

## **The Vegetation of Mount Nyiru (Samburu District, Kenya): A Checklist and Syntaxonomical Survey**

Authors: Bytebier, Benny, and Bussmann, Rainer W.

Source: Journal of East African Natural History, 89(1) : 45-71

Published By: Nature Kenya/East African Natural History Society

URL: [https://doi.org/10.2982/0012-8317\(2000\)89\[45:TVOMNS\]2.0.CO;2](https://doi.org/10.2982/0012-8317(2000)89[45:TVOMNS]2.0.CO;2)

---

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at [www.bioone.org/terms-of-use](http://www.bioone.org/terms-of-use).

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

---

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

**THE VEGETATION OF MOUNT NYIRU  
(SAMBURU DISTRICT, KENYA):  
A CHECKLIST AND SYNTAXONOMICAL SURVEY**

**Benny Bytebier\***

East African Herbarium, National Museums of Kenya  
P.O. Box 45166, Nairobi, Kenya

**Rainer W. Bussmann**

Lehrstuhl für Pflanzenphysiologie, Universität Bayreuth  
D-95440 Bayreuth, Germany  
ceja.andina@gmx.de

**ABSTRACT**

The forests of Northern Kenya, and particularly of Mt Nyiru, have not been studied in detail, although they are extensive and play an important role in the life of the pastoralist communities surrounding them. Here, we present a checklist of the plants of Mount Nyiru and a syntaxonomic survey of the forest. Four hundred and thirty three taxa belonging to 284 genera and 102 families of higher plants are recorded. Thirty-nine taxa are new for the floral region K1. A syntaxonomic survey of the area shows that most forests belonged to the *Juniperetea procerae* (Montane Xeromorphic Cedar Forests). The *Juniperion procerae*, with the *Faureo salignae-Ilicetum mitis* on the wet mountain tops, and the *Myrsino africanae-Juniperetum procerae* in drier areas, were most commonly encountered. Interestingly, the top of Mt. Nyiru was covered with rather large stands of the *Hagenietea abyssinicae* (Subalpine Elfin Forests) but lacking *Hagenia abyssinica* itself, and extensive *Sinarundinarietea alpinae* (Bamboo Forests).

**INTRODUCTION**

The Northern Region of Kenya occupies nearly 50% of the land surface area of the country, yet it has only received marginal biological attention. For a long time, it was basically only visited by adventurers and big game hunters. The colonial name “Northern Frontier District” clearly illustrates this situation.

It is still sparsely populated, and large parts are only accessible with difficulty. The few scientific studies that have been carried out in the North, mainly focused on its geological features (Shackleton, 1946; Dixey, 1948; Dodson, 1963; Randel, 1967). The first, more comprehensive scientific research project, was the Unesco-IPAL study of the 1970's.

---

\* Current Address: University of Stellenbosch. Biochemistry Department, Private Bag XI, 7602 Matieland, South Africa, bytebier@maties.sun.ac.za

### Geology

The Northern Region consists of vast alluvial inland plains, inclining from altitudes of about 1200 m to the North of Mt. Kenya to barely 400 m around Lake Turkana. On the Southwest, a chain of mountains consisting of old crystalline Precambrian basement rocks, mainly extremely durable gneisses and granites, borders the plains. For this reason, the steep Ndoto and Nyiru Ranges, reaching up to 2752 m, were left standing during the different erosion cycles influencing the region (Shackleton, 1946). Next to these, a series of Quaternary volcanic peaks, like Mt. Kulal (2285 m), Mt. Marsabit (1707 m) and the Huri Hills (1479 m), tower over the inland plains. In contrast to the soils of the plains, which consist mainly of Vertisols, Regosols, Lithosols and Cambisols, the mountain slopes are mainly covered with humic Acrisols over the basement formations, and deep, humic Andosols in volcanic areas (Mäckel, 1986; Mäckel & Schultka, 1983; Mäckel & Walter, 1983).

### Climate

According to the climatological classification of Jätzold (1977, 1981), the northern plains are part of the hot, arid tropical climate, with two short sub-humid seasons. Mean monthly temperatures range from 20–26°C in the plains, to 17–19°C in the mountains (Gatab, 1657 m). The average annual rainfall can be as low as 100–150 mm in the Hedad plain and Chalbi desert, rising to 500 mm in the valleys of the Nyiru and Ndoto mountains. In the mountain forest zone, a rainfall of about 1200 mm can be reached (Edwards *et al.*, 1979). The main rainfall is concentrated in two wet seasons, from March to May and from October to December. However, extreme rainfall occurs, e.g. 175 mm in 6 hours in Gatab on Mt. Kulal (Mäckel & Walter, 1983).

### Vegetation

Most mountain areas in Northern Kenya, located between 36°40'–38°00'E and 01°40'–03°40'N, are covered with evergreen montane forest. They owe their existence to the humidity received from mist condensation and frequent cloud formation in the peak areas. Neumann (1898) after visiting the southern Turkana Region wrote: "The western face of Nyiru is.... topped with dark forests...., and here and there hang waterfalls...., filled with the outpourings of the heavy clouds which often cap the summit." Due to their enormous importance for water catchment (Synott, 1979), most mountain areas are gazetted as forest reserves. The extent of these reserves, however, does not really reflect the amount of land actually covered with forest. The Mt. Nyiru forest reserve measures a total of 45,496 ha of which barely 7,890 ha are covered with true forest (Beentje, 1990).

The main reasons for forest destruction in the area are fires caused by honey-hunters and pastoralists, who burn the old grass at the start of the wet season. Others are overgrazing in the forest, and serving the firewood needs of a fast-growing population.

Despite their importance, few studies have been conducted on the montane forests of Northern Kenya. Herlocker (1979) gives some general remarks on the vegetation of the area and Synnot (1979) reports briefly on their status, importance and protection. Only Mount Kulal has received marginally more attention (Hepper, 1983), and a plant checklist for this area was produced (Hepper *et al.*, 1981). Based on 20 relevés on this mountain, Schultka & Hilger (1983) distinguish mainly *Olea hochstetteri*-*Cassipourea malosana* and *Olea africana*-*Juniperus procera* forest.

Synnot (1979) reports that much less is known on the Nyiru and Ndoto forests than on the Kulal and Marsabit forests. He provides a checklist for the trees and shrubs of Mount Nyiru, containing 35 species. White (1983) includes a short comment on the Marsabit

region of Kenya and its afromontane forests, however mainly based on Synnott's observations from Mt. Kulal and Mt. Marsabit, without specific regard to Mt. Nyiru. Beentje (1990) mentions that the vegetation of Mount Nyiru is "mostly unknown".

Although several collectors have visited the area, like J. Adamson (1947 and 1955), O. Kerfoot (1960), P.G. Archer (1971), J.B.C. Cameron (1972), G. Bono (1977), M. Ichikawa (1977) and M.G. Gilbert, F.N. Gachati and G.W. Gatheri (1978), no concerted effort has been made to compile the existing information.

In the work presented here, the forests of Mt. Nyiru were studied in greater detail. A checklist is produced compiling our own with previous collections, and a detailed description of the vegetation texture of the forests, resulting in their syntaxonomic description according to Barkman *et al.* (1986), is given.

## MATERIALS AND METHODS

### Plant Collections

The majority of plants were collected between 29 March 1995 and 2 April 1995 in the Collector Series Bytebier B., Mwangangi O.M., Kirika P., Waiganjo T., Newton M. & Bussmann R.W., abbreviated to Bytebier *et al.* in the checklist. All specimens were deposited at the East African Herbarium in Nairobi (EA), with duplicates at the Royal Botanic Gardens, Kew (K) and the National Botanic Garden of Belgium, Meise (BR). Bussmann returned several times at a later date and his specimens (Collector Series Bussmann R.W.) are deposited at the Bayreuth University Herbarium. Based on identification lists from the EA archives, we retrieved herbarium specimens previously collected. All specimens were entered in the Brahms (Botanical Research And Herbarium Management System) database.

### Nomenclature

The nomenclature of plant families follows Bamps (1976), and in particular the available parts of the Flora of Tropical East Africa (FTEA, Turril *et al.*, 1952-1998). The nomenclature of genera and species of Pteridophytes, Monocotyledones and Dicotyledones follows the new edition of "Upland Kenya Wild Flowers" (Agnew & Agnew 1994). The genus *Sinarundinaria* was treated according to Chao & Renvoize (1989). Cyperaceae and Juncaceae are named according to Haines & Lye (1983), Gramineae according to Phillips (1995). The nomenclature of trees and shrubs is according to "Kenya Trees, Shrubs and Lianas" (Beentje, 1995).

### Relevés

During 1995–1996, 48 relevés were established and analyzed according to the methods of Braun-Blanquet (1964) and Mueller-Dombois & Ellenberg (1974), as slightly modified by Hammen *et al.* (1989). For a comprehensive description of the sampling methodology see Bussmann (1994), Bussmann & Beck (1995a) and Hammen *et al.* (1989).

## RESULTS AND DISCUSSION

### Higher plants checklist

The checklist presented in Appendix 1 is based on the following collections and a few scattered collections leading to a total of 679 specimens, plus a few sight records by Bussmann RW.

Adamson J	28 specimens	1947 & 1955/56
Archer PG	20 specimens	1971
Bono G	39 specimens	1977
Bussmann RW	45 specimens	1995/96
Bytebier <i>et al.</i>	325 specimens	1995
Cameron JBC	37 specimens	1972
Gilbert MG, Gachati FN and Gatheri GW	18 specimens	1978
Ichikawa M	5 specimens	1977
Kerfoot O	156 specimens	1960

A total of 433 taxa belonging to 284 genera and 102 families are now on record. Amongst the 433 taxa there are 40 pteridophytes, 2 gymnosperms, 335 dicots and 56 monocots. Thirty-nine taxa from our own collections were previously not recorded from the floral region K1. They are indicated in the checklist as First Record for K1. The families best represented were Compositae (37 species), Leguminosae (34 species), Gramineae (20 species), Labiatae (18 species), Rubiaceae (16 species), Adiantaceae (12 species), Acanthaceae (12 species), Malvaceae (12 species) and Aspleniaceae (11 species).

### Forest types on Mt. Nyiru

A detailed phytosociological description of the forests of Mt. Nyiru, as well as other Northern Kenyan forest areas is included in Bussmann (in press), thus we present here an abbreviated floristical description of the forest types encountered.

#### *Montane Xeromorphic Cedar Forests (Juniperetea /-etalia BUSSMANN 1994)*

In the dry regions of Northern Kenya, closed forests are always restricted to mountain areas and hilltops, where mist condensation leads to more humid conditions.

