

An assesment of bird population in Samathur pond, Pollachi, Tamil Nadu with special reference to feeding guild

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Abstract

Birds of Samathur pond, Pollachi were studied from July 2015 to January 2016 by line transect method by marking the bunds at two opposite ends. Totally of 19300 individuals belonged to 80 species of birds were recorded, which also included 22 residents, 8 migratory and three near threatened category of birds. More number of species were recorded during November (37), followed by September (36), August (36), October (34), December (32), July (29) and January (22). Number of individuals was recorded high during December followed by November and January. Maximum number of birds was feeding on insects as a major food item. The result showed that among the 80 bird species 22 (28%) were omnivores and 21 (26%) species were insectivore, followed by 11(14%) piscivores, 10(13%) granivores and 7 (9%) carnivores, and others included frugivores and nectarivores that together formed only 11% of occurrence. The difference in richness and diversity between three seasons namely south-west monsoon, north-east monsoon and winter showed greatest difference. A comparative account showed that the individual populations as well as maximum diversity of species were recorded during the southwest monsoon followed by the north-east and winter. (H' : SW= 0.4022, NE = 0.1194 and winter = 0.0987) (H_{max} : SW = 3.433, NE = 2.152 and winter = 1.859).

Keywords: Bird population, carnivores, omnivores, insectivore, piscivores, granivores, frugivores, nectarivores

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INTRODUCTION

Birds are not precisely aquatic creatures but a large number of them depend on aquatic environment. Their population reflects the health of the ecosystem since birds are remarkable biological indicators. As many as 13% of the world's birds have been recorded in Indian subcontinent. This includes 141 endemic species, a total comprising over 10% of the region's avifauna (Grimmet *et al.*, 1998). Wetlands are the important bird habitats and they use them for feeding, roosting and breeding (Weller, 1999, Stewart, 2001). Tamilnadu has 31 natural wetlands covering an area of 58,068 ha and 20,030 manmade wetlands with an area of 2,01,132 ha (Gupta, 2006). However many ecologically important wetlands have not been focused and the knowledge on wetland bird population is mainly quantitative and confined to a few well-known sanctuaries and National Parks. According to Vijayan *et al.* (1998, 2006) and Prasad *et al.* (1998), there about 49 important wetland habitats in India highlighted so far. These potential wetlands are studied and included as conservation priority areas (Vijayan *et al.*, 2006).

Apart from such large areas there are many small wetland ecosystems still have not been brought into light so far. Though the pond is big and supports many residential and migratory birds its remained unnoticed and no attention was given in the ornithological perspective and conservation of the pond.

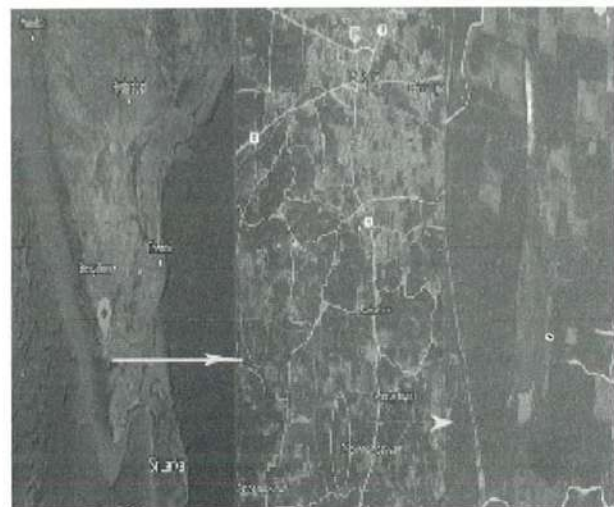


Fig. 1. Map showing Samathur pond

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MATERIALS AND METHODS

Study Area

Samathur pond is located in Pollachi (10° 34'51.65N & 77° 00'04.76 E) (Fig. 1) which occupies an area of 132 acre. It receives water from Aliyar dam. The pond is located between coconut farms of Samathur Zamin.

This report is based on the field observation carried out during July 2015 to January 2016. Total of two five hundred meter transects were laid, one on the edge of the pond and another on the nearby coconut plantation. A fortnight survey was made by systematically walking on fixed radius of the transect. The birds were mostly observed during the most active period of the day from 06.00 to 10.00 hr and from 16.00 to 18.00 hr. Observations were made with the aid of 10 x 55 binoculars. All identifications were based on Ali and Ripley (1987), Grimmet *et al.* (1998) and Ali (2009).

Table 1. Abundance of bird species with reference to the conservation and migratory status.

