



The Venezuelan Foundation for the Conservation of Biological Diversity

Private protection

Hi-tech and business play new environmental role

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by Edward Holland

As environmental issues increasingly move to the center-stage of world attention, the private sector is still cast in its traditional villain's role -- the insensitive producer of industrial waste that fouls land, air, rivers, even oceans.

However, one Venezuelan foundation has successfully harnessed private sector resources and technology to protect the environment and help the government administer wildlife areas already under its control.

The Fundación Bioma (Fundación Venezolana para Conservación de la Diversidad Biológica)

Cuchicuchi (*Potos flavus*): widespread in Venezuela, nocturnal, arboreal and has a prehensile tail.

Photo by K. Weidmann



Paraguaná Peninsula, Falcón state: a typical landscape, the product of the strong winds which constantly blow.

Photo by M. Valero

Páramo de Piedras Blancas, Mérida state: a bald mountain terrain unique to Venezuela, where tree-like "frailejones" flourish.

Photo by K. Weidmann



The cunaguaro or jaguar (*Felis pardalis*): an example of the wildlife that can still be found in the Monte Cano Biological Reserve, Paraguaná.

currently manages more than 4.5 million acres in national parks and private reserves -- by its own account, the largest such territory administered by any private conservation group in the world.

Using computer technology donated by corporate sponsors, Bioma has compiled a data bank of Venezuelan flora and drawn satellite maps of the country's ecosystems. The non-profit foundation has also convinced foreign museums -- including the Smithsonian Institution -- to share with Venezuela biological data gathered by foreign scientists here in the past. ▶

Santos Luzardo National Park, Apure state: the Landsat satellite image was computer-processed by IBM and shows the Orinoco river to the right.



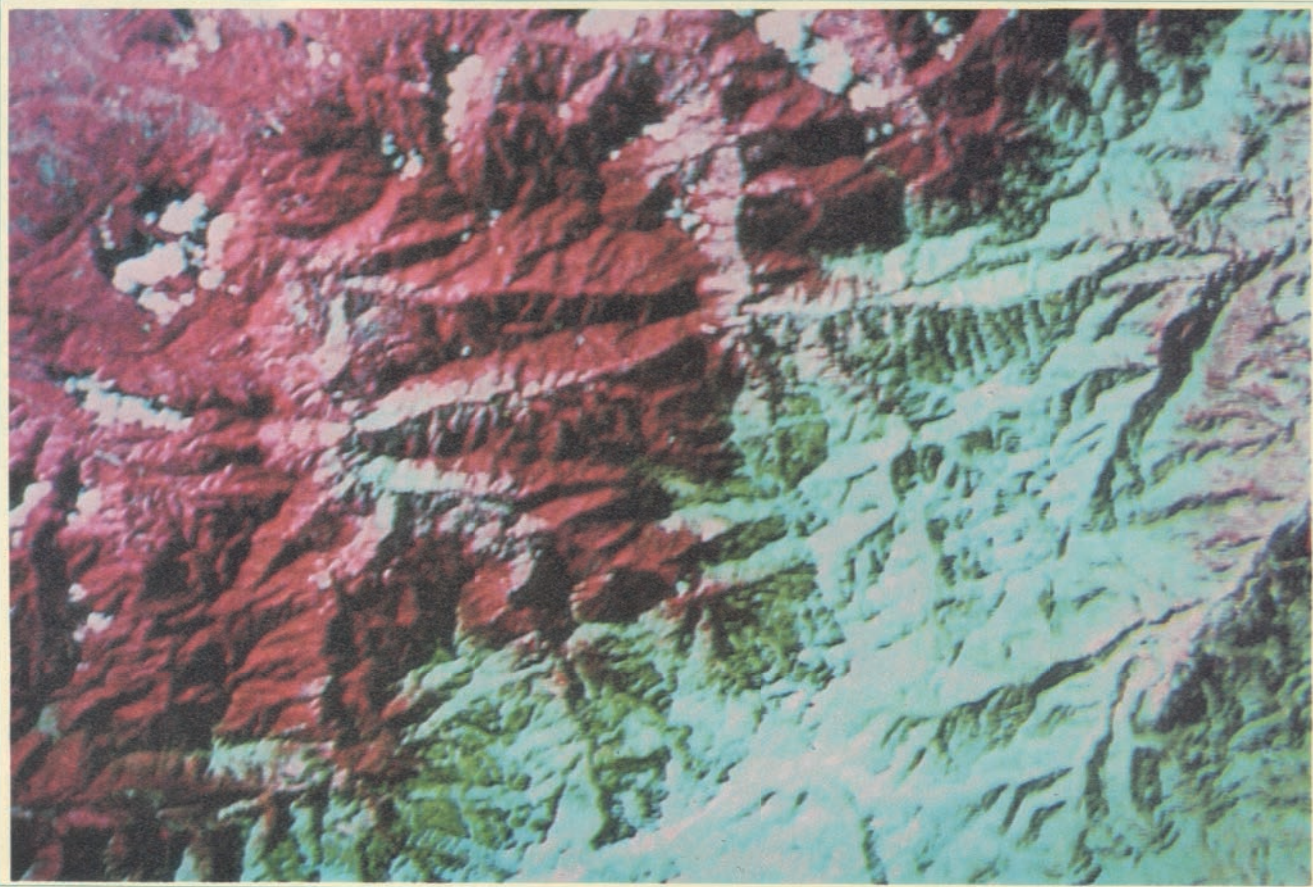
Additionally, Bioma is the first private organization in Venezuela to design and manage a national park, the Parque Nacional Santos Luzardo, in the plains of western Apure state.

