



## BIRD ABUNDANCE IN SELECTED SITES OF AHMEDABAD, GUJARAT, INDIA

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**ABSTRACT**

*Bird counts were carried out in Sundarvan and Ratna Talav, Ahmedabad, Gujarat from 2015 to 2018. A total of 60 species in Sundarvan and 126 species in Ratna Talav was recorded during the study. Out of these, 48 species were resident (80%), seven were migratory (12%), five species were resident with local migratory population (8%) in Sundarvan and 94 (74.6%) residents, 26 (20.6%) migratory, 6 (4.8 %) resident species with migratory population in Ratna Talav. Overall, 136 species belonging to 56 different families were recorded from both these sites during the study period. Urbanization pose threat to both these sites.*

**Keywords:** bird abundance, urban bird diversity, urban green spaces

**INTRODUCTION**

Our planet is urbanising rapidly, as Earth's urban-dwelling human population is growing by one million per week nowadays. The pace of urbanisation is excellently illustrated by the fact that, while in 1950, about 30% of our planet's human population lived in cities, this ratio had reached the 50% in 2008 and has been continuously growing ever since (UN-Habitat, 2012). This trend has been especially dramatic in the developing countries of Africa, Asia, and Latin America in the last decades (Lee 2007). Being the second-most populous country in the world after China, every 12th city dweller in the world and every 7th of the developing countries are from India (Jayswal & Saha, 2014).

Ahmedabad is the seventh-largest metropolis in India and the largest in the state of Gujarat. The city is known as the commercial capital of the state and as the textile capital of India (Avadia & Patel, 2018). Ahmedabad is the third-fastest growing city in India, with an estimated population of 5.5 million. Ahmedabad has been selected in the list of 100 cities under the Ministry of Urban Development (MoUD), the Government of India's Smart City Mission. These developments have a huge impact on wildlife and the environment in general. The urbanised landscapes have undergone extreme anthropogenic landscape transformations, with the great proportion of artificial and impermeable surfaces, the altered and maintained flora, high human densities, and a huge amount of garbage having significant impacts on biodiversity and ecosystems (Pickett et al. 2011). It is undeniable that urban landscapes differ from natural ones in several environmental features, which in turn determine the properties of both animal and plant communities trying to persist in these unique habitats (Seress and Liker, 2015).

Two sites, Sundarvan and Ratna Talav, were selected to study with the following objectives:

Finding an abundance of birds in unprotected green patches and wetlands in urban and semi-urban areas

Finding changes in the bird diversity structure by comparing available literature

Finding importance of such sites for the survival of birds in an urban set up.

**STUDY AREA**

Sundarvan: Sundarvan Nature Discovery Centre ( $23^{\circ} 1'35.53''N$ ,  $72^{\circ}31'15.72''E$ ) set in the heart of Ahmedabad, Gujarat, India, is a unique facility of the Centre for Environment Education (CEE). This four-acre land was originally a mango orchard, converted into a nature discovery centre on 28 October 1978. It is a green oasis of the city and has been categorised as a mini zoo, by the Central Zoo Authority (CZA), the apex governance body for Zoos of India. A detailed site description and its role in creating awareness about various lesser-known animal groups and other nature appreciation activities are published elsewhere (Sivakumar & Jadeja, 2012; Sivakumar, 2012; Sivakumar & Nareshwar, 2013; Sivakumar & Patel, 2015; Sivakumar et al., 2017). This small green patch is known to support rich biodiversity (Sivakumar, 2020; Urifi, 1996).

Ratna Talav: This water body spread across for about 4 acres. The wetland is mostly surrounded by agricultural fields and some built-up areas like roads and human settlements. The waterspread area extends to nearby low-lying areas during good rainfall years. Ratna Talav is located ( $23^{\circ} 0'59.34''N$ ,  $72^{\circ}26'50.38''E$ ) around 0.5km away from Shela village, on the way to Ghuma. Often, the lake receives sewage water discharged from nearby settlements.

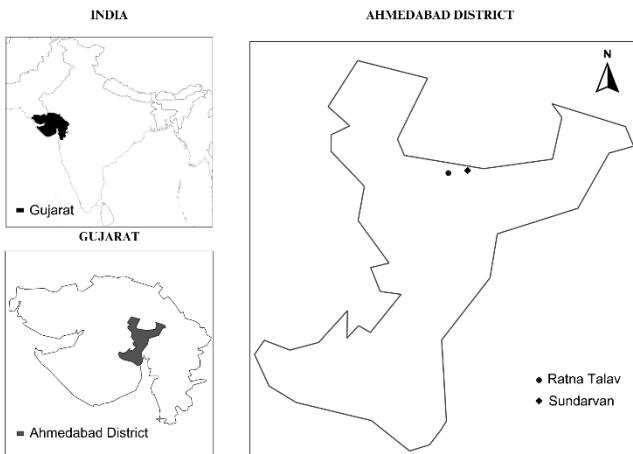


Fig. 1. The study area map shows location of Sundarvan and Ratna Talav in Ahmedabad district

