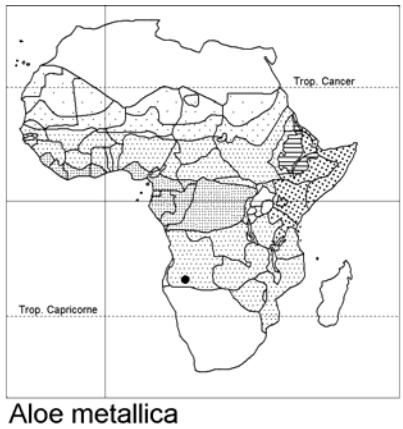
syn.: *A. steudneri* auct. p.p. quoad locs. in Eritrea. Type: Penzig 1424, April 1891.

Plants usually solitary, occasionally dividing into two or three rosettes, the stem to 30 cm long and 9 cm thick, covered in persistent leaf-remains; leaves up to 35 in an open rosette, horizontally spreading, 40-60 × 8-12 cm, deltoid-acute, bluish or glaucous, longitudinally lineate or striate; margins cartilaginous, greenish or pink-red, armed with rather soft marginal teeth, 1-2 mm long, 7-9 mm apart; sap dries yellowish-brown; inflorescences erect, simple or with up to four branches from below the middle; peduncle stout, with numerous, scarious sterile bracts; racemes cylindric-conical, sublaxly flowered, 12-35 cm long; flowers pinkish-red, spreading at first, then pendent; perianth glabrous, cylindrical, 36-38 mm long, 5-7 mm across the ovary, outer segments free to base.

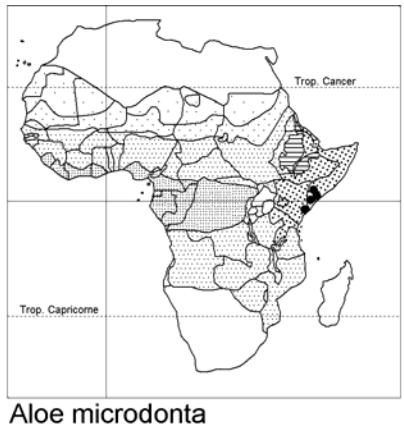
Mountain summit; 2400-2500 m alt. (Jebel Saber, Eritrea).



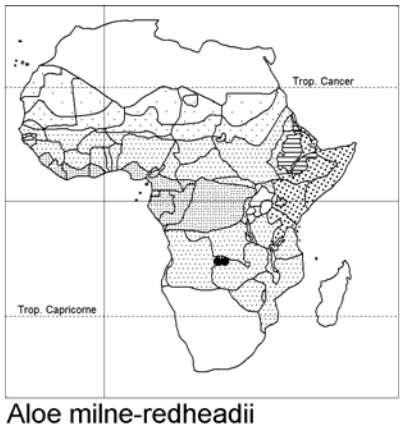
Aloe menyharthii



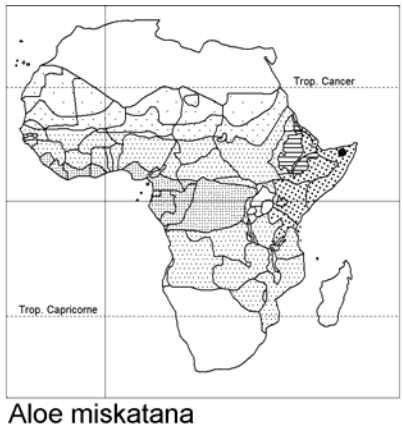
Aloe metallica



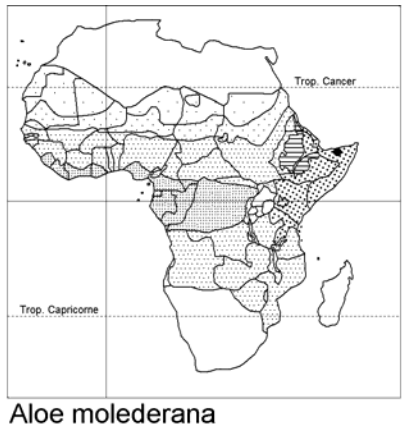
Aloe microdonta



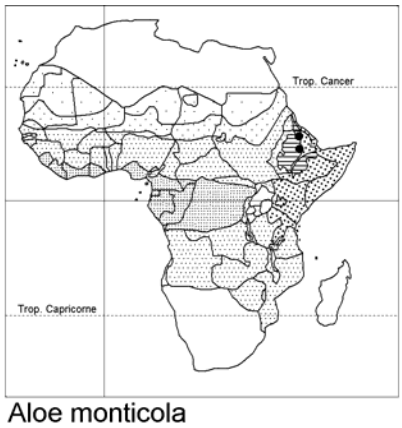
Aloe milne-redheadii



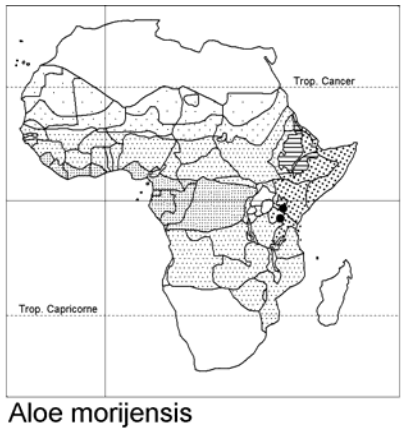
Aloe miskatana



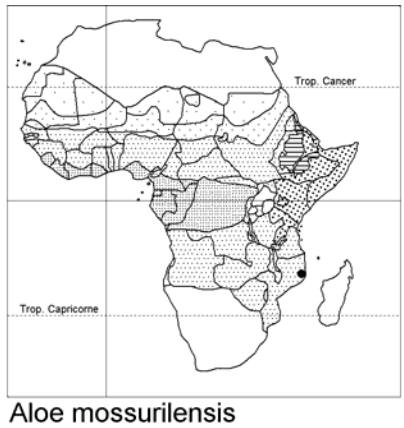
Aloe molederana



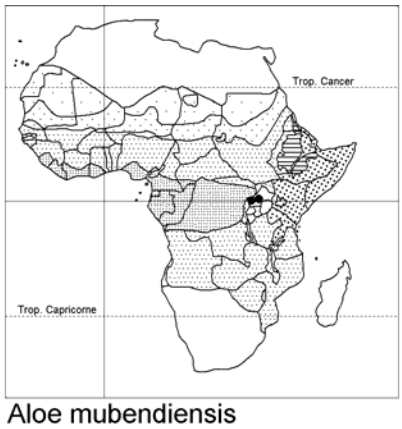
Aloe monticola



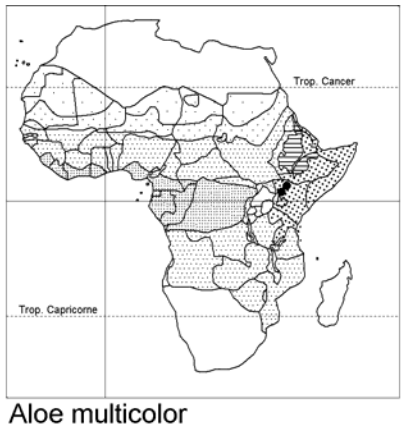
Aloe morijensis



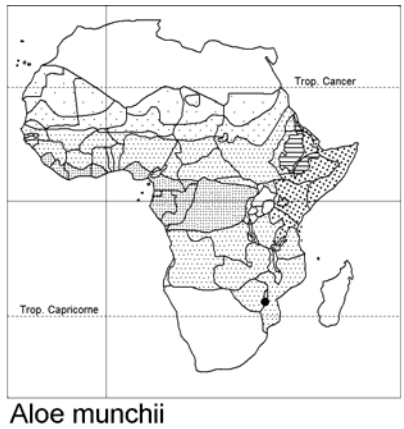
Aloe mossurilensis



Aloe mubendiensis



Aloe multicolor



Aloe munchii

ALOE

A. ngongensis Christian – Icon.: J. S. Afric. Bot. 8: pl. 4, 1942; Reynolds, 1966: 366-367 (sub nom. *A. rabaiensis);* Carter, 1994: 50.

syn.: *A. rabaiensis* sensu Reynolds p.p., non Rendle

Shrub 1-1,5 m high, with erect stems branching from the base; leaves crowded, suberect at the stem apices, later spreading and finally recurved and clothing the lower part of the stem with dried persistent remains; lamina lanceolate-attenuate, 30-60 × 5-10 cm towards the base, fleshy, bluish green, sometimes tinged purplish, young leaves sometimes spotted on the lower surface; margin with brown-tipped teeth 3-4 mm long and 5-10 mm apart; sap brown; inflorescence erect to 60 cm high, with 6-8 branches curving upwards, the lowest sometimes rebranching; racemes subcapitate, ± 6 × 8 cm, densely flowered; perianth bright glossy scarlet, yellowish at the mouth, green-tipped in bud, cylindric-trigonous, 25-30 mm long; outer segments free for less than 1/3, apices slightly spreading.

Rocky ground, in open deciduous woodland or at the forest-edge; on red loam soil on the edges of clumps of trees; 1370-1900 m alt.

Resembling *A. rabaiensis* but stouter, leaves more glaucous, racemes more densely flowered.

Hybrids with *A. secundiflora* known (Newton in J. E. Afric. Nat. Hist. 84: 143, 1995). Perhaps also with *A. volkensii* subsp. *multicaulis* (ibid.).

(**A. nordaliae** Wabuyele, Studies on eastern African aloes, part V: 18-19, 2006).

Suckering plant with sub-erect stem to 30 cm long, forming clumps; leaves in loose rosettes, lanceolate, thin, flexible, c. 38 × 7 cm, green with red tinge, spotted on both surfaces in young plants, lower mature leaves spotted beneath; marginal teeth dark brown at base, light brown apically, deltoid but hooked towards apex, 4 teeth per 5 cm margin, 3-4 mm long; sap yellow, runny, drying rusty brown; inflorescence to 2 m tall, 6-10-branched; racemes cylindrical, to 16 cm long, laxly flowered (6 flowers per 5 cm); bracteoles 8-9 × 3,5-5 mm, 4-5-nerved; pedicels 4-8 mm long; flowers secund; perianth pinkish red, yellow at mouth, cylindrical, 3,2-3,4 cm long, 0,9 cm across the ovary, outer tepals free to 1/3 or less; stamens exserted; capsule unknown.

Ecology not recorded.

Known only from type, collected in 2004.

Near *A. secundiflora*, but caulescent, leaves thinner, bracts longer than pedicels, perianth segments fused for c. 2/3.

The collection site falls within the small distribution of *A. leachii.* Wabuyele did not examine any material of the latter species. Carter suggests it to be a probable synonym of *A. leachii* (Carter & al., Aloes: 326, 2011), however, she has not seen Wabuyele's specimens (Carter in litt. 23.02.2012).

A. nugalensis Thulin, prov. name in Svensk Bot. Tidskr. 105: 28, 2011 Mapped by us.

A. nuttii Baker – Icon.: Hook. Icon. Pl. 26: t. 2513, 1897; Fl. Pl. S. Afr. 20: pl. 762, 1940; Fl. Pl. S. Afr. 20: pl. 785, 1940 (sub nom. *A. mketiensis);* Reynolds, 1966: 33-35; Carter, 2001: 65; Lane, A field guide to the aloes of Malawi: 9, 2004; Williamson in Aloe 39: 83, 2002.

syn.: *A. brunneo-punctata* Engl. & Gilg; *A. corbisieri* De Wild.; *A. mketiensis* Christian

Perennial herb, solitary, or suckering to produce a cluster of 2-12 stems up to 20 cm long and 1,5-3 cm thick; leaves rosulate, erect, grass-like, 40-50 × c. 1,5 cm, expanded to c. 4 cm wide at base, tapering towards the apex, channelled on the upper surface, ± fleshy, bright green, white-spotted towards the base especially on the lower surface and occasionally spinulescent; margin with minute white cartilaginous teeth crowded at the leaf base, the teeth usually obsolescent towards the apex; inflorescence simple, erect, to 60-80 cm high; peduncle with large, orange-brown, sterile, papery bracts on the upper half, 2-4 cm apart; raceme 15-25 × 8 cm, cylindric, ± densely flowered, with overlapping bracts in bud; perianth coral-pink to orange-red, green-tipped, 35-40 mm long; outer segments free for 1/3-3/4 with tips slightly spreading.

In montane and dambo grasslands, high rainfall *Brachystegia* woodlands; often on rocky slopes; 1250-2650 m alt.

Variable in width of leaves and size of flowers, influenced by local ecological conditions. Plants on rocky slopes are smaller in all parts than those in grassland.

A. nyeriensis Christian, excl. subsp. *kedongensis* (Reynolds) S. Carter (= *A. kedongensis).* – Icon.: Fl. Pl. Afr. 29: pl. 1126, 1952; Reynolds, 1966: 380-381.

syn.: *A. ngobitensis* Reynolds

Shrub 1-3 m high, with stems branching at or near the base; stems erect, 4,5-7 cm thick; leaves laxly crowded towards the stem apex, spreading, then drooping and clothing the upper part of the stem with dried persistent remains, deciduous below to leave the stem naked; lamina lanceolate to 55 × 8 cm towards the base, fleshy, greyish green, young leaves often spotted on both surfaces; margin with brown-tipped, forward-pointing teeth 3-4 mm long, 10-12 mm apart; sap watery yellow; inflorescence erect, 50-80 cm high, with usually 3-6 branches curving upwards, the lowest occasionally rebranched; racemes subcapitate to cylindric, 8-20 × 7 cm, densely flowered; perianth bright scarlet, often glossy, green-tipped in bud, cylindric, 35-40 mm long; outer segments free for 1/3, apices spreading.

Fairly open *Acacia* bushland, on rocky soils; sometimes forming thickets; 1760-2100 m alt.

Natural hybrids with *A. lateritia* var. *graminicola* reported.

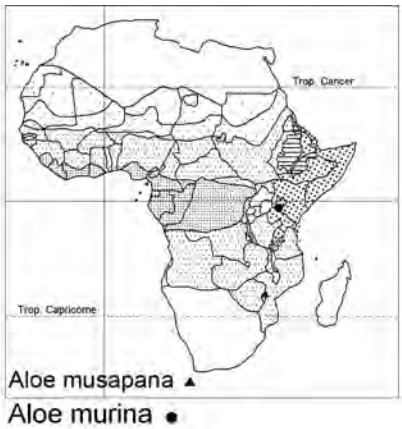
A. omavandae van Jaarsv. – Icon.: Haseltonia 10: 42-43, 2004; Fl. Pl. Afr. 59: pl. 2201, 2005.

Plants usually solitary, pendent (cremnophilous) with stems to 22 cm long, 3,5-5,5 cm Ø; weighing up to 4,5 kg when adult; leaves numerous (c. 25 functional) in a dense rosette, arcuate-pendent, becoming mitriform in dry season, triangular-lanceolate, 30-47 × 6,5-8,5 cm; upper surface flat, channeled in upper half, pale to grey green, fading to pinkish green, sparsely white-spotted in lower 1/3, densely white-spotted in obscure bands beneath; margin with small deltoid-acuminate, reddish-brown teeth 1-1,5 mm long, l0-15 mm apart, arising from white cartilaginous margin; inflorescence 1-2, 50-70 cm long, pendent, with 2-4 lateral branches in upper half, racemes arcuate-ascending 14-30 cm 1ong; perianth orange-red, grey-tipped in bud, cylindric-trigonous, subclavate, 23-25 mm long, 5 mm Ø.

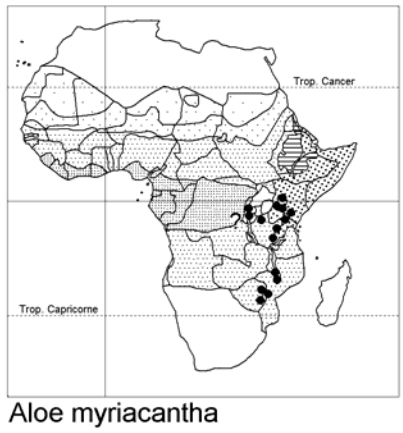
Cliffs (shale).

First discovered in 2002 at Omavanda, NE Baynes Mts (NW Namibia, Kaokoveld), above 1500 m alt., on sandstone cliffs. Found in SW Angola Iona Natl. Park, in 2009 (Van Jaarsveld in Aloe 47: 4-5, 27-30, photo. p. 30, 2010). Here it was common in the Iona Peak area in cliff fissures, "but out of reach".

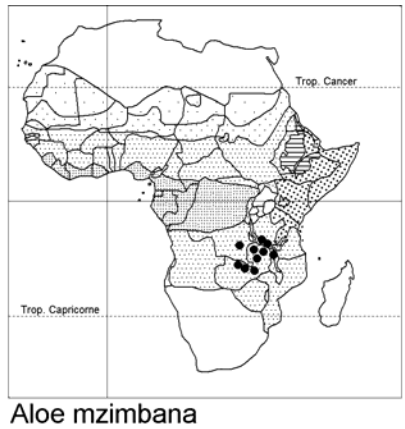
Superficially resembling *A. littoralis.* Related to *A. corallina* I. Verd. in the same area (Namibia).



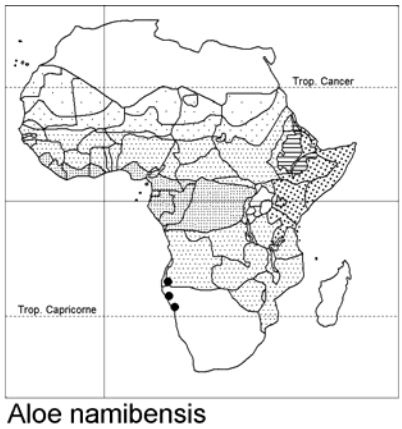
Aloe musapana ▲
Aloe murina ●



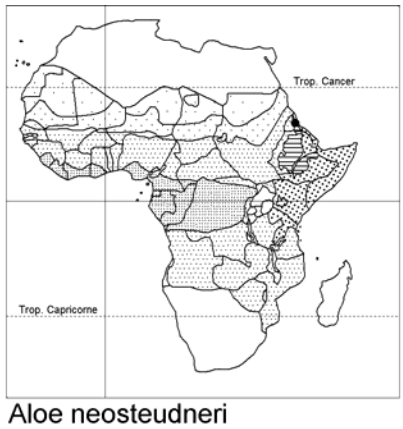
Aloe myriacantha



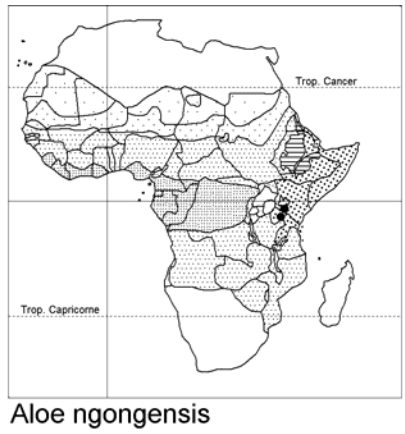
Aloe mzimbana



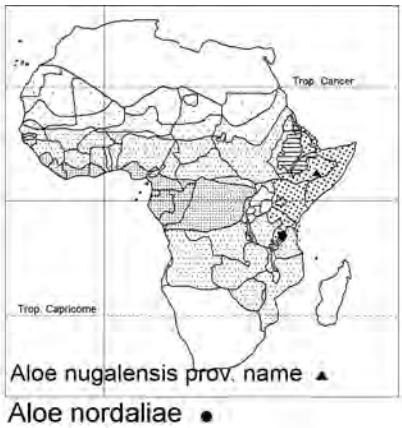
Aloe namibensis



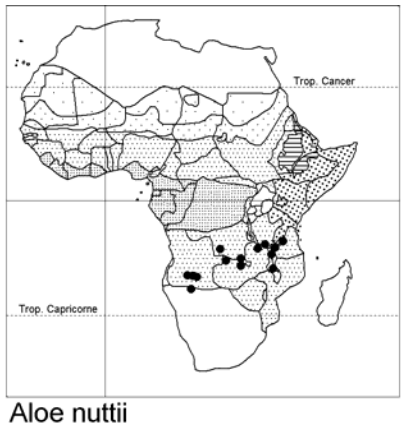
Aloe neosteudneri



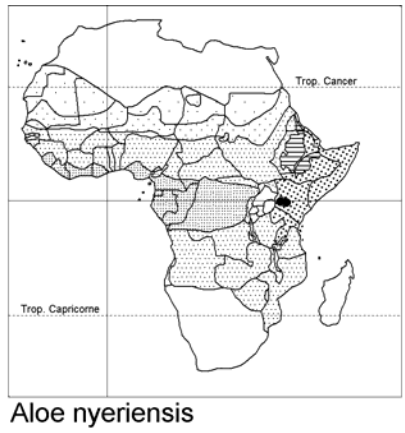
Aloe ngongensis



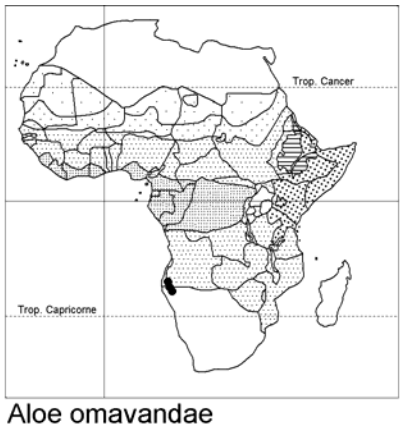
Aloe nugalensis prov. name ▲
Aloe nordaliae ●



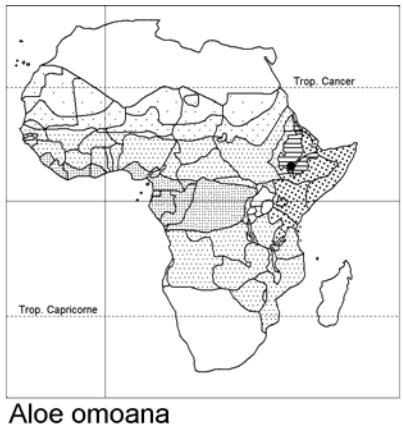
Aloe nuttii



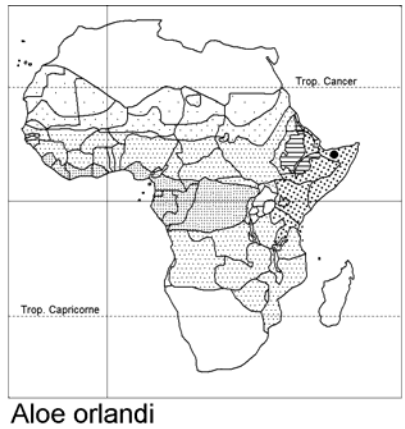
Aloe nyeriensis



Aloe omavandae



Aloe omoana



Aloe orlandi

A. omoana McCoy & Lavranos, CactusWorld 25: 139, 2007. – Icon.: ibid.: 140.

Plants solitary, acaulescent or with a very short stem to 10 cm long; leaves 16-20, spreading, with recurved apices, to 65 × 8,5 cm at base, narrowing to an acute apex; upper surface glossy green, unspotted, flat low down, becoming canaliculate above, lower surface dull green, slightly convex; leaf margins red, cartilaginous, armed with bright red, forward facing 5 × 5 mm teeth, spaced l-2 cm apart; sap yellow, drying yellow; inflorescences to 1,2 m tall, often sub-erect, usually 2 or more produced simultaneously; peduncle 15 mm wide at base, covered in a waxy bloom, branched at about its mid-point, with 7 or more ascending branches; racemes cylindrical, secund in bud, subdensely flowered, the terminal to 15 cm long; perianth yellow or red, glabrous, 30 mm long, 7 mm wide across the ovary, outer segments free for 12 mm.

Basalt slopes on a SW facing cliff, on exposed portions in otherwise wellvegetated place; 1840 m alt.

Ethiopia, near the headwaters of the Omo river.

Known only from the type gathering made in 2002.

A. orlandi Lavranos, Cact. Succ. J. (US) 78: 65, 2006; Lauchs in Kakteen & Sukk. 57: 325, 2006. – Icon.: Lavranos, o.ci.: 62-64.

Plants diminutive, suckering and forming small groups, heavily pruinose throughout, including the inflorescence and individual flowers; leaves fleshy, 4-9 in stemless rosettes, 60-90 × 35 mm, suberect at first, spreading later and apically recurved, narrowly deltoid with an acute, slightly recurved apex, canaliculate above, convex below, bluish-green, turning purple in intense light, covered on both sides with whitish, lenticular, irregularly disposed spots of varying sizes, their pale margins bearing white teeth, 1 mm long and 3-4 mm apart; inflorescence simple, 35 cm tall, bearing up to 40, very laxly disposed flowers in a raceme up to 17 cm long; peduncle purple-brown with a few ovate, white, dark-nerved, sterile bracts; flowers spreading; perianth cylindric, about 15 mm long, the outer segments free for 4-5 mm, terminating in a slightly recurved and rounded apex and bearing three heavy green nerves that are confluent towards their tips.

On dry stony ground with a few stunted acacias ("there was virtually no vegetation"). Plants half buried in the rocky clay soil; 1760 m alt.

Known only from the type gathering made in 2003.

Species epithet published as *orlandi*. In the *Aloe* list given in *Alsterworthia Int.* 10/2: 14, 2010, it is changed to *orlandoi* "cf. ICBN Rec. 60C1(a)". However, the name Orlando could as well be considered under 20C.2, and thus keep the original spelling.

A. ortholopha Christian & Milne-Redh. – Icon.: Fl. Pl. S. Afr. 23: pl. 882, 1943; Reynolds, 1966: 235-236; West, 1992: pl. 20c & d, pl. 21; Kimberley in Aloe 33: 92, 1996; Cact. & Succ. J. (US) 75: 73, 2003.

Perennial herb, solitary, acaulescent; leaves in a dense rosette, erect and slightly incurved; lamina 40-50 × 10-14 cm toward the base, ovate-lanceolate, greenish-grey, tinged pinkish especially in dry conditions, without spots; margin pinkish, with pungent deltoid light brown teeth 2-3 mm long and 8-10 mm apart; inflorescence 1, occasionally 2, erect to c. 90 cm high; peduncle 1-4-branched; branches horizontally spreading subtended by scarious deltoid bracts c. 10 × 14 mm, with a few sterile bracts below each raceme; racemes 30-40 × 4,5 cm, densely flowered, horizontal with the flowers secund along the upper side of the rhachis; perianth brilliant coral-red to orange, rarely yellow, 35-42 mm long; outer segments free for c. three-quarters, with tips not recurved.

Only on serpentine soils, in open grassland on rocky slopes; 1450-1525 m alt.

Zimbabwe, N Great Dyke mining area; threatened by destruction of land and "unscrupulous dealers and greedy collectors" (Kimberley in Ingens Bull. 29: 18, 2003).

A. otallensis Baker, excl. var. *elongata* A. Berger *(= A. rugosifolia);* Sebsebe & al., Biol. Skr. 54: 239, 2001 (map). – Icon.: Carter & al., 2011.

syn.: *A. boranensis* Cufod.; *A. wrefordii* sensu Reynolds p.p. quoad locs. in Ethiopia, non s. str.

Plant solitary or forming small clumps, stemless; leaves c. 24 in a rosette, erect to slightly recurved, 35-70(-80) × 6,5-10 cm, canaliculate, grey-green, sometimes very finely spotted, seedlings conspicuously spotted; marginal teeth 8-14 per 10 cm, 3-4,5 mm long, reddish-brown; inflorescences glaucous throughout, branched; racemes up to 12, erect, 5-8 cm long, cylindrical, very dense with overlapping bracts; perianth cylindrical to clavate, 19-23(-27) × 4,5-6 mm when pressed, pale pink with grey or yellow tip; outer lobes free for c. 10 mm, with conspicuous warty or papillose midrib.

Open *Acacia* bushland, often on dark soils; 1200-1600 m alt.

A. palmiformis Baker; Klopper & al. in Bothalia 39: 31-32, 2009. – Icon.: Reynolds, 1966: 354-355; Smith & Figueiredo in Cact. & Succ. J. (US) 83: 23-26, 2011.

Plant caulescent, branching mostly at base; "resembling a pretty little palm" (Welwitsch who collected it in 1860); stem erect, to 1,5 m high, 4 cm Ø; leaves ± 14, laxly rosulate and persisting to 30 cm below stem tip, lanceolate-attenuate, to 30 × 5 cm, dull green tinged reddish, lower face usually with many small pale green spots towards base; marginal teeth 4-5 mm, pungent, pale brown, 10 mm apart; sheath 10 mm, lineate; inflorescence 40-50 cm long, with up to 4 branches; racemes cylindrical, slightly acuminate, 10-20 × 7 cm, sub-dense; flowers rose-scarlet, 30 mm long, base very shortly attenuate; tepals free for 10 mm.

Sandstone rocks in woodland; exposed sandstone outcrop on shallow bedrock with *Sarcostemma viminale, Euphorbia opuntioides;* rocky outcrops; locally common; 1250-1500 m alt.

Allied to *A. gossweileri.*

A. parvibracteata Schönland – Icon.: Fl. Pl. S. Afr. 16: pl. 603, 1936 (sub nom. *A. pongolensis);* Reynolds, 1950: 276-277; Van Wyk & Smith, 2003: 217.

syn.: *A. burgersfortensis* Reynolds; *A. decurvidens* Groenew.; *A. keithii* Reynolds; *A. komatiensis* Reynolds; *A. lusitanica* Groenew.; *A. parvibracteata* var. *zuluensis* (Reynolds) Reynolds; *A. pongolensis* Reynolds; *A. pongolensis* var. *zuluensis* Reynolds

Perennial herb, suckering to form large groups of plants, acaulescent or with a short thick stem to c. 5 cm long; leaves in a compact flattened rosette, spreading widely; lamina 20-40 × 3-8 cm toward the base, lanceolate, dark brownish-green, with conspicuous oblong whitish spots more or less in transverse bands on the upper surface, usually spotted on the lower surface; margin with pungent deltoid brown-tipped teeth 3-5 mm long, 8-15 mm apart; sap purplish; inflorescence erect, 0,5-1,5 m high; peduncle slender, 3-8-branched, the lowest branches

occasionally rebranched; branches suberect, subtended by scarious bracts to 2 cm long; racemes 10-20 × 7 cm, cylindric, laxly flowered; perianth dull-red with pale margins to the segments to ± halfway, 25-30 mm long; outer segments free for one-third with widely spreading tips.

Grassland with scattered trees and shrubs, often in seasonally swampy areas or near water-courses; 0-1500 m alt.

According to Carter (Fl. Zambes. 12/3: 70, 2001) *A. monteiroi* Baker could possibly belong here. Described from a plant cultivated at Kew but originating from Delagoa Bay.

S. Africa, Swaziland.

A. parvidens M. G. Gilbert & Sebsebe, Kew Bull. 47: 650, 1992. – Icon.: Reynolds, 1966: 67-68 (sub nom. *A. pirottae).*

syn.: *A. pirottae* sensu Reynolds, non A. Berger nec Chiov.

Rosettes solitary or in small groups, stemless or nearly so; leaves spreading with recurved tips, 25-42 × 4,5-6,5(-9) cm, dark green to almost brown with many elliptical pale spots; marginal teeth 8-13 per 10 cm, 1-2,5 mm long with minute brown tips; inflorescence up to 1(-1,2) m high; racemes (1-3-)4-8, erect, cylindrical sometimes subsecund, 9-20 cm long, lax (2-3 flowers per cm); perianth cylindrical-trigonous, 26-30 × 4-6 mm when pressed, pink to red, sometimes glaucous with paler lobe margins; outer lobes free for 6-10 mm.

Acacia-Commiphora bushland, or semi-deciduous forest on deep sand, or woodland in relatively flat areas, often hidden under smaller bushes; 25-1450 m alt.

Ethiopian material usually does not form clumps. – Resembling *A. hemmingii.*

A. patersonii B. Mathew

Plant acaulescent; leaves 17, densely rosulate, lanceolate-attenuate, 30 × 5 cm, pale green with paler oblong blotches forming irregular bands; marginal teeth ± 1,5 mm, white or pale brownish, 9-10 mm apart; inflorescence 60 cm long, with 1 branche; racemes cylindrical, 25 cm long; bracts lanceolate, 10-20 mm, green, those at base of inflorescence with bulbils in axil; flowers salmon with greenish tinge at base, 30 mm long; tepals free for 13 mm.

On rocks in full sun.

"One of the very few aloes, e.g. *A. perdita* and the Madagascan *A. bulbillifera* H. Perrier to produce, *in the wild,* young plants in the axils of the lowers bracts" (Carter in litt. 21.02.2012).

Known definitely from only the type collection (plants flowering at Kew in 1975); perhaps also from another collection in the same area.

A. peckii P. R. O. Bally & I. Verd. – Icon.: Fl. Pl. Afr. 31: pl. 1214, 1956; Reynolds, 1966: 62-63.

Plants stemless, solitary or less frequently in groups; leaves 14-16, ascending or spreading, c. 20 × 6 cm, very fleshy, shiny, olive green with very numerous, mostly confluent, whitish-green longitudinal spots and stripes; margins with triangular brown teeth, 3-4 mm long, 6-10 mm apart; inflorescences erect with 8-10 branches, to 80 cm tall; racemes cylindric, lax; flowers greenish yellow, pendulous; perianth 25-30 mm long, 7 mm across the ovary, outer tepals free for c. 14 mm.

Buxus-Acokanthera bushland with *Acacia etbaica,* on limestone; 1500-1750 m alt.

A. pembana L. E. Newton – Icon.: Cact. Succ. J. (US) 70: 28-30, 1998; Carter, 1994: pl. 3. (sub nom. *A. sp.).*

syn.: *Lomatophyllum pembanum* (L. E. Newton) Rauh; *Aloe* sp. specim. Greenway 2766, sensu Carter, 1994: 24.

Plant caulescent, suckering at base to form dense clumps; stem erect, to 2 m × 8 cm; leaves up to 20, densely rosulate, lanceolate-attenuate, to 110 × 9,6 cm, bright glossy green, sometimes with white hyaline margin, surface smooth; marginal teeth 1,5 mm, white, sometimes brown-tipped, 6-10 mm apart; exudate pale yellow; inflorescence to 60 cm long, erect, with 2-3 (-5) branches usually arising close together; racemes cylindrical, 5-18 × 7-8 cm, dense; flower buds red or yellow with green tips, fading rapidly to cream or white at anthesis; flowers creamy-white with green mid-stripe, 20-22 mm, base shortly attenuate; tepals free for 12-16 mm; fruit berries.

Coastal forest in light shade, on sandy soil close to the beach; ± 3 m alt.

Known only from Tanzania, Pemba and Misali (Mesali) Island off Pemba, an unhabited coral island, entirely forested.

Related to *A. aldabrensis* (Marais) L. E. Newton & Rowley.

A. penduliflora Baker – Icon.: Reynolds, 1966: 172; Bally in Ashingtonia 2: 16, 1975; Newton in Taxon 40: 55, 1991.

Erect shrub to 1,6 m high, branching from near the base with stout stems, or sprawling and decumbent with slender stems to 80 cm long; leaves laxly crowded at the branch apices, with dried remains persisting for ± 40 cm below; leaves erect, then spreading, narrowly lanceolate to ± 40 × 7,5 cm at base, slightly bluish green, with a few scattered whitish spots when young; margin with whitish cartilaginous teeth 2 mm long, 16-25 mm apart; sap drying brown; inflorescence 25-40 cm long, 2-5-branched, the lowest sometimes rebranched, curving downwards, then with branches upturned in a distinct S-shape; racemes subcapitate, 5-15 × 8 cm, densely flowered; perianth dull yellow or red with greenish tips, cylindric-trigonous, 30-33 mm long; outer segments free for ± 1/3 spreading at the apices.

Over rock slabs at edge of bushes; 645-900 m alt. – Endangered.

Only known from SE Kenya, Kwale and Teita Districts; Mt. Kasigau on the "Zanzibar" coast: a living plant arrived at Kew in 1884.

A. percrassa Tod., excl. var. *albopicta* Schweinf. (= *A. trichosantha* subsp. *trichosantha),* var. *menachensis* Schweinf. (= *A. menachensis* (Schweinf.) Blatter, Yemen). – Icon.: Bot. Mag. 128: pl. 7834, 1902 (sub nom. *A. oligospila);* Reynolds, 1966: 272-275.

syn.: *A. abyssinica* Lam. var. *percrassa* (Tod.) Baker; *A. bakeri* Hook. f. ex Baker; *A. oligospila* Baker; *A. schimperi* Schweinf.

Succulent herb, suckering from base to form small groups, mostly stemless but sometimes developing erect or decumbent stem to 80 × 10-15 cm; leaves crowded, 40-55 × 13-15 cm or larger, glaucous green or grey-green, often flushed red, old leaves drying brown; marginal spines 6-16 per 10 cm, (2-)3-5 mm long, tipped pale-pink to brown; inflorescence 60-80 cm high; racemes 5-12, cylindrical to conical, 6,5-25 cm long, with 2-5 flowers per cm; perianth cylindrical, 17-23 × 4-6 mm when pressed; outer lobes free for 5-7 mm.

Sparsely vegetated rocky slopes and outcrops; 2100-2700 m alt.

A. percrassa A. Berger, non Tod., var. *saganeitiana* A. Berger = *A. elegans* Tod.

ALOE

A. perdita Ellert, Aloe 45: 77, 2008, nom. inval.; Aloe 46/3: 51, 2009 (type designated). – Icon.: Aloe 45: 76-77, 2008.

An acaulescent succulent herb up to 18 cm tall suckering from the base forming plants with up to 30 rosettes; leaves smooth to very slightly rough to the touch 5-25 per rosette, lineate-attenuate, ascending to decumbent 14,5-36 × ± 2 cm at base; inflorescence produced singly or rarely two to a rosette, erect up to ± 55 cm high, 1-4 branched from below or above the middle; peduncle green to greyish or reddish-brown with a bloom, 12 (17)-18 (26) cm long; perianth pale reddish to pale orange-scarlet slightly curving downwards or hanging vertically, 20-33 mm long; outer segments free for 9-13 mm. Tendency to produce bulbils (cf. above, *A. patersonii).*

Zimbabwe / Moçambique border, Chimanimani Mountains. Exact collection site unknown.

First collected by John Ball, forester-in-charge, Melsetter (= Chimanimani), dead in a car accident in the early 1970s. Expeditions were made to the area in the 1980s, and 1990s, to search for the plant, but without success. A single clone kept in cultivation over the years, in Arizona (USA). Only described in 2008.

Related to *A. swynnertonii* but much smaller.

A. pienaarii Pole-Evans – Icon.: Fl. Pl. S. Afr. 1: pl. 17, 1921; Carter in Fl. Zambes. 12/3: 95, 2001.

syn.: *A. cryptopoda* sensu Reynolds, 1950, non Baker

Perennial herb, solitary, or suckering to form small groups of plants, acaulescent or with a very short stem; leaves in a compact rosette, stiffly erect; lamina to 90 × 12-15 cm toward the base, lanceolate-attenuate, dark greyish-green, tinged reddish in dry conditions, slightly rough on the surface, without spots; margin with pungent deltoid brown-tipped teeth 1-2 mm long and 4-6 mm apart; inflorescences 1-3, erect, 1,25-1,75 m high; peduncle 4-8-branched; branches curving upwards, subtended by scarious deltoid bracts c. 20 × 20 mm, with a few sterile bracts below each raceme; racemes 25-50 × 7 cm, narrowly cylindric-acuminate, very densely flowered, the buds covered by the bracts; perianth bright scarlet, green-tipped in bud, sometimes opening to yellow but the base remains red, 30-45 mm long; outer segments free to the base, tips scarcely spreading.

Sandy soils among rocks in light deciduous woodland; 140-600 m alt. (to 1300 m in Transvaal).

S. Africa, Swaziland.

A. pirottae A. Berger, Bot. Jahrb. Syst. 36: 65, 1905. – Icon.: Sebsebe & Gilbert, 1997: 125; Newton in Cact. & Succ. J. (US) 73: 154-155, 2001. – *A. pirottae* sensu Reynolds = *A. parvidens* M. G. Gilbert & Sebsebe.

Rosettes forming small groups, stemless or nearly so; leaves 45-60 × 6,5-13 cm, spreading with recurved tips, shallowly canaliculate at least near tip, dark green with many elongated pale spots; marginal teeth 7-10 per cm, (3-)4-5,5 mm long, often curved, brown-tipped; inflorescence with up to 28 mostly spreading branches; racemes cylindrical, often secund, 7-33 cm high, lax (2-4 flowers per cm); perianth cylindrical or clavate, 20-28 × 4-5 mm when pressed, yellow, orange or sometimes red, striped; outer lobes free for 6-12 mm.

Open *Acacia* woodland, sometimes on dark soil; rocky area in grassland; amongst rocks at side of mountain pass; 800-1820 m alt.

Closely approaching *A. mcloughlinii.*

ALOE

A. plowesii Reynolds – Icon.: J. S. Afric. Bot. 30: pl. 14, 1964; Reynolds, 1966: 16; Court, Succulent flora of Southern Africa: 135, 1981; West, 1992: pl. 2a; Kimberley in Haworthiad 18/3: 87, 2004.

Perennial herb, solitary, or suckering to produce a cluster of 2-3 very short stems; leaves rosulate, grass-like, 20-30 cm × 4-10 mm, linear, expanded at the base to 15 mm wide, slightly keeled beneath, rather fleshy, dull green, white-spotted on the basal half especially on the lower surface; margin with minute white cartilaginous teeth 2-5 mm apart; inflorescence simple, erect, 30-45 cm high; peduncle with a few small, sterile, broadly ovate bracts below the raceme, up to 3 cm apart; raceme 5-10 × 5-6 cm, cylindric to sub-capitate, ± laxly flowered; perianth orange-scarlet, green-tipped, 30-35 mm long; outer segments free to the base with tips scarcely spreading.

In montane grassland subject to periodic burning, among boulders; 1370-1770 m alt.

Known only from the Chimanimani Mts., Mozambique / Zimbabwe border.

A. powysiorum L. E. Newton & Beentje, Cact. Succ. J. (US) 62: 252, 1990. – Icon.: Newton, 2001: fig. XVIII.c.

Shrub, prostrate or usually pendulous, solitary or suckering and branching to form large clumps; branches very thick, to 1,8 m long, clothed with persistent leaf-remains; leaves in a compact rosette at the branch apices; lamina lanceolate-attenuate, to 55 × 11 cm at base, pale green with slightly reddish tip; margin with cartilaginous whitish or minutely pale brown-tipped teeth to 1 mm long, 3-10 mm apart; sap colourless; inflorescence oblique, simple, up to 91 cm long, raceme horizontal; raceme ± secund along the upper side of the stout rachis, to 48 cm long, densely flowered; perianth salmon red, pale brownish yellow at the mouth, ± cylindric-trigonous, 32-36 mm long; outer segments free for 2/3, with slightly spreading apices.

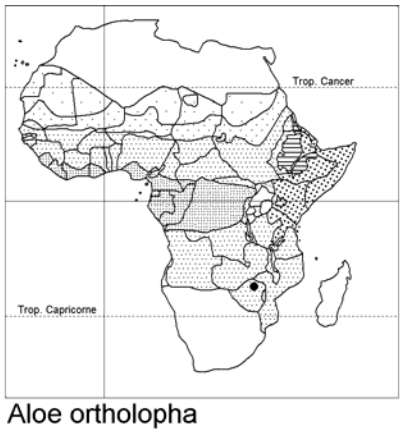
Exposed (E & W) rock faces; 1600-1970 m alt. – Endangered.

A. pretoriensis Pole-Evans – Icon.: Fl. Pl. S. Afr. 1: pl. 18, 1921; Reynolds, 1950: 307-308; West, 1992: pl. 19c & d; Van Wyk & Smith, 2003: 67.

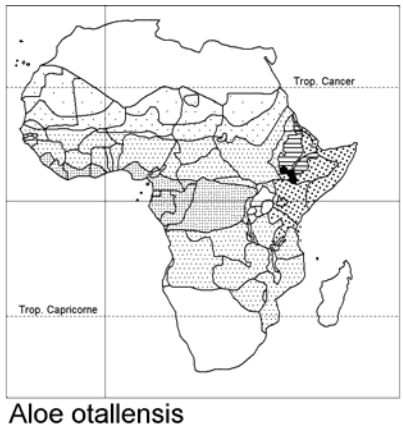
Perennial herb, solitary or occasionally in small groups, rarely suckering, caulescent; stem simple, erect, up to 75(100) cm high, to 25 cm Ø, covered with persistent withered leaves; leaves in a compact rosette, erect-spreading; lamina 40-50 × 10-15 cm at base, lanceolate-attenuate, often with a withered apex, thinly fleshy, light greyish-green, tinged pink in dry conditions, without spots, obscurely lineate; margin cartilaginous with pungent, orange deltoid teeth 2-4 mm long and 8-13 mm apart; inflorescences erect, 1-2 m tall above the leaf rosette; peduncle 4-8(11)-branched, the lowest branches occasionally rebranching; branches spreading; racemes 20-30 × 10 cm, cylindrical-acuminate, densely flowered, the buds covered by the bracts; perianth bright pinkish-red with a bloom, 28-35 mm long; outer segments free to the base, tips slightly spreading.

Rocky slopes in high rainfall *Brachystegia* woodland; 1225-1825 m alt.

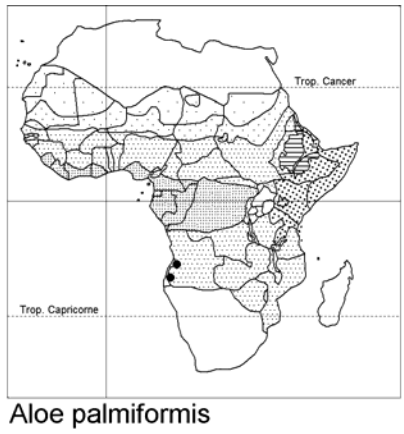
Disjunct species. S. Africa, Swaziland.



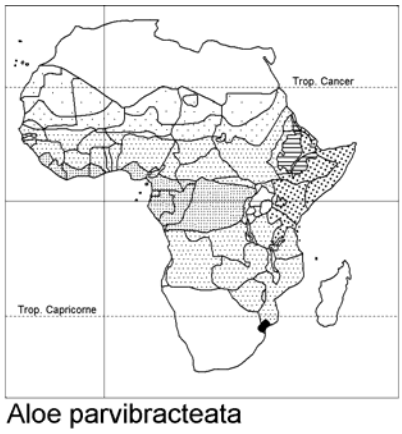
Aloe ortholopha



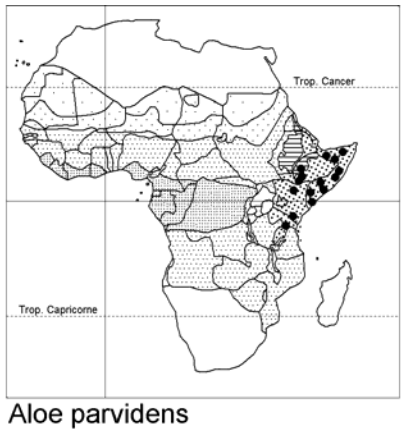
Aloe otallensis



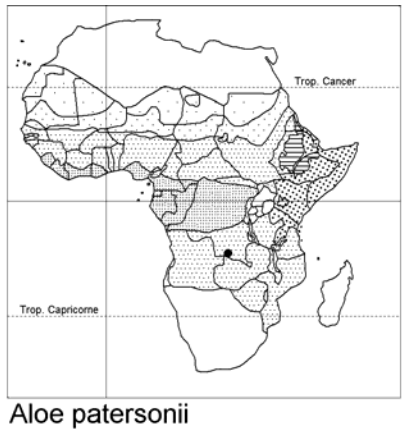
Aloe palmiformis



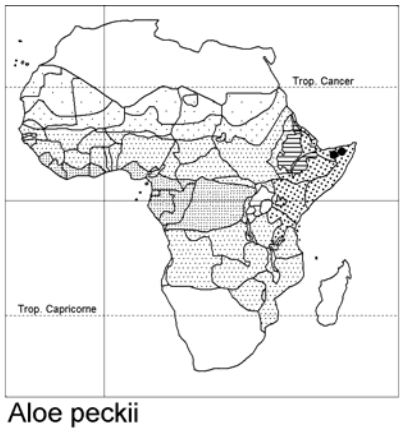
Aloe parvibracteata



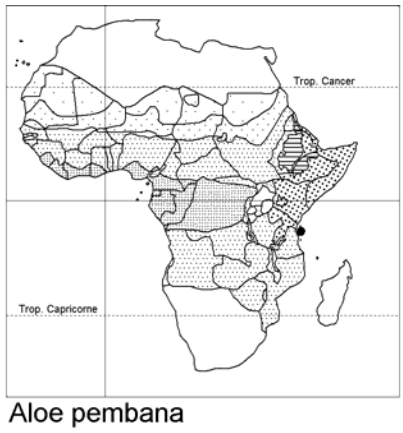
Aloe parvidens



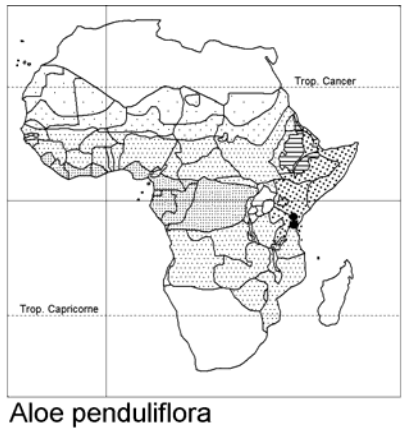
Aloe patersonii



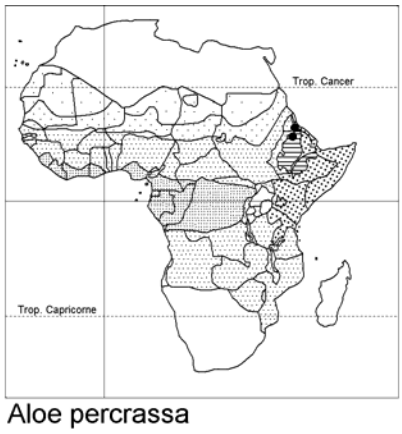
Aloe peckii



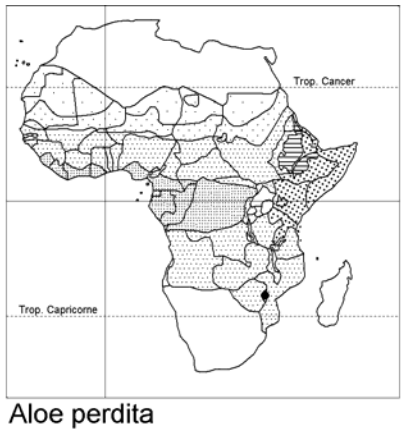
Aloe pembana



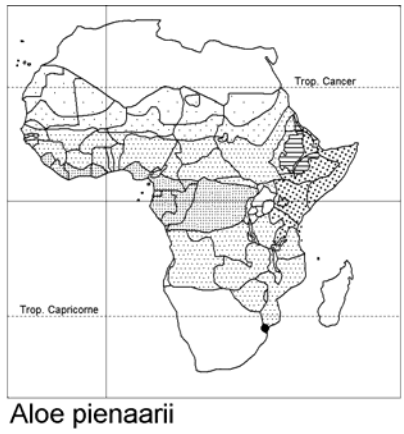
Aloe penduliflora



Aloe percrassa



Aloe perdita



Aloe pienaarii

ALOE

A. procera L. C. Leach; Klopper & al. in Bothalia 39: 32, 2009. – Icon.: J. S. Afric. Bot. 40: 117-119, 1974.

Plant acaulescent or usually shortly caulescent, simple; stem erect, to 25 cm high; leaves ± 20, densely rosulate, ovate-attenuate, apical portion soon drying, to 55 × 8-9,5 cm, pale green, obscurely lineate, with narrow cartilaginous pale yellow margin; marginal teeth 1,5-3,5 mm, orange-brown tipped, 10-18 mm apart; inflorescence 2,2-2,75 m high, with 9-12 branches, lower branches rebranched; racemes with secund flowers, 25-40 cm, lax; flowers dull reddish-purple, 28-33 mm, base rounded or truncate; tepals free for 9-11 mm.

