

New Look in Indonesia

John Blower

Indonesia, a land of forests, is still rich in wildlife, with tigers, rhinos, orang-utans and even elephants still surviving despite the enormous pressures of human population. But saving the wildlife means preserving large areas of forest, and timber is Indonesia's second largest export. However, the Government has now committed itself to a conservation programme that includes the promise of 100,000 sq km of nature reserves by 1984. Since 1974 John Blower has been in charge of a UNDP/FAO Nature Conservation and Wildlife Management Project, selecting areas for conservation in national parks and other reserves, and drafting legislation and management plans. WWF has promised \$1 million to support the schemes. The author has high hopes that Indonesia's foresters are coming to realise that conservation and sustained-yield timber production can be combined to the benefit of both.

Indonesia consists of a vast chain of some 13,000 islands lying astride the Equator and extending through forty six degrees of longitude, from the northern extremity of Sumatra in the west through Borneo, Java and the Lesser Sundas, Sulawesi (formerly Celebes) and Maluku (formerly the Moluccas) to West Irian (the western half of New Guinea). They range from small uninhabited atolls to the great land masses of Sumatra (513,000 sq km) and Kalimantan (541,000 sq km). Their total area is 1,940,000 sq km. The population is about 135 million, and is expected to reach 200 million by the end of the century; 70 per cent live in Java, although it comprises only 6.6 per cent of the land.

A mountainous spine crowned by scattered volcanic cones, some still active, runs down the western side of Sumatra, continuing eastward through Java and the Lesser Sundas. There are also extensive highland areas in central Kalimantan, in Sulawesi and in West Irian, where the Central Highlands form a great east-west watershed averaging some 4000 metres high and reaching 5029 metres in the snow-capped summit of Puncak Jaya, Indonesia's highest mountain. In eastern Sumatra and parts of Kalimantan and West Irian, broad alluvial plains extend from the foot of the mountains to the coast, sometimes including vast swamplands and great meandering rivers, which in the less developed areas are often the only practicable means of surface travel.

Indonesia is a country of forests, like most of South-east Asia. About 64 per cent of the land is classified as forest, ranging from 23 per cent in Java to 73 per cent in West Irian and 79 per cent in Kalimantan. But these figures include large areas of seriously degraded secondary growth, some quite extensive tracts of alang-alang *Imperata cylindrica* grassland and fire-climax savanna, and about 2 million hectares of forest plantations—mostly teak and pine in Java and Sumatra.

Tropical rain forest is the predominant natural forest type, typified, in its undisturbed state, by a high closed canopy and great diversity of tree species, often including a high proportion of the commercially valuable dipterocarps. Other less extensive but ecologically important forest types include man-

groves, freshwater swamp forest, which also has commercially valuable species, mountain forest of various kinds, savanna woodland and deciduous monsoon forest. The flora of this Malesian Region, of which Indonesia forms a major part, is one of the richest in the world with at least 25,000 flowering plant species, including some 300-400 orchids and over 500 species of dipterocarps.⁴ The forests also provide medicinal and food plants, resins and the indispensable bamboo and rattan. In West Irian, Borneo, the Mentawai Islands and elsewhere, tribal communities of hunter-gatherers depend almost entirely on the forest plants and animals.

