



Reserva Las Gralarias 2 – R. Perez Tract

Project Title: Reserva Las Gralarias 2 – R. Perez Tract

Location: Ecuador

Coordinates: 00°00'33"S 78°44'15"W

Size: 212.5 acres

Grant amount: \$19,500

Date: 2015

Partner: Las Gralarias Foundation

Summary and Background:

In 2015, GCBO followed up its initial \$95,000 grant to the Las Gralarias Foundation with a second grant of \$19,500 to help expand the protected region of this Andean hotspot. At the time of this donation, birders had documented some 300 species of birds on the reserve, including 25 endemics and many determined to be under threat.

Importance of the project:

Conservation International (CI) has named 34 biodiversity hotspots in the world which are the most important to conserve. Although their combined area is just 2.3 percent of the Earth's

land surface, over 50 percent of the world's plant species and 42 percent of all terrestrial vertebrate species are endemic to these hotspots. One of these hotspots is the Tropical Andes and another is the Chocó bioregion. These two zones come together in northern Ecuador. The Tropical Andes is described by CI as "the richest and most diverse region on Earth and contains about 5 percent of all vascular plant species in less than 1 percent of the world's land area." The Chocó biogeographic zone has exceptional richness and endemism of birds, plants, reptiles, amphibians, and butterflies (Dinnerstein et al. 1995). This region supports the largest number of restricted-range bird species of any Endemic Bird Area (EBA) in the Americas (BirdLife International 1998). Located in the mid-elevation Chocó zone, the area around Mindo, Ecuador was declared in 1997 as the first Important Bird Area (IBA) in South America. This helped local communities realize the importance of birds as a source of local pride as well as a source of tourism revenue. However, actual conservation of bird habitat is still minimal and government control of illegal logging is non-existent. The Ecuadorian Chocó zone includes a narrow 30 km/20-mile ribbon of montane cloud forest that runs along the western Andes between 3300-1800m elevation. This cloud forest zone is where the moisture-laden Pacific clouds meet the Andes mountains and is also where habitat is rapidly disappearing because of agriculture, cattle ranching, unplanned development, and other activities. It is home to some 400 species of birds, including one of the world's most critically endangered species, the Black-breasted Puffleg. However, there are no government-sponsored reserves in the area and only a handful of private reserves dedicated to habitat conservation. Substantial efforts are needed for regenerating habitats, increasing connectivity among forest patches, and managing them to satisfy special needs of rare, endangered and endemic species. In addition, and very unfortunately, there have been no sustained region-wide efforts directed towards conservation of waterways. Since agriculture, ranching, and trout farms are important activities in the area, changes in water chemistry, caudal diversion, and river bank destruction are ever-present threats. As a result, riparian forests have shrunk dramatically and, in many areas, have disappeared.

The 1063-acre Reserva Las Gralarias lies in the middle of the Tropical AndesChocó biodiversity hotspots.

Reserva Las Gralarias:

Reserva Las Gralarias (RLG) was launched in 1998 with the purchase of a small farm of 7.5 hectares/19 acres. On a brief birding trip to this area birders had found a number of uncommon and some rare bird species endemic to the Chocó biogeographic zone. Such species included Moustached Antpitta and Orangebreasted Fruiteater, both species very poorly known at that time and still considered very rare in this area. RLG continues to provide habitat for these and many other rare bird species including 25 Chocó endemics and 8 bird species categorized by the IUCN under some level of threat. The reserve also serves as annual stopover and overwintering habitat for Nearctic and Neotropical migratory bird species.

So far 16 species of Nearctic-Neotropical migrants have been recorded at RLG:

Broad-winged Hawk	Olive-sided Flycatcher
White-throated Hawk	Red-eyed Vireo
Peregrine Falcon	Swainson's Thrush
Sora	Barn Swallow
Spotted Sandpiper	Cerulean Warbler
Upland Sandpiper	Blackburnian Warbler
Baird's Sandpiper	Black-and-white Warbler
Western Wood-Pewee	Summer Tanager



Chocó endemic Plate-billed Mountain-Toucan at RLG

Since 1998 additional lands have been purchased, by the current owner with the help of conservation-minded donors and birders and with the ongoing work and support of the Las Gralarias Foundation, a US-based 501c3 non-profit organization. Thanks to a large donation from the US-based Gulf Coast Bird Observatory and many smaller donations, in July 2007 RLG was able to almost double its size. It now encompasses 425 hectares/1063 acres of continuous and protected cloud forest habitat ranging from an elevation of 1750m/5300ft up to 400m/7200ft. Reserva Las Gralarias protects five important water systems which serve as the source of water for native wildlife as well as for down-slope communities. The reserve is made up of 7 different parcels of land purchased over 9 years and is located along the equator at 00°00'33"S latitude and 78°44'15" W longitude, within the parish of Mindo, the counties of San Miguel de Los Bancos and Nanegalito, and the Province of Pichincha, 2 hours by the main highway, northwest of Quito, Ecuador.

