

The Gamba Complex Biodiversity Project is a collaboration of the Smithsonian Institution's Monitoring and Assessment of Biodiversity Program (MAB), Shell Gabon, Shell Foundation's Sustainable Energy Program, the Gabonese government and other national and international organizations.

This is an update from our lab—Labo Vembo—in Gabon, where researchers process and identify samples from a year-long study of arthropods in habitats that exhibit different degrees of human disturbance. Subsequent updates will include results from field research and other news.

One of MAB's foremost goals is to disperse information gained from research as widely and timely as possible. With these updates—directly from the field—we venture down a new path to keep colleagues and other interested parties informed.



Grasshopper (top) and scorpion (above)—part of the amazing arthropod diversity found in the Gamba Complex of southwestern Gabon.

Photos by Carlton Ward Jr.

## **Smithsonian Institution Monitoring and Assessment of Biodiversity Program (MAB)**

# **FIELDNOTES – GABON**

## **Field Newsletter—Issue 6**

**April 11, 2002**—Special report from the Gamba Complex by Smithsonian Institution MAB Program

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*Gamba.* Since last July, eight dedicated researchers from the Gamba community, assisted by professional entomologists, have been surveying insects in the Gamba Complex of southwestern Gabon. It is not easy to catch sight of the team in the field, however. The traps do most of the surveying work for them.

But at almost any time, you can find these intrepid individuals hard at work in the laboratory, patiently sorting through thousands of arthropods that are captured in an assortment of traps every week.

While identification is time consuming, it is paying dividends. The team is rapidly accumulating information on the huge number of insects that inhabit old and young forests, grasslands and farming gardens in the area. The reference collection of specimens is also growing quickly. By the end of the project, more than one thousand species will have been sampled and specialists around the world will do the formal identification and description.

We welcome you to the biodiversity lab—Labo Vembo—and the exciting world of the arthropod team!

### **About the arthropod study**

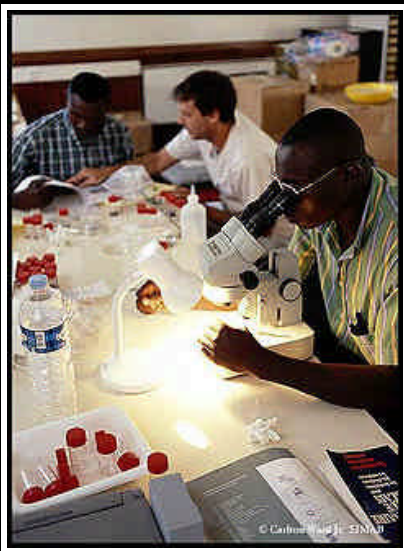
Knowledge of biodiversity in tropical environments goes a long way to help us understand ecosystems and how they function. This is one of the primary goals of the Gamba Complex Biodiversity Project. Our study of insects in habitats affected by different degrees of human disturbance, for example, should aid in ascertaining the status of regenerating forests and in identifying potential pest species.

Sampling insects with the appropriate tools is a relatively simple task. But processing the thousands of insects we are sampling from the Gamba Complex presents a significant challenge.



Parataxonomists at work in the field. Serge Mboumba and Jean-Bruno Mikissa set a yellow pan trap in one of the savanna sites, while Jacques-Francois Mavoungou and Landry Tchignoumba finish surveying a Malaise trap (the tent-like structure in the background).

Working at Labo Vembo. Landry Tchignoumba, Yves Basset, and Serge Mboumba (left to right) process sampled specimens. Stereomicroscopes are used to separate, mount and morphotype specimens. We gathered the limited published information on arthropods in this area and refer to it as we look for key characteristics to assist with identification.



So we decided to set up a central location to store and process specimens. With support from Shell Gabon, we turned a one-time disco in Vembo into a first-class biodiversity laboratory!

Labo Vembo, now in its eighth month of operation, is well equipped with stereomicroscopes, computers and storage cabinets. The reference collection is underway, and we have selected 26 specific groups of insects for in-depth analyses.