Channeling private sector resources to the environmental cause

All this has been done with no government financing, but with help from 70 Venezuelan corporations and 500 individual members in Venezuela and the United States. Bioma also receives funding from private foundations abroad, including the MacArthur Foundation and the Nature Conservancy in the United States.

"Bioma was founded with the idea of becoming a channel for private sector sensibility towards the environment," explains executive director Aldemaro Romero, Jr.

"The environmental problem is extremely complex and difficult. The government can't (solve) it



Sierra de la Norte, Mérida state: The satellite image, which shows part of the proposed Sierra de la Culata National Park in the Andes, is artificially colored. The red coloring indicates wooded vegetation.

La cota (*Amazona barbadensis*): one of Venezuela's bird species that is fast disappearing as their natural habitats are destroyed.

Photo by: R. Ramirez

alone and neither can the private sector," adds Romero, son of the Venezuelan orchestra conductor and composer of the same name.

In the three years since he founded Bioma, the burly, bearded Romero has charmed and cajoled some of Venezuela's leading business figures into donating time and money to his environmental cause.

The foundation's board of directors reads like a who's-who of Venezuela's corporate elite -- Central Bank President Pedro Tinoco, industrialists Gustavo Cisneros and Siro Febres Cordero, former Lagoven president Guillermo Eraso and Luisa Elena Mendoza de Pulido, executive vice-president of the Mendoza Foundation, are all members.

Private management policy and creative fundraising methods

With the help of its deep-pocketed sponsors, Bioma operates with a staff of 40, five offices in Venezuela and one in the United States, and a hefty annual budget of Bs 30 million.

"All our funding is private, both from inside the country and abroad -- so we even import dollars. And we have a 100 percent private management concept," Romero says.

Beside seeking donations, Bioma is also active in creative fundraising, including premieres of motion pictures with environmental themes, such as the hit "Gorillas in the Mist." More recently, Bioma raised \$10,000 at a benefit premiere of the movie "Batman", with corporate support from Warner Brothers and free publicity from Venevision.

Romero explains the connection between Batman and environmental issues: among the wildlife reserves under Bioma's protective wing is the Cueva del Guano in the Paraguana Peninsula, a natural habitat for bats.

While there are many private environmental organizations in the country, Bioma defines its role as that of an environmental manager working in the field.

Since Bioma's inception, it has



devoted itself to protection and management of wildlife areas.

It began by managing its own biological reserves, currently three: the Paramo de Piedras Blancas in Mérida state; the Cueva del Guano on the Paraguana Peninsula, in Falcón; and the arid forests of Monte Cano, also on the Paraguana Peninsula. These areas have been acquired by donation, lease or purchase.

"Species don't live in isolation. To conserve them you must conserve the habitat, and by so doing you save many other species," says Romero, who holds a Ph.D in tropical biology from the University of Miami.

In this respect, few countries offer more than Venezuela. Because of its diversity of habitats -- including the Caribbean coastline, Amazon jungle and Andean mountains -- Venezuela has one of the richest varieties of wildlife in the hemisphere. The country harbors more plant species than the United States and Canada combined, more types of mammals than all of sub-Saharan Africa and 15 percent of all the world's bird species.

While the government has created an extensive system of 35 national parks covering more than 10 percent of Venezuela's territory, it lacks the

financing and manpower to manage them. And that's where Bioma comes in.

Satellite technology used to identify and protect ecosystems

Bioma defines its mission as threefold: to identify, to protect and to manage ecosystems. Much of the work has been done through use of high-technology computer-mapping systems donated by IBM de Venezuela, which operate in conjunction with the Landsat communications satellite.

During 1988 alone, IBM donated more than half a million dollars of mainframe computer time -- worth \$140 a minute. One of the results is a multicolored digital map of the country which has allowed Bioma to identify more than 150 different ecosystems.

According to Romero, one of the "alarming" discoveries was that 40 percent of those ecosystems were not included in existing national parks.

Bioma also used the satellite-mapping technology to design the Santos Luzardo National Park in Apure, the first time this technique has been employed on such a project.

The **Oso Frontino** or **spectacled bear** (*Tremarctos ornatus*): South America's only bear lives in the Venezuelan Andes and is in serious danger of extinction.

