



## Report at a Glance

Source: Rapid Assessment of the Biodiversity of the Ramal Calderas, Venezuelan Andes: 26

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### RAPID BIODIVERSITY ASSESSMENT OF THE RAMAL DE CALDERAS, VENEZUELAN ANDES

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#### Expedition Dates

March 26 – April 5, 2008

#### Area Description

Ramal de Calderas, with an area of 547 Km<sup>2</sup>, is located in the northeastern region of the Merida mountain range, in the llanos covered slopes of the Venezuela Andes. To the northwest it is delimited by the Burate and Aracay rivers; to the northeast by the Boconó river; to the southeast by the Santo Domingo river, and to the south –at approximately 1,600 m.a.s.l. - it is bordered by the Boconó fault, whose fractures align with the valleys between the Aracay, Burate and Boconó rivers that define this geographic unit.

#### *The study area was divided into three focal areas:*

Focal Area 1 (FA1): Cerro Gobernador – Valle Encantado (San Ramón Sector) featuring cattle ranches, shade-grown coffee plantations and natural forests with different degrees of degradation on rolling hills, located between the La Bellaca stream (1,100 m.a.s.l.) and the base of Cerro Gobernador (1,500 m), within the semi-deciduous forest zone; addition sampling was done in a natural forest and low brushwood on slopes between 1,500 and 2,000 m.a.s.l. on Cerro Gobernador.

Focal Area 2 (FA2): Aguas Blancas – Los Alcaravanes (Aguas Blancas Sector), cattle ranches and natural areas in different degrees of disturbance, along an altitudinal gradient between 1,700 m.a.s.l. (cloud forest) and 3,200 m.a.s.l. (paramo).

Focal Area 3 (FA3): Bosque de Café (coffee forest) – Pozo Azul (Pozo Azul – La Volcanera Sector), shade grown coffee plantations that replaced natural forests within the semi-deciduous forest zone, between 800 and 1,200 m altitude, along La Volcanera stream.

#### Reasons and Objectives for the Expedition

Due to its geographical position, Ramal de Calderas has fundamental strategic value for conservation because of its potential as a natural biological corridor, integrating protected natural areas such as Sierra Nevada, La Culata and General Cruz Carrillo (Guaramacal) National Parks. Ramal de Calderas is part of the Teta de Niquitao-Güirigay Natural Monument and the Protective Zone of the hydrological basins of the Guanare, Boconó, Tucupido, La Yuca and Masparro rivers.

The main objective of this RAP survey was to collect information to contribute to the protection of the threatened Andean mountains. The RAP survey aimed at collecting data to understand the biodiversity of the area and to highlight its global importance, all in the context of the imminent threats from the surrounding population and the resulting demands on the natural resources. The results from this RAP survey will be used to establish a scientific baseline to guide informed decision making for the sustainable development and preservation of this natural treasure, the Ramal del Calderas.

The specific objectives of this study included: 1) inventory the species of mammals, birds, reptiles, amphibians, fishes, and aquatic invertebrates of the Ramal de Calderas, 2) inventory the flora and describe the vegetation types present in the sampling stations; 3) determine the most important physical-chemical parameters of the different aquatic environments in the area, 4) to report on the presence of endemic and restricted range species in the area of study; 5) recognize important species for conservation (endangered, threatened, etc.) and of sustainable use for humans; 6) identify habitats and areas of special interest (high diversity, high density of endemic species, etc.) present in the area of study; and 7) identify the current and potential threats to the area, and 8) produce information to establish protection and integrated conservation for the Ramal de Calderas.

## PRINCIPAL RESULTS OF THE RAP SURVEY

The following table summarizes the most important numerical results from the 2008 survey of the Ramal de Calderas.

Based on results and observations made during this RAP survey, the following recommendations are proposed for ecosystem and biodiversity conservation in the area:

Group	N° Species recorded during the RAP	N° Species likely new to science	Range extension/ new records for Calderas	# Threatened Species
Flora	579	6	254	8
Macroinvertebrates	77	?	?	0
Fishes	9	3	9	1
Amphibians	17	3	3	2
Reptiles	16		2	
Birds	294		8	6
Mammals	74		20	4
<b>Total</b>	<b>1066</b>	<b>12</b>	<b>296</b>	<b>21</b>

## CONSERVATION RECOMMENDATIONS

1. Establish Ramal de Calderas as a conservation area to create a biological corridor between Sierra Nevada and Guaramacal National Parks, Teta de Niquitao Güirigay Natural Monument, and the Protective Zones of the Guanara, Boconó, Tuycupido, La Yuca and Masparro rivers. Promotion of this conservation area should be a joint strategy between governmental and non-governmental institutions, and local communities.
2. Urgently protect the remnant medium size forests (5-10 ha) to ensure conservation of pre-montane and lower montane vegetation formations, and the biological diversity associated with them.
3. Promote shade-grown coffee cultivation that includes conservation criteria as well as fair economic incentives for local producers that procure higher quality products, and which maintain the Andean region's natural heritage. Shade-grown coffee forests can be valuable allies for biodiversity conservation in environments subject to habitat loss and fragmentation. If these agro-ecosystems are managed adequately, they can act as biological corridors that connect native forests and offer refuge to numerous birds, mammals, amphibians, reptiles and insects.
4. Continue to support and provide incentive to activities that develop innovative sustainable use of natural resources in the area, and that promote improvements to the quality of life of local communities. Conservation International Venezuela, Programa Andes Tropicales and Fundatadi ULA began a joint strategy that has resulted in a network of rural community based tourism activities, including training nature and bird-watching guides and forming two well-established cooperatives (Aromas de Calderas and Boca e' Monte) to carry out plans at a larger scale.
5. Further promote and disseminate information on the importance of the biological diversity of the Ramal de Calderas in maintaining natural equilibrium in the Andean ecosystems. Highlight not only the presence of endemic and threatened species that inhabit the area, but also vital environmental services to humankind like seed dispersal and pollination, among others.
6. Continue to improve local capacity in monitoring key species – endemic, threatened, rare, etc – as begun by Conservation International Venezuela, for implementation of more extensive programs for the integral conservation of natural ecosystems in the area, and for the

improvement of the quality of living for local communities.

7. Conduct studies during additional seasons, and in unexplored environments.
8. Develop a program to consolidate knowledge on biological diversity in this interesting sector of the Venezuelan Andes. Local communities should actively cooperate in increasing local knowledge, in monitoring, and in conservation efforts.
9. Establish official surveillance and protection for the forests in this region. Wood harvesting and extraction of fauna decreases, directly or indirectly, the quality of life of the local communities, and it is a crime against our natural heritage.
10. Protect water bodies, river headwaters, and their associated forests.
11. Develop alternatives to overharvesting of local natural resources by local communities, which may negatively impact hydrological resources; study the economic alternatives that procure fair use and maintenance of natural resources for future generations.

This RAP survey was complemented with additional studies on coffee forest biodiversity. For the first time in Venezuela, and with support from CIARA Foundation, Conservation International Venezuela, La Salle Foundation on Natural Sciences, Fundatadi ULA, Phelps Collection, UNELLEZ and the Universidad de los Andes have contributed information on the importance of these agro-ecosystems in productive Andean landscapes. It is recommended that these results are published and developed into a program to monitor the status of biodiversity and coffee productivity within shade coffee plantations in Calderas.