

Are creeping vines choking Kaeng Krachan forest?

The chief of the nation's largest national park calls them a green monster destroying big trees, but some scientists say they are essential to healthy arboreal life **By Tunya Sukpanich**

About eight months ago, an environmental problem of a different sort was first reported: the overabundance of woody vines, or lianas, in Phetchaburi province's Kaeng Krachan National Park. Vines are a natural fixture in tropical forests and besides providing a food source and helping animals climb and swing, lianas contribute to biological diversity and carbon capture. But on the downside, they may suppress tree regeneration and increase tree mortality, and large branches may break off under the weight of the vines.

Kaeng Krachan is Thailand's largest national park, covering 1.8 million rai. Because of its fertility and interplay of ecosystems, it has been targeted for proposal as a natural Unesco world heritage.

No one seems to know why there is such a proliferation of woody vines at the park or whether it is a new phenomenon.

Park chief Chaiwat Limlikit-aksorn says about 300,000 rai of parkland is overrun by lianas, and that some 50,000 to 60,000 rai are in crisis. In these areas, a significant number of big trees between 20 and 70 years old have died or fallen because of the thick cloak of vines around them.

Meanwhile, the remaining trees in these areas grow slowly and are unhealthy, said Mr Chaiwat, adding that 37% of the offending lianas are *kradook teak*, 35% are *koew lueng wang*, with the rest comprising 18 other types of vines.

"We detected the problem of over-abundant lianas in late 2008. In the crisis areas, we find that 90% of the vegetation is made up of lianas, while normally 90% is trees," said Mr Chaiwat, who proposes chopping down the lianas on a large scale.

Many academics and environmentalists are opposed to his initiatives, however, saying the issue needs more study.

The National Parks, Wildlife and Plant Conservation Department agrees and has established a research team to conduct a six-month study on the lianas in the national park (see box).

"Whatever the recommendations of the research team may be, we will follow them strictly," said Mr Chaiwat. But he warned that the vines are choking large areas of the forest, preventing access for wildlife. He said that many areas that have been taken over used to be habitats, water and food sources and even routes to important salt deposits.

Addressing the problem is complicated by the fact that liana seedlings escape notice because they are self-supporting, like tree seedlings. They start to climb, lean or to wind around trees when they reach a height from between half a metre up to three or four metres, with the height varying according to species.

The crisis areas are located in parts of the



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forest known as Ban Ta-oon, Ban Kom Krit, Khao Pagarang, Huay Mae Sariang and Khao Krating, said Mr Chaiwat. "Those areas need urgent action because the vines have caused not only the death of trees but also have had a negative impact on food sources and habitats for wildlife," he said.

Large animals, especially elephants, have limited space to roam for food. Some of them may migrate across the border to Burma and others may intrude onto farmland, leading to possible conflicts between villagers and wild elephants.

"Hornbills, a significant bird species in this forest, are also affected by the thick lianas in the forest canopy. They nest high up in trees. Lianas bring all kinds of animals up the trees, such as squirrels and snakes. They eat birds' eggs," said Mr Chaiwat.

He worries that the lianas may creep in on Kaeng Krachan's evergreen forest near the Burma border and other fertile areas.

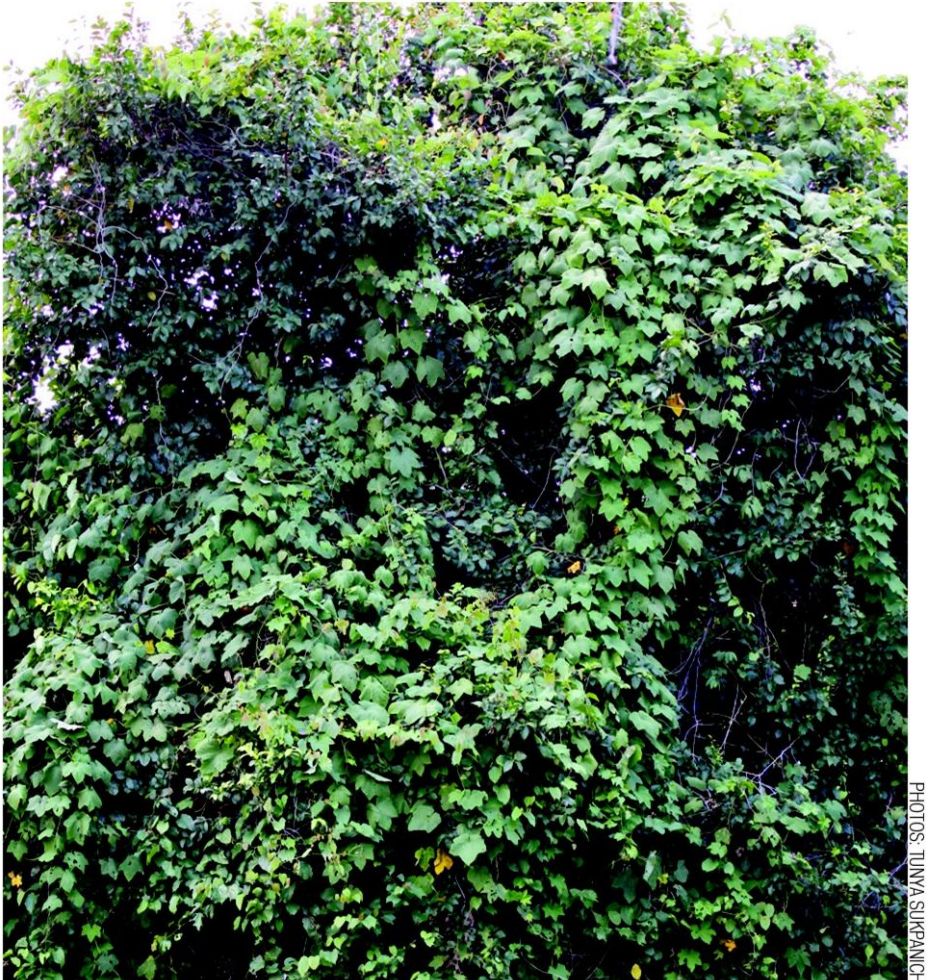
Mr Chaiwat conceded that it would not be practical to chop down all the lianas in 300,000 rai of forest, as this would require a huge budget and workforce. But he insisted that the National Parks Department has a responsibility to maintain the health of the forest, for its wildlife and its water resources. He says the department should make it a matter of routine to remove lianas when it's clear they are detrimental.