All forests encountered clearly belong to the Montane Xeromorphic Cedar Forests. Species such as *Geranium arabicum* and *Achyranthes aspera* were commonly growing in the ground layer, together with the grass *Brachypodium flexum*. Of the differential species of the Cedar-forests, *Juniperus procera* itself was common on Nyiru. In the herbal vegetation the tall grass *Stipa dregeana*, as well as *Sanicula elata*, were encountered regularly.

Many forests of the dry Kenyan North belong to the pure Cedar forests (Juniperion procerae BUSSMANN 1994). The *Myrsine-Juniperus* forest (Myrsino africanae-Juniperetum procerae BUSSMANN 1994), with its pronounced fire-cycle, as the most typical association of the alliance, occurred less often; and the *Faurea-Ilex* forest (Faureo salignae-Ilicetum mitis BUSSMANN 1994) was the association found most commonly. Of the characteristic Cedar forest species, the East African Olive, *Olea europaea* ssp. *africana* was found only in few areas, particularly on southern Mt. Nyiru, forming sometimes almost exclusively the about 10 m high canopy. Other differential species were rarely found, and only in some places *Rapanea melanophloeos*, with its dark-green, shiny

leaves appeared in the forest. The grass *Ehrharta erecta*, differential species for the Ehrharto erectae-Juniperetum procerae BUSSMANN 1994, occurred in many places, forming partly dense tufts on the forest floor on Mt. Nyiru. The floristic composition of the forests, however, indicated without doubt that most stands belonged to the pure Faureo salignae-Ilicetum mitis BUSSMANN 1994.

This association, first described from the northeastern slopes of Mt. Kenya (Bussmann & Beck, 1995a), clearly dominated most of the mountain areas studied. In the type locality, forests of this type were encountered only as remnants on very steep slopes with relatively shallow soils, whereas in the North in a very striking contrast, the Faureo-Ilicetum was encountered under almost all slope conditions. Only the Proteacean *Faurea saligna*, with its leathery leaves shining red in the green canopy, grew with high abundance, often dominating the canopy, while *Ilex mitis* was completely absent. In contrast to the lack of differential species, the accompanying flora encountered was very characteristic, with e.g. *Piper capense*, the leathery fern *Arachnoides foliosa* or the stinging nettle *Laportea alatipes*, among many other species, the typical companions of the association were found abundantly. Nevertheless, in comparison to the stands on Mt. Kenya, the floristic composition of the Faureo-Ilicetum showed many differences, especially with regard to the shrub stratum, and therefore the northern stands have to be regarded as a distinct subassociation of their own, differentiated by the very abundant occurrence of *Xymalos monospora*, often forming a dense shrub layer, a fact which was never observed in the typical Faureo-Ilicetum. In addition, *Xymalos*, normally found only as a small shrub, reaches up into the lower canopy in many places forming a second, lower tree stratum of its own. In the shrub layer *Brucea antidysenterica* and the climbing *Clerodendrum johnstonii*, as well as *Clausena anisata*, were also encountered as differential species. The ferns *Pteris quadriaurita* and *Doryopteris kirkii*, together with the otherwise rare liana *Clematis brachiata*, and especially the Acanthacean *Dicliptera colorata*, in places covering large areas of the forest floor, are also differential, and so are the epiphytic orchids *Polystachya piersii* and *Aerangis thomsonii*, the latter often dangling in carpets from its sustaining branches. The most striking feature of these forests however, is the abundance of very old, and therefore extremely tall and thick specimens, of *Faurea saligna*, some of which reached a girth of more than 2 m at breast height indicating, that these forests have never been disturbed by logging.

Differences in humidity lead to two variants of these *Xymalos*-dominated forests. The most commonly encountered wet variety, growing mainly on higher altitudes, clearly receives more moisture, which was shown by the many fern species in the undergrowth. Of them, *Amauropeltis bergiana* and *Stenogramma pozoi* were regarded as differential species. Further differential taxa, all requiring high humidity were the creeping *Droguetia iners* and *Crassula alsinoides*, *Drymaria cordata*, *Dicrocephala integrifolia*, together with the Urticacean *Pilea johnstonii*, and *Aneilema pedunculatum*. In the higher strata *Solanum schumannianum* and the tree *Schefflera volkensii* appeared. Of the companions, the rare *Tarenna graveolens*, *Chionanthes battiscombei* and *Turraea holstii*, appearing mainly in the shrub stratum, as well as *Pavetta gardeniifolia* deserve special note.

At the lower limit of the *Faurea-Ilex* forests, in transition to the *Myrsine-Juniperus-Cadia* forest (*Myrsino-Juniperetum cadietosum purpureae*, Bussmann, in press), almost all of the less drought resistant species, especially Pteridophytes, disappeared due to the much drier conditions. Whereas in the previous variant the forest floor was always covered with living herbs and also with an often dense grass layer even at the peak of the dry season, in the lower forests the ground was often found bare, as all vegetation had disappeared due to

the drought. Differential species encountered were the tall *Plectranthus barbatus*, *Stellaria sennii* and the Cyperacean *Schoenoxiphium lehmannii*. Because livestock often grazes these areas at the beginning of the dry season, weed-like species like *Solanum incanum*, *Pupalia lappacea* and *Pteridium aquilinum* (the latter being an indicator of fire), also occurred as differential species. Important companions were *Crassocephalum montuosum*, *Desmodium repandum*, *Hypoestes forskahlii*, *Leonotis nepetifolia*, *Microglossa pyridifolia* and *Mikaniopsis bambuseti*.

The drier lower slopes of Mt. Nyiru were covered by a vegetation belonging to the *Myrsino africanae-Juniperetum procerae* BUSSMANN 1994, forming the transition zone to the savanna areas. Fires occur regularly in this area. They are lit by pastoralists to improve the grass growth before the start of the rains or by honey hunters smoking out bees. At long intervals they also occur naturally. Therefore the Myrsino-Juniperetum shows the fire cycle of the Cedar-forests best (Bussmann & Beck, 1995b). Consequently *Myrsine africana*, a differential species for these forests, and one particularly indicating the influence of fire, was found with very high cover/abundance in most areas, often forming a second, lower shrub stratum. On Mt. Nyiru, *Juniperus procera* occurred with high cover also. Of the characteristic species, only *Rhamnus prinoides* was found although much less abundant. Interestingly, *Nuxia congesta* appeared often with high cover in the tree stratum, and the Acanthacean *Justicia striata* formed patches on the forest floor. The high abundance of *Teclea nobilis* in the shrub layer and the lower tree stratum is also worth mentioning. The presence of a rather different flora, in comparison to other areas, e.g. Mt. Kenya (Bussmann & Beck, 1995a), description of a new subassociation (Bussmann, in press).

In transition to a dense thorny bushland, formed mainly by species of the genera *Commiphora*, *Grewia* and partly *Acacia*, this vegetation type was encountered on the steep rocky lower slopes of Mt. Nyiru. With an often very dry ground layer, leaving many areas of the rocks exposed, forests of this type showed a very open appearance and due to the frequent fires even the higher shrub stratum had been nearly completely destroyed. Many *Juniperus* trees in these areas were found dead or dying, and due to the frequent fires young specimens were rarely observed. In the open shrub stratum, *Cordia purpurea* and *Vangueria apiculata* occurred as differential species of this subassociation, together with the small tree *Cordia monoica* in the canopy. The set of differential species was completed by a high number of drought resistant ferns, especially of the genus *Cheilanthes*, growing among the rocks. Namely *Pellea alchemilloides*, *Cheilanthes bergiana*, *C. multifida*, *C. tecta* and *C. hirta* were encountered, whereas the very rare *Asplenium trichomanes* occurred on some high, shady cliffs. The companions, the Euphorbiacean *Croton megalocarpus* in the canopy and the Rutacean *Teclea simplicifolia* in the shrub stratum, deserve special note, as they showed clear links to the Brachylaenion huillensis BUSSMANN 1994, an alliance mainly found in Central and Southern Kenya. *Scadoxus multiflorus*, with its large bright-red inflorescence was also found as a companion, among many other species.

#### *Subalpine Elfin forests (Hagenieta abyssinicae BUSSMANN 1994.)*

Large grassy clearings were only found on top of Mt. Nyiru. Many huts used by Samburu pastoralists during the dry season indicated that these areas are heavily grazed. At the borders of the grasslands, and partly as islands in-between, dense thickets of St. John's Wort (*Hypericum revolutum*) were growing together with young specimens of *Juniperus procera*. The high cover/abundance of *Hypericum* indicated that these forests belong to the *Hagenia-Hypericum* forest (Hagenio abyssinicae-Hypericetum revoluti BUSSMANN 1994).

Whether *Hagenia abyssinica* itself has ever grown in these areas remains an enigma as no koso trees were found. The high cover of young *Juniperus* trees, all of the same age, has to be regarded as a sign of a very large fire about 10 years ago (judged by the size of the trees). Only few dead specimens of old Cedars were found. It is assumed that in the successional process the Hagenio-Hypericetum on Nyiru will probably be replaced by the Myrsino-Juniperetum, especially with regard to the more frequent use of the area as dry season pasture, leading to more frequent burning.

At present, despite the growing influence of *Juniperus*, the Thymeleaceae *Gnidia glauca*, with its yellow flowers appearing in dense clusters in the wet season, still dominates the canopy of these forests, forming often closed stands about 8 m tall. Therefore, the topmost forests of Mt. Nyiru clearly belong to the Gnidietum glaucae BUSSMANN 1994.

#### *Montane Bamboo Forests (Sinarundinarietea alpinae BUSSMANN 1994)*

The East African Bamboo, *Sinarundinaria alpina*, is known to cover vast areas especially of the wet southern and south-eastern slopes of Mt. Kenya and the Aberdare and Mau Ranges in Central Kenya. In other areas of the country, however, the species occurs only rarely and in Northern Kenya bamboo is nearly absent. In some areas of Nyiru, probably in places with the highest amount of condensing mist, *Sinarundinaria alpina* was encountered forming dense stands up to 6–8 m tall. These bamboo forests were very similar to the ones described from Western Mt. Kenya (Bussmann & Beck, 1995a), with *Podocarpus latifolius* frequently protruding from the closed bamboo stands. All stands studied were very dense, with only a small amount of light reaching the ground, which was therefore often bare of vegetation. Trails of large game, e.g. elephants and buffaloes, very frequent in other areas where bamboo grows, were not found on Nyiru. This made the bamboo forests nearly impenetrable. The presence of *Sinarundinaria* on Mt. Nyiru has to be regarded as of special importance with respect to the biogeography of the species. The Nyiru population can be interpreted as a link between the main growing area of the species and the stands on the southern slopes of the Bale mountains in Southern Ethiopia, about 500 km further North (Bussmann, 1997).

