

## Wetland Avifaunal Diversity of Tasgaon Tahasil of South Western Maharashtra, India



### Zoology

**KEYWORDS:** Wetland, Avian Diversity,  
Tasgaon Tahasil

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### ABSTRACT

*Tasgaon tahasil having no. of wetlands like two major rivers (Krishna and Verala), no. of small dams, network of agricultural canals and water logged agricultural fields. It lies between N- 18007'562" latitude and E- 76009'656" longitude, situated East-North of Sangli district of South Western Maharashtra.. The wetlands harbour large number of birds during 2012 – 2014, surveyed to document avian diversity. In our survey, we identified and listed 44- bird species from the study site. They belonged to 10- orders and 18- families. Among these 10- are migratory and 34- are native birds. The wetlands are very important in conservation of biodiversity especially the water and local birds. Receiving an annual rainfall of about 700 mm with June to August being rainy months. The average annual minimum and maximum temperature are recorded as 160 C and 420 respectively. The water birds are specific in their choice of wetlands. This often strongly associated with prey distribution and its abundance. This preliminary survey of avifaunal diversity of Tasgaon wetlands will help in facilitate conservation strategy and management plan as this is the key component in ecosystem.*

### INTRODUCTION:

Water maintains all life processes in the environment and is necessary for human health and to maintain agricultural, industrial and other activities. Wetland and riverine vegetation have multiple uses, such as food (fruit), medicines, building materials, etc. Animals such as marine and freshwater fish, frogs, reptiles, birds and many aquatic invertebrates are found in wetlands, while other wildlife congregates around wetland areas. Rivers carry sediment or silt which are rich in nutrients. These nutrients provide the basis for aquatic and adjacent terrestrial food webs. Water is a basic and primary need of all vital processes for terrestrial and in aquatic environment. Ever since the pre-historic times man has been intimately associated with water and it has been continuously proved by the evidences of past civilization that all historic human settlements were around inland fresh water resources. These wetlands are traditional zones that occupy intermediate position between dry land and open water (Vachnth et. al. 2012). This wetland is rich in flora and fauna. The birds are one of the important biotic factors which prefer to live near these wetlands. However, the bird community of wetlands of Tasgaon tahasil have not been explored and documented in the past. Considering this we have extensive surveys were conducted throughout 2-years (2012-2014) to document the birds of the area.

Wetlands provide both goods and services, a variety of renewable natural resources as well as vitally important ecological services. Erosion prevention – Vegetation in and adjacent to wetlands and rivers slows water flow, holds soils and prevents erosion. Aquifer recharge – Water from wetlands recharges adjacent underground aquifers. Improvement of water quality – Wetland ecosystems maintain good water quality in several ways such as filtering pollutants and breaking down dead and decaying material. Climatic stability – Wetland vegetation can act as a carbon reservoir and assists in reducing the amount of carbon dioxide in the atmosphere, decreasing the greenhouse effect and leading to a more stable climate. Linear oases – Both perennial and ephemeral rivers that pass through otherwise arid areas are sources of water and support linear strips of vegetation, enabling people and wildlife to survive there.

### MATERIALS AND METHODS:

Different species of birds have been cited and identified with the help of pair of Sony 7x40 and 20 x 50 power field binoculars. The frequent visits are made throughout year to observe the local and migratory birds to the study site. They were identified with the help of standard literature and field guides on the basis of their special features (R. Grimmett et. al. 1998, Salim Ali and Dillon, 1995 and Kukudolkar, 2011). Photographs of different bird species were taken by using Sony 20M x 30X camera with

18- 55 mm and 55- 250 mm lenses for confirmation of species.

### RESULT AND DISCUSSION:

During the period of study (2012- 2014), Out of 79- Families of avifauna present in the Indian subcontinent, 18- Families were observed at study site. Total of 44- Species of birds have been recorded. They belonged to 10- Orders and 18- Families. 1- belonged from Pelecaniformes, 2- belonged from Podicipitiformes, 17- belonged from Ciconiiformes, 2- belonged from Anseriformes, 5- belonged from Falconiformes, 3- belonged from Gruiformes, 4- belonged from Charadriiformes, 5- belonged from Coraciiformes, 4- Species belonged from Passeriformes, 1- Species belonged from Psittaciformes (Table No. 1). Among these 10-species are migratory and 34- species are native birds. The highest number of birds observed from the order Ciconiiformes and lowest from orders- Pelecaniformes, Psittaciformes respectively.

