

## **Avifaunal Diversity of Abandoned Saltpan of Rajakkamangalam, Kanyakumari District, Tamil Nadu**

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### **Abstract**

A preliminary study on the Avifauna diversity of the abandoned Saltpan of Rajakkamangalam, Kanyakumari District, Tamil Nadu. The study was carried out from January 2019 to December 2019, the occurrence of birds was observed. During the study period, 100 avian species belonging to 45 families were identified. The Shannon's diversity index of bird was high (3.897) during the month of November likewise the Margalef species richness was high in the month of August. Among the 100 species, 81 species are Resident, 18 species are Winter migrant and 1 species is Local migrant. Five Near threatened species were also recorded. Based on the feeding guild, 25% Carnivore, 4% Frugivore, 7% granivore, 5% Herbivore, 24% Insectivore, 2% Nectarivore, 17% Omnivore and 16% Piscivore (Fig.5).

### **Introduction**

Wetlands are the most significant areas where water plays a dominant role in the development of aquatic plants and animal life. Global wetland size ranges between 5.3 to 12.8 million km<sup>2</sup> Zedler and Kercher (2005). Wetlands in India covers an area of 4.5 million hectares with 65,000 wetlands Anon (1990). Wetlands of Tamil Nadu covers an area of 56.25 ha, while Kanyakumari district is referred as the District of ponds.

Ramsar Convention has defined wetlands as "areas of marsh, fen, peatland 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 at low tide does not exceed six meters". A wide variety of wetlands like marshes, swamps, open water bodies, mangroves and tidal flats and salt marshes etc. exists in our country.

Wetlands are the ecotones or transitional zones between permanently aquatic and dry terrestrial ecosystems. Of the 1340 bird species reported from India Ali and Ripley (1987),

about 23% (310) bird species are known to be dependent on wetlands Kumar et al. (2005; Manakandan and Pitti (2001). It supports varieties of avian fauna include rare species, local migrants, migrants and winter visitors.

Out of 310 species of wetland birds found in India Kumar et al. (2005), almost half of these are migratory and visit India from their breeding grounds like China, Russia, Europe, central Asia, Siberia and from other parts of the world. Wetlands acts as a treasure for avifaunal species richness, which serve as a major link between Agricultural practices and natural resources. It supports resident birds throughout the year, while it acts as a refuge to the migratory birds during the winter season.

Majority of the bird species use wetlands frequently for Foraging, nesting and roosting sites due to the high heterogeneity of microhabitats and food sources Mitsch & Gosselink (2007) Zakaria *et al.* (2009). Wetland supports congregation of large number of migratory and resident bird species as it has high nutritional value as well as productivity Paracuellos (2006).

Documenting and Monitoring of the wetland birds provides valuable information on the ecological health and status of wetlands help as a vital tool for developing awareness regarding the conservation value of the wetlands. Wetland avifauna acts as indicators of wetland quality, and parameters for assessing restoration success and regional biodiversity Kumar and Gupta (2009).

In the past decade's wetlands in India, are facing tremendous anthropogenic pressures Prasad et al. (2002), which can adversely influence the structure of bird communities as well as species composition Kler (2002) Verma et al. (2004) Reginald et al. (2007). Bird groups like kingfishers, raptors and some passerines are also ecologically dependent on wetlands as they are in need of wetlands for survival, hence known as wetland dependent and associated birds Kumar et al. (2005).

Wetlands in Kanyakumari District are severely affected by anthropogenic activities like encroachment of wetland habitat, siltation, and invasion of alien species. Only a handful of studies has been done in avifaunal diversity in Kanyakumari district. In 2016, Raj and Bonselin documented 22 species of birds from Rajakkamangalam Saltpan. Sridharan et al. (2011) documented 57 species of birds in Kanyakumari district wetlands comprises of Theeroor, Suchindram, Thathaiyar, Manikam putheri. An attempt has been made to study the species diversity of Rajakkamangalam Saltpan during the year 2019.

## Materials and Method

### Study Area

The Kanyakumari district is named after the Goddess Kanyakumari. This district lies at the southernmost tip of peninsular India where Indian Ocean, Arabian Sea and Bay of Bengal confluence. This district is situated at the foot of the Agasthiyamalai biosphere reserve, Western Ghats. Kanyakumari is also known as city of Ponds, bestowed with magnificent aquatic ecosystems such as Estuaries, Oceans, Seas, Saltpans and Wetlands. The study was carried out in Rajakkamangalam Saltpan which is located between Periyakadu Bach and Muttom Beach  $8^{\circ} 7'38.18''N$  &  $77^{\circ}22'18.97''E$  (Fig. 1). Rajakkamangalam Saltpan is an inactive saltpan which attracts more birds as it has been least disturbed by the humans. The saltpan looks like a huge wetland with no vegetation covers the plants in and around the Saltpan is the *Prosopis sp.* For the present study Rajakkamangalam Abandoned Saltpan is surveyed for the Bird diversity study for a duration of one year.