Tall grass in deciduous woodland on steep hillside; ± 1230 m alt.

A. pubescens Reynolds – Icon.: J. S. Afric. Bot. 23: pl. 10-11, 1957; Reynolds, 1966: 136-137; Sebsebe & Gilbert, 1997: 121.

Rosettes stemless (in cultivation with stems to 30 cm long), usually suckering freely to form groups; leaves c. 16, 35-45 × 6-13 cm, suberect with slightly recurved tips, grey-green without markings except for seedlings; marginal teeth 8-11 per 10 cm, 2-3,5 mm long, upper half reddish-brown; inflorescence 70-150 cm high; racemes 1-2(-3), 20-35 cm long, cylindrical-conical, dense (3-5 flowers per cm); perianth similar in form to that of *A. trichosantha*, 33-40 × 4-5 mm when pressed, minutely pubescent, pink or red; outer lobes free for c. 12 mm.

Along rocky banks of streams, along field margins, where there are remnants of *Podocarpus* forest; 1800-2550 m alt.

A. pulcherrima M. G. Gilbert & Sebsebe, Kew Bull. 52: 147, 1997.

Prostrate or pendent shrub, mostly unbranched, stem to 1 m long, c. 8 cm Ø, sometimes branching dichotomously at apex within leaf rosette, especially when cultivated; leaves 35-50 in dense rosette, arcuate, up to 50 × 12 cm, pale blue-green, slightly glaucous, with fine but distinct longitudinal lines and, especially in dry season, red margin; marginal teeth almost absent, up to 3 per 10 cm, 0,2-0,3 mm high, hardly visible; sap turning purple, as do old leaves; inflorescence at first descending then ascending forming a U-shape, branched; racemes 3-6(-11), erect, 12-28 cm long, lax (3-5 flowers per cm); perianth cylindrical, 32-33 × 6-8,5 mm when pressed, red; outer lobes free for c. 20 mm.

Steep basalt slopes or cliffs with sparse cover of evergreen bushland; 2480-2700 m alt.

Reported from the Simen Mts by Puff & Sileshi, Syst. Geogr. Pl. 71: 982, 2002.

Related to *A. wanalensis.*

A. pustuligemma L. E. Newton – Icon.: Brit. Cact. Succ. J. 12: 53, 1994; Newton, 2001: fig. XVII f.

Sprawling shrub, branching from the base; branches erect to 40 cm high, or decumbent to 1,5 m long; leaves crowded at the branch apices, persistent for 30-40 cm below; lamina lanceolate, to 32 × 8,5 cm at base, dull green surfaces rather rough; margin with deltoid, pungent, brown-tipped teeth ± 2 mm long, 7-11 mm apart; sap yellow; inflorescence erect, 56-65 cm high, with 8-9 branches curving upwards; racemes cylindrical, 4-21 cm long, ± densely flowered, the buds enveloped by the bracts; perianth pale pink, paler at the mouth, surface minutely pustulate, cylindric-trigonous, 22-28 mm. long; outer segments free to ± halfway, with spreading apices.

Grassland, in very open deciduous woodland ("in open patches in grazed grassland with scattered small trees and shrubs"); 1370 m alt.

ALOE

A. rabaiensis Rendle

Dense shrub with stems 1- 2 m tall, erect to ascending, branching from the base; leaves in a fairly dense rosette on upper 30 cm of stems, spreading to recurved, to 45 × 8 cm, lanceolate-attenuate, grey-green, usually unspotted; margins with brownish teeth, 4 mm long, 5-15 mm apart; inflorescences 60 cm high, with 6-8 branches; racemes capitate, to 8 cm long; flowers scarlet, pendulous to nutant; perianth 32 mm long, 8 mm across the ovary, outer tepals free for 9 mm.

Woodland; open bushland and sandy soil; 18-500 m alt.

Possible hybrids with *A. secundiflora* are reported, perhaps also with *A. vituensis.*

Specim. Lavranos & Bauer 22847 cited in Thulin, Fl. Somal. 4: 41-42, 1995 = *A. heybensis.*

A. rendilliorum L. E. Newton – Icon.: Bradleya 24: 108, 2006.

Plant caulescent, sprawling; stems to 1 m long, branching freely at and near base, erect for ± 30 cm then becoming decumbent; leaves rosulate and persistent for up to 20 cm below shoot apex, triangular, 35 × 4,5-5 cm at base; marginal teeth firm, 2 mm long, 5-7 mm apart, red-tipped; exudate yellow; inflorescence to 60 cm long, erect, simple or with up to 5 ascending-arcuate branches; racemes cylindrical, terminal to 22 cm long, laterals 11-14 cm; flower 19-20 mm long, outer tepal lobes with tips pale pink with darker mid-line, inner tepal lobes with cream margins and brownish red mid-stripe.

On rocks rooted into cracks with very little soil; 1375 m alt.

Known only from the type locality (collected in 1994).

A. retrospiciens Reynolds & P. R. O. Bally – Icon.: J. S. Afric. Bot. 24: pl. 25-26, 1958; Reynolds, 1966: 356-357;

syn.: *A. ruspoliana* Baker var. *dracaeniformis* A. Berger

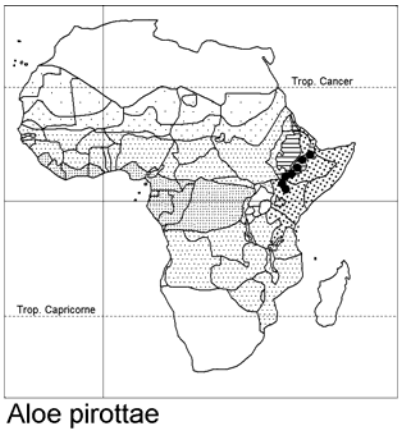
Succulent shrub; stem erect, 1-2 m high, 3-4 cm Ø, branching from base; leaves rather lax, spreading to gently recurved, 25-32 × 5-5,5 cm, grey-green sometimes flushed red, smelling of mice when cut; marginal teeth (24-)33-34 per 10 cm, minute, white, c. 1 mm long; inflorescence c. 45 cm high, divaricately branched with 8-11 racemes; racemes 2-5 cm long, lax (2-3 flowers per cm); perianth cylindrical-trigonous, 15-20 × 5-7 mm when pressed, pale yellow; outer segments free for 6-7(-10) mm.

In very open deciduous bushland on limestone escarpments; rocky ground with shrubby *Acacia* and *Commiphora;* locally abundant; 300-1100 m alt.

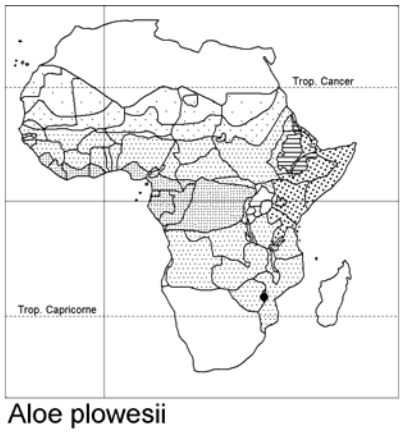
A. rhodesiana Rendle – Icon.: Fl. Pl. S. Afr. 16: pl. 638, 1936 (sub nom. *A. eylesii*); Reynolds, 1966: 27-28; Court, Succulent flora of Southern Africa: 135, 1981; West, 1992: pl. 2b, c & d.; Van Wyk & Smith, Regions of floristic endemism in Southern Africa: 144, 2001; Tredgold & Biegel, Rhodesian wild flowers: pl. 3, 1979.

syn.: *A. eylesii* Christian

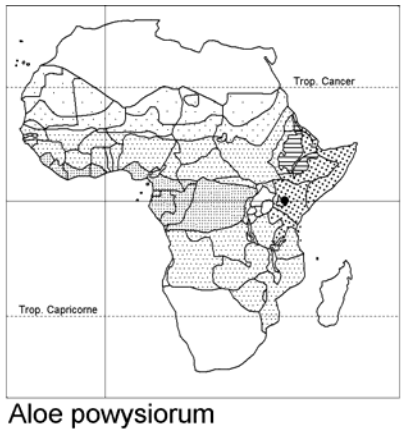
Perennial herb, solitary, or suckering to produce a cluster of up to 4 stems; stems to 10 cm long and up to 4 cm thick; leaves rosulate or occasionally distichous, erect, grass-like, 30-50 × 2-3,5 cm, linear, expanded to 4-5 cm at the clasping base, tapering gradually to the apex, fleshy, dull green, upper surface without spots, lower surface with a few whitish spots toward the base; margin cartilaginous, with firm white teeth 0,5-1 mm long, 1-4 mm apart near the base, the teeth obsolescent towards the apex; inflorescences 1-3 from each rosette, simple, erect to c. 50 cm high, or up to 85 cm when protected from fire; peduncle with sterile papery bracts on the upper 2/3, 1,5-5 cm



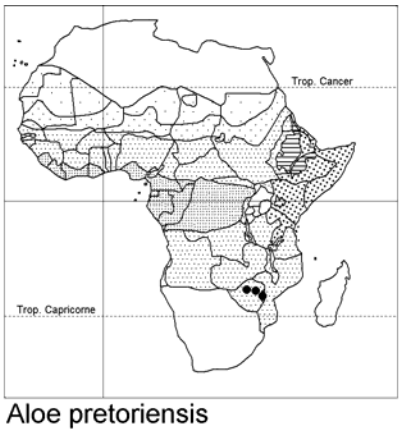
Aloe pirottae



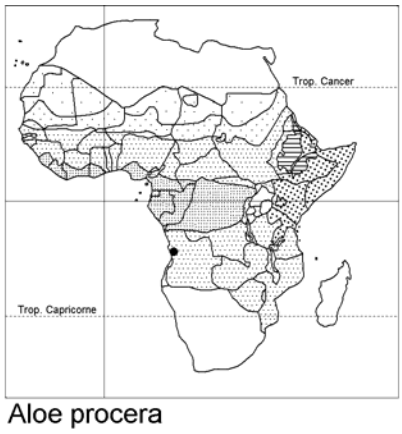
Aloe plowesii



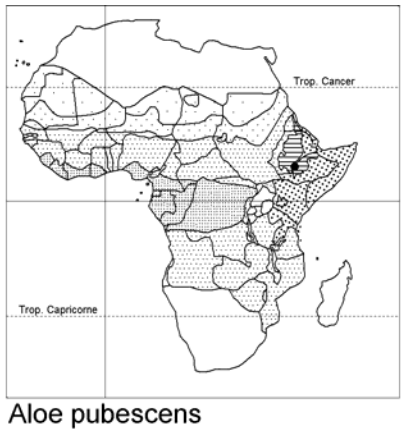
Aloe powysiorum



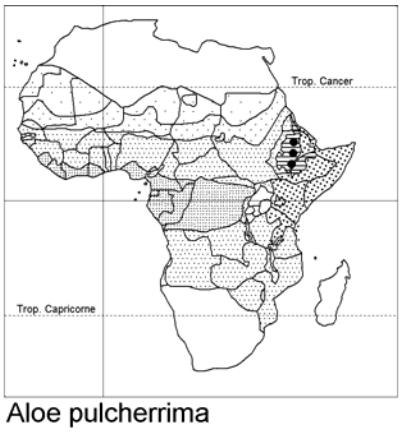
Aloe pretoriensis



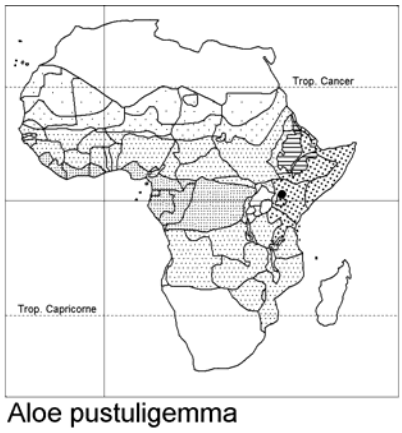
Aloe procera



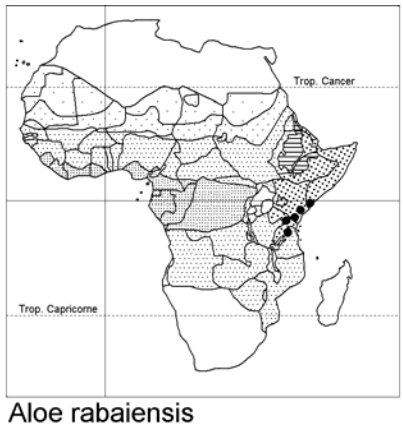
Aloe pubescens



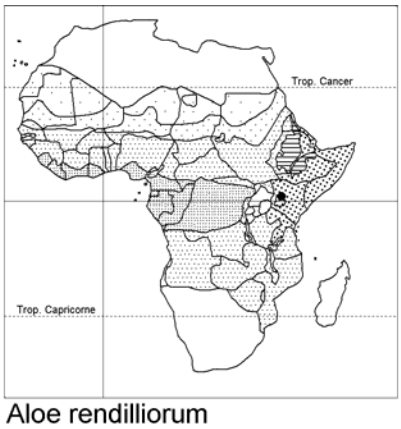
Aloe pulcherrima



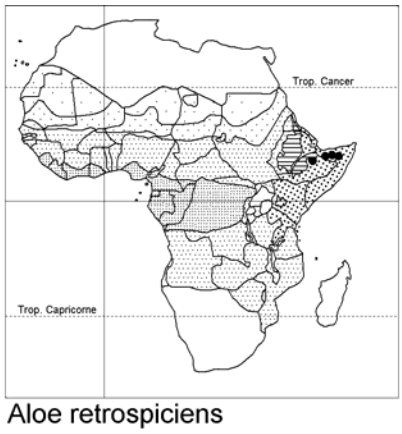
Aloe pustuligemma



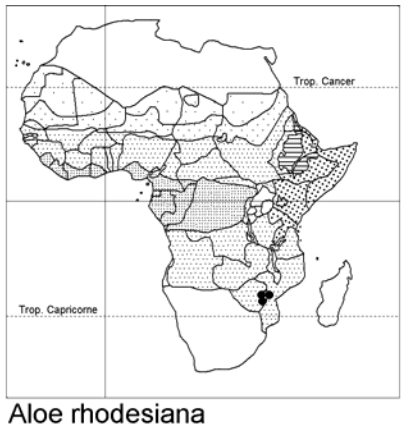
Aloe rabaiensis



Aloe rendilliorum



Aloe retrospiciens



Aloe rhodesiana

apart; raceme 15-20 × 8 cm, cylindric, ± laxly flowered, with overlapping bracts in bud; perianth salmon-pink, greenish-tipped, c. 35 mm long; outer segments free to the base with tips slightly spreading.

Montane grassland, usually among rocks; fire resistent; 1200-2100 m alt.

Known only from the mountain area bordering Mozambique and Zimbabwe, and the Gorongoza Mts.

A. richardsiae Reynolds – Icon.: J. S. Afric. Bot. 30: pl. 12-13, 1964; Reynolds, 1966: 37-38; Newton, in Haworthiad 13: 139, fig. 4, 1999.

Acaulescent herb, with thick fleshy roots; leaves expanded at the base below ground level into a bulb-like swelling ± 3 cm Ø, spreading; lamina linear-lanceolate to 30 × 1,5 cm towards the base, ± fleshy, upper surface canaliculate; margin with crowded white cartilaginous teeth 0,5 mm long; inflorescence erect to ± 40 cm high, unbranched; peduncle with a few sterile papery bracts; raceme cylindric, 20-30 × 6 cm, laxly flowered with flowers 1-2 cm apart; perianth varying from orange-red to yellow, cylindric; outer segments free for 1/4-1/3, apices rounded.

In clay soils in open woodland, usually near a watercourse; 1075-1275 m alt.

Note: A collection made by Newton in 1995 and identified by him as *A. fimbrialis* (Bradleya 16: 112-113, 1998, description and figures) is *A. richardsiae* (Carter & al., Aloes: 149, 2011, and Carter in litt. 21.02.2012).

A. rigens Reynolds & P. R. O. Bally var. **rigens** – Icon.: J. S. Afric. Bot. 24: pl. 20-21, 1958; Reynolds, 1966: 124-125.

Plants stemless, solitary or forming fairly large groups; leaves c. 24, 60-80 × 12-15 cm, very rigid, lanceolate, arcuate-ascending to erect, pale to dark green, smooth; margins with pungent reddish-brown teeth, 4-6 mm long, 20-35 mm apart; inflorescences to 1,75 m tall, usually with 2 branches; racemes elongate-conical to 40 cm long, rather lax; flowers rose-pink, shortly pubescent, nutant to pendulous; perianth 30-35 mm long, 7 mm across the ovary, outer tepals free for 10-12 mm.

Grassy or shrubby flats, or *Acacia-Commiphora* bushland, mainly on basement rocks; 1200-1400 m alt.

A. rigens var. *glabrescens* Reynolds & P. R. O. Bally = *A. glabrescens*. *A. rigens* var. *mortimeri* Lavranos = *A. fulleri* Lavranos in Saudi Arabia, Yemen. *A. rigens* sensu Cufod. = *A. trichosantha* subsp. *longiflora*.

A. rivae Baker – Icon.: J. S. Afric. Bot. 20: pl. 6, 1954; Reynolds, 1966: 115-116; Carter, 1994: 37.

Plant usually stemless, sometimes with a procumbent to ascending stem to 60 cm high, solitary or in small groups; leaves c. 20 in rosette, 40-60 × 9-13,5(-17) cm, ascending, incurved to slightly reflexed, dull olive- to brown-green flushed red towards margins; marginal teeth 7-14 per 10 cm, 3,5-4 mm long, with minute brown tip; inflorescence 60-70 cm high, many branched, conical, racemes up to 50, (10-)15-20 cm long, cylindrical, lax (1-2 flowers per cm); perianth cylindrical-trigonous with truncate base, 25-32 × 9,5-10,5 mm near base when pressed, scarlet, rarely yellow; outer lobes free for c. 10 mm.

Margins of deciduous woodland and *Juniperus* forest, sometimes on rocky outcrops; rocky slopes with very open deciduous bushland and grass; 1000-2000 m alt.

At Mega (S Ethiopia) planted on graves.

A. rubrodonta McCoy & Lavranos – Icon.: Haseltonia 13: 31, 2008.

Plant succulent, acaulescent, solitary or dividing into two or three rosettes; leaves 12-18, densely rosulate, ovate-lanceolate, 10-15 × 4 cm at base, upper surface canaliculate, jade green, with white H-shaped spots; lower surface convex, heavily white-spotted; margins armed with many small, 1,5 mm long, red, deltoid teeth spaced 4-5 mm apart; inflorescence to 30 cm tall, 1-2 branched; peduncle brownish-green, covered in waxy coating, 6 mm Ø at middle, branches subtended by sterile bracts to 18 mm long, scarious, 5-7- nerved; racemes sub-capitate, flowers nutant, 8-10 cm long; perianth dull, covered with a waxy bloom, yellowish-orange with yellow mouth, 30-35 mm long, clavate, basally inflated, 11-12 mm Ø across the ovary, then flaring to 7 mm at the open mouth, outer segments free for only 5 mm, white edged, with three red nerves, the apices cuspidate, inner segments free for 18 mm, mainly yellow with white margins, three red nerves, oblanceolate.

On limestone (Somalia, near the border of Djibouti).

Aloe rugosifolia M. G. Gilbert & Sebsebe – Icon.: Reynolds, 1966: 159 (sub nom. *A. otallensis* var. *elongata).*

syn.: *A. otallensis* Baker var. *elongata* A. Berger

Perennial with rosettes solitary or in small groups, stemless; leaves spreading, recurved in young plants, later erect to incurved, 20-40 × 5,5-8 cm, finely rugose, green with clearly defined pale spots; marginal spines 10-16 per 10 cm, 4-5 mm long, brown, sometimes almost touching; inflorescence 1,5-1,8 m high, branched; racemes up to 10, 10-20 cm long, cylindrical-conical, 7-8 flowers per cm; perianth subclavate to cylindrical, 25-28 × c. 5 mm when pressed, pink; outer lobes free for c. half their length.

In shelter of bushes in *Acacia-Commiphora* bushland; in grass, in open deciduous woodland; 1066-1700 m alt.

A. rupestris Baker – Icon.: Bot. Mag. 134: pl. 8147, 1908 (sub nom. *A. nitens);* Fl. Pl. S. Afr. 5: pl. 178, 1925; Fl. Pl. S. Afr. 6: pl. 221, 1926 (sub nom. *A. nitens);* Reynolds, 1950: 473-474; Van Wyk & Smith, 2003: 69; Cact. Succ. J. (US) 80: 57, 2008.

syn.: *A. nitens* Baker; *A. pycnantha* MacOwan

Small tree, up to 8 m high; stem simple, with withered leaf remains clothing the upper part, naked on the lower part; leaves in a compact rosette at the stem apex, spreading becoming recurved; lamina up to c. 70 × 7-10 cm at base, lanceolate-attenuate, deeply channelled, dull dark green, without spots; margin reddish, with pungent deltoid reddish-brown teeth 3-5 mm long and 10-15 mm apart; inflorescences 1-2, erect to 1,25 m tall above the leaf rosette; peduncle stout, 6-9-branched, the lower branches rebranched; branches spreading upwards, subtended by brown scarious deltoid bracts 5 × 10 mm, with scattered sterile bracts below the racemes; racemes erect, up to 25 × 7 cm, cylindric, very densely flowered; perianth orange-yellow opening to lemon-yellow, 18-20 mm long; outer segments free for c. ¾, with tips slightly spreading.

Coastal plain, in dry deciduous bushland on sandy soils; 30-100 m alt.

S. Africa, Swaziland. Not in Zimbabwe (probably misidentification of *A. excelsa).*

Often cultivated.

ALOE

A. rupicola Reynolds; Klopper & al. in Bothalia 39: 32, 2009. – Icon.: J. S. Afric. Bot. 26: pl. 10-11, 1960; Reynolds, 1966: 323-324.

Plant caulescent, simple or branched at base; stem erect, to 5 m × 10-12 cm; leaves ± 40, densely rosulate, lanceolate, 40-45 × 6 cm, apical 10 cm usually drying early, green, obscurely lineate; marginal teeth 4-5 mm, pungent, reddish-brown, 10 mm apart; exudate drying pale yellow; inflorescence 70-90 cm long, with 3-8 branches; racemes cylindrical, 15-18 × 8-9 cm, sub-dense; flowers orange-scarlet, 42 mm long, base very shortly attenuate; tepals free for 21 mm.

Rocky hills; 1780 m alt.

Known only from the type locality (collected in 1958 according to Reynolds 1966, l.c., but in 1959 according to Klopper & al., l.c.).

A. ruspoliana Baker, excl. *var. dracaeniformis* A. Berger *(= A. retrospiciens).* – Icon.: J. S. Afric. Bot. 8: pl. 8, 1942 (sub nom. *A. jex-blakeae*); Reynolds, 1966: 254.

syn.: *A. jex-blakeae* Christian; *A. stefaninii* Chiov.

Perennial with rosettes stemless or with decumbent or ascending stems to 50 cm long, suckering to form groups, often quite large; leaves 37-60 × 7,6-12 cm, c. 16, suberect to spreading, very soft, pale yellowish green, sometimes obscurely pale-spotted, not canaliculate, smelling strongly of mice when cut; marginal teeth 14-30(-60) per 10 cm, 0,3-0,7 mm long; inflorescence long-pedunculate, 1,2-2 m high; racemes 12 or more, 2-4 cm long, subcapitate; perianth cylindric-trigonous, 13-16 × 4-5 mm when pressed, yellow; outer lobes free for 5-6 mm.

On open rocky hillsides; *Acacia-Commiphora* dry woodland and bushland, mainly on sand; aride desert flats; 300-1450 m alt.

Very distinctive: leaves yellow-green with minute marginal teeth.

Said to be poisonous to sheep and camel; used for poisoning hyena (cf. Newton in EANHS Bull. 31/1-2: 8-9, 2001).

A. ruvuensis McCoy & Lavranos – Icon.: Aloe 44: 51-52, 2007.

Plants acaulescent, always solitary; leaves 12-15, rosulate, spreading-recurved, broadly ovate-lanceolate, up to 60 × 30 cm at base; upper surface flat from the base to near the middle, slightly concave towards the apex, dull bluish, or grey green to reddish, unicoloured or more frequently, with 10 mm long, white, elliptical spots in transverse bands; lower surface convex, very light, whitish green, unspotted, lineate near the dark red cartilaginous margins armed with prominent, red, deltoid teeth, 6 × 6 mm, spaced 5-10 mm apart; sap light yellow, drying brownish; inflorescence a branched panicle, up to 1 m tall; peduncle 25 mm wide at the base, brownish purple, with up to 20 branches from well below the middle, lowest branches rebranched, all branches subtended by white, sterile bracts up to 8 cm long but shorter upwards; racemes capitate to subcapitate, subdensely flowered, the terminal ones up to 10 cm long, the lateral ones to 40 cm long; perianth 38-40 mm long, 10 mm across the ovary, then constricted to 5 mm and finally widening to the open, yellow flaring mouth, the outer segments free for 12 mm, covered in waxy coating, dull wine-red.

On granite whaleback formations (inselbergs); 830 m alt.

Known only from the type collected in 1997.

Related to *A. lateritia.*

ALOE

A. scabrifolia L. E. Newton & Lavranos – Icon.: Cact. Succ. J. (US) 62: 219-220, 1990. Reynolds, 1966: 225 (sub nom. *A. turkanensis).*

syn.: *A. turkanensis* Reynolds p.p., descr. et tab. 48, non Christian

Sprawling perennial, branching from the base to form clumps to 3 m Ø; stems decumbent, to 1,2 m long; leaves in a loose rosette, erect to spreading and somewhat recurved; lamina lanceolate-attenuate, to 55 × 10-12,5 cm towards the base, surface rough, dull greyish green or often reddish in exposed situations, with scattered elongated whitish spots on both surfaces; margin cartilaginous, with deltoid, sometimes pale brown tipped teeth 1-2 mm long and 7-15 mm apart; sap brown; inflorescence erect to 1,4 m high, with up to 12 obliquely spreading branches, the lower ones rebranching; racemes to 30-45 cm long, laxly flowered, with buds and flowers secund; perianth dull red, pale yellowish at the mouth, grey-tipped in bud, trigonous, 25 mm long; outer segments free to ± halfway, slightly recurved at the tips.

Open *Acacia* bushland; 1000-1630 m alt.

A. schelpei Reynolds – Icon.: J. S. Afric. Bot. 27: pl. 1-2, 1961; Reynolds, 1966: 284-286; Fl. Pl. Afr. 49: pl. 1935, 1986.

Succulent shrub, stems decumbent or pendent, 0,5-1 m long, 5-6 cm thick; leaves crowded, 45-50 × 8-12 cm, spreading to recurved, shallowly canaliculate, glaucous grey- to blue-green with pinkish margin, sometimes spotted above and below towards base, marginal spines 10-11 per 10 cm, 3-4 mm long, pink; inflorescence with 1-3 racemes; racemes cylindrical to conical, 6-16 cm long, 6-8 flowers per cm; perianth cylindrical, (24-)27-30 mm long, 5-7 mm wide when pressed, orange to orange-red; outer segments free for (8-)12-15 mm.

More open areas within evergreen bushland on steep slopes and cliffs of basalt; 1700-2470 m alt.

A. schoelleri Schweinf.; Reynolds, 1966: 528. – Icon.: Medhanie & Dioli in Cact. & Succ. J. (US) 78: 37, 2006.

Plants solitary or in small groups, stemless when young, with a prostrate stem 30 cm long, 8 cm Ø when mature and clothed with persistent leaf remains; leaves 25-35(40) in rosettes, spreading, 40-52 × 9-14 cm, very fleshy, grey-green, slightly canaliculate towards the tip in dry conditions, unspotted; margin tough, flexible, dark red, teeth blunt 0,5-1 mm long, 5-8 apart; inflorescences 1-2, unbranched, at first growing obliquely, later rather abruptly bending upward, growing erect, 50-80 cm high; racemes 30-45 cm long, conical, very densely flowered, bracts 18-24 × 8-10 mm; perianth glabrous pale yellow with a greenish central line or pale pink-orange with brownish central line; flowers cylindrical trigonous, tapering towards the mouth, 26-32 × 6-8 mm across the ovary, outer tepals free for 15 mm.

Along river (coming down from Andal to Eschka basin); in sandy soil and in rock crevices on edges of cliffs (Kohaito Plateau); 2600 m alt.

The protologue suggests a relationship with *A. trichosantha.*

A. schweinfurthii Baker, excl. var. *labworana* Reynolds *(= A. labworana).* – Icon.: Reynolds, 1966: 289-290.

syn.: *A. barteri* Baker var. *lutea* A. Chev.; *A. trivialis* A. Chev.

Perennial herb, acaulescent or suckering with short decumbent stems to form dense groups; leaves in a compact rosette, spreading and recurved; lamina lanceolate-attenuate, to 30-60 × 6-7 cm at base, greyish green, with scattered whitish spots towards the base; margin cartilaginous, with pungent deltoid brown-tipped teeth 3-5 mm

ALOE SCHWEINFURTHII

long, 8-15 mm apart; inflorescence erect to 1 m high, with 4-8 branches spreading and curving upwards from above the middle, the lowest often rebranched; racemes cylindrical, 10-20 cm long, ± densely flowered; perianth bright orange-red, yellow towards the mouth, 25-30 mm long; outer segments free to nearly halfway, with apices very slightly spreading.

Granite outcrops; rocky hills and slopes; gneiss slopes; among rocks; sometimes abundant; ± 900-1200 m alt.

Perhaps also in Benin.

A. scobinifolia Reynolds & P. R. O. Bally – Icon.: J. S. Afric. Bot. 24: pl. 17-18, 1958; Fl. Pl. S. Afr. 35: pl. 1382, 1962; Reynolds, 1966: 197-199.

Plants stemless, solitary or forming small groups, leaves 16-20, curved-ascending, lanceolate, 30 × 7 cm, rather thick, rugose, olive-green; margins cartilaginous without teeth; inflorescences erect, 60-70 cm tall; racemes subcapitate, dense; flowers red or yellow, nutant; perianth cylindric-clavate, 22-25 mm long, 4-5 mm across the ovary, outer tepals free for 9-10 mm.

Stony flats with dwarf shrubs and grasses on gypsum or rocky arid slopes on limestone; "in considerable numbers"; 1100-1650 m alt.

A. scorpioides L. C. Leach; Klopper & al. in Bothalia 39: 32-33, 2009; Van Jaarsveld, Aloe 47: 14-16, 2010. – Icon.: J. S. Afric. Bot. 40: 106-107, 1974; Van Jaarsveld, l.c.

Plant caulescent, branching at base and above; stem usually divergent, to 50 (-100) cm tall; leaves laxly rosulate, persistent below, ovate-attenuate, to 30 × 2,5-3,5 cm, yellowish-green, lower face darker, obscurely lineate, rarely with a few spots near base; marginal teeth 2-3 mm, pungent, yellowish- or brownish-tipped, 10-15 mm apart; sheath 1-2 cm, striate; inflorescence ± 15 cm long, descending at base and curving upwards again with U-bend, simple or with 1-2 branches; racemes conical or cylindrical-acuminate, 11-25 × 6 cm, sub-dense; flowers scarlet, yellow-striped with green patch at base, 21-28 mm, base very shortly attenuate; tepals free for 8,5-10 mm.

Rocky escarment slopes, often in shade of mixed woodland.

A. secundiflora Engl., excl. var. *tweedieae* (Christian) Wabuyele *(A. tweedieae).* – Icon.: Fl. Pl. S. Afr. 20: pl. 798, 1940 (sub nom. *A. marsabitensis);* Fl. Pl. S. Afr. 34: pl. 1341, 1961; Reynolds, 1966: 231-233; Sebsebe & Gilbert, 1997: 129.

syn.: *A. engleri* A. Berger; *A. floramaculata* Christian; *A. marsabitensis* I. Verd. & Christian

Perennial herb, acaulescent or older plants developing a short thick stem to about 30 cm high, solitary or sometimes suckering; leaves in a compact rosette to 1 m Ø, erect-spreading and usually slightly recurved at the apex; lamina ovate-lanceolate to lanceolate, 30-75 × 8-30 cm towards the base; margin with pungent, blackish brown deltoid teeth 3-6 mm long and 1-2 cm apart, closer towards the base, occasionally joined by a horny rim; sap amber-yellow; inflorescence erect, 1-2 m high, with 10-20 widely spaced and widely spreading branches, the lower ones rebranching; racemes 15-20 cm long, subdensely flowered, buds and mature capsules conspicuously secund along the top of each branch, or cylindrical when the flowers are fully open and ± pendulous; perianth bright coral-red or pink, paler at the mouth, minutely white-flecked, grey-green tipped in bud, cylindrical, 25-35 mm long; outer segments free to halfway, apices slightly spreading.

ALOE SECUNDIFLORA

Grassland and open dry deciduous woodland, on sandy, stony soils; open grassland and Acacia bushland on well drained soils; 750-1980 m alt.

Comprises 2 vars.: – var. **secundiflora** (see above) in N part of range; – var. **sobolifera** S. Carter

syn.: *A. sobolifera* (S. Carter) Wabuyele

Plants suckering to form often large clumps; leaves lanceolate to 8-15 (-20) cm wide towards the base, dark green and often bronzed, with marginal teeth sharp, but not strongly pungent and never joined by a horny rim.

On sandy soil in open deciduous woodland; 600-1825 m alt. – In S part of range.

A. leachii Reynolds is perhaps a synonym (cf. above under this species).

Hybrids are recorded with *A. kedongensis, A. macrosiphon, A. ngongensis,* perhaps *A. rabaiensis.*

Wabuyele (2006, part V: 18-19) treats *A. tweedieae* as a variety of *A. secundiflora.*

A. seretii De Wild., Plantae Bequaertianae 1: 28, 1921. – Icon.: Reynolds, 1966: 257-258.

Plant acaulescent or shortly caulescent, suckering to form dense groups; leaves ± 16, densely rosulate, lanceolate-attenuate, 40 × 6-7 cm, grey bluish-green tinged reddish, sometimes with obscure dull white spots, with pinkish margin; marginal teeth 3-4 mm, pungent, white with reddish-brown tips, 8-10 mm apart; inflorescence 60-70 cm long, with 3 branches; racemes cylindrical-conical, 15-20 × 5-6 cm, dense; flowers dull to bright scarlet, 28-33 mm, base shortly attenuate; tepals free for 9-10 mm.

Rock (granite) outcrops in grass savanna; 945-1770 m alt.

A. sinana Reynolds – Icon.: J. S. Afric. Bot. 23: pl. 3-4, 1957; Reynolds, 1966: 210.

Succulent shrub, stems 1-2 m long, sprawling or ascending; leaves crowded, 40-60 × 10-15 cm, canaliculate only towards tip, blue- to grey-green, sometimes flushed reddish, with elongated whitish spots on underside and towards base on upperside; marginal teeth 6-7 per 10 cm, 3-4 mm long; inflorescence with 4-6 racemes; racemes subcapitate to cylindrical, 5,5 -8,5(-14) cm long, 6-12 flowers per cm; perianth clavate, 23-27 × 3-4 mm when pressed near base, 6-7 mm at widest point, orange to pink; outer segments free for 12-13 mm.

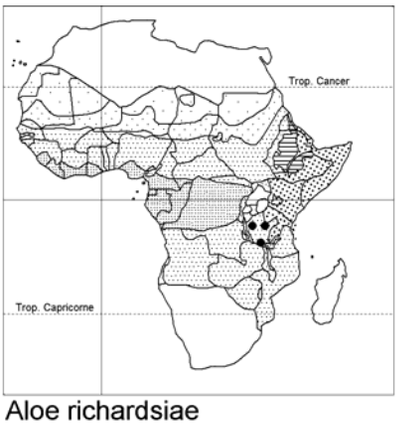
Slopes with basalt blocks and patches of evergreen bushland with *Euclea-Rhus natalensis-Flueggea virosa;* 1250-1950 m alt.

A. sinkatana Reynolds – Icon.: J. S. Afric. Bot. 23: pl. 14-16, 1957; Reynolds, 1966: 201-202; Plowes in Aloe 33: 69, 1996; Trager in Cact. & Succ. J. (US) 77: 94, 2005; Grätz in Kakteen & Sukk. 60: 139, 2009.

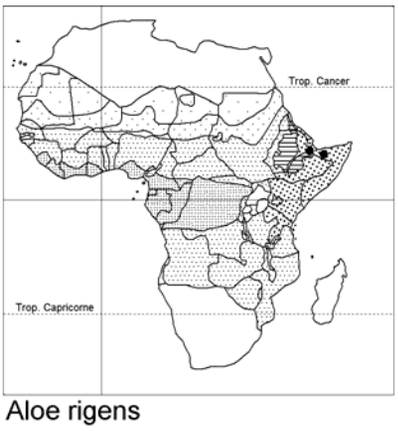
Plant acaulescent, simple or usually suckering to form groups; leaves 16-20, densely rosulate, lanceolate-attenuate, tip rounded with 3-5 small reddish teeth, 50-60 × 6-8 cm, dull grey-green, sometimes with scattered dull white lenticular spots, usually with reddish margin; marginal teeth 2-3 mm, firm, pale red, 15-25 mm apart; inflorescence 75-90 cm high, with 5-6 branches; racemes capitate or subcapitate, 4-6 × 7 cm, dense; flowers scarlet, orange or yellow, 22 mm, base obconical and shortly attenuate; tepals free for 9-10 mm.

Flat sandy ephemeral water courses, sometimes with *Euphorbia abyssinica, Dracaena ombet;* 850-1100 m alt.

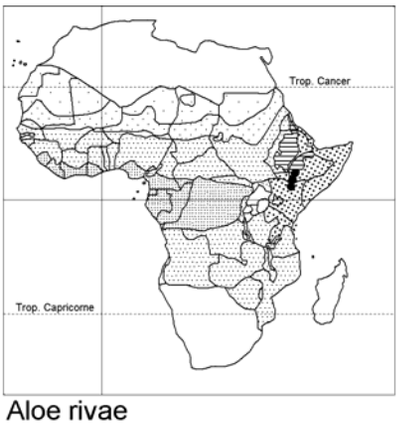
Gilbert & Sebsebe (1997) regard this as possibly conspecific with *A. elegans.*



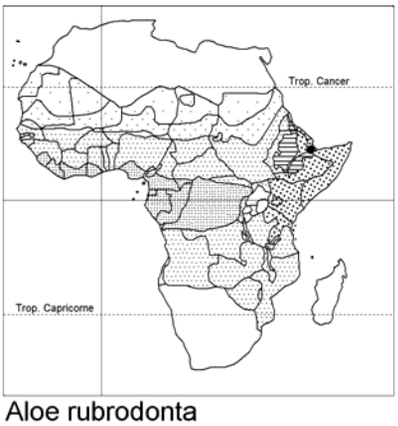
Aloe richardsiae



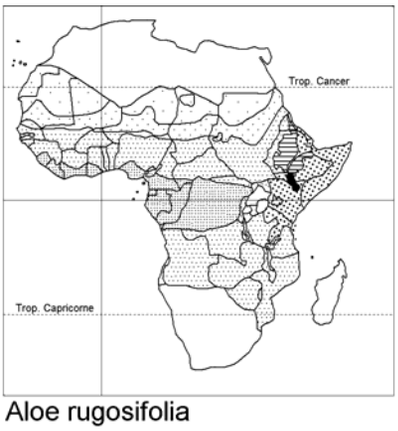
Aloe rigens



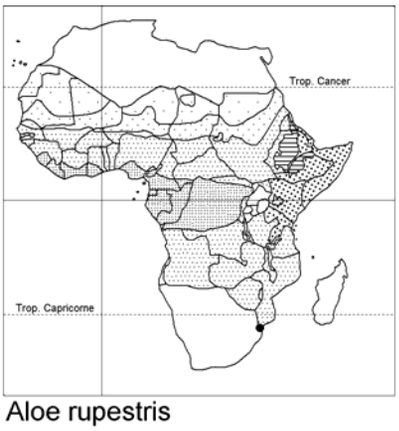
Aloe rivae



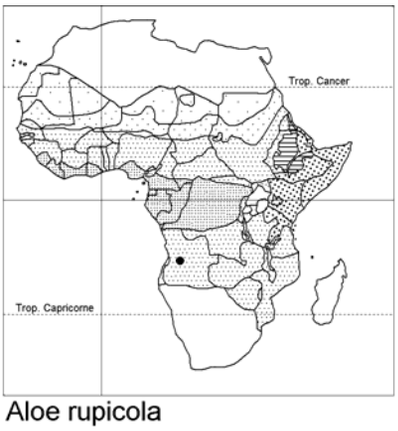
Aloe rubrodonta



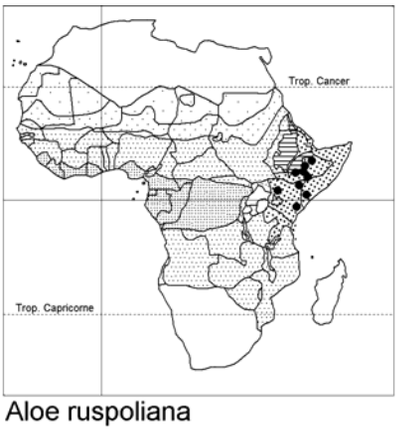
Aloe rugosifolia



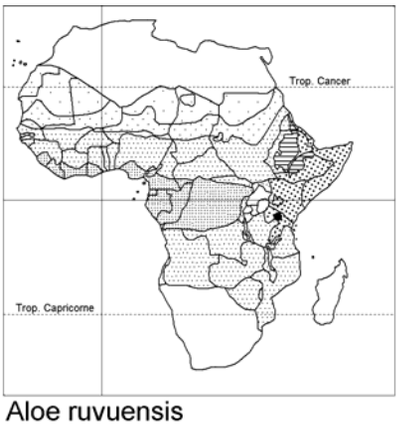
Aloe rupestris



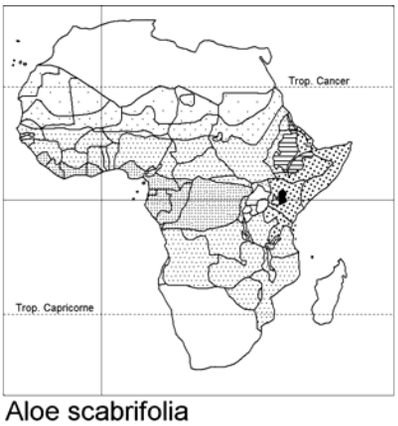
Aloe rupicola



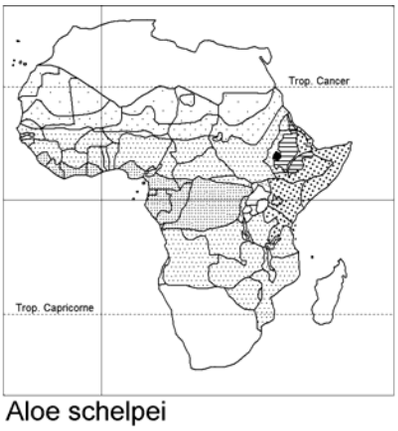
Aloe ruspoliana



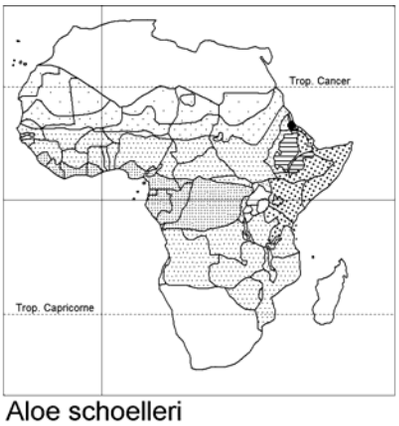
Aloe ruvuensis



Aloe scabrifolia



Aloe schelpei



Aloe schoelleri

A. somaliensis C. H. Wright ex W. Watson – Icon.: Reynolds, 1966: 56-57; Sajeva, M. & M. Costanzo, Succulents – The illustrated dictionary: 49, 1994.

Plants stemless, single or forming small groups; leaves 12-20, spreading or ascending, 20-40 × 6-8 cm, shiny, brownish to dark green with numerous whitish spots and, in var. *marmorata*, darker green markings; margins with brown teeth, 4 mm long, 4-10 mm apart; inflorescences with 5-15 branches, 60-85 cm tall; racemes cylindric, lax, to 20 cm long; flowers pinkish-scarlet to bright red, pendulous but subsecund on lateral racemes; perianth 26-30 mm long, 9 mm across the ovary, outer tepals free for 10-13 mm.

Comprises 2 vars.: – var. **somaliensis**: Leaves spreading, 15-25 cm long, brownish-green, with only whitish spots; perianth pinkish, 28-30 mm long.

Bushland and rocky slopes on limestone; 700-1000 m alt.

– var. **marmorata** Reynolds & P. R. O. Bally – Icon.: J. S. Afric. Bot. 30: pl. 30, 1964; Reynolds, 1966: 58-59.

Leaves ascending, to 40 cm long, dark green with both whitish and darker green longitudinal spots; perianth bright red, 26 mm long.

Acacia-Commiphora bushland on limestone; c. 800 m alt.

Lavranos (1995) maintains this variety, but S. Carter in Kew Bull. 39: 631 (1984) considers it as a synonym under *A. somaliensis* W. Watson var. *somaliensis.* And so do Carter & al., Aloes, the definitive guide: 306, 2011.

Carter in Kew Bull. 39: 631, 1984, treated *A. hemmingii* Reynolds & P. R. O. Bally as a synonym under var. *somaliensis.*

A. spicata L. f., non Baker 1896 (= *A. camperi);* excl. syn *A. tauri.* – Icon.: Fl. Pl. S. Afr. 5: pl. 180, 1925 (sub nom. *A. sessiliflora);* Fl. Pl. S. Afr. 11: pl. 435, 1931 (sub nom. *A. sessiliflora);* Reynolds, 1950: 432-433 (sub nom. *A. sessiliflora);* Van Wyk & Smith, 2003: 91; Cact. Succ. J. (US) 83/1: front cover, 2011.

syn.: *A. sessiliflora* Pole-Evans

Tree or shrub 1-2 m high; stem erect, simple or branched, or forming shrubs with branches decumbent; stems and branches covered with withered leaf remains; leaves in a dense rosette, spreading, becoming recurved; lamina c. 60-80 × 7-10 cm at base, lanceolate-attenuate, channelled, uniformly green or flushed entirely coppery-red in dry conditions; margins reddish, with cartilaginous deltoid teeth 1-2 mm long and 8-15 mm apart; inflorescences 1-5, simple, erect to 1 m tall above the leaf rosette; peduncle with numerous sterile bracts below the raceme; raceme 30-50 × c. 3 cm, cylindric, very densely flowered; flowers ± sessile; perianth greenish-yellow to golden-yellow, brownish in bud, c. 15 mm long, c. 10 mm Ø at the mouth, campanulate, with much brownish nectar; outer segments free to the base.

On steep rock slopes and cliffs in bushveld in partial shade; 640-900 m alt.

S. Africa, Swaziland.

Glen & Hardy (Fl. South. Africa 5, 1 (1): 119, 2000) consider *A. tauri* L. C. Leach as a synonym (see below under this species).

A. springatei-neumannii L. E. Newton – Icon.: Bradleya 29: 59, 2011.

Acaulescent plant, or with erect stem to 30 cm long with age, with solitary rosettes; leaves about 20, densely rosulate, spreading, lanceolate-attenuate, 35 × 8,5 cm wide at widest point (c. 8 cm above base), apex acute, adaxial surface mid-green with numerous very pale elongated blotches in irregular transverse bands, abaxial surface paler green with less distinct blotches, surface smooth; margin white-horny, with pungent, deltoid teeth, 4 mm long, white with red tips, 7-12 mm apart in mid-leaf; exudate pale yellow; inflorescence to 1,2 m high, with three branches, peduncle brownish with light waxy bloom, base flattened and 15 mm wide, lacking sterile bracts below that subtending the first branch; racemes cylindrical, sub-dense, to 22 cm long and 10 cm Ø; floral bracts triangular, long-attenuate, papery but soon drying and curling during anthesis (thus appearing shorter), to 10 mm long, 1,5 mm wide at base, 5 brownish veins (crowded and not always distinct) extending to apex, apex acute; pedicels 20 mm long, pale pinkish; flowers 3,5 cm long, base flattened, 10 mm Ø across ovary, abruptly constricted to 5,5 mm above, widening to 9 mm above, tepals free for 10-12 mm; perianth tube yellow, lobes pale yellow, the upper two outer adaxial lobes with reddish mid-stripe, sometimes tinged orange towards the apex, stamens white, anthers exserted to 2 mm.

Shrubby forest of almost pure *Catha edulis.*

Related to *A. wollastonii* but is distinguished mainly by the fewer inflorescence branches, and the yellow flowers with floral bracts much shorter than the pedicels.

A. steudneri Schweinf., ampl. Lavranos & McCoy – Icon.: Medhanie & Dioli in Cact. & Succ. J. (US) 78: 38-39, 2006; Lavranos & McCoy, Bradleya 25: 12-13, 2007.

Plants solitary or offsetting along the stout stem, which is usually short but often trailing and up to 125 cm long and 6-7 cm Ø; leaves to about 45, 40-50 × 10 cm, narrowly deltoid, recurved with their apices often drying out, bright green, often with a reddish tinge, longitudinally striate and immaculate on both surfaces; margins with a red cartilaginous border armed with strong, slightly hooked, reddish teeth, 2-3 mm long, 7-22 mm apart; sap light yellow, drying purple-brown. Inflorescence with 1-5 racemes, 50-60 cm tall, the peduncle dark red-brown with numerous sterile bracts 14-16 mm long, with an inflated base; racemes conical, rather lax, 20-35 cm long; flowers pendulous; perianth bright red, straight, 50 mm long, the outer segments free to base, with darker, slightly recurved apices, the inner segments obtuse, lighter in colour, with darker median stripes, recurved.

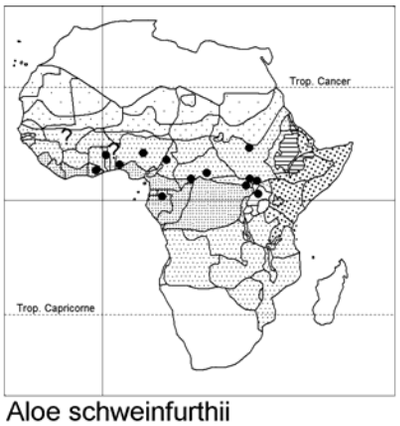
A. steudneri is a high mountain species, which is endemic to the Semien highlands, where it grows at altitudes of between 2800 and 3500 m in rocky places. Collections named *A. steudneri* from Eritrea (Mt Saber) are *A. neosteudneri* (Lavranos & McCoy in Bradleya 25: 14, 2007).

