

## **Annual Report Requested Information**

- I. **Project title** – Demography and conservation of understory bird communities in a highly fragmented Afromontane forest

### **Project description**

The Usambara Mountains, part of the Eastern Arc range in Tanzania, have undergone extensive deforestation resulting from industrial and small-scale logging in conjunction with agricultural development. A consequence of this development is a patchy, discontinuous landscape with only 25% of forested habitat remaining. The Eastern Arc Mountains are considered to be of exceptional biodiversity importance owing to their high rates of endemism, but due to intense development pressures, this region is also considered to be one of the most threatened biodiversity hotspots in the world. Despite high potential mobility, many bird species become effectively isolated in forest patches due to low realized dispersal, and small patches have lower numbers of forest interior obligate species. This project is intended to quantify trends in bird populations and guilds as a function of landscape pattern and ultimately, to aid in the development of a reserve design that will better support Tanzania's rich forest biodiversity. Objectives of this study are to 1) calculate key demographic rates (survival and population growth) of understory bird species, 2) assess guild-level responses to fragmentation, 3) investigate the mechanisms of fragmentation effects by linking landscape ecology metrics with demographic rates and patch occupancy models, 4) quantify dispersal patterns and possible metapopulation structure of species and the avian community as a whole, and 5) use population viability analyses to evaluate the ability of existing and proposed reserve designs to conserve avian biodiversity over the long-term. We have begun to analyze 21 years of capture-recapture data, systematically collected through annual mist netting by Dr. Bill Newmark, of the Utah Museum of Natural History. Initial survival analyses show that 11 of 18 of the most common species showed depressed survival in small (<10ha) versus large (≥30ha) habitat fragments. The effect of patch size on survival was most pronounced in terrestrial insectivores.

**Principal investigators** – Nicole Korfanta, Matthew Kauffman, and David McDonald

### **Major funding agencies**

- II. Lists of:

(1) Reports – to include authors, date, title, to whom (no need for quarterly reports) - None

(2) Presentations –

- a. Korfanta, N. M., M. J. Kauffman, D. B. McDonald

Presenter, N. M. Korfanta

15 April 2008

“Demography and conservation of understory bird communities in a highly fragmented Afromontane forest”

Cheyenne Audubon Society

Cheyenne, Wyoming

(3) Publications – none

(4) Honors/awards, scholarships received

- a. University of Wyoming, Dick and Lynne Cheney Study Abroad Grant, 2007
- b. University of Wyoming. Haub Creative Activities and Research Grant, 2007
- c. University of Wyoming, Zoology and Physiology Department Scott-Walters Scholarship, 2007

III. Photos – with caption and photographer credit (pdf format)

- a. Korfanta-4, Caption – “Nicole Korfanta processing a Northern Olive Thrush” (Photo by Matt Kauffman)