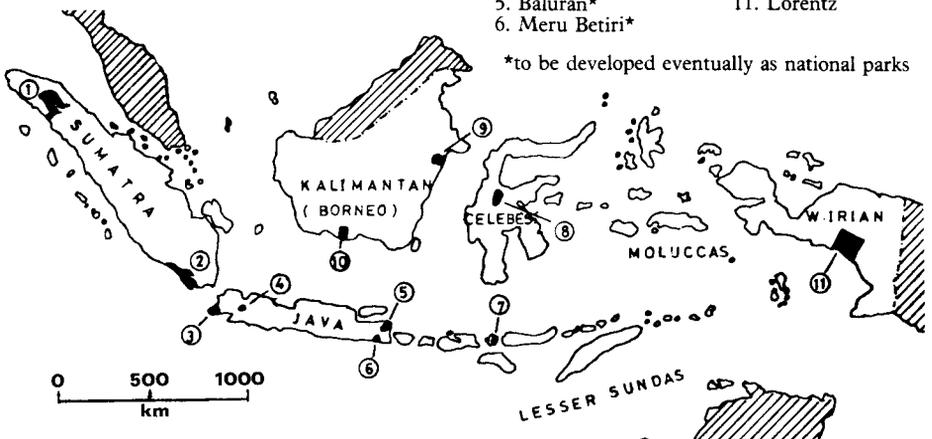
Because of the zoogeographical division between the Oriental and Australian Regions, Indonesia has a remarkably diverse fauna. Typically Asiatic forms such as tiger, leopard, clouded leopard, the Sumatran and Javan rhinos, elephant, sambar, banteng and Malayan sun-bear are confined to islands of the Sunda Shelf, which were once joined to the mainland, although their distribution presents some interesting anomalies, such as the occurrence of tiger in Sumatra and Java and formerly Bali, but not in Kalimantan. Sumatran rhino and orang-utan are found in both Sumatra and Kalimantan (also elsewhere in Borneo), but the elephant is indigenous only to Sumatra and said to have been introduced into Kalimantan by man only comparatively recently. Fossil elephant remains have also been found in Kalimantan, Java and Sulawesi. Malayan sun-bear *Helarctos malayanus*, occurs in both Sumatra and Kalimantan, and tapir *Tapirus indicus* in Sumatra but not in Kalimantan, though both are found in the neighbouring Malay peninsula.

Other endemic species on the Sunda Shelf islands, apart from the typically Indo-Malayan ones, include several primates, of which the most threatened are the two subspecies of orang-utan, *Pongo pygmaeus pygmaeus* of Borneo and *P. p. abelii* of Sumatra, the proboscis monkey *Nasalis larvatus* of Borneo, and no fewer than four endemic to the Mentawai Islands. The Komodo dragon *Varanus komodoensis* is confined to the east coast of Flores and the neighbouring islands of Komodo, Rinca and Padar, and the Bawean deer *Axis kuhlii* to the small Bawean Island between Java and Borneo.

In West Irian, which lies east of the Wallace Line that marks the division between the predominantly Australo-Papuan fauna to the east and the Indo-

- | | |
|------------------------|--------------------|
| 1. Leuser* | 7. Komodo* |
| 2. Sumatra Selantan I* | 8. Lore Kalamanta* |
| 3. Ujung Kulon* | 9. Kutai |
| 4. Cibodas/Gn Gede* | 10. Tanjung Puting |
| 5. Baluran* | 11. Lorentz |
| 6. Meru Betiri* | |

*to be developed eventually as national parks



Malayan to the west, the fauna is predominantly Australian in its affinities, with a variety of marsupials, including wallabies and tree kangaroos *Dendrolagus* spp, several phalangers and bandicoots (Peromelidae), and the marsupial tiger-cat *Satanellus albopunctatus*. Maluku, also east of the Wallace Line, has a number of marsupials and an avifauna similar to that of West Irian, with birds of paradise (Paradisaeidae), cassowaries *Casuarinus* spp, megapodes, cockatoos, parrots and other often spectacularly colourful birds, many of which unfortunately are much sought after commercially.

Midway between Borneo and Maluku lies the mountainous island of Sulawesi, with its long tentacle-like arms and much indented coastline, where the fauna is transitional between the Indo-Malayan and Australo-Papuan elements. Long physically isolated from the other islands by deep seas, Sulawesi also has an unusually high number of endemics, with two species of dwarf buffalo, *Bubalus (Anoa) depressicornis* and *B. (A.) quarlesi*, babirusa *Babyrousa babyrussa*, brown palm civet *Macrogalidia musschenbroeki*, and the black Celebes macaque, of which there are now considered to be at least four species, apart from small mammals and a variety of endemic birds.