A. suffulta Reynolds – Icon.: J. S. Afric. Bot. 3: pl. 26, 1937; Reynolds, 1950: 343-344; Fl. Pl. Afr. 57: pl. 2163, 2001; West, 1992: pl. 14d, 15b; Van Wyk & Smith, 2003: 227.

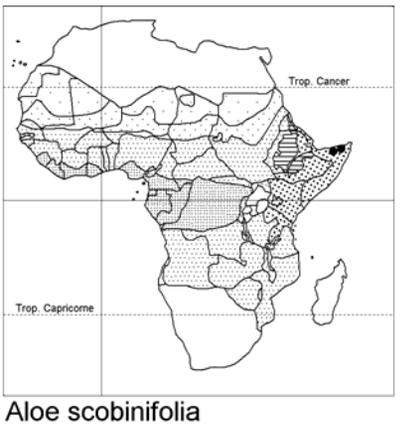
Perennial herb, solitary or suckering to form large groups of plants; stems to 20 cm long, decumbent; leaves laxly crowded at the stem apices, spreading and recurved; lamina 30-50 × 2,5-4 cm toward the base, lanceolate-attenuate, dark glossy green with numerous elongated whitish spots on both surfaces; margin with pale cartilaginous deltoid teeth 1-1,5 mm long and 5-10 mm apart; inflorescence to 1-2 m long; peduncle slender, weak and supported by surrounding vegetation, 5-9-branched at the uppermost 30-50 cm; branches obliquely spreading, widely spaced, subtended by deltoid scarious many-nerved bracts c. 12 × 12 mm; racemes 5-15 × 5 cm, cylindrical, very laxly flowered; perianth salmon-pink striped greenish longitudinally, green-tipped in bud, 25-30 mm long; outer segments free for ± one-quarter with spreading tips.

Under bushes, in alluvial soils, pure sand and black cotton clays, or termite mounds; 90-550 m alt.

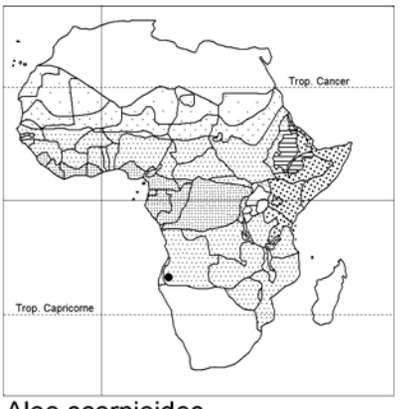
S. Africa.



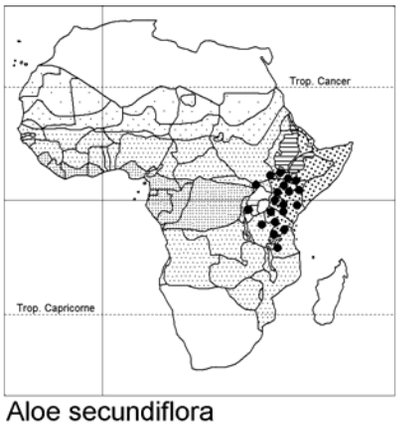
Aloe schweinfurthii



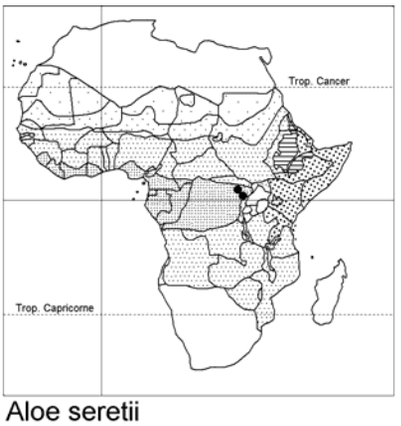
Aloe scobinifolia



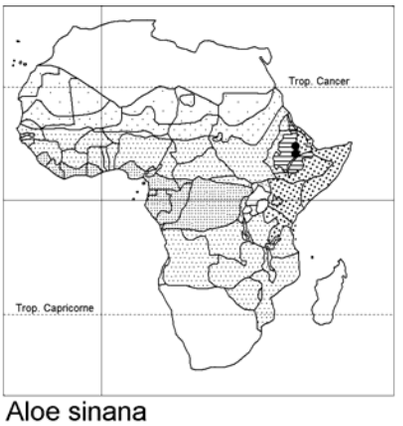
Aloe scorpioides



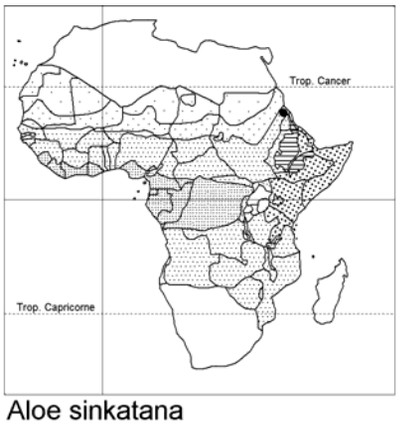
Aloe secundiflora



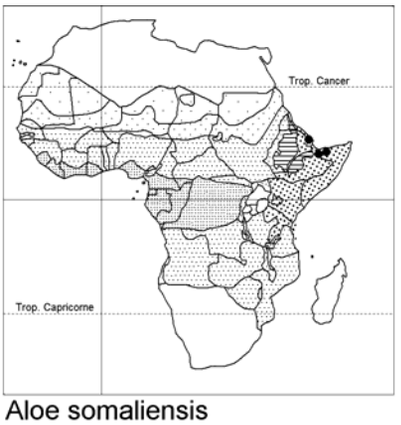
Aloe seretii



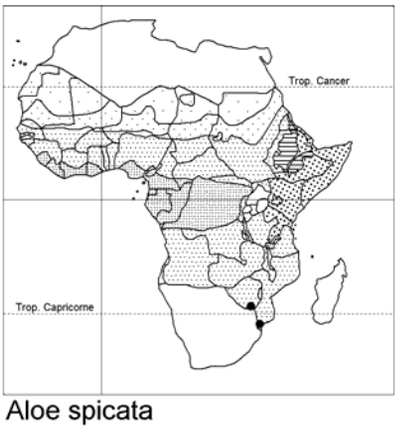
Aloe sinana



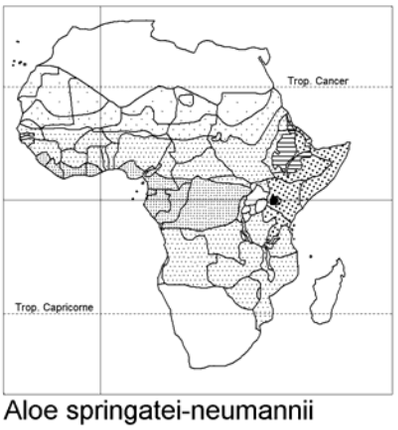
Aloe sinkatana



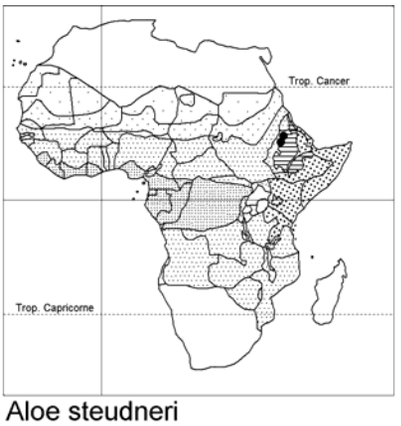
Aloe somaliensis



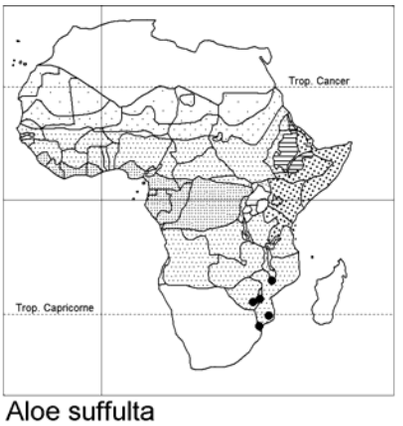
Aloe spicata



Aloe springatei-neumannii



Aloe steudneri



Aloe suffulta

A. swynnertonii Rendle, J. Linn. Soc., Bot. 40: 215, 1911. – Icon.: Fl. Pl. S. Afr. 16: pl. 639, 1936 (sub nom. *A. chimanimaniensis);* Fl. Pl. S. Afr. 18: pl. 697, 1938 (sub nom. *A. melsetterensis);* West, 1992: pl. 7c, d & 8a, b.

syn.: *A. chimanimaniensis* Christian; *A. melsetterensis* Christian

Perennial herb, solitary, or suckering to form small groups of plants, acaulescent; leaves in a compact rosette, spreading; lamina 35-75 × 7-10 cm toward the base, lanceolate-attenuate, often with a withered apical portion, fleshy, darkish green, with oblong whitish spots on the upper surface, distinctly lineate and lightly spotted to unspotted on the lower surface; margin with pungent reddish-brown teeth 3-4 mm long and 10-25 mm apart; inflorescence erect, to 1-2 m high, occasionally more; peduncle usually up to 12-branched with the lowest branches often rebranching; branches curving upwards, subtended by scarious bracts to 4 cm long, with the upper racemes more or less on a level with the terminal one, and usually with 1-2 sterile bracts below each raceme; racemes 3-6 × 6-9 cm, capitate, densely flowered, but often with 1-3 pedicels arising separately 1-3 cm below the compact head; perianth orange-red to pinkish-red, 25-35 mm long; outer segments free for c. 1/3 with tips scarcely spreading.

Montane grassland, often in the shelter of bushes; (340) 800-1800 m alt.

Known only from the Zimbabwe/Mozambique border mountains and their eastern outliers. Not in Malawi or S. Africa according to Carter, Fl. Zambes. 12/3: 74-75, 2001. For localities in Malawi and Mozambique, see above under *A. menyharthii*. South African material recently described as *A. hahnii* Gideon F. Sm. & Klopper

A. tartarensis McCoy & Lavranos – Icon.: CactusWorld 25: 212-213, 2007.

Cremnophyte, solitary or rarely producing 1-2 branches from the base; stems up to 2 m long, 5 cm Ø; leaves 12-15, produced at the stem apices, ensiform, falcately decurved, to 70 × 7 cm near their base, flat low down, channelled near the apices, unspotted, dull glaucous grey-green to almost lavender on both surfaces, margins with cartilaginous, reddish-brown edge, armed with forward facing, red, 5 × 3 mm, deltoid teeth, spaced 10 mm apart, a few dried leaves persistent, leaves of immature plants spotted; sap yellow, drying yellow; inflorescences produced laterally, often pendulous with the racemes ascending, to 75 cm tall, 7-10 branched, the lower rebranched; peduncle brownish red, covered with a dull waxy coating, at first growing straight down, with the branches ascending; racemes ascending, laxly flowered, not secund, the terminal to 23 cm long, the lateral shorter; perianth 25 mm long, 5 mm across the ovary, red with a yellow mouth, pruinose, outer segments free for 8 mm.

Hanging down from cliff faces near waterfall (Tartar Falls).

Known only from the type locality (collected in 2002).

A. wanalensis T. C. Cole & T. G. Forrest is perhaps a synonym.

A. tauri L. C. Leach; Jordan in Ingens Bull. 22: 1-2, 2000. – Icon.: J. S. Afric. Bot. 34: 364, 366, 1968; West, 1992: pl. 24a, b & 25a; Court, Succulent flora of Southern Africa: 133, 1981.

Perennial herb, solitary, acaulescent or with a usually decumbent stem to 30 cm long; stem suckering and branching above the base to form large groups of plants; stem and branches covered with withered leaf remains; leaves in a dense rosette, spreading, becoming recurved; lamina 30-60 × 6-8 cm at base, lanceolate-attenuate, deeply channelled, uniformly dark green or flushed entirely coppery-red in dry conditions; margin reddish, cartilaginous, reddish with deltoid minutely brown-tipped teeth 1-2 mm long and 6-12 mm apart; inflorescence 1 or occasionally 2, erect to 1 m high; peduncle simple or rarely 1-branched, with scattered sterile bracts below the raceme; raceme 15-30 × c. 5 cm, cylindric, very densely flowered; flowers ± sessile; perianth bright yellow, each segment striped centrally with darker nerves, to 18 mm long; outer segments free to the base.

Among tussock grasses on steep rock slabs; 1065-1220 m alt. – Occurs in isolated colonies on hillsides exposed to SE winds and mist (along southern escarpment, Zimbabwe).

Put into synonymy under *A. spicata* by Glen & Hardy (Fl. south. Afr. 5/1: 119, 2000).

A. tegetiformis L. E. Newton – Icon.: Bradleya 29: 59, 2011.

Sprawling leaf succulent, forming a dense carpet of rosettes on the ground; stems decumbent, suckering profusely from base, to 1 m long when trailing over rocks; leaves rosulate and persistent below shoot apex, crowded, spreading and slightly recurved, ovate-attenuate, to 12 × 3 cm wide near base, apex a soft spine, becoming brownish as leaf matures, bright green, both surfaces with numerous elongated whitish spots, surface smooth; margins with teeth c. 3 mm long, brown-tipped, 3-7 mm apart; leaf base and sheath fibrous; exudate colourless; inflorescence simple, erect, to 30 cm long; peduncle with 4 sterile bracts below the raceme; raceme cylindrical, sub-densely flowered, to 8,5 cm long, 6 cm Ø; floral bracts ovate-attenuate, 10-14 × 5-7 mm wide, papery, white with up to 10 brownish nerves, 4 reaching the acute apex; pedicels 10-14 mm long, orange-red; flowers 26-30 mm long, tube orange-red, lobes orange-red with paler or yellowish margins, base rounded, terete around ovary, trigonous above, 6 mm Ø across ovary, slightly narrowed to 5 mm above, tepals free for 5-7 mm, apices scarcely spreading; stamens with filaments pale yellow, anthers exserted 2-3 mm.

In deep shade, spreading like a carpet on the ground and trailing over rocks.

Kenya: Rift Valley Province, Samburu District. Known only from the type locality.

Related to *A. morijensis* but with larger leaves and larger inflorescences.

A. tewoldei M. G. Gilbert & Sebsebe, Kew Bull. 52: 143, 1997.

Lax shrublet, sometimes pendent; stems to 50 cm long, c. 6 mm Ø; leaves spaced along stem, sometimes pendent, oblong-lanceolate, up to 13,5(-32) × 1,5-2(-2,2) cm, subterete, grey-green obscurely spotted; marginal spines 20-30 per 10 cm, c. 0,5 mm long, white; inflorescence not branched; raceme very lax, c. 27 cm long, flowers 10-40 mm apart one flower per cm; corolla trigonous-cylindrical, 20 × 7 mm when pressed, base truncate, greyish orange with greenish tip.

Hanging from limestone cliff-face.
Only known with certainty from a living plant, Harerge Region.

A. tongaensis van Jaarsv. – Icon.: Smith & al. in Aloe 47: 64-65, 2010; Cact. Succ. J. (US) 83: 14, 16-18, 2011.

Succulent tree with a rounded crown, dichotomously branched, 3-20 m high; main trunk with a stout, firm, broad base 0,6-1 m Ø, tapering upwards; lower leaves sheathing; bark smooth, grey to yellowish, often longitudinally scaling, upwards smooth and often covered with a powdery bloom; inflorescence solitary to 6-branched; racemes usually short and dense to subdense, rarely capitate, bearing spreading to pendent flowers ranging from pink, orange, red to yellow; perianth cylindric-ventricose, 35-50 mm long; outer segments free for most of length, rarely fused.

Sandy soil in warm, humid, subtropical conditions; 5-30 m alt.

Related to *A. barberae* which tends to flower in midwinter while *A. tongaensis* during late autumn and early winter.

ALOE

A. tororoana Reynolds – Icon.: Fl. Pl. Afr. 29: pl. 1144, 1953; Reynolds, 1966: 335.

Shrublet, with stems branching from the base, decumbent to ± 20 cm long; leaves crowded towards the branch apices, spreading and recurved; lamina lanceolate-attenuate, 15-20 × 3-5 cm at base, dull light green, with scattered, elongated, whitish spots on both surfaces but more dense on the lower; margin cartilaginous, with pungent, deltoid, minutely brown-tipped teeth 2-3 mm long, 5-10 mm apart; inflorescence erect to 40 cm high, simple or occasionally with 1-2 branches; racemes cylindrical, 8-15 cm long, ± laxly flowered; perianth bright red, tipped with green, cylindric, 17-20 mm long; outer segments free for ± 1/3, apices scarcely spreading.

Among rocks and on rock faces at hill summit; 1350-1460 m alt.

Known only from the type locality.

A. torrei I. Verd. & Christian, excl. var. *wildii* Reynolds (= *A. wildii)*. – Icon.: Fl. Pl. Afr. 25: pl. 987, 1946; Reynolds, 1966: 14-15.

Perennial herb, suckering to produce dense clusters of erect stems; stems 10-15 cm long, 1-1,5 cm Ø; leaves rosulate, weakly erect then arching downwards, grass-like, 25-45 × c. 0,5(1) cm, linear, slightly channelled on upper surface, slightly fleshy, uniformly green, white-spotted near the base with spots scattered on the upper surface and more densely so on the lower surface; margin very narrowly cartilaginous, with minute teeth 1-2 mm apart; inflorescence simple, erect to 30-50 cm high rarely more; peduncle with a few sterile, ovate, brownish bracts below the raceme, 2-3 cm apart; raceme 10-20 × 5 cm, conical-cylindric, laxly flowered; perianth scarlet, greenish-tipped, 25-30 mm long; outer segments free almost to the base with tips very slightly spreading.

Among grass clumps on exposed granite outcrops; 1525-1600 m alt.

Known only from the Namuli Mts. (Mozambique).

A. trichosantha A. Berger – Icon.: Reynolds, 1966: 132-137; Newton, 2001: fig. XX.c; Sebsebe & Gilbert, 1997: 121.

syn.: *A. percrassa* Schweinf., non Tod.; *A. percrassa* Schweinf. var. *albopicta* Schweinf.

Rosettes stemless, solitary or suckering to form groups; leaves 12-20 per rosette, 25-70 × 2,5-13,5 cm, suberect with slightly incurved tips, slightly canaliculate, dull grey-green without spots in adult plants, juveniles densely pale-spotted; marginal teeth 4-12 per 10 cm, 2-5,5 mm long with brown tip; inflorescence up to 2 m high, erect; racemes 1-3(-4), 40-70 cm long, cylindrical-conical, dense (2-3 flowers per cm); perianth cylindrical-trigonous, curved slightly upwards towards tip, 20-30 × 4,5-6,5 (-7) mm when pressed, pale to bright pink with short, sometimes dense, white indumentum; outer lobes free, 6-9 mm.

Comprises 2 subspp.: – subsp. **trichosantha**: Marginal teeth 8-12 per 10 cm, 4,5-5,5 mm long; perianth 20-23 mm long (see above).

Locally abundant in open dry bushland; 900-1700 m alt.

Sudan ?

– subsp. **longiflora** M. G. Gilbert & Sebsebe – Icon.: Fl. Pl. S. Afr. 26: pl. 1014, 1947 (sub nom. *A. trichosantha).*

syn.: *A. rigens* Cufod. p.p. quoad locs. in Ethiopia; *A. trichosantha* sensu I. Verd. & Christian

Marginal teeth 4-8 per 10 cm, 2-4 mm long; perianth (23-)25-30 mm long.

Locally abundant in open deciduous bushland on volcanic rocks and alluvial soils; 1000-1950(-2200) m alt.

ALOE

A. trigonantha L. C. Leach – Icon.: J. S. Afric. Bot. 37: 48-49, 1971.

Plant stemless or nearly so; leaves in dense rosette, 25-40 × 5-8 cm, uniformly green; marginal spines 9-10 per 10 cm, 2-2,5 mm long, brown-tipped; inflorescence with 5-13 racemes; racemes 8-24 cm long, lax (2-4 flowers per cm); perianth markedly trigonous with truncate base, 28-33 × 8-11 mm near base when pressed, 7-8 mm wide near mouth, pale yellow to orange red; outer lobes free for 6-9 mm.

Dry stony ground near roads and along field margins; c. 2100 m alt.

A. tugenensis L. E. Newton & Lavranos – Icon.: Cact. Succ. J. (US) 62: 216-217, 1990; Raymer, in Ballya 4: 28, 1997.

syn.: *A. archeri* subsp. *tugenensis* (L. E. Newton & Lavranos) Wabuyele

Shrubby perennial, branching from the base to form loose clumps to 3 m Ø; branches to 1,2 m long, decumbent with apices erect to 70 cm high; leaves in terminal rosettes, dried leaf-bases persistent, spreading and slightly recurved; lamina lanceolate-attenuate to 61 × 12 cm at base, surfaces slightly rough, dull green, brownish red when exposed to the sun, with a few scattered, whitish spots on young leaves; margin cartilaginous, sometimes reddish brown, with deltoid, brown-tipped teeth 3-5 mm long, 6-15 mm apart; sap drying brownish yellow; inflorescence erect to 1-1,3 m high, with up to 12 branches curving upward, the lowest sometimes rebranched; racemes cylindrical, 10-24 cm long, ± densely flowered; perianth pale pink with whitish to pale yellow tips, cylindric-trigonous, 20-22 mm long; outer segments free for ± 2/3, with spreading apices.

Rocky slopes, in heavily grazed *Acacia-Commiphora* bushland; 1000-1550 m alt. – Endangered.

A. turkanensis Christian – Icon.: J. S. Afric. Bot. 8: pl. 6, 1942; Reynolds, 1966: 225-226; Newton & Lavranos in Cact. & Succ. J. (US) 62: 217-218, 1990; Carter, 1994: 34.

Perennial shrubby herb, suckering to form loose clumps to 2 m Ø, with decumbent stems to 70 cm long; leaves in a compact rosette, erect-spreading; lamina lanceolate-attenuate, to 70 × 9 cm towards the base, firm and very smooth, pale bluish green, with elongated whitish spots on both surfaces in horizontal bands, or sparsely scattered; margin cartilaginous, with deltoid pale, brown-tipped teeth ± 2 mm long, 12-18 mm apart; sap yellow; inflorescence erect to 1 m high, with up to 8 branches curving upwards, the lower ones rebranching; racemes 15-26 cm long, sublaxly flowered, buds secund, or cylindrical when the flowers are open and ± pendulous; perianth bright coral-pink, a little paler at the mouth, minutely white-flecked, grey-tipped in bud, trigonous, 25 mm long; outer segments free for ± 1/3, slightly recurved at the tips.

Stony, sandy ground, or in lava, in open dry *Acacia* and often succulent scrubland; in intensely hot arid places; 580-1250 m alt.

Occurring around Lake Turkana (Rudolf).

ALOE

A. tweedieae Christian – Icon.: J. S. Afric. Bot. 8: pl. 7, 1942; Reynolds, 1966: 269-270; Carter, 1994: 34.

syn.: *A. secundiflora* Engl. var. *tweedieae* (Christian) Wabuyele

Perennial herb, acaulescent, or older plants developing a short thick stem to 50 cm high, with dead leaves persistent, solitary or in small groups but not suckering; leaves in a compact rosette, erect, sometimes slightly recurved at the apex; lamina ovate-lanceolate, to 50 × 15 cm towards the base, firm and glossy dull green, with scattered elongated whitish spots usually present on both surfaces but sometimes absent; margin with pungent reddish brown deltoid teeth 4-5 mm long and 1-1,5 cm apart, joined by a cartilaginous or often horny rim; inflorescence erect, 1-2 m high, with 10-20 widely spaced branches curving upwards, the lower ones rebranching; racemes to ± 20 cm long, rather laxly flowered, cylindrical, or ± secund in bud in obliquely placed racemes; perianth coral-red merging into pale yellowish pink at the mouth, minutely white-flecked, cylindric, 20-25 mm long; outer segments free for 2/3-3/4, apices recurved.

In grass with very open deciduous woodland; semi-desert country with thorn scrub; 1340-1670 m alt.

Also in SE Sudan.

Hybrids with *A. amudatensis* are recorded.

A. ukambensis Reynolds – Icon.: J. S. Afric. Bot. 22: pl. 11-12, 1956; Reynolds, 1966: 264-266; Fl. Pl. Afr. 52: pl. 2064, 1992.

Perennial herb, acaulescent, suckering to form large, dense groups; leaves in a dense rosette, spreading-erect and curving slightly inwards; lamina ovate-lanceolate, 40-50 × 8-12 cm at base, firm, dull greyish green and dark reddish tinged especially toward the margins, conspicuously striate longitudinally, young leaves with scattered, whitish, oblong spots beneath; margin with pungent reddish brown-tipped teeth 2-3 mm long, 6-10 mm apart; sap yellowish; inflorescence erect, 40-50 cm high, simple or with 1-2 branches curving upwards; racemes subcapitate, 5-8 cm long, densely flowered with numerous sterile bracts below each raceme; perianth deep glossy red, 30-35(-40) mm long; outer segments free to ± halfway, with spreading apices.

Exposed rock outcrops, with surrounding deciduous woodland; 520-1370 m alt. – Endangered.

A. vallaris L. C. Leach; Klopper & al. in Bothalia 39: 33, 2009; Van Jaarsveld in Aloe 47: 13-14, 17-19, 2010. – Icon.: J. S. Afric. Bot. 40: 112-113, 1974; Aloe 47: 13-14, 2010.

Shrubby plant, caulescent, branching at base; stem to 50 cm high; leaves densely rosulate, ovate-attenuate, 22-34 × 4-5 cm, greyish or greenish-blue to bluish-green, with a few small oval or round whitish spots near base, lower face with more spots, with narrow yellowish margin; marginal teeth 2-2,5 mm, pungent, yellowish, orange- or brown-tipped, 10-12 mm apart; exudate frothy, drying to opaque crystalline yellow crust; inflorescence ± 50-60 cm long, oblique or suberect, simple or with 1 branches; racemes cylindrical-acuminate, 17-45 × ± 4 cm, lax; flowers bright scarlet, yellowish at mouth, 20-25 mm, base rounded; tepals free for 4,5-6 mm.

On steep mountain sides and cliffs, (shady) cliff faces, sandstone ledges; ± 1230 m alt. – Common.

A. veseyi Reynolds – Icon.: J. S. Afric. Bot. 25: pl. 31-32, 1959; idem 38: 190-192, 1972 (sub nom. *A. enotata);* Reynolds, 1966: 168-169; Fl. Pl. Afr. 52: pl. 2066, 1993; Williamson in Aloe 39: 87-88, 2002.

syn.: *A. enotata* L. C. Leach

ALOE VESEYI

Sprawling perennial herb, suckering and branching from the base forming small groups of plants; branches 30-40 cm long, pendent over rocks and cliff-faces; leaves crowded at the branch apices, pendent; lamina 40-60 × 3-5 cm at base, narrowly lanceolate-attenuate, pale greyish-green and tinged with brownish-pink, with numerous small elongated whitish spots on both surfaces especially in young leaves; margin with pale cartilaginous deltoid teeth 1-2 mm long and 10-30 mm apart, the teeth larger near the base and smaller or absent towards the apex; inflorescence pendent, 35-60 cm long; peduncle 2-6-branched; branches widely spreading; racemes erect, 8-12 × 7 cm, cylindric-conical, laxly flowered; perianth bright coral-red, pinkish-yellow, or entirely yellow, 23-30 mm long; outer segments free for ± 1/3, with tips recurved.

Rocks and vertical cliff-faces; 840-1500 m alt.

Known only from S end of Lake Tanganyika.

A. vituensis Baker; Newton in Ballya 5/1: 5-7, 1998. – Icon.: Leach in J. S. Afric. Bot. 36: 59-61, 1970; Newton in Haworthiad 13: 139, fig. 8, 1999.

Low succulent shrub, stems erect, up to 20 cm high, slender; leaves lax, spreading with recurving tips, slightly canaliculate, 21-32 × 2,5-5 cm, light green to bronze, clearly spotted above and below; marginal spines 9-12 per 10 cm, 3-4 mm long, brown-tipped; inflorescence unbranched, to c. 75 cm high; raceme cylindrical, 9-12 cm long, lax (c. 3 flowers per cm); perianth cylindrical to subclavate, 21-23 × 4-6(-7) mm when pressed, coral pink; outer segments free for c. 7 mm.

Acacia-Commiphora bushland; c. 1200 m alt.

"A. vituensis is known only from the Kenyan side of the border with Ethiopia but could very easily turn up in Ethiopia."

Possible hybrids with *A. rabaiensis* are reported.

A. volkensii Engl. – Icon.: Reynolds, 1966: 328-329; Newton in Aloe 37: 31, 2000.

syn.: *A. stuhlmannii* Baker

Shrub or small tree 3-9 m high; stems solitary or clustered, simple or branched from above the base with the trunk up to 30 cm Ø; leaves crowning the apex of the stem, suberect, later spreading, then recurved and usually clothing the stem with persistent dried remains; lamina narrowly lanceolate to 1 m × 10 cm towards the base, fleshy, dull olive-green; margin with brown-tipped forward-pointing teeth 2-4 mm long, 8-25 mm apart; sap yellow, drying dark reddish; inflorescence erect, 50-60(-85) cm high, with 8 or more branches, the lower ones rebranching, spreading but with racemes erect; racemes subcapitate becoming cylindric-conical, 8-12 × 8 cm, densely flowered; perianth red with yellow-tipped lobes at maturity, cylindric, 25-35 mm long; outer segments free to almost halfway, apices spreading.

Comprises 2 subspp.: – subsp. **volkensii**: Stem solitary, simple or usually branched from above the base; leaf-margin with teeth to ± 2,5 cm, apart; perianth 2,5-3 cm. long, bright orange-red.

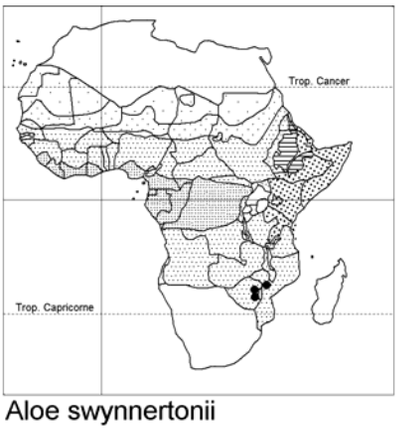
Steep rocky slopes, often in dense riverine woodland; 10-1800 m alt. – In E part of range, incl. Zanzibar.

– subsp. **multicaulis** S. Carter & L. E. Newton

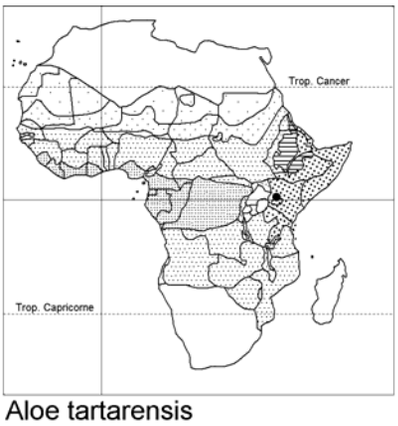
Stems usually clustered from the base, simple or sometimes branched; leaf-margin with teeth to ± 1,5 cm. apart; perianth 3-3,5 cm long, brick red.

In thickets of bushed grassland on stony outcrops, usually near a river; 1150-1920 m alt. – In W + S part of range.

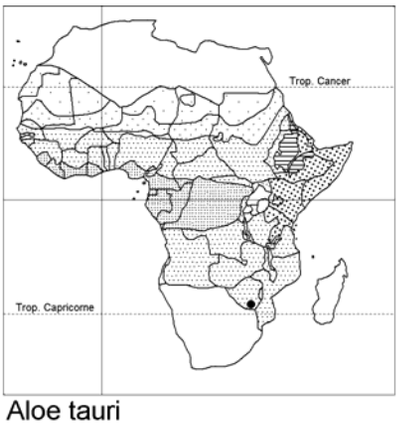
Hybrids with *A. ngongensis* are reported.



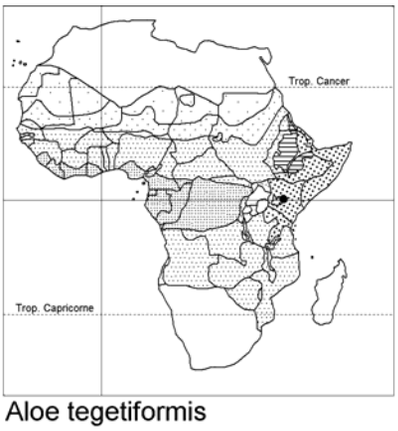
Aloe swynnertonii



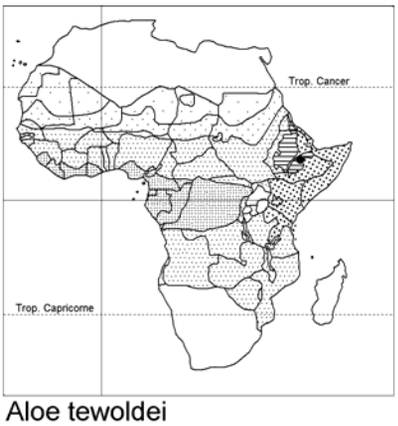
Aloe tartarensis



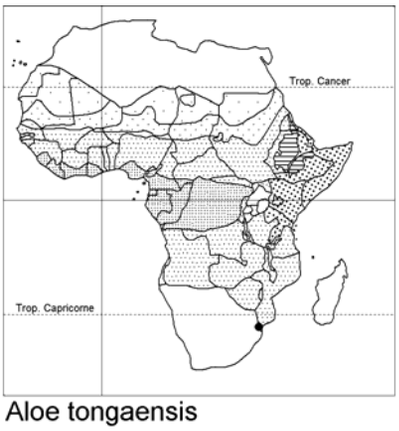
Aloe tauri



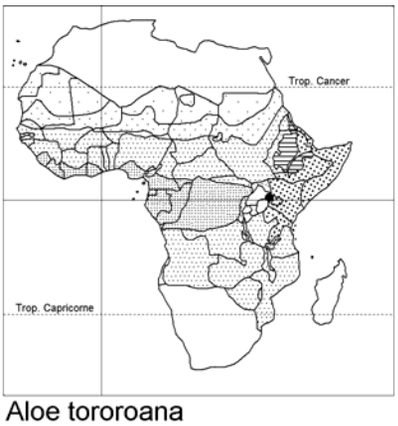
Aloe tegetiformis



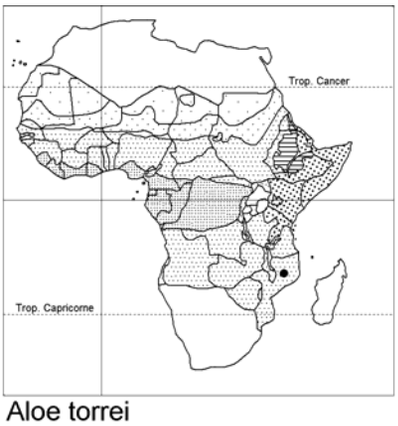
Aloe tewoldei



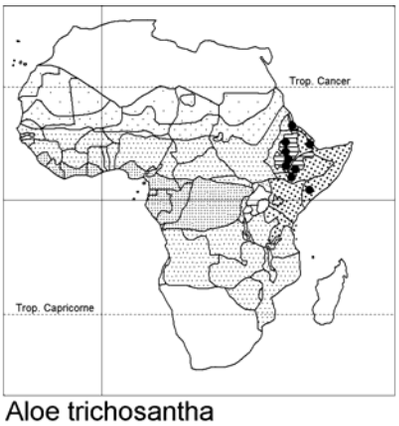
Aloe tongaensis



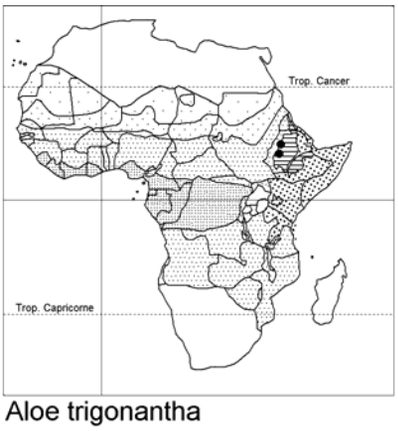
Aloe tororoana



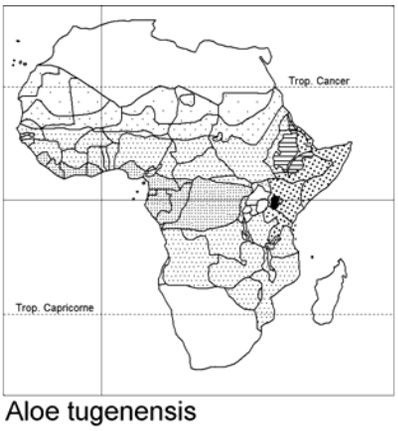
Aloe torrei



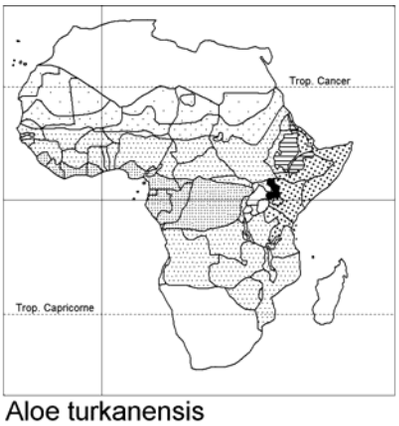
Aloe trichosantha



Aloe trigonantha



Aloe tugenensis



Aloe turkanensis

A. wanalensis T. C. Cole & T. G. Forrest – Icon.: Cact. & Succ. J. (US) 83: 34-36, 2011.

Plant pendent on steep rocks and cliff faces, suckering from base in small groups, sometimes solitary; stem simple, pendent, to 3 m long and 4,5 cm Ø, the foliate apex turning up slightly, sometimes with adventitious roots along the stem; leaves, rosulate, 20-28, soft and flexible, 65 × 6 cm towards base, spreading, the youngest erectly spreading, forming open rosettes; narrowly lanceolate-attenuate, apices curving downwards, older leaves often falcately decurved; mid-green, yellow-green towards the center; surfaces smooth, flat, without spots or markings; marginal teeth, 2 mm long, 10-14 mm apart, soft, pointing forwards, green, minutely red-tipped; sap, drying pale yellow; inflorescence 70-80 cm long, usually descending slightly before turning up towards the apex, with 3-9 branches, branched from about the middle, lower branches spreading horizontally, upper branches ascending; peduncle basally plano-convex, 1,5 cm broad, green; racemes, ascending, cylindrical, laxly flowered, terminal 18 × 7 cm, the laterals slightly shorter; perianth coral-red, turning yellow at the mouth, 29-31 mm, cylindrical, base obtuse, 6 mm Ø, very slightly restricted above the ovary on the underside, enlarging to 8 mm below the mouth; outer lobes free for 11 mm, apices sub-acute and spreading, coral-red with 3 darker stripes and a narrow white margin near the apex; inner lobe with red-orange mid-stripe, wide yellowish margins, apices more obtuse, spreading.

Vertical cliffs and steep rock faces, around Mt Elgon from Sipi Falls; 1520-1800 m alt.

Only pendent aloe known in Uganda; appears allied to a group of Ethiopian pendent aloes that includes *A. ankoberensis*, *A. steudneri*, *A. pulcherrima.*

Closest to *A. pulcherrima.* According to Carter & al. (2011: 708) more related to *A. tartarensis*, if not identical to the latter.

A. welmelensis Sebsebe & Nordal – Icon.: Kew Bull. 66: 119, 2011.

Plant caulescent, suckering to form groups; stem erect to decumbent 30-60 cm long, 1,8-2 cm wide; leaves scattered along the stem 10-18, lax, arranged in 2-5 turns along the stem, greyish green, not spotted, 30-50 × 2-4 cm, surface smooth; marginal teeth obsolete, to 1 mm long, white, reddish-tipped, 3-5 mm apart or 15-17 per 10 cm length; exudate drying yellow; inflorescences solitary or two, 50-80 cm long, with solitary or 2, rarely 4-6 racemes; raceme cylindrical, 15-30 cm long, lax, with 1-2 flowers per cm; flowers secund; bracts white, ovate-acuminate, 4-5 × 2,5 mm; pedicel 6-7 mm; perianth bright scarlet, paler to almost white towards mouth, 28-32 mm, base slightly swollen, truncate, 6-7 mm across; outer perianth parts free for 10-12 mm long.

In vertical rock faces and edges of rocky valleys and on outcrops along rivers; 1050-1500 m alt.

Known only along the Welmel River in Bale floristic region.

Resembling *A. tewoldei.*

A. weloensis Sebsebe – Icon.: Kew Bull. 66: 118, 2011.

Plant acaulescent, solitary or in clumps of 2-5; leaves in rosettes up to 35, 20-45 × 5-10 cm, with greenish-white elongate spots, seen both above and below, more conspicuous below; marginal spines, 1-2 mm long, brownish-tipped, 10-12 per 10 cm length; inflorescence solitary or two, 55-150 cm long, with 4-6 racemes; raceme cylindrical, 15-25 cm long, lax; bracts white, ovate-acuminate, 2-5 × 2 mm; pedicel 10-13 mm; perianth pinkish-red, 21-23 mm long, base slightly swollen, truncate, 5-6 mm across; outer perianth parts free for 10-11 mm long; stamens and styles exerted 3-5 mm long at anthesis.

On edges of roads and in disturbed areas; 2440-2500 m alt.

Known only from a restricted area outside Dessie towards Addis in Welo floristic region.

Resembling *A. macrocarpa.*

A. wildii (Reynolds) Reynolds – Icon.: Reynolds, 1966: 20; Court, Succulent flora of Southern Africa: 134, 1981; West, 1992: pl. 1c & d.; Trager & Schick in Cact. & Succ. J. (US) 71: 93, 1999; Kimberley in Haworthiad 18/3: 88, 2004.

bas.: *A. torrei* I. Verd. & Christian var. *wildii* Reynolds

Perennial herb, solitary, or suckering shortly to produce a small cluster of stems; stems to c. 3 cm long; leaves distichous, grass-like, 15-30(35) cm × 5-12(15) mm, linear, rather fleshy, brownish-green, white-spotted on the lower half, with spots scattered on the upper surface and more densely so on the lower surface; margins with minute white cartilaginous teeth 2-5 mm apart; apex apiculate; inflorescence simple, erect to 50 cm high occasionally more; peduncle with a few small sterile ovate brownish bracts below the raceme, 15-20 mm apart; raceme 5-7 × 5 cm, conical-cylindric, laxly flowered; bracts 5-8 × 3-4 mm, ovate-acuminate, papery; pedicels 12-20 mm long; perianth orange-scarlet, green-tipped, 30-35 mm long; outer segments free to the base with tips slightly spreading.

In montane grassland subject to periodic burning, on rocky slopes and among boulders; 1350-2135 m alt.

Known only from the Chimanimani Mts.

A. wilsonii Reynolds – Icon.: J. S. Afric. Bot. 22: pl. 24-25, 1956; Reynolds, 1966: 263-264; Fl. Pl. Afr. 58: pl. 2181, 2003.

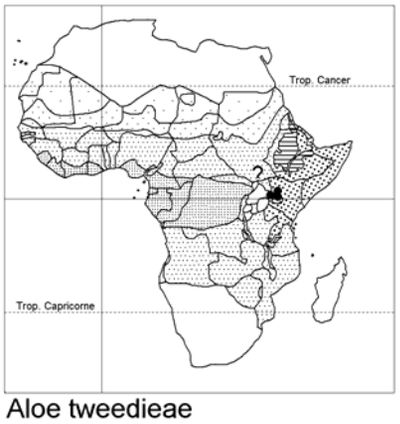
Perennial herb, acaulescent or with a decumbent stem 50-80 cm long, solitary or in small groups; leaves in a compact rosette, spreading and slightly recurved; lamina ovate-lanceolate, to 25 × 9 cm at base, deep yellowish green, with crowded, whitish spots towards the base on the lower surface; margin pale brown cartilaginous, with pungent, deltoid, reddish brown-tipped teeth 3-4 mm long and ± 10 mm apart; inflorescence erect to 60 cm high, with 4-9 widely spaced branches curving upwards, the lower ones sometimes rebranched; racemes cylindrical, ± laxly flowered; perianth dull red, cylindric, 20-25 mm long; outer segments free to ± halfway, with slightly spreading apices.

Rocky slopes on fairly large soil pockets; narrow ledges on steep cliff; 1525-3000 m alt.

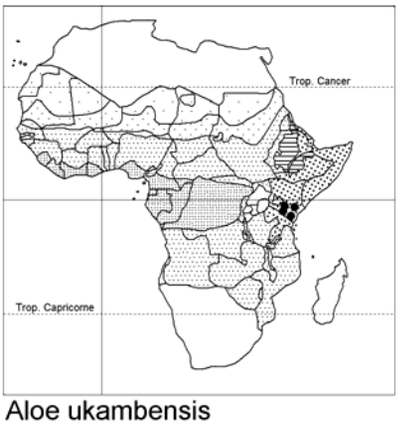
A. wollastonii Rendle – Icon.: Reynolds, 1966: 97 (sub nom. *A. lateritia)* and 99 (sub nom. *A. lateritia* var. *kitaliensis);* Carter, 1994: 13.

syn.: *A. angiensis* De Wild.; *A. angiensis* var. *kitaliensis* Reynolds; *A. bequaertii* De Wild.; *A. lanuriensis* De Wild.; *A. lateritia* Engl. var. *kitaliensis* (Reynolds) Reynolds; *A. macrocarpa* subsp. *wollastonii* (Rendle) Wabuyele

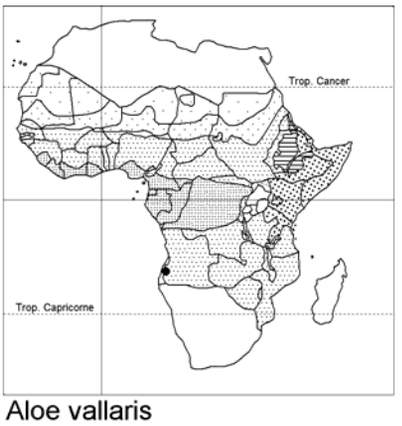
Plant acaulescent perennial, usually solitary; leaves in a tight rosette, suberect to spreading; lamina lanceolate-attenuate, 40-50 × 8-10 cm towards the base, fleshy, dull green, variably spotted with elongated whitish blotches arranged in obscure transverse bands; margin white-horny, with pungent red-brown



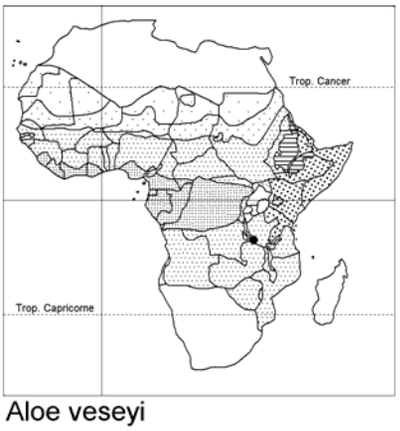
Aloe tweedieae



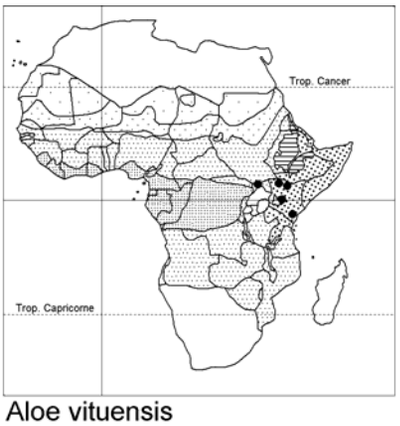
Aloe ukambensis



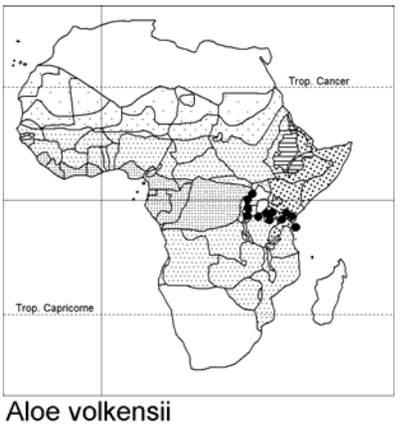
Aloe vallaris



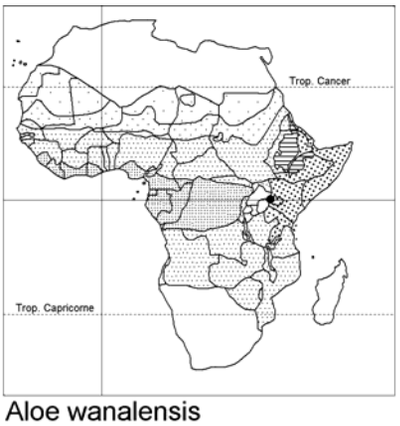
Aloe veseyi



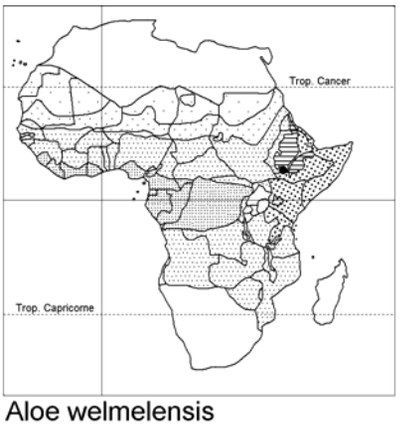
Aloe vituensis



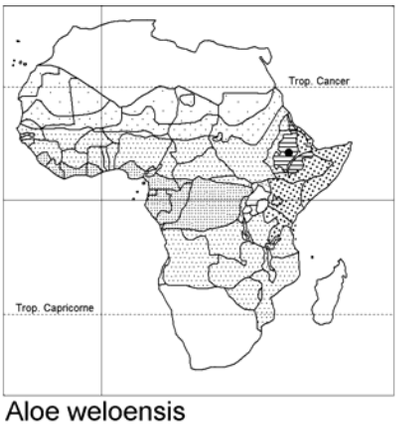
Aloe volkensii



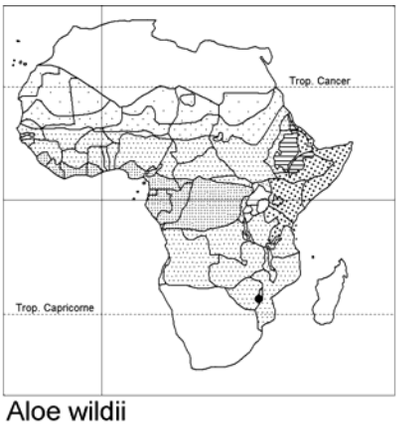
Aloe wanalensis



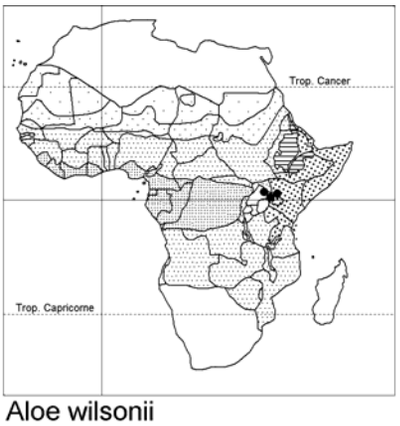
Aloe welmelensis



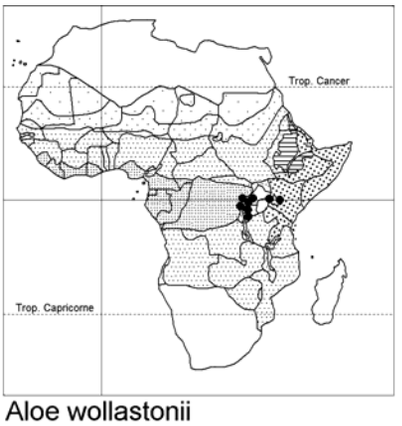
Aloe weloensis



Aloe wildii



Aloe wilsonii



Aloe wollastonii

ALOE WOLLASTONII

teeth 4-6 mm long, 10-15(-20) mm apart; inflorescence erect to 1,25 m high, with 4-6 branches, the lowest occasionally rebranching; branches curving upwards; racemes cylindrical conical, 10-25(-30) × 8 cm, fairly laxly flowered; perianth variable in colour, pinkish to orange-red, or rarely yellow, cylindric-trigonous, 30-35 mm long; outer segments free for ± 1/3, apices very slightly spreading.