#### ACKNOWLEDGEMENTS

The authors would like to thank Onesmus Mwangangi, Paul Kirika, Titus Waiganjo and Mike Newton, who joined the initial expedition; Elizabeth Muthuma, David Kones and Joyce Chege, who assisted in preparing the checklist; and Emma and Yoav Chen from Desert Rose for logistical support in the field. Rainer Bussmann acknowledges the financial support for this work by the Deutsche Forschungsgemeinschaft (DFG) and wishes to thank the National Research Council of Kenya for granting permission for research. The expedition to Mount Nyiru was funded by the Foundation for the Furtherance of Scientific Research in Africa (Belgium).

#### REFERENCES

Agnew, A.D.Q. & S. Agnew (1995). *Upland Kenya Wild Flowers*. East Africa Natural History Society, Nairobi.



- Baker, B.H. (1960). *Geology of the Baragoi Area*. Geological Survey of Kenya, Nairobi.
- Bamps, P. (1976). Catalogue of the phanerogamic families dealt with in the main floras of Tropical Africa. *Boissiera* **24**: 667–686.
- Barkman, J.J., J. Moravec & S. Rauschert (1986). Code of phytosociological nomenclature 2nd ed. *Vegetatio* **67**: 145–195.
- Beentje, H.J. (1990). The forests of Kenya. *Mitteilungen des Instituts fuer Allgemeine Botanik Hamburg* **23a**: 265–286.
- Beentje, H.J. (1995). *Kenya Trees, Shrubs and Lianas*. National Museums of Kenya, Nairobi.
- Braun-Blanquet, J. (1964). *Pflanzensoziologie*. Third edition. Springer, Wien, New York.
- Bussmann, R.W. (1994). *The forests of Mount Kenya (Kenya). Vegetation, ecology, destruction and management of a tropical mountain forest ecosystem*. Ph.D. thesis, Universität Bayreuth.
- Bussmann, R.W. (1997). The forest vegetation of the Hareenna Escarpment (Bale Province, Ethiopia)—syntaxonomy and phytogeographical affinities. *Phytocoenologia* **27**(1): 1–23.
- Bussmann, R.W. (in press). Islands in the desert—a synopsis of the forest vegetation of Kenya's northern, central and southern mountains and highlands (Nyiru, Ndoto, Kulal, Marsabit, Loroghi, Ndare, Mukugodo, Poror, Mathews, Gakoe, Imenti, Ngaia, Nyambeni, Loita, Nguruman, Nairobi). *Journal of East African Natural History*.
- Bussmann, R.W. & E. Beck (1995a). The forests of Mount Kenya. A phytosociological synopsis. *Phytocoenologia* **25**(4): 467–560.
- Bussmann, R.W. & E. Beck (1995b). Regeneration and succession processes in the Cedar-forests (*Juniperion procerae*) of Mount Kenya. *Ecotropica* **1**: 79–84.
- Chao C. & S.A. Renvoize (1989). A revision of the species described under *Arundinaria* (Gramineae) in Southeast Asia and Africa. *Kew Bulletin* **44**: 349–367.
- Dixey, F. (1948). Geology of Northern Kenya. *Geological Survey of Kenya, Report 15*. Survey of Kenya, Nairobi.
- Dodson, R.G. (1963). Geology of the South Horr Area. *Geological Survey of Kenya Report No. 60*. Geological Survey of Kenya, Nairobi.
- Edwards, K.A., C.R. Field & I.G.G. Hogg (1979). A preliminary analysis of climatological data from the Marsabit District of Northern Kenya. *IPAL Technical Report B-1*. Unesco, Nairobi.
- Haines, R.W. & K.A. Lye (1983). *The Sedges and Rushes of East Africa*. East Africa Natural History Society, Nairobi.
- Hammen, T.v.d., D. Mueller-Dombois & M.A. Little (1989). *Manual of Methods for Mountain Transect Studies*. IUBS.
- Hepper, F.N. (1983). The phytogeography of Mt. Kulal, Kenya, with special reference to Compositae, Leguminosae and Gramineae. *Bothalia* **14**: 534–551.
- Hepper, F.N., P.M.L. Jaeger, J.B. Gillett & M.G. Gilbert (1981). Annotated checklist of the plants of Mount Kulal. *IPAL Technical Report D-3*. Unesco, Nairobi.
- Herlocker, D. (1979). Vegetation of southwestern Marsabit district, Kenya. *IPAL Technical Report D-1*. Unesco, Nairobi.
- Jätzold, R. (1977). *Klimageographie, Serie E, Blatt 5, 1:1000000*. Bornträger, Berlin, Stuttgart.
- Jätzold, R. (1981). *Klimageographie Ostafrika-Afrika Kartenwerk, Serie E, Beiheft zu Blatt 5*. Bornträger, Berlin, Stuttgart.
- Kenya Meteorological Department (1974, 1984). *Climatological Statistics for Kenya*. Kenya, Nairobi.

- Mäckel, R. (1986). Oberflächenformung in den Trockengebieten Nordkenyas. In: Büdel, J. & Busche, D. (eds.). *Studien zur tropischen Reliefbildung*. Bornträger, Berlin. Pp. 85-225.
- Mäckel, R. & W. Schultka (1988). Vegetationsveränderungen und Morphodynamik im Ngare Ndare-Gebiet, Kenia. In: J. Hagedorn & H.G. Mensching, (eds.). *Aktuelle Morphodynamik und Morphogenese in den semiariden Randtropen und Subtropen*. Abh. Akad. Wiss. Gött. Mat. Phys. Kl. 3/41: 253-276.
- Mäckel, R. & D. Walter (1983). Die landschaftsökologische Bedeutung der Bergwälder für die Trockengebiete Nordkenyas. *Die Erde* 114: 211-235.
- Mueller-Dombois, D. & H. Ellenberg (1974): *Aims and methods of vegetation ecology*. Wiley, New York.
- Neumann, A.E. (1898). *Elephant-Hunting in East Equatorial Africa*. R. Ward, London.
- Phillips, S. (1995). Poaceae (Gramineae). In: Hedberg, I. & S. Edwards, (eds.), *Flora of Ethiopia and Eritrea*, Vol. 7. National Herbarium, Addis Ababa.
- Randel, R.P. (1967). *Geology of the Laisamis Area*. Government Printer, Nairobi.
- Schultka, W. & H.H. Hilger (1983). Epizoochore Verbreitung in der Krautschicht beweideter Bergwälder des Mt. Kulal (Nordkenia). *Beitraege zur Biologie der Pflanzen* 58: 333-356.
- Shackleton, R.M. (1946). Geology of the country between Nanyuki and Maralal. *Geological Survey of Kenya Report 11*. Survey of Kenya, Nairobi.
- Survey of Kenya (1959, 1970). *National Atlas of Kenya*. Survey of Kenya, Nairobi.
- Survey of Kenya (1966). East African mean monthly rainfall in millimetres (North sheet: Kenya and Uganda, Scale 1:2.000.000). Survey of Kenya, Nairobi.
- Synott, T.J. (1979). A report on the status, importance and protection of the montane forests. *IPAL Technical Report D-2a*. Unesco, Nairobi.
- Turril W.B., C.E. Hubbard, E. Milne-Redhead, R.M. Polhill & H.J. Beentje. (eds.) (1952-1998): *Flora of Tropical East Africa*. Crown Agents, London, and A.A. Balkema, Rotterdam.
- White, F. (1983). *The vegetation of Africa*. Unesco, Paris.

**APPENDIX 1: Checklist of the plants of Mount Nyiru****PTERIDOPHYTA**

1600–2450 m

**ACTINIOPTERIDACEAE**

*Actiniopteris semiflabellata* Pic.Serm.  
Bytebier B *et al.* 344; Bussmann R 9743  
1600–2450 m

**ADIANTACEAE**

*Adiantum capillus-veneris* L.  
Bytebier B *et al.* 314; Cameron JBC 151;  
Gilbert MG, Gachathi FN & Gatheri GW  
5209; Archer PG 689; Bussmann R 9734  
1219–2450m

*Adiantum poiretii* Wikstr.

Bytebier B *et al.* 76

2400–2400m

*Cheilanthes bergiana* Kunze

Bussmann R 9811

2350–2550 m

First record for K1

*Cheilanthes farinosa* (Forssk.) Kaulf.

Bytebier B *et al.* 252; Bussmann R 9809

2200–2450 m

*Cheilanthes hirta* Sw.

Bussmann R 9812

2350–2550 m

*Cheilanthes marantae* (L.) Domin

Cameron JBC 148

1676–1676 m

*Cheilanthes multifida* (Sw.) Sw.

Bytebier B *et al.* 253, 329, 336; Gilbert

MG, Gachathi FN & Gatheri GW 5196;

Bussmann R 9818

1600–2450 m

*Cheilanthes tecta* F.M.Jarret ined.

Bussmann R., Sight record

2350–2550 m

*Doriopteris kirkii* (Hook.) Alston

Bussmann R 9752

2350–2550 m

*Pellaea adiantoides* (Willd.) J.Sm.

Bussmann R 9797

2350–2550 m

*Pellaea calomelanos* (Sw.) Link

Bytebier B *et al.* 339

1600–1600 m

*Pellaea longipilosa* Bonap.

Bytebier B *et al.* 327; Bussmann R 9822

**ASPLENIACEAE**

*Asplenium abyssinicum* Fée

Cameron JBC 149

2439–2439 m

*Asplenium adiantum-nigrum* L.

Cameron JBC 133

2515–2515 m

*Asplenium aethiopicum* (Burm.f.) Bech.

Bytebier B *et al.* 72; Gilbert MG, Gachathi

FN & Gatheri GW 5193; Cameron JBC

146; Bussmann R 9698

1600–2450 m

*Asplenium elliottii* C.H.Wright

Bytebier B *et al.* 17A; Bussmann R 9701

2400–2450 m

*Asplenium erectum* Willd. var.

*usambarensis* (Hieron.) Schelpe

Bytebier B *et al.* 38, 251; Bussmann R

9708

2200–2450 m

*Asplenium friesiorum* C.Chr.

Bytebier B *et al.* 6, 17B; Cameron JBC

144; Bussmann R 9715

2286–2450 m

*Asplenium loxoscaphoides* Baker

Bussmann R 9740

2350–2550 m

*Asplenium monanthes* L.

Bytebier B *et al.* 73, Cameron JBC 137;

Bussmann R 9704

2134–2450 m

*Asplenium strangeanum* Pic.Serm.

Bytebier B *et al.* 250; Cameron JBC 136

2200–2286 m

*Asplenium theciferum* (Kunth) Mett.

Bytebier B *et al.* 74; Cameron JBC 134;

Bussmann R 9706

2134–2450 m

*Asplenium trichomanes* L.

