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Studies on avifauna in and around Melaselvanoor and Keelaselvanoor bird sanctuary Ramanathapuram district, Tamilnadu

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ABSTRACT

The present study was carried out in Melaselvanoor and Keelaselvanoor Bird Sanctuary (KMBS) during the period from April 2011 to March 2012 and was observed 116 species from the KMBS, Ramanathapuram which shows that this sanctuary supports a high diversity of birds. Most of the observed species are mixed forest residents mainly due to occurrence of various types of microhabitat within the sanctuary, nearby ocean and a large pond. Due to the abundance of endemic species this Sanctuary is very important for bird conservation in this part of the world. The Gulf of Mannar which is a famous tourist spot is located in the vicinity of the Melaselvanoor and Keelaselvanoor Bird sanctuary (KMBS) increasing tourist activity especially during the months of December and January is now becoming a serious threat to the birds of this sanctuary. Cattle grazing and use of forest wood as a source of fuel by local people are also creating adverse conditions for the birds of the region.

Keywords: Bird sanctuary, avifauna, Melaselvanoor and Keelaselvanoor Bird Sanctuary (KMBS), Biodiversity.

INTRODUCTION

Counting is central to ecological studies and conservation research in ornithology. A study of birds in and around Melaselvanoor and Keelaselvanoor Bird Sanctuary (KMBS), Ramanathapuram was carried out between April 2011 to March 2012. A total of 116 species of birds belonging to 47 families were recorded during the study period. The study was divided in 3 habitats, i.e., aquatic fresh water habitat (FWH), shrubby habitat (SH) and mixed forest habitat (MFH), forest habitat was observed to support maximum number i.e. 51 species of birds, followed by aquatic habitat supporting 26 shrubby habitat supporting only 21 whereas 18 bird species was observed to use more than one habitat in the study area. Birds are ideal bio-indicators and useful models for studying a variety of environmental problems [1]. It constitutes a highly specialized a group of vertebrates which have attained the peak of evolutionary perfection. Birds of the class Aves are studied, the most beautiful creatures, the most observable, and are the most melodious. They exhibit a great variety of specific features enabling them to occupy numerous habitats, i.e. aquatic, shrubby and mixed forest habitat. Information regarding avifauna diversity in India has been reported by Grewal *et al*. [2], Jain [3], Pfister [4], Sinha *et al*. [5]. Although studies on birds have been concluded from time to time in India and also in Tamilnadu but no work has been done about the avifauna of KMBS, Ramanathapuram. In the present work, an effort has been made to identify the availability of avian diversity found in and around the KMBS, Ramanathapuram in the state of Tamilnadu.

MATERIALS AND METHODS

The area under present study is KMBS, Ramanathapuram lies between latitude which is 9°13'47" and 9°12'27" N and longtitude 78°32'29" and 78°34'28" E in Kadaladi taluk of Ramanathapuram District in Tamil Nadu. This sanctuary was declared in the year 1998. This is the biggest birds Sanctuary in Tamil Nadu. The total area of the Sanctuary is 593.08 ha. An image of the study area (Image 1) was downloaded from the internet with the help of Google earth software. It is a famous tourist attraction in this region. The flora of the area is dominated by species like *Acacia nilotica, Prosopis juliflora, Tamarindus indica, Azadirachita indica, Albizzia amara, Ficus bengalensis, Ficus religiosa, Morinda tinctoria, Borassus flabellifer, Syzygium cumuni, Acacia planifons,* etc. In order to identify the availability of avian diversity in and around KMBS, Ramanathapuram regular field work trip organized and interviews held with forest officials and local people. These investigations were conducted during different seasons of the years 2011-2012.