Grasslands and in grass with open woodland; 1100-2285 m alt.

Probably in Burundi, Rwanda.

Hybrids with *A. elgonica* reported.

A. wrefordii Reynolds – Icon.: J. S. Afric. Bot. 22: pl. 27-28, 1956; Reynolds, 1966: 208-209.

Plant acaulescent perennial, solitary or forming small groups; leaves in a dense rosette, erect-spreading and slightly recurved at the apex, to 60 × 15 cm at base, pale greyish green, sometimes tinged pinkish; margin with deltoid, strongly pungent, reddish brown-tipped teeth 4-5 mm long, 8-12 mm apart; inflorescence erect to 1,2 m. high, rarely simple, usually with up to 16 branches curving upwards, the lowest ones rebranched; racemes subcapitate, 4-6 cm long, 6 cm Ø, densely flowered; perianth orange-red, yellow at the mouth, 20-22 mm long; outer segments free to halfway, apices spreading.

Rocky slopes, exposed; 950-1430 m alt.

Locality in S Ethiopia seems doubtful.

A. yavellana Reynolds – Icon.: J. S. Afric. Bot. 20: pl. 27-28, 1954; Reynolds, 1966: 345; Fl. Pl. Afr. 58: pl. 2183, 2003.

Succulent shrub, stems erect to 1 m high or sprawling, up to 3 m long, 3-4 cm Ø; leaves spaced along stem, 30-40 × 5-7 cm, recurving towards tip, slightly canaliculate, brown above, pale below and in shade; marginal spines (10-)14-17 per 10 cm, c. 3 mm high, tips reddish; inflorescence with 8-10 racemes; racemes capitate to cylindrical, 4-10 cm long, dense, 6-10 flowers per cm; perianth cylindrical-trigonous, 20-22 × 4-6 mm when pressed, dull scarlet to orange; outer segments free for 8-10 mm.

Rocky slopes in *Juniperus* forest clearings, also in more disturbed areas near roads; 1600-1950 m alt.

A. zebrina Baker – Icon.: Bot. Mag. 130: pl. 7948, 1904 (sub nom. *A. baumii);* Fl. Pl. S. Afr. 16: pl. 636, 1936 (sub nom. *A. transvaalensis);* Fl. Pl. S. Afr. 18: pl. 708, 1938 (sub nom. *A. angustifolia);* Reynolds, 1966: 90; West, 1992: pl. 10d, 11a, b & c; Van Wyk & Smith, 2003: 137; Lane, A field guide to the aloes of Malawi: 24, 2004; Rothmann, Aloes, Aristocrats of Namibian Flora: 94-95, 2004; Van Jaarsveld in Aloe 47: 6, 9, 11, 2010.

syn.: *A. ammophila* Reynolds; *A. angustifolia* Groenew.; *A. bamangwatensis* Schönland; *A. baumii* Engl. & Gilg; *A. constricta* Baker; *A. laxissima* Reynolds; *A. lettyae* Reynolds; *A. lugardiana* Baker; *A. platyphylla* Baker; *A. transvaalensis* Kuntze; *A. vandermerwei* Reynolds; *A. grandidentata* sensu Reynolds, ref. loc. Botswana, non Salm-Dyck

Perennial herb, solitary or suckering to form groups of plants of varying size, acaulescent; leaves in a compact rosette, spreading; lamina 15-35 × 6-7 cm wide toward the base, lanceolate, usually dried and twisted at the apex, dull dark green, with transverse bands of conspicuous whitish oblong spots on the upper surface, and conspicuously or more usually obscurely spotted on the lower surface; margin with stout pungent red-brown teeth 4-7 mm long, 1-1,5 cm apart; sap drying purple. Inflorescence erect,

ALOE ZEBRINA

0,75-2 m high; peduncle 4-12-branched, with the lowermost branches often rebranched; racemes 30-40 × 6 cm, cylindric, laxly flowered; perianth dull-red to pinkish-red or coral-coloured with segment margins paler to ± halfway, 25-35 mm long; outer segments free for ¼-1/3 with tips spreading slightly.

Grassland and open *Brachystegia* and mopane woodland; 200-1600 m alt.

Very variable: form of inflorescence, length and colour of perianth.

Botswana, N Namibia, S. Africa, Swaziland.

A laxly flowered form of *A. lateritia* Engl. from SE Tanzania may belong here (Carter, 2001: 70).

* * *

TAXA OF UNCERTAIN STATUS:

Aloe abyssinica Lam., Encyclopédie Méthodique I: 86, 1783.

Insufficiently known sp. See Sebsebe & Gilbert, 1997: 133.

Ethiopia ?

A. agavifolia Tod., Hort. Bot. Panorm. 1: 85, 1876, as "agavefolia".

Insufficiently known sp. See Sebsebe & Gilbert, 1997: 135.

Based on a cultivated plant of unknown origin.

Tropical Africa ?

A. angolensis Baker, Trans. Linn. Soc. London, Bot. 1: 263, 1878. See Klopper & al. in Bothalia 39: 23-24, 2009.

A possible hybrid from a *A. littoralis* Baker and *A. zebrina* Baker crossing.

Carter (2001) considers it as a synonym under *A. littoralis* Baker

Angola – Welwitsch 3728, Bengo District Quicuxe (NW Angola). Not found again since the type collection. A specimen collected on steep limestone slopes facing the sea, N of Luanda may possibly be this species.

A. defalcata Chiov., Flora Somala 2: 424, 1932. – Cf. above under *A. microdonta.*

Based on Guidotti from near "Uar Scek" (S3), appears to be a mixture of species comprising *A. microdonta* and *A. ruspoliana*, the only two species that occur in that area (Lavranos, 1995).

Somalia.

A. kirkii Baker, Bot. Mag. 120: pl. 7386, 1894. See Carter, 1994: 24.

Type: Kirk, Zanzibar, consisting of a leaf and a few flowers. Is probably *A. massawana.*

A. leucantha A. Berger, Bot. Jahrb. Syst. 36: 65, 1905.

Insufficiently known sp. Type an inflorescence only, Ellenbeck 2103.

Ethiopia.

A. monteiroi Baker, Gard. Chron., Ser. 3, 6: 523, 1889.

Described from a plant cultivated at Kew, originating from Delagoa Bay. Is perhaps *A. parvibracteata.* Type: 2 small leaves. Cf. Carter, 2001: 70.

A. venenosa Engl., Bot. Jahrb. Syst. 15: 471, 1893. See Klopper & al. in Bothalia 39: 33, 2009.

Insufficiently known sp.

Collected by Pogge (nº 1460) in 1882 in Angola? Type locality vague: Quimbundu in NE Angola or Nyangwe in E ex-Zaire.

SYNONYMS:

Aloe abyssinica Hook. f. = **A. adigratana**

abyssinica Salm-Dyck = **A. camperi**

abyssinica var. *peacockii* Baker = **A. elegans**

abyssinica var. *percrassa* (Tod.) Baker = **A. percrassa**

aethiopica (Schweinf.) A. Berger = **A. elegans**

albopicta A. Berger = **A. camperi**

amanensis A. Berger = **A. lateritia var. lateritia**

ammophila Reynolds = **A. zebrina**

angiensis De Wild. = **A. wollastonii**

angiensis var. *kitaliensis* Reynolds = **A. wollastonii**

angolensis Baker = **A. littoralis**

angustifolia Groenew. = **A. zebrina**

arborea Medik. = **A. arborescens**

arborescens var. *frutescens* (Salm-Dyck) Link = **A. arborescens**

arborescens var. *milleri* A. Berger = **A. arborescens**

arborescens var. *natalensis* (J. M. Wood & M. S. Evans) A. Berger = **A. arborescens**

arborescens var. *pachythyrsa* A. Berger = **A. arborescens**

arborescens var. *viridifolia* A. Berger = **A. arborescens**

archeri subsp. *tugenensis* (L. E. Newton & Lavranos) Wabuyele = **A. tugenensis**

bainesii Dyer = **A. barberae**

bainesii var. *barberae* (Dyer) Baker = **A. barberae**

bakeri Hook. f. ex Baker = **A. percrassa**

ballyi Reynolds p.p. = **A. elata**

bamangwatensis Schönland = **A. zebrina**

barteri Baker = **A. buettneri**

barteri Schnell = **A. macrocarpa**

barteri var. *dahomensis* A. Chev. = **A. buettneri**

barteri var. *lutea* A. Chev. = **A. schweinfurthii**

barteri var. *sudanica* A. Chev. = **A. buettneri**

baumii Engl. & Gilg = **A. zebrina**

beniensis De Wild. = **A. dawei**

bequaertii De Wild. = **A. wollastonii**

berhana Reynolds = **A. debrana**

boranensis Cufod. = **A. otallensis**

borziana A. Terracc. = **A. macrocarpa**

brunneo-punctata Engl. & Gilg = **A. nuttii**

burgersfortensis Reynolds = **A. parvibracteata**

campylosiphon A. Berger = **A. lateritia var. lateritia**

caricina A. Berger = **A. myriacantha**

chabaudii var. *verekeri* Christian = **A. chabaudii var. chabaudii**

chimanimaniensis Christian = **A. swynnertonii**

chimanimaniensis sensu auctt., non Christian = **A. duckeri**

commutata Engl., non Tod. = **A. macrocarpa**

compacta Reynolds = **A. macrosiphon**

congolensis De Wild. & T. Durand = **A. buettneri**

constricta Baker = **A. zebrina**

corbisieri De Wild. = **A. nuttii**

decurvidens Groenew. = **A. parvibracteata**

defalcata Chiov. = **A. microdonta**

dumetorum B. Mathew & Brandham = **A. ellenbeckii**

edulis A. Chev. = **A. macrocarpa**

engleri A. Berger = **A. secundiflora**

enotata L. C. Leach = **A. veseyi**

eru A. Berger = **A. camperi**

eru var. *cornuta* A. Berger = **A. camperi**

eru var. *hookeri* A. Berger = **A. adigratana**

eylesii Christian = **A. rhodesiana**

ferox var. *xanthostachys* A. Berger = **A. marlothii** subsp. **marlothii**

floramaculata Christian = **Aloe secundiflora** var. **secundiflora**

foetida (L.) Crantz = **Furcraea** *(Agavaceae)*

fragrantissima Jacq. = **Dracaena fragrans** *(Dracaenaceae)*

frutescens Salm-Dyck = **Aloe arborescens**

fruticosa Lam. = **A. arborescens**

gloveri Reynolds & P. R. O. Bally = **A. hildebrandtii**

graminicola Reynolds = **A. lateritia var. graminicola**

graminifolia A. Berger = **A. myriacantha**

greenwayi Reynolds = **A. leptosiphon**

guineensis Jacq., p.p = **Sanseviera trifasciata** *(Dracaenaceae)*

harmsii A. Berger = **Aloe dorotheae**

howmanii Reynolds = **A. hazeliana var. howmanii**

hyacinthoides L. = **Sanseviera** *(Dracaenaceae)*

jex-blakeae Christian = **Aloe ruspoliana**

johnstonii Baker = **A. myriacantha**

keithii Reynolds = **A. parvibracteata**

komatiensis Reynolds = **A. parvibracteata**

lanuriensis De Wild. = **A. wollastonii**

lastii Baker = **A. brachystachys**

lateritia var. *kitaliensis* (Reynolds) Reynolds = **A. wollastonii**

laxissima Reynolds = **A. zebrina**

lettyae Reynolds = **A. zebrina**

lugardiana Baker = **A. zebrina**

lusitanica Groenew. = **A. parvibracteata**

macrocarpa subsp. *wollastonii* (Rendle) Wabuyele = **A. wollastonii**

macrocarpa var. *major* A. Berger = **A. macrocarpa**

magnidentata I. Verd. & Christian = **A. megalacantha subsp. megalacantha**

marlothii var. *bicolor* Reynolds = **A. marlothii subsp. marlothii**

marsabitensis I. Verd. & Christian = **A. secundiflora var. secundiflora**

marsabitensis Reynolds, non I. Verd. & Christian = **A. canarina**

melsetterensis Christian = **A. swynnertonii**

meruana Lavranos = **A. chrysostachys**

mketiensis Christian = **A. nuttii**

morogoroensis Christian = **A. bussei**

mwanzana Christian = **A. macrosiphon**

natalensis J. M. Wood & M. S. Evans = **A. arborescens**

ngobitensis Reynolds = **A. nyeriensis**

nitens Baker = **A. rupestris**

nyeriensis subsp. *kedongensis* (Reynolds) S. Carter = **A. kedongensis**

oligospila Baker = **A. percrassa**

orpeniae Schönland = **A. hereroensis**

otallensis var. *elongata* A. Berger = **A. rugosifolia**

paedogona A. Berger = **A. buettneri**

pallidiflora A. Berger = **A. greatheadii**

paludicola A. Chev. = **A. buettneri**

parvibracteata var. *zuluensis* (Reynolds) Reynolds = **A. parvibracteata**

percrassa Schweinf., non Tod. = **A. trichosantha subsp. trichosantha**

percrassa var. *albopicta* Schweinf. = **A. trichosantha subsp. trichosantha**

perfoliata Meyen = **A. arborescens**

perfoliata var. × L. = **A. arborescens**

perfoliata var. *arborescens* (Mill.) Aiton = **A. arborescens**

platyphylla Baker = **A. zebrina**

pole-evansii Christian = **A. dawei**

pongolensis Reynolds = **A. parvibracteata**

pongolensis var. *zuluensis* Reynolds = **A. parvibracteata**

princeae A. Berger = **Kniphofia** *(Asphodelaceae)*

pulchra Lavranos = **Aloe bella**

pycnantha MacOwan = **A. rupestris**

rabaiensis sensu Reynolds p.p., non Rendle = **A. ngongensis**

rigens var. *glabrescens* Reynolds & P. R. O. Bally = **A. glabrescens**

rubrolutea Schinz = **A. littoralis**

ruspoliana var. *dracaeniformis* A. Berger = **A. retrospiciens**

saponaria (Aiton) Haw. = **A. maculata**

saponaria auctt. non (Aiton) Haw. = **A. collina**

schimperi Schweinf., non Tod. = **A. percrassa**

schinzii Baker = **A. littoralis**

schliebenii Lavranos = **A. brachystachys**

schmidtiana Regel = **A. cooperi subsp. cooperi**

schweinfurthii var. *labworana* Reynolds = **A. labworana**

secundiflora var. *tweedieae* (Christian) Wabuyele = **A. tweedieae**

sessiliflora Pole-Evans = **A. spicata**

sobolifera (S. Carter) Wabuyele = **A. secundiflora var. sobolifera**

solaiana Christian = **A. lateritia var. graminicola**

spectabilis Reynolds = **A. marlothii subsp. marlothii**

spicata Baker, non L. f. = **A. camperi**

stefaninii Chiov. = **A. ruspoliana**

stuhlmannii Baker = **A. volkensii subsp. volkensii**

supralaevis var. *hanburyi* Baker = **A. marlothii subsp. marlothii**

termetophila De Wild. = **A. greatheadii**

torrei var. *wildii* Reynolds = **A. wildii**

transvaalensis Kuntze = **A. zebrina**

trivialis A. Chev. = **A. schweinfurthii**

trothae A. Berger = **A. bulbicaulis**

vandermerwei Reynolds = **A. zebrina**

venusta Reynolds = **A. bicomitum**

vera var. *aethiopica* Schweinf. = **A. elegans**

zeyheri Baker = **A. barberae**

Bowiea myriacantha Haw. = **A. myriacantha**

(CATEVALA)

Catevala arborescens (Mill.) Medik. = **Aloe arborescens**

CHORTOLIRION / *1*

Floral affinities with *Haworthia.*

A “variable, taxonomically controversial monotypic genus that has a history of taxonomic confusion”. With a wide geographical distribution range.

If considered monotypic by various authors, the World Checklist of Selected Plant Families (Kew) accepts 2 species *(C. angolense* and *C. tenuifolium),* Zonneveld & Fritz (o.c.) accept 3 species. Based on studies of genome size (nuclear DNA content), morphology, ecology, and flowering season, a third species is described by the latter authors, viz. *C. latifolium.* A comparative table is given in their publication. However, their analysis did not include material from Angola (locus classicus of *C. angolensis),* Namibia and Zimbabwe. Their study showed that *C. angolense* and *C. tenuifolium* have similar nuclear DNA content (27,2 pg), whereas that of *C. latifolium* is higher (30,6 pg).

In our treatment below we have followed a broad concept of *C. angolensis,* with 3 forms based on flowering times, morphology, and nuclear DNA content, as far as these characters are known up to now.

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CHORTOLIRION

Chortolirion angolense (Baker) A. Berger; Figueiredo & Smith, Pl. Angola: 175, 2008. – Icon.: Fl. Zambes. 12/3: 52, 2001; Smith & Steyn in T. Reynolds, Aloes: the genus Aloe: 30, 2004; Haseltonia 10: 55, 2004; Craib, Grass Aloes: 127-135, 2005; Bradleya 24: 90, 2006; Aloe 44: 10-13, 2007; G. F. Smith & B. van Wyk, Aloes in south. Africa: 19, 2008; Bradleya 28: 28, 33 *(C. latifolium),* 2010; D. Court, Succul. flora south. Afr., rev. ed.: 308, 2010.

syn.: Enum. 3: 48, 1995; see also below.

Perennial herb, acaulescent, with fleshy roots from an underground bulb-like base formed by expanded bases of *spirally* arranged *leaves;* bulb 2-4 cm Ø, ± obovoid, with membranous scales covering the inner loosely-packed leaf bases; leaves deciduous, linear, grass-like, fleshy, jointed shortly above base, margins minutely toothed; inflorescence 0,3-1 m tall; perianth tube cylindrical, c. 10 mm long, c. 2,5 mm Ø, 2-lipped (3 upper, 3 lower free segments); capsule c. 2,5 cm long, acuminate.

Growing in grass; open *Brachystegia* woodland; rather rare in sandy thickets (Angola); difficult to detect when not in bloom; 1000-1550 m alt.

Rare in cultivation: propagation from seed; plants rarely forming side shoots.

Three forms can be distinguished (in the whole distribution area):

– Spring-flowering form (blooming early September-early December, usually before the first summer rains) = **C. angolense** [syn.: *C. subspicatum* (Baker) A. Berger]; leaves 3-12 cm long, 2 mm wide, much twisted; inflorescence 20-30 cm tall; flowers erect (angle of 45° to main axis), brownish white. – Common; scattered or in dense colonies in short flat grassland with winter grass fires; in firm heavy soil, with other geophytes *(Hypoxis, Ledebouria, Dipcadi, Urginea,* in S. Africa). – In Angola, S. Africa.

– (Late summer to early) Autumn-flowering (robust) form (blooming February-March, at end of main summer rains) = **C. tenuifolium** (Engl.) A. Berger [syn.: *C. stenophyllum* (Baker) A. Berger; *C. bergerianum* Dinter (not *C. bergianum* !); *C. saundersiae* Baker, nom. nud. in Hook. Ic. Pl. 10: pl. 1974 (not 1914 !), 1891]; leaves 15-29 cm long, 1-3 mm wide, little twisted; inflorescence 50-100 cm tall; flowers horizontal, pink-whitish. – Uncommon; rocky sandstone terrain with short grasses; sometimes on termite mounds. – In Namibia, S. Africa (Gauteng/Mpumalanga), probably Zimbabwe.

– Summer-flowering form (December, "once the first rains have fallen") = **C. latifolium** Zonn. & Fritz [syn.: "One population… near Welkom Airport…Free State" sensu Craib & al., Haseltonia 10: 54, 2004]; leaves 5-12 cm long, 4-5 mm wide, "strongly spiralling"; inflorescence 20-40 cm tall; flowers erect, brown. – Very rare; on sandy soils. – In S. Africa, Central Free State. – Nuclear DNA content high.

Namibia, S. Africa, Swaziland, Botswana; winter and summer rainfall regions; in desert areas along W coast, in tropical habitats in Zimbabwe.

HAWORTHIA / *1*

A South African genus of 61 species (Bayer 1999) or c. 85 species (Zietsman & Smith, Bothalia 40: 58, 2010); one extending into S Namibia *[H. tessellata* Haw. = *H. venosa* (Lam.) Haw. subsp. *tessellata* (Haw.) M. B. Bayer], another into S Mozambique *(H. limifolia);* map in Taxon 40: 573, 1991.

"It is a matter of considerable concern to me that the lack of *'adequatio'* for the understanding of *Haworthia* is so conspicuous by its absence" (Bayer, Haworthia Update 6: 1, 2010).

"There is an ambience to the literature on *Haworthia* which make it very difficult to write meaningfully and truthly about the genus" (Bayer in Aloe 36/2-3: 37, 1999).

"Haworthia has always been regarded as a problem child of botany…The problem… begins with weak botany from the moment Linnaeus decided that there were four small plants that belonged together as one species in the genus Aloe… There is no doubt that the mess in the classification of *Haworthia* is the product of non-botanists… *Haworthia*… has attracted such close and sustained amateur interest by so many for so long…"… it "is composed of elements that reflect the nature of the habitats and environments where they are found" (Bayer in Veld & Flora 95/3: 158-159, 2009).

Haworthias are of great interest to succulent plant collectors, they are easily propagated from suckers. The variation of leaf features and rosette form gives the attraction. Such variation can be observed in the wild even in a single population of one species. On the other hand, the inflorescences show very little variation. This variation and a confusion of names based on differences of plants in cultivation have led to numerous descriptions of new species.

"The real issue is that there is confusion in the minds of collectors as the user public, about the uses and application of Latin names in the pursuit of their interests. Professional botany offers no assistance and any numbers of poorly equipped authors of necessity, invent and re-invent types, the interpretation of names and then their application" (Bayer, Haworthia Update 6:1, 2010).

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Haworthia limifolia Marloth var. **limifolia**; Bayer & van Jaarsveld, o.c.: 210-211; Breuer 1998a: 165-169; Schulz, o.c.: 15; Hayashi, 2000: 9; Battista, o.c.: 42; Hayashi, 2008: 11. – Icon.: Fl. Zambes. 12/3: 50, 2001; Aloe 36: 8-9, 12, 1999; Aloe 40: 41-50, 2003; Flow. Pl. Africa 55: pl. 2125, 1997; Alsterworthia Int., Special Issue 4: 43-45, 2004; Bayer, Haworthia Update 2: 25, 41, 2006.

syn.: *H. limifolia* Marloth fa. *diploidea* Resende, fa. *schuldtiana* Resende, fa. *tetraploidea* Resende, fa. *diploidea* Resende, fa. *major* (Resende) Pilbeam, fa. *marlothiana* Resende; *H. limifolia* Marloth var. *stolonifera* Resende, incl. fa. *stolonifera*, fa. *major* Resende and fa. *pimentelii* Resende, var. *schuldteana* (Resende) Resende, var. *marlothiana* (Resende) Resende, var. *keithii* G. G. Smith (synonym of var. *ubomboensis* according to Breuer, 2002: 4), var. *striata* Pilbeam, nom. inval.; *H. keithii* (G. G. Smith) M. Hayashi (see below).

Perennial succulent acaulescent herb, suckering from the base to form dense clusters of plants; leaves in a basal compact rosette, 6-18 cm Ø; leaves spreading-ascending, up to 20, the young erect, deltoid, tapering to a sharp point, 3-10 × 2-4 cm, ca. 1 cm thick, rigid, uniformly bright green, surfaces with numerous small tubercles, with ridges in densely packed transverse lines; upper surface flat to concave, lower one convex, margins upcurved, rough; inflorescence simple, erect, to 35 cm high; peduncle 20 cm long with a few scattered bracts; raceme to 15 cm long, laxly flowered, bracteate; flowers c. 1,5 cm long, cylindrical, 3,5 mm Ø across ovary, 2-lipped, white; tube ± straight; capsule cylindrical, apex retuse.

Amongst grass on rocky slopes; 300-800 m alt.

Swaziland, S. Africa.

Polymorphic species consisting of 3 or 4 varieties. Smith & al., 1997, recognize 3 vars., viz. var. **limifolia**, var. **gigantea** M. B. Bayer [syn.: *H. gigantea* (M. B. Bayer) M. Hayashi], and var. **ubomboensis** (I. Verd.) G. G. Smith [bas.: *H. ubomboensis* I. Verd.; syn. ?: *H. keithii* (G. G. Smith) M. Hayashi; *H. limifolia* var. *keithii* G. G. Smith, cf. above], all in Swaziland and S. Africa, and so do Battista, o.c.: 42, as well as Bayer & van Jaarsveld, l.c. – Other authors recognize the following vars.: **H. limifolia** var. **limifolia**, var. **arcana** G. F. Smith & Crouch, var. **gigantea** M. B. Bayer, var. **glaucophylla** M. B. Bayer, and var. **ubomboensis** (I. Verd.) G. G. Smith. – Halda, o.c.: 38, divides **H. limifolia** into 2 subspecies, viz. subsp. **limifolia** including var. **limifolia** (synonyms as under var. **limifolia** above) and var. **ubomboensis** (I. Verd.) G. G. Smith, and subsp. **koelmaniorum** (Oberm. & Hardy) J. J. Halda [bas.: *H. koelmaniorum* Oberm. & Hardy; syn.: *H. macmurtryi* C. L. Scott]. – In Fl. Zambes. 12/3: 53, 2001, Carter recognizes 2 vars., viz. **H. limifolia** var. **limifolia,** and var. **ubomboensis** (I. Verd.) G. G. Smith with ± smooth leaves, in Swaziland.

Cultivation not easy. – Extensively used in traditional Zulu medicine; "population numbers have declined alarmingly."

BAYER, M. B. (2003). Whereto Haworthia limifolia ? *Aloe* 40: 41-51.

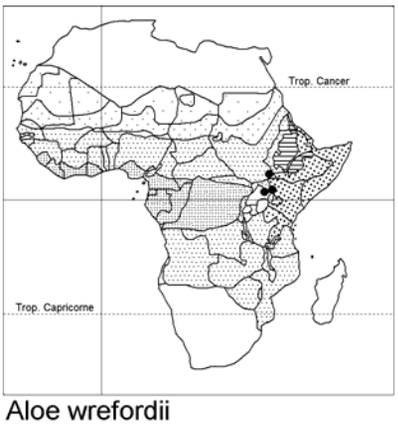
BAYER, M. B. (2004). Haworthia limifolia var. arcana Smith & Crouch. *Alsterworthia Int., Special Issue* 4: 42-45.

CROUCH, N. R. & al. (1999). A species recovery contribution for Haworthia limifolia var. limifolia, the umathithibala of the Zulu. *Aloe* 36: 8-13.

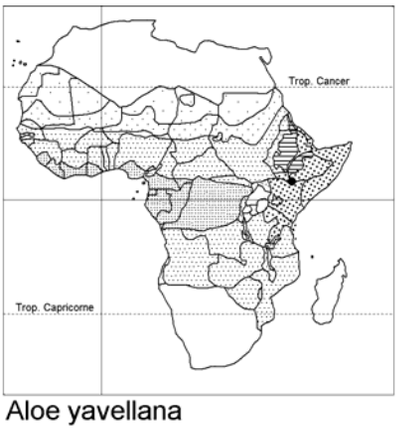
SMITH, G. F. & al. (1997). Haworthia limifolia var. limifolia. Flow. Pl. Africa 55: 24-29.

SYNONYMS:

See Vol. 3: 49, 1995.



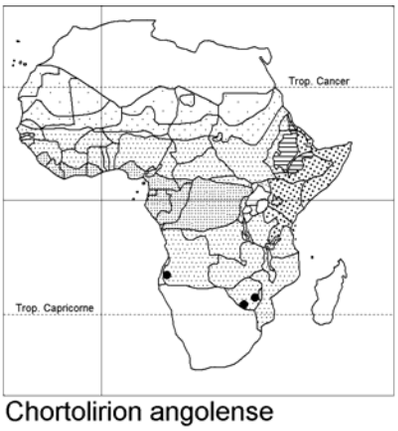
Aloe wrefordii



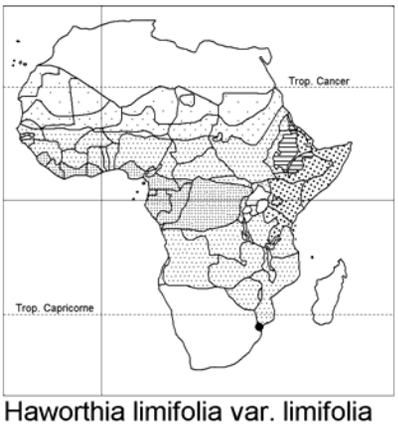
Aloe yavellana



Aloe zebrina

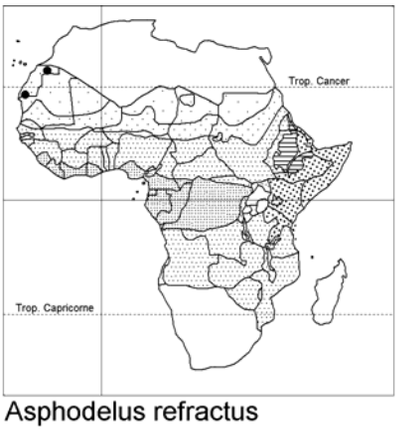


Chortolirion angolense

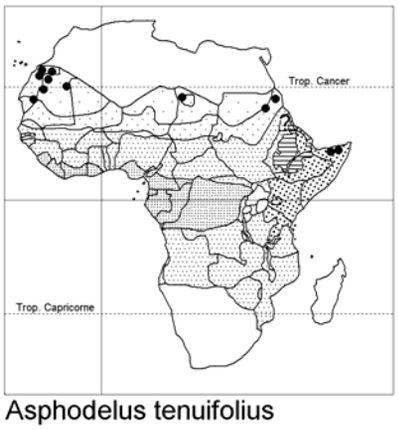


Haworthia limifolia var. limifolia

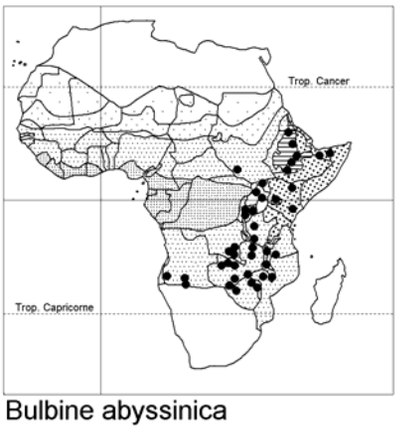




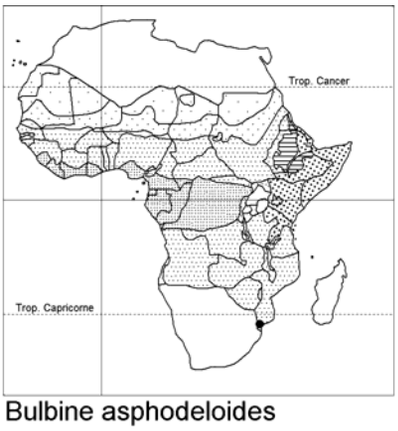
Asphodelus refractus



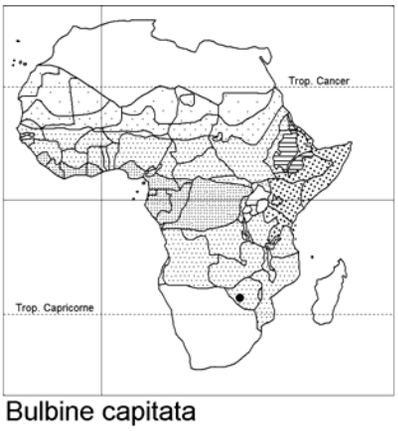
Asphodelus tenuifolius



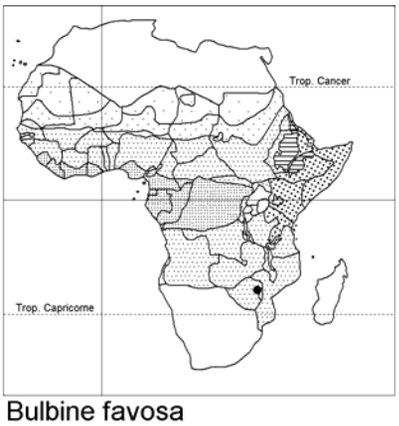
Bulbine abyssinica



Bulbine asphodeloides



Bulbine capitata



Bulbine favosa

(LEPTALOE)

Leptaloe Stapf = **Aloe**

caricina (A. Berger) Stapf = **A. myriacantha**

graminifolia (A. Berger) Stapf = **A. myriacantha**

johnstonii (Baker) Christian = **A. myriacantha**

myriacantha (Haw.) Stapf = **A. myriacantha**

schliebenii Poelln. = **A. myriacantha**

(LOMATOPHYLLUM)

Lomatophyllum pembanum (L. E. Newton) Rauh = **Aloe pembana**

ASPHODELACEAE / *5* g. / *35* spp.

excl. *Aloaceae: Aloe, Gasteria, Chortolirion, Haworthia.*

Often included in a broad *Liliaceae*. *Asphodelaceae* is treated here in a strict, "classical" sense. APG III (2009) recognizes a large family *Xanthorrhoeaceae*, with *Asphodeloideae* at subfamily level.

CHASE, M. W. & al. (2009). A subfamilial classification for the expanded asparagalean families Amaryllidaceae, Asparagaceae and Xanthorrhoeacea. Bot. J. Linn. Soc. 161: 132-136.

FORSTER, P. I. (2004). Aloaceae versus Asphodelaceae. *Haworthiad* 18/2: 66-69.

KLOPPER, R. R. & al. (2010). Phylogenetic relationships in the family Asphodelaceae (Asparagales). *Schumannia* 6, *Biodiversity & Ecology* 3: 9-36 [with a "summary of taxonomic treatments of genera illustrating changes in family concepts during the past three decades" on p. 20].

WALLACE, R. S. & J. D. NOLL (2002). Molecular systematic study of succulent Asphodelaceae. *Haworthiad* 16: 26 *[Astroloba]*.

* * *

KATIVU, S. (1996). Asphodelaceae of the Flora zambesiaca area. *Kirkia* 16: 27-53.

KOSENKO, V. N. & O. Y. SVENTORZHETSKAYA (1999). Pollen morphology in the family Asphodelaceae (Asphodeleae, Kniphofieae). *Grana* 38: 218-227.

SMITH, G. F. & B.-E. VAN WYK (1998). Asphodelaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 3. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae):* 130-140.

In our area *Kniphofia* is incompletely known; no mature fruit in 2 species, no fruit known in 3 + 2 ? species (in all 5 +2 ? = c. 14%).

(ALETRIS; *Liliaceae* s.l.)

Aletris pumila Aiton = **Kniphofia**

ASPHODELUS / *2*

Genus of 11 species, from Macaronesia through the Mediterranean to the Mascarenes and China. One introduced in Mexico.

Rhizomatous herbs with linear leaves in a basal rosette expanded at base and forming a membranous sheath; flowers numerous in a raceme or panicle; pedicels with a joint; filaments glabrous; fruit a loculicidal capsule.

LORDA LÓPEZ, M. (2010). El complejo Asphodelus fistulosus-A. ayardii (Asphodelaceae) en el valle medio del Ebro. *Flora Montiber.* 45 : 21-41 [with a key p. 27].

Asphodelus refractus Boiss.; Le Floc'h & Boulos, Fl. Tunisie: catal. synonym.: 312, 2008; Ibn Tattou & Fennane, Flore vascul. Maroc 2: 146, 2008; Dobignard & Chatelain, Index synon. Fl. Afr. N. 1: 96, 2010. – Icon.: Boissiera 52: 166, 1996; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 163, 2001; Boulos, Fl. Egypt 4: 35, 2005.

syn.: *A. pendulinus* Coss. & Durieu

Annual herb 25-45 cm tall; roots fibrous; leaves subcylindric, to 18 cm long, 2 mm Ø, fistulose, sticky; scapes 1-4, to 40 cm long, 2,2 mm Ø, simple or ramose; racemes lax; flowers with erect pedicels, jointed near the base, pedicels elongating and *deflexed at fruiting;* the lower flowers 2-3 together, the upper solitary; perianth segments 5-8 mm long, white with greenish or reddish midnerve*;* capsule subglobose or ± depressed, 3-4 × 4-5 mm, *pendulous*, pedicels to 1,2 cm long.

Hamada; sandstone rubble covered by sand: sometimes abundant; steppe in hamada.

Morocco, Algeria, Tunisia, Libya, Egypt; N Saudi Arabia, Israel, Jordan.

A. tenuifolius Cav. 1801, incl. fa. *genuinus* Maire & Weiller, nom. inval., var *micranthus* Boiss., and fa. *micranthus* (Boiss.) Maire; Le Floc'h & Boulos, l.c.; Ibn Tattou & Fennane, l.c.; Xanthos in Kew, Spring 2006: 31, 2006; Nordal & al. in Biol. Skr. 54: 253, 2001 (sub nom. *A. fistulosus);* Dobignard & Chatelain, l.c. – Icon.: Boissiera 52: 154, 1996; Thulin, Fl. Somalia 4: 32, 1995 *(A. fistulosus);* Fl. Eth. & Eritrea 6: 114, 1997 (idem); Ali & al., Fl. Pakistan 211, Asphodelaceae: 5, 2005; Chaudhary, Fl. Saudi Arabia ill. 3: 162, 2001; Boulos, Fl. Egypt 4: 35, 2005.

syn.: *A. fistulosus* L. var. *tenuifolius* (Cav.) Baker and subsp. *tenuifolius* (Cav.) Arcang. 1844 ! (K. Richter 1890, Trabut 1895), subsp. *nilotica* Ravenna, subsp. *faurei* Sennen; *A. fistulosus* sensu El Gadi, Fl. Libya 57: 14, 1979, quoad descr., non L. (cf. above under "Icon."); *A. serrulatifolius* Sennen; *A. serrulatus* Sennen & Mauricio; *A. micranthus* Coss. & Kral., nom. nud.; *A. bornmuelleri* Gand.; *A. canariensis* C. Sm. & Buch; *A. microcarpus* Rchb.; *A. clavatus* Roxb.; *A. "clavosus"* Don ex Steud.; *A. maroccanus* Gand.; *Anthericum annuum* Pourr. ex Willk. & Lange; *Verinea tenuifolia* (Cav.) Pomel; *Ornithogalum flavum* Forssk. 1775 [nom. utique rej. prop. (1872) in Taxon 58: 299, 2009; Taxon 60: 229, 2011].

Annual herb *15-50 cm* tall; roots fibrous; leaves 6-30 × 0,2-0,3 cm, semiteret, *not sticky*; scape terete, 30-60 cm tall, branched; panicle with flowering pedicels 2-4 mm long; fruiting pedicels to 6 mm long, *erect*, thickened, jointed just below the middle; tepals 5-7 × 2,5-3 mm, pinkish-white, with a prominent brownish-violet midnerve; capsule ovoid-globose, 2,5-4 mm, transversely wrinkled.

Dayas and sandy regs; sandy plains and wadis; sandy places in galbs and kedias; clayey graras; often in large stands; with *Brocchia cinerea* in graras and slightly choked-up places in

hamadas; grassy patches in evergreen bushland; to 2000 m alt.

Iberian Peninsula, Sicily, Greece, Cyprus; Atlantic Islands; N Africa from Morocco to Egypt; Palestine, Lebanon, Gulf States, Kuwait, Oman, Saudi Arabia, Yemen, Socotra, Iraq, Iran, Pakistan, India. Probably introduced in Mauritius and Rodrigues Isl., in Australia, New Zealand.

SYNONYMS:

See above under the species, and add:

Asphodelus chamaemoly Hochst. ex Baker = **Chlorophytum tetraphyllum** *(Anthericaceae)*

BULBINE / *5*

excl. *Jodrellia* Baijnath

Genus of some 70 species in eastern and southern Africa, mostly in S. Africa; 5 species in Australia (Flora of Australia 45: 236-241, 1987).

Perennial herbs with non-bulbous rhizome; flowers numerous, stellate, in racemes, yellow; pedicels not articulated; petal segments free, stamens equal, filaments densely hairy towards tips; fruit a loculicidal capsule.

Several species are cultivated as ornamentals (cultivars cited in "Hybrids & Cultivars of the Succulent Asphodelaceae" 1: 44; s.l., s.d.; H. Mays, ed., Alsterworthia International Cultivar Project).

ANONYMOUS (2002). Brief notes on the genus Bulbine. *Alsterworthia Int.* 2/2: 15-16.

BOATWRIGHT, J. S. & J. C. MANNING (2010). Asphodelaceae. Inclusion of the genus Jodrellia in Bulbine (Asphodeloideae). *Bothalia* 40: 59.

DEVEY, D. S. & al. (2006). Systematics of Xanthorrhoeaceae sensu lato, with an emphasis on Bulbine. *Aliso* 22: 345-351.

SHAW, J. M. H. (2001). A review of Flora Zambesiaca vol. 12 part 3. *Alsterworthia Int.* 4/1: 17.

SMALE, T. (2002). Bulbine – a neglected genus. *Brit. Cactus Succ. J.* 20: 207-214.

WILLIAMSON, G. (2007). Bulbines, are they all the same ? *Haworthiad* 21/1: 6-13.

Bulbine abyssinica A. Rich.; van Jaarsveld & Forster in Eggli, ed., Ill. Handbook succ. pl., Monocot.: 233, 2001; Figueiredo & Smith, Pl. Angola: 175, 2008; Bothalia 39: 192, 2009 (Baum, Kunene Exp.); Haseltonia 15: 73, 2009. – Icon.: Flow. Pl. Afr. 34: pl. 1350, 1961; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 143, 1994; Thulin, Fl. Somalia 4: 33, 1995; Fl. Eth. & Eritrea 6: 112, 1997; Fl. Zambes. 12/3: 43, 2001; Fl. Trop. E. Afr., Asphodel.: 12, 2002; Sebsebe Demissew & al., Flowers Eth. & Eritrea…: 69, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 122, 2010; Aloe 43: 94, 2006 [2007].

syn.: *B. asphodeloides* auctt. afr. p.p. (e.g. sensu Baker 1898, Cufod. 1971), non (L.) Schult. nec Sprengel (Mozambique, S. Africa); *Anthericum asphodeloides* auct., non L.; *Bulbine xanthobotrys* Engl. & Gilg; *B. huilensis* Poelln.; *B. latitepala* Poelln.; *B. decurvata* Peter ex Poelln.; *B. hamata* Peter ex Poelln.; *B. asphodeloides* (L.) Spreng. var. *filifolioides* De Wild., var. *monticola* Poelln. and var. *xanthobotrys* (Engl. & Gilg) Weim.

Succulent *acaulescent* herb often forming clumps, 10-66 cm tall; rhizome short, vertical, with fibrous fleshy roots; leaves linear, 7-60 × 0,2-0,6 cm, flat or rolled, *explanding at base into tubular sheaths not becoming shiny papery,* 2-5,5 cm long, outer leaves reduced to membranous sheaths, sometimes covered by fibres; peduncle incl. raceme 10-50 cm tall, terete, erect or arcuate; racemes 1(-5), 2,5-25 cm long, *cylindrical,* densely

many-flowered in upper part; pedicels patent to erect, *straight,* 1,5-2,5 cm long (to 3 cm in fruit); floral bracts entire; tepals 9 × 2-2,5 mm, bright yellow to yellow-green, with a pronounced green or red-brown midrib outside; capsule subglobose, stipitate, 3-6 × 3-5 cm, not inflated when mature.

Degraded *Acacia* bushland, *Acacia, Combretum* bushland on red-brown loamy soil; forest glades, usually on limestone; flat plains without trees and shrubs on sandy soil; miombo; mixed deciduous woodlands; wooded grassland; dambo-margins; swampy grassland; shallow soils over rocks; seepage areas on rocky hillsides; 100-2450(-3200) m alt.

Botswana, S. Africa, Swaziland, Lesotho.

B. asphodeloides (L.) Spreng., excl. var. *otaviensis* Poelln. *(= B. capitata);* Kativu in Kirkia 16: 44, 1996; Fl. Zambes. 12/3: 41-42, 2001; van Jaarsveld & Forster, o.c.: 234. – Icon.: Flow. Pl. South Africa 6: pl. 217, 1926.

bas.: *Anthericum asphodeloides* L.

syn.: *A. longiscapum* Jacq.; *A. succulentum* Salisb., nom. illegit.; *Bulbine mettinghii* Ten.; *B. pallida* Baker; *B. caespitosa* Baker; *B. crocea* L. Guthrie; *B. dielsii* Poelln.; *Anthericum altissimum* Miller; *Bulbine longiscapa* (Jacq.) Willd.; *Phalangium asphodeloides* (L.) Kuntze; *P. altissimum* (Miller) Kuntze; *Bulbine altissima* (Miller) Fourc.; *Phalangium longiscapum* (Jacq.) Kuntze

Rhizomatous herb 25-60 cm tall, erect, in clusters; rhizome short, 1-5(-10) cm long, with fibrous to ± fleshy roots; *stem 0,7 cm long,* simple or branched, *"woody",* sheathed by persistent closely overlapping hyaline-margined leaf bases; leaves closely spaced on a short stem or apparently basal, erect to arching, fleshy; blade 10-50 × 0,2-0,5 cm; peduncle usually 1 per branch, to c. 43 × 0,2-0,4 cm tall; raceme ± densely many-flowered, cylindrical, 5-15 cm long, to c. 20 cm in fruit; pedicels ± closely spaced, patent, 7-20 mm long; floral bracts with *fimbriate auricles;* tepals yellow, to 6 × 2-3 mm; capsule *not inflated,* substipitate, c. 4 mm long, 5 mm Ø, 3-lobed, depressed at apex.

Rocky hillsides; sandy soils; roadsides; 500-800 m alt.

S. Africa, Swaziland.

Has been confused with *B. abyssinica* (cf. synonyms under this species). Angolan records of *B. asphodeloides* are probably such misidentifications (Figueiredo & Smith, Pl. Angola: 175, 2008; idem, Haseltonia 15: 73, 2009).

B. capitata Poelln.; Kativu, o.c.: 48; Fl. Zambes. 12/3: 44, 2001; van Jaarsveld & Forster, o.c.: 235. – Icon.: Flow. Pl. Africa 27: pl. 1044, 1948 *(B. stenophylla).*

syn.: *B. asphodeloides* (L.) Spreng. var *otaviensis* Poelln.; *B. otaviensis* Dinter ex Sölch; *B. lydenburgensis* Poelln.; *B. stenophylla* I. Verd.

Rhizomatous herb 20-45 cm tall, several clustered on a vertical rhizome or spaced on an inclined rhizome; aerial stem absent; leaves with *sheathing yellowish* and *shiny papery wings;* blade ± fleshy, grass-like, mostly 10-25 × 0,2 cm Ø; peduncle 1 per plant, to c. 25 cm long, 0,3 cm Ø; raceme densely many-flowered, at first broadly conical, 2-15 cm long, 3-4 cm Ø; tepals yellow, to c. 6 × 2,5-3,5 mm; capsule stipitate, ovoid, c. 6-7 × 4-5 mm, slightly depressed at apex, shallowly 3-lobed.

Forming small clumps scattered in open grassland and thorn scrub on sandy soil, or rocky hillsides; 975-1050 m alt.

Botswana, Namibia, S. Africa, Swaziland.

BULBINE

B. favosa (Thunb.) Schult. & Schult. f.; Kativu, o.c.: 48-49; Fl. Zambes. 12/3: 45-46, 2001; van Jaarsveld & Forster, o.c.: 236-237. – Icon.: Alsterworthia Int. 3/1: 2, 2003 (tuber).

bas.: *Anthericum favosum* Thunb.

syn.: *Bulbine filifolia* Baker; *B. trichophylla* Baker; *B. mayori* Beauverd; *B. rigidula* Schltr. ex Poelln.; *B. setifera* Poelln.; *B. dubia* Schult. & Schult. f.; *Phalangium filifolium* (Baker) Kuntze; *P. favosum* (Thunb.) Kuntze; *B. minima* Baker (a delicate form).

Perennial herb 10-72 cm tall, *solitary*, with a *tuber* 6-20 mm long, 7-25 mm Ø; aerial stem absent; leaves fleshy, grass-like, with sheathing bases; blade 10-53 × *0,2-0,3 cm;* peduncles 1-3 per plant, 3-23 cm long, *terete;* raceme ± laxly few- to many-flowered, 3-23 cm long, narrowly cylindrical, obovoid; tepals elliptic, yellow, 3-7,5 × 1,5-4 mm; capsule stipitate, obovoid, c. 4-5 × 3-3,5 mm, ± shallowly 3-lobed.

Grassland in wet places on rocky soils; 1800-2400 m alt.

S. Africa.

[**B. frutescens** (L.) Willd.] – Icon.: Ballya 5/3: 60-61, 1998.

A caulescent plant, ± shrubby, forming dense clumps; leaves variable in length, fleshy, linear, 4-13 × 0,4-0,5 cm; inflorescence solitary, 30-60 cm long, densely flowered in upper part; flowers bright sulphur-yellow; tepals elliptic, 8-9 × 3 mm.

South African plant "found in gardens throughout Kenya", frequently overlooked, surviving "even in the poorest soils and most unsuitable placements", drought-resistant, frost-hardy. Often mistakenly referred to as *"Bulbinella"*. Grown for its medicinal properties, similar to those of *"Aloe vera"*.

B. latifolia (L. f.) Schult. & Schult. f. (s.l.) var. **latifolia**; Kativu, o.c.: 49-50; Fl. Zambes. 12/3: 44-45, 2001. – Icon.: Flow. Pl. South Africa 13: pl. 489, 1933; van Jaarsveld & Forster, o.c.: fig. XXVIc, 2001; B.-E. van Wyk & al., Medicin. pl. S. Africa, ed. 2: 73, 2009 *(B. natalensis);* G. F. Smith & N. R.Crouch, Guide succulents south. Africa: 44, 2009 (idem).

bas.: *Anthericum latifolium* L. f.

syn.: *Bulbine natalensis* Baker; *B. brunsvigiifolia* Baker; *B. ensifolia* Baker; *B. transvaalensis* Baker; *Phalangium latifolium* (L. f.) Kuntze, nom. illeg.

Perennial herb 10-72 cm tall from a ± fleshy tuber-like base, not clustered; aerial stem absent; leaves 3 to numerous, densely rosulate, arching becoming ± prostrate, margins ciliolate, base sheathing, sheaths usually breaking down into numerous long fibres; blade ovate, thickly fleshy, 5-42 × 1-9 cm; peduncles 1-5 per plant, 7-40 cm long, ± *strongly flattened* in lower part, to *7-12 mm wide* with narrowly hyaline ± ciliolate wings; raceme densely many-flowered to sometimes ± laxly-flowered, 3-35 cm long, narrowly cylindrical; pedicels erect to ascending, 3-16 mm long, straight; tepals bright yellow, to c. 6,5 × 1,5-3 mm; capsule obovoid, c. 2,5-5 × 3-4 mm, shallowly 3-lobed, not inflated.

