Headline Plants in the red Date 23 Nov 2010 Language English MediaTitle The Star Page No T1to3 1873 cm<sup>2</sup> StarTwo Article Size Section Journalist N/A Color **Full Color** ADValue 70,091 Frequency Daily Circ / Read 304,904 / 1,026,812 PRValue 210,274 R. TC s non f

If we don't start protecting our native flora, all that remains in future may well be just pressed specimens in herbariums. >2

Flora stock-take

Botanists are mapping the health of our native plants and the results so far are grim.

LOW LAY PHON / The Star

By TAN CHENG LI star2green@thestar.com.my

HE Shorea kuantanensis is no more. All that remains of it is a couple of faded, dried leaves and buds, taped to a piece of

Headline	Plants in the red			
Date	23 Nov 2010	Language	English	
MediaTitle	The Star	Page No	T1to3	
Section	StarTwo	Article Size	1873 cm <sup>2</sup>	
Journalist	N/A	Color	Full Color	
Frequency	Daily	ADValue	70,091	
Circ / Read	304,904 / 1,026,812	PRValue	210,274	

cardboard and stored in one of thousands of boxes filling the shelves of the vast Kepong Herbarium at the Forest Research Institute of Malaysia (FRIM).

We will never know how high the tree grows. Or the shade of green of its leaves. Or the colour of its blooms. We can only guess how its seedlings look like. The species was lost to science and mankind after the only area where it grew, the Bukit Goh forest reserve near Kuantan, Pahang, was cleared and planted over with oil palm.

Three other Peninsular Malaysia plants share the same fate as *S. kuantanensis.* The fern *Oreogrammitis crispatula* has not been seen in Bukit Larut, Perak, since 1952. Its cousin, *Oreogrammitis kunstleri*, was last collected from Gunung Ledang, Johor, in 1880. The *Begonia eromischa* disappeared after its forest home in Penang was turned into a farm.

Now, we only know all these four plants from pressed specimens in the herbarium. With over half of Peninsular Malaysia's original forests now replaced by townships, industrial sites, farms and estates, our wild native flora has certainly taken a beating.

The latest stock-take of our plant kingdom shows just how bad things are: of the 580 species and subspecies looked at so far, almost half face some degree of threat. The results are merely scratching the surface. With over 7,700 species left to study, more grim news might come.

The data is the culmination of the first five years of project Safeguarding the Plant Diversity of Peninsular Malaysia, undertaken by FRIM to update knowledge on our

flora. It is our most ambitious project on plant biodiversity to date, and marks our first attempt to document, in detail, how our plants are faring in the wild.

"Previous work had only looked at the description and distribution of species. This project goes one step further to include their conservation status (such as whether the species is endangered)," says botanist Dr Saw Leng Guan, who heads the project. Saw is director of the Tropical Forest Biodiversity Centre at FRIM.

The effort is much needed as there are gaps in our understanding of native plants. Although Peninsular Malaysia has a long history of botanical collection, with naturalists and botanists gathering and documenting plant specimens since the 1800s, much of the infor-

mation has not been updated for years.

Our earliest floristic account was the six-volume *The Flora Of The Malay Peninsula* by Henry Ridley, published between 1922 and 1925. Over the years, attempts to revise the knowledge have been scattered, limited or confined to plant families of economic importance (such as timber trees) or of personal interest to scientists (such as ferns, orchids and begonias). As such, we have plant groups, such as lianas, which have not been reviewed since Ridley's time.

The FRIM project has so far resulted in three publications, with more to come: two volumes of *Flora Of Peninsular Malaysia* (one on seed plants and one on ferns and leucophytes) and one volume of the *Malaysian Plant Red List* (on diptero-

carp trees). The *Flora Of Peninsular Malaysia* compilations contain the most up-to-date information on 580 species, covering taxonomic descriptions, botanical drawings, distributions, ecology, and conservation status.

