

Avifauna of Karaivetti Bird Sanctuary, Tamil Nadu, India

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Any extent of disturbance, because of urbanization or other factors, to wetland systems typically causes water quality to worsen and in turn affects the dependant waterfowl, as wetlands are important feeding and breeding areas, stopping place and refuge for waterfowl. The Karaivetti Lake, Tamil Nadu, India is one such a wetland supports large number of migratory and resident birds. Recently, Indian Bird Conservation Network has identified the lake as one of the Important Bird Areas (IBA) in India and despite, no attempt has been made so far to study this wetland or its dependant avifaunal species. A study was conducted from September 2007 to September 2010 to comprehensively identify the status of birds utilizing the lake for various ecological purposes. In total, 149 species of birds were found utilizing the lake. The Forest Department of Tamil Nadu have already adapted people participatory approach to conserve the birds in the lake, capacity to identify, monitor and to protect birds be further developed among local for the long term conservation.

Introduction

Wetlands are defined as 'lands transitional between terrestrial and aquatic eco-systems where the water table is usually at or near the surface or the land is covered by shallow water' (Mitsch & Gosselink 2007). Any extent of disturbance, because of urbanization or other factors, to wetland systems typically causes water quality to worsen and in turn affects the waterfowl, as wetlands are important feeding and breeding areas, stopping place and refuge for waterfowl. Wetlands in India occupy 58.2 million hectares, including areas under wet paddy cultivation (Directory of Indian Wetlands 1993). It is estimated that freshwater wetlands alone support 20 per cent of the known range of biodiversity in India (Deepa & Ramachandra 1999). However, study on waterbirds on village wetlands received very little attention in India. Hence, an attempt was made in Karaivetti Lake to understand the status of winged visitors from September 2007 to September 2010 with following aspects:

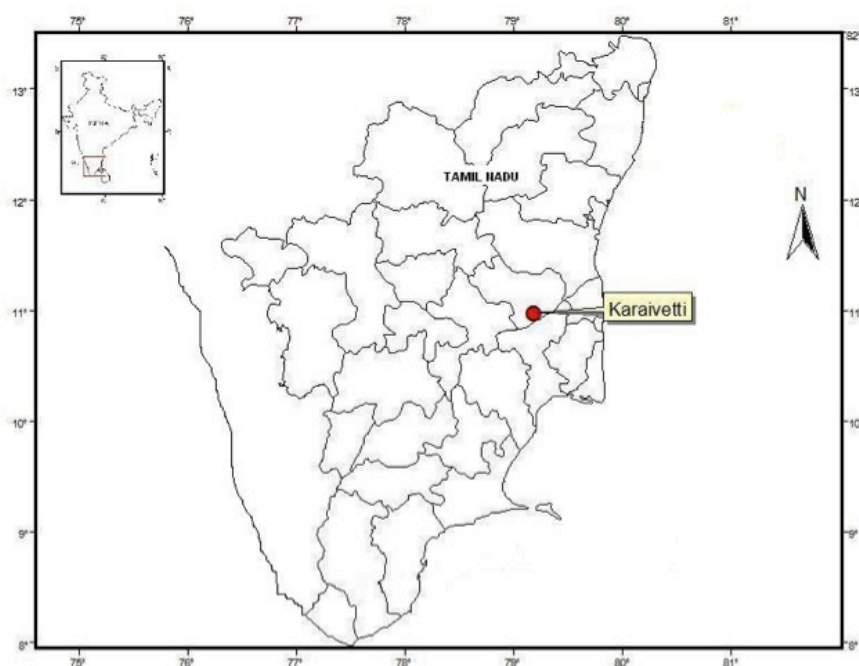


Fig 1. Map showing the study area

- Identification of numerical and breeding status of colonial waterbirds and
- Identification of immediate threats to waterbirds and the lake.

