

Avifauna of Jagatpur wetland near Bhagalpur (Bihar, India)

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Introduction

This study is the first attempt to prepare an inventory of birds dependent on Jagatpur wetland, a perennial wetland in the middle Ganga plain near Bhagalpur, Bihar.

Jagatpur wetland (25°20'219"N 87°02'623"E) is c. 12 km (by road) north-east of Bhagalpur city. It is a perennial freshwater floodplain type of wetland with an area of 0.4 km² in the middle Ganga plain (Table 1). The wetland is mainly rain-fed, but underground seepage also contributes to its volume of water. The area under the wetland includes both government and private holdings.

The wetland supports many types of macrophytes that may be grouped into marginal, submerged, floating, and emergent categories, of which *Eichhornia crassipes* is the dominant free-floating, *Hydrilla verticillata* the dominant submerged, and *Cynodon dactylon* the dominant marginal species in the wetland. The surroundings of the wetland are covered by various tree species like *Mangifera indica*, *Ficus religiosa*, *F. bengalensis*, *F. glomerata*, *F. infectoria*, *Dalbergia sissoo*, *Acacia nilotica*, *Eugenia jambolana*, *Borassus flabellifer*, *Phoenix dactylifera*, etc. The marginal upper land area is extensively cultivated.

The wetland is located in a belt of tropical monsoon climate with three distinct seasons: summer—mid-March–mid-June, monsoon—third week of June–October, and winter, November–February.

Materials & methods

Monthly bird counts were conducted from August 2003 to July 2005 (Table 2). A country boat was used to cover the entire

wetland for this purpose. Birds in the catchment area were also listed. Identification was with the help of several guides (Finn 1981; Woodcock 1984; Ali & Ripley 1987; Ali 1996; Grimmett *et al.* 1999).

Results & discussion

Thirty-four bird species were recorded from the Jagatpur wetland during the study. They belong to 12 families and eight orders. About 79% of the recorded avifauna is wetland-dependent. Out of 34 spp., 21 were resident (61.76%), seven locally migrant (20.58%), and six migrant (17.64%).

It is noteworthy that four species of storks (Ciconiidae) occur in Jagatpur wetland. According to IUCN (1996) and BirdLife International (2001), Greater Adjutant Stork *Leptoptilos dubius* has been categorized as Endangered (En), Lesser Adjutant Stork *L. javanicus* as Vulnerable (Vu), and Black-necked Stork *Ephippiorhynchus asiaticus* as Near Threatened (NT). 20 Greater Adjutant Storks, comprising 13 adults and seven immature birds were seen in March–April when the wetland was receding. Two birds had gular pouches. Greater Adjutant storks are the locally migratory wetland species of special conservation interest, and are restricted to the Asia-Pacific region. Being endangered, they face a very high risk of extinction in the wild in the future (Collar *et al.* 1994). The global population estimate (restricted to Asia-Pacific region only) for the bird is less than 700 (Perennou *et al.* 1994). According to Asad R. Rahmani, Director, Bombay Natural History Society (*pers. comm.*), Greater Adjutants have not been sighted outside Assam in recent decades. In view of this, their presence in and around Jagatpur wetland is important. It is also significant that the number (20) sighted in Jagatpur wetland fulfills the Ramsar Criteria of 1% for the wetland to be proposed a Ramsar site. In the Gangetic flood plains, Black-necked Storks have not been reported in recent years outside the state of Uttar Pradesh. Our observation suggests that Bihar may still have populations of this declining stork.

Our survey reveals that Jagatpur wetland is quite rich in avian diversity. The wetland, at present, is under various threats. Availability of water, inflow of pesticides and fertilizers from the surrounding agricultural fields, weed growth, particularly of water hyacinth, extensive fishing, and the hunting of birds for pleasure are among the major threats to the wetland and its avifauna. For conserving the Jagatpur wetland and its rich biodiversity, a management plan should be prepared in such a manner that at the objective level it primarily provides emphasis on protecting the wetland, and at the secondary level it provides an avenue for sustainable utilization of resources of the wetland without jeopardizing its continued ecological values and functions.

Table 1. Morphometric and Bathymetric characters of Jagatpur wetland.

Altitude	17 m
Maximum length	693 m
Maximum breadth	350 m
Maximum depth	3.1 m
Minimum depth	0.48 m
Mean depth	1.64 m
Mean depth/Maximum depth ratio	0.52 m
Basin shape	Saucer
Basin slope	Gentle
Bottom texture	Silted
Mean maximum annual Temperature	30.5°C
Mean minimum annual temperature	19.4°C
Mean annual rainfall	88 mm

Table 2. Monthly counts of birds in Jagatpur Wetland near Bhagalpur, Bihar (August 2003–July 2005)

