

V. HERBARIA, GARDENS, ORGANIZATIONS

(continued from page 239)

The holdings of BRUN stood at 10,815 numbers at 31 December 1990. Of these, D.S. EDWARDS (Universiti Brunei Darussalam) contributed 113 numbers of Brunei ferns.

The second **Flora Malesiana Symposium** will be held from 7–12 September 1992 at the Garuda Hotel, Yogyakarta, Indonesia. There will be two major themes, taxonomy and biodiversity with an emphasis more on action than on theory. A First Circular should be out by the middle of 1991. For more information please contact Dr. M. RIFAI, Herbarium Bogoriense, Jl. Raya Juanda 22–24, Bogor, Indonesia. On 6 September 1992 a Board Meeting of the Foundation Flora Malesiana will be held.

Internationalization of the Flora Malesiana Project. On 20 and 21 June 1991 a meeting was held at the Rijksherbarium/Hortus Botanicus, Leiden, the Netherlands, to discuss further internationalization of Flora Malesiana as advocated during the workshop 'The Future of Flora Malesiana' in 1989. The meeting was attended by Drs. S. WIRJOATMODJO and SUHIRMAN (BO), A. LATIFF (UKMB), K. LARSEN (AAU), G.LI. LUCAS (K), P.F. STEVENS (A), D.H. NICOLSON (US), and from the Leiden side by P. BAAS, C. KALKMAN, H.P. NOOTEBOOM, M.C. ROOS, J.F. VELDKAMP, and W.J.J.O. DE WILDE.

It was decided to create a new Flora Malesiana Foundation, with an International Board and Executive Committee. The Board will be composed of a Chairman, for which a representative of LIPI will be invited, a Secretary, ROOS, the new Leader of the Tropical Group at L, and Members, representing all countries of the Flora Malesiana region and the Herbaria of A, AAU, K, L. All these have pledged active support to the Flora Malesiana project by allocating manpower to it and by committing themselves to joining fund raising efforts. Kew for example guaranteed that 2.5 full time staff members will work on Flora Malesiana treatments, at least until the year 2000.

Kalkman gave a review of the present situation and prospects for completing family treatments (see Chapter VII). He summarized for which large families major fund raising efforts still have to be initiated and specialists recruited or trained. A discussion of the individual families also showed that for most of them solutions to these problems are manageable, and that co-ordinating authors can probably be found. LARSEN for instance suggested that a number of taxonomists working for the Flora of Thailand Project might become active for Flora Malesiana.

For the near future the following strategies will be adopted:

- 1) establishing the Board and formalizing agreements between participating Institutes and the new Flora Malesiana Foundation;

- 2) drafting a 'Prospectus of Flora Malesiana' including an updated plan of action, which can be used for multi-targeted fund raising activities;
- 3) active fund raising, and
- 4) recruitment of authors.

A special effort will be made to increase the participation of botanists from the Malesian region by promoting training opportunities in- and outside Malesia, and by establishing a Fellowship programme.

All readers of this Bulletin are invited to give suggestions for the activities of the new Foundation which can further support Flora Malesiana. — P. BAAS.

Forest Research Institute of Malaysia, Kepong — A survey of the history and functions is given by K.M. WONG (1989).

The IUCN Plant Conservation Office has moved to Descanso House, 199 Kew Road, Richmond TW9 3BW, U.K., tel. 081-940.4547, fax 081-948.4363, telex (unchanged) 296694 KEWGAR G.

The Centres of Plant Diversity Project is run from this office.

