



e-ISSN No.: 2582-4228

# Journal of Indian Association for Environmental Management

Journal homepage: [www.http://op.niscair.res.in/index/php/JIAEM/index](http://op.niscair.res.in/index/php/JIAEM/index)



## Diversity of Birds Fauna in Jhargram, West Bengal, India

Dipak Das<sup>1</sup>, Samir Patra<sup>\*2</sup>, Supriya Jana<sup>3</sup>, Atanu Bera<sup>4</sup>, Banashree Jana<sup>5</sup>, Sumana Giri<sup>6</sup> and Ranjan Jana<sup>7</sup>

<sup>1</sup>Assistant Teacher of Biology, Doro Krishnanagar Bani Mandir (H.S), Haldia, 721635

<sup>2</sup>M. Sc. In Zoology, CSIR UGC NET, Ph. D Scholar, Haldia Institute of Technology (HIT) under MAKAUT, Haldia West Bengal, 721604

<sup>3, 6 and 7</sup>B. Sc. Second Semester, Zoology Department, Jhargram Raj College, Jhargram, 721507

<sup>4, 5</sup>M.Sc. in Zoology, Vidyasagar University, Midnapore, 721102

\*samirpatra1994jgm@gmail.com

Submitted: February 22, 2021

Revised: October 28, 2021

Accepted: November 05, 2021

**Abstract:** Jhargram is isolated part of Jangal mahal, separated from Paschim Medinipur district on 4<sup>th</sup> April, 2017 and rich in biodiversity. The avifaunal diversity is also rich due to its well vegetation, less human interference, low pollution level and good environmental health. The following article represents the survey report on birds for two years, annotated checklist of bird species with scientific name and IUCN status, graphical representation of species composition on different families, study area, study protocol and devices used. The exhaustive field study showed 132 species in 109 genera under 58 families within 20 orders from Jhargram urban and rural areas, and its outskirts. Some avian species are local migrant, while some are long distant migrant, occasional dweller, and maximum are resident. The rich diversity indicates a good environmental quality, lower pollution rate, dense vegetation and high oxygen production then consumption. Some scavengers bird species also found that monitored the environment and maintain its health.

**Keywords:** Avifauna, IUCN status, Field study, Scavengers and Migrant

### I. INTRODUCTION

Birds have been described as a Feathered Biped. It is most studied animals due to its behavioural and morphological beauty and special interest [2]. Study of avifaunal diversity is more expensive and exhaustive but quite interesting [5]. It takes long duration; minimally one year or more, to understand the various aspects and attributes of these recreational creatures. We study the forest area and consequently less popular region, and also sub-urban site of Jhargram outskirt where many tribal and sub-tribal people lived and their livelihood depends on this Mother Nature [8]. But day by day avian diversity was decreased due to various anthropogenic activities, such as urbanisation, deforestation, habitat destruction, hunting and poaching [1]. They have greater roles to maintain ecological health [9]. We study the mentioned areas for two years, put the data on datasheet, and identified bird's species on spot, if possible or by the help of photograph from local ornithologist. A wide range of studies have been run for estimating the bird's diversity of different region and understanding its several approach. Some birds like Falcon, Shikra, Crow and Kite have a scavenging nature, some are insectivores in nature like Green Bee-eater, Indian Roller,

Black Drongo, and few like Indian Paradise Flycatcher, Pittas, White-eyes, Robin, Indian Roller, Munia, Jacobin Cuckoo etc. have amused beauty. Further study needed for well understood the migratory behaviour and nesting patterns of some birds, and also their roles to regulate environmental health. Particular bird species also indicate the vegetation types, plant species composition and environmental qualities [7]. Unfortunately, ever bursting human population and human-animal conflict is a serious threat over avian creatures [8]. We hope more species can be identified by modern advanced tools and techniques from that region over time.

