



Research Article



Avifaunal diversity of Thiruvathavur Lake in Madurai district, Tamil Nadu, India

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ABSTRACT

Birds are an important group of aquatic ecosystems. They feed on insects, small fish, and other animals of the reservoir. Among other scientific categorisations, birds are considered indicators of the unwavering quality and capability of territories. A total of 42 bird species, along with 15 species and 27 families, and 40 species, Least concern and Two species of Near Threatened are recorded in Thiruvathavur Lake in Madurai district, Tamil Nadu, India. The Survey of birds to Jan 2022-December 2023. The study area's avian variety was observed using the line transect method. The result also shows that the wetland area, agricultural land, and surrounding vegetation provide favourable environmental conditions for migratory, resident, and threatened bird species.

Keywords: Avian Fauna, Biological Indicator, Lake, Species Richness

INTRODUCTION

The variety of bird networks in various territories is crucial for knowing the species and local area structure and their connections, and furthermore to portray the meaning of provincial or neighbourhood scenes for avian preservation. The Worldwide changes are presenting intense issues to biodiversity (Chettri 2010; Singh et al., 2013; Pratikshya et al., 2018; Asha et al., 2020). Thus, documentation of various bird networks, their circulation, natural surroundings inclinations, dangers and protection practices as well as approaches is critical for future preservation measures (Chaudhary et al., 2015; Uprety et al., 2016; Pratikshya et al., 2018).

Wetlands are a fundamental environment for avifauna because of their habitat assortment and high efficiency have led to rising concern about the impact of their loss (Gracia et al., 1997). Wetlands are generally known as delicate ecosystems with varied attributes, with a unique bird species. (Burger, 1985). Wetlands are extremely important because they supply as critical breeding, performance and wintering grounds for a large group of world-wide important avian species (Kristen and Brander, 1991). The species richness and bird abundance were fundamentally affected by attributes of the size of the water-covered area, particularly in case of local migrants and resident birds. Diversity and abundance of winter migratory birds appear to be affected more by habitat heterogeneity, and the preponderance of submerged aquatic vegetation played a negative role in this regard (Datta, 2011). Variety of the avifauna is one of the main environmental pointers to assess the nature of living spaces. Nowadays, avifaunal diversity has been

decreasing due to the destruction of natural habitats and human disturbances (Bhadja and Vaghela, 2013).

Therefore, in recent years, human encroachment and other developmental activities have become elevated in this particular area, causing habitat loss and fragmentation due to pollution and disturbances of the wetland by means of the anthropogenic activities. Then also the wetlands of Thiruvathavur lake, a variety of wetland birds, along with a good amount of migratory avian species. Therefore, detail study on avifauna and their ecology is essential to conserve them.

MATERIALS AND METHODS

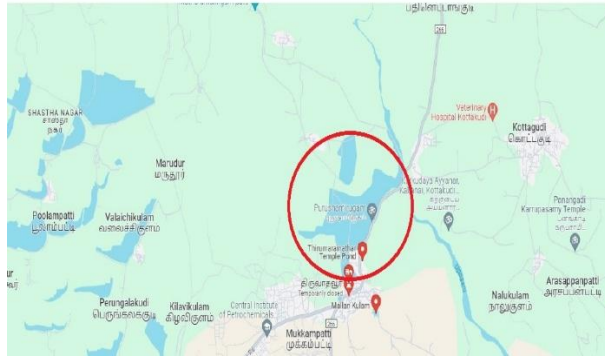
Study area

Thiruvathavur Lake is situated in Melur Block in Madurai District of Tamil Nadu State, India (Figure 1). It is located 25 KM towards East from District headquarters. The study area includes a small town with a good number of ponds, forests and agricultural fields. The water bodies of this area play an important role not only for irrigation purposes but also for the flourishing wetland birds within the area.

Methodology

Birds were observed during the winter season at the most active period in the day, that is, morning (6.00 am to 10.00 am) and late afternoon (4.30 pm to 7). A direct visual count with optics was finished, and in any place conceivable, a genuine count was taken. Where there was a large number of birds, an estimate (up to the nearest 50 individuals) was made. Along with the water birds, other terrestrial birds sighted in that locality were also noted. A few birds located incidentally during the

two species of Near Threatened (NT) **were** found in **the** study area (Figure 4).



