

Original Research Article

Aquatic Birds Diversity of Different Water Bodies of Lake City (India)

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ABSTRACT

Aquatic avian fauna plays a stunning role to balance the aquatic ecosystem. A survey was done on four different water bodies of Udaipur district to check the variety of bird species. All of these spots are different from each other in many terms, so the species availability of birds was also varied. The maximum species were recorded at Menar Lake due to undisturbed as well as enough area for birds. The ecological supportive behavior of villagers play a major role in the opulent aquatic avian fauna of Menar. Most of the periphery of the FatehSagar Lake is rushed by tourists and localities, which is not favourable for birds gathering. A total of 61 aquatic species were identified during the whole studied period. The least species were recorded at Vallabh Nagar Dam due to deep water level and fishing culture by fishermen.

Keywords

Aquatic birds
diversity, water
bodies, Lake City

Introduction

Water birds are not only protuberant individuals which entice people to wetlands, but are also bio-indicators and useful models for reviewing a range of environmental problems (1). Udaipur is known as the Lake city of India and well known for its sparkling-evergreen water bodies. It is one of the favorite tourist destination of country among the visitors. Some of the eminent water bodies in and around the city are FatehSagar Lake, UdaiSagar Lake, Pichola Lake, Bari Lake, SwarupSagar Lake, Menar Lake, Jaisamand Lake, Bhatewer Lake and Vallabh Nagar Dam etc. Wetlands are extremely vital areas throughout the world for wildlife protection, recreation flood prevention and sediment control.

More than 1250 species of birds were recorded in Indian subcontinent, among the various habitats (2). Out of 310 species of wetland birds found in India (3), half of these are migrant. The presence of enormous water bodies provide food and shelter to birds, so Lake City is one of the favorite spot for native as well as migratory birds. Being ecologically important with high nutritional value and productivity, wetlands support good diversity of birds (4, 5). Due to blasting of human population and industrialization wetland environment is being disturbed, shrunk and polluted incessantly. The present study was done to check the status of availability of aquatic birds in four different water-bodies of the

area. The disparity in data of bird species between all four studied wetlands of the region indicates dissimilarity of ecological condition between them.

Study Area

This study was conducted in Udaipur district which is commonly known as “Mewar region” because this region contains many seasonal and continual water bodies and wetlands. Four water bodies were selected for the survey of availability of birds; FatehSagar Lake, Menar Lake, Bhatewar Lake and Vallabhnagar Dam.

Lake FatehSagar (24.6°N and 73.67°E) is an artificial lake located in north-west of City Udaipur with a perimeter of 8.5 Km and surface area of 4 Km². The presence of green mountains and blue water of FatehSagar has given the nickname of ‘second Kashmir’ to Udaipur.

That’s why the particular lake is one of the most visited lake by tourists of all around world. There are three islands present within confines of Lake. The water spread of FatehSagar is 427 MCFT. It not only fascinates human tourist flock but also large number of birds, both migratory as well as nomadic. It is the home of many aquatic and semi-aquatic birds. At the periphery of the lake, there are numerous trees used by birds as heronries. All of its three islands are full of vegetation and used by aquatic birds for nesting purpose.

Menar Lake (24.5°N and 74.1°E) is situated 50 km apart from the FatehSagar, on verge of village Menar. Environment of this lake is very calm as compare to swarming of peoples at FatehSagar. The lake is shallow in nature, so maximum number of birds of the region gathered during their feeding as well as nesting time. Menar attracts migratory

birds because it provides pollution-free habitation along with negligible human disturbance.

Bhatewar Lake (25.9 °N and 74.30 °E) is 36 km away from FatehSagar and 18 km from Menar Lake. The lake not much deeper, so it have elevation between 405m to 1267m depending on seasons. There is a large inland body that contains an abundance of food during the peak period of migration, as insects, mollusks and other riverine fauna which draw the attention of migratory birds.

Vallabhnagar Dam (24.38 °N and 73.58 °E) is the second largest dam of Udaipur district on the river “Bedatch” and positioned just 2 Km apart from Bhatewar Lake. It is a reservoir lake which was erected mainly for water supply and irrigation purpose. It receives water from its free catchment as well as from the upstream dams when surplus. It influence mainly by overflows of FatehSagar via Udaipur reservoir. It has gross storage capacity of 30.5 MCM (1076MCFT) and 489.50Km² net catchment area. Because of its perennial water availability it provide good habitat for many aquatic bird species.

