

REPORT ON THE PROJECT 2020

**Title of the project: Monitoring of Migratory Birds at selected
water bodies of Murshidabad district**

Submitted by

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Title of the project: Monitoring of Migratory Birds at selected water bodies of Murshidabad District:

Introduction: The avian world has always been a fascination to the human world and has been a subject of our studies. Mythological documents hold a number of examples of birds being worshiped as gods with magical powers by the ancient civilizations. Even today winged wonders continue to be the subject of our astonishment primarily because of their ability to fly, their ability to build extraordinarily intricate nests, and of course, the brilliant colour of their plumage – features that no human being can replicate. Taxonomically birds are categorized in “Orders” “Families” and “Genera” and “species”. But overall they are divided into two groups: Passeriformes (or Passerines) and Non Passeriformes (non passerines). At least 60% of all bird species are Passeriformes or song birds, their distinguishing characteristics being their specialized leg structure, vocal structure and brain-wiring which allows them to produce complex songs. The non-passerine comprises 28 out of 29 orders of birds in the world. Throughout the world approximately 11,000 species are found. India is having 1301 species. West Bengal has 57.69% of the total avian fauna (750 species). Though there are many nomenclatures used by different people, we followed “Standardized common and scientific names of birds of Indian subcontinent by Manakadan and Pittie (2001).” Identification of bird is generally based on combination of various characteristics. The bird anatomy includes the plumage colour, overall colour, head shape, beak shape, feet structure, the habitat character, season of occurrence, feeding behavior, flying behavior, display behavior and flaking are also important characters. Birds are great indicators of our environment and watching birds and their behaviors helps us to understand our

nature better. Avifauna are important for the ecosystem as they play various roles as scavenger, pollinators, seeds dispersal agent and predators of insect pest and an important indicator to evaluate different habitats both qualitatively and quantitatively. Unfortunately global diversity of birds is decreasing due to anthropogenic activities and climate changes. IUCN Red List of endangered birds has already recognized 1226 bird species as threatened globally and India with 88 threatened bird species.

Wetlands, locally known as 'Beels' are the most common and an integral feature of the fluvial landscape of West Bengal. Wetlands are those areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support and that under normal circumstances, do support a prevalence of vegetation typically adopted for life in saturated soil conditions. Wetland generally includes swamps, marshes, bogs and similar areas . Wetland is a complex natural system that harbors a wide variety of flora and fauna, all of great economic, aesthetic and scientific importance . Wetlands are not wasteland at all they are valuable natural wonderlands that keep the environment in a balance state. Wetlands of India, estimated to be 58.2 million hectares, are important repositories of aquatic biodiversity. According to Bird Life International (2001), the wetland of this area lies in Biome - 11 (Indo-Malayan tropical dry zone). Thirteen big fresh water wetlands, out of 23 (>100 hectare) in West Bengal, are present in different blocks of this district. In Bengal the large or small, permanent or seasonally waterlogged marshes are popularly known as "beel". The wetlands of this region are generally palustrine (floodplains, seasonal waterlogged, marsh), lacustrine (Lakes) and riverine types. All these wetlands are directly or indirectly connected with the different rivers like Ganga, Babla, Jalangi, Bhairab etc. Wetlands are one of the most threatened habitats of the world. Wetlands in India, as elsewhere are increasingly facing several anthropogenic pressures. Thus, the rapidly expanding human population, large scale changes in land use/land cover, burgeoning

development projects and improper use of watersheds have all caused a substantial decline of wetland resources of the country. Significant losses have resulted from its conversion threats from industrial, agricultural and various urban developments. These have led to hydrological perturbations, pollution and their effects. Unsustainable levels of grazing and fishing activities have also resulted in degradation of wetlands. The current loss rates in India can lead to serious consequences, where 74% of the human population is rural and many of these people are resource dependent. Healthy wetlands are essential in India for sustainable food production and potable water availability for humans and livestock. They are also necessary for the continued existence of India's diverse populations of wildlife and plant species; a large number of endemic species are wetland dependent. Most problems pertaining to India's wetlands are related to human population. Many species of fishes, amphibians, reptiles, birds and mammals depend on the wetland habitat for breeding, foraging and for their shelter supported by the diverse plant species. One of the best known functions of wetlands is to provide habitat for birds which use wetlands for breeding, nesting and rearing of young ones, besides using them as a source of drinking water, for feeding, resting, shelter and social interaction.

