III. EXPEDITIONS AND OTHER FIELDWORK

(continued from Volume 11, page 113)

Andamans

The Botanical Survey of India, Andaman, and Nicobar Circle, Port Blair, in 1994 inventoried the Kalpong hill forests and Saddle Peak scrub forests for the proposed Hydro-electric Project in the North Andaman group, the Bakultala and Baratang areas in the Middle and South Andamans were explored, while Rutland Isl. in the South provided collections of mainly marine species.

Malay Peninsula

Between 31 January to 28 February 1994 Mr. P.J. EDWARDS and N.T. ROTHWELL (K) visited Gn. Belum (Perak) as part of the Malaysia Heritage and Scientific Expedition there organized by the Malaysian Nature Society. The first collected 180 herbarium numbers in 5–8 duplicates, mainly of ferns, representing c. 130 species, the latter made 93 living collections to be sent to K. A side-trip was made to the Cameron Highlands. Nearly 70 samples for rbcL DNA analysis were made and some 1500 transparencies taken.

Four stream systems and surrounding lowland dipterocarp forest were covered extensively and in addition a few limestone areas were visited. *Bolbitis, Heterogonium,* and *Tectaria* spec. were the commonest genera on the valley slopes and included at least two new records for Perak and possible a new species of *Tectaria*. By the streams an unusual entire-fronded species of *Asplenium* (aff. *antrophyoides* of Indo-China) was discovered while the peninsular rarity *Coniogramme fraxinea* was locally abundant. The latter is an example of the 'northern element' that was expected in the area. The climbing *Athropteris palisotii* was the third record for the Peninsula. On the ridges *Diplazium* spec. were common, one of which is most certainly a new species.

The collections complement those of JAMAN, ZULKIFLI & LATIFF, and of TURNER, made in 1993. The provisional total of pteridophytes for the small part of Belum yet visited is about 150. This is a remarkably high total for lowland forest and rivals that of Danum Valley, Sabah. Field sketches were made by Ms. H. HAYWOOD.

In March 1994 Dr. D.J. GALLOWAY (BM) made collecting trips to several lowland sites in the vicinity of Kuala Lumpur, to the Genting Highlands, and with Dr. H. MOHAMMED (KLU) to Fraser's Hill. Named duplicates of the lichens collected will be deposited at KEP and KLU.

Between 29 June and 4 July 1994 Dr. I.M. TURNER, B.L. ONG, with honours and graduate students, and H. SAMSURI (SINU) collected in the Rompin-Endau State Park, Pahang, in the vicinity of the Sungei Kinchin and its tributaries.

Borneo (s.l.)

Kalimantan

Structure and regeneration dynamics of tropical dipterocarp forest in varying degrees of management is studied in West Kalimantan, mainly in the G. Niut Nature Reserve, by a joint Japanese–Indonesian team. Between 1991 and 1993 the area was visited 5 times for about 3 months each. The party consisted of Messrs. M. HOTTA, E. SUZUKI, T. YAMADA (KAG), M. KAJI (TI), T. KOHYAMA, N. NOMA (KYO), F. KOIKE (Shimame University), HAMZAH, T. PARTOMIHARDJO, S. RISWAN, H. SIMBOLON, and Ms. WARDAH (BO), M.R. DJUWANSAH, and A. SULE (Puslitbang Geoteknologi, Bogor). One of the themes is the difference between plantation and the natural forest of Tengkawang, which produces illipe nuts (*Shorea macrophylla* and other species). Twenty four plots were made in Dawar, G. Niut, Purbuah, Sempatung (Airport), Serimbu, Tau, and Tepo (all around 110° E, 1° N), 9 ha in total. Because the Tengkawang forest is restricted to the riverside, other plots were made on the hills and mountains. Some areas have been used in shifting cultivation and the vegetation changes were studied. About 3700 specimens representing 1300 species were

collected mainly from the trees in the plots. Most of these are sterile and are deposited in BO and KAG. For 1994 plans were made to re-visit Serimbu and to make a preliminary survey of the Danau Sentarum Nature Reserve.

Sabah

Mr. G. MARTIN (P) has been guiding the activities of 6 local collectors on Mt Kinabalu.

