

(163)

**Comparative Assessment of Avifaunal Diversity Across Habitat Zones in the
Malgasowitadeniya Riverine Mangrove Forest, Sri Lanka**

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Abstract

The Malgasowitadeniya Riverine Mangrove Forest represents a critical transitional ecosystem in Sri Lanka's wet zone, characterized by distinct floristic zonation that support diverse avifaunal assemblages. To assess the ecological importance of these varying habitat structures, this study evaluated bird species richness and community composition across three distinct zones: true mangroves, associated mangroves with invasive flora (primarily *Dillenia suffruticosa* and *Annona glabra*), and adjacent terrestrial forest. Bird surveys were conducted from July to August in 2025, using the line transect method along three 500 m transects, with observations recorded during morning (07:00-09:00 h) and evening (16:00-18:00 h) periods. During the survey, 26 species of birds were recorded, belonging to 20 different families. The terrestrial zone exhibited the highest species richness (S=22), followed by the true mangrove zone (S=11). The invasive flora with the associated mangrove zone showed the lowest richness (S=9). Diversity indices revealed significant variation between the habitats. The terrestrial zone displayed the highest species diversity (Shannon-Wiener H=2.90) and the most equitable distribution of species (Evenness J=0.94). In contrast, the true mangrove zone recorded moderate diversity and the lowest evenness (H=2.19, J=0.91), indicating common species *Halcyon smyrnensis*, *Amaurornis phoenicurus*, *Aegithina tiphia*, and *Lonchura striata*. The invasive flora with the associated mangrove zone displayed the lowest species diversity (Shannon-Wiener H=2.07) due to low species richness, despite having high evenness (J=0.94). These results suggest that although adjacent terrestrial habitats support greater species richness, the core mangrove zone maintains a more stable and evenly distributed avifaunal community, underscoring its conservation importance. Protecting both mangrove and adjacent terrestrial habitats, while managing invasive vegetation, is essential to sustain avifaunal diversity in riverine mangrove landscapes.

Keywords: *Avifauna, Diversity indices, Riverine mangrove ecosystem, Habitat zones, Conservation*