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Review Article

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Bird Watch at Jalangi: Avian Diversity and Seasonal Abundance within the River Jalangi, Nadia (WB)

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Abstract

Though rivers are not the great place for bird watch, specially for migratory birds, still the river Jalangi is different from other rivers of West Bengal with respect to avian diversity. The present article deals with the avian diversity and seasonal avifaunal abundance at the Jalangi river within Nadia district (WB) during April 2014 to March 2015, in which more than fourty five species of birds belonging to different families were recorded. Maximum species were sighted during winter season, some birds were found to be migratory, some birds were residential migratory and some other resident. Variation in food availability in different seasons affects on avifaunal diversity in study area and the variation of food availability is controlled from behind by the factors like rate of photosynthesis within river, soil fertility, physicochemical parameters, ion concentrations of river water etc. The avifauna is important for the ecosystem as they play various roles as scavenger, pollinators and predators of insect and pest.

Keywords: Birds; Jalangi; Diversity.

Introduction

The river Jalangi flows 206 km through the Nadia district from the direction of north-east to the south-west. Jalangi meets the river Bhagirathi near Nabadwip Town (23.252 N 88.222 E), Nadia. The Jalangi river water sources are majorly river Bhairabs water and underground water. The river water flows from the direction of Bhairab to Bhagirathi. The river is the habitat of various aquatic flora and fauna. The entire biosphere within the river Jalangi depends on the physico-chemical parameters of the river water. Domestic use, Irrigation, soil erosion from bank for brick factory, water transportation, "bisarjan" of gods clay models, swage water from towns and villages and jute stem ratting etc. are the major source of the pollutants in Jlalangi. The physico-chemical parameters, specially BOD and COD values of the river water remain between 1 - 6 mg/liter and 7 -16 mg/liter respectively. These reflects the low level of water pollution. Throughout the year the river jalangi water remain slightly alkaline, moderately hard. The dissolved oxygen value lies between 6.1 – 8.1 mg/liter (Table 1). Round the year, the river water contains sufficient nitrate, phosphate, potassium, magnesium, calcium etc. biologically significant ions (Table 2). Huge amount of green algae, blue green algae, phytoplaktons, diatoms etc. grow up within the river. Hence the river is an ideal habitat of small fishes, pila, shrimps, frogs, insects etc. Which in-turn provide plenty foods for the residential as well as for the migratory birds. Flora and fauna specimen collections, bird watch were a continuous process from river banks and small boats at different locations. There are fourty seven type of birds present at the river Jalangi. Within these fourty seven types, five are migratory, fourteen are resident-migratory and other twenty eight are of resident type (Table 3).

The sodium, potassium, calcium, magnesium ion concentrations present in river water are sufficient to strengthen the lotic ecosystem. Phosphate ion concentration and nitrate concentrations are also

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sufficient for aquatic life. Sufficient bicarbonate concentration indicates the high rate of photosynthesis within river by the aquatic flora. This in turn, produce sufficient algae and vegetations i.e., foods for the fishes, insects, preys and birds. Calcium, phosphate, carbonate and sulphate ions are responsible for biomineralisation and sufficient crustaceans, snails etc., which are plenty within the river.

Discussion

The Physico-chemical parameter data (Table 1.) clearly indicates that the river water is moderately hard, slight alkaline and have sufficient dissolved oxygen for the survival of aquatic animals. Low turbidity reflects more penetration of sunlight, i.e., more photosynthesis by aquatic flora, hence, more food availability for fauna present. BOD and COD values clearly suggests the low level of pollutants within river. The pH of river water lies between 7.2 -8.35. The salinity value lies between 108–270 mg/liter suggests that, the river contain fresh water.

Considerable studies on avifaunal diversity from different freshwater wetland of India have carried out by many researchers buy yet no literature is available about river Jalangi, Nadia, West Bengal. This study is therefore beneficial document of the avifaunal diversity of the river Jalangi.

In the river Jalangi, available 47 type of birds, belong from fourteen orders and thirty family. The most common order is Passeriformes and fifteen type of birds belong from this order. The most common family are Scolopacidae and Ardeidae.

