Annual Report Requested Information

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

Project description (300 words) – purpose, objectives, general methods, management utility

The Usambara Mountains, part of the Eastern Arc range in Tanzania, have undergone extensive deforestation as a result of 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. Early studies of bird communities in the Usambara Mountains suggest that despite high potential mobility, many species become effectively isolated in forest patches due to low realized dispersal. And small patches have been shown to 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. We will analyze 21 years of capture-recapture data, systematically collected through annual mist netting by Dr. Bill Newmark, of the Utah Museum of Natural History. Objectives of this study are to 1) calculate key demographic rates (survival and population growth) of understory bird species on a range forest fragment sizes, 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 in conjunction with the results above to evaluate the ability of existing and proposed reserve designs to conserve avian biodiversity over the long-term.

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 – to include authors, presenter, date, title, organization, city, state
(3) Publications – (AFS or TWS format)
(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-1, Caption – “Nicole Korfanta and Bill Newmark band and draw blood from understory forest birds in the Usambara Mountains of Tanzania” (Photo by Matt Kauffman)
    b. Korfanta-2, Caption – “A small (1-ha) forest remnant in the East Usambara Mountains surrounded by tea plants” (Photo by Nicole Korfanta)
    c. Korfanta-3, Caption – “A Green-Backed Twinspot, an understory bird species, captured in the West Usambara Mountains” (Photo by Bill Newmark)