THE DISTRICT

Murshidabad district ([Bengali](#): মুর্শীদাবাদজেলা) is a district of [West Bengal](#) in eastern India. Situated on the left bank of the river Ganges, the district is very fertile. Covering an area of 5,341 km² (2,062 sq mi) and having a population 5.863m (according to 2001 census) it is a densely populated district and the ninth most populous in India (out of [640](#)). [Baharampur](#) town is the headquarters of the district. The [Murshidabad](#) city, which lends its name to the district, was the seat of power of the [Nawabs](#) of [Bangla](#). All of Bengal was once governed from this town. Few years after Nawab [Siraj-ud-Daula](#) lost to the British at the [Battle of Plassey](#), the capital of Bengal was moved to the newly founded city of [Calcutta](#).

Geography

It borders Malda district to the north, Jharkhand's Sahebganj district and Pakur district to the north-west, Birbhum to the west, Bardhaman to the south-west and Nadia district due south. The international border with Bangladesh's Rajshahi division is on the east.

Landscape, Rivers and Vegetation

The district comprises two distinct regions separated by the Bhagirathi River. To the west lies the Rarh, a high, undulating continuation of the Chota Nagpur plateau. The eastern portion, the Bagri, is a fertile, low-lying alluvial tract, part of the Ganges Delta. The district is drained by the Bhagirathi and Jalangi rivers and their tributaries. Bhagirathi is a branch of the Ganges, and flows southwards from Farakka barrage where it originates from the Ganges. It flows southwards through the district and divides it into more or less equal halves. Most of the land is arable, and used as agricultural land. Commonly seen trees are Neem, Mango, Jackfruit.

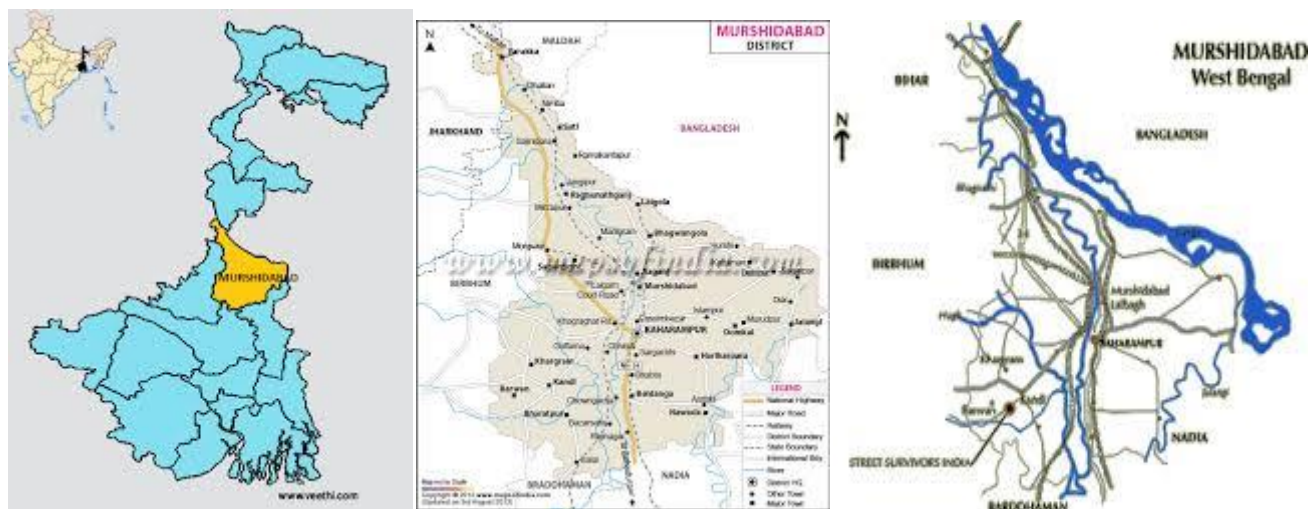
Geology

Technically Murshidabad District is divided into three parts. Those are –

- a) Open Shield Region: It seen some parts of the district.
- b) Buried Shield Region: Some parts of Farakka and Suti-I block fall under this region. Ahiron Beel region is a Buried Shield Region. It buried under the sediment of Bhagarathi River.
- c) Rest part of Murshidabad District is shield and joint region of shield and geosynclines.

