



Status of Wetland Avifauna at Khajri Lake, District Gondia, Maharashtra, India

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Abstract

The Khajri Lake is located near Parsodi village of SadakArjunitahsil. Lake is rich in aquatic vegetation and harbors several kinds of birds in all the seasons. Paddy field, herb, shrub, grassland, and tree located in the vicinity of lake that also provide food and shelter to these birds. Total number of 52 species belonging to 27 families was recorded throughout the year. Anatidae is the dominant family of birds but the future of the avian species is in danger due to destruction of aquatic plants from the lake by introducing carp species like grass carp, cyprinus etc. in the lake and overuse of pesticides and insecticides in agriculture distributed in catchment of the lake.

(Key Words- Aquatic plants, Catchment, Avian species)

Introduction

Apart from their beauty, recreational and economic importance, wetland birds are excellent indicators of the general health of an ecosystem and measure of its biodiversity. Out of 310 species of wetland birds found in India (Parmesh et al., 2013), almost half of these are migratory and visit India from their breeding grounds in China, Russia, central Asia, Tibet and from across the entire range of the Himalaya. The availability of feeding and roosting habitats is very important for these migratory species, which in some cases migrate up to thousands of kilometers. (Tak et al., 2002), As wetlands provide a wintering ground for many trans-equatorial species of migratory birds, several wetlands in the country have been identified as being internationally significant under the Ramsar Convention. (Prasad et al., 2002), However wetlands in India facing tremendous anthropogenic pressures which can adversely influence the structure of bird communities (Reginald et al., 2007).

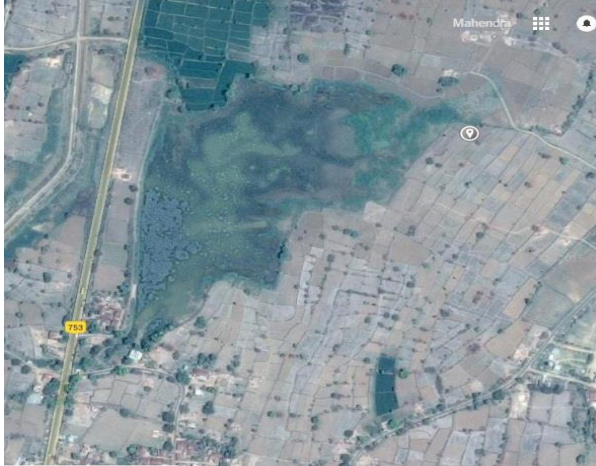
Birds inhabiting wetlands for feeding, breeding, nesting or roosting are broadly defined as water birds. This comprises bird groups commonly called waterfowl and waders. In addition, several other bird groups like kingfishers and some passerines are also ecologically dependent on wetlands, hence known as wetland dependent and associated birds (Kumar et al., 2009). In this paper, water birds, wetland dependent and associated birds are collectively termed as wetland birds. Monitoring of wetland birds provides valuable information on the ecological health and status of wetlands and can be a vital tool for developing awareness regarding the conservation value of the wetlands (Kler et al., 2002). The importance of local landscapes for conservation of avifauna can only be understood by knowing the structure of the

bird community of that region (Kattan et al., 2004). Due to its unique geographical location, a large number of water birds from Europe and Siberia spend a part of their winter sojourn in the ponds, lakes and canals of Maharashtra. However, few studies have been carried out on the status and diversity of wetland birds (Bahuguna et al., 2008). Khajrilake situated in Gondia District of Maharashtra provides an excellent habitat for avifauna in the form of a water body with marshy plant growth, terrestrial platforms, earth mounds having scattered trees and bushy vegetation. Several migratory birds visit this lake every year during winter. Keeping in view the conservation value of wetland birds, systematic efforts were made during April 2014–Sept. 2015 with the objective to have an overview of the diversity and threats to wetland birds in this landscape.

Study Area

The Khajrilake is the winter home of a number of species of migratory birds. These birds cross continents to migrate and spent their winter in the lake. The diverse vegetation, healthy population of indigenous and carp species of fishes, availability of water throughout the year creates greater habitat for both migratory and residential birds. The Gondia district in Maharashtra state is situated in the Waingangā basin and it lies between 20°39' and 21°38' north latitude and 79°27' and 80°42' east longitude. Special significance of these district is because of large number of wetland existing which is special identity as a district of wetlands in India and this region of the country exhibits vivid and spectacular biodiversity. Geometrically it is ideal habitat for the birds, wildlife and plant life with thick forest cover. The annual rainfall is about 1460mm to 1600mm. maximum temperature in summer goes up to 46°C and minimum in winter down to 12°C. Since these, village

wetland are covered by thick forest and attract by migratory water birds like Gray Lag goose, Pochards and other total 52 different species of birds. The major threats to water birds are habitat loss, degradation and over exploitation of wetlands diversity. Present study is being carried out on this lake to find out the diversity if both migratory and residential bird population.



