VI. MISCELLANEOUS INFORMATION

a) Research and Publications *(continued from page 2796)*

Publication date: TURCZANINOW, N. Flora baicalensi-dahurica. See F.A. Stafleu, Taxon 18 (1969) 563-565. Analysis of the publication in instalments in the Bull. Soc. Imp. Nat. Moscou 15-30 (1842-1857) and on the reprint in book-form, of which the last part seems to have priority.

Flora of Thailand. Volume 3 is devoted to Pteridophyta, of which authors are the late Dr. Motozi Tagawa and Dr. Kunio Iwatsuki. The manuscript of Part 1 has already been sent to the press, expecting to be issued sometime in the first part of 1978. Manuscripts of Volume 2 Part 4 are still in course of preparation, hoping to be ready for the press about the same time.

Robert E. P e r d u e, Medicinal Plants, Building 265, BARC-East, Beltsville, Maryland 20705, U.S.A., botanist, has been involved since 1960 in a program to identify chemical compounds in plants that might be useful in cancer treatment. His work has focussed mainly on plants of the western hemisphere, Africa, and S. Asia. In 1978, he plans to work on New Caledonia, Australia and New Guinea. He contributed to a Symposium 'Plants and Cancer'; see Reviews.

Dr. T. A n a n d a R a o, Botanical Survey of India, Director's Office, Sibpur, Howrah, 71 11 03, India, is working on a compendium of leaf sclereids in angiosperms, a source of information on morphology and taxonomic value of these structures. He published papers dealing with Plethiandra (Melastomataceae) and Araceae-Monsteroideae, Proc. Indian Acad. Sc. 86B (1977) 45-53 and 73-80 respectively. In the Hutchinson system, 108 families have sclereids; in Dr. Ananda's program, 32 families have now been covered. He welcomes cooperation with other botanists working on such families.

Flora Indonesia is the title of a considerable series of booklets/pamphlets. The format is ± 15 by 25 cm, the print is passable, all photographs in colour. Each booklet deals with one subject, e.g. legumes, cultivated fruits, ornamental plants, bamboos, etc. The text is in Indonesian. Beside those on plants (22 titles) there is a whole series on animals, and culture. Editor is Marah Maradjo, P.T. Karya Nusantara, Cabang Jakarta 11, of the Department P & K (which is education). While not as such useful for a conservation education book, this is something that is actually being done.

Thai Forest Bulletin (botany) 10 is in the press, with Aizoaceae of Thailand; Elaeocarpaceae and Nyssaceae; and Vegetation of the Sam Lan Forest Park.

Forest Research in Malaya. The Forest Department, Jl. Swettenham, Kuala Lumpur, Malaysia, regularly publishes 'Research Pamphlets' of some 30-100 pages, format 30 by 21 cm, stencilled, priced at Mal.$ 3.00 an issue. We briefly mention a few.

Number 65 is Forest Research Areas and Research Plots (1975). There is quite a network all over Malaya, and well-mapped in relation to altitude, of plots in various categories, notably: i) Silvicultural Plots, to study tree growth. The oldest date from 1915, nowadays there are 62. ii) Phenological Plots, to study growth and fertility, within 10 miles from a weather station; there are 8, all small. iii) Big Tree Plots, for fine specimens, a sort of living museum, one in Trengganu and one in Pahang. iv) Ecological Plots, in virgin Dipterocarp forest for observation, 5 in number, since 1947. v) Virgin Jungle Reserves inside Forest Reserves, for blanks against silvicultural experiments, various studies, seed supply, species conservation, education and recreation. Size is small, up to 1600 ha, average c. 200 ha, there are now 66 of them, tabulated with altitude.

Number 66 is Silviculture in the hill forests (1975), by P. F. B u r g e s s. While grafted on previous publications, it gives much on geomorphology, rainfall-soil relations, and nutrients. Fruit-development and seed predation in Shorea is discussed, so is seedling establishment and mortality. Bamboo often abounds in hill forest. Effects of logging are analyzed: removal of 10% of the basal area over 4 in.Ø as timber, left only 35% undamaged (p. 92). Girdling is discussed with its (dis)advantages. Many interesting data!

Number 67 gives results of line-planting in Selangor (1976). Effective survival amounted to an alarming low average of some 22%. Heavy logging and subsequent neglect poses problems which are discussed to some extent. Many tables are given.

Number 69 (68 not seen) on phenology and seed storage of Dipterocarps (1976), mostly Dryobalanops, demonstrates the variations among individual trees, and gives many results of experiments from flowering to germination.

Number 70 is the Annual Report of the Forest Research Institute over 1974 (1976), with list of 26 publications (p. 9-10), and under Botany, one of 55 tree species germinated and studied, by Dr. F. S. P. N g.

Number 71 is the Research Programme 1976-1980 (1976). It says that the proposed permanent forest estate in Malaya will be 54,000 sq.km, of which 34,000 productive forests. "Most of this area will be in the hills or on generally poor lowland sites where considerable difficulties have been encountered in their natural regeneration" (p. 5).

The program includes Regeneration of hill forests (in the wake of no 66), Ecology of 2 ha rain forest plots, continuation of Seed and Seedling studies, development of the KEP-Herbarium, and Arboretum, completion of the remaining 22 families for the Tree Flora of Malaya by 1982, conservation and development of the Virgin Jungle Reserves (see no 65), of which there are now 86, with a total area of 34,000 ha, of all vegetation types. Several have been logged, and watching the remaining ones is increasingly urgent. Much is also planned in the area of pest and disease research and control, as well as in wood technology and chemistry.

Genes in Indonesia. The 2nd Newsletter of the SE. Asian Genetic Resources program (Febr. 1978), distributed by LBN, Box 110, Bogor, reports on collecting activities in the various islands to bring living plant material to Bogor, where also the collections from the Pasar Minggu fruit garden near Jakarta are being transferred. Mention is made of a promising form of Shorea stenoptera from W. Kalimantan selected by Dr. I.G.M. Tantra, and of a training course in collecting crop materials, in W. and Central Java. Main lines of work are on minor legumes (Canavalia, Mucuna, Psophocarpus), tuber crops of Zingiberaceae (with chromosome counts: Amomum longipes 2n = 34, A. roseum 2n = 48, Curcuma aeruginosa 2n = 63, C. heyneana 2n = 64, C. phaeocaulis 2n = 48, C. xanthorrhiza 2n = 63, C. zedoaria 2n = 44), fruit trees and ornamentals, chiefly orchids.

Conservation Literature on Indonesia: a selected annotated bibliography is in progress at the Rijksherbarium, made by Mr. T. J. J. d e B o o in collaboration with Dr. M. J a c o b s, supported by the Netherlands Ministry of Culture (CRM). Many non-Dutch are now operating in this field, and sometimes making blunders from lack of knowledge of the literature, which indeed is mostly in Dutch, and difficult to locate. This project, of one year's duration, aims at a broad coverage in order to bring forward the important publications of a general character, on physiography, on the main vegetation types and animal groups, on conservation practices but also a bit on land use, small scale utilization, reforestation with native species, landscape descriptions, with compilation of main data on each reserve, and it all properly indexed. The annotation, in English, has been designed to give an idea of contents and value. Experts assist in the selection of items. The work, which should be available by the end of 1978, will probably be distributed from the Rijksherbarium, Schelpenkade 6, Leiden, Netherlands.

Mr. D.J. Slater, artist, visited the Kew Herbarium in January 1977 in connexion with his commission to design orchid stamps for Christmas Island (Indian Ocean).

A popular tourist handbook for visitors to Pulau Tioman, Malaya, prepared by Dr. B.C. Stone and others, is available at the Merlin Hotels, Kuala Lumpur. It includes geology, zoology, and botany with a checklist of species. It may be the start of a Florula of this interesting island, to be studied further at the KLU-Herbarium.

Mr. Y. N. L o, a student of KLU, is preparing a checklist of the upper zone flora (900-1200 m) of Kedah Peak, now a state park. The Forest Department is working out the flora of the lower zones.

Dr. R. O. W h y t e, Box 167, Kota Baru, Kelantan, Malaysia, is studying the evolution of the environment in China, for a conference at Berkeley in June 1978 on the Origins of Chinese Civilization.

In this study, evidence from plate tectonics, orogeny and palaeo-climatology (a northward extension of the study reported in the paper on 'Bioclimatic and taxonomic consequences of tectonic movement and orogeny' in South Asia in particular - Annals of Arid Zone 15: 247-269. 1975) is used to explain the change in the vegetation of innermost Asia from humid tropical (up to 45°-50° north latitude in the Miocene/Oligocene) through temperate to semi-arid and in parts, completely arid with yearlong absence of rain. This change in turn affected the original humid tropical vegetation of China itself, which existed until late Tertiary up to the same latitude. This vegetation was then pushed far to the south in eastern China, by the advance of more arid conditions and recurrent droughts from the northwest. The relict tropical vegetation of the People's Republic is now to be found, in a considerably degraded form over much of the area, in Yunnan, Kwangsi, Szechuan, Kwangtung, Hainan Island (contiguous with the tropical vegetation of southeast Asia) and in southern Tibet, within reach of the South Asia monsoons.

As for Malesia, Dr. Whyte is collecting materials related to vegetation ecology, on the reliability of the evidence or assumptions for the existence of a semi-arid period in Sundaland. It is believed by some that these supposed conditions would have favoured the wide extension of grassland and of a fauna capable of utilizing feed of this type. It is hoped in due course to discuss in article form the evidence for a rain shadow from the southwest monsoon, the nature of the northeast monsoon, and the state of evolution of the Gramineae at that date.

Pacific Plant Areas is making steady progress under direction of Dr. M. M. J. v a n B a l g o o y (L). Another 20 maps have been prepared, with the help of Mr. K. F r a n k e n and Mr. M. C. R o o s, both students (L).

Flora of India. Several families (editor does not know which) have been allotted to taxonomists. Twenty-eight workers have been appointed at universities for expediting the revision work, assisted by a liaison officer at Kew, who took about 2000 photographs of types.

A scheme has been set up to enlist experienced and retired Indian taxonomists for the project, 6 of them, for the time being.

An editorial board has been set up to finalize guidelines for the Flora of India Project, and to expedite the publications of the Botanical Survey of India.

Tree Flora of Malaya volume 3, originally scheduled for publication early in 1978, has suffered a delay of one year. But the text is in the hands of the publisher (Longman).

Volume 1 and 2 are already out of print, quite a strange fact for such an expensive work. However, now that the market seems favourable, we may hope for a re-issue at a lower price.