**Fig.1 Satellite View of Rajakkamangalam Saltpan**

## Methodology

Bird surveys were conducted twice in a month, in Rajakkamangalam Saltpan from Jan 2019 to December 2019. Birds were counted by the “direct count” and “total count” methods Bibby et al. (2000). In “direct count” method three suitable vantage point was selected and all the visible birds were counted. Another method “total count” was used wherever possible, by walking around the wetlands. The survey was conducted systematically from morning 6.00 hrs to 10.00 hrs and evening 16.00 hrs to 18.00 hrs. Birds were recognised in the field by using Nikon (12x50 mm) binoculars and various field guides. Photographs were taken to identify the birds whenever possible and the bird’s identification is confirmed using standard field guides like Grimmett and Inskipp (1999) were used for field identification. The study area, experiencing sub-tropical climate, has four seasons: Monsoon (June– Sept), Post-Monsoon (Oct–Dec), Summer (Mar-May) and the Winter (Jan-Feb).

The birds were categorized based on the migratory status into Resident (R), Winter Migrant (WM), Local Migrant (R/M). Based on the feeding guild the birds were categorized into Herbivore (HR), Piscivore (PI), Omnivore (OM), Insectivore (IN), Frugivore (FR) and Carnivore (CA) following Ali and Ripley (1987). The statistical analysis Species Diversity Shannon and weiner (1949), Simpson’s Dominance Simpson (1949), Pielou’s Evenness Pielou (1966) and Margalef Richness was done using MS-Excel 2010 and Past3.



**Fig. 2 Landscape View of Rajakkamangalam Saltpan**

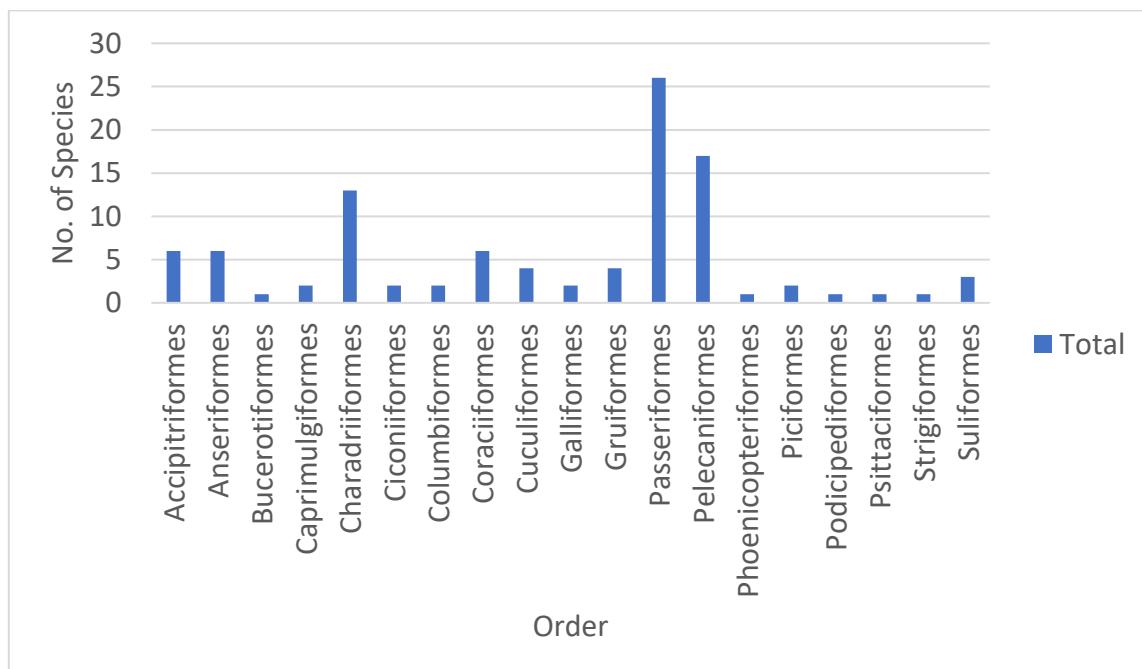
## **Result**

During the current study, a total of 100 bird species belonging to 84 genera, 19 orders and over 45 families were recorded (Table. 1). Highest number of species belonged to the order Passeriformes. Out of 100 bird species, 81 species are resident, 18 species are Winter Migrant belongs to the order Passeriformes, Anatidae and Charadriiformes and 1 Local migrant (Fig. 7). The maximum number of bird species (94) was found in the months of November. The population of birds was high during the month of January (1673) and March (1516). The lowest population was observed during the month of June (747) and July (771) (Table. 2). The maximum bird species was observed belong to the order Passeriformes (26) and Pelecaniformes (17). The dominant family was the Ardeidae with 12 species and it is followed by Anatidae 6 species (Fig. 3).