Memorandum of agreement Kebun Raya (Bogor) – Rijksherbarium/Hortus Botanicus (Leiden). In view of their common goals to promote the study of Indonesian plants and to conserve botanical biodiversity in the Malesian region these Institutes agreed to cooperate in the following fields of research and education:

- 1) *Botanical exploration* in Indonesia with the aim to identify areas for conservation and to expand the living collections at Bogor and Leiden. Whenever possible Leiden taxonomists will join expeditions of the Kebun Raya (KR) to carry out botanical inventories of selected regions of Indonesia. They will also assist in the identification of plant collection. A joint expedition to East Kalimantan is planned for 1991 by the KR, Kew, and L.
- 2) *Training.* Dutch taxonomists will train KR staff during these expeditions in collecting and identification. The KR will stimulate its staff to acquire taxonomic expertise by enrolling some of them in the Course given every few years by docents from BO and L.
- 3) *Research.* For the initiation of a comprehensive research program concerned with:
 - inventories of botanical biodiversity in Indonesia;
 - propagation and (re)introduction into the wild or into cultivation of rare and endangered species;
 - field or garden studies of taxonomically and biologically problematic plant groups.
 The KR and L will jointly apply for supplementary funds in order to appoint a research manager for the initiation and day-to-day supervision of research projects. Accommodation and a basic Indonesian salary will be provided for by the Kebun Raya. Dr. M.M.J. VAN BALGOOY will act as consultant to the Kebun Raya and its – to be appointed – research manager, provided the external funds for travel and a consultancy fee can be procured.
- 4) *Plant propagation.* The Kebun Raya and Rijksherbarium/Hortus Botanicus (RHHB) aim at initiating an exchange program of garden and/or greenhouse staff whereby Indonesian counterparts will visit The Netherlands in order to become familiar with advanced propagation techniques and Leiden counterparts will visit the Kebun Raya or join field expeditions in order to become acquainted with the natural growing conditions of tropical plants.

- 5) *Education and museum function.* There will be regular contacts between Bogor and Leiden counterparts about educational and museum aspects of the Botanical Gardens and botanical museum displays. Whenever appropriate exchange visits of responsible staff members will be arranged. The possibilities of a joint exhibition on the links between the KR and the RHHB, to be displayed both in Indonesia and in the Netherlands, will be explored.
- 6) *Exchange of plant materials.* Wherever appropriate the exchange of living plant material between Bogor and Leiden will be promoted. A first set of dried plants from exploration trips will be deposited in Herbarium Bogoriense; a second set in Leiden.

Was signed: Leiden, 8 February 1990. Dr. SUHIRMAN (Director of the Kebun Raya Indonesia), Prof. Dr. P. BAAS (Acting Scientific Director Rijksherbarium/Hortus Botanicus).

Under the **National Park (Amendment) Ordinance of Sarawak, 1990, Sect. 2 (1), part 1**, 46 species of plants have been listed as 'totally protected': all *Rafflesia* spp, *Dipterocarpus oblongifolius*, and as 'protected': a few palms, orchids, *Shorea*, *Sonneratia*, etc. It is hoped that these species will so be protected from extinction. (At least this is a beginning, but 46 out of many thousands of endangered plants is only a small drop in the bucket. JFV.)

The **Philippine Flora Project** officially got under way in December 1990. Dr. S.H. SOHMER (BISH) is the Principal Investigator (PI) and Dr. B.C. STONE, the CO-PI represent BISH in PNH, the two Museums being the joint collaborators of this project. The project, organized as three overlapping but not strictly sequential 'phases' consists of:

- a) the Philippine Plant Inventory (PPI) (see Expeditions for an account of the first collecting trip of the PPI in Palawan),
- b) the Collections Management, and
- c) the Editorial aspects.

The Collections Management phase has now been underwritten by a supporting grant from the MacArthur Foundation to supplement the Inventory which is funded through the National Science Foundation (USA) and consists of two support sources, the NSF itself and US-AID. The project has two centers, at BISH and at PNH, with activities specific to these institutes. The Collections Management phase, to commence in 1991, will undertake major renovations in the physical aspects of the herbarium of PNH as well as substantial innovations and rehabilitation tasks involving the curation and preparation of specimens. The task of rehabilitating older collections, integrating new ones, sending and receiving loans, and updating identifications, are all subsumed under the Collections Management phase.