Climate

Murshidabad has a tropical wet-and-dry climate (Köppen climate classification). The annual mean temperature is approximately 27 °C ; monthly mean temperatures range from 17 °C to 35 °C (approximate figures). Summers are hot and humid with temperatures in the low 30's and during dry spells the maximum temperatures often exceed 40 °C during May and June. Winter tends to last for only about two and a half months, with seasonal lows dipping to 9 °C – 11 °C between December and January. On an average, May is the hottest month with daily average temperatures ranging from a low of 27 °C to a maximum of 40 °C, while January the coldest month has temperatures varying from a low of 12 °C to a maximum of 23 °C. Often during early summer, dusty squalls followed by spells of thunderstorm or hailstorms and heavy rains cum ice sleet lash the district, bringing relief from the humid heat. These thunderstorms are convective in nature, and is locally known as Kal baisakhi. Rains brought by the Bay of Bengal branch of South-West monsoon lash the city between June and September and supplies the district with most of its annual rainfall of approx 1,600 mm (62 in). The highest rainfall occurs during the monsoon in August approx 300 mm (12 in). Floods are common during Monsoon, causing loss of life, destruction of property, and loss of crops.



Importance of Wetland Birds: 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 [2, 3, 4] 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 [6] that occupy about six percent of the Earth's land surface [5]. 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 [7, 8]. Wetlands are important habitats for birds, which use them for feeding, roosting, nesting and rearing young [9, 11]. 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 [10]. The wetlands are facing tremendous anthropogenic pressure, which can greatly influence the population structure of the bird community [1]. 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 led 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 but actually the population has yet not been surveyed.

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Background information of Birds of Murshidabad district: Birds of Murshidabad is much less studied in comparison to elsewhere. This district contain 43 very large wetlands in total, 30 of these wetlands are frequently used for organized fisheries. 13 wetlands are wild in nature till date. Very few literatures are available on water birds of Murshidabad. These literatures are only describing avifauna of four wetlands mainly. De, M. and Dey, S.R. (2015) described the flora and fauna of Patan wetland which includes birds. Detail description and change in population dynamics of birds of Motijheel were described by Dey, S.R. (2015) and De, M *et al* (2016). Mistry, J. and Mukherjee, S. (2015) and Chatteraj, S., Dey, S.R. and Bhattacharya, Shilanjana (2018) described the fauna of Ahiran. Bhattacharya and Sarkar (2017) described a detailed account of flora, fauna of a fishery known as Bisnupur Beel, an Ox-Bow adjacent to Berhampore. None of the literature mentioned the number of birds seen; moreover the rare bird photographs are not given in some literature. So, there was an urgent need for actual bird census in Murshidabad district. **Survey of 13 wild wetlands of Murshidabad, for migratory birds has been done in 2018 (November) to 2019 (October) with assistance from West Bengal Bio-Diversity Board.**

References:

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Materials and methods (along with reference of the sampling methods adopted):

1. The birds were counted by the method described by Colin J. B. *et al* (2016) in **Bird Census Technique (2nd Edition), Academic Press, pp. 1- 298.**
2. Birds were observed by using Olympus Binocular and photographs were taken by using SONY DSC HX 300V and NIKON DSLR camera.

3. Birds were identified from photograph by using the book “Hand Book of Indian Wetland Birds and their Conservation” by Arun Kumar *et al*, 2005, ZSI publication.
4. For counting of birds, each wetland was divided into 8 hypothetical grids. In each grid birds were counted by two people using counter. The counting time of birds were morning 8 AM to 10 AM.
5. Entire wetland was covered during counting
6. Each site was visited for minimum three to maximum eight different date different date in same time. Birds were counted in a particular date, as and when migratory birds appear.

