

# TCD Field Research Report 2019

## Liz Hurtado

### **Linking bird conservation and residents' perceptions a case of study in the Peruvian Andes**

Location: Lucre, Cusco, Peru

Dates of funded research: May 13<sup>th</sup> to July 31<sup>th</sup>

#### **Summary of activities**

The Andes have been modified by humans using agricultural land-use systems since the early Holocene. During the time of the Inca civilization, agroforestry systems were common near archaeological or cult sites. There is evidence of historical forest management for species such as *Polylepis spp*, *Escallonia resinosa*, *Buddleja coriacea*, *Schinus molle*, *Cedrella lilloe*, and others. After the arrival of the Europeans, these forests were cut and reduced by the development of cities and agriculture (Zimmerer, 1997). Currently, high Andean landscapes are dominated by a landscape matrix consisting of shrubs, remnant forest patches, and planted and fallowed fields.

Birds in these ecosystems have persisted despite the fact that agricultural systems are found across virtually the entire range of possible elevations and humidity regimes (Chepstow-Lusty & Jonsson, 2000). These surviving species include two endemic birds that inhabit remnants of the dry forest of an inter-Andean valley (DFIV) located in Cuzco, Peru. The DFIV is at an altitude of 3020 m.a.s.l. and surrounds a wetland that was recognized as a Ramsar site (a high priority wetland for conservation) in 2006. While it is true that this ecosystem has supported human communities for more than a thousand years, the amount of remaining native vegetation in this landscape matrix has not been quantified nor the specific habitat requirements for the bird species (Venero Gonzales, 2015) and remains a significant gap in our ability to conserve Andean birds.

My research focused on assessing the effects of land cover types in the occurrence of birds in this landscape matrix. Understanding the species-specific habitat association of birds will contribute to the limited knowledge of how wildlife persists in the human-dominated landscape and give hints about actions needed for their adaptation to future environmental heterogeneity. Birds in these ecosystems are at risk of extinction not only because of the effects of climate change but, more urgently, because of the speed of change in land use that leads to habitat loss and fragmentation (Costanza & Terando, 2019). Besides, many species are of conservation concern due to small range sizes and morphological traits that likely limit their dispersal and ultimately depend upon the configuration and connectivity of remnant fragments to maintain viable populations (Moore, Robinson, Lovette, & Robinson, 2008). Hence, I spent the summer assessing point counts in different land cover types and vegetation plots to characterize the habitat of birds during the non-breeding season (May-Jul).

Acknowledging that residents are key decision-makers on land use, additionally, my research sought to understand how human populations in this ecosystem perceived and valued birds and their remnant fragments of habitat consisting mainly by shrubs and hedgerows within a surrounding agricultural plot. I interviewed 30 farmers concerning their knowledge and uses of natural resources available.

#### **Future recommendations for Tinker or how use this research to move forward**

My research will be useful to understand the conservation status of birds in my region. I will give a hard copy on my final thesis and an oral presentation of my results to my local partner, the Museum of Natural History of the Universidad Nacional de San Antonio Abad del Cusco. I will share the results with colleagues and stakeholders in the study area.

