RESEARCH ARTICLE

Biodiversity and conservation status of water Birds in Shrungarbandh lake district Gondia, Maharashtra, India

Bhandarkar SV[1*] and Paliwal GT[2]

[1]*Dept. of Zoology, M. B. Patel College, Deori. Dist. Gondia. 441 901. MS, India*

[2]*Dept. of Zoology, S. S. Jaiswal College, Arjuni/Mor. Dist. Gondia. 441 701. MS, India*

**Corresponding author email: sudhirsense@rediffmail.com*

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ABSTRACT

The Shrungarbandh Lake has biological potential and rich in flora and fauna. This lake is more productive because of the nutrients from adjoin watershed gets accumulated in the form of compost, sediments, etc. The enrichment of organic constituents responsible for the growth of aquatic weeds, phytoplankton and zooplankton therefore the Lake is a good wetland habitat for availability of food items to various organisms like birds in ample proportion. It has been observed that the wetland is getting affected by local human activities. A status survey of water birds from Shrungarbandh Lake was conducted during the year 2012-2013. A total 52 water birds species belongs to 5 orders from 10 different families were recorded. The present study of this wetland helps to keep a record of bird species to restore and maintain the present condition of wetland. The attempt of this paper is to provide the information about biodiversity of water birds to recognize this site as globally important habitat for the conservation of bird population.

Key words: *Biodiversity, Shrungarbandh Lake, water birds, Conservation.*

INTRODUCTION

Birds are among the natures most beautiful animal and undoubtedly, bird habitat particularly within the lake areas seems to be strongly influenced by climatic changes and immediate human impact. When consequent environmental changes exceeded the tolerance limit of species habitat change also become an ultimate cause for long term changes in the bird distribution. Some of the important studies on wetland bird and their habitat were carried out by Czech and Parsons, (2002); Grimmett *et al*. (1998); Kazmierczak and Perlo (2010); Rahmani (2002); Vijayan *et al*. (2004); Bhandarkar (2008); Paliwal *et al*. (2013), etc.

The Shrungarbandh Lake was unique and famous in the bird watcher for the existence of world's largest flying bird Saras crane last from 50 years. Many tourists and nature lovers visited here to see the beautiful birds. The pair of Sarus crane was successfully breed there and well protected by the villagers but unfortunately the pair was

killed by insecticide in the year 2011. We regularly visited and surveyed the birds in this area from last 10 years. The surrounding area of Shrungarbandh Lake is very beautiful. Shrungar means Ornamented, the lake itself a beauty with wearing various ornamentals as diverse birds and vegetation. Not much is known about the diversity of water birds of this region after Bhandarkar (2008), hence with the intension to know the aquatic avifauna of Shrungarbandh Lake and its surrounding area for further conservational means. The present study was under taken from 2012-2013.

The present study provides some important information on the wetland birds of the Shrungarbandh Lake, their population, habitat preferences and status. This information will be useful in formulation of conservation policies for water birds in this lake. The lake is the breeding ground for many local migrants and feeding found for long distance migrants that winter in southern India. There are breeding colonies of Gray herons, and other local migrants' cormorants, large egrets and etc. The regular observation shows that there was a decline in the populations of certain species over the ten year. The lake seems to be highly suitable for migrants. Due to the biannual agriculture trend in the region, water is entered through canal in the paddy field and ultimately to the lake therefore the water level is found to be stable throughout the year. The productivity of lake is increases in winter, the presence of water, availability of food source and the water properties may be suitable for water birds. Due to this lake have good diversity of water birds including world's largest flying bird Sarus crane, it is very important to maintain the habitat by maintaining the size, deep waters as well as mudflats as far as conservation of water birds concerned. In the conservation point of view of Sarus crane, regular monitoring was done by villages of Bondgaon Surban, several nature lovers and NGOs including Hon. Wildlife warden Shri Narayan Patil Dongarwar and forest officials too. 'Sarus Sarakshan Samiti' was also established in the villages. 'Sarus Yatra' was also organized in adjacent villages with the help of involvement of local people in the year 2005, but after the insecticide killing of Sarus Crane, the conservation priorities minimizes gradually. But the efforts runs by the authors for conservation of this lake, the classroom awareness and regular monitoring over the relative abundance and species diversity of water birds were carried out.

Traditionally Lake as a community asset used to be the focal point of socio-cultural, religious and economic activities. However, last half of 20th century is witness to gradual degradation and consequent loss of these community assets all over the country. Conservation of all ideal habitats for birds is essential; it's a prime need for conservation of nature and natural treasures like birds. Birds play an important role in all types of ecosystem in pollination, seed dispersal, predation, pest control, scavenging and also recycling of nutrients.