Map 1- Google map of Khajrilake in Sadak Arjunitahsil, district Gondia, Maharashtra

Methodology

Major seasons i.e., rainy (July-September), a cool dry (October- February) and hot dry season (March-June). Observations were made during April 2014 to September 2015. Regular survey was done by systematically walking on fixed routes through the study area. The birds were observed during the peak hour of their activity from 6:00 AM to 10:00 AM and from 4:00 PM to 6:00 PM with aid of 7 x 35 Nikon binoculars. However affortunistic records were also collected during other time periods of the day. Birds seen were recorded along with habitat type, season and frequency of sightings of a particular species. Photographs were taken whenever possible with the Nikon D 5200 SLR Camera. Identification of birds was done using field guides, Birds of the Indian Subcontinent by Madankadan published in 2001. Residential status of the birds as resident, winter visitor and summer visitor has been assigned strictly with the study area on the basis of presence or absence method. The status of the bird species was established on the basis of frequency of sightings following (Kumar and Gupta, 2009) as most common (CM) recorded 9-10 times out of 10 visits, common (CO) recorded 6-8 times out of 10 visits, not rare (NT) recorded 3-5 times out of 10 visits and rare (RA) recorded 0-2 times out of 10 visits. Data on threat factor

was collected by direct observation and personal interviews of local people.

Results and Discussion

Fifty two species of wetland birds belonging to 27 families were recorded from the Khajrilake from April 2014 to September 2015. The checklist of recorded bird species along with their abundance and residential status is given in Table 1. The family Anatidae represented by 10 species, dominated the wetland bird community of the study area (Fig. 2). Among the recorded species, 8 species were winter migrants, 1 species was summer migrants and 38 species were resident species. The winter migratory birds displayed a definite pattern specific to species for arrival at and departure from the wetland. They appeared at the wetland from November and stayed up to March. The peak of winter population of migratory birds was observed during the months of January and February. The present study revealed that Northern Pintail (*Anas acuta*), Common Teal (*Anas crecca*), Common Pochard (*Aythya ferina*), Common Coot (*Fulica atra*) and Gadwall (*Aythya ferina*) etc. arrived in October. Based on the frequency of sightings, two species were rare, 12 uncommon, 11 most common and 26 common. The basic requirements of migratory birds at their wintering ground are adequate food supply and safety (Parmesh et al., 2013), which are fulfilled by this wetland as it was situated amidst fertile agricultural fields. In the present study, irrigated agricultural fields surrounding the lake, with scattered trees probably provided shelter and suitable foraging grounds for the wetland birds. This habitat by supporting different food sources like fish, crustaceans, invertebrates, water plants and plankton further adds to the diversity of wetland birds. The avian heritage of this landscape is under threat due to increased anthropogenic activities resulting in habitat destruction and fragmentation. It is an alarming sign for conservation of the avian diversity of this landscape. Direct observations as well as personal interviews with local people and dhiwar communities who are day to day user of the lake, during surveys revealed that introduction of high yield species of fishes like grass carp, cyprinus have created the major problem for the overall health of the lake as these species of fishes are herbivorous and take the aquatic vegetation in a larger extent so destruction of the aquatic vegetation leads to deteriorating the wetland health and decreases the production of fishes also.

Anthropogenic activities like soil digging, encroachment, use of forest wood as a source of fuel by local people, cutting of emergent and fringed vegetation are some of the major threats to the biodiversity of this landscape. The wetland needs to be patrolled to minimize disturbance, in particular during the breeding season of birds as occasional hunting practices were seen from the wetland site. Catchment area of the lake is surrounded by agricultural land and use of pesticides and insecticides also creates a major threat to the wetland and need to create awareness of farmers and turn their mind towards the organic farming is the need of time. Regular surveys related to waterbird species diversity and awareness of the local people should be conducted for a detailed assessment of the wetland.

CONCLUSION

The water body is attracting variety of birds since many years and considered as stopover site for migratory birds. If the water body has to be preserved for their intended use, protecting its biota is essential. A sustainable and holistic management planning is necessary for conservation of this the lake. The present study provides the population dynamics of Khajri Lake over a period of one year. It has been proved that the altered ecological characteristics of the lake made the birds unable to inhabit throughout the year. To conclude, winter found to be most favorable season to Avifauna of the lake. An assessment of current ecological status of the lake is to be made and adequate measures to restore its original features are to be initiated to make the lake an abode of waterfowls.

