

# 5 Fire Protection and Pest Control

## Early Burning

In accordance with Government policy, all savanna forest reserves were early burnt in 1951 except the Kaduku reserve in Bunyoro where a Tsetse Control late-burn was permitted. A carefully controlled burn of the Lakure valley in the Imatong mountains in Acholi was carried out in 1952 which was reported to have had the desired effect of dissuading game from retreating there in the dry season. In spite of the intensity of the 1952/53 drought, the stream flow was not unduly lowered.

Early burning is carried out in savanna to encourage thickening of the woody cover. These areas are burnt as soon as the grass has dried out sufficiently for the fire to take and therefore the timing of the early burn is controlled by climatic conditions. The standard of early burning was by no means satisfactory in many areas in the mid-1950s and it was obvious that if this operation was to be silviculturally effective, it should be carried out under close supervision and over a much longer period of time. Departmental Standing Orders on early burning were therefore revised and consolidated.

In 1959/60 early burning was carried out successfully in all savanna forest reserves except for two which were late burnt for reasons of tsetse control. The total area concerned was about 1,700 sq m (4,400 km<sup>3</sup>) which cost about £450. For the next three years, completion of early burning was delayed due to rain in November/December but nevertheless results were satisfactory. In 1964 early burning was restricted to Karamoja reserves and around the edges of Budongo natural high forest where advance and thickening of woody vegetation was considered to be essential. Early burning in other reserves was discontinued.

## Fires

During 1951 the abnormal rainfall experienced over most of the country resulted in relatively little fire damage though maliciously set fire destroyed 48 acres (20 ha) of plantation at Mpanga. Some damage was also caused to plantations at Tororo, Nagongera and Nyabirongo (Toro). Fires were reported on the moorlands of Mt Elgon.

Damage to plantations the following year was also happily at a low level but in the

Northern and Eastern Provinces a period of serious fire hazard developed towards the end of the year which was intensified in early 1953. In 1952 by far the most serious plantation fires occurred in the mvule planting areas at Abera and Opit where fire swept over 280 acres (110 ha) of plantation. All young burnt stems were cut back and coppice regrowth had already begun to appear by the end of the year. In 1953 extensive fires broke out in fuel and pole plantations at Gulu, Soroti, Mbale and Tororo. Although damage was not always severe, it was obvious that periods of abnormal fire hazard called for abnormal control measures and the whole question was reviewed. The improved protection methods introduced were apparently successful because damage was not significant in the 1953/54 fire season.

In spite of the abnormal and prolonged drought over the next few years which affected most districts, only 26 fires were reported and none did serious damage. This was very fortunate and in the softwood plantations particularly was largely a matter of luck as fire control measures and equipment in those areas were far from adequate.

It was encouraging to record that at one small fire in the Kyehara softwood plantations, the local people turned out voluntarily to help extinguish it. On the other hand, deliberate arson at night was the cause of several fires in the Soroti fuel plantations.

The drive to improve fire control measures in the softwood plantations continued and good progress was made. There was a great improvement in the firebreaks in all areas, roads and tracks were extended, lookout towers erected and fire protection plans overhauled. The cost of these works was not excessive – fire protection expenditure in softwood plantations worked out at about 6% of the standing value of the plantations, not an excessive insurance to pay. Despite the generally severe dry season in 1959/60, only about 20 fires were reported and the damage was very small. The following dry season was long with a high fire risk. Thanks to keenly applied control measures, the fires reported in the coniferous plantations caused little damage.

Due to the prolonged rains the fire hazard the following year was low throughout the year and there were no fires of any importance. Fifteen small fires occurred during 1963/64, the largest being four acres (1.6 ha) of musizi in West Mengo and sixteen acres (6.5 ha) of research plots at Abera. Some of the fires were set deliberately by local people with a grudge against the Department and others were due to carelessness by graziers. Though small in size, the loss of research plots was a serious matter particularly those which formed part of a replicated series and special measures were adopted to protect them from fire.

In the following year the fire season was a very mild one and there were no large fires. The most annoying loss was at Lututuru in the Imatong Mountains, where three acres (1.2 ha) of trial plots comprising one acre each of promising one year old *P. radiata*, *P. massoniana* and *P. caribaea* were deliberately burnt by a disgruntled employee.



PLATE 16

PLATE 16 Collapse of mature *Celtis kraussiana* in the Kibale Forest due to rot caused by repeated stripping of the bark by elephants. Abundant evidence from here and other forests showed that productive forestry and resident elephants are incompatible. This may have contributed to the dominance of *Cynometra* (which is not damaged by elephant) in some forests.