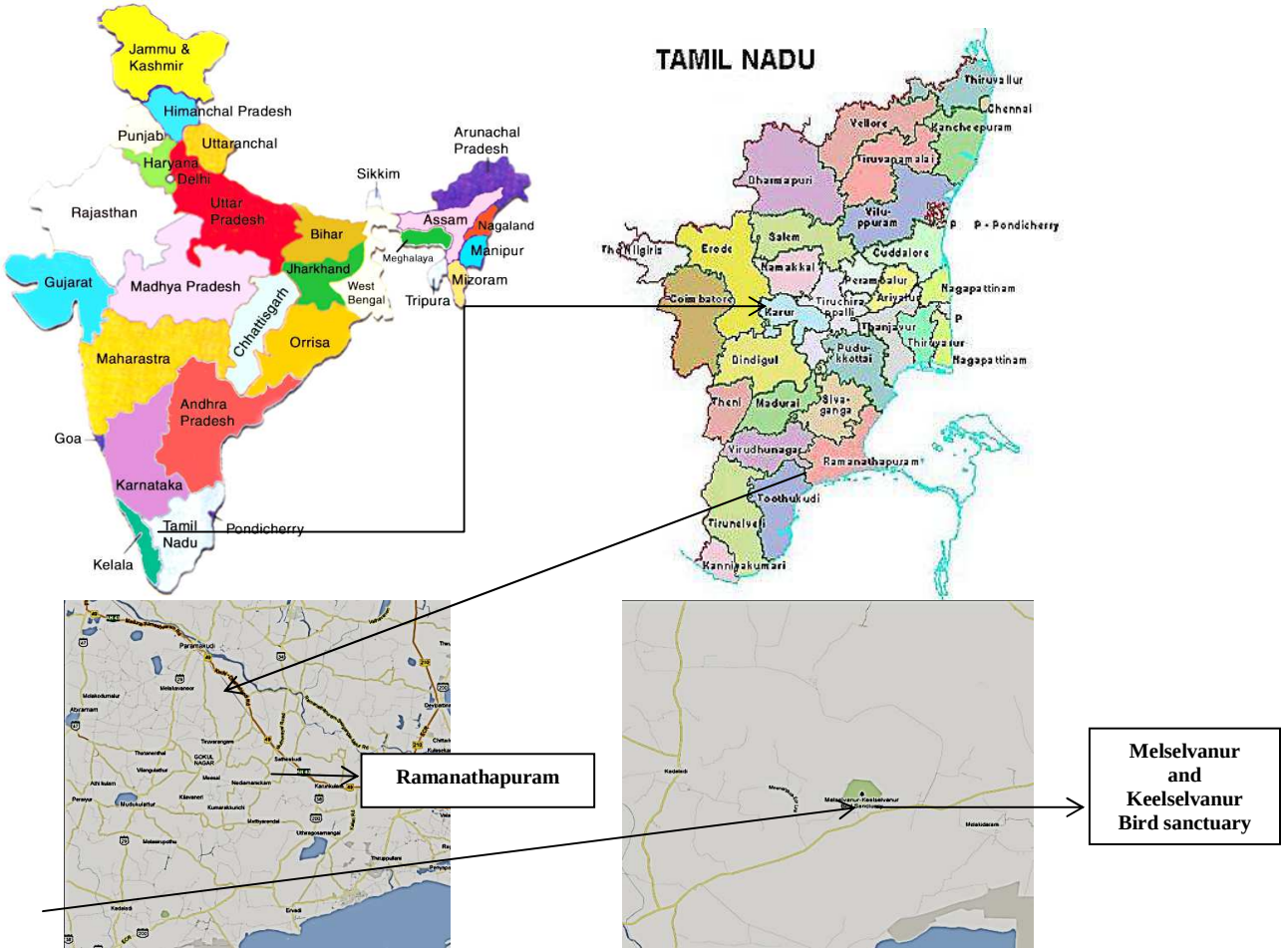

Figure 1.Study area

The other most important aspect kept in consideration was the activity of birds. Since the peak activity in most birds lasts for 1 or 2 hours after sunrise or before sunset, so monitoring of transects was done either in early morning or late evening hours used by Thankur [6]. No reliability estimates mentioned. Over the last decade, one of the most significant, large-scale bird count programs is the Asian Waterfowl Census (ACW) [7]. Population estimation exercises have been undertaken for a variety of endangered birds such as the Siberian Crane (*Grus leucogeramus*) [8], Sarus Crane (*Grus antigone*) [9], The Indian Bustard (*Ardeotis nigriceps*) [10], Lesser Florican (*Sypheotides indica*) [11], Bengal Florican (*Houbaropsis bengalensis*), White-winged Duck (*Cairina scutulata*) [12], Narcondam Hornbill (*Aceros narcondami*) [13], Black-necked Crane (*Grus nigricollis*) [14], Edible-nest Swiftlet (*Collocalia*

fuciphaga) [15], vultures [16], etc. A thorough survey of the study area was done and it was divided into three different habitats depending on the various types of vegetation present over there. The three different habitats i.e., aquatic fresh water habitat (FWH), shrubby habitat (SH) and mixed forest habitat (MFH), forest habitat have been surveyed. For the identification census and field diagnosis of birds colored plates, Grewal *et al*. [2] were used. A photographic digital camera with 14 mega pixel and Binocular (super Zenith prismatic field) with aid of 10×50 used as tools for observation and identification of birds.