### II. MATERIAL AND METHODS

#### Study site

At first we selected the 6 study sites randomly on Jhargram and its outskirt for studying Avian diversity, which are Site-1: Jhargram town outskirt (22.36<sup>0</sup> N, 86.73<sup>0</sup> E), Site-2: Belpahari-II (22.63<sup>0</sup> N, 86.77<sup>0</sup> E), Site-3: Chilkigarh, Jamboni (22.27<sup>0</sup> N, 86.52<sup>0</sup> E), Site-4: Gopiballavpur (22.22<sup>0</sup> N, 86.9<sup>0</sup> E), Site-5: Lalgargh (22.35<sup>0</sup> N, 87.03<sup>0</sup> E), Site-6: Tapoban, Nayagram

(22.01° N, 87.1° E). The descriptive study site is given in **Map 1**.

### **Sampling methods**

We at first make a team, choose 6 visiting site and divides our labour for field work and data collection, then spot identification was done if possible, neither precise photograph was matched later by the help of various guide book and birds specialists. After two year of survey from June 2017 to May 2019. We confirmed 132 species of birds belonging to 109 genera of 58 Families and 20 Orders. We follow Systematic Bird Surveys (transect) method with regular basis on the above mentioned 6 fields. Randomly choose some sampling areas (Area search method) within them, which consist of some grasslands, water bodies, shrubs land, suburban region and woody forests. Observed birds were listed and identified by audio-visual methods. Spot identification was done if possible, bird's sounds were recorded and photographs were collected for analysis from bird's specialist. The subspecies level is not demonstrated here due to lack of more precise instruments and local bird specialist.

### **Instruments used**

Nikon ACULON A211-10-22 × 50 8252 Binocular is used for clear observation from long range, and Canon EOS 3000D

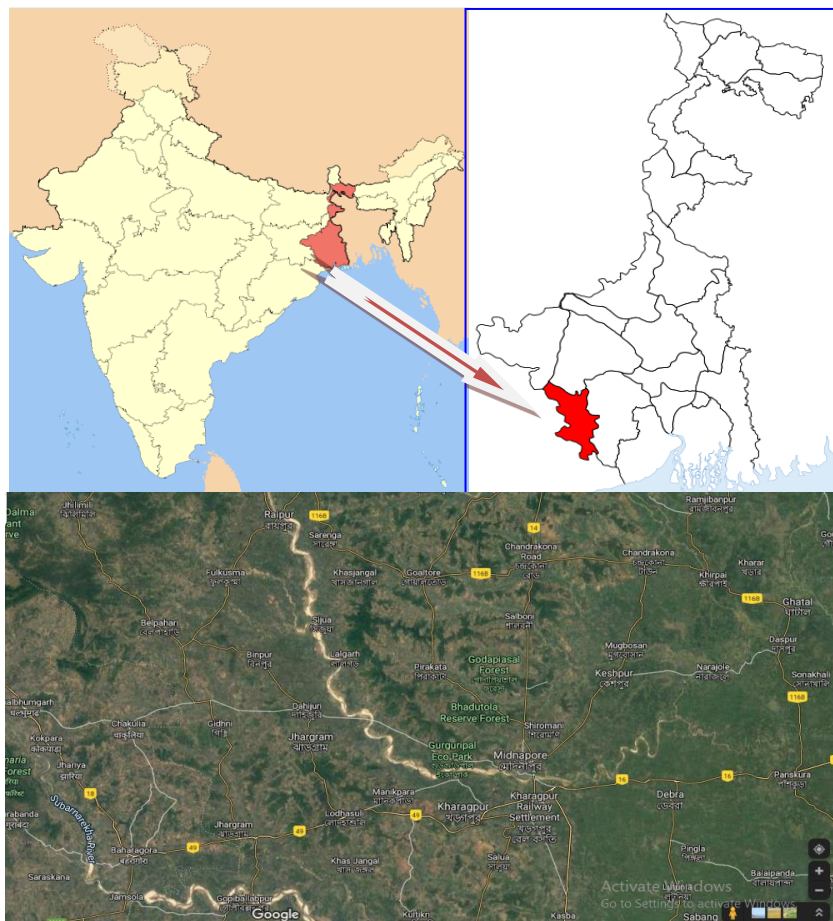
24.1 Digital SLR Camera with EF S18-55 is II Lens and Canon EOS 80D is used for proper photography. Garmin GPS machine was used to track the forest region and Tascam DR-05 stereo recorder was used to identify birds by auditory means.

