The struggle by scientists to inventory rapidly disappearing biodiversity of the tropical forests is facing many obstacles. Of them the most obvious are the logistical and financial difficulties, experienced by the majority of the short-term intensive expeditions, and a long time required to process all the material by only a few experts.

One promising attempt to overcome these problems is working with trained indigenous people, or parataxonomists, which was pioneered by D. Janzen and W. Hallwachs in Costa Rica.

One of the more extensive parataxonomist projects is now based at The Parataxonomist Training Center Ltd., founded in 1997 in Madang, Papua New Guinea. Today, it employs 11 full time parataxonomists, several trainees and a number of local collaborators, who are active in several ecological studies.

Parataxonomists: A New Approach to Ecological Research

By William Boen and Kenneth Molem with the assistance of John Auga, Micah Damag, Samuel Hiuk, Brus Isua, Richard Kutil, Max Manaono, Markus Manumbor, Martin Moga, Elvis Tantiai, Jiri Hulcr and Milan Janda

The Parataxonomist Training Center Ltd.
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Who is the Parataxonomist?

The prefix "para" in this context modifies the meaning of the word "taxonomist" to nonprofessional scientific assistant, with rather limited access to standard expert facilities, but yet largely independent and able to solve complex scientific tasks. In the Parataxonomist Training Center, we are trained to use scientific tools, to perform various research activities and to understand and be able to contribute to scientific work.

The Database of Insect Herbivores, Host Plants and Their Relationships

This database is a backbone of the Centre's research activities. It is a still growing compendium of observations accumulated over five years of continuous extensive investigations. It contains data on various insect orders (for example, 42,000 records of Lepidoptera), 3,500 tree species surveyed, 2,500 feeding insects sorted into 58,588 individuals of Lepidoptera, plants and fruits as well as their mutual relationships, digital images, all information are stored in the custom-build Microsoft Access database.

Fig. 3: Host specificity of fruit-flies (Tephritidae) in lowland rainforests

This is a study of species richness and host specificity of Cerambycidae larvae (Cerambycidae) developing in wood of various tree taxa. Flute of freshly cut wood from desired trees are exposed in the forest canopy and underneath toALLOW oviposition by cerambycids (fig. 6), then placed in exago and regularly checked for emerging cerambycids. We plan a survey of at least 50 species of tree taxa throughout the forest. So far, more than 1,200 cerambycids have been identified.

Fig. 4: Parataxonomists use the environmental exposure of young parataxonomists

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Fig. 5: Maintaining the database and reference collection.

Fig. 6: Lighttrap - fieldwork is the first step.

Lighttrap - fieldwork is the first step.

Education by parataxonomists

Centre's ultimate goals go beyond the carrying out scientific projects. The other, equally non-monetary but important one, is to pass on local traditional and ecological knowledge to local people on school children. By producing awareness, non-professional parataxonomists, on school children.

Community of leaf-chewing insects in lowland rainforests of Papua New Guinea

In our main long-term project we compare the species composition, species richness, host specificity and overlap in composition of herbivore communities feeding on closely and distantly related hosts. We test whether ecological traits of insect herbivorous communities are related to ecological circumstances, or whether they can be explained by plant phylogeny. Our data analysis is based on 58,588 individuals and 110 species of leaf-chewing insects collected and reared on 59 species, 19 genera and 18 families of woody plants in a lowland rainforest.

Fig. 7: Identification Guide

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Fig. 8: Entomology course is open to students enrolled in agriculture courses

Fig. 9: Entomology course is open to students enrolled in agriculture courses

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Fig. 10: Digital pictures are used for the initial training of parataxonomists (Cerambycidae larvae).