Material and Methods

The study was carried out for a period of twenty four months (Jan.2015- Jan.2017). All the four water bodies were visited four times in a month for the observation of birds and their activity (6, 7, 8). The active morning and evening hours of day were preferred for the sighting of birds (9). The birds were identified through naked eyes and by the aid of binoculars (10 x 50), (20 x 50) and digital camera was used to capture the pictures of birds. For the proper identification of birds coloured field guide and standard books were referred (10, 11 & 12). The information about birds like

species, number, activity and breeding time, was written down on note book. The abbreviations used for FatehSagar Lake, Menar Lake, Bhatewar Lake and Vallabh Nagar Dam are F, M, B and V respectively. The status of birds as migratory and residential are denoted by M and R, respectively.

Results and Discussion

A total of 61 aquatic species of 16 families were observed during study. The maximum

number of bird species 57 were recorded at Menar Lake followed by Bhatewar Lake with 48 Species then FatehSagar with 32 different species and least species 28 recorded at Vallabh Nagar dam.

The species of family Alcedinidae, Ardeidae, Phalacrocoracidae and Recurvirostridae were found at all four studied sites. The families including Anatidae, Burhinidae, Pelecanidae and Rostratulidae were totally absent from Vallabh Nagar Dam.

Picture 1. Painted Stork 2. Little Egret 3. Spotted Redshank 4. Small blue kingfisher 5. Great Cormorant 6. Asian Open-bill