## METHODS

The birds were observed during the most active periods of the day: mornings (0600 to 1000 hours) and late afternoons (1630 to 1900 hours). A 400-metre-long transect (Bibby 2000) was walked slowly to note down/ record the birds sighted in Sundarvan. The Total Count Method (Howes & Bakewell 1989) of birds by walking along the banks/roads around the Ratna Talav was carried out. Between 2015 and 2018, there were 80 counts in Sundarvan and 42 counts in Ratna Talav. The total number of birds encountered in each species, sex and age classes (if possible), breeding, and threats were noted down. Records of incidental sightings of birds that were not encountered or rarely encountered during the count were also maintained.

## RESULTS

A total of 60 species in Sundarvan and 126 species in Ratna Talav were recorded during the study. Out of these, 48 species were resident (80%), seven were migratory (12%), five species were resident with local migratory population (8%) in Sundarvan, and 94 (74.6%) residents, 26 (20.6%) migratory, six (4.8%) resident species with local migratory population in Ratna Talav. Overall, 136 species belonging to 55 different families were recorded from both of these sites during the study period (Table 1). Among the families, Ardeidae accounted for the most number of birds (n=11) followed by Scopacidae and Accipitridae (n=7, each) in Ratna Talav (Fig. 2) and Columbidae and Muscicapidae had more species (n=4) in Sundarvan (Fig. 3). In Sundarvan, Indian Peafowl *Pavo cristatus* was the most abundant bird, sighted almost in all counts (78/80). Asian Koel *Eudynamys scolopacea*, Common Myna *Acridotheres tristis*, Jungle Babbler *Turdoides striata*, Rose-ringed Parakeet *Psittacula krameri*, Purple Sunbird *Nectarinia asiatica* are some of the other commonly sighted bird species in the site.

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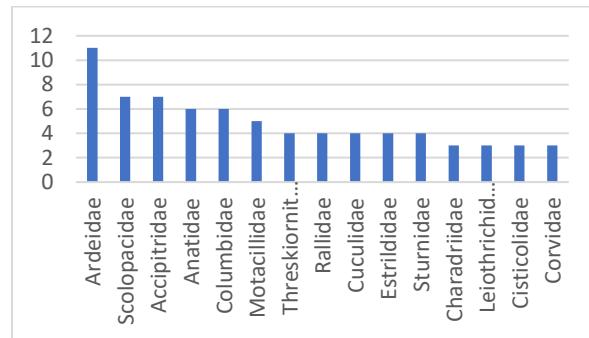


Fig. 2. Family (with 3 or more bird species) wise number of birdspecies recorded in Ratna Talav

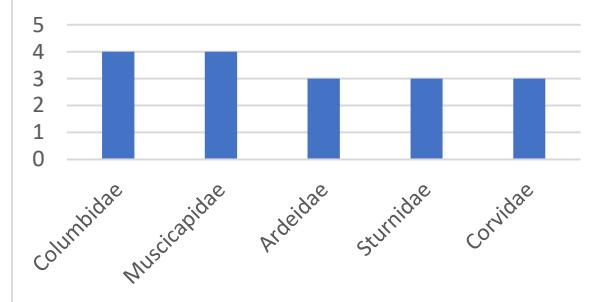


Fig. 3. Family (with 3 or more bird species) wise number of birdspecies recorded in Sundarvan

Eurasian Collared Dove *Streptopelia decaocto* (n=41/42), Red-wattled Lapwing *Vanellus indicus* (n=40), Common Moorhen *Gallinula chloropus* (n=40) and Rose-ringed Parakeet (n=39) some of the most frequently sighted species in Ratna Talav. The sites support five Near Threatened and one Vulnerable species (Table 1).

## DISCUSSION

Sundarvan is not a preferred site for a commonly recorded species, the Rock pigeon, as there were no tall buildings in the premises. Mostly, the birds were sighted flying overhead. However, few pigeons are attracted close to its back gate, where bird feeders leave grains on a regular basis. Another site that attracts pigeons is Sundarvan's bird section, where some of the domestic birds, such as turkeys, pigeons, etc., are allowed to roam around in open space and fed. Urfi (1996) has reported 97 bird species from Sundarvan. However, he marked many species as doubtful. He has recorded parties of Grey Francolin on campus. Now, francolins become a rare bird in Sundarvan. Few species, such as Barn Owl *Tyto alba*, Black-napped Monarch *Hypothymis azurea*, Spotted Owlet *Athene brama*, and Indian Thick-knee *Burhinus indicus* were not recorded during the counts and sighted incidentally. Grey-headed Canary-flycatcher *Culicicapa ceylonensis* and Tickell's Blue Flycatcher *Cyornis tickelliae* visit the place regularly in the winter months. The Yellow-footed pigeons are sighted when *Ficus* spp. fruit at Sundarvan.

