

Variation in Avifaunal Diversity and Composition along a Land Use Gradient in Kandy, Sri Lanka

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Sri Lanka accommodates a high diversity of birds. With increasing developmental and population pressure, land use changes have long been apparent in many cities and suburbs. Even though habitat use of birds has gained much attention, studies are sparse on the functional diversity of birds in distinct landscapes. This study attempts to investigate different bird assemblage attributes and habitat characteristics in five land use systems in Kandy. Bird assemblages in natural (Forest patch) and areas under human influence (Residential area, Riparian zone, Coconut plantation, Paddy Field) were investigated from November 2020 to March 2021. The results suggest that bird assemblages were significantly different in relation to diversity, evenness and dominance. According to PCA characterization, the Riparian zone and the Coconut plantation showed similar habitat characteristics among others while the Forest patch, Residential area and the Paddy field well differed from each other. The abundance of birds was highest in the Residential area (42.9%) and low in the Coconut plantation (9.0%) and Riparian zone (9.0%). Species richness was highest in the Forest patch (18) and lowest in the Coconut plantation (10). Vegetation architecture too has played a significant role: Abundance of birds and shrubs ($r=0.961$, $p<0.05$) as well as a diversity of birds and herbs ($r=0.925$, $p<0.05$) were linked positively. The distribution of birds and the abundance of shrubs had a strong negative relationship ($r = - 0.982$, $p=0.003$). Bird diversity (Shannon Wiener Index = 1.7941) and dominance (Dominance Index = 0.2871) were highest in the Paddy field; a moderately disturbed land use system. However, the birds were highly distributed in the Coconut plantation which is a monoculture land, then in the other mixed culture land use systems (Evenness Index = 0.6833). This study demonstrates the impacts of spatial structure on habitat use of birds and provides vital information for conservation and management. As much as less disturbed landscapes are important for maintaining bird diversity, promoting shrubs and herbs in more disturbed landscapes such as home gardens can enhance the abundance and diversity of birds.

Keywords: *land use systems, abundance of birds, bird diversity, dominance, evenness*