

THE FOREST TYPES OF MOUNT

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FOREWORD.

The accompanying map is a compilation from Department sheets and maps in possession of the Department. I am indebted to Mr. G. Fairbridge, Forest Station for his amendments on the forest types on the Kenya side, and to the Commissioner of Uganda for permission to publish this paper.

GEOGRAPHICAL NOTE.

Mt. Elgon, the Masaba of the Baganda and the Terriet of the Sebei, is a large, ancient, so-called mountain is approximately fifty miles long from north to south, including the Nkokonjero "peninsula," about twelve miles long. The "peninsula" is a ridge, about twelve miles long, rising to over 7,000 ft., jutting out in a westerly direction from the mountain towards Mbale. The summit of the peninsula is an old volcanic crater. The rim has largely been eroded, the odd remaining portions are in the neighbourhood of the summit. The highest point, Wagagai, 14,178 feet, is in Uganda. The boundary peak, is only some sixty feet lower than the summit of the crater is at about 12,000 feet. The whole mountain is crossed by the boundary stream, the Suam. In the North the mountain slopes gently to 6,000 feet, but becomes precipitous in places to the plains' level of about 4,000 feet. To the West and South-West, excepting the Nkokonjero peninsula, the slopes are steep down to the general level of the country, 4,000 feet to 5,000 feet. The slopes to the East and the South, are far more gradual. Bluffs occur at the ends of lava flows. To the south the mountain falls away to the general level of the Trans-Nile valley. In the South the slopes are more prolonged.

hood of 60 inches. The main rainy seasons are in May and in November, but the only droughty time is from February to March. Being an isolated mountain deposition from dew must be considerable. For reasons of clarity numerous streams coming off the mountain have not been shown in the accompanying map. It may be as well to state that the water supplies of a very large region are derived from the mountain and it is absolutely essential for this and climatic reasons to preserve the Elgon forests. No temperature figures are available. The crest of the mountain is well below the permanent snow line.

FOREST TYPES.

To understand the present forest edge it is necessary to remember that the slopes of the mountain from Butanda in the West round the North to Chemilil in the South-East have been inhabited by cattle owning peoples who fired the grasslands regularly and gradually pushed back the forest edge. (The Baguishu removed themselves from the Trans-Nzoia on the rumour of the approach of Europeans.) The Baguishu in the South and the West are cultivators, who before the advent of European coffee arabica and arabica coffee had little need to cultivate at high altitudes. Forest destruction from 6,000 feet to 7,000 feet has been very recent.

The following tropical woody vegetational types according to Burt Davy's classification would appear to be present:

- Alpine elfin woodland,
- Montane bamboo forest,
- Upper montane rain forest.
- Savanna woodland, and possibly
- High montane conifer forest and Lower montane rain forest.

These headings are insufficient to describe adequately the position of the Elgon forests, so I have subdivided

1(a). *Alpine Elfin Woodland—Upper Moorland*

This zone from 11,500 feet to the summit shows the absence of all bush and tree growth, with the two arborescent *Senecios*, *Senecio gardneri* and *Senecio sisymbrioides*. The former species only occurs above 11,500 feet, the latter certainly grows at 10,000 feet, and probably at higher altitudes. Both species attain a height of 25 feet. The shaped *Lobelias*, though not woody, are remarkable in form, resembling a cabbage, but the robust forms are sometimes six feet tall. The shaggy *L. elgonensis* is spread above 11,000 feet, but *L. elgonensis* is in swamps above 11,500 feet and to take the place of *L. elgonensis* at those altitudes. The low woody bush of *argyrophylla*, is common in the lower part of the zone, particularly in the crater. It is about one foot high and occurs in extensive masses. Small *Helichrysum* is throughout.

1(b). *Alpine Elfin Woodland—"Heath" Zone*

"Heath" is something of a misnomer, and the most striking woody plant is the *Compsotheca mandsharica*. However as this is associated with *Compsotheca* usually mistaken for one the name had better be *Compsotheca*.

The upper and lower limits though shown at 11,500 feet and 10,000 feet, are in reality far from fixed. Trees such as *Hagenia* often occur at 10,500 feet. They will be considered in the next zone. The moorlands are partially inhabited by a cattle-keeping people, who are an administrative and forestry people. The alpine bred cattle cannot survive at lower altitudes. The infested country, and the burning of the moorland glades for grazing is not in the best interests of the country.