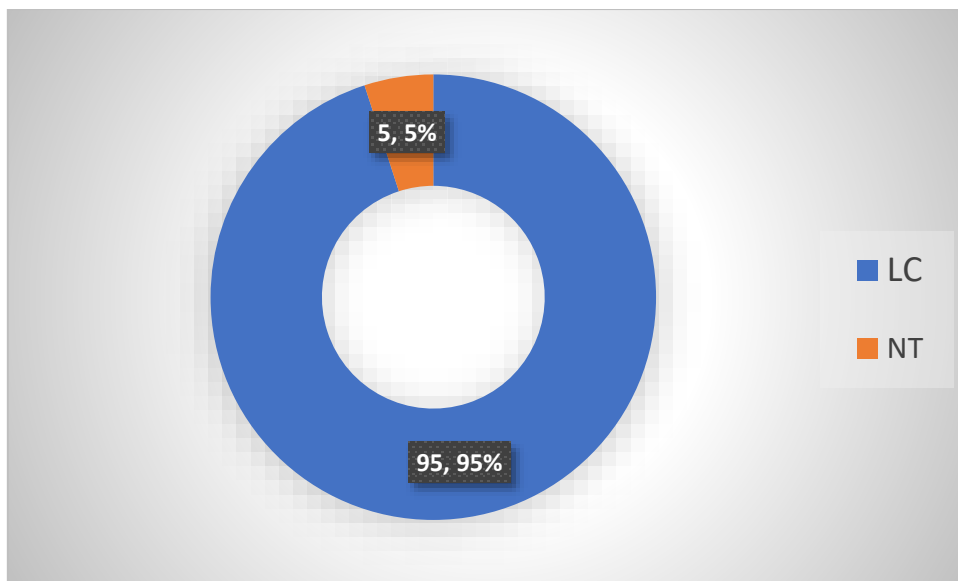
Based on the IUCN status 95 species are Least concern and remaining 5 species are Near threatened (Fig. 4). Based on the feeding guild and the WPA Status the Schedule I species

consists of birds belongs to Carnivore (5 species), Granivore (1 species), Omnivore (1 species) and Piscivore (1 species). The Schedule IV species consists of birds belonging to Carnivore (20 species), Frugivore (4 species), Granivore (6 species), Herbivore (5 species), Insectivore (25 species), Nectarivore (2 species), Omnivore (15 species) and Piscivore (15 species). But the Schedule V species consists of birds belonging to Omnivore (1 species) alone (Fig. 6).

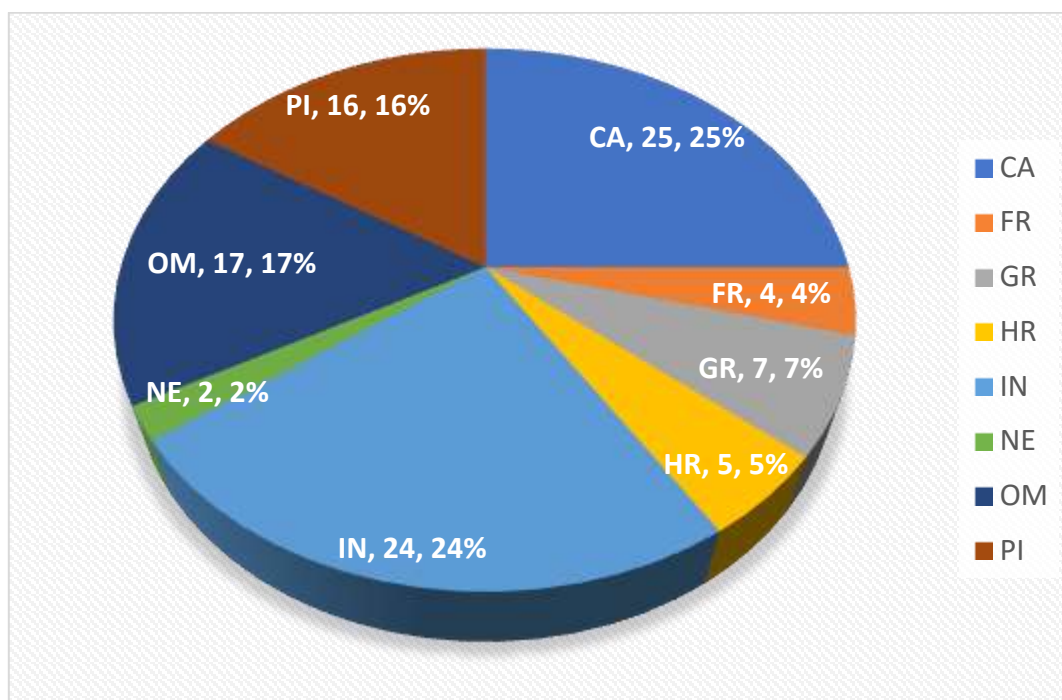
The shannon’s diversity index of bird was high (3.897) during the month of November and low (3.44) during the month of February. The Simpson’s dominance was high (0.9694) in November and low (0.9369) in May. The Margalef species richness was high (13.15) in November and low (10.82) during the month of May. The Pielous’s evenness was high (0.5362) during the month of August and low (0.3667) during the month of February (Table. 2). Based on the seasonal diversity of bird species was high during the Post Monsoon (98) season and it is followed by winter (97), summer (93) and Monsoon (87). The Shannon’s diversity was maximum during the Post monsoon (3.838) season and it is followed by Monsoon (3.721), summer (3.649) and winter (3.596). Margalef Evenness was high during the Monsoon (0.4747) season and the Simpsons dominance was high during the Post monsoon (0.9659) season (Table. 3). The Summer and Post Monsoon bird community was much similar, while the monsoon and winter bird community are more diverged (Fig. 8).



