

IDENTIFICATION OF BEHAVIOURAL PATTERNS OF PURPLE SWAMPHEN (*Porphyrio porphyrio*) IN DIYASARU WETLAND PARK

Lakshila T.M.S¹, Gunawardene A² and Weerasinghe W.P.C.G^{1*}

¹Department of Urban Bioresources, Faculty of Urban & Aquatic Bioresources, University of Sri Jayewardenepura, Gangodawila, Nugegoda, Sri Lanka

²Department of Environmental Education & Awareness, Central Environmental Authority, Denzil Kobbekaduwa Mawatha, Sri Jayawardenepura Kotte, Sri Lanka

*Corresponding author: gayaniweerasinghe@sjp.ac.lk

Wetlands are highly productive ecosystems that provide feeding, breeding, and resting habitats for diverse bird species. Understanding behavioural activities of aquatic birds is important for evaluating habitat utilization and ecological conditions within wetland ecosystems. This study investigated the influence of island and time of day on the behavioural patterns of Purple Swamphen (*Porphyrio porphyrio*) at Diyasar Park. Field observations were conducted in two selected islands (Island 1 and Island 2) during three observation periods (Morning, Afternoon, and Evening) over a study period from December 2025 to May 2026. The selected islands exhibited ecological variations and habitat heterogeneity in terms of vegetation composition and geographical characteristics. Island 1 was dominated by dense emergent aquatic vegetation including grasses, sedges, and reed species with comparatively shallow water areas, while Island 2 consisted of mixed vegetation with open water regions and scattered aquatic plants. These variations in habitat structure potentially influenced habitat use and behavioural responses of Purple Swamphen. Behavioural activities including grazing, probing, picking, standing, sitting, walking, swimming, flying, calling, aggressive behaviour, group movement, head raising, escape response, vigilance, and sleeping behaviour were recorded using direct observation methods. Environmental factors observed during the study included vegetation cover, water depth, habitat structure, food resource availability, shelter availability, and surrounding habitat conditions, as these factors potentially influence movement patterns, foraging behaviour, and habitat utilization of Purple Swamphens. IBM SPSS V.23 was used for statistical analysis and two-way Analysis of Variance (ANOVA) to evaluate the effects of island, observation time, and their interaction on behavioural activities. In most behavioural activities, non-significant differences were resulted with observation time suggesting relatively stable behavioural patterns throughout the day. However, there were significant differences ($p < 0.05$) between islands for probing, standing, walking, and swimming behaviours. Probing (island 1: 18.64 ± 11.32 , Island 2: 12.47 ± 9.15), standing (Island 1: 21.33 ± 13.41 , Island 2 : 15.28 ± 10.76), and walking (Island 1 : 16.82 ± 10.25 , Island 2 : 11.94 ± 8.63) times were significantly higher in Island 1, whereas swimming behaviour was significantly higher in Island 2 (Island 2 : 19.56 ± 12.48 , Island 1 : 10.73 ± 7.84). Thus behavioural patterns of purple swamphen had varied according to the environmental factors. Overall, the findings emphasize the ecological importance of habitat heterogeneity in shaping behavioural activities of Purple Swamphen (*Porphyrio porphyrio*) and highlight the significance of urban wetlands in supporting avian biodiversity and ecological functions.

Keywords: biodiversity conservation, ecological monitoring, habitat heterogeneity, habitat utilization, urban ecology, urban wetlands