1(c). *Alpine Elfin Woodland—Upper Bamboo Transition*

This zone is somewhat indefinite. Between 9,500 and 10,500 feet is something of a no-man's land, with bamboo, and various timber species striving for dominance. It does not on Elgon emerge abruptly from bamboo forest to heathland, as one does in many parts of the Aberdare. In glades with a poor soil cover heath species are to be found as low as 9,000 feet. Normally the bamboo thins out above 9,000 feet, and small timber trees occur to a greater or lesser extent. The timber trees may be placed in two categories: one of those that thrive, and the other of those trees whose optimum is much lower. In the first class are *Hagenia*, *mintica*, whose timber is of some merit, *Dombeya*, which also grows quite happily at 7,500 feet, *Pittosporum sinicum*, *Cornus volkensii*, and less commonly *Faurea* and *Agauria sailcifolia* var. *pyrifolia*. In the second class *Podocarpus milanjanus*, *Olea hochstetteri*, *Pygeum* and *Ilex mitis* var. *kilimandscharica*, and *Cassipourea elliptica*. The commonest tree is undoubtedly *Rapanea neurophylla*, which is usually not more than 25 feet high.

2. *Montane Bamboo Forest.*

The bamboo, *Arundinaria alpina*, occurs on Elgon between 7,000 feet and 10,000 feet, but does not grow gregariously below 8,000 feet. Above 9,500 feet height growth falls off, and the species stated above timber species are intrusive. It will be seen from the accompanying map that I have in the East African bamboo belt as between 9,000 feet and 10,000 feet. The bamboo is far less dense on this side of the mountain, and the forest to be found at 8,000 feet it occurs in clumps and patches, and by no means dominant. Bamboo must need a rainfall of at least fifty inches to develop luxuriantly at this altitude. In the bamboo belt only occurs in restricted patches. In the

are large enough to raise the ire of the uninformed to the cause to careless use of fire. These dead trunks become covered with a strong growth of branched shrubs such species as *Hypericum leucoptychodes*, and *Impatiens* spp. I imagine that the odd time the bamboo seed themselves in this period.

3 (a). Upper Montane Forest—Mixed *Pygeum*

The change from the *Malacantha* forest (3) as I have shown on the map. The forest from Sipi is transitional. It is not so well marked as the *Ocotea* and coniferous forests on the East side on West Mt. Kenya, where stands of pole *C. C.* occur. That species is however plentiful. Other species are *Albizzia gummifera* (the *Albizzias* of the north), *Ekebergia rueppelliana*, *Allophylus guineense*, *Pygeum africanum*, *Xymalos*, *aria battiscombei*, and *Rapanea neurophylla*.

The typical forest from beyond Sipi to the river is good in parts. Excellent patches of the trees *Pygeum africanum* and the Elgon Olive, are to be found. Other than these two species trees are *Ekebergia rueppelliana*, *Allophylus nopylis congesta*, *Dombeya goetzenii*, *Rapanea*, *Podocarpus milanjanus*, *Olinia usambarensis*, *Euphorbia* sp., *Neoboutonia macrocalyx*, and *ensis*. At higher altitudes, from 8,500 feet *Ilex mitis*, *Hagenia anthelmintica*, *Olea hochstii*, *phylla*, and *Pittosporum abyssinicum* appear in quantities. Small trees and shrubs which occur are *lucida*, *Scutia myrtina*, *Pavetta silvicola*, *Lasianthus* (on rocks), *Gymnosporia* spp., *Dombeya*

bamboo, in the South and the South-West. In the South neighbourhood of the Lwakaka river there is a very good stand of *Macaranga kilimandscharica*, but I do not know how far eastwards it extends. Associated with the *Macaranga* are *Conopharyngia holstii*, *Xymalos monospora*, *Allophylus abyssinicus*, and *Trichilia b Buchananii*. In the South-Western highest part of Nkokonjero the *Macaranga* though very common is less obvious. The most striking plant is the *Cyathea deckenii*, which occurs in patches on the high mountain thus demonstrating the heaviness of the rainfall in the high mountain. Bamboo occurs in restrained patches. Other trees to be found are: *Neoboutonia macrocalyx*, *monospora*, *Hagenia anthelmintica*, *Pygeum africanum*, *flera volkensii*, *Cassipourea elliottii*, *Trichilia b Buchananii*, *Allophylus abyssinicus*.

3 (c). Upper Montane Forest—*Malacantha* Forest.

Malacantha sp. nr. *M. alnifolia* (late *Cola* sp., and *Cola adolfi-friederici*) is the Muna of the Akikuyu. It is a large tree of large size, growing between 5,000 feet and 6,000 feet, and may represent one quarter of the stand of trees in some parts of this sub-formation. Associated with it are *Syzygium guineense*, *Neoboutonia macrocalyx*, *Alantaria africana*, *Casearia battiscombei*, *Strombosia grandifolia*, *africanum*, *Allophylus abyssinicus*, *Croton macrostachyus*, *fulva*, and/or *P. kikuyuensis*, *Albizia gummifera*, *pharyngia* sp., *Schefflera abyssinica*, and less common *Macaranga macrophylla*, *Bosquiea phoberos*, *Olea welwitschii*, *rueppelliana*, *Anthocleista* sp. (possibly *A. pulcherrima*), *zygia*, or *A. grandibracteata*, *Podocarpus milanjanii*, *Kigelia aethiopica*.

