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DIVERSITY OF WETLAND AVIFAUNA FROM MANKARWADI LAKE, SHIRALA TAHSIL, SANGLI DISTRICT, MAHARASHTRA

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Abstract:

Mankarwadi Lake is situated in Shirala Tahsil of Sangli District (17° 2′ 30″ N, 74° 4′ 28″ E). Birds occur throughout the world; their presence indicates the health of the ecosystem. The birds vary in trophic levels and ecologies that contribute significantly to biological processes such as nutrient turnover, seed dispersal, control of aquatic invertebrates and fish, and act as biological indicators. The present study attempts to record the diversity and status of wetland avifauna from Mankarwadi Lake, Sangli, from 2022 to 2024, in which 91 species of wetland birds were recorded of 17 orders and 41 families, during the period of study. Among the recorded species, 13 were migratory, 3 were residential migratory, and 75 were residential species.

Keywords: *Wetland, Sangli District, Shirala Tahsil, Mankarwadi Lake, Avifaunal Diversity.*

Introduction

Wetlands are among the most productive and ecologically valuable habitats found on Earth; they support a large variety of plants and animals. One of the most visible and ecologically valuable species inhabiting wetlands is the bird species; collectively, they are often termed wetland avifauna. Wetlands are of utmost importance as they serve as a source of food, breeding grounds, roosting grounds, and a safe stopover for both non-migratory and migratory bird species. Therefore, wetlands support a great diversity of bird species and are of great importance in sustaining bird populations on a global scale. The birds vary in trophic levels and ecologies that contribute significantly to biological processes such as nutrient turnover, seed dispersal, control of aquatic invertebrates and fish, and act as biological indicators. The species are largely affected by seasonal variations in availability and vegetation, causing major differences in species and abundance levels for monsoon seasons, post-monsoon seasons, and winter seasons (1, 2).

Material and Methods

Study area: Mankarwadi is a village in Shirala taluka, Sangli district, Maharashtra, India. It is situated 6km away from the sub-district headquarters Shirala and 68km away from the district headquarters Sangli (Fig. 1). Mankarwadi Lake is a local irrigation and water supply facility in the region, which receives water from the Wakurde Budruk lift irrigation network, specifically via outflows from Karamjai Lake. Five villages rely on the lake for their drinking water. The lake is surrounded by agricultural fields; major crops include sugarcane, jowar, rice, wheat, and other crops such as groundnuts and various pulses.

Figure 1: Stuy area

Methodology: The present study was carried out from 2022 to 2024. The survey was carried out by using a field binocular (8×42x magnification) and photography was done by using 65x optical zoom camera with 20.3 mega pixels lens. Survey was undertaken during morning 6am to 9am and at evening 4pm to 6pm. Sometimes afternoon visits were also done to check activities of birds. Book of birds of Indian subcontinent by Grimmett (3) and book of common birds of the Indian subcontinent by Ananda Banerjee (4) were used as field guide. For identification several characteristics was taken into consideration. Size, colours and other physical features such as bill, legs and feet are the best indicators of identity of a species at a close range or through binoculars.

Results

A total of 91 species of birds belonging to 41 families of 17 order were recorded from Mankarwadi lake Shirala of the Sangli district during the study period. Out of which 12 were winter migratory, 1 was summer migrant, 3 were residential migratory and 75 were residential species identified. Among the recorded species of birds 37 species from order Passeriformes, 11 species from Pelecaniformes, 9 species from Charadriiformes, 5 species from Coraciiformes, 4 species from Columbiformes, 3 species each from Anseriformes, Cuculiformes, Gruiformes, Ciconifomes and Suliformes. 2 species each from Apodiformes, Accipitriformes and Bucerotiformes. Single species each of from Galliformes, Camprimulgiformes, Podicipediformes and Psittaciformes (Fig. 2). In total recorded species we observed 89 species were least concern, single species was near threatened and single species was vulnerable as per IUCN status 2025. Seasonal variation in the occurrence of birds is also seen. In summer generally, most of the wetlands become shrinks and the number of birds is less than the winter season. During the post monsoon season the number of wetland birds increases. More species of birds were recorded in the winter season.

Table 1: Checklist of wetland birds from Mankarwadi Lake Shirala, Sangli District