RESULTS AND DISCUSSION

A systematic list of 116 species of birds belonging to 47 families along with habitat utilization has been presented in Table 1. Of the total 116 species of birds 51 species were mixed forest residents, 18 species have been observed to use more than one habitat, 26 species were reported to be aquatic residents and 21 species of birds use only shrubby habitat. This observation is supported by Sinha *et al*. [5]. The mixed forest habitat support a higher number of species of birds than other habitat, mainly because the mixed forest habitat as it was multi-storeyed and average tree height ranging between 4-8 meters with emergent going up to 11 meters and had more plant species in the tree layer and several shrub species. This idea is also supported by Mac Arthur and Mac Arthur [16] and Jain [3].

Table-1. Systematic list of Melaselvanoor and Keelaselvanoor bird Sanctuary along with habitat preference

S.NO	Common Name	Scientific name	Habitat
	Family 1- Anhingidae		
1.	Darter	*Anhinga melanogaster*	AqH
	Family 2- Rostratulidae		
2.	Greater painted-Snipe	*Rostratula benghalensis*	SH/AqH
	Family 3-Phalacrocoracidae		
3.	Little Cormorant	*Phalacrocorax niger*	AqH
4.	Great Cormorant	*Phalacrocorax carbo*	AqH
	Family 4- Podicipedidae		
5.	Little grebe	*Tachybaptus ruficollis*	AqH
	Family 5- Ardeidae		
6.	Little Egret	*Egretta garzetta*	AqH
7.	Grey Heron	*Ardea cinerea*	AqH/SH
8.	Purple Heron	*Ardea purpurea*	AqH/SH
9.	Large Egret	*Casmerodius albus*	AqH/SH
10.	Median Egret	*Mesophoyx intermedia*	AqH/SH
11.	Cattle Egret	*Bubulcus ibis*	AqH/SH
12.	Indian pond-heron	*Ardeola grayii*	AqH/SH
	Family 6- Threskiornithidae		
13.	Glossy Ibis	*Plegadis falcinellus*	AqH/MfH
14.	Oriental White ibis	*Threskiornis melanocephalus*	AqH/MfH
15.	Black Ibis	*Pseudibis papillosa*	AqH/MfH
16.	Eurasian Spoonbill	*Platalea leucorodia*	AqH/MfH
	Family 7- Columbidae		
17.	Blue Rock Pigeon	*Columba livia*	MFH
18.	Little Brown Dove	*Streptopelia senegalensis*	MFH
19.	Spotted Dove	*Streptopelia chinensis*	MFH
20.	Eurasian Collared Dove	*Streptopelia decaocto*	MFH
	Family 8-Anatidae		
21.	Comb Duck	*Sarkidiornis melanotos*	AqH/SH
22.	Cotton Teal	*Nettapus Coromandelianus*	AqH/SH
23.	Eurasian Wigeon	*Anas Penelope*	AqH/SH
24.	Spot-Billed Duck	*Anas poecilorhyncha*	AqH/SH
25.	Garrganey	*Anas querquedula*	AqH/SH
26.	Common Teal	*Anas crecca*	AqH/SH
27.	Oriental Honey-Buzzard	*Pernis ptilorhynchus*	MFH
28.	Black-Shouldered Kite	*Elanus caeruleus*	MFH
29.	Black Kite	*Milvus migranus*	MFH
30.	Brahminy Kite	*Haliastur Indus*	MFH
31.	Short-toed snake-Eagle	*Circaetus gallicus*	MFH
32.	Western Marsh-Harrier	*Circus aeruginosus*	MFH
33.	Pallid Harrier	*Circus macrourus*	MFH
34.	Pied Harrier	*Circus melanoleucos*	MFH
35.	Shikra	*Accipiter badius*	MFH