Taxonomists who are interested to prepare treatments of families (or other taxa) for the Philippine Flora Project are cordially invited to contact Dr. B.C. STONE, Philippine Plant Inventory, Box 2659, National Museum, Manila, Philippines.

The Project is envisioned as a ten year effort. Intensive collection activity is scheduled for the first 3 years and will continue. An editorial phase is planned. Loans of material from PNH are available now, with new collections of the PPI series to be added as soon as possible.

Botanists already with treatments for Flora Malesiana under way will wish to avail themselves of the new materials being assembled under the PPI series, and are encouraged to use these both to augment their FM treatments and to prepare extracts from these conforming to the Philippine Flora Project guidelines.

Botanists wishing to contribute to the Philippine Flora Project are also encouraged to use such contributions as a stepping stone to the FM Project. — B. C. STONE.

The State Government of Sabah has taken another significant step towards the conservation of *Rafflesia* and its habitat in Borneo. The **Rafflesia Information Center**, set up to capitalize on the 356 ha *Rafflesia* Forest Reserve gazetted in 1984, was officially opened on 21 April 1991 by the Chief Minister of Sabah in conjunction with the 30th World Forestry Day celebration. This Forest Reserve has been one of the nearest to the National University Campus and was subjected to many of its previous studies including the one by the BEAMANS in 1984 on the pollination aspects of this unique flower. The opening ceremony was attended by 1,000 people, and Mat-Salleh's '*Rafflesia*, magnificent flower of Sabah' was officially released. — K. MAT-SALLEH.

The Regional Training Course in Plant Taxonomy and Botanical Exploration: Methods and approach towards the Preparation of the Flora of Biosphere Reserves in South East Asia, generally referred to as 'The Plant Taxonomy Course', was given for the third time in Bogor, Indonesia, between 12 November and 14 December, 1990. It was organized by Puslitbang Biologi and LIPI, Indonesia, with financial support raised by UNESCO, the Dutch Foreign Office and the Leiden University. Technical support came from the Herbarium Bogoriense, Bogor, the Rijksherbarium, Leiden, and the Calicut University, Kerala, India:

Drs. R. ABDULHADI, D. DARNAEDI, K. KARTAWINATA, M.A. RIFAI, E. A. WIDJAJA (BO), V. V. SIVARAJAN (CALI), Mr. J. J. VERMEULEN, and Dr. P. C. VAN WELZEN (L).

The language of communication was English. The participants were: Ms. M. G. AGOO (PNH), N. AZLIN (KEP), J. F. BARCELONA (PNH), S. BOUAKHAYKHONE (Teacher's Training College, Laos), T. CHIKMAWATI (Institute Pertanian Bogor, Indonesia), P. KARPILANONDH (Land Development Department Bang-Kaen, Thailand), NGUYEN THEI DO (National Center for Scientific Research, Vietnam), N. RATANOPAS (BKF), C. A. ROXAS (Ecosystem Research and Development Bureau, Philippines), F. I. WINDADRI (BO), and Messrs. L. BALUN (Department of Forestry, Papua New Guinea), R. KIAPRANIS (LAE), I. MAWARDI (BIOTROP - SEAWIC, Indonesia), NGUYEN NGOCKHANG (National Center for Scientific Research, Vietnam), P. PISKAUT (UPNG), and Mr. SUDARSONO (IKIP Jogyakarta, Indonesia) as observer.

The course started with the basics of the trade: the making of analytical descriptions of plants, from root tips to embryo, how to write and to use a Flora, how to make and use keys, basic rules of nomenclature, etc. The use of the computer in modern taxonomy was extensively demonstrated. Next to that introductions were given to the following more theoretical topics: evolutionary biology, modern phylogenetics, and biogeography.

A few days in the mountain resort near Cibodas lifted the strain of the paperwork a little and were used to do some ecological fieldwork.

A similar training course will be given again in Bogor in September 1993.