Grassland, amongst rocks and in rock crevices; river banks; 300-1700 m alt.

S. Africa (also with var. **curvata** van Jaarsv.).

BULBINE

SYNONYMS:

Bulbine altissima (Miller) Fourc. = **Bulbine asphodeloides**

asphodeloides auctt. afr. p.p., non (L.) Schult. nec Sprengel = **B. abyssinica**

asphodeloides (L.) Spreng. var. *filifolioides* De Wild.,var. *monticola* Poelln. and var. *xanthobotrys* (Engl. & Gilg) Weim. = **B. abyssinica**

var. *otaviensis* Poelln. = **B. capitata**

breviracemosa Poelln. = **Jodrellia fistulosa**

brunsvigiifolia Baker = **Bulbine latifolia**

crocea L. Guthrie = **B. asphodeloides**

decurvata Peter ex Poelln. = **B. abyssinica**

dielsii Poelln. = **B. asphodeloides**

dubia Schult. & Schult. f. = **B. favosa**

ensifolia Baker = **B. latifolia**

filifolia Baker = **B. favosa**

fistulosa Chiov. = **Jodrellia**

hamata Peter ex Poelln. = **Bulbine abyssinica**

huilensis Poelln. = **B. abyssinica**

latitepala Poelln. = **B. abyssinica**

longiscapa (Jacq.) Willd. = **B. asphodeloides**

lydenburgensis Poelln. = **B. capitata**

macrocarpa (Baijnath) Boatwr. & J. C. Manning = **Jodrellia**

mayori Beauverd = **Bulbine favosa**

mettinghii Ten. = **B. asphodeloides**

migiurtina Chiov. = **Jordellia**

natalensis Baker = **Bulbine latifolia**

otaviensis Dinter ex Sölch = **B. capitata**

pallida Baker = **B. asphodeloides**

platyphylla Baker = **Eriospermum mackenii** *(Eriospermaceae)*

rigidula Schltr. ex Poelln. = **Bulbine favosa**

setifera Poelln. = **B. favosa**

stenophylla I. Verdoorn = **B. capitata**

transvaalensis Baker = **B. latifolia** var. **latifolia**

trichophylla Baker = **B. favosa**

xanthobotrys Engl. & Gilg = **B. abyssinica**

JODRELLIA / *3*

A tropical African genus, poorly known, similar to *Bulbine;* described by Baijnath to accommodate 3 white-flowered species. Outer tepals 3-5-nerved, inner ones 1-nerved.

ARCHER, C. (2001). Jodrellia fistulosa, a new generic record for the Flora of Southern Africa Region. *Bothalia* 31: 39-40.

BOATWRIGHT, J. S. & J. C. MANNING (2010). See above under **Bulbine**.

DEVEY, D. S. & al. (2006). See above under **Bulbine**.

JODRELLIA

Jodrellia fistulosa (Chiov.) Baijnath; Kativu in Kirkia 16: 51-52, 1996; Fl. Eth. & Eritrea 6: 112, 1997; Nordal & al. in Biol. Skr. 54: 253-254, 2001; Fl. Trop. E. Afr., Asphodel.: 13-14, 2002; Sebsebe Demissew & al., Flowers Eth. & Eritrea…: 70-71, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 123, 2010; Nordal in Symb. Bot. Upsal. 35/2: 99, 2011. – Fl. Zambes. 12/3: 47, 2001.

syn.: Enum. 3: 59, 1995.

Perennial herb, erect, acaulescent, 30-50 cm tall; rhizome short, 2-4 mm long, 4-10 mm Ø; roots fleshy, fusiform-tuberous, to 4 cm long, 7 mm Ø; leaves 4-10, terete to fistulose, glabrous, narrow, finely tapering to the tip, flattened at base, the outer ones expanded at base into thin hyaline sheathing wings to 1 cm wide on each side of lamina; *blade* to *50 cm long*, 2-8 mm Ø; *peduncles* 1-3, erect, simple, *12-32 cm long;* raceme ± densely many-flowered, cylindrical, 1,5-4,5 cm long at anthesis, increasing to c. 7 cm in fruit; *bracts* white, membranous with darker midrib, *longer than pedicels;* pedicels erect to ascending, recurved in fruit, 5-9 mm long, persistent; tepals white, 4-6 × 2 mm, 3-nerved (outer); capsule *not inflated* when mature, obovoid, 3,5-4,5 mm long, 4-4,5 mm Ø, 3-lobed; seeds smooth, 0-2 per loculus.

Mopane and miombo woodlands; thicket; seasonally wet grassland; dambo margins; close to rivers; in clay or alluvial soils; often on termite mounds; often in colonies; 390-1350 m alt.

E Caprivi Strip.

The species was described from a specimen with *immature fruit.* There seems to be uncertainty on the shape of the mature fruit of Ethiopian material, and it is important to obtain collections from the type locality. *J. migiurtina* from Somalia was once regarded as conspecific with *J. fistulosa.* It has *inflated* fruits at maturity; the delimitation of the two species needs reconsideration. If the northern populations of *J. fistulosa* show inflated capsules, the more southerly ones (from S Tanzania S-wards) with distinctly non-inflated fruits may have to be referred to a different taxon (Kativu, 1996: l.c.).

J. macrocarpa Baijnath; Fl. Eth. & Eritrea 1: 246, 2009. – Icon.: Thulin, Fl. Somal. 4: 34, 1995; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 71, 2003; idem, Aloes and lilies Eth. & Eritrea, ed. 2: 124, 2010; Fl. Trop. E. Afr., and Fl. Eth. & Eritrea, see below.

syn.: *Bulbine macrocarpa* (Baijnath) Boatwr. & J. C. Manning

Similar to *J. fistulosa*, but flower *pedicels longer than bracts;* capsules *inflated*, 8-15 × 12-22 mm; *seeds verrucose,* 0-2 per loculus.

Mixed woodland of *Acacia, Commiphora, Delonix* on rocky ground; c. 150-900 m alt.

Overlooked as it has been associated with *B. fistulosa.* Put in synonymy under *J. migiurtina* in Fl. Eth. & Eritrea 6: 112, 1997; and Fl. Trop. E. Afr., Asphodel.: 14, 2002.

J. migiurtina (Chiov.) Baijnath.; Thulin, Fl. Somalia 4: 34, 1995.

Similar to *J. fistulosa*, but flower *pedicels longer than bracts;* outer tepals 3- to 5-nerved, red; capsules 5-5,5 mm long, 4-5 mm *Ø, not inflated; seeds smooth. J. fistulosa* with 2 ovules per loculus, *J. migiurtina* with 3-4 per loculus.

Rocky or sandy ground; c. 400 m alt.

Somali endemic.

The type sheet has 3 incomplete specimens, one of which with a fasciated raceme.

Perhaps not distinct from *J. fistulosa* (shape of mature fruit needs confirmation).

KNIPHOFIA / *20*

Genus of 64-70 species in tropical and South Africa (absent from Namibia and Botswana), S Arabian Peninsula, Madagascar. "There are very few characters available for separating the species and too many poor collections have been made due to the size of the leaves and inflorescences so that it is often hard to define the species adequately" (Whitehouse in Flora of Tropical East Africa, Asphodelaceae: 2, 2002). The species are very close palynologically (Grana 38: 218, 1999). – High degree of endemism in the Horn of Africa (Nordal in Symb. Bot. Upsal. 35/2: 99, 2011).

Aloe-like plants, but not succulent; with thick horizontal rhizome; leaves usually basal in a dense rosette at apex of stem, (lanceolate-)linear, tapering gradually to apex, usually keeled; scape erect, leafless, rigid, narrowly cylindrical; bracts persistent, longer than the short pedicels; flowers usually with a red pigment, conspicuous in buds; perianth fused below in a tube, with short unequal free lobes; stamens 6, hypogynous, usually as long as or longer than perianth; filaments glabrous; capsule triquetrous, loculicidal; seeds 3-angled or winged.

A few species are cultivated as ornamentals, e.g. *K. uvaria* (L.) Oken from SW Cape Province, and its hybrids, known as Red Hot Pokers.

A few species in our area are insufficiently known: the *mature* fruit is unknown in 2 species, the fruit is lacking for 3+2 ? species.

CODD, L. E. (2005). *Flora of southern Africa 5/1/2*: *Asphodelaceae (first part): Kniphofia*. South African National Biodiversity Institute, Pretoria VI + 91 pp.

JACOB, J.-C. & J.-M. MOULLEC (2010). Les tisons de Satan. *Hommes & Plantes* 73 : 40-45.

KOSENKO, V. N. & O. Y. SVENTORZHETSKAYA (1999). Pollen morphology in the family Asphodelaceae (Asphodeleae, Kniphofieae). *Grana* 38: 218-227.

ONANA, J.-M. (2010). Endemisme floristique du Cameroun: inventaire systématique et conservation de la biodiversité. *In:* BURGT, X. VAN DER & al., eds., *Systématique et conservation des plantes africaines:* 509-521. Royal Botanic Gardens, Kew [see p. 516].

RAMDHANI, S. & al. (2003). Biogeography and phylogenetics of the genus Kniphofia Moench (Asphodelaceae). *In:* SEBSEBE DEMISSEW, ed., *XVI-Ith AETFAT Congress 21-26 September 2003, Abstracts:* 111-112. Addis Ababa University Press.

RAMDHANI, S. & al. (2009a). Phylogenetics of the genus Kniphofia Moench (Asphodelaceae). *In:* GHAZANFAR, S. A. & H. J. BEENTJE, eds., *Taxonomy and ecology of African plants, their conservation and sustainable use:* 559-573. Royal Botanic Gardens, Kew.

RAMDHANI, S. & al. (2009b). Rampant non-monophyly of species in Kniphofia Moench (Asphodelaceae) suggests a recent Afromontane radiation. *Taxon* 58: 1141-1152.

WHITEHOUSE, C. (2010). Pick of the pokers. *Plantsman, N. S.* 9: 146-153 [with named cultivars].

Kniphofia benguellensis Baker; Kativu in Kirkia 16: 30, 1996; Fl. Zambes. 12/3: 27, 2001; Figueiredo & Smith, Pl. Angola: 175, 2008.

syn.: *K. andongensis* Baker; *Notosceptrum andongense* (Baker) Benth. (sphalm. "angolense").

Herb apparently solitary, to 1-2,5 m tall; rhizome horizontal with short well-spaced, erect shoot-bearing branches; leaves 0,8-1,5 m × *1,5-2 cm* (at base), acute, strongly keeled; peduncle slender; raceme 30-55 cm long, cylindrical, ± dense; pedicels c. 1 mm long; flowers patent, pale greenish-yellow; perianth c. 7 mm long, tube c. 3 mm long, lobes oblong, rounded, c. 4 × 1,5 mm, becoming reflexed; capsule globose, very shortly stalked, dull yellowish, cartilaginous, shiny, rugose, 0,5 cm Ø.

Brachystegia woodland on Kalahari sand; rocky thickets with deep grass and deep-grassed marshy places; marshes by streams with *Aroides hastatum, Epilobium;* c. 1380 m alt. (Zambia).

Little known species.

K. bequaertii De Wild. – See below under **K. grantii**.

K. dubia De Wild.; Kativu in Kirkia 16: 31, 1996; Fl. Zambes. 12/3: 29, 2001; Figueiredo & Smith, Pl. Angola: 175, 2008; Syst. Geogr. Pl. 72: 238, 2002 (in key). – Icon.: Ann. Mus. Congo Belge 4/1: pl. IX figs. 16-26, 1902; Engler, Pflanzenreich 4/38: 47, 1908.

syn.: *K. homblei* De Wild.; *K. grantii* sensu Marais in Kew Bull. 28: 474, 1973, p.p., non De Wild.

Plants *solitary, not forming clumps*; rhizome short, corm-like; *roots thick, fleshy;* leaves ± distichous, 0,15-±2 m × 2-2,5 cm, keel prominent, tip blunt, margins hyline, remotely serrulate in upper 2/3 or smooth; peduncle 0,15-1,2 m long; raceme 5-15 (-25) cm long, dense, *oblong*, to 5,5 cm Ø; pedicels 2-4 mm long; flowers in bud light red, becoming pale yellow with green nerves or green; perianth 1,8-3 cm long, slightly constricted above ovary, almost straight; young capsule ovoid, c. 6 mm long; mature capsule ?

Swamps or seasonally moist situations; fairly widespread but apparently not very common; 1200-1860 m alt.

Not in Tanzania (= *K. grantii*, or closer to *K. linearifolia* ?); Watermeyer 205, Iringa Distr.; see Fl. Trop. E. Afr., Asphodel.: 8, 2002.

K. × erythraeae Fiori; Fl. Eth. & Eritrea 6: 107, 1997.

Flowers opening from top downwards; perianth tube c. 4 mm long (as in *K. pumila);* inflorescence lax; anthers shortly protruding (as in *K. schimperi).*

Is probably a hybrid *K. pumila* × *K. schimperi.*

K. foliosa Hochst. – Icon.: Fl. Eth. & Eritrea 6: 109, 1997; Veld & Flora 90: 56, 2004; Sebsebe Demissew & al., Flowers Eth. & Eritrea…: 65, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 116, 2010; Plantsman, N. S. 9: 148, 2010; Puff & Sileshi, Pl. Simen: 221, 2005.

syn.: Enum; 3: 59, 1995.

Robust herb forming dense clumps; rhizome thick, erect, sometimes with an aerial stem to 45 cm tall; leaves *rather soft*, 0,2-1 m × 1,5-7 cm, keeled, dark green to grey green; margins serrulate, keel smooth beneath; peduncle 0,3-1,2 m tall; *raceme 20-40 cm long*, very dense, cylindrical; bracts white, serrulate, 4-12 mm long; pedicels 2-6 mm long; flowers pale yellow, orange or red, 1,8-3,1 cm (mostly 2-2,7 cm), constricted above ovary, funnel-shaped, nearly straight, lobes 3,5-6 × 2-3 mm; flowers opening from base upwards; capsule globose, shortly pointed to ovoid, 6-8 mm Ø.

Roadsides; overgrazed areas with scattered trees; hillsides with rocky outcrops and tops of mountains; ? 2050 (or 2500)-4000 m alt. – Human activity in the Bale Mts has resulted in "beautiful 'botanical gardens', where fields with masses of *K. foliosa* (torch lily) make for a spectacular sight" (Veld & Flora, l.c.).

Has been confused with *K. ensifolia* Baker (Codd, 2005: 36).

K. goetzei Engl.; Fl. Trop. E. Afr., Asphodel.: 4, 6, 2002 – Icon.: Engler, Pflanzenreich 4/38: pl. 20 figs. f-g, 1908.

syn.: *K. thomsonii* sensu Marais, Kew Bull. 28: 467, 1973 p.p., quoad specim. Goetze 1045, Renvoize 2110.

Perennial herb, probably with a thick rhizome with fleshy roots; leaves rosulate, the outer basal ones sheathing so forming a *pseudostem* that is often *decumbent and trailing* to 1,2 m; lamina 0,5-1,7 m × 1,5-2,5 cm, margins and keel meeting together in an acute apex; inflorescence 0,5-1,5 m tall; peduncle 7-9 mm Ø; raceme lax to dense, 9-17 × 4-6,5 cm; flowers orange outside, yellow inside and towards the mouth of the tube at anthesis; perianth tube 22-30 mm long, *5-8 mm at the mouth* and 2-3 mm wide around ovary, *not constricted above ovary*; lobes triangular, 1-2 mm long; capsule ovoid *(immature)*, c. 4 × 3 mm.

Edge of rivers and swamps; 1700-2400 m alt.

Has been confused with *K. thomsonii*, but general habit different (cf. Fl. Trop. E. Afr., Asphod.: 6, 2002). May also be confused with *K. linearifolia* (cf. Fl. Zambes. 12/3: 32, 2001).

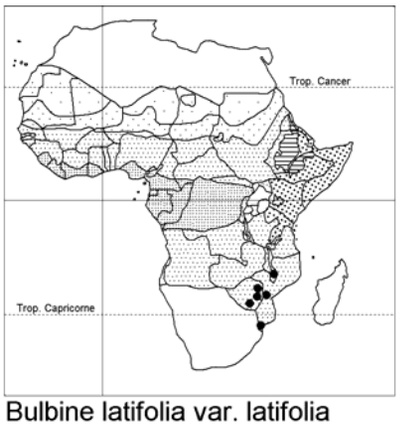
K. grantii Baker 1871 – **K. bequaertii** De Wild. 1920.

Champluvier in Troupin, Flore Rwanda 4: 54, 1988, concluded that these two species are not distinguishable and treated *K. bequaertii* from the Virunga and Mahali Mts as synonyms of *K. grantii* (illustrations in Robyns, Fl. spermat. Parc Natl. Albert 3: 357, 1955; Troupin, Fl. Rwanda, l.c.: 51: Fischer & Killman, Ill. field guide pl. Nyungwe Park Rwanda: 495, 2008).

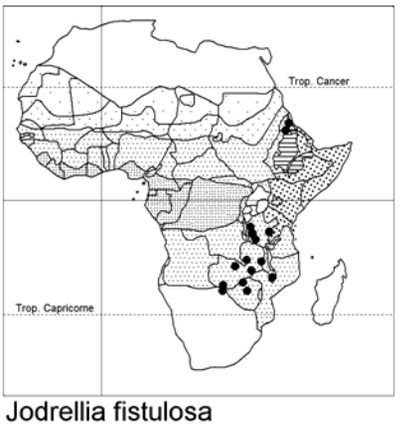
On the other hand, Whitehouse (in Fl. Trop. E. Afr., Asphodel.: 7-9, 2002) maintains the two species. He notes that *K. grantii* is a variable species, however with several forms recognisable in the E. Africa flora area, with respect to the shape of the inflorescence, flower colour and shape of the floral bracts (illustrations in Flora Zambes. 12/3: 30, 2001; Engler, Pflanzenreich 4/38: p. 64 fig 22/a-f, sub nom. *K. zombensis, K. flavovirens, K. mpalensis).* To him *K. grantii* is thus a species with a more easterly distribution. However, in the southern part of range there is possibly introgression with *K. linearifolia*. As a synonym Whitehouse also quotes *K. dubia* sensu Marais in Kew Bull. 28: 474, 1973, p.p., quoad specim. Watermeyer 205, non De Wild.

We have not been able to draw a clear line between *K. bequaertii* and *K. grantii*, so we prefer to treat them together, although we present two maps in order to show the areas of distribution of the two entities. The differences in inflorescence morphology are presented below, as given in keys figuring in Fl. Trop. E. Afr., l.c., and in Syst. Geogr. Pl. 72: 238, 2002 (by Lisowski & Wiland-Szymánska).

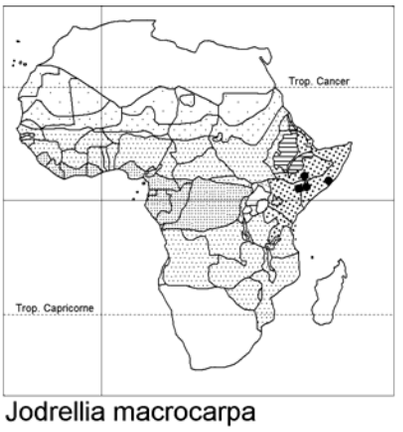
Herb not forming large clumps, solitary or with 1-3 shoots; rhizome thick; leaves rosulate, 10-50-140 cm long, 1-3,5-10 cm wide towards base, but variable: (for *K. grantii)* in plants which flower early the lamina is soft, 6-75 × 2-3,8 cm, acute, with margins and keel entire or minutely serrulate, not strongly ribbed; – in plants which flower later the lamina in strongly ribbed, to 1 m long, 0,8-2 cm wide, with margins and keel entire to serrulate; inflorescence 0,3-0,6-1,2-1,5 m tall, peduncle 0,2-1,2 m long; raceme very dense and short, obovoid in outline, 4-10 cm long, 3-7 cm Ø; fertile bracts lanceolate to linear-lanceolate, 7-8 mm long, *acuminate* at apex *(K. grantii)* or lanceolate to oblong-lanceolate, 5-9 mm long, *acute* at apex *(K. bequaertii);* flowers *patent, orange to dull red in bud*, later *greenish to lemon yellow* or orange (Zambia), in *K. grantii*, but horizontal to pendent and *dark red when young*, paler with age and *yellow when open* in *K. bequaertii*; perianth tube 18-30-38 mm long, 2-3 mm Ø above ovary *(K. grantii) or 1,2-2 mm* Ø above ovary *(K. bequaertii)*, 3-5 mm Ø at mouth, barely constricted *(K. bequaertii)* or slightly constricted *(K. grantii);* lobes 1-2-3 mm long; capsule ovoid, 5-7 × 4-6 mm.



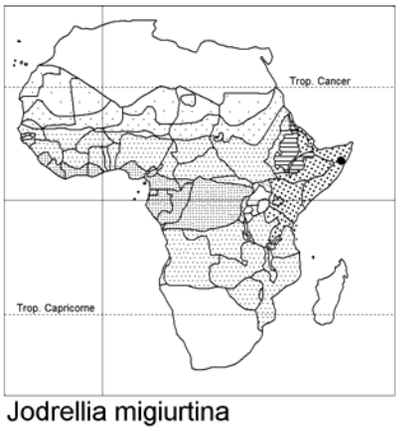
Bulbine latifolia var. latifolia



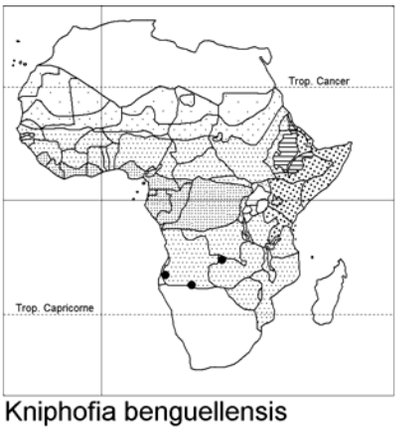
Jodrellia fistulosa



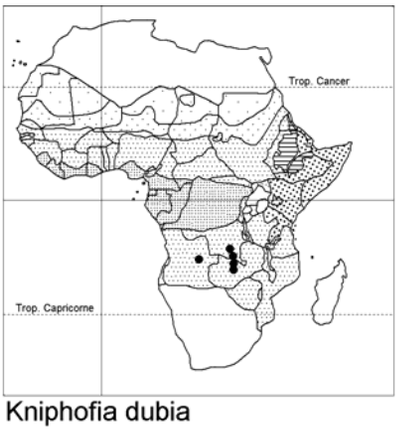
Jodrellia macrocarpa



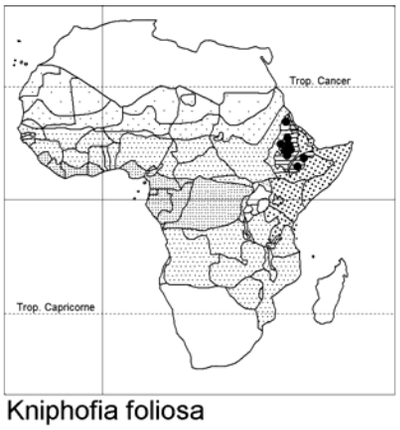
Jodrellia migiurtina



Kniphofia benguellensis



Kniphofia dubia



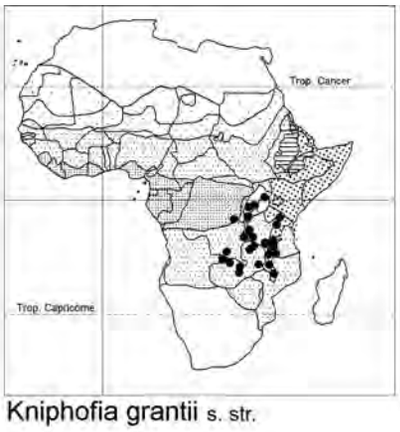
Kniphofia foliosa



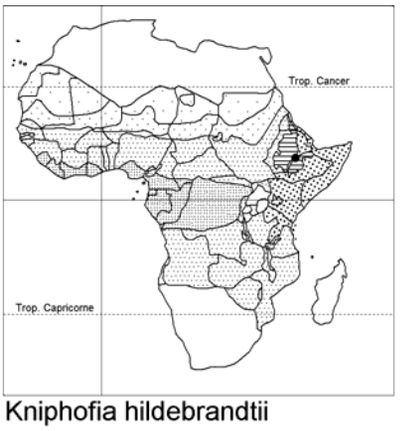
Kniphofia goetzei



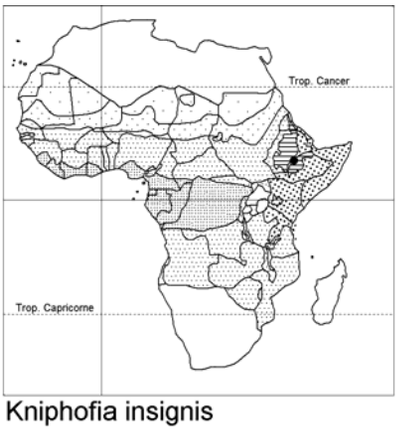
Kniphophia grantii (K. bequaertii)



Kniphofia grantii s. str.



Kniphofia hildebrandtii



Kniphofia insignis

(K. bequaertii:) Savannas, scrub, clearings; grassland, usually water-logged; 1450-3350 m alt. – *(K. grantii:)* Seasonally flooded grassland and dambos (sometimes burnt); 750-2700 m alt.

Superficially resembling *K. mulanjeana*, however characterised by its densely sheathing leaf bases.

K. hildebrandtii Cufod.; Fl. Eth. & Eritrea 6: 107, 110, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 65-66, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 116-117, 2010.

Slender herb with fibrous remains of leaves at base; leaves 30-70 × 0,3-0,6 cm, linear, keels and margins smooth; peduncle incl. raceme 0,35-1,1 m long; raceme 13-26 cm long at flowering, flowers to one side, lax; perianth *white, pale green, pale yellow,* pendulous, cylindrical, 13-16 mm long; perianth lobes 0,5-1 mm long; pedicels 4-6 mm long to 7-8 mm in fruit; capsule ovoid, pointed, each part 6 × 5 mm.

Wet grassland; 2000-3000 m alt.

Near *K. schimperi.*

K. insignis Rendle, incl. var. *albiflora* (Engl.) Cufod.; Fl. Eth. & Eritrea 6: 110, 1997. – Icon.: Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 67, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 118; 2010.

syn.: *K. neumannii* Engl. var. *albiflora* Engl.; *K. insignis* sensu Marais in Kew Bull. 28: 479, 1973, *excl.* specim. Drake-Brockman 192, 238 (and 239 ?) = *K. isoetifolia.*

Slender herb, solitary, without fibrous remains of leaf bases at base; *roots fusiform;* leaves linear, 0,3-1 m × 0,3-0,5 cm, glaucous, keels and margins papillate; inflorescence 20-65 cm tall; raceme 8-22 cm long at flowering; pedicels 2,5-4 mm long, to 5 mm in fruit; *flowers white,* pendulous, 24-28 mm long, constricted at base, widening at mouth of tube; capsule ovoid, pointed, each part 8-9 × 6 mm.

Plants scattered in *water-logged* or *flooded meadows*; 2450-3100 m alt.

K. isoetifolia Hochst. (cf. Friis in Fragm. Florist. Geobot., Suppl. 2/1: 199, 1993). – Icon.: Engler, Pflanzenreich 4/38: 47, 1908; Fl. Eth. & Eritrea 6: 110, 1997; Sebsebe Demissew & al., o.c., 2003: 66, and o.c., 2010: 117; Puff & Sileshi, Pl. Simen: 221, 2005.

syn.: Enum. 3: 59, 1995; *K. neumannii* Engl., s. str.; *K. insignis* sensu Marais in Kew Bull. 28: 479, 1973, p.p., quoad specim. Drake-Brockman 192, 238 (and 239 ?); *Rudolpho-roemeria isoetifolia* Steud. (cf. Friis, l.c.).

Slender herb usually solitary or sometimes grouped with 5-6 stems; roots fusiform; with few fibrous remains of leaves at base; leaves linear, 7-45 × 0,2-1,1 cm, keels and margins papillate; inflorescence 9-65 cm tall; raceme 4-12 cm long at flowering, *capitate, opening from top downwards;* pedicels 2-4 mm long; flowers pale or bright yellow, orange or bright red, pendulous, 30-42 mm long, tube constricted at base, widening at mouth; lobes 2,5-3 × 2-2,5 mm; fruit ?

Overgrazed hill tops, river banks; steep rocky slopes; grassland, sometimes in wet meadows; 2050-3650 m alt.

(**K. kirkii** Baker); Fl. Trop. Afr. 7: 453, 1898; Fl. Trop. E. Afr., Asphodel. : 10, 2002.

Robust herb; leaves numerous, ensiform, 1,5-1,85 m long, 6,5 cm wide at base, acutely keeled; inflorescence c. 1,2 m tall; peduncle stout with *2 large bract-leaves* to *60 cm long;* raceme dense, c. 10 cm long, 7 cm Ø; pedicels 4-6 mm long; flowers reddish-orange, cylindrical, tube 30-33 mm long, c. 2 mm Ø around ovary, 3-4 mm Ø at mouth, lobes 1-3 mm long; stamens and styles as long as perianth.

Described from a living plant at Kew, sent there by J. Kirk in 1884, flowering in November 1887. Provenance unknown, perhaps Zanzibar inland region.

Considered by Marais in Kew Bull 28: 476, 1973, as conspecific with *K. paludosa* Engl. But Whitehouse (Fl. Trop. E. Afr., l.c.) notes that the origin of the type is doubtful, and considers *K. kirkii* as a nomen dubium: features as a result of cultivation, or hybrid origin, or a case of mixed labels ?

K. linearifolia Baker, incl. var. *kuntzei* A. Berger and var. *montana* A. Berger; Kativu in Kirkia 16: 33-34, 1996; Fl. Zambes. 12/3: 31-32, 2001. – Icon.: Bot. Mag. 80: pl. 4816, 1854 [sub *K. uvaria* sensu Hook., non (L.) Hook.]; ibid. 100: pl. 6116, 1874 (sub *K. rooperi* sensu Hook.); ibid. 107: pl. 6553, 1881 (sub *K. uvaria* var. *maxima*); J. Gén. Hort. 13: pl. 1393, 1858 (sub nom. *K. alooides* sensu Van Houtte, non Moench 1794); Tredgold & Biegel, Rhodes. wild flow.: p. 7 fig. 4, 1979; Fl. south. Afr. 5/1/2: 80, 2005; Hommes & Plantes 73: 43, 2010; Plantsman, N. S. 9: 149, 2010.

syn.: Enum. 3: 59, 1995; *K. uvaria* sensu Hook. 1854, non (L.) Hook.; *K. alooides* sensu Van Houtte 1858, non Moench 1794; *K. rooperi* sensu Hook. 1874; *K. longiflora* Baker; *K. uvaria* var. *maxima* Baker; *K. alooides* var. *maxima* (Baker) Baker

Clump-forming robust herb to 1,5 m tall; rhizome horizontal with close erect corm-like branches clothed in fibrous remains of leaf bases; leaves *rosulate*, linear, acuminate, 0,25-1,6 m × 0,8-2,5 cm, erect at first, later bent over ("kneed"), very strongly keeled, margins entire or occasionally sparingly serrulate; inflorescence to 1,4 m tall; raceme 5-12 cm long, ovoid to oblong, very dense; pedicels 2-5 mm long; flowers patent, becoming pendulous, (lemon) yellow; perianth 25-40 mm long, cylindrical, straight, not constricted above ovary; lobes 2-3 mm long; capsule subglobose, 4-6 mm long.

Grassland in moist often peaty situations; seasonally wet localities at streamsides; vlei and dambo margins; usually in colonies; 700-2400 m alt.

Variable in stature of plant, width and colour of leaves, size and colour of inflorescences.

S. Africa (the most common *Kniphofia*), Lesotho, Swaziland (map in Fl. south. Afr., l.c.).

BROWN, M. & al. (2011). Covariation of flower traits and bird pollinator assemblages among populations of Kniphofia linearifolia (Asphodelaceae). *Pl. Syst. Evol.* 294: 199-206.

May be confused with *K. goetzei* and *K. grantii* (introgression possible in Malawi).

KNIPHOFIA

K. marungensis Lisowski & Wiland – Icon.: Syst. Geogr. Pl. 72: 237, 2002.

Perennial herb, erect; rhizome small, vertical, with fibrous leaf remains at tip; leaves numerous, rosulate, *grass-like*, 8,5-15 cm × 1-3 mm (at base), *margins* sparsely *ciliate;* scape solitary or 3-6, erect, to 18-23 cm tall; raceme ovoid to ellipsoid-suborbicular, many-flowered, very dense, 1,5-2,2 cm long, 1,4-1,6 cm Ø; perianth *white* becoming *yellowish cream* when dried, slightly curved, *5,5-7 mm long;* lobes 1,5-2 mm long; fruit unknown.

Grassy savannas; 2000-2400 m alt.

Near *K. nana.*

K. mulanjeana S. Blackmore; Kativu in Kirkia 16: 32, 1996; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 49, 2006; Fl. Zambes. 12/3: 31, 2001.

Herb usually solitary, slender, 30-40 cm tall; rhizome slender, with short spaced erect shoot-bearing branches; plant base ± densely clothed in fibrous remains of old leaf bases; leaves 5-15, to 25 cm × 4 mm, linear, ribbed; peduncle erect, 12-26 cm long; raceme 8-9 cm long, sparce; flowers patent, finally pendulous, yellow; young buds erect, orange-red with green tips; perianth 28-34 mm long, cylindrical, slightly arcuate; lobes c. 2 mm long; capsule unknown.

Steep ledges; shallow pockets of peaty soil; among boulders on exposed mountain sides; 2500-2775 m alt.

Most closely resembling *K. ichopensis* Baker ex Schinz from NE S. Africa (Natal).

K. nana Marais; Syst. Geogr. Pl. 72: 238, 2002 (in key).

Herb solitary; rhizome erect, small, corm-like; basal sheathing leaves numerous, progressively larger, consisting of thin membranous glabrous, straw-coloured sheaths; leaves linear, rigid, not grass-like, 10-13, *5-6 cm × 0,75-1,5 mm,* strongly keeled, margins *scabro-ciliate;* peduncle 28-33 cm tall; raceme short, globose to sub-capitate; flowers red; perianth c. 28 mm long; fruit unknown.

Common in grassy savannas; c. 2000 m alt.

Near *K. grantii.*

(**K. nubigena** Mildbr.); Marais in Kew Bull. 28, 483, 1974.

Herb with leaves 45 cm long, 1,7 cm wide, hardly keeled, margins glabrous or scabro-ciliate; inflorescence 30-40 cm tall; raceme *dense,* 5-6 cm long, hardly 3 cm wide when dried; bracts acuminate, *6-8 mm long;* pedicels 3 mm long, curved downwards; *perianth 15-20 mm long,* hardly constricted above the ovary, lobes 2-3 mm long; flowers surphur yellow at anthesis, deep yellow before opening, buds at tip of raceme brick red; anthers slightly exserted; style eventually exserted; fruit unknown.

Evergreen wooded grassland; 1050 m alt.

Type not traced (Troll 4671); also known from specim. Aylmer 559, a very poor specimen collected at the type locality. At Kew there are 2 photographs of specim. Aylmer 154 from the same locality, cultivated at Kew.

Perhaps a good species, but better material required.

Not mapped. Sudan: Erkowit, in the mist zone.

KNIPHOFIA

K. paludosa Engl.; Fl. Trop. E. Afr., Asphodel.: 9-10, 2002. – Icon.: Engler, Pflanzenreich 4/38 : 64, 1908 (flower).

syn.: *K. kirkii* sensu Marais, Kew Bull. 28: 476, 1974, non Baker

Herb with a thick rhizome with fleshy roots; leaves rosulate, (linear-)lanceolate, 25-85 × 3 cm (near base); inflorescence 1-1,2 m high; peduncle 10-16 mm Ø; raceme *very dense,* 10-20 cm long, *7-9 cm* Ø; pedicels 4-8 mm long; flowers pink to orange-pink or red, with yellow tips, the upper held ± horizontally, the lower strongly pendent, slightly decurved; *perianth tube 32-42* mm long, 2-3 mm Ø around the ovary, 4-6 mm at mouth; lobes 1-2 mm long; *mature* capsule unknown (immature: ovoid, c. 5 × 4 mm).

In water in streams and rivers; 2100-2800 m alt.

K. princeae (A. Berger) Marais; Kirkia 16: 33, 1996; Fl. Zambes. 12/3: 31, 2001; Fl. Trop. E. Afr., Asphodel.: 6-7, 2002; Syst. Geogr. Pl. 72: 238, 2002 (in key). – Icon.: Latham, Plants visited by bees… of Umalila, south. Tanzania, ed. 3: 114, 2007; Fischer & Killmann, Ill. field guide pl. Nyungwe Natl. Park Rwanda: 495, 2008.

Perennial herb; rhizome thick, erect, with short well-spaced shoot-bearing branches; roots fleshy; leaves rosulate, linear, 1,15-1,80 × 0,6-3,7 cm, strongly keeled; inflorescence *1-3 m tall;* peduncle 7-14 mm Ø; raceme lax to dense, *25-60* cm long, 4-6,5 cm Ø; pedicels 4-6 mm long; flowers *orange to bright red, yellow at tips* at anthesis, pendent; perianth tube 30-35 mm long, 3-4 mm Ø around ovary, constricted above into a tube 1-2 mm wide, then flared to 5-7 mm wide at mouth; *lobes 2-4 mm* long; capsule ovoid to trigonous, c. 6 × 6 mm.

Rough grassland, among tall grass; often by streams; swamps; peat-bog; ? 1600-? 2750 m alt.

K. pumila (Aiton) Kunth; Fl. Trop. E. Afr., Asphodel.: 7, 2002; Syst. Geogr. Pl. 72: 238, 2002 (in key). – Icon.: Redouté, Liliac. 4: pl. 104, 1807 *(Veltheimia abyssinica);* Engler, Pflanzenreich 4/38; p. 45 fig 17 B-C, 1908 (flowers, *K. leichtlinii);* Fl. Eth. & Eritrea 6: 108, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 64, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 114, 2010; Puff & Sileshi, Pl. Simen: 221, 2005.

bas.: *Aletris pumila* Ait. (not from the Cape but from Ethiopia; cf. Codd in Fl. south. Afr. 5/1/2: 87, 2005).

syn.: Enum. 3: 59, 1995; *Veltheimia pumila* (Aiton) Willd.; *Tritoma pumila* (Aiton) Ker Gawl.; *Tritomanthe pumila* (Aiton) Link; *Veltheimia abyssinica* DC.; *Tritoma maroccana* May; *Kniphofia infundibularis* Baker; *K. carinata* C. H. Wright; *K. micrantha* Chiov. ex Chiarugi; *K. comosa* Hochst., incl. var. *somalica* A. Berger; *K. abyssinica* (DC.) Schweinf.

Solitary herb; rhizome erect, corm-like, with some fibrous remains of leaves at base; leaves linear, dark- to grey-green, 30-100 × 1-2 cm, prominently keeled; keel and margins smooth or minutely tuberculate, not scabrid; inflorescence 0,5-1,5 m tall; raceme very dense, 4-15 cm long, 2-5 cm Ø, *opening from top downwards;* pedicels 1,5-3,5 mm long (6 mm in fruit); flowers yellow to orange-yellow or red; perianth tube *campanulate, 9-19* mm long, 2 mm Ø around ovary, 6-7 mm Ø at mouth; lobes 1-2 mm long; capsule ovoid to globose, 6-10 × 6-8 mm.

Grassland often near streams; grassy slopes; steep-sided valleys; open spaces in *Podocarpus latifolius* forest; 1200-3150 m alt.

Related to *K. foliosa,* but perianth different. *K.* × *erythraeae* is probably a hybrid with *K. schimperi.*

KNIPHOFIA

K. reflexa Hutch. ex Codd ("reflexum"); Cheek & al., Pl. Mt Oku…: 170, 2000.

syn.: *Notosceptrum reflexum* Hutch., English name only.

Tufted perennial herb; leaves in a basal tuft and forming a cylindrical "tube" at base, 0,2-0,6-1,2 m long, 1,5 cm wide, closely nerved, margins minutely scabrid; inflorescence stout, conspicuous, to at least 2 m tall, the upper 2/3 bearing subsessile densely set flowers; perianth campanulate, *7-9 mm long*, yellow, lobes 2,5-3,5 mm long; fruit unknown ?

In grass on plateau, scattered in considerable number; cattle watering hole by settlement; 1800-2400 m alt.

K. reynoldsii Codd; Kirkia 16: 30-31, 1996; Fl. Trop. E. Afr., Asphodelaceae: 10, 2002. – Icon.: Bot. Not. 120: 43, 45, 1967; Fl. Zambes. 12/3: 28, 2001.

Robust herb to 3,7 m tall; rhizome "jointed" with short internodes; leaves rosulate, linear, 0,8-2 m × 3-5 cm, keeled, margins entire or remotely serrulate; scape 1,1-2,3 m long, 10-14 mm Ø; raceme *45 × 90 × 1,5-2 cm;* pedicels 1 mm long; flowers patent, yellow to orange-yellow or greenish-yellow, white, cream, *subcampanulate* 7,5-11 mm long, tube 3-6 × 4-6 mm; lobes brownish or pinkish tipped, reflexed at anthesis, 3-6 mm long, 2-2,5 mm Ø at base; capsule oblong-ovoid, c. 6,5 mm long.

Grassland dambos in *Brachystegia* woodland; locally common; 1250-2500 m alt.

Belongs to the group included by A. Berger in *Notosceptrum*, very distinctive plants with very short ± campanulate perianth tubes which gives the inflorescence a narrow elongated appearance.

K. schimperi Baker; Fl. Eth. & Eritrea 6: 110-111, 1997. – Icon.: Engler, Pflanzenreich 4/38: 51, 1908; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 68, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 120, 2010.

syn.: Enum. 3: 59, 1995.

Slender herb with fibrous remains of leaves at base; leaves linear, 30-50 × 0,4-1 cm, keeled, keels and margins minutely papillose-scabrid or smooth; scape and raceme 0,43-1,3 m tall; raceme 15-52 cm long, lax; flowers *towards one side, 1-4 flowers per cm;* pedicels 1,5-4,5 mm long; perianth orange-red, or pale red to orange, pendulous, cylindrical, 15-26 mm long, widening at mouth, not constricted at base; lobes 1,5-2,5 × 1-2 mm; fruit ovoid, each part of the capsule c. 8 × 5 mm.

Steep grassy or stony slopes; rocky outcrops; 1500-3580 m alt.

K. × *erythraeae* is probably a hybrid *K. foliosa- K. schimperi*.

K. splendida E. A. Bruce; Kirkia 16: 34, 1996; Fl. Zambes. 12/3: 32-33, 2001; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 49, 2006; Harris & al. in Kew Bull. 66: 247, 2011 (Mt Namuli, Mozambique). – Icon.: Nord. J. Bot. 1: 482, 1981 *(K. monticola);* Fl. south. Africa 5/1/2: 38, 2005.

syn.: *K. monticola* S. Blackmore; *K. praecox* sensu Blackmore, Nyala 6, 2: 121, 1980, quoad specim. Blackmore 874, 1119, non Baker

Herb clump-forming, to 2,5 m tall; rhizome horizontal with closely set erect corm-like branches; leaves linear-lanceolate, erect at first, usually becoming bent over, 2 m × 1,5-5 cm, *tough*, keeled below, *grooved above*, margins and midrib sparsely serrulate; scape to 1,6 m tall; raceme 6,5-28 cm long, moderately dense; flowers orange to reddish-orange; perianth c. 25 mm long, straight, funnel-shaped; anthers long exserted; capsule 5,5-7 mm long, subglobose, slightly pointed.

KNIPHOFIA SPLENDIDA

Unburnt grassland; *Brachystegia* woodland; stream banks; deep peaty soil with *Hypolaena mahonii;* 1100-2300 m alt. – Locally common.

S. Africa, Swaziland (map in Fl. south. Afr., l.c.).

Belonging to a species complex *K. splendida-K. monticola*, etc. not well understood.

K. thomsonii Baker; Syst. Geogr. Pl. 72: 238, 2002 (in key). – Icon.: Fl. Eth. & Eritrea 6: 111, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 68, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 120, 2010; Plantsman, N. S. 9: 148, 2010; Fl. Trop. E. Afr., Asphodel.: 5, 2002 (var. **snowdenii**).

Slender herb; rhizome thick with spreading fleshy roots; leaves rosulate, linear(-lanceolate), 0,3-1,5 m × 1-3,5 cm, 3-angled, channelled; outer ones reduced to membranous sheaths to 5,5 cm long; inflorescence 0,3-3 m tall; scape 9-13 mm Ø; bracts white, long-cuspidate, 0,9-3 cm long; pedicels 2-4 mm long (to 6 mm in fruit); raceme 7-40 cm long, 3,5-7 cm Ø; flowers orange-red to yellow, or a mixture, *pendent*, often decurved; tube 18-38 mm long, *3-6 mm Ø* (1,5-2,5 mm above ovary); lobes 1-3 mm long, sometimes spreading; capsule ovoid to 3-gonous, 6-10 × 5-8 mm, transversely ridged, apex pointed.

Bushland; grassland; often in swampy ground; steep grassy or rocky slopes; edge of watercourse; 1850-4000 m alt.

Comprises 2 vars.: – var. **thomsonii** [syn.: *K. subalpina* Chiov.; *K. rogersii* E. A. Bruce; *K. schimperi* sensu Marais, Kew Bull. 28: 469, 1973, p.p. quoad specim. Burger 1010, Gillett 14954, non Baker], with glabrous flowers; – var. **snowdenii** (C. H. Wright) Marais, with puberulous perianth (in lower part), in Uganda, Kenya.

The only tropical *Kniphofia* widely cultivated, but not reliably hardy in England (Plantsman, N. S. 9: 149, 2010).

GRANT-DOWNTON, R. (1997). Notes on Kniphofia thomsonii in cultivation and in the wild. *New Plantsman* 4(3): 148-156.

Wild populations are apparently diploid (n = 12) and tetraploid (n = 24) with infertile triploids (n = 18). The polyploids are more robust and may reach 3 m in height (Fl. Trop. E. Afr., l.c.). – Species of the *K. uvaria* complex from S. Africa are also cultivated (cf. above under *K. linearifolia)*, with different hybrids and cultivars. (cf. Fl. south. Afr. 5/1/2: 75-77, 2005; Hommes & Plantes 73: 44, 2010).

Marais (l.c.) treated *K. goetzei* as a synonym of *K. thomsonii*, but Whitehouse (Fl. Trop. E. Afr., l.c.) distinguishes these two species on the basis of general habit, morphological characters and geographical distribution.