Francisco Dallmeier and Alfonso Alonso crystallized the idea of the processing center in collaboration with Scott Miller, Yves Basset and Olivier Missa as they finalized the sampling protocol for insect communities around Vembo. The protocol also called for selecting people from the local workforce to join the effort as parataxonomists—local assistants with no previous experience in identifying insects but who acquire the necessary skills through intensive tutoring and full immersion into the insect world. We recruited eight enthusiasts for the study.

The first several months of the project proved to be very busy as we established the lab and trained the parataxonomists. Fortunately, two Gabonese experts aided at this initial period: Jean-Bruno Mikissa from Ecole Nationale des Eaux et Forêts and Jacques-Francois Mavoungou from Institut de Recherche en Ecologie Tropicale.

### Accomplishments to date

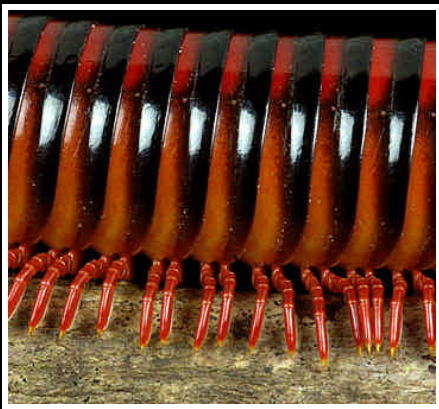
At the beginning of the project, the team set a total of 128 traps at 12 sites around Gamba. The traps include Malaise traps (tent-like structures that capture insects flying close to the ground), yellow pan traps (they attract mostly pollinators and flies) and pitfall traps (they collect insects crawling on the ground).

The traps are turning up impressive numbers of insects, to the point that we have limited trap operation time to weekends only! Even at that, we face a deluge of about 12,000 insects every Monday morning, keeping the team on their toes over the course of each week. Approximately 600 specimens are prepared and stored. This amount of activity naturally generates a lot of data, which we enter in a computer database for management and analysis.

To date, the team has identified 280,000 insects, prepared 13,000 specimens (stored in 70 drawers) and recorded representatives of nearly 200 different families in Labo Vembo's reference collections.



Land snails are quite diverse in tropical regions. This giant land snail measures close to 20 centimeters in length. While most snail species feed on plants, some feed on animal material, including other snails.



Close-up of a millipede's side. We found this animal crawling in the forest's leaf litter. Millipedes are quite abundant in the forest floor and are well represented in Gamba.

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In the 26 groups selected for diversity studies, the total number of recorded species is close to one thousand. For many of these groups, our reference collection is the first comprehensive inventory within a single area in Gabon.

### Meet the team

The arthropod study of the Gamba Complex Biodiversity Project is led by project designers **Francisco Dallmeier** (MAB Program Director), **Alfonso Alonso** (Director for Conservation, MAB Program), **Scott Miller** (Division Head, National Museum of Natural History), **Yves Basset** (Smithsonian Tropical Research Institute—and local team leader until December 2001) and **Olivier Missa** (MAB Program and Research Associate at the Royal Institute of Natural Sciences of Belgium—and local team leader since January 2002).

Our parataxonomists—all affiliated with Labo Vembo, Smithsonian Institution—are **Bruno Amvame**, **Nadine Koumba**, **Serge Mboumba**, **Gauthier Moussavou**, **Patricia Ngoma**, **Judicaël Syssou**, **Landry Tchignoumba** and **Elie Toby**.

We end by reminding you that insects are a fascinating world unto themselves. Much remains to be done before their mysterious universe is fully known. The team at LaboVembo is dedicated to making an important contribution to the study of arthropods in the Gamba Complex and to facilitate further studies by fellow entomologists in Gabon and tropical Africa.

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We look forward to keeping you informed. Earlier issues of Fieldnotes - Gabon are available at [www.si.edu/simab](http://www.si.edu/simab).