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Research article

STATUS AND THREATS OF WATER BIRDS IN AHIRAN LAKE, MURSHIDABAD, WEST BENGAL, INDIA

Jayanta Mistry[1] and Sarada Mukherjee[2]

[1]Gotha A. R. High School, Suti-I, Murshidabad, West Bengal, India, Pin- 742223
[2]Ayesgbag Vidyapith, Lalbagh, Murshidabad, West Bengal, India, Pin- 742164
[1] Corresponding author, e-mail: mistryjayanta@yahoo.com

ABSTRACT: Wetlands are an important indicator of flora and fauna. Wet land provide habitat, feeding, nesting, and rearing for near about 310 sp of birds in India. Ahiran Lake wetland situated in Murshidabad district, West Bengal, India has recorded 30 species of water birds belonging to 29 genera and 12 families in the month of February 2014 to January 2015. Out of 30 species about 16 were migrants and 14 species residents. The family Anatidae represented by 7 species are dominated; Ardeidae by 5; Rallidae and Scolopacidae by 4; Laridae and Jacanidae by 2; Alcadinidae, Charadridae, Phalacrocoracidae, Anhingidae and Ciconidae by 1 are fewer in number. In case of resident Little Grebe (*Tachybaptus ruficollis*), Lesser Whistling-Duck **(***Dendrocygna javanica*), White-breasted Water hen (*Amaurornis phoenicurus*), Purple Moorhen (*Porphyrio porphyrio*), Pheasant-tailed Jacana (*Hydrophasianus chirurgus*) are common and in migratory birds Red-crested Pochard (Rhodonessa rufina), Northern Pintail **(***Anas acuta***),** Cotton teal (*Nettapus coromandelianus*) are abundant species. Migratory birds displayed a definite pattern for arrival and departure from the wetland that is species specific. The peak of winter population of migratory birds was observed during the months of December and February. Numbers of water bird in Ahiran Lake are decreases by several anthropogenic threats, and are affected feeding and breeding habitat of birds.
Key words: Ahiran Lake, anthropogenic, habitat, threats, waterbird, Wetlands.

INTRODUCTION

Wetland in India which provides a unique habitat to aquatic flora and fauna as well as numerous birds includes migratory species. Out of 310 species of wetland birds found in India [12, 13, 14] almost half of these are migratory and visit India from cold areas of different part of China, Russia, central Asia, Tibet and from across the entire range of the Himalaya. Wetlands are complex and productive ecosystems [17, 24] that occupy about six percent of the Earth's land surface [16]. Wetlands are known as "biological supermarkets" because of the extensive food chains and rich biodiversity they support, providing unique habitats for a wide range of flora and fauna [19, 20]. Wetlands are important habitats for birds, which use them for feeding, roosting, nesting and rearing young [22, 26]. Water birds are an important component of almost of the wetland ecosystem as they occupy several trophic levels in the Food Web of wetland ecosystem. Water birds are only the most prominent groups that attract public to wetlands, but also are good bio-indicators and useful models for studying a variety of environmental problems [25].

The wetlands are facing tremendous anthropogenic pressure, which can greatly influence the population structure of the bird community [5]. In the last century, over 50% of wetlands in the world have been lost, and the remaining wetlands have been degraded to different degrees because of the adverse anthropogenic activities [9].The loss of wetland through human interferences has lead to a decline in several water bird populations in West Bengal [6].

Though there are numerous wetlands for birds across India, very few have been systematically surveyed to understand their importance for birds. The wetlands in Murshidabad district, West Bengal, have long been known to support rich diversity of water birds.

Ahiran Lake harbor large populations of resident and migrant water birds that one will be useful for water bird conservation. The diversity, composition and structure of water bird community in wetlands have been poorly documented in particular to the Ahiran Lake. Thus, the present survey was conducted to document and assesses the avifauna found in Ahiran lake wetland present at Murshidabad district in West Bengal, India.

MATERIAL AND METHODS

Study Site

Ahiron is a perennial freshwater lake and is located between 24°52'31.03"N 88° 03'42.38"E and 24°52'90.97"N 88° 02'98.18"E about 60kms North North-West of Berhampore town in the Murshidabad district of West Bengal, India. (Figure-1). The lake is elliptical in shape and side of National Highway 34 and Eastern Rail way route by Azimjanj-Maldah division connecting Kolkata with North Bengal and North-east India. It is very close to Feeder Canal of Farraka Barrage and Alighar Muslim University, Murshidabad campus. In monsoons seasons Ahiran Lake covers near about 600000 m^2 but in dry season it shrinks in 54700 m^2.

Figure 1. Study area Ahiran Lake

Methods

Observations were made, usually in two times in a day between the months of February 2014 to January 2015. Regular surveys were done by observing and counting various bird species found in throughout the study area. Observations were made in the morning between 09:00 AM to 10:30 AM and in the afternoon 4:00 PM to 5:00 PM. Surveys were conducted thrice in a week. At each sight birds were counted using a binocular and identified. In case of doubtful identification, photographs were taken and the species is identified later by consulting experts.

RESULTS

Preliminary Checklist of Water birds of Ahiran Lake

The checklist of recorded bird species along with their abundance, feeding habitat, residential is given in Table 1. The check list of species was prepared following Ali [1], Manakadan and Pittie [18] and Grimmett and Inskipp [11]. The family Anatidae represented by 7 species, dominated the wetland bird community of the study area. The winter migratory birds displayed a definite pattern specific to species for arrival at and departure from the wetland. The peak of winter population of migratory birds was observed during the months of December and February. (Fig2-5).

Threats to Water bird in Ahiran Lake

Water birds in Ahiran Lake faced several anthropogenic threat, these are affected feeding and breeding habitat directly. As a result numbers of bird are decreases. We observed following threats. Only source of water in the lake is rain water and uncertainty in the amount of rainfall also decreases water level. Use of Pesticide in surrounding agricultural fields is also posing a threat to the richness of fish, water plants and also bird species biodiversity in the lake. Livestock grazing and cleaning, using fishing net and small boat for fishing by fisher men are important threats. Busy NH 34 road and Ahiran Halt bus stand, a brick-field that are close to the lake disturbed birds. Water Hyacinth *(Eichhornia crassipes)* has covered the water surface of the lake reducing the feeding areas for ducks and other water birds.

Table 1. Water birds of Ahiran Lake

Scientific Name	Common Name	Residential Status	Feeding Habitat	Abundance
Podicipedidae				
Tachybaptus ruficollis (Pallas, 1764)	Little Grebe	R	I	C
Anatidae				
Dendrocygna javanica (Horsfield, 1821)	Lesser Whistling-Duck	R	O	C
Anus strepera	Gadwall	WM	H	C
Anas acuta (Linnaeus, 1758)	Northern Pintail	WM	O	A
Nettapus coromandelianus (Gmelin, 1789)	Cotton teal	SM	O	A
Rhodonessa rufina	Red-crested Pochard	WM	H	A
Aythya nyroca (Guldenstadt, 1770)	Ferruginous Pochard	WM	O	UC
Anas querquedula (Linnaeus, 1758)	Garganey	WM	O	UC
Alcedinidae				
Halcyon smyrnensis (Linnaeus, 1758)	White-breasted Kingfisher	R	CV	FC
Rallidae				
Amaurornis phoenicurus (Pennant, 1769)	White-breasted Waterhen	R	O	FC
Porphyrio porphyrio (Linnaeus, 1758)	Purple Moorhen	R	O	C
Gallinula chloropus (Linnaeus, 1758)	Common Moorhen	WM	O	FC
Fulica atra (Linnaeus, 1758)	Common Coot	WM	O	C
Scolopacidae				
Gallinago gallinago (Linnaeus, 1758)	Common Snipe	WM	CV	UC
Limosa limosa (Linnaeus, 1758)	Black-tailed Godwit	WM	CV	UC
Tringa glareola (Linnaeus, 1758)	Wood Sandpiper	WM	I	UC
Actitis hypoleucos (Linnaeus, 1758)	Common Sandpiper	WM	I	UC
Laridae				
Sterna aurantia (J.E. Gray, 1831)	River Tern	LM	I	UC
Chlidonias hybridus (Pallas, 1811)	Whiskered Tern	LM	I	UC
Jacanidae				
Hydrophasianus chirurgus (Scopoli, 1786)	Pheasant-tailed Jacana	R	CV	C
Metopidius indicus (Latham, 1790)	Bronze-winged Jacana	R	CV	UC
Charadridae				
Vanellus cinereus (Blyth, 1842)	Grey-headed Lapwing	WM	CV	C
Phalacrocoracidae				
Phalacrocorax niger (Vieillot, 1817)	Little Cormorant	R	CV	C
Anhingidae				
Anhinga melanogaster (Pennant, 1769)	Darter	LM	P	UC
Ardeidae				
Egretta garzetta (Linnaeus, 1766)	Little Egret	R	CV	C
Casmerodius albus (Linnaeus, 1758)	Large Egret	R	CV	C
Ardeola grayii (Sykes, 1832)	Indian Pond-Heron	R	CV	C
Bubulcus ibis (Linnaeus, 1758)	Cattle Egret	R	CV	C
Ardea cinerea (Linnaeus, 1758)	Grey Heron	R	CV	UC
Ciconidae				
Anastomus oscitans (Boddaert, 1783)	Asian Openbill-Stork	R	CV	FC

R- Resident, LM - Local Migrant, SM - Summer migrant, WM - Winter migrant, I - Insectivore, O - Omnivore, CV - Carnivore, H - Herbivore, P-Piscivore, A – abundant, C - Common, FC - Fairly common, UC – Uncommon.

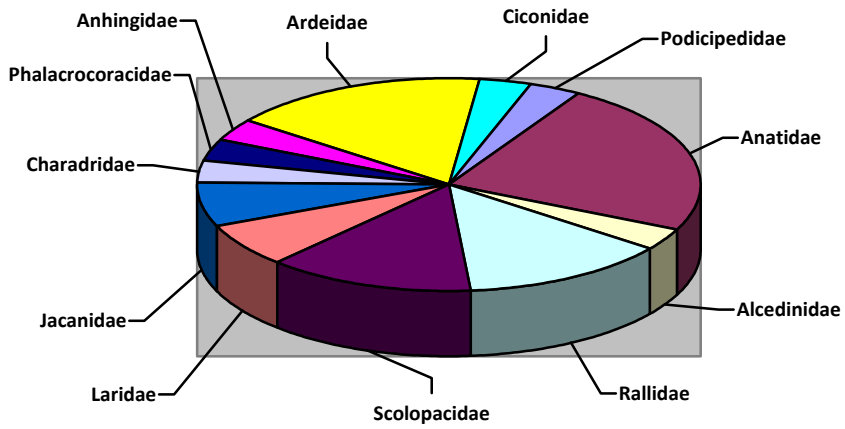

Figure 2. Species Diversity in 12 Families in Ahiran Lake

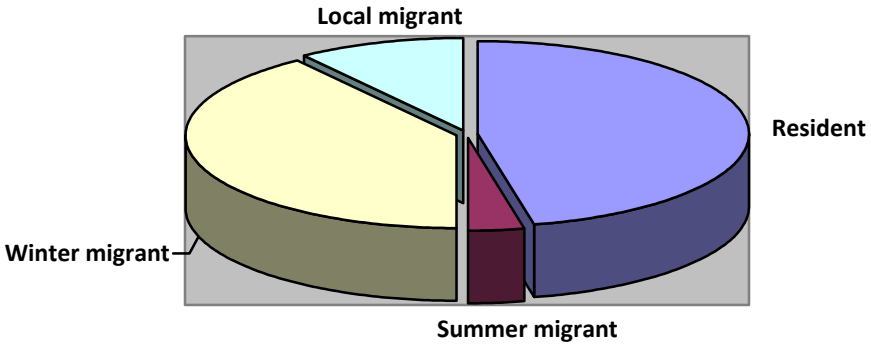

Figure 3. Residential Status of Water birds in Ahiran Lake

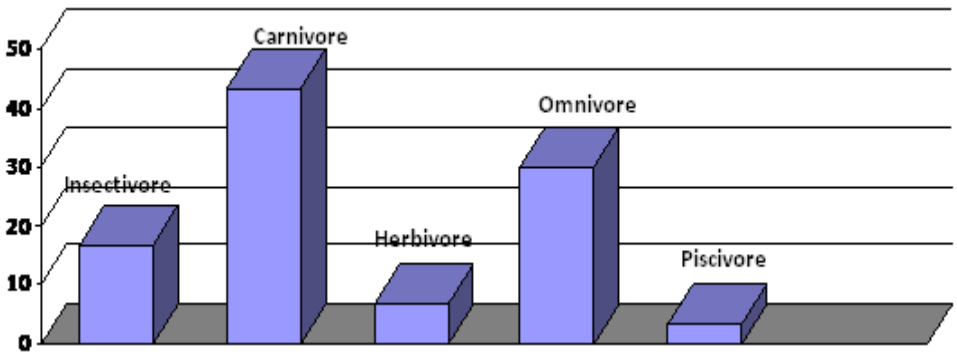

Figure 4. Percentage of Feeding Habitat in Water birds at Ahiran Lake

DISCUSSION

A total of 30 species of water birds belonging to 29 genera and 12 families were recorded in the Ahiran Lake in the month of February 2014 to January 2015. Of the 30 species about 16 were migrants and 14 species residents. The checklist of recorded bird species along with their abundance, feeding habitat, residential status is given in Table 3. The family Anatidae represented by 7 species, dominated the water birds community of the study area (Figure 3.). It accounted for 24.13% of the total number of wetland bird species of the Ahiran Lake. The families Podicipedidae, Alcadinidae, Charadridae, Phalacrocoracidae, Anhingidae, Ciconidae are less common and is 3.44%. Among the recorded species, 40% were winter migrants, 3.33% summer migrants, 46.66% were resident and 10% are local migrant species (Figure 5).

The winter migratory birds displayed a definite pattern specific to species for arrival at and departure from the Lake. They appeared at the wetland from November and stayed up to March. The peak of winter population of migratory birds was observed during the months of December to February. The Observation through the year revealed that Northern Pintail *Anas acuta*, Common Pochard *Aythya ferina*, Common Coot, Common Moorhen, *Fulica atra* and Gadwall *Aythya ferina* arrived in late November; Ferruginous Pochard , Garganey, Grey-headed Lapwing arrived in first week of December. As far as the departure time was concerned, Gadwall generally departed in February. Birds like Red-crested Pochard, Common Coot, Common Moorhen, Ferruginous Pochard, Garganey and Northern Pintail departed in March. The summer visitors, namely Cotton Teal *Nettapus coromandelianus* were spotted during summer seasons from March to October. Based on the frequency of sightings, three species are abundant, 12 common, four fairly common and 11 uncommon. Red-crested Pochard is almost abundant spcies in Ahiran Lake (Figure 5.1).

Figure 5. Birds in Ahiran Lake

The basic requirements of migratory birds at their wintering ground are adequate food supply and safety [15], which ware fulfilled by this wetland as it was situated amidst agricultural fields and nearby Feeder canal Ganges River. The wetland birds are in general heterogeneous in their feeding habits [2]. The composition of birds in major feeding habitat in Ahiran Lake showed that the carnivore was the most common with 43.43% species, followed by omnivore (30%), insectivore (16.66%), herbivore (6.66%) and piscivore (3.33%)(Figure 3.1.2). Result showed wetland birds exploit a variety of feeding habitats for their survival. Many studies have demonstrated the importance of feeding guild in wetland bird richness and abundance [7, 8, 21, 27].

The various lakes and wetlands serve as a balancing reservoir for sustaining native flora and fauna [11, 23]. The water bird of wetland is under threat owing up increased anthropogenic activities resulting in habitat loss [3, 6, 10]. Large numbers of human activities are risk factor for conservation of the avian diversity of Ahiran Lake.

Direct observations seen during surveys revealed that human activities as agriculture, livestock grazing and cleaning, soil damping, fishing, busy NH 34 road and railway tract are some of the major threats to the biodiversity of this wetland. The Ahiran Lake wetland needs more attention to minimize disturbance, in particular during the breeding season.

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