36.	White-eyed Buzzard	*Butastur teesa*	MFH
	Family 9-Falconidae		
37.	Common Kestrel	*Falco tinnunculus*	SH
	Family 10- Pandionidae		
38.	Osprey	*Pandion haliaetus*	SH
	Family 11- Phasianidae		
39.	Grey francolin	*Francolinus pondicerianus*	SH
40.	Indian peafowl	*Pavo cristatus*	SH
	Family 12- Rallidae		
41.	White-breasted Waterhen	*Amaurornis phoenicurus*	SH
42.	Common Coot	*Fulica atra*	SH
	Family 13- Pycnonotidae		
43.	Red-vented Bulbul	*Pycnonotus cafer*	SH
	Family 14-Pelecanidae		
44.	Spot-billed Pelican	*Pelecanus philippensis*	AqH
	Family 15- Charadriidae		
45.	Pacific Golden-plover	*Pluvialis fulva*	SH/AqH
46.	Little Ringed Plover	*Charadrius dubius*	SH/AqH
47.	Yellow-wattled lapwing	*Venellus malabaricus*	SH/AqH
48.	Red-Wattled Lapwing	*Venellus indicus*	SH/AqH
49.	Common Snipe	*Gallinago gallinago*	SH/AqH
50.	Common Redshank	*Tringa tetanus*	SH/AqH
51.	Green Sandpiper	*Tringa ochropus*	SH/AqH
52.	Wood Sandpiper	*Tringa glareola*	SH/AqH
53.	Little stint	*Calidris minuta*	SH/AqH
	Family 16-Recurvirostridae		
54	Black-winged Stilt	*Himantopus himantopus*	SH/AqH
	Family 17-Burhinidae		
55.	Stone-Curlew	*Burhinus oedicnemus*	SH/AqH
	Family 18-Ciconiidae		
56.	Painted Stork	*Mycteria leucocephala*	AqH/SH
57.	Asian Openbill-Stork	*Anastomus oscitans*	AqH/SH
58.	White-necked Stork	*Ciconia episcopus*	AqH/SH
59.	European White Stork	*Ciconiaciconia*	AqH/SH
	Family 19- Apodidae		
60.	Asian Palm-Swift	*Cypsiurus balasiensis*	MFH
	Family 20- Cuculidae		
61.	Brainfever Bird	*Hierococcyx varius*	MFH
62.	Asian Koel	*Eudynamys scolopacea*	MFH
63.	Small Green-billed malkoha	*Phaenicophaeus viridirostris*	MFH
64.	Greater Coucal	*Centropus sinensis*	MFH
	Family 21-Meropidae		
65.	Small Bee-eater	*Merops orientalis*	AqH/SH
66.	Blue-tailed Bee-eater	*Merops phillippinus*	AqH/SH
	Family 22- Caprimulgidae		
67.	Common Indian Nightjar	*Caprimulgus asiaticus*	MFH
	Family 23- Psittacidae		
68.	Rose-ringed Parakeed	*Psittacula krameri*	MFH
	Family 24- Corvidae		
69.	Indian Treepie	*Dendrocitta vagabunda*	SH
70.	House Crow	*Corvus splendens*	SH
71.	Jungle Crow	*Corvus macrorhynchos*	SH
	Family 25- Strigidae		
72.	Eurasian Eagle-owl	*Bubo bubo*	MFH
73.	Spotted Owlet	*Anthene brama*	MFH
	Family 26- Coraciidae		
74.	Indian Roller	*Coracias benghalensis*	AqH/SH
	Family 27- Upupidae		
75.	Common Hoopoe	*Upupa epops*	SH
	Family 28- Picidae		
76.	LesserGolden-backed Woodpecker	*-Dinopiumbenghalense*	MFH
	Family 29- Alaudidae		
77.	Singing Bush-lark	*Mirafra cantillans*	MFH
78.	Ashy-crowned Sparrow-Lark	*Eremopterix grisea*	MFH
79	Eastern Skylark	*Alauda gulgula*	MFH
	Family 30- Hirundinidae		