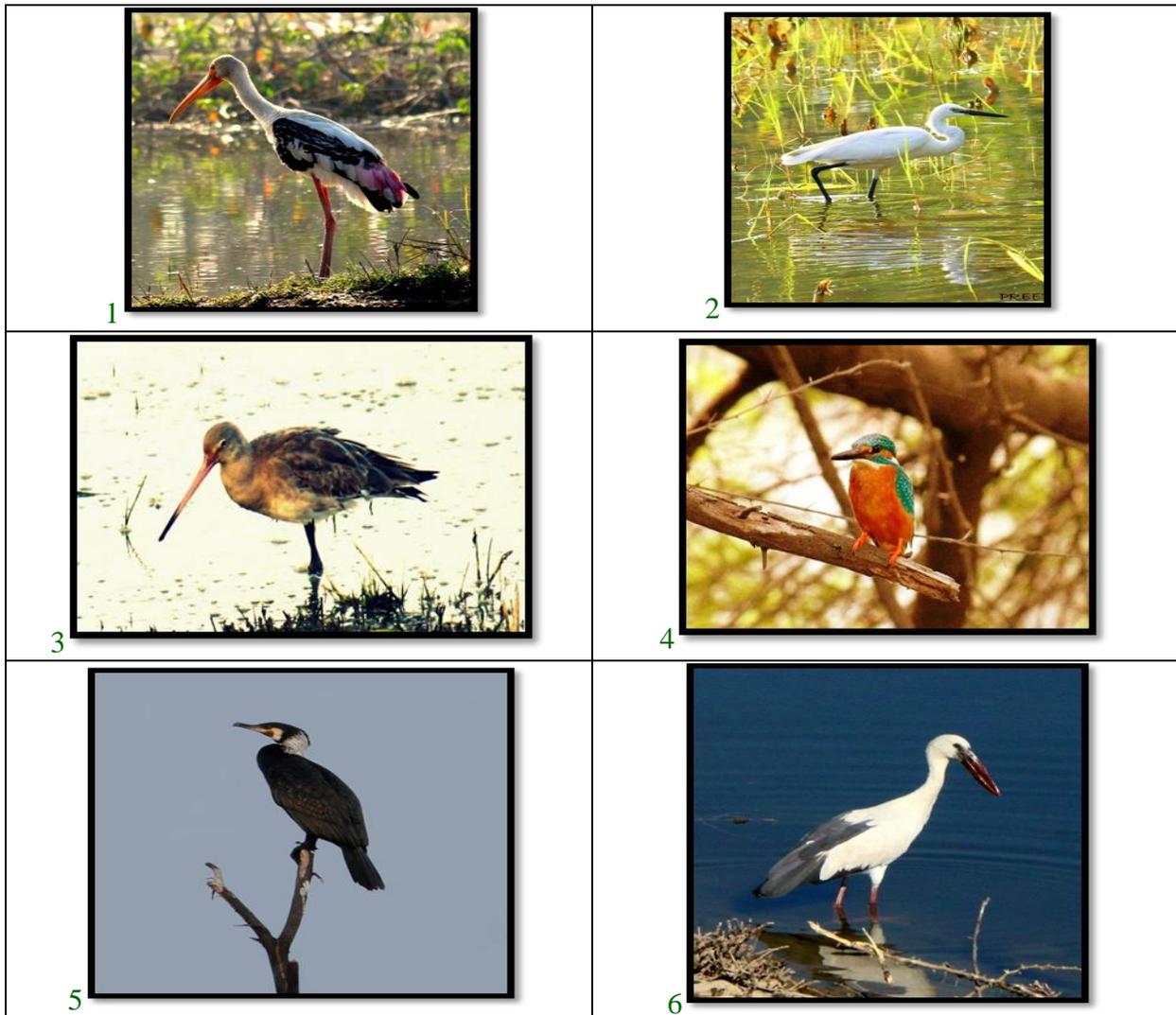


Table.1 Status of aquatic birds at four wetlands of Udaipur

S. No.	Scientific name	Name of Bird	Status	F	M	B	V
Alcedinidae							
1	<i>Ceryle rudis</i>	Lesser pied kingfisher	R	+	+	+	+
2	<i>Alcedo atthis</i>	Small blue kingfisher	R	+	+	+	+
3	<i>Halcyon smyrensis</i>	White throated kingfisher	R	+	+	+	+
Anatidae							
4	<i>Anser indicus</i>	Bar headed goose	M	-	+	-	-
5	<i>Aythya ferina</i>	Common pochard	M	-	+	+	-
6	<i>Anas crecca</i>	Common teal	M	+	+	+	-
7	<i>Anas strepera</i>	Gadwall	M	-	+	+	-
8	<i>Anas penelope</i>	Eurasian wigeon	M	-	+	-	-
9	<i>Sarkidiornis melanotos</i>	Knob billed duck	M	+	+	+	-
10	<i>Anas platyrhynchos</i>	Mallard	M	-	+	+	-
11	<i>Anas acuta</i>	Northern pintail	M	-	+	+	-
12	<i>Anas clypeata</i>	Northern shoveler	M	-	+	+	-
13	<i>Tadorna ferruginea</i>	Ruddy shelduck	M	-	+	+	-
14	<i>Anas poecilorhynchos</i>	Spot billed duck	R	+	+	-	-
15	<i>Aythya fuligula</i>	Tufted pochard	M	-	+	-	-
Ardeidae							
16	<i>Bubulcus ibis</i>	Cattle egret	R	+	+	+	+
17	<i>Eregetta alba</i>	Greater egret	R	+	+	+	+
18	<i>Ardeacinerea</i>	Grey heron	R	+	+	+	+
19	<i>Ardeolagrayii</i>	Indian pond heron	R	+	+	+	+
20	<i>Mesophoyx intermedia</i>	Intermediate egret	R	+	+	+	+
21	<i>Egretta garzetta</i>	Little egret	R	+	+	+	+
22	<i>Ardea purpurea</i>	Purple heron	R	+	+	+	+
Burhinidae							
24	<i>Burhinus oedipnemos</i>	Eurasian thick knee	R	-	+	+	-
25	<i>Esacus recurvirostris</i>	Great thick knee	R	+	+	-	-
Charadriidae							
26	<i>Charadrius dubius</i>	Common ringed plover	R	-	+	+	+
27	<i>Vanellus indicus</i>	Red wattle lapwing	R	+	+	+	+
28	<i>Vanellus leucurus</i>	White tailed lapwing	M	-	-	+	-
Ciconiidae							
29	<i>Anastomus oscitans</i>	Asian openbill	R	+	+	+	+
30	<i>Ephippiorhynchus asiaticus</i>	Black necked stork	R	-	-	+	+
31	<i>Mycteria leucocephala</i>	Painted stork	R	-	+	+	-
32	<i>Ciconia episcopus</i>	Woolly-necked stork	M	-	+	-	+
Gruidae							
33	<i>Grus grus</i>	Common crane	M	-	+	+	-
34	<i>Grus antigone</i>	Sarus crane	R	-	+	-	+
Pelecanidae							
35	<i>Pelecanus onocrotalus</i>	Great white pelican	M	+	+	+	-

