

V. EXPEDITIONS AND OTHER FIELDWORK

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Malaysia

The Forest Research Institute of Malaysia (FRIM) has started a project on the conservation of fruit trees. Collecting expeditions have been made in 1988 to the Kraun Game Reserve (c. 102° 30' E, 3° 40' N), Maxwell's Hill, Endau-Rompin. Collections were not only made of fruit trees, but also of any other flowering or fruiting tree.

On 16 January, 1988, Mr. A.Z. IBRAHIM and Dr. A.M. LATIFF (UKMB) collected c. 15 numbers on Gunung Pulai, Johor.

Between 25 and 30 January, 1988, Mr. A.Z. IBRAHIM and Dr. A.M. LATIFF (UKMB) collected c. 60 numbers on Pulau Air, the easternmost island off the coast of Johor.

Between 27 March and 11 April, 1988, Mr. A.Z. IBRAHIM and Dr. A.M. LATIFF collected 43 numbers from the Kuala Lipis area and Kelantan.

Between 7 and 27 May, 1988, Mr. A.Z. IBRAHIM and Dr. A.M. LATIFF collected 89 numbers from Ulu Besut, Trengganu.

On 27 December, 1988, Mr. A.Z. IBRAHIM and Dr. A.M. LATIFF collected 11 numbers on Gunung Panti, Johor.

Sumatra

Z. FANANI and Dr. S. RISWAN (BO) visited Biliton for a general botanical survey and collected c. 90 numbers.

Z. FANANI, D. SULISTIARINI, and N. UTAMI (BO) visited West Sumatra to collect materials for the research on fodder plants with a grant of the PAU-Ilmu Hayat IPB Project. They collected 128 species.

Between 26 and 29 May, 1988, Dr. E.A. WIDJAJA (BO) visited Tabak Pananjung and Pagar Gunung II Nature Reserves, Bengkulu, to collect bamboos and *Araceae*. She returned with 7 living samples of bamboos, 7 of *Araceae*, and 4 other species.

Between 22 June and 10 August, 1988, Mr. E. MIRMANTO (BO) in cooperation with the Soma Project team from St. Andrew University, U.K., made a survey of medicinal plants in the vicinity of Talang Manuk, Air Molek, Riau.

Mr. H. ZAHORKA (Hessisches Forstamt, Wiesbaden, F.R.G.) at the end of June, 1988, made a field trip to the G. Malintang, W. Sumatra ($0^{\circ} 28' 30''$ N, $99^{\circ} 39' 02''$ E; there are three mountains of that name, this is *not* the one visited by BÜNNE-MEIJER!). He reported that the summit (1983 m) was still crowned by tall pandan trees (? *P. furcatus*), with *Nepenthes*, *Orchidaceae*, *Zingiberaceae* (*Amomum*, but not *A. cocci-neum*; *Nicolaia*, not *N. solaris*), etc. The specimens collected were lost in the mail.

Between 17 October and 12 December, 1988, J.J. AFRIASTINI, ISMAEL, R. JUSUF, T. PARTOMIHARDJO (BO), and Dr. J. BURLEY (A) undertook a botanical exploration of the Bukit Lancang forest area. They collected 930 vouchers and 402 bulk samples.

Kerinci-Seblat National Park — Sumatra. Vegetation mapping and related ecological studies by Mr. PURNADJAYA under the supervision of Dr. Y. LAUMONIER. After almost a year of field work Mr. PURNADJAYA is now in Toulouse to complete his knowledge on the remote sensing analysis of the Park. He will have to return to Indonesia to do more ecological and botanical studies, especially in the hills and the lowlands, before any kind of large-scale vegetation map can be produced.

Pasirmayang — Sumatra. Population dynamics of a lowland rain forest are being studied by Dr. Y. LAUMONIER. Plots of 10 ha for all trees above 30 cm dbh, of 6 ha for all trees above 10 cm dbh, of 3 ha for all trees of 3 cm dbh have been established. Information on associations between species, patterns in distribution and size, changes in species composition are under analysis together with studies on possible correlations with environmental factors. Biomass studies are also conducted in conjunction with satellite and radiometric data. First results are expected for the INTECOL Symposium in 1990.