A Seminar on the Status Herbarium and Systematic Resources, Malaysia, was held on 28 and 29 June 1990 in Kuching, organized by SAR. Among others the establishment of a National Herbarium was discussed as a central facility for reference to and research on all Malaysian species. See report by LATIFF in Reviews.

Latest developments at the Singapore Botanic Gardens:

As of June 1990 the SBG came under the umbrella of a new statutory body, the National Parks Board (NPB). Its mission is to manage, develop, and promote the SBG, Nature Reserves, and Fort Canning Park, a history park, as resources for recreation, research, education, and conservation.

The SBG's research activities center on horticultural research as a consequence of the Government's Garden City Program. Botanical research is now being enhanced with the creation of positions in taxonomy and ecology. Proper curation and storage of our herbarium collection is of high priority. Participation in overseas conferences enhance greater involvement in international collaboration. The physical redevelopment of the SBG will provide upgraded facilities.

The SBG has been offering Diploma courses in horticulture since 1972 to upgrade the standard of horticulture in Singapore. Foreign students from neighbouring countries have also taken advantage of the Diploma course. The course structure is being revamped along the lines of a credit system to make it more available to all members of the public who have an interest in horticulture. This new program is expected to be launched in 1991.

Apart from the Diploma course short gardening courses for hobbyists are also conducted all year round, e. g. on the care of indoor plants, control of common pests and diseases, the rowing of bonzai and orchids. Educational tours of the SBG's living collections are included as modules.

Private sponsorship has enabled the SBG to provide trail maps and interpretative plaques for trees of special interest and economic importance in the Gardens. These are especially useful as an educational tool for groups of student children who find the trails easy to follow and the plaques informative.

The National Parks Act (June 1990) gazetted 2795 hectares as Nature Reserves under the trusteeship of the NPB. A project is being finalized to carry out a comprehensive biological and geophysical survey of the Nature Reserves. Base line information would be gathered to formulate management strategies pertaining to the conservation of germplasm, reforestation, and the recreational and educational uses of the Reserves.

Dr. B. C. STONE (BISH) has resumed field work in the Philippines under the Philippine Plant Inventory (PPI) Project. From the first expedition to Palawan some new collections and data have been obtained. The Philippines have a rich pandan flora and is one of the only three regions where all three genera of the family occur: *Freycinetia*, *Pandanus*, *Sararanga*. However, more than half of the Philippine species have been collected only 1 to 3 times and the vast majority are only known from pistillate plants. Intensive new exploration and collecting is anticipated over the next three years during the intensive phase of the PPI, and the new collections will be of major importance for both this project and the Flora Malesiana. Some idea of whether, or how much, extinction has occurred is an anticipated result.

During 1990 a restricted number of copies of the Stone Malesian Herbarium (PH) were distributed to major herbaria. There are two versions: a numerical-chronological series and a systematic arrangement (taxa in alphabetical order). These contain the basic data for about 11,000 specimens collected between 1965 and 1985 in Malesia and several other localities (including Cambodia, Thailand, India, Sri Lanka, and Madagascar). The material is largely identified, but there are gaps. Additions or corrections to the listing are earnestly requested. Copies of the print-out can be made and sent on request from Dr. B. C. STONE, Bernice P. Bishop Museum, P. O. Box 19000-A, Honolulu - Hawaii 96817, U. S. A.

The first set of collections is at KLU, the second at PH, substantial additional sets are in BISH, K, L, SING, US, with scattered material in AAU, BO, P, PNH, and UC.

Taxonomists who have revised identifications for any Stone numbers, including those in the NGF/LAE series are asked to write to the above address with this new information.

SAR by the end of 1990 had 101,813 sheets. 2168 numbers were collected in 1990.

The Semengoh Botanical Research Centre has a total number of 640 living plants collected in 1990. Most of the plants have been planted out as part of the ex-situ conservation program pioneered by the Centre.