

Jungle Experiments

This classroom has no desks, chalkboard or wifi

BY BURTON K. LIM



Deep in the rainforest of Guyana in northern South America is an unlikely setting for a laboratory of learning. For the past five years, a study has been examining not only the resilience of tropical ecosystems to climate change, but also testing the educational capacity of students in a jungle classroom.

A mix of two dozen university and high school students from the United Kingdom, the United States, and Canada are embedded in a remote region of South America to help a team of international scientists study the biodiversity of one of the most pristine environments in the world. While development and progress usually means that wilderness areas become urbanized, Guyana has 80 per cent of its natural habitat still intact, with indigenous people continuing traditional lifestyles in the interior of the country.

“The Guyanese rainforest acts as a hedge against global warming”

Since 2011, I have been compiling data on bat species diversity and relative abun-

dance that is contributing to an ambitious long-term monitoring program to track the health of the Guyanese rainforest—a large carbon sink that acts as a hedge against global warming. Other biologists studying large mammals, birds, insects, amphibians, reptiles, and plants have been assembled by Operation Wallacea, an organization based in England devoted to conservation science. Our goal is to establish baseline information that will be useful in identifying unusual trends in variation that may indicate changes to the environment.

We introduce students to tropical ecosystems with classroom lectures combined with hands-on training of scientific field methodology at the Iwokrama Forest nature reserve and the nearby Amerindian village of Surama in central Guyana. In exchange, they assist us in documenting the high levels of biodiversity that are present and necessary for the rainforest to flourish. It is about more than just not cutting down the trees,

Above: Operation Wallacea students waiting in anticipation of freeing an owl caught in one of the bat nets during the night.

Opposite above: Student Nathan Van Cooten releasing a yellow-shouldered fruit bat after identifying and recording data.

Opposite below: Amerindian guides from Surama village in Guyana cutting through a tree fall vine tangle impeding boat travel.



“If the wildlife is hunted out, the forest will not survive long”

causes that may have contributed to any shifts in trends. Are they natural phenomena attributable to regular climatic patterns such as El Niño effects, or are they human-induced disturbances related to global warming?

Expeditions to Guyana are some of the more logistically, physically, and mentally challenging. One muddy, pothole-infested road leads south from

the populated coast to the sparsely inhabited hinterland. It's only about 300 kilometres to Iwokrama Forest, but it takes 12 hours to get there, crammed into minibuses that drive what seems to be way too fast for the conditions. We spend almost a month together in close quarters at several river-side bush camps accessible by boat through minefields of rocks and treefalls, sleeping in hammocks enveloped in mosquito nets under plastic tarps. Not a typical summer vacation for these intrepid students.

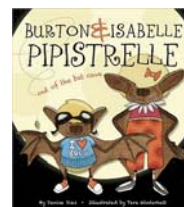
A sense of accomplishment for having survived the jungle prevails as we make it back to civilization in the capital city of Georgetown. The students have gleaned an intangible learning experience in field research, and we have compiled valuable baseline data on natural variation in tropical biodiversity that will be important for assessing potential effects of global climate change. o

BURTON K. LIM is an assistant curator of Mammalogy in the Department of Natural History at the ROM.

which can be easily monitored by satellite imagery, but rather ensuring the habitat is alive with animals. If the wildlife is hunted out or the waters poisoned by illegal mining, the forest will not survive long for future generations.

Even after almost three decades of fieldwork, I am still leery of the possible dangers lurking in tropical jungles that are home to the overwhelming majority of the millions of species that live on Earth with us. I am sure every single one of the students searched the Internet beforehand about the perils of malaria and the consequences of bites from venomous snakes. They will consider themselves lucky to only experience butterfly larvae feeding under their skin or chigger infestations that drive you mad with itching. But how do you get the chance to get up-close with nature by untangling a bat from a net, identifying it, and then letting it fly off from your hand?

The potential for exciting discoveries such as finding a species unknown to science or contributing to the conservation of nature keeps drawing me back time and time again. One of the main objectives of the Operation Wallacea monitoring study in Guyana is to understand the variation of biodiversity. By standardizing our field methods, we can identify when there are significant changes in the community structure of organisms and try to explain the



Bring some bats home!

Check out Burton's five awesome facts about bats in *Burton & Isabelle Pipistrelle: Out of the Bat Cave*. Available at the ROM Store.

Members Price: \$4.50.

Photos courtesy/Burton Lim.