

#### X. CONSERVATION

(edited by H.P. Nooteboom; *continued from page 3919*)

Japanese fear to loose income. As result of Japan's strategy to exhaust the Southeast Asian forests before turning to its own sizeable reserves of timber now most of the forest in the accessible areas is gone. Japan imports more wood than any other country in the world. In 1980 it bought 55% of all the round wood, sawn wood, and plywood traded in the world. It also takes 54% of all exports of tropical hardwood, 86% of which come from South and Southeast Asia. Japan takes the lion's share of the exports from Indonesia, Malaysia, and the Philippines and a large proportion of the export from Thailand — which is nearly out of timber now — and Papua New Guinea. The Malaysian Department of Forestry forecasts that their remaining forests will be exhausted by 1990. The same will be the case with Indonesian forests at the end of the century or sooner.

Reafforestation is rare. Concession holders excuse their failure to replant by their leases being too short to offer an incentive. Plantations are being established at only one tenth of the rate at which forest is disappearing.

Indonesia has made a belated attempt to reverse the trend. Concession holders now have to post a performance bond which is held in escrow until they prove their ability and willingness to reafforest. A problem is that large areas are statistically reafforested but the seedlings fail to grow because they are planted without any shade, causing the mycorrhiza and

soon afterwards the — mainly meranti — seedlings to die. Lack of efficient personnel is the reason that the government has no means of control.

Pressure from the Japanese timber industry facing dwindling resources and — may be — a bad conscience about the environment are the reasons behind two new Japanese initiatives to secure the future of the remaining Southeast Asian rainforests. One initiative is a plan for the countries exporting or importing tropical timbers to form an organisation to regulate their trade. The new organisation could also funnel funds and expertise into projects for reafforestation, forest management, and the development of local industry in the producing countries.

Tropical foresters hope that the organisation would be a clearing house for information about research and training in forestry.

In the second initiative Japan's pulp manufacturers are preparing to spend US\$ 230 million to establish plantations of fast growing trees, such as *Pinus caribaea*, in selected countries. (From *New Scientist*, 16 Sept. 1982, reporting from a meeting of the British Association for the Advancement of Science in Liverpool.)

Comment: The *Pinus* plantation, which will only succeed when the soil is more fertile than it is in most places of Kalimantan, will be most profitable for the Japanese pulp mills. When the tropical rainforest is finished, the hardwood from that forest will be finished as well.

The Royal Society's rainforest program. The Royal Society and the Sabah foundation in Malaysia intend to establish a new field study centre in the virgin rainforest tracts of the Danum Valley. It is anticipated that the Danum Valley will be available for joint training and research under the Royal Society's program.

New Malaysian reafforestation program. A new 15-year reafforestation program for Peninsular Malaysia has been announced by the Government's Primary Industries Ministry. As planned the scheme will cover more than 200,000 hectares. The reafforestation programme is one response to the continuing loss of forest cover in Malaysia. To reinforce this effort the Government is also cutting back existing licensed logging operations and setting limits to industrial processing capacity. (From *Unasylva* 35, 1983, 38).

Comment: As seen from the photograph in *Unasylva* fast growing industrial species are used. Thus the reafforestation will not diminish the pressure on tropical hardwood.

Havoc to land and lives in Sarawak. A SAM (Sahabat Alam Malaysia, Malaysian Nature Friends) study of logging activities in the Baram District in Sarawak revealed that widespread logging had caused havoc to the land and lives of the people. In an area of 8,521 square miles with a population of 52,993 there are 20 timber licenses and 44 logging camps operating all over the district. Soil erosion and siltation have become serious problems — rural populations were finding their rivers choked with silt and fish life disappearing. The Sarawak Agricultural Department in its annual report stated that flooding and drought caused 12 million dollar worth of damage to farm crops, livestock, and property in

1981. The State Medical Services reported that 90,000 people were affected by diminished harvests. The revenue from timber in the whole of Sarawak will in the future not be enough to pay for the adverse results of logging. And what when there is no more forest left — and no revenues from timber? (From *Malayan Naturalist*, November 1983.)

Will all primary forests in Indonesia be destroyed? According to an article in the 'Jakarta Post' from 25 November 1983 the Director General for forestry, Sumarsono Marsoewidagdo, speaking at a hearing with Parliament Commission IV, said that of the entire 64 million hectares of productive forests (that is all the true forest there is left in the country) 15 million ha are still in good condition. The present system of selective felling does not guarantee a sufficient supply so that a resort has to be made to 'complete felling'. The program is that as soon as a forest section has been felled, the land will be reserved for new, orderly, selective planting so as to create 'culture forest'. From Dr. S. Sas-trapradja, Director of Lembaga Biologi Nasional, we got the information that the article seems somewhat misleading (as interpretations by journalists often are). She gave the official figures on forest area, recently published by the Ministry of Forestry:

a. Protection forest	30.3 million ha	(15.7%)
b. Conservation area (National Parks, Nature Reserves, etc.)	18.7 " "	( 9.7%)
c. Limited production forest	30.5 " "	(15.8%)
d. Permanent production forest	33.9 " "	(17.5%)
e. Total area of permanent forest	113.4 " "	(58.8%)
f. Production forest for conversion	30.1 " "	(15.8%)
g. Various land uses	49.5 " "	(25.3%)
h. Converted forest and other land uses	79.6 " "	(41.1%)
Total land area of Indonesia	193.0 " "	(100 %)