Status	Group	Species	No. of Individual	Total
Conservation Status	Least concern	77	18698	19300
	Near Threatened	3	602	
Migratory Status	Resident	72	18449	19300
	Migratory	8	831	

The checklist was prepared using standardized common and scientific names of the birds of the Indian Subcontinent as proposed by Manakadan and Pittie (2001). The birds are categorized on the basis of distribution pattern-abundance (common, uncommon and occasional), migratory status (resident (R), Local Migratory (LM) and Summer Visitor (SV) and conservation status (Least Concern (LC) and near threatened (NT)) following Ali (2002).

Data Analysis

Bird community parameters such as species richness, diversity, abundance, relative abundance and evenness

Table 2. Bird species abundance based on the feeding guild

Feeding Guild	Family	Species	Number
Omnivores	9	22	15514
Insectivores	15	21	997
Piscivores	7	11	1378
Granivores	5	10	319
Carnivores	5	7	869
Nectarivores	3	4	94
Frugivores	6	5	129
Total	50	80	19300

An assessment of bird population.... 205 were calculated using Shannon-Weaver diversity index (1963) and the software PAST 3. The total number of birds recorded was expressed as abundance of birds (O'Des *et al.*, 2006).

RESULTS

Totally 19300 individuals of 80 species of birds were recorded which included 22 resident, 8 migratory, three near threatened category namely Northern Pintail (*Anas acuta*), Painted stork (*Mycteria leucocephala*) and Black headed Ibis (*Threskiornis melanocephalus*) whereas 77 species were reported as locally common (Table 1) (Table 4). More number of species were recorded during November (37), followed by September (36), August (36), October (34), December (32), July (29) and January (22). Number of individuals recorded was high during December followed by November and January.

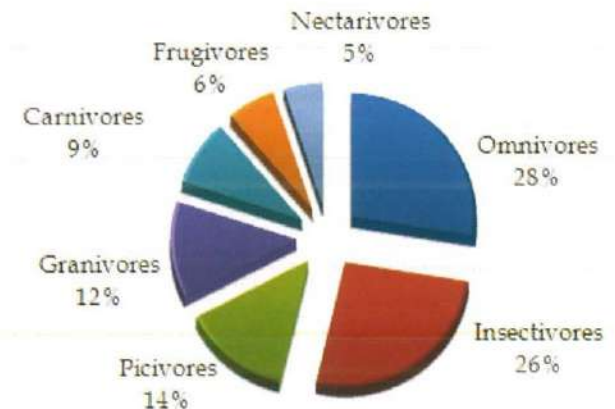


Fig. 2. Bird species abundance based on Feeding guild

Table 3. Comparison of the Shannon-Wiener Index for different seasons

Season	H	H _{max}	J
South west monsoon	0.4022	3.433	3.466
North-east monsoon	0.1194	2.152	2.199
Winter	0.0987	1.859	1.896

H: diversity; H_{max}: maximum diversity, and J: evenness

Abundance of birds with reference to feeding guild

Based on the major diet the bird species recorded were classified into seven categories of feeding guilds such as insectivores, frugivores, granivores, carnivores, nectarivores, piscivores and omnivores. Maximum number of birds was feeding on insects as a major food item. The result showed that there were 80 bird species recorded which included 22 (28%) of omnivores followed by 21 (26%) species were insectivore 11(14%), piscivores, 10(13%), granivores and 7 (9%) carnivores, and others included frugivores and nectarivores which together formed only 11% of the occurrence (Table 2; Fig. 2).