Study area

The study was carried out in Karaivetti Lake, situated between 10° 58' 01" N and 79° 11' 07" E, covering an area of about 4.54 sq km, in Ariyalur District, Tamil Nadu, India (Figure 1). The freshwater lake is fed by *Pullambadi* and *Kattalai* canals. It is the biggest waterbody in the district attracting large number of birds every year. The natural and planted vegetation present inside and on the edges of the lake consist of *Acacia nilotica*, *Prosopis chinensis*, *Azadirachta indica* and *Tamarindus indica*. The lake was established as Karaivetti Bird Sanctuary in 1999 by the forest department. Recently, the lake has also been identified as one of the Important Bird Areas (IBA) in India by Indian Bird Conservation Network (Islam and Rahmani 2004). No attempt has been made so far to study this wetland or its avifaunal species dependant on it. Except few descriptions on birds of Karaivetti by Relton (1998) and Relton and Moses (1997), detailed list of avifauna of this lake is lacking.

Methodology

Waterbirds were monitored from September 2007 to September 2010. The identification of birds was done using field guides (Grimmet et al. 1998, Ali and Ripley 1995, 1996) while Manakadan and Pittie (2001) was followed for the common and scientific names. Birds were counted using direct count method from selected vantage points followed by Bibby et al. (1992) and Sutherland (1997). Counts were made four times in a month during which birds were observed from 0600 to 1000hrs and 1600 to 1800hrs. Observations were carried out with the aid of 10X50 binoculars and 60x spotting scope. No census was carried out during the extreme weather conditions. During the fieldwork, anthropogenic activities, viz., hunting, illegal fishing and woodcutting (if any) were monitored and quantified (wherever possible). Formal or informal interviews were conducted with the people involved in the above said activities to get the general perception on the need for them to do this and find out alternative options if possible.

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Table 1. List of birds recorded in Karaivetti Bird Sanctuary, Tamil Nadu, India

S. No	Common Name	Scientific name	Migratory status	Maximum number recorded with year	Observed months
	Order: Podicipediformes				
	Family Podicipedidae				
1	Little Grebe*	<i>Tachybaptus ruficollis</i>	R	120 (2009)	Throughout
	Order Pelecaniformes				
	Family Pelecanidae				
2	Spotted-billed Pelican*	<i>Pelecanus philippensis</i>	M	559 (2010)	Jan-Aug, Oct-Dec
	Family Phalacrocoracidae				
3	Little Cormorant*	<i>Phalacrocorax niger</i>	R	232 (2010)	Throughout
4	Indian Shag	<i>Phalacrocorax fuscicollis</i>	?	2 (2009)	Jan#
5	Great Cormorant	<i>Phalacrocorax carbo</i>	?	32 (2008)	Nov-Dec#
	Family Anhingidae				
6	Darter*	<i>Anhinga melanogaster</i>	M	23 (2009)	Jan-Aug, Oct-Dec
	Order Ciconiiformes				
	Family Ardeidae				
7	Little Egret*	<i>Egretta garzetta</i>	R	48 (2010)	Throughout
8	Grey Heron*	<i>Ardea cinerea</i>	M	17 (2010)	Jan-Jul, Nov-Dec
9	Purple Heron	<i>Ardea purpurea</i>	M	3 (2010)	Nov-April
10	Large Egret	<i>Casmerodius albus</i>	R	20 (2010)	Throughout
11	Median Egret	<i>Mesophoyx intermedia</i>	R	16 (2010)	Throughout
12	Cattle Egret*	<i>Bubulcus ibis</i>	R	189 (2010)	Throughout
13	Indian Pond-Heron*	<i>Ardeola grayii</i>	R	248 (2009)	Throughout
14	Black-crowned Night-Heron*	<i>Nycticorax nycticorax</i>	R	87 (2008)	Throughout
15	Chestnut Bittern	<i>Ixobrychus cinnamomeus</i>	?	1 (2008)	Dec#
16	Black Bittern	<i>Dupetor flavicollis</i>	M	2 (2008)	Dec-Jan
	Family Ciconiidae				
17	Painted Stork*	<i>Mycteria leucocephala</i>	M	154 (2009)	Jan-April
18	Asian Openbill-Stork*	<i>Anastomus oscitans</i>	R	129 (2010)	Throughout
19	White-necked Stork	<i>Ciconia episcopus</i>	?	4 (2008)	Dec#
20	European White Stork	<i>Ciconia ciconia</i>	?	2 (2009)	Jan#
	Family Threskiornithidae				
21	Glossy Ibis	<i>Plegadis falcinellus</i>	M	24 (2010)	Nov-March
22	Oriental White Ibis*	<i>Threkiornis melanocephalus</i>	R	200 (2009)	Nov-April
23	Eurasian Spoonbill*	<i>Platalea leucorodia</i>	M	48 (2010)	Nov-March
	Order Anseriformes				
	Family Anatidae				
24	Lesser Whistling-Duck	<i>Dendrocygna javanica</i>	M	4 (2008)	Nov-Dec
25	Greylag Goose	<i>Anser anser</i>	?	2 (2008)	Dec#
26	Bar-headed Goose	<i>Anser indicus</i>	M	46 (2008)	Nov-Jan
27	Comb Duck	<i>Sarkidiornis melanotus</i>	M	62 (2009)	Nov-Dec
28	Cotton Teal	<i>Nettapus coromandelianus</i>	M	21 (2009)	Nov-Dec
29	Gadwall	<i>Anas strepera</i>	M	26 (2009)	Nov-Dec
30	Eurasian Wigeon	<i>Anas penelope</i>	M	2 (2008)	Nov-Dec
31	Spot-billed Duck*	<i>Anas poecilorhyncha</i>	M	23 (2009)	Jan-May, Oct-Dec
32	Northern Shoveller	<i>Anas clypeata</i>	M	723 (2010)	Jan-March, Nov-Dec
33	Northern Pintail	<i>Anas acuta</i>	M	6 (2009)	Nov-Dec
34	Garganey	<i>Anas querquedula</i>	M	1345 (2009)	Nov-Dec
35	Common Teal	<i>Anas crecca</i>	M	8 (2009)	Jan-March, Nov-Dec
36	Red-crested Pochard	<i>Netta rufina</i>	?	2 (2009)	Jan#
37	Common Pochard	<i>Aythya nyroca</i>	M	4 (2009)	Dec
38	Tufted Pochard	<i>Aythya fuligula</i>	?	1 (2007)	Dec#
	Order Falconiformes				
	Family Accipitridae				
39	Black-shouldered Kite	<i>Elanus caeruleus</i>	M	1(all the years)	Jan-Mar
40	Black Kite	<i>Milvus migrans</i>	R	8 (2009)	Throughout