In Ratna Talav, 126 bird species, including 51 waterbirds or wetland-associated birds, were recorded, and 63 species were

recorded in Sundarvan. Since Sundarvan is a green island in the developed area of the city, the diversity is less compared to Ratna Talav, which is located in suburban Ahmedabad with agricultural fields and fewer human settlements around. Jain et al. (2005) reported 85 species in Gujarat University, which is much larger than the presently reported bird species number in Sundarvan. However, Urvi (1996) reported 97 species in mid-1990s from Sundarvan, when the area was not as developed as it is today. Almost all the resident birds are recorded breeding in both the sites. Indian Peafowl breeds regularly in Sundarvan. One nest of Red-naped Ibis *Pseudibis papillosa* was recorded in 2016, and one brood of Lesser Whistling Ducks *Dendrocygna javanica* (with nine ducklings) was observed in 2017. One pair of White-breasted Waterhens *Amaurornis phoenicurus*, breeds every year around a small pool located in the Sundarvan. The above are some of the significant breeding records from Sundarvan. Lesser Whistling Ducks, Spot-billed Duck *Anas poecilorhyncha*, Grey-headed Swamphen *Porphyrio poliocephalus*, Eurasian Coot *Fulica atra*, Common Moorhen *Gallinula chloropus*, Black-winged Stilt *Himantopus himantopus* and, and Red Avadavat *Amandava amandava* are some of the important bird species recorded breeding in Ratna Talav.

### CONCLUSION AND CONSERVATION MEASURES

The green spots, like Sundarvan, act as a connecting link to other larger patches located in the city. These areas are very crucial to maintaining urban biodiversity. It's truly remarkable to observe that a number of migratory bird species visit this area annually. Therefore, the management of the area should consider the importance of green cover and the pond inside when planning any developmental activities. A portion of land was already lost for the expansion of roads. The urban authorities should also understand the importance of urban green patches for the well-being of city dwellers, and adequate care should be given to retain them. Record of six globally threatened bird species from these sites also shows conservation importance Sundarvan and Ratna Talav.

The areas around Ratna Talav were fast-growing, and we have observed release of untreated sewage water into the wetland and dumping solid wastes on the banks of wetland during the study period. Considering the importance of this wetland for agricultural use, ground water recharge, flood control, supporting biodiversity, and recreation, the municipal authority should recognise and provide the necessary protection to save such sites in the city.

### ACKNOWLEDGEMENT

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Table 1. List of birds recorded in Sundarvan and Ratna Talav and their abundance