Chanpen Wongsripeuk, from Mahidol University's faculty of conservation biology, strongly opposes Mr Chaiwat's initiative and warns against automatically assuming that the vines are responsible for forest destruction. "Any action needs to be supported by intensive and thorough scientific research," she insisted, adding that the current study instigated by the Parks Department hasn't been going on long enough for conclusions to be drawn from it.

"Do not look at lianas in the forest as the culprits. We do not know the real situation in this forest, whether they have obstructed the normal living pattern of big animals like elephants or gaurs as claimed by officials. Actually



FOREST FRIEND: Lianas create natural pathways for wildlife and perches for wild birds.



UNDER COVER: Above, creeping liana vines completely cover some trees. Some experts say that they may block access to the forest for larger animals, such as elephants.

PHOTOS: TUNYA SURPANNICH

we do not know much about the role of lianas in the forest ecosystem," said Ms Chanpen, noting that there has been little in the way of study on the vines in Thailand.

"A big tree can fall for many reasons — landslides, storms, disease, old age. In such a situation it creates a gap, allowing sunlight to reach the forest floor. The lianas naturally attach themselves to the small trees. When the small trees grow, the lianas also grow and reach the canopy and spread among the trees," said the biologist.

She urged long-term studies to determine if an abundance of lianas causes disease in trees, as some claim. She said that research on lianas in Kaeng Krachan should cover all aspects of the ecosystem, especially the relationships between the trees and lianas. She said a sufficient number of research plots should be scattered over the entire forest. Studies are also needed to see if there are problems in other forests.

Ms Chanpen is conducting her own research on lianas in Khao Yai National Park. "It is on a small scale. We have a research plot in the area where another study on gibbons has been going on. In that area, 50 percent of the plants are lianas and 50 percent are trees. If the lianas are cut down, the ecosystem in the area will certainly be changed," she said.

She emphasised the importance of lianas as a food source for animals.

The Khao Yai study confirms that many animals — including gibbons, hornbills, binturongs, giant squirrels and many bird species — feed on leaves, fruits and flowers of lianas. Around 40% of gibbons' daily food intake was found to come from lianas.

Moreover, they become a substitute food for many types of wildlife during the dry season because they continue to flower and produce fruit.

Peeraya Sangworn, a local conservationist who also strongly opposes the initiative to cut down the lianas, said: "We are quite relieved now because the public is paying attention to the issue. Scientific study will lead to a right decision." Ms Peeraya has organised trekking tours in the national park for many years and believes that the problem has been exaggerated. She led a group of conservationists to protest the park chief's scheme after the proposal to cut down the lianas was reported publicly.

"We conservationists, together with academics who are experts on lianas, went into the areas where it is claimed the lianas have done serious damage. The fact is that the trees under the lianas are surviving," she said. She added that the vines are not parasitic. She insists that six months of research is not enough to find the solutions.

"In other countries, studies on woody vines in the forests have been conducted for decades," she said. Ms Peeraya said her opposition to the park chief's initiative has cost her professionally as she and others are no longer allowed entrance into the park on the grounds they violated regulations by protesting inside the park.

"We are seeking justice from the court of justice," she said. "As with other environmental issues, the people's voice must be heard and considered on whether lianas are a problem at Kaeng Krachan." ■

INITIAL RESEARCH RESULTS

The research team led by Watana Sakchoowong, of the National Parks, Wildlife and Plant Conservation Department recently finished the first phase study on the abundance of lianas and their impact in Kaeng Krachan National Park.

Nine study plots, each covering one rai, have been established where a large number of lianas are reported.

Mr Watana said that most lianas found in those plots are *koew leum wang* (*Pterolobium integrum* Craib), *kradook kob* (*Hymenopyramis brachiata* Wall), *kreu salae* (*Broussonetia kursil*) and *kampeang chet chan* (*Fibraurea tinctoria* Lour).

The team found that in plots where the woody vines outnumber the trees, the number of dead and fallen trees is higher than in the plots which have less woody vines. With some species, the number of trees had decreased, their growth rate slowed and they are in an unhealthy condition.

"In the study, in plots with abundant lianas, 7.89% of trees were dead and another 9.44% were fallen. In comparison, in plots with less lianas, only 2.12% and 2.54% were dead and fallen, respectively," said Mr Watana.

He proposes that the lianas should be removed only in areas where they have a negative impact on wildlife habitats.

"If we cut close to the trunks at around two metres high, the lianas will be dried up and decayed within three or four months," said Mr Watana. ■