MATERIALS AND METHODS

Birds were observed by using binocular (07x50). They were identified following Grimmet *et al*. (2001), Ali (2002) and their status following Ali and Ripley (2001). Observations were made every Sunday throughout the year during 2012-2013 from morning 5.00 to evening 6.00 pm.

Study area: Shrungarbandh Lake is situated near Bondgaon/Surban village located at Latitude- N 20^{o} 47' 34.10" Longitude- E 80^{o} 08' 50.00" representing the lentic ecosystems surrounded by paddy fields affected by fishing and agricultural activities. The visual estimate of the catchment area of the lake is around 25 ha. It is a manmade reservoir and receives water from Itiadoh dam & rainfall. It is flanked by agricultural fields on the three sides. The water body is utilized by the peoples mainly for irrigation, fishing activity and drinking purposes.

RESULTS AND DISCUSSION

In Indian wetlands 318 species of birds were recorded out of which 193 species are fully dependent on wetlands (Vijayan, 1986). In the regular survey for the observations of birds from this site, 52 species were recorded including world's largest flying bird Sarus crane, some important migrant bird like Graylag goose, Red-crusted pochard, Painted stork, Glossy Ibis, etc. The birds were classified up to the 10 families belonging to 5 orders. Out of the total orders 32 species of the birds belongs to order Ciconiformes followed by 11 species from order Anseriformes, remaining orders Gruiformes, Graciformes and Passeriformes comprises of 05, 03, and 01 bird species respectively.

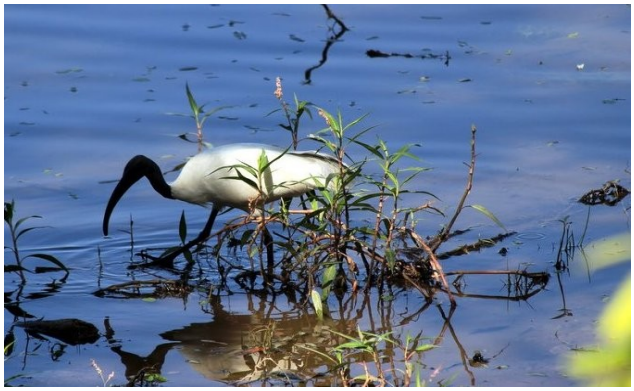
Order Ciconiformes is most abundant with diversity of birds inall the wetland sites. It is observed that the less

Table 1: Water birds in Shrungarbandh lake.

Sr.No.	Order	Family	Zoological Name	Common name
1	Ciconiformes	Phalacrocoracidae	*Phalacrocorax fuscicollis*	Indian Cormorant
2			*Phalacrocorax niger*	Little Cormorant
3		Ardeidae	*Ardea cinerea*	Grey Heron
4			*Ardea purpurea*	Purple Heron
5			*Ardeola grayii*	Indian Pond Heron
6			*Bubulcus ibis*	Cattle Egret
7			*Egretta garzetta*	Little Egret
8			*Ixobrychus cinnanomeus*	Cinnamon bittern
9			*Ixobrychus sinensis*	Yellow bittern
10			*Ardea purpurea*	Little Green Heron
11		Ciconiidae	*Anastomus ascitans*	Asian Open Bill
12			*Ciconia episcopus*	Wooly Nacked Stork
13			*Ciconia nigra*	Black Stork
14		Threskiornithidae	*Plegadis falcinellus*	Glossy Ibis
15			*Pseudibis papillosa*	Red Naped Ibis
16			*Threskiornis melanocephalus*	Black headed Ibis
17		Accipitridae	*Circus aeruginosus*	Western Marsh Harrier
18			*Circus macrourus*	Pallid Harrier
19		Jacanidae	*Metopidius indicus*	Bronse Winged Jacana
20		Charadriidae	*Vanellus indicus*	Red Wattled Lapwing
21		Scolopacidae	*Gallinago gallinago*	Common Snipe
22			*Gallinago stenura*	Pintail Snipe
23			*Limosa limosa*	Black tailed Godwit
24			*Tringa tetanus*	Common Redshank
25			*Tringa stagnatilis*	Marsh sandiper
26			*Tringa hypoleucos*	Common sandiper
27			*Calidrisminuta*	Little Stint
28		Laridae	*Sterna albifrons*	Little Tern
29			*Sterna aurantia*	River Tern
30			*Sterna hirundo*	Common Tern
31			*Larus brunicephalus*	Brown-headed Gull
32			*Larus ridibundus*	CommonBlack-headed Gull
33	Anseriformes	Anatidae	*Anas acuta*	Northern Pintail
34			*Anas clypeata*	Northern Shoveler
35			*Anas crecca*	Common Teal
36			*Anas platyrynchos*	Mallard
37			*Anas poeciorhyncha*	Spot- billed Duck
38			*Anas querquedula*	Gargney
39			*Anser anser*	Greylag Goose
40			*Aythya ferina*	Common Pochard
41			*Aythya fuligula*	Tufted Duck
42			*Netta rufina*	Red-crested Pochard
43			*Tadorna ferruginea*	Rudy shelduck
44	Gruiformes	Gruidae	*Grus antigone*	Sarus Crane
45			*Amaurornis phoenicurus*	White-brested waterhen
46			*Fulica atra*	Common Coot
47			*Gallinula chloropus*	Common Moorhen
48			*Porphyrio porphyrio*	Purple swamphen
49	Coraciformes	Alcedinidae	*Alcedo atthis*	Small Blue Kingfisher
50			*Ceyx erithacus*	Black-backed Kingfisher
51		Halcyonidae	*Halcyon smyrnensis*	White-throated Kingfisher
52	Passeriformes	Motacillidae	*Anthus rufulus*	Paddyfish Pipit

