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A PRELIMINARY ASSESSMENT ON WETLAND BIRDS AT THAMIRAPARANI RIVER IN TIRUPADAIMARUDUR OF TIRUNELVELI DISTRICT, TAMILNADU, INDIA

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ABSTRACT

Wetlands are rich in habitats because of richness in biodiversity within natural environment. Birds which are present in this ecosystem are from different diverse groups, their richness mainly depends on their habitat. The availability of different species from diverse families in a wetland is predominantly because of its balanced ecosystem and rich in eco-friedly resources. Birds migrate from an environment due to their habitation loss, climatic change, manmade activities such as hunting, deforestation etc., Thus birds become residential, occasional, seasonal, migrant, endangered, red listed from their current environment. This documented study presents an extensive list of 66 bird species from 40 diverse families during the month from January to March 2020. This will give us an idea on the present the status and future exploration on the distribution of birds in and around Thamiraparani river line of Tiruvidaimarudur.

Key words: Ecosystem, Thamiraparani, Tiruvidaimarudur, Bird Diversity, Abundance.

1. INTRODUCTION

Wetlands are the most important habitat for aquatic animals, fishes, birds and other small mammals (Brothertonet *al.*, 2020). In the earth wetlands are considered to be a productive ecosystem (Ghermandi*et al.*, 2008). Birds present in this ecosystem consumes the entire resources for nesting, breeding and rearing young ones for the next generations. Water resource play a vital role for the maintenance of entire ecosystem. Birds occupy apex position in food web (Sinha *et al.*, 2019) and act as bio-indicators to address environmental problems (Burch Jr and Grove, 1993; Sekercioglu, 2006, Zaghloul*et al.*, 2020), habitat changes and plant community structure (Vandewalle*et al.*, 2010, Fontana *et al.*, 2011) quality of water, richness of aquatic insects and animals.

About 310 species of wetland birds are recorded in India, most of their visit for their breeding, climatic change, disaster, destruction of their living ecosystem, ecological problems, etc,. The availability of species riches, diversity of bird populations are the major indicators for richness of biodiversity (Nilsson and Nilsson, 1978). Richness in availability of food, water and shelter can support the livelihood of large number of birds. Even small changes in habitat scales can alter bird diversity (Gavis and Saleh, 2020).

Worldwide, wetland, occupy 18.4% and in India there are 31 natural wetlands which covers 58,068 hectares and manmade wetlands 20,030 which occupy 2,01,132 hectares (Venkatraman, 2005). This harbour has wide range of birds, animals and other living organisms. About 20% of the threatened

birds inhabiting wetlands of Asiatic region, reveals 10% of global threatened species (Kumar *et al.*, 2016).

Natural habitats are being destructed because of countrys development and enhanced human life practices such as construction of urban buildings, roads for human benefits and pollutions (Ogwueleka, 2009). This fragmentation leading to diversity loss of habitat and food resources, affects the spreading pattern of birds and community composition (Luo*et al.*, 2019). Thus an attempt was made to investigate the diversity of birds present in Thamiraparani river line of Thirupadai Marudur village of Tirunelveli district, Tamil Nadu, India, and to understand the status of the wetland ecosystem here.

2. MATERIALS AND METHODS

The study was carried out in Thirupadaimarudur, located in favour of Thamiraparani river, flowing through Tirunelveli district of Tamil Nadu, India. The graphical study area is shown in Figure 1. The survey was carried out during for a period of 3 month from January to March 2020. Birds were observed regularly during morning hours from 06:00 am to 11:00 am and on the evening from 04:00 pm to 06:00 pm using Olympus binoculars (10 x 50) and photographed using Cannon camera (EOS 1100D). The birds observed were identified using Birds of the Indian subcontinent (Grimmett *et al.*, 1999) and Field Guide Wetland birds of South Tamil Nadu (Ganesh *et al.*, 2014). The population of the birds was estimated by direct counting method.

