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Autor: Katende, A.B.
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The problem of plant conservation and the endangered plant species in Uganda

A. B. KATENDE

Abstract

Katende, A. B. (1976). The problem of plant conservation and the endangered plant species in Uganda. *Boissiera* 24: 451-456.

The author presents a summary of the nature conservation problems in Uganda. A conservation programme is outlined.

Résumé

Katende, A. B. (1976). Espèces menacées et conservation des plantes en Ouganda. *Boissiera* 24: 451-456. En anglais.

L'auteur présente un résumé des problèmes de conservation de la nature en Ouganda. Il en esquisse un programme.

In the Proceedings of the 6th Plenary Meeting of AETFAT (Hedberg & Hedberg, 1968) which was held at Uppsala in September, 1966, Osmaston (1968) presented the geography, climate and vegetation of Uganda. Among other things he gave an exposition of land cover, plant associations in general, those already protected, and National Parks. Further he gave an analysis of the forest reserves and the ways in which different vegetation types were protected. He also pointed out other plant associations requiring protection and noted the slaughter of some of these types and showed us those which looked secure at that time. He concluded by recommending the creation of nature reserves within National Parks, an addition to the Forest Policy, and amendments to the Forest Ordinance and Rules (1948) in line with the desired criteria. In that light, the present paper has been brought about. It is the result of the writer's experiences during fourteen years as a forester exploring most of the forests, woodlands and grasslands of Uganda and of his extensive travels during four years in all corners of this country in view of collecting plants for the Herbarium of the Botany Department, Makerere University, Kampala. In the following text, his observations on the vegetation of Uganda with respect to plant conservation will be presented.

Uganda is a developing country and the problem of plant conservation must be seen in relation to land-use and in connection with social and economic progress. In many respects, the history of land-use in Uganda shows tendencies towards destruction rather than towards conservation of the natural vegetation and fauna. As a nature conservation programme is lacking, the agricultural system and planning at large have been left to take their own ways. Natural vegetation types like grass-

land, woodland, swamp, and forest are gradually being replaced by food and cash crops such as rice, maize, cotton, tea, coffee, and many others. Apart from the reserved forestry land, there is little natural vegetation left behind in arable land. Even the reserved forestry areas have had a set back. Because of the need for more workable timber, forest reserves in grassland, woodland, and mountain forest have been destroyed and replanted with monotonous exotic soft wood trees such as *Cupressus lusitanica* Miller, *Pinus patula* Schlecht. & Cham., *Pinus caribaea* Morelet, and many others. The concentration of big game in the parks has reduced the natural vegetation to semi-artificial grassland as a biotic climax. The town expansion has resulted in the destruction of natural vegetation, only to be replaced by introduced or "artificial" ornamental herbs, shrubs and trees. A town planned with nature conservation in mind, should have natural surroundings where urban people can find recreation and admire nature's design and tranquility. A good example is the Nairobi National Park where the game tends to be proportional to the vegetation and which attracts many people from all walks of life in Nairobi City. Although Uganda has only few factories, the adverse effects of industrial fumes on plant and animal life are evident around the copper smelting factories at Jinja (0°23'N, 35°15'E) on Lake Victoria and especially at Kasese (0°8'N, 30°4'E), on Lake George where vegetation and aquatic fauna are dying from the effluents. The mining and urban industries have had heavy demands on fuel and timber from the forests and this has led foresters to plan for increased production in the shortest possible time. This has resulted in the present silvicultural practice according to which timber exploitation is followed by charcoal burning or tree poisoning, the area later being planted with pure stands of quick-growing species which offer nothing natural. Never does a vegetational survey seem to have been carried out prior to any habitat alteration. The result is that rare and scientifically valuable plant associations or species have been destroyed without a record behind. This paper aims at pointing out various existing ecosystems with endangered plant species and at suggesting possible methods in order either to stabilise or to preserve them.

As the population of Uganda increases and, as a consequence also the demands on land, the following associations and rare plants are threatened by extinction (cf. Fig. 1).

Grassland

This vegetation type consists of grass and sedge communities. Two types are recognised here, namely, lowland and mountain grassland. In the lowland, there is hardly any natural area left. In many parts of the country, agriculture has completely taken over and the rest has been left to either dairy farming or ranching or to National Parks. Many formerly common grass and other plant species have disappeared and become rare, and the only surviving specimens are found in a few still untouched patches, e.g. on hill tops and the like. In South-West Uganda and on Mount Elgon, montane grassland has been destroyed. Representative remnants of these plant communities can only be found on the Ruwenzori and Imatong Mountains or on others, where agriculture and dairy farming are less prevalent. In this quickly dying vegetation type the following plant species are in danger of extinction: *Equisetum ramosissimum* Desf. so far only found on the foot hills of Ruwenzori (0°17'N, 30°2'E), *Ophioglossum gramineum* Willd. recorded only