**Fig. 3 Order wise Distribution of Avifauna in Rajakkamangalam Saltpan**

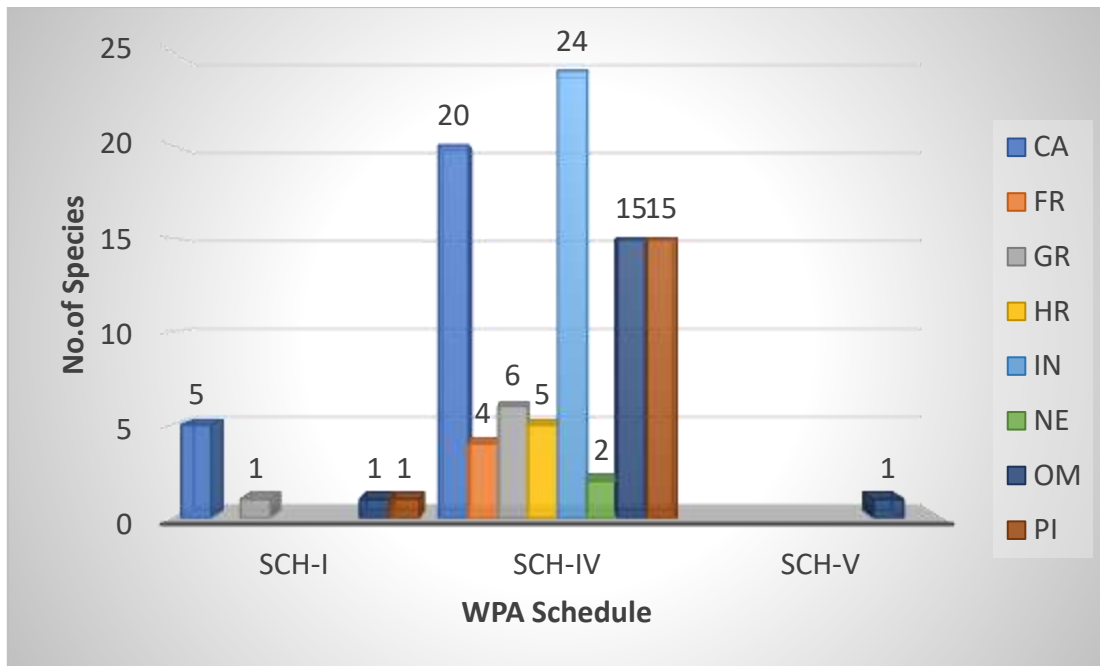


**Fig. 4 IUCN Status of Avifauna in Rajakkamangalam Saltpan**

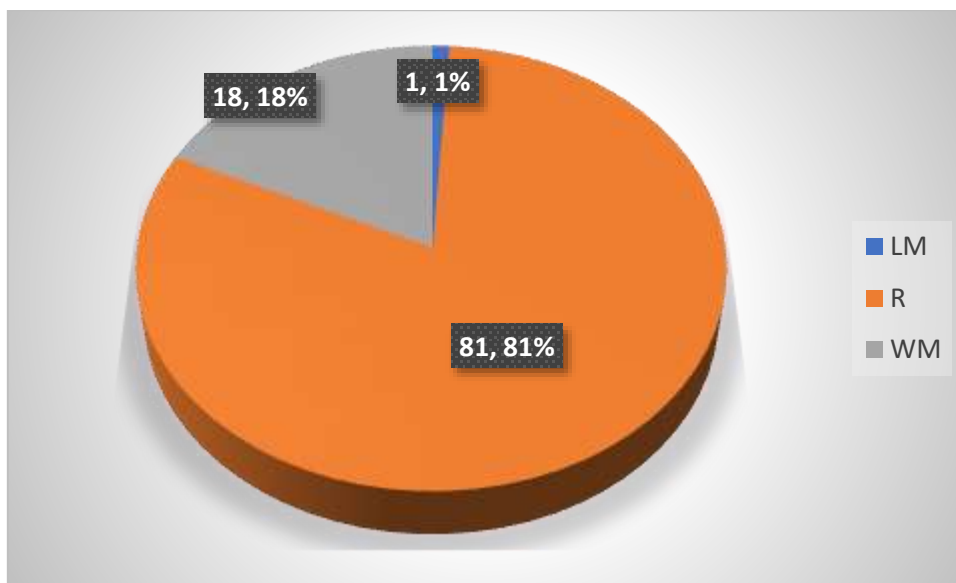


**Fig. 5 Feeding Guild of Avifauna in Rajakkamangalam Saltpan**





**Fig. 6 WPA Status and Feeding Guild of Avifauna in Rajakkamangalam Saltpan**



**Fig. 7 Migratory Status of Avifauna in Rajakkamangalam Saltpan**



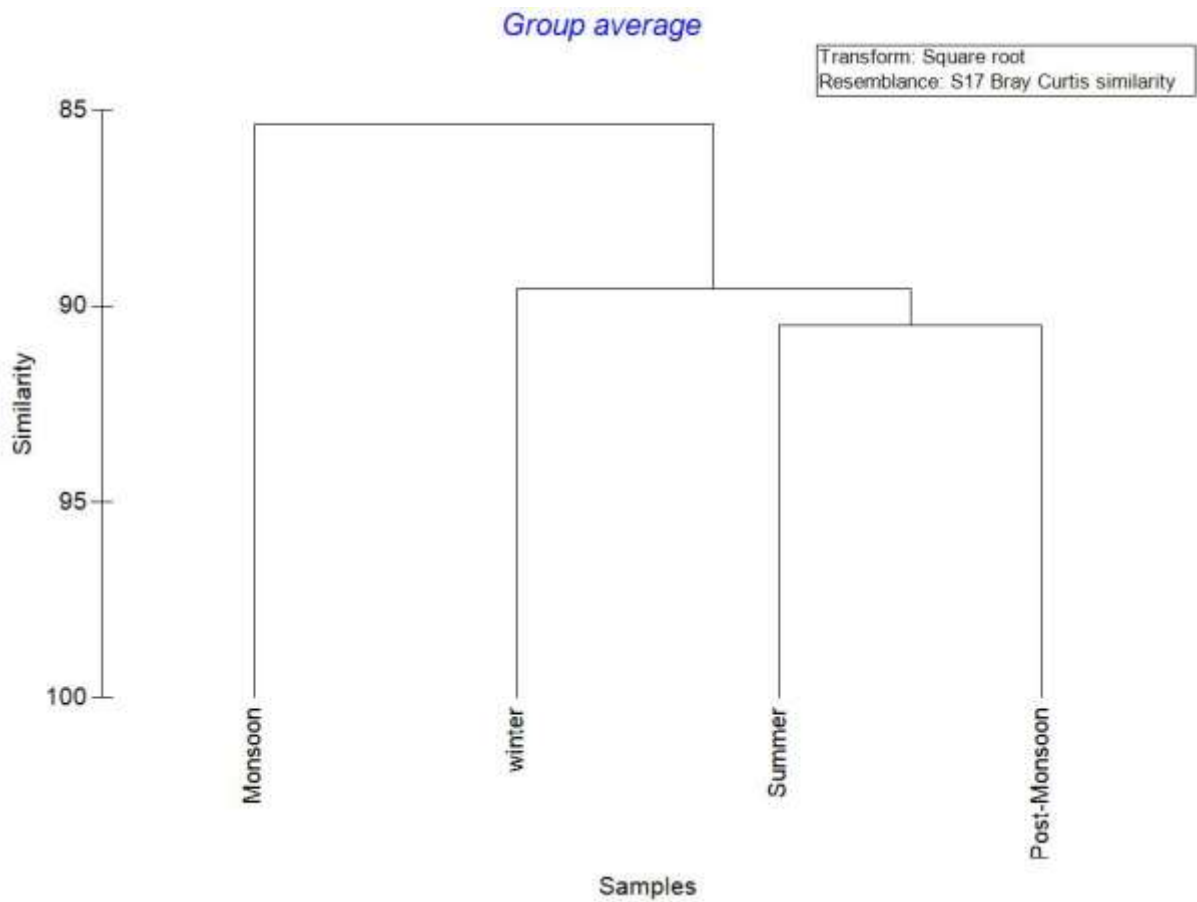


Fig. 8 Bray Curtis Similarity of the seasonal distribution of Birds

Table : 3 Seasonal Diversity Indices of Avifauna in Rajakkamangalam Saltpan

Diversity Indices	Season			
	Winter	Summer	Monsoon	Post-Monsoon
Taxa_S	97	93	87	<b>98</b>
Individuals	3091	<b>3429</b>	3294	3396
Dominance_D	<b>0.04934</b>	0.04782	0.0414	0.03412
Simpson_1-D	0.9507	0.9522	0.9586	<b>0.9659</b>
Shannon_H	3.596	3.649	3.721	<b>3.838</b>
Evenness_e^H/S	0.3759	0.4133	<b>0.4747</b>	0.4736
Margalef	<b>11.95</b>	11.3	10.62	11.93

## Discussion

Wetlands of India consist 318 species of birds were recorded out of which 193 species are fully dependent on wetlands Vijayan (1986). Pelecaniformes and Passeriformes are known to be the dominant order represented by 19 families. Passeriformes comprises of 26 species and Pelecaniformes comprises of 17 species of the total 100 species.

Ardeidae contributed the maximum species in the present study like in many other studies on different wetlands of India Vijayan (1991) Urfi and Sharma (1992). During the current study 5 Near Threatened bird species are recorded viz., Painted Stork, Spot-billed Pelican, Black-headed