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Status of Wetlands and Wetland Birds in Coimbatore, Trichy, Perambalore and Thiruvarur Districts in Tamil Nadu, India

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Abstract: Birds as best indicators of wetland function or as measures of success in wetland management, restoration and creation. This study was conducted during January to March 2006, totally 27 selected wetlands were surveyed in four districts of Tamil Nadu, namely Coimbatore, Trichy, Perambalore and Thiruvarur. Species diversity and dominance of birds were calculated. Totally14, 208 birds belonging to 78 species and 33 families were recorded, out of these 78 species 47 wetland and 31 terrestrial bird species. Maximum diversity of birds was recorded in Kallakurchi lake II (2.5) followed by Asur (2.31) and Sulur (2.35). Bird abundance and vegetation cover were recorded. The highest number of birds were recorded in Perambalore district (8497), followed by Coimbatore (2672), Triruvarur (1992) and Trichy (1047). Three near threatened species, namely Threatened spot-billed pelican (*Pelicanus philippensis)* and Darter (*Anhinga rufa)* and Painted Stork (*Mycteria leucocephala)* were recorded. In most of the wetlands *Ipomea carnea* (15.28 %) was the dominant species. Wetlands in Coimbatore, namely Singanallur, Sulur, Vettikaranputhur and Thirumeni in Tiruvarur district had good population of birds and these sites will be protected for the birds.

Key words: Wetland · Water birds · Abundance · Tamilnadu · Conservation

INTRODUCTION

Wetland birds provide us with some of nature's most wonderful sights, from vast flocks wheeling overhead to newly hatched chicks drying in the sun. Apart from their beauty and recreational and economic importance, these birds are excellent indicators of water quality and measures of biodiversity. "Wetlands" have been defined as swamps and other damp areas of land but in common parlance the word is used interchangeably with "Lakes" which denotes a large body of water surrounded by land, However, internationally accepted term of wetlands describes them as "Area of Marsh, Fen, Peat land or water whether natural or artificial, permanent or temporary with water, that is static or flowing, fresh, brackish or salt including areas of marine water, the depth of which does not exceed 6 meters". Although bird surveys are being conducted in some wetlands as a part of the Asian waterfowl count, no systematic surveys were conducted on the wetlands in Tamil Nadu except in 2001 [1]. Anthropogenic habitat loss is usually cited as the most important cause of recent species' extinctions. We ask whether species losses are in fact more closely related to habitat loss than to any other

Fig. 1: Map indicating the locations of the study districts in Tamil Nadu, India

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aspect of human activity such as use of agricultural pesticides, or human population density and hence this study was taken up to assess the status of the wetlands and wetland birds in four districts.

Study Area and Methods: Twenty-seven wetlands were surveyed in Coimbatore, Perambalore, Trichy and Thiruvarur districts in Tamil Nadu during January to March 2006. Birds are being counted following wide variety of methods [2]. For water birds, direct counting method was used. In this method, a suitable vantage point is selected and all visible birds are counted. Another method, "total count" was used wherever possible, by walking around the wetlands or from specific vantage points to count the birds [3]. If not completely covered, the percentage of coverage was marked. (b) Block count: During counts, each site was divided into many sections and each section was counted. Birds flying from behind the observer were not counted. During the study the birds have found were classified according to the migratory status as migratory and resident and also based on the frequency of observation. Birds systematically conducted from morning 6:00hrs to 10:00hrs and using Bushnell binocular (8x42) and birds were identified [4, 5].

RESULTS

Distribution of Wetland Birds: During the study period 27 wetlands were surveyed in four districts and 14, 208 birds of 78 species belonging to 33 families were recorded (Fig. 1). Out of the 78 species, 47 were wetland and 31 terrestrial, maximum numbers of species were recorded (31) in Karavetti bird sanctuary from Perambalore district followed by Uthayamarthandapuram (22) and minimum was recorded in Trichy district. Ardeidae contributed the maximum species of seven in Coimbatore, Six in Thiruvarur, Perambalore district and five in Trichy district. Other major family was Anatidae with Six species in Perambalore district. The list of birds observed in the study area is annexed. The maximum number of birds were also recorded in Karaivetti lake (8091) followed by Uthayamarthandapuram (1086) and Thirumeni lake (906). Little Cormorant *Phalacrocorax niger* (2428) was the most abundant species followed by Pintail *Anas acuta* (1200), Garganey Teal *Anas querquedula* (1177) and Cattle Egret *Bubulcus ibis* (1107) recorded in all the wetlands surveyed (Image1). During the study period three globally near threatened species were recorded; namely Spot-billed Pelican *Pelicanus philippensis*, Darter *Anhinga rufa* and Painted Stork *Mycteria leucocephala*.