Major and Minor Fruits of the Tropics is the title of a book by Dr. Franklin W. M a r t i n, Tropical Agriculture, Box 70, Mayaguez, Puerto Rico 00708, U.S.A. It will be published by the U.S. Department of Agriculture, and give information outlines on major fruits, list extensively the minor fruits, and devote a chapter on neglected fruits of promise. Mr. Gregory Hambali, Bogor, has agreed to review parts of the manuscript, which should be ready by the end of 1978.

Next comes an inventory of tropical vegetables, and suggestions, especially on outstanding but neglected species, are welcome.

Dipterocarpaceae are being studied in France, from various angles. At Brunoy, Mme Géma M a u r y is concluding her work on the seedlings, begun in Malaya, now committed to paper. Fresh material she is regularly receiving is cultivated by her. At Professor R. Schnell's Laboratoire de botanique tropicale, Mme M. B e l i n is working on the hydathodes and foliar glands. Mme M. A n t h o n y of Strasbourg, now at Singapore, is continuing her studies of the cecidia. Professor F. H a l l é of Montpellier is looking at the tree architecture.

Hortus Malabaricus, the 12-volume work by Rheede (Fl. Males. i 4: lxxxii-lxxxiv), was published during the years 1678-1703, so there is plenty of time to commemorate its 300th anniversary without being wrong. Professor K. S. M a n i l a l, Calicut University, 673 635 Kerala, India, has planned to bring out a commemorative volume with original papers on taxonomy and nomenclature of plants described in the Hortus Malabaricus, also papers on history. Some distinguished botanists have been invited to contribute.

Wood anatomy of Myrtales was studied at Leiden by Mr. G.J.C.M. van Vliet on a Ph.D. fellowship ending with 1977. A comprehensive paper on the Rhizophoraceae including a key to the genera on wood anatomical characters was published late in 1976 but Leiden Botanical Series volume 3, in which it appeared, was not available until the beginning of 1977. The wood anatomy of Rhizophoraceae once more confirmed that this family (even taken in its broadest sense) does not fit into the Myrtales. Papers on doubtless members of the Myrtales such as Combretaceae, Melastomataceae (by Van Vliet), on Lythraceae (by Zweypfenning & Baas) and Punicaceae (by Bridgwater & Baas) are in press or in preparation. Van Vliet will also prepare a survey paper on the diversity in vestured pit morphology in Myrtales: a peculiar feature which greatly helps to define the order.

Mr. C. T. Johnson from the University of Western Cape, South Africa, worked during 1977 on the comparative anatomy of Australian and Malesian Leptospermum. The study revealed an interesting diversity, partly related to ecological differences, partly also of interest for unravelling relationship patterns within the genus which is in very bad need of a taxonomic revision - now undertaken by Mrs. J. Thompson in Sydney.

Dr. P. Baas (L) studied Leptospermum crassipes from West Australia for its remarkable wood structure. This work is likely to branch out into other groups with curious habit, e.g. Vaccinium lucidum from Java with its swollen stem bases, and forms part of a wider investigation relating wood anatomy with habit and ecology; a field which may have much to contribute to our understanding of the phylogenetic trends postulated for xylem diversification. The regular contributions on Wood and Leaf Anatomy in the Flora Malesiana under each family, recently Bignoniaceae, Cornaceae, Crypteroniaceae, Symplocaceae and Ulmaceae were also produced by Dr. Baas. Other work on the anatomy of Malesian groups was carried out by his students on leaves of Myristicaceae (Mr. J. Koster), of Leguminosae (Mr. R. H. Keyner), and of Celastraceae (Mrs. R. M. Den Hartog-Van Ter Tholen) and on seed coats of Rubiaceae (Mr. W. E. Friskus). The latter three projects also involve work on many representatives outside Malesia.

Mountain flora of New Guinea. Under supervision of Dr. J. F. Veldkamp (L), a student, Mr. H. Turner, investigated possible floristic differences between the mountains of the E. and W. halves of the island. No significant differences were found - a shortcoming of the flora or of the computer?

Germination and Seedlings in Malesian Woody Plants is the title of the forthcoming book by Mr. E. F. d e V o g e l (L), expected from the press in the first half of 1979 (see *p. 2788*). Publisher E.J. Brill, Oude Rijn 33A, Leiden, The Netherlands.

At Hull, Geography Department, Dr. J. R. F l e n l e y has completed a book on The History of the Tropical Rain Forest, to be published by Butterworth, autumn 1978.

Flora of Australia. The latest news is that a strongly supported proposal is made (and a Subcommittee set up, under convenership of Dr. Eichler) to start a uniform series under a title such as 'Revisions towards a Flora of Australia'. This series would consist of numbered reprints of approved revisions (generic rank and upwards) published in state Herbarium journals and the forthcoming Commonwealth journal 'Brunonia', which will all be adapted to the same format, in order that they can be bound in volumes. A device of the same kind as Flora Malesiana and Flora Neotropica.

Plant geography of the eastern part of Malesia has been studied by Professor C. G. G. J. v a n S t e e n i s at Leiden, who completed a manuscript on the subject, which may be published in 1979. Then further announcement will follow.

At the Südasieninstitut, Box 10 30 66, Heidelberg, Germany, headed by Professor U. S c h w e i n f u r t h, several substantial studies are under way: by Dr. K. H a u s h e r r on Philippine forestry from the geographers' viewpoint, due for publication in the Geoecological Research series; by Dr. J. M e t z n e r, back from 16 months of field work in Flores and Sumba, on Land use systems and Population pressure, to follow his work on Timor (see Reviews); by Dr. Chr. K l e i n e r t on Environment and settlement in the Central Himalayas, based on field work in a transect from the Terai up to the border of Tibet; and other work of less botanical interest, mainly on Ceylon.

Flores: a list of plant names. The missionaries-botanists of the Societas Verbi Divini (SVD) have worked towards a Logat Nama-nama Tumbuhan di Manggarai, by pater J. A. J. V e r h e i j e n, 137 pages mimeographed. While it looks amateurish at first glance, there is a great amount of professional knowledge in it. The priests for their work needed to study the language; pater Verheijen has done so for many years already, in fact, his botanical hobby stems from the problems he encountered in the interpretation of the vernacular plant names in the course of his general linguistic work. Botanical assistance came from the Rijksherbarium, where the fathers sent many collections, and gradually they did so well

on their own, that they discovered a host of novelties. Thus they became the first 'resident botanists' of the Lesser Sunda Islands; Father E. S c h m u t z wrote an entertaining article about his development on *p. 2605-2609.*

The list now brought out is intended to be a tentative one; it is not for sale, but can probably be obtained from SVD Ruteng, Box 2, Denpasar, Bali, Indonesia. It has 3 pages of introductory explanation, in Indonesian, and a map with the dialects of western Flores (an area of some 110 by 50 km) on page 39. Otherwise, there are two halves: Vernacular-Scientific and Scientific-Vernacular. About 1530 names are dealt with, of both categories.

The V-S section gives for each name the habit code, vernacular name, dialect, indication of collector + number in ¾ of the cases, and names to which referred. The S-V section lists the genera alphabetically with species (if known) and author, indication of family, and vernacular name.

Evidently great care has been spent on accuracy, and it is then striking to realize how many plant species are known to the population. There are seldom more than a few homonyms per name, and we may suppose that the fathers' critical attitude diminished such occurrences to the utmost.

Fortunately, the plan is to continue the work, and father Verheijen mentioned the possibility of a more definite edition, with introduction in English (and perhaps, I would like to suggest, a list of genera by family). We beg the SVD-missionaries not to underrate the botanical significance of such a list; it has the potential to become a species list of an area poorly known which, thanks to the missionaries' initiative, yielded many a floristic surprise, and for these reasons deserves as full an emphasis and elaboration as the linguistic half.

b) Herbaria, Gardens, Organizations *(continued from page 2800)*

Rijksherbarium, Leiden was founded on 31 March 1829, and therefore will have to celebrate its 150th anniversary next year. Considerable deliberations have already been devoted to the various plans and possibilities. Most probably, a main item of the program will be an 'Open House', for two weeks, containing a number of small-scale exhibitions elucidating to the layman the highlights of the work in the various departments (Malesia, The Netherlands, Fungi, Algae, Pteridophytes, Bryophytes, Anatomy, Morphology, Pollen). One day will be devoted to lectures and discussion on priorities in plant systematic research in the Netherlands. Other events include an exhibition in the Hortus Botanicus and in one of the Leiden museums, an educational program, and suitable publicity. Blumea 25 will carry a number of memorial and biographical articles. The Director will be glad to give further information.

Rijksherbarium, Leiden. The Far West is the household word for a new annexe, vacated by the physics institute in the 'Provisorium' complex, which is now being occupied by herbarium boxes of a few families, the spirit material hitherto stored elsewhere in the town, the wood samples and dry separate parts. A 'multi-purpose room' is available for practicals, meetings, and lectures; the photography department fills three now suitably equipped rooms.

The situation is now this: Pteridophytes, and (in the Engler Prantl sequence) Gymnosperms, Monocots, and Dicots to Rosaceae before Rubus on the ground floor in 'West'; Rubus and subsequent Rosaceae, Connaraceae, Leguminosae, Geraniaceae, and Tropaeolaceae in 'Far West'; rest of the Dicots on the first floor in the main building.

Discussions on construction of new university buildings continue; the Rijksherbarium is rather low on the priority list, so the new fire alarm system with more and louder bells, is a badly needed precaution.

Laboratory for Experimental Plant Systematics (LEPS) at Leiden, after 15 crammed years at the Vijfde Binnenvestgracht, Leiden, has moved to more spacious quarters, which opened on 24 October 1977. New address: Schelpenkade 14a (next to the Rijksherbarium complex). While Professor R. H e g n a u e r is going on with his far-ranging work on Chemotaxonomy, the staff concentrates on problems in the European flora at subspecific levels. Part of the work is now also tied to that of Professor J. T. W i e b e s who (besides his interest in fig wasps) with his pupils is studying co-evolution of plants and insects in the dunes near Leiden.

The Herbarium of the University of Malaya accessioned its 25,000th specimen, reaching thereby a milestone of progress since its inception back in 1960. 'KLU' will continue to grow apace (hopefully continuing at the rate of about 2000 specimens per year), but will soon be needing new and larger quarters. A somewhat nebulous plan is afoot to have a new large building, much like that of the Lae Herbarium (Papua New Guinea) in design, which will be located within the Rimba Ilmu (University Botanical Garden).

