ASSESSING THE POPULATION STATUS AND TEMPORAL PATTERNS OF MIGRATORY BIRDS IN VADUVOOR BIRD SANCTUARY, TAMIL NADU

Final report submitted to Tamil Nadu State Land Use Research Board

Principal Investigators Dr. S. Babu Dr. R. Jayapal Research Scholar Dr. V. Kirubhanandhin



SALIM ALI CENTRE FOR ORNITHOLOGY AND NATURAL HISTORY (South India Centre of Wildlife Institute of India) Anaikatty, Coimbatore - 641108, Tamil Nadu

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Contact : Dr S Babu, babus.80@gov.in

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FINAL TECHNICAL REPORT No: 254

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> PRINCIPAL INVESTIGATOR Dr. S. BABU

> > CO-INVESTIGATOR Dr. R. JAYAPAL

RESEARCH SCHOLAR Dr. V. Kirubhanandhini



SA'LIM ALI CENTRE FOR ORNITHOLOGY AND NATURAL HISTORY (South india Centre of Wildlife Institute of India) ANAIKATTY, COIMBATORE - 641108, TAMIL NADU

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Contents

Executive Summary	1
1. INTRODUCTION	4
2. OBJECTIVES	6
3. METHODS	7
3.1. Objective - 1	7
3.1.1. Within the Sanctuary	7
3.1.2. Outside the Sanctuary	7
3.2. Objective - 2	10
3.3. Objective - 3	11
3.3.1. Poaching intensity and bird-human conflict	11
3.3.2.Capacity building and bird awareness programme	13
3.4. Objective – 4	14
4. RESULTS	16
4.1. Chapter 1: Flora and fauna of the Vaduvoor Bird Sanctuary	16
4.2. Chapter 2: Spatial and temporal patterns of resident and migratory waterbirds within and outside the sanctuary	19
4.2.1. Within the sanctuary boundary	19
4.2.2. Outside the Sanctuary	29
4.3. Chapter 3: Human-bird interface and awareness programme	40
4.3.1. Human-bird conflict and Poaching intensity	40
4.3.2. Nature training to school and college students	46
4.4. Chapter 4: Land use and land cover change pattern in Tiruvarur District	50
5. MANAGEMENT SUGGESTIONS	54
6. REFERENCE	57
7. APPENDICES	60

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Executive Summary

Wetlands and their associated organisms have been largely overlooked despite their ecological significance. In India, out of 55,862 identified wetlands, only 219 are designated as Protected Areas. Vaduvoor lake, an inland wetland in Thiruvarur district, is a notable exception, having received both national (Bird Sanctuary and Important Bird and Biodiversity Area) and international (Ramsar site) recognition for its large congregations of migratory and resident birds. Although the lake is protected by Indian law, biodiversity profile of this sanctuary is yet to be fully documented. To address this gap, we initiated a study to assess the spatial and temporal patterns of migratory and resident wetland birds, as well as to comprehensively document the faunal and floral diversity of Vaduvoor lake. We also conducted a training program for various stakeholders who will be the future guardians of the lake.

Subject experts were involved in the field surveys to prepare a comprehensive checklist of various taxonomic groups of Vaduvoor Bird Sanctuary. We employed the total count method within the sanctuary and grid-based transect surveys outside the sanctuary (5 km radius) to elucidate the spatial and temporal patterns of migratory and resident avifauna in and around the sanctuary. Farmers around the sanctuary area were interviewed with structured questionnaire to assess poaching pressure and human-bird conflict. Training and nature awareness programs were conducted for school students in neighbouring villages and towns. Land use and land cover change between 2002 and 2022 were evaluated using multitemporal satellite imagery and remote sensing software.

During the survey, a total of 312 plant species, six damselfly species, 12 dragonfly species, 28 butterfly species, 15 fish species, nine amphibian species, 24 reptile species, 127 bird species, and 10 mammal species were recorded using standardized survey protocols with the technical support of various subject experts. We also analysed the physico-chemical properties of water using standard analytical methods.

Of the 127 recorded species of birds, 44 were wetland and wetland-associated birds, including 16 species of diving and open water foraging birds, 11 species of large wading birds, eight species of small wading birds, and six species of floating vegetation and grassland foraging birds. Black-headed Ibis, Asian Openbill, Little Egret, Indian Cormorant, and Cattle Egret were the dominant and frequently observed species throughout the year. Although the sanctuary is known for its heronries of large wading birds, these large waders were less frequently observed foraging within the lake due to the lack of suitable foraging substrate namely shallow water area. Small waders were mostly observed during the return migration when the water level of the lake was low. Based on the species composition of waterbirds in different months, we identified four distinct seasons for the birds in Vaduvoor Lake: 1. Arrival of large wading birds for breeding (June-July), 2. Breeding season (August-November), 3. Post-breeding and arrival of small wading birds (December-March), and 4. Departure season/dry season (April-May). We surveyed nearby major wetlands (satellite wetlands) within a 5 km radius and found that the bird richness in those lakes was a subset of the birds recorded at Vaduvoor Lake. This suggests that Vaduvoor Lake serves as a source population for many waterbird species. It is evident that protecting the satellite wetlands is also crucial for the long-term conservation of waterbirds in this landscape

The questionnaire surveys revealed that there is no poaching pressure on wetland birds in the nearby agricultural fields. However, a high level of human-bird conflict exists in these fields, leading to negative perceptions of the birds and the sanctuary among farmers. Seven species/groups have been identified as crop damaging birds: Indian Peafowl, Black-headed Ibis, Munia, Egrets, and Purple Swamphen. Considering the situation, addressing human-bird conflict issues should be a priority for the sanctuary authorities and the state forest department

Land use and land cover changes in Thiruvarur district were analyzed using satellite imagery acquired between 2002 and 2022. Overall, there was a slight decrease in the extent of agricultural fields, plantations, and water bodies, while built-up areas witnessed a significant increase during this period (2022). This suggests that ploughed lands and plantations are being converted into built-up areas. At the end of the report, we provided a few management recommendations for the Vaduvoor Bird Sanctuary and its immediate surroundings.



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