

AVIFAUNA OF THE OUSSUDU LAKE AND ITS ENVIRONS, PUDUCHERRY, INDIA AND CONSERVATION CONCERNS¹

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Abstract. Herein we present a checklist, including conservation status of the avifauna of Oussudu (Ousteri) Lake and its environs, Puducherry, India. Surveys were conducted at 15 d intervals between November 2010 and March 2011. A total of 166 bird species of 111 genera and 56 families were recorded in and around the lake. Of these, 75 species were aquatic; 120 species were resident and 46 species were migratory. The present investigation added 6 families, 12 genera and 27 species to the existing avifaunal list of Oussudu. The lake is undergoing serious pressures due to rapid urbanization, weed infestation, discharge of industrial effluents, developmental activities, industrialization, uncontrolled fishing, hunting and poaching. The present study advocates for an urgent and stringent management plan and necessary implementation mechanism for the lake.

Key words: Avifauna conservation, IBA, NWCP, Oussudu Lake, Puducherry, wetlands

AVIFAUNA DEL LAGO OUSSUDU Y SUS ALREDEDORES, PUDUCHERRY, INDIA, Y PROBLEMATICA DE CONSERVACION

Resumen. Presentamos una lista que incluye el estado de conservación de la avifauna del Lago Oussudu (Ousteri) y sus zonas aledañas, en Puducherry, India. Los muestreos se efectuaron en intervalos de 15 días entre noviembre de 2010 y marzo de 2011. Un total de 166 especies de aves de 111 géneros y 56 familias. De éstas, 75 especies fueron acuáticas, 120 especies fueron residentes, y 46 migratorias. El presente trabajo añadió 6 familias, 12 géneros y 27 especies a la lista existente de Oussudu. El lago está sometido a grandes presiones debidas a la urbanización, infestación vegetal, descarga de residuos industriales, actividades de desarrollo, industrialización, pesca incontrolada, caza y furtivismo. El presente estudio aboga por la implementación urgente de un estricto plan de manejo para el lago.

Palabras clave: conservación de avifauna, IBA, NWCP, Lago Oussudu, Puducherry, humedales

INTRODUCTION

In India, wetlands occupy an estimated 15.26 million hectares, which is ~4.6% of the geographical area of the country (SAC 2011). These wetlands harbor hundreds of bird species, including both resident and migratory species.

Of the 1340 bird species reported from India (Ali and Ripley 1987; Manakadan and Pittie 2004), 310 species are dependent on wetlands (Kumar et al. 2005). Wetlands in India, as elsewhere, are under tremendous anthropogenic pressures, which greatly influence the structure of bird

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communities (Kler 2002, Verma et al. 2004, Reginald et al. 2007). Water birds have long attracted the attention of the public and scientists because of their beauty, abundance, visibility and social behaviour, as well as for their recreational and economic importance. In addition, water birds have become indicators of wetland quality and parameters for assessing restoration success and regional biodiversity (Kumar and Gupta 2009). Wetlands in urban areas are usually exploited due to several anthropogenic activities. However, such activities often lead to alteration of the wetland to which, in turn, the avifauna responds by changes in species composition and density.

The Government of India has been implementing the National Wetlands Conservation Programme (NWCP) in close collaboration with the State/UT Governments since the year 1985-1986. The programme aims at the conservation of wetlands to prevent their further degradation and to ensure their judicious use for the benefit of local communities and overall conservation of biodiversity. Under this programme, the Ministry of Environment and Forests has identified 115 wetlands that require urgent conservation and management interventions.

Puducherry, well known for aquatic habitats, has a total of 82 major and minor wetlands in and around the town, and among them Oussudu and Bahour are the major ones. These wetlands provide livelihood for the residents around the region in the form of agricultural produce, fish, fuel, fiber, fodder, and host of other day-to-day necessities. Oussudu is the largest lake in the Puducherry region and is home to hundreds of bird species including several migratory ones that flock in large numbers. It is also one of the largest breeding sites for the Common Coot (*Fulica atra*) in South India (Chari and Abbasi 2003, Abbasi and Chari 2008). The lake is also known for a variety of fishes, mussels and crabs (Chari and Abbasi 2003). However, recently the lake and its surroundings are facing increased threats and pressures from several anthropogenic activities (encroachment, poaching and pollution) as well as from rapid urbanizations and infrastructure developments in the immediate vicinity of the lake. In that context, the present investigation was carried out in order to determine the bird community

structure of the lake and discuss a potential management plan.