The reserve vegetation classification includes Very Humid Pre-Montane and Montane Forest, with an average annual temperature of 18-24°C and average annual rainfall of between 2000-4000 mm. Within the reserve there is primary and secondary forest as well as regenerating pastures. The flat area along the road was, for 30+years, cut, burned and seeded with African honey grass, a tenacious non-native grass used for grazing cattle.

Results to Date:

Since its inception the reserve reforestation activities have included intensive efforts at identifying, learning how to grow, and re-planting key native fast-growing pioneer (Asteraceae, Euphorbiaceae, Fabaceae, Melastomataceae) as well as long-lived and hardwood (Arecaceae, Clusiaceae, Flacourtiaceae, Lauraceae, Meliaceae, Myristicaceae) plants and trees in order to return the pastures to at least secondary woodland and, over time, to forest. Small seedling trees and seeds are found by the reserve workers in the trails, are removed to a seedling bed to grow and then, once they are large and sturdy enough to grow successfully, are returned to be planted and cared for in previously pastured areas. With these efforts by 2015 we had established secondary woodland connections to primary forest and had recorded all species of birds and mammals expected to be found in this area. This woodland connection provides an important natural corridor among our parcels of land and a habitat connection between the two halves of the reserve and connecting upslope to key higher elevation forests along the old Nono-Mindo Road. Reserva Las Gralarias is the only entity in this area actively converting pasture into native woodland, creating a new habitat type that serves as transition to native cloud forest.

Reserva Las Gralarias is home to a variety of endangered birds, plants and frogs. In December 2005 and January 2006, a male Black-breasted Puffleg was photographed at the reserve, near the guest house, where it fed mostly on fuchsia flowers. This is the lowest altitudinal record documented for this Critically Endangered species (Lyons & Santander 2006). We have also had regular sightings and one active nest found of the very range-restricted Chocó endemic Hoary Puffleg. Bird and frog surveys are ongoing and a mammal booklet with photos taken at RLG is in preparation. In addition, several publications about bird activity at RLG have been produced. Thanks to our conservation-oriented research program, researchers have made a number of surprising discoveries, including a species of tree previously classified as Extinct (*Casearia quinduensis*), 1 species of tree classified as Critically Endangered, 6 species of tree classified as Endangered, three new species of moth, 1 new genus of butterfly and several new subspecies of butterfly, 2 Critically Endangered species of glass frog and 8 species of frog classified as Endangered, three species of frog new to science including an entirely new type of frog (and vertebrate) not before known, the first and the second (and only) known nests of Yellow-breasted Antpitta, and the second known nest of Moustached Antpitta.

In 2007 a solar-powered HOBO weather station was installed which has operated full-time for 8 years downloading climatic data every 10 minutes. This has been of great importance to our research program. RLG has hosted 10 university students for their undergraduate or graduate field work. In addition, we have had smaller projects, a tropical biology course, a field course on

ferns run by the New York Botanical Garden, a field course on general botany, several courses on frogs, and individual field work resulting in additional papers.

We have provided community assistance such as educational materials and programs donated to local elementary school and local school children. And since 2004 we have operated a small ecotourism program to help fund the operational costs of managing the reserve. Currently it provides full-time permanent employment with full benefits and training for six local Ecuadorians who work at the reserve.

Organizational Background:

The Las Gralarias Foundation is an active US 501(c)3 non-profit organization founded on 4 August 2005. Its goal is to raise funds for the projects and programs of Reserva Las Gralarias, including the purchase of nearby and adjacent lands that will enhance protection for birds, plants and other animals as well as support reserve management, reforestation efforts, conservation-oriented field research, environmental education projects, scholarships, and appropriate tourism programs. During the past 5 years the all-volunteer foundation has been raising funds for its next land purchase while also funding several research and education projects, publications and establishing a large network of supporters.

Regional Threats to Biodiversity:

The mid-elevation Chocó cloud forest lies between the Pacific coastal region and the Andean sierra of northwestern South America. It is a narrow zone of land under increasing pressures from rapidly expanding populations, infrastructure projects, agriculture and unplanned development. It is a fragile region insofar as topography and soils and is also home to untold numbers of species of plants and animals, many of which are endemic to this small area having evolved away from their Amazonian ancestors after the Andean uplift. Ecuador is a rapidly developing country with much of its development continued to be based on (often uncontrolled) exploitation of natural resources. Its 2015 population of 16,250,000+ has a per capita GDP of \$26 showing that poverty is still a severe problem which continues to result in limited and harsh options for a large segment of the population. Recent declines in oil prices have shocked the Ecuadorian government which counts oil revenue as the number one source of income for the state. As a result, government programs are being curtailed and once again environmental issues fall far behind efforts to alleviate the overwhelming issues of poverty and rapid population growth. Far too often the only source of income to local people is to cut the forest and mine the soil with farming, ranching and small-scale commercial ventures. Efforts to protect habitat, waterways and soil, provide local jobs and promote birding and ecotourism are important components of a new more sustainable development model and offer important economic alternatives to local people.

The Chocó bioregion farther north in Ecuador and in southwestern Colombia is mostly lower elevation and thus does not contain many of the montane species. In addition, southwestern Colombia has had security problems and guerilla activity for some 50 years. The situation is

improving but there are still dangerous zones and little opportunity for extensive environmental programs.