Herbarium, Agricultural University, Serdang, Selangor, Malaya. This herbarium was set up in 1976 for the purpose of providing material for teaching and facilities for research. Although small, it has the capacity of about 20,000 specimens; it is housed in an air-conditioned and dehumidified room and all material is poisoned before being admitted to the collection. One assistant has been trained in herbarium techniques at the Herbarium of the Forest Research Institute, Kepong, and Dr. Ruth K i e w is the lecturer-in-charge. At present it houses about 300 specimens from her personal col-

lection (mainly Malayan arecoid palms, with about 100 numbers from Sarawak) and over 100 specimens of Malayan Asclepiadaceae collected by Dr. R. R i n t z. Collecting for the herbarium progresses at a slow pace hampered by lack of staff and heavy teaching commitment which allows little time in the field. Loans from other herbaria will be necessary to carry out research, which at present include Dr. Kiew's work on the Oleaceae.

The Ekakarya Botanic Gardens at Candikuning, Bali, was established in 1959. For one reason or another this garden was for some time somewhat neglected. Beginning in 1970 it was gradually rehabilitated by LBN and in August 1975 an area of 129,20 ha of forest land was added. It was officially reopened on 30 April 1976, and it is a branch of the Botanic Gardens of Indonesia system. Currently this garden has a collection of 2425 trees belonging to 84 families, 205 genera and 551 species and 84 species of orchids. It functions as a site for *ex situ* conservation of flora from the eastern part of Indonesia, especially for those occurring in high altitudes.

The Faculty of forestry of the rapidly developing Mulawarman University at Samarinda, East Kalimantan, has recently erected a new herbarium building, in its new campus site. It will accommodate primarily the collection of the tree flora from East Kalimantan. The University has adopted the tropical forestry and forest ecology as the main theme of its development. Bibliographic materials on tropical forestry, ecology botany, and conservation, are badly needed for further development of this educational institution. Therefore, contributions of reprints, journals, books and other bibliographic materials on the above topics from various agencies and institutions elsewhere will be highly appreciated. The University has recently acquired a 300 ha of land, consisting of primary and secondary forests and located close to the campus, and has designated it as a teaching and research forest and part of it will be also developed into a botanical garden. The Indonesian MAB Project no 1 is currently using it as the research site. UNESCO has contributed financial support to this research including the fund for establishing research facilities on this land. The University is also working closely with the National Biological Institute (LBN), Bogor, in developing this site.

Rumor has it that at Los Baños, Philippines, all collections are now united under a separated administrative body, the UPLB Museum of Natural History, with Professor J. V. P a n c h o as its first director. This would be a wise step; we heard that the First Lady, Mrs. Imelda Marcos, takes a considerable personal interest in the biological collections.

Bulolo Herbarium (proposed abbreviation: BFC), Box 92, Bulolo, Papua New Guinea, was established about 1965 as a dependence of the LAE-Herbarium, to serve the staff and students of the Bulolo Forestry College as a reference collection, and as a place to deposit ecological voucher specimens. A. N. G i l l i s o n was largely instrumental in the establishment. It now contains about 20,000 collections from all over Papua New Guinea. Many LAE-duplicates among them. Attached to it is a plant nursery with shade-houses, and an Arboretum is at present being established. On the staff are B. J. C o n n (Droseraceae, Loganiaceae, aquatic flora), R. J. J o h n s (Anisoptera, Metrosideros, and ecology), K. R a u, curator from 1978, and A. K a i r o, field collector and technical assistant. Duplicates are distributed from Bulolo, to LAE, L, K, A, and CANB.

The Queensland Herbarium (BRI), Meiers Road, Indooroopilly, 4068, Brisbane, Australia, sent its 29 page Annual Report 1976-77. Director is Dr. R. W. J o h n s o n. There is a Taxonomy Group of 11, an Ecology Group of 7, a Supporting Services Group of 14, and 5 other staff.

Emphasis lies on identification and advisory services, popularization and education, also classification and mapping of the Queensland vegetation. Considerable effort is spent on computer data storage. Wild oats, which can be noxious weeds, receive attention, to understand the Avena barbata, fatua, and ludoviciana complexes. The grass Germania capitata, thought to be a New Guinea species wrongly recorded from Central Queensland, was found in abundance in a coastal area NW. of Bundaberg. Mueller had described it in 1870 as G. floccosa.

In the herbarium itself 7000 sheets were incorporated, and as many processed in loans, 2000 received and 4000 sent in exchange, a backlog of 18 requests is to be dealt with. Eremochloa muricata (Gramineae) was newly recorded for Australia.

Proofs of the handbook Weeds of Queensland were corrected, and it was expected from the press by the end of 1977. Publication of Wildflowers of SE. Queensland volume 1 is expected soon. Papers on Stylidium (Stylidiaceae), Melaleuca (Myrtaceae), and Oxylobium (Leguminosae) were published in the Queensland Agricultural Journal.

The Contributions from the Queensland Herbarium is stopped. An index to them is in preparation; this will conclude the final volume 20. In its place will come Austrobaileya.

A Handbook to the Ferns and Fern-Allies of Queensland is nearly completed and will be sent to the press in the course of 1978.

Mr. R. J. H e n d e r s o n, leader of the Taxonomy Group, is working on Dianella (Liliaceae). Mr. B. K. S i m o n, together with Dr. H. T. C l i f f o r d of Queensland University, is preparing a chapter on Biogeography of Australian

Grasses, in a book edited by A. Keast: Biogeographical Ecology in Australia. Mr. R. W. J o h n s o n is working on Australian Convolvulaceae. Mr. L. P e d l e y, the Assistant Director, is finishing his Acacia revision for Queensland. He and S. R e y n o l d s are working on the generic delimitation between Atylosia and Rhynchosia (Leguminosae). Mr. Reynolds is also working on Sapindaceae, keying out the various taxa.

Mangrove mapping is in progress along the Queensland coast. Various other mapping is done for conservation purposes.

Gunung Leuser Field Station under construction. On *p. 2375* the plan for this station was briefly explained. Funds have now been made available by the Dutch Ministry of Culture (CRM), to execute this plan, and with Indonesian participation late in 1977 the building actually started. The site is Ketambe, on the uninhabited west bank of the Alas River, between Kutacane and Blangkejeren in N. Sumatra, where also Dr. H.D. Rijksen collected the material for his thesis (see Reviews). The building is to be simple and effective; a wide range of biological field work can be conducted from there, under the existing regulations which include cooperation with a counterpart, approval by LIPI, and probably an agreement on publication of results. The station is assumed to be in operation by mid-1978. Information can be obtained from Dr. H.D. Rijksen, Wilhelminalaan 29, Haren, The Netherlands, or from Mr. C.L. Schürmann, Dinas PPA, Kutacane, N. Sumatra, Indonesia.

In the Herbaria of the Botanical Survey of India the specimens were re-arranged on a geographical basis as in the Kew Herbarium, with slight modifications. A series of promotions and transfers follows here, to give a more coherent idea than it could under Personal News.

Dr. J. K. M a h e s h w a r i, Joint Director-in-Charge relinquished the charge on 21 February 1977 after expiry of his deputation and joined the National Botanical Gardens, Lucknow. Dr. S. N. M i t r a, Joint Director-in-Charge replaced him until his retirement on 31 March 1977. Dr. R. S. R a o, Deputy Director, Central National Herbarium was promoted to Joint Director with effect from 22 February 1977 and acted as Director for a month until in June 1977 he joined the Andhra University Waltair as Professor and Head of the Department of Botany. Dr. S. K. J a i n, Deputy Director, Eastern Circle, Shillong, promoted as Joint Director; he took over on 31 May 1977. Dr. N. C. N a i r, Regional Botanist (Cryptogams) was appointed Deputy Director of the Southern Circle, Coimbatore from 24 March 1977. Dr. G. P a n i g r a h i, Deputy Director, HQ, was appointed as Deputy Director of the CAL Herbarium, Howrah, from 10 June 1977. Dr. T. A.

R a o, Ecologist was appointed as Deputy Director, HQ, from 10 June 1977. Dr. D. B. D e b, Curator, Industrial Section, Indian Museum, Calcutta, was appointed as Deputy Director, Indian Botanic Garden from 10 June 1977. He has shifted the venue of his work on Rubiaceae and Liliaceae for the Flora of India from the Museum to the Garden. Work on Hedyotis, Oldenlandia, Spermacoce and Lilium with the assistance of his collaborators is progressing. Dr. M. P. N a y a r, Keeper of the CAL Herbarium was promoted as Deputy Director of the Western Circle at Poona from 11 August 1977. Dr. B. D. S h a r m a, Regional Botanist, Central Circle, Allahabad was appointed as Liaison Officer at Kew from 28 February 1977. Dr. R. B. M a j u m d a r, Botanist of the CAL Herbarium became Regional Botanist, Eastern Circle, Shillong from April 1977 and Sri G. V. S u b b a R a o, Botanist at the Southern Circle, joined Regional Botanist, Central Circle, Allahabad from 16 April 1977.

Bertotron could be the name of a huge white cube with a few small portholes, which fills one greenhouse of the Leiden Botanic Garden almost to capacity. While it looks like a cold storage cell, it is in fact a complex of chambers to grow ferns and mosses under purely artificial conditions. This fulfills a long-standing desire of Drs. E. H e n n i p m a n (Bert to his friends) and A. T o u w of the Rijksherbarium. It was opened with demonstration and drinks, on the shortest day of 1977, but inside it was the same as always, to the plants. May they respond by producing chromosomes and spores as expected!

c) Symposia, Congresses, Societies, Meetings

(continued from page 2803)

Dipterocarp Symposium at Paris, mid-1977: see Article.

Aberdeen–Hull symposia on Malesian ecology continue. The 6th, on The abundance of animals in Malesian rain forest, is held in The Burn, 30 miles from Aberdeen, 5-8 June 1978. The 7th, on The impact of man on Malesian vegetation, is held in Hull, early July 1978. Ask Dr. A.G. Marshall, Zoology, Tillydrone Avenue, Aberdeen AB9 2TN, U.K. for more information.

The British Ecological Society runs a specialist group on Tropical Ecology. It meets twice a year in London, for a one-day meeting on a variety of topics. A few years ago it also produced a Directory of British training facilities in ecological fields related to conservation and development in the tropics. Contact Dr. A.G. Marshall, Zoology, Tillydrone Avenue, Aberdeen AB9 2TN, U.K.

After a long silence, the Malayan Nature Journal resumed publication. Volume 30 part 1 appeared late in 1977. Completion of volume 29 is expected soon. For volume 31 an editor, Dr. Dhanarajan of Universiti Sains Penang has been appointed.

Pacific Science Association, new postal address: Box 17801, Honolulu, Hawaii 96817, U.S.A.

A Symposium on Floristic studies in India, Present status and future strategies, was organized by Botanical Survey of India from 16 till 18 November 1977. About 80 botanists from universities and research institutes attended. Along with Floristics, roles of Herbaria and Botanical Gardens were also discussed.

