

SCIENTIFIC NEWS

Getting there — Interesting papers on tree climbing are:

- M. Barker, An update on low-tech methods for forest canopy access and on sampling a forest canopy, *Selbyana* 18 (1997) 61–71.
- W.Y. Brockelman, A method for climbing rain forest tree boles without using vertical ropes, *Selbyana* 18 (1997) 72–76, describes an improvement of the old method of climbing with foot-and-waist ropes.

FIELD-WORK

Sabah

SING (C. Chai, R. Kiew, J. Lai, and A. Tan) joined staff from SAN and the Agricultural Park, Tenom, for an expedition to Sabah in the Sungai Pinangah area beyond Nabawan. Two very interesting hills were visited – Kelabangan (limestone) and Batu Saap (sandstone). Several new species were encountered, besides general collections being made for the herbarium and live plants brought back for the Gardens.

Philippines

Dr. G. Argent, Q.C.B. Cronk, P. Wilkie, and Ms. M. Mendum (E) left on January 10, 1998, for a joint PNH/E expedition to Palawan. They were joined en route by Dr. D.J. Middleton (L). A general survey of the Needles area, which adjoins St Paul's National Park, was carried out in order to help have it included in the park. Numerous interesting specimens of e.g. *Aeschynanthus*, *Alpinia*, *Cyrtandra*, and *Rhododendron* were found, although flowering was not abundant owing to the effects of El Niño.

All except Wilkie returned to Europe in February. He joined a team from the University of Edinburgh working in Danjugan Island, Negros Occidental, until mid-February.

Mr. D. Bicknell has completed his survey of the Spermatophyta for the **Cebu checklist of vascular plants** and has embarked on the Pteridophyta. He has collected 1,349 species belonging to 727 genera and 151 families: a surprisingly large diversity considering the fact that the natural forest cover of Cebu has been reduced to less than one percent. It is still declining and the future existence of many of the species must be in doubt. Of these 1,349 only 292 could not be identified down to species. They belong to families not yet covered by the Flora Malesiana or for which no expertise is as yet available. The checklist will be published when the majority of these have been identified as well.

The **Philippine Endemic Species Conservation Project** is operating under the aegis of a Memorandum of Agreement with the Department of Environment and Natural Resources and is sponsored by the Frankfurt Zoological Society, the German Ornithologists' Society, European Union, Andreas Stihl Foundation, Ministry of Science and Research Nordrheinwestfalen and a donation of Dr. E. Mayr. Head of the Project is Dr. E. Curio, Ruhr-University Bochum. Mr. A. Hamann reports:

1. Forest inventory in a Philippine submontane rain forest

This study was conducted in the North Negros Forest Reserve at 100 m altitude and 10° 41' N, 123° 11' E. A 1 ha inventory plot, 500 × 20 m in size, was established and all trees of 10 cm or greater were tagged with aluminum disks, measured, and sampled. The inventory shows 645 individual trees belonging to 92 species, 54 genera, and 39 families with a combined basal area of 58.8 sq.m. The average canopy height was 30 m. Shannon-Wiener index was 5.59, Equitability index 0.86, and Simpson index was 0.032. Relative frequency, relative density, relative dominance, and dispersal syndromes are listed for each species. The forest community belongs to the transition zone between lowland and lower montane rain forest. It has floristic elements of both formations, *Lauraceae*, *Burseraceae*, *Sapotaceae*, *Icacinaceae* and *Dipterocarpaceae* being the most prevalent families.

2. Ecological studies: succession, phenology, frugivory

The old-growth plot from the previous forest inventory was extended to 4 ha. Two additional plots 2 ha in size were established in nearby second-growth areas, 25 and 50 years old. A total of 6000 trees were labeled, measured, identified and positioned on a 5 × 5 m grid. Abundance, size structure, and spatial distribution of tree species on the three plots was evaluated, and tree species were grouped into classes of different successional strategies. Redundancy analysis was used to estimate the amount of variation in tree species abundance that can be explained by differential competitiveness in successional habitats. Canonical correlation analysis was used to analyze associations among morphological characteristics of a tree species and its performance on the three plots.

Flowering and fruiting events among the 6000 trees of the previous study are recorded on a monthly basis since September 1995. Climatic data are also collected at the site since July 1996.

Bird species and mammals foraging on fruiting trees on the three successional plots were recorded for eleven months. It was found that early-successional tree species are mostly dispersed by small birds and fruit-bats, while mid-successional tree species rely on hornbills and fruit-pigeons for seed dispersal. Late-successional species are frequently dispersed by large avian frugivores or mammals. These species are also more specialized with respect to dispersers, and several were identified that are vulnerable to extinction because they rely on one or few endangered frugivores for seed dispersal.

Ms. N. Ingle is studying **frugivore bats** at Mt Kitanglad, Mindanao, Philippines, for her PhD.

