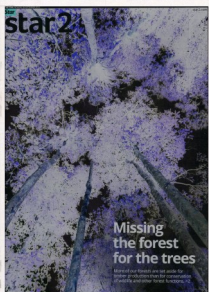


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Photo: TAN CHENG LI/The Star

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Safeguarding wild species

As most of our forests have been logged, how will our wildlife fare?

By TAN CHENG LI

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MALAYSIA'S biodiversity is exceptional – we're ranked 12th in the world's top 20 most biologically diverse countries. But we are in danger of losing our wild flora and fauna as the country continues to lose its forests.

One of the country's leading botanists, Dr Saw Leng Guan, warns that the future of Malaysia's biodiversity is in peril as wild habitats are lost when forests are converted to other land uses.

"Our biodiversity is amazingly rich," he says in his plenary speech at the International Science and Nature Congress 2015 last week in Kuala Lumpur. "As a biologist in this field for over 30 years, I still marvel at the things we find. We are right smack in the middle of biodiversity-rich areas in South-East Asia. Yet, most of us do not realise the kind of richness we sit on."

Data from the International Union for Conservation of Nature shows that 195 species of vertebrates in Malaysia are endangered. Already extinct are the Indian grey mongoose, Javan rhinoceros and banteng (wild jungle cattle). Some scientists recently declared the Sumatran rhinoceros to be extinct in the wild in Malaysia as only three captive individuals remain in Sabah.

As for plants, 421 species in Peninsular Malaysia are endangered. Four species are extinct: the *Oreogrammitis crispatula* fern, known only from Bukit Larut in Perak and last collected in 1952; the *Oreogrammitis kunstleri* fern from Gunung Ledang, last collected in 1880; *Begonia eiromischa*, known only from one site in Penang, now a farm; and hardwood tree *Shorea kuantanensis*, known only from Bukit Goh forest reserve near Kuantan, now an oil palm estate.

Saw, director of the forest biodiversity division at the Forest Research Institute of Malaysia, says land-use change is a major compo-

nent to deal with when tackling biodiversity conservation. He shares these statistics: In 1966, 70% of Peninsular Malaysia was covered by lowland forest. By 1990, the area shrunk to 38% and by 2006, to only 25%. The lowland forest had to make way for rubber and oil palm plantations as well as urban settlements and industrial sites.

Saw says by 2020, the only remaining forests in Sabah and Sarawak will be in the highlands. "Studies show that the richest areas of plant biodiversity in Sarawak is around Kuching, yet this is where the most development has taken place."

While we have lost large tracts of lowland forest, Saw says areas of other forest types have remained consistent. "The key now is to keep as much of the remaining lowland forest as possible and maintain the other ecosystems we have," he points out.

Transformed forest

In Peninsular Malaysia, more forest is set aside for timber production than for conservation. Of the 5,674,128 hectares of forested areas, 56.2% or 3,185,830ha is designated as "production forest" – forest meant to be logged.

"Protection forest", set aside to safeguard water resources, biodiversity and soil, take up 31.1% or 1,763,663ha. The remaining 12.8% or 724,635ha is "stateland forest" which state governments can clear for other land use. (These figures exclude national parks and wildlife reserves.)

Saw says there is little forest left that is unlogged. Almost 78% of all production forest has been exploited, with some having gone through two or three cycles of logging. He says after several logging cycles, the forest shows poor structure and species composition and may not be as productive.

"When you take timber out of the

forest, it cannot remain the same. We will not get what the forest was formerly. The species composition will be skewed towards non-dipterocarps where the timber generally don't sell well." (Dipterocarp is a family of tropical hardwood trees which yield good quality timber.)

Saw foresees that in the next five to 10 years, all remaining primary production forest (12% of the total forest cover) will be logged as it is where the most valuable timber can still be found. He points out that the impact of repeated cycles of logging is still poorly understood. "It is unclear how understorey plants, animals and river ecosystems will respond to this. We don't have enough data."

Vulnerable habitat

To conserve our biodiversity, it is crucial to protect our biodiversity hotspots and vulnerable habitats. One such habitat is limestone hills, which are highly threatened by quarrying for the cement industry. Limestone karsts are rich in flora, particularly orchids, begonias,

palms, ferns and Gesneriaceae (a family of flowering plants). They occupy only 0.4% of the country's land, yet harbour 1,216 (14%) of Peninsular Malaysia's 8,500 plant species. A fifth of the limestone flora are endemic to the country.

Unique animal communities can be found on limestone hills. Some 80% of our land snail species live on karsts; many only on specific hills. Cave fauna are also very specialised, such as the troglobites, which are crabs, prawns, crayfish and fish adapted to living in dark cave chambers. The Mulu caves of Sarawak harbour over 200 cave species and in one cave alone, there are over one million wrinkle-lipped bats.

Scientists also refer to limestone hills as "arks of biodiversity" as many are near developed areas, and so become a refuge for wild

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flora and fauna. Even outcrops close to urban areas have endemic species: the *Maxburretia rupicola* palm grows only in Batu Caves and Bukit Takun in Selangor; the *Monophyllaea elongata* is found only in Gua Tempurung, Perak; and *Senyumia minutiflora* is confined to Gua Senyum, Pahang.

Many limestone hills are being destroyed by quarrying. However, it has been argued that blasting these hills to get materials for making cement can be avoided. The alternative is to tap sub-surface reserves of limestone. Saw equates limestone outcrops to icebergs – what you see is just the one-tenth that is above-ground, while the remaining nine parts is below-ground. “There is a huge reserve of basement (sub-surface) limestone. Study shows 673sqkm of it in the

Kinta Valley (in Perak), as thick as 3km. But we are quarrying limestone hills instead of exploiting the reserves underground as it is cheaper to do so.”

He urges for a change in policy which will shift the focus to underground limestone quarrying instead.

New green policy

To stem further losses of our wild heritage, strategies are being drafted under the new National Policy on Biological Diversity (2015-2025), expected to be launched next year. The document outlines the means to reduce pressures on biodiversity, safeguard key ecosystems and species, as well as improve knowledge and capacity to conserve biodiversity.

Some of the targets to be achieved by 2025 are: streamline biodiversity conservation into development planning and policies; sustainable management of forests, agriculture and fisheries; protect at least 20% of terrestrial areas and inland water, and 10% of coastal and marine areas; protect vulnerable ecosystems and habitats, particularly limestone hills, forests on ultrabasic soils, wetlands, coral reefs and seagrass beds; remove threats to endangered species; and more funding for biodiversity conservation.

Saw says additional funding is essential to provide the means to implement the targets. “We are approaching tipping point in losing significant parts of our biological diversity ... the National Policy must work.”



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After two to three cycles of logging, the forest will be poorer in species composition.



Licuala sallehana is critically endangered as it grows only in a small area in Terengganu.