METHODS

STUDY AREA

Oussudu Lake, located at 11°56' to 11°58' N and 79°44' to 79°45' E, is a large shallow wetland situated along the eastern boundary of Puducherry, India (Figure 1). It is the most important fresh-water lake of the Puducherry region, and is 12 km from Puducherry town on the Western side on Puducherry-Villupuram-Valuthavur main road. The lake is rich in flora and fauna and is known to provide several ecological services, as well as several livelihood options for the local human community. It is an inter-state lake with a watershed area of 800 ha, and is almost equally shared between Puducherry (390 ha) and Tamil Nadu (410 ha; Alexander and Pusharaj 2010). Much of the Oussudu bank along the Tamil Nadu side consists of rural settlements, while the Pondicherry side is predominantly urban or suburban (Abbasi and Chari 2008), causing much stress on the lake. The lake is largely fed by direct precipitation, runoff from the catchment and an intermittent river, the Shankarabharani. Several tanks and ponds surround Oussudu (important ones listed in Table 1).

In the recent past, Oussudu Lake was identified as a wetland of national importance under the National Wetland Conservation Programme of the Ministry of Environment and Forest (MoEF 2009), India. The Bombay Natural History Society (BNHS), Mumbai, a member of Birdlife International, has designated Oussudu as an Important Bird Area (IBA) of India; over 20,000 birds belonging to nearly 40 migratory species used to inhabit or winter at Oussudu (Chari and Abbasi 2003). The Asian Wetland Bureau declared Oussudu Lake as one of the 115 significant wetlands in Asia. It also has been identified as a heritage sites by IUCN (International Union for Conservation of Nature and Natural Resources), ranking it among the most important wetlands of Asia. During 2008, the Government of Puducherry declared Oussudu Lake as a bird sanctuary.

The climate in and around Oussudu Lake is

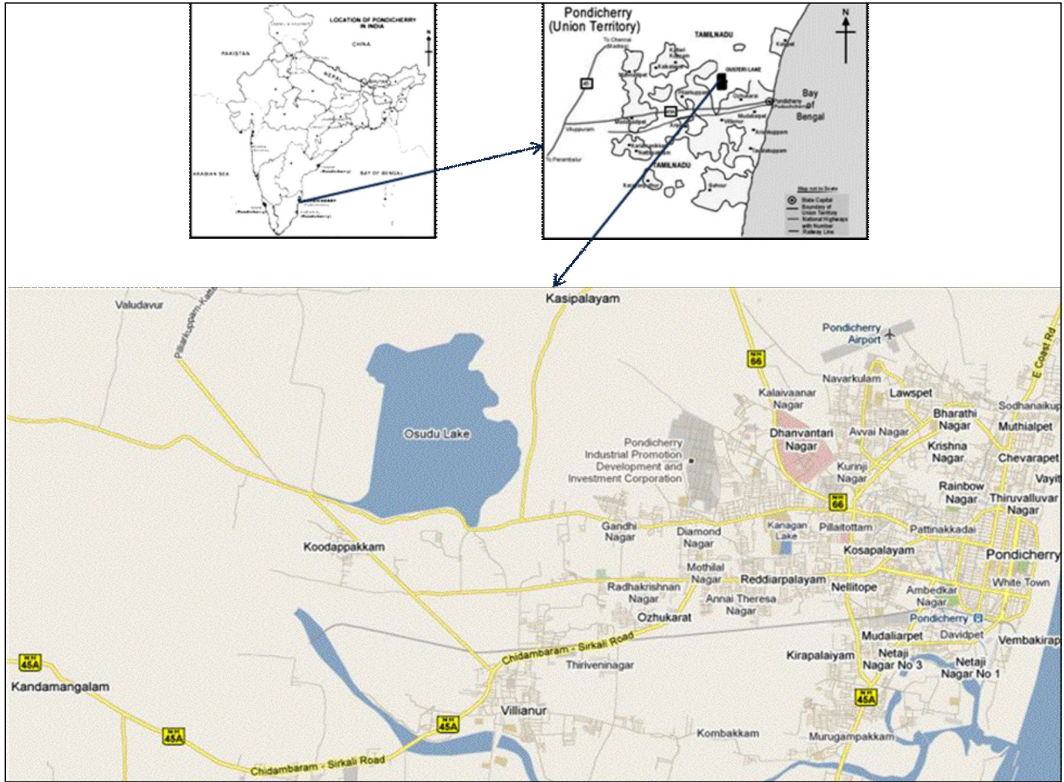


FIGURE 1. Location of Oussudu Lake, Puducherry.

TABLE 1. Major tanks around the Oussudu Lake, Puducherry.