Sr. No.	Family	Common Name	Scientific Name	Status	IUCN Status
Order Anseriformes					
1	Anatidae	Spot -billed duck	*Anas poecilorhyncha*	R	LC
2		Garganey	*Spatula querquedula*	WM	LC
3		Ruddy shelduck	*Tadorna ferruginea*	WM	LC
Order Charadriiformes					
4	Recurvirostridae	Black winged stilt	*Himantopus himantopus*	WM	LC
5	Charadriidae	Little ringed plover	*Charadrius dabius*	RM	LC
6		Red wattled lapwing	*Vanellus indicus*	R	LC
7		Yellow wattled lapwing	*Vanellus malabaricus*	R	LC
8	Scolopacidae	Common greenshank	*Tringa nebularia*	WM	LC
9		Common sandpiper	*Tringa hypoleucos*	WM	LC
10		Little stint	*Calidris minuta*	WM	LC
11		Wood sandpiper	*Tringa glareola*	WM	LC
12	Laridae	River tern	*Sterna aurantia*	R	VU
Order Pelecaniformes					
13	Ardeidae	Great egret	*Ardea alba*	R	LC
14		Intermediate egret	*Mesophoyx intermedia*	R	LC
15		Little egret	*Egretta garzetta*	R	LC
16		Cattle egret	*Bubulcus ibis*	R	LC
17		Indian pond heron	*Ardeola grayii*	R	LC
18		Purple heron	*Ardea purpuria*	R	LC
19		Grey heron	*Ardea cinerea*	R	LC
20	Threskiornithidae	Glossy ibis	*Plegadis falcinellus*	R	LC
21		Black headed ibis	*Threskiornis melanocephalus*	R	LC
22		Red naped ibis	*Pseudibis papillosa*	R	LC
23		Eurasian spoonbill	*Anastomus oscitans*	R	LC
Order Podicipediformes					
24	Podicipedidae	Little Grebe	*Tachybaptus*	R	LC
Order Galliformes					
25	Phasianidae	Indian peafowl	*Pavo cristatus*	R	LC
Order Suliformes					
26	Phalacrocoracidae	Little cormorant	*Phalacrocorax niger*	R	LC
27		Great cormorant	*Phalacrocorax carbo*	R	LC
28		Indian cormorant	*Phalacrocorax fuscicollis*	R	LC
Order Accipitriformes					

29	Accipitridae	Black kite	*Milvus migrans*	R	LC
30		Brahminy kite	*Haliastur indus*	R	LC
Order Gruiformes					
31	Rallidae	White breasted waterhen	*Amaurornis phoenicurus*	R	LC
32		Comon coot	*Fulica atra*	R	LC
33		Purple swamphen	*Porphyrio porphyrio*	R	LC
Order Columbiformes					
34	Columbidae	Rock pigeon/ dove	*Columba livia*	R	LC
35		Spotted dove	*Streptopelia chinensis*	R	LC
36		Laughing dove	*Streptopelia senegalensis*	R	LC
37		Eurasian collared dove	*Streptopelia decaocto*	R	LC
Order Cuculiformes					
38	Cuculidae	Western/Asian koel	*Eudynamys scolopacea*	R	LC
39		Jacobin cuckoo	*Clamator jacobinus*	R	LC
40		Southern coucal	*Centropus sinensis*	R	LC
Order Coraciiformes					
41	Alcedinidae	White Throated Kingfisher	*Halcyon smyrensis*	R	LC
42		Pied kingfisher	*Ceryl rudis*	R	LC
43		Common kingfisher	*Alcedo atthis*	R	LC
44	Meropidae	Green beeeater	*Merops orientalis*	R	LC
45	Coraciidae	Indian roller	*Coracias benghalensis*	R	LC
Order Bucerotiformes					
46	Upupidae	Common hoopoe	*Upupa epops*	SM	LC
47	Bucerotidae	Indian grey hornbill	*Ocyceros birostris*	R	LC
Order Psittaciformes					
48	Psttiaculidae	Rose ringed parakeet	*Psittacula krameri*	R	LC
Order Passeriformes					
43	Laniidae	Long tailed shrike	*Lanius schach*	R	LC
50		Brown shrike	*Lanius cristatus*	WM	LC
51	Dicruridae	Ashy drongo	*Dicrurus leucophaeus*	RM	LC
52		Black drongo	*Dicrurus adsimilis*	R	LC
53	Corvidae	House crow	*Corvus spendense*	R	LC
54		Jungle crow	*Corvus macrorhynchus*	R	LC
55	Hirundinidae	Barn swallow	*Hirundo rustica*	WM	LC
56		Red rumped swallow	*Cecropis daurica*	R	LC
57		Wire tailed swallow	*Hirundo smithii*	R	LC
58		Dusky crag martin	*Ptyonoprogne concolor*	R	LC
59	Pycnonotidae	Red-vented bulbul	*Pycnonotus cafer*	R	LC

