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A PRELIMINARY SURVEY OF WETLAND BIRDS AT NAINARKULAM POND, TIRUNELVELI, TAMILNADU

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Abstract:

Wetlands support all life forms and perform useful functions for to maintenance of ecological balance. Wetlands provide a habitat for birds and birds use them for breeding, nesting, and rearing young ones. Waterfowls are one of the most significant components of biodiversity. Water birds are good bio-indicators and useful models for studying a variety of environmental problems**.** The study of wetland birds at Nainarkulam pond revealed 46 species of birds belonging to 22 families under 11 orders. The present research work has been designed to focus on their diversity with an aim to conserve these bird species.

Key Words: Wetland, Ecological Balance, Bio-Indicators & Diversity.

Introduction:

Wetlands are amongst the most productive ecosystems on the Earth (Ghermandi *et al.*, 2008), and provide many important services to human society (Ten Brink *et al*., 2012). Birds also use wetlands as a source of drinking water and for feeding, resting, shelter, and social interactions. Birds are the important consumers in aquatic systems and are indicators of both water quality and biodiversity (Rajpar and Zakaria, 2011). Migratory birds are one of the most remarkable components of global biodiversity. Out of 310 species of wetland birds found in India , almost half of these are migratory and visit India from their breeding grounds in China, Russia, central Asia, Tibet and from across the entire range of the Himalaya. While studying avifauna of wetlands, parameters such as species richness, relative density and diversity of bird population are frequently used as indicators to determine the habitat quality (Nilsson and Nilsson, 1978). Wetlands are facing tremendous anthropogenic pressures, which can adversely influence the structure of bird communities. Monitoring of wetland birds provides valuable information on the ecological health and status of wetlands and can be a vital tool for developing awareness regarding the conservation value of the wetlands. In the present study an attempt has been made to investigate the diversity of bird species at Nainarkulam pond, Tirunelveli and focus their threats for their survival.

Materials and Methods:

The preliminary survey of wetland birds was conducted in Nainarkulam Pond from January to March 2017. Nainarkulam pond is located at Tirunelveli at 8°44'04.1"N 77°41'29.3"E. Birds were observed from 6 am to 11 am by using Olympus binoculars (10x50) and Original Crown (8 x 30) and identified by using the books of Indian birds (Salim Ali, 2002) and field guides such as field guide to the birds of the Eastern Himalaya (Salim Ali, 1977) and Wetland birds of Tamilnadu (Ganesh *et al*., 2014). Water fowl population was enumerated by point count and direct counting methods and photographed using Canon Power shot (5 x50 HS). The checklist is prepared based on the field work conducted for the period of 3 months from January to march 2017.

Result:

The status of bird species available at each order were given in Figure 1 and their Migratory status were given in Figure 2.

FIGURE: 1 . STATUS OF BIRD SPECIES AVAILABLE AT EACH ORDER

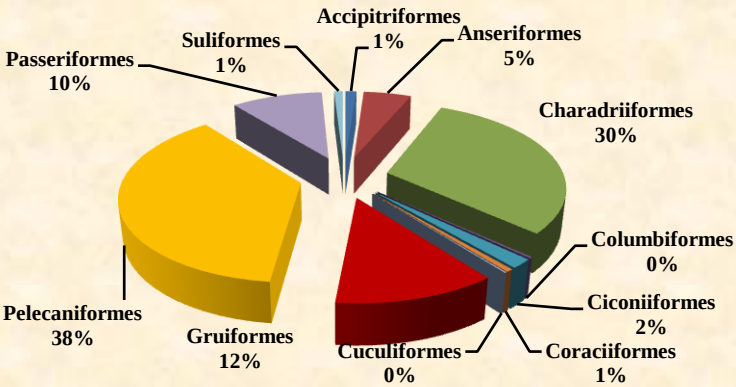

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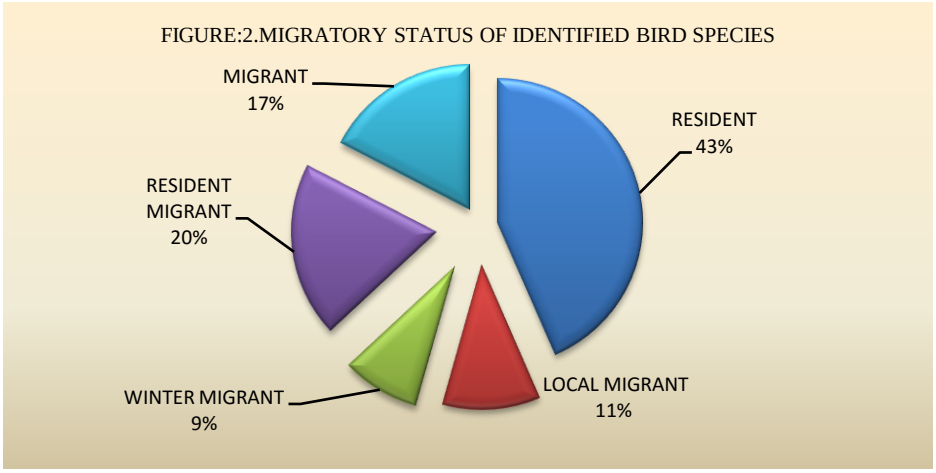
FIGURE:2.MIGRATORY STATUS OF IDENTIFIED BIRD SPECIES