Ibis, Oriental Darter and Black-tailed Godwit. Migratory water birds are the remarkable components of the wetland. The presence of a large number of migratory birds in a particular wetland makes it charismatic Gokula and Raj (2013). These birds connect continents and countries. Therefore, it is considered as an excellent environmental indicator at both global and local scales Balachandran (2012).

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 the same phenomenon is reported from the current study too Colwell and Taft (2000).

The study area comprises of Heronry species namely Grey Heron *Ardea cinerea*, Purple Heron *Ardea purpurea*, cormorants *Phalacrocorax* spp., Darter *Anhinga melanogaster*, Spot-billed Pelican *Pelecanus philippensis*, Cattle Egret *Bubulcus ibis*, Little Egret *Egretta garzetta* and Large or Great Egret *Casmerodius albus* were recorded Teneson and Ravichandran , (2015) same observation is reported for this study also.

Shortage of nest sites was observed in many wetlands, mainly due to cutting and lopping of trees for fuel wood and fodder. The major threats observed in the study area were encroachments for buildings, settlements and human disturbances especially fishing.

Wetlands comprise some of the most valuable and important natural environments for living creatures, including man. And yet, like tropical forests, they are one of the most threatened habitats in the world, under pressure from human activities and development Sonobe and Usui (1993). Further detailed long term studies are necessary to know about the breeding biology and habitat preference of birds in this area.

