Conservation Malaysia
A Bulletin Supporting Plant and Animal Conservation in Malaysia
Issue No. 1/2005

Expedition

Botanists explore core of Endau-Rompin

In 2002, the Selai Endau-Rompin National Park was the site of a scientific expedition, with FRIM botanists collecting specimens to generate a checklist of higher plants. This core area and hitherto inaccessible part of Johor's famed park is among the world's oldest lowland tropical rainforests

Dr Richard Chung

By Dr Richard Chung (richard@frim.gov.my), Dr Saw Leng Guan, Sam Yen Yen and Kamarudin Saleh

Photos by Dr Saw Leng Guan and Sam Yen Yen

New vista... At the Selai Endau-Rompin National Park in Johor

Selai Endau-Rompin National Park (commonly referred to as just Selai) is the western gateway to Johor's famed national park. Located in the district of Segamat with Bekok as its nearest town, it constitutes the core area of Endau-Rompin with large parts of the park previously inaccessible to the public.

Rugged and mountainous Selai with Gunung Tiong as its highest peak, encompasses about two thirds (about 48,905 ha) of the total area of the national park. It is among the oldest lowland tropical rainforests in the world, with rock formations in parts of the park dating back to more than 260 million years. The Selai and the Kemidak are its main rivers.

The Sungai Selai area was chosen as the site of the Second Scientific Expedition 2002 by the Johor National Parks Corporation.

In August of that year, 10 members from the Botany Unit

More overleaf

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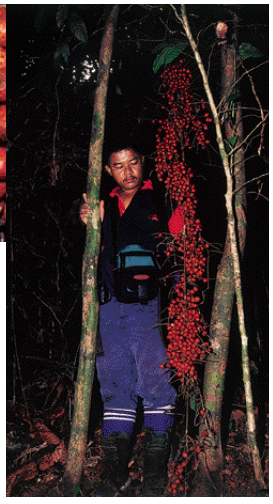

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1. Pink durians (Durio sp. nov.)... The flesh of these unusually hued durians is appealing white, but tasteless

2. Fruit pillar... Towering higher than a man are these fruits of Calamus sp.

3. Earthy bloom... Orchidantha maxillarioides, a strange flower pollinated by dung beetles and the only species commonly grown in European greenhouses

4. Translucent beauty... Boesenbergia plicata var. plicata is a tufted herb endemic to the peninsula

5. Rattle stick... Ants on the ocrea of Korthalsia hispida when threatened bang against extended leaf sheaths of this palm to give out an eerie sound

6. Princely honour... Henckelia tunkui was named in honour of Tunku Abdul Rahaman Putra Al-haj, the patron of the Malaysian Heritage and Scientific Expedition to Endau-Rompin

7. Palm blinds... Rhopaloblaste singaporensis is endemic to the southern peninsula and extinct in Singapore

8. Blood red... Inflorescence of Zingiber sp.

Help spread the fervour

Conservation of our biological diversity needs all the help it can get, and nothing short of religious zeal will do it. We hope this bulletin can do its bit to aid our cause, says FRIM Director-General Dato' Dr Abdul Razak Mohd Ali

The idea of a conservation bulletin highlighting conservation work in Malaysia came about when a proposal was put to the former Ministry of Primary Industries in 2001.

The Ministry through the Timber Levy fund provided a very generous support of about RM5 million for the Eighth Malaysian Plan and added the promise of similar support for the following ninth plan.

This project originally aimed to provide the basis for a referral centre on botanical research, conservation, management and sustainable utilisation of indigenous flora of Malaysia. With new developments in FRIM and the subsequent change of our ministry from Primary Industries to Natural Resources and Environment, the scope for such a centre has widened to include not just plants, but all forest biological diversity.

FRIM is developing a Tropical Forest Biodiversity Centre (TFBC) to deal with issues and needs for research, conservation management and sustainable utilisation of components of forest biodiversity found in the country.

This bulletin is put out to serve as an avenue to disseminate findings and information on conservation to the public in a simple and readable form as a forum for education and public awareness.

Some areas of interest which we hope to put out in this bulletin include:

- FRIM's conservation work, particularly from TFBC.
- National and international conservation issues.
- *In-situ* and *ex-situ* conservation activities in Malaysia.
- Good conservation practices in Malaysia.
- Conservation threats to plants, animals and habitats.
- Important plant and animal areas.
- Articles to ignite and sustain conservation awareness and interests among Malaysians.