41	Brahminy Kite	<i>Haliastur indus</i>	R	6 (2010)	Throughout
42	Western Marsh-Harrier	<i>Circus aeruginosus</i>	M	2 (2010)	Jan-March
43	Pallid Harrier	<i>Circus macrourus</i>	M	2 (2010)	Jan-March
44	Pied Harrier	<i>Circus melanoleucos</i>	M	2 (2010)	Jan-March
45	Shikra	<i>Accipiter badius</i>	R	4 (2009)	Throughout
46	Greater Spotted Eagle	<i>Aquila pomarina</i>	M	2 (2010)	Jan-March
47	Booted Eagle	<i>Hieraaetus pennatus</i>	M	1 (all the years)	Jan-March
	Family Pandionidae				
48	Osprey	<i>Pandion haliaetus</i>	M	1 (all the years)	Jan-March, Nov-Dec
	Order Galliformes				
	Family Phasianidae				
49	Grey Francolin	<i>Francolinus pondicerianus</i>	R	6 (2009)	Throughout
50	Indian Peafowl	<i>Pavo cristatus</i>	R	2 (2008)	Nov-Dec
	Order Turniciformes				
	Family Turnicidae				
51	Common Button Quail	<i>Turnix suscitator</i>	?	2 (2008)	Jan
	Order Gruiformes				
	Family Rallidae				
52	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	R	4 (2008)	Throughout
53	Little Crake	<i>Porzana parva</i>	?	2 (2008)	Jan#
54	Ruddy-breasted Crake	<i>Porzana fusca</i>	M	1 (2008)	Jan-March
55	Watercock	<i>Gallicrex cinerea</i>	M	2 (2007)	Jan-March
56	Purple Moorhen	<i>Porphyrio porphyrio</i>	R	1 (all the years)	Throughout
57	Common Moorhen	<i>Gallinula chloropus</i>	R	4 (2008)	Throughout
58	Common Coot*	<i>Fulica atra</i>	R	310 (2008)	Throughout
	Order Charadriiformes				
	Family Jacanidae				
59	Pheasant-tailed Jacana*	<i>Hydrophasianus chirurgus</i>	M	65 (2010)	Jan-Mar, Oct-Dec
	Family Charadriidae				
60	Little Ringed Plover	<i>Charadrius dubius</i>	M	2 (2009)	Nov-Dec
61	Kentish Plover	<i>Charadrius alexandrinus</i>	M	2 (2009)	Dec
62	Lesser Sand Plover	<i>Charadrius mongolus</i>	M	2 (2010)	Nov-Dec
63	Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	R	10 (2009)	Throughout
64	Red-wattled Lapwing	<i>Vanellus indicus</i>	R	23 (2009)	Throughout
	Family Scolopacidae				
65	Pintail Snipe	<i>Gallinago stenura</i>	M	4 (2009)	Jan, Nov-Dec
66	Common Snipe	<i>Gallinago gallinago</i>	M	2 (2009)	Jan, Nov-Dec
67	Black-tailed Godwit	<i>Limosa limosa</i>	M	83 (2010)	Jan, Nov-Dec
68	Bar-tailed Godwit	<i>Limosa lapponica</i>	M	58 (2009)	Jan, Nov-Dec
69	Common Redshank	<i>Tringa totanus</i>	M	4 (2008)	Jan, Nov-Dec
70	Marsh Sandpiper	<i>Tringa stagnatilis</i>	M	4 (2008)	Nov
71	Common Greenshank	<i>Tringa nebularia</i>	M	9 (2008)	Jan, Nov-Dec
72	Green Sandpiper	<i>Tringa ochropus</i>	M	4 (2009)	Jan, Nov-Dec
73	Wood Sandpiper	<i>Tringa glareola</i>	M	2 (2009)	Jan, Nov-Dec
74	Common Sandpiper	<i>Actitis hypoleucos</i>	M	6 (2009)	Jan, Nov-Dec
75	Little Stint	<i>Clidris minuta</i>	M	4 (2009)	Dec#
76	Ruff	<i>Philomachus pugnax</i>	?	1 (2007)	Dec
	Family Recurvirostridae				
77	Black-winged Stilt	<i>Himantopus himantopus</i>	M	56 (2009)	Jan-Mar, Nov-Dec
	Family Laridae				
78	Gull-billed Tern	<i>Gelochelidon nilotica</i>	M	5 (2009)	Nov
79	River Tern	<i>Sterna aurantia</i>	M	4 (2009)	Jan-March, Nov-Dec
80	Common Tern	<i>Sterna hirundo</i>	M	2 (2010)	Jan-March, Nov-Dec
81	Black-bellied Tern	<i>Sterna acuticauda</i>	M	2 (2009)	Nov
82	Whiskered Tern	<i>Chlidonias hybridus</i>	M	2 (2008)	Nov
	Order Columbiformes				
	Family Columbidae				
83	Blue Rock Pigeon	<i>Columba livia</i>	R	2 (2008)	Throughout
84	Little Brown Dove	<i>Streptopelia senegalensis</i>	R	1 (all the years)	Throughout