An expedition was made to the Bukit Tawai Protection FR, 5° 30' N, 117° E between 4–14 April, 1994, by the Tree Flora of Sabah and Sarawak Project (1328 numbers were collected).

Brunei

Ms. S. ATKINS, Ms. J. COWLEY, and Mr. M.J.S. SANDS (K) visited Brunei between 5 July and 2 August 1993. They were joined until August 9 by Dr. K.M. WONG (SAN) and Dr. E.P. TAY (SING), and on July 10 by Dr. B.P.M. HYLAND (QRS). They collected on Bt. Patoi, in the Temburong Valley, and upstream to Sg. Tulan in the Apan area until the 18th. The K team accompanied by Mr. S. DAVIES (UBD) were then based at Ulu Ingei and made trips up the Belait River from Sg. Mau, collecting near Kg. Sukang, at Batu Malintang, and the Hot Springs until July 25. On the 26th a forest reserve area near Sg. Mutip was visited. The second waterfall on the Rampayoh River was reached on the 30th. On the 31st the first hill section of the trail to the swamp forest beyond the Taraja Longhouse proved profitable.

Sands was able to pursue his special interest in *Begonia* at the same time making general collections. He could confirm several distinctions between *Begonia* species in the Temburong catchment and observed at least one suspected hybrid, a rare occurrence in the wild. On August 11 he visited the Kinabalu National Park, between the 13th and 14th he camped at 975 m at Bt. Kallang at the southern end of the Crocker Range, collecting with Mr. A. GUNSALEM and H. LOHOK of the Sabah Parks. On the return trip to Kota Kinabalu a few *Begonias* were found along the Sinsuran Rd.

Atkins gained first-hand knowledge of seeing living *Lauraceae* and *Verbenaceae*. Hyland concentrated on *Eusideroxylon* and *Protoxylon* (*Lauraceae*).

Cowley was very lucky with so many gingers in flower, making 61 collections of 12 genera, among which a possibly undescribed *Amomum* in the Temburong Valley.

In total 629 numbers were collected, one of the most interesting ones may represent an undescribed genus in the *Commelinaceae*, unusual for having moss-like roots which grow upwards into the leaf axils.

Dr. M.J.E. COODE, and D.W. KIRKUP (K), J. ERI, C. LANOL, T. MALANG, S. MOHIDIN, H.b.H. OTHMAN, and N. SINGONG (BRUN) spent 5 days in January 1994 in the field near Sg. Rampayoh. Almost immediately a fruiting *Elaeocarpus truncatus* was found, the first time so, and the third time ever. A fourth locality of *Orchidantha* (*Lowiaceae*) in Brunei was found. Further material of an undescribed creeping *Commelinaceae*, related to *Amischotolype*, was found in flower and fruit. There was also a *Rubiaceae* tree with black ants inhabiting complex chambers throughout the trunk.

In the swamp forest was the first collection of *Combretum sundaicum* for Brunei, a tree-top liana with yellow flowers and broadly winged fruits, and a very beautiful *Symplocos* in

full flower. On the slopes above a strange *Diospyros* with very narrow leaves grew leaning over a cliff, and a large tree of *Terminalia* in full flower was collected. It is not often that members of this genus are found in Brunei. In all about 115 numbers were collected.

Dr. J. DRANSFIELD, M.J.E. COODE, D.W. KIRKUP (K), I. ABDULLAH, J. ERI, A. KALAT, I.M. SAID, and H. SING (BRUN) made a 7-day trip in January 1994 to Ulu Belalong in the south-west of Temburong. It started unconventionally, with the helicopter setting down the party in the wrong place on a ridge-top only to return later to find that the group had settled in and did not want to move. There was no source of water, but it rained daily. There was a great variety of species in flower and fruit, among which an *Horsfieldia* laden with huge orange fruits, a beautiful *Strychnos* with massed creamy flowers, a first record for Brunei of *Elaeocarpus acrantherus,* and some species of *Begonia,* one with red circular leaves growing close to the ground, possibly a new species and certainly of horticultural potential. About 145 collections were made.

