

Title: Population Genetics of Chestnut-backed Antbirds in a Fragmented Costa Rican Landscape
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Project Overview:

Population genetic techniques are increasingly important to our understanding of how global change affects wildlife populations. Forest loss and fragmentation continue at an alarming pace in tropical regions, and constitute the main threat to many bird and other wildlife species. Bird survey data indicate that many bird populations decline in fragmented landscapes, but the mechanisms that lead to declines are not well known. Because many birds are highly sedentary as adults, traditional field methods are not always well-suited to understanding how fragmentation affects bird movements. It is thus critical to understand how young, pre-territorial birds move around in a landscape. These movements, known as natal dispersal, are particularly difficult to study using traditional methods. Thus, we are using population genetic methods to infer patterns of natal dispersal, both within intact forest and between isolated forest patches.

Project Objectives:

The goal of this project is to generate a mtDNA dataset to compare with results of an ongoing nuclear DNA microsatellite project examining population differentiation in a fragmented tropical landscape.

Participants will gain lab experience with the following techniques:

- DNA extraction from tissue and purification
- PCR amplification of mitochondrial DNA and nuclear DNA microsatellites
- DNA sequence analysis and interpretation

Prerequisites:

Previous lab experience helpful but not absolutely necessary. A desire to learn important laboratory techniques, uncompromising attention to detail, and a certain amount of fastidiousness are required.