Appendix 1

Checklist of Birds at Khajri Lake, Sadak Arjuni Tahsil, District Gondia

Sr. No.	Common Name	Scientific Name	Family	Residential Status	Abundance
1	Little Grebe	<i>Tachybaptus ruficollis</i>	Podicipedidae	R	NR
2	Little Cormorant	<i>Phalacrocorax niger</i>	Phalacrocoracidae	R	CM
3	Indian Shag	<i>Phalacrocorax fuscicollis</i>	Phalacrocoracidae	R	C
4	Great Cormorant	<i>Phalacrocorax carbo</i>	Phalacrocoracidae	R	C
5	Large Egret	<i>Egretta alba</i>	Ardeidae	R	C
6	Median Egret	<i>Egretta intermedia</i>	Ardeidae	R	C
7	Little Egret	<i>Egretta garzetta</i>	Ardeidae	R	CM
8	Cattle Egret	<i>Bubulcus coromandus</i>	Ardeidae	R	CM
9	Grey Heron	<i>Ardeacinerea</i>	Ardeidae	LM	NR
10	Indian Pond Heron	<i>Ardeolagrayii</i>	Ardeidae	R	C
11	Asian Openbill	<i>Anastomus oscitans</i>	Ciconiidae	R	C
12	Indian Black Ibis	<i>Pseudibis papillosa</i>	Threskiornithidae	LM	NR
13	Oriental White Ibis	<i>Threskiornis melanocephalus</i>	Threskiornithidae	LM	NR
14	Lesser Whistling Duck	<i>Dendrocygna javanica</i>	Anatidae	WM	C
15	Northern Pintail	<i>Anas acuta</i>	Anatidae	WM	C
16	Gadwall	<i>Anas strepera</i>	Anatidae	WM	C
17	Garganey	<i>Anas querquedula</i>	Anatidae	WM	C
18	Common Teal	<i>Anas crecca</i>	Anatidae	WM	C
19	Common Pochard	<i>Aythya ferina</i>	Anatidae	WM	C
20	Tufted Pochard	<i>Aythya fuligula</i>	Anatidae	WM	C
21	Red Crested Pochard	<i>Nettion rufina</i>	Anatidae	WM	C
22	Cotton Teal	<i>Nettion coromandelianus</i>	Anatidae	R	CM
23	Purple Moorhen	<i>Porphyrio porphyrio</i>	Rallidae	R	CM
24	Common Coot	<i>Fulica atra</i>	Rallidae	LM	C
25	White Breasted Waterhen	<i>Amaurornis phoenicurus</i>	Rallidae	R	CM
26	Lesser Pied Kingfisher	<i>Ceryle rudis</i>	Alcedinidae	R	NR
27	White Breasted Kingfisher	<i>Halcyon smyrnensis</i>	Alcedinidae	R	C
28	Small Blue Kingfisher	<i>Alcedo atthis</i>	Alcedinidae	R	C
29	Jungle Babbler	<i>Turdoides striatus</i>	Timaliinae	R	C
30	Black Drongo	<i>Dicrurus macrocerus</i>	Dicruridae	R	C
31	Greater Racket Tailed Drongo	<i>Dicrurus paradiseus</i>	Dicruridae	R	NR
32	Red Wattled Lapwing	<i>Vanellus indicus</i>	Charadriidae	R	CM
33	Indian Roller	<i>Coracias benghalensis</i>	Coraciidae	R	C
34	Grey Hornbill	<i>Ocyrops birostris</i>	Bucerotidae	R	RA
35	Common Hoopoe	<i>Upupa epops</i>	Upupidae	R	NR
36	Red Avadavat	<i>Amandava amandava</i>	Estrildidae	R	NR