Sl. No.	Species	IUCN Status	Migratory Status	Average birds and frequency of sightings			
				Ratna Talav		Sundarvan	
				Average no. of birds (n=42)	Frequency of sighting (n=42)	Average no. of birds (n=80)	Frequency of sighting (n=80)
<b>Anatidae (Swans, geese and ducks)</b>							
1	Lesser Whistling Duck <i>Dendrocygna javanica</i>	LC	R	1.9 ( $\pm 6.5$ )	6	0	0
2	Greylag Goose <i>Anser anser</i>	LC	M	0.1 ( $\pm 0.6$ )	1	0	0
3	Knob-billed Duck <i>Sarkidiornis melanotos</i>	LC	R	5.6 ( $\pm 23.7$ )	13	0	0
4	Ruddy Shelduck <i>Tadorna ferruginea</i>	LC	M	0.02 ( $\pm 0.2$ )	1	0	0
5	Northern Shoveler <i>Spatula clypeata</i>	LC	M	1.2 ( $\pm 4.9$ )	5	0	0
6	Indian Spot-billed Duck <i>Anas poecilorhyncha</i>	LC	R	1.4 ( $\pm 3.8$ )	13	0	0
<b>Phasianidae (Pheasants, partridges, quails)</b>							
7	Indian Peafowl <i>Pavo cristatus</i>	LC	R	2.0 ( $\pm 2.4$ )	22	16.0 ( $\pm 9.0$ )	78
8	Grey Francolin <i>Ortygornis pondicerianus</i>	LC	R	0.8 ( $\pm 1.1$ )	17	0	0
<b>Podicipedidae (Grebes)</b>							
9	Little Grebe <i>Tachybaptus ruficollis</i>	LC	R	16.7 ( $\pm 17.9$ )	37	0	0
<b>Columbidae (Pigeons and doves)</b>							
10	Rock Pigeon <i>Columba livia</i>	LC	R	6.9 ( $\pm 9.2$ )	27	4.8 ( $\pm 3.9$ )	68
11	Eurasian Collared Dove <i>Streptopelia decaocto</i>	LC	R	12.1 ( $\pm 5.4$ )	41	1.5 ( $\pm 1.1$ )	57
12	Red Collared Dove <i>Streptopelia tranquebarica</i>	LC	R	0.1 ( $\pm 0.5$ )	3	0	0
13	Spotted Dove <i>Spilopelia chinensis</i>	LC	R	0.02 ( $\pm 0.2$ )	1	0	0
14	Laughing Dove <i>Spilopelia senegalensis</i>	LC	R	1.0 ( $\pm 1.0$ )	21	0.7 ( $\pm 1.1$ )	27
15	Yellow-footed Green Pigeon <i>Treron phoenicopterus</i>	LC	R	0.1 ( $\pm 0.6$ )	1	0.1 ( $\pm 0.7$ )	1
<b>Cuculidae (Cuckoos, malkohas and coucals)</b>							
16	Greater Coucal <i>Centropus sinensis</i>	LC	R	0.5 ( $\pm 0.7$ )	14	0.1 ( $\pm 0.3$ )	6
17	Pied Cuckoo <i>Clamator jacobinus</i>	LC	R/M	0.1 ( $\pm 0.3$ )	2	0	0
18	Asian Koel <i>Eudynamys scolopaceus</i>	LC	R	0.5 ( $\pm 0.8$ )	14	3.2 ( $\pm 2.1$ )	76
19	Common Hawk Cuckoo <i>Hierococcyx varius</i>	LC	R/LM	0.2 ( $\pm 0.6$ )	7	0	0
<b>Apodidae (Swifts)</b>							
20	Little Swift <i>Apus affinis</i>	LC	R	0.2 ( $\pm 1.5$ )	1	0.03 ( $\pm 0.2$ )	1
<b>Rallidae (Rails, crakes, moorhens, coots)</b>							
21	Common Moorhen <i>Gallinula chloropus</i>	LC	R	19.3 ( $\pm 11.6$ )	40	0	0

22	Eurasian Coot <i>Fulica atra</i>	LC	R/M	1.0 ( $\pm 1.8$ )	15	0	0
23	Grey-headed Swamphen <i>Porphyrio poliocephalus</i>	LC	R	2.6 ( $\pm 3.2$ )	27	0	0
24	White-breasted Waterhen <i>Amaurornis phoenicurus</i>	LC	R	4.3 ( $\pm 3.0$ )	36	1.1 ( $\pm 1.0$ )	49
<b>Burhinidae (Stone curlews)</b>							
25	Indian Thick-knee <i>Burhinus indicus</i>	LC	R	0	0	+	0
<b>Recurvirostridae (Stilts)</b>							
26	Black-winged Stilt <i>Himantopus himantopus</i>	LC	R	11.9 ( $\pm 14.2$ )	32	0	0
<b>Charadriidae (Plovers, dotterels, lapwings)</b>							
27	Yellow-wattled Lapwing <i>Vanellus malabaricus</i>	LC	R	1.2 ( $\pm 2.9$ )	7	0	0
28	Red-wattled Lapwing <i>Vanellus indicus</i>	LC	R	20.7 ( $\pm 14.1$ )	40	0.1 ( $\pm 0.4$ )	6
29	Little Ringed Plover <i>Charadrius dubius</i>	LC	R	0.02 ( $\pm 0.2$ )	1	0	0
<b>Rostratulidae (Painted snipes)</b>							
30	Greater Painted-snipe <i>Rostratula benghalensis</i>	LC	R	0.3 ( $\pm 1.0$ )	5	0	0
<b>Jacanidae (Jacanas)</b>							
31	Pheasant-tailed Jacana <i>Hydrophasianus chirurgus</i>	LC	R	0.05 ( $\pm 0.2$ )	2	0	0
<b>Scolopacidae (Sandpipers, curlews, snipes)</b>							
32	Black-tailed Godwit <i>Limosa limosa</i>	NT	M	0.2 ( $\pm 0.9$ )	2	0	0
33	Common Sandpiper <i>Actitis hypoleucos</i>	LC	M	0.5 ( $\pm 0.8$ )	14	0	0
34	Green Sandpiper <i>Tringa ochropus</i>	LC	M	0.6 ( $\pm 1.8$ )	8	0	0
35	Spotted Redshank <i>Tringa erythropus</i>	LC	M	0.1 ( $\pm 0.3$ )	3	0	0
36	Common Greenshank <i>Tringa nebularia</i>	LC	M	0.6 ( $\pm 1.9$ )	10	0	0
37	Marsh Sandpiper <i>Tringa stagnatilis</i>	LC	M	0.3 ( $\pm 0.7$ )	6	0	0
38	Wood Sandpiper <i>Tringa glareola</i>	LC	M	1.7 ( $\pm 3.2$ )	16	0	0
<b>Glareolidae (Pratincoles)</b>							
39	Small Pratincole <i>Glareola lactea</i>	LC	R	0.02 ( $\pm 0.2$ )	1	0	0
<b>Laridae (Gulls and Terns)</b>							
40	River Tern <i>Sterna aurantia</i>	VU	R	0.02 ( $\pm 0.2$ )	1	0	0
<b>Ciconiidae (Storks)</b>							
41	Woolly-necked Stork <i>Ciconia episcopus</i>	NT	R	0.1 ( $\pm 0.4$ )	3	0	0
42	Painted Stork <i>Mycteria leucocephala</i>	NT	R	0.3 ( $\pm 0.5$ )	9	0	0
<b>Phalacrocoracidae (Cormorants)</b>							
43	Little Cormorant <i>Microcarbo niger</i>	LC	R	1.5 ( $\pm 2.5$ )	19	0	0
44	Indian Cormorant <i>Phalacrocorax fuscicollis</i>	LC	R	13.7 ( $\pm 28.7$ )	20	0	0