The 8th World Forestry Congress will be held in Jakarta, 16-28 October 1978. Theme of the congress is 'Forests for People', and it will be developed in five discussion areas: Rural Communities, Food, Employment Promotion, Industrial Development, and Quality of Life. Some 30 subjects in these areas have been identified, to deal with.

Four categories of papers are to be presented: Position papers, each a keynote address on one of the 30 subjects; Special papers, authoritative but more detailed accounts; Voluntary papers, which need not deal directly with the 30 subjects, but with additional matter; invited IUFRO papers, to cover subjects in combination.

Languages of the Congress are English, French, and Spanish. The Congress is sponsored by the FAO (Mr. Oscar Frugalli, Forestry, FAO, Via delle Terme di Caracalla, Roma, Italia), organized by Mr. Lukito Daryadi, Box 3668, Jakarta, Indonesia.

For a brief history of the World Forestry Congresses (in Dutch), see A. Stoffels, Nederl. Bosbouw Tijds. 47 (1975) 222-223.

International Legume Conference at Kew, 1978, was already announced on *p. 2579*. The Botanical sessions will be held on 24-29 July, those of the Mimosoideae Group on 31 July and 1 August, the Agronomic sessions from 31 July to 4 August.

The botanical programme aims at an improved classification at generic and tribal level, on various evidence. The agronomic programme is directed towards compilation of a Manual of Legume Crops by Dr. J.A. Duke, who will circulate drafts.

Two hundred invited botanists will attend.

We will try to collect information for a special report with reference to Malesia, in the next issue.

BIOTROP 5th Weed Course was held in Kuala Lumpur, from 14 November to 23 December 1977, in cooperation with the Rubber Research Institute of Malaysia. It was intended for young scientists and offered lectures and practicals on a wide array of related topics.

The 50th Anniversary of Aarhus University, Denmark, will be celebrated with an International Symposium on Tropical Botany, on 10-12 August 1978, with excursions on 13-15. Subjects are: History of tropical floras; Present distribution of vegetation types; Present distribution of taxa; Relation between distribution of taxa and vegetation; Theories of distribution types. Sessions are devoted to Paleotropics, Neotropics, and Tropics in general, with 3-4 invited speakers on each. Organizers are Prof. Kai Larsen and L.B. Holm-Nielsen, University of Aarhus, DK-8240 Risskov, Denmark.

International Ecological Congress, Jerusalem, 10-16 September 1978. A session on Mangrove Ecosystems will be convened by Prof. V. J. C h a p m a n, Auckland University, New Zealand.

The South Asian Pacific Weed Science Society Conference and workshop on weed control in small farms was held in Jakarta on 11-17 July 1977.

The Fifth Seminar on Biology and the Third Indonesian Biological Congress was convened by the Indonesian Society for Biology in Malang, East Java, on 7-9 July 1977. Many papers on various topics in botany were presented in this meeting.

A one month (25 July-25 August 1977) Training Course on Plant Genetic Exploration was held in Bogor, sponsored by the LBN and the University of Birmingham, U.K. It was attended by participants from Indonesia, Malaysia, Papua New Guinea, India, Thailand, and Philippines.

An International Workshop on Techniques for Selection of Biosphere Reserves was held from 27 October-7 November 1977, in Australia and New Zealand. This workshop was organized by the National Committees for the MAB Programme of Australia and New Zealand, and UNESCO. The main objective of this workshop was to examine, evaluate and amplify the criteria for selection of Biosphere Reserves as specified in MAB Report no 22, to suit the conditions of the Asia—Oceania region. Various approaches including the sophisticated use of LANDSAT imageries, were demonstrated.

On 21-24 February 1977, Dr. S e t i j a t i Sastrapradja attended the 4th International Board for Plant Genetic Resources, in Rome. She has been the member of this Board for 1975-1978, but unfortunately she declined to serve as the Board member for the period 1978-1981. In this meeting program proposal for South East Asia was approved and this program was to be used as a model for other regions. The LBN was asked by the Board to be the site for the Secretariat of the Committee for South East Asia, and is charged to publish the S.E. Asian Plant Genetic Resources Newsletter, of which two issues have now appeared. Ask LBN, Box 110, Bogor.

A working group on Plant Genetic Resources was convened in Canberra, Australia, and was attended by countries in Asia–Oceania region (India, Indonesia, Malaysia, Philippines, Japan, Taiwan, Papua New Guinea, Pacific Islands and Australia). Among the topics discussed were the activities in these countries on exploration, collection, evaluation and conservation of plant genetic resources, and also the role and contribution of developing countries in the progress and development of the plant genetic resources.

The 2nd ASEAN Orchid Congress was held on 6-10 April 1977 in Jakarta. This congress was more useful for orchid growers than for botanists, although there were sound scientific papers presented.

Development cooperation in the discovery and use of natural resources for drugs in the third world, was the title of the 4th Symposium Pharmacognosy and Chemistry of Natural Products, held on 13 and 14 October 1977 in the Gorlaeus Laboratories at Leiden, organized by Prof. dr. A. Baerheim S v e n d s e n and Mr. H. S i w o n. Well over 100 participants in two workshops listened to lectures (summaries were issued) and discussed. While botanical aspects were well-covered by Dr. A. J. M. L e e u w e n b e r g of Wageningen, who pleaded for ample and precise collection, conservation was not on the agenda. However, Dr. M. J a c o b s was permitted to distribute a 4-page pamphlet on the Conservation of the Wild Drugs Treasure to open the eyes of the audience to some basic facts and views.

d) Conservation *(continued from page 2825)*

The forestry situation in Indonesia. A 95-page report on the subject, dated Bangkok, May 1977, gives a large amount of figures, apparently taken from official data, supported by inside information. While the tone of the report is spare, factual and objective, no reader can fail to be moved by the heartbreaking series of facts. A selection is here given. (Western New Guinea, which at the time had not yet entered the picture, scarcely occurs in the text. Most figures have here been expressed in square kilometers, millions of hectares being rather too astronomical.)

In sq.km, the area of Sumatra is 473,600, populated by 20.81 million; Java & Madura has 132,200 and 76.04; Kalimantan 539,500 and 5.15; Celebes 189,200 and 8.53; West New Guinea 421,900 and 0.84; others 148,200 and 7.00. The total land area is variously given as 1,930,000 to 2,027,000 sq.km, the population in 1971 as 118.37 million, in 1976 as 134.70 million, growth rate 2.1%. In Java, on 6.9% of the area, lives 65% of the people.

Forestry claims 63.5% of the land area, or 1,200,000 sq.km, in Sumatra 260,000, in Java 30,800, in Kalimantan 419,000 (of which c. 100,000 secondary forest), in Celebes 113,900, in Lesser Sunda Islands 22,400, in the Moluccas 58,000, in New Guinea 310,000. About 1/3 of the forest lands is accessible and exploitable. Mangrove occupies 10,000 sq.km, swamp forest 130,000 or 11%, coastal forest 10,000, peat bog 12,400, rain forests 890,000 or 73%, monsoon forest (including the teak in Java, about all planted, and part of the conifer areas in Java and Sumatra) 10,000, secondary forest 152,500. The limit between lowland and montane forest is drawn at c. 950 m. Forests damaged and/or cleared by shifting cultivation occupy 200,000 to 370,000 sq.km, bare land 126,000, of which 85,600 are within designated forest land and 41,000 outside it. Man-made forests are not a separate item, but estimated at 20,000 sq.km, of which 3,335 under pine. Out of the c. 4,000 tree species, 60 are commercially exploited.

Forest lands are classified as: production forest, 472,400 sq.km; protection forest 245,400; nature reserve 37,500; reserve 459,600. Protection forests are for water supply and erosion control, mostly above 700 m in Java, 500 m elsewhere, and on slopes over 30%. 'Reserve' includes generally degraded areas, biotic grass lands, secondary forests. Suitable for agriculture seem 180,000 of these, progressively to be cleared in 50 years. Accessible, operable forests are 500,000 sq. km, perhaps 650,000; so far, 350,000 has been given out for logging.

Shifting cultivation has affected in Sumatra 110,000 sq. km, in Java & Madura 10,000, in Kalimantan 100,000, in Celebes 120,000, in others 30,000; most is under alang alang, some areas are bare. Of the alang alang, c. 3/4 or 120,000 sq.km is said to be within designated forest boundaries. The extent of alang alang increases by about 2,000 sq.km a year. Engaged in shifting cultivation are c. 11½ million people. Areas for transmigration are obtained by clearing forests. In 1975, some 12,500 families went, target for the next 5 years is 25,000, then 50,000. In Sumatra is required 30,000 sq.km, with 20,000 to follow.

Stock estimates depart from an average of 100 cu.m per hectare, of which 60 are commercial (in Kalimantan this may be up to 270 cu.m/ha, or 50-80 in commercial sawn logs; in the Sumatra swamp forests 58-125 cu.m). In 850,000 sq.km of closed forest, there must be operable and commercial 3,120 million cu.m. 'Potential growing stock' volume is what will be economically available and accessible for working during the next 15 to 20 years. As viewed on this base, the authorities apparently expect from plantations 12,030 sq.km in area 119,130,000 cu.m of timber, from natural forests 289,200 sq. km 2,524,870,000 cu.m.

Reforestation is aimed at increasing the forest potentialities, in the frame of man-made forests. Rehabilitation is to improve protective forests. Greening is replantation of non-forested lands, including bare land and abandoned agricultural land. About 100,000 to 200,000 sq.km was abandoned after cultivation. Java has 40,000 sq.km of such land. During 1969-1975, 6,950 sq.km was afforested. For Java 7,021 sq.km was rehabilitated in 1972. Mean annual increment in cu.m/ha/year is estimated for Albizia at 40-50, for Sesbania at 20-25, for Eucalyptus at 20, for conifers at 15-18, for teak at 5-12; the rotation crop period is for Albizia 12-15 years, for Eucalyptus 20, for conifers 20-50, for Pinus 30, for teak 60-80. Under the so-called tumpangsari system local people grow agricultural and tree crop together. Trials in 1975-76 covered 3000 hectares; planned are 15,000.

Watersheds have often lost their plant cover: in Central Java, only 8-10% of the Upper Solo catchment area is still under forest. Lands in several places have been completely degraded, many have been abandoned as unfit for agriculture. In certain areas, bitumen is applied to check erosion, and soil is fertilized to ensure plant growth, Firewood need is c. 4 cu.m a year for a household of 5, but the grown average is 1.7 a year. Under the World Food Programme, in 1972-76 in Central and East Java, 402 sq.km were afforested. Workers in the program received food. Per hectare, labour requirements range from 150 man-days to 10 man-years on the worst lands. Combinations of forest and grass-cattle need c. 660 man-days. For afforestation and rehabilitation, Rp. 16 billion was allocated in 1976; at a rate of Rp. 400 to the US dollar this equals $ 40 million, raised in 1977 to $ 60 million. "After the first year, there is no satisfactory agreement for the WFP plantations to be properly managed, and in some cases they have been completely neglected."