The water birds are specific in their choice of wetlands. This often strongly associated with prey distribution and abundance (Kelsey and Hassal 1989). Water birds mainly feeds on benthic invertebrates (Van da kam et. al. 2004).

Physico- chemical parameters, show monthly variations from Feb. 2012 to Jan. 2014. The air temperature ranges from 180 C to 410 C. Water temperature ranges from 150 C to 230 C. Both air temperature and water temperature are important which determines the distribution of different life forms. In this study it has been found that air and water temperatures go more or less parallel, proving the fact that the atmospheric temperature governs water temperature (Welch, 1952 and Yadav, 2003). The pH values ranges from 6.7 to 7.5. It was minimum in the month of Jul., Aug. and maximum in the month of May. Krishna Ram H. et. al. (2007). The free CO<sub>2</sub> concentration ranges from 4.4 mg/ lit. to 8.8 mg/ lit.

The total hardness value ranges from 50 mg/ lit. to 140 mg/ lit. It was minimum in the month of October and maximum in the month of April and May. Synudeen Sahib (2011) has recorded similar range of total hardness showing higher in summer and lower in rainy season. Calcium ion concentration values ranges between 11.03 mg/ lit. to 30.08 mg/ lit. The calcium was minimum during November and maximum during April and May. Hulyal et. al. (2011) has given similar findings from Almatti reservoir, Karnataka and recorded maximum during summer. Magnesium ion concentration ranges from 6.5 mg/ lit. to 21.75 mg/ lit. Magnesium is often associated with calcium in all kinds of water but its concentration remains generally lower than the calcium (Venkatsubramani and Meenambal, 2007).

The total alkalinity values range between 18 mg/ lit. to 51 mg/

lit. It was minimum in the month of October while maximum during April and May. According to Jackson (1961), alkalinity below 50 mg/ lit. indicates low photosynthetic rate. The chloride values range between 31.24 mg/ lit. to 142 mg/ lit. It was minimum in the month of July and August while maximum during April and May. Nikam et. al. (2011). High Chloride value may be due to organic wastes of animal origin and domestic washes. The higher values of chlorides during summer months may be associated with reduced water level.

Dissolved oxygen values range between 4- 4.7 mg/ lit to 7.1 mg/ lit. being minimum during summer months and maximum during winter months. The main source of D. O. is from atmosphere and by photosynthesis through aquatic flora. Similar trend is shown by Ohal et. al. (2011). Biological Oxygen Demand value ranges between 0.7 mg/ lit. to 3.8 mg/ lit. Sayeswar et. al. (2011) shown nearby values in present investigation.

**Table No. 1: Systematic List of Bird Species Observed In and Around the Wetlands of Tasgaon Tahasil**

Sr. No.	Common Name	Scientific Name	Order	Family	Status
1	Dabchick/ Little Greb	<i>Podiceps ruficollis</i> (L)	Podicipiti- formes	Podicipede- dae	C
2	Little Car- morant	<i>Phalacrocorax niger</i> (V)	Pelecani- formes	Phalacro- coracidae	VC
3	Large Car- morent	<i>Phalacrocorax carbo</i> (S)	Pelecani- formes	Phalacro- coracidae	VR
4	Pond Heron	<i>Ardeola grayii</i> (S)	Ciconii- formes	Ardeidae	VC
5	Little Egret	<i>Egretta garzetta</i> (L)	Ciconii- formes	Ardeidae	C
6	Indian Reef Heron	<i>Ardea schistacea</i> (H)	Ciconii- formes	Ardeidae	Ra
7	Eastern Purple Heron	<i>Ardea purpurea</i> (L)	Ciconii- formes	Ardeidae	VR
8	Large Egret	<i>Ardea albus</i> (L)	Ciconii- formes	Ardeidae	Ra
9	Painted Stork	<i>Mycteria leucocephala</i> (P)	Ciconii- formes	Ciconii- dae	Ra
10	Open bill Stork	<i>Anastomus oscitans</i> (B)	Ciconii- formes	Ciconii- dae	VR
11	White Necked Stork	<i>Ciconia episcopus</i> (B)	Ciconii- formes	Ciconii- dae	Ra
12	Painted Stork	<i>Myceteria leucocephala</i> (P)	Ciconii- formes	Ciconii- dae	Ra
13	White Ibis		Ciconii- formes		VR
14	Indian Black Ibis	<i>Pseudibis papillosa</i> (T)	Ciconii- formes		Ra
15	Spoonbill	<i>Platalea leucorodia</i> (T)	Ciconii- formes	Threski- omithi- dae	VR
16	Cattle Egret	<i>Bubulcus ibis</i> (B)	Ciconii- formes	Ardeidae	Ra
17	Little Green Heron	<i>Butorides triatus</i> (H)	Ciconii- formes	Ardeidae	VR
18	Chestnut Bittern	<i>Ardea cinnamomea</i> (H)	Ciconii- formes	Ardeidae	VR
19	River Tern	<i>Sterna aurantia</i> (G)	Ciconii- formes	Laridae	Ra
20	Common Snipe	<i>Gallinago gallinago</i> (L)	Ciconii- formes		VR

