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## FRIM's young biodiversity scientists

**A**hmad Dzamir Dzuikply, a graduate in aerospace engineering, has signed up for five years of research in a seemingly unlikely creature of flight: bees. On a recent field trip at the Forest Research Institute of Malaysia (FRIM) in Kepong, the 27-year-old explained that bees can be used as an indicator of a forested area's health because the insects flourish in the area's fauna and act as pollinating agents.

The young scientist is one of eight people chosen to participate in a biodiversity assessment team, which is part of the Conservation of Biodiversity Project, executed by the Ministry of Natural Resources and Environment and funded by the Global Environment Facility through UNDP Malaysia and the International Tropical Timber Organisation.

Spraying a concoction of mango essence, sugar and plain water on plants, Ahmad Dzamir managed to net a few samples with a quick flick of his wrist. Baits can also be prepared by placing a sponge on a brightly coloured background or an artificial flower, he explained. After learning several painful lessons, he has chosen to focus on stingless bees for his research.

There's no doubt that it's a steep learning curve for Ahmad Dzamir, but with a passion for nature conservation, he is certain of his career path. He confesses to being a big fan of British naturalist Sir David Attenborough and keenly followed National Geographic documentaries as a child. As part of the biodiversity conservation project and leading the census for stingless bees in the assessment team, Ahmad Dzamir is out in the open, taking walks in the jungle and enjoying the opportunity to experience nature closer — close enough to encounter sun bears in Temenggor, Perak, where the project's pilot site is located.

Christine Fletcher, one of the two coordinators of the biodiversity assessment team in FRIM, described the crop of young researchers as exceptional. "They were chosen not only for their proposed areas of research, but also evaluated and selected based on their passion and intelligence," she said.

The aim of the project is to create improved forest planning tools and methods that prioritise the conservation of biological diversity through the creation of better planning and predictive tools that incorporate both ecological and economic data.

Current forest management practices, such as harvesting in production forests, can be further improved with better biodiversity assessment tools and less destructive foresting methods, for example.

The team has completed studies in five virgin jungle reserves to better understand the regeneration of biodiversity in production forests by using eight species of insects as indicators of an area's health and regeneration.

Fletcher explained that instead of evaluating a forest's health by tracking down large mammals such as jungle cats, researchers can opt for indicators of their presence, for example by using dung beetles. The species selected — ants, aquatic macro invertebrates, bats, birds, dung beetles, moths, stingless bees, plants and trees — are easily trapped or identified, have an economic value and are cost effective to study.



Ahmad Dzamir

Anthony Gonzaga

While it may seem simple to bait dung beetles on the forest floor and collect them, Elizabeth Butod, 25, the leader of the dung beetle census, finds it a challenge being a pioneer in this area of research. As there is very little research and publications on dung beetles in tropical forests, she has limited references to work with. Although most species are not very fussy about the origins of their food, she believes there are dung beetles that are, especially one species that is found in Sabah's Danum Valley.

Anthony Gonzaga, 32, is studying another pioneering area of research — indicators of a forest area's health. Moths are pollinators and the detection of certain species can be used to determine the level of forest disturbance as moths can only be found at canopy level. He is also studying the functional traits of moths — the antennae, which are used for navigation in the forests. According to Gonzaga's observations, the denser the forest structure, the more complex the antenna structure of the moths found there. These antennae are hairier or more feathery — not unlike false eyelashes.

The team aims to conduct its last census in Gunung Berembun in Negri Sembilan and compile data and complete its analysis of such virgin jungle reserves in Peninsular Malaysia as Semangkok in Selangor, Gunung Tebu in Terengganu, Kledang Salong in Perak and Ulu Gombak in Selangor.

It will return to the pilot project site in the Perak Integrated Timber Complex in the Temenggor forest reserve, where both biodiversity assessment and improved harvesting experiments have taken place. The site will be reassessed after the harvesting activities are completed.

Upon the project's completion in 2011, the results of the experiment will be presented to the country's policymakers to influence decision-making on the economic and ecological value of biodiversity, said FRIM's project director Shamsudin Ibrahim. FRIM also aims to present these recommendations to two states in the peninsula and at least one tropical country in the region.

Such targeted studies would surely have benefited from a team of much older and more experienced researchers, but both Fletcher and Shamsudin disagreed. Getting young scientists to sign up with FRIM was not a problem, they said, but finding passion and talent among them was a challenge. They stressed that by building knowledge and interest in these enthusiastic scientists, they hope to inspire their generation to consider the importance of biodiversity in land usage and forest and environmental management.