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Table : 1 Checklist of Birds observed from Rajakkamangalam Saltpan during Jan to Dec 2019

Sl.No	Order	Family	English Name	Scientific Name	IUCN Category	WPA Sch	Feeding Guild	Migratory Status
1	Anseriformes	Anatidae	Lesser Whistling Duck	<i>Dendrocygna javanica</i>	LC	Sch-IV	HR	R
2	Anseriformes	Anatidae	Garganey	<i>Spatula querquedula</i>	LC	Sch-IV	OM	WM
3	Anseriformes	Anatidae	Northern Shoveler	<i>Spatula clypeata</i>	LC	Sch-IV	OM	WM
4	Anseriformes	Anatidae	Indian Spot-billed Duck	<i>Anas poecilorhyncha</i>	LC	Sch-IV	HR	R
5	Anseriformes	Anatidae	Northern Pintail	<i>Anas acuta</i>	LC	Sch-IV	OM	WM
6	Anseriformes	Anatidae	Cotton Teal	<i>Nettapus coromandelianus</i>	LC	Sch-IV	HR	R
7	Galliformes	Phasianidae	Indian Peafowl	<i>Pavo cristatus</i>	LC	Sch-I	GR	R
8	Galliformes	Phasianidae	Grey Francolin	<i>Francolinus pondicerianus</i>	LC	Sch-IV	GR	R
9	Phoenicopteriformes	Phoenicopteridae	Greater Flamingo	<i>Phoenicopterus roseus</i>	LC	Sch-IV	OM	R
10	Podicipediformes	Podicipedidae	Little Grebe	<i>Tachybaptus ruficollis</i>	LC	Sch-IV	PI	R
11	Columbiformes	Columbidae	Rock Pigeon	<i>Columba livia</i>	LC	Sch-IV	GR	R
12	Columbiformes	Columbidae	Spotted Dove	<i>Streptopelia chinensis</i>	LC	Sch-IV	GR	R

13	Caprimulgiformes	Apodidae	Asian Palm Swift	<i>Cypsiurus balasiensis</i>	LC	Sch-IV	IN	R
14	Caprimulgiformes	Apodidae	Indian House Swift	<i>Apus affinis</i>	LC	Sch-IV	IN	R
15	Cuculiformes	Cuculidae	Greater Coucal	<i>Centropus sinensis</i>	LC	Sch-IV	CA	R
16	Cuculiformes	Cuculidae	Blue-faced Malkoha	<i>Phaenicophaeus viridirostris</i>	LC	Sch-IV	IN	R
17	Cuculiformes	Cuculidae	Pied Cuckoo	<i>Clamator jacobinus</i>	LC	Sch-IV	IN	WM
18	Cuculiformes	Cuculidae	Asian Koel	<i>Eudynamis scolopaceus</i>	LC	Sch-IV	OM	R
19	Gruiformes	Rallidae	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	LC	Sch-IV	OM	R
20	Gruiformes	Rallidae	Purple Swamphen	<i>Porphyrio porphyrio</i>	LC	Sch-IV	HR	R
21	Gruiformes	Rallidae	Common Moorhen	<i>Gallinula chloropus</i>	LC	Sch-IV	OM	R
22	Gruiformes	Rallidae	Common Coot	<i>Fulica atra</i>	LC	Sch-IV	HR	R
23	Ciconiiformes	Ciconiidae	Painted Stork	<i>Mycteria leucocephala</i>	NT	Sch-IV	PI	LM
24	Ciconiiformes	Ciconiidae	Asian Openbill	<i>Anastomus oscitans</i>	LC	Sch-IV	CA	R
25	Pelecaniformes	Pelecanidae	Spot-billed Pelican	<i>Pelecanus philippensis</i>	NT	Sch-IV	PI	R
26	Pelecaniformes	Ardeidae	Yellow Bittern	<i>Ixobrychus sinensis</i>	LC	Sch-IV	PI	R
27	Pelecaniformes	Ardeidae	Cinnamon Bittern	<i>Ixobrychus cinnamomeus</i>	LC	Sch-IV	PI	R
28	Pelecaniformes	Ardeidae	Black Bittern	<i>Ixobrychus flavicollis</i>	LC	Sch-IV	PI	R



29	Pelecaniformes	Ardeidae	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	LC	Sch-IV	CA	R
30	Pelecaniformes	Ardeidae	Indian Pond Heron	<i>Ardeola grayii</i>	LC	Sch-IV	PI	R
31	Pelecaniformes	Ardeidae	Cattle Egret	<i>Bubulcus ibis</i>	LC	Sch-IV	IN	R
32	Pelecaniformes	Ardeidae	Grey Heron	<i>Ardea cinerea</i>	LC	Sch-IV	CA	R
33	Pelecaniformes	Ardeidae	Purple Heron	<i>Ardea purpurea</i>	LC	Sch-IV	CA	R
34	Pelecaniformes	Ardeidae	Great Egret	<i>Ardea alba</i>	LC	Sch-IV	CA	R
35	Pelecaniformes	Ardeidae	Intermediate Egret	<i>Ardea intermedia</i>	LC	Sch-IV	CA	R
36	Pelecaniformes	Ardeidae	Little Egret	<i>Egretta garzetta</i>	LC	Sch-IV	CA	R
37	Pelecaniformes	Ardeidae	Western Reef Egret	<i>Egretta gularis</i>	LC	Sch-IV	PI	R
38	Pelecaniformes	Threskiornithidae	Black-headed Ibis	<i>Threskiornis melanocephalus</i>	NT	Sch-IV	CA	R
39	Pelecaniformes	Threskiornithidae	Eurasian Spoonbill	<i>Platalea leucorodia</i>	LC	Sch-I	OM	WM
40	Pelecaniformes	Threskiornithidae	Indian Black Ibis	<i>Pseudibis papillosa</i>	LC	Sch-IV	OM	R
41	Pelecaniformes	Threskiornithidae	Glossy Ibis	<i>Plegadis falcinellus</i>	LC	Sch-IV	CA	R
42	Suliformes	Phalacrocoracida e	Little Cormorant	<i>Microcarbo niger</i>	LC	Sch-IV	PI	R
43	Suliformes	Phalacrocoracida e	Indian Cormorant	<i>Phalacrocorax fuscicollis</i>	LC	Sch-IV	PI	R
44	Suliformes	Anhingidae	Oriental Darter	<i>Anhinga melanogaster</i>	NT	Sch-IV	PI	R