85	Spotted Dove	<i>Streptopelia chinensis</i>	R	4 (2009)	Throughout
	Order Psittaciformes				
	Family Psittacidae				
86	Rose-ringed Parakeet	<i>Psittacula krameri</i>	R	6 (2009)	Throughout
	Order Cuculiformes				
	Family Cuculidae				
87	Pied Crested Cuckoo	<i>Clamator jacobinus</i>	M	3 (2009)	Nov-Dec, Jan-Mar
88	Asian Koel	<i>Eudynamys scolopacea</i>	R	6(2008)	Throughout
89	Greater Coucal	<i>Centropus sinensis</i>	R	2 (2008)	Throughout
	Order Strigiformes				
	Family Tytonidae				
90	Barn Owl	<i>Tyto alba</i>	?	1 (2009)	Aug#
	Family Strigidae				
91	Spotted Owlet	<i>Athene brama</i>	R	2 (2010)	Throughout
	Order Caprimulgiformes				
	Family Caprimulgidae				
92	Common Indian Nightjar	<i>Caprimulgus asiaticus</i>	R	1 (all the years)	Throughout
	Order Apodiformes				
	Family Apodidae				
93	Asian Palm-Swift	<i>Cypsiurus balasiensis</i>	R	4 (2008)	Throughout
94	House Swift	<i>Apus affinis</i>	R	4 (2008)	Throughout
	Order Coraciiformes				
	Family Alcedinidae				
95	Small Blue Kingfisher	<i>Alcedo atthis</i>	R	6 (2008)	Throughout
96	Stork-billed Kingfisher	<i>Halcyon capensis</i>	?	1 (2008)	July#
97	White-breasted Kingfisher	<i>Hacyon smymensis</i>	R	5 (2009)	Throughout
98	Lesser Pied Kingfisher	<i>Ceryle rudis</i>	R	12 (2008)	Throughout
	Family Meropidae				
99	Small Bee-Eater	<i>Merops orientalis</i>	R	10 (2007)	Throughout
100	Blue-tailed Bee Eater	<i>Merops philippinus</i>	M	2 (2008)	Oct-Nov
101	Chestnut-headed Bee-Eater	<i>Merops leschenaulti</i>	?	1 (2008)	Oct#
	Family Coraciidae				
102	Indian Roller	<i>Coracias benghalensis</i>	R	2 (all the years)	Throughout
	Family Upupidae				
103	Common Hoopoe	<i>Upupa epops</i>	M	1 (all the years)	Jan-April
	Order Piciformes				
	Family Capitonidae				
104	Coppersmith Barbet	<i>Megalaima haemacephala</i>	R	1 (all the years)	Throughout
	Family Picidae				
105	Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>	R	2 (2008)	Throughout
	Order Passeriformes				
	Family Alaudidae				
106	Red-winged Bush-Lark	<i>Mirafr erythroptera</i>	M	4 (2009)	Mar-May
107	Eastern Skylark	<i>Alauda gulgula</i>	M	2 (2009)	Mar-May
	Family Hirundinidae				
108	Common Swallow	<i>Hirundo rustica</i>	M	8 (2007)	Jan-March, Nov-Dec
109	Wire-tailed Swallow	<i>Hirundo smithii</i>	M	8 (2007)	Jan-March, Nov-Dec
110	Red-rumped Swallow	<i>Hirundo daurica</i>	M	8 (2007)	Jan-March, Nov-Dec
	Family Motacillidae				
111	White Wagtail	<i>Motacilla alba</i>	M	8 (2008)	Jan, Nov-Dec
112	Large Pied Wagtail	<i>Motacilla maderaspatensis</i>	M	8 (2008)	Jan, Nov-Dec
113	Yellow Wagtail	<i>Motacilla flava</i>	M	4 (2008)	Jan, Nov-Dec
114	Grey Wagtail	<i>Motacilla cinerea</i>	M	4 (2009)	Jan, Nov-Dec
115	Paddyfield Pipit	<i>Anthus rufulus</i>	M	4 (2009)	Jan, Nov-Dec
	Family Campephagidae				
116	Common Woodshrike	<i>Tephrodornis pondicerianus</i>	R	4 (2009)	Throughout
	Family Pycnonotidae				
117	Red-vented Bulbul	<i>Pycnonotus cafer</i>	R	14 (2010)	Throughout