Ardeidae (Herons, egrets and bitterns)							
45	Yellow Bittern <i>Ixobrychus sinensis</i>	LC	R	0.05 ( $\pm 0.2$ )	2	0	0
46	Black Bittern <i>Ixobrychus flavicollis</i>	LC	R	0.02 ( $\pm 0.2$ )	1	0	0
47	Grey Heron <i>Ardea cinerea</i>	LC	R	0.2 ( $\pm 0.5$ )	8	0	0
48	Purple Heron <i>Ardea purpurea</i>	LC	R	0.4 ( $\pm 0.8$ )	11	0	0
49	Great Egret <i>Ardea alba</i>	LC	R	0.3 ( $\pm 0.9$ )	6	0	0
50	Intermediate Egret <i>Ardea intermedia</i>	LC	R	1.4 ( $\pm 2.6$ )	15	0	0
51	Little Egret <i>Egretta garzetta</i>	LC	R	1.4 ( $\pm 1.5$ )	26	0	0
52	Cattle Egret <i>Bubulcus ibis</i>	LC	R	8.2 ( $\pm 11.2$ )	34	0.1 ( $\pm 0.4$ )	1
53	Indian Pond Heron <i>Ardeola grayii</i>	LC	R	10.2 ( $\pm 7.0$ )	37	0.2 ( $\pm 0.4$ )	12
54	Striated Heron <i>Butorides striata</i>	LC	R	0.1 ( $\pm 0.5$ )	4	0	0
55	Black-crowned Night Heron <i>Nycticorax nycticorax</i>	LC	R	0.02 ( $\pm 0.2$ )	1	0.01 ( $\pm 0.1$ )	1
Threskiornithidae (Ibises and spoonbills)							
56	Glossy Ibis <i>Plegadis falcinellus</i>	LC	M	13.4 ( $\pm 43.2$ )	15	0	0
57	Black-headed Ibis <i>Threskiornis melanocephalus</i>	NT	R	7.8 ( $\pm 9.1$ )	31	0.01 ( $\pm 0.1$ )	1
58	Red-naped Ibis <i>Pseudibis papillosa</i>	LC	R	3.0 ( $\pm 4.8$ )	29	0.1 ( $\pm 0.4$ )	1
59	Eurasian Spoonbill <i>Platalea leucorodia</i>	LC	R	0.1 ( $\pm 0.4$ )	4	0	0
Accipitridae (Hawks, eagles, buzzards, old world vultures, kites, harriers)							
60	Black-winged Kite <i>Elanus caeruleus</i>	LC	R	0.1 ( $\pm 0.3$ )	3	0	0
61	Oriental Honey Buzzard <i>Pernis ptilorhynchus</i>	LC	R	0.3 ( $\pm 0.6$ )	10	0	0
62	Short-toed Snake Eagle <i>Circaetus gallicus</i>	LC	R	0.1 ( $\pm 0.4$ )	3	0	0
63	White-eyed Buzzard <i>Butastur teesa</i>	LC	R	0.02 ( $\pm 0.2$ )	1	0	0
64	Eastern Marsh Harrier <i>Circus spilonotus</i>	LC	M	0.02 ( $\pm 0.2$ )	1	0	0
65	Shikra <i>Accipiter badius</i>	LC	R	0.2 ( $\pm 0.5$ )	7	0.9 ( $\pm 0.9$ )	52
66	Black Kite <i>Milvus migrans</i>	LC	R	2.9 ( $\pm 2.6$ )	29	2.4 ( $\pm 1.6$ )	72
Tytonidae (Barn owls)							
67	Common Barn Owl <i>Tyto alba</i>	LC	R	0	0	+	0
Strigidae (Owls)							
68	Spotted Owlet <i>Athene brama</i>	LC	R	2.3 ( $\pm 2.0$ )	27	+	0
Upupidae (Hoopes)							
69	Eurasian Hoopoe <i>Upupa epops</i>	LC	R/LM	0.1 ( $\pm 0.4$ )	5	0	0
Alcedinidae (Kingfishers)							
70	White-throated Kingfisher <i>Halcyon smyrnensis</i>	LC	R	0.7 ( $\pm 0.6$ )	25	0.2 ( $\pm 0.5$ )	11

