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The disappearing plants

Thanks to its location at the crossroads of three main biogeographical regions – Indo-Himalaya, Indo-China and Malesia, the biogeographical region straddling the boundary of the Indomalaya and Australasia ecozones – Thailand's plant diversity is one of the richest in the world, with an estimated 1,900 genera and 10,000 species of vascular or higher forms of plants. Of the 70 per cent of Thailand's plant species that have been studied, 756 have proved to be endemic or unique to this country, with many found only in certain localities, such as limestone hills and mountainous areas.

A red book published earlier this year by the Office of Natural Resources and Environmental Policy and Planning, however, lists 1,407 species as vulnerable or in danger of extinction, with one thought to have already gone extinct in the wild.

"From a distance, the mountains look normal, but in fact they have already lost their biodiversity," Dr Piyakaset Suksathan, a botanist at the Queen Sirikit Botanic Garden, said. "In the North there are trails leading to nearly all mountains, where villagers go to collect things from the forest like bamboo shoots, mushrooms, etc., and to shoot animals. Now there are hardly any animals left, which is a pity because animals disperse seeds and help in plant propagation."



These mountains and hills have lost their biological diversity due to agriculture and forest fires.



'Adiantum thongthamii Suksathan', a rare species of fern that Dr Piyakaset

(below right) discovered during a plant collecting expedition in eastern Thailand.

Dr Piyakaset also attributes the loss of biodiversity in northern Thailand to the destruction of forests for agriculture and forest fires set by villagers so that a favoured kind of mushroom, locally known as hed tob, will grow. He relates how devastated he felt last summer when he went to see a beautiful wild rhododendron he had seen on a mountain the previous year and found that it had been destroyed by fire.

"It was not dead, but it would take years before it could become the beautiful, bushy tree that I had seen earlier," he said.

Piyakaset has explored many of Thailand's forests to collect specimens for the botanical garden's herbarium and living plants collection. The living collection is for the purpose of conservation, while "the dry specimens in the herbarium can be used for reference which, according to theory, can be kept for hundreds of years so that later generations can also study them".

"It's like historical data," he added. "They tell which plants can be found in a certain area, or how plants in a certain area have been affected by climate change."

A taxonomist, Piyakaset says there are 300 species of ginger, or plants in the family Zingiberaceae, "but many more are waiting to be discovered".

He himself has found several plant species new to science, including ferns, orchids, gingers, arrow roots and impatiens. A rare species of fern he found on a limestone mountain in eastern Thailand is now called *Adiantum thongthamii* Suksathan, after Assoc Prof ML Charuphant Thongtham, his adviser when he was taking his master's degree at Kasetsart University. The discovery was published in the April/June 2004 issue of the American Fern Journal.



Dr Piyakaset

During his expeditions in the northern mountains the young taxonomist found three orchids that were like no others. With the help of Dr Henrik Pedersen, a specialist on orchids at the Botanical Museum of the University of Copenhagen, Denmark, who launched an intensive morphological investigation, the orchids were declared not only new species but also found to belong to a completely new genus. With royal permission the orchids are

now named *Sirindhornia pulchella*, *Sirindhornia mirabilis* and *Sirindhornia monophylla*, after Her Royal Highness Princess Maha Chakri Sirindhorn. Piyakaset sees the importance of conserving Thailand's forests, but "as long as there is demand for beautiful plants from the forests, there will always be poachers who will go to collect plants for sale to collectors. "It's like a forbidden fruit," he said, where the more it is forbidden, the more it is coveted. The best way to conserve the plants, therefore, is for forest officials to propagate the coveted plants and sell them at affordable prices. "Some plants are difficult to propagate elsewhere but they can be easily propagated near the place where they naturally grow," Piyakaset said. "Collectors will then be happy that they can buy already established plants instead of taking them from the wild.

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