The recent general vegetation mapping survey showed that the remaining mangrove stands account for only 350,000 to 400,000 ha, with at least 100,000 ha being much degraded. The survey spotted also the last undisturbed stand of mangroves situated in the vicinity of the *Sungai Sembilang Pulau Betet area*, Banyasin, Palembang (110,000 ha). An environmental assessment of its natural resources funded by UNESCO will be made by Dr. Y. LAUMONIER, Dr. R. UMALI, and a multidisciplinary team composed of three BIOTROP scientific programs. This project will assess the present land use pattern in terms of balances between socio-economic agricultural development aspects and conservation policies. The first phase will be concerned mainly with an inventory of vegetation and fish resources, and an agricultural pest survey in the transmigration area nearby. Guidelines for further research are expected. Local universities and the Wetland Bureau of Indonesia (M. SILVIUS) will cooperate.

Java

On 9 June, 1988, Dr. M.A. RIFAI (BO) visited Rambut Isl. (Jakarta) and collected 5 specimens of fungi.

Between 28 and 31 July, 1988, Z. FANANI, U.W. MAHYAR, RUGAYAH, D. SULISTIARINI, S. SUNARTI, N. UTAMI (BO) visited Rawa Dano, Banten, to recollect *Alocasia bantamensis* and other plants. They returned with 61 herbarium numbers, 28 vouchers, and 26 living samples.

On the occasion to guide members of the Hawaiian Orchid Society to examine tropical wild orchids in situ in Cibodas, Dr. M.A. RIFAI on 2 August, 1988, discovered a single specimen of a rust fungus new to Indonesia.

Between 19 August and 6 September, 1988, A. BUDIMAN and SUHARDJONO (BO) in cooperation with Dr. K. OGINO, T. TOMA (MATSU), M. MASUDA (TKB), and K. OBE (KYO) continued their studies on the mangrove ecosystem of Cilacap.

On 9 October, 1988, G. ARGENT (E) and J. BURLEY (A) accompanied by J.J. AFRI-ASTINI, ISMAEL, and T. PARTOMIHARDJO (BO) visited Mt. Salak and collected 20 numbers, e.g. a living *Rhododendron albus*, which was added to the collection of the Cibodas Botanical Garden.

Between 20 and 27 November, 1988, Mr. U. W. MAHYAR (BO) and Dr. E. F. DE VOGEL (L) visited Mt. Cigombong and Mt. Malabar to collect orchids.

Between 8 and 17 December, 1988, T. DJARWANINGSIH, Dr. M. A. RIFAI, RUGAYAH, D. SULISTIARINI, S. SUNARTI, and Dr. E. A. WIDJAJA visited Madiun, Purwodadi, and Sumenep (Madura) with a grant in aid from the PAU-Ilmu Hayat IPB Project. They collected specimens of fodder plants and made a feasibility study of traditional 'jamu' for animal treatment planned to be executed in the program of next year. They returned with numerous specimens and ethnobotanical artifacts.

On 28 January, 1989, Dr. M. A. RIFAI (BO) visited Pasir Sarongge and returned with 4 species of rust fungi.

Lesser Sunda Islands

Bali. — Between 11 and 30 September, 1988, A. BUDIMAN, S. HARDJOWIGENO, SUHARDJONO, and WIDIATMA (BO), Dr. T. TOMA (MATSU), and K. ABE (KYO) visited the National Park of W. Bali and Benoa, to study the mangrove ecosystem.

Timor, Flores. — Between 21 and 31 August, 1988, T. UJI and H. WIRIADINATA with a team from the Faculty of Pharmaceutical Sciences of the Osaka University, Japan, visited Timor and Flores to collect medicinal plants.

Lombok. — In the same period RUGAYAH, SUWARDI, and H. WIRIADINATA (BO) visited Lombok to collect material of fodder plants under a grant from the PAU-Ilmu Hayat IPB Project. They collected 105 samples.

Borneo (s.l.)

Brunei. — Drs S. and J. DRANSFIELD (K) searched for bamboos and palms between 3 September and 6 October, 1988.

Sabah. — Ms. S. ANDREWS and B. PARRIS (K) spent 6 weeks from 18 April 1988 on a collecting trip concentrating especially on *Ilex* and ferns, respectively. Ms. PARRIS compared the fern flora of the Kinabalu with that of the Crocker Range, and collected 149 numbers on the slopes of G. Alab, the Kimanis Road, and the Kallang Waterfall area. On Mt. Kinabalu she got 202 numbers. Duplicates in AK, K, L, SAN, Kinabalu Park Herbarium.