Sl. No.	Name of the Tank/Eri	Capacity (Mm ³)
1	Thondamanatham tank	0.34
2	Ariyur tank	0.04
3	Kadaperi eri	0.16
4	Karasur tank	0.34
5	Sedarapet Periya eri	0.42
6	Sedarapet Sitheri	0.13
7	Thuthipet tank	0.27
8	Katteriputhu Thangel	0.12
9	Kateripazham Thangal	0.17

humid and tropical. Benefiting from both monsoons, the average annual rainfall of Oussudu and its surrounding region is 1300 mm, of which ~60% occurs during north-east monsoon from September-January (Chari and Abbasi 2003). The remainder of rainfall is scattered sporadically throughout the year. The mean monthly temperature ranges from 21.3°C to 30.2°C. The lake’s water level fluctuates

seasonally and in certain years (rainless months), the lake may dry out completely. Due to such wide hydrological fluctuations across the annual cycle, different niches are created in the lake, resulting in interesting patterns of flora and fauna (Abbasi 1997). There are patches of amphibious and aquatic vegetation in the northern portion of the lake, and these support spawning fish and roosting birds.

METHODOLOGY

The birdlife communities in and around the study area were documented by direct observations (Bibby et al. 1992), random walk and opportunistic surveys. Observations were made during October 2010 through March 2011 in seven intensive surveys. Surveys were conducted systematically every fortnight, walking on fixed routes through the study area. Birds were observed during 06:00 h – 10:00 h and 16:00 h – 19:00 h following the line-transect method (Burnham et al. 1980, Bibby et al. 1992). Observations were carried out on both sides of transect with the help of 7 x 35 and 10 x 50 m binoculars. In total, 15 such transects were laid in and around the study area. We recorded bird species along with habitat type, season and frequency of occurrence. In addition, opportunistic surveys were also carried out. Identification of birds was done using Ali and Ripley (1987) and Grimmett et al. (1998, 2001); nomenclature followed Manakadan and Pittie (2004). The status of birds (Table 1) was categorized as Resident (R), Migratory (M), Aquatic (A) and Terrestrial (T) as per Grimmett et al. (2001). Bird abundance was based on the following criteria: common, >10 sightings; fairly common, 6-10 sightings; uncommon, 3-5 sightings; and rare, 1-2 sightings.

RESULTS AND DISCUSSION

In total, 166 bird species belonging to 111 genera and 56 families were recorded during the study period (Table 2). Accipitridae was the dominant family with 13 species, followed by Ardeidae and Scolopacidae with 11 species each, and Anatidae (10 species). Among the 166 bird species recorded, 75 were aquatic and the rest were terrestrial. About 120 species were resident breeding and the rest were migratory. The present study added 6 families, 12 genera and 27 species to the existing avifaunal list of Oussudu (Table 2). Of the 166 species recorded, line transects resulted in documentation of 135 avian species (Table 2), of which, Little Egret (*Egretta garzetta*) was dominant with 355 individuals, followed by Common Myna (*Acridotheres tristis*) with 338 individuals, Asian Palm-Swift (*Cypsiurus balasiensis*) with 337 individuals, White-headed Babbler (*Turdoides affinis*) with 282 individuals and Indian Pond Heron (*Ardeola*

grayii) with 245 individuals.

Eight species falling under the Near Threatened category, and one each of Critically Endangered species and Endangered species (IUCN 2007), were recorded during the study period (Table 2). Of the 166 species recorded, 15 species fall under Schedule-I as per Indian Wildlife Protection Act (IWPA 1972). Though Painted Stork (*Mycteria leucocephala*), Asian Open bill-Stork (*Anastomus oscitans*), Northern Shoveller (*Anas clypeata*), Northern Pintail (*Anas acuta*), Mallard (*Anas platyrhynchos*), Common Teal (*Anas crecca*), Garganey (*Anas querquedula*), and Common Pochard (*Aythya ferina*) were very commonly recorded by Chari et al. (2008), we rarely sighted in our study.

CONSERVATION CONCERNS AND MEASURES

Oussudu plays a vital role in recharging the ground water aquifers for Puducherry and protecting them from seawater ingress; Puducherry is largely dependent on these aquifers for its drinking water supply (Chari and Abbasi 2007). In recent times, however, the lake and its watershed has been exposed to enormous pressures due to increasing population, industrialization and urbanization. The serious threats include reclamation, agriculture, siltation, weed invasion, poaching, etc. Weed species such as *Eichornia crassipes*, *Salvinia molesta*, *Pistia stratiotes* and *Ipomoea carnea* have been invading the wetland area of Oussudu. Almost 14% of the lake is infested by *Eichornia crassipes* (Water hyacinth). Thus, infestation by weeds is a serious issue that could directly affect the biodiversity of the lake and water quality. Apart from aquatic weeds, *Prosopis juliflora* is also present along the roadside. Removal of this species is of utmost importance as it invades other wetlands at much higher rates (Chandra et al. 2009).