80.	Common swallow	*Hirundo rustica*	MFH
81.	Red-rumped swallow	*Hirundo daurica*	MFH
	Family 31- Motacillidae		
82.	forest Wagtail	*Dendronanthus indicus*	MFH
83.	White Wagtail	*Motacillia alba*	MFH
84.	Large Pied Wagtail	*Motacillia maderaspatensis*	MFH
85.	Cittine Wagtail	*Motacillia citreola*	MFH
86.	Yellow Wagtail	*Motacillia flava*	MFH
87.	Paddyfield pipit	*Anthus rufulus*	MFH
	Family 32- Campephagidae		
88.	Common wood shike	*Tephrodornis pondicerianus*	SH
	Family 33- Jacanidae		
89.	Pheasant-tailed jancana	*Hydrophasianus chirurgus*	SH
	Family 34- Laniidae		
90.	Brown Shrike	*Lanius cristatus*	SH
91.	Bay-backed Shrike	*Lanius vittatus*	SH
92.	Rufous-backed Shrike	*Lanius schach*	SH
	Family 35- Turdinae		
93.	Oriental Magpie-Robin	*Copsychus saularius*	SH
94.	Indian Robin	*Saxicoloides fulicata*	SH
	Family 36- Timaliinae		
95.	White- headed Babbler	*Turdoides affinis*	SH
	Family 37- Sylviinae		
96.	Blyth's Reed-Warbler	*Acrocephalus dumetorum*	SH
97.	Common Tailorbird	*Orthotomus sutorius*	SH
98.	Greenish Leaf-Warbler	*Phylloscopus trochiloides*	SH
99.	Large-billed Leaf-Warbler	*Phylloscopus magnirostris*	SH
	Family 38- Monarchinae		
100.	Asian Paradise-Flycatcher	*Terpsiphone paradise*	SH
	Family 39- Nactariniidae		
101.	Purple-rumped Sunbird	*Nactarinia zeylonica*	SH
102.	Purple- Sunbird	*Nactarinia asiatica*	SH
	Family 40- Ploceinae		
103.	Baya Weaver	*Ploceus philippinus*	MFH/SH
	Family 41- Passerinae		
104.	House sparrow	*Passer domesticus*	SH
105.	Yellow-throated sparrow	*Petronia xanthocollis*	SH
	Family 42- Estrildidae		
106.	White-throated Munia	*Lonchura malabarica*	SH
	Family 43- Sturnidae		
107.	Grey-headed Starling	*Sturnus malabaricus*	MFH/SH
108.	Brahminy Starling	*Sturnus pagodarum*	MFH/SH
109.	Rosy Starling	*Sturnus roseus*	MFH/SH
110.	Common Myna	*Acridotheres tristis*	MFH/SH
	Family 44- Oriolidae		
111.	Eurasian Golden Oriole	*Oriolus Oriolus*	MFH/SH
	Family 45- Dicruridae		
112.	Black Drongo	*Dicrurus macrocercus*	MFH/SH
	Family 46- Artamidae		
113.	Ashy Woodswallow	*Artamus fuscus*	MFH/SH
	Family 47- Alcedinidae		
114.	Small Blue Kingfisher	*Alcedo atthis*	AqH/SH
115.	White-breasted Kingfisher	*Halcyon smyrnensis*	AqH/SH
116.	Lesser Pied Kingfisher	*Ceyle rudis*	AqH/SH

The one year study observed 116 species from the KMBS, Ramanathapuram which shows that this sanctuary supports a high diversity of birds. Most of the observed species are mixed forest residents mainly due to occurrence of various types of microhabitat within the sanctuary, nearby ocean and a large pond. Due to the abundance of endemic species this sanctuary is very important for bird conservation in this part of the world. The Gulf of Mannar which is a famous tourist spot is located in the vicinity of the Melaselvanoor and Keelaselvanoor Bird Sanctuary (KMBS) increasing tourist activity especially during the months of December and January is now becoming a serious threat to the birds of this sanctuary. Cattle grazing and use of forest wood as a source of fuel by local people are also creating adverse conditions for the birds of the region.

Therefore various measures should be taken for the conservation of birds of the sanctuary. Cattle grazing should be allowed in a controlled manner. Alternative fuel sources should be made available to the local communities. Establishment of ecotourism committees with the help of local people and conducting awareness programs by the forest department on a regular basis would be an effective step in the avian diversity conservation of the KMBS, Ramanathapuram.

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