	Family Laniidae				
118	Brown Shrike	<i>Lanius cristatus</i>	M	4 (2008)	Jan, Sep-Dec
119	Rufous-backed Shrike	<i>Lanius schach</i>	M	4 (2010)	Jan-June
	Order Muscicapidae				
	Family Turnidae				
120	Indian Robin	<i>Saxicoloides fulicata</i>	R	6 (2009)	Throughout
121	Common Stonechat	<i>Saxicoloides torquata</i>	?	1 (2007)	Dec#
122	Pied Bushchat	<i>Saxicoloides caprata</i>	M	4 (2007)	Dec-Jan
	Family Timaliinae				
123	White-headed Babbler	<i>Turdoides affinis</i>	R	14 (2008)	Throughout
	Family Sylviinae				
124	Streaked Fantail-Warbler	<i>Cisticola juncidis</i>	R	2 (all the years)	Throughout
125	Franklin's Prinia	<i>Prinia hodgsonii</i>	M	6 (2008)	Jan-Feb, Nov-Dec
126	Ashy Prinia	<i>Prinia socialis</i>	R	2 (all the years)	Throughout
127	Paddyfield Warbler	<i>Acrocephalus agricola</i>	M	2 (2007)	Jan-Feb, Nov-Dec
128	Blyth's Reed Warbler	<i>Acrocephalus dumetorum</i>	M	6 (2007)	Jan-Feb, Nov-Dec
129	Common Tailor Bird	<i>Orthotomus sutorius</i>	M	23 (2010)	Throughout
130	Greenish Leaf Warbler	<i>Phylloscopus trochiloides</i>	M	4 (2009)	Jan-Feb, Nov-Dec
131	Orphean Warbler	<i>Sylvia hortensis</i>	M	4 (2008)	Jan-Feb, Nov-Dec
	Family Monarchinae				
132	Asian Paradise-Flycatcher	<i>Terpsiphone paradisi</i>	M	2 (all the years)	Jan-April
	Family Dicaeidae				
133	Tickell's Flowerpecker	<i>Dicaeum erythrorhynchos</i>	R	1 (all the years)	Throughout
	Family Nectariniidae				
134	Purple-rumped Sunbird	<i>Nectarinia striata</i>	R	2 (all the years)	Throughout
135	Purple Sunbird	<i>Nectarinia asiatica</i>	R	2 (all the years)	Throughout
	Family Estrildidae				
136	White-rumped Munia	<i>Lonchura striata</i>	R	8 (2008)	Throughout
137	Spotted Munia	<i>Lonchura punctulata</i>	R	8 (2008)	Throughout
138	Black-headed Munia	<i>Lonchura malacca</i>	R	8 (2009)	Throughout
	Family Passerinae				
139	House Sparrow	<i>Passer domesticus</i>	R	8 (2010)	Throughout
	Family Ploceinae				
140	Baya Weaver	<i>Ploceus philippinus</i>	R	6 (2009)	Throughout
	Family Sturnidae				
141	Rosy Starling	<i>Sturus roseus</i>	M	18 (2008)	Dec-Jan
142	Common Myna	<i>Acridotheres tristis</i>	R	24 (2008)	Throughout
143	Bank myna	<i>Acridotheres ginginianus</i>	M	32 (2010)	Nov-Jan
	Family Oriolidae				
144	Eurasian Golden Oriole	<i>Oriolus oriolus</i>	M	2 (2009)	Nov-Jan
145	Black-headed Oriole	<i>Oriolus xanthornus</i>	?	2 (2008)	Dec
	Family Dicruridae				
146	Black Drongo	<i>Dicrurus macrocercus</i>	R	8 (2009)	Throughout
	Family Corvidae				
147	Indian Treepie	<i>Dendrocitta vagabunda</i>	R	5 (2009)	Throughout
148	House Crow	<i>Corvus splendens</i>	R	23 (2008)	Throughout
149	Jungle Crow	<i>Corvus macrorhynchos</i>	R	9 (2008)	Throughout

