

Avian Biological and Functional Diversity across Different Habitats at the University of Peradeniya, Sri Lanka

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The Hanthana forest is surrounded by urban and suburban areas, including the University of Peradeniya where there is high bird diversity due to the heterogeneity in habitat types. This study aimed to assess and compare avian biological and functional diversity in four land use types in the University of Peradeniya premises including grassland, riparian vegetation, village (home gardens), and the Hanthana secondary forest. All birds observed or heard within each land use type were recorded along a monthly route transect from September 2021 to September 2022. The sampling effort was consistent across all habitats. The species diversity was analyzed using the Type I diversity index (Shannon-Wiener diversity index), Type II diversity index (Simpson's diversity index), Pielou's evenness, and beta diversity indices (Sorensen index, and Jaccard index). All observed species were categorized into six feeding guilds based on the available literature and the observations made during the field visits. A one-way ANOVA was calculated separately for each feeding guild to determine whether the relative abundance or species richness of each feeding guild is significantly affected by the land use type. The Shannon-Wiener diversity index was highest in the forest (3.530), whereas the Simpson's diversity index was highest in the riparian habitat (0.9619). This explains the presence of rare species in the secondary forest. Grassland and riparian habitats had the highest similarity (Sorensen = 0.667, Jaccard = 0.500) while grassland and forest habitats had the lowest similarity (Sorensen = 0.531, Jaccard = 0.361). Insectivores were the dominant feeding guild of the study area. According to ANOVA, avian functional diversities varied among habitat types ($p < 0.01$), suggesting that different feeding guilds prefer different habitat types. This study concludes that there are differences in the species richness and feeding guilds in the four distinct habitats at the University of Peradeniya.

Keywords: Birds, Diversity Indices, Functional Diversity, Habitat Heterogeneity