Dr. J. DRANSFIELD, M.J.E. COODE, and D.W. KIRKUP (K), J.b.H. ALI, M. INGOL, C. LANOL, T. MALANG, N. NANGKAT, and H. SING (BRUN) went to Selapon for 5 days in February, 1994. Near the village a large *Ardisia* and *Tetramerista* were found. In the forest further on fruits of an unknown tree, perhaps a new record for Brunei, were found. These are clearly of great interest to hornbills and perhaps wild mammals as very many chewed remains were seen. There was also a beautiful flowering *Prunus* and, most interestingly, a small rubiaceous treelet with relatively enormous cauliflorous flowers and fruits, not represented at BRUN and not fitting any generic description in recent Bornean *Rubiaceae* literature.

Beside the river *Elaeocarpus sphaeroblastus* with edible fruit proved a first record for Brunei. A day trip to Labi resulted in a *Terminalia* not noticed before and a new record for Brunei of a spectacular parasite *Trithecanthera xiphostachys* (*Loranthaceae*). In total some 155 numbers were collected with additional material for DNA analyses of genera as *Hydnocarpus, Kibara, Magnolia, Mesua, Symplocos,* and *Tetramerista.*

Spratly Archipelago

19–23 April 1994 a botanical inventory was made of Taipingtao (Aba Itu Isl.) by Drs. T.-C. HUANG, S.-F. HUANG, K.-C. YANG, and a graduate student from TAI. 110 species were recorded, 81 native, and 10 unknown from Taiwan. Most are coastal species and the flora is similar to that of the Henchung area of Taiwan.

Tungshatao (Pratas Isl.) was visited on 26 April and 20–23 June 1994 by Drs. T.-C. HUANG, S.-F. HUANG, K.-C. YANG, T.-H. HSIEH, and C.-C. LIN (TAI). About 110 species were recorded, of which 70 are native. The flora is similar to that of the Paracel Islands (Xisha Qundao).

Sarawak

The Sarawak Forestry Department has organized a number of short collecting trips to Sri Aman and Bako National Park in the first half of 1993. On the 25th June to 5th July an expedition to the Lanjak Entimau Wildlife Sanctuary was made. This is the first expedition to Sabah and Sarawak to be undertaken under the Tree Flora of Sabah and Sarawak Project.

Ten botanists were involved directly, 2 from SAN, 2 from SAR, 4 from FRIM, 1 from UKM, and 1 from UMS. Brief surveys are given in the Tree Flora of Sabah & Sarawak Newsletter 1/2 (1993).

Mr. P. BOYCE (K) visited Sarawak in March 1994 to collect aroids as part of the Genera of Araceae Project running at K in collaboration with M. A species of *Nephthytis* (!) was found (see under Progress).

Philippines

From September 26 to October 10, 1993, a PPI team composed of Dr. D.A. MADULID, E. REYNOSO, and Ms. M. AGOO made a trip to the Calamian island group between Palawan and Mindoro which contains the Busuanga, Coron, and Culion Islands. Several interesting species were collected, e.g. *Cycas wadei, Entada parvifolia, Globba aurea.* A short report can be found in the Philippine Flora Newsletter 6 (1994) 7.

Dr. S. DRANSFIELD (K) made a collecting trip to Luzon between 5 and 29 November, 1993, to collect bamboo specimens. Type localities of 6 species of *Schizostachyum,* 4 of *Dinochloa* were easily reached by car. The trip was supported by PNH, Manila, and FORI, Los Baños. Accompanied by Ms. C. ROXAS, Mr. J. COMLA (FORI), Mr. R. FUENTES, and E. REYNOSO (PNH) she traveled 1700 km in 10 days, and managed to locate all the species except one, which was inaccessible due to landslides. Thirty-eight collections with 5–10 duplicates were made representing at least 8 *Dinochloa* and 3 *Schizostachyum* spec., probably all endemic. One collection appears to be an undescribed genus and species. *Dinochloa ? elmeri* is only found on Mt Santo Tomas, near Baguio, and grows in a small patch of mossy forest. It will probably disappear when the nearby vegetable growers expand their fields. Other species of *Dinochloa,* a forest genus, are found on steep slopes where there is still some vegetation left. The three *Schizostachyum* spec. grow in very small areas (but abundantly) on rolling or steep hillsides on ultramafic; local people harvest the culms for fences or vegetable sticks. Because of the heavy harvesting the new culms produced are much smaller and eventually the rhizomes will die. Moreover, the hills have been mined for heavy metals, e.g. chromite, and the species are threatened with extinction.