The updated information will provide baseline information that is essential for the management and conservation of Peninsular Malavsia's botanical treasure trove. Aside from the four extinct species, FRIM researchers documented 262 species (45.2%) as threatened, out of which 79 are critically endangered, 88 are endangered and 95, vulnerable. They found that restricted and declining distribution, due to loss of natural habitats, is the greatest threat to plants. A reduction in population size and small numbers of mature individuals are the other causes

The Malaysian Plant Red List is a brief version of the Flora as its focus is on the conservation status of plants. The first volume focuses on dipterocarpaceae, an important timber group and the dominant family in lowland forests. Aside from the extinct *S. kuantanensis*, the *Red List* revealed 15 dipterocarps to be critically endangered and 35, endangered. Of the critically endangered species, six are peninsula endemics.

"Dipterocarps are the skeleton of the forest from where other plants grow. They form the canopy of the forest and if removed, other plantlife will be affected. By doing this (the *Red List*), we will know the response of the forest to threats," says Saw.

## **Plant scrutiny**

To revise the scientific knowledge on our plants, the researchers start by first vetting the 300,000 dried specimens – some dating back 100 years, and the oldest one is dated 1819! – in the Kepong Herbarium.

From there, the distributions of the species are plotted on a map and then collated with the extent of forest cover; this narrows down the range of plants in our present day.

If the habitat of a species is gone, that species is likely to be gone, too. From there, the researchers determine the level of threat faced by the species, whether critically endangered, endangered or vulnerable, based on the criteria of the International Union for Conservation of Nature (IUCN). Cross-referencing is done with collections and information from herbariums in Sabah, Sarawak, Singapore and the Netherlands, as well as with agencies such as the Forestry Department.

"It is impossible to go to the ground to look for all the plants as this will take too long. But for some 40 highly endangered plants, including the rare ones and those feared to be extinct, we went out to the field to do population counts," says Saw.

In their pursuit to document local flora, the researchers found both good and bad news. One good news is the discovery of Dryobalanops beccarii in Peninsular Malaysia. The plant was previously found only in Borneo. The bad news is that one population of the critically endangered Vatica yeechongii in Setul forest reserve in Negri Sembilan has been wiped out by building construction. The only other population of the species, described only in 2002, in Sungai Lalang forest reserve in Selangor, is safe – but it has all of 10 trees.

"We have lost much of our forests, so the range of distribution for most species has declined. That's why we have such a high number of threatened species," explains Saw. Malaysia has 15,000 plants

species; Peninsular Malaysia hosts 8,300 species while Sabah and Headline Date MediaTitle Section Journalist Frequency Circ / Read Plants in the red 23 Nov 2010 The Star StarTwo N/A Daily 304,904 / 1,026,812

LanguageEnglishPage NoT1to3Article Size1873 cm²ColorFull ColorADValue70,091PRValue210,274

## Sarawak, 12,000.

Saw estimates that revising all of the species found in the peninsula will take at least 20 years. The *Flora Of Peninsular Malaysia* features two series to cover all our plants. Series I, on Ferns and Lycophytes, will have another four to five volumes. Series II is on Seed Plants and 20 volumes are expected. Future publications of the *Malaysian Plant Red List* will be on begonias and palms.

To accomplish all this, funds are sorely needed. The initial RM7mil provided by the Science, Technology and Innovation Ministry covered only the first phase from 2005 to 2010. Saw says funding for botani-

cal inventories usually comes up short despite the importance of such research. "By identifying what species are threatened, we can then do something about it. Very often, we act in ignorance. People do not have the right information to make the right decisions. The key is generating the data to give the right information."

He cites the example of *Hopea* subalata or merawan kanching, an endemic that grows only in Kanching forest reserve in Selayang, Selangor. When FRIM botanists heard that a new road, the Rawang bypass, would cut through the only known site where the trees grow, they immediately appealed to the

Forestry Department and the state government. The road was subsequently realigned.