Cameron JBC 135; Gilbert MG, Gachathi

FN & Gatheri GW 5195; Bussmann R

9710

1600–2450 m

**DENNSTAEDTIACEAE***Hypolepis goetzei* Reimers

Cameron JBC 139

2134–2134 m

*Pteridium aquilinum* (L.) KuhnBytebier B *et al.* 194

2500–2500 m

**DRYOPTERIDACEAE***Arachniodes foliosa* (C.Chr.) Schelpe

Cameron JBC 130

2439–2439 m

*Polystichum fuscopaleaceum* AlstonBytebier B *et al.* 50; Cameron JBC 147;

Bono G 23; Bussmann R 9803, 9796

2400–2450 m

**POLYPODIACEAE***Loxogramme abyssinica* (Baker)

M.G.Price

Bytebier B *et al.* 46

2400–2400 m

*Pleopeltis macrocarpa* (Bory ex Willd.)

Kaulf.

Cameron JBC 131, 145

2439–2439 m

**PTERIDACEAE***Pteris catoptera* KunzeBytebier B *et al.* 69

2400–2400 m

*Pteris dentata* Forssk.

Bono G 24, 38, 211; Cameron JBC 143,

152

1219–2439 m

*Pteris quadriaurita* Retz.

Bussmann R 9814

2350–2550 m

**SCHIZAEACEAE***Mohria vestita* BakerBytebier B *et al.* 254

2200–2200 m

First record for K1

**SELAGINELLACEAE***Selaginella dregei* (C.Presl) Hieron.

Alexander EAH 11859

**THELYPTERIDACEAE***Amauropelta bergiana* (Schltdl.) Holttum

Bussmann R 9799

2350–2550 m

*Amauropelta oppositifformis* (C.Chr.)

Holttum

Bytebier B *et al.* 222

2500–2500 m

First record for K1

*Stegnoqramma pozoi* (Lag.) K.Iwats.Bytebier B *et al.* 48; Bussmann R 9791,

9792

2400–2450 m

**WOODSIACEAE***Cystopteris diaphanum* (Bory) BlasdellBytebier B *et al.* 25; Cameron JBC 150

2400–2439 m

*Cystopteris fragilis* (L.) Bernh.

Bussmann R 9795

2350–2550 m

**GYMNOSPERMAE****CUPRESSACEAE***Juniperus procera* Endl.

Adamson J 393, Adamson J B 6162;

Bytebier B *et al.* 188

2439–2500 m

**PODOCARPACEAE***Podocarpus latifolius* (Thunb.) Mirb.Bytebier B *et al.* 96; Cameron JBC 128;

Adamson J 392

2439–2500 m

**ANGIOSPERMAE****DICOTYLEDONAE****ACANTHACEAE***Acanthopale pubescens* C.B.Clarke

Kerfoot O 2067

2439–2439 m

*Crossandra massaica* Mildbr.Bytebier B *et al.* 323

1600–1600 m

*Dicliptera colorata* C.B.Clarke

Bussmann R 9786

2350–2550 m

*Dicliptera laxata* C.B. Clarke

Kerfoot O 2068

2743–2743 m

*Dyschoriste radicans* Nees

Bytebier B *et al.* 189

2500–2500m

*Hypoestes forskahlii* (Vahl) R.Br.

Bytebier B *et al.* 269

Kerfoot O 2001

2350–2439m

*Hypoestes triflora* (Forssk.) Roem. & Schult.

Bytebier B *et al.* 210

Kerfoot O 2076

2439–2500m

*Isoglossa gregorii* (S.Moore) Lindau

Bytebier B *et al.* 58

Kerfoot O 2069

2400–2743m

*Justicia glabra* Koen. ex Roxb.

Bytebier B *et al.* 312

1600–1600m

*Justicia lorata* Ensermu

Bytebier B *et al.* 341, 350

1600–1600m

First record for K1

*Justicia striata* (Kl.) Bullock

Bussmann R, Sight record

2350–2550m

*Thunbergia alata* Bojer ex Sims

Bytebier B *et al.* 258; Kerfoot O 2090

2350–2591m

#### AMARANTHACEAE

*Achyranthes aspera* L.

Bytebier B *et al.* 44

2400–2400m

*Celosia anthelminthica* Asch.

Kerfoot O 2024

2439–2439m

*Celosia schweinfurthiana* Schinz

Bytebier B *et al.* 309

1600–1600m

*Cyathula polycephala* Baker

Bytebier B *et al.* 66

2400–2400m

First record for K1

*Pupalia lappacea* (L.) A.Juss.

Bytebier B *et al.* 248

2200–2200m

*Sericocomopsis hildebrandtii* Schinz

Kerfoot O 2080

2713–2713 m

#### ANACARDIACEAE

*Rhus natalensis* Krauss

Bytebier B *et al.* 278; Kerfoot O 1948, 1949, 1950

2134–2350 m

*Rhus ruspolii* Engl.

Bytebier B *et al.* 276; Kerfoot O 1945

2134–2350 m

#### APOCYNACEAE

*Carissa edulis* (Forssk.) Vahl

Kerfoot O 2023

2134–2134 m

#### ARALIACEAE

*Cussonia holstii* Engl. var. *holstii*

Bytebier B *et al.* 262; Kerfoot O 1942;

Bono G 323

2134–2350 m

*Schefflera volkensii* (Engl.) Harms

Bussmann R, Sight record

2350–2550 m

#### ASCLEPIADACEAE

*Ceropegia*

Bytebier B *et al.* 201

2500–2500 m

*Ceropegia ballyana* Bullock

Bytebier B *et al.* 249

2200–2200 m

First record for K1

*Cynanchum altiscandens* K.Schum.

Bytebier B *et al.* 263

2350–2350 m

First record for K1

*Gomphocarpus fruticosus* (L.) W.T.Aiton

Bytebier B *et al.* 240; Kerfoot O 1979

2200–2591 m

*Pergularia daemia* (Forssk.) Blatt. & MacOwan

Kerfoot O 2021; Bono G 33

1800–1829 m

*Periploca linearifolia* Quart.-Dill. & A.Rich.

Kerfoot O 1998

2439–2439 m

*Secamone punctulata* Decne.

Bytebier B *et al.* 294, 363

1600–1600 m

### BALSAMINACEAE

*Impatiens hochstetteri* Warb.

Bussmann R 9785

2350–2550 m

*Impatiens meruensis* Gilg

Cameron JBC 138

2286–2286 m

*Impatiens meruensis* Gilg ssp.

*septentrionalis* Grey-Wilson

Bytebier B *et al.* 51; Kerfoot O 2082

2400–2743 m

*Impatiens sodenii* Engl.

Bytebier B *et al.* 325; Kerfoot O 2083;

Bono G 202; Adamson TG 18; Bussmann

R 9783

1600–2743 m

### BEGONIACEAE

*Begonia*

Bytebier B *et al.* 324

1600–1600 m

### BERBERIDACEAE

*Berberis holstii* Engl.

Kerfoot O 1939

2591–2591 m

### BORAGINACEAE

*Cordia monoica* Roxb.

Kerfoot O 1938; Bono G 26

2134–2300 m

*Cynoglossum coeruleum* A.DC.

Bytebier B *et al.* 41, 176

2400–2500 m

*Cynoglossum coeruleum* A.DC. ssp.

*johnstonii* (Baker) Verdc.

Kerfoot O 2095

2743–2743 m

*Lithospermum afroontanum* Weim.

Kerfoot O 2006

2286–2286 m

### CALLITRICHACEAE

*Callitriche stagnalis* Scop.

Bytebier B *et al.* 231; Bono G 208

2450–2500 m

### CAMPANULACEAE

*Campanula edulis* Forssk.

Archer PG 695; Kerfoot O 2097

2286–2743 m

*Wahlenbergia abyssinica* (A.Rich.) Thulin

ssp. *abyssinica*

Bytebier B *et al.* 92; Cameron JBC 108;

Kerfoot O 2063; Adamson J 541;

Bussmann R 9778

2134–2743 m

*Wahlenbergia capillacea* (L.f.) A.DC. ssp.

*tenuior* (Engl.) Thulin

Bytebier B *et al.* 93

2500–2500 m

*Wahlenbergia lobelioides* (L.f.) A.DC. ssp.

*nutabunda* (Guss.) Murb.

Archer PG 697

2286–2286 m

*Wahlenbergia virgata* Engl.

Bytebier B *et al.* 77; Adamson J 540;

Archer PG 694

2400–2439 m

### CAPPARACEAE

*Capparis tomentosa* Lam.

Bytebier B *et al.* 334; Kerfoot O 1985

1600–2591 m

*Cleome*

Kerfoot O 2062

2134–2134 m

*Cleome usambarica* Pax

Bytebier B *et al.* 318

1600–1600 m

*Crateva adansonii* DC.

Kerfoot O 1990

1524–1524 m

*Gynandropsis gynandra* (L.) Briq.

Bytebier B *et al.* 288

2350–2350 m

*Maerua angolensis* DC.

Kerfoot O 1931

1981–1981 m

*Maerua triphylla* A.Rich.

Bytebier B *et al.* 345

1600–1600 m

*Thylachium africanum* Lour.

Kerfoot O 1958

2439–2439 m

**CARYOPHYLLACEAE***Cerastium indicum* Wight & Arn.Bytebier B *et al.* 164; Kerfoot O 2073  
2500–2743 m*Drymaria cordata* (L.) Willd. ex Roem. & Schult.Bytebier B *et al.* 1; Kerfoot O 2096  
2400–2743 m*Pollichia campestris* AitonBytebier B *et al.* 238  
Kerfoot O 2099

2200–2743 m

*Silene burchellii* Othth ex DC.

Adamson J 552

2743–2743 m

*Silene macrosolen* Steud. ex A.Rich.

Kerfoot O 2074

2743–2743 m

*Stellaria sennii* Chiov.Bytebier B *et al.* 215

2500–2500 m

**CELASTRACEAE***Maytenus heterophylla* (Eckl. & Zeyh.)

N.Robson

Bytebier B *et al.* 279

2350–2350 m

*Mystroxyloa aethiopicum* (Thunb.) Loes.Bytebier B *et al.* 319

1600–1600 m

**CHENOPODIACEAE***Chenopodium schraderianum* Schult.Bytebier B *et al.* 289

2350–2350 m

**COMPOSITAE***Adenostemma perrottetii* DC.

Gilbert MG, Gachathi FN &amp; Gatheri GW

5210; Kerfoot O 2056

1350–2743 m

*Berkheya spekeana* Oliv.

Archer PG 705

2560–2560 m

*Bidens flagellata* (Sherff) MesfinBytebier B *et al.* 213

2500–2500 m

*Bidens hildebrandtii* O.Hoffm.Bytebier B *et al.* 317

1600–1600 m

*Bidens kilimandscharica* (O.Hoffm.)