Physiography of the study sites (with physical and also phyto parameters, location GPS etc.):

No	Name of Water Body	Location Details	Type/Approximate area	Surface Area Covered	Connectivity with other water body	Transect
1	Khairamari	24°10'36" N 88°39'53" E	Beel (5000 bigha ox bow)	Water Hyacinth (Partially)	Padma	Foot and Boat
2	Ramnagar Beel	23°47'41" N 88°13'37" E	Beel (2000 bigha ox bow)	Clean (Fishery)	Ganga	Foot
3	Kathalia Baor	23°58'58" N 88°11'16" E	Beel (500 bigha ox bow)	Totally covered by water hyacinth	Ganga	Foot
4	Kodla Beel	23°59'50" N 88°11'10" E	Beel (1000 bigha ox bow)	Clean	Ganga	Foot
5	Motijheel	24°9'42" N	Beel (2000 bigha ox bow)	Partially water	Ganga	Foot

		88°16'33" E		hyacinth, weeds		
6	Ahiran	24°31'15" N 88°2'21" E	Beel (3000 bigha ox bow)	Most of the areas covered by water hyacinth	Ganga	Foot and boat
7	Farkka Bird Watching Zone	24°48'21" N 87°15'12" E	Ganga	Clean		Foot
8	Patan	24°02'04" N 88°01'18" E	Beel (5000 bigha)	Partially Water hyacinth	None	Foot and Car
9	Nirmal Char	24°34'72.65" N 88°43'58.74" E	Lowland (2000 bigha)	Partially Water hyacinth	Ganga	Foot (Not Counted)
10	Rampara Beel	23°51'28" N 88°13'26" E	Lowland (100 bigha)	Partially Water hyacinth	None	Foot
11	Sagardighi Thermal power Ash Pond	24°37'88" N 88°09'11" E	Large water body	Very Clean, marginal vegetation	None	Foot and Car
12	Amlai Beel	23°91'80" N 88°14'45" E	Beel (ox bow 220 bigha)	Partially Water hyacinth	Babla	Foot
13	Chandpara	24°01'85" N 88°19'70" E	Beel (ox bow 110 bigha)	Partially Water hyacinth	Ganga	Foot

Period of Study: 2019 (November) to 2020 (February). For migratory birds, the birds were counted in a fixed date after their appearance.

Date of Visit of 13 Different Wetland of Murshidabad District and Their Character

No	Name of Water Body	Location Details	Migratory Birds Observation Date	Altitude	Depth	Flood month
1	Khairamari	24°10'36" N 88°39'53" E	28/01/2020	10msl	8 m	June-October
2	Ramnagar Beel	23°47'41" N 88°13'37" E	17/01/2020	10 msl	--	June-October
3	Kathalia Baor	23°58'58" N 88°11'16" E	05/01/2020	10msl	4 m	June-October
4	Kodla Beel	23°59'50" N 88°11'10" E	14/01/2020	10 msl	5.2 m	June-October
5	Motijheel	24°9'42" N 88°16'33" E	26/01/2020	10msl	5 m	June-October
6	Ahiran	24°31'15" N 88°2'21" E	25/12/2019	10 msl	3 m	June-October
7	Farkka Bird Watching Zone	24°48'21" N 87°15'12" E	21/01/2020	--	--	River
8	Patan	24°02'04" N 88°01'18" E	01/02/2020	10msl	4m	June-October
9	Nirmal Char	24°34'72.65" N 88°43'58.74" E	05/02/2020	10msl	2m	River connected flood plain
10	Rampara Beel	23°51'28" N	19/01/2020	10msl	4m	June-October

		88°13'26" E				
11	Sagardighi Thermal power Ash Pond	24°37'88" N 88°09'11" E	25/01/2020	36msl	20 m	Ash Pond, Power plant water fed
12	Amlai Beel	23°91'80" N 88°14'45" E	12/01/2020	10msl	4m	June-October
13	Chandpara	24°01'85" N 88°19'70" E	26/01/2020	10 msl	4m	June-October

Background Database

Number of Migratory Birds in Different wetlands of Murshidabad

(Single date observation, 2019)

Family wise Species with author and year	Common name	Ahira n 26/12/18	Motijhe el 10/02/ 19	Khaira mari 27/01/ 2019	Sagardi ghi Ash pond 25/01/2 019	Chandpa ra 26/01/ 2019	Amlai 13/01/ 2019	Kathalia 02/01 2019	Kodla 14/01/ 2019	Patan 02/02/ 2019	Ramna gar 20/01 2019	Rampa ra 04/02 2019	Farak ka 03/02/ 2019	Nirm al Char 25/12/ 2018
ANSERIFORMES: Anatidae														
Dendrocygna javanica	Lesser Whistling- duck	748	8300	102	12000	350	150	227		22		963		P
Anser anser	Greylag Goose				1700									
Tadorna ferruginea	Ruddy				50		40					07		