(H.C. Dawkins, 1956 Annual Report)

PLATE 17 An example of felling damage in natural forest. The two crowns falling together and the subsequent extraction activities will devastate the existing regeneration on about a fifth of an acre (0.1 ha).

(Department of Information, 1957 Annual Report)

PLATE 18 Electric fencing in Kibale Forest to try to keep elephant and buffalo from damaging regeneration in felling gaps, using barbed wire at 5ft 6in (1.6m) height and plain wire at 2ft 6in (75 cm), charged by Wolseley battery-powered units. This was unsuccessful and for decades the regeneration continued to be damaged and the herbaceous climber tangles perpetuated. Now, half a century later, trees have re-established over much of the area, but with low stockings of formerly abundant desirable timber species such as *Piptadenia buchanani*. R.P. 348.

(R.A. Plumptre, 1958 Annual Report)



PLATE 17



PLATE 18

## Mammals

(Plates 16–18)

In high forest areas in the Western Province, elephant and sometimes buffalo continued to be a source of concern to gangs working on boundary demarcation or on roads in the forest. Buffalo and elephant showed their aversion to boundary markers by damaging *Dracaena* and sisal planted for that purpose in Mubende and North Mengo.

With the disappearance of bush for agriculture outside forest reserves, pressure on western high forest reserves increased dramatically – later on, national parks were also affected. The extent of damage by elephant on valuable trees in high forest areas was studied in the Budongo and Kibale forests. In the latter, as the result of a safari by the DFO and two Game Rangers, it was reckoned that the resident elephant population might have reached the astonishing figure of 3,000 animals. The effect of herds of such magnitude on the full utilisation of these forests was a problem requiring far fuller study.

In Budongo, it was estimated that 34% of the surviving stripling mahogany planted in 1946/47 had been damaged. In 1956, as a result of TSI operations, the damage increased to an almost catastrophic extent. The estimated 100,000 young mahoganies reacting vigorously to the treatment were threatened with destruction and valuable experimental plots were completely destroyed.

Similarly, enumerations in the Kibale forest demonstrated the magnitude of the damage. About 81% of all timber-sized *Lovoa* had severe bark damage reaching higher than 6 ft (1.8m) from the ground and 25% were entirely girdled. It became necessary to delay any attempt at silvicultural treatment of this valuable forest until suitable elephant control measures could be put into force.

Trials had been made over several years with electrified fencing at Katwe, Budongo and Kibale but difficulty with maintenance reduced their efficiency considerably although, at first, results had been promising.

Culling by shooting was tried out and over 600 elephants were shot over a seven-year period – with limited success in spite of a ministerial directive for control operations and a plan of campaign having been drawn up. Because control in Kibale forest would, as it extended southwards over the reserve, have some effect on the conservation of elephant in the nearby Queen Elizabeth National Park, proposals were drawn up for a study of the ecology of the elephants in that area and the extent to which their conservation depended on the forest.

Funds for the project were provided in 1961/62 by the National Science Foundation (USA), the New York Zoological Society and the Uganda Government and Dr I. O. Buss and L. D. Wing were recruited from Washington State University to carry out the investigation. An interim report was published at the end of 1963 which stated that a very rough estimate of the elephant population in the forest in August 1963 was 2,500, i.e. over 12 to the square mile (2.6 km<sup>2</sup>). The report on their work over two years was received in 1967 and contained a mass of data on the seasonal distribution of elephant in the forest, the species which they ate, the areas they favoured and estimates of population size but, unfortunately, the report was found to be of little practical value for planning control.

When, halfway through the project, funds were getting low and Dr Buss was discussing with the writer of this history where additional funds might be obtained to finish the project, it was a revelation to be told by him that as an officer in the US Navy during the war, he might be able to get financial assistance from this source. Unfortunately, the Navy was not put to the test.

Other big game pests were lion which gave considerable concern to labour gangs opening the boundary of the South Ankole reserve. In Toro, a leopard impaled himself on the cut stems on a road trace in the Kibale forest when jumping down from a tree. Hippo destroyed part of the arboretum at Kimaka (Jinja).

The major pest of softwood plantations continued to be rodents and it was obvious that particular attention would have to be paid in those areas to induce by appropriate silvicultural techniques, habitat conditions unfavourable to the maintenance of high rodent populations. As an indication of the extent of the problem, the bag of rats trapped at Mafuga in 1955 was 17,650. The PFO decided that introduced predators might be helpful and arranged for the resident ratters to be supplied with pairs of cats drawing cat allowance and, possibly, a kitten bonus. But in their customary way, the introduced cats sought more comfortable quarters and did not seriously incommode the local rat population.