"By late 1960's a new era started in the Indonesian forestry development." Before 1967, timber was not among the ten main export commodities; now timber with 29.5% of non-oil products, tops the list of the latter, and accounts for c. 7.5% of the total export value. Forest products exported in 1975 represented a value of $ 560 million; 4-5% of the latter amount is in 'minor products' like rattan. Total foreign investment in the timber business amounted to $ 530 million by the end of 1971. Logs come from Kalimantan (9.9 million cu.m in 1975), Sumatra (2.9), Moluccas (0.57), Celebes (0.35); they go to Japan (7.5), S. Korea (2.7), Taiwan (2.2), Singapore (0.7), Italy (0.2). Domestic consumption takes 4½ million cu.m a year, most of it as sawn timber, of which only 24% is exported. Nearly all export is in logs.

Concessions nowadays cover 350,000 sq.km, in Kalimantan 202,350, in Sumatra 90,022, in Celebes 1,967, elsewhere

35,460. By the end of 1975, there were 267 firms operating in 262,040 sq.km, with 379 more waiting for 391,560. Philippine firms held 24% of the total concession area, Japanese 21%, U.S. 17%, Hong Kong 8%, Korea 5%, Singapore 4%, France 1.5%, Italy 1%. Approval of an application needs acceptance of the Provincial Governor (who for transmigration clearances may lease out plots of 100 hectares = 1 sq.km), and the consent of the Presidential Office. Size is 400-5000 sq.km, duration 20 years. Management plans have to be made, including the establishment of a sawmill in 3-5 years, with plywood and veneer factories to follow, but in an unspecified way and only if it is considered economically feasible. "And only few companies seem to be simultaneously involved in reforestation following logging. A tendency to make quick returns on minimum investment and a fast withdrawal possibility is pre-eminent" (p. 45). "The granting of utilization rights has probably progressed too fast as to get out of control. This problem is not easy to solve as the forests have been committed for a period of 20 years" (p. 46). 'Forestry agreements' are also possible; these enable the holder to carry out restricted logging operations during six months' time.

Logging efficiency suffers from delays between felling and delivery of 3-3½ months, during which borers attack. Overall waste is estimated at 40-60% of stock volume.

Concessions are assessed by an 0.2% sampling for trees 35 cm Ø or thicker. By 1982 all land will have been thus inventoried. A comprehensive forest resource mapping is being undertaken with foreign assistance. The 'allowable cut' is set at c. 1 cu.m/ha/year reckoned over 35 years. The 504,581 sq. km of production forest must therefore yield 45 million cu.m annually; potential part for export is estimated at 15-18 million. "Here, the length of the agreement period of concessions is a particularly troublesome point. The cutting cycle is visualized as 35 years; which means that a pattern of logging progression that will take 35 years to complete the entire concession area can be continued indefinitely. But, concession agreements are usually set for 20 years, a situation which makes sustained operations in the following 20 years a dubious prospect. The apparent problem is sharpened by the fact that the production is, in practice, derived from only a portion of the most accessible forests while growth is calculated on the assumption that all forests are under management" (p. 37).

"In spite of the conservative assumptions and the uncertainty of the estimates the yield of the first extractions from unit area of the natural forests has so far been good. But the future potential would depend on quality of the working area and growth expectations. The expectations can be achieved only with greatly improved silvicultural knowledge

and application, greatly improved marketability of the tree species and fuller utilization of harvested trees. The control on logging excised is by volume. And sometimes annual cut can be achieved only by logging more than 1/35th of the area. Since in case of some species (e.g. sinkers), trees of larger size than 50 cm DBH are left because they are non-merchantable and/or their extraction is unprofitable, the structure of the forests will undergo considerable change; and the second cut will not contain the assumed proportion of desirable species. The populated islands Java and Sumatra have problems of theft of forest produces, illegal cutting of trees, illegal cultivation, fires and grazing, on a serious scale. Shifting cultivation and consequent damages constitute a problem, all over" (p. 39).

Such is the way in which Indonesia allows herself to be plundered. Shipping of logs to Japan goes for 20% under Indonesian flag, for 80% under Japanese flag. Singapore is planning to import more Indonesian logs (mostly from Sumatra) to fill the gap in its timber requirements caused by recent ban on the export of logs thicker than 40.5 cm from Malaysia to Singapore. Production of paper in 1975 was 20% of consumption; 18,950 tons of paper pulp and 241,850 tons of paper were imported. And for one cubic meter of wood, valued at $ 40 free on board, Indonesia collects a mere $ 8.20. Farewell to the priceless forests. The Report gives no preface, no introduction, no conclusions, offers no vision. Comment stops short.

P h i l i p p i n e s

Luzon's Highest Mountains: a National Park within view. When an expedition with Dr. M. J a c o b s of the Rijksherbarium had visited Mts Pulog and Tabayoc in 1968 (see *p.1686-1687*; report published in 1972), one of the results was a proposal for conservation of the virgin mountain forests which above 2200 m are all intact. The essence of this proposal is in a brief paper in Environm. Conserv. 1 (1974) 232-233, map and 2 photographs. A park was envisaged to contain the mountains (from N to S) Tabayoc (2819 m), Panotoan (2650 and 2645 m), and Pulog (2930 m). Such a park would protect the watershed and catchment area of the Agno River, and many species of plants and animals which are endemic and/or plant-geographically interesting because of their northern-temperate affinities. Relations with New Guinea also exist, e.g. in Potentilla papuana. There is considerable potential for tourism and field study. The area is too high for agriculture, and an abundance of Pinus means safety for the forests from the axe; the chief danger is grass fires in the dry season which every time consume the forest fringe.

After a long period of deliberation and correspondence, the matter has now come in a new stage. A cooperation between

U.S. Peace Corps Volunteers (among whom Dr. Thomas W. E a k - l e is to be named) and counterparts of the Forest Research Institute (FORI, Los Baños), has resulted in a 130-page report to IUCN/WWF, A resource inventory of the proposed Luzon's Highest Mountains National Park: A detailed survey leading to the development of a management plan (October 1977).

This inventory would include 1) ethnographic research of the Pulog region with emphasis on shifting cultivation, 2) survey of the mammals, 3) floristics of the 'mossy' and pine forests, 4) grassland survey, 5) establishment of a weather station, 6) boundary fixation and demarcation, 7) the making of a film for education and information. Also some hydrobiological work in the lakes on Tabayoc is considered. The report seems of excellent quality, also noteworthy for its emphasis on the human aspects that must receive attention if conservation is to succeed. The Forest Research Institute is making available some personnel and transportation, and a limited amount of supplies, but cannot bear all the costs. So we ardently hope that US$ 65,000 can be found to give this project a good start.

It is a sensible thing to do. For a long time, the Philippines have lagged behind in conservation matters (see *p. 2590-2592*). While Palawan, and the heavily threatened lowland forests in Mindanao and eastern Luzon (Sierra Madre) deserve attention more urgently, the present project has the advantage of being large in area (some 18 by 5-10 km), important, spectacular, and feasible. It can therefore be seen as a testcase. If this succeeds, people may take heart and more will succeed.

J a v a*

Cibodas: activities continue (see *p. 2810*). The education centre is now under construction, made possible by a grant from the Dutch Ministry of Culture (CRM). The centre is to be built near the parking lot, and therefore in a strategic position to treat a considerable percentage of the weekend crowds to a brief lecture and further information. Ms. Regina F r e y is in charge of the establishment, one of the first stages of a larger education program under WWF/PPA joint project 1513.

Second, work on the extension of the reserve to all the primary forest on Mts Gede-Pangrango is now taken up and will result in a Management Plan in the course of 1978.

Both enterprises, so aptly conceived in a key area, make a

* Extension of the network of reserves in Indonesia (see *p. 2805-2815*) by the FAO/PPA teams in Bogor is still going on. Some management plans have been prepared, while several months of field work in western New Guinea have just been completed. More news in the next issue.

testcase for two of the crucial aspects on which conservation success in Indonesia will depend: education and wise land use. The world's eyes are set on Cibodas!

For the proposed 250 sq.km Baluran National Park in the dry NE. corner of Java, a 100 page management plan has been prepared by the FAO team at Bogor (FO/INS/73/013, Field Report 4, Bogor 1977). The descriptive part, 30 pages, gives General information on location and boundaries, access, history, and present situation; Ecological background with physiography, fauna (1/3 of the birds of Java, half the mammal species), and 12 habitat types; Land use (actually misuse); and Management constraints.

In the SE, a 'swamp forest' is recorded, with Buchanania, Excoecaria, and Syzygium polyanthum; the area is about 1½ km across. If true swamp forest, it would be a rarity in Java, worth of a closer investigation, and it should be guarded carefully against any sort of infringement. More remarkable plants may turn up after Erythrina euodiphylla (still unknown in fruit), and the recently described Dichrostachys cinerea subsp. malesiana. The list of plants (from unknown source) gives 444 species, but my own collection of 52 numbers made during a 4 days' stay in 1957 contains 19 species not in this list, the spectacular Platycerium willinckii among them.

The management portion deals with conservation-technical matters, emphasizing large-scale tourist attraction. In view of a variety of degradations in the latest years (including two concession areas near the sea in the NE of 233 and 130 hectares, by order of the Ministry of Home Affairs, and 45 hectares in the SE which were excised for veteran military, as well as an enormous sale of permits for wood collecting), effective protection is urgent indeed. This should certainly include the planting of firewood species.

Many maps and some photographs, a list of over 50 references, as well as documentation of maps and legislation, add considerably to the value of the report.

Flores: Varanus komodoensis. The 'ora', one of Indonesia's well-known animals, occurs along the coasts of western Flores and the small islands to the West: Komodo, Rinca, Padar, and Motang. The FAO group of J. H. B l o w e r, advisors to the Dinas PPA at Bogor, prepared a 'Proposed National Park Komodo Management Plan', vi + 105 p. + 17 fig. + 7 maps (FO: INS/73/013 Field Document no 3, Bogor 1977). This plan gives a description of the region, with history of conservation, lists of mammals, birds, amphibians and reptiles, sea fishes, plants, and a 134-item bibliography on the Komodo dragon. A 1:100,000 map has been added. It calls for a National Park of Komodo and Padar/Rinca (with villages as enclaves), 590 sq.km in area.

Botanical aspects of this area are considered less important; the vegetation, at best, consists of semi-deciduous forest, while also Borassus savanna is characteristic. The photographs, however, show quite some forest remnants in gullies, and to the checklist 103 plant species (based on Hoogerwerf 1954), the botanical priests of Flores probably could make many additions.