60	Paradoxornithidae	Yellow eyed babbler	*Chrysomma*	R	LC
61	Leiothrichidae	Jungle babbler	*Argya striata*	R	LC
62		Large grey babbler	*Argya malcolmi*	R	LC
63	Cisticolidae	Ashy prinia	*Prinia socialis*	R	LC
64		Plain prinia	*Prinia inornata*	R	LC
65	Muscicapidae	Indian robin	*Copsychus fulicatus*	R	LC
66		Oriental magpie robin	*Copsychus saularis*	R	LC
67		Pied bush chat	*Saxicola caprata*	R	LC
68		Blue rock thrush	*Monticola solitarius*	RM	LC
69	Sturnidae	Brahminy starling	*Sturnus pagodarum*	R	LC
70		Jungle myna	Acridotheres fuscus	R	LC
71		Coomon myna	*Acridotheris trists*	R	LC
72	Nectariniidae	Purple sunbird	*Nectarinia asiatica*	R	LC
73	Motacillidae	Yellow wagtail	*Motacilla flava*	WM	LC
74		White wagtail	*Motacilla alba*	WM	LC
75		White browed wagtail	*Motacilla maderaspatensis*	R	LC
76		Paddyfield pipit	*Anthus rufulus*	R	LC
77	Passeridae	House sparrow	*Passer domesticus*	R	LC
78	Ploceidae	Baya weaver	*Ploceus philippinus*	R	LC
79	Estrildidae	Indian silverbill	*Lonchura malabrarica*	R	LC
80		Scaly breasted munia	*Lonchura punctualata*	R	LC
81		Red avadavat/munia	*Esterilda amandava*	R	LC
82		Black headed munia	*Lonchura malacca*	R	LC
83	Rhipiduridae	White browed fantail	*Rhipidura aureola*	R	LC
84	Aegithinidae	Common iora	*Aegithina tiphia*	R	LC
85	Fringillidae	Common rosefinch	*Carpodacus erythrinus*	WM	LC
Order Ciconiiformes					
86	Ciconiidae	Asian openbill stork	*Anastomus oscitans*	R	LC
87		Painted stork	*Mycteria leucocephala*	R	LC
88		Woolly necked stork	*Ciconia episcopus*	R	NT
Order Caprimulgiformes					
89	Caprimulgidae	Indian nightjar	*Caprimulgus asiaticus*	R	LC
Order Apodiformes					
90	Apodidae	Indian swiftlet	Aerodramus unicolor	R	LC
91		Little swift	*Apus affinis*	R	LC

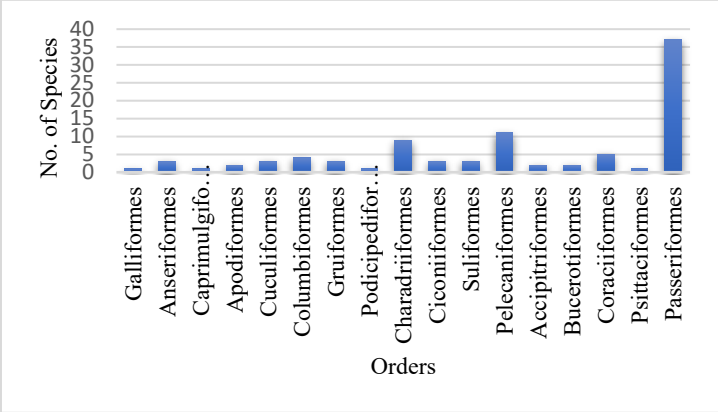

Figure 2: Oder wise species occurrence

Discussion

Habitat of Mankarwadi lake is favourable for the attraction of migratory birds and suitable for growth and development of birds. The present study on diversity of wetland avifauna recorded from Mankarwadi lake is richest, i.e. total 91 species of birds spread over 41 families and 17 orders. The present work is in conformity with the earlier work of Kumaran (5) was reported 41 species belongs to 18 families at Ousudu lake, similar work done by Tuljapurkar *et al.* (6) was reported 297 bird species was documented for Sangli district. Chavan *et al.* (7) was reported 168 bird species from Godavari river basin Nanded. The present work agrees with Apte *et al.* (8) recorded 138 bird species of which 71 were resident, 21 were local migrant, 9 were breeding migrant, 24 were winter migrant and status of 13 species were not determined from Sagareshwar wildlife sanctuary. Similar work done by some other researchers Pawar *et al.* (9) reported 84 species of birds belonging to 15 orders and 30 families of Majalgaon reservoir and their tributaries. Harde *et al.* (10) observed 97 bird species belonged to 48 families. The 85 species of birds spread over 43 families in and around Kasheli wetland Ratnagiri were documented by Mestry *et al.* (11).

The present study recorded a high avifaunal diversity of 91 bird species belonging to 41 families and 17 orders from Mankarwadi Lake, Shirala, indicating the ecological richness and habitat heterogeneity of this wetland ecosystem. Comparable levels of avian diversity have been reported from other wetland and freshwater ecosystems in Maharashtra and adjoining regions, highlighting the importance of such habitats in sustaining bird communities (12, 13). The dominance of Passeriformes, followed by Pelecaniformes and Charadriiformes, aligns with earlier studies from river basins, reservoirs, and wetlands of Western Maharashtra, where these orders were found to be ecologically versatile and well adapted to varied feeding niches (14, 15).

The presence of winter migrants, summer migrants, residential migrants, and a large proportion of resident species reflects the role of Mankarwadi Lake as an important seasonal refuge and feeding ground, particularly during the winter and post-monsoon periods. Similar seasonal patterns, with peak species richness during winter and reduced abundance in summer due to wetland shrinkage, have been widely documented in Indian wetlands (16, 16). The predominance of Least Concern species, along with the occurrence of Near Threatened and Vulnerable species, underscores the conservation value of the lake and its potential role in supporting regionally sensitive avifauna. Seasonal variation in water availability and vegetation structure appears to be a key driver influencing species composition and abundance, as also observed in village ponds and wetlands of Nanded and

Kolhapur districts (16, 17). Overall, the findings emphasize the need for habitat protection and sustainable wetland management to maintain avian diversity and ecological balance in the region.

The present study of diversity will help in conservation strategies and management plans which is key component of the ecosystems.

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