International Journal of Fauna and Biological Studies
Available online at www.faunajournal.com

I J F B S International Journal of Fauna And Biological Studies

ISSN 2347-2677
IJFBS 2014; 1 (5): 52-55
Received: 18-07-2014
Accepted: 04-08-2014

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Water bird assemblages, in a Ramling island, Western Maharashtra, India

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Abstract
Bird species richness and diversity sampled in Ramling Island, In Krishna River, Bahe, Western Maharashtra. An observation made between 2010 to2012 included all months and form a composite annual view; 1245 birds were recorded with 47 species Thirty-two species occurred regularly over a series of months, and their patterns of distribution varied. Fifteen species were winter visitor. Line transect method was used to carry out bird survey. Such Island areas are used by water birds year round and in addition to protection, need management strategies to ensure habitat diversity and normal water regimes which will maintain natural bird diversity.

Keywords: Aquatic birds, Diversity, Habitat, Krishna River, Richness, Ramling Island, Western Ghats.

1. Introduction
The bird habitats can be roughly divided into forests, scrub, wetlands, marine, grassland and the bird habitats can be roughly divided into forests, scrub, wetlands, marine, grassland and agricultural land. Many bird species required mixed habitat. Wetlands in the Indian region are abundant and support a rich array of water birds. As well as providing habitats for breeding resident species. The Indian region possesses a wide range of wetland types, including freshwater and brackish marshes, large water- storage reservoir, village tanks. Small water storage reservoirs or tanks are a distinctive feature. The aggregation of these tanks provides important feeding and nesting area for a wide range of water birds in some places. In Western Maharashtra especially Sangli, Satara, Kolhapur has several freshwater bodies such as lakes, reservoirs and riverine The Krishna river and its tributaries. The reservoirs such as Chandoli, Radhanagari, Koyna and man- made wetlands such as fish and shrimp ponds, farm ponds, irrigated agricultural land, gravel pits, sewage pits, sewage farms and canals Ramsar convention Bureau (2002). Avian adaptation to utilize wetlands and other aquatic system are diverse and include anatomical, Morphological, behavioral changes.
There is growing interest in diversity of avifauna in different wetlands such as Uttangi JC [15] has studied the conservation and management for the water fowls of minor irrigation tanks and their importance as stopover sites in Dharwad districts. Shanbhag AB *et al.* [13] reported the impact of Konkan Railway project on the avifauna of a Carambolim lake in Goa. Inac SO [6] studied the bird species of Kumasir Lake, Turkey and the role of environmental ethics on sustainable wetland management. Abdar MR [2] studied the migratory water birds from Morna Lake, Western Ghats, Maharashtra. Keten A *et al.* [7] Studied the ornithofauna of Kocaeli-Yuvacik dam watershed in Turkey. Lameed GA [8] Studied species diversity and abundance of wild birds in Dagona- waterfowl sanctuary Borno State, Nigeria. The above avifaunal studies impress upon the need for the inventory of avifaunal diversity of other such habitat. A bird provides important ecosystem services such as pest control, pollination, seed dispersal and nutrient deposition [14]. The aim of this study is to assess the species diversity and abundance of water birds in the Krishna River, Ramling Island, Bahe.

2. Methodology
a. The study area
Ramling Island the ancient place of pilgrimage dwells at Bahe in the Krishna River in Walwa Tehsil in Sangli district. The Island has been attracting the people conserving the religious inheritance. The place is surrounded by beautiful natural scenery along with Krishna-Koyana's water stream. Even Lord Ram was also loved to stay here. The Island was the center of

attraction not only for the common man, but also for the great persons, saints like Chh.Shivaji, Samarth Ramdas, Swami Anand and freedom fighter like Krantisinh Nana Patil. The Island, which is purified by Lords stay, is still an attracting for common men today. In ancient period it was recognized as Dandakaranya. In 1884 Bombay gazette refer it. Ramling Island 1 Km long and 0.5 Km breath, settles in Krishna River.

Fig 1: The topography of sampling site Map from Google.com/Image

3. Method of data collection

Line Transect and point count methods used for the bird survey. Line Transect proved most efficient in term of data collection per unit effort. This census involves an observer moving slowly along the routes and recording all birds detected on either side of the route. The survey was carried out at two different site namely East and West site of Ramling Island. In each site bird observation was carried out daily between 6.00 am to 10.00 am and 4.00 pm to 6.00 pm. The length of the transect was one kilometer from East and West side of study area. Birds were counted as bird seen and heard and birds in flight were also recorded. A binocular with magnification 8x40 DPS R (Olympus) was used in the identification of birds visually alongside a field guide the book of Indian birds by and [1] and Birds of Indian Subcontinent. Oxford Pocket Guide by [5].

4. Result and Discussion

I observed that 47 species of water birds visited to the Ramling Island out of that 32 species are regular visitor and 15 species are winter visitor. Among observed 47 species were included in 6 orders and 13 families. Maximum species were recorded in order Ciconiiformes and followed by Anseriformes. Among observed winter visitor species belonging to Anseriformes and Ciconiiformes orders. During monthly survey, I also observed that the population of especially Egret, Herons, Black Ibis, Storks, Cormorants and Terns were increased in the month of March, April and May [11, 9, 12]. It may due to maximum land and rocks are exposed, minimum water supports the easily availability of food and shelter. The occurrence of Tern and Cormorants it may indicate that this water body moderately polluted and mesotrophic in nature. It indicates that such Island areas are used by water birds year around. Higher diversity, richness and many migratory water birds visited during winter therefore future research and conservation action should be focused on this area.