21	Spotbilled Duck	<i>Anas poecilorhyncha</i> (F)		Aneseri- formes	Anatidae	C
22	Ruddy Shel- duck (Brahminy Duck)	<i>Tadorna ferruginea</i> (P)		Aneseri- formes	Anatidae	VR
23	Pariah Kite	<i>Milvus migrans govinda</i> (S)		Falconi- formes	Accipitri- dae	C
24	Indian Sparrow Hawk	<i>Accipiter nisus</i> (H)		Falconi- formes	Accipitri- dae	C
25	Black- winged Kite	<i>Elanus caeruleus</i> (L)		Falconi- formes	Accipitri- dae	C
26	Brahminy Kite	<i>Haliastur Indus</i> (B)		Falconi- formes	Accipitri- dae	Ra
27	Tawny Eagle	<i>Aquila rapax</i> (F)		Falconi- formes	Accipitri- dae	VR
28	White Breasted Water Hen	<i>Amaurornis phoenicurus</i> (P)		Grui- formes	Rallidae	C
29	Purple Moorhen	<i>Porphyrio poliocephalus</i> (L)		Grui- formes	Rallidae	C
30	Common Coot	<i>Fulica atra</i> (L)		Guri- formes	Rallidae	Ra
31	Spotted Sandpiper	<i>Tringa glareola</i> (L)		Charadri- iformes	Jacanidae	Ra
32	Redwattled Lapwing	<i>Vanellus indicus</i> (B)		Charadri- iformes	Jacanidae	UC
33	Indian Lit- tle Ringed Plover	<i>Charadrius dubius</i> (L)		Charadri- iformes	Jacanidae	VR
34	Black Winged Stilt	<i>Hemantopus heman- topus</i> (L)		Charadri- iformes	Jacanidae	UC
35	White Breasted Kingfisher	<i>Halcyon smyrnensis</i> (B)		Coracii- formes	Alcedini- dae	C
36	Small Blue Backed Kingfisher	<i>Alcedo atthis</i> (K)		Coracii- formes	Alcedini- dae	VC
37	Lesser Pied Kingfisher	<i>Ceryle rudis</i> (R)		Coracii- formes	Alcedini- dae	C
38	Green Bee Eater	<i>Merops orientalis</i> (J)		Coracii- formes	Alcedini- dae	C
39	Hoopoes	<i>Upupa epops</i> (L)		Coracii- formes	Upupidae	VC
40	Magpie Robin	<i>Copsychus saularis</i> (L)		Passeri- formes	Musci- capidae	C
41	Yellow Wagtail	<i>Motacilla flava</i> (B)		Passeri- formes	Motacil- lidae	C
42	White Browed Wagtail	<i>Motacilla moderas- patensis</i> (S)		Passeri- formes	Motacil- lidae	C
43	Pied Bush Chat	<i>Saxicola caprata</i> (L)		Passeri- formes	Turdinae	C
44	Rose Ringed Parakeet	<i>Psittacula krameri</i> (S)		Psittaci- formes	Psittaci- dae	C

Following abbreviations are used:

Ra- Rare, VR- Very Rare, VC- Very Common, C- Common, UC- Uncommon.

#### CONCLUSION:

All wetlands are very important in conservation of biodiversity, especially water birds. The water birds are very specific in their choice of wetlands. This often strongly associated with prey distribution and abundance. The preliminary survey of wetland avifaunal diversity of Tasgaon tahasil will help in facilitate conservation strategy and management plan as this is the key components of ecosystem.

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