It is not intended at present to extend the National Park to the mainland of Flores, and the 1500 ha Wae Wuul Reserve there should remain under local PPA-administration - if it is not too much degraded. Remote sensing has revealed, however, a promising area in the region of G. Keling, some 30 km S of Labuhanbajo, and a detailed survey there is strongly recommended (p. 61).

The Management Plan is similar in scope and execution as the Baluran one, discussed under Java.

C e l e b e s

Lore Kalamanta National Park is proposed in a FAO Field Report, 71 p. + 5 sketch maps + 11 colour phot. + 1 topographic map (1:250,000), code FO/INS/73/013, Field Report 6 (Bogor 1977), drawn up for Dinas PPA.

It is a 2500 sq.km area in northern central Celebes, half of it already gazetted, to be extended northwards so as to include Lake Lindu and Mt. Nokilalaki (2355 m), where S. B l o e m b e r g e n botanized in 1939, and W. M e ij e r in 1975 (see his tour results on *p. 2555-2556*). Dr. R. E. S o e r i a a t m a d j a of ITB, Bandung is reported to have collected plants in 1976, but nothing more is known. Rumour has it that the Governor of N. Celebes himself was considering to grant a logging concession in the proposed extension, but after some communication had the wisdom to decline. For the time being, the area seems safe — in the direct interest of the Palu valley, the driest portion of Indonesia, which for a good deal of its water supply depends on just this extension (shown by map 4 of the report); see *p. 3040!*

Lore Kalamanta lies E of the long rift valley (Fossa Sarasina) which from Palu near Donggala on the NW. coast goes SSE, between km 40 and 120, straight; a surfaced road goes up as far as Gimpu, km 85 straight, 130 in fact. Width in the N is c. 50 km, in the S c. 25. Altitude is above 500 m, but very little is below 1000 m, and 70% between 1000 and 1500 m. The area is non-volcanic, and geologically a mixture. It is wild country, traversed only by a few trails, which are difficult during rain. People (the West Torajas) freely hunt, and collect rattan, bamboo, timber; damar prices are low these days. The fauna is interesting, many mammals of Celebes are endemic, and bird species. The results of Dr. Guy M u s s e r 's collection work were at the time not yet published.

At present, c. 7000 people live in the area, a similar number as 70 years ago, but there is evidence that in times past population was more numerous, and influenced the vegetation for long periods; some 90% of the reserve, however, is still covered with more or less mature rain forest. The village Sopu lies just N of the Park, Napu just E, Bada just S. Inside are Lindu and Besoa with surrounding fields; these are to become enclaves. Some have now a strip for mission aircraft.

There is plenty of reason to establish Lore Kalamanta as a National Park. All our botanical data come from the proposed extension, and they are interesting enough; M. Jacobs in an 11 page report to IUCN (May 1977) gave a digest of these data with a comment on the high botanical value of the region. The botanical position of Celebes as a whole has been well analyzed by H.J. Lam (Blumea 5: 600-640. 1945). The island has plant-geographic relations with Borneo through Mindanao, with New Guinea through the Moluccas, with Java perhaps via Kangean, and there are a number of plant-geographical 'oddities' as well. Accordingly, we find in Celebes plant genera with very different distribution types. Ailanthus integrifolia (Simaroubaceae) is wide-spread but rare. Lithocarpus glutinosus (Fagaceae) is only known from Celebes and the Philippines. Sterculia insularis (Sterculiaceae) has its closest relatives in Moluccas–New Guinea. All these species occur in Lore Kalamanta. So does Canarium acutifolium var. celebicum (Burseraceae), an endemic variety of a New Guinea species; Macadamia hildebrandii (Proteaceae), endemic in Celebes, related to an Australian species; Mastixia pentandra subsp. scortechinii (Cornaceae), eastern outlier of a polymorphic west-Malesian taxon; Sarcosperma paniculatum (Sarcospermaceae), exceedingly rare throughout Malesia, two collections known from Celebes; Tacca palmatifida (Taccaceae), endemic in Celebes; Pigafetta ciliaris (Palmae) endemic; Dr. Musser collected some 60 palm species, and may also have found Trigonobalanus (Fagaceae). Ferns of interest there are plenty, all Meijer numbers: Antrophyum callifolium (9587); Crypsinus enervis (9479); Didymochlaena lunulata (10023); Diplazium whitfordii (9491); Goniophlebium persicifolium (9565); Gymnosphaera recommutata (9477); Lomagramma lomarioides (9590); Monogramme paradoxa (9459); Prosaptia alata (9553), which seem new for Celebes. In view of the backward state of botanical fieldwork in Celebes, much more is to be expected from Lore Kalamanta. But since this reserve, as we saw, is mainly montane, it is urgent that a similar area of true primary lowland forest be made a reserve, in Celebes, if only to safeguard, investigate and augment the island's great potential for rattan; we don't forget C. van de Koppel's extensive study (Tectona 21: 61-94, 13 fig. + map. 1928), where it is

stated that Celebes in 1925 exported 51,488 tons of rattan, 40% of Indonesia's then total.* He discussed 17 common species (by vernacular name), coming from the primary forest, as people seemed not inclined to cultivate them.

Returning to Lore Kalamanta: here we find a potential of Agathis, on ridges at 1600-1800 m. Whitmore in a letter expressed as his opinion, that "Agathis has several characteristics which make it suitable for growth in plantations or for enrichment planting, but one needs to make use of its full genetic diversity." Potential is so great and varied, that with every wild Agathis stand destroyed it will shrink, irreversibly. An analogy exists in Eucalyptus, which also extends into Celebes: see the chapter in Burley & Styles, Tropical Trees (1976) 101-108, on similar conservation problems.

The Report gives General information; Description of area; Human population and land use, including Development (p. 1-24); Management prescriptions and administration (p. 25-46); Budget and Regulations (p. 47-60); a preliminary checklist of Birds, with source indication and endemicity; a list of Mammals; and a list of 52 references, to which those cited in the present review could serve as an addition. Maps are well-documented.

Certainly, this reserve will be a great asset, and a fine research ground, for regional universities as well.

Logging a nature reserve .... to improve it.

"If the highest authorities in Indonesia — whose eloquent phrases about the value of natural resources testify to their awareness — allow Sikundur to be logged, with every tree a portion of Indonesian credibility will fall down", we wrote in last year's FMBulletin on *p. 2812-2813*. Since, wilful destruction has proceeded in these lowland parts of the Gunung Leuser Reserves, on the Medan, or rather the Besitang, side.

The Dinas PPA (the branch of Forestry in charge of nature conservation) was apparently pressed by the highest authority in the country into signing an agreement with the Rajagarudamas company. Under this agreement, the company would 'selectively' log 10,000 hectares as a 'pilot project', in the course of 7 years. The agreement was signed on 8 December 1977. Logging had already begun, however, in June of that year, and a reported 10,000 cubic metre of wood was already extracted. A team of conservationists who visited the area and reported on the affair wrote that the Director General of Forestry before the signing of the agreement had given per-

* In 1974, rattan export for the whole of Indonesia was 53,400 tons, in 1975 it was 42,900 tons.

mission to log 1,000 hectares. (Logging in Sekundur Reserve, 15 + v p., 9 phot. + 1 map, Bogor, February 1978.)

The reader may not know the effect of an extraction of 60 cubic metres per hectare, which seems moderate in comparison with 120 to 150 cubic metres per hectare in rich forests in Borneo. But P.F. Burgess, Malay. Nat. J. 24 (1971) 231-237, in a paper on the effect of logging on hill dipterocarp forest, wrote that if 10% of the canopy is removed by logging, this results in a damage of another 55%, so 35% of the canopy is left after the operation. This gives an idea of the damage. As for the fauna, H.D. Rijksen in his Field Study on Sumatran Orang Utans (1978) p. 363, quotes figures that from logged forest at least 48% of the mammal species disappeared; another study revealed that disturbed forest contained c.40% of the number of species of the primary forest. "Moreover, strangling figs are often deliberately killed during logging operations or, when left undamaged, often die of exposure after neighbouring trees have been removed" (p. 363). What makes the loss of these figs so serious, is the fact that the orang-utans, gibbons, siamangs, and several hornbill species, depend on just these large Ficus species as their main source of food. Rijksen demonstrates this ecological relation with a wealth of quantitative data, for the various apes and all the 8 Ficus species involved (see also under Reviews in this issue), which are confined to the primary forest.

Two main reasons make these facts matter. First: the future of the Sumatran subspecies of orang-utan (Pongo pygmaeus abelii) depends on the integrity of the Leuser Reserves, as Rijksen has also shown. Of its present area of 30,000 sq.km, some 20,000 sq.km is mountainous and offers no suitable habitat, while at least 2/3 of the forest within the orang-utan area is liable to imminent destruction (p. 43-44), by slash-and-burn as well as by logging. And Rijksen warns that "time and again people argue that orang utans are capable of surviving in degraded habitats. Usually such arguments are based on incidental observations of an orang utan moving through secondary growth. It cannot be denied that orang utans, and in particular young individuals, may every now and then wander through areas not familiar to them, or perhaps explore secondary vegetation. However, it is inappropriate to give such incidental observations any weight and draw the conclusion that this ape can live in the badly degraded forests left after commercial logging .... In the context of preserving this species one has to accept that orang utans are one inextricable component of the ecosystem" (p. 376-377).
Second: Sikundur is the main lowland part of the Gunung Leuser Reserves. And it is the lowland rain forests which (undisturbed, of course) contain most of the species of plants as well as of animals. In nearby Malaya, R.G. Robbins & J.

Wyatt-Smith, Malay. Forester 27 (1964) 186-216, established that 300 m altitude already marks a boundary between two zones. In the lower zone, up to 300 m, they distinguish 9 different types of forest, between 300 and 750 m, 6 types. So there were reasons aplenty to establish a large area of lowland primary forest as a 'Suaka Alam Margasatwa' – the wooden sign indicating its reserved status is clearly visible on the photographs in the report. Behind it is a landscape of bare soil and broken trees. How is such a thing possible?