45	Charadriiformes	Recurvirostridae	Black-winged Stilt	<i>Himantopus himantopus</i>	LC	Sch-IV	CA	R
46	Charadriiformes	Charadriidae	Little Ringed Plover	<i>Charadrius dubius</i>	LC	Sch-IV	IN	WM
47	Charadriiformes	Charadriidae	Red-wattled Lapwing	<i>Vanellus indicus</i>	LC	Sch-IV	CA	R
48	Charadriiformes	Jacanidae	Bronze-winged Jacana	<i>Metopidius indicus</i>	LC	Sch-IV	OM	R
49	Charadriiformes	Scolopacidae	Black-tailed Godwit	<i>Limosa limosa</i>	NT	Sch-IV	OM	WM
50	Charadriiformes	Scolopacidae	Common Sandpiper	<i>Actitis hypoleucos</i>	LC	Sch-IV	CA	WM
51	Charadriiformes	Scolopacidae	Green Sandpiper	<i>Tringa ochropus</i>	LC	Sch-IV	CA	WM
52	Charadriiformes	Scolopacidae	Common Redshank	<i>Tringa totanus</i>	LC	Sch-IV	CA	WM
53	Charadriiformes	Scolopacidae	Wood Sandpiper	<i>Tringa glareola</i>	LC	Sch-IV	IN	WM
54	Charadriiformes	Laridae	Gull-billed Tern	<i>Gelochelidon nilotica</i>	LC	Sch-IV	PI	WM
55	Charadriiformes	Laridae	Whiskered Tern	<i>Chlidonias hybrida</i>	LC	Sch-IV	PI	R
56	Charadriiformes	Laridae	Lesser Crested Tern	<i>Thalasseus bengalensis</i>	LC	Sch-IV	CA	R
57	Charadriiformes	Laridae	Greater Crested Tern	<i>Thalasseus bergii</i>	LC	Sch-IV	CA	R
58	Accipitriiformes	Pandionidae	Osprey	<i>Pandion haliaetus</i>	LC	Sch-I	PI	R

59	Accipitriformes	Accipitridae	Crested Serpent Eagle	<i>Spilornis cheela</i>	LC	Sch-I	CA	R
60	Accipitriformes	Accipitridae	Booted Eagle	<i>Hieraaetus pennatus</i>	LC	Sch-I	CA	R
61	Accipitriformes	Accipitridae	Shikra	<i>Accipiter badius</i>	LC	Sch-I	CA	R
62	Accipitriformes	Accipitridae	Brahminy Kite	<i>Haliastur indus</i>	LC	Sch-I	CA	R
63	Accipitriformes	Accipitridae	Black Kite	<i>Milvus migrans</i>	LC	Sch-I	CA	R
64	Strigiformes	Strigidae	Spotted Owlet	<i>Athene brama</i>	LC	Sch-IV	CA	R
65	Bucerotiformes	Upupidae	Common Hoopoe	<i>Upupa epops</i>	LC	Sch-IV	IN	R
66	Piciformes	Picidae	Lesser Golden- backed Woodpecker	<i>Dinopium benghalense</i>	LC	Sch-IV	IN	R
67	Piciformes	Megalaimidae	Brown-headed Barbet	<i>Psilopogon zeylanicus</i>	LC	Sch-IV	FR	R
68	Coraciiformes	Meropidae	Green Bee-eater	<i>Merops orientalis</i>	LC	Sch-IV	IN	R
69	Coraciiformes	Meropidae	Blue-tailed Bee- eater	<i>Merops philippinus</i>	LC	Sch-IV	IN	WM
70	Coraciiformes	Coraciidae	Indian Roller	<i>Coracias benghalensis</i>	LC	Sch-IV	CA	R
71	Coraciiformes	Alcedinidae	Common Kingfisher	<i>Alcedo atthis</i>	LC	Sch-IV	PI	R
72	Coraciiformes	Alcedinidae	Pied Kingfisher	<i>Ceryle rudis</i>	LC	Sch-IV	PI	R