71	Pied Kingfisher <i>Ceryle rudis</i>	LC	R	0.2 ( $\pm 0.5$ )	6	0	0
<b>Meropidae (Bee-eaters)</b>							
72	Green Bee-eater <i>Merops orientalis</i>	LC	R	5.7 ( $\pm 3.7$ )	37	1.4 ( $\pm 1.9$ )	40
<b>Megalaimidae (Barbets)</b>							
73	Coppersmith Barbet <i>Psilopogon haemacephalus</i>	LC	R	0.02 ( $\pm 0.2$ )	1	2.6 ( $\pm 1.9$ )	67
<b>Picidae (Woodpeckers)</b>							
74	Eurasian Wryneck <i>Jynx torquilla</i>	LC	R	0.1 ( $\pm 0.4$ )	3	0	0
75	Black-rumped Flameback <i>Dinopium benghalense</i>	LC	R	0.3 ( $\pm 0.8$ )	7	0.6 ( $\pm 0.9$ )	26
<b>Psittacidae (Parakeets and hanging parrots)</b>							
76	Alexandrine Parakeet <i>Psittacula eupatria</i>	NT	R	0	0	0.01 ( $\pm 0.1$ )	1
77	Rose-ringed Parakeet <i>Psittacula krameri</i>	LC	R	16.0 ( $\pm 8.4$ )	39	4.7 ( $\pm 2.4$ )	79
78	Plum-headed Parakeet <i>Psittacula cyanocephala</i>	LC	R	0.1 ( $\pm 0.6$ )	1	0	0
<b>Campephagidae (Cuckoo-shrikes, flycatcher-shrikes, trillers, minivets, woodshrikes)</b>							
79	Small Minivet <i>Pericrocotus cinnamomeus</i>	LC	R	0.1 ( $\pm 0.5$ )	3	0.5 ( $\pm 1.5$ )	12
<b>Oriolidae (Orioles)</b>							
80	Indian Golden Oriole <i>Oriolus kundoo</i>	LC	R/LM	0.02 ( $\pm 0.2$ )	1	0.1 ( $\pm 0.2$ )	4
<b>Vangidae (Woodshrikes)</b>							
81	Common Woodshrike <i>Tephrodornis pondicerianus</i>	LC	R	0.1 ( $\pm 0.3$ )	2	0	0
<b>Aegithinidae (Ioras)</b>							
82	Common Iora <i>Aegithina tiphia</i>	LC	R	0.3 ( $\pm 0.7$ )	7	0.2 ( $\pm 0.9$ )	5
<b>Rhipiduridae (Fantails)</b>							
83	Spot-breasted Fantail <i>Rhipidura albogularis</i>	LC	R	0.05 ( $\pm 0.2$ )	2	0	0
84	White-browed Fantail <i>Rhipidura aureola</i>	LC	R	0.05 ( $\pm 0.3$ )	1	0.1 ( $\pm 0.3$ )	3
<b>Dicruridae (Drongos)</b>							
85	Black Drongo <i>Dicrurus macrocercus</i>	LC	R	2.1 ( $\pm 2.2$ )	29	0.1 ( $\pm 0.4$ )	5
86	Ashy Drongo <i>Dicrurus leucophaeus</i>	LC	R	0.2 ( $\pm 0.6$ )	4	0.4 ( $\pm 0.7$ )	21
<b>Monarchidae (Monarch flycatchers and paradise flycatchers)</b>							
87	Black-naped Monarch <i>Hypothymis azurea</i>	LC	R/LM	0	0	+	0
88	Indian Paradise-flycatcher <i>Terpsiphone paradisi</i>	LC	R/LM	0	0	0.1 ( $\pm 0.2$ )	4
<b>Laniidae (Shrikes)</b>							
89	Long-tailed Shrike <i>Lanius schach</i>	LC	M	0.3 ( $\pm 0.6$ )	10	0	0
<b>Corvidae (Crows, jays, treepies, magpies)</b>							
90	Rufous Treepie <i>Dendrocitta vagabunda</i>	LC	R	0.2 ( $\pm 0.4$ )	7	0.5 ( $\pm 0.9$ )	26