Photo by R. Crandall



The 1.4-million-acre park, Venezuela's third largest, accounts for 333 bird species, or five percent of all known varieties in the world. The only national park to include part of the Orinoco River, it is also home to a number of animals threatened with extinction, among them the Orinoco turtle, the Orinoco caiman, the manatee, river otter, giant anteater, *cunaguaro* (jaguar) and ocelot.

Based on the success of the Santos Luzardo park project, Bioma has offered to help manage the planned Sierra de La Culata National Park in Mérida state, approved by the cabinet in December.

The new park will be built around Bioma's biological reserve at Piedras Blancas, where the ecosystem consists of a desert *paramo*, a bald mountain terrain unique to Venezuela. The *paramo* is home to tree-like *frailejones*, a giant version of the flowering plants which thrive in the Andes. In some cases they reach 250 years of age.

The new park also includes cloud forests, home to such rare species as the spectacled bear (*oso frontino*),

another mammal threatened with extinction. Local peasants call the bear "the savage" and claim it kidnaps and rapes women. In fact, says Romero, the spectacled bear is inoffensive, shy, and almost totally herbivorous -- more likely to flee when it sights humans.

Part of Bioma's work in the Andes is to educate locals about the bear, as well as about incorrect use of river-polluting pesticides, and razing forests for firewood.

Information bank for biological research data

Besides managing wildlife areas, Bioma is also a clearinghouse for local environmental research -- much of it collected by foreign scientific institutes in the past.

In May, 1988, Bioma persuaded the Smithsonian Institution to turn over all its information on Venezuelan biology. In the area of vertebrates alone, the Smithsonian transferred 50,000 files on mam-

mals, birds, reptiles, amphibians and fish.

The information was brought back on computer disks and stored in Bioma's data bank, where it is now available to national and international researchers. Romero says Bioma hopes to reach similar agreements with other U.S. scientific institutions.

Following its success in Venezuela, Bioma is now eyeing a larger project: cooperation with private and public authorities in Brazil to manage the adjoining national parks that straddle the frontier along the Amazon basin.

Venezuela's 3.4-million-acre Serranía de Neblina National Park, established in 1978, is the second largest in the country after Canaima. Located on the southern frontier of the Amazon Federal Territory, it borders Brazil's Cerro de la Neblina Park, created the same year.

La Neblina is one of the "tepui," immense sandstone mountains in southern Venezuela which have evolved in genetic isolation for

millions of years, forming a "Lost World" of plant and animal life. In 1985, a combined scientific expedition from Venezuelan and U.S. institutions to La Neblina found hundreds of previously unclassified species, ranging from microscopic fungi to six-foot-long snakes.

The park recently made headlines as the scene of invasions by Brazilian gold miners who are stripping large sections of tropical rain forest to build camps and airstrips.

Setting sights on Amazon cooperation and conservation

Bioma has offered to manage La Neblina Park in Venezuela, using satellite technology to detect further intrusions by miners. Bioma would create a scientific research base and a center for "ecotourism" to generate income for the park project.

"The goal is to make this park a role model in the Amazon where conservation of biological features, scientific research, environmental education and ecotourism may successfully co-exist," says Bioma's prospectus.

In the long term, Bioma foresees cooperation with Brazilian private and public environmental groups for information exchange and management of the two parks.

The estimated cost is \$1 million. Already, a West German foundation has anonymously committed half a million dollars in matching funds for the La Neblina project.

Yet, not everyone is happy with Bioma's successful approach to environmental affairs. Indeed, some critics suggest that the foundation is promoting the interests of the corporations which sponsor it.

According to Romero, these charges come, not from other con-



Santos Luzardo National Park, Apure state: extensive savannah with a gallery wood in the foreground.

servation groups, but from members of the political left who regard environmental concerns as their exclusive preserve.

Environmental issues have taken on such proportions "that they can't fit into one part of the political spectrum," Romero says. "In the 1960s, ecology was part of the liberal agenda, but not today."

Moreover, "to solve the problem of industrial pollution, you have to talk to industry. You can achieve more at a negotiating table than parading around with placards," Romero says.

He adds that by appealing to the private sector, Bioma has managed to convince 70 Venezuelan corporations to do their part for wildlife conservation -- once an issue of little corporate interest.

With environmental affairs sure to draw continued international concern in the 1990s, Bioma's success in Venezuela may show that business has more to contribute to the environment than just air pollution and industrial waste. □



Mr. EDWARD HOLLAND came to Venezuela in 1983 as foreign affairs reporter for *The Daily Journal*. He has since been correspondent for the *Associated Press* and *Reuters*, both in Venezuela and the Caribbean. He is now a full-time freelancer for a variety of publications, including *Time* magazine, the *Miami Herald* and the *Knight-Ridder Financial News* service. A graduate of Boston University, he also holds master's degrees from Tulane University (Latin American Studies) and from Columbia University's School of Journalism.