SYNONYMS:

Kniphofia abyssinica (DC.) Schweinf. = **Kniphofia pumila**

alooides sensu Van Houtte 1858, non Moench 1794 = **K. linearifolia**

alooides Moench var. *maxima* (Baker) Baker = **K. linearifolia**

aloyssi-sabaudii Chiov. = **K. isoetifolia**

andongensis Baker = **K. benguellensis**

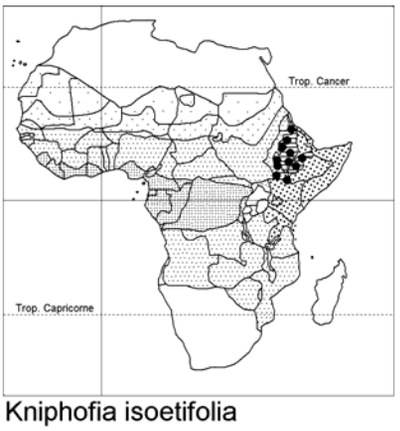
arussi Rendle = **K. foliosa**

bequaertii De Wild. = **K. grantii**

carinata C. H. Wright = **K. pumila**

comosa Hochst., incl. var. *somalica* A. Berger = **K. pumila**

densiflora Engl. = **K. foliosa**



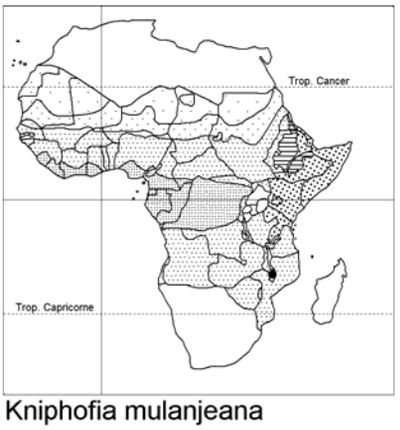
Kniphofia isoetifolia



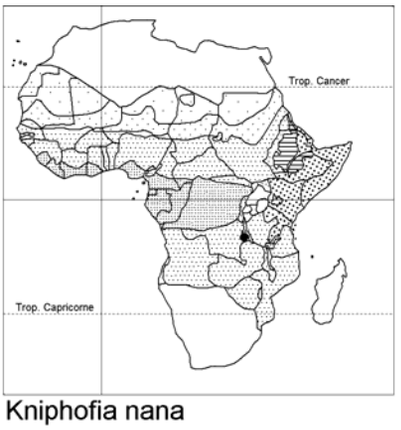
Kniphofia linearifolia



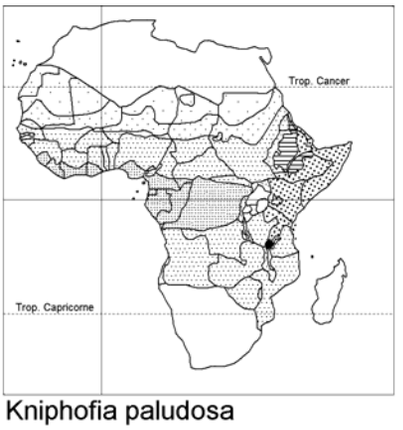
Kniphofia marungensis



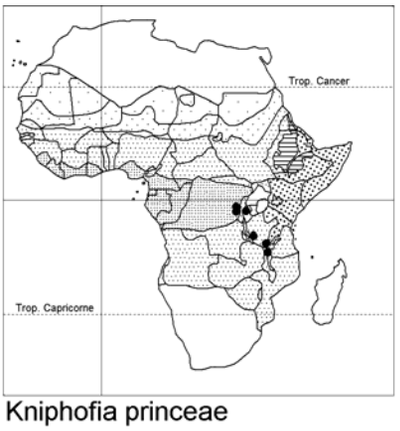
Kniphofia mulanjeana



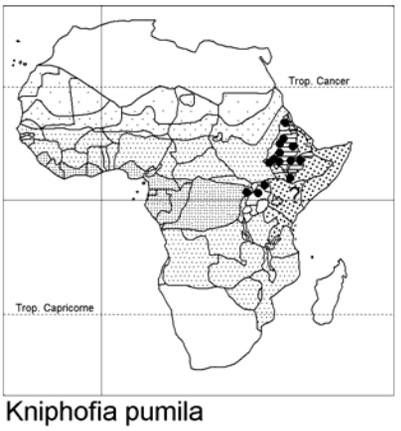
Kniphofia nana



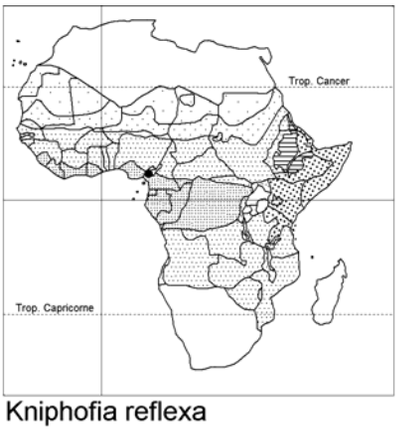
Kniphofia paludosa



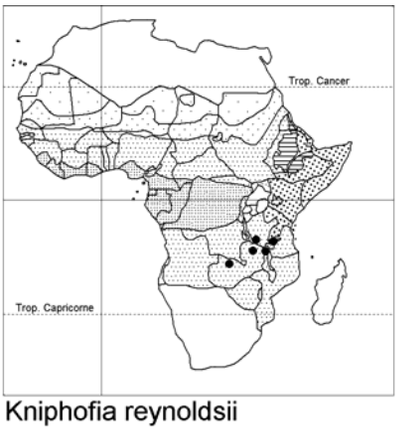
Kniphofia princeae



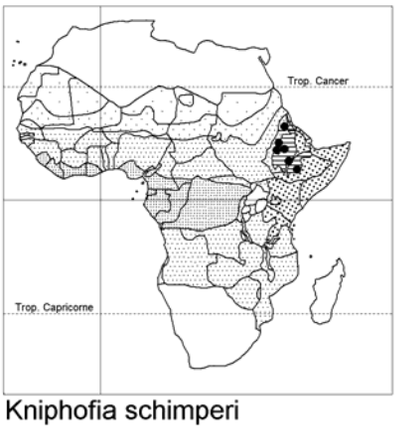
Kniphofia pumila



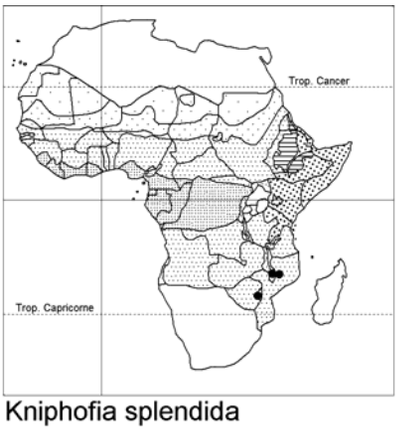
Kniphofia reflexa



Kniphofia reynoldsii



Kniphofia schimperi



Kniphofia splendida

KNIPHOFIA

dubia sensu Marais et sensu Troupin, non De Wild. = **K. grantii**
elegans Engl. 1892, non Codd 1968 = **K. schimperi**
ellenbeckiana Engl. = **K. schimperi**
flavovirens Engl. = **K. grantii**
grantii sensu Marais, p.p., non De Wild. = **K. dubia**
homblei De Wild. = **K. dubia**
infundibularis Baker = **K. pumila**
insignis sensu Mariais, excl. specim. Drake-Brockman 192, 238 (and 239 ?) = **K. insignis**
insignis sensu Marais, p.p. = **K. isoetifolia**
kirkii Baker = ?
kirkii sensu Marais, non Baker = **K. paludosa**
leichtlinii Baker, incl. var. *distachya* Baker = **K. pumila**
longiflora Baker = **K. linearifolia**
longistyla Baker = **K. linearifolia**
micrantha Chiov. ex Chiarugi = **K. pumila**
monticola S. Blackmore = **K. splendida**
mpalensis Engl. = **K. grantii**
neumannii Engl. s. str. = **K. isoetifolia**
var. *albiflora* Engl. = **K. insignis**
nubigena Mildbr. = ?
praecox sensu Blackmore 1980, p.p., non Baker = **K. splendida**
quartiniana A. Rich. = **K. foliosa**
rhodesiana Rendle = **K. linearifolia**
rogersii E. A. Bruce = **K. thomsonii** var. **thomsonii**
rooperi sensu Hook. 1874 = **K. linearifolia**
schimperi sensu Marais p.p., non Baker = **K. thomsonii** var. **thomsonii**
snowdenii C. H. Wright = **K. thomsonii** var.
subalpina Chiov. = **K. thomsonii** var. **thomsonii**
thomsonii sensu Marais p.p. = **K. goetzei**
uvaria sensu Hook. 1854, non (L.) Hook. = **K. linearifolia**
uvaria (L.) Hook. var. *maxima* Baker = **K. linearifolia**
zombensis Baker = **K. grantii**

(NOTOSCEPTRUM)

Notosceptrum andongense (Baker) Benth. (sphalm. “angolense”) = **Kniphofia benguellensis**
benguellense (Welw. ex Baker) Benth. = **K. benguellensis**
reflexum Hutch. (English name) = **K. reflexa**

(PHALANGIUM)

Phalangium altissimum (Miller) Kuntze = **Bulbine asphodeloides**
asphodeloides (L.) Kuntze = **B. asphodeloides**
favosum (Thunb.) Kuntze = **B. favosa**
filifolium (Baker) Kuntze = **B. favosa**
latifolium (L. f.) Kuntze = **B. latifolia**
longiscapum (Jacq.) Kuntze = **B. asphodeloides**
minimum Baker = **B. favosa**

(RODOLPHO-ROEMERIA)

Rodolpho-roemeria isoetifolia Steud. = **Kniphofia**

TRACHYANDRA / *5*

Genus of some 54 species distributed throughout sub-Saharan Africa (centred in the SW Cape), SW Arabian Peninsula, Madagascar.

Formerly classified under *Anthericum* but now recognized as more closely related to *Bulbine*. However, according to Chase & al. (in Bot. J. Linn. Soc. 161: 133, 2009) *Trachyandra* and *Chlorophytum* are impossible to distinguish in the field.

Plants with a short non-bulbous vertical rhizome; leaves soft-textured; inflorescence an axillary raceme or panicle; pedicels not articulated; flowers short-lived, perianth of 6 free tepals; stamens 6; fruit a loculicidal capsule; seeds with scattered glands, with distinctive idioblasts containg bundles of need-like crystals (Bothalia 37: 26, 2007).

BOATWRIGHT, J. S. & J. C. MANNING (2010). Notes on the genus Trachyandra (Asphodelaceae: Asphodeloideae) 1: A review of the T. thyrsoidea group (Section Trachyandra), including three new species from the Northern Cape. *S. Afric. J. Bot.* 76: 499-510.

Trachyandra arvensis (Schinz) Oberm.; Kativu in Kirkia 16: 40-41, 1996; Fl. Zambes. 12/3: 37-38, 2001; Figueiredo & Smith, Pl. Angola: 175, 2008; idem in Haseltonia 15: 73, 2009; idem in Bothalia 39: 192, 2009 (Braun, Kunene Exp.). – Icon.: Bot. Mitt. S. W. A. Wiss. Ges. 11: 32, 1974.

syn.: Enum. 3: 60, 1995; *Anthericum gilvum* K. Krause, incl. var. *brunneolum* Poelln.

Rhizomatous erect glabrous herb to 1,1 m tall, acaulescent; roots often yellow, ± swollen; leaves of 2 kinds: – outer: reduced to chartaceous brownish squamae; – inner: many, grass-like, to 60 cm × 1-4 mm, terete, filamentous to somewhat compressed and strap-shaped, strongly finely many-ribbed, erect to arching, sometimes glutinous, glaucous; inflorescences 1-5, erect, *branching widely above the middle;* branches many; peduncle to 48 cm long, 2-6 mm Ø, terete; flowers many, racemosely arranged and spaced on terminal branches; pedicels *8-35 mm long*, ± recurved at first, becoming ascending; perianth segments 6-10 mm long, spreading, cream-coloured to *yellowish*, dark-keeled; capsule erect, sparsely yellow-flecked, ovoid to subglobose, to 4-7 × 4,5-5 mm, ± 3-lobed.

Floodplain; dambo grassland; moist open grassland; sandy soil, riverbank sand; lake shore dunes; 1000-1300 m alt.

Namibia, Caprivi Strip, Botswana.

T. malosana (Baker) Oberm.; Kativu in Kirkia 16: 41, 1996; Fl. Zambes. 12/3: 38-39, 2001.

Tufted rhizomatous grass-like herb to 45 cm tall, acaulescent, often with fibrous leaf remains at base; leaves many, to 30 cm × 3 mm (to 8 mm at base), midrib pronounced beneath, usually with ± scattered bristle-like hairs; *margins* and *abaxial midrib* with *glands; leaf base with broad wings*, ± *clasping;* inflorescences 1-5, branched, appearing before the leaves; scape to 45 cm long, simple or divaricately branched, ± densely *glandular-pubescent;* racemes to 23 cm long, many-flowered; pedicels 4-8 mm long, patent becoming curved, glandular-pubescent; perianth segments 6-8 mm long, spreading, white or cream with a reddish-brown keel; capsule subglobose, 2,5-4 mm Ø, 3-lobed, glandular, *tuberculate*, maculate.

Pyrophyte of grassland; 1900-2500 m alt.

The type specimen (Malawi, Mt. Malosa) is less glandular than other specimens seen. More material needed to study the range of variation.

TRACHYANDRA

T. pyrenicarpa (Welw. ex Baker) Oberm.; Figueiredo & Smith, Pl. Angola: 175, 2008; idem in Haseltonia 15: 73, 2009.

syn.: *Anthericum filiforme* Aiton var. *pyrenicarpum* (Welw. ex Baker) Rendle and var. *longifolium* Rendle, *excl*. var. *reflexipilosum* Kuntze *(= T. saltii).*

Tuberous pilose acaulescent herb; leaves suberect, subfleshy, compressed, long-acuminate; scapes 1-2, radical, lateral, ascending; flowers white, with purple lines outside; capsule on reflexed peduncles.

Damp pastures.

T. saltii (Baker) Oberm., incl. var. *oatesii* (Baker) Oberm. and var. *secunda* (K. Krause & Dinter) Oberm.; Kativu in Kirkia 16: 36-38, 1996; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 72, 2003. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 143, 1994; Thulin, Fl. Somalia 4: 33, 1995; Fl. Eth. & Eritrea 6: 115, 1997; Fl. Zambes. 12/3: 35, 2001; Fl. Trop. E. Afr., Asphodel.: 17, 2002; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 126, 2010.

syn.: Enum. 3: 60, 1995; *Anthericum filiforme* Aiton var. *reflexipilosum* Kuntze; *Trachyandra reflexipilosa* (Kuntze) Oberm.; *Urginea pilosula* Engl.; *Anthericum secundum* K. Krause & Dinter; *Chlorophytum pilosum* Dammer; *Anthericum albovaginatum* Poelln.; *A. betschuanicum* Poelln.; *A. blepharophyllum* Peter ex Poelln.; *A. omissum* Poelln.; *A. cepifolium* Dinter & Poelln.

Rhizomatous grass-like *stemless* herb, 15-70 cm tall; leaves to 60 cm × 1,5-6 mm, widening below into a tubular membranous basal sheath, glabrous or pubescent, nerves of the sheath sometimes persisting as fibres; inflorescences 1-6, sometimes appearing before leaves, *unbranched*, erect, to 50 cm long (including peduncle), many-flowered; *raceme 1 per peduncle*, to 45 cm long; pedicels 7-21 mm long, ascending, sometimes becoming recurved; perianth segments 7-10 mm long, *white*; capsule *smooth*, subglobose to 3-lobed, 2-5 mm Ø, pale green to brownish, with yellow flecks; *seeds smooth.*

Rocky grassland; margins of evergreen forest; dambo grassland; short dry grassland on Kalahari sand; around granite and limestone outcrops; open miombo woodland; usually on sandy soil; *Acacia, Commiphora, Terminalia* woodland; bushland; disturbed *Juniperus procera* woodland; red loamy soil; black cotton soils seasonally water-logged with scattered *Acacia drepanolobium;* often burned or degraded grassland; 5-3550 m alt. – Usually pyrophytic.

Very variable; the varieties described are based on size and orientation of the pedicels, and this distinction breaks down in Fl. Zambes. area (Fl. Zambes., l.c.).

Namibia, S. Africa, Botswana; Yemen.

STEYN, E. M. A. & G. F. SMITH (1997). Ovule structure in Trachyandra saltii (Asphodelaceae). *S. African J. Bot.* 63: 223-226.

T. triquetra Thulin; Thulin, Fl. Somalia 4: 33, 1995. – Icon.: Nord. J. Bot. 15: 572, 1995.

Rhizomatous herb; leaves basal, filiform-linear, *hanging,* 30-45 cm × 2-3 mm, gradually tapering to an acute apex, triangular, edges *minutely denticulate;* basal sheaths forming a short tube, outmost ones brown; inflorescence a very lax *unbranched* 7-17-flowered raceme 10-30 cm long (incl. c. 6-12 cm long peduncle); pedicels 10-17 mm long; tepals whitish, c. 6,5 mm long; capsule depressed-globose, c. 3,5-4 × 5 mm; seeds *tuberculate.*

TRACHYANDRA TRIQUETRA

Evergreen bushland with *Buxus hildebrandtii, Cadia purpurea;* in crevices of limestone rocks, always in deep shade in gullies or on blocks along streams; c. 800-1300 m alt.

Only known from 2 collections both made in 1995.

Near *T. saltii.*

SYNONYMS:

Trachyandra reflexipilosa (Kuntze) Oberm. = **Trachyandra saltii**

SYNONYMS under *Anthericum* and *Chlorophytum*, see under **Anthericaceae** (in Volume 8 to follow)

Urginea pilosula Engl. (*Hyacinthaceae*) = **Trachyandra saltii**

(TRITOMA)

Tritoma leichtlinii (Baker) Carrière = **Kniphofia pumila**

maroccana May = **K. pumila**

pumila (Aiton) Ker Gawl. = **K. pumila**

(TRITOMANTHE)

Tritomanthe pumila (Aiton) Link = **Kniphofia pumila**

(VELTHEIMIA)

Veltheimia abyssinica DC. = **Kniphofia pumila**

pumila (Aiton) Willd. = **K. pumila**

(VERINEA)

Verinea tenuifolia (Cav.) Pomel = **Asphodelus tenuifolius**

HEMEROCALLIDACEAE
(PHORMIACEAE) 1 g. / *1* sp.

Often included in a broad *Liliaceae*. APG II family *Hemerocallidaceae* or its segregates *Phormiaceae* (in our Enumération 3: 74, 1995) and *Dianellaceae.* APG III family *Xanthorrhoeaceae* Dumort., nom. cons., subfam. *Hemerocallidoideae* Lindl. p.p. (or Hemerocallid clade, cf. Devey & al. in Aliso 22: 348, 2006; Chase & al. in Bot. J. Linn. Soc. 161: 135, 2009; Klopper & al. in Schumannia 6: 20, 2010).

Here treated in the sense of Flora Zambesiaca 12/3: 99-101, 2001, citing 13 genera and some 50 species distributed throughout the tropics, subtropics and temperate regions of the World.

Phormium tenax J. R. Forst. & G. Forst., "New Zealand Flax" is cultivated in parts of our area (Fl. Zambes. 12/3: 99, 2001); illustrations: Bot. Mag.: pl. 3199, 1832; Mills in Cunninghamia 11: 172, 2009. A large rhizomatous clump-forming plant with stiff, ± erect linear leathery leaves 1-2 m × 5-12 cm, and a 5 m tall flowering axis with deciduous bracts and in upper part short branched flowering branches; flowers dull red to c. 6 cm long; fruit a straight capsule. Its native country is uncertain: Norfolk Island, Chatham Islands, or introduced there by early Polynesian settlers from New Zealand (cf. Coyne in Cunninghamia 11: 167-170, 2009; Mills, ibid. 11: 171-175; Smissen & Heenan in Austral. Syst. Bot. 23: 371-380, 2010). For SYNONYMS, see World checklist of Monocotyledons, Royal Botanic Gardens, Kew.

HENDERSON, R. J. F. & H. T. CLIFFORD (1984). A recircumscription of the Phormiaceae Agardh. *Taxon* 33: 423-427.

WURDACK, K. J. & L. J. DORR (2009). The South American genera of Hemerocallidaceae (Eccremis & Pasithea): two introductions to the New World. *Taxon* 58: 1122-1132.

(CHARLWOODIA)

Liliaceae s. lat., *Agavaceae* or *Asparagaceae*.

Charlwoodia ensata (Thunb.) Göpp. = **Dianella ensifolia**

DIANELLA / *1*

(not *Daniellia, Caesalpiniaceae).*

Old World genus of 25-40 species from SE Africa-Madagascar-India-SE Asia, Malesia, Japan, Australia, New Zealand, Pacific Islands to Hawaii and the Marquesas (Taxon 33: l.c.).

SCHLITTLER, J. (1940). Monographie der Liliaceengattung Dianella Lam. *Mitt. Bot. Mus. Univ. Zürich* 163 : 5-283, pl. 1-35.

Dianella ensifolia (L.) DC.; Fl. Mascareignes 183, Liliaceae: 32-33, 1978. – Icon.: Bot. Mag.: pl. 1404, 1811; Schlittler, o.c.: pl 24 (*D. nemorosa*, nom. inval.); Fl. Zambes. 12/3: 100, 2001.

syn.: Enum. 3: 74, 1995; *Dracaena nemorosa* (Lam.) Steud.; *Cordyline ensifolia* (L.) Planch.; *Dracaena ensata* Thunb.; *Dianella nemorosa* Lam., incl. fa. *ensifolia* (L.) Schlittler; *D. ensata* (Thunb.) R. J. F. Hend.; *Charlwoodia ensata* (Thunb.) Göpp.; World checklist Monocotyledons, Royal Bot. Gard., Kew.

Perennial herb, glabrous, to 1,5 m tall; rhizome horizontal, woody, near the soil surface; (flowering) stems many, simple, erect, leafy, to 8 mm Ø; leaves 5-12, lanceolate, sessile, distichous; lamina to 60 × 1-3 cm, the basal portion folded; inflorescence laxly paniculiform; flowers pedicellate in raceme-like cymules; peduncle simple, erect, to c. 45 cm long, flattened; branches 3-8, spreading-ascending, to 8 cm long at inflorescence base; pedicels 3-12 per branch, 3-12 mm long; tepals pale blue, elliptic, 5-7 × 2-3 mm; berry shiny blue, to c. 8 mm Ø, subspherical.

Evergreen forest, often beside rivers, in deep shade of forest floor; usually forming dense stands; c. 350-1400 m alt.

Madagascar, Mauritius, Réunion; from NE India to adjacent Asia.

Henderson applied the name *D. ensifolia* only to plants from NE India-Asia (Fl. Australia 45, appendix: 479, 1987). He based his argument on the seed testa pattern. However, Zimudzi & Pope (Fl. Zambes., l.c.) consider this character unsatisfactory.

Dianella caerulea Sims (icon.: Bot. Mag.: pl. 506, 1801), with closely set leaves with overlapping bases, flowering stems 50-60 cm tall, and a more condensed inflorescence, and white or blue perianth, is sometimes grown as a garden ornamental in the Flora Zambes. area. Native of E & S Australia-SW Pacific Islands-New Guinea.

SYNONYM:

Dianella triandra Afzel. = **Palisota hirsuta** *(Commelinaceae)*

BEHNIACEAE / *1* g. / *1* sp.

Monotypic family from southern Africa. *Behnia* previously included in *Liliaceae*, and variously in *Philesiaceae* or *Luzuriagaceae* (our Enumération 3: 62, 1995). APG III family *Asparagaceae* subfam. *Agavoideae.*

BOGLER, D. J. & al. (2006). Phylogeny of Agavaceae based on ndhF, rbcL, and its sequences: implications of molecular data for classification. *Aliso* 22: 313-328 [see p. 323].

CONRAN, J. G. (1998). Behniaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 3. Flowering plants. Monocotyledons*: *Lilianae (except Orchidaceae)*: 146-148.

BEHNIA / *1*

Behnia reticulata (Thunb.) Didr.; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 143, 2006. – Icon.: Bot. Mag. 93: pl. 5638, 1867; Conran, o.c.: 147; Fl. Zambes. 13/1: 31, 2008.

bas.: *Ruscus reticulatus* Thunb.

syn.: *Hylonome reticulata* (Thunb.) Webb & Berthel.; *Dictyopsis thunbergii* Harv. ex Hook. f., nom. superfl.

Climbing or twining dioecious herb or vine, usually to c. 3 m tall from a rhizome with thick cream or orange-yellow roots; stems glabrous, branched, ridged, twisted, (half-)terete, 1-2,5 mm Ø, each side-branch zigzag, flexuose or not, 5-10 cm long; leaf petiole twisted, often yellowish, 1-3 mm long; leaves alternate, ovate, base slightly unequal, 2-10 × 1-5,5 cm, apex sometimes rostrate; inflorescence branches to 11 cm long; peduncles to 4,5 cm long; 1-4 flowers in umbellate heads, or 5 flowers in racemes; pedicels 1-flowered, articulated towards apex, 7-22 mm long; flowers cream or green, perianth 3-merous, petaloid, 7-11 mm long × 2-5 mm wide, of 2 types (plants functionally dioecious); male flower with well developed stamens (6) and a non-functional ovary, female ones with small stamens attached to tepals for 2/3 and a large ovary; tepals fused below into a tube with reflexed free lobes; berry obconical, whitish, yellowish, purplish or olive-green, 13-25 × 10-25 mm.

Moist evergreen forest; on humus-rich substrates; common and widespread; 1000-2100 m alt. – An Afromontane near-endemic.

S. Africa, Swaziland (complete map in Fl. south. Africa 5/3: 83, 1992).

(DICTYOPSIS; Philesiaceae)

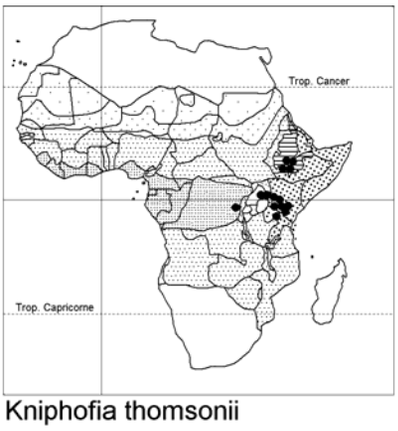
Dictyopsis thunbergii Harv. ex Hook. f. = **Behnia reticulata**

(HYLONOME; Philesiaceae)

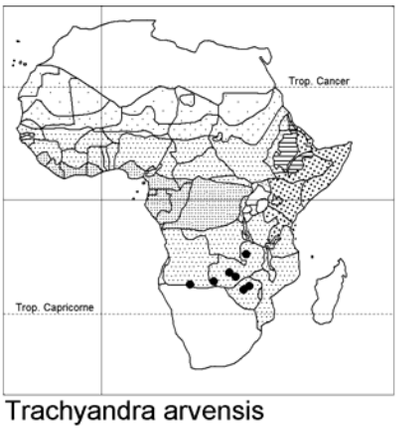
Hylonome reticulata Webb & Berthel. = **Behnia reticulata**

(LUZURIAGA; Luzuriagaceae)

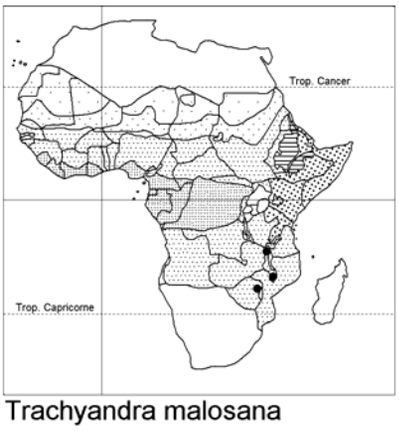
Luzuriaga sewelliae (F. Muell.) K. Krause = **Asparagus asparagoides** *(Asparagaceae)*



Kniphofia thomsonii



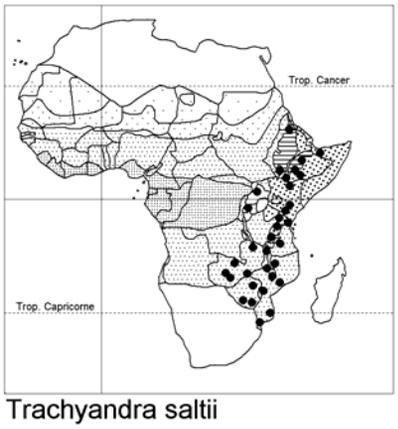
Trachyandra arvensis



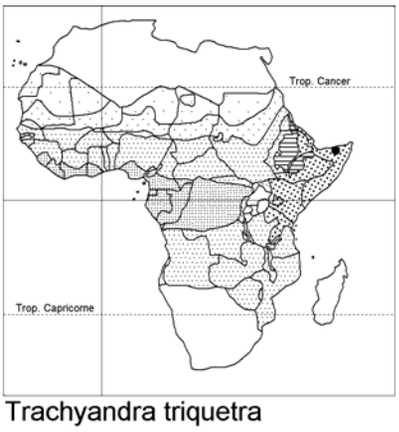
Trachyandra malosana



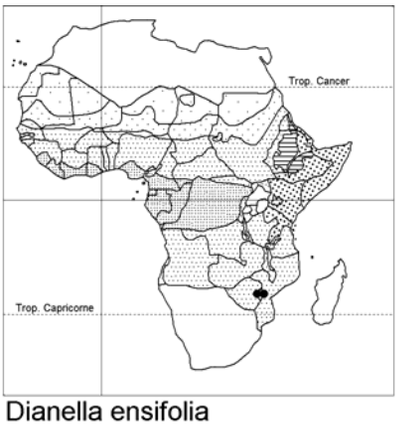
Trachyandra pyrenicarpa



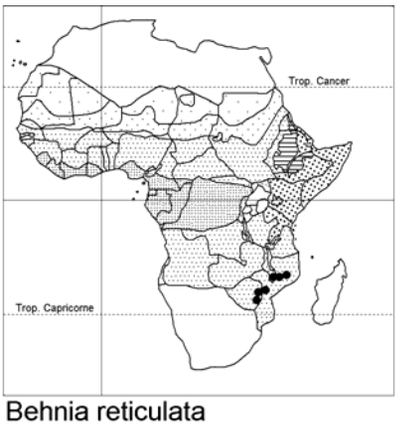
Trachyandra saltii



Trachyandra triquetra

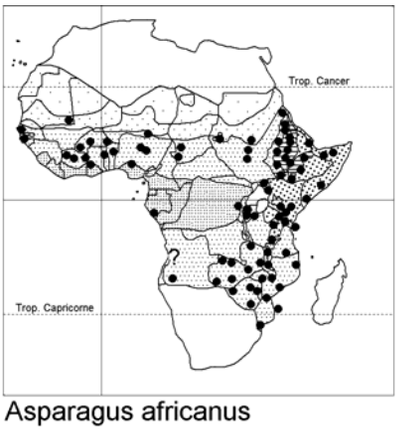


Dianella ensifolia

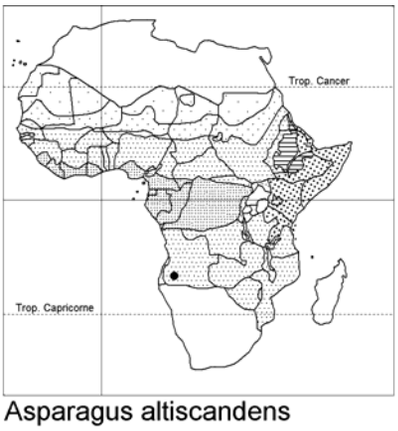


Behnia reticulata

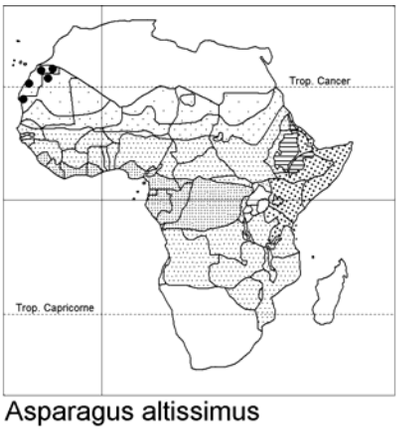




Asparagus africanus



Asparagus altiscandens



Asparagus altissimus

ASPARAGACEAE / *1* g. / *49* spp.

APG III family *Asparagaceae* subfam. *Asparagoideae* p.p. Monogeneric with c. 140 (170-300 ?) species (number of species controversial), distributed throughout Africa, parts of Europe (24 spp.), Asia. (29 species in China whereof 15 endemic), Australia (1 sp., viz. *Asparagus racemosus* Willd.). Several species are grown as ornamentals, used in bouquets for their feathery shoots (some wrongly called *Smilax*); *A. aethiopicus* L., native of S. Africa, with several cultivars, is grown worldwide, e.g. cv. 'Sprengeri' *(A. sprengeri* Regel), it has long loose drooping shoots with lanceolate cladodes (1-4 × 0,1-0,2 cm) in groups of 3-6; *A. officinalis* L. native of Europe-N Africa-SW Asia, is cultivated as a luxury vegetable; it differs from the other African native species in having unisexual flowers.

Leaves are reduced to small scales, their function is taken over by clustered phylloclades (cladodes); flowers are borne on articulated pedicels; tepals 6; fruit usually a berry.

KUBITZKI, K. & P. J. RUDALL (1998). Asparagaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 3. Flowering plants. Monocotyledons*: *Lilianae (except Orchidaceae):* 125-129. Springer, Berlin, etc.

OGANEZOVA, G. H. (2000). Fruit and seed structure of some Asparagaceae s. l. in connection with the volume and phylogeny of the family. *Bot. Žurn.* 85/8: 14-32 [in Russian].

We recognise 49 species in our area. In addition, many taxa of uncertain status figure within brackets, and a list of nomina (sub)nuda is presented at the end of our species account.

There is lack of information about certain species recognised: in 3 species (= c. 6%) the (complete) flower is unknown; the fruit is unknown in 7(+1) species (= c. 15%); the ecology is not recorded for 1 species, and 2+1 ? species (= 4-6%) are known only from the type.

(ASPARAGOPSIS)

Asparagopsis abyssinica Kunth = **Asparagus racemosus**

acerosa Kunth = **A. racemosus**

brownei Kunth = **A. racemosus**

decaisnei Kunth = **A. racemosus**

densiflora Kunth = **A. densiflorus**

denudata Kunth = **A. denudatus**

flagellaris Kunth = **A. flagellaris**

floribunda Kunth = **A. racemosus**

hohenackeri Kunth = **A. racemosus**

javanica Kunth = **A. racemosus**

juniperina Kunth = **A. africanus** var. **africanus**

krebsiana Kunth = **A. krebsianus**

lamarckii Kunth = **A. africanus**

minutiflora Kunth = **A. minutiflorus**

retrofracta Schweinf. ex Baker = **A. racemosus**

sarmentosa Dalzell & A. Gibson = **A. racemosus**

schlechtendalii Kunth = **A. africanus** var. **africanus**

scoparia Kunth = **A. africanus** var. **africanus**

setacea Kunth = **A. setaceus**

spinescens Kunth = **A. suaveolens**

suaveolens (Burch.) Baker = **A. suaveolens**

subquadrangularis Kunth = **A. racemosus**

triacantha (Willd. ex Schult. & Schult. f.) Kunth = **A. suaveolens**

zeyheri Kunth = **A. suaveolens**

ASPARAGUS / *49*

URBANI, M. & al. (2005). Note sulla sistematica del genere Asparagus L. (Asparagaceae): l'anatomia dei cladodi come carattere diagnostico. *Informat Bot. Ital.* 37: 60-61.

The genus is treated by Sebsebe Demissew in Flora of Tropical East Africa, Asparagaceae, 2006, and Flora Zambesiaca 13/1, 2008. However, we have noticed that there are some differences between the characters given in the keys and those figuring in the corresponding species descriptions.

Asparagus africanus Lam., excl. var. *abyssinicus* (Hochst. ex A. Rich.) Fiori [= *A. flagellaris*], var. *concinnus* Baker [= *A. concinnus* (Baker) Kies, S. Africa], var. *microphyllus* Baker [= *A. retrofractus* L., S. Africa], and var. *wrightii* Baker [= *A. lignosus* Burm. f., S. Africa]; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 311, 1994; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 498-500, 1995; Akoegninou & al., Fl. analyt. Bénin: 63, 2006; Sosef & al., Check-list pl. vascul. Gabon: 250, 2006; Figueiredo & Smith, Pl. Angola: 173, 2008 (also under *A. puberulus* Baker). – Icon.: Senckenb. Biol. 50: pl. 4, 1969 (sub nom. *A. sidamensis);* Thulin, Fl. Somalia 4: 25, 1995; Fl. Eth. & Eritrea 6: 69, 1997; A. & R. Heath, Field guide pl. north. Botswana, incl. Okavango Delta: 346, 2009; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 157, 2001; Boulos, Fl. Egypt 4: 61, 2005; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 189, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 292, 2010; Fl. Trop. E. Afr., Asparagaceae: 7, 2006; Fl. Zambes. 13/1: 16, 2008 (var. **africanus**).

Erect or climbing or scrambling shrub 0,5-5 m long; branches *glabrous to pubescent,* with spines 3-5 mm long, terminal branches spineless; cladodes 3-15 mm long, soft, capillary, in clusters of 5-25; flowers in clusters of 2-35, axillary and terminal; pedicels articulated below middle; tepals white to cream, 3-4 mm long; berry red, round, 5-6 mm Ø.

Combretum and ericaceous bushland; thicket; forest margins; grassland; secondary and ruderal vegetation; *Brachystegia* and *Acacia* woodland; common on termite mounds; in clumps in moist sandy savanna; dunes; hillsides; *Juniperus* forest; cloud forest; limestone plateau; alluvial soil; woodland on Kalahari sands; baobab woodland; riverine vegetation; sandstone formations; humid soils; 0-3800 m alt.

A variable complex: variable in length, shape and colour of spines; pubescence; number of flowers per cluster.

Namibia, S. Africa, Botswana, Lesotho, Swaziland; Egypt; Socotra; Arabia E-wards to India.

Comprises 2 vars.: – var. **africanus** [syn.: *A. mitis* A. Rich.; *A. asiaticus* L. var. *amharicus* Pic.-Serm., var. *ellenbeckianus* Engl. and var *mitis* (A. Rich.) Chiov.; *A. asiaticus* sensu Cufod., Enum. pl. Aethiop. 1971, non L.; *A. cooperi* Baker; *Protasparagus cooperi* (Baker) Oberm. (forms with shorts spines, < 7-10 mm, a variable character); *P. africanus* (Lam.) Oberm.; *Asparagus africanus* Lam. var. *biarticulatus* De Wild. & T. Durand, var. *microcarpus* Balf. f., and var. *pubescens* Baker, non *A. pubescens* Baker [= *A. africanus* var. *puberulus* (Baker) Sebsebe]; *A. dependens* Thunb.; *A. irregularis* Baker; *A. burkei* Baker; *A. judtii* Schinz; *A. fleckii* Schinz; *A. multiflorus* Baker; *Protasparagus multiflorus* (Baker) Oberm.; *Asparagus buruensis* Engl.; *A. dinteri* Engl. & K. Krause; *A. francisci* K. Krause; *A. patens* K. Krause; *A. sennii* Chiov.; *A. sidamensis* Cufod.; *A. rivalis* Burch. ex Kies, nom. illegit.; *A. gourmacus* A. Chev., nom.; *A. rivalis* Burch. ex Schult. & Schult. f.; *Asparagopsis ! juniperina* Kunth; *Asparagopsis schlechtendalii* Kunth; *Asparagopsis scoparia* Kunth; ? *Asparagopsis lamarckii* Kunth; *Asparagus lecardii* De Wild.]; with glabrous or puberulous shoots

and cladodes present at anthesis; widespread; – var. **puberulus** (Baker) Sebsebe with densely pubescent shoots and cladodes absent at anthesis [bas.: *A. puberulus* Baker (maintained by Figueiredo & Smith, l.c. as a good species); syn.: *A. pubescens* Baker, non *A. africanus* var. *pubescens* Baker, see above; *A. pilosus* Baker; *A. shirensis* Baker; *A. conglomeratus* Baker; *A. lugardii* Baker; *Protasparagus pilosus* (Baker) Oberm.]; in E and south. Africa.

A. lecardii De Wild. is probably a synonym.

A. altiscandens Engl. & Gilg; Figueiredo & Smith, Pl. Angola: 173, 2008; Bothalia 39: 192, 2009 (Baum, Kunene Exp.).

Climbing shrub 3-4 m long with unbranched lateral branches 35-50 cm long; cladodes densely fasciculate, 15-40, 2,5-3 cm long; pedicels articulated below middle (2/5 from base), in clusters of 5-6, 6-7 mm long; tepals white, ovate-oblong, 2 × 1 mm; fruit unknown.

Sandy soil and white hard calcareous marl; 1100 m alt.

Near *A. exuvialis* Burch.

Only know from the type collected in 1899.

A. altissimus Munby, incl. var. *asperulus* Maire and var. *foeniculaceus* (Lowe) Maire; Edmondson & al. in Trav. Inst. Sci., Rabat, Mém. hors-série: 43, 1989 (1988); Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 143, 2008; Dobignard & Chatelain, Index synon. fl. Afrique N 1: 90-91, 2010.

syn.: *A. declinatus* Schousb. 1800, non L. 1753; *A. foeniculaceus* Lowe

Liane climbing on trees to 6-8 m long, with slender flexuous very ramose stems, branches ± *reflexed;* cladodes in clusters of *6-15, 3-20 mm long;* flowers white, 1-5 *at base of cladode clusters*; pedicels 4-5 mm long, articulated below middle; tepals 4-5 mm long; berry round, red, 6-7 mm Ø.

Rocky places on gelb and kedia; rather widely distributed; clayey grara with *Euphorbia balsamifera, E. echinus.*

Morocco, Algeria.

(**A. angusticladus** (Jessop) J.-P. Lebrun & Stork, 17 February, 1995). – Icon.: Bot. Mag. 126: pl. 7728, 1900 (sub nom. *A. ternifolius* Hook. f.).

bas.: *A. aethiopicus* L. var. *angusticladus* Jessop

syn.: *A. angusticladus* (Jessop) Fellingham & N. L. Meyer (October, 1995); *A. ternifolius* Hook. f.; *Protasparagus angusticladus* (Jessop) Oberm.

Tall glabrous climber to 3 m long; spines patent-recurved, to 2 cm long; cladodes 1-3 per fascicle, linear, 3-5 × 0,1 cm; racemes 30-40 cm long; flowers single or 2-4 in clusters on short side branchlets; tepals white, c. 3 mm long; berry red, shiny, 8 mm Ø.

According to Fl. south. Afr. 5/3: 56, 1992, in S. Africa, Swaziland, and neighbouring Mozambique territory; in bushveld. Not recorded in Fl. Zambes. 13/1, 2008.

A. aridicola Sebsebe – Icon.: Fl. Trop. E. Afr., Asparagaceae: 16, 2006; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 193, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 298, 2010.

syn.: *A. falcatus* L. ! var. *pubescens* Chiov.; *A. falcatus* L. var. *ternifolius* sensu Sebsebe, Fl. Eth. & Eritrea 6: 70, 1997, p.p. quoad specim. Corradi 4653 et Chiovenda in Webbia 8: 10, 1951; *A. aridicola* ("aridicolus") Sebsebe in Sebsebe & al. (2003): l.c., nom. (English description only).

Climbing or scandent shrub 1-3 m long; branches *terete, not striated, grey,* glabrous to puberulous; spines below the cladodes and flowers, 3-8 mm long on main branches, 1-3 mm long on terminal branches; cladodes single or in fascicles of 2-6, linear, 10-30 × 1-2 mm; flowers in clusters of 2-6; *pedicels 3-4 mm long, jointed above the middle; raceme simple,* 1,5-3,5 cm long; flowers 1-2; tepals white to cream, 3-4 mm long; berry round, red, 6-7 mm Ø.

Wooded grassland and thicket; with *Olea chrysophylla, Teclea, Juniperus procera; Acacia* desert scrub; *Acacia, Commiphora* bushland; 400-1900 m alt.

Related to *A. natalensis* but racemes simple, tepals with entire margins (not ciliate).

A. asparagoides (L.) W. F. Wight 1909 (see Note below) – Bridal Creeper – Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 311, 1994; van Jaarsveld in Eggli, Ill. handbook succ. pl., Monocot.: 231-232, 2001; Fl. Trop. E. Afr., Asparagaceae: 19-20, 2006; Fl. Zambes. 13/1: 29-30, 2008; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 196, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 303-304, 2010; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 144, 2008; Dobignard & Chatelain, Index synon. fl. Afr. N. 1: 91, 2010. – Icon.: Bot Mag.: pl. 5584, 1866 (sub gen. *Myrsiphyllum*); Troupin, Fl. Rwanda 4: 37, 1988; Fl. Eth. & Eritrea 6: 72, 1997; Kubitzki & Rudall, o.c.: 126.

syn.: Enum. 3: 60, 1995; *A. asparagoides* (L.) Druce 1914 (see Note below); *Myrsiphyllum asparagoides* (L.) Willd. 1808; *Asparagus medeoloides* (L. f.) Thunb., incl. var. *angustifolius* (Miller) Baker and var. *falciformis* (Kunth) Baker; *Medeola angustifolia* Miller; *M. latifolia* Salisb.; *Myrsiphyllum falciforme* Kunth; *Elide asparagoides* (L.) Kerguélen; *Dracaena medeoloides* L. f.; *Ruscus volubilis* Thunb.; *Elachanthera sewelliae* F. Muell.; *Luzuriaga sewelliae* (F. Muell.) K. Krause; *Asparagus kuisibensis* Dinter; *Hecatris asparagoides* (L.) Salisb.

Climbing or suberect annual to perennial herb to 3 m high; branches glabrous, not spiny; cladodes solitary, *flattened, leaflike,* ovate, 1,2-8 × 0,7-3 cm, apex acute, base rounded, with > 15 parallel lateral nerves; racemes 1-2; pedicels 5-32 mm long, articulated at apex or in upper half; flowers *pendulous;* tepals greenish white, 5-6 mm long; berry red, globose, 6-10 mm Ø.

Dry or moist forest; forest margins; riverine forest; less often in woodland or secondary bushland; *Juniperus* forest; mixed forest with bamboo; 1000-3000 m alt.

Variable in size of cladodes and tubers. A widespread form (reported from, e.g., S. Africa by Kleinjan & Edwards in S. Afric. J. Bot. 65: 23-31, 1999) has slender rhizomes and "an extensive, much-branched mat of tubers at … base" (large plants), tubers c. 25 mm long; a SW Cape form has robust rhizomes with long tubers (c. 43 mm long) lying parallel to the ground and "closely packed in a rosette round the rhizome". Naturalised forms in, e.g., Australia are less variable.

S. Africa, Lesotho, Swaziland (maps, one revised, in S. Afric. J. Bot. 65: 25, 1999). Naturalised (and cultivated) in S Europe, Mediterranean area, recently in Australia; "a serious environmental weed" (Turner & al. in Austral. Ecol. 33: 713-722, 2008.

Note: The authorship of the combination *Asparagus asparagoides* is variably cited, Druce 1914 (Rep. Bot. Exch. Club Soc. Brit. Isles 3: 414, 1914) often being retained. Wight's combination (in The Century Dictionary and Cyclopedia, Suppl. 2: 845, 1909) is then treated as invalid ("without citation of basionym or ascription of authorship"). According to the "List of Collaborators" to the Century Dictionary, William Franklin Wight treated

ASPARAGUS ASPARAGOIDES

entries of "Systematic Botany". The entry reads as follows: "**Myrsiphyllum**… A section of the genus *Asparagus* of the family *Liliaceae*, containing the 'smilax' of florists, *Asparagus asparagoides*, a climbing perennial South African herb much prized by the public in floral decorations. The foliage, which is composed of cladodes or leaf-branches, is broad and ovate, in this respect differing from the true asparagus, which has linear or filiform foliage.". As to the "lack of citation of basionym", the indication of a full reference to its author and place of valid publication is required only on or after 1 January 1953 (International code of botanical nomenclature § 33.4). – The "taxonomic description of *A. asparagoides* is based on an iconotype which does not have a precise collection locality" (Tilli, Catalogus plantarum horti Pisani: t. 12, f. 2, 1723), as "Asparagus Africanus, scandens Myrti folio angustiore".

A. aspergillus Jessop; Thulin, Fl. Somalia 4: 26-27, 1995; Fl. Trop. E. Afr., Asparagaceae: 13, 2006; Sebsebe Demissew & al., Flow. Ethiopia & Eritrea… : 195, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 302, 2010.

syn.: *A. racemosus* sensu Sölch, Beitr. Fl. SW Afr.: 38, 1961, non Willd.

Climbing or erect slender herb or shrub to 2 m long; branches grey, glabrous to *scabrid* or *puberulous*, with spines 8-10 mm long on main branches, 3-4 mm on terminal branches; cladodes 4-fasciculate, linear, *7-20* × 0,5 mm, absent at anthesis; racemes 1-4, simple, 12-45 mm long, scabrid; pedicels solitary, *1,5-3,5 mm* long, *articulated at apex;* tepals white, oblong, *2-3 mm* long; berry red, globose, c. 6 mm Ø.

Acacia, Commiphora woodland; deciduous bushland; dry grassland; wooded or bushed grassland; mixed woodland on sandy slopes; river margins; termitaria; 60-1600 m alt.

Namibia, S. Africa; possibly in S Ethiopia (Sidamo).

Resembling *A. rogersii* but cladodes subulate and longer, inflorescence thicker.

A. baumii Engl. & Gilg; Figueiredo & Smith, Pl. Angola: 173, 2008; idem in Bothalia 39: 192, 2009 (Baum, Kunene Exp.).

Spiny shrub to 1,5 m tall; branches (40-50 cm long) and branchlets (8-11 cm long) densely shortly pilose; cladodes in dense clusters of 6-14, laxly hispid, 6-8 mm long; pedicels 5-6 mm long, articulated at middle, solitary; tepals oblong, white, 2,5-3 × 1-1,2 mm; fruit unknown.

Stream side, sandy soil; 1150 m alt.

Near *A. nelsii*.

? Only known from the type collected in 1899.

A. benguellensis Baker; Figueiredo & Smith (2008): l.c.

Decumbent glabrous *subscandent* shrub; branches copiously pinnate; branchlets ascending or spreading, 10-15 cm long; cladodes in clusters of 3-6, ascending, 1,2-1,8 cm long; flowers in clusters of 1-2 (rarely 3-4); pedicels 0,6-0,8 cm long, articulated at middle; perianth funnel-shaped, 0,6 cm long; fruit unknown.

Wooded thickets; here and there.

Near *A. psilurus*.

ASPARAGUS

(**A. bequaertii** De Wild.)

Plant with erect ramose glabrous branches c. 20 cm long, with recurved spines; cladodes solitary, few, at tips of branches, bristle-like, lightly recurved at apex, 10-12 mm long; flowers axillary, 1-2; pedicels to 6 mm long, articulated near base; tepals c. 4 mm long; fruit unknown.

Ecology unknown.

? Only known from the type collected in 1911 (Katanga, Zaire). – Not mapped.

Near *A. equisetoides, A. denudatus* subsp. *nudicaulis.*

A. brachiatus Thulin – Icon.: Nord. J. Bot. 22: 432, 2003; Thulin, Fl. Somalia 3: 582, 2006.

Slender *not spiny erect shrublet, to c. 0,5 m tall*, ± divaricately branched; stems to c. 5 mm Ø at base, terete or with shallow furrows, glabrous or finely papillose; cladodes in groups of c. 3-5, fleshy, c. 3-9 × 0,5 mm, *absent on flowering branches*, flowers solitary or in clusters of 2-4, axillary and terminal; pedicels c. 2-3,5 mm long, *articulated about middle*; tepals white with greenish midvein, c. 3-3,5 × 1,2-1,6 mm; fruit unknown.

Limestone rocks close to the sea or c. 40 km from the coast; 100-380 m alt. – In the two collection localities growing with *Psilotrichum tomentosum, Jatropha inaequispina, Dicoma paivae, Iphionopsis oblanceolata, Limonium nogalense, Fagonia charoides.*

Differs from *A. africanus* in its bushy habit, lack of spines and of cladodes on flowering branches; pedicels articulated *not* below middle.

A. buchananii Baker; Thulin, Fl. Somalia 4: 27, 1995; Fl. Eth. & Eritrea 6: 71, 73, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea...: 195-196, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 303, 2010; Fl. Trop. E. Afr., Asparagaceae: 14, 2006; Fl. Zambes. 13/1: 24, 2008; Figueiredo & Smith, Pl. Angola: 173, 2008.

Climber or scandent shrub to 3-5 m high; branches *pale brown, glabrous, smooth*, with spines 1-4 cm long; cladodes in groups of 3-5, 10-27 × 0,5 mm; racemes usually simple, 1,5-5 cm long, glabrous; pedicels solitary or paired, *2-3 mm long, articulated at apex* or sometimes at middle; tepals elliptic, white to cream, 2-3 mm long; berry red, 5-7 mm Ø.

Grassland; wooded grassland; dry bushland; thicket and edges of thicket; woodland; wet savanna; riverine woodland; *Acacia* scrub; sandy slopes; termitaria; 0-2250 m alt.

N Namibia, Botswana, S. Africa, Swaziland. Possibly in SW Ethiopia.

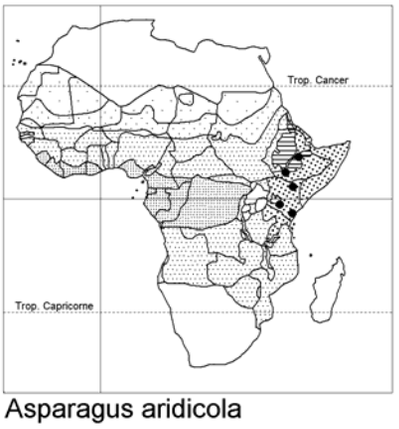
Resembling *A. racemosus.*

A. chimanimanensis Sebsebe – Icon.: Kew Bull. 63: 273, 2008; Fl. Zambes. 13/1: 26, 2008.

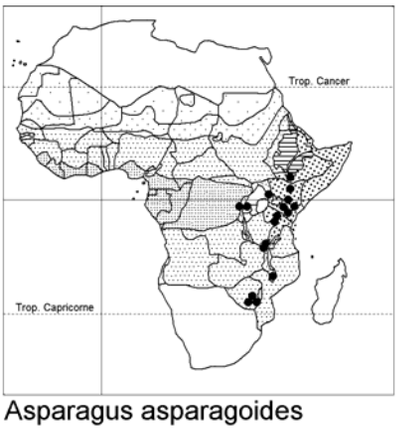
Erect shrub 40-50 cm tall; stem and branchlets regularly branched resembling a Christmas tree, ribbed, glabrous, spines 2-5 mm long, curved downwards; cladodes solitary or in groups of 2-4, stellately arranged on a zigzag branchlet, 5-10 × 1 mm; inflorescence simple or compound, *20-45 mm long;* flowers solitary or in groups of 2-4; complete pedicels unknown; tepals unknown; berry 7-9 mm Ø.

Banks of river near falls, amongst rocks; c. 2100 m alt.

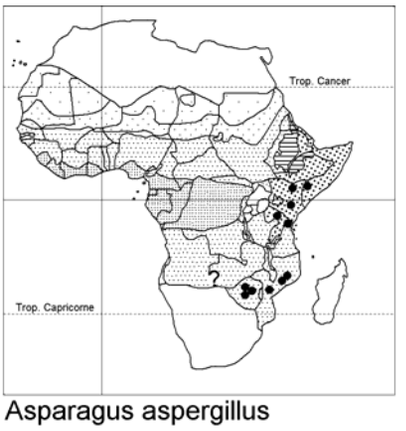
Resembling *A. rigidus* Jessop from S. Africa.