91	House Crow <i>Corvus splendens</i>	LC	R	3.6 ( $\pm 7.7$ )	24	1.4 ( $\pm 2.2$ )	44
92	Large-billed Crow <i>Corvus macrorhynchos</i>	LC	R	0.1 ( $\pm 0.3$ )	4	2.1 ( $\pm 1.1$ )	73
<b>Stenostiridae (Canary flycatchers)</b>							
93	Grey-headed Canary-flycatcher <i>Culicicapa ceylonensis</i>	LC	R/LM	0.05 ( $\pm 0.3$ )	1	0.3 ( $\pm 0.7$ )	15
<b>Cisticolidae (Tailorbirds)</b>							
94	Common Tailorbird <i>Orthotomus sutorius</i>	LC	R	0.8 ( $\pm 1.1$ )	17	2.7 ( $\pm 1.4$ )	73
95	Ashy Prinia <i>Prinia socialis</i>	LC	R	1.7 ( $\pm 2.1$ )	24	0.2 ( $\pm 0.7$ )	9
96	Plain Prinia <i>Prinia inornata</i>	LC	R	0.5 ( $\pm 1.2$ )	9	0	0
<b>Acrocephalidae (Warblers)</b>							
97	Booted Warbler <i>Iduna caligata</i>	LC	M	0.1 ( $\pm 0.6$ )	2	0.01 ( $\pm 0.1$ )	1
98	Clamorous Reed Warbler <i>Acrocephalus stentoreus</i>	LC	M	0.3 ( $\pm 0.8$ )	6	0	0
<b>Hirundinidae (Swallows and martins)</b>							
99	Dusky Crag Martin <i>Ptyonoprogne concolor</i>	LC	R	0	0	0.5 ( $\pm 2.6$ )	5
100	Barn Swallow <i>Hirundo rustica</i>	LC	M	1.8 ( $\pm 5.9$ )	6	0	0
101	Wire-tailed Swallow <i>Hirundo smithii</i>	LC	R	5.6 ( $\pm 12.6$ )	20	0	0
<b>Pycnonotidae (Bulbuls)</b>							
102	Red-vented Bulbul <i>Pycnonotus cafer</i>	LC	R	2.3 ( $\pm 2.1$ )	29	2.7 ( $\pm 2.4$ )	63
103	White-eared Bulbul <i>Pycnonotus leucotis</i>	LC	R	1.0 ( $\pm 1.5$ )	15	0	0
<b>Phylloscopidae (Leaf warblers)</b>							
104	Common Chiffchaff <i>Phylloscopus collybita</i>	LC	M	0.1 ( $\pm 0.9$ )	1	0	0
105	Greenish Warbler <i>Phylloscopus trochiloides</i>	LC	M	0.4 ( $\pm 1.3$ )	4	0.3 ( $\pm 0.6$ )	13
<b>Sylviidae (Warblers)</b>							
106	Lesser Whitethroat <i>Currucà currucà</i>	LC	M	0.05 ( $\pm 0.2$ )	2	0.04 ( $\pm 0.9$ )	3
<b>Paradoxornithidae (Babblers, fulvettas &amp; parrotbills)</b>							
107	Yellow-eyed Babbler <i>Chrysomma sinense</i>	LC	R	0.05 ( $\pm 0.3$ )	1	0	0
<b>Zosteropidae (White-eyes)</b>							
108	Indian White-eye <i>Zosterops palpebrosus</i>	LC	R	0	0	0.3 ( $\pm 0.6$ )	10
<b>Leiothrichidae (Babblers, laughingthrushes, barwings, sibias)</b>							
109	Jungle Babbler <i>Argya striata</i>	LC	R	5.7 ( $\pm 5.4$ )	26	12.0 ( $\pm 5.5$ )	78
110	Common Babbler <i>Argya caudata</i>	LC	R	0.3 ( $\pm 1.0$ )	3	0	0
111	Large Grey Babbler <i>Argya malcolmi</i>	LC	R	0.3 ( $\pm 1.2$ )	3	0	0
<b>Sturnidae (Starlings and mynas)</b>							
112	Rosy Starling <i>Pastor roseus</i>	LC	R	2.4 ( $\pm 6.6$ )	8	0.9 ( $\pm 4.3$ )	5