37	Common Myna	<i>Acredotherestristis</i>	Sturnidae	R	C
38	Rosy Starling	<i>Sturnusroseus</i>	Sturnidae	SM	RA
39	Paddyfield Pipit	<i>Anthusrufulus</i>	Motaciilidae	R	NR
40	Little Green Bee- Eater	<i>Meropsorientalis</i>	Meropidae	R	CM
41	Lesser Coucal	<i>Centropusbenghalensis</i>	Cuculidae	R	C
42	Asian Koel	<i>Eudynamysscolopacea</i>	Cuculidae	R	C
43	Spotted Dove	<i>Streptopeliachinensis</i>	Columbidae	R	C
44	Rose- ringed Parakeet	<i>Psittaculakrameri</i>	Psittacidae	R	NR
45	Eurasian Golden Oriole	<i>Oriolusoriolus</i>	Oriolidae	R	NR
46	Black-rumpedFlameback	<i>Dinopiumbenghalense</i>	Picidae	R	NR
47	Common Iora	<i>Aegithinatiphia</i>	Aegithinidae	R	C
48	Red Vented Bulbul	<i>Pycnonotuscafer</i>	Pycnonotidae	R	C
49	House Crow	<i>Corvussplendens</i>	Corvidae	R	CM
50	House Sparrow	<i>Passer domesticus</i>	Passeridae	R	CM
51	Oriental Magpie Robin	<i>Copsychussaularis</i>	Muscicapidae	R	CM
52	Grey Lag Geese	<i>Anseranser</i>	Anatidae	WM	C

- Residential status of birds was classified as: R= Resident, LM= Local Migrant, WM= Winter Migrant, SM= Summer Migrant.
- Abundance of birds was classified as: CM- Most Common (Seen 9-10 times out of 10 visits); CO- Common (Seen 6-8 times out of 10 visits); NR- Not Rare (Seen 3-5 times out of 10 visits); RA- Rare (Seen only once or twice out of 10 visits).

Appendix 2

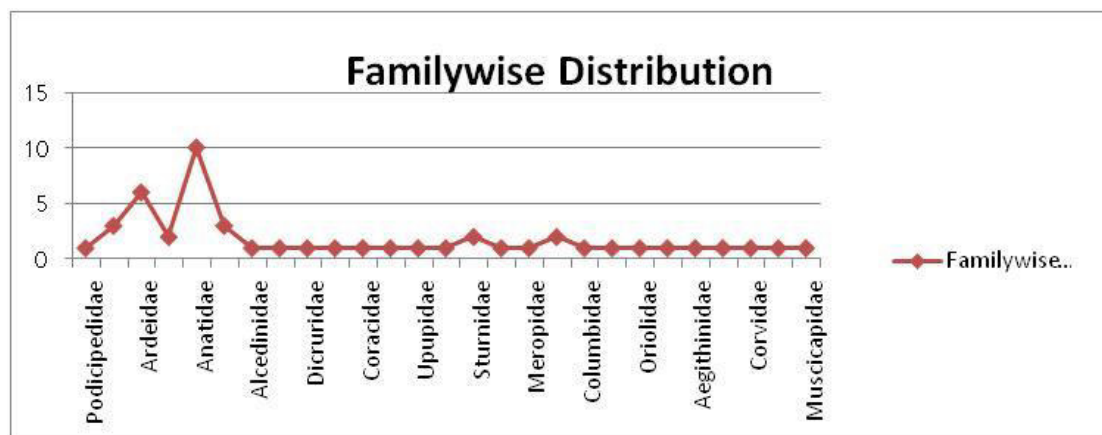


Chart 1: Family wise distribution of birds

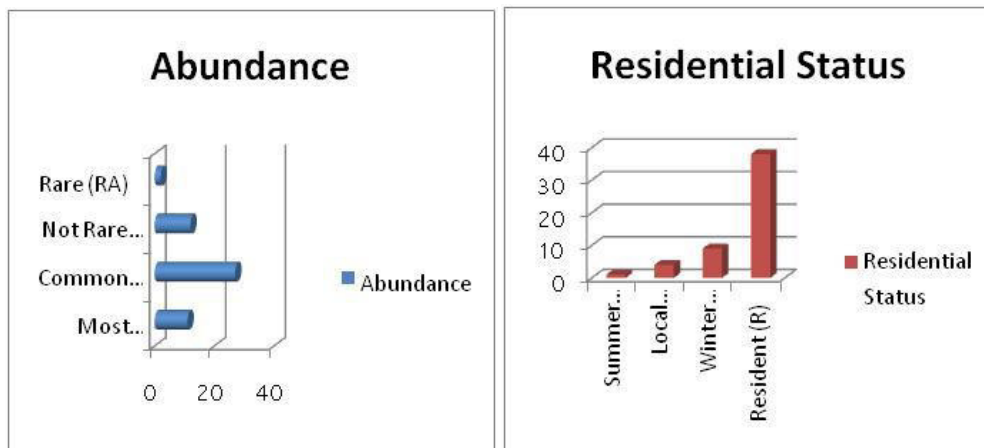


Chart 2: Abundance of Birds Chart 3: Residential status of birds

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