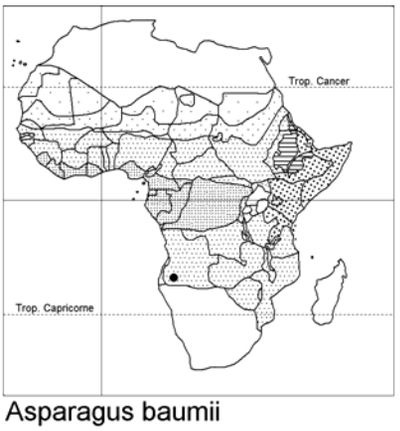
Asparagus aridicola



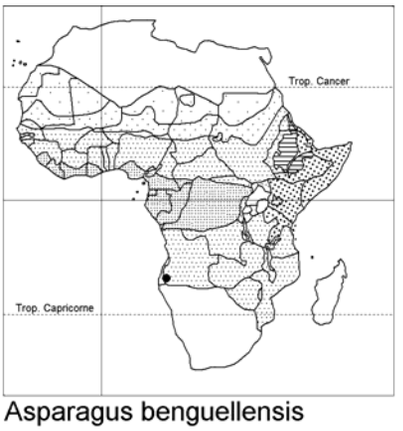
Asparagus asparagoides



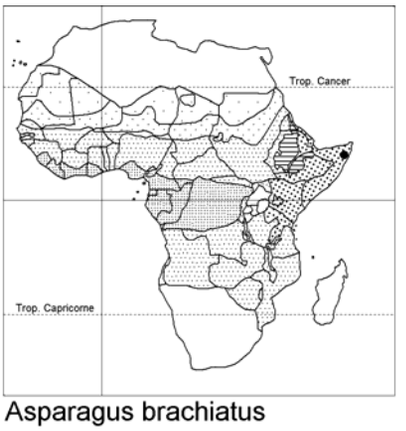
Asparagus aspergillus



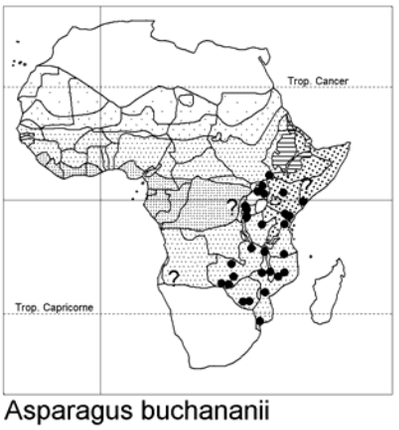
Asparagus baumii



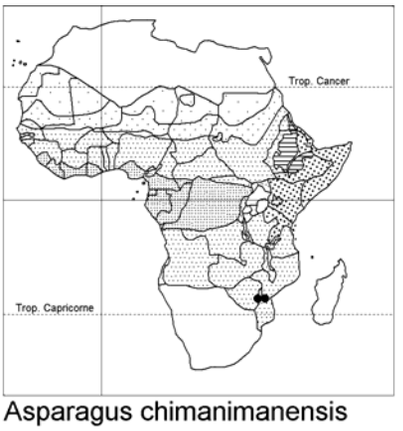
Asparagus benguellensis



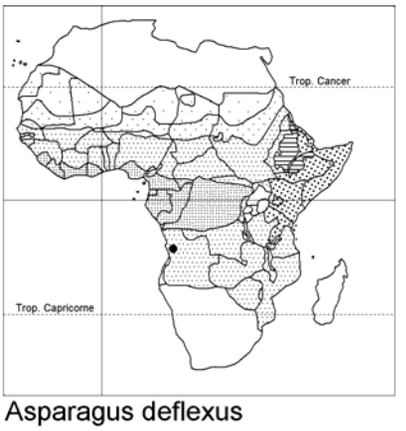
Asparagus brachiatus



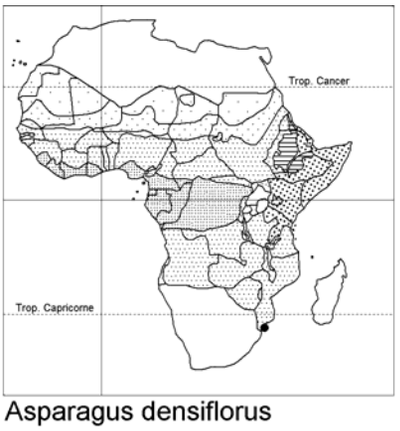
Asparagus buchananii



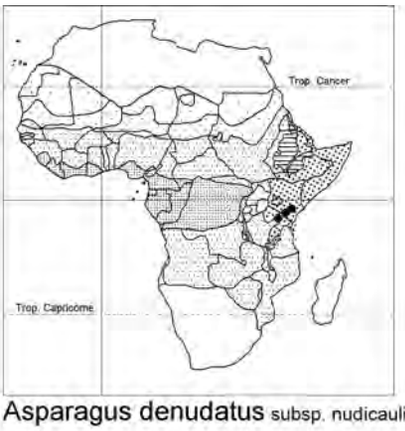
Asparagus chimanimanensis



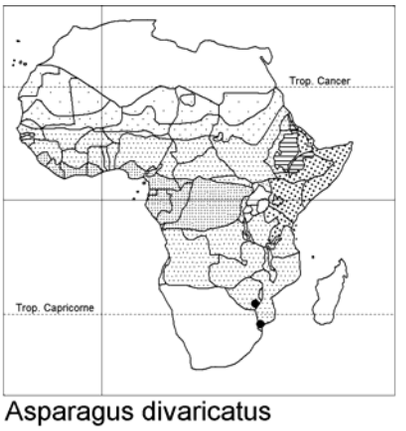
Asparagus deflexus



Asparagus densiflorus



Asparagus denudatus subsp. nudicaulis



Asparagus divaricatus

ASPARAGUS

A. deflexus Baker; Figueiredo & Smith, Pl. Angola: 173, 2008.

Much-branched climbing shrub; branches *glabrous*, the lower ones deflexed; branchlets many, short; cladode in clusters of 6-10, 0,6-0,8 cm long; flowers 1-2 axillary, or 4-6 from the tips of branchlets; pedicels 0,3-0,4 cm long, articulated at middle; perianth 0,3 cm long; fruit unknown.

Ecology unknown.

? Only known from the type collected in 1857.

A. densiflorus (Kunth) Jessop; Fl. Zambes. 13/1: 25, 2008.

syn.: Enum. 3: 61, 1995; *A. sarmentosus* auctt., non L.; *A. sarmentosus* var. *comatus* Baker and var. *densiflorus* (Kunth) Baker; *A. myriocladus* Baker; *Protasparagus densiflorus* (Kunth) Oberm.

Erect herb, 1-1,5 m tall; branches *closely set* as in a broom, *striate*, with recurved spines 3-5 mm long; cladodes evergreen, simple or in groups of 2-3, 5-10 × 1-1,5 mm; racemes *simple*, 20-50 mm long, many-flowered or reduced to a few flowers, in axils and along branches; pedicels *2-3 mm long*, articulated near middle; tepals 2-3 mm long, white with a pink tinge; berry red, c. 1 cm Ø.

Recent sandstone formation; sandy soils; 0-20 m alt.

S. Africa, Swaziland.

Obermeyer (Fl. south. Afr. 5/3: 49, 1992) kept *A. sprengeri* Regel = cv. 'Sprengeri' in *A. densiflorus;* and so does the European Garden Flora, ed. 2, 1, Monocot.: 167, 2011. It is one of a number of cultivars treated under *A. aethiopicus* L. (cf. Fl. Trop. E. Afr., Asparagaceae: 2, 2006).

A. denudatus (Kunth) Baker; Sebsebe in Fl. Trop. E. Afr., Asparagaceae: 10, 2006.

bas.: *Asparagopsis denudata* Kunth

syn.: *Protasparagus denudatus* (Kunth) Oberm.

Subsp. **nudicaulis** (Baker) Sebsebe, l.c.

bas.: *Asparagus nudicaulis* Baker

Erect branching shrub 1-1,5 m tall, leafless for most of the time; branches *grooved* or *ridged*, glabrous, with *spines 1,5-2 mm long;* branchlets at 45° to main stem; cladodes in clusters of 2-3, 6-15 mm long; flowers 1or in groups of 2-5, *axillary and terminal;* pedicels 6-7 mm long, articulated at middle or below; tepals white, 2,5-3,5 × 1-1,5 mm; berry red or black, 4-5 mm Ø.

Grassland; bushed grassland; forest margins; 950-1900 m alt.

Subsp. **denudatus** in S. Africa, Lesotho; with branchlets ± perpendicular to main stem, and shorter cladodes.

A. divaricatus (Oberm.) Fellingham & N. L. Mey.; Fl. Zambes. 13/1: 89, 2008. – Icon.: Fl. south. Afr. 5/3: 66, 68 (map), 1992.

bas.: *Protasparagus divaricatus* Oberm.

Erect, creeping or scandent shrub, glabrous, intricately branched, 0,5-1,5 m tall, with long thin divergent branchlets; stem erect, c. 3 mm Ø; spines small, retrorse, branches and branchlets *forked* terminating in *1-2 cladodes* (filiform, 30-40 mm long, stiff, paired at stem apices); flowers in a compact fascicle of 6-20 in upper node, flanked by 2 divergent cladodes which are much longer than flower fascicles; tepals c. 4 mm long, deep mauve, paling later; pedicels 5-6 mm long, articulated in lower half; berry c. 5 mm Ø, yellow.

Coastal areas on sandy soil; 0-300 m alt.

S. Africa, Swaziland.

ASPARAGUS

A. drepanophyllus Welw. ex Baker, excl. var. *warneckei* Engl. *(= A. warneckei);* Harris, Vascul. pl. Dzanga-Sangha Res., Centr. Afr. Rep.: 222, 2002; Sosef & al., Check-list pl. vascul. Gabon: 250, 2006; Figueiredo & Smith, Pl. Angola: 173, 2008; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 49, 2010; Cheek & al., Pl. Mefou propos. natl. park Yaoundé, Cameroon: 217, 2011; M. Renier, Flore du Kwango 1: 92, 1948; De Wildeman, Compagnie du Kasaï mission permanente d'études scientifiques…267, 1910.

Climbing shrub with stout woody stem to 5(-8) m high; long root tubers in clusters; branches slender, flexuose, glabrous, with numerous spreading branchlets; *spines 3-5 mm long*, flattened near base; cladodes usually 3-nate, unequal, spreading, linear, curved, 1-nerved, to 1,8-2,5 cm long; raceme sessile, *7,5-17 cm* long; *pedicels* in clusters of 3-6, *2-3 mm long*, articulated at middle; perianth campanulate, 2-3 mm long, white to pale green; berry 5-7 mm Ø, red.

Sporadic in thick woods on mountains; secondary and riparian forests; terra firma forest; grassland; 100-700 m alt.

Similar to *A. warneckei* but with shorter spines (not 7-10 mm), and pedicels (not 5-6 mm) not articulated at base.

(**A. duchesnei** L. Linden); De Wildeman, Mission Emile Laurent (1903-1904), 1: 44, 1905; M. Renier, Flore du Kwango 1: 92, 1948.

Climbing plant; stems woody, slender, flexuose, glabrous, with numerous spreading branches, with large recurved spines; cladodes in clusters of 3-4, unequal in lenght, linear, acuminate-acute, to 6,5 × 0,4 cm, midnerve prominent; flowers solitary in cladode axils; pedicels 9 mm long, 3-gonous in lower part, jointed at upper 1/3; perianth ± campanulate, 6 mm long, "much larger than that of *A. drepanophyllus";* fruit red.

Two specimens introduced by Duchesne to Bruxelles and flowering there (photographs in De Wildeman, o.c. 2: pl. 18, 1905); collected in Zaire, Kitobola (5°22'Sx14°31'E) and "Lomkala" (= ? Lonkala, 4°37'Sx23°13'E, on the Kasai R.), respectively, in 1903.

In need of further study; taxonomic position uncertain. Not mapped.

A. edulis (Oberm.) J.-P. Lebrun & Stork (17 February, 1995; Fellingham & N. L. Mey.; October, 1995); Fl. Zambes. 13/1: 14, 2008.

Annual herb with 1 to few stems, *erect at first*, lengthening and scrambling with age, glabrous, slender; spines at stem base, to 1 cm long, brittle, minute, or absent above; branches at right angles to stem, short when flowering, later lengthening to 4-6 cm and often branching; cladodes *c. 5-6 mm long*, apiculate, flowers in clusters of 1-4, often apical amongst cladode fascicles; pedicels 3,5-4 mm long, articulated at middle or below; tepals c. 3 mm long, white; berry c. 5 mm Ø.

Wooded grassland with granite outcrop; *Pteridium* grassland, near watercourses; 800-1600 m alt.

S. Africa, Swaziland.

ASPARAGUS

A. equisetoides Welw. ex Baker; Figueiredo & Smith, Pl. Angola: 173, 2008.

Much branched shrub, caespitose, 45-90 cm tall, with a many-headed tuberous woody root; main branches pinnate, erecto-patent; *branchlets* slender, erecto-patent, *15-30 cm long;* leaves with a small deflexed *pungent spur;* cladodes *usually absent*, rarely solitary, 4-6 mm long, appressed to branchlets; flowers and fruit unknown.

Sandy places on river banks.

Resembling marsh-growing *Equisetum.*

A. exuvialis Burch., incl. fa. *ecklonii* (Baker) Fellingham & N. L. Mey.; Fl. Zambes. 13/1: 7-8, 2008. – Icon.: Fl. south. Afr. 5/3: 44, 1992 (root system).

syn.: *A. hereroensis* Schinz; *A. ecklonii* Baker; *Protasparagus exuvialis* (Burch.) Oberm., incl. fa. *ecklonii* (Baker) Oberm.

Erect climbing or scrambling glabrous shrub 1-2 m tall, strongly branching zigzag; rhizome with numerous roots with *fusiform swellings*; skin of stem *peeling off* as white membranes leaving a brownish surface; spines 0,5-1 mm long or absent; cladodes deciduous, absent or immature at anthesis, filiform when present, in fascicles of 3-15, unequal, 7-30 mm long; flowers 2-4, divergent, placed at nodes on outside of immature cladode fascicle; pedicels 3-6 mm long, articulated near middle or above (rarely below); tepals 3-4 mm long, yellow or white; berry red or orange, 5-6 mm Ø.

Sandy areas; under trees on rocky hillsides; areas of limestone pans and outcrops; 50-1100 m alt.

S. Africa, Namibia, Botswana. – Not in Kenya *(= A. scaberulus).*

A. falcatus L., excl. var. *fasciculatus* (Thunb.) Kuntze *(= A. fasciculatus* Thunb.), var. *pubescens* Chiov. *(= A. aridicola)* and var. *ternifolius* (Baker) sensu **Jessop 1966** *(= A. natalensis),* (non *"tenuifolius");* Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 311, 1994, p.p.; Thulin, Fl. Somalia 4: 26, 1995 (excl. var. *ternifolius*); Fl. Eth. & Eritrea 6: 70, 1997, p.p. (idem); Fl. Zambes. 13/1: 25, 27, 2008, p.p.; Fl. Trop. E. Afr., Asparagaceae: 14-15, 2006; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 192-193, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 296-297, 2010. – Icon.: J. Burman, Thesaurus zeylanicus: pl. 13 fig 2, 1737 (iconotype); Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 158, 2001.

syn.: *A. aethiopicus* L. var. *ternifolius* Baker 1871, non sensu Jessop 1966.

Climbing shrub to 4-7 m long; stems and branches *smooth,* terete to angled; spines recurved, 5-10 mm long, on main stem; cladodes in fascicles of 3-6, flattened, straight or falcate, 25-125 × 2-5 mm with a distinct midvein; racemes *simple,* 1-2, 1,5-5 cm long, glabrous; pedicels *3-7 mm long,* articulated at middle or *below;* tepals white to cream-yellow, 2,5-3,5 mm long; berry red or white flushed purple, 7-10 mm Ø.

Coastal forest; sand dunes; miombo woodland; along forest margins; streams; among rocky outcrops; deciduous or evergreen bushland; thicket; dry forest; *Acacia, Commiphora, Combretum* woodland; wooded grassland; mixed deciduous woodland on sandy soil and limestone; 0-1900 m alt.

S. Africa, Swaziland; W Saudia Arabia, Yemen; India, Sri Lanka.

ASPARAGUS

A. faulkneri Sebsebe – Icon.: Fl. Trop. E.Africa, Asparagaceae: 18; 2006.

Climber with yellowish (on drying), furrowed glabrous stem; young branches *striate, angled;* spines on main branches and branchlets straight, 3-8 mm long; cladodes in clusters of 4-8, linear to falcate, 6-15 × c. 1 mm; inflorescence simple, 1,5-2,5 cm long; pedicels *1-1,5 mm long,* articulated just below perianth; tepals white to cream, 2-3 × 1 mm; berry red, 5-7 mm Ø.

Coastal bushland; dry forest; wooded grassland; 0-450 m alt.

Resembling *A. falcatus* but cladodes and flower pedicels shorter.

A. flagellaris (Kunth) Baker; Brunel & al., Fl. analyt. Togo… 655, 1984; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 311, 1994; Thulin, Fl. Somalia 4: 26, 1995; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 500-501, 1995; Fl. Zambes. 13/1: 10-11, 2008; Lisowski, Fl. Rép. Guinée 1: 384, 2009; Malaisse, Guide florist. Parc Natl. Cantanhez (Guinée-Bissau): 148, 2010; Dobignard & Chatelain, Cartes répart. pl. Côte d'Ivoire: 216, 2011. – Icon.: Fl. Eth. & Eritrea 6: 69, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 192, 2003; idem Aloes & lilies Eth. & Eritrea, ed. 2: 296, 2010; Fl. Trop. E. Afr., Asparagaceae: 16, 2006; Akoegninou & al., Fl. analyt. Bénin: 63, 2006; Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 157, 2001.

syn.: *A. abyssinicus* Hochst. ex A. Rich.; *A. africanus* Lam. var. *abyssinicus* (Hochst. ex A. Rich.) Fiori; *A. pauliguilelmi* Solms, incl. var. *daltonii* Baker and var. *katangensis* De Wild. & T. Durand; *A. schweinfurthii* Baker; *A. somalensis* Chiov.

Erect shrub to 2-3 m tall, rarely climbing or scrambling, to 4 m; branches *terete* or grooved, smooth to lined with straight or curved strong *spines 3-5 mm long*; cladodes in clusters of 4-14, stiff, needle-like, 5-60 mm long; flowers *axillary,* 1-2; pedicels jointed near base; tepals white to purple, 2-3 mm long; berry orange-red, 6-9 mm Ø.

Grassland; wooded grassland; scattered tree grassland; (dry) bushland; often in regularly burned areas; *Acacia, Commiphora* and *Combretum, Terminalia, Teclea, Acokantera* woodland; shallow soil over limestone or on limestone outcrops; woodland with *Combretum collinum, C. molle, Annona senegalensis;* woodland with *Acacia mellifera, A. tortilis;* humid places; gravelly soils; clayey-sandy soils on laterite; forest gallery; miombo woodland; fallows; 0-2100 m alt.

Saudi Arabia.

Resembling *A. vaginellatus* Bojer ex Baker from Madagascar.

A. flavicaulis (Oberm.) Fellingham & N. L. Mey. subsp. **flavicaulis**; Fl. Zambes. 13/1: 7, 2008. – Icon.: Fl. south. Afr. 5/3: 28, 1992.

bas.: *Protasparagus flavicaulis* Oberm.

Erect herb to 3 m tall with ascending branches; stems minutely pubescent, deep yellow when young, darker with age; branches bearing the short divergent side branches and branchlets close together, all ending in a hard spine; lateral branches 1-3 from a node, short, the *basal part pubescent,* the *upper part* a *glabrous spine,* 4-8 mm long; thin spinous branchlets bearing cladodes also present; cladodes few to many in clusters, *glabrous,* 5-7 mm long; flowers 1-3, *lateral beside a cladode fascicle,* next to base of small spine; pedicels 1-1,5 mm long; tepals 2-3 mm long, white; berry black, c. 5 mm Ø.

Brachystegia, Acacia woodland; open savanna with low shrubs; 1000-1650 m alt.

N S. Africa, Botswana.

Subsp. **setulosus** (Oberm.) Fellingham & N. L. Mey. in N S. Africa with minutely bristly cladodes.

ASPARAGUS

(**A. homblei** De Wild.)

Herb with erect branches, ± ramose, to 60 cm long, ± angled, glabrous; leaves ending in a somewhat recurved spine c. 5 mm long; cladodes in clusters of up to 10, ± recurved to 5 cm long, filiform, acute; flowers unknown; berry globose, red, 7-8 mm Ø on pedicels 5-6 mm long, articulated at 5 mm above base.

Termite mound.

? Only known from the type collected in 1912 (Homblé 172): Zaire, Elisabethville.

Said to be near *A. mozambicus* Kunth based on a sterile specimen (? near *A. pendulus).*

Not mapped.

A. humilis Engl.; Fl. Trop. E. Afr., Asparagaceae: 6, 2006; Fl. Zambes. 13/1: 5, 2008.

Erect or prostrate perennial herb 10-15 cm tall, sometimes to 1,8 m when supported; branches glabrous, grooved, smooth, sometimes papillate, without spines; cladodes in clusters of *4-15*, grooved, unequal, 4-15 mm long, tip spine-like; flowers 1-2, *erect* in cladode fascicles; pedicels *2-3 mm long, articulated* ± *at middle;* tepals white, 3-3,5 mm long; berry red, 5-7 mm Ø.

Coral rocks, dense bush; salt flats near mangrove; 0-15 m alt.

(**A. kaessneri** De Wild.)

Plant with erect branches c. 70 cm long, *shortly velutinous*, ± cylindrical; leaves ending somewhat recurved in a spine; cladodes 1-2, rarely in groups of 3-4, rigid, subulate, erect, *short*, 8-18 mm long; flowers 1-2; pedicels to 9 mm long, articulated towards base; perianth 3-3,5 mm long; fruit unknown.

River valley.

? Only known from the type collected in 1908 (Kassner 3178): Zaire/Burundi: Rusizi valley (c. 3°21'Sx29°17'E). – Not mapped.

Said to be related to *(A. schweinfurthii =) A. flagellaris*, but indumentum shorter, cladodes and flower pedicels shorter, flowers larger.

(**A. katangensis** De Wild & T. Durand)

Erect shrublet with slender spiny branches; branchlets divaricate, spreading, striate, pale green, alternate ?; cladodes absent; flowers numerous (c. 10) in axillary fascicles; pedicels c. 7 mm long, articulated at 2 mm from the base; berry c. 4,5 mm Ø.

Ecology unknown (collections made around Lukafu and on the sides of Lake Moero).

? Only known from the type (Verdick 201, collected in 1899): S. Zaire, Lukafu (10°31'Sx27°33'E). – Not mapped.

Said to be near *A. equisetoides* also lacking cladodes (but flowers unknown), or *(A. nudicaulis =) A. denudatus* subsp. *nudicaulis* (reported by De Wildeman & T. Durand in Bull. Soc. Roy. Bot. Belgique 40/1: 32, 1901, as also lacking cladodes).

ASPARAGUS

A. krebsianus (Kunth) Jessop; Strugnell, Checklist spermat. Mt. Mulanje, Malawi: 49, 2006 (sub gen. *Protasparagus);* Fl. Zambes. 13/1: 21, 2008. – Neotype: Flanagan 2377.

bas.: *Asparagopsis krebsiana* Kunth

syn.: *Protasparagus krebsiana* (Kunth) Oberm.

Erect or scrambling shrub 1,5-3 m tall, from a woody rootstock; stems arching, glabrous, several radiating from base with a columnar appearance; *spines* sharp 10-15 *on main stems*; *spinules* present *below* each cladode *fascicle*, 5-8 mm long; cladodes in fascicles of 3-13, filiform, 1,5-7 cm long; raceme 1-3,5 cm long; flowers 1 or 2-3 together, terminal; pedicels 3-4 mm long, articulated at middle or below; tepals white or cream, 2,5-3 mm long; berry red, 5-8 mm Ø.

Grassland; open woodland; open rocky ground; creeping over shrubs; 650-1850 m alt.

S. Africa.

A. laricinus Burch., incl. var. *katangensis* De Wild. & T. Durand; Fl. Trop. E. Afr., Asparagaceae: 5-6, 2006; Figueiredo & Smith, Pl. Angola: 173, 2008. – Icon.: Fl. south. Afr. 5/3: 34, 1992; Fl. Zambes. 13/1: 12, 2008; Pickering & Roe, Wild flow. Victoria Falls area: 30, 2009.

syn.: *A. angolensis* Baker; *Protasparagus laricinus* (Burch.) Oberm.

Shrub 1-3 m tall, erect, climbing, sometimes trailing, branches *zigzagging;* young stems and branches *whitish, ribbed,* minutely hispidulous or glabrous, turning brown and smooth; spines hard, straight or slightly curved, on stems and below branches, 3,5-8 mm long, below cladode fascicles 1,5-2 mm long; cladodes in clusters to 10, filiform, *straight* and *fan-shaped*, 8-20 mm long; flowers 1-8, on outside of cladode fascicles; pedicels 5-6 mm long, articulated in lower half, below middle; tepals 2,5-4 mm long, white; berry red, 6-8 mm Ø.

Grassland, also flooded; bushland; thicket; forest margins; burnt scrub grassland; river banks; damp woodland; 750-2400 m alt.

Namibia, S. Africa, Botswana, Swaziland.

Recorded from Zaire, Lutshima (5°30'Sx19°00E) by M. Renier (Flore du Kwango 1: 92, 1948); doubtful.

(**A. lecardii** De Wild.)

Two specimens from Senegal (or Mali ?) cited: Lécard 31 with flowers but without fruits; Lécard 36 sterile.

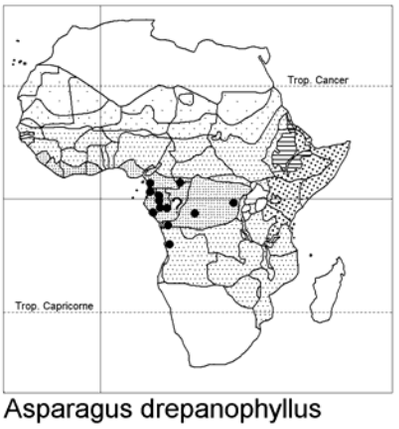
Very probably a synonym of *A. africanus* var. *africanus* (see this species above).

A. leptocladodius Chiov.; Thulin, Fl. Somalia 4: 145, 1995; Fl. Eth. & Eritrea 6: 71, 1997; Fl. Trop. E. Afr., Asparagaceae: 13, 2006. – Icon.: Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 194, 2003; idem; Aloes & lilies Eth. & Eritrea, ed. 2: 301, 2010.

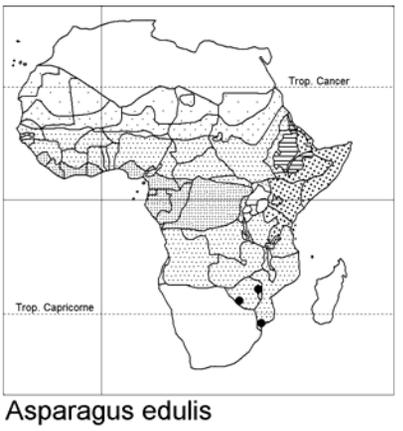
syn.: *A. racemosus* Willd. var. *ruspolii* Engl.; *A. gillettii* Chiov.

Erect or scandent shrub to 2 m tall; branches terete, white, *peeling*, glabrous to puberulous; spines erect, 4-12 mm long; cladodes in fascicles of 2-15, arcuate, 1-6 cm long, triangular; inflorescence racemose; raceme 0,5-2 cm long, often *condensed* and reduced, ± as an umbel; pedicels 5-6 mm long, articulated at middle or below; tepals white to cream, early *caducous*, 3-4 mm long; berry red, 5-9 mm Ø.

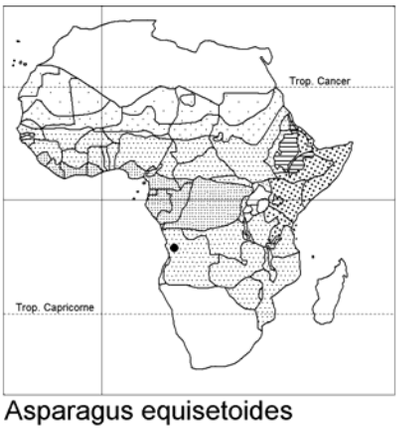
Acacia, Commiphora scrub and woodland; scattered tree grassland; bushed grassland; rocky slopes; dunes; 0-1800 m alt.



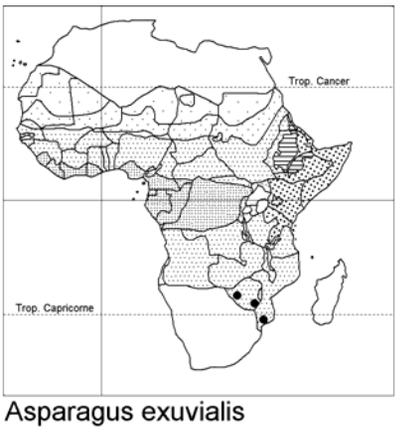
Asparagus drepanophyllus



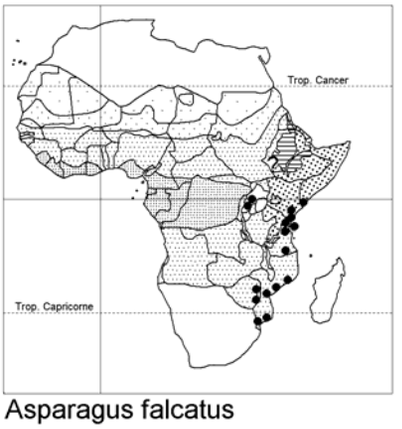
Asparagus edulis



Asparagus equisetoides



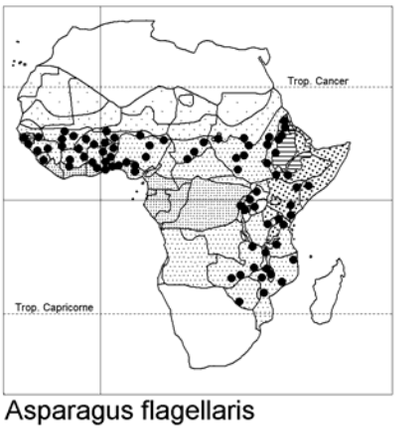
Asparagus exuvialis



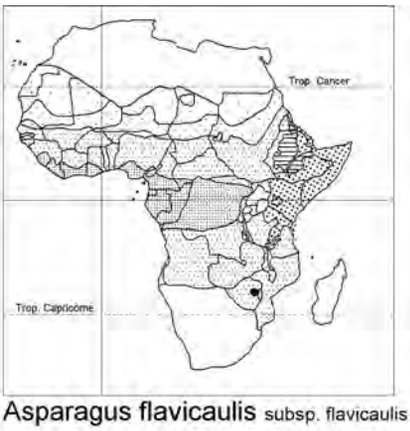
Asparagus falcatus



Asparagus faulkneri



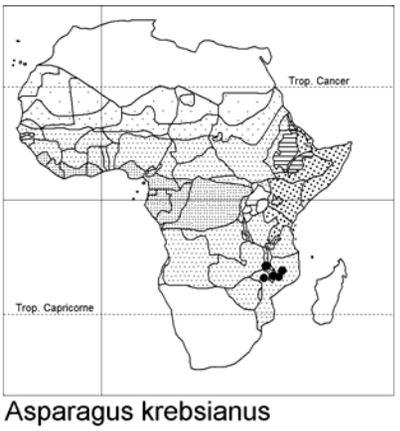
Asparagus flagellaris



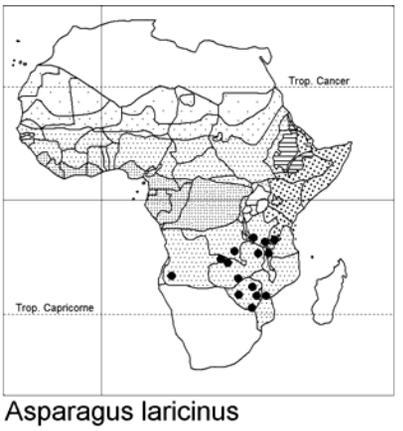
Asparagus flavicaulis subsp. flavicaulis



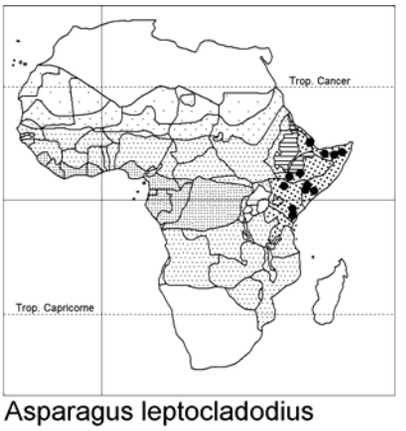
Asparagus humilis



Asparagus krebsianus



Asparagus laricinus



Asparagus leptocladodius

ASPARAGUS

A. longicladus N. E. Br.; Fl. Zambes. 13/1: 11, 13, 2008.

Scandent or shrubby herb; older stems brownish, young ones *green* and minutely pubescent; spines on main stems short, 2-10 mm long; cladodes in dense fascicles, soft, filiform, *25-65 mm long;* flowers in *dense* sessile *globose* fascicles of *4-10,* pressed against stems amongst cladodes; pedicels *5-7 mm long,* articulated *at base;* tepals c. 3 mm long, white; berry 5-7 mm Ø.

Rocky wooded hills; 450-900 m alt.

? Zambia, ? Botswana; possibly in Namibia/CapriviStrip.

(**A. longipes** Baker)

Climbing unarmed half-shrub; branches with abundant, very slender, pinnate branchlets; basal leaves hardly pungent; *cladodes* in clusters of 9-12, subterete, filiform, green, *(1,3-)2,6 cm long;* flowers in pairs, only at bases of branchlets; pedicels curved, *1-1,5 cm long, jointed above middle;* perianth 5 mm long, white striped green-brown; fruit unknown.

"Mountains of Cameroon".

Imported by and presented to Kew Gardens by Messrs Saunders of St. Albans. Flowered at Kew in November, 1898. Reported as cultivated in Ghana (Achimota) in 1936 (Akpabla 485).

Poorly known plant. Not mapped.

(**A. lynetteae** (Oberm.) Fellingham & N. L. Mey.); Fl. south. Afr. 5/3: 47-48, 1992; Bothalia 38: 28, 2008.

bas.: *Protasparagus lynetteae* Oberm.

Scandent perennial plant with thin white-puberulous stems to 3 m long; branches short, to 10 cm long, close together, spreading; rhizome compact with numerous swollen roots in cluster; spines thin, exserted, c. 4 mm long; cladodes in clusters of 10-20, curved, apiculate, 10-15 mm long, subtended by a short spine; racemes from same node as branches; flowers in clusters of 2-3; perianth c. 4 mm long; berry round, yellow, c. 5 mm Ø.

Along roads.

The map given in Bothalia (l.c.) shows a collection on the S border of Mozambique to Swaziland. Not cited in Flora Zambesiaca.

The plant occurs in S. Africa, Swaziland. – Not mapped by us.

A. macowanii Baker, incl. var. *zuluensis* (N. E. Br.) Jessop; Fl. Zambes. 13/1: 18-19, 2008. – Icon.: Pooley, A field guide to wild flowers Kwazulu-Natal: 103, 1998.

syn.: *A. zuluensis* N. E. Br.

Erect glabrous shrub 1-2 m tall with smooth stems; spines 1-3 mm long, *recurved,* on main stem; branches 1-several from an enlarged node, spreading, bearing numerous short branchlets terminating in globose fascicles; cladodes 20-60 per fascicle, *10-15 mm long,* deciduous; flowers *profuse,* in fascicles on young branches; pedicels 5-5,5 mm long, articulated in lower half; tepals c. 3 mm long, white; berry 7-9 (or c. 12) mm Ø, green when young.

Scrub on rocky hillsides; c. 50 m alt.

S. Africa.

(**A. merkeri** K. Krause)

Erect sub-shrub; branches terete, lightly striate, 30-40 cm long, c. 3 mm Ø at base, glabrous, slightly flexuose; spines patent or lightly reflexed, c. 1-1,5 mm thick, acute; cladodes fasciculate, glabrous, rigid, linear, 8-14 × 0,5-0,8 mm; flowers axillary, few; pedicels 6-10 mm long, articulated near base; tepals oblong, 3-4 × 1,5-3 mm; fruit unknown.

ASPARAGUS MERKERI

On the edge of the Rift, at the eastern foot of Mt Ol Doinyo Langai (2°45'Sx35°54'E), Tanzania (T2).

? Know only from the type (Merker 420, probably lost) collected in 1904. – Taxonomic position uncertain. – Not mapped. Not cited in Flora of Tropical East Africa, Asparagaceae, 2006.

A. migeodii Sebsebe; Fl. Trop. E. Afr. Asparagaceae: 9-10, 2006; Fl. Zambes. 13/1: 14, 2008.

Erect perennial *herb* to 60 cm tall with smooth glabrous stems; spines on main stems *c. 2 mm long;* cladodes in fascicles of 5-10, linear, fine, 5-6 mm long; flowers *solitary, axillary* turning brown within the cladode fascicles; pedicels 4-5 mm long, articulated ± at middle; tepals white, 2-3 mm long; berry red, 5-6 mm Ø.

Wooded grassland; *Brachystegia* woodland; burnt ground; stony areas in shade; 210-1750 m alt.

Resembling *A. setaceus* (but not erect and with terminal flowers). Related to *A. africanus* (but with longer spines).

A. minutiflorus (Kunth) Baker; Fl. Zambes. 13/1: 14-15, 2008; Bothalia 38: 25, 2008.

syn.: Enum. 3: 61, 1995.

Erect shrub with "fox-tail" habit, 30-50 cm tall; stems and branches scabrid on ridges; spines on main stems, 5-11 mm long, curved upwards or downwards; cladodes 8-10 per fascicle, filiform or 3-angled, scabrid, 8-10 mm long, apex apiculate; flowers 1 or 2, along stems and branches; *pedicels 1,5-2 mm long,* articulated at middle or above; *tepals c. 2 mm long,* white; berry 6-7 mm Ø, red.

Open mopane or *Acacia* woodland; c. 50 m alt.

S. Africa, Swaziland.

Resembling the S. African *A. hirsutus* S. M. Burrows but distribution area different (Bothalia, l.c.).

(**A. mozambicus** Kunth, Enum. pl. 5: 72, 1850); Fl. Zambes. 13/1: 30, 2008.

Stems tufted, erect, angular, striate, glabrous, paniculately branched; leaves scale-like; cladodes in clusters of 6-7 and more, thread-like, curved, sub-5-angular, glabrous and hardly minutely scabrous on ridges, acute-mucronate, unequal, c. 12,5-14,5 mm long, twice or 3 times longer than nodes; flowers and fruits unknown.

Collected "in Ora Mozambica" (Guerimba Isl. = Quirimba Isl. ?, Mozambique). Peters collected in Mozambique in 1843-1847. Taxonomic position uncertain. – Not mapped.

Said to be related to ? *A. declinatus* L. (Namibia, S. Africa, Madagascar) or ? *A. officinalis* L. (widespread). According to Sebsebe in Fl. Zambes. (l.c.) the type (W. C. H. Peters, s.n.) is sterile and has flexible cladodes. He suggests the plant to be close to or identical with *A. pendulus* (in the latter case, *A. mozambicus* has priority).

A. natalensis (Baker) J.-P. Lebrun & Stork, 17 February, 1995 (Fellingham & N. L. Mey., October, 1995); Fl. Trop. E. Afr., Asparagaceae: 15, 17, 2006; Fl. Zambes. 13/1: 27, 2008. – Icon.: Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 299, 2010.

syn.: Enum. 3: 61, 1995; *A. falcatus* L. var. *ternifolius* sensu Jessop in Bothalia 9: 70, 1966, non Baker 1871; *A. falcatus* sensu Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 311, 1994, p.p.

ASPARAGUS NATALENSIS

Climbing or scandent shrub to 2,5-3 m tall; branches *glabrous* to *puberulous*, angled when young, becoming terete; spines c. 5 mm long below branches, c. 1 mm below cladode fascicles; cladodes on branches *1 or 2-6 in fascicles*, 15-25 × c. 2 mm, apex acute; inflorescence compound, 15-150 mm long, often with some cladodes; flowers in fascicles of 2-6; pedicels 3-4 mm long, articulated at or below middle; tepals white, 3-3,5 mm long, outer segments ciliate at margins; berry red or orange, globose, 8-10 mm Ø.

Mangrove swamps; thicket; sand dunes; *Acacia, Commiphora, Terminalia* woodland; *Acacia, Euphorbia* open woodland; *Juniperus, Buxus* forest; dry bushland; dry forest and forest margins; edge of evergreen scrub; wooded grassland; bushed grassland; 0-2700 m alt.

S. Africa, Swaziland.

Related to *A. aridicola* (but with simple racemes and pedicels articulated above middle).

A. nelsii Schinz; Fl. Zambes. 13/1: 21-22, 2008.

Erect spiny shrub 0,6-1 m tall; stems *minutely* white *pubescent* or glabrous, grey with *minute black speckles;* branchlets plumose; spines on main branches and branchlets, sharply recurved, 5-10 mm long; cladodes filiform, in clusters of 4-9, 6-15 mm long, overlapping, deciduous; inflorescence solitary or 2-3 racemes from stem nodes, 15-60 mm long; flowers 1-2, rarely in fascicles of 2-5; pedicels 3-3,5 mm long, *articulated once or twice*, once at base, the second at middle or above; tepals *4,5-5 mm* long, white or pale cream; berry 5-6 mm Ø, red.

Open mopane; *Combretum, Terminalia* woodland on sandy soils; 750-1500 m alt.

Botswana, Namibia, S. Africa. – Angola (not in Figueiredo & Smith, Plants of Angola in Strelitzia 22: 173, 2008).

A. nodulosus (Oberm.) J.-P. Lebrun & Stork, 17 February, 1995 (Fellingham & N. L. Mey., October, 1995); Fl. Zambes. 13/1: 18, 2008.

bas.: Enum. 3: 61, 1995.

Herb trailing or twining, 1-4 m long, from a woody, hard rhizome; stems *minutely tomentose* with *erect, white hairs* and *dark knobs* below (old swollen spine bases), c. 4 mm Ø; younger spines projecting, short and sharp; branches numerous, spreading-erect, pubescent; branchlets numerous, short, glabrous; cladodes fine, c. 5 mm long, in dense semi-circular fascicles; flowers unknown; berry 4-5 mm Ø.

Acacia, Combretum woodland on Kalahari sands; 350-1000 m alt.

Namibia, Botswana, S. Africa – ? Zambia (not cited from there in Fl. Zambes., l.c.).

A. pendulus (Oberm.) J.-P. Lebrun & Stork, 17 February, 1995 (Fellingham & N. L. Mey., October, 1995); Fl. Zambes. 13/1: 5, 2008.

bas.: Enum. 3: 61, 1995.

Erect, non-spinous, greyish-green herb, 0,3-0,6 m tall; stems ribbed, *minutely strigose;* branches spreading, branchlets at right angles to branches, 20-30 mm long, closely beset by overlapping cladode fascicles; cladodes 5-10 per fascicle, filiform, slightly curved, unequal, 5-10 mm long; flowers 1-2 at apex of branchlets, *pendulous;* pedicels recurved, 2,5-3 mm long, articulated *at* or *below middle;* tepals 2,5-3 mm long, ± white; berry green when young, 4-6 mm Ø.

Open *Acacia, Combretum, Terminalia* scrub; *Commiphora* and mopane woodland; open grassland; moist sandy pan margins; 20-1400 m alt.

ASPARAGUS PENDULUS

Caprivi Strip/Namibia, Botswana.

Related to *A. virgatus* (but with flowers, also pendulous, placed *along branches).*

A. petersianus Kunth; Fl. Trop. E. Afr., Asparagaceae: 5, 2006; Fl. Zambes. 13/1: 8, 2008.

Scandent or *trailing* glabrous shrub; branches many, terete, smooth; spines at base of branches, 2-3 mm long, curved downwards, those at bases of cladodes c. 1 mm long; cladodes in fascicles of 10-*50 or more*, filiform, slightly curved, 5-10 mm long; cladode fascicles close to each other giving a bottle-brush appearance; flowers 1; pedicels c. 5 mm long, articulated close to base; berry 7-10 mm Ø, orange.

Open *Brachystegia* woodland with *Burkea, Julbernardia, Combretum;* secondary scrub woodland; relict forest; 0-600 m alt.

A. psilurus Baker; Figueiredo & Smith, Pl. Angola: 173, 2008; Fl. Zambes. 13/1: 9, 2008.

syn.: *A. bechuanicus* Baker; *Protasparagus bechuanicus* (Baker) Oberm.

Erect or scandent shrub 0,6-2 m tall or more; stem unbranched at base, branching above middle; branches and branchlets glabrous, lined; spines towards the lower half, brownish, broad at base, 1-1,5 mm long; cladodes *(absent at anthesis)*, filiform, in clusters of 3-12; *flowers 1-2*, axillary; pedicels 5-6 mm long, *articulated at middle or below;* tepals white to cream, 3-4 mm long; berry green turning red, 4-6 mm Ø.

Brachystegia woodland; open woodland on limestone; occasionally on rocky outcrops; somewhat sparsely in sandy woods and thickets; 400-1400 m alt.

Botswana, Namibia, S. Africa.

A. racemosus Willd., incl. var. *tetragonus* (Bresler) Baker, var. *javanicus* (Kunth) Baker, var. *subacerosus* Baker, var. *zeylanicus* Baker and var. *longicladodius* Chiov., but *excl.* var. *ruspolii* Engl. *(= A. leptocladodius).* – Brunel & al., Fl. analyt. Togo in Englera 4: 655, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 501, 1995; Thulin, Fl. Somalia 4: 26, 1995; Fl. Eth. & Eritrea 6: 71, 1997; Sosef & al., Check-list pl. vascul. Gabon: 250, 2006; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 193-194, 2003; Figueiredo & Smith, Pl. Angola: 173, 2008; Fl. Trop. E. Afr., Asparagaceae: 12-13, 2006; Fl. Zambes. 13/1: 22, 2008; Lisowski, Fl. Rép. Guinée 1: 385, 2009; Dobignard & Chatelain, Cartes distrib. pl. Côte d'Ivoire: 216, 2011; Fischer & al., Annot. checklist vascul. pl. Kakamega For.: 163, 2011; Fl. Mascareignes 183, Liliaceae: 8, 1978. – Icon.: Agnew & Agnew, Upl. Kenya wild flow., ed. 2: pl. 140, 1994; Sebsebe Demissew & Nordal, Aloes & lilies Eth. & Eritrea, ed. 2: 300, 2010; Fl. Pakistan 217, Asparagaceae: 19, 2009.

syn.: *A. fasciculatus* R. Br., nom. illegit.; *A. tetragonus* Bresler; *A. acerosus* Roxb., nom. illegit.; *A. dubius* Decne.; *A. penduliflorus* Zipp ex Span.; *A. petitianus* A. Rich.; *A. jacquemontii* Baker; *A. zeylanicus* (Baker) Hook. f.; *A. stachyoides* Spreng. ex Baker; *Asparagopsis floribunda* Kunth, nom. illegit.; *A. brownei* Kunth; *A. acerosa* Kunth; *A. abyssinica* Kunth; *A. decaisnei* Kunth; *A. hohenackeri* Kunth; *A. javanica* Kunth; *A. subquadrangularis* Kunth; *A. sarmentosa* Dalzell & A. Gibson, nom. illegit.; *A. retrofracta* Schweinf. ex Baker; *Protasparagus racemosus* (Willd.) Oberm., incl. var. *javanicus* (Kunth) Kamble and var. *subacerosus* (Baker) Kamble; *P. jacquemontii* (Baker) Kamble; *P. zeylanicus* (Hook. f.) Kamble

ASPARAGUS RACEMOSUS

Climber 1,5-7 m tall or tangled shrub; stems shiny yellow and soft with feathery branches when "in leaf", usually bare when in flower; stems straight, smooth, shiny yellow to greyish; spines 5-8 mm long on stems and main branches; branches spreading with numerous branchlets, c. 7 cm long, with overlapping cladode fascicles; cladodes 4-8 per fascicle, filiform, 1-4 cm long; flowers in *simple racemes*, in multi-budded axils of stems and branches, usually several racemes together, 2-3 cm long; flowers in umbellate clusters of 2-6 in terminal parts of racemes; pedicels 3,5-5 mm long, *articulated at middle or below;* tepals c. 3 mm long, white with a reddish central streak; berry shortly stipitate, c. 7 mm Ø, red.

Dry forest with *Pterocarpus lucens, Xylia torreana, Schrebera trichoclada,* on stony soils; valley bottoms; along streams; rocky slopes with many boulders with *Combretum molle* dominant, and much *Xerophyta simulans* growing on bare rocks; sandy-muddy soil; deciduous bushland; sporadic in thickets; gallery; granitic rocks scattered in meadow; *Brachystegia* woodland; shrubberies or tall grass and bracken vegetation; 5-3100 m alt.

Very variable complex in need of further studies to determine the delimitation of the species.

Madagascar; probably not in Yemen (confused with *A. falcatus),* Oman (Dhofar), India, Sri Lanka, Pakistan, China (S. Xizang), Malaysia, N Australia (Queensland, Western Australia, Northern Territory).

Resembling *A. buchananii* (but with pedicels articulated at apex, unbranched inflorescence, and spines on main branches 1-3 cm long).

A. radiatus Sebsebe – Icon.: Fl. Zambes. 13/1: 28, 2008; Kew Bull. 63: 274, 2008.

Shrub to 3 m tall; stems and branches grey, *glabrous,* terete; cladodes *in radiating fashion,* 3-14 per fascicle, flattened, obovate, *8-110 × 2-4 mm,* narrowed at base, apex acute; inflorescence racemose, 2-branching, 5-8 cm long; flowers 2-4 per node; pedicels *3-7* mm long, articulated at base; tepals white, elliptic, 3-3,5 × 1 mm; berry 7-8 mm Ø.

Dry rocky slopes of rhyolite with *Androstachys johnsonii;* c. 100 m alt.

Only known from 2 collections made in 1944, on the Swaziland border.

A. richardsiae Sebsebe; Fl. Zambes. 13/1: 9-10, 2008. – Icon.: Kew Bull. 63: 272, 2008.

Stiff upright shrub to 2 m tall; branches pubescent with white erect hairs; spines on main stem c. 2 mm long, curved downwards; cladodes in fascicles of 4-10, *present at anthesis,* subulate, 5-10 mm long; flowers axillary, 1 at axils of cladodes; pedicels 4-5 mm long, *articulated above middle, lower part pubescent;* tepals greenish-yellow, tinged brown, 2,5-3 mm long; fruit unknown.

Thick bush near streams; hill sides on gentle slopes in shade; 1220-1470 m alt.

Only known from 2 collections made in 1951.

Resembling *A. psilurus* (but without cladodes at anthesis).

(**A. ritschardii** De Wild.)

Near *A. laricinus* (var. *katangensis* De Wild.) but cladodes 7-11 mm long (not 6-15), hook of the leaves on mature branches conical, obscurely triangular in cross-section, to 12 × 4 mm.