Dr. DRANSFIELD has been asked to contribute the bamboos to the Flora of the Philippines in collaboration with Ms. ROXAS.

New Guinea

Irian Jaya

An expedition, the first of three planned, was in February–May 1994 made to the northeast of Kepala Burung (Vogelkop). It served as an experimental reconnaissance and the small number of collections (1451) made represents only a fraction of the flora of the area. It is estimated that there could be as many as 8000 species with perhaps 20% new to science.

Dr. R.J. JOHNS (K), the first to arrive, spent 17–20 March on Gunong Meja (Table Mountain) near Manokwari with counterparts from UNCEN. This afforded the opportunity to evaluate the drying facilities of MAN. The next trip, 23–25 March, was planned along the northern slopes of the Arfak Mts. above Warmare. A base camp was made at 900 m.

March 30 to April 2 were used to collect the eastern and southern areas of the Arfaks. The facilities of Keben Percobaan, Ransiki, were used as the base. Several most interesting species were collected, e.g. a *Pteris* at least new for Irian Jaya, and many climbers that are so undercollected in most tropical rain forest areas.

April 7–13 were spent at Anggi, collecting in the regions around Malc Lake (Anggi Gita), camping also on Mt Koebre (2200 m) with a very distinctive subalpine flora on limestone.

After Dr. J. MOGEA (BO) and Mr. M.J.S. SANDS (K) had arrived some day-trips were made by Sands to the Makwam trail, S. Acemo and G. Borai, B. Batu Kapur and the Andai Forest. Mogea and Sands visited the Forestry Operation at Masni for two days to discuss possible assistance to access the Waramoi River Valley, and collected in the nearby lowland rain forest. Johns and Sands collected one day in the Andai Forest. Three days (20–22 April) were spent in the lowland rain forest near SP Tuju on the Arfak plains. After difficult crossing of the Wariari River a base camp was made on the margin of plains and hill forest, where collecting was done up to 900 m alt. On 7 May Sands collected a few specimens near Mandopi, NW of Manokwari. Johns, Sands, and staff of MAN flew to the Kebar Valley, where between 10 and 15 May collecting was done in a wide range of habitats, open grassland to hill forest, on a variety of substrates including limestone and lake-bed deposits.

The expedition included field-training for Mr. M. WARPUR (Program Studi Biologi – MIPA, FKIP, UNCEN, Jayapura), and Y. MAGABLO (MAN).

Solar panels proved to be very useful in the field. A car battery (12 V) was easily recharged and ran two 12 V fluorescent tubes and a portable PC.

The top set of all collections will be deposited in BO, the second in UNCEN, Manokwari, the third in K, the fourth in L, others wil be distributed to specialists.

Papua New Guinea

Dr. D.G. FRODIN (K) and Mr. G. MARTIN, an anthropologist from Rutgers, spent mid-October to early December 1993 at Telefomin. They looked at local use of vegetation and did satellite mapping tests using Geographical Information System (GIS). The c. 1200 collections made between 50–1500 m alt. represent the first collections in the area from lower altitudes. One of the interesting observations was the occurrence of montane elements at low altitudes, e.g. *Metrosideros* (*Myrtaceae*) at 800 m.

Dr. J. REGALADO Jr. (Univ. Illinois) visited LAE for 3 months in 1994 to make a biomedical screening survey. Together with Dr. M. DOYLE (SUVA) he made extensive collections of *Medinilla* and *Gunnera*. Localities visited were Mt Kaindi, Gumi, and the Baining Mts in East New Britain.

New Ireland

Between 14 January and 15 February, 1994, a major expedition was made in the Weitin River and Hans Meyer Range of New Ireland as part of a Biodiversity Pilot Project involving a consortium of organizations coordinated by the Department of Environment and Conservation (DEC) and funded primarily by the U.S.-based Conservation International (CI). Specialists from a number of disciplines participated in a collection-oriented survey of the area.

Botanists were Dr. R.B. FOSTER (F), Dr. W. TAKEUCHI and Mr. J. WIAKABU (LAE). In addition to general collecting, floristic diversity was assessed by rapid assessment techniques and standard transection plots. About 1400 numbers were collected, the largest ever from the New Ireland interior, among which numerous new records and some new taxa.