Fishing in the area has become a routine practice, which if unchecked could soon result in cultural (rapid) eutrophication, siltation, and ultimate death of the lake. The diversity of fish species in the lake attracts people for fishing. While the Government of Puducherry has banned fishing in Oussudu Lake, uncontrolled fishing was often seen in the lake during the surveys. Unbridled fishing activity using fishing nets has led to the killing of water snakes and

TABLE 2. List of bird species observed in and around Oussudu Lake

Sl. No.	Family	Common name	Scientific name	Habitat	Status	IUCN status	IWPA Status	Abundance
1	Podicipedidae	Little Grebe	<i>Tachybaptus ruficollis</i>	A	R	LC	S-IV	C
2	Pelecanidae	*Great White Pelican	<i>Pelecanus onocrotalus</i>	A	M	LC	S-IV	Re
3		Spot-billed Pelican	<i>Pelecanus philippensis</i>	A	R	NT	S-IV	UC
4	Phalacrocoracidae	Little Cormorant	<i>Phalacrocorax niger</i>	A	R	LC	S-IV	C
5		Indian Shag	<i>Phalacrocorax fuscicollis</i>	A	R	LC	S-IV	C
6		Great Cormorant	<i>Phalacrocorax carbo</i>	A	R	LC	S-IV	C
7	Anhingidae	Darter	<i>Anhinga melanogaster</i>	A	R	NT	S-IV	UC
8	Ardeidae	Little Egret	<i>Egretta garzetta</i>	A	R	LC	S-IV	C
9		Grey Heron	<i>Ardea cinerea</i>	A	R	LC	S-IV	UC
10		Purple Heron	<i>Ardea purpurea</i>	A	R	LC	S-IV	UC
11		Large Egret	<i>Casmerodius albus</i>	A	R	LC	S-IV	UC
12		Median Egret	<i>Mesophoyx intermedia</i>	A	R	LC	S-IV	C
13		Cattle Egret	<i>Bubulcus ibis</i>	A	R	LC	S-IV	C
14		Indian Pond Heron	<i>Ardeola grayii</i>	A	R	LC	S-IV	C
15		Little Green Heron	<i>Butorides striatus</i>	A	R	LC	S-IV	C
16		Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	A	R	LC	S-IV	UC
17		Black Bittern	<i>Dupetor flavicollis</i>	A	R	LC	S-IV	UC
18		Great Bittern	<i>Botaurus stellaris</i>	A	M	LC	S-IV	UC
19	Ciconiidae	Painted Stork	<i>Mycteria leucocephala</i>	A	R	NT	S-IV	UC
20		Asian Openbill-Stork	<i>Amstomus oscitans</i>	A	R	LC	S-IV	FC
21		White-necked Stork	<i>Ciconia episcopus</i>	A	R	LC	S-IV	Re
22	Threskiornithidae	Oriental White Ibis	<i>Threskiornis melanocephalus</i>	A	R	NT	S-IV	Re
23		Black Ibis	<i>Pseudibis papillosa</i>	A	R	LC	S-IV	Re
24		Eurasian Spoonbill	<i>Platalea leucorodia</i>	A	R	NT	S-I	Re
25	Phoenicopteridae	*Greater Flamingo	<i>Phoenicopterus ruber</i>	A	M	LC	S-IV	Re
26		*Lesser Flamingo	<i>Phoenicopterus minor</i>	A	M	NT	S-IV	Re
27	Anatidae	Cotton Teal	<i>Nettion coromandianus</i>	A	R	LC	S-IV	C
28		Eurasian Wigeon	<i>Anas penelope</i>	A	M	LC	S-IV	C
29		Mallard	<i>Anas platyrhynchos</i>	A	M	LC	S-IV	UC
30		Spot-billed Duck	<i>Anas poecilorhyncha</i>	A	R	LC	S-IV	UC
31		Northern Shoveller	<i>Anas clypeata</i>	A	M	LC	S-IV	UC
32		Northern Pintail	<i>Anas acuta</i>	A	M	LC	S-IV	UC
33		Garganey	<i>Anas querquedula</i>	A	M	LC	S-IV	C
34		Common Teal	<i>Anas crecca</i>	A	M	LC	S-IV	C