Sherff

Kerfoot O 2057

2439–2439 m

*Bothriocline longipes* (Oliv. & Hiern)

N.E.Br.

Bytebier B *et al.* 20; Kerfoot O 2049

2134–2400 m

*Carduus nyassanus* (S.Moore) R.E.Fr.Bytebier B *et al.* 232

2500–2500 m

First record for K1

*Cineraria deltoidea* Sond.

Kerfoot O 2046

2134–2134 m

*Conyza newii* Oliv. & HiernBytebier B *et al.* 19; Kerfoot O 2043

2400–2439 m

*Conyza steudelii* Sch.Bip. ex A.Rich.Bytebier B *et al.* 224

2500–2500 m

*Conyza stricta* Willd.Bytebier B *et al.* 22, 83, 197; Kerfoot O  
2045

2134–2500 m

*Conyza sumatrensis* (Retz.) E.WalkerBytebier B *et al.* 225

2500–2500 m

*Crassocephalum montuosum* (S.Moore)

Milne-Redh.

Bussmann R, Sight record

2350–2550 m

*Dichrocephala chrysanthemifolia* (Blume)

DC.

Kerfoot O 2052

2591–2591 m

*Dichrocephala integrifolia* (L.f.) KuntzeBytebier B *et al.* 35

2400–2400 m

*Emilia discifolia* (Oliv.) C.JeffreyBytebier B *et al.* 245; Kerfoot O 2055;

Gilbert MG, Gachathi FN &amp; Gatheri GW

5198

1600–2439 m

*Emilia somalensis* (S.Moore) C.JeffreyBytebier B *et al.* 80

2500–2500 m

*Gerbera viridifolia* (DC.) Sch.Bip.Bytebier B *et al.* 178

2500–2500 m

*Gnaphalium rubriflorum* Hilliard  
 Bytebier B *et al.* 179, 226  
 2500–2500 m  
*Gutenbergia cordifolia* Benth. ex Oliv.  
 Bytebier B *et al.* 287  
 2350–2350 m  
*Helichrysum argyranthum* O.Hoffm.  
 Adamson J 564  
 2743–2743 m  
*Helichrysum forskahlii* (J.F.Gmel.)  
 Hilliard & B.L.Burt var. *forskahlii*  
 Bytebier B *et al.* 62, 87; Adamson J 556  
 2400–2500 m  
*Helichrysum kilimanjari* Oliv.  
 Bytebier B *et al.* 26  
 2400–2400 m  
 First record for K1  
*Helichrysum nudifolium* (L.) Less. var.  
*nudifolium*  
 Bytebier B *et al.* 204; Archer PG 702;  
 Bono G 213  
 2286–2500 m  
*Helichrysum odoratissimum* (L.) Less.  
 Bussmann R 9759  
 2350–2550 m  
*Hirpicium diffusum* (O.Hoffm.) Roessler  
 Bytebier B *et al.* 239, 362  
 1600–2200 m  
*Kleinia odora* (Forssk.) DC.  
 Gilbert MG, Gachathi FN & Gatheri GW  
 5187  
 1350–1350 m  
*Laggera elatior* R.E.Fr.  
 Bytebier B *et al.* 57  
 2400–2400 m  
 First record for K1  
*Microglossa pyrifolia* (Lam.) Kuntze  
 Bytebier B *et al.* 8; Kerfoot O 2047  
 2134–2450 m  
*Mikaniopsis bambuseti* (R.E. Fries)  
 C.Jeffrey Bussmann R, Sight record  
 2350–2550 m  
*Osteospermum vaillantii* (Decne.) Norl.  
 Kerfoot O 2054  
 2439–2439 m  
*Senecio hadiensis* Forssk.  
 Bono G 330  
 1700–1700 m  
*Senecio syringifolius* O.Hoffm.  
 Bytebier B *et al.* 180

2500–2500 m  
*Sonchus afromontanus* R.E.Fr.  
 Bytebier B *et al.* 168, 216  
 2500–2500 m  
 First record for K1  
*Vernonia galamensis* (Cass.) Less. ssp.  
*nairobiensis* M.G.Gilbert  
 Bytebier B *et al.* 196  
 2500–2500 m  
*Vernonia hymenolepis* A.Rich.  
 Kerfoot O 2041; Bono G 20  
 2400–2439 m  
*Vernonia syringifolia* O.Hoffm.  
 Bytebier B *et al.* 9, 169  
 2400–2500 m  
 First record for K1

#### CONVOLVULACEAE

*Ipomoea spathulata* Hallier f.  
 Bytebier B *et al.* 300  
 1600–1600 m  
*Ipomoea wightii* (Wall.) Choisy  
 Bytebier B *et al.* 273  
 2350–2350 m

#### CRASSULACEAE

*Crassula alba* Forssk.  
 Bytebier B *et al.* 217; Archer PG 699  
 2286–2500 m  
*Crassula alsinoides* (Hook.f.) Engl.  
 Kerfoot O 2091  
 2743–2743 m  
*Crassula nodulosa* Schönf. var. *nodulosa*  
 Archer PG 698; Kerfoot O 2025  
 2134–2286 m  
*Crassula schimperi* Fisch. & C.A.Mey.  
 ssp. *schimperi*  
 Bytebier B *et al.* 85, 243  
 2200–2500 m  
*Kalanchoe citrina* Schweinf.  
 Bytebier B *et al.* 340, 356; Kerfoot O 2086  
 1600–2134 m  
*Kalanchoe densiflora* Rolfe var. *densiflora*  
 Bytebier B *et al.* 220; Kerfoot O 2087  
 2500–2743 m

#### CRUCIFERAE

*Arabis glabra* (L.) Bernh.  
 Bytebier B *et al.* 175  
 2500–2500 m



First record for K1

*Cardamine africana* L.

Archer PG 690

2439–2439 m

### CUCURBITACEAE

*Gerrardanthus lobatus* (Cogn.) C.Jeffrey

Bytebier B *et al.* 307

1600–1600 m

*Lagenaria*

Bytebier B *et al.* 355

1600–1600 m

*Lagenaria abyssinica* (Hook.f.) C.Jeffrey

Bytebier B *et al.* 52

2400–2400 m

First record for K1

### DIPSACACEAE

*Dipsacus pinnatifidus* A.Rich.

Bytebier B *et al.* 184; Archer PG 704;

Kerfoot O 2003; Bussmann R 9821

2286–2500 m

*Scabiosa columbaria* L.

Archer PG 696; Cameron JBC 123;

Adamson J 555; Kerfoot O 2075

2286–2743 m

### ERICACEAE

*Agauria salicifolia* (Lam.) Oliv.

Kerfoot O 1970

2743–2743 m

*Erica arborea* L.

Bytebier B *et al.* 171 ; Kerfoot O 2018;

Bono G 214; Cameron JBC 118

2134–2500 m

*Erica mannii* (Hook.f.) Beentje ssp.

*usambarensis* (Alm & T.C.E.Fr.) Beentje

Bytebier B *et al.* 187

2500–2500 m

First record for K1

### EUPHORBIACEAE

*Acalypha fruticosa* Forssk. var.

*eglandulosa* Radcl.-Sm.

Kerfoot O 1994

2286–2286 m

*Acalypha fruticosa* Forssk. var. *fruticosa*

Bono G 121

1400–1400 m

*Acalypha volkensii* Pax

Bytebier B *et al.* 260; Kerfoot O 1995  
2134–2350 m

*Bridelia micrantha* (Hochst.) Baill.

Ichikawa M 906; Kerfoot O 1943

1768–1829 m

*Clutia abyssinica* Jaub. & Spach var.  
*abyssinica*

Bytebier B *et al.* 193; Bono G 142

1900–2500 m

*Croton dichogamus* Pax

Bono G 27

1800–1800 m

*Croton megalocarpus* Hutch.

Kerfoot O 1961

2134–2134 m

*Euphorbia*

Bytebier B *et al.* 361

1600–1600 m

*Euphorbia brevicornu* Pax

Bytebier B *et al.* 56

2400–2400 m

First record for K1

*Euphorbia depauperata* A.Rich. var.  
*depauperata*

Bytebier B *et al.* 170

2500–2500 m

*Euphorbia nyikae* Pax var. *nyikae*

Bytebier B *et al.* 359

1600–1600 m

First record for K1

*Phyllanthus fischeri* Pax

Kerfoot O 2017

2134–2134 m

*Phyllanthus sepialis* Müll.Arg.

Bono G 122

1400–1400 m

### FLACOURTIACEAE

*Dovyalis abyssinica* (A.Rich.) Warb.

Bytebier B *et al.* 158; Kerfoot O 1965

2439–2500 m

*Trimeria grandifolia* (Burkill) Sleumer  
ssp. *tropica*

Bono G 39

2400–2400 m

### GERANIACEAE

*Geranium aculeolatum* Oliv.

Kerfoot O 2038

2439–2439 m

*Geranium arabicum* Forssk.  
 Bytebier B *et al.* 190A; Kerfoot O 2036;  
 Bono G 201  
 2134–2500 m  
*Pelargonium alchemilloides* (L.) Ait.f. ssp.  
*multibracteatum* (A.Rich.) Kokwaro  
 Bytebier B *et al.* 244; Bono G 205;  
 Kerfoot O 2039; Bussmann R 9757  
 2200–2450 m  
*Pelargonium whytei* Baker  
 Kerfoot O 2037  
 2439–2439 m

#### GUTTIFERAE

*Garcinia livingstonei* T.Anderson  
 Bytebier B *et al.* 337  
 1600–1600 m  
*Hypericum kiboense* Oliv.  
 Adamson J 558  
 2743–2743 m  
*Hypericum revolutum* Vahl  
 Bytebier B *et al.* 191; Kerfoot O 1932;  
 Adamson J 562; Cameron JBC 117  
 2500–2743 m  
*Hypericum roeperanum* A.Rich.  
 Kerfoot O 1934  
 2439–2439 m

#### HALORAGACEAE

*Gunnera perpensa* L.  
 Bytebier B *et al.* 230; Bussmann R 9788  
 2450–2500 m

#### LABIATAE

*Aeollanthus repens* Oliv.  
 Bytebier B *et al.* 259  
 2350–2350 m  
 First record for K1  
*Becium decumbens* (Guerke) A.J.Paton  
 Bytebier B *et al.* 78  
 2500–2500 m  
*Becium obovatum* (E.Mey. ex Benth.)  
 N.E.Br. var. *capitatum*  
 Archer PG 700; Kerfoot O 2094  
 2286–2743 m  
*Leonotis nepetifolia* (L.) R.Br.  
 Bytebier B *et al.* 60  
 2400–2400 m  
*Leucas grandis* Gürke