The WWF report states: "Concessions were given in Sekundur as long ago as 1967, resulting in the logging of some 5,000 ha, the construction of 40 km of logging roads, and the essentially permanent destruction of some 2,000 ha of forest. Several other major reserves in Indonesia have been logged, are in the process of being logged, or have been partly given out for concessions, but Sekundur is now the only place where PPA is able to have some effective legal control over the activities of the loggers; elsewhere, logging is completely under the control of Forestry Department or is done by small-holders or local people over whom there is little control by anyone. The other 'concessions' in Leuser, notably in the Alas Valley, yield no benefit whatsoever for PPA or nature conservation. The Forestry Department claims that logging is difficult if not impossible to stop, and if there is no planned exploitation, then there will be unplanned exploitation (which will be of less benefit to the national economy, though direct environmental damage is probably less). As of 1 January 1978, the Director General of Forestry has proclaimed that there will be no timber concessions in reserves. However, previously timber concessions were not illegal in reserves (Suaka Margasatwa) and PPA is not powerful enough to stop them overnight. The first step is to obtain control, then to phase out the concessions in reserves step by step. PPA's budget and influence are increasing within the Forestry Department, and its improved status might be threatened if it opposed the Pilot Project" (p. 9).

This 'Pilot Project' was written in Indonesian; excerpts translated into English are given in the 5-page Appendix. We quote: "While waiting for the management proposals (for the proposed Gunung Leuser National Park) and in order to discourage local villagers from stealing wood belonging to the Nature Reserve, a 'Wildlife Habitat Pilot Project' covering an area of 10,000 ha is being developed within the Sekundur Reserve in connection with the plan of subsequently establishing a national park. The pilot project is meant to clear the way toward the developing of the National Park through a balance of selective cutting of trees and development of habitat so that wildlife can be protected. Further, a love of nature can be ingrained through the provision of recreational,

cultural, and scientific facilities. It is hoped that this pilot project area will form a sort of barrier or buffer so that damage to the main part of the planned National Park can be kept at a minimum by using the area as a transition zone (from the usual farming, plantations, industry, etc.) ...."

And later on: "Prior to the exploiting of the timber, main and secondary roads and pathways are to be made. The latter does not only function as a means of transporting the timber, but also as patrolling pathways to be used to ensure the well-being of the reserve" (p. ii; editor's underlining). What such roads are like, is shown in figure 5, and it is well-known from other sources as well. Logging roads are prone to erosion, block streams which rise to form swamps and kill trees, and provide stagnant water for malaria. So the rule that "no cutting down of trees is permitted within a radius of 200 m of any watercourse" (p. iii) will be difficult to obey ....

The idea seems to be to open up the forest, to make space for game such as elephants, deer, various kinds of birds, etc., which "would be the main touristic attraction in an effort to develop the reserve into a recreational park" (p. iv). Feeding grounds for elephants are to be created, observation towers to be erected, also "as a means of supervising the area (e.g. in order to prevent forest fires, etc.). They can also serve as investigation centres for research" (p. iv).

Well, the data of fauna decrease after logging are given above. Forest fires are extremely rare in this climate, and if they occur, are not nearly so destructive as one day's logging. Research on an impoverished fauna in an artificial environment has scant value. Tourists are unlikely to travel that far from Medan, since the Bohorok orang utan station is easier to reach and also near the Leuser Reserves. As for the arguments about creating a buffer zone and to satisfy the needs of the population: whatever their value, timing and credibility, they serve to decrease the protected area, not to maintain it.

The argument of rehabilitation is equally sinister. "In order to ensure rehabilitation, certain steps have to be taken: 1) Ensure natural rehabilitation by keeping to a minimum the damage done to the surrounding areas of cut trees, 2) Felling of trees is not done in areas that have recently been exploited, 3) In cleared areas .... reafforestation is to be ensured through the planting of seedlings locally available (natural rehabilitation), or by scattering the seeds of trees that would be advantageous later on" (p. iii). The makers of the PPA plan with its soothing recommendations must have been ignorant of a study by F. Kramer, Tectona 26 (1933) 155-185, on natural forest regeneration on Mt. Gede, W. Java. He found that only in gaps of 0.05 hectare or smal-

ler regeneration proceeds unhampered. In gaps 0.05-0.1 hectare it occurs with some difficulty. In gaps 0.2-0.3 hectare it is halted because the seedlings of commercial trees are first suppressed by secondary growth, and a succession stage must be passed.

Since 1970 a Gunung Leuser Committee exists, which in Holland meets 2-3 times a year. None of the conservation experts who are its members has been consulted on such plans. On the contrary, rumors of imminent logging in Sikundur have always deeply concerned the Committee, and when H.R.H. Prince Bernhard of The Netherlands implored President Suharto of Indonesia to put a halt to the operations, he acted with advice from the Leuser Committee's chairman.

An amount of revenue of $ 5.00 per cubic metre of wood is cited as the 'yield' of the 'pilot project'; the 10,000 hectares, at 60 cubic metre, would produce $ 3,000,000. This would be used for "rehabilitation" of the same lands. The market value of the timber is much higher. A large modern wood-working factory near the reserve was opened by President Suharto in August 1975. Such factories cost $ 5,000,000. It operates efficiently, can easily receive logs from elsewhere .... "The only problem here is that the factory is receiving logs from the last lowland rain forest reserve in the northern part of Sumatra" .... at a rate of 35 hectares of forest a day (p. 7).

The Sikundur area is 79,000 hectares. Reserves, especially of lowland rain forest, to be valuable and meaningful, should be large. Most disquieting is therefore the announcement that, should this pilot project 'succeed', another 25,000 hectares will be logged.

It is evident that the WWF team, conservationists, Dr. H. D. Rijksen, primatologist, and Dr. M. Jacobs, botanist, independently and on the basis of different considerations, have arrived at the same conclusion, notably that any further logging degrades the value of the reserve. From the scientific point of view, the arguments adduced in favour of timber exploitation in the reserve are a ludicrous fallacy. From the conservation point of view, the failure of the pilot project is already obvious. From the credibility point of view, the Sikundur affair is disgusting. A primary forest reserve can only function properly if it is left absolutely inviolate. Unless the logging is stopped, Indonesia's reputation in conservation will be badly stained.

It seems good, here to take up the idea which has already been forwarded in Indonesia itself from various quarters, that Conservation come under a Ministry of Environment. While formerly, when large forested areas were intact, the Forestry Service might have seemed a natural place to accommodate conservation, the conflict of interest has grown to unhealthy

proportions; the arguments quoted above show it. The same agency that keeps nature reserves has the power to sell the trees in them. The Forestry Department has the power to set logging in motion but, according to the above quotations, lacks the power to stop it. The PPA, too, apparently is unable to protect the lands in its trust. The only solution seems to strengthen the protection agency on at least an equal basis as the exploitation agency, lest all Indonesia's forests will be ruined. Now it could happen that parts of the East Kutai Reserve in Borneo were excised, logged over, and again included in the reserve. Illegal cutting in Cibodas in West Java began when this Reserve had been transferred from the Bogor Gardens to the Forestry Service and ended only after an international outcry. If the conflict of interest is allowed to persist, the forest will be the victim, and everybody will be poorer, for ever! — M.J.

Workshop held at Bogor, 4-6 February 1976, was organized by the Indonesian Man and Biosphere (MAB), and the Dinas PPA. Dr. Kuswata Kartawinata of the Herbarium Bogoriense reported on it in Envir. Conserv. 3 (1976) 233: "It was attended by representatives of various government agencies, parliament, research institutions, universities, boy scouts, and private organizations whose activities deal with conservation of Nature.

Several papers dealing with legislation, methods of inventory of flora and fauna, evaluation of endangered plant and animal species, guidelines for designation and establishment of natural areas or conservation areas, and case-studies and proposals for the establishment of biosphere reserves, were presented and discussed in this meeting. The proceedings and recommendations of this Workshop are being published in Indonesian, while the recommendations have been translated into English. Those who are interested in the proceedings and recommendations may write to the Chairman, Indonesian Committee for MAB Programme, LIPI, Jalan Cik Ditiro 43, Jakarta, Indonesia.

The Workshop was particularly appropriate and timely in view of the fact that it coincides with the Indonesian Government's plan to extend the present conservation areas of the country from three million hectares to ten million hectares in the next ten years. The recommendations of the Workshop have been adopted also by the Directorate-General of Forestry as its basic policy in conservation of Nature and natural resources in Indonesia. As the follow-up of the Workshop, the Directorate of Nature Conservation and Wildlife Management duly translated the recommendations into an action programme in the form of technical guidelines for selection of conservation areas, an inventory of animal species, and draft laws for Nature and natural resources."

The Indonesian Wildlife Fund, of which Mr. Soedjarwo, Director of Forestry, is Secretary, is now able to provide $ 14,500 a month for approved projects, of which 17 are now under study.

Agreement between Indonesia and WWF, from 1 January 1977 to 31 December 1981, replaces the now expired 3-party agreement on the Gunung Leuser reserves, and has an all-Indonesia coverage. Under it, management plans shall be continued to be made, and progress reports be sent to WWF by 31 January every year, WWF officers are granted control in the field, and a special Advisory Committee will be set up by WWF/IUCN. WWF appoints an expatriate representative. Indonesia will facilitate work under the program, and provide counterparts in each project. Finally: "The Government will make every endeavour to maintain the integrity of all National Parks and Reserves existing or proposed."

Quotation. "Obviously, the ongoing destruction of the tropical rain forest, for whatever reason, has implications beyond the imagination of present day authorities. When viewing the timber concession maps of Indonesia it is clear that foreign commerce is rapidly robbing this country's resource. This modern form of colonialism seems possible because of the desperate attempt of tropical societies to be accepted as civilized, developed, and technologically advanced, according to the standards set by the rich, aggressive and powerful societies of temperate regions" (H.D. Rijksen, A field study on Sumatran Orang Utans, 1978, p. 379).

Following a request by the National Environment Board of Thailand, IUCN is assisting the Thailand Government in the preparation of a National Conservation Plan in close collaboration with UNEP and FAO. The team is made up of the following people: Colin Holloway, Chew Wee-Lek, Daniel Navid (IUCN), R.A. de Rosayro, Birgit Sloth (IUCN,consultants), M.K. Ranjitsinh (NEP) and Jaap Kuper (FAO). The team began work on 16 January 1978 and will continue until end March. They will cover both terrestrial and marine ecosystems and will also look into law and education. The plan is expected to be finished and submitted to the National Environment Board by September 1978 so as to enable them to submit it to Thai Government for adoption in December 1978.

M a l a y a

As the trees tumble, profits leap .... for a few, for a while!

For Malaysia the end of the world-wide recession in the timber market was signalled last year when the big buyers — Japan, West Europe, Singapore, South Korea, Taiwan — returned in force. The federation's gross earnings from export of saw

logs were 117% up on the previous year. Sawn timber exports rose 110%. This upward trend was maintained into at any rate the first three months of this year when exports of saw logs were 35% up in volume and 70% in earnings over the same period last year. The equivalent increases for sawn timber exports were 31% and 40% respectively.