We are starting this bulletin modestly with a four-page spread. We also welcome contributors from other institutions to use this publication as a platform for the purposes stated above.

The three articles in this inaugural issue introduce some of TFBC's activities. Firstly, we have an article on the work done on rare Dipterocarps found in Peninsular Malaysia. Next comes a report on a very rare and threatened herb, *Heckelia primulina*, a species known only from the Klang Gates quartz ridge. Finally, we have a write-up on some findings of a recent expedition to the Sungai Selai area of the Endau-Rompin State Park.

Note: Direct all contributions and queries to Dr Saw Leng Guan (sawlg@frim.gov.my)

From cover page

Botanists explore core of Endau-Rompin

of Forest Research Institute Malaysia descended on the area to collect plants in order to generate a checklist of higher plants found here. The checklist contained voucher and herbarium records. Altogether, 453 taxa of higher plants from 237 genera and 74 families were recorded.

The big-tree families in order of commonness include: Dipterocarpaceae (23 species in 7 genera), Burseraceae (11 species in 4 genera), Anacardiaceae (20 species in 12 genera), Leguminosae (10 species in 8 genera), Sapotaceae (8 species in 4 genera), Olacaceae (2 species in 2 genera), Oxalidaceae (1 species in 1 genus), Bombacaceae (2 species in 2 genera), Apocynaceae (3 species in 2 genera) and Sterculiaceae (6 species in 3 genera).

Of the Dipterocarpaceae family, the main species recorded were *Anisoptera laevis, Cotylelobium lanceolatum, Dipterocarpus cornutus, D. costulatus, D. crinitus, D. sublamellatus, Parashorea densiflora, Shorea acuminata, S. curtisii, S. leprosula, S. macroptera, S. maxwelliana, S. parviflora, S. pauciflora, Vatica bella* and *V. pauciflora.* The commonness of *D. costulatus, D. crinitus, D. sublamellatus* and 7 species of *Shorea* of the Red Meranti group in much of the lowland mixed dipterocarp forest lends support to its designation as Keruing-Red Meranti forest.

Other big trees of canopy or emergent size include *Canarium* spp., *Dcryodes* spp., *Santiria* spp., *Triomma malaccensis* (Buseraceae); *Bouea* spp., *Campnosperma auriculatum* var. *wallichii, Dracontomelon dao, Gluta wallichii, Mangifera* spp., *Melanochyla* spp., *Parishia* spp., *Swintonia* spp. (Anacardiaceae); *Coelostegia griffithii, Neesia synandra* (Bombacaceae); *Dialium platysepalum, Intsia palembanica, Koompassia malaccensis, Sindora* spp. (Leguminosae); *Sarcotheca griffithii* (Oxalidaceae); *Ochanostachys amentacea* (Olacaceae); *Madhuca laurifolia, Palaquium* spp., *Payena* spp. (Sapotaceae); *Alstonia* spp., *Dyera costulata* (Apocynaceae); *Dillenia* spp. (Dilleniaceae); *Baccaurea reticulata, Endospermum diadenum* (Euphorbiaceae); *Artocarpus* spp. (Moraceae); *Heritiera javanica* and *Scaphium* spp. (Sterculiaceae).

Medium-sized trees or treelets common in the forest understorey include members of the families Annonaceae (*Alphonsea elliptica, Cyathocalyx pruniferus, Enicosanthum fuscum, Mezzettia parvifolia, Polyalthia* spp., *Xylopia* spp.), Bombacaceae (*Durio* sp. nov.), Combretaceae (*Terminalia citrina*), Ebenaceae (*Disopyros* spp.), Euphorbiaceae (*Aporosa* spp., *Baccaurea racemosa, Blumeodendron kurzii, Croton argyratus, Drypetes pendula, Elateriospermum tapos, Pimelodendron griffithianum*), Guttiferae (*Calophyllum* spp., *Garcinia* spp., *Mesua* spp.), Lauraceae (*Actinodaphne macrophylla, Beilschmiedia palembanica, Cinnamomum* spp., *Litsea* spp.), Myristicaceae (*Horsfieldia* spp., *Knema* spp., *Myristica* spp.), Myrtaceae (*Syzygium* spp.), Rubiaceae (*Diplospora malaccensis, Nauclea officinalis*), Sapindaceae (*Nephelium* spp., *Pometia pinnata, Xerospermum noronhianum*), Tiliaceae (*Microcos latifolia, Pentace* spp., *Schoutenia accrescens*) and Ulmaceae (*Celtis rigescens, Gironniera* spp.).