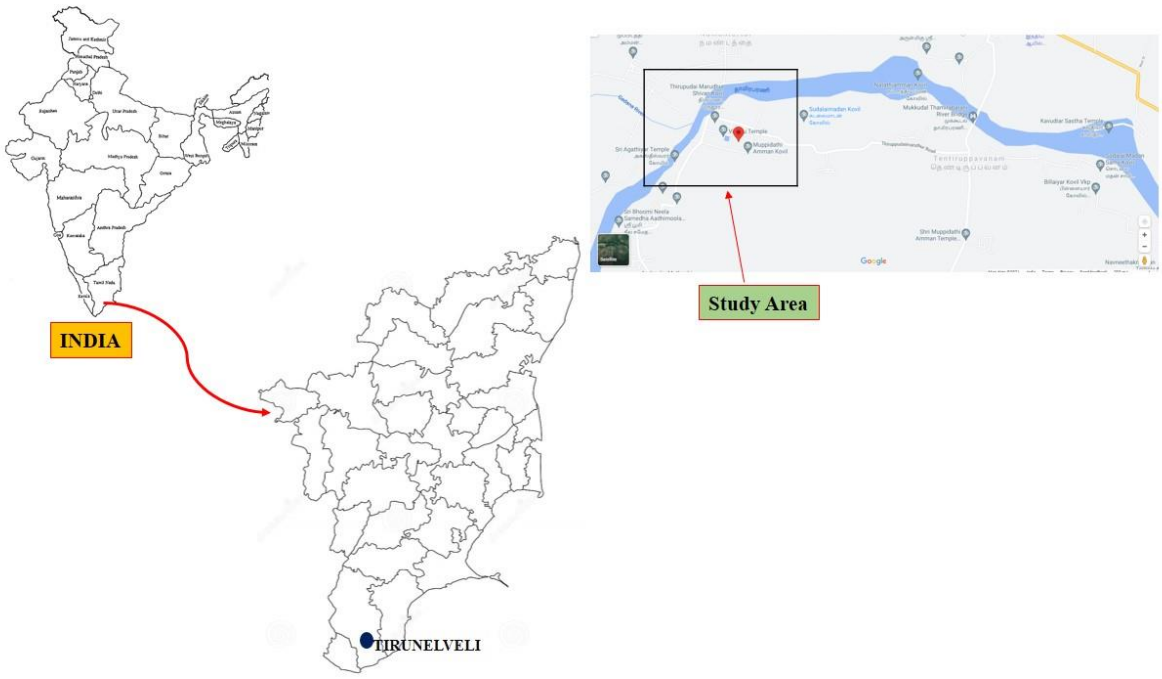

Figure.1 - GRAPHICAL MAP OUTLINE OF OUR STUDY AREA

3. RESULT AND DISCUSSION

Wetlands are endowed with multiple ecosystems enriched by nutrient resources, good water source, food provision, shelter for aquatic organisms and recreation purposes (Maltby and Acreman, 2011). This provides observance of multiple bird species in a same ecosystem. Study in Thamiraparani river also reveals the same by observance of diverse in bird populations. Earlier report reveals 55% of avian wetland species got declined worldwide (Montras-Janer*et al.*,2019, Poysa*et al.*, 2019). A total number of 3499 birds were surveyed at different months during the entire suvey in which 946 birds were recorded in the month of January, 1109 birds in February and 1444 birds in March. The documented period birds which are listed and shown in Table 1. The birds documented belonged to 36 families and the maximum number of species were perceived from Ciconiidae family of the dominated by species *Mycterialeucocephala.* The species richness varied greatly across seasons. Among the bird population, *Mycterialeucocephala* was observed highest in number throughout our study period. The

bird *Mycterialeucocephala* observed were 201, 246 and 287 respectively during the months January, February and March 2020. This may due to reason that the bird species can withstand the environment with fluctuation and easier adaptation. Reports also reveal large populations more stable than smaller population because of its ability to survive climatic changes (Traill *et al.*, 2007).

