IMPORTANCE OF INTEGRATED MANAGEMENT OF IRRIGATION SYSTEMS FOR BIODIVERSITY CONSERVATION: CASE STUDY IN KUBALGAMA TANK, SRI LANKA

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Abstract: Irrigation systems in Sri Lanka are not only important for agriculture and other livelihoods development, but also important as biodiversity refuges for many species. The Kubalgama tank is one of the irrigation tanks situated in Matara (N 05°56'34.76", E 080°34'47.03"), which provides habitat for avifauna in the area. Therefore, a field survey was conducted to assess the contribution of the Kubalgama tank to avifaunal diversity in the area. The survey was conducted by twelve random visits for a period of six months from October 2021 to April 2022. Each day two sampling events were conducted at 6.00 am to 7.00 am in the morning and 4.00 pm to 5.00 pm in the evening. Visual observations were used to count individuals of each species in three selected habitats (lake, forest & home garden) using 200 m fixed line transects. A total of 38 bird species from seven different families were recorded. Among the species recorded, 92% were resident species and 8% were migratory species. Three endemic species were recorded, namely, Sri Lanka Green-pigeon (*Treron pompadora*), Sri Lanka Grey-Hornbill (*Ocyceros gingalensis*) and Lesser Sri Lanka Flameback (*Dinopium psarodes*). According to the results, calculated Shannon-Wiener diversity indexes in forest, lake & home garden were 2.42, 2.43 & 2.48, respectively. However, there is no significant difference between habitats according to the indexes. Even though the study site is close to densely populated resident areas, it still provides vital habitat for avifauna in the area. Continuous water pollution of the lake was observed threatening aquatic avifauna. Therefore, implementing proper environmental management approaches in Kubalgama is vital for biodiversity conservation. Further, the study reveals the importance of biodiversity surveys and continuous monitoring of the changes in biodiversity in irrigation systems for sustainable management of inland surface water resources and biodiversity conservation in the tank ecosystems of Sri Lanka.

Keywords: Avifaunal diversity; Biodiversity conservation; Irrigation systems; Environmental management; Kubalgama tank