Species	Status	2003												2004												2005				
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul					
Little Grebe <i>Tachybaptus ruficollis</i>	R	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Little Cormorant <i>Phalacrocorax niger</i>	RM	-	2	600++	200+	800+	150+	30+	300+	150+	43	20	4	4	-	-	38	6	12	35	18	14	4	6						
Great Cormorant <i>Phalacrocorax carbo</i>	RM	-	-	-	-	-	-	3	4	2	3	2	2	-	-	-	-	6	8	4	-	-	-	-						
Oriental Darter <i>Anhinga rufa</i>	R	4	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	6	6	4	2	2	2	2						
Grey Heron <i>Ardea cinerea</i>	RM	-	-	-	-	-	3	1	-	-	-	-	-	-	-	-	-	6	6	4	2	2	-	-						
Purple Heron <i>Ardea purpurea</i>	R	-	2	2	8	12	6	6	6	8	6	2	2	6	8	8	8	-	-	-	-	4	4	2						
Median Egret <i>Mesophoyx intermedia</i>	R	-	4	-	6	-	-	4	12	10	-	4	4	6	-	-	-	-	-	-	-	8	2	2						
Cattle Egret <i>Bubulcus ibis</i>	RM	25	15	30	75+	25	25	35	43	36	36	58	118	60	62	54	23	12	30	56	16	82	16	70						
Indian Pond-Heron <i>Ardeola grayii</i>	R	10	-	-	-	20	12	-	72	48	-	-	14	-	-	18	13	-	8	4	4	12	6	12						
Asian Openbill <i>Anastomus oscitans</i>	R	-	-	2	12	18	22	28	72	48	-	-	-	-	-	-	4	-	-	9	42	30	6	-						
Black Necked Stork*	R	-	-	-	-	-	5	5	4	3	3	3	3	-	3	-	-	1	2	2	2	2	2	2						
<i>Ephippiorhynchus asiaticus</i>																														
Lesser Adjutant-Stork**	RM	3	-	2	-	-	-	1	-	-	-	-	-	-	-	-	-	3	-	-	3	-	-	-						
<i>Leptoptilos javanicus</i>																														
Greater Adjutant-Stork*** <i>L. dubius</i>	RM	-	-	-	-	-	-	20	20	-	-	-	-	-	-	-	-	-	-	-	20	20	-	-						
Oriental White Ibis	R	-	-	-	-	-	-	12	12	12	-	-	-	-	-	-	-	42	25	8	4	6	12	-						
<i>Threskiornis melanocephalus</i>																														
Black Ibis <i>Pseudibis papillosa</i>	R	-	25	3	10	4	8	8	8	8	8	8	18	20	22	42	30	12	16	4	-	6	8	2						
Large Whistling Teal	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	42	12						
<i>Dendrocygna bicolor</i>																														
Lesser Whistling Teal	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	60	80	-	-	-						
<i>Dendrocygna javanica</i>																														
Cotton Teal <i>Nettion coromandelianus</i>	R	-	-	-	-	-	-	60	48	32	18	-	-	-	-	-	-	6	12	-	92	52	-	-						
Northern Shoveller <i>Anas clypeata</i>	M	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	22	35	30	-	-	-	-						
Northern Pintail <i>Anas acuta</i>	M	-	-	-	-	-	100+	25	6	36	8	-	-	-	-	-	-	24	20	-	-	-	-	-						
Garganey <i>Anas querquedula</i>	M	-	-	-	-	-	-	33	35	16	2	-	-	-	-	-	-	50	50	-	-	35	-	-						
Common Teal <i>Anas crecca</i>	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	50	-	-	-	-	-						
Red Crested Pochard	M	-	-	-	-	300+	350+	80	100+	-	-	-	-	-	-	100+	500+	150	200	-	-	-	-	-						
<i>Rhodessa rifina</i>																														
Purple Moorhen <i>Porphyrio porphyrio</i>	R	35	15	20	50+	50+	60	50	60+	52	38	-	18	22	25	22	55	354	350	106	127	150	75	-						
Common Moorhen	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	8	-						
<i>Gallinula chloropus</i>																														
Common Coot <i>Fulica atra</i>	RM	-	-	-	-	-	100+	12	8	6	6	-	-	-	-	-	4	390	425	-	-	-	-	-						
Pheasant-tailed Jacana	R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	8	-						
<i>Hydrophasianus chirurgus</i>																														
Bronze-winged Jacana	R	-	-	-	-	-	-	79	-	-	-	-	-	-	-	-	-	3	4	-	12	4	-	-						
<i>Metopidius indicus</i>																														
Red-wattled Lapwing	R	-	-	4	-	-	4	10	-	-	-	-	18	-	-	12	12	-	-	-	1	-	16	6						
<i>Vanellus indicus</i>																														
Black-tailed Godwit <i>Limosa limosa</i>	M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	300	250	12						
Black Winged Stilt	R	-	-	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<i>Himantopus himantopus</i>																														
White-breasted Kingfisher	R	-	-	2	4	1	-	1	2	2	4	-	-	-	-	-	-	-	-	-	-	1	2	-						
<i>Halcyon smyrnensis</i>																														
Lesser Pied Kingfisher <i>Ceryle rudis</i>	R	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	2	4	-	3	4	-	-						

R = Resident, RM = Resident migrant, M = Long distance migrant. The species with *, ** and **** denote Near threatened, Vulnerable and Endangered.



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Clement Francis

Top: Greater Adjutant Stork *Leptoptilos dubius*; Bottom: Black-necked Stork *Ephippiorhynchus asiaticus*.