Cerulean Warblers in Coffee-producing regions of Colombia

Jorge E. Botero
Conservation Biology Program
Cenicafé

Cerulean Warbler Summit 2
Morgantown, WV
February 13-15, 2007
Working on biodiversity issues

- The Conservation Biology Program is part of Cenicafé
- Cenicafé (Centro Nacional de Investigaciones de Café) is the research branch of the National Coffee Federation
Our work on biodiversity:

- On several taxonomic groups: plants, arthropods, birds, mammals
- In several landscape elements: coffee plantations, forest fragments, riparian forests
- At different spatial scales: the plantations, the farm, the region
- Working with the communities
- To identify conservation opportunities
- To develop conservation tools
Our work resembles building the jigsaw puzzle of biodiversity in coffee-producing regions of Colombia
Four points to be considered in bird conservation in coffee-producing regions of Colombia

1. The coffee-producing region of Colombia is a very heterogeneous landscape
2. Our research indicates that there are real possibilities for bird conservation, including for cerulean warblers, in the coffee-producing landscape
3. Environmental certifications can be considered as tools for bird conservation
4. Participatory research programs are an effective way to get communities interested in conservation
1. The coffee-producing region of Colombia is a very heterogeneous landscape

- Coffee is grown only in the mountainous regions of Colombia, along the three mountain ranges and the Sierra Nevada de Santa Marta.
- At an altitudinal belt between 1000 and 2000 m.
- Throughout the range of coffee production, there are major variations in topography, latitude, climate, soil, and ecological conditions.
- There is also cultural diversity.
- Coffee production also varies from region to region: in the sun or under different types of tree shade.
- In this heterogeneous rural landscape, the potentials and challenges for bird conservation are complex.
Coffee-producing areas of Colombia

Along the three cordilleras and the Sierra Nevada de Santa Marta

From the northern to the southern end

Between 1000 and 2000 above sea level

Localities where Cerulean Warblers have been observed

© FNC–Cenicafé 2007
Coffee is grown in regions with high rainfall and high cloud cover, like in Manizales, Caldas.
Or in dry regions with little cloud cover, like in Mogotes, Santander, on the Chicamocha Canyon.
Or in the Sierra Nevada de Santa Marta where climate conditions require the shade

San Javier, Magdalena
Coffee production is mostly in the sun in Palestina, Caldas, where there is high cloud cover. There, bamboo forests cover the streams.
Coffee is grown under a shade of several species of trees, especially of the genus *Inga* in regions like El Cairo, Valle.
In some regions, like in this farm in Palestina, Huila, the shade is uniform, consisting of only one species of tree.
In other regions, shade trees are also used for timber and provide extra income to the farmer.
In the Santander region, the shade is diverse and heterogeneous. More than 70 species of trees are used for shade in this area.
2. Our research indicates that there are real possibilities for conservation in the coffee-producing landscape

- Some types of shade-coffee plantations provide habitat for many species of birds, including Cerulean Warblers, and other taxonomic groups
- They also seem to improve landscape connectivity
- The heterogeneity of the coffee-producing landscape provides habitat diversity that supports a rich and diverse fauna
- Coffee is a semipermanent crop that can provide better protection to the soil in mountainous areas
- There is technology available to improve environmental sustainability through the use of disease resistant coffee varieties, integrated pest control systems, water efficient coffee berry processing systems, and soil conservation systems
- More research on biodiversity issues will provide information and tools for conservation in this rural productive landscape
The canopy in coffee farms with a heterogeneous shade look like a forest and provides habitat for many species.
In a study in shade plantations in the San Gil region of Santander, we registered 106 species of birds, of which 21 were boreal migrants, and at least three endangered resident species. Cerulean warblers are found there.

These plantations, with a heterogeneous shade, harbor many species of birds, including many migrants.
Two rare resident species and two migratory species found in those plantations.

White-throated spadebill (*Platyrinchus mystaceus*)

Chestnut-bellied hummingbird (*Amazilia castaneiventris*)

Prothonotary warbler (*Protonotaria citrea*)

Cerulean warbler (*Dendroica cerulea*)
A population of Turquoise Dacnis (\textit{Dacnis hartlaubi}), a very rare Colombian endemic lives in this region. Cerulean warblers are found here too.

Some coffee-producing regions, like La Virgen in Támesis, provide habitat for rare endangered species.
For that reason, La Virgen has been listed as one of Colombia’s Important Bird Areas (IBA).

Cerulean Warblers are being protected here.
Oak forest remnants are protected by Grupo San Isidro, a group of coffee producers in Huila. Cerulean warblers have recently been observed there.

Some coffee-producing communities protect forest patches for water and biodiversity conservation.
Environmental certifications can be considered a tool for conservation because:

- Their criteria include habitat protection, shade improvement, and hunting control that benefits many species.
- They also require improvements in environmental sustainability, through soil and stream protection, and reduced chemical use.
- And better social and economic conditions that benefit coffee growers and farm workers.
Different certification types emphasize different aspects; some include biodiversity conservation.
A world market with possibilities for conservation
4. Participatory research programs are an effective way to interest communities in conservation

- Members of the community accompanied by researchers, learn about resident and migratory birds around their farms
- Through educational programs, they also learn about bird-study methods, and bird behavior and conservation
- They also learn to appreciate their natural surroundings,
- and improve their capacity to evaluate and solve environmental and conservation problems
coffee producers participate in research activities
coffee producers, extension officers, and researchers learn together about their natural environment.
They learn to identify the migratory birds around their farms
Children learn about the birds through games and many hands-on activities.
In workshops, members of groups of producers identify conservation actions.
Birds are charismatic organisms that attract a great deal of interest among coffee producers.
The Scale-crested Pygmy-Tyrant (Lophotriccus pileatus) has been adopted by the producers association of Guaduas (Coo inprocafés) as their bird symbol.
The conservation of birds, like the Scale-crested Pygmy Tyrant and the Cerulean Warbler, will require combined efforts by coffee producers, consumers, researchers and conservationists.
Many other migratory and resident species will benefit from those efforts.
Acknowledgments