Table 4. Checklist of birds of Samathur pond, Pollachi

S.NO	FAMILY	NAME	SCIENTIFIC NAME	M. STATUS	CON. STATUS	MEAN±S.E
1	Accipitridae	Black kite	<i>Milvus migrans</i>	R	LC	0.15 ± 0.09
2		Brahminy kite	<i>Halistur indus</i>	R	LC	0.62 ± 0.3
3		Shikra	<i>Accipiter badius</i>	R	LC	0.04 ± 0.03
4	Aegithinidae	Common iora	<i>Aegithina tiphia</i>	R	LC	0.11 ± 0.06
5	Alcedinidae	White-throated king fisher	<i>Halcyon smyrnensis</i>	R	LC	1 ± 0.2
6		Common king fisher	<i>Alcedo atthis</i>	R	LC	1.8 ± 0.3
7		Blue-eared king fisher	<i>Alcedo meninting</i>	R	LC	0.07 ± 0.07
8		Pied-king fisher	<i>Ceryle rudis</i>	R	LC	0.15 ± 0.07
9		Stroke-billed kingfisher	<i>pelargopsis capensis</i>	LM	LC	0.11 ± 0.08
10	Anatidae	Spot-billed duck	<i>Anas poecilorhyncha</i>	R	LC	14.51 ± 2.83
11		Northern pintail	<i>Anas acuta</i>	R	NT	15.92 ± 4.92
12	Anhingidae	Darter	<i>Anhinga melamogaster</i>	R	LC	7.14 ± 0.9
13	Apodidae	Asian palm swift	<i>Cypsiurus balasiensis</i>	R	LC	10.6 ± 0.82
14		House swift	<i>Apus nipalensis</i>	R	LC	9.7 ± 1.05
15	Ardeidae	Grey heron	<i>Ardea cinerea</i>	R	LC	3.6 ± 0.64
16		Little heron	<i>Butorides striata</i>	R	LC	2.11 ± 0.28
17		Cattle egret	<i>Bubulus ibis</i>	R	LC	10.15 ± 1.91
18		Intermediate egret	<i>Mesophoyx intermedia</i>	R	LC	346.62 ± 94.35
19		Little egret	<i>Egretta garzetta</i>	R	LC	68.03 ± 16.5
20		Great egret	<i>Casmerodius albus</i>	R	LC	49.11 ± 13.83
21		Indian pond heron	<i>Ardeola grayii</i>	R	LC	2.96 ± 0.42
22		Purple heron	<i>Ardea purpurea</i>	R	LC	0.48 ± 0.28
23		Black-growned night heron	<i>Nycticorax nycticorax</i>	R	LC	0.18 ± 0.93
24	Bucerotidae	Indian grey hornbill	<i>Ocyrceros birostris</i>	R	LC	0.25 ± 0.15
25	Centropodidae	Greater coucal	<i>Centropus sinensis</i>	R	LC	0.03 ± 0.01
26	Charadriidae	Red-wattle lapwing	<i>Vanellus indicus</i>	R	LC	11.55 ± 1.02
27	Charadriidae	Little ringed plover	<i>Charadrius dubius</i>	R	LC	0.37 ± 0.12
28	Ciconiidae	Painted stork	<i>Mycteria leucocephala</i>	LM	NT	0.03 ± 0.03
29	Cisticolidae	Common tailor bird	<i>Streptopelia decaocto</i>	R	LC	0.51 ± 0.14
30	Columbidae	Eurasian collared dove	<i>Streptopelia decaocto</i>	R	LC	3.14 ± 0.73
31		Spotted dove	<i>Stigmatopelia chinensis</i>	R	LC	0.18 ± 0.11
32	Corvidae	Rufous Treepie	<i>Dendrocitta vagabunda</i>	R	LC	0.97 ± 0.2
33		House crow	<i>Corvus splendens</i>	R	LC	5.8 ± 0.94
34		Large-billed crow	<i>Corvus macrorhynchos</i>	R	LC	2.92 ± 0.52
35	Cuculidae	Common Hawk Cuckoo	<i>Hierococcyx varius</i>	R	LC	0.14 ± 0.07
36		Indian Cuckoo	<i>Cuculus micropterus</i>	R	LC	0.3 ± 0.11
37		Asian Koal	<i>Eudynamys scolopaceus</i>	R	LC	0.3 ± 0.1
38	Dicaeidae	Pale billed flower pecker	<i>Dicaeum erythrorhynchos</i>	R	LC	0.74 ± 0.16
39		Black drongo	<i>Dicrurus macrocercus</i>	LM	LC	2.29 ± 0.29
40	Estrildidae	Scaly-breasted munia	<i>Lonchura punctulata</i>	R	LC	0.92 ± 0.4
41		Black-headed munia	<i>lonchura malacca</i>	R	LC	1.55 ± 0.38
42		White-rumped munia	<i>Lonchura striata</i>	R	LC	0.37 ± 0.13
43		Silver bill	<i>Lonchura malabarica</i>	R	LC	0.14 ± 0.10
44	Jacanidae	Pheasant-tailed jacana	<i>Hydrophasianus chirugus</i>	R	LC	5.33 ± 0.73
45	Lanidae	Long-tailed shrike	<i>lanius schach</i>	R	LC	0.07 ± 0.05
46	Leiothrichidae	Common babbler	<i>Turdoides caudata</i>	R	LC	0.15 ± 0.11
47		Jungle Babbler	<i>Turdoides striata</i>	R	LC	0.48 ± 0.13
48	Meropidae	Small green bee eater	<i>Merops orientalis</i>	R	LC	0.48 ± 0.13
49		Blue-tailed bee eater	<i>Merops philippinus</i>	LM	LC	1.04 ± 0.3
50		Chestnut-headed bee eater	<i>merops leschenaulti</i>	R	LC	0.15 ± 0.10