	Shelduck													
Nettapus coromandelianus	CottonPyg my-goose				200	600	50							
Netta rufina	Red-crested Pochard	316	122	40	300	100				06		69	223	
Aythya anyroca	Ferruginous Duck				50	15	20							
Aythya fuligula	Tufted Duck		08		30		25							
Marecas trepera	Gadwall		56	12	200	50	70						38	
Anas platyrhynchos	Mallard				06									
Anas acuta	Northern Pintail	11	22	06	100		40						08	
PODICIPEDIFORMES: Podicipedidae														
Tachybaptusruficollis	Little Grebe		71	40	100		30	22	12		14			P
Podiceps cristatus	Great Crested Grebe			01	20									
Podiceps nigricollis	Black-necked Grebe				03									
GRUIFORMES: Rallidae														
Amaurornis phoenicurus	White-breasted Waterhen	27	26	35	45	42	60	18	32	63	19	17	02	P
Porphyrio porphyrio	Purple Swamphen	31	119	60			16	32	57	51	04	19		
Gallinula chloropus	Common Moorhen	09	23				04	11	17	03	09	03		
Fulica atra	Common	04	700	75	300	40	20			13	06		387	

	Coot													
CICONIIFORMES: Ciconiidae														
Leptoptilosjavanicus	Lesser Adjutant	01		03										06
Anastomusoscitans	Asian Openbill	23	36	70	80	50	200	26	06	62	42	09		67
Ciconiaepiscopus	Asian Woollyneck	02		20	30		15			06	02			
Ephippiorhynchus asiaticus	Black Necked Stork												01	
PELECANIFORMES: Threskiornithidae														
Threskiornismelanoc ephalus	Black- headed Ibis			70			55	06		08				
PELECANIFORMES: Ardeidae														
Ixobrychussinensis	Yellow Bittern			30	30									
Nycticoraxnycticorax	Black- crowned Night-heron		20		45									
Ardeolagrayii	Indian Pond-heron	62	160	15	200	40	315	82	37	198	13	03		P
Bubulcus ibis	Cattle Egret	41	19	30	70		70	31	23	62	39	01		P
Ardeacinerea	Grey Heron		132	15	600			23	02					
Ardeapurplea	Purple Heron	03	04	30	12	4	10	03		01				7
Ardea alba	Great White Egret			30		10								
Egrettagarzetta	Little Egret	37	39	40	100		80	11	41		12			P

Actitishypoleucos	Common Sandpiper												03	
Tringaneblaria	Common Greenshank		22	30	10		30							
CHARADRIIFORMES: Glareolidae														
Glareolalactea	Little Pratincole				12									
CHARADRIIFORMES: Laridae														
Larusridibundus	Black-headed Gull				02									
ACCIPITRIFORMES: Pandionidae														
Pandion haliaetus	Osprey			04	02		02	02	01					2
ACCIPITRIFORMES: Accipitridae														
Circus aeruginosus	Western Marsh-harrier			02	06									
Circus cyaneus	Hen Harrier						06	06				03		
Circus melanoleucos	Pied Harrier						01		02					
Haliasturindus	Brahminy Kite	01	01	02	04		02	02	01	06	01	01		4
Milvus migrans	Black Kite		01	10	20		10		02	11	06			
CORACIIFORMES: Alcedinidae											01			
Alcedoatthis	Common Kingfisher	13	26	30	10	10	10	14	17	42		06	02	
Cerylerudis	Pied Kingfisher		03	04	04		04	02	06	02		01		

	Goose													
Tadorna ferruginea	Ruddy Shelduck	53		58								08		
Nettapus coromandelianus	CottonPyg my-goose	250		63		275	52		07				62	265
Netta rufina	Red-crested Pochard	310			57	396	61					62	280	
Aythya anyroca	Ferruginous Duck	51		03										
Aythya fuligula	Tufted Duck	12		07			03							
Marecas trepera	Gadwall	157			02								52	
Anas platyrhynchos	Mallard													
Anas acuta	Northern Pintail	116			03	27								
PODICIPEDIFORMES: Podicipedidae														
Tachybaptus ruficollis	Little Grebe	62		08	63				08		11			400
Podiceps cristatus	Great Crested Grebe	40			01									
Podiceps nigricollis	Black- necked Grebe	01												
GRUIFORMES: Rallidae														
Amaurornis phoenicurus	White- breasted Waterhen	62	31	60	41	20	21	31	30	32		31		91
Porphyrio porphyrio	Purple Swamphen			18	75	35	135	31	31	62		27		
Gallinula chloropus	Common			21	31	22	69	39	42	46		19		

