

## **GENERAL INTRODUCTION**

### **Santiago Castroviejo**

No one coming to the region of Bahía Honda for the first time could fail to be impressed by the beauty of the countryside and by the singularity of the coast, but this pleasure is dimmed by the amount of deforestation of the mountains and the hills: slash and burn operations have reduced the wooded areas to mere pastures. The rivers also show signs of different degrees of contamination. On closer acquaintance, however, or on a flight over the zone, patches appear here and there – larger or smaller remains of mature forest – sanctuaries of the most representative species of the region.

The density of the population, which must have been relatively high in the past, is now rather low; the lack of primary resources that followed on the deforestation forced the local people to abandon their small farms and migrate to the towns. Neglected pasture-land and uncultivated vegetable gardens have reduced the value of the land.

This is a situation that is typical of a good part of the lowlands of Central America: forests cut down, vegetation affected by the sequence of pasture/burning/ pasture, rivers contaminated, poor cultivation that is still carried out by traditional means, with little resource to fertilizers, insecticides, herbicides, pesticides, and so on, and a gradual exodus from rural areas.

All this adds up to create a region of special interest; in spite of its apparent degradation, most of the original flora and fauna is still surviving in the fragments of woodland, ready to re-colonize the region as soon as the environmental conditions are minimally favourable.

So here we have a scarcely populated territory, degraded to some extent, but with refuges for the original flora and fauna. In these circumstances, the directors of the company Bahía Honda LDC decided to organize programs of study and regeneration of the environment. They set up a Biological Station as the centre of coordination of the investigation, and at the same time they are undertaking projects for sustainable development to replace the present system of exploitation of the environment. In addition, they have bought a significant amount of land that will allow them to carry out these projects with sufficient freedom of action. It is an original project that in a few years, with the support it enjoys at present, will provide a store of knowledge of the phenomena and the processes that are essential to the management of the tropical environment and that have never been studied. In other words, it is a solid initiative for the study of the Central American tropical environment, aimed at finding solutions that will combine reasonable development with an intelligent protection of the environment.

The first scientific step towards the launching of this program was all too clear: to collect the basic information about the flora and fauna that would enable the experts to go ahead with their plans on a firm basis. In other words, to acquire the first data on which to build the pyramid of knowledge - a catalogue raisonné of the flora and fauna.

The present study follows this line. We owe our share in it to the coincidence of two factors: one was the desire of the originators of the project to set up a biological station on the island Canales de Tierra (Bahía Honda), and the other was our earlier experience at Coiba, which allowed us to evaluate fairly accurately the size of the effort that would be involved in the task.

We held long discussions about the groups that should be studied first. For various reasons, among which the cost was not the smallest problem, we decided postpone the study of the marine environment because the installations available at that time were not sufficient to guarantee the safety of the divers. Centering therefore on the terrestrial environment, we saw that we should start with a catalog of vertebrates (amphibians, reptiles, birds and mammals) and forest species (vascular plants, bryophytes and lichens), as well as some groups of invertebrates. Our first choice among the latter were the most endangered insects (butterflies) and the poisonous arthropods (spiders and scorpions).

The teams were chosen for their experience, since a time limit had to be considered. After the first upset of having to give up the study of the marine environment, the worst headaches arose over the study of the lepidoptera. The task was initially offered to Professor J.L. Viejo, who was happy to accept but then had to withdraw, for causes beyond his control, before even setting off on the first collecting trip. By a happy coincidence, Olga of Greece took an interest in lepidopterology, started to collect specimens and take photographs, and make contact with experts. As a result of this activity, we had collections to study, and thanks to the collections Dr. V. Rodríguez Gracia took over the diurnal butterflies and Annette Aiello undertook the study of the complex group of moths.

### **Acknowledgements**

We owe our thanks first of all to those in charge of expenses: travel expenses to the region, accommodation, meals, and the local trips covered by the directors of Bahía Honda LDC who have treated us with unflagging generosity and patience. Jean Pigozzi and Daniel Wolf came to visit us at the Royal Botanic Gardens and decided there to support the investigation. It was they who decided to provide the funds to allow the Consejo Superior de Investigaciones Científicas (CSIC) to engage Dr. Alicia Ibáñez. Olga of Greece entered wholeheartedly into the project, constantly offering

suggestions and encouragement, initiated new studies and made her own of butterflies.

I am indebted to the investigators who took part; with no other guarantee than my own word, they entered into a task that was to involve more time and work than we thought.

The arrival of a new project meant that the staff of the Smithsonian Tropical Research Institute (STRI, Panama), of the Real Jardín Botánico (CSIC, Madrid), of the Herbario de la Universidad de Panama and of all the other centres where the investigators were at work, whether office staff or librarians or responsible for the collections, all had extra work, and we are most grateful to them all.

In the Real Jardín Botánico, the directors and staff of the administration, of the herbaria, of the library and others, have all been affected by the arrival of this project. They have been generous with their constant help, and we are most grateful to all of them. Special mention must be made of our colleague, Antonio Martín Ciudad, who spent so many hours outside his work in the Real Jardín, arranging the photos, composing the pages, and so on. Without his help we would have had serious difficulties in structuring the report.

In Panama we were always received affectionately by our colleague, Dr. Anabel Perdices, whose home we invaded more than once.

In the course of our field work, we were helped in every way by the staff of the company, Jacqueline and Humberto Chang among others, who arranged our trips from Panama to Puerto Mutis, our accommodation in Santiago de Veraguas, with meals, transport, and so on. And in the company Bahía Honda, Jaime Andrés Cabrera, the scientific coordinator of the project Estación Biológica, was in charge of preparing the installations before we arrived. Doña Luz and her assistants spoil us with her delicious Colombian cuisine. Arsenio and Gabriel cheerfully adapted the initial rudimentary installations so that we could prepare the material, install the dryers, etc. John Lynn, familiar with the region, told us of areas of special interest and found horses for some of our expeditions. And we are grateful to all the staff who helped to construct the installations at Playa del Sol, El Edén, and Canales de Tierra, as well as to the expert guides – Roque Mendoza, Feliciano Cedeño

and Aniceto Camarena – who went with us on our expeditions, with the ‘motorists’ of the boats we used every day, Benito, Pacho and Empa.

On several occasions the investigators were hosted on board the Amazon Express, whose kind crew helped us enormously, especially with the preparation of the material and the installation of the dryers.

Special mention must be made of our companion, Niko López, who accepted so generously our invitation to give his brilliant help as photographer of nature. In January, 2002, he made an extraordinarily fruitful photographic campaign and returned with some 2,000 slides of local settings, plants and animals. His trip was even distressful as he had his camera stolen and he had to work with one lent to him by Jean Pigozzi which was not as familiar to him as his own that he handled so well. In spite of this imbroglio, his photos arrive now with the excellent quality we had hoped for. Congratulations, Niko, and many thanks.

Most of the documents were originally written in Spanish. To translate those into English we had pressed our friends -the translators Lucia Jones, Tim Nicholson, Laura Fisher, Loyda E. Sánchez, Xenia de Constante, Victoria Kennedy, Arturo Arguello and Pradeep K. Divakar- to finish the task in a single week. All of them have worked hardly, fighting with difficult texts. I wanted to put gratitude on record.