113	Brahminy Starling <i>Sturnia pagodarum</i>	LC	R	1.2 ( $\pm 1.6$ )	20	0.01 ( $\pm 0.1$ )	1
114	Common Myna <i>Acridotheres tristis</i>	LC	R	5.4 ( $\pm 5.3$ )	35	3.7 ( $\pm 2.6$ )	74
115	Bank Myna <i>Acridotheres ginginianus</i>	LC	R	0.05 ( $\pm 0.3$ )	1	0	0
<b>Muscicapidae (Flycatchers &amp; robins)</b>							
116	Brown-breasted Flycatcher <i>Muscicapa muttui</i>	LC	M	0	0	+	0
117	Indian Robin <i>Copsychus fulicatus</i>	LC	R	0.2 ( $\pm 0.7$ )	5	0	0
118	Oriental Magpie Robin <i>Copsychus saularis</i>	LC	R	0.9 ( $\pm 1.2$ )	21	1.2 ( $\pm 1.1$ )	51
119	Tickell's Blue Flycatcher <i>Cyornis tickelliae</i>	LC	R/LM	0	0	+	0
120	Bluethroat <i>Luscinia svecica</i>	LC	M	0.3 ( $\pm 0.7$ )	10	0.01 ( $\pm 0.1$ )	1
121	Taiga Flycatcher <i>Ficedula albicilla</i>	LC	M	0.2 ( $\pm 0.5$ )	6	0.04 ( $\pm 0.2$ )	2
<b>Dicaeidae (Flowerpeckers)</b>							
122	Thick-billed Flowerpecker <i>Dicaeum agile</i>	LC	R	0	0	0.1 ( $\pm 0.3$ )	4
123	Pale-billed Flowerpecker <i>Dicaeum erythrorhynchos</i>	LC	R	0.02 ( $\pm 0.2$ )	1	0	0
<b>Nectariniidae (Sunbirds and spiderhunters)</b>							
124	Purple-rumped Sunbird <i>Leptocoma zeylonica</i>	LC	R	0.3 ( $\pm 0.9$ )	5	0.1 ( $\pm 0.3$ )	3
125	Purple Sunbird <i>Cinnyris asiaticus</i>	LC	R	4.8 ( $\pm 2.7$ )	37	4.9 ( $\pm 2.4$ )	77
<b>Ploceidae (Weaver birds)</b>							
126	Baya Weaver <i>Ploceus philippinus</i>	LC	R	0.1 ( $\pm 0.5$ )	3	0	0
<b>Estrildidae (Munias)</b>							
127	Red Munia <i>Amandava amandava</i>	LC	R	0.3 ( $\pm 1.3$ )	3	0	0
128	Indian Silverbill <i>Euodice malabarica</i>	LC	R	2.8 ( $\pm 3.9$ )	22	0.03 ( $\pm 0.2$ )	2
129	Scaly-breasted Munia <i>Lonchura punctulata</i>	LC	R	0.1 ( $\pm 0.6$ )	1	0	0
130	Tricoloured Munia <i>Lonchura malacca</i>	LC	R	0.2 ( $\pm 0.9$ )	2	0	0
<b>Passeridae (Sparrows)</b>							
131	Yellow-throated Sparrow <i>Gymnoris xanthocollis</i>	LC	R	1.2 ( $\pm 2.0$ )	16	0	0
<b>Motacillidae (Wagtails and pipits)</b>							
132	Grey Wagtail <i>Motacilla cinerea</i>	LC	M	0.2 ( $\pm 0.7$ )	4	0	0
133	Western Yellow Wagtail <i>Motacilla flava</i>	LC	M	1.5 ( $\pm 3.3$ )	19	0.01 ( $\pm 0.1$ )	1
134	Citrine Wagtail <i>Motacilla citreola</i>	LC	M	0.05 ( $\pm 0.2$ )	2	0	0
135	White Wagtail <i>Motacilla alba</i>	LC	M	0.3 ( $\pm 0.6$ )	9	0	0
136	Paddyfield Pipit <i>Anthus rufulus</i>	LC	R	0.1 ( $\pm 0.6$ )	1	0	0

**Note:** R - Resident; LC - Local Migratory, R/LM - Resident with Local Migratory population; LC - Least Concern; NT - Near Threatened; VU - Vulnerable; + - Sighted, but not recorded during sampling