Table 1: Total birds recorded in selected districts of Tamil Nadu

Districts	No of Wetlands	No of Families	No of Species	No of Individuals
Coimbatore	10	21	28	2672
Trichy	7	22	20	1047
Perambalore	8	22	31	8497
Thiruvarur	2	29	21	1992

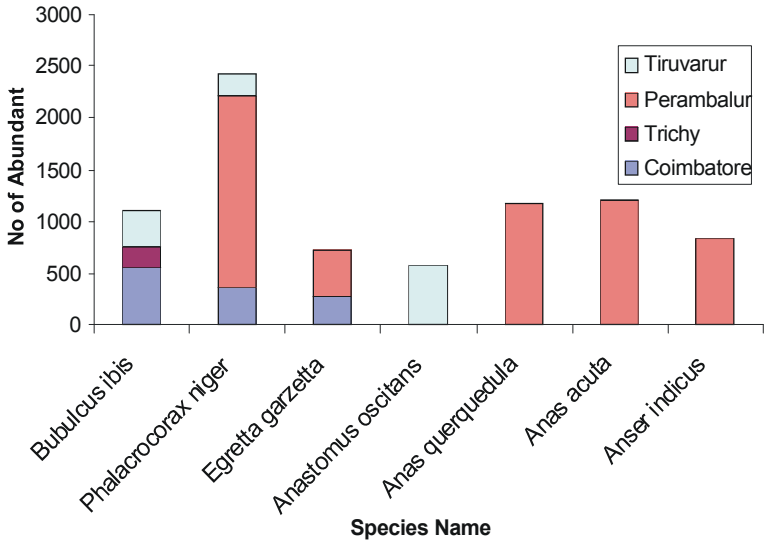

Fig 1: Abundant Species Observed in Selected Districts of Tamil Nadu

Some Birds Sighted During our Study Period

Mycteria leucocephala

Phalacrocorax niger

Photos: Lalitha Vijayan

Anastomus oscitans

Fulica atra

Photos: Lalitha Vijayan

Wetlands in Our Study Area

Vettaikaranpudhur wetland

Ramachandrapuram wetland

Photos: M.B.Guptha

Appendix 1: No of Bird Species, Abundance and Diversity in Different Wetlands

Wetlands	Total No. Birds	Total No. of Species	Diversity
Ukkadam lake	461	27	2.17
Kuruchi lake	423	16	1.7
Valankulam	56	12	2.08
Sulur lake-1	169	19	2.3
Sulur lake-II	164	14	2.35
Singanallur lake-1	293	15	1.9
Singanallur lake-II	73	8	1.48
Ramachandrapuram	59	12	2.01
Uppuchiputhur	46	8	1.92
Vettaikaranputhur	928	28	2.35
Asur lake	355	20	2.39
Thaneerpatti lake-1	84	17	2.28
Thaneerpatti lake II	202	18	1.96
Plangananguđi lake	56	9	1.74
Nilamuthy lake	50	8	1.38
Thuvakudi lake	78	10	1.31
Valavanthankottai	222	16	1.65
Karaivetti lake	8091	31	1.63
Kalinga lake	50	12	1.98
Kallankuruchi lake-1	79	9	1.59
Kallankuruchi lake-II	100	11	2.5
Ayyan lake	95	9	2.25
Srinivasapuram lake	14	5	1.85
Chetti lake	58	4	1.59
Thamaraikulam	2	1	0
Uthayamarthandapuram lake	1086	22	1.47
Thirumeni lake	906	21	1.4

Maximum number of birds species present were categorized into very rare (55) followed by rare (12), occasional (7) and common (4). The migratory status of bird species showed that 77.74 % were resident and 22.26 % migrant birds. Trichy and Perambalur districts had maximum migratory birds whereas only four species were recorded in Thiruvarur. Karaivetti Lake in Perambalur district supported the maximum of nine migratory species followed by Vettaikaranpudhur and Ukkadam in Coimbatore district with five species each. The common migratory species recorded in the wetlands are Garganey (9) followed by Common Sandpiper *Tringa hypoleucos* (7). The species diversity was maximum in Kallakurchi lake II (2.5) followed by Asur lake (2.39) and Sulur II and Vettaikaranputhur (2.35). The wetland wise diversity is given in the (Appendix 1).