### **Field guide used**

The Book of INDIAN BIRDS, Thirteenth Edition by Salim Ali and Birds of the Indian Subcontinent, second edition by R Grimmett, C. Inskipp and T. Inskipp were used for field guide.

## **III. RESULTS AND DISCUSSION**

The following article provides the outcome of two year survey for searching of bird species from Jhargram. It represents annotated checklist that includes a total 132 species in 109 genera of 58 Families and 20 Orders, with scientific name and IUCN status. Also graphically represent (Bar diagram) the species numbers in different orders and some captured beautiful photographs for better understanding. The orders Passeriformes contain most species while the order Caprimulgiformes, Ciconiiformes, Podicipediformes, Bucerotiformes and Apodiformes represent single species. The annotated checklist and graphical presentation of species abundance in different families are given below in **Table 1** and **Graph 1** respectively.



**Map 1:** Geographical map of which field survey was done for 2 years, imagery of study sites is given as Google map

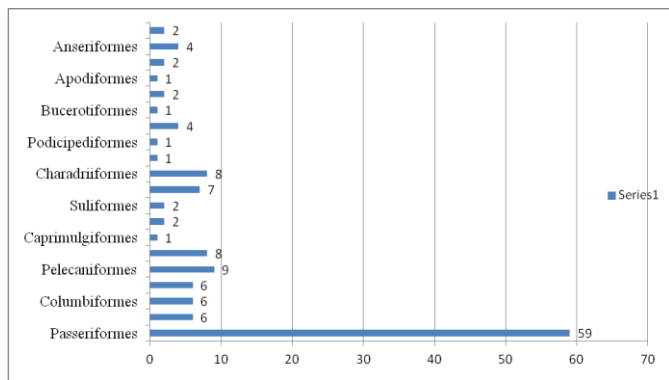
TABLE 1  
Study area, I-India, II-West Bengal and III-Google image of Jhargram