	<i>Pelecanuscrispus</i>	Dalmatian pelican	M	+	+	+	-
Phalacrocoracidae							
36	<i>Phalacrocoraxcarbo</i>	Great cormorant	R	+	+	+	+
37	<i>Phalacrocoraxnigar</i>	Little cormorant	R	+	+	+	+
Phoenicopteridae							
38	<i>Phoenicopterusroseus</i>	Greater flamingo	M	-	+	-	+
Rallidae							
39	<i>Gallinulachloropus</i>	Common moorhen	R	+	+	+	+
40	<i>Fulicaatra</i>	Eurasian coot	M	+	+	+	+
41	<i>Porphyrio porphyria</i>	Purple swamp hen	R	+	+	+	-
Recurvirostridae							
43	<i>Himantopus himantopus</i>	Black winged stilt	R	+	+	+	+
Rostratulidae							
44	<i>Rostratlabenghalensis</i>	Greater painted-snipe	M	+	+	+	-
45	<i>Charadrius alexandrines</i>	Kentish plover	M	-	+	+	-
46	<i>Charadrius dubius</i>	Little ringed plover	M	+	+	+	-
Scolopacidae							
47	<i>Limosalimosa</i>	Black-tailed godwit	M	-	+	+	-
48	<i>Gallinagogalliango</i>	Common snipe	R	-	+	+	-
49	<i>Actitishypoleucos</i>	Common sandpiper	M	-	+	+	+
50	<i>Tringa ochropus</i>	Green sandpiper	M	+	+	-	-
51	<i>Lymnocyptes minimus</i>	Jack snipe	M	-	+	-	-
53	<i>Philomachus pugnax</i>	Ruff	M	+	+	+	-
54	<i>Arenaria interpres</i>	Ruddy turnstone	R	+	+	-	-
55	<i>Tringa erythropus</i>	Spotted redshank	M	-	+	+	-
56	<i>Tringa glareola</i>	Wood sandpiper	M	+	+	+	+
Sternidae							
57	<i>Sterna aurantia</i>	River tern	R	+	+	+	+
Threskiornithidae							
58	<i>Plegadis falcinellus</i>	Glossy ibis	M	-	+	+	+
59	<i>Threskiornis melanocephalus</i>	Black headed ibis	R	+	+	+	+
60	<i>Platalea leucorodia</i>	Eurasian spoonbill	R	-	+	+	-
61	<i>Pseudibis papillosa</i>	Red naped ibis	R	-	+	+	+

The individuals along with species were maximum at Menar Lake as the water is shallow and birds have huge perching, resting as well as nesting area. In compare to Menar, FatehSagar is deeper and is busy with tourists as well as localities during most of the day hours.

Vallabhnagar dam is far apart from residential ranges than other three water units but the deep water level and fishing by

local persons and fish contractors, disturb the birds.

The water of Bhatewar Lake comes from UdaiSagar which is polluted by industries and Vallabhnagar dam is the last destination of this polluted water which causes side face of birds from this Dam. The number of trees and shrubs are also lower near to Bhatewar and Vallabhnagar in contrast to Menar and FatehSagar.

References

1. Urfi, A.J., Monalisa, S., Kalam, A. & Meganathan, T. 2005. Counting birds in India: Methodologies and Trend. *Current Science*; 89(12):1997-2003.
2. Ali, S. & Ripley, S.D. 1983. *Handbook of the Birds of India and Pakistan, University Press Bombay, Bombay, India.*
3. Kumar, A., Sati, J.P. & Tak, P.C. 2005. Alfred JRB. Handbook on Indian Wetland Birds and Their Conservation. *Zoological Survey of India*; 472.
4. Paracuellos, M. 2006. How can habitat selection affect the use of a wetland complex by water birds? *Biodiversity and Conservation*; 15: 4569-4582.
5. Gibbs, J. P. 1993. Importance of small wetlands for the persistence of local populations of wetland-associated animals. *Wetlands*; 13: 25-31.
6. Urfi, A.J., Monalisa, S., Kalam, A. & Meganathan, T. 2005. Counting birds in India: Methodologies and trends. *Current Science*, 89:1997-2003.
7. Kaul, R., & Howman, S. 1992. Distribution and habitat requirements of the northern painted francolin *Francolinus pictus pallidus* in Jamnagar, India. *Gibber Faune Sauvage*; 9:483-492.
8. Froneman, A., Mangnall, M.J., Little, R.M. & Crowe, T.M. 2001. Waterbird assemblages and associated habitat characteristics of farm ponds in the Western Cape, South Africa. *Biodiversity and Conservation*; 10:251-271.
9. Reginald, L. J., Mahendran, C., Kumar, S., Padmavathi, M. & Pramod, P. 2012. *A Journal of Science and Technology Volume: 2 No. : 1: 1-9.*
10. Sharma S.K & R. Tehsin 1994. Birds of Southern Rajasthan. *Newsletter for Birdwatchers*; 34(5): 109-113.
11. Ali, S. 1996. The book of Indian Birds (12th and enlarged century edition)/ Bomb. Nat. Hist. Soc. *Oxford Univ. Press, New Delhi, 1996.*
12. Grimmett, R., Inskipp, C. & Inskipp, T. 2011. Birds of the Indian sub-continent. Oxford University, *Replika Press, Pvt. Ltd.*