The documented birds from different families showed a clear knowledge about the available species richness present in the river line area of Thamiraparani near Thirupadaimarudur. Birds from diverse families and One species each was documented from the families in Anatidae, Anhingidae, Apodidae, Cisticolidae, Coraciidae, Corvidae, Dicruridae, Hirundinidae, Jacanidae, Laridae, Motacillidae, Passeridae, Pelecanidae, Phasianidae, Picidae, Ploceidae, Podicipedidae, Psittaculidae, Pycnonotidae, Recurvirostridae, Strigidae, Sturnidae, Tytonidae and Upupidae. These birds from diverse family implies that the wetland is rich in biodiversity. Further Implementation of conservational acts such as wetland protection (e.g. Ramsar convention) (Kacergyte*et al.*, 2021), and last time North American Waterfowl Management Plan (NAWMP, 2018) can improve wetland ecosystem

Six species were seen from Ardeidae, four species was noted from Rallidae, three species each from Accipitridae, Alcedinidae, Threskiornithidae families and two species was documented from Charadriidae, Ciconiidae, Columbidae, Corvidae, Cuculidae, Leiothrichidae, Leiothrichidae, Meropidae, Muscicapidae, Nectariniidae, and Phalacrocoracidae. This species reduction from a family denotes they require large area in a small ecosystem or habitate dependent. Multiple authors reveals the same concept, such as area sensitivity (Horn *et al.*, 2000, Ribic*et al.*, 2009), large residential area (Barton *et al.*, 2015), and habitat specialists (Rosch*et al.*, 2015). A multiple number of habitat types present in a same site can influence diversity and abundance of species (Elliott *et al.*, 2020).

The seasonal changes such as climate change, deforestation, hunting, and radiations had changed bird's populations in the ecosystem. Reports reveal that the movements of birds depends on increased temperature, availability of resources and for reproduction (Lee and Kang, 2019).

The birds documented during the month of January to March showed more number of birds during March. This denotes birds migrated from other locations for their breeding or unavailability of resources from their original residential ecosystem. Seasonal changes tends birds to migrate northward and southward driven by daylight cycles (Dixit and Singh 2011; Cherry *et al.*, 2013). During the past century wetland areas have seen noticiable reduction because of utilization of lands for human uses (Chari *et al.*, 2003), and pollution from various sources (Fernandez-Alaez*et al.*, 2002). Most of the birds which are documented are residential some are migrant, commonly available and few are seasonal, occasional birds. Thus Further periodic monitoring of the present ecosystem will have a clear idea in present and future species composition,seasonal fluctuations in the ecosystem.

TABLE.1 - CHECKLIST OF BIRDS RECORDED AT THAMIRAPARANI RIVER IN (THIRUPADAIMARUDUR AREA) FROM JANUARY TO MARCH 2020.

S.No	Family	Common Name	Scientific Name	Jan	Feb	Mar
1	Accipitridae	Black Kite	*Milvusmigrans*	2	5	4
2	Accipitridae	Brahminy Kite	*Haliastur Indus*	0	1	2
3	Accipitridae	Shikra	*Accipiter badius*	28	31	33
4	Alcedinidae	Common King fisher	*Alcedoatthis*	5	8	17
5	Alcedinidae	Pied Kingfisher	*Cerylerudis*	3	4	6
6	Alcedinidae	White - breasted Kingfisher	*Halcyon smyrnensis*	9	5	11
7	Anatidae	Spot - billed Duck	*Anapoecilorhyncha*	22	15	18
8	Anhingidae	Darter	*Anhinga melanogaster*	87	94	133
9	Apodidae	Palm Swift	*Cypsiurusbalasiensis*	2	4	5
10	Ardeidae	Black-crowned	*Nycticoraxnycticorax*	1	0	2