Mr. G. Langenberger is doing a vegetation analysis and taxonomic study of the foothills between c. 100 and 600 m altitude of **Mt Pangasugan, Leyte, Philippines**, for his PhD. He is funded by the Flanking Program for Tropical Ecology (TOEB), a programme of the German Agency for Technical Cooperation (GTZ) in the framework of the Program on Applied Tropical Ecology, Visayas State College of Agriculture (ViSCA), Baybay, Leyte.

Of 110 genera and 52 families 160 woody species (excluding *Palmae*) have been identified until now. Herbs are common along the lower slopes, characterized by *Araceae* and *Commelinaceae*. *Angiopteris* species are also common along the lower slopes. As trees are the dominant life form, herbs otherwise do not play an important role on middle slopes up to the ridge.

Characteristic trees along rivers are for example *Chisocheton cumingianus*, *Terminalia microcarpa*, and *Dracontomelon edule*. It is difficult to draw final conclusions for the river vegetation because it is the first area undergoing selective logging. This is probably the reason why no valuable timber species can be found along the river up to about 200 m altitude. A few species seem to be restricted to ridges, e.g. *Podocarpus philippinensis*, *Tristania micrantha*, and *T. decorticata*. Why this is so is not quite clear yet. Other taxa seem to be restricted more to open places than to a special altitude or habitat. *Casuarina rumphiana* can be found regularly along the ridges, but where there is a landslide it thrives well, too. When it comes to emergent trees the *Dipterocarpaceae* play a dominant role all along the slope. Nearly all straight-boled, tall trees belong to this family.

Even when species are restricted to special habitats it is at present difficult to suggest the factors responsible (light, water, nutrients, ...), because the study area is characterized more by change in environmental than by stable conditions. Probably about 40% of the area consists of successional plant communities caused by landslides, while the ridges are highly influenced by typhoons. So, the whole area consists of a small-scale mosaic in which it is difficult to pin-point the essential factors responsible for the composition.

Dr. F. Seidenschwarz is doing a **vegetation study of the Tabunan forest**, Cebu, Philippines.

Irian Jaya

The **Kew expedition** with RTZ/Freeport was joined by Mr. C. Heatubun (MAN), Mr. J. Witono (Kebun Raya, Bogor), palm botanists, and Asep (BO). The collecting area was reached along the single dirt road through miles of intact forest with deep degradation only on the steepest slopes. The low altitude camp, about 60 m, was near to where the heath forest starts and this continues to 500 m after which the road becomes more difficult. At this point four-wheel drive vehicles are required up to 2700 m before going down to the town of Tembagapura at 2000 m. From here other means, including a cable car, are required to get to the mine site itself at c. 4000 m and to the tops at up to 5000 m. The forest is very rich, but there were some difficulties in collecting as there were no climbers and the group had to improvise. Pollution from the mine seemed to be confined to the river set aside for use by Freeport, and from a high view point the mine tailings covered a very small area compared to the surrounding forest.

Every facility needed was available and everyone met was very helpful and happy to have a foreign group visiting. They were not restricted from going anywhere or stopped from taking photographs. Freeport is trying very hard to replace forest in disturbed areas.

PUBLICATIONS

Flora of Australia — The volumes mentioned here are well-advanced in the editing process, and are expected in 1998:

Volume 12: *Mimosaceae* (excl. *Acacia*), *Caesalpiniaceae*

Volume 39: *Alismatales* to *Arales*

Volume 43: *Poaceae* 1

Volume 44: *Poaceae* 2

Volume 51: Mosses 1

Gardens' Bulletin Singapore. Publication has been held up by the mammoth volume 47, with 757 pages! This volume is devoted entirely to 'A Catalogue of Vascular Plants of Malaya' by I.M. Turner. It has been priced separately at Sing\$ 100 + S\$ 20 p&p (c. US\$ 62.50 + 12.50 at April 1998 exchange rates).

The journal will be back on schedule with the 1998 volume 50/1, which is expected to be out in July. The editor is currently Ruth Kiew. For information on prices and availability of back numbers, write to the Librarian, Herbarium, Botanic Gardens, Cluny Road, Singapore 1025.

J. Dransfield, M.J.E. Coode & D.A. Simpson (eds.), **Plant diversity in Malesia III**, the Proceedings of the third Flora Malesiana Symposium, has been published in K. All attendants will receive a copy as part of the registration fee. It will also be available at UK£ 33.00.

The two-volume **Manual of the larger and more important non-dipterocarp trees of Central Kalimantan** was published in November 1997 at the end of the DFID-funded Indonesian Tropical Forest Management Programme. Nearly 1000 species are described and illustrated.

The Parasitic Plant Connection. The url is:

<http://www.science.siu.edu/parasitic-plants/index.html>

This site contains hundreds of colour photographs of parasitic plants, available as JPEG files.

It is maintained by Dr. D.L. Nickrent, Department of Plant Biology, Southern Illinois University, Carbondale, IL 62901-6509, USA (e-mail: nickrent@plant.siu.edu).