TABLE 2. Continued

Sl. No.	Family	Common name	Scientific name	Habitat	Status	IUCN status	IWPA Status	Abundance
35.		Unidentified Duck	<i>Anas sp.</i>	A	M	LC	-	FC
36.		Common Pochard	<i>Aythya ferina</i>	A	M	LC	S-IV	Re
37.	Accipitridae	Black-shouldered Kite	<i>Elanus caeruleus</i>	T	R	LC	S-I	UC
38.		Black Kite	<i>Mitrus migrans</i>	T	R	LC	S-I	C
39.		Brahminy Kite	<i>Haliastur indus</i>	T	R	LC	S-I	C
40.		*White-bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	A	R	LC	S-I	Re
41.		*Crested Serpent Eagle	<i>Spilornis cheela</i>	T	R	LC	S-I	Re
42.		Western Marsh Harrier	<i>Circus aeruginosus</i>	A	M	LC	S-I	C
43.		Pallid Harrier	<i>Circus macrorurus</i>	T	M	NT	S-I	UC
44.		Pied Harrier	<i>Circus melanoleucos</i>	T	M	LC	S-I	UC
45.		Shikra	<i>Accipiter badius</i>	T	M	LC	S-I	UC
46.		Besra Sparrowhawk	<i>Accipiter virgatus</i>	T	M	LC	S-I	UC
47.		Black Eagle	<i>Ictinaetus malayensis</i>	T	R	LC	S-I	UC
48.	Pandionidae	*Osprey	<i>Pandion haliaetus</i>	T	M	LC	S-I	Re
49.	Falconidae	Common Kestrel	<i>Falco tinnunculus</i>	T	R	LC	S-I	Re
50.	Phasianidae	Grey Francolin	<i>Francolinus pondicerianus</i>	T	R	LC	S-IV	C
51.		Indian Peafowl	<i>Pavo cristatus</i>	T	R	LC	S-I	Re
52.	Rallidae	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	A	R	LC	S-IV	UC
53.		Purple Moorhen	<i>Porphyrio porphyrio</i>	A	R	LC	S-IV	C
54.		Common Moorhen	<i>Gallinula chloropus</i>	A	R	LC	S-IV	C
55.		Common Coot	<i>Fulica atra</i>	A	R	LC	S-IV	C
56.	Jacaniidae	Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	A	R	LC	S-IV	C
57.		*Bronze-winged Jacana	<i>Metopidius indicus</i>	A	R	LC	S-IV	Re
58.	Charadriidae	Grey Plover	<i>Pluvialis squatarola</i>	A	M	LC	S-IV	Re
59.		Little Ringed Plover	<i>Charadrius dubius</i>	A	M	LC	S-IV	Re
60.		Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	A	R	LC	S-IV	C
61.		*Grey-headed Lapwing	<i>Vanellus cinereus</i>	A	M	LC	S-IV	Re
62.		Red-wattled Lapwing	<i>Vanellus indicus</i>	A	R	LC	S-IV	C
63.	Scolopacidae	Common Snipe	<i>Gallinago gallinago</i>	A	M	LC	S-IV	C
64.		Common Redshank	<i>Tringa totanus</i>	A	M	LC	S-IV	Re
65.		Green Sandpiper	<i>Tringa ochropus</i>	A	M	LC	S-IV	C
66.		Wood Sandpiper	<i>Tringa glareola</i>	A	M	LC	S-IV	C
67.		Common Sandpiper	<i>Actitis hypoleucos</i>	A	M	LC	S-IV	C
68.		#Spoonbill Sandpiper	<i>Calidris pygmaeus</i>	A	M	CE	S-IV	Re
69.		Little Stint	<i>Calidris minuta</i>	A	M	LC	S-IV	FC