Messrs. L. G. SAW and A. ZUHAI (FRIM), together with members of other Institutes in Malaysia, made an expedition to G. Lutong (1745 m) in April and May 1988. This is an interesting basin primarily formed by the circular rim of a sandstone mountain range draining into the Maliau River in the South Centre.

Between 27 September and 2 October, 1988, Mr. A. Z. IBRAHIM, Dr. A. M. LATIFF (UKMB) and Mr. K. M. SALLEH (UKMS) collected c. 112 numbers in the Tabin Wildlife Reserve, Dent Peninsula.

Sarawak. — Three major expeditions were made by staff of SAR: Ulu Sadong, Serian (March 1988), Apad Ruman, Kelabit Highland, Bario (April/May), Ulu Mengiong, Kapit (October); 113 specimens were collected and 205 live ones for the Botanical Centre, Semengoh.

Six shorter trips were made to a few areas around Bako, Kuching, Lindu, Samunsam, Sematan, Serian, and Tebakang; 887 numbers and 432 live plants were collected.

Members of FRIM collected between the Kuching area and the Rejang River for the project on the conservation of fruit trees in Malaysia.

Kalimantan. — In 1988 J.J. AFRIASTINI, ISMAEL, U.W. MAHYAR, T. PARTOMIHARDJO, A. RUSKANDI, and M. SIREGAR (BO) and Dr. J. BURLEY (A) visited Kuala Kurun, Harowu, and Tumbang Miri in the Upper Miri River, S. Kalimantan, and returned with c. 600 vouchers, and 300 bulk specimens of medicinal plants for chemical analysis.

Between 16 March and 4 May, 1988, H. SOEDJITO visited Apokayan and Lempake, E. Kalimantan, to gather ecological data. Together with Dr. D.J. LEMANN (OTT) he visited Apokayan again between 12 and 26 August for ethnobotanical research.

Between 6 and 12 November, 1988, Dr. M.A. RIFAI (BO) visited the Mandor, Mt. Niut, and Mt. Poteng Nature Reserves, W. Kalimantan, and between 5 and 21 October S. Kalimantan for a study of the institutional aspects of Nature Reserves.

Celebes

Between 30 April and 30 May, 1988, SUHARDJONO and H. WIRIADINATA (BO) accompanied Dr. S.H. SOHMER (BISH) to the Mt. Tangkoko Nature Reserve to collect *Psychotria*. They found about 50, numerous seed samples, a snake, and some soil insects, e.g. *Collembola* spp.

Between 22 December, 1988, and 12 January, 1989, Dr. E.A. WIDJAJA (BO), H. GAY, F. PARROTT (OXF) visited the Lore Lindu National Park and the Morowali Nature Reserve, Central Celebes, to collect bamboos and ferns. They collected 200 numbers and 30 living specimens for the Cibodas Botanic Garden.

Between 9 and 21 February, 1989, HAMZAH, U.W. MAHYAR, and S. SUNARTI (BO) visited Ujung Pandang and vicinity and collected 66 fodder specimens under a grant from the PAU-Illmu Hayat IPB Project.

Philippines

Dr. E. HENNIPMAN (U) collected on Mt. Makilin and Mt. Apo between December 1986 and January 1987.

Between 2 and 6 March, 1988, C. ROXAS (ERDB), Dr. J.V. PANCHO (UPLB), F.M. SCHLEGEL (CTA of the Bamboo Research and Development Project), and Dr. E.A. WIDJAJA (BO) visited bamboo plantations in the Davao City and Davao de Sun provinces, Mindanao. They collected 35 numbers.

Mr. J.C. REGALADO (MICH) has conducted fieldwork in several islands of the Philippines in 1988 and 1989 supported by a Garden Club of America Scholarship in Tropical Botany.

Mr. W. VENDIVIL (PNH) has studied the mangrove flora of Jawili, Tangalan, Aklan, the Philippines.

New Guinea (s.l.)

Irian Jaya. — Between 3 April and 5 May, 1988, Drs. K. KARTAWINATA and E. A. WIDJAJA (BO) visited the Lorentz Nature Reserve in cooperation with the Irian Jaya Provincial Government to prepare the management and development plans of the reserve area. They collected 50 numbers.