	Egret													
Egretta garzetta	Little Egret	100		80	52	30	21	32	47		37			
SULIFORMES: Phalacrocoracidae														
Microcarboniger	Little Cormorant	112	63	63	88	23	90	45	47	77	41	28	07	16
Phalacrocorax carbo	Great Cormorant		03											
Phalacrocorax fuscicollis	Indian Cormorant							33						
CHARADRIIFORMES: Recurvirostridae														
Himantopus himantopus	Black-winged Stilt						12			06	27		37	
CHARADRIIFORMES: Charadriidae														
Charadrius dubius	Little Ringed Plover	01												
Vanellus duvaucelii	River Lapwing												23	
Vanellus cinereus	Grey-headed Lapwing			02										
Vanellus indicus	Red-wattled Lapwing	32	06	09	03		32				51			
CHARADRIIFORMES: Jacanidae														
Hydrophasianus chirurgus	Pheasant-tailed Jacana	71	31	42	89	21	30	56	17			02		01
Metopidius indicus	Bronze-winged Jacana	27	29	40	47	26	33	68	31	63		13		07

CHARADRIIFORMES: Scolopacidae														
Actithypoleucos	Common Sandpiper												18	
Tringaneblaria	Common Greenshank	07		11	33		18						04	
CHARADRIIFORMES: S: Glareolidae														
Glareolalactea	Little Pratincole	03												12
CHARADRIIFORMES: S: Laridae														
Larusridibundus	Black-headed Gull	01												
ACCIPITRIFORMES: Pandionidae														
Pandion haliaetus	Osprey			01	05				01			02		6
ACCIPITRIFORMES: Accipitridae														
Circus aeruginosus	Western Marsh-harrier				02									
Circus cyaneus	Hen Harrier		01	01				03	02			01		01
Circus melanoleucos	Pied Harrier			01										
Haliasturindus	Brahminy Kite	02	01	03	02	02		03	01	02	01	03		01
Milvus migrans	Black Kite	02	03	07	06			01	01					
CORACIIFORMES: Alcedinidae														
Alcedoatthis	Common Kingfisher	09	17	03	31	11	21	17	12	12	31		06	
Cerylerudis	Pied	01	01		3	01	02	01		01	01			

Observation of 2020

In comparison to the previous data an observation has been made about the occurrence, distribution and abundance of the birds of wetland of Murshidabad. From the comparison with 2019 data with 2020 data, we found that, some avifauna are maintaining same population density, some are decreasing, three species were not found and some are increasing.

Family wise Species with author and year	Common name	Residential status – migrant (m)/ local migrant (lm)/ resident (r)	Name of Sites with geographic coordinates (lat., long.)	Number decrease or increase from Previous Year (2019) S: same D: decrease I: Increase	Conservation status following IUCN 2015	Conservation / awareness programme undertaken – Yes / No
ANSERIFORMES: Anatidae						No
<i>Dendrocygna javanica</i>	Lesser Whistling-duck	R	Sagardighi, chandpara, Amlai, Khairamari, Ahiran, Motijheel, Kathalia, Rampara, Nirmal Char	I	LC	No
<i>Anser anser</i>	Greylag Goose	M	sagardighi	D	LC	No
<i>Tadorna ferruginea</i>	Ruddy Shelduck	M	Sagardighi, Amlai, Rampara	S	LC	No
<i>Nettapus coromandelianus</i>	CottonPygmy-goose	M	Sagardighi, Chandpara, Amlai	S	LC	No
<i>Netta rufina</i>	Red-crested Pochard	M	Sagardighi, Chandpara, Khairamari, Ahiran, Motijheel, Patam, Rampara,	S	LC	No