This type of forest stretches from the Sosia River in the South-East to near Sipi in the West. The nearer the

classification would be silly. The *Entandrophragma* is a colossal tree, but does not appear to grow above a certain altitude. The tree occurs in restricted localities in the valleys, from the Muyembe valley in the North-West to the hill in the South-West. This type of forest probably existed at Bugishu at one period.

4. Higher Montane Conifer Forest.

This forest formation is characterised on the slopes of the *carpus gracilior*. Though this species occurs South of the (Samaki) river, below the forest line, the forest becomes coniferous until the northern slopes of the mountains are reached. The change is quite sharp. The forest extends as far south as the Kibusi river. The other trees of this type of forest are: *Ekebergia rueppelliana*, which is of a very large size; *Olea welwitschii*, in somewhat smaller quantities; *Teclea nobilis*, *Celtis kraussiana*, *Olinia*, *Lachnopylis congesta*, *Dombeya goetzenii*, *Rapanea*, *Cassipourea elliottii*, *Allophylus abyssinicus*, and *Albizia hochstetteri* and *Ilex mitis*, and in some places *Podocarpus phylla*. At high altitudes *Cornus*, *Pittosporum*, *Hagenia* and *Schefflera volkensii* appear. *Wych* *cladus malosanus* is common in some places but disappears whilst above that altitude bamboo occurs.

The forest in the Bukwa, Suam, Kaptega, and other valleys differs from the typical in that the *Podocarpus* and Olive in an undergrowth of *Wych Hazel* are not present. *abyssinica*, *Croton macrostachys*, *Ochna holstii*, and *Podocarpus phylla*. This sub-type probably does not go higher than 10,000 feet. The other trees of the formation of course are present.

5. Savanna Woodland.

This heading for the purpose of this paper is intended to cover the formation of the savanna woodlands.

On the rest of the mountain besides the remnant forest flora, chiefly along streams, there is a fine savanna tree growth. At Sipi from 6,000 feet to 7,000 feet scrub is of a wet type and the following plants are to be found: *Entada abyssinica*, *Acacia seyal*, *Ekebergia rueppellii*, *barbatus*, *Ocimum rothii*, *Vangueria* sp., *Vernonia hololoba* sp., *Acanthus arboreus*, *Erythrina tomentosa*, *nairobensis*, *Cassia didymobotrya* *C. petersiana*, *C. Maesa lanceolata*, *Bersama engleriana*, *Clerodendron stonii*, *C. rotundifolium*, *Sapium ellipticum*, *Albizia gummifera*, *Schefflera abyssinica*, *Buddleja polystachya* sp., *Abutilon zanzibaricum*, *Phytolacca dodecandra*, *abra Euphorbia*, and bracken.

Corresponding with the change in the type of savanna flora from Sipi to Sabei also changes. The *Sapium*, *Schrebera*, *Erythrina*, *Acacia seyal*, *Cassia* and *singueana*, and the *Ekebergia* are still represented. The following appear (6,000-7,000 feet): *Vitex cuneata*, *arborea*, *Flacourtia hirtiuscula*, *Hymenodictyon flabellatum*, *Rhus abyssinica*, *R. incana*, *Syzygium mambwaense*, *tum gueinzii* subsp. *splendens*, *Carissa edulis*, *Euclea speciosa*, *Trimeria bakeri*, *Strychnos* sp., *Dodonea viscidiflora*, *bretum binderanum*, and *Osyris abyssinica*.

The country gets still drier from Sabei to Kaburon (North-East). *Gymnosporia senegalensis*, *Euclea* sp., *tum gueinzii*, *Acacia seyal*, *Rhus incana*, *Hymenodictyon flabellatum*, the *Osyris* and *Erythrina tomentosa* are the most characteristic species. *Dombeya quinqueseta* appears: *Cedrela* is found near Kaburon; and also there near the forest line the topped *Acacia lahai* is a feature of the landscape.

From Kaburon to Kyesoweri between 6,000 and 7,000 feet the country becomes a little wetter. *Celtis* is

cana, *R. natalensis*, and less commonly *Faurea madiensis*, and *Ximenia americana*.

On the South the land slopes away to the west. In the N. Kavirondo country and the typical Eastern Uganda savanna becomes dominant. This flora is different from the preceding one. *Combretum* *C. gueinzii* subsp. *splendens*, *Terminalia spekei* and *V. fischeri* are perhaps the commonest trees, and the following are represented: *Cussonia arborea*, *Steganotheca* *Rhus incana*, *Stereospermum kunthianum*, *Hedyotis* *Grewia* spp., *Bauhinia thonningii*, *Flueggia micrantha* *chrysopylla*, *Lannea barteri*, *Erythrina tomentosa* *tirucalli*, *Bridelia ferruginea*, *Gymnosporia senegalensis* *Gardenia jovis-tonantis*.



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