

Abstract

Tropical ecosystems are globally important for bird diversity. In many tropical regions, land-use intensification has caused conversion of natural forests into human-modified habitats, such as secondary forests and heterogeneous agricultural landscapes. Despite previous research, the distribution of bird communities in these forest-farmland mosaics is not well understood. To achieve a comprehensive understanding of bird diversity and community turnover in a human-modified Kenyan landscape, we recorded bird communities at 20 sites covering the complete habitat gradient from forest (near natural forest, secondary forest) to farmland (subsistence farmland, sugarcane plantation) using point counts and distance sampling. Bird density and species richness were on average higher in farmland than in forest habitats. Within forest and farmland, bird density and species richness increased with vegetation structural diversity, *i.e.*, were higher in near natural than in secondary forest and in subsistence farmland than in sugarcane plantations. Bird communities in forest and farmland habitats were very distinct and very few forest specialists occurred in farmland habitats. Moreover, insectivorous bird species declined in farmland habitats whereas carnivores and herbivores increased. Our study confirms that tropical farmlands can hardly accommodate forest specialist species. Contrary to most previous studies, our findings show that structurally rich tropical farmlands hold a surprisingly rich and distinct bird community that is threatened by conversion of subsistence farmland into sugarcane plantations. We conclude that conservation strategies in the tropics must go beyond rain forest protection and should integrate structurally heterogeneous agroecosystems into conservation plans that aim at maintaining the diverse bird communities of tropical forest-farmland mosaics.