Previous researchers' related work, such as Selvaraj Selvamurugan (2022) 26 Bird species recorded in Narasingam pond. (Selvaraj Selvamurugan, 2022) 24 Bird species in Kadaichanenthall lake, Madurai district, Tamil Nadu. Eighty-four species of birds were observed in Melamadai Lake, reported by Selvaraj Selvamurugan (2023). (Kumar, 2006) recorded Ardeidae to be the most dominant family in the Bharathpuzha river basin in Kerala, and (Surana *et al.*, 2007) recorded Anatidae to be the most dominant family in Chimdi Lake, Nepal. Likewise the avifaunal variety was concentrated on by various creators from Maharashtra state, for example, (Kasambe and Wadatar, 2007) recorded 78 species from Pohara- Malkhed forest reservoir of Amravati district, (Kedar *et al.*, 2008) recorded 74 species from two freshwater lakes of Washim district, (Kukade *et al.*, 2011) recorded 68 species from Chhattri lake of Amravati district, (Wanjari, 2012) reported 72 species from Nagpur city, Chinchkhede and Kedar (2013) recorded 126 species from Navegaon national park from Gondia district, Bhandarkar and Paliwal (2014) recorded 52 species from Shrungarbandh lake in Gondia district, (Lad and Patil, 2015) recorded 131 species from Bhayander and Naigaon wetlands in Thane district, (Puri, 2015) reported 27 species from Zaliya lake in Gondia district. (Selvaraj Selvamurugan, 2023) reported 19 Bird species from the Kollidam River, Anaikarai, Tamil Nadu. (Selvamurugan *et al.*, 2023) Forty-three bird species were recorded in Walayar Lake, Palaghat District, Kerala, India.

The activities that contribute towards the loss of the resources are: hunting and allied activities, human settlement, drainage of agriculture, disturbance due to recreation, reclamation for urban and industrial development, pollution, catchment degradation, alteration of water, soil erosion and siltation. Wetlands in India are facing one or multiple of the above-mentioned factors. The lack of proper management and ignorance of the importance of healthy wetlands became evident. However, the most accepted view is that the crisis of the aquatic environment is basically an economic issue, and it is the most decisive factor playing a role in the degradation of wetlands (Anula Jain *et al.*, 2015).

Passeriformes (14) was the dominant order followed by Pelecaniformes (5), Anseriformes (4), Gruiformes (3), Suliformes (3), Charadriiformes (2), Columbiformes (2), Galliformes (2) and Podicipediformes, Coraciiformes, Cuculiformes, Psittaciformes, Ciconiiformes, Apodiformes, Accipitriformes with (1 species each) were represented in the study area (Figure 3). As per IUCN status, **forty** species of Least Concern (LC) and

S.No	Order	Family	Common name	Scientific name	IUCN status
1	Coraciiformes	Alcedinidae	Pied Kingfisher	<i>Ceryle rudis</i>	LC
2	Columbiformes	Columbidae	Laughing Dove	<i>Spilopelia senegalensis</i>	LC
3	Cuculiformes	Cuculidae	Blue-faced Malkoha	<i>Phaenicophaeus viridirostris</i>	LC
4	Charadriiformes	Scolopacidae	Common Snipe	<i>Gallinago gallinago</i>	LC
5	Ciconiiformes	Ciconiidae	Painted Stork	<i>Mycteria leucocephala</i>	NT
6	Charadriiformes	Scolopacidae	Marsh Sandpiper	<i>Marsh Sandpiper</i>	LC
7	Galliformes	Phasianidae	Indian Peafowl	<i>Pavo cristatus</i>	LC
8	Gruiformes	Rallidae	Eurasian Coot	<i>Fulica atra</i>	LC
9	Gruiformes	Rallidae	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	LC
10	Gruiformes	Rallidae	Watercock	<i>Gallicrex cinerea</i>	LC
11	Galliformes	Phasianidae	Grav Francolin	<i>Francolinus pondicerianus</i>	LC