			Farakka			
Aythya anyroca	Ferruginous Duck	M	Sagardighi, Chandpara, Amlai	D	NT	No
Marecas trepera	Gadwall	M	Sagardighi, Chandpara, Amlai, Khairamari, Motijheel, Farakka	D	LC	No
Anas acuta	Northern Pintail	M	Sagardighi, Amlai, Khairamari, Ahiran, Motijheel, Farakka	D	LC	No
PODICIPEDIFORMES: Podicipedidae						No
Tachybaptus ruficollis	Little Grebe	R	Sagardighi, Amlai, Khairamari, Motijheel, Kathalia, Kodla, Ramnagar, Nirmal Char	D	LC	No
Podiceps cristatus	Great Crested Grebe	M	Sagardighi, Khairamari	D	LC	No
Podiceps nigricollis	Black-necked Grebe	M	sagardighi	D	LC	No
GRUIFORMES: Rallidae						No
Amaurornis phoenicurus	White-breasted Waterhen	R	Sagardighi, Chandpara, Amlai, Ahiran, Khairamari, Motijheel, Kathalia, Kodla, Ramnagar, Patan, Rampara, Farakka, Nirmal Char	S	LC	No
Porphyrio porphyrio	Purple Swamphen	R	Amlai, Khairamari, Ahiran, Motijheel, Kathalia, Kodla, Ramnagar, Patan, Rampara	S	LC	No
Gallinula chloropus	Common Moorhen	R	Amlai, Ahiran, Motijheel, Kathalia, Kodla, Ramnagar, Patan, rampara	S	LC	No
Fulica atra	Common Coot	M	Sagardighi, Chandpara, Amlai, Khairamari, Ahiran, Motijheel, Ramnagar, Patan, Farakka	D	LC	No

CICONIIFORMES: Ciconiidae						No
Anastomusoscitans	Asian Openbill	R	Sagardighi, Chandpara, Amlai, Khairamari, Ahiran, Motijheel, Nirmal Char, Kathalia, Kodla, Ramnagar, Patan, Rampara, Farakka	S	LC	No
Ciconiaepiscopus	Asian Woollyneck	R	Sagardighi, Amlai, Khairamari, Ahiran, Patan	D	VU	No
PELECANIFORMES: Threskiornithidae						No
Threskiornismelanocephalus	Black-headed Ibis	R	Amlai, Khairamari, Kathalia, Ramnagar, Patan	D	NT	No
PELECANIFORMES: Ardeidae						No
Ixobrychussinensis	Yellow Bittern	R	Sagardighi, Khairamari	D	LC	No
Nycticoraxnycticorax	Black-crowned Night-heron	R	Sagardighi, Motijheel	D	LC	No
Ardeolagrayii	Indian Pond-heron	R	Sagardighi, Chandpara, Amlai, Khairamari, Ahiran, Motijheel, Kathalia, Kodla, Ramnagar, Patan, Rampara, Nirmal Char	D	LC	No
Bubulcus ibis	Cattle Egret	R	Sagardighi, Amlai, Khairamari, Ahiran, Motijheel, Kathalia, Kodla, Ramnagar, Patan, Rampara, Nirmal Char	D	LC	No
Ardeacinerea	Grey Heron	R	Sagardighi, Khairamari, Motijheel, Kathalia, Kodla	D	LC	No
Ardeapurpurea	Purple Heron	R	Sagardighi, Chandpara, Amlai, Khairamari, Ahiran, Motijheel, Kathalia, Patan, Nirmal Char			No

Ardea alba	Great White Egret	R	Chandpara, Khairamari	D	LC	No
Egretta garzetta	Little Egret	R	Sagardighi, Amlai, Khairamari, Ahiran, Motijheel, Kathalia, Kodla, Ramnagar, Nirmal Char	I	LC	No
SULIFORMES: Phalacrocoracidae						No
Microcarboniger	Little Cormorant	R	Sagardighi, Chandpara, Amlai, Ramnagar, Khairamari, Ahiran, Motijheel, katjalia, Kodla, Patan, Rampara, Farakka	I	LC	No
Phalacrocorax carbo	Great Cormorant	R	Motijheel	D	LC	No
Phalacrocorax fuscicollis	Indian Cormorant	R	Motijheel	S	LC	No
CHARADRIIFORMES: Recurvirostridae						No
Himantopus himantopus	Black-winged Stilt	M	Motijheel, Ramnagar, Patan, Farakka	S	LC	No
CHARADRIIFORMES: Charadriidae						No
Charadrius dubius	Little Ringed Plover	M	sagardighi	D	LC	No
Vanellus duvaucelii	River Lapwing	M	Farakka	D	LC	No
Vanellus cinereus	Grey-headed Lapwing	M	Amlai, Khairamari	D	LC	No
Vanellus indicus	Red-wattled Lapwing	M	Sagardighi, Chandpara, Khairamari, Motijheel	S	LC	No
CHARADRIIFORMES: Jacanidae						No
Hydrophasianus chirurgus	Pheasant-tailed Jacana	R	Sagardighi, Chandpara, Amlai, Khairamari, Ahiran, Motijheel, Kathalia, Kodla, Ramnagar, Rampara, Nirmal Char	I	LC	No