Indonesia looks at peat for new energy source (Jakarta Post, 16 Feb. 1984). Some 26 million hectares of land are covered by peat (and forest as well). Current efforts include a feasibility study for using peat as a cheap source of energy. As soon as the peat is removed the area can supposedly be turned into fertile agriculture land. Apart from the question whether the loss of such an area of forest brings about adverse effects on climate etc., it is not certain at all whether the soil under the peat is suitable for sustained agriculture without very expensive methods. Concluding the disastrous effects of this plan might be triple. First the yet not fully understood effects on the climate; secondly the peat has a high sulfur content and thus the large scale burning of peat will give an unprecedented pollution resulting in acid rain, currently one of the major environment problems in the western world and threatening to destroy forests and agriculture alike; and thirdly most if not all the soil under

the peat consists of acid clays that are not suitable at all for agriculture and thus the end of the project will be a lot of barren land or immense lakes (as most of the soil beneath the peat lies under sealevel). From the following it is clear that the peat even might burn during the dry season before it can be used as a fuel.

Severe drought causes fires in Kalimantan. From about May 1982 until about May 1983 East Kalimantan experienced a long drought, an unusual event for the area where usually the mean monthly rainfall is more than 100 mm. Fire broke out in late 1982, continued until around the middle of 1983, and burnt a large area of secondary forests, logged forests, primary forests, and agricultural areas. The Kutai National Park and the Kerisik Luwai Nature Reserve were reported to be partly ravaged by the wild fire. The origin of the fire was not known but 'ladang' burning was suspected to be the source. The extent of the burnt area is as yet not known, although the recent estimate (as published in newspapers) is about three and a half million hectares, the size of the Netherlands. The Forestry Department and the Mulawarman University are currently making an inventory. The effects of fire on the moist dipterocarp forest will be an interesting aspect to study. It is reported that islands of primary dipterocarp forest were saved, but that many mature dipterocarps farther inland, and not effected by the fire, died because of the preceding drought. Dr. S. Riswan, Mr. Razali Yusuf, and Miss Purwaningsih of the Herbarium Bogoriense recently investigated the fire effects on the primary and secondary forests in the permanent plots in Wanariset (near Balikpapan) and Lempaka (near Samarinda), which were established in 1979 and 1976 respectively. The results of the studies will be reported in due time. Dr. Mark Leighton of the Harvard University spent some time in the Kutai National Park in 1983 to investigate the fire effects in the area. The smoke resulting from the fires caused a haze which kept the heat in Singapore to the ground, causing a 35-year record high temperature of 38° C. Also in Brunei forest fires produced smoke, forcing Shell helicopters to stay on the ground because of reduced visibility. The real cause of the fires most probably is large-scale deforestation and the resulting decreasing rainfall and drying of the forest itself through direct insolation. As large tracts of the forests involved are peat swamp forest, drying of the soil after deforestation makes it extremely vulnerable to burning. As is known from the past in Europe, peat can burn underground and cause fires long distances away from the original source.

Sekundur Reserve will have a period of peace. The journal 'Waspada' reports that The Plywood Factory RGM Besitang in Langkat burned down on June 22, 1983. The damage to the factory is some billions of Rupias. The damage to the forest when the factory works is beyond calculation.

Road through Sumatra. Nearly 200 years after Daendels built the big postroad through Java, the Trans Sumatra Highway was built. This new road, length 2700 km, runs from Bakauheni in the south to Banda Aceh in the north. For economy and tourists of prime importance. And not to forget for transmigration. For nature a disaster. Probably a major part of the Sumatran tigers died during the construction, killed by road con-

structors and transmigrants. As there are intrinsic reasons for Java having a dense and Sumatra having a low population the waiting is now for the final results of many transmigration projects.

Floods hit Central Java (Jakarta Post, 3 Feb. 1984) and In S. Kalimantan ten villages submerged (Jakarta Post, 6 Feb. 1984). Also in Indonesia deforestation arouses large and costly problems. In Central Java around 10,000 people have been evacuated from 18 villages and 1900 houses were inundated. In S. Kalimantan the water level raised to 5 metres in ten villages. In E. Kalimantan about 1,000 tribal people were isolated by floods and threatened by starvation (Jakarta Post, 2 Feb. 1984). In West Java (Jakarta Post, 19 Jan. 1984) the Bandung floods caused a refugee total of 21,000 and a loss of 3.5 billion Rp because 10,000 ha of rice fields were under water. Too little rainfall caused nearly 4,000 transmigrants from all over Indonesia to return to their places of origin since 1981 (Jakarta Post, 5 Jan. 1984) and the rain caused heavy floods when it did come. All this is an already since long understood result of deforestation. In the long term it will certainly prove more profitable to conserve the rainforest than to cut it for short term profit.