12	Pelecaniformes	Ardeidae	Gray Heron	<i>Ardea cinerea</i>	LC
13	Pelecaniformes	Ardeidae	Purple Heron	<i>Ardea purpurea</i>	LC
14	Pelecaniformes	Ardeidae	Indian Pond-Heron	<i>Ardeola grayii</i>	LC
15	Pelecaniformes	Ardeidae	Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	LC
16	Pelecaniformes	Threskiornithidae	Glossy Ibis	<i>Plegadis falcinellus</i>	LC
17	Psittaciformes	Psittaculidae	Rose-ringed Parakeet	<i>Alexandrinus krameri</i>	LC
18	Passeriformes	Dicuridae	Black Drongo	<i>Dicurus macrocercus</i>	LC
19	Passeriformes	Corvidae	Rufous Treepie	<i>Dendrocitta vagabunda</i>	LC
20	Passeriformes	Corvidae	House Crow	<i>Corvus splendens</i>	LC
21	Passeriformes	Cisticolidae	Common Tailorbird	<i>Orthotomus sutorius</i>	LC
22	Passeriformes	Pycnonotidae	Red-vented Bulbul	<i>Pycnonotus cafer</i>	LC
23	Passeriformes	Leiothrichidae	Yellow-billed Babbler	<i>Argya affinis</i>	LC
24	Passeriformes	Sturnidae	Common Myna	<i>cridotheres tristis</i>	LC
25	Passeriformes	Laniidae	Brown Shrike	<i>Lanius cristatus</i>	LC
26	Passeriformes	Cisticolidae	Ashy Prinia	<i>Prinia socialis</i>	LC
27	Passeriformes	Cisticolidae	Plain Prinia	<i>Prinia inornat</i>	LC
28	Passeriformes	Acrocephalidae	Blyth's Reed Warbler	<i>Acrocephalus dumetorum</i>	LC
29	Podicipediformes	Podicipedidae	Little Grebe	<i>achybaptus ruficollis</i>	LC
30	Passeriformes	Nectariniidae	Purple Sunbird	<i>Cinnyris asiaticus</i>	LC
31	Accipitriformes	Accipitridae	Brahminy Kite	<i>Haliastur indus</i>	LC
32	Anseriformes	Anatidae	Indian Spot-billed Duck	<i>Anas poecilorhyncha</i>	LC
33	Anseriformes	Anatidae	Fulvous Whistling-Duck	<i>Dendrocygna bicolor</i>	LC
34	Anseriformes	Anatidae	Lesser Whistling-Duck	<i>Dendrocygna javanica</i>	LC
35	Apodiformes	Apodidae	Little Swift	<i>Apus affinis</i>	LC
36	Anseriformes	Anatidae	Northern Shoveler	<i>Spatula clypeata</i>	LC
37	Columbiformes	Columbidae	Rock Pigeon	<i>Columba livia</i>	LC
38	Passeriformes	Passeridae	House Sparrow	<i>Passer domesticus</i>	LC
39	Passeriformes	Oriolidae	Indian Golden Oriole	<i>Oriolus kundoo</i>	LC
40	Suliformes	Anhingidae	Oriental Darter	<i>Anhinga melanogaster</i>	NT
41	Suliformes	Phalacrocoracidae	Indian Cormorant	<i>Phalacrocorax fuscicollis</i>	LC
42	Suliformes	Phalacrocoracidae	Little Cormorant	<i>Microcarbo niger</i>	LC

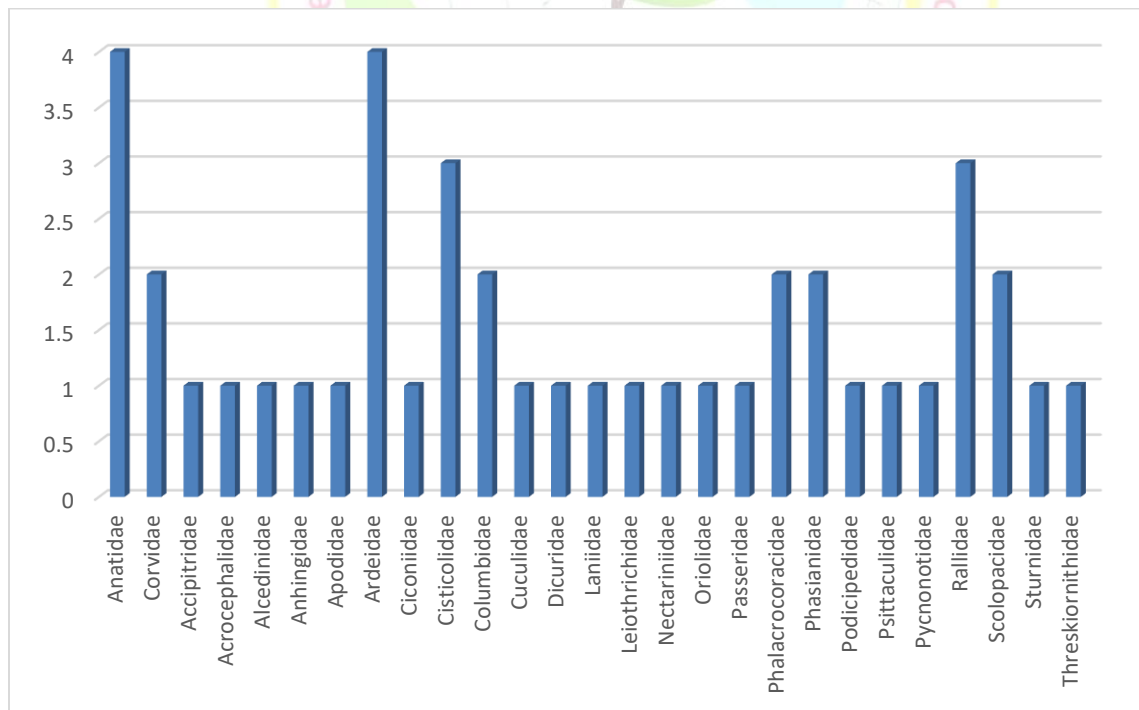


Figure 2. Family-wise distribution of Thiruvathavur Lake, Melur Taluk, Madurai District.