Among the charadriiforms present, Red-wattled Lapwing and Grey-headed Lapwing prefer insect and molluscus etc. Birds belong from Jacanidae family loves insect and other invertebrates from floting vegetation or the water surface. Birds belong from Scolopacidae family likes insects, small prey and crustaceans as food. Cormorants belong from Phalacrocoracidae family and they take small fishes (specially ell) and shrimps. Little Grabe belong from Podicipedidae family and grab small fishes. Egret and Herons present in the river belong from Pelecaniformes order and Ardeidae family. They consume small fishes, frogs, insects along with small crabs, grasshoppers and blue bottle flies etc. White breasted Waterhen, Common Moorhen and Common Coot are from the order Gruiformes and Rallidae family. Common Coot is carnivorous, whereas, Moorhen prefer wide variety of vegetable materials and small aquatic creatures. Asian Openbill feed mainly fresh water mussels and *Pilla sp.* Lesser Whistling Ducks are largely vegetarian, they also eat small fishes and snail etc. Coraciiformes (i.e., Kingfishers) feed mainly small fishes, shrimps and insects. White Wagtail and Large Pied Wagtail belong from Motacillidae family. Wagtails are insectivores. Shrikes belong from Laniidae family and feed mainly large insects, small birds etc. Black Drongo is a member of Dicruridae family, Prinia belongs to Cisticolidae family. Both of them consume mainly insects as food. Black-headed ibis or oriental white ibis, which have the conservation status "Near Threatened" were found a pair only. Black-headed ibis feeds on various fishes, frogs and other water creatures, as well as on insects.

Results

Table 1: Variation of Physico-chemical Parameters of River Jalangi during April 2014 to March 2015

pH	**7.20 - 8.35**
Conductance (µS/cm)	221 - 556
Hardness (ppm)	123.64 - 291.23
TDS (mg/Liter)	157 - 420
DO (mg/Liter)	6.1 – 8.1
Salinity (mg/Liter)	108 - 270
Turbidity (NTU)	3.5 – 6.1
Alkalinity (total) ppm	92 - 285
Alkalinity ($CO_3^=$) ppm	8 - 36
Alkalinity (HCO_3^-) ppm	84 - 265
BOD(mg/Lit) 3DAYS, 27°C	< 2 - 6
COD(mg/Lit)	7 -16

Table 2: Variation of biologically significant ion concentrations of River Jalangi during April 2014 to March 2015

HCO_3^- (mg/liter)	118.34 – 323.30
$CO_3^=$ (mg/liter)	4.8 – 21.6
Na^+(mg/liter)	8.28 – 24.37
K^+(mg/liter)	3.52 – 4.20
Mg^{2+}(mg/liter)	7.70 – 45.60
Ca^{2+} (mg/liter)	23 – 96.30
SO_4^{2-} (mg/liter)	< 2.5 – 6.3
PO_4^{3-} (mg/liter)	5.09 – 7.65
Cl^- (g/liter)	2.7 – 2.84
NO_3^- (mg/liter)	0.45 - 0.50

Table 3: List of avifaunal diversity of Jalangi River, Nadia District, West Bengal