A new Shorea from Java. In search for the rare *Vatica javanica* collected 40 years ago on the southern slopes of G. Papandayan, Dr. Kostermans visited the Leuweung (= Forest) Sancang Nature Reserve, east of Pameungpeuk on West Java's southcoast. The original nature reserve is reduced to a narrow strip along the coast and heavily disturbed. All the useful big trees are - illegally - cut and a great part is reduced to secondary forest where *Dillenia indica*, *Vitex pubescens* and in some parts *Corypha gebanga* are characteristic.

However, in the eastern part a small rest of intact primary forest was found with plenty of *Dipterocarpus hasseltii* Bl. Surprisingly a gregarious group of *Dipterocarpus gracilis* Bl., the trunks of which are indistinguishable from those of *D. hasseltii*, was found. Complete collections could be made. In this small patch of only a few hectares, *Heritiera javanica*, *Diospyros macrophylla*, *Bouea macrophylla*, *Dracontomelum*, *Dialium*, and *Spondias acidula* were found. And also the enormous hole of a dipterocarp, a *Shorea*, a *Parashorea*, or a *Hopea* as far as could be ascertained from below with a pair of binoculars and from fallen leaves. The neatly longitudinally fissured yellowish bark and the presence of a white, opaque and sticky resin confirmed the diagnosis.

On a second trip leafy branches could be collected through a tree climber. The tree belongs certainly to a species new to Java and to science and will be called *Shorea cara*. Two seedlings were found and a halfdead tree in a nearby coconut plantation. As the old boundary had been moved inside the reserve to join 50 hectares including the few hectares with valuable timber of among others this remarkable species to a plantation, Dr. Kostermans had just been in time to rescue the species. He pleaded personally with the administrator of the estate and later with the Minister of Estates and with the Director of the Estates of West Java. Dr. Kostermans succeeded in saving 3 hectares of land to be returned to the nature reservation by an official declaration of Minister Emil Salim,

including the new Shorea and the other mentioned dipterocarps (pers. communication by Prof. Kostermans, and Sinar Harapan, Nov. 21, 1983).

South Korean timber venture in Irian Jaya. The South Korean company You One was allowed to develop 4,000,000 hectares in Irian Jaya. After 1986 the firm will transport 265,000 m<sup>3</sup> of timber, 93,000 m<sup>3</sup> of lumber and 39,000 m<sup>3</sup> of plywood to Korea annually, reported the Jakarta Post, 2 Feb. 1984. We know that the South Koreans perform an ambitious plan for reafforestation of their own country. They do that at the cost of countries willing to sell their environment and thus looking out into a bleak future.

What's Wildlife Worth? Economic contributions of wild plants and animals to developing countries, by Robert and Christine Prescott-Allen. Edited and produced by John Tinker, Barbara Cheney and John McCormick and based on research by PA DATA for a joint program of the US Agency for International Development and US Man and Biosphere Program. ISBN 0-905347-35-8, published by IIED, London. From the introduction: 'Wild plants and animals of obvious value are subject to a management 'Catch 22': if their economic utility is overlooked or ignored or if their use is in competition with some other human enterprise, they face the loss of the habitats on which they depend. If, however, their economic utility is evident, they are likely to be overexploited, often to economic extinction and sometimes to outright extinction.' It is also stressed that wild plants and animals bring much needed income to a great many people in developing countries. In the book many instances are given in an orderly and concise way of a host of wild living species that are or can be of economic value in as various ways as genes of wild populations that are indispensable for the future existence of some cultivated species, productions of essential oils from rainforest plants for perfumes and many other instances of profitable use of minor forest products, freshwater fish as food and aquarium fishes, and others. A valuable book with much information for the interested.

Mahogany treated (Sabina Knees and Martin Gardener in Oryx 17, 1983, 88-92). The authors give an account of the history of mahogany trading and argue that, because of overexploitation, all exports of Central American mahogany (*Swietenia* spp.) and African mahogany (mainly *Khaya* and *Entandophragma* spp.) will have finished by 1990. The authors suggest that all *Swietenia* and *Khaya* species should be protected by listing in Appendix II of CITES. They also argue that there is a good case for protecting the Southeast Asian dipterocarps known as Philippine mahogany (*Shorea* and *Parashorea* spp.). Southeast Asia accounted for 70% of all exports of tropical hardwoods in the 1970's and it is estimated that at the present rate of exploitation most of the lowland forest of the Philippines and Peninsular Malaysia will have been logged within the next ten years. To this I can add that the same might hold for the lowland forests in Indonesia. As reafforestation is mainly in fast growing species, there will be no longer an appreciable export of valuable hardwood timber in about ten years.