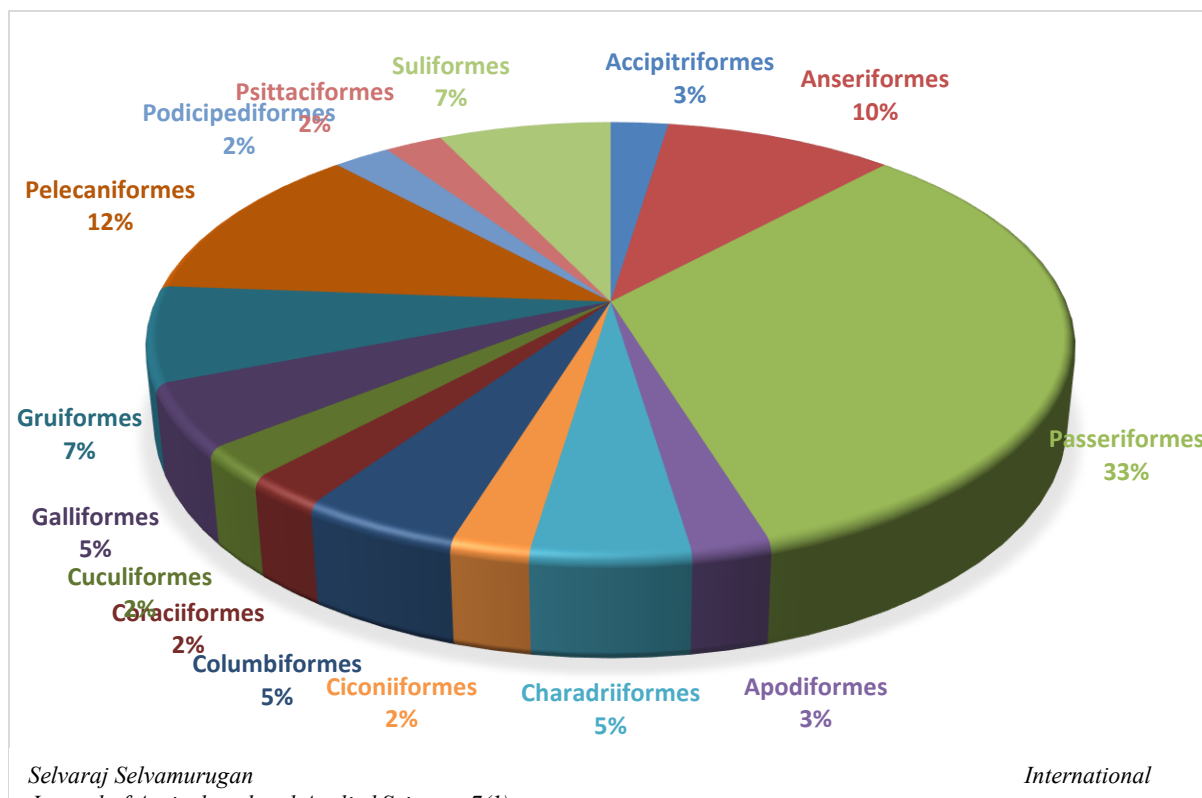


Figure 3. Order-wise distribution of Thiruvathavur Lake, Madurai District, Tamil Nadu.

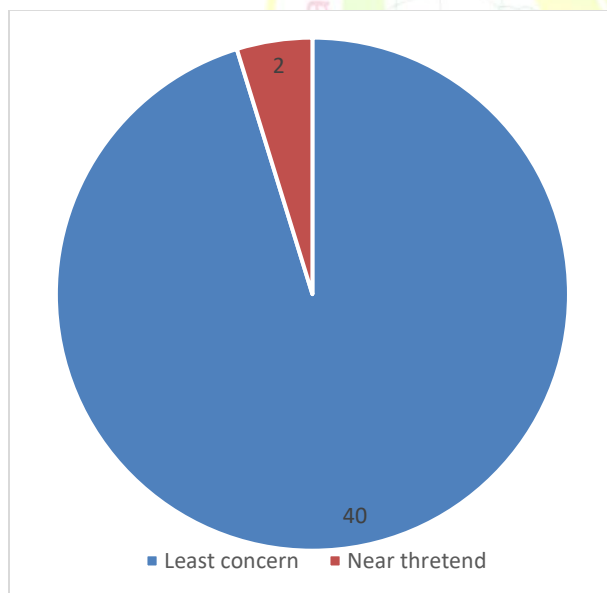


Figure 4. IUCN status of Thiruvathavur Lake, Madurai District, Tamil Nadu

CONFLICT OF INTEREST

The author declares that there is no conflict of interest regarding the publication of this manuscript.

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