Palms were significant with 47 species recorded in the area. *Oncosperma horridum* was probably the most common tall palm in the area, but *Arenga westerhoutii, Eugeissona tristis* and *Iguanura wallichiana* were also frequently encountered.

Rare dipterocarp mapped

A project on conservation monitoring kicks off by focusing on the very rare endemic species of dipterocarp, Hopea subalata in the Kanching Forest Reserve of Selangor. Dipterocarp, the economically-valuable family of trees, is also of keen botanic interest with its widespread species and narrow endemics

By Dr Lillian Chua (lilian@frim.gov.my)

The paucity of knowledge on Malaysian plant diversity has long been lamented. While this may not be true for certain groups of plants (vascular ones for example), we cannot vouch the same for other groups, in particular lower plants such as the bryophytes.

There is a checklist on the vascular plants of Peninsular Malaysia (Turner 1995) and there are data available from the network of ecological, growth and yield and forest inventory plots established around the peninsula. However, although comparatively extensive, many of the distribution-restricted and narrowly endemic vascular species have not been included because of their rarity. They are often not identified or viewed as economically important to be taken up in resource inventories.

In view of this and the need to monitor ecological and temporal changes in the populations of rare species, a project on conservation monitoring was undertaken. This project, financed by the Ministry of Plantations and Commodities and undertaken by the Conservation Management Unit of the Tropical Forest Biodiversity Centre of FRIM, looks initially into the family of dipterocarps with the specific aim to map the populations of rare, threatened and endemic dipterocarps.

The choice of the family is obvious. Dipterocarps are trees of immense economic importance, and perhaps more interestingly from the biogeographical viewpoint, the family has a mixture of widespread species and narrow endemics.

To kick-start the project, *Hopea subalata* in the Kanching Forest Reserve in Selangor was chosen. This species is a very rare endemic (Ashton 1982, Symington 2004) known only in this reserve.

It is found in Compartments 2 and 14 of the reserve, growing amongst the gregarious kapur (*Dryobalanops aromatica*) trees on undulating land. The populations in these compartments are isolated from each other and hence quite discreet. The main road dividing the compartments is not believed to influence the disjunct spatial pattern as pre-war records did not indicate continuity between Compartments 2 and 14.

The population of *H. subalata* was mapped and its current stocking, diameter size class distribution and perceived threats to the species analysed. The population in these compartments showed a distinct clumping pattern. In Compartment 2, there were 267 trees of 1 cm diameter at breast height (dbh) and above, while in Compartment 14 there were 177.

In both compartments, density based on diameter size class decreased with increasing size class. Based on the assumption that the species become reproductively mature once 13.74 cm dbh size is reached, 18.35 % of the population can be considered as breeding individuals. *H. subalata* is a small-sized dipterocarp (Chua *et al* 2004).

During the course of enumeration and mapping, it was discovered that a portion of the population in Compartment 2 lies outside the reserve. A search at the District Land Office indicated that the area had been categorized and granted the category 'Lot Kediaman' (residence lot).*

LILLIAN CHUA

Mid-air sprouts... aerial roots of Hopea subalata, a very rare endemic known only in Selangor's Kanching Forest Reserve

Obviously, this land conversion will lead to the loss of that part of the population. With this information at hand, we have recommended that the State Forest Department and the District Forest Office make an appeal to the Selangor Government, via the District Land Office, to render the site not available for conversion.

For the long-term, it is suggested that the District Land Office, Forest Department and the Selangor Government include this relatively small site in the reserve. The annexed land would then fall under the jurisdiction, management and legal mechanism of the Permanent Forest Estates, under which it should be placed in the protection forest category.

More on back page

Some like *Orania sylvicola* occurred as localised populations. Others such as *Pinanga disticha* and *Rhopaloblaste singaporensis* were more frequent along river valleys. Rattans, especially *Calamus* spp., *Daemonorops* spp. and *Korthalsia* spp., were also common.