? Only known from the type (F. Ritschard 1501) collected in 1927, Zaire, probably near Lubumbashi, termite mound, c. 1300 m alt.

Not mapped.

ASPARAGUS

A. rogersii R. E. Fries; Fl. Trop. E. Afr., Asparagaceae: 14, 2006; Fl. Zambes. 13/1: 23-24, 2008.

Stiff erect unbranched herb 0,3-1 m tall; older stems grey to white-striated, puberulous; young parts greenish-angled, glabrous to glabrescent; spines *3-8 mm* long on main stems below branches; cladodes 1 or in clusters of 2-4, *5-15 × 1 mm;* 3-angled; inflorescence solitary, (axis thickened) a simple raceme or modified branchlets; flowers 1 or 2, in cladode axils, 1,5-9,5 cm long; pedicels *0,5-1 mm long,* articulated at perianth base, with a disc; tepals cream, *2,5-3 × 1,5 mm;* berry 5-6 mm Ø.

Savanna woodland; rocky ground; termitaria; dry wooded grassland; secondary *Brachystegia* woodland; 450-1500 m alt.

(**A. sapinii** De Wild., Compagnie du Kasaï mission…: 267, 1910); M. Renier, Flore du Kwango 1: 92, 1948.

Near *A. nelsii* but: – branchlets with very short green hairs (not branchlets with whitish pubescence). Flowers unknown.

? Only known from the type Sapin s.n., October, 1907; Zaire, Bienge (5°37'Sx19°46'E); on the plain. – Not mapped.

A. saundersiae Baker; Fl. Zambes. 13/1: 22-23, 2008.

Erect or scandent shrub to 1,5 m long; stem straight, brownish, with feathery branches; spines straight or slightly recurved, 5-15 mm long, on stems and main branches; cladodes 3-5 per fascicle, 10-16 mm long, filiform; flowers in simple racemes 25-65 mm long or in fascicles of 2; pedicels *5-8 mm long,* articulated *just above middle;* tepals 2,5-3 × *0,6 mm,* white to cream; berry 6-10 mm Ø, red.

Open woodland; forest margins; 1200-1400 m alt.

S. Africa, Swaziland.

Resembling *A. buchananii* (but with shorter pedicels articulated below perianth). Also similar to *A. racemosus* and has been treated as a synonym under this species (cf. Fl. south. Afr. 5/3: 47, 1992; so also in our Enumération 3: 61, 1995).

A. scaberulus A. Rich.; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 311, 1994 (sub nom. *A. exuvialis);* Thulin, Fl. Somalia 4: 25-26, 1995; Fl. Trop. E. Afr., Asparagaceae: 8-9, 2006. – Icon.: Fl. Eth. & Eritrea 6: 69, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 190, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 293, 2010.

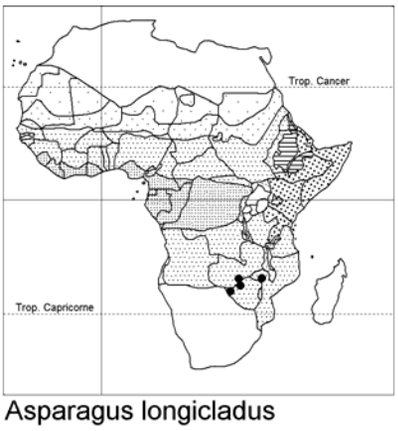
syn.: *A. asiaticus* L. var. *scaberulus* (A. Rich.) Engler; *A. exuvialis* sensu Agnew & Agnew, l.c., non Burch.

Erect to climbing-scrambling shrub to 2 m tall; branches greyish brown, terete, sometimes peeling, *glabrous*; spines 1-3 mm long, weak, curved downwards; cladodes in fascicles of 4-35, straight or bent, *15-30 mm long,* flexible, *flattened,* angled; flowers in fascicles of 2-6, axillary or terminal; pedicels 4-10 mm long, articulated at middle or below; tepals white, *c. 3 mm long;* berry red, 4-5 mm Ø.

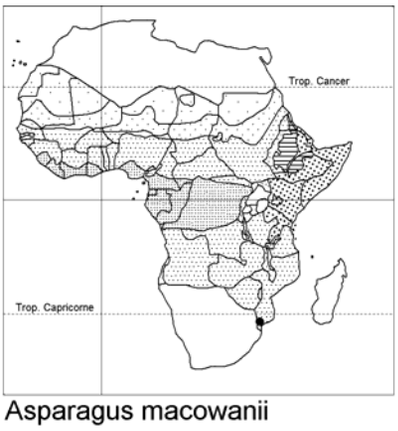
Acacia, Commiphora woodland; open *Acacia* woodland; grassland; bushed grassland; thickets; dry river beds; rocky hillsides in bushland; 230-1500 m alt.

Arabia ?

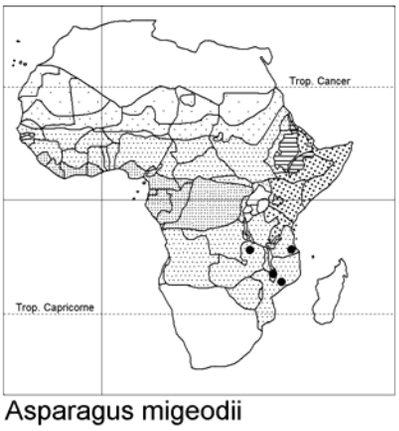
A quite distinct species and not a variety of *A. asiaticus* (not of *A. africanus* as cited in Fl. Eth. & Eritrea, l.c.).



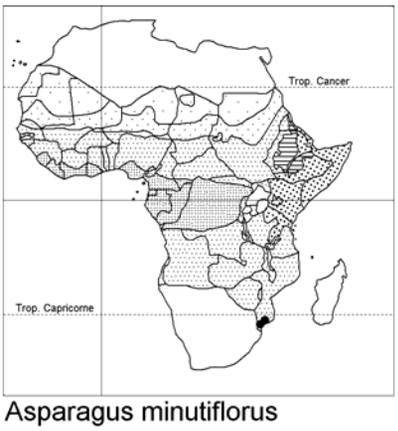
Asparagus longicladus



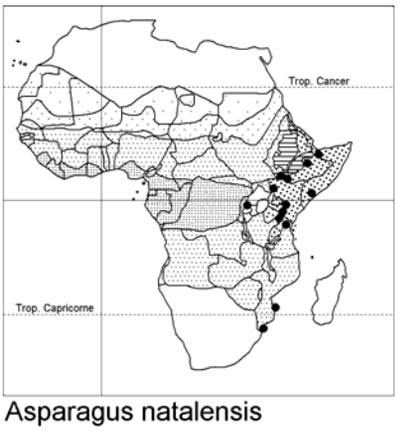
Asparagus macowanii



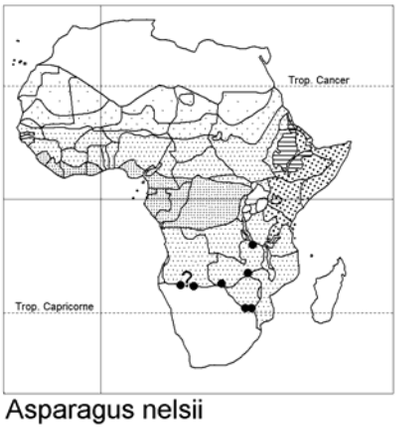
Asparagus migeodii



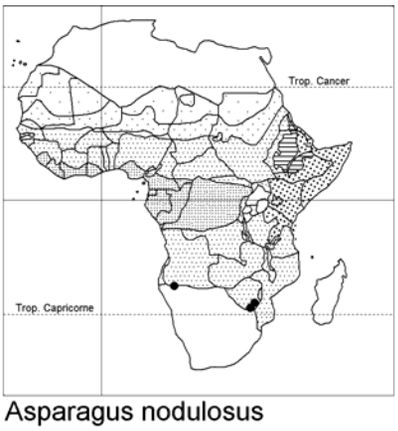
Asparagus minutiflorus



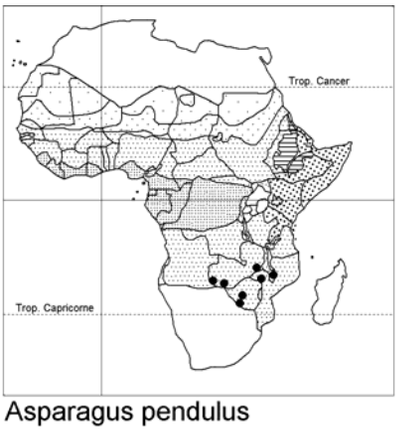
Asparagus natalensis



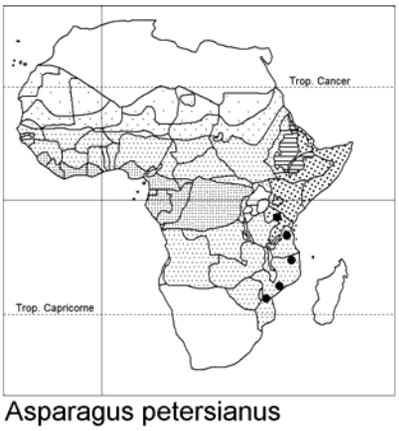
Asparagus nelsii



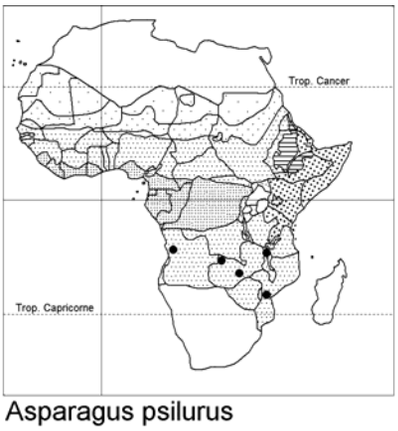
Asparagus nodulosus



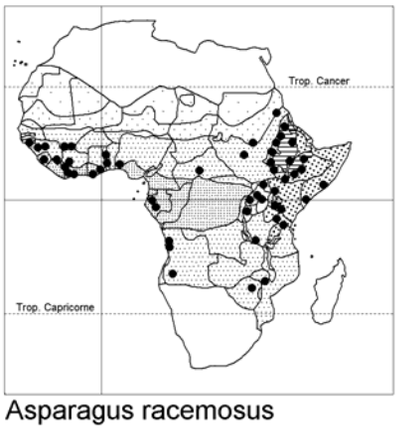
Asparagus pendulus



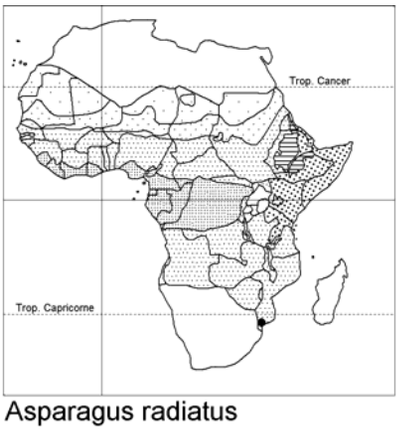
Asparagus petersianus



Asparagus psilurus



Asparagus racemosus



Asparagus radiatus

ASPARAGUS

A. schroederi Engl.; Brunel & al., Fl. analyt. Togo in Englera 4: 655, 1984; Fl. south. Afr. 5/3: 53, 1992; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 502, 1995; Fl. Trop. E. Afr., Asparagaceae: 11-12, 2006; Akoegninou & al., Fl. analyt. Bénin: 64, 2006; Figueiredo & Smith, Pl. Angola: 173, 2008; Chatelain & al., Cartes distrib. pl. Côte d'Ivoire: 216, 2011. – Icon.: Bothalia 9: 93, 94, 1966 *(A. obermeyerae);* Fl. Zambes. 13/1: 20, 2008.

syn.: Enum. 3: 61, 1995; *A. obermeyerae* Jessop; *A. aspergillus* sensu Jessop in Bothalia 9: 71, 1966, p.p. quoad specim. ex Namibia.

Erect shrub 0,3-1 m tall, rigid, spiny, from a woody rootstock; roots tuberous; stems many, striate (ridges bearing *minute, sharp transparent cells)*, rarely smooth, brown when young becoming grey; branches simple, clad with overlapping cladode fascicles; spines on main stems, sharp, *4-10 mm long*, straight or recurved; cladodes 3-10 per fascicle, filiform, flattened, ± triangular in section, 20-45 cm long, *absent at anthesis, turning black;* flowering branchlets 2,5-15 cm long or more; flowers usually in pairs, close together along branchlets; pedicels *c. 2 cm long, articulated below flower;* tepals white or cream, 3-4,5 mm long; berry red, 6-8 mm Ø.

Deciduous woodland, often on termitaria; grassland; bushland; rocky hillsides; forest edge; gallery and riverine woodland; fallows; 400-1900 m alt.

Namibia, Botswana, S. Africa.

A. setaceus (Kunth) Jessop; Agnew & Agnew, Upl. Kenya wild flow., ed. 2: 311, 1994; Strugnell & al., Checklist spermat. Mt. Mulanje, Malawi: 49, 2006. – Icon.: J. E. P[lanchon] in Fl. Serres Jard. Eur. 23: pl. 2413-2414, 1880 (based on Gard. Chron., N. S. 13/337, 12 June, 1880: 749); Fl. Eth. & Ertirea 6: 69, 1997; Sebsebe Demissew & al., Flow. Eth. & Eritrea…: 191, 2003; idem, Aloes & lilies Eth. & Eritrea, ed. 2: 295, 2010; Fl. Zambes. 13/1: 16, 2008.

syn.: Enum. 3: 61, 1995; *A. plumosus* Baker; *A. zanzibaricus* Baker; *A. lujae* De Wild.; *A. asiaticus* L. var. *amharicus* Pic. Serm.; *Protasparagus plumosus* (Baker) Oberm.; *Asparagus plumosus* var. *tenuissimus* Anon. (so cited by L. H. Bailey in Cyclopedia of American Horticulture, A-D: 106, 1900, based on *A. tenuissimus* Anon.); *A. tenuissimus* Anon. ex Yakurô Kudo in Rep. Dept. Forest., Gov. Res. Inst., Taihoku [Taiwan, Japan] 17 (List Cult. Pl. Dept. Forest.): 28, 1934, in syn.: *A. plumosus* var. *tenuissimus* Anon.

Climbing shrub to 8 m high; rhizome fibrous; branches *branching* 4 ×, terete or grooved; spines 2-3 mm long, mainly on main branches, glabrous; cladodes needle-like, *arranged in ± 1 plane*, in fascicles of 4-25, 3-10 mm long; flowers 1-3 on terminal branches; pedicels 4-8 mm long, articulated *at middle or below;* tepals white, c. 3 mm long; berry red, 6-10 mm Ø.

Forest and forest margins; evergreen forest; rarely in thicket or dense bushland on coral; *Brachystegia* woodland; along streams; dune vegetation; 0-2400 m alt.

S. Africa, ? Botswana, Swaziland, Lesotho. Record from Saudi Arabia needs confirmation (Chaudhary, Fl. Kingd. Saudi Arabia ill. 3: 154-155, 2001). Introduced to many countries as an ornamental (Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 502, 1995; Fl. Mascareignes 183, Liliaceae: 7, 1978), with a high potential of spreading in abandoned orchards, hedges or garden land (cf. Willdenowia 39: 343, 2009).

Commonly cultivated; used in bouquets or as indoor plant for its elegant foliage. Very variable species; several cultivars grown, e.g., commonly, 'Nanus' *(A. plumosus* var *nanus* Anon.). Cited among plants introduced into England 5 or 6 years earlier, in Gard. Chron., N.S. 13/337, 12 June, 1880: 760, fig. p. 749, received from Mr. William Bull; and praised by M. T. M[asters] in Gard. Chron., N. S. 9/226, 27 April, 1878: 527, as an "extremely elegant species…introduced to the nurseries of Messrs. Veitch by Mr. Mudd… The elegance of its finely-cut false leaves rivalling or even excelling the most delicately cut Fern, will render this plant a great favourite, and for decoration purposes, bouquets, &c., it will have the advantage of greater persistence than Ferns".

ASPARAGUS SETACEUS

A. suaveolens Burch.; Fl. Trop. E. Afr., Asparagaceae: 4-5, 2006; Fl. Zambes. 13/1: 6-7, 2008. – Icon.: Flow. Pl. South Afr. 11: pl. 409, 1931.

syn.: *A. spinescens* Steud. ex Schult. & Schult. f., nom. illegit.; *A. stipulaceus* Lam. var. *spinescens* (Kunth) Baker; *A. triacanthus* Willd. ex Schult. & Schult. f., nom. illegit.; *A. spinosissimus* Kuntze; *A. omahekensis* K. Krause; *A. intangibilis* Dinter; *Asparagopsis suaveolens* (Burch.) Baker; *A. spinescens* Kunth; *A. triacantha* (Willd. ex Schult. & Schult. f.) Kunth; *A. zeyheri* Kunth

Erect shrub to 1 m tall; stem straight or slightly zigzag, glabrous; branches *terminating in spines;* spines 6-9 mm long *in cladode axils;* cladodes 1 or in fascicles of 2-6, subulate, 3-19 mm long; flowers 1 or in fascicles of 2-3 on terminal branches; pedicels 1-10 mm long, articulated near base; tepals 1,5-3,5 mm long, white with dark midrib; berry black, c. 5 mm Ø.

Termite mounds in *Acacia* wooded grassland; near forest; along roads; *Brachystegia, Julbernardia, Colophospermum*-dominated woodland; riverine fringes; 160-2000 m alt.

Namibia, Botswana, S. Africa, Swaziland, Lesotho.

Branches suppressed during dry conditions ("foxtail" habit) and plant very spinous (old spiny stems protect young growth).

(**A. subfalcatus** De Wild.); Robyns, Fl. spermat. Parc Natl. Albert 3: 382, 1955.

Woody bushy plant; stems sarmentose, to 2 m long, with hook-spines; flowers white. Very close to *A. falcatus* but: – flowering branches with villous-scabrous ridges; – flowers on branches in axils of cladodes (not in simple racemes).

Grassy steppe on lake sides; xerophyllous thicket; c. 930-1050 m alt.

Known from Zaire: the type (Bequaert 5365), at Kabare (0°39'S× 29°29'E), and specim. Lebrun 7783 and 9830, at Rwindi (0°48'S× 29°18'E). – Not mapped.

(**A. subulatus** Thunb.); Fl. South. Afr. 5/3: 65, 67 (map), 1992.

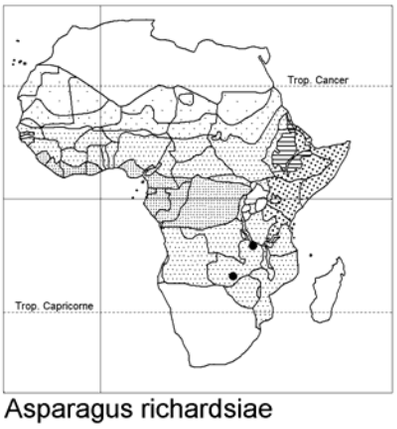
Reported by Jessop in Bothalia 9: 78, 1966, from Mozambique; not figuring in Fl. Zambes. 13/1, 2008. A species from S. Africa, E. Cape Province (map cited above).

(**A. sylvicola** S. M. Burrows) – Icon.: Bothalia 38: 27, 2008.

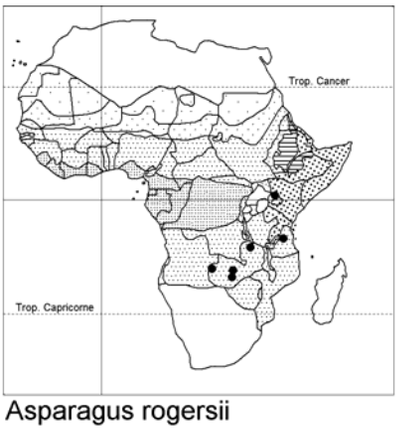
Evergreen shrublet to 3 m tall, entirely glabrous, and without spines; with creeping rhizome and thick roots; cladodes filiform, falcate, 5-28 mm long, hair-like, in clusters of 1-9; flowers 1-2 in terminal cladode fascicle; berry black.

Forest.

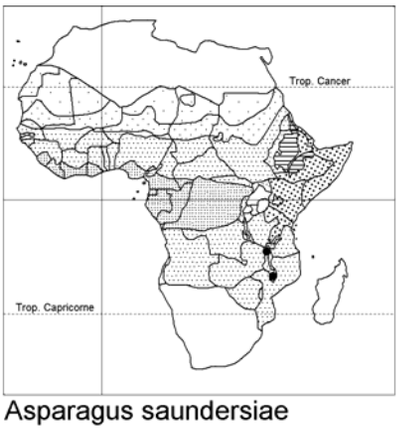
Several specimens previously named *A. setaceus* belong here. According to the map (Bothalia, l.c.: p. 25), the species reaches the southern border of Mozambique to Swaziland (similar distribution shown for *A. lynetteae* Oberm.; map p. 28). – Not mapped by us.



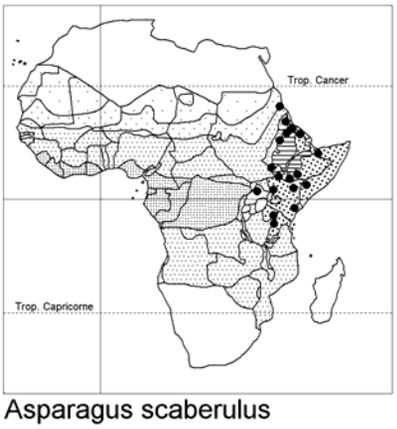
Asparagus richardsiae



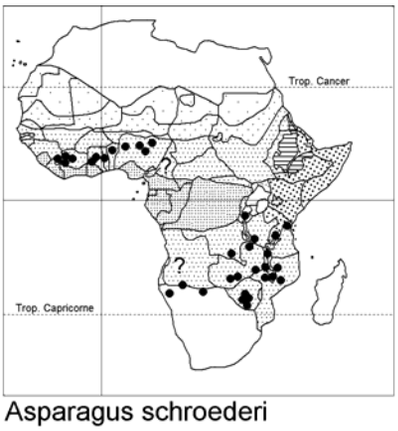
Asparagus rogersii



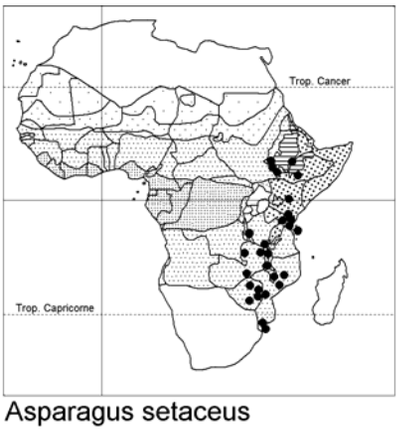
Asparagus saundersiae



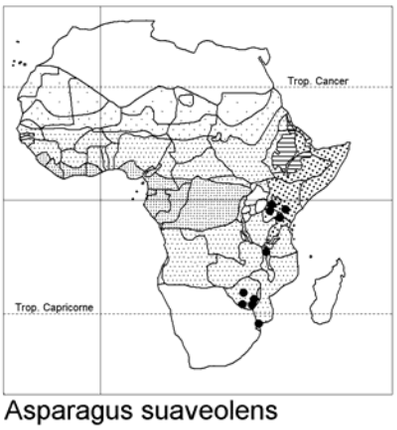
Asparagus scaberulus



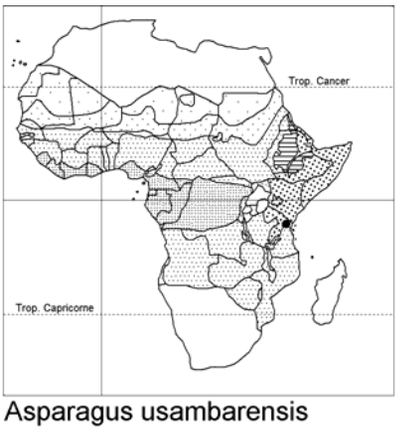
Asparagus schroederi



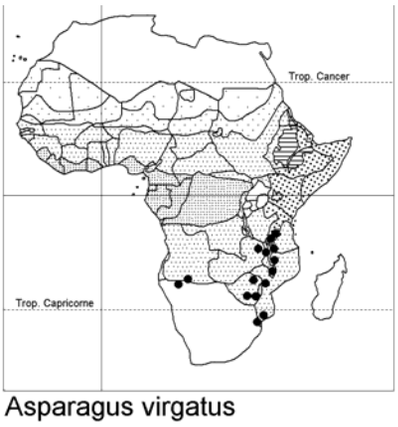
Asparagus setaceus



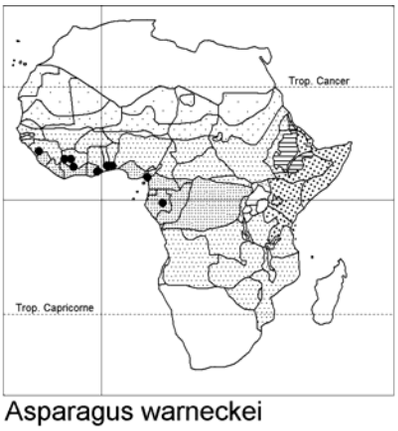
Asparagus suaveolens



Asparagus usambarensis



Asparagus virgatus



Asparagus warneckei





ASPARAGUS

(**A. uhligii** K. Krause)

Subshrub to 50 cm tall, densely ramose; branches rigid, terete, glabrous; spines 1-2 mm long, acute, slightly reflexed; cladodes glaucous, hard, glabrous, linear-lanceolate, 5-8 × 1-1,5 mm, in fascicles; flowers few in axillary fascicles; pedicels 4-8 mm long, articulated slightly below middle; tepals oblong; fruit unknown.

Grassy steppe; Tanzania (T2), "Massai-Steppe", between Ngare-Nanyuki on Mt. Meru (2°37'Sx35°13'E) and Ngare Neirobi on Mt Kilimanjaro (3°03'Sx37°00E); ? only known from the type (Uhlig 539) collected in 1904. – Not mapped.

Said to resemble *"A. buruensis"* from Kilimanjaro. – *A. buruensis* Engl. is a synonym of *A. africanus* var. *africanus* !

A. usambarensis Sebsebe – Icon.: Fl. Trop. E. Afr., Asparagaceae: 18, 2006.

Climbing, scandent or procumbent herb; young stems striate, becoming terete, glabrous; spines on main stem 5-8 mm long; cladodes 1 or in fascicles of 2-3, flattened, straight or falcate, 10-40 × 1-1,5 mm; inflorescence racemose, 1 or in fascicles of 2, *4,5-10 cm long*, glabrous; pedicels *articulated above middle;* tepals white to cream, 3-3,5 mm long; berry red or white flushed purple, c. 5 mm Ø.

Evergreen rain-forest; forest edge; thicket; rock crevices on rocky slopes; 1000-1950 m alt.

Related to *A. falcatus*.

A. virgatus Baker, incl. var. *capillaris* Baker; Fl. Trop. E. Afr., Asparagaceae: 4, 2006; Strugnell & al., Checklist spermat. Mt. Mulanje, Malawi: 49, 2006; Fl. Zambes. 13/1: 4-5, 2008; Figueiredo & Smith, Pl. Angola: 173, 2008. – Icon.: Saunders, Refug. bot. 3: pl. 214, 1870.

syn.: *A. sylvaticus* Burch. ex Baker, nom. illegit.

Stiff erect shrub 0,3-1 m tall; stems 1-4, thin, wiry, branching in the upper half or so, angled, ± *without spines*, sometimes without cladodes, glabrous; branches nodding; cladodes in fascicles of *2-3*, *filiform*, angled, 4-12 mm long; flowers *solitary, pendulous*, along branches; pedicels *4,5-10 mm long*, articulated in *lower half;* tepals white to yellowish, 3-4,5 × 0,5-1 mm; berry red.

Secondary forest and bushland; rocky slopes with scattered *Protea* etc.; miombo woodland; regrowth in young *Pinus* plantation; near streams; grassland edge; roadsides; shade-loving; 30-2250 m alt.

S. Africa, Namibia, Swaziland.

Cultivated, e.g. in Réunion Isl. (Fl. Mascareignes 183, Liliaceae: 7, 1978), and in S. Africa as ground cover under large trees in Kirstenbosch Botanical Garden (Fl. south. Afr. 5/3: 31, 1992).

A. warneckei (Engl.) Hutch.; Brunel & al., Fl. analyt. Togo in Englera 4: 655, 1984; Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 503, 1995; Cheek & al., Pl. Kupe…: 429, 2004; Sosef & al., Check-list pl. vascul. Gabon: 250, 2006; Harvey & al., Pl. Lebialem Highl., Cameroon: 151, 2010; Dobignard & Chatelain, Cartes distrib. pl. Côte d'Ivoire: 216, 2011. – Icon.: Akoegninou & al., Fl. analyt. Bénin: 64, 2006; Hawthorne & Jongkind, Woody pl. west. Afric. for.: 865, 2006.

bas.: *A. drepanophyllus* Welw. ex Baker var. *warneckei* Engl.

Climbing spiny herb 5-8 m high with tubers; stems smooth, glabrous; spines short, recurved, only on main stems; cladodes flattened, ± falcate, *1,5-4 × 2 cm*, rigid; racemes *c. 5 cm long*, often clustered; flowers white or creamy, with strong sickly odour; pedicels c. 5mm long, *articulated near base.* – Leafless at flowering time.

Climbing in thickets and scrub; dry forest and edges; ? -800-1975 m alt.

ASPARAGUS

* * *

Asparagus stipulaceus Lam., figuring in our Enumération 3: 61, 1995, is a S. African species.

TAXA IN NEED OF FURTHER STUDY:

Asparagus baguirmiensis A. Chev., nom. nud., specim. Chevalier 9531; Chad: Baguirmi, Tchecna.

A. courteti A. Chev., nom. nud., specim. Chevalier 7081 bis; Central African Rep.: E. Dar-Banda, vicinity of Ndé (= ? Ndélé).

A. debilis A. Chev., nom. nud., specim. Chevalier 8175; Central African Rep.: Ndélé, sandstone plateau.

A. matreti A. Chev., nom. subnud., specim. Chevalier 5411; Central African Rep.: Fort Sibut, bush. Chevalier 5829; Upper Ombella Valley, between Kono and Diouma.

A. ndellensis A. Chev., nom. subnud., specim. Chevalier 5430; Central African Rep.: Fort Sibut, bush. Chevalier 10607; between Ungourras and Krébedjé. Chevalier 7561, 7731; Golo near Ndélé.

SYNONYMS:

Asparagus abyssinicus Hochst. ex A. Rich. = **A. flagellaris**

acerosus Roxb. = **A. racemosus**

aethiopicus L. var. *natalensis* Baker = **A. natalensis**

var. *angusticladus* Jessop = **A. angusticladus**

var. *ternifolius* Baker (*tenuifolius* sphalm.) = **A. falcatus**

africanus Lam. var. *abyssinicus* (Hochst. ex A. Rich.) Fiori = **A. flagellaris**

var. *biarticulatus* De Wild. & T. Durand = **A. africanus** var. **africanus**

var. *concinnus* Baker = **A. concinnus**

var. *microcarpus* Balf. f. = **A. africanus** var. **africanus**

var. *microphyllus* Baker = **A. retrofractus** L. (S. Africa)

var. *pubescens* Baker = **A. africanus** var. **africanus**

var. *wrightii* Baker = **A. lignosus** Burm. f. (S. Africa)

angolensis Baker = **A. laricinus**

asiaticus L. var. *amharicus* Pic.-Serm. = **A. africanus** var. **africanus**

var. *ellenbeckianus* Engl. = **A. africanus** var. **africanus**

var. *mitis* (A. Rich.) Chiov. = **A. africanus** var. **africanus**

var. *scaberulus* (A. Rich.) Engl. = **A. scaberulus**

asiaticus sensu Cufod., non L. = **A. africanus** var. **africanus**

aspergillus sensu Jessop 1966, p.p., specim. Namibia = **A. schroederi**

bechuanicus Baker = **A. psilurus**

burkei Baker = **A. africanus** var. **africanus**

buruensis Engl. = **A. africanus** var. **africanus**

conglomeratus Baker = **A. africanus** var. **puberulus**

cooperi Baker = **A. africanus** var. **africanus**

declinatus Schousb., non L. = **A. altissimus**

dependens Thunb. = **A. africanus** var. **africanus**

dinteri Engl. & K. Krause = **A. africanus** var. **africanus**

drepanophyllus Welw. ex Baker var. *warneckei* Engl. = **A. warneckei**
dubius Decne. = **A. racemosus**
ecklonii Baker = **A. exuvialis**
exuvialis sensu Agnew & Agnew 1994, non Burch. = **A. scaberulus**
falcatus L. var. *fasciculatus* (Thunb.) Kuntze = **A. fasciculatus**
var. *pubescens* Chiov. = **A. aridicola**
var. *ternifolius* sensu Sebsebe, p.p. = **A. aridicola**
var. *ternifolius* sensu Jessop = **A. natalensis**
falcatus sensu Agnew & Agnew 1994 = **A. natalensis**
fasciculatus R. Br. = **A. racemosus**
fleckii Schinz = **A. africanus** var. **africanus**
foeniculaceus Lowe = **A. altissimus**
francisci K. Krause = **A. africanus** var. **africanus**
gillettii Chiov. = **A. leptocladodius**
gourmacus A. Chev. = **A. africanus** var. **africanus**
hereroensis Schinz = **A. exuvialis**
intangibilis Dinter = **A. suaveolens**
irregularis Baker = **A. africanus** var. **africanus**
jacquemontii Baker = **A. racemosus**
judtii Schinz = **A. africanus** var. **africanus**
kuisibensis Dinter = **A. asparagoides**
lecardii De Wild. = **A.** ? **africanus** var. **africanus**
lugardii Baker = **A. africanus** var. **puberulus**
lujae De Wild. = **A. setaceus**
medeoloides (L. f.) Thunb., incl. var. *angustifolius* (Mill.) Baker and
var. *falciformis* (Kunth) Baker = **A. asparagoides**
mitis A. Rich. = **A. africanus** var. **africanus**
multiflorus Baker = **A. africanus** var. **africanus**
myriocladus Baker = **A. densiflorus**
nudicaulis Baker = **A. denudatus** subsp. **nudicaulis**
obermeyerae Jessop = **A. schroederi**
omahekensis K. Krause = **A. suaveolens**
patens K. Krause = **A. africanus** var. **africanus**
pauli-guilelmi Solms, incl. var. *daltonii* Baker and var. *katangensis* De Wild. & T. Durand = **A. flagellaris**
penduliflorus Zipp ex Span. = **A. racemosus**
petitianus A. Rich. = **A. racemosus**
pilosus Baker = **A. africanus** var. **puberulus**
plumosus Baker = **A. setaceus**
plumosus var. *tenuissimus* Anon. = **A. setaceus**
puberulus Baker = **A. africanus** var. **puberulus**
pubescens Baker = **A. africanus** var. **puberulus**
racemosus sensu Sölch, non Willd. = **A. aspergillus**
racemosus Willd. var. *ruspolii* Engl. = **A. leptocladodius**
rivalis Burch. ex Kies = **A. africanus** var. **africanus**
rivalis Burch. ex Schult. & Schult. f. = **A. africanus** var. **africanus**
sarmentosus L. var. *comatus* Baker and var. *densiflorus* (Kunth) Baker = **A. densiflorus**
sarmentosus auctt., non L. = **A. densiflorus**

schweinfurthii Baker = **A. flagellaris**
sennii Chiov. = **A. africanus** var. **africanus**
shirensis Baker = **A. africanus** var. **africanus**
sidamensis Cufod. = **A. africanus** var. **africanus**
somalensis Chiov. = **A. flagellaris**
spinescens Steud. ex Schult. & Schult. f. = **A. suaveolens**
spinosissimus Kuntze = **A. suaveolens**
stachyoides Spreng. ex Baker = **A. racemosus**
stipulaceus Lam. var. *spinescens* (Kunth) Baker = **S. suaveolens**
striatus De Wild., non Thunb. = **A. schroederi**
tenuissimus Anon. ex Yakurô Kudo = **A. setaceus**
ternifolius Hook. f. = **A. angusticladus**
tetragonus Bresler = **A. racemosus**
triacanthus Willd. ex Schult. & Schult. f. = **A. suaveolens**
wildemanii Weim. = **A. schroederi**
zanzibaricus Baker = **A. setaceus**
zeylanicus (Baker) Hook. f. = **A. racemosus**
zuluensis N. E. Br. = **A. macowanii**

(ELACHANTHERA)

Elachanthera sewelliae F. Muell. = **Asparagus asparagoides**

(ELIDE)

Elide asparagoides (L.) Kerguélen = **Asparagus asparagoides**

(HECATRIS)

Hecatris asparagoides (L.) Salisb. = **Asparagus asparagoides**

(MEDEOLA)

Medeola angustifolia Mill. = **Asparagus asparagoides**
asparagoides L. = **A. asparagoides**
falsiforme Kunth = **A. asparagoides**
latifolia Salisb. = **A. asparagoides**

(MYRSIPHYLLUM)

Myrsiphyllum angustifolium (Mill.) Willd. = **Asparagus asparagoides**
asparagoides (L.) Willd. = **A. asparagoides**
falciforme Kunth = **A. asparagoides**

(PROTASPARAGUS)

Protasparagus africanus (Lam.) Oberm. = **Asparagus africanus**
angusticladus (Jessop) Oberm. = **A. angusticladus**
aspergillus (Jessop) Oberm. = **A. aspergillus**
bechuanicus (Baker) Oberm. = **A. psilurus**
buchananii (Baker) Oberm. = **A. buchananii**
cooperi (Baker) Oberm. = **A. africanus** var. **africanus**
densiflorus (Kunth) Oberm. = **A. densiflorus**
denudatus (Kunth) Oberm. = **A. denudatus**
divaricatus Oberm. = **A. divaricatus**
edulis Oberm. = **A. edulis**
exuvialis (Burch.) Oberm., incl. fa. *ecklonii* (Baker) Oberm. = **A. exuvialis**
falcatus (L.) Oberm. = **A. falcatus**

PROTASPARAGUS

flavicaulis Oberm. = **A. flavicaulis**
flavicaulis subsp. *setulosus* Oberm. = **A. favicaulis** subsp. **setulosus**
humilis (Engl.) B. Mathew = **A. humilis**
jacquemontii (Baker) Kamble = **A. racemosus**
krebsianus (Kunth) Oberm. = **A. krebsianus**
laricinus (Burch.) Oberm. = **A. laricinus**
longicladus (N. E. Br.) B. Mathew = **A. longicladus**
lynetteae Oberm. = **A. lynetteae**
macowanii (Baker) Oberm. = **A. macowanii**
minutiflorus (Kunth) Oberm. = **A. minutiflorus**
multiflorus (Baker) Oberm. = **A. africanus** var. **africanus**
natalensis (Baker) Oberm. = **A. natalensis**
nelsii (Schinz) Oberm. = **A. nelsii**
nodulosus Oberm. = **A. nodulosus**
pendulus Oberm. = **A. pendulus**
pilosus (Baker) Oberm. = **A. africanus** var. **puberulus**
plumosus (Baker) Oberm. = **A. setaceus**
racemosus (Willd.) Oberm., incl. var. *javanicus* (Kunth) Kamble and
var. *subacerosus* (Baker) Kamble = **A. racemosus**
schroederi (Engl.) Oberm. = **A. schroederi**
setaceus (Kunth) Oberm. = **A. setaceus**
suaveolens (Burch.) Oberm. = **A. suaveolens**
subulatus (Thunb.) Oberm. = **A. subulatus**
virgatus (Baker) Oberm. = **A. virgatus**
zeylanicus (Hook. f.) Kamble =**A. racemosus**

[AGAVACEAE]

excl. *Dracaena* and *Sansevieria (= Dracaenaceae)*. Part of the APG III-family *Asparagaceae* (Bot J. Linn. Soc. 161: 132-136, 2009). American family centred in temperate and tropical areas of SW USA, Mexico, the Caribbean and N S. America (cf. Klopper & al. in Bradleya 28: 53-66, 2010), ca. 8 genera and some 400 species. Often large aloe-like herbs with short stem, succulent or tough and fibrous leaves in rosette; inflorescence usually large, many-flowered; tepals 6, stamens 6, ovary inferior. Several species, of great beauty, have ornamental value and are of economic importance. A few species are extensively cultivated in parts of tropical Africa, others are grown in parks and gardens (cf. our Enumération 3: 99, 1995).

BOGLER, D. J. & al. (2006). Phylogeny of Agavaceae based on ndhF, rbcL, and its sequences: implications of molecular data for classification. *Aliso* 22: 313-328.

SMITH, G. F. & B. VAN WYK (2008). *Aloes in southern Africa.* Struik Publishers, Cape Town [p. 22-24].

THIEDE, J. (2001). Agavaceae. *In:* EGGLI, U., ed., *Illustrated handbook of succulent plants. Monocotyledons:* 1-102. Springer-Verlag, Berlin, etc.

VERHOEK, S. (1998) Agavaceae. *In:* KUBITZKI, K., ed., *The families and genera of vascular plants 3. Flowering plants, monocotyledons:Lilianae (except Orchidaceae):* 60-70. Springer-Verlag, Berlin, etc.

[AGAVE]

About 200-250 species, mainly in arid and semiarid regions from SW-USA-W Panama-Caribbean-Venezuela, centred in Mexico.

KOLENDO, J. R. (1997). An Agave reference system. *Brit. Cactus Succ. J.* 15: 134-137 [*A. americana* with large synonymy].

RICHTER, I. (2011). *Il genere Agave. Storia, sistematica, distribuzione, coltivazione / Die Gattung Agave. Geschichte, Systematik, Vorkommen, Kultur.* Associazione Italiana Amatori delle piante succulente (A.I.A.S.), Roma. 159 pp.

[**Agave americana** L. subsp. **americana**]; Thiede (2001): 14; Fl. Zambes. 13/1: 32, 2008; Ibn Tattou & Fennane, Fl. vascul. Maroc 2: 126, 2008; Lisowski, Fl. Rép. Guinée 1: 375, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 23, 2010. – Icon.: Fl. Eth. & Eritrea 6: 84, 1997; Smith & Klopper in Bradleya 25: 194, 2007; Smith & al., in Bradleya 26: 35, 2008; idem, Bradleya 29: 68, 2011; Richter (2011): 17, 18, 22, 39, 70.

syn.: World checklist of monocotyledons, Royal Botanic Gardens, Kew.

Monocarpic perennial plant, trunkless, 2-3 m Ø; with suckers; leaves 20-60 in rosette, oblanceolate-spathulate, 1-2 × 0,15-0,3 m, smooth, leathery, glaucous, drooping towards apex margins with spreading or reflexed spines 8 mm long, terminal spine thick, 3-5 cm long; panicle 5-8 m tall, slender with 25-30 branches, never bulbiferous; flowers pale yellow, 7-10 cm long; capsule 4-5 cm long with shiny black fertile seeds.

Very variable, some variants with variously variegated leaves.

Native in S USA to Mexico. Widely naturalised in the Mediterranean region and elsewhere. Cultivated as an ornamental and occurring as a garden escape.

Var. **expansa** (Jacobi) Gentry is reported as naturalised in S. Africa (Bradleya 29: 67-72, 2011). It differs from var. **americana** by erect stiff leaves adaxially deeply channelled and apical leaf spine 2-3 cm long.

[**A. sisalana** Perrine]; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 32-33, 1985; Thulin, Fl. Somalia 4: 31, 1995; Thiede (2001): 64-65; Fl. Zambes. 13/1: 33-34, 2008; Figueiredo & Smith, Pl. Angola: 170, 2008; Lisowski, Fl. Rép. Guinée 1: 375, 2009; Cheek & al., Pl. Dom, Bamenda Highl., Cameroon: 148, 2010; M. Renier, Flore du Kwango 1: 98, 1948. – Icon.: Fl. Eth. & Eritrea 6: 84, 1997; Akoegninou & al., Fl. analyt. Bénin: 28, 2006; Bradleya 25: 194, 2007; ibid. 26: 37, 2008; Richter (2011): 13, 77.

syn.: World checklist of monocotyledons, Royal Botanic Gardens, Kew.

Monocarpic perennial plant, ± trunkless, with elongated rhizomes; leaves linear, 1,2-2 × 0,1-0,15 m, in rosette, blue-green, erect, margins usually without teeth but cartilaginous, terminal spine 2,5 cm long; inflorescence terminal, paniculate, 5-7 m tall with 25-40 branches each with up to 40 flowers; flowers green 5-6 cm long; perianth tube 1,5-1,8 cm long, segments 1,7-1,8 cm long; seeds occasionally produced (sterile pentaploid hybrid).

Native in Mexico. Widely cultivated for fibres (sisal). Propagated by bulbils and rhizome offsets (see Lock in Fl. Zambes., l.c.). Naturalised in, e.g., S. Africa.

AGAVE

[**A. vivipara** L; var. **vivipara**]; Smith & Steyn in Bothalia 29: 100, 1999; Thiede (2001): 72-73. – Icon.: Bradleya 26: 38, 2008; Richter (2011): 17, 20, 21, 22, 76, 119, 123.

syn.: *A. angustifolia* Haw.; World checklist of monocotyledons, Royal Botanic Gardens, Kew.

Monocarpic caulescent perennial plant, with subterranean stolons; leaves dark green, spreading to recurving, in rosette, narrowly lanceolate, 0,75-1 m long; margins with recurved teeth 1-2 mm long; apical spine 1-1,5 cm long; inflorescence paniculate, 6-7 m tall, branched, bulbiferous; flowers yellowish green, 5-5,5 cm long; capsule 3,5-5 cm long.

Native in Mexico-C. America. Naturalised in southern Africa. Horticultural selections with variegated leaves, used as ornamentals.

SYNONYM:

Agave foetida L. = **Furcraea foetida**

[CORDYLINE]

Variously placed in *Liliaceae* s. lat., *Agavaceae, Asparagaceae* (APG III), *Dracaenaceae, Lomandraceae.*

About 20 species from SE Asia, Australasia, Polynesia, Hawaii. Difficult to distinguish from *Dracaena.* Most species have names under the latter genus.

Palm-like shrubs or trees, with leaves at apex of stem. *Cordyline terminalis* (L.) Kunth is cultivated in, e.g., West-Central Africa: Burkill, Useful pl. W. Trop. Afr., ed. 2, 3: 486, 1995; Lisowski, Fl. Rép. Guinée 1: 375-376, 2009; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 23, 2010.

According to the Flora of Australia 46: 84, 1986 and the European Garden Flora, ed. 2, 1, Monocot.: 186, 2011, the correct name for this plant is *Cordyline fruticosa* (L.) A. Chev.

SYNONYMS:

Cordyline arborea (Willd.) Göpp. = **Dracaena arborea** *(Dracaenaceae)*

cristula (W. Bull) van Geert = **Dr. cristula**

cylindrica (Bojer ex Hook.) Britton = **Sansevieria cylindrica** *(Dracaenaceae)*

ensifolia (L.) Planch. = **Dianella** *(Hemerocallidaceae/ Phormiaceae)*

fragrans (L.) Planch. = **Dracaena fragrans**

goldieana (W. Bull ex Mast. & Moore) Kuntze = **Dr. goldieana**

guineensis (L.) Britton = **Sansevieria hyacinthoides**

hyacinthoides (L.) W. Wight = **S. hyacinthoides**

ovata (Ker Gawl.) Planch. = **Dracaena ovata**

rumphii Hook., p.p. = **Dr. aletriformis**

vivipara Steud. = **Chlorophytum comosum** *(Antherieacaceae)*

[FURCRAEA]

Some 20 species in the Americas: C Mexico, Antilles, N S. America to Peru, E Brazil. Poorly known genus. Revision and field work needed. Aloe-like plants, monocarpic, with bell-shaped flowers hanging down from drooping inflorescence branches.

FURCRAEA

[**Furcraea** (*Fourcroya*) **foetida** (L.) Haw.]; Burkill, Useful pl. W. Trop. Afr., ed. 2, 1: 33-34, 1985; Akoegninou & al., Fl. analyt. Bénin: 28-29, 2006; Thiede (2001): 80-81; Figueiredo & Smith, Pl. Angola: 170, 2008; Haseltonia 15: 71, 2009; M. Renier, Flore du Kwango 1: 98, 1948 (*F. gigantea* Vent.). – Icon. : Smith & Van Wyk (2008): 23; Bothalia 41: 197-198, 2011.

bas.: *Agave foetida* L.

Massive multi-annual plant with stem 0,2-0,3-1 m tall; leaves c. 50 in basal rosette, rigid, recurving, (yellow-)green, linear-lanceolate, flat, thick, firm, undulate, 1,5-2,5 × 0,2-0,25 m, margins entire; inflorescence fast-growing, paniculate, 8-10 m tall, central branches much branched, scarcely to freely bulbilliferous; flowers 4-5 cm long, in clusters of 2-5, greenish-yellowish white, scented; tepals spreading; pedicels articulated.

Native in C America, Costa Rica, S Caribbean, N S. America. Cultivated as an ornamental or for fibres, Mauritius hemp. Found around villages in W Africa. An invading alien in S Africa (Bothalia, l.c.). The leaves contain an irritant substance.

[**F. selloa** K. Koch]; Thiede (2001): 83.

With stems 0,9-1,5 m tall; leaves shining dark green, narrowly lanceolate, 1-1,5 × 0,7-0,1 m, margins with large hooked teeth, 5-6 mm long; inflorescence to 6 m tall, glabrous, laxly branched, bulbilliferous; flowers 4-6,5 cm long.

Described from cultivated material (Guatemala). Reported from W. Trop. Africa. Variegated horticultural forms exist.

[POLIANTHES]

Rhizomatous plants with fleshy roots; leaves thin, ± linear, apex point soft. C. 14 species in W & S Mexico (Verhoek, 1998: 68).

[**Polianthes tuberosa** L.]; Thiede (2001): 57; Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 23, 2010.

syn.: *Agave tuberosa* (L.) Thiede & Eggli, 1999, nom. illegit.; *Agave polianthes* Thiede & Eggli, 2001; World checklist of monocotyledons, Royal Botanic Gardens, Kew.

Glabrous plant; leaves 6-10 in basal rosette, 30-60 × 1-1,5 cm; inflorescence 0,6-1 m tall, laxly flowered, flowers paired at flowering nodes, fragrant, 2,5-4 cm long, waxy white, funnel-shaped.

Native in C & S Mexico. In Africa reported from, e.g., Rwanda, NE Zaire. Cultivated as an ornamental: "Tuberose" grown for the flower market; known in Europe at least since 1601 (Clusius).

[YUCCA]

Some 40 species in arid and semiarid regions in C USA-Mexico-Caribbean. Sometimes aloe-like.

Yucca gloriosa L. is recorded by Lejoly & al., Cat.-fl. Kisangani & Tshopo in Taxonom. 30: 23, 2010. Native in SE USA. Cultivated as an ornamental. The flowers are pendant, campanulate, 4-5 cm long, greenish-white, creamy or reddish; fruit berry-like, not fleshy, indehiscent. Widely grown species, with many cultivars, hybrids and selections.

INDEX TO FAMILIES AND GENERA

This Index only gives reference to current names of families and genera used in the text (not on the maps which are in turn placed as closely as possible to the matching descriptions). Synonyms are sometimes cited (printed in *italics*).

However, many synonyms, but perhaps not all, families and genera figure in the Cumulative Index "Enumération des plantes à fleurs d'Afrique tropicale" present at the end of the forth volume (1997 : pp. 678-712). Readers are invited to consult that index.

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