Papua New Guinea. — A study of the *Ecology of timber species in lowland forests of Papua New Guinea* has been started in Lae and Madang by the Department of Plant and Soil Science, University of Aberdeen, in collaboration with the Department of Forestry, University of Technology, Lae. The objectives are to characterize the responses of the species to the environmental changes that follow canopy disturbance, as a step towards the development of management methods for natural high forest. Nursery experiments will be made on seedlings of some species to test the effect of differences in photosynthetically active radiation on the growth and mortality, and their capacity to regenerate following physical damage. Field experiments will be done on seedlings and saplings to study their survival and growth response during and after logging operations in lowland forest.

Based in the King Leopold III Research Station, Madang Prov., Dr. E. COPPEJANS (GENT) collected seaweed all along the coast of the Province, especially between Madang and the Hansa Bay, and around Manam and Boisa Isl., between 13 June and 8 August 1988. The Nagada area (Madang) was studied while staying at the Christensen Research Institute. There is a significantly different algal flora because of the presence of an almost continuous submerged fringing reef. The numerous small islands in the lagoon (most of them sheltered), the shallow reefs, and the enclosed bays offer a wide variety of biotopes. Interesting taxa are *Tydemannia expeditionis*, *Rhipilia* sp., and most probably a new *Padina*.

A trip to Saidor, Astrolabe Bay, gave the opportunity to collect on a coastal reef and around a fringing reef. The flora was not markedly different, but the find of a *Tydemannia expeditionis* with flabellate branchlets is noteworthy.

626 numbers were collected, which will be deposited in GENT, UPNG, and for the local species in the Christensen Research Institute.

Mr. W. VYVERMAN (GENT) from the same base during several field trips between 2 July to 2 August and 7 September to 29 October, 1988, collected freshwater samples, fungi, and *Cyperaceae*. In the first period he went to alpine lakes and rain forests on Mt. Wilhelm, the oxbow lakes, swamps, and lowland rain forests of the Ramu River between Bunapas and Annanberg, near Usino, and in the coastal area between Madang and Sandor.

During the second period a trip was made to the Sepik River, collecting in the Murik Lakes, Bien River, Angoram, Timbunmeri, Pagwi, Ambunti, and Wagu Lagoon. Special attention was paid to the mixing of 'black' water from the back swamps and the incoming sediment-loaded 'white' water of the Sepik in swamps and lakes.

During a short stay at the Christensen Research Institute some interesting coastal lakes (meromixis!) in the Nagada area were studied. Polypores and Ascomycetes were collected in the Bales Sanctuary and in the Adelbert Range.

More collecting was done in the Central and Southern Highlands: Lakes Kutubu, Kopiago area, Tugu, Erebo, Haiabi, Purenia, Onim, Bune, Pipiaka.

In all 230 water samples were taken, and 570 numbers collected, to be deposited in GENT, where the *Cyperaceae* will be studied by Dr. P. GOETGHEBEUR, the Polypores by Ms. E. QUANTEN, the Ascomycetes by Ms. K. VAN DER GUCHT. Duplicates are deposited in UPNG, and for the local species in the Christensen Research Institute.

Between 3 and 28 September, 1988, Mr. & Mrs. M. BALTISBERGER, Mr. C.A.J. ERDELMEIER (ZT), and Mr. TOPUL RALI (UPNG) collected samples of medicinal plants in the surroundings of Port Moresby, Goroka, the Daulo Pass, Ialibu, Mt. Hagen, and Lae. Specimens have been deposited in L, LAE, UPNG, ZT.

Mr. W. TAKEUCHI (BISH) will be spending 6 months a year for 3 years in Papua New Guinea beginning in September 1988 as collector for the National Cancer Institute, U.S.A. Vouchers will be distributed from the University of Illinois.

Dr. R.J. KING (UNSW) has been studying the macro-algae associated with mangrove vegetation in Papua New Guinea at the Christensen Research Institute, in Lae and in Port Moresby (Motopore Isl.).

Solomon Islands

Mr. B. EVANS (BSIP) is conducting a trip of one year to collect material of edible *Barringtonia*, *Canarium*, and *Terminalia* species. On Sta Cruz he did not find *C. indicum* as expected, but a different taxon. On the Reef Islands he only encountered female specimens of *Canarium*, as the male ones had all been removed by the locals due to land pressure. Yet, they were producing a good fruit set!