With its numerous islands and immense length of shore, Indonesia also has a considerable variety of marine coastal and estuarine ecosystems, including extensive coral areas, important turtle nesting beaches, and marine mammals that include dugong and many cetaceans.

Administration

Conservation and the management of wildlife and its habitats are the responsibility of the Forest Department, of which the Directorate of Nature Conservation is a part. There are at present about 190 nature reserves and game reserves totalling some 40,000 sq km, about two per cent of the land area. There are no national parks since there is no provision for them in the existing law, but several are planned and will be declared as soon as the legislation now being drafted comes into effect. These will include the long established reserves of Ujung Kulon in western Java, Leuser in Sumatra, and Komodo and Lore Kalamantan in central Sulawesi.

Government planning now gives a high priority to conservation, and a substantially increased budget for the Directorate of Nature Conservation amounts to the equivalent of US \$2.3 million for the 1978/79 financial year, while the Third Five Year Plan, due to start in 1979, provides for reserves to be increased nearly three-fold to a total of 100,000 sq km. Fifty young science graduates have been recruited into the Directorate, and there are plans to establish a central training school at intermediate level, with support from the Netherlands Government. The World Wildlife Fund has recently pledged US \$1 million to support a number of important conservation-related research and management projects over the next five years, and UNDP/FAO has had a small team working with the Directorate of Nature Conservation since 1974, principally on field surveys and planning. Early in 1979 a larger scale UNDP-financed project is due to start on the development of six national parks and to select and plan the new reserves needed to achieve the 10-million ha. conservation target.

These developments are encouraging, but there are still serious problems, and the overall conservation situation in the field has shown little real improvement in recent years. One basic problem is the perennial conflict between commercial timber exploitation and conservation. Several important

reserves have been logged, at least in part, despite strong objections from conservationists both in Indonesia and elsewhere. The worst example is Kutai in East Kalimantan, a large lowland rain-forest reserve that is particularly important both for protection of rain forest ecosystems and as habitat for orang-utan and other wildlife. More than half has now been heavily logged, and the operations continue. An adjoining area to the north, which contains the only known Sumatran rhino population in Kalimantan and has been strongly recommended for inclusion in the reserve, has also been granted as a timber concession. However, the main rhino habitat has not yet been logged and there is still hope that it may be saved. Other unfortunate examples include a recent concession in the Sekundur area of the important Leuser Reserve in North Sumatra, granted to a local plywood factory under the guise of a 'habitat improvement project'.

To put this problem in its right perspective it should be stressed that the timber industry is of major importance to the national economy, and the second largest earner of foreign exchange after oil and oil-based products; timber exports increased from under 1 million cu. metres in 1968 to over 21 million in 1976. The present out-dated conservation legislation provides protection for wildlife in game reserves (which comprise over half of the total) but not, unfortunately, for habitat, which means that timber concessions may be legally granted in such reserves at the discretion of the Director-General of Forestry. Nature reserves, however, are fully protected, at least in theory.

It is sometimes argued by the timber lobby that selective logging does little harm to wildlife and actually benefits certain species such as deer, pig and others which favour secondary habitat. But the primary conservation objective is—or should be—to safeguard complete ecosystems, rather than individual species. It has been shown that selective logging of rain forest using mechanical equipment, even when only 10 per cent of the trees are felled, can result in destruction of a further 55 per cent in the course of extraction.¹ It has also been conclusively demonstrated that such logging results in a dramatic decrease in the number of mammal species, the majority of which are dependent on undisturbed forest conditions.^{2,3} Primates such as orang-utan and gibbon, as well as hornbills and other birds, are seriously affected by disruption of the canopy, while all wildlife suffers from the disturbance caused by large numbers of men and machines working in the forest. Moreover, the resulting network of extraction roads often means that when the timber companies move out the shifting cultivators move in, and destruction of the forest is then soon completed.

While accepting the need for continuing timber production, the development of an adequate system of national parks and reserves, particularly in rain forest areas, is equally important in the long-term national interest. It is also very much in the interests of forestry and the timber industry that these areas should be maintained as genetic resources for the future.