Forest-floor herbs and shrubs were mostly patchy in occurrence. The herbs *Henckelia* spp., *Cyrtandra* spp. (Gesneriaceae), *Etlingera* spp., *Globba* spp., and *Scaphochlamys* spp. (Zingiberaceae), and the shrubs *Thottea grandiflora* (Aristolochiaceae) were commonly encountered as localised populations. Other herbs such as *Aeschynanthus radicans*, (Gesneriaceae); *Donax grandis* (Marantaceae); *Boesenbergia plicata, Camptandra parvula, Hornstedtia conica* (Zingiberaceae); *Molineria latifolia* (Hypoxidaceae) and *Mapania cuspidata* var. *petiolata* (Cyperaceae), and shrubs such as *Ixora* spp., (Rubiaceae) were more scattered in their distribution.

The river bank communities of the lowland forest were distinctive. One of the most common river bank trees was *Tristaniopsis whitiana* (Myrtaceae). Other river bank trees that commonly occurred with *Tristaniopsis whitiana* included *Syzygium* spp., *Rhodamnia cinerea* (Myrtaceae), *Buchanania sessifolia* (Anacardiaceae), *Pometia pinnata, Guioa pleuropteris* (Sapindaceae), *Ficus* spp. (Moraceae) and *Saraca* spp. (Leguminosae). Noticeably absent from the Selai area was the river bank dipterocarp neram (*Dipterocarpus oblongifolia*).

Behold, violets of gold

An extremely small but thriving population of yellow blooms from the African violet family with high endemism attributed to a genus still actively evolving, makes a good case study on the sustainability of rare and endemic species in the country

Story and pictures by Sam Yen Yen (samyen@frim.gov.my)

A genus in the family of Gesneriaceae, *Henckelia* is centered in South India and the Malesian region. The genus is believed to be still undergoing active speciation and as a result, a high endemism is recorded throughout its distribution. Some 91% or 82 out of the 90 species found in Peninsular Malaysia are endemic. One good example is the Selangor endemic, *H. primulina*.

This member of the African violet family is a perennial herb in lowland forest grounds. It grows up to a height of not more than 20 cm, with hairy margins framing fleshy leaves that are glossy dark green on their upper surfaces. Each inflorescence produces only one flower that is held erect above the plant. Their trumpet-shaped flowers have a unique yellow hue much like primroses, and hence their Latin name, *primulina*.

In 1922, Henry N. Ridley discovered *H. primulina* in the forest of Klang Gates, Selangor. Since then, no other collection has been made from other parts of the country. A recent visit to the site unearthed some unsettling facts about this group of plants.

The population was small and scattered and observed to be restricted to a very specific habitat. They only occur on very steep slopes between 70 and 100 m elevation due to their affinity for well-drained soils.

Plants are often found in groups of two to five individuals at lower slopes of tree stumps, or roots raised above the ground. These are areas where leaf litter can accumulate and degrade into humus, while avoiding being washed away by surface runoff.

A search for the species in similar terrain but at higher elevations above 100 m proved futile, except for a population of 324 individuals found on boulders at 150 m altitude.

The population, although extremely small, is thriving and well protected within the restricted areas of the Klang Gates Dam and the Klang Gates Wildlife Reserve. However, these plants may be suffering from genetic erosion following a change in land use pattern in the surrounding area in the past.

H. primulina will be a good case study on the sustainability of rare and endemic species in the country.

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Primrose trumpets... The Henckelia primulina population at the Klang Gates forests may well be undergoing genetic erosion

Leaf shine... The fleshy, glossy leaves of H. primulina

Stick 'em up... Shooting out at right angles are these fruit capsules of H. primulina. Raindrops burst open these pods to disperse the seeds inside

From previous page

Rare dipterocarp mapped

We also recommend that because both populations are situated relatively close to the reserve boundary, the District Forest Office regularly monitor pertinent sections of the boundary to ensure its integrity and prevent future conflicts.

Both populations lie in the reserve. Forestry records indicated that most of the compartments had not been logged, but were destroyed or damaged during the Japanese occupation and many parts were rehabilitated with *Dryobalanops aromatica* (Dipterocarpaceae).

The rehabilitation must have played an important role in sustaining the populations in these two compartments. Compartments 2 and 14 were originally classified as being productive. In 1985, however, the entire reserve was converted from a productive status (where logging would be permitted) to a protected status, and placed under the functional class of a recreation forest.

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*Gombak District Land Office records: File No. PTG 2/161/87 (L)