73	Coraciiformes	Alcedinidae	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	LC	Sch-IV	CA	R
74	Psittaciformes	Psittaculidae	Rose-ringed Parakeet	<i>Psittacula krameri</i>	LC	Sch-IV	FR	R
75	Passeriformes	Oriolidae	Eurasian Golden Oriole	<i>Oriolus oriolus</i>	LC	Sch-IV	OM	R
76	Passeriformes	Artamidae	Ashy Woodswallow	<i>Artamus fuscus</i>	LC	Sch-IV	IN	R
77	Passeriformes	Dicruridae	Black Drongo	<i>Dicrurus macrocercus</i>	LC	Sch-IV	IN	R
78	Passeriformes	Laniidae	Brown Shrike	<i>Lanius cristatus</i>	LC	Sch-IV	IN	WM
79	Passeriformes	Corvidae	Rufous Treepie	<i>Dendrocitta vagabunda</i>	LC	Sch-IV	OM	R
80	Passeriformes	Corvidae	House Crow	<i>Corvus splendens</i>	LC	Sch-V	OM	R
81	Passeriformes	Corvidae	Large-billed Crow	<i>Corvus macrorhynchos</i>	LC	Sch-IV	OM	R
82	Passeriformes	Monarchidae	Indian Paradise-flycatcher	<i>Terpsiphone paradisi</i>	LC	Sch-IV	IN	WM
83	Passeriformes	Dicaeidae	Pale-billed Flowerpecker	<i>Dicaeum erythrorhynchos</i>	LC	Sch-IV	FR	R
84	Passeriformes	Nectariniidae	Purple-rumped Sunbird	<i>Leptocoma zeylonica</i>	LC	Sch-IV	NE	R
85	Passeriformes	Nectariniidae	Purple Sunbird	<i>Cinnyris asiaticus</i>	LC	Sch-IV	NE	R

86	Passeriformes	Estrildidae	White-rumped Munia	<i>Lonchura striata</i>	LC	Sch-IV	GR	R
87	Passeriformes	Estrildidae	Scaly-breasted Munia	<i>Lonchura punctulata</i>	LC	Sch-IV	GR	R
88	Passeriformes	Estrildidae	Tricoloured Munia	<i>Lonchura malacca</i>	LC	Sch-IV	GR	R
89	Passeriformes	Motacillidae	Forest Wagtail	<i>Dendronanthus indicus</i>	LC	Sch-IV	IN	WM
90	Passeriformes	Motacillidae	Paddyfield Pipit	<i>Anthus rufulus</i>	LC	Sch-IV	IN	R
91	Passeriformes	Motacillidae	Western Yellow Wagtail	<i>Motacilla flava</i>	LC	Sch-IV	IN	WM
92	Passeriformes	Motacillidae	White-browed Wagtail	<i>Motacilla maderaspatensis</i>	LC	Sch-IV	IN	R
93	Passeriformes	Cisticolidae	Common Tailorbird	<i>Orthotomus sutorius</i>	LC	Sch-IV	IN	R
94	Passeriformes	Hirundinidae	Red-rumped Swallow	<i>Cecropis daurica</i>	LC	Sch-IV	IN	WM
95	Passeriformes	Hirundinidae	Barn Swallow	<i>Hirundo rustica</i>	LC	Sch-IV	IN	R
96	Passeriformes	Pycnonotidae	Red-vented Bulbul	<i>Pycnonotus cafer</i>	LC	Sch-IV	FR	R
97	Passeriformes	Leiothrichidae	Yellow-billed Babbler	<i>Turdoides affinis</i>	LC	Sch-IV	IN	R
98	Passeriformes	Sturnidae	Brahminy Starling	<i>Sturnia pagodarum</i>	LC	Sch-IV	IN	R
99	Passeriformes	Sturnidae	Common Myna	<i>Acridotheres tristis</i>	LC	Sch-IV	OM	R

100	Passeriformes	Muscicapidae	Oriental Magpie Robin	<i>Copsychus saularis</i>	LC	Sch-IV	OM	R
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Status: LM-Local Migrant; R-Resident; WM-Winter Migrant.

Feeding Guild: Herbivore (HR), Piscivore (PI), Omnivore (OM), Insectivore (IN), Frugivore (FR), Granivore (GR), Nectarivore (NE) and Carnivore (CA)

International Union for Conservation of Nature and Natural Resources (IUCN) categories: LC - least concern; NT - near-threatened.

\* The information is based on the IUCN Red List (IUCN 2019).

**Table : 2 Diversity Indices of Avifauna in Rajakkamangalam Saltpan**

Ecological Indices	Month											
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
<b>Taxa_S</b>	92	85	84	79	75	73	74	76	77	80	<b>94</b>	84
<b>Individuals</b>	<b>1673</b>	1418	1516	982	931	747	771	777	999	1155	1179	1062
<b>Dominance_D</b>	0.04582	0.05748	0.05024	0.04376	<b>0.06311</b>	0.04612	0.04575	0.03912	0.05396	0.04036	0.03056	0.03712
<b>Simpson_1-D</b>	0.9542	0.9425	0.9498	0.9562	0.9369	0.9539	0.9542	0.9609	0.946	0.9596	<b>0.9694</b>	0.9629
<b>Shannon_H</b>	3.66	3.44	3.545	3.636	3.462	3.613	3.661	3.708	3.584	3.662	<b>3.897</b>	3.763
<b>Evenness_e^H/S</b>	0.4226	0.3667	0.4123	0.4801	0.425	0.5081	0.5255	<b>0.5362</b>	0.4677	0.4868	0.5238	0.5126
<b>Margalef</b>	12.26	11.58	11.33	11.32	10.82	10.88	10.98	11.27	11	11.2	<b>13.15</b>	11.91