Close planting to secure early grass suppression was the most promising of the various measures tried though invasion from adjacent grassy areas would still remain a problem. The PFO wrote up the results of three years control work covering trapping, poisoning and hunting and though increased catches were achieved, damage was more lasting and more severe than any experienced in Kenya and continued so until the end of this historical period.

## Insects and Fungus Diseases

Termites continued to be a nuisance in 1951 in plantations of *Eucalyptus saligna* and to restrict the possible range of this valuable species. In Busoga, treatment of mounds with a proprietary DDT emulsion was very successful in swampy sites where the termite population was concentrated below the large conspicuous mounds but less successful on drier sites with a more dispersed population.

Mvule gall, *Phytolyma lata*, continued to be a menace both in South Mengo and in the Lango/Acholi plantations. The mahogany shoot-borer, *Hypsipyla albipartalis*, did extensive damage to young mahogany, even in the nurseries. Overhead shade appeared to be the best means of combating this pest.

In 1953, an important first record in Uganda was the identification of *Oemida gahani* on *Podocarpus* sp in the Kaburoron area of the Mt Elgon CFR – an extremely serious pest in exotic conifer plantations in Kenya. It was later (1959/60) confirmed at Mpanga forest but not in softwood plantations. In 1963/64 Cypress canker *Monochaetia unicornis*, was found by the Plant Pathologist on *Cupressus macrocarpa* at Kabale and the use of this species was stopped. It was found later at Nyabyeya and Lendu. About 20% of the crop at the latter site was attacked but seemed to be recovering. The damage at Mafuga was also mild, due perhaps to the strain of the disease being a weak B strain. It was hoped that sound forest hygiene and prompt thinning would reduce the disease.

The importation of large quantities of untreated Podo and Cypress from Kenya for the construction in 1962 of the Independence stands on Kololo, drew attention to the dangers of the Kenya strain of the Cerambycid beetle, *Oemida gahani*, being introduced into Uganda. The Uganda *Oemida* which was common in the S Mengo forests was quite different in both appearance and habits from that found in Kenya and in view of this, and of the damage caused in Kenya's softwood plantations by their *Oemida*, it was decided to take steps to minimise the risk of live insects being brought into Uganda. As a result, an order was passed under the Plant Protection Ordinance prohibiting the import of Podo and Cypress from Kenya unless accompanied by a certificate stating that the timber had been inspected and found free of all traces of *Oemida* or had been treated in such a manner as to kill any insect present. The scheme worked well and resulted in a marked improvement in the quality of timber brought in.

An outbreak of defoliation by larvae of the Pinelooper Moth at Mafuga was controlled by an application of 10% DDT powder spread by a powerful duster. About 6–8 acres were defoliated.

In 1953, the PFO/NP suffered from an outbreak of carbuncles caused by a species of *Sporotrichosis*, a fungus common to man and gum trees. He reported 'though possibly indicating the increasing lignification of the PFO, he considered it a poor return for a life-time devotion to the genus *Eucalyptus*'.

There was a most unwelcome appearance in 1962/63 of the Dry Wood Termite, *Cryptotermes dudleyi*, a major pest of structural timber throughout the Pacific and Caribbean areas. It had first appeared in East Africa some years previously but had been restricted to a

narrow coastal belt where it caused severe damage to buildings in Mombasa, Dar-es-Salaam and Zanzibar. It had been hoped that the climate inland would be unsuitable for its development but the discovery of a thriving colony in the woodwork of a Nyabyeya Forest School bus that had not been out of Uganda for six years, showed that climate could not be relied upon as a protection.

Following 12 years' absence, the Eucalyptus weevil, *Gonipterus scutellatus*, was found at Mbale and Walulumbu near Jinja, seventy miles further west than any previous record. Checks on parasitism of the egg masses by *Anaphoidea* indicated that a major outbreak was unlikely.

In 1962/63 the *Fusarium* disease of *Maesopsis* and the Radiata pine needle cast, later identified as *Dothistroma pini*, a serious pest of *P. radiata* pine plantations in Kenya and Tanganyika (Tanzania), were recorded in small plots in Uganda, but not in the main plantation areas. It was most unlikely that the ultimate infection of all *P. radiata* plantations could be avoided, in which case further plantings of this species might have to be stopped. Two years later, *Dothistroma* was confirmed in most areas of the country, most seriously at Mafuga and Lendu where it caused considerable defoliation but few or no deaths. Field scale planting of *P. radiata* was stopped.