		Night Heron				
11	Ardeidae	Cattle Egret	*Bubulcus ibis*	32	31	39
12	Ardeidae	Grey Heron	*Ardeacinerea*	28	31	32
13	Ardeidae	Indian Pond Heron	*Ardeolagrayii*	67	95	123
14	Ardeidae	Little Egret	*Egrettagazetta*	6	5	6
15	Ardeidae	Littler Heron	*Butoridesstriatus*	3	1	2
16	Charadriidae	Little – ringed Plover	*Charadriusdubius*	6	5	4
17	Charadriidae	Red – wattled Lapwing	*Vanellusindicus*	27	35	38
18	Ciconiidae	Asian Openbill	*Anastomusoscitans*	2	1	4
19	Ciconiidae	Painted Stork	*Mycterialeucocephala*	201	246	287
20	Cisticolidae	Common Tailor Bird	*Orthotomussutorius*	4	3	7
21	Columbidae	Spotted Dove	*Streptopeliachinensis*	4	3	9
22	Columbidae	Blue Rock Pegion	*Columba livia*	2	3	6
23	Coraciidae	Indian Roller	*Coraciasbenghalensis*	2	3	6
24	Corvidae	Large-billed Crow	*Corvusmacrorhynchos*	1	3	2
25	Corvidae	RufousTreepie	*Dendrocittavagabunda*	3	6	4
26	Cuculidae	Greater Coucal	*Centropussinensis*	4	6	11
27	Cuculidae	Asian Koel	*Eudynamysscolopacea*	0	1	4
28	Dicruridae	Black Drongo	*Dicrurusmacrocercus*	24	33	37
29	Hirundinidae	Barn Swallow	*Hirundorustica*	1	0	2
30	Jacanidae	Pheasant –tailed Jacana	*Hydrophasianuschirurgus*	1	3	2
31	Laridae	River Tern	*Stemaaurantia*	3	2	4
32	Leiothrichidae	White - headed babbler	*Turdoidesaffinis*	4	3	9
33	Leiothrichidae	Jungle Babbler	*Turdoidesstriatus*	0	2	1
34	Meropidae	Blue-tailed Pee-eater	*Meropsphilippinus*	3	2	5
35	Meropidae	Green Bee-eater	*Meropsorientalis*	5	12	17
36	Motacillidae	White Wagtail	*Motacilla alba*	5	4	7
37	Muscicapidae	Oriental Magpie Robin	*Copsychussaularis*	2	7	9

38	Muscicapidae	Indian Robin	*Saxicoloidesfulicata*	5	6	4
39	Nectariniidae	Purple Sunbird	*Nectariniaasiatica*	4	6	5
40	Nectariniidae	Purple – rumped Sunbird	*Nectariniazeylonica*	7	9	14
41	Nymphalidae	Common Crow	*Corvussplendens*	33	43	44
42	Passeridae	House Sparrow	*Passer domesticus*	34	41	42
43	Pelecanidae	Spot – billed Pelicon	*Pelicanusphilippensis*	45	50	141
44	Phalacrocoracidae	Little Cormorant	*Phalacrocoraxniger*	4	3	7
45	Phalacrocoracidae	Indian Cormorant	*Phalacrocoraxfuscicillis*	1	0	2
46	Phasianidae	Grey Partridge	*Francolinuspondicerianus*	27	24	28
47	Picidae	Golden - backed wood pecker	*Dinopiumjavanense*	6	7	9
48	Ploceidae	Baya Weaver	*Ploceusphilppinus*	1	0	1
49	Podicipedidae	Little Grebe	*Tachybaptusruficollis*	2	2	3
50	Psittaculidae	Rose – ringed Parakeet	*Psittaculakrameri*	37	39	41
51	Pycnonotidae	Red – vented Bulbul	*Pycnonotuscafer*	3	2	6
52	Rallidae	White - breasted Waterhen	*Amaurornisphoenicurus*	6	4	8
53	Rallidae	Common Coot	*Pulicaatra*	9	15	16
54	Rallidae	Common Moorhen	*Gallinulachloropus*	3	2	5
55	Rallidae	Purple Moorhen	*Porphyrioporphyrio*	0	1	1
56	Recurvirostridae	Black winged Stilt	*Himantopushimantopus*	2	1	3
57	Strigidae	Spotted Owlet	*Athenebrama*	3	1	5
58	Sturnidae	Common Myna	*Acridotherestristis*	41	47	46
59	Threskiornithidae	Black Ibis	*Pseudibispapillosa*	16	31	39
60	Threskiornithidae	Glossy Ibis	*Plegadisfalcinellus*	3	2	3
61	Threskiornithidae	White Ibis	*Threskiomismelanocephalus*	0	2	3
62	Tytonidae	Barn Owl	*Tyto alba*	1	1	3
63	Upupidae	Common Hoopoe	*Upupaepops*	54	57	57

4. CONCLUTION

A total number of 3499 birds were surveyed at different months during the entire suvey in which 946 birds were recorded in the month of January, 1109 birds in February and 1444 birds in March. The birds documented belonged to 36 families and the maximum number of species were perceived from

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