No.	Order	Family	Scientific Name	Common Name	Habitat Status
1.	Charadriiformes	Scolopacidae	*Tringa nebularia*	Common Greensank	M
2.	Charadriiformes	Scolopacidae	*Tringa glareola*	Wood Sandpiper	M
3.	Charadriiformes	Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	RM
4.	Charadriiformes	Scolopacidae	*Gallinago gallinago*	Common Snipe	RM
5.	Charadriiformes	Scolopacidae	*Tringa stagnatilis*	Marsh Sandpiper	M
6.	Charadriiformes	Jacanidae	*Hydrophasianus chirurgus*	Phesant tailed Jacana	R
7.	Charadriiformes	Jacanidae	*Metopidius indicus*	Bronzed winged Jacana	R
8.	Charadriiformes	Charadriidae	*Vanellus indicus*	Red-wattled Lapwing	R
9.	Charadriiformes	Charadriidae	*Vanellus cinereus*	Grey-headed Lapwing	R
10.	Suliformes	Phalacrocoracidae	*Phalacrocorax carbo*	Great Cormorant	RM
11.	Suliformes	Phalacrocoracidae	*Phalacrocorax niger*	Little Cormorant	RM
12.	Podicipediformes	Podicipedidae	*Tachybaptus ruficollis*	Little Grabe	RM
13.	Pelecaniformes	Ardeidae	*Ardea cinerea*	Grey Heron	RM
14.	Pelecaniformes	Ardeidae	*Casmerodius albus*	Large Egret	RM
15.	Pelecaniformes	Ardeidae	*Ardeola grayii*	Indian Pond Heron	R
16.	Pelecaniformes	Ardeidae	*Mesophoxy intermedia*	Median Egret	RM
17.	Pelecaniformes	Ardeidae	*Egretta garzetta*	Little Egret	R
18.	Pelecaniformes	Threskiornithidae	*Threskiornis melanocephalus*	Black-headed Ibis	RM
19.	Gruiformes	Rallidae	*Amaurornis phoenicurus*	White-breasted Waterhen	R
20.	Gruiformes	Rallidae	*Gallinula chloropus*	Common Moorhen	RM
21.	Gruiformes	Rallidae	*Fulica atra*	Common Coot	RM
22.	Ciconiiformes	Ciconiidae	*Anastomus oscitans*	Asian Openbill	R
23.	Anseriformes	Antidae	*Dendrocygna javanica*	Lesser Whistling Duck	M
24.	Cuculiformes	Cuculidae	*Centropus sinensis*	Greater Coucal	R
25.	Coraciiformes	Cerylidae	*Ceryl rudius*	Lesser Pied Kingfisher	R
26.	Coraciiformes	Alcedinidae	*Alcedo meninting*	Blue eared Kingfisher	R
27.	Coraciiformes	Halcyonidae	*Halcyon smyrnensis*	White-breasted Kingfisher	R
28.	Coraciiformes	Meropidae	*Merops orientalis*	Small Green Bee-eater	R
29.	Piciformes	Picidae	*Dinopium benghalense*	Lesser Golden Backed Woodpecker	R
30.	Bucerotiformes	Upupidae	*Upupa epops*	Common Hoopae	RM
31.	Passeriformes	Hirundinidae	*Hirundo rustica*	Common Swallow	RM
32.	Passeriformes	Laniidae	*Lanius cristatus*	Brown Shrike	M
33.	Passeriformes	Laniidae	*Lanius collurioides*	Burmese Shrike	M
34.	Passeriformes	Dicruridae	*Dicrurus macrocercus*	Black Drongo	R
35.	Passeriformes	Sturnidae	*Sturnus contra*	Asian Pied Starling	R
36.	Passeriformes	Sturnidae	*Acridotheres ginginanus*	Bank Myna	R
37.	Passeriformes	Corvidae	*Corvus splandens*	House Crow	R
38.	Passeriformes	Corvidae	*Corvus macrorhynchas*	Jungle Crow	R
39.	Passeriformes	Cisticolidae	*Prinia inornata*	Plain Prinia	R
40.	Passeriformes	Muscicapidae	*Copsychus saularia*	Oriental Magpie Robin	R
41.	Passeriformes	Motacillidae	*Motacilla alba*	White Wagtail	RM
42.	Passeriformes	Motacillidae	*Motacilla maderaspatensis*	Large Pied Wagtail	R
43.	Passeriformes	Passeridae	*Passer domestica*	House Sparrow	R
44.	Accipitriformes	Accipitridae	*Milvus migrans*	Black Kite	R
45.	Anseriformes	Anatidae	*Anas platyrhynchos*	Mallard	RM
46.	Passeriformes	Oriolidae	*Oriolus xanthornus*	Black Headed Oriole	R
47.	Passeriformes	Cettiidae	*Abroscopus superciliaris*	Yellow-bellied warbler	R

R = Resident ; RM = Resident Migrant; M = Migratory

Table 4: List Seasonal Variation of avifauna within Jalangi River, Nadia District, West Bengal