Order	Family	Sl. No.	Common Name	Scientific Name	IUCN 3.1 Status			
Passeriformes	Passeridae	1	House Sparrow	<i>Passer domesticus</i>	LC			
	Corvidae	2	House Crow	<i>Corvus splendens</i>	LC			
		3	Common Raven	<i>Corvus corax</i>	LC			
		4	Rufous Treepie	<i>Dendrocitta vagabunda</i>	LC			
		Pycnonotidae	5	Red-vented Bulbul	<i>Pycnonotus cafer</i>	LC		
	Pycnonotidae	6	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	LC			
		7	Ashy Bulbul	<i>Hemixos flavala</i>	LC			
		8	White-browed Bulbul	<i>Pycnonotus luteolus</i>	LC			
		Oriolidae	9	Black-naped Oriole	<i>Oriolus chinensis</i>	LC		
	Oriolidae	10	Eurasian Golden Oriole	<i>Oriolus oriolus</i>	LC			
		Motacillidae	11	Paddy-field Pipit	<i>Anthus rufulus</i>	LC		
	Motacillidae	12	Pied or White Wagtail	<i>Motacilla alba</i>	LC			
		Alaudidae	13	Bengal Bush Lark	<i>Mirafra assamica</i>	LC		
	Ploceidae	14	Baya Weaver	<i>Ploceus philippinus</i>	LC			
	Muscicapidae	Muscicapidae	15	Oriental Magpie Robin	<i>Copsychus saularis</i>	LC		
			16	Indian Robin	<i>Copsychus fulicatus</i>	LC		
			17	Siberian Rubythroat	<i>Calliope calliope</i>	LC		
			18	Blue Rock Thrush	<i>Monticola solitarius</i>	LC		
			19	White-rumped Shama	<i>Copsychus malabaricus</i>	LC		
			20	Verditer Flycatcher	<i>Eumyias thalassinus</i>	LC		
			21	Taiga Flycatcher	<i>Ficedula albicilla</i>	LC		
			22	Blue throated Blue Flycatcher	<i>Cyornis rubeculoides</i>	LC		
			Estrildidae	Estrildidae	23	Scaly Breasted Munia	<i>Lonchura punctulata</i>	LC
					24	Tricoloured Munia	<i>Lonchura Malacca</i>	LC
	25	Indian Silverbill			<i>Euodice malabarica</i>	LC		
	Artamidae	26	Ashy Woodswallow	<i>Artamus fuscus</i>	LC			
	Sturnidae	Sturnidae	27	Chestnut Tailed Starling	<i>Sturnia malabarica</i>	LC		
			28	Common Myna	<i>Acridotheres tristis</i>	LC		
			29	Pied Myna	<i>Gracupica contra</i>	LC		
			30	Common Hill Myna	<i>Gracula religiosa</i>	LC		
	Dicruridae	Dicruridae	31	Black Drongo	<i>Dicrurus macrocerus</i>	LC		
			32	Bronzed Drongo	<i>Dicrurus aeneus</i>	LC		
	Dicaeidae	33	Tickell's Flower-pecker	<i>Dicaeum erythrorhynchos</i>	LC			

	Acrocephalidae	34	Booted Warbler	<i>Iduna caligata</i>	LC
		35	Clamorous reed Warbler	<i>Acrocephalus stentoreus</i>	LC
	Phylloscopidae	36	Green-Crowned Warbler	<i>Phylloscopus burkii</i>	LC
		37	Siberian Chifchaff or Leaf Warbler	<i>Phylloscopus collybita tristis</i>	LC
		38	Dusky Warbler	<i>Phylloscopus fuscatus</i>	LC
	Nectariniidae	39	Purple Sunbird	<i>Cinnyris asiaticus</i>	LC
		40	Crimson Sunbird	<i>Aethopyga siparaja</i>	LC
	Cisticolidae	41	Common Tailorbird	<i>Orthotomus sutorius</i>	LC
		42	Plain Prinia	<i>Prinia inornata</i>	LC
	Zosteropidae	43	Oriental White-eye	<i>Zosterops palpebrosus</i>	LC
	Leothrichidae	44	Common Babbler	<i>Argya caudata</i>	LC
		45	Jungle Babbler	<i>Argya striata</i>	LC
	Sylviidae	46	Yellow-eyed Babbler	<i>Chrysomma sinense</i>	LC
	Timaliidae	47	Tawny-bellied Babbler or Rufous-bellied babbler	<i>Dumetia hyperythra</i>	LC
	Monarchidae	48	Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>	LC
		49	Black-naped Monarch	<i>Hypothymis azurea</i>	LC
	Laniidae	50	Brown Shrike	<i>Lanius cristatus</i>	LC
	Aegithinidae	51	Common Iora	<i>Aegithina tiphia</i>	LC
	Campephagidae	52	Black-headed Cuckooshrike	<i>Lalage melanoptera</i>	LC
		53	Large Cuckooshrike	<i>Coracina macei</i>	LC
		54	Small Minivet	<i>Pericrocotus cinnamomeus</i>	LC
	Chloropseidae	55	Jerdon's Leafbird	<i>Chloropsis jerdoni</i>	LC
	Emberizidae	56	White-capped Bunting	<i>Emberiza stewarti</i>	LC
	Hirundinidae	57	Barn Swallow	<i>Hirundo rustica</i>	LC
	Pittidae	58	Indian Pitta	<i>Pitta brachyuran</i>	LC
	Turdidae	59	Orange headed Thrush	<i>Geokichla citrina</i>	LC
Cuculiformes	Cuculidae	60	Common Hawk Cuckoo	<i>Hierococyx varius</i>	LC
		61	Asian Koel	<i>Eudynamis scolopaceus</i>	LC
		62	Jacobin Cuckoo	<i>Clamator jacobinus</i>	LC
		63	Plaintive Cuckoo	<i>Cacomantis merulinus</i>	LC
		64	Grey-bellied Cuckoo	<i>Cacomantis passerinus</i>	LC
		65	Sirkeer Malkoha	<i>Taccocua leschenaultii</i>	LC
Columbiformes	Columbidae	66	Yellow-footed Green Pigeon	<i>Treron phoenicoptera</i>	LC
		67	Rock Dove	<i>Columba livia</i>	LC
		68	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	LC