Metopidius indicus	Bronze-winged Jacana	R	Sagardighi, Chandpara, Amlai, Khairamari, Ahiran, Motijheel, Rampara, Kathalia, Kodla, Ramnagar, Patan, Nirmal Char	S	LC	No
CHARADRIIFORMES: Scolopacidae						
Actitishypoleucos	Common Sandpiper	R	Farakka	S	LC	
Tringaneblaria	Common Greenshank	Lm	Sagardighi, Amlai, Khairamari, Motijheel	D	LC	No
CHARADRIIFORMES: Glareolidae						No
Glareolalactea	Little Pratincole	M	sagardighi	D	LC	No
CHARADRIIFORMES: Laridae						No
Larusridibundus	Black-headed Gull	M	sagardighi	S	LC	No
ACCIPITRIFORMES: Pandionidae						No
Pandion haliaetus	Osprey	Lm	Sagardighi, Amlai, Khairamari, Kathalia, Patan	S	LC	No
ACCIPITRIFORMES: Accipitridae						No
Circus aeruginosus	Western Marsh-harrier	Lm	Sagardighi, Khairamari	S	LC	No
Circus cyaneus	Hen Harrier	Lm	Amlai, Kathalia, Rampara	S	NT	No
Circus melanoleucos	Pied Harrier	Lm	Amlai, Kodla	S	LC	No
Haliasturindus	Brahminy Kite	R	Sagardighi, Amlai, Khairamari, Ahiran, Motijheel, Kathalia, Kodla, Ramnagar, Patan, Rampara, Nirmal Char	S	LC	No
Milvus migrans	Black Kite	R	Sagardighi, Amlai, Khairamari,	S	LC	No

			Motijheel, Kodla, Patan			
CORACIIFORMES: Alcedinidae						No
Alcedoatthis	Common Kingfisher	R	Sagardighi, Chandpara, Amlai, kathalia Khairamari, Ahiran, Motijheel, Kodla, Ramnagar, Patan, Rampara, Farakka	I	LC	No
Cerylerudis	Pied Kingfisher	R	Sagardighi, Amlai, Khairamari, Motijheel, Kathalia, Kodla, Ramnagar, Patan, Rampara	D	LC	No
Pelargopsiscapensis	Stork-billed Kingfisher	R	Sagardighi, Chandpara, Amlai, Khairamari, Kathalia, Kodla	D	LC	No
Halcyon smyrnensis	White-breasted Kingfisher	R	Sagardighi, Chandpara, Amlai, Khairamari, Ahiran, Motijheel, Kathalia	D	LC	No
FALCONIFORMES: Falconidae						
Falco peregrines	Peregrine Falcon	Lm	Chandpara	S	LC	No

Conclusion

Total 53 species of Birds are seen in 13 wetlands of Murshidabad. Among these 53 species 17 are migratory species, 7 local migrant and 29 species are residential in nature. **Of these birds, Ferruginous Duck, Black Headed Ibis and Hen Harrier are Near Threatened species, Asian Woolyneck is vulnerable species.** The major threats of these birds are:

1. Poaching by nearby villagers
2. Intensive fisheries in all wetland that create disturbance and also promote growth of cormorant population. Cormorant competes with these birds aggressively. Tall tree surrounding promote cormorant colonization.
3. Lack of water in the wetlands due to less rain and siltation in the adjoining canals
4. Agriculture in the surrounding has little effect
5. Lack of proper vegetation in the wetland and bank of wetland for nesting

Recommendations:

1. **To stop poaching school level awareness has to be created. People poach birds not due to poverty but for game.**
2. **Wetland connecting canals with Ganga should be cleared, the same wetland can serve as fish breeding ground.**
3. **Wetland surrounding areas can be surrounded by trees (fruit bearing). These trees will serve as shelter of birds.**
4. **Some of the wetland can be handed over to BMC for conservation and tourism purpose.**
5. **For tourism development a bird catalogue of wetland of Murshidabad should be published.**