Kerfoot O 2089; Gilbert MG, Gachathi FN  
 & Gatheri GW 5214  
 1350–2743 m  
*Leucas urticifolia* (Vahl) R.Br. var.  
*annulata* Sebald  
 Bytebier B *et al.* 283  
 2350–2350 m  
*Ocimum suave* Willd.  
 Bytebier B *et al.* 281; Kerfoot O 2002  
 2350–2439 m  
*Plectranthus barbatus* Andr.  
 Kerfoot O 1992  
 2134–2134 m  
*Plectranthus edulis* (Vatke) Agnew  
 Bytebier B *et al.* 233  
 2500–2500 m  
 First record for K1  
*Plectranthus grandicalyx* E.A.Bruce  
 Bytebier B *et al.* 84  
 2500–2500 m  
*Plectranthus ignirius* (Schweinf.) Agnew  
 Gilbert MG, Gachathi FN & Gatheri GW  
 5216  
 1650–1650 m  
*Plectranthus sylvestris* Gürke  
 Bytebier B *et al.* 70  
 2400–2400 m  
*Salvia nilotica* (Juss.) Jacq.  
 Bytebier B *et al.* 23; Kerfoot O 2066  
 2400–2439 m  
*Satureja*  
 Bytebier B *et al.* 29, 192  
 2400–2500 m  
*Satureja abyssinica* (Benth.) Briq.  
 Archer PG 691; Kerfoot O 2060; Cameron  
 JBC 112; Bono G 115  
 2134–2600 m  
*Satureja biflora* (D.Don) Benth.  
 Bytebier B *et al.* 181; Kerfoot O 2029;  
 Cameron JBC 109  
 2134–2500 m  
*Satureja pseudosimensis* Brenan  
 Bytebier B *et al.* 205  
 2500–2500 m  
 First record for K1  
*Tinnea aethiopica* Kotschy ex Hook.f.  
 Bytebier B *et al.* 326  
 1600–1600 m

**LEGUMINOSAE**

- Acacia etbaica* Schweinf.  
Bytebier B *et al.* 308  
1600–1600 m
- Acacia hockii* De Wild.  
Kerfoot O 1903  
2134–2134 m
- Acacia senegal* (L.) Wild  
Bytebier B *et al.* 357  
1000–1000 m
- Amphicarpa africana* (Hook.f.) Harms  
Kerfoot O 1915  
2652–2652 m
- Argyrolobium fischeri* Taub.  
Archer PG 703; Bono G 30; Cameron JBC  
113  
2000–2286 m
- Cadia purpurea* (Picc.) Aiton  
Bytebier B *et al.* 333; Ichikawa M 899;  
Kerfoot O 1905; Jex-Blake M 11777; Jex-  
Blake AJ H69/51  
1600–2286 m
- Chamaecrista usambarensis* (Taub.)  
Standley  
Bytebier B *et al.* 199; Adamson J 565  
2500–2743 m
- Crotalaria*  
Bytebier B *et al.* 212  
2500–2500 m
- Crotalaria fascicularis* Polhill  
Bono G 28  
1900–1900 m
- Crotalaria incana* L. ssp. *purpurascens*  
(Lam.) Milne-Redh.  
Bytebier B *et al.* 152, 265  
2350–2500 m
- Crotalaria keniensis* Baker f.  
Kerfoot O 1913  
2286–2286 m
- Crotalaria lachnocarpoides* Engl.  
Bytebier B *et al.* 156; Kerfoot O 1906,  
1907  
2439–2500 m
- Crotalaria natalitia* Meisn. var. *natalitia*  
Bytebier B *et al.* 274; Bono G 132;  
Kerfoot O 1914  
2134–2500 m
- Desmodium repandum* (Vahl) DC.  
Kerfoot O 1918  
2652–2652 m
- Dolichos sericeus* E.Mey. ssp. *sericeus*  
Bono G 320  
2000–2000 m
- Glycine wightii* (Wight & Arn.) Verdc. ssp.  
*petitiana* (A.Rich.) Verdc. var. *mearnsii*  
(De Wild.) Verdc.  
Kerfoot O 1917  
1829–1829 m
- Glycine wightii* (Wight & Arn.) Verdc. ssp.  
*wightii* var. *longicauda* (Schweinf.)  
Verdc.  
Ichikawa M 905  
1676–1676 m
- Indigofera atriceps* Hook.f. ssp. *atriceps*  
Kerfoot O 1909  
2134–2134 m
- Indigofera lupatana* Baker f.  
Kerfoot O 1912  
2134–2134 m
- Indigofera schimperi* Jaub. & Spach var.  
*schimperi*  
Gilbert MG, Gachathi FN & Gatheri GW  
5192  
1350–1350 m
- Indigofera swaziensis* Bolus var.  
*swaziensis*  
Kerfoot O 1910  
2439–2439 m
- Indigofera volkensii* Taub.  
Bytebier B *et al.* 37; Gilbert MG, Gachathi  
FN & Gatheri GW 5190A  
1350–2400 m
- Kotschyia recurvifolia* (Taub.) F.White ssp.  
*keniensis* Verdc.  
Cameron JBC 119  
2439–2439 m
- Lablab purpureus* (L.) Sweet ssp.  
*uncinatus* Verdc.  
Kerfoot O 1922  
2439–2439 m
- Lotus goetzei* Harms  
Kerfoot O 1911  
2134–2134 m
- Mucuna gigantea* (Willd.) DC. ssp.  
*quadrialata* (Baker) Verdc.  
Bytebier B *et al.* 298  
1600–1600 m
- Ormocarpum trachycarpum* (Taub.)  
Harms  
Kerfoot O 1937

2134–2134 m

*Psoralea foliosa* Oliv.

Adamson J 537

2743–2743 m

*Pterolobium stellatum* (Forssk.) Brenan

Kerfoot O 1935

1829–1829 m

*Tephrosia interrupta* Engl. ssp. *interrupta*

Adamson J 559; Kerfoot O 1908; Bono G

133; Gilbert MG, Gachathi FN &amp; Gatheri

GW 5204

1600–2652 m

*Teramnus labialis* (L.f.) Spreng. ssp.*labialis* var. *abyssinicus* (A.Rich.) Verdc.

Kerfoot O 1920

2439–2439 m

*Trifolium semipilosum* Fresen. var.*semipilosum*

Bono G 204

2500–2500 m

*Vigna schimperii* BakerBytebier B *et al.* 34; Kerfoot O 1916

2400–2439 m

*Zornia setosa* Baker f. ssp. *obovata* (Baker

f.) J.Léon. &amp; Milne-Redh.

Bytebier B *et al.* 91

2500–2500 m

**LINACEAE***Linum keniense* T.C.E.Fr.

Busmann R 9780

2350–2550 m

*Linum volkensii* Engl.Bytebier B *et al.* 95; Adamson J 547

2500–2743 m

**LOBELIACEAE***Lobelia giberroa* Hemsl.Bytebier B *et al.* 236

2550–2550 m

*Lobelia holstii* Engl.Bytebier B *et al.* 207; Adamson J 566;

Kerfoot O 2085; Cameron JBC 124

2286–2743 m

*Monopsis stellarioides* (C.Presl) Urb. ssp.*schimperiana* (Urb.) ThulinBytebier B *et al.* 202

2500–2500 m

First record for K1

**LOGANIACEAE***Nuxia congesta* Fresen.Bytebier B *et al.* 182; Bono G 25

2300–2500 m

**LORANTHACEAE***Agelanthus elegantulus* (Engl.) Polhill & Wiens

Busmann R 9758

2350–2550 m

First record for K1

*Englerina woodfordioides* (Schweinf.)

Balle

Bytebier B *et al.* 40, 200

2400–2500 m

**MALVACEAE***Abutilon hirtum* (Lam.) Sweet

Kerfoot O 2008

2652–2652 m

*Abutilon longicuspe* A.Rich.

Kerfoot O 1986

2743–2743 m

*Abutilon mauritianum* (Jacq.) Sweet

Kerfoot O 2010, 2013

2134–2439 m

*Hibiscus*

Bono G 130

2400–2400 m

*Hibiscus fuscus* GarckeBytebier B *et al.* 286

2350–2350 m

*Hibiscus ludwigii* Eckl. & Zeyh.

Bono G 29

2100–2100 m

*Hibiscus vitifolius* L.

Kerfoot O 2009

2743–2743 m

*Pavonia kilimandscharica* Gürke

Kerfoot O 2011

2743–2743 m

*Pavonia patens* (Andr.) Chiov.Bytebier B *et al.* 82

2500–2500 m

*Pavonia urens* Cav.Bytebier B *et al.* 97

2500–2500 m

*Sida rhombifolia* L.

Kerfoot O 2014

2439–2439 m

*Sida tenuicarpa* Vollesen  
Bytebier B *et al.* 167; Bussmann R 9756  
2450–2500 m

#### MELIACEAE

*Turraea abyssinica* A.Rich.  
Bytebier B *et al.* 280  
2350–2350 m  
First record for K1  
*Turraea holstii* Gürke  
Bussmann R, Sight record  
2350–2350 m

#### MENISPERMACEAE

*Cocculus pendulus* (J.R.Forst. & G.Forst.)  
Diels  
Bono G 200  
2350–2350 m  
*Stephania abyssinica* (Quart.-Dill. &  
A.Rich.) Walp.  
Kerfoot O 2101  
2743–2743 m

#### MONIMIACEAE

*Xymalos monospora* (Harv.) Warb.  
Bytebier B *et al.* 4; Cameron JBC 129;  
Ichikawa M 902  
2000–2400 m

#### MORACEAE

*Ficus scassellatii* Pamp. ssp. *scassellatii*  
Bytebier B *et al.* 338  
1600–1600 m  
*Ficus vallis-choudae* Delile  
Bytebier B *et al.* 295  
1600–1600 m

#### MYRSINACEAE

*Maesa lanceolata* Forssk.  
Kerfoot O 1952  
2743–2743 m  
*Myrsine africana* L.  
Bytebier B *et al.* 237; Cameron JBC 120;  
Bono G 22  
1850–2200 m  
*Rapanea melanophloeos* (L.) Mez  
Bytebier B *et al.* 2  
2400–2400 m

#### MYRTACEAE

*Syzygium cordatum* Hochst.  
Kerfoot O 1944  
1829–1829 m

#### NYCTAGINACEAE

*Commicarpus helenae* (Roem. & Schult.)  
Meikle  
Bytebier B *et al.* 310  
1600–1600 m

