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Title: Ecological Studies on Migratory Waterbird Community Wintering in Selected Wetlands with Special Reference to Ecosystem Services.

ABSTRACT

Wetlands of West Bengal are facing various anthropogenic pressures mainly in form of land-use and land-cover changes and these can adversely influence the abundance of aquatic animals including waterbirds. However, diverse location of wetlands in different physiographic regions make these wetlands globally important from conservation point of view as waterfowl conservation at eco-regions is a global priority now-a-day. Migratory waterbirds follow both East Asian-Australasian Flyway and Central Asian Flyway and resident birds share their foraging grounds with migratory birds during winter months. Proportional differences in uses of foraging habitats and techniques and temporal variations in foraging activities accommodate residents and winter migrants in the wintering grounds. This study also finds that gene mediated physical and physiological constraints might have led to the behavioural dominance on a particular foraging technique and resource partitioning in a given habitat, which has supported to stable coexistence of several waterfowl in a wetland. Additionally, present study attempts to test the prediction that the features of physical habitats (area, mean depth, shore length) are important determinants of migratory waterbird richness and abundance and attests that abundance of waders, dabblers and divers were under the influence of shore length, area and depth respectively. Furthermore, waterbirds are excellent indicators of wetland health and the present study records their abundance and richness at the important wintering sites along the length and breadth of the state of West Bengal. This study also analyses the heavy metal exposure risk to a predominantly herbivore waterfowl, Northern Pintail, through oral ingestion. Results indicate that exposure through food and bottom sediments are potent pathways and also recommend for holistic management of age-old wintering grounds. Moreover, nutrients (mainly nitrate and phosphate) in the guano of the aquatic birds may alter the water quality in freshwater wetlands and, thus, waterbirds can play a considerable role in nutrient loadings in these wetlands. Present study records avian guanotrophy in the wintering season conceivably sustain the nutrient prerequisites of the wetland ecosystem for the rest of the year. However, sustainable management of these wetlands depends on the delicate balance of two factors, guanotrophic nutrient addition and fitness to attract the migratory waterbird populations during the wintering period.



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