		69	Eurasian Turtle Dove	<i>Streptopelia turtur</i>	VU	
		70	Laughing Dove	<i>Spilopelia senegalensis</i>	LC	
		71	Spotted dove	<i>Spilopelia chinensis</i>	LC	
Coraciiformes	Alcedinidae	72	Common Kingfisher	<i>Alcedo atthis</i>	LC	
		73	White Throated/Breasted Kingfisher	<i>Halcyon smyrnensis</i>	LC	
		74	Stork Billed Kingfisher	<i>Pelargopsis capensis</i>	LC	
		75	Pied Kingfisher	<i>Ceryle rudis</i>	LC	
		76	Green Tailed Bee-eater	<i>Merops orientalis</i>	LC	
	Meropidae	76	Green Tailed Bee-eater	<i>Merops orientalis</i>	LC	
	Coraciidae	77	Indian Roller	<i>Coracias benghalensis</i>	LC	
Pelecaniformes	Ardeidae	78	Cattle Egret	<i>Bubulcus ibis</i>	LC	
		79	Little Egret	<i>Egretta garzetta</i>	LC	
		80	Intermediate Egret	<i>Ardea intermedia</i>	LC	
		81	Common Egret	<i>Ardea alba</i>	LC	
		82	Indian Pond Heron	<i>Ardeola grayii</i>	LC	
		83	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	LC	
		84	Cinnamon Bittern	<i>Ixobrychus cinnamomeus</i>	LC	
		85	Black Bittern	<i>Ixobrychus flavicollis</i>	LC	
			Threskiornithidae	86	Red-napped Ibis	<i>Pseudibis papillosa</i>
Piciformes	Picidae	87	Greater Flameback Woodpecker	<i>Chrysocolaptes guttacristatus</i>	LC	
		88	Lesser Golden-backed	<i>Dinopium benghalense</i>	LC	
		89	Indian Pygmy Woodpecker	<i>Yungipicus nanus</i>	LC	
		90	Eurasian Wryneck	<i>Jynx torquilla</i>	LC	
		91	Fulvous-breasted Woodpecker	<i>Dendrocopos macei</i>	LC	
		Megalaimidae	92	White-cheeked Barbet	<i>Psilopogon viridis</i>	LC
	93		Blue-throated Barbet	<i>Megalaima asiatica</i>	LC	
	94		Coppersmith Barbet	<i>Megalaima haemacephala</i>	LC	
	95		Indian Nightjar	<i>Caprimulgus asiaticus</i>	LC	
Caprimulgiformes	Caprimulgidae	95	Indian Nightjar	<i>Caprimulgus asiaticus</i>	LC	
Psittaciformes	Psittaculidae	96	Rose-ringed Parakeet	<i>Psittacula krameri</i>	LC	
		97	Alexandrine Parakeet	<i>Psittacula eupatria</i>	NT	
Suliformes	Phalacrocoracidae	98	Little Cormorant	<i>Microcarbo niger</i>	LC	
		99	Greater Cormorant	<i>Phalacrocorax carbo</i>	LC	
Accipitriformes	Accipitridae	100	European Honey Buzzard	<i>Pernis apivorus</i>	LC	
		101	Black-shouldered Kite	<i>Elanus axillaris</i>	LC	
		102	White-rumped Vulture	<i>Gyps bengalensis</i>	CR	
		103	Black Kite	<i>Milvus migrans</i>	LC	