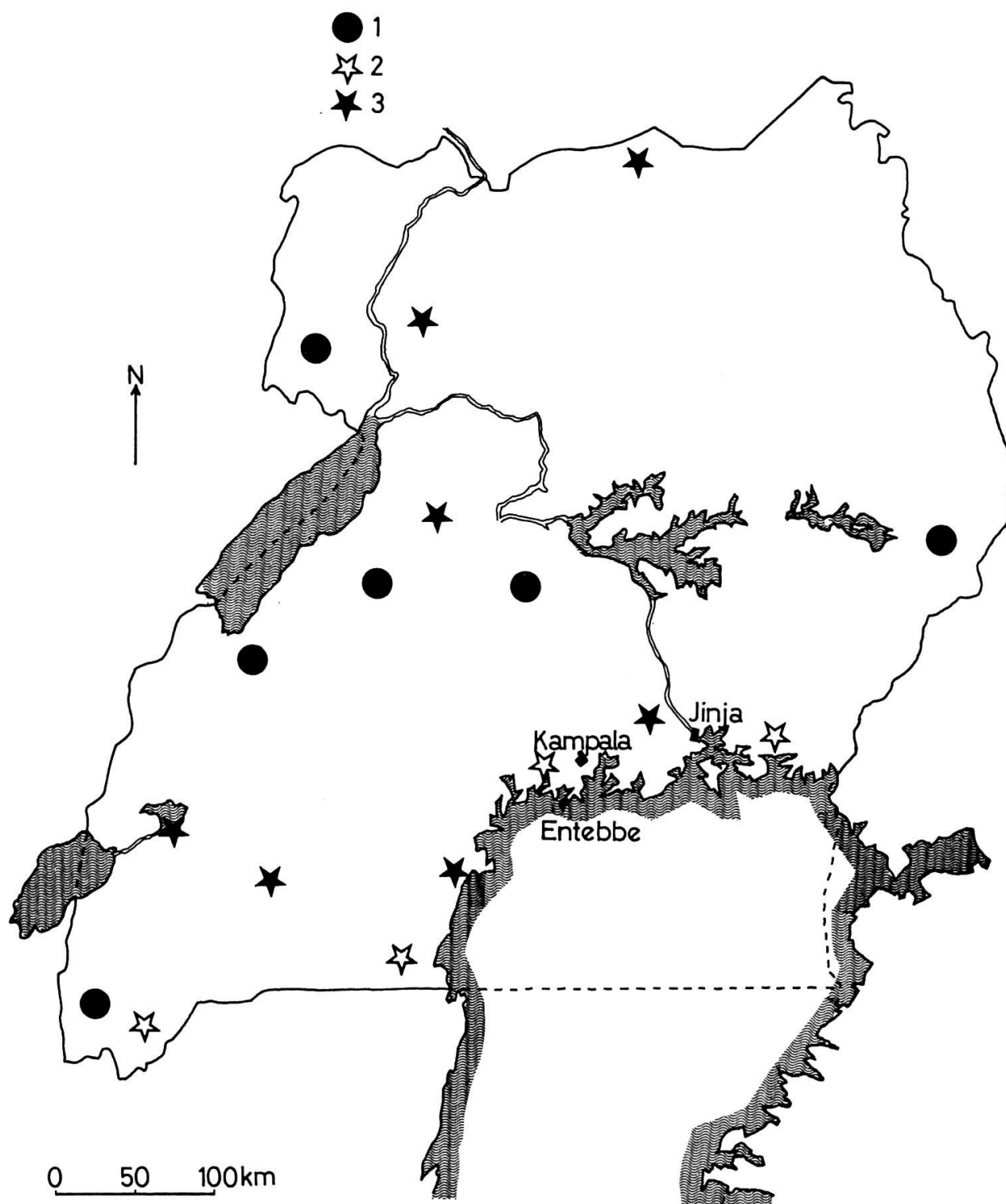


Fig. 1. - Map of Uganda indicating:
1, areas planted with exotic trees; 2, drained swamps; 3, areas where the vegetation is in immediate danger.

from the Rubare Ridge ($0^{\circ}18'S$, $30^{\circ}10'E$), *Encephalartos laurentianus* De Wild. occurring between rocks and cliffs and now threatened by the southward extension of cultivation and homesteads between the mouths of the Mpanga and Dura Rivers ($0^{\circ}3'N$, $30^{\circ}17'E$). Also found in these grasslands are multitudes of ground orchids and sedges, some of which are very rare. Therefore, the complete or even partial use of these grasslands means the end of their existence.