Heron flock resting at paddy near Lake

A view of Shrungarbandh Lake

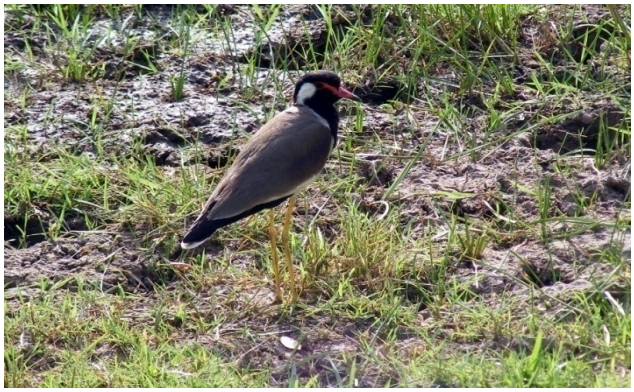


Oriental white ibis

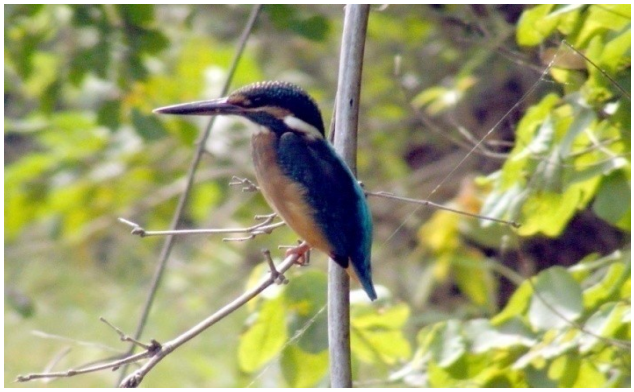
Open bill stork at nest

Sarus crane

Bronze winged jacana



Red wattled lapwing



Small blue kingfisher

number of birds noticed during late summer, late rainy season and early winter while more number of birds recorded during spring, early monsoon and late winter (Kedar and Patil , 2005; Bhandarkar, 2008). During the study period the migratory birds like Painted stork, grey lag goose were found in large number during late summer. The similar findings were done by Datta (2011). It is observed that the migratory bird population was dominant in the site. The local migratory and resident birds also were used this wetland for breeding during monsoon period. It is observed that the local migratory species especially open bill stork population was abundant in the summer season due to the shrinkage of water and several molluscan shells get exposed out so that birds were feed on them. This species preferred the mollusks as their food. Further, nesting of Lapwings and River Terns were seen in abundance in the sites. The nesting of Grey heron, Cotton Teal and Asian Open bill stork were observed in the site.

The fishing activity was observed throughout the year in site and in monsoon and winter season the intense agriculture activity was also observed. Several numbers of tourist and nature lovers also were visited, but such activities from humans may not provide any threat to their life. However the site was known for the survival of world's largest flying bird Sarus Crane up to July 2011, the pair of Sarus was killed by insecticide (Paliwal *et al*., 2013). The lake has biological potential and more productive because of the nutrients from adjoin water shed gets accumulated in the form of compost, sediments etc, which are rich in organic constituents responsible for the growth of aquatic weeds, phytoplankton and zooplanktons therefore this stands a good wetland habitat which make availability of food items to various organisms like the birds in ample proportion (Bhandarkar, 2008).

This wetland ecosystem has geographical heterogeneity varied in hydrophytes vegetation and organic enrichment. This site hosted more number of birds in comparison to other sites in the Gondia district because of the fact that this area was easy to locate from the air and less disturbed by urban activities. The attempt of this paper is to provide the information about biodiversity of water birds to recognize this site as globally important habitat for the conservation of bird population. More than 450 Important Bird Areas (IBA) sites are recognized throughout the country. The authors were actively engaged in the awareness activities and conservation of this beautiful wetland. To maintain the biodiversity richness considering ecological, economical and recreational promise of the water body, it is essential to conserve this ideal ecosystem as well as serious attempts should be made from the concerned authorities and local population.

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