The list of bird species which were encountered during the study period, and their IUCN 3.1 category and status on the movement and seasonality of occurrence, (parameters are listed as; LM - Local migratory, WM - winter migratory and R - Resident) its movement and seasonality were given in Table 1. Total number of birds observed at Nainarkulam pond during the study period of three months were given in Table 2.

Table 1: Identified bird species at Nainarkulam Pond

S.No	Order	Family	Scientific Name	Common Name	MS	IUCN3.1
1.	Accipitriformes	Accipitridae	*Haliasturindus*	Brahminy kite	R	LC
2.			*Milvusmigrans*	Black kite	R	LC
3.			*Circus aeruginosus*	Eurasian marsh harrier	M	LC
4.	Anseriformes	Anatidae	*Anaspoecilorhyncha*	Spot-billed duck	LM	LC
5			*Sarkidiornismelonotos*	Comb duck	WM	LC
6			*Dendrocygnajavanica*	Lesser whistling duck	R	LC
7	Charadriiformes	Recurvirostridae	*Himantopushimantopus*	Black-winged stilt	R	LC
8		Jacanidae	*Metopidiusindicus*	Bronze-winged jacana	R	LC
9			*Hydrophasianuschirurgus*	Pheasant –tailed jacana	R	LC
10		Sternidae	*Sterna aurantia*	River tern	RM	NT
11			*Sternulaakbifrons*	Little tern	R	LC
12		Scolopacidae	*Actitishypoleucos*	Common sandpiper	WM	LC
13			*Tringaochropus*	Green sand piper	M	LC
14			*Tringastagnatilis*	Marsh sand piper	M	LC
15			*Tringaglareola*	Wood sand piper	M	LC
16			*Limosalimosa*	Black-tailed godwit	M	NT
17		Charadriidae	*Vanellusindicus*	Red-wattled lapwing	R	LC
18	Columbiformes	Columbidae	*Columba livia*	Rock dove (or) rock pigeon	R	LC
19	Ciconiiformes	Ciconiidae	*Mycterialeucocephala*	Painted stork	RM	NT
20	Coraciiformes	Meropidae	*Meropsphilippinus*	Blue-tailed bee-eater	RM	LC
21		Alcedinidae	*Cerylerudis*	Pied king fisher	R	LC
22			*Halcyon smyrnensis*	White-throated kingfisher	R	LC
23	Cuculiformes	Cuculidae	*Clamatorjacobinus*	Jacobin cuckoo	RM	LC
24	Gruiformes	Rallidae	*Fulicaatra*	Common coot	WM	LC
25			*Amaurornisphoenicurus*	White-breasted waterhen	R	LC
26			*Gallinulachloropus*	Common moorhen	WM	LC
27			*Porphyrioporphyrio*	Purple swamphen	R	LC
28	Pelecaniformes	Ardeidae	*Ardeacinerea*	Grey heron	LM	LC
29			*Ardeolagrayii*	Pond heron	R	LC
30			*Ardeapurpurea*	Purple heron	LM	LC
31			*Ardea alba*	Large egret	LM	LC
32			*Egrettagarzetta*	Little egret	R	LC
33			*Mesophoyxintermedia*	Median egret	RM	LC
34		Threskiornithidae	*Threskiornismelanocephalus*	Black-headed ibis	RM	NT
35			*Plegadisfalcinellus*	Glossy ibis	RM	LC
36			*Pseudibispapillosa*	Black ibis (or) Red-naped ibis	R	LC
37			*Platalealeucorodia*	Eurasian spoonbill	M	LC
38		Pelecanidae	*Pelecanusphilippensis*	Spot-billed pelican	M	NT
39	Passeriformes	Corvidae	*Corvussplendens*	House crow	R	LC
40		Motacillidae	*Motacillacinerea*	Grey wagtail	M	LC
41			*Motacillamaderaspatensis*	White-browed wagtail	R	LC
42			*Motacillaflava*	Yellow wagtail	RM	LC
43		Hirundinidae	*Hirundorustica*	Barn swallow	RM	LC
44		Dicruridae	*Dicrurusmacrocercus*	Black drongo	R	LC
45		Sturnidae	*Acridotherestristis*	Common myna	R	LC
46	Suliformes	Phalacrocoracidae	*Phalacrocoraxsulcirostris*	Little black cormorant	LM	LC