In a similar case, the Forestry Department set aside 63ha within Jerangau forest reserve in Terengganu as a "genetic resource area", protecting it from loggers, after the critically endangered Dipterocarpus sarawakensis (keruing *layang*) was found there. This may well be the last population of the species in Peninsular Malaysia as the other population in Sungai Dadong could no longer be located.

Yet another positive conservation example is that of the critically endangered *Dipterocarpus semivestitus* (*keruing padi*). Historical records

show that the species grows only in two places: central Kalimantan and Perak. The species was feared to be all but lost as the sites in Perak, in the freshwater swamps of Parit, Sungai Rotan and Sungai Tinggi, have been taken over by tin mining.

In 2006, a FRIM researcher found *D. semivestitus* in a patch of freshwater swamp in the Universiti Teknologi Mara campus in Seri Iskandar, Perak. Unfortunately, the site was to be cleared for new buildings. After consultation, the university authorities agreed to make changes to their expansion plans. Although some trees were sacrificed, 53 stands remain. FRIM is working with the university to

preserve the swamp as the trees survive on fluctuations of the water table.

"This is likely the last population of *D. semivestitus* in the world as the central Kalimantan population is most likely gone as the area has been planted with oil palm. So it is fortunate that the university was responsive to our suggestions," says Saw.

But there is also bad news. The limestone hill where the endangered begonia *Senyumia minutiflora* grows is earmarked for quarrying by YTL Cement. The hyper-endemic species is restricted to the two adjacent limestone hills of Gunung Senyum and Gunung Jebak Puyuh in Pahang. Only 60 plants have been

seen so far. Saw says several letters appealing for conservation of the plant drew no response from YTL and the state government.

## **Protection plan**

To best protect threatened plants, Saw says we need to pinpoint important plant areas (IPAs), which are sites rich in plant diversity and endemic species, and protect them. IPAs for dipterocarps and palms include the Kledang Saiong Range in Perak, north-west Negri Sembilan-East Selangor, Terengganu, as well as central and east Johor.

It is high time the Government provided legal protection for our plants. Right now, plants are not shielded under any legislation. Only those that happen to grow in protected areas such as state or national parks or wildlife reserves, are safeguarded.

"Critically endangered species should be listed in an Act and automatically protected. With such a legal instrument, if an endangered species is found, the land owner or developer will be required by law to protect it. Now, protection is just based on goodwill."

We also need to move into species recovery and restoration of the most threatened species. Conservation actions include monitoring the populations to determine their health; developing conservation measures to remove the threats; initiating protection and recovery programmes; and initiating ex-situ conservation programmes to aid recovery (such as artificial breeding and genetic conservation).

"The Government has to take more serious action to protect our species. Once a plant is extinct, it's gone forever. There's no going back," stresses Saw. HeadlinePlants in the redDate23 Nov 2010MediaTitleThe StarSectionStarTwoJournalistN/AFrequencyDailyCirc / Read304,904 / 1,026,812

LanguageEnglishPage NoT1to3Article Size1873 cm²ColorFull ColorADValue70,091PRValue210,274



**Lost forever:** All that's left of *Shorea kuantanensis* is the pressed specimens (the page on extreme right) being held by botanist Dr Saw Leng Guan. Now considered extinct, the tree species is known from only the Bukit Goh forest reserve near Kuantan, an area that has been cultivated with oil palm.



Aside from vetting herbarium specimens, FRIM researchers have gone on the ground to collect and document plants under the Safeguarding the Plant Diversity of Peninsular Malaysia project.

Headline Date MediaTitle Section Journalist Frequency Circ / Read Plants in the red 23 Nov 2010 The Star StarTwo N/A Daily 304,904 / 1,026,812

LanguageEnglishPage NoT1to3Article Size1873 cm²ColorFull ColorADValue70,091PRValue210,274