TABLE 2. Continued

Sl. No.	Family	Common name	Scientific name	Habitat	Status	IUCN status	IWPA Status	Abundance
70.		*Dunlin	<i>Calidris alpina</i>	A	M	LC	S-IV	Re
71.		Curlew Sandpiper	<i>Calidris ferruginea</i>	A	M	LC	S-IV	UC
72.		Broad-billed Sandpiper	<i>Limicola falcinellus</i>	A	M	LC	S-IV	UC
73.		*Ruff	<i>Philomachus pugnax</i>	A	M	LC	S-IV	Re
74.	Recurvirostridae	Black-winged Stilt	<i>Himantopus himantopus</i>	A	R	LC	S-IV	FC
75.	Laridae	River Tern	<i>Sterna aurantia</i>	A	R	NT	S-IV	C
76.		Black-naped Tern	<i>Sterna sumatrana</i>	A	M	LC	S-IV	C
77.		Common Tern	<i>Sterna hirundo</i>	A	M	LC	S-IV	C
78.		Black-bellied Tern	<i>Sterna acuticauda</i>	A	M	EN	S-IV	C
79.		Whiskered Tern	<i>Chlidonias hybridus</i>	A	M	LC	S-IV	UC
80.		Black Tern	<i>Chlidonias niger</i>	A	M	LC	S-IV	C
81.	Columbidae	Blue Rock Pigeon	<i>Columba livia</i>	T	R	LC	S-IV	C
82.		Little Brown Dove	<i>Streptopelia senegalensis</i>	T	R	LC	S-IV	C
83.		Spotted Dove	<i>Streptopelia chinensis</i>	T	R	LC	S-IV	C
84.		Red Collared-Dove	<i>Streptopelia tranquebarica</i>	T	R	LC	S-IV	C
85.	Psittacidae	Rose-ringed Parakeet	<i>Psittacula krameri</i>	T	R	LC	S-IV	C
86.	Cuculidae	Pied-crested Cuckoo	<i>Clamator jacobinus</i>	T	R	LC	S-IV	C
87.		*Red-winged Crested Cuckoo	<i>Clamator coromandus</i>	T	M	LC	S-IV	Re
88.		Brainfever Bird	<i>Hierococcyx varius</i>	T	R	LC	S-IV	C
89.		Drongo Cuckoo	<i>Surniculus lugubris</i>	T	R	LC	S-IV	UC
90.		Asian Koel	<i>Eudynamis scolopacea</i>	T	R	LC	S-IV	C
91.		Small Green-billed Malkoha	<i>Phaenophaeus viridirostris</i>	T	R	LC	S-IV	C
92.		Greater Coucal	<i>Centropus sinensis</i>	T	R	LC	S-IV	C
93.		Lesser Coucal	<i>Centropus bengalensis</i>	T	R	LC	S-IV	Re
94.	Tytonidae	Barn Owl	<i>Tyto alba</i>	T	R	LC	S-IV	Re
95.	Strigidae	Spotted Owllet	<i>Athene brama</i>	T	R	LC	S-IV	C
96.	Caprimulgidae	Common Indian Nightjar	<i>Caprimulgus asiaticus</i>	T	R	LC	S-IV	UC
97.	Apodidae	Asian Palm-Swift	<i>Cypsiurus balastensis</i>	T	R	LC	-	C
98.		House Swift	<i>Apus affinis</i>	T	R	LC	-	C
99.	Hemiprocnidae	*Crested Tree-swift	<i>Hemiprocne coronata</i>	T	R	LC	-	Re
100.	Alcedinidae	Small Blue Kingfisher	<i>Alcedo atthis</i>	A	R	LC	S-IV	C
101.		*Stork-billed Kingfisher	<i>Halcyon capensis</i>	A	R	LC	S-IV	Re
102.		White-breasted Kingfisher	<i>Halcyon smyrnensis</i>	A	R	LC	S-IV	C
103.		*Black-capped Kingfisher	<i>Halcyon pileata</i>	A	R	LC	-	Re

