

Formal Project Summary

Bird Species Richness within Shade-Grown Coffee Farms in Chiapas, Mexico: A Pilot Project.

Abstract: Working in the pine-oak forest near the El Triunfo Biosphere Reserve in Chiapas, Mexico, the team will determine insectivorous bird species richness, vegetation structure and composition, and arthropod species richness, with an emphasis on pest species, in non-human disturbed forest plots and shade-grown coffee plots. Comparisons between forest plots and shade-grown coffee plots will provide insight on which specific elements are required to act as secondary habitat resources for birds in shade-grown coffee plots. This is important as these coffee plots border the Mesoamerican Biological Corridor. If best management practices to increase inner-forest bird species are identified and incorporated into the shade-coffee plots, then this could increase the available useful habitat for inner-forest birds that may explore resources outside of the Mesoamerican Biological Corridor, as well as providing pest management services to rural farmers. This service will be evaluated to determine certain bird species' economic value to farmers by reducing the need for pesticide, labor and may result in an increase of crop yield. This baseline data on bird species' economic value will be based off of foraging rates, point counts, and observations of banded and unbanded birds. To evaluate presence of insectivorous birds and their impact on coffee crops, 25% of total coffee crop will be randomly excluded with netting and insect damage will be quantified for excluded coffee and non-excluded coffee. Each bird species will be assigned an economic value to a farmer that is also weighted against its habitat preference and vulnerability to human-disturbed landscapes. Farmers that manage for these inner-forest birds will be compensated, after compilation of data and completion of pilot project.

Why is this project important?

This unique ecosystem is an Important Bird Area (IBA) and extends beyond the El Triunfo Reserve and Mesoamerican Biological Corridor, which is home to many endangered species such as the Azure-rumped Tanager, Horned Guan, and the Golden-cheeked Warbler which is a migrant from Texas. This area is identified as an IBA because many Neotropical migrants from North America and Canada utilize or overwinter in this ecosystem. In many protected areas, the ecosystem extends beyond the border of the protected area. It is important to maintain ecosystem integrity by improving the working landscape that surrounds El Triunfo and is a pressing issue due to recent climatic events that have altered the behaviors and ranges of species. It is in humanity's best interest to understand and address a means for conservation in extended buffer zones of protected areas to maintain the dynamic ecosystem and the services, seen or unseen that is provided to us.

The human element is addressed.

The creation of protected areas has not brought us any further to stabilizing our wildlife and natural resources. Other alternatives must be explored. People have been integrated into ecosystems for many years and some may even argue that certain ecosystems have adapted to human activities. People are also extremely important in conservation planning, especially those that make their living off the land. Rural coffee farmers face many challenges to produce crops, especially when the global market fluctuates, bringing unprecedented risks. Currently there is not much incentive to produce crops in a way that benefits wildlife, while maintaining landscape productivity and integrity through connectivity. There are certification processes, however many

certification schemes are flawed. Examples include organic, but genetically altered sun coffee that can grow on degraded landscapes and shade-coffee that lacks the complex vegetation structure that provides resources to many inner-forest birds. Technically, one could deforest an area, plant another tree crop such as exotic teak and grow coffee underneath the teak and would still be able to be certified as “shade-grown”; thereby producing a crop with a higher market premium. However, who is to blame and should we be blaming? Small-scale rural coffee farmers should be provided with additional securities when the market fluctuates, otherwise, they could convert their coffee operation to a more lucrative business such as cattle ranching, at the expense of future land productivity and wildlife habitat. This pilot project will provide the baseline data to provide economic incentives to rural farmers to use low-impact; best management practices that benefits wildlife, allowing coffee plantations to act as secondary resources to wildlife. This will benefit not only wildlife and the farmers, but it’s likely to improve water quality for the people of Chiapas. Of course, this project will need to be a collaborative effort, involving everyone. To start this journey, we will hold workshops to hear what the rural farmers need and want, asking them, what is their vision for their landscape in the future?