Table 1: Water Birds observed on Ramling Island, Bahe in the Krishna River, Sangli (M.S.) 2010-2011.

1.	Ruddy Sheld duck	*Tadorna ferruginea*
2.	Common Teal	*Anas crecca*
3.	Northern Pintail	*Anas acuta*
4.	Cotton Teal	*Nettapus coromandelianus*
5.	Spot bill duck	*Anas poecilorhyncha*
6.	Common Pochard	*Aythya ferina*
7.	Common Kingfisher	*Alcedo attbis*
8.	White throated Kingfisher	*Halcyon smyrnensis*
9.	Pied Kingfisher	*Ceryle rudis*
10	Purple Moorhen	*Porphyrio porphyrio*
11.	Common Moorhen	*Gallinula chloropus*
12.	Common Coot	*Fulica atra*
13.	White breasted waterhen	*Amaurornis phoenicurus*
14.	Watercock	*Gallicrex cinerea*
15.	Marsh Sandpiper	*Tringa stagnatilis*
16.	Little Stint	*Calidris minuta*
17.	Black winged Stilt	*Himantopus himantopus*
18.	Little Ringed Plover	*Charadrius dubius*
19.	Kentish Plover	*Charadrius alexandrinus*
20.	Yellow wattled Lapwing	*Vanellus malarbaricus*
21.	Red wattled Lapwing	*Vanellus gregarius*
22.	River Tern	*Sterna aurantia*
23.	Common Tern	*Sterna hirundo*
24.	Brahminy Kite	*Haliastur indus*
25.	Little Grebe	*Tachybaptus ruficollis*
26.	Little Cormorant	*Phalacrocorax niger*
27.	Indian Cormorant	*Phalacrocorax fuscicollis*
28.	Great Cormorant	*Phalacrocorax carbo*
29.	Little Egret	*Egretta garzetta*
30.	Indian Reef Heron	*Egretta gularis*
31.	Grey Heron	*Ardea cinerea*
32.	Giant Heron	*Ardea goliath*
33.	Purple Heron	*Ardea purpurea*
34.	Great Egret	*Casmerodius albus*
35.	Intermediate Egret	*Mesophoyx intermedia*
36.	Cattle Egret	*Bubulcus ibis*
37.	Indian Pond Heron	*Ardeola grayii*
38.	Glossy Ibis	*Plegadis falcinellus*
39.	Balck headed Ibis	*Threskiornis melanocephalus*
40.	Black Ibis	*Pseudibis papillosa*
41.	Spoon bill	*Platalea leucorodia*
42.	Painted Stork	*Mycteria leucocephala*
43.	Asian openbill	*Anastomus oscitans*
44.	Woolly necked Stork	*Ciconia episcopus*
45.	White Wagtail	*Motacilla alba*
46.	Yellow headed Wagtail	*Motacilla citreola*
47.	Yellow Wagtail	*Motacilla flava*

Table 2: Distribution of water birds on Ranling Island Bahe (M.S.) India (2010-2011).

Sr. No.	Name of species	Regular visitor	Winter visitor
1	Ruddy Shelduck		√
2	Common Teal		√
3	Northern Pintail		√
4	Cotton Teal		√
5	Spot bill duck	√	
6	Common Pochard		√
7	Common Kingfisher	√	
8	White throated Kingfisher	√	
9	Pied Kingfisher	√	
10	Purple Moorhen		√
11	Common Moorhen	√	
12	Common Coot	√	
13	White breasted waterhen	√	
14	Watercock	√	
15	Marsh Sandpiper	√	
16	Little Stint	√	
17	Black winged Stilt		√
18	Little Ringed Plover		√
19	Kentish Plover		√
20	Yellow wattled Lapwing	√	
21	Red wattled Lapwing	√	
22	River Tern	√	
23	Common Tern	√	
24	Brahminy Kite	√	
25	Little Grebe	√	
26	Little Cormorant	√	
27	Indian Cormorant	√	
28	Great Cormorant	√	
29	Little Egret	√	
30	Indian Reef Heron	√	
31	Grey Heron	√	
32	Giant Heron	√	
33	Purple Heron	√	
34	Great Egret	√	
35	Intermediate Egret	√	
36	Cattle Egret	√	
37	Indian Pond Heron	√	
38	Glossy Ibis		√
39	Black headed Ibis		√
40	Black Ibis		√
41	Spoon bill		√
42	Painted Stork		√
43	Asian openbill		√
44	Woolly necked Stork	√	
45	White Wagtail	√	
46	Yellow headed Wagtail	√	
47	Yellow Wagtail	√	

Fig 2: Black headed Ibis

Fig 3: Open bill and Painted Stork

5. Conclusion

I concluded that In Western Ghats many man-made lakes, reservoirs, and small village tanks these were resting places , breeding ground for many migratory water birds but last few years due to repeated drought, climatic change, less rainfall, increase temperature, decrease ground water and surface water level it may causes diversity and richness of water birds in this area.

6. Acknowledgments

This study was funded by a grant in aid of minor research project from University Grant Commission Pune.

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