		104	Shikra	<i>Accipiter badius</i>	LC
		105	Pied Harrier	<i>Circus melanoleucos</i>	LC
		106	Crested Serpent Eagle	<i>Spilornis cheela</i>	LC
Charadriiformes	Charadriidae	107	River Lapwing	<i>Vanellus duvaucelii</i>	NT
		108	Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	LC
		109	Red-wattled Lapwing	<i>Vanellus indicus</i>	LC
	Jacanidae	110	Bronze-winged Jacana	<i>Metopidius indicus</i>	LC
		111	Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	LC
	Rostratulidae	112	Greater Painted-Snipe	<i>Rostratula benghalensis</i>	LC
	Scolopacidae	113	Common Snipe	<i>Gallinago gallinago</i>	LC
	Burhinidae	114	Indian Stone-curlew	<i>Burhinus indicus</i>	LC
Ciconiiformes	Ciconiidae	115	Asian Open-bill Stork	<i>Anastomus oscitans</i>	LC
Podicipediformes	Podicipedidae	116	Little Grebe	<i>Tachybaptus ruficollis</i>	LC
Strigiformes	Strigidae	117	Spotted Owl	<i>Athene brama</i>	LC
		118	Brown Fish Owl	<i>Ketupa zeylonensis</i>	LC
		119	Indian Scops Owl	<i>Otus bakkamoena</i>	LC
	Tytonidae	120	Barn Owl	<i>Tyto alba</i>	LC
Bucerotiformes	Upupidae	121	Eurasian Hoopoe	<i>Upupa epops</i>	LC
Gruiformes	Rallidae	122	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	LC
		123	Grey-headed Swamphen	<i>Porphyrio poliocephalus</i>	LC
Apodiformes	Apodidae	124	Asian Palm Swift	<i>Cypsiurus balasiensis</i>	LC
Galliformes	Phasianidae	125	Grey Francolin or Grey Partridge	<i>Francolinus pondicerianus</i>	LC
		126	Black Francolin	<i>Francolinus francolinus</i>	LC
Anseriformes	Anatidae	127	Cotton Pygmy Goose or Cotton Teal	<i>Nettapus coromandelianus</i>	LC
		128	Red-crested Pochard	<i>Netta rufina</i>	LC
		129	Gadwall	<i>Mareca strepera</i>	LC
		130	Whistling Duck	<i>Dendrocygna sp.</i>	LC
Falconiformes	Falconidae	131	Peregrine Falcon	<i>Falco peregrinus</i>	LC
		132	Eurasian Hobby	<i>Falco subbuteo</i>	LC



**Graph 1:** Graphical representation of species abundance in different orders

Jhargram is a newly formed district having mass biodiversity and well environmental health. There are huge areas for ecological studies, especially in a good living laboratory like Jhargram and its outskirts. Now a day the taxonomical work is less prior and negligible areas of research. The biodiversity study, especially avian diversity is interesting but expensive and need advance tools and techniques. Some people use this environment as a beautiful recreational site and good for wild life photography. This paper represents the avian diversity of Jhargram for first time with annotated checklist, which is helpful for further ecological worker and environmentalist. A well bird's diversity also indicates the good health of nature, and density of forest. Some beautiful migratory birds are arrived during pre-winter season to avoid extreme climate, build their nest and breed. Due to less funding and short of time the statistical analysis of birds survey and sub-species level studies was not provided here, Though some problems arise during survey are communication with local tribal and sub tribal peoples, merge the forest route, chase of Asiatic elephant as it is corridor for their habitats, harsh sudden changing environment, and last but not least was that financial support. Further survey and proper equipments will be needed. Hope there is chance for more new reports of bird species from that region.