Table 2: Number of birds observed at Nainarkulam pond during the study period

S.No	Common Name	January	February	March
1.	Brahminy kite	1	0	1
2.	Black kite	5	0	6
3.	Eurasian marsh harrier	2	0	0
4.	Spot-billed duck	0	11	36
5	Comb duck	0	3	0
6	Lesser whistling duck	0	0	15
7	Black-winged stilt	44	89	104
8	Bronze-winged jacana	5	1	10
9	Pheasant –tailed jacana	2	3	6
10	River tern	2	2	0
11	Little tern	0	0	1
12	Common sandpiper	20	42	2
13	Green sand piper	6	0	0
14	Marsh sand piper	4	0	1
15	Wood sand piper	3	4	10
16	Black-tailed godwit	0	0	23
17	Red-wattled lapwing	2	0	0
18	Rock dove (or) rock pigeon	3	0	0
19	Painted stork	3	4	15
20	Blue-tailed bee-eater	1	2	1
21	Pied king fisher	0	1	0
22	White-throated kingfisher	0	1	1
23	Jacobin cuckoo	0	2	0
24	Common coot	2	7	0
25	White-breasted waterhen	4	0	0
26	Common moorhen	2	4	1
27	Purple swamphen	34	58	43
28	Grey heron	57	31	63
29	Pond heron	15	12	8
30	Purple heron	16	1	3
31	Large egret	0	0	27
32	Little egret	4	3	3
33	Median egret	0	3	0
34	Black-headed ibis	4	3	5
35	Glossy ibis	2	140	41
36	Black ibis (or) Red-naped ibis	0	2	4
37	Eurasian spoonbill	2	7	1
38	Spot-billed pelican	2	8	8
39	House crow	16	20	15
40	Grey wagtail	7	0	4
41	White-browed wagtail	0	0	2
42	Yellow wagtail	0	2	1
43	Barn swallow	15	22	13
44	Black drongo	1	1	0
45	Common myna	5	0	0
46	Little black cormorant	5	1	6

Discussion:

From the study, though the Nainarkulam pond is a small wetland it provides winter home for many diversified avifauna. During the course of the study, 46 species of birds belonging to twenty two families under eleven orders were identified in Nainarkulam Pond. Species belonging to the family Ardeidae were the most dominant (13 %) followed by Scolopacidae (11%), Rallidae and Threskiornithidae (9%) and Accipitridae, Anatidae and Motacillidae (7%).

Of the identified species Spot-billed pelican , Painted stork, Black headed ibis, Black tailed godwit, River tern are Globally Near Threatened species (IUCN 3.1) and have a protected status under the schedule IV and others are least concerned. In the present study, the habitat by supporting different food sources like fish,

crustaceans, invertebrates, water plants and planktons as the primary feed and also surrounding irrigated agriculture fields provided foraging grounds for the resident as well as few migratory birds, which further add to the diversity of wetland birds. The pH of water collected from Nainarkulam pond was in a slightly alkaline range (8.1). Long core *et al.,* (2006) reported that a water pH in the alkaline range supported higher macro invertebrates and thereby attracted more ducks to the water bodies under investigation. Based on the residential status of wetland birds, Resident birds(R) were found as the most of predominant which contribute 43%, followed by the Resident migratory (RM) which contribute 20% ,Migrant (M) which contribute 17%,Local migrant(LM) which contribute 11%, and Winter migratory (WM) which contributes 9% of the total wetland birds species recorded from the study area. Previous reports stated that the highest bird density and diversity was recorded during winter months, when the anthropogenic activities are minimum, also because of availability of varied sources of feed as well as foraging and safety, almost all of them leave the wetland by March-end or early April (Manohara *et al.*, 2016). Our result shows that the study area is supportive to a number of bird species and diversity.

Conclusion and Suggestion:

Waterbirds, being generally at or near the top of most wetland food chains are highly susceptible to habitat disturbances and are therefore good indicators of the general condition of wetland habitats (Kushlan, 1992).Vegetation cover was also recorded in the wetland. Besides shunting, solid waste dumping near the wetland, open defecation, sewage discharges were some of the human activities found in the wetland. Unfortunately, there are no laws till date to protect urban wetlands in particular, and we highlight here the urgent need for a policy to conserve urban wetlands and related ecosystems. However, 2nd February is observed as World Wetlands Day each year. It marks the date of the adoption of the Convention on Wetlands on 2 February 1971. Each year since 1997, government agencies, non-governmental organizations, and groups of citizens undertake actions aimed at raising public awareness of wetland values. Through this study we suggest that Nainarkulam pond, being situated near Nellaiappar temple, a famous heritage spot known in Tirunelveli, can be made into a tourist spot for Bird lovers if this pond is properly cleaned and maintained which would attract more number of bird species.

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