Within the federation West Malaysia (Peninsular Malaysia) lags far behind Sabah and Sarawak in export of saw logs. But for sawn timber the picture is reversed. Here West Malaysia with its 700 mills is way out in front. In the timber-rich peninsular States of Perak and Pahang sawn timber is a vastly lucrative business — for those who can acquire the logging concessions.

The timber lobby is enormously powerful; sometimes it may even override security interests. In Perak although the military has publicly demanded a halt to logging in certain areas to allow operations against insurgents, the State Government has refused permission for fear of losing logging revenue.

Meanwhile in Pahang the rape of Endau Rompin continues with feverish intensity regardless of the Federal Government's known views and regardless of outraged cries from conservationists, business organizations, students, the local press and even sections of the ruling coalition parties (see following story).

The jungles of West Malaysia will (so it seems) soon be gone. A handful of people will be a lot richer — for a time. And the country will be a lot poorer for all time. In 1976 sawn timber exports topped 3 million cubic metres. In 1977 the figure will be higher still. This is a prodigious number of trees — far more even than the figures suggest. In Canada and Europe 80-90% of felled timber is recovered. In Malaysia 65% is left to rot. (IUCN-Bulletin n.s. 8, November 1977, 65.)

The greatest nature conservation crisis this year was the tragic loss of nearly 1/3 of the proposed Endau-Rompin park mainly in Pahang and also partly in Johore. Logging was approved by the Pahang State Government, causing a very severe public outburst, with strong criticism from various national bodies, such as the Malayan Nature Society, the Malaysian Forestry Society, the Geographical Society of Malaysia, the Zoological Society, and others. Later, even political bodies joined (the United Malay Nationalist Organization Youth Branch has condemned the logging action). All this pressure finally had the effect of causing the stoppage of new issuance of logging licences, but a great deal of damage was already done. It is widely believed that proceeds of the logging, apart from what goes directly to the State and the contractors, is going to the single most prominent individual in the state, though this has never been publicly confirmed or de-

nied. The logging has probably divided the extremely tiny Rhinoceros (Sumatran Rhino) population in half, the halves likely being below reproductive size. Logging was carried out excessively fast and even more destructively than usual, and enormous damage has been done to the streams, as well as to all the timber areas. International concern was expressed by various bodies such as WWF, IUCN, but to little avail. The local campaign has to be judged a partial success, however; without it it is likely that the whole core area of the Park (with the finest forest) would have been logged. Pahang is well known as one of the most recalcitrant States in the Federation to carry out its own forestry policies without regard to national scientific advice (it does so, of course, quite legally). Until effective national forestry and logging laws are enforced, Malaysia will be risking her priceless forests to careless, selfish short-term interests.

B o r n e o

Kayan reserves proposed. It was Dr. A. J. K o s t e r m a n s who, drawing on his experience of field work in NE. Kalimantan, pointed out the area to Mr. A.P.M. van der Zon, member of the FAO advisory team to the PPA, when both were at Leiden. Now a 22-page FO/INS/73/013 Field Report 5 (Bogor, October 1977) is there, with 5 maps. They indicate 3 proposed reserves. One is the Turtle Islands N off the Manubar Peninsula, the 'nose' of E. Borneo. The others are on the River Kayan at c. 2°30' N, one being the delta, c. 40 km S of Tarakan, one being upstream. The latter extends from the Bahau-Kayan junction up their basin between Kong Kemul (2053 m) in the South, a 1950 m peak not far from the Sarawak border in the West, Bk. Lalau (1541 m) and G. Bakayan (1599 m) in the North. Between these peaks the land goes down to 100 m. This reserve is estimated at 8000 sq.km. The forests contain a variety of dipterocarps, but are very rich in species of other families as well, and densities of individuals of one species are therefore low. Many monkeys, ungulates and other animals are reported. Population in the region has declined from 19,330 in 1971 to 13,053 in 1977 owing to migration downstream, attracted by logging operations in adjoining areas.

Problems with some concessionaires are still to be solved, the largest of them Gama Mula Raya, for Gajah Mada University, Jogyakarta. What a magnificent study area this would make to train their students in conservation! Fortunately, most of the land is rugged and log could only be carried off with much breakage. If the plans sketchily laid down in this report materialize, à great asset would be added to the network of Indonesian lowland and montane reserves.

The delta reserve ('Muara Kayan'), some 500 sq.km in area, consists of brackish and saline tidal swamps with much man-

grove and a rich and varied fauna of which the proboscis monkey (Nasalis larvatus) is paramount. Contrary to other mangrove, this is still free from exploitation.

P a p u a N e w G u i n e a

Legislation. Three bills will be introduced: on Environment, Contamination, on Environment Planning, and on Conservation. Under the Conservation Bill, the Minister can declare any area a conservation area, to be managed by a trust of tribal wardens. 'Developers' have the onus of proof that development will not be harmful. A public awareness programme is considered to support implementation of the Bill.

Mr. Lance H i l l of UPNG is developing a national parks diploma course designed to fit into traditional land ownership and tribal involvement in ecosystem management, hopefully with IUCN/WWF support.

A letter from Bosavi, the mission station in the heart of Papua (E. New Guinea) at the foot of the mountain of that name, 2250 m. It is a small airstrip at 700 m, surrounded by vast stretches of primary forest, on the Great Papuan Plateau. "The dept. of Wildlife is building a crocodile farm down at the Dibono river and the chap in charge of that is doing all he can to make the mountain into a reserve. Late last year a Chimbu came in and shot some rare, protected birds on the mountain. He got 3 or 4 months in jail for that so they have woken up that something must be done. The Government has taken a hard line against shotguns and suspends them for the slightest reason, like a spot of rust or something like that." April 24, 1977.

P h i l i p p i n e s

Mt. Apo declared safe. On *pages 2359* and *2591*, concern was expressed about logging in this most important rain forest reserve in Mindanao. In the President's Letter number 41 (July 1977) of the International Council for Bird Preservation, extracts of a letter from Mr. Edmundo V. Cortes, Director Bureau of Forest Development, to President Marcos, are printed, now quoted:

"We wish to respectfully inform your Excellency that contrary to what had been published in the newspapers (Bulletin Today, August 14, 1976) there are no such proposals to release for lumbering any portion of the Mt. Apo National Park. The Bureau of Forest Development, in consonance with your Excellency's policy has not opened up to the Mt. Apo National Park for lumbering, and has no intention of doing so ....

The Bureau of Forest Development have now intensified the protection and development activities in the park, at present we have 2 Conservation Officers, 2 Supervising Park and Game

Warden, 4 Parks and Game Warden and one Research Biologist permanently assigned in the Park area. These personnel are based in strategic places where they conduct intensive forest protection and extension work ....

The Bureau of Forest Development have always resisted attempts to release any portion of Mt. Apo National Park, being fully aware that the maintenance and development of the resources potentials therein depend greatly on the preservation of its integrity as a park. The Mt. Apo National Park is the natural habitat of our world-famous wildlife, the Monkey Eating Eagle. Just recently, and as evident manifestation of our determined effort to conserve the Mt. Apo National Park, Secretary Jose J. Leido, Jr. upon our recommendation, cancelled the timber licence one Vincente Jickain, whose concession posed a threat to the protection efforts of Mt. Apo.

There was a prior attempt by my predecessor to reduce the area of Mt. Apo National Park by releasing approximately 60,000 hectares as forest reserve with portions at Kidapawan area already earmarked for lumbering purposes.

The timely discovery by the Secretary of Natural Resources and his avowed declaration that the Department has no intention of re-classifying Mt. Apo as a forest reserve prevented what would have been an irreparable injury to conservation, reiterated in the most positive manner that our government stands four squares against the exploitation of Mt. Apo, and other national parks in the Philippines."

P a c i f i c

The CEMP (Comprehensive Environmental Management Programme) planning meeting was held in the South Pacific Commission HQ at Nouméa, New Caledonia, on 9-11 March 1977. It aimed at coordination of conservation efforts in the broad, eco-development sense, in a Terrestrial, a Marine, and a Human Settlement Group. A South Pacific Eco-development Fund will be set up to finance these activities. Papua New Guinea dominated the meeting, but further participation was sought. Both IUCN and UNEP have an interest in the matter. Contact Mr. A. Dahl of the SPC.

In New Caledonia, Mr. G o y, Director of the Service des Eaux et Forêts, is directing efforts to select samples of unique flora to be set aside as botanical reserves. Dr. H.S. McKee of the Forest Department and Mr. P. Morat of ORSTOM have agreed to collaborate.

In Fiji, an overall conservation program is to be prepared in 12 months, with IUCN/WWF assistance. Mrs. S. S i w a t i b a u, local botanist with good knowledge of the flora, may collaborate and put the herbarium at Suva to the use of the program.

World Wildlife Fund, Netherlands Appeal (WNF) had set up a week-long nation-wide fund raising drive. Posters went up, school-children went from door to door, nature films were shown on television, hopes were high that 20 million dollars would be collected — and remained unfulfilled. Three factors can be identified. First, the action was held in November, the month when in The Netherlands nature is at its unkindest. Who would give money for such cold, wind, and rain? It should have been May. Second, the organisation had been entrusted to one of those professionals who specialize in channelling the well-known Dutch generosity. But the one chosen had come under criticism previously — there had been an unpleasant affair with the Leprosy Fund, for instance — and indeed the organisation was not flawless. Third, there was other adverse publicity, too. Strong ideological currents in the country complained that all this money is worthless unless the mind of the people is radically changed for the better: 'Give For Nature' (the slogan of the action) would only serve to make the symptoms of capitalism less visible while leaving 'the system' as it was.

The net result of $ 6 million was disappointing enough. One positive remainder is a popular book issued on the occasion, and called Geef om de Natuur (give for nature), illustrated with splendid colour photographs, and a clear text which in 127 pages marvellously covers the whole field of endangered environmental values the world over, and the manifold relations of man and nature through history. Composed by several authors, published by Het Spectrum, Amsterdam, at an incredibly cheap Dfl. 12.50 (= c. $ 6.00); a series of co-editions in other languages would enlighten many people about the good cause of conservation.

STOP PRESS. Lore Kalamanta still endangered.

News came that this most valuable area described on *p.3027-3029* is under a new threat of a logging concession, granted by the Director General of Forestry to the firm Kebunsari. Local opposition is mounting, however, and well it should: a logging road has already damaged drainage patterns for the Wuno and Gumbasa irrigation schemes, for which this is the water catchment area. So for a quick profit, the reliable flow in the rivers will be reduced, soil come down to fill irrigation works, and a spread of bilharzia can be expected ... not to speak of a shameful gap between fine words and ugly reality. When the revenues have been spent, after the loggers have gone, the population will find themselves robbed of another area of forest which they so badly need, intact, as a natural resource. They must make do with it forever!