#### IV. ACKNOWLEDGEMENT

Second author wish to express their heartiest thanks to Jawahar Patar, Somnath Hembram, Subham De and Avinaba Dey for helping in field study. First author wish to special thanks his respected teacher Dr. Dulal Chandra Das, Principal of Medinipur K D College for encourage in research work.

#### V. REFERENCES

Adhurya, S. "Avifaunal Diversity of Durgapur, west Bengal, India", January, 2014, Reaserchgate, doi 10.13140/2.1.4500.8163.

Ali, S. The Book of Indian Birds, 12<sup>th</sup> Revised Enlarged Centenary Edition, Bombay natural History Society, 1997, Oxford University Press, India.

Arnold, N. Collins Field Guide: Birds of India (Hard Cover), 2015, Herper Collins Publications. Bird Life International.

IUCN Red List for birds (2015). <http://www.birdlife.org/2015>. Accessed on 06 June, 2016.

Biswas Roy, M., Chatterjee, D., Mukherjee, T., Roy, P.K. (2016). Environmental threat to wetland bio-diversity on migratory bird: a case study of peri-urban area of West Bengal. *Asian Journal of Current Research*, 1(1): 30-38, 2016.

Cox, J. Bird Watching Basics, The Florida Fish and Wildlife Conservation Commission, 1999.

Das A A, Das D, Preliminary Studies on Common Birds of West Bengal with Special Reference to Vegetation Spectrum, India. *IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)* e-ISSN: 2319-2402, Volume 10, Issue 11 Ver. IV (Nov. 2016), PP 12-34.

Das, D and Ghosh, P. Ecological studies of Ecosystem Helath Indicators at Nayagarm of Paschim Medinipur District in Lateritic forests of southwest Bengal, *IOSR- JESTFT*, 2014, 8 (6): 48-63.

Das, S. (2012). Utilization and management of wetland resources of West Bengal, India. Ph.D thesis, Indian Institute of Technology, Kharagpur.

Debnath S, Biswas S, and Panigrahi A K. Present status and diversity of avian fauna in Purbasthali bird sanctuary, West Bengal, India *Agric. Sci. Digest.*, 38 (2) 2018: 95-102. E ISSN:0976-0547.

Datta, T. (2011). Human interference and avifaunal diversity of two wetlands of Jalpaiguri, West Bengal, India. *Journal of Threatened Taxa* 3 (12): 2253–2262.

Inskipp, C; Richard, G and Inskipp, T. *Birds of the Indian Sub-Continent*, OUP, 2011, India.

IUCN. The IUCN Red list of threatened species. Version 2016-3. <http://www.iucnredlist.org>.

Jorgensen, S. E; Xu, Fu-Liu and Costanza, R. *Hand Book of Ecological Indicators for assessment of Ecosystem Health*, Second Edition, CRC Press, New-York, 2010, pp.484

Khan, M.M.H. (2005). Species diversity, relative abundance and habitat use of the birds in the Sundarbans East Wildlife Sanctuary, Bangladesh. *FORKTAIL* 21 (2005): 79–86.

Roy, U. S., Banerjee, P. and Mukhopadhyay, S.K. (2012). Study on avifaunal diversity from three different regions of North Bengal, India. *Asian Journal of Conservation Biology*, ISSN 2278-7666. December 2012. Vol. 1 No. 2, pp. 120 -129.

Singha Roy, U. Roy Goswami, A. Aich, A. Mukhopadhyay, S.K. (2011). Changes in densities of waterbird Species in Santragachi Lake, India: Potential Effects on Limnochemical Variables. *Zoological Studies* 50(1): 76-84.