R = Resident, M = Migrant, ? = unknown, Throughout = Observed almost all the months of the year,
 *= Breeding in Karaivetti, # Sighted only once

Results and discussion

The study reveals the occurrence of 149 species of birds belonging to 104 genera, 49 families and 18 orders (Table 1). Among the 18 orders, Passeriformes dominated the list with 44 species of birds followed by Charadriiformes with 24 species, Ciconiiformes with 17 species, Anseriformes with 15 species, Falconiformes with 10 species, Coraciiformes with nine species, Gruiformes with seven species, Pelecaniformes with five species, Columbiformes and Cuculiformes with three species each, Galliformes, Strigiformes, Piciformes and Apodiformes with two species each, Turniciformes, Podicipediformes, Psittaciformes, Caprimulgiformes and with one species each. Of the 149 birds, 76 species were migrants and 57 were residents. Status of 16 species was unknown as they were sighted poor numbers and on only a few occasions. Although the Tamil Nadu State has 13 Bird Sanctuaries, avifauna of the majority of the bird sanctuaries are poorly documented and thus comparison of avifauna among bird sanctuaries is not possible. Hence, ornithologically well documented wetlands of Tamil Nadu alone are compared: 118 species of birds in Vaduvor (Gokula and Raj 2011), 110 species of waterbirds in Point Calimere (Sugathan 1982), 105 species of birds in Kaliveli (Pieter 1987), 116 species of birds in Singanallur lake (Reginald et al. 2007), and 101 species of birds in Pallikaranai (Raj et al. 2010). The numerical differences may be attributed to the combination of various factors, viz., size and location of wetlands, proximity to other wetlands, water level, foraging opportunity, food availability, availability of nest-sites, inter and intra specific competition, human pressure, site fidelity of bird species, and site history.