S.NO	FAMILY	NAME	SCIENTIFIC NAME	M. STATUS	CON. STATUS	MEAN±S.E
51	Motacillidae	Paddy field pipit	<i>Anthus rufulus</i>	LM	LC	0.63 ± 0.21
52		White-browed wagtail	<i>Motacilla maderaspatensis</i>	M	LC	2.85 ± 0.36
53		Yellow wagtail	<i>Motacilla flava</i>	R	LC	1.37 ± 0.32
54	Muscicapidae	Pied bush chat	<i>Saxicola caprata</i>	R	LC	0.11 ± 0.06
55		Indian robin	<i>Saxicola fulicata</i>	R	LC	0.07 ± 0.05
56	Nectariniidae	Purple-throated sunbird	<i>Nectarinia zeylonica</i>	R	LC	0.89 ± 0.21
57		Loten's sun bird	<i>Nectarinia lotenia</i>	R	LC	0.44 ± 0.05
58	Oriolidae	Eurasian golden oriole	<i>Oriolus oriolus</i>	SV	LC	0.22 ± 0.08
59	Passeridae	House sparrow	<i>Passer domesticus</i>	R	LC	3.55 ± 0.71
60	Phalacrocoracidae	Little cormorant	<i>Phalacrocorax niger</i>	R	LC	4.52 ± 0.94
61		Indian cormorant	<i>Phalacrocorax fuscicollis</i>	R	LC	20.67 ± 2.61
62	Phasianidae	Indian peafowl	<i>Pavo cristatus</i>	R	LC	9.92 ± 1.07
63	Picidae	Black-rumped flamback	<i>Dinopium benghalense</i>	R	LC	0.3 ± 0.12
64	Pittidae	Indian pitta	<i>Pitta brachyura</i>	R	LC	0.48 ± 0.16
65	Ploceidae	Baya weaver	<i>Ploceus philippinus</i>	R	LC	0.18 ± 0.09
66	Podicipedidae	Little grebe	<i>Tachybaptus ruficollis</i>	R	LC	5.55 ± 1.18
67	Porphyrio	Purple swamphen	<i>Porphyrio porphyrio</i>	R	LC	10.07 ± 1.20
68	Psittacidae	Rose ringed parrot	<i>Psittacula krameri</i>	R	LC	3 ± 0.74
69	Pycnonotidae	Red-vented bulbul	<i>Pycnonotus cafer</i>	R	LC	1.29 ± 0.37
70	Rallidae	Common coot	<i>Fulica atra</i>	R	LC	24.11 ± 3.21
71		Common Moorhen	<i>Gallinula chloropus</i>	R	LC	11.81 ± 2.31
72		Water cock	<i>Gallicrex cinerea</i>	R	LC	0.07 ± 0.07
73		White-breasted water hen	<i>Anaouornis phoenicurus</i>	R	LC	0.37 ± 0.11
74	Ramphastidae	Coppersmith barbet	<i>Megalaima haemacephala</i>	R	LC	0.15 ± 0.07
75	Stigidae	Spotted owl	<i>Athene brama</i>	R	LC	0.37 ± 0.09
76	Stumidae	Common myna	<i>Acridothores tristis</i>	R	LC	8.74 ± 1.21
77	Stigidae	Brahminy starling	<i>Sturnia pagodarum</i>	R	LC	5.33 ± 1.05
78		Chestnut tailed starling	<i>Sturnia malabarica</i>	LM	LC	4.81 ± 0.98
79	Threskiornithidae	Black headed Ibis	<i>Threskiornis melanocephalus</i>	R	NT	6.33 ± 1.21
80	Upupidae	Common hoope	<i>Upupa epops</i>	R	LC	0.44 ± 0.09

R - Resident, LM - Local Migrant, LC - Least Concern, NT - Near threatened

The difference in richness and diversity among the three seasons namely south-west monsoon, north-east monsoon and winter showed greatest difference. Individual populations as well as maximum diversity of species were recorded during the southwest monsoon followed by the north-east and winter. (H' : SW = 0.4022, NE = 0.1194 and winter = 0.0987) (H'_{max} : SW = 3.433, NE = 2.152 and winter = 1.859) (Table 3).

DISCUSSION

Samathur wetlands are the ideal habitats for migratory and resident birds. These wetlands also support waders, besides the well-known wetlands such as Vellode, Pulicat Lake and Great Vedaranyam swamp.

Samathur wetlands parameters showed that they assume significance as habitat and also act as wintering ground for migratory birds. During December several birds from the colder regions were spotted. While small birds like flycatchers were spotted in the early November, and wagtails were usually recorded in mid-October. Ducks turn up by end of October or early November in huge numbers. This region is the largest and the premier roosting and nesting ground for many wetland wading birds. This Samthur pond is also supporting more birds since these wetlands provide all the food species. In spite of the fact that Samathur is a fast growing and busy town large number of bird species visiting its wetlands,

which indicates the availability of resources and suitability of habitat, and non-availability of appropriate habitats elsewhere in the nearby surroundings. Besides it is suggested that the regional factors, mainly habitat availability, proximity to additional habitat, regional population phenomena and density independent events might influence species richness. Successful conservation of the pond will provide wintering ground to the visiting migratory birds, and also form a habitat for an improved understanding of its ecological requirements and migratory patterns of each species.

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