Common Name	Availability during Winter and Spring	Availability during Rest of the Year
Common Greensank	Yes	No
Wood Sandpiper	Yes	No
Common Sandpiper	Yes	Yes
Common Snipe	Yes	No
Marsh Sandpiper	Yes	No
Phesant tailed Jacana	Yes	Yes
Bronzed winged Jacana	Yes	Yes
Red-wattled Lapwing	Yes	Yes
Grey-headed Lapwing	Yes	No
Great Cormorant	Yes	Yes
Little Cormorant	Yes	Yes
Little Grabe	Yes	No
Grey Heron	Yes	No
Large Egret	Yes	Yes
Indian Pond Heron	Yes	Yes
Median Egret	Yes	Yes
Little Egret	Yes	Yes
Black-headed Ibis		RM
White-breasted Waterhen	Yes	Yes
Common Moorhen	Yes	Yes
Common Coot	Yes	Yes
Asian Openbill	Yes	Yes
Lesser Whistling Duck	Yes	Very few
Greater Coucal	Yes	Yes
Lesser Pied Kingfisher	Yes	Yes
Blue eared Kingfisher	Yes	Yes
White-breasted Kingfisher	Yes	Yes
Small Green Bee-eater	Yes	Yes
Lesser Golden Backed Woodpecker	Yes	Yes
Common Hoopae	Yes	Yes
Common Swallow	Yes	Yes
Brown Shrike	Yes	No
Burmese Shrike	Yes	No
Black Drongo	Yes	Yes
Asian Pied Starling	Yes	Yes
Bank Myna	Yes	Yes
House Crow	Yes	Yes
Jungle Crow	Yes	Yes
Plain Prinia	Yes	Yes
Oriental Magpie Robin	Yes	Yes
White Wagtail	Yes	No
Large Pied Wagtail	Yes	Yes
House Sparrow	Yes	Yes
Black Kite	Yes	Yes
Mallard	Yes	Yes
Black Headed Oriole	Yes	Yes
Yellow-bellied warbler	Yes	Yes

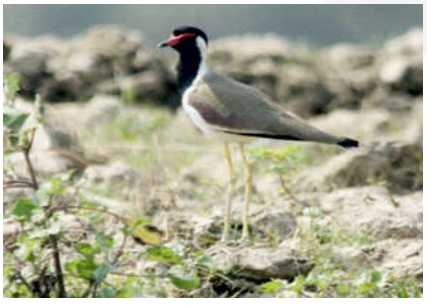

Fig. 1: Red Walted Lapwing

Fig. 2: Brown Shrike

Fig. 3: White pied king fisher

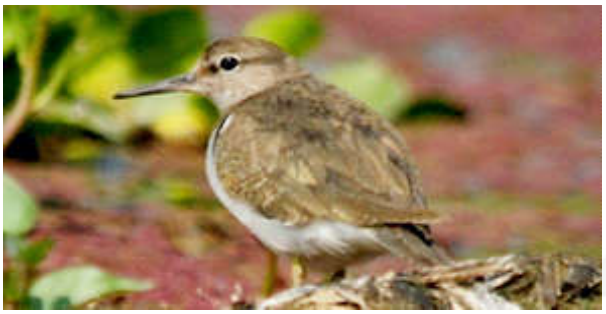

Fig. 4: Common Sandpiper

Fig. 5: Green Bee-eater

Fig. 6: Grey Heron with Small Egret

Fig. 7: Leaser Whistling Duck

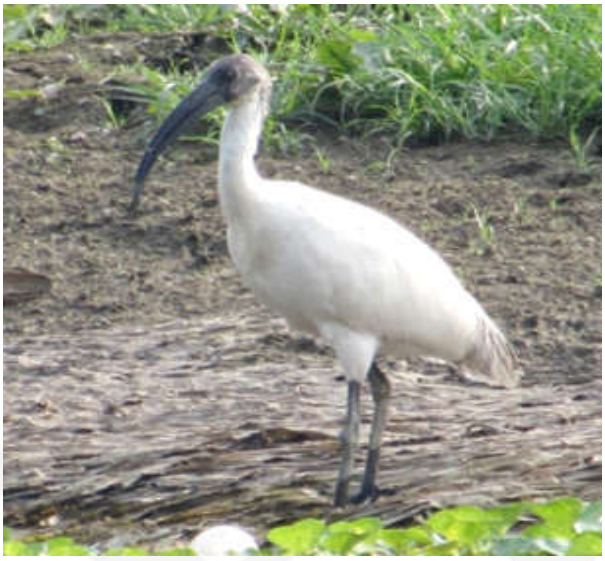

Fig. 8: Black-headed Ibis

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