Swamp

Two types are recognised, namely seasonally and permanently flooded swamp. The plant communities of these sites include aquatic grasses, sedges, insect-eating plants, and other large-leaved water plants. Indiscriminate swamp drainage will wipe out the following plant species: *Cyperus papyrus* L., which is very common in most of the Uganda swamps, could disappear if such areas were put to agriculture and dairy use; one cannot imagine a Uganda swamp without this species; *Loudetia phragmitoides* (Peter) C. E. Hubbard and *Miscanthidium violaceum* (K. Schum.) Robyns, may dominate some of the Uganda swamps where they root in the mud. A few and rare orchids such as *Nervilia petraea* (Pers.) Summerhayes now known from one locality situated at $0^{\circ}20'S$, $31^{\circ}47'E$, may occur in this type of habitat. In 1935, this particular species was recorded around Kampala City in a swamp situated 0.5 km east of Rubaga Cathedral but it has since disappeared because of drainage. In the same vegetation type representatives of the families *Alismataceae*, e.g. *Limnophyton* spp., and *Droseraceae*, e.g. *Drosera* spp. as well as other aquatic plants such as *Vossia cuspidata* (Roxb.) Griff., and *Echinochloa pyramidalis* (Lam.) Hitchcock & Chase, are commonly found bordering open waters, partly floating, and rooting at the nodes to sand and mud.

Generally, swamps have more to offer scientifically than open grasslands. In Uganda, the Lake Nabugabo swamp ($0^{\circ}20'S$, $31^{\circ}50'E$) has been listed as an International Scientific Site requiring immediate protection but so far there is no indication that this has been done. Instead a commercial "hide out" or hotel with several scattered houses has been opened, thus encroaching on the area.

Woodland including bushland and the NE Steppe

From a practical point of view, two types are recognised, namely open and closed woodland. In these plant communities rare and valuable plant species exist. Demand for fuel, timber and agricultural land has had an impact on the natural environment in various areas of the country. It is in these ecosystems that the life of tree orchids begins. The destruction of them would lead to the disappearance of plant species adapted to these sorts of habitat. The species mentioned below are specially endangered.

Dalbergia melanoxylon Guill. & Perr., commonly known as the African ebony, is a highly valuable species because of its hard black wood. It is found in open woodland of the Butiaba Flats, in NW Uganda and at Karamoja. *Lophira lanceolata* Keay is found in the closed *Isoberlinia-Daniellia* woodland of NW Uganda. Commercially seen, this tree is a potential source of oil. *Butyrospermum parkii* Kotschy is a tree reputed for its commercial shea-butter and which is found in closed

Terminalia woodland in NW and E Uganda, and to a limited extent in Central and Southern Uganda (the Buruli area). Its survival will of course depend on the value set on the shea-butter. *Dalbergia nitidula* Baker is so far recorded only from open woodland south-east of Rwampara in Western Uganda (0°50'S, 30°25'E).

Forest including thicket

Once more, two types are recognised, namely montane and lowland forest. In the former some rare plants are represented, such as *Podocarpus*, *Juniperus*, *Olinia*, *Trichilia*, *Leplaea*, *Strombosiopsis*, *Brazzeia* and other montane trees, shrubs and herbs. In this vegetation type, *Leplaea mayombensis* (Pellegr.) Staner, *Strombosiopsis tetrandra* Engler and *Brazzeia longipedicellata* Verdcourt are threatened by "Taungya" which is a silvicultural method whereby natural forest is cleared and planted with agricultural crops and later with introduced tree species. The taxa listed above form a mixture of West African plants found only in an area around the cross of the co-ordinates 0°52'S and 29°43'E. The continued conversion of the forest will surely destroy the above-mentioned taxa and others, too. In the lowland forest there are plants which are restricted to certain areas by virtue of zonation or mosaic structure within the forest community. So they are either absent or rare in one forest or the other. For example *Discoglypsemna caloneura* Prain, a plant which escaped Eggeling's eyes (Eggeling, 1940, 1947), occurs in the centre of the Budongo Forest in Western Uganda (1°46'N, 31°32'E). There are other interesting species, too, belonging to the forest floor, and also there are orchids which are still poorly known. Although the Uganda Forest Policy and Forest Ordinance and Rules (1948) protect forests in many ways, the authorities are much more inclined to consider the economy of the country than the conservation of nature. The present establishment of nature reserves within national parks and forest reserves is geared to that end. They are far from being true representatives of the natural flora of any forest type.

In conclusion, the following steps are to be taken in order to protect our natural environment (cf. e.g. Dasmann, 1959; Langdale-Brown & al., 1964; Nicholson, 1968), namely that:

1. Natural conservation committees be set up working in close connection with the Government Departments and experts from the International Biological Conservation Committees (IBP, etc.). These should encourage the formation of conservation movements or groups which should be made known to the public through the mass media.
2. Conservation subjects be introduced in Schools, Colleges and University curricula.
3. A training programme for conservation officers be started at both high and low level to meet the challenge of conservation problems.
4. A stock mapping of all major plant communities as outlined be started and all the rare plant species listed. These rare plant species should be protected naturally or by bringing them into arboreta.

5. Wherever possible, scientifically interesting ecosystems such as grassland, woodland, and forest, be declared nature reserves. But the forest nature reserves should take the form of mosaic structures in order to include all forest populations.

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