TABLE 2. Continued

Sl. No.	Family	Common name	Scientific name	Habitat	Status	IUCN status	IWPA Status	Abundance
104.		Lesser Pied Kingfisher	<i>Ceryle rudis</i>	A	R	LC	S-IV	UC
105.	Meropidae	Small Bee-eater	<i>Merops orientalis</i>	T	R	LC	-	C
106.		Blue-tailed Bee-eater	<i>Merops philippinus</i>	T	R	LC	-	C
107.		Chestnut-headed Bee-eater	<i>Merops leschenaulti</i>	T	R	LC	-	C
108.	Coraciidae	Indian Roller	<i>Coracias benghalensis</i>	T	R	LC	S-IV	C
109.	Upupidae	Common Hoopoe	<i>Upupa epops</i>	T	R	LC	S-IV	C
110.	Capitonidae	White-cheeked Barbet	<i>Megalaima viridis</i>	T	R	LC	S-IV	UC
111.		Coppersmith Barbet	<i>Megalaima laemacephala</i>	T	R	LC	S-IV	C
112.	Picidae	Common Golden-backed Woodpecker	<i>Dinopium javanense</i>	T	R	LC	S-IV	FC
113.		*Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>	T	R	LC	S-IV	FC
114.	Pittidae	Indian Pitta	<i>Pitta brachyura</i>	T	R	LC	S-IV	Re
115.	Alaudidae	*Bengal Bush-Lark	<i>Mirafra assamica</i>	T	R	LC	S-IV	Re
116.		Ashy-crowned Sparrow-Lark	<i>Eremopterix grisea</i>	T	R	LC	S-IV	Re
117.	Hirundinidae	*Common Swallow	<i>Hirundo rustica</i>	T	M	LC	-	C
118.		House Swallow	<i>Hirundo tahitica</i>	T	R	LC	-	C
119.		Red-rumped Swallow	<i>Hirundo daurica</i>	T	R	LC	-	C
120.	Motacillidae	Large Pied Wagtail	<i>Motacilla madagascariensis</i>	A	R	LC	S-IV	C
121.		Yellow Wagtail	<i>Motacilla flava</i>	A	M	LC	S-IV	C
122.		Grey Wagtail	<i>Motacilla cinerea</i>	A	M	LC	S-IV	C
123.		Paddyfield Pipit	<i>Anthus rufulus</i>	T	R	LC	S-IV	C
124.	Campephagidae	Common Woodshrike	<i>Tephrodornis pondicerianus</i>	T	R	LC	S-IV	Re
125.	Pycnonotidae	Red-vented Bulbul	<i>Pycnonotus cafer</i>	T	R	LC	S-IV	C
126.		White-browed Bulbul	<i>Pycnonotus luteolus</i>	T	R	LC	S-IV	C
127.	Irenidae	*Common Iora	<i>Aegithina tiphia</i>	T	R	LC	S-IV	C
128.	Laniidae	*Bay-backed Shrike	<i>Lanius vittatus</i>	T	R	LC	-	FC
129.		*Southern Grey Shrike	<i>Lanius meridionalis</i>	T	R	LC	-	Re
130.	Turdinae	Oriental Magpie-Robin	<i>Copsychus saularis</i>	T	R	LC	S-IV	FC
131.		Indian Robin	<i>Saxicoloides fulicata</i>	T	R	LC	S-IV	C
132.		Pied Buschat	<i>Saxicola caprata</i>	T	R	LC	S-IV	C
133.	Timaliinae	*Rufous-bellied Babbler	<i>Dumetia hyperythra</i>	T	R	LC	S-IV	UC
134.		*Jungle Babbler	<i>Turdoides striatus</i>	T	R	LC	S-IV	UC
135.		White-headed Babbler	<i>Turdoides affinis</i>	T	R	LC	S-IV	C
136.	Sylviinae	*Franklin's Prinia	<i>Prinia hodgsonii</i>	T	M	LC	S-IV	C
137.		Jungle Prinia	<i>Prinia sylvatica</i>	T	R	LC	S-IV	C

TABLE 2. Continued

Sl. No.	Family	Common name	Scientific name	Habitat	Status	IUCN status	IWPA Status	Abundance
138.		Ashy Prinia	<i>Prinia socialis</i>	T	R	LC	S-IV	C
139.		Plain Prinia	<i>Prinia inornata</i>	T	R	LC	S-IV	C
140.		Blyth's Reed Warbler	<i>Acrocephalus dumetorum</i>	T	M	LC	S-IV	UC
141.		Common Tailorbird	<i>Orthotomus sutorius</i>	T	R	LC	S-IV	C
142.		Greenish Leaf-Warbler	<i>Phylloscopus trochiloides</i>	T	M	LC	S-IV	UC
143.	Monarchinae	Asian Paradise-Flycatcher	<i>Terpsiphone paradisi</i>	T	R	LC	S-IV	UC
144.	Rhipidurinae	*White-browed Fantail Flycatcher	<i>Rhipidura aureola</i>	T	R	LC	S-IV	Re
145.	Dicaeidae	Thick-billed Flowerpecker	<i>Dicaeum agile</i>	T	R	LC	S-IV	C
146.		Tickell's Flowerpecker	<i>Dicaeum erythrorhynchos</i>	T	R	LC	S-IV	UC
147.		Purple-rumped Sunbird	<i>Nectarinia zeylonica</i>	T	R	LC	S-IV	C
148.		Purple Sunbird	<i>Nectarinia asiatica</i>	T	R	LC	S-IV	C
149.		Loten's Sunbird	<i>Nectarinia lotenia</i>	T	R	LC	S-IV	C
150.	Nectariniidae	* White-throated Munia	<i>Lonchura malabarica</i>	T	R	LC	S-IV	Re
151.	Estrildidae	Spotted Munia	<i>Lonchura punctulata</i>	T	R	LC	S-IV	C
152.		Black-headed Munia	<i>Lonchura malacca</i>	T	R	LC	S-IV	C
153.	Passerinae	House Sparrow	<i>Passer domesticus</i>	T	R	LC	S-IV	Re
154.	Ploceinae	Baya Weaver	<i>Ploceus philippinus</i>	T	R	LC	S-IV	C
155.	Sturnidae	Brahminy Starling	<i>Sturnus pagodarum</i>	T	R	LC	S-IV	UC
156.		*Rosy Starling	<i>Sturnus roseus</i>	T	M	LC	S-IV	Re
157.		Common Myna	<i>Acridotheres tristis</i>	T	R	LC	S-IV	C
158.	Oriolidae	Eurasian Golden Oriole	<i>Oriolus oriolus</i>	T	R	LC	S-IV	C
159.		*Black-headed Oriole	<i>Oriolus xanthornus</i>	T	R	LC	S-IV	Re
160.	Dicruridae	Black Drongo	<i>Dicrurus macrocerus</i>	T	R	LC	S-IV	C
161.		Ashy Drongo	<i>Dicrurus leucophaeus</i>	T	M	LC	S-IV	C
162.		White-bellied Drongo	<i>Dicrurus caerulescens</i>	T	R	LC	S-IV	C
163.	Artamidae	Ashy Woodswallow	<i>Artamus fuscus</i>	T	R	LC	-	C
164.	Corvidae	Indian Treepie	<i>Dendrocitta vagabunda</i>	T	R	LC	S-IV	C
165.		House Crow	<i>Corvus splendens</i>	T	R	LC	S-IV	C
166.		Jungle Crow	<i>Corvus macrorhynchos</i>	T	R	LC	S-IV	C

