

SEASONAL VARIATION IN SPECIES RICHNESS AND ABUNDANCE OF WATERBIRDS IN THE SUBURBS OF ASMARA CITY, ERITREA

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Abstract. Wetlands provide organisms with a diverse range of breeding sites and food, allowing them to survive during the non-breeding season. Despite the hotspot area, the waterbird fauna in the suburbs of Asmara city is poorly described. Information on the seasonal variation in species diversity and abundance is generally patchy. The study described the seasonal change in waterbird species diversity and abundance in different locations with varying physiological and ecological conditions. Waterbirds usually congregate around open wetlands, hence their abundance is more appropriately determined by counting all individuals in the congregate. The direct total area count method was implemented, and data was collected both during the dry (January-March) and wet (July-September) seasons of the year 2020. Species similarity between the study sites was calculated using The Morisita-Horn index (C_{MH}). A total of 5641 waterbirds were counted, representing 12 families and 47 species. The study shows a significant difference ($p < 0.05$) in species abundance between the wet and dry seasons, although species richness is not statistically significant. The highest site similarity and low complementarity was seen between Radar and Adi-Nefas areas ($C_{MH} = 0.759$). Despite seasonal species turnover, the total species diversity does not show significant change, while their abundance being notably higher during the dry season. Few waterbird species appear in dominant number, while the majority species are represented by a few individuals. In general, site similarity was high in the dry season, and maximum similarity was seen between Radar and Adi-Nefas sites both in the wet and dry seasons.

Keywords: wetland habitats, waterbirds, species composition, species richness, species abundance

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