# A checklist of birds from Kondakarla Ava, a freshwater lake in Visakhapatnam, Andhra Pradesh, India

Birds have been the focus of interest as they are indicators of water quality and as parameters of restoration success and regional biodiversity. There are several factors that affect wetland bird communities. Hilden (1965) listed five factors as proximate ones which were involved in habitat selection: landscape, terrain, nest, song, and other sites (other animals and food). A few studies on diversity and abundance of aquatic birds also support the fact that there is a decreasing trend in avian population in our country's various water bodies (Azous & Horner 2001; Kumar & Gupta 2009).

The objective of this study was to prepare an updated list of birds of the Kondakarla Ava freshwater lake situated in Visakhapatnam District of Andhra Pradesh; this paper focuses purely on avian diversity since they form one of the base for conservation studies and management projects.

The Kondakarla Ava, a freshwater lake (17.60083N & 82.99805E), is one of its kind and is the second largest freshwater lake in Andhra Pradesh next to the Kolleru Lake. This lake has formed a unique ecosystem providing livelihood options to thousands of households. It is named after the village Kondakarla abutting the lake.

Kondakarla Ava is part of the Sarada riverine system and is classified as a perennial eutrophic shallow fresh water lentic body. It receives water from the Sarada River and Anakapalli Ava through Krishnam-Raju Channel. With a rectilinear polygon shape originally, the water spread of this lake is 753.93ha and the water storage capacity is up to 0.18 TMC (at full tank level). For about seven months in a year, the lake receives rainfall from both Southwest monsoon and Northeast monsoon (Avg. 1069mm). Annually around 0.86 TMC of water flows from the lake. Through a human made outlet that is connected to irrigation channels, water is supplied to eight villages. Agriculture is the dominant land use seen in this area whereas fishing is limited only to the surrounding villages of the water body. Being a freshwater lake, this place is famous for the number of migratory birds that arrive here each year.



Habitat and birds found in Kondakarla Ava Lake, Visakhapatnam, Andhra Pradesh.

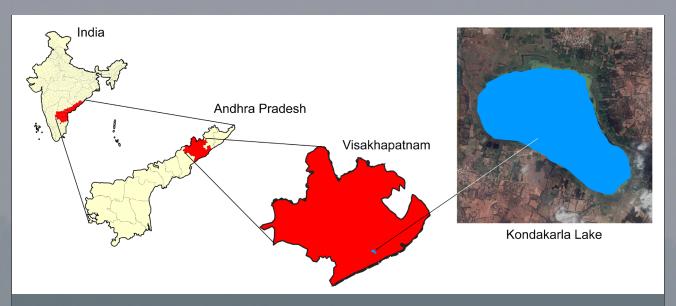


Figure 1. Location of Kondakarla Ava freshwater lake in Visakhapatnam District, Andhra Pradesh (Courtesy: Google Earth; The above map is indicative and is not to scale).

Bird count was done over a period of three years from January 2017 to February 2020. Observations were made during early morning between 06.00 to 10.30 h. and in the evening from 1530 to 18.30 h. However, timings were adjusted sometimes depending upon bird activity. Opportunistic counts done during other times of the day were also taken into consideration. Regular surveys were done by walking on fixed routes around the lake and also using the palmyrah boats inside the water body.

Birds were recorded following imaginary grid method and line transect method as outlined by Ali & Ripley (1983) and Ali (1996). Sightings and calls were both recorded. Observations were made using binoculars and photography was done using Nikon D5000 and D3300 wherever possible for future reference purposes. Scientific names and taxonomic classification of birds is after Praveen et al. (2016).

A total of 123 species of birds belonging to 45 families of 17 orders represent the avian diversity at the Kondakarla Ava Lake (see Table 1).

Among the 123 species recorded here, the Common Pochard is listed as Vulnerable and Painted Stork, Oriental Darter, and Alexandrine Parakeet are Near Threatened (BirdLife International 2017). According to the Wildlife Protection Act of 1972 and IUCN's Red List, a species is listed in Schedule I & IV and included in the Red List

Kondakarla Ava Lake -Habitat. ©VB, VNR

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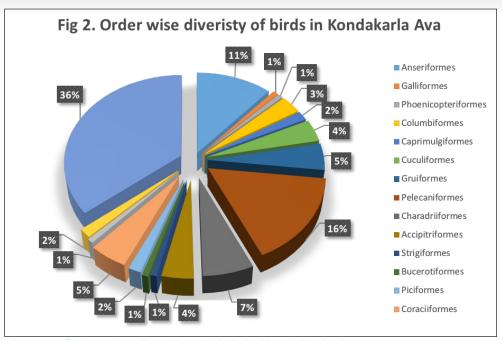


Figure 2. Order wise diversity of birds in Kondakarla Ava.

categories, respectively, depending upon its population status, rate of decline, and range sizes. The supporting vegetation along the lake fringes supports Passeriformes which forms the highest order of birds found here with 43 species forming 36% of the total species diversity (Figure 2).

The mysterious and rather uncommon Pinkheaded Duck was recorded from this lake by Abdulali (1945), which gives a sorrowful picture of how rich the resources and diversity was a century or so back, and the lack of management over the years.

Successful breeding of huge number of Pheasant-tailed Jacanas have been observed here by the authors. There have also been records of Tufted Duck, Comb Duck, Blackheaded Ibis in this lake from various previous records (Lakshmi 2001; ENVIS 2016), but they do not frