

Research Paper

Studies on the Avian Diversity in and around Manibugh Wetland of Pampore Srinagar (Jammu & Kashmir)

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Abstract: Kashmir wetlands owing to its geographical location and the key role they play in the climate of this hilly state are extremely important. In fact the fresh water bodies of this basin ranging from ponds, lakes, springs, reservoirs, streams, rivers etc. are of vital importance because they not only provide portable water and fodder for the cattle but also safeguard the climate of this area. The Wetlands in south of Kashmir and especially in the saffron town of Pampore, where many satellite wetlands prevail, are regarded as fragile ecosystems protecting rich biodiversity of flora and fauna. Among fauna, birds are considered as most exposed group of vertebrates that are used as trustworthy indicators of ecological health of an ecosystem. The present study was carried out at Manibugh wetland located at an altitude of 1,607 MASL spread on an area of 14 acres in the vicinity of the Government Degree College Pampore in

Pulwama. The surveys were carried out in different time periods of the day during all the four seasons following the standard point count methodology with an objective of assessing its bird fauna which can serve as first-hand baseline data for assigning conservation value to this important bird habitat. The research was conducted during 2014 to 2017 where we recorded a total of (85) species of birds belonging to twenty five (25) families including fifteen (15) species of migratory waterfowl. The main contributors of birds belonged to the families of Anatidae (15,000), Rallidae (6000), Laridae (1000), Hirundinidae (600), Accipitridae (300), Podicipedidae (150), Ardeidae (110),Sturnidae (90), Motacillidae Paridae (45),(35),Muscicapidae (26),Scolopacidae (20),Passeridae (18),Alcedinidae (17).Phalacrocoracidae (13), Recurvirostridae (12), Upupidae (11), Columbidae (10),

Picidae (8), Timallidae (7), Jacanidae (6), Phylloscopidae (5), Corvidae (5), Troglodytidae (4), Oriolidae (3) and so on. Although this wetland is located in a matrix of saffron fields but the degree of disturbance is less compared to the nearby protected area of Chatlam wetland. The peripheral areas on its south and west are now encroached by the local people for poultry farms and other human settlements but the core area of this wetland is intact and with least disturbance. Thus Manibugh wetland assume a great biodiversity of birds and aspects of ecological significance with long term conservation is imperative.

Keywords: Manibugh wetland, Pampore, fragile, ecological significance

INTRODUCTION

The Jammu and Kashmir state has a large number of wetlands due to glacial erosions and depressions which are mingled with rivers giving rise to lentic ecosystem. These lentic ecosystems (wetlands and lakes) are of great ecological and socio-economic importance as it harbors a diverse collection of waterfowl. These wetlands are providing a good habitat for birds with abundant food, safe place for roosting, nesting and breeding. From the ornithologist point of view, the valley of Kashmir is heaven for migratory species of birds, including endemic and near endemic ones. Inland wetlands of Jammu and Kashmir cover an area of 406,780 hectares and include amongst others 11 wetland reserves fulfilling Ramsar (1971) criteria: Wular lake, Hokarser, Mirgund, Shallabugh, Chushul marshes, Haigham, Hanle, Pangong Tso, Surinser-Mansar, TsoKar and Tsomoriri lake (Islam and Rahmani, 2008). Dubey, 2014 reported Bird diversity at Chhatarpur District Madhya Pradesh. Kashmir valley (33⁰-35⁰N latitude $73^{\circ}-78^{\circ}E$ longitude), and renowned internationally for its beauty and favourite

tourist destination, has a rich diversity of wetlands particularly the famous Dal Lake and Wullar Lake. Other important wetlands of the state include- Hokersar, Haigam, Shalbugh, Mirgund and Manibugh-Chatlam in the Kashmir Province; Pangong Tso, Tso Moriri, Tso Kar, Chushul and Hanlay Marshes in the Ladakh region; and Gharana, Mansar, Surinsar, Nandansar, Chandansar, Kotarisar etc in Jammu division. Besides, these mentioned inland wetlands, there are more than around 40 satellite wetlands prevailing in the state of Jammu and Kashmir. These satellite wetlands offer refuge to thousands of migratory birds from different parts of the world including Central Asia and China. According to estimations by the Ministry of Environment and Forests, the state of Jammu and Kashmir has 29,107 hectares under wetlands, out of which 7,227 hectares are under natural and 21,880 hectares under man-made wetlands.

The valley of Kashmir is a land of lakes, wetlands, clear water streams, green grasses, magnificent- trees in lush green forests that are surrounded by snow-capped mountains. The characterized wetlands form one of the important components of the beautiful ecological spectrum of the province and are of great bio-aesthetic, cultural and socioeconomic value besides playing an imperative role in the conservation of genetic resources, both plants and animals.

MATERIAL AND METHODS

The present study was carried out during 2014 to 2017 at Manibugh wetland situatedin Pampore town at an altitude of 1,607 MASL. It is spread on an area of 14 acres within the saffron fields of Pampore. It is located in the south of Government Degree College Pampore, Pulwama. The surveys were carried out in different time periods of the day during all the four seasons following the standard point count

methodology with an objective of assessing its bird fauna which can serve as first-hand baseline data for assigning conservation value to this important bird habitat. The was stratified into wetland three zones/blocks. The monitoring and surveys for the seasonal ecological waterfowl status and distribution was done on regular and rotational basis three times a week and sometimes three times a month in the least bird sighting months of summer using standard methodology of point count and scan sampling. The average visit time was 90 minutes. This was followed along the fixed transect surveys along the three fixed wetland blocks or zones on regular basis in all seasons, i.e., Spring (Mar-May), Summer (June-Aug), Autumn (Sep-Nov) and Winter (Dec-Feb). It shows great avian diversity which can attract the attention of bird watchers and ornithologists. Observations were recorded with the help of $12 \times 50 5.5^{\circ}$ Nikon binocular and Photography was done with Sony DSC-H×1 and Nikon 12.3 mega pixel. Identification of birds was done by using avifauna field guides of BNHS and IBCN composed by Richard Grimmett, Tim Inskipp and M-Zafarul Islam, 2004.

RESULTS AND DISCUSSION

During 2014-2017, 56 species belonging to 12 families with 14 species of migratory waterfowl were recorded in Manibugh Conservation Reserve (CR).. The main contributors of birds belonged to the families of Anatidae (15,000), Rallidae (6000), Laridae (1000), Hirundinidae (600), Accipitridae (300), Podicipedidae (150), Ardeidae Sturnidae (110),(90),Paridae Motacillidae (45),(35),Muscicapidae (26),Scolopacidae (20),Passeridae Alcedinidae (18), (17).Phalacrocoracidae (13), Recurvirostridae (12), Upupidae (11), Columbidae (10), Picidae (8), Timallidae (7), Jacanidae (6), Phylloscopidae Corvidae (5),(5).Troglodytidae (4), Oriolidae (3) and so on. Although this wetland is located in a matrix of saffron fields but the degree of disturbance is less compared to the nearby protected area of Chatlam wetland. The peripheral areas on its south and west are now encroached by the local people for poultry farms and other human settlements but the core area of this wetland is intact and with least disturbance. The methods of Quinlan and Baldassare (1984) were followed for recording the various birds and their activity patterns. The time for recording activity patterns was divided into 4 patterns:

- A. Early morning (08:00 am. to 11:00 am.)
- B. Late morning (11:00 am. to 02:00 pm.)
- C. After Noon (02:00 pm. to 05:00 pm.)
- D. Early evening (05:00 pm. to 08:00 pm.)

However, in winter months from December-February, when days are shorter in the Kashmir valley, the time schedule was changed. Different species of migratory waterfowl from nearby linkage wetlands like Chatlam, Fashkoori, Chandhara-Kranchu and Panzpora. These waterfowl visited the wetland at different times and dates of winter starting with the first week of October every year, when day and night temperatures differ to around 16-18°C. Water birds of the families Anatidae, Ardeidae and Rallidae formed the bulk of the Avifauna in the wetland with species like Common Coot. Common Teal. Mallards, Gadwall, Eurasian wigeon, Northern Pintail, Garganey and Little Grebe witnessed in large numbers. Highest bird diversity at Manibugh CR was observed during the peak winter months of December, January and February when the human disturbances owing to activities like catching of Fishes by local Fishermen, cattle grazing in the adjoining crop fields and college disturbances were least or hampered

due to the chilling day and freezing night hours. These migratory birds start leaving this wetland by end of March or by early April depending on duration of snowfall. The wetland provides variety of habitats and food for the waterbirds which are being occupied by migratory species as per their niche preferences. The basic requirement of the migratory water birds at their wintering sites is adequate food supply and safety (Lakshmi, 2006) and the same seems to have been a driving factor for the visit of the waterfowl to this wetland site from the adjoining major wetland reserves of the valley. The dense plantation of willows, Elm and Poplars are under water in the west, dubbed as DRAGDA, was Zone-A. The wetland offered the deep water habitats in Zone-B for diving to the preferring ducks like Common Pochard, Tufted Pochard and Northern Pintail. Butcommon coot and little grebe used habitats with submerged vegetation for use by the species like Mallard, common teal, grey lag geese in the Zone-C. Both these zones provided mixed habitats in between which enabled the water birds to transect from one zone to other. The wetland supports a rich vegetation diversity mainly dominated by species like **Phragmites** australis (Nurr), Typha angustifola Nymphoided (Petch), pettatum(Khur), Myriophyllum aquatirum (Heill) and Potomagtun lucens (Gurr Heill) which provide food and habitat for the visiting birds to Manibugh. There has been a considerable increase in the number and diversity of resident and migratory water birds visiting to the wetland since early nineties when few species (5-6) in very less numbers (in hundreds) have been reported visiting the wetland area (Bacha, 1996). This has been possibly due to some protection provided to the wetland after its reclamation by the State Wildlife department and providing it legal protection under wetland

However. conservation reserve. the incessant human disturbances prevalent in and around the wetland owing to hinting and poaching of birds by locals besides heavy use of pesticides and fertilizers in the crop fields and orchards compounded with the over fishing, encroachments of the wetland and subsequent reclamations by locals, poultry farms around posing disease threat to waterfowl, waste disposal by locals into and most recently the wetland the construction of Government Degree College are causes of grave concern for the long term survival and conservation of the Manibugh wetland and the resident breeding and migratory water birds visiting inhabiting and the wetland. Although, these activities were seen least in winter months when icv period (Chillaikalan) hit the Kashmir valley thus prompting the College authorities to go for the winter vacations. The observing of breeding by Gadwall and Northern Shoveler in the wetland for the first time during May-June, 2015 indicates that the wetland supports good vegetation cover, food, habitat and safe breeding grounds for the waterfowl besides many other species like Mallard, Pheasant tailed jacana, Common Moorhen, common Coot, Little Grebe and Grey heron. The attraction for Seventeen (17) species of migratory waterfowl during the months of winter (November February) was an interesting observation besides other bird diversity. The wetland as such has a potential to act as a main breeding ground for many resident water birds besides Gadwall, Mallard and Northern Shoveler. Thus vital measures need to be taken for addressing the issues concerning the long term conservation and survival of this important wetland site. The wetland reserve as such warrants immediate management intervention and extra legal protection for ensuring sustainable and long

term conservation for the water birds. Regular studies and surveys are needed to further understand and enhance knowledge on the aspects of ecology and conservation of waterfowl and wetland ecology of this important satellite wetland and Conservation Reserve.

Number of Birds recorded in Chatlam-Fushkoori Conservation Reserve Duringstudy period (2014-17).

S.NO	ORDER	FAMILY	SCIENTIFIC	COMMON	Vernacular
			NAME	NAME	NAME
1	Anseriformes	Anatidae	Anas	Mallard	NEULUJ(M)
			platyrynchus		THUJ(F)
2	Anseriformes	Anatidae	Anas clypeata	Northern	HOUNKE
				shoveler	
3	Anseriformes	Anatidae	Anser anser	Gray lag	ASMANI ANZ
				goose	
4	Anseriformes	Anatidae	Anas crecca	Common	KUIS/PUT
				teal	
5	Anseriformes	Anatidae	Anas acuta	Northern	SOKH
				pintail	POCHUN
6	Anseriformes	Anatidae	Anas Penelope	Eurasian	BUDEN
				wigeon	
7	Anseriformes	Anatidae	Aythya ferina	Pochard	KHROKH
8	Anseriformes	Anatidae	Anas strepera	Gadwall	BUDEN
9	Anseriformes	Anatidae	Tadorna tadorna	Ruddy	BUDEN
				shelduck	
10	Anseriformes	Anatidae	Aythya fuligula	Tufted duck	KHROKH
11	Anseriformes	Anatidae	Anus	Garganey	TOUR
- 10	<u> </u>		querquedula	D1	
12	Ciconiformes	Ardeidae	Nycticorax	Black	BRAG
			nycticorax	crowned	
10	D 1		A 1 11	night heron	
13	Pelecaniformes	Ardeidae	Ardea alba	Great Egret	BRATEMOST
14	Pelecaniformes	Ardeidae	Ixobrychus	Little Bittern	GUI
1.5	Q. 10	111 0	minutes	G	TICU
15	Gruiformes	Rallidae	Galinula	Common	TICH
1.0	0.10	ו 11' 1	cnioropus	Moornen	KOLAD.
16	Gruiformes	Rallidae	Fulica atra	Common	KOLAR
17	Chana duiifa mu aa	Tasanidas			
1/	Charadrifformes	Jacanidae	Hyarophasianus	Pheasant toiled is some	GUND KAW
10	Chanadmiifannaa	Decumuinestridee	<i>Chirurgus</i>	Diacana	LANC
18	Charadrinormes	Recurvirostridae	himantopus	DIACK	LANU 71 ientu
10	Conssiifonmas	Halvavanidaa	Inimaniopus	White	
19	Coracinformes	патусуопиае	nuicyon	throated	KULIUUNUH
			smyrensis	kingfisher	
20	Coraciiformas	Cervlidee	Caryla rudis	Diad	SAEADE
20	Coracintornies	Cerynuae	Ceryle ruais	kingfisher	TOONCH
				KIIIgiisiici	TUUNUI

21	Coraciiformes	Alcedinidae	Alcedo atthis	Common	KOLTOONCH
				kingfisher	
11	Pelecaniformes	Ardeidae	Ardea cinerea	Grey heron	SAFADE
				-	BRAG
23	Passeriformes	Motacillidae	Motacilla alba	Pied wagtail	DOB-BAI
24	Passeriformes	Motacillidae	Motacilla	Citrine	DOB-BAI
			citreola	wagtail	
25	Passeriformes	Timallidae	Garrulax lineatus	Streaked	SHEEN PIPIN
				laughing	
				thrush	
26	Passeriformes	Paridae	Parus major	Great Tit	RANG TSER
27	Passeriformes	Corvidae	Terpsiphone	Asian	FAMB TSER
			paradise	paradise	
				Flycatchrr	
28	Podicipediciformes	Podicipedidae	Tachybaptus	Little Grebe	PINDITCH
			ruficollis		
29	Piciformes	Picidae	Dendrocopos	Brown-	KUL DADUR
			auriceps	fronted	
				woodpecker	
30	Ciconiformes	Phalacrocoracidae	Phalocrocorax	Cormorants	MOUNG
			carbo		

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