Vegetation: Vegetation cover was recorded in all the wetlands. The proportion of the vegetation cover was recorded in percentage. In most of the wetlands *Ipomea carnea* (15.28 %) was the dominant species. In Palanganankudi Lake diverse vegetation was observed whereas in Thamaraikulam Lake the water was clear and

the vegetation cover was very less. In Trichy district *Acacia nilotica* and *Prosopis juliflora* were observed in all the wetland corners and the surroundings. *Saccharam munja* was common in the swamp areas of the wetlands. As in Trichy district Perambalore district also had *Ipomea carnea* as the dominant emergent vegetation in most of the wetlands.

DISCUSSION

In Indian wetlands 318 species of birds were recorded out of which 193 species are fully dependent on wetlands [6]. In our study 78 species were recorded out of which 47 were fully dependent on wetlands. Nineteen of the 26 species of colonially nesting large water birds that are known to breed in Indian heronries, namely Spot-billed Pelican *Pelicanus philippensis*, Little Cormorant *Phalacrocorax niger*, Indian Shag *Phalacrocorax fuscicollis*, Great Cormorant *Phalacrocorax carbo*, Darter *Anhinga rufa*, Little Egret *Bubulcus ibis*, Grey Heron *Ardea cinerea*, Large Egret *Egretta alba*, Median Egret *Egretta intermedia*, Cattle Egret *Bubulcus ibis*, Indian Pond-Heron *Ardeola grayii*, Black-crowned Night-Heron *Nycticorax nycticorax*, Painted Stork *Mycteria leucocephala*, Asian Openbill-Stork *Anastomus oscitans*, White Ibis *Threskiornis melanocephalus*, Black Ibis *Pseudibis papillosa*, Glossy Ibis *Plegadis falcinellus*, Eurasian Spoonbill *Platalea leucorodia* nest in Tamil Nadu [7] out of which during our survey only eight species recorded were breeding in different wetland sites. These were Karavetti, Thirumeni, Sulur and Vettaikaranputhur. Towards the end of winter, February-March, most of the migratory birds started moving and also the water level started decreasing in the wetlands, which are possible reasons for the less sighting frequency. Various studies reported that water level and the bird abundance are inter-related [8]. In the study area only 21 % of birds were migratory and the remaining ones are local migrant or resident, whereas in Bharathpur bird sanctuary it was 60 % [3]. The *Tringa hypoleucos* and *Tringa glareola* were recorded in most of the wetland sites. *Tringa hypoleucos* mostly preferred the edges of the wetlands for feeding. *Bubulcus ibis*, *Egretta garzetta*, *Phalacrocorax niger* and *Anas querquedula* are the some of the common species in the study site. This species are the resident and the food abundance of this species was high in most of the sites. It was found that rice fields and other agricultural habitats were used more by Cattle Egrets than other habitats [9]. During the study period three globally near threatened species are recorded; namely Spot-billed Pelican *Pelicanus philippensis*, Darter *Anhinga rufa* and Painted Stork *Mycteria leucocephala* [6]. Totally 87 Pelicans were observed out of which 37 birds were at Ukkadam in Coimbatore district. Any areas that possess 1% of its world population in a regular manner can be declared as an Important Bird area [10]. *Anhinga rufa* was recorded except in Trichy district and maximum of 18 birds were recorded in Vattaikaranputhur. Depends and more open water is require for the *Anhinga rufa* for fishing. When wetlands are covered with weeds such as *Ipomea* and *Eichhornia,* these species and many others are unable to use the site. This population is important and the areas must be protected and monitored. Similar type of result was observed at KTDC Complex at Kerala [11]. Natural wetlands continue to decrease in area and throughout world [12].

Conservation: As a wetland ecosystem this area is important for the breeding and roosting birds and several other taxa of fauna and flora. This region is the biggest and the premier roosting and nesting grounds for many wetland wading birds including globally near threatened bird-*Anhinga melanogaster*. The study area has a good area of reeds also and it has crucial part in the breeding of the *Aredea purpurea, Mesophoyx intermedia* and *Nycticorax nycticorax*. In Karavetti bird sanctuary and Udamarthandapuram bird sanctuary was also supporting more birds since these wetlands were already protected. Successful conservation of the species will depend on an improved understanding of its ecological requirements and moving patterns. Further surveys and intensive studies in different seasons of the year will bring out better results for the conservation of these wetlands.

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