#### OCHNACEAE

*Ochna insculpta* Sleumer  
Bytebier B *et al.* 268  
2350–2350 m

#### OLEACEAE

*Chionanthus battiscombei* (Hutch.) Stearn  
Bussmann R, Sight record  
2350–2550 m  
*Jasminum abyssinicum* Hochst. ex DC.  
Bytebier B *et al.* 24  
2400–2400 m  
*Jasminum floribundum* R.Br. ex Fresen.  
Kerfoot O 1978  
2743–2743 m  
*Jasminum fluminense* Vell. ssp. *holstii*  
(Gilg) Turrill  
Kerfoot O 1976; Bono G 129  
2300–2743 m  
*Olea capensis* L.  
Bytebier B *et al.* 10, 98  
2400–2500 m  
*Olea europaea* L. ssp. *africana* (Mill.)  
P.Green  
Bytebier B *et al.* 88; Kerfoot O 1962,  
1964; Adamson J 395; Adamson J B 6164  
2378–2500 m  
*Schrebera alata* (Hochst.) Welw.  
Bytebier B *et al.* 292  
2350–2350 m

#### ONAGRACEAE

*Epilobium hirsutum* L.  
Bytebier B *et al.* 316  
1600–1600 m  
First record for K1

**OPILIACEAE**

*Opilia amentacea* Roxb.  
Bono G 136  
2300–2300 m

**OROBANCHACEAE**

*Orobanche minor* Sm.  
Bytebier B *et al.* 31  
2400–2400 m

**OXALIDACEAE**

*Oxalis corniculata* L.  
Bytebier B *et al.* 163  
2500–2500 m  
First record for K1

**PIPERACEAE**

*Peperomia abyssinica* Miq.  
Bytebier B *et al.* 67  
2400–2400 m  
*Piper capense* L.  
Bytebier B *et al.* 64, 173; Kerfoot O 2022  
2400–2743 m

**PLUMBAGINACEAE**

*Plumbago dawei* Rolfe  
Kerfoot O 2061  
2743–2743 m

**POLYGALACEAE**

*Polygala sphenoptera* Fresen.  
Bytebier B *et al.* 94, 242; Bussmann R  
9779  
2200–2500 m

**POLYGONACEAE**

*Polygonum amphibium* L.  
Bussmann R 9787  
2350–2550 m  
First record for K1  
*Polygonum setosulum* A.Rich.  
Bytebier B *et al.* 227; Kerfoot O 2034,  
2035  
2500–2743 m  
*Rumex bequaertii* De Wild.  
Kerfoot O 2030  
2134–2134 m  
*Rumex steudelii* A.Rich.  
Bytebier B *et al.* 63  
2400–2400 m

**PRIMULACEAE**

*Lysimachia volkenstii* Engl.  
Bytebier B *et al.* 15  
2400–2400 m

**PROTEACEAE**

*Faurea saligna* Harv.  
Bytebier B *et al.* 190B; Kerfoot O 1936  
2500–2743 m  
*Protea caffra* Meisn. ssp.  
*kilimandscharica* (Engl.) Chisumpa &  
Brummitt  
Cameron JBC 127  
2134–2134 m

**RANUNCULACEAE**

*Clematis brachiata* Thunb.  
Bytebier B *et al.* 55  
2400–2400 m  
*Clematis simensis* Fresen.  
Bytebier B *et al.* 320; Bono G 41; Kerfoot  
O 2004  
1600–2591 m  
*Ranunculus multifidus* Forssk.  
Bytebier B *et al.* 223; Kerfoot O 2032,  
2033  
1829–2743 m  
*Thalictrum rhynchocarpum* Quart.-Dill. &  
A.Rich.  
Bytebier B *et al.* 27  
2400–2400 m  
First record for K1

**RHAMNACEAE**

*Rhamnus prinoides* L'Hérit  
Bytebier B *et al.* 32; Kerfoot O 1971  
2400–2743 m  
*Rhamnus staddo* A.Rich.  
Kerfoot O 1946  
2134–2134 m  
*Scutia myrtina* (Burm.f.) Kurz  
Bytebier B *et al.* 174  
2500–2500 m  
*Ziziphus mucronata* Willd. ssp. *mucronata*  
Ichikawa M 898; Kerfoot O 1940  
1890–1981 m

**RHIZOPHORACEAE**

*Cassipourea malosana* (Baker) Alston  
Bytebier B *et al.* 11  
2400–2400 m

**ROSACEAE**

*Alchemilla cryptantha* A.Rich.  
Bytebier B *et al.* 33  
2400–2400 m  
*Prunus africana* (Hook.f.) Kalkman  
Bytebier B *et al.* 155; Adamson J 390  
2439–2500 m  
*Rubus adolfi-friederici* Engl.  
Kerfoot O 1983  
2743–2743 m  
*Rubus apetalus* Poir.  
Bytebier B *et al.* 7; Kerfoot O 1984  
2400–2743 m

**RUBIACEAE**

*Anthospermum usambarense* K.Schum.  
Kerfoot O 1999  
2286–2286 m  
*Galiniera saxifraga* (Hochst.) Bridson  
Bytebier B *et al.* 47  
2400–2400 m  
First record for K1  
*Galium aparinoides* Forssk.  
Bytebier B *et al.* 39  
2400–2400 m  
First record for K1  
*Pavetta abyssinica* Fresen. var. *abyssinica*  
Bytebier B *et al.* 272  
2350–2350 m  
*Pavetta gardeniifolia* A.Rich. var.  
*gardeniifolia*  
Cameron JBC 121  
2134–2134 m  
*Pentas lanceolata* (Forssk.) Deflers  
Bytebier B *et al.* 271  
2350–2350 m  
*Pentas parvifolia* Hiern  
Bytebier B *et al.* 304; Kerfoot O 2031;  
Gilbert MG, Gachathi FN & Gatheri GW  
5213  
1350–2439 m  
*Psychotria kirkii* Hiern var. *tarambassica*  
(Bremek.) Verdc.  
Bytebier B *et al.* 241; Kerfoot O 1966,  
1967, 1968; Gilbert MG, Gachathi FN &  
Gatheri GW 5197

1600–2591 m  
*Psychotria orophila* Petit  
Bytebier B *et al.* 14; Kerfoot O 1953  
2134–2400 m  
*Psydrax schimperiana* (A.Rich.) Bridson  
ssp. *schimperiana*  
Bytebier B *et al.* 315  
1600–1600 m  
*Rytigynia uhligii* (K.Schum. & K.Krause)  
Verdc.  
Bytebier B *et al.* 277  
2350–2350 m  
*Tarenna graveolens* (S.Moore) Bremek.  
var. *graveolens*  
Kerfoot O 1955  
2286–2286 m  
*Tarenna graveolens* (S.Moore) Bremek.  
var. *impolita* Bridson  
Gilbert MG, Gachathi FN & Gatheri GW  
5190  
1350–1350 m  
*Vangueria apiculata* K.Schum.  
Gilbert MG, Gachathi FN & Gatheri GW  
5215  
1650–1650 m  
*Vangueria madagascariensis* J.F.Gmel.  
Bytebier B *et al.* 301, 346; Kerfoot O 1954  
1600–1829 m  
*Vangueria volkensii* K.Schum. var.  
*volkensii*  
Bytebier B *et al.* 275, 328  
1600–2350 m

**RUTACEAE**

*Clausena anisata* (Willd.) Benth.  
Bytebier B *et al.* 5; Kerfoot O 1993;  
Adamson J 396  
2400–2652 m  
*Teclea nobilis* Delile  
Bytebier B *et al.* 42, 172; Kerfoot O 1957  
2400–2500 m  
*Teclea simplicifolia* (Engl.) Verd.  
Kerfoot O 1980  
2286–2286 m  
*Vepris samburuensis* Kokwaro  
Bytebier B *et al.* 313  
1600–1600 m

**SALVADORACEAE**

*Salvadora persica* L. var. *persica*

Bono G 212  
2000–2000 m

### SANTALACEAE

*Osyridicarpus schimperianus* A.DC.

Bytebier B *et al.* 297, 351

1600–1600 m

*Osyris abyssinica* (Hochst.) A.Rich.

Kerfoot O 2016

2286–2286 m

*Osyris lanceolata* Hochst. & Steud.

Bytebier B *et al.* 185

2500–2500 m

### SAPINDACEAE

*Allophylus abyssinicus* (Hochst.) Radlk.

Bytebier B *et al.* 12

2400–2400 m

*Allophylus griseo-tomentosus* Gilg

Kerfoot O 1951

2134–2134 m

*Cardiospermum halicacabum* L.

Bytebier B *et al.* 311

1600–1600 m

*Dodonaea viscosa* (L.) Jacq.

Kerfoot O 1981

2591–2591 m

### SAPOTACEAE

*Manilkara mochisia* (Baker) Dubard

Adamson TG 17; Kerfoot O 1947

914–2134 m

*Mimusops kummel* A.DC.

Bytebier B *et al.* 330, 349

1600–1600 m

### SCROPHULARIACEAE

*Bartsia longiflora* Hochst. ex Benth.

Adamson J 546

2743–2743 m

*Cycnium tenuisectum* (Standl.)

O.J.Hansen

Bytebier B *et al.* 208

2500–2500 m

*Halleria lucida* L.

Bytebier B *et al.* 86; Adamson J 536;

Kerfoot O 1975

2500–2743 m

*Hebenstretia angolensis* Rolfe

Bytebier B *et al.* 162; Cameron JBC 126;

Kerfoot O 2020

2439–2500 m

*Misopates orontium* (L.) Raf.

Archer PG 692

2286–2286 m

*Selago thomsonii* Rolfe

Bytebier B *et al.* 186, 364; Adamson J 553

1600–2743 m

*Verbascum brevipedicellatum* (Engl.)

Hub.-Mor.

Bytebier B *et al.* 30, 161; Adamson J 560

2400–2743 m

*Veronica anagallis-aquatica* L.

Bytebier B *et al.* 235

2550–2550 m

### SIMAROUBACEAE

*Brucea antidysenterica* Lam.

Bytebier B *et al.* 16; Bono G 37

2400–2450 m

### SOLANACEAE

*Solanum aculeatissimum* Jacq.

Bytebier B *et al.* 65; Kerfoot O 1987

2400–2743 m

*Solanum benderianum* Engl.

Kerfoot O 2000

2591–2591 m

*Solanum incanum* L.

Bussmann R, Sight record

2350–2550 m

*Solanum indicum* L.

Bytebier B *et al.* 13, 266

2350–2400 m

*Solanum indicum* L. ssp. *adoense*

(Hochst.) Bitter

Kerfoot O 1988, 1989

2439–2743 m

*Solanum indicum* L. ssp. *grandifrons*

Bitter

Bytebier B *et al.* 75

2400–2400 m

*Solanum nigrum* L.

