



EXPLORING

# Colombian Biodiversity in the Western Andes

An Ecuadorian Sylph,  
*Agelaiocercus* sp.

Text and photos by Georgia Tasker



## La Mesenia, Antioquia, Colombia. By van, jeep, mule and foot we travel to this hummingbird reserve in the Western Andes.

Dr. Stuart Pimm, Doris Duke Professor of Conservation Ecology at Duke University, is leading our trip. He characterizes the Western Andes as having “the richest biodiversity in the world.” A moss-draped cloud forest tops the ridge of the reserve, and the steep climb to the top is astoundingly beautiful, on a trail traditionally used by Colombians walking from one side of the mountains to the other. Twenty of Colombia’s 162 species of hummingbirds hover and flit here, with species changing by elevation. Mosses glisten, bromeliads shine and gesneriads twinkle from the forest floor.

The biological richness, says Pimm, may be explained by this: Isolated for millions of years, South American plants and animals became distinct. When the Isthmus of Panama connected North and South America 4 million years ago, temperate species began to move south and southern species began to move north. Hummingbirds, for example, developed in South America, while tanagers (the bird family Thraupidae) evolved in North America. Today, hummingbirds have moved their range north, while tanagers have flown south. In Colombia they mix well.



It is a forest full of some 329 species of birds, 16 of them threatened with extinction. It is also home to the newly discovered mammal, the olinguito, which resembles a cross between a teddy bear and a possum. Students working on their doctorates here have discovered six new beetles that pollinate aroids. A new species of frog and two new arboreal lizards live here as well.

The forest is surrounded by degraded pastures that often experience landslides due to the 120 inches of rain that fall here annually. They’re in disconnected patches—yet the patches can be reconnected and the process is underway.

**TOP**  
(L-R) Purple throated woodstar, empress brilliant and white necked jacobin

**LEFT**  
*Dracula orchid*



**ABOVE**  
(L-R) Gustavo Suarez, Luis Mazariegos  
and Dr. Stuart Pimm

**BELOW**  
Looking at the dense growth

Three mountain ranges dissect Colombia, and it is the only country in South America with shores on both the Pacific and Atlantic oceans. About 1,500 plant species are endemic to the country, with habitats that vary from mangroves to cloud forests to the Amazon basin; about half are listed as threatened or endangered.

## The Colibri Hummingbird Reserve

The Colibri hummingbird reserve covers 3,000 hectares; another 2,000 hopefully are to be added. Its story is serendipitous. For one thing, guerillas heavily impacted the area for many years, so few people ventured up its slopes and many farmers abandoned their homes, allowing forests to initiate regeneration. But Gustavo Suarez, a *campesino* (rural farmer) working on a fire and rescue team, grew up in the area, teaching himself to identify the birds, learning their sounds as well as their Latin names. Suarez



discovered the olinguito, a nocturnal fruit-eater that roams into Ecuador as well. He also found a

hummingbird so rare it was thought by many ornithologists to be an ephemeral hybrid, or possibly extinct as it was known from a museum specimen only. Hummingbird photographer Luis Mazariegos wanted to photograph the hummingbird Suarez had found. An American-educated Colombian, Mazariegos's work has been published in *National Geographic* as well as in his book, "Hummingbirds of Colombia." Mazariegos also is president and CEO of LAM, a biopesticide company located in Montana that sells products in 30 countries.

After he came to the area and met Suarez, Mazariegos set up the Hummingbird Conservancy (Fundación Colibrí) in 2005 to buy the land. "I looked at the whole thing and was sold 1,000 acres for \$70,000, with two years to pay," says Mazariegos, retelling the story in the two-story research station he constructed. "We started getting the community involved, building good relationships. Uriel Rendon had hunted throughout the area and he now is a guard. People started coming to us, offering land for sale. I had the means, and started building a credible conservation project."





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*Epidendrum schistochilum*

In 2006, Pimm entered the picture here. That year, he received the A.H. Heineken Prize for Environmental Science, given by the Netherlands for his research on species extinction and conservation. The monetary award allowed him to set up a non-profit organization called Saving Species, which works to reconnect and replant forest fragments in highly diverse areas in order to help species conservation. Knowing the enormity of diversity in the western Andes, Pimm called his college roommate, Dr. Jorge Orejuela Gartner, for suggestions about projects. Orejuela is a biologist who works to identify and establish conservation areas. He is director of Colombia's Cali Botanical Garden, and recently published "Orchids in the Mist," about orchids in the cloud forests of southwestern Colombia. Orejuela knew of Mazariegos' Hummingbird Conservancy (he documented 70 orchid species there while working on his book) and put Pimm and Mazariegos together.

