

Avifaunal responses to habitat fragmentation in three different forest fragments adjacent to Mihintale Sanctuary

D. Bopearachchi* and S. Wickramasinghe

Department of Biological Sciences, Faculty of Applied Sciences, Rajarata University of Sri Lanka, Sri Lanka

***Corresponding author: dilinibopearachchi@yahoo.com**

Tropical forest fragmentation is considered as the main cause of extinction of tropical forest avifauna and the diversity of birds in fragmented areas are poorly understood. However, in Sri Lanka information on the effects of forest fragmentation on avifauna is scarce. Therefore, the study aimed to determine the avifaunal responses to habitat fragmentation in the three different fragments adjacent to Mihintale sanctuary. The current study was conducted in morning and evening for a period of six months from June to November 2015 and sampling was done in 40 hrs per month in each fragment. Point counts were used for data collection of birds in three different sized isolated forest fragments denoted as FA- fragmented area near Ayurveda, FK –fragmented area near Kaludiyapokuna and FP – fragmented area near Poson Mawatha. Arc GIS was used to measure areas of fragments. While, quadrat sampling method was used for sampling fragment vegetation. Total of 0.51 km² covered during sampling. Altogether, 85 birds belonging to 37 families were recorded, including 74 breeding residents, 11 winter visitors, 3 endemic and 3 proposed endemic species. The area of three fragments were ranged from 1.1 to 3.4 ha. Species richness in FA was higher compared to the other two fragments in both seasons. Total number of species were significantly different dry-P=0.000, wet-P=0.001 among three fragments. Of the observed birds 18 (35.3%) species were common to all three fragments and five (9.8%), nine (17.7%) and two (3.9%) observed bird species were restricted to FA, FK and FP respectively. The species diversity in wet season was higher compared dry season in all three fragments. There was no significant difference in monthly variation of species diversity in FA and FK, but differed in FP. A total of 29 plant species belonging to 15 families were identified in three fragments. A higher tree and shrub density was recorded in FK. Vegetation was the major attribute positively related to species richness, abundance and diversity in fragments. Hence, protection and restoration of forest fragments may help to mitigate negative effects of fragments on bird functional groups.

Keywords: Avifauna, Diversity, fragments, Mihintale, richness