There are, of course, other problems: illegal hunting, the still widespread traffic in wildlife, especially birds from West Irian and Maluku, and the continuing local demand for orang-utan, gibbons and other animals as status-symbol pets, while the lack of trained personnel in the Directorate of Nature Conservation is a major handicap to effective law enforcement and management. But these difficulties can be overcome provided that the basic resource itself, in the shape of viable wildlife populations and sufficiently extensive areas

of relatively undisturbed habitat, can be safeguarded. On paper current plans for developing national parks and increasing other conservation areas look very promising indeed, but their interpretation and implementation rests with the Forestry Department which in the past has shown itself to be strongly exploitation-orientated, as witnessed by the extensive lumbering operations which continue to be permitted in certain reserves. However, the recent appointment of a Minister of the Environment and the higher priority now being given to conservation in government planning, give good reason to hope that Indonesian foresters will come to recognise that conservation and the protection of inviolate ecosystem reserves are matters of very real national and international importance, which, with proper land-use planning, can still allow ample scope for—and in the long term can actually be of benefit to—sustained-yield timber production.

References

1. BURGESS, P. F. 1971. The effect of logging on hill dipterocarp forests. *Malay. Nat. J.* **24**: 231-237.
2. MEDWAY, LORD 1971. Importance of Taman Negara in the conservation of mammals. *Malay. Nat. J.* **24**: 212-214.
3. RIJKSEN, H. D. 1978. A field study of Sumatran orang-utan (*Pongo pygmaeus abelii* Lessor 1827): ecology, behaviour and conservation. 3.4 Commercial Forest Exploitation, 349-35. Meded. Landbouwhogeschool, Wageningen 78-2 (1978).
4. VAN STEENIS, C. G. J. 1971. Plant conservation in Malesia. *Bull. Jard. Bot. Nat. Belg.* **41**: 189-202.

John Blower, c/o UNDP, 14 Jalan Thamrin, PO Box 2338, Jakarta, Indonesia.

UK Import Controls Tightened

Recent additions to the list of wildlife imports into the United Kingdom controlled under the 1976 Endangered Species (Import and Export) Act include the skins and hides of all cats and bears not previously listed; skins of otters, civets, genets, fur seals, wolves and zebras; products of the guanaco and three species of colobus monkey; all reptile-skin shoes, cases, bags, belts, etc; any item made from the tusks of elephant, wild pig, narwhal or walrus; any worked shell of the order Testudines, including tortoiseshell; meat or cartilage of any sea turtle except leatherback; stuffed heads of any reptiles or mammals listed in Appendix I of CITES; and birdwing butterflies of the genera *Ornithoptera*, *Trogonoptera* and *Troides*. These additions, particularly those concerning ivory and tortoiseshell, close a major loophole in the Act, whereby products that are 'worked or simply prepared' were allowed free entry, however slight the 'working' may have been. For example, in October a magistrate ruled that a London dealer was within his rights to import and sell a ridley turtle shell whose entire modification consisted of a coat of polish.

A Day in the Bird Trade

High mortality among Indian birds in transit to European pet dealers is accepted as inevitable by both sender and receiver. Though the occasional accidental loss of an entire shipment may be publicised, many more deaths are routine and unremarked. On a typical, random day—June 14 1978—at Heathrow Airport's RSPCA hostel (as reported in *ISPA News*) two consignments bound from Calcutta to Amsterdam on British Airways had the following ratios of dead to live birds: 2 of 36 gold-fronted chloropsis, 9 of 100 assorted mynahs, 38 of 300 baya weavers, 10 of 60 assorted bulbuls, 32 of 60 sunbirds, 9 of 20 woodpeckers, 5 of 20 shrikes, 1 of 10 orioles, 33 of 50 assorted flycatchers, 3 of 50 common mynahs, 9 of 50 whiteeyes, and 33 of 40 tailor birds. Only barbets (12) and orange-headed ground-thrushes (12) survived without any casualties.