Using GIS (geographic information system) technology and studying biological hotspots in the world, Pimm's Saving Species solicits grants to make land purchases. Beginning in 2012, Mazariegos' Hummingbird Conservancy and Saving Species outlined two additional parcels to purchase for the reserve, with only \$21,000 left to raise.

Yet, this story is as many-layered as the tropical forest. A part-time Key Largo resident, Pimm also was on the board of Florida Keys Tropical Research Ecological Exchange (TREE) Institute, which planned our trip to Colombia and has led scores of trips to Cuba to research medicinal plants. The Cuba trips have helped pay for scientific exchanges there. This first Colombia trip, which we joined, was designed to show the country's richness as well as to raise money for the reserve.

Working with Pimm, the TREE Institute decided to showcase the town of La Mesenia as well as the Rio Blanco

ecological reserve near Manizales, owned by the local water company. The Rio Blanco reserve, also a birders' magnet, has surrounding pastures awaiting restoration. The 11-day trip also included a private arboretum and the botanical garden in Bogota.

## Flora and Fauna of the Reserve

As we walked and rode mules to the new research station, we passed several people—all of whom waved and greeted us. "There are no signs here, and they appreciate what we are doing—conserving the area and the water," says Mazariegos. The water is the Rio San Juan Antioquia watershed, which is at the mountaintop.

For our trip to La Mesenia, Pimm has brought a satellite image of the area, and helps Mazariegos set up a GigaPan (panoramic) photograph to document how much regrowth has occurred around the research station and to record future growth. During the last two years, tibouchinas have appeared around the station and are a good 15 feet tall. Hummingbird feeders perched in the trees were surrounded by student bird watchers trying to photograph them as we arrived.

In the surrounding forests, miniature *Stellis* orchids quietly hang out their tiny blooms on the thinnest of spikes. *Pleurothallis* orchids are at their most numerous in this part of the world, setting their small flowers at the top of their leaves. *Masdevallias*, too, are among the riches, as well as species of *Habenaria*, *Epidendrum*, *Oncidium*, *Scaphyglottis* and *Restrepia*. And just behind the station is an orchid walk ascending into the forest where a gorgeous *Dracula* orchid is open.

Long fuzzy heliconias and slender upright heliconias attract hummingbirds with two distinctly different flowers as they loom among the anthuriums. Centropogons, with tubular red flowers, also provide nectar



ABOVE  
Riding through degraded pasture

BELOW  
Golden tanager, *Tangara arthus*



for hummers. *Symbegonia sanguinea*, which looks for all the world like a gesneriad, nestles in sphagnum moss, offering another red flower, this one fuzzy. This, says California University of Pennsylvania begonia expert Dr. Mark Tebbitt, is among the group of begonias being reclassified by one of his Colombian graduate students for a doctoral thesis; soon it should bear a new name, *Begonia kalbreyeri*.

Just five years ago, aroid specialist Tom Croat discovered 15 new anthuriums and five new philodendron species in these western mountains.

Insects are equally as colorful. We watch a wasp feed on a spider on our hike up to the station, and then find a wildly colored blue and orange carnivorous insect higher in the cloud forest. Beetles come in jade green or black with yellow spots, and decorative stinkbugs are geometrically marked.

After we ascend the ridgeline of the western Andes, we have one more vertical climb, to an area where Mazariegos set up hummingbird feeders the day before to attract many of the numerous species found here. A favorite: the collared Inca, black with a white collar, which a pundit insists

should be called saddle shoe, and is the most readily identified by us non-birders. All around us, the emerald, turquoise and tourmaline birds are jewels in the air, flitting and buzzing, giving fits to those of us trying to photograph them. It's not a bad way to spend an hour.

But contemplating the beauty before us does not keep us from contemplating the predictions of species extinctions in the coming years. Pimm and Dr. Peter Raven, director emeritus of the Missouri Botanical Garden, calculated that 18% of the species in highly diverse hotspots will become extinct "if all the remaining habitats in hotspots were quickly protected." Moreover, the two scientists wrote, "Unless there is immediate action to salvage the remaining unprotected hotspot areas, the species losses will more than double."

For more information on restoring habitats and donating to Saving Species, go to [SavingSpecies.org](http://SavingSpecies.org). For more information about the Florida Keys T.R.E.E. Institute, its work in Cuba and future trips, go to [FKtreeinstitute.org](http://FKtreeinstitute.org) and [cubajourneys.org](http://cubajourneys.org). 