Birds of Karaivetti Lake largely nest during the north-east monsoon as birds of majority of heronries of Tamil Nadu as reported by Subramanya (2005). A maximum of 4398 individuals in January 2010 and a maximum of 117 species of birds were recorded in December 2007. Number of individuals varied from 385 in non-breeding season to 4398 in the breeding season while number of species varied from 49 in non-breeding to 117 in breeding season. Among the bird species recorded, the most numerous were Garganey *Anas querquedula* with 1345 individuals followed by Northern Shoveller *Anas clypeata* with 723 individuals in the year 2009.

Since 1988, the Spotted-billed Pelican (SPB), a globally Near Threatened species (IUCN 2007) and a resident with local movements in India, was reported breeding at this lake. In total, 467, 508 and 559 individuals of SPB were recorded in June 2008, June 2009, and June 2010, respectively. Although a maximum of 56 pairs were only found breeding in the lake (18 pairs in 2007-08, 50 pairs in 2008-09, and 56 pairs in 2009-10), during late May of the past three years (2007, 2008, 2009) considerable number of individuals of SPB (consists of both adults and few months old immature) moved here from an unidentified location. As majority of the lakes in Tamil Nadu goes dry in summer, it is presumed that SPB move from place with lack of adequate water to places with adequate water. Although, Karaivetti goes 70% dry in the month of May, it could still attract a significant number of SPB from other parts. In addition to breeding individuals, Karaivetti also harbours non-breeding individuals (immature) every year. Among the breeding species, SPB being a late arrival (largely during late November) extends its breeding activity till April while

other species completed their breeding activities. During the study period, SPBs were found unusually throughout the year during November 2007 to November 2008 in Karaivetti Lake. In general, the numerical status of the population of SPB has been increasing over the past five years in Karaivetti. The Karaivetti being one of the important breeding sites of SPB in Tamil Nadu, erection of artificial nest poles or stages and would invite more number of SPB in immediate future. Planting of trees is also recommended for the long term sustainability. May being the crucial month of growing young ones of SPB and thin population of SPB from other wetlands, needs adequate water in the lake and thus proper step has to be taken to sustain the water level for the conservation of SPB year around.

Further, the Karaivetti Lake also harbours other Near Threatened species of birds, viz., Darter *Anhinga melanogaster*, Painted Stork *Mycteria leucocephala* and Oriental White Ibis *Threskiornis melanocephalus*. During the study period, a maximum of 200 individuals of Oriental White Ibis and 154 individuals of Painted Stork were recorded in the year 2009.

Illegal fishing activities, occasional hunting, removal of *Acacia* stands for fuel wood and electrocution and collision of birds with high voltage power lines run near the lake are the existing threats to the avifauna of Karaivetti. A dead SPB was recorded on the power line in January 2007 and local people also confirmed the happening of such incidents. However, they reiterate that such happening were very frequent when the pylons were erected (1998-2000) but became less frequent in recent years. Healthy population can normally compensate for additional mortality deriving from unusual causes but may be seriously affected when these act on a reduced population. Bevanger (1998) also reported that species with high wing loading and low aspect run a high risk of colliding with power lines. Prior to any management measure, detailed monitoring program should be conducted on pelican populations with special emphasis on breeding trend. Despite the Forest Department of Tamil Nadu have already adapted people participatory approach to conserve the birds in the lake, capacity to identify, monitor and to protect birds be further developed among local for the long term conservation.

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