Bytebier B *et al.* 221; Bono G 134

2400–2500 m

*Solanum renschii* Vatke

Bytebier B *et al.* 305

1600–1600 m



*Solanum schumannianum* Dammer  
Bussmann R, Sight record  
2350–2550 m

*Solanum terminale* Forssk.  
Bytebier B *et al.* 28  
2400–2400 m

#### STERCULIACEAE

*Dombeya goetzenii* K.Schum.  
Kerfoot O 1941  
2439–2439 m

*Dombeya rotundifolia* Planch.  
Gilbert MG, Gachathi FN & Gatheri GW  
5199  
1600–1600 m

#### THYMELAEACEAE

*Gnidia glauca* (Fresen.) Gilg  
Bytebier B *et al.* 165; Kerfoot O 2005  
Cameron JBC 122  
2286–2500 m  
*Struthiola thomsonii* Oliv.  
Bytebier B *et al.* 203; Archer PG 706;  
Adamson J 545  
2500–2743 m

#### TILIACEAE

*Sparrmannia ricinocarpa* (Eckl. & Zeyh.)  
Kuntze  
Kerfoot O 2015  
2439–2439 m

#### UMBELLIFERAE

*Alepidea peduncularis* A.Rich.  
Bytebier B *et al.* 206; Kerfoot O 2064;  
Cameron JBC 125; Archer PG 688;  
Adamson J 539  
2439–2743 m  
*Anthriscus sylvestris* (L.) Hoffm. var.  
*syvestris*  
Bytebier B *et al.* 45, 209  
2400–2500 m  
*Diplolophium africanum* Turcz.  
Adamson J 561  
2439–2439 m  
*Ferula communis* L.  
Kerfoot O 2026  
2134–2134 m  
*Heteromorpha trifoliata* (H.L.Wendl.)  
Eckl. & Zeyh.

Bytebier B *et al.* 291; Bono G 21; Kerfoot  
O 2027, 2028  
2286–2439 m  
*Sanicula elata* Buch.-Ham. ex D.Don  
Bytebier B *et al.* 18  
2400–2400 m

*Torilis arvensis* (Huds.) Link  
Bytebier B *et al.* 264; Bussmann R 9784  
2350–2450 m

#### URTICACEAE

*Droguetia iners* (Forssk.) Schweinf.  
Bussmann R, Sight record  
*Girardinia diversifolia* (Link) Friis  
Bytebier B *et al.* 282  
2350–2350 m  
*Laportea alatipes* Hook.f.  
Bytebier B *et al.* 3  
2400–2400 m  
First record for K1  
*Parietaria debilis* G.Forst.  
Bytebier B *et al.* 43  
2400–2400 m  
*Pilea johnstonii* Oliv.  
Bussmann R, Sight record  
2350–2550 m  
*Urera hypselodendron* (A.Rich.) Wedd.  
Bytebier B *et al.* 100  
2500–2500 m  
First record for K1

#### VERBENACEAE

*Clerodendrum johnstonii* Oliv.  
Kerfoot O 1960  
2439–2439 m  
*Clerodendrum myricoides* (Hochst.) Vatke  
Bytebier B *et al.* 322; Gilbert MG,  
Gachathi FN & Gatheri GW 5200  
1600–1600 m

#### VIOLACEAE

*Viola abyssinica* Oliv.  
Bytebier B *et al.* 54; Kerfoot O 2102  
2400–2743 m

#### VISCACEAE

*Viscum triflorum* DC.  
Bytebier B *et al.* 290  
2350–2350 m

*Viscum tuberculatum* A.Rich.  
Bussmann R 9749  
2350–2550 m

#### VITACEAE

*Cyphostemma bambuseti* (Gilg & Brandt)  
Wild & R.B.Drumm.  
Bytebier B *et al.* 285  
2350–2350 m  
First record for K1  
*Cyphostemma kilimandscharicum* (Gilg)  
Wild & R.B.Drumm.  
Bytebier B *et al.* 49  
2400–2400 m  
*Rhoicissus revoilii* Planch.  
Bytebier B *et al.* 293  
1600–1600 m

#### MONOCOTYLEDONAE

##### ALOACEAE

*Aloe*  
Bytebier B *et al.* 360  
1600–1600 m

##### AMARYLLIDACEAE

*Scadoxus multiflorus* (Martyn) Raf.  
Bytebier B *et al.* 256  
2350–2350 m

##### ASPARAGACEAE

*Asparagus africanus* Lam.  
Bytebier B *et al.* 183  
2500–2500 m  
*Asparagus falcatus* L. var. *ternifolius*  
Jessop  
Bytebier B *et al.* 270  
2350–2350 m

##### ASPHODELACEAE

*Bulbine abyssinica* A.Rich.  
Bytebier B *et al.* 151, 219; Bussmann R  
9820  
2450–2500 m

##### COMMELINACEAE

*Aneilema leicochaule* K.Schum.  
Bussmann R, Sight record  
2350–2550 m  
*Commelina africana* L.

Bytebier B *et al.* 154  
2500–2500 m  
*Commelina benghalensis* Wall.  
Kerfoot O 2092  
2743–2743 m  
*Commelina foliacea* Chiov.  
Bytebier B *et al.* 36  
2400–2400 m  
*Cyanotis foecunda* Hassk.  
Bytebier B *et al.* 343; Bussmann R 9781  
1600–2450 m

##### CYPERACEAE

*Cyperus*  
Bytebier B *et al.* 68  
2400–2400 m  
*Cyperus comosipes* Mattf. & Kük. ssp.  
*comosipes*  
Bytebier B *et al.* 257  
2350–2350 m  
*Cyperus dichroostachyus* A.Rich.  
Bytebier B *et al.* 234; Kerfoot O 1926  
2500–2743 m  
*Cyperus impubes* Steud.  
Bytebier B *et al.* 261  
2350–2350 m  
*Cyperus niveus* Retz. var. *leucocephalus*  
(Kunth) Fossberg  
Kerfoot O 1924  
2743–2743 m  
*Cyperus rigidifolius* Steud.  
Bytebier B *et al.* 59, 159  
2400–2500 m  
*Cyperus rohlfssii* Boeck.  
Bytebier B *et al.* 342  
1600–1600 m  
*Cyperus sesquiflorus* (Torr.) Mattf. & Kük.  
ssp. *appendiculatus* (K.Schum.) Lye  
Bytebier B *et al.* 71  
2400–2400 m  
*Cyperus niger* Ruiz & Pav. ssp.  
*elegantulus* (Steud.) Lye  
Kerfoot O 1925  
2743–2743 m  
*Schoenoxiphium lehmannii* (Nees) Steud.  
Bussmann R 9819  
2350–2550 m

##### DRACAENACEAE

*Dracaena afromontana* Mildbr.

Bytebier B *et al.* 21

2400–2400 m

*Dracaena ellenbeckiana* Engl.

Bytebier B *et al.* 358

1600–1600 m

#### GRAMINEAE

*Agrostis schimperana* Steud.

Bytebier B *et al.* 228

2500–2500 m

*Andropogon*

Bytebier B *et al.* 153

2500–2500 m

*Brachypodium flexum* Nees

Bussmann R, Sight record

*Bromus leptoclados* Nees

Cameron JBC 116

2591–2591 m

*Chloris roxburghiana* Schult.

Bytebier B *et al.* 299

1600–1600 m

*Cynodon nlemfuensis* Vanderyst var.

*nlemfuensis*

Bytebier B *et al.* 284

2350–2350 m

*Digitaria velutina* (Forssk.) P.Beauv.

Bytebier B *et al.* 296

1600–1600 m

*Ehrharta erecta* Lam. var. *abyssinica*

(Hochst.) Pilg.

Bytebier B *et al.* 61; Kerfoot O 1930

2400–2743 m

*Eleusine multiflora* A.Rich.

Bytebier B *et al.* 166

2500–2500 m

First record for K1

*Enteropogon macrostachyus* K.Schum. ex

Engl.

Bytebier B *et al.* 306

1600–1600 m

*Eragrostis schweinfurthii* Chiov.

Bytebier B *et al.* 195

2500–2500 m

First record for K1

*Eragrostis tenuifolia* (A.Rich.) Steud.

Bytebier B *et al.* 89

2500–2500 m

*Exothea abyssinica* (A.Rich.) Andersson

Bytebier B *et al.* 211

2500–2500 m

*Leptochloa rupestris* C.E.Hubb.

Bytebier B *et al.* 303

1600–1600 m

First record for K1

*Panicum deustum* Thunb.

Bytebier B *et al.* 302

1600–1600 m

*Panicum hymeniocilum* Nees

Bytebier B *et al.* 229

2500–2500 m

First record for K1

*Rhynchelytrum repens* (Willd.) C.E.Hubb.

Bytebier B *et al.* 353

1600–1600 m

*Sinarundinaria alpina* (K.Schum.)

C.S.Chao & Renvoize

Bytebier B *et al.* 53

2400–2400 m

*Sporobolus africanus* (Poir.) Robyns &

Tournay

Bytebier B *et al.* 99

2500–2500 m

*Stipa dregeana* Steud. var. *elongata* (Nees)

Stapf

Bytebier B *et al.* 267

2350–2350 m

#### HYACINTHACEAE

*Albuca abyssinica* Jacq.

Bytebier B *et al.* 157

2500–2500 m

#### HYPOXIDACEAE

*Hypoxis kilimanjarica* Baker ssp.

*kilimanjarica*

Bytebier B *et al.* 90; Bussmann R 9776

2450–2500 m

First record for K1

*Hypoxis obtusa* Burch.

Bytebier B *et al.* 214

2500–2500 m

#### IRIDACEAE

*Aristea alata* Baker

Bytebier B *et al.* 79; Adamson J 535

2500–2743 m

*Gladiolus goetzei* Harms

Archer PG 701

2439–2439 m

*Gladiolus newii* Bak.

Bytebier B *et al.* 218  
2500–2500 m  
First record for K1

### JUNCACEAE

*Juncus oxycarpus* Kunth  
Bytebier *et al.* 81, Bussmann R9760  
2450–2500 m

### ORCHIDACEAE

*Aerangis thomsonii* (Rolfe) Schltr.  
Adamson TG 534; Bytebier B *et al.* 102  
2350–2743 m  
*Brownleea parviflora* Lindl.  
Kerfoot O 2100  
2743–2743 m  
*Diaphananthe rohrii* (Rchb.f.) Summerh.  
Bytebier B *et al.* 131  
2500–2500 m  
First record for K1  
*Eulophia petersii* Rchb.f.  
Bytebier B *et al.* 144  
1600–1600 m  
*Polystachya confusa* Rolfe  
Archer PG 713; Bytebier B *et al.* 110, 113,  
132, 133  
2400–2652 m  
*Polystachya piersii* P.J.Cribb  
Bytebier B *et al.* 101; Archer PG 709  
2350–2350 m  
*Rangaeris amaniensis* (Kraenzl.)  
Summerh.  
Bytebier B *et al.* 142  
2250–2250 m