*: New Additions, #: Doubtful Occurrence (no photograph/evidence), A: Aquatic, T: Terrestrial, M: Migratory, R: Resident, CE: Critically Endangered, EN: Endangered, NT: Near Threatened, S-I: Schedule I, S-IV: Schedule IV, C: Common, Re: Rare, FC: Fairly Common, UC: Uncommon

several aquatic birds (pelicans, coots, darters). Fishing also causes direct disturbance to birds due to reduced availability of fish species, some of which the birds consume as food. Aquatic plants such as *Hydrilla verticillata*, *Najas minor*, etc. are food for many birds of Oussudu. During fishing, these aquatic macrophytes entangle in the fishing net, and thus are removed causing disturbance and imbalance in the biodiversity composition of the lake.

Hunting of birds in and around the Oussudu sanctuary is another important issue that needs attention. During the present study, we found that several families of the Narikurava community (a tribe) were engaged in hunting of birds, which had become their chief source of livelihood. There is an encroachment by a hamlet of around 15 families of Narikurava on Villianur-Pathukanu junction road. This settlement hunts several species of resident and migratory aquatic birds. The birds such as Asian Koel (*Endynamys scolopacea*; state bird of Puducherry), Great Bittern (*Botaurus stellaris*), Common Moorhen (*Gallinula chloropus*), White-breasted Water-hen (*Amaurornis phoenicurus*), Common Myna, Common Coot (*Fulica atra*), egrets, and cormorants were commonly hunted and sold for Rs. 150/- to Rs. 200/- per kg. In order to stop such hunting, alternative and appropriate sources of livelihood and employment need to be found for this community.

The Suthukeni Canal is essentially the only means of water movement / discharge of sewage and storm water to the lake. It is currently a channel, into which considerable quantity of municipal and non-point source effluents flow in. Rubber and glass industries, and the agricultural lands located around Oussudu Lake release runoff water with various chemicals into the lake. Several tanning and leather industries occur along the shores, with disposal of effluent from these industries likely affecting the lake's ecology. In addition, the agricultural fields around the lake contribute significant amounts of N, P, and K fertilizers and pesticides through run-off. Such runoff can stimulate the growth of aquatic macrophytes and plankton, resulting in eutrophication. Heavy metals and several pesticides, as an outcome of application of agrochemicals in nearby agriculture fields, may bio-accumulate

(macrophytes to fishes, etc.) in the wetland ecosystem and ultimately affect the apex of the food chain, i.e. birds.

It is apt that steps should be taken to bring adjoining parts of the lake under protection. Mechanisms to manage the area jointly by both governments and people of Tamil Nadu and Puducherry need to be developed. In view of the present scenario with threats to its existence and functioning, Oussudu sanctuary needs active conservation and management interventions. It is also expected that Oussudu would lose its ecological integrity, if proper coordinated efforts are not taken by management authorities and non-government organizations including the general public to save this fragile wetland ecosystem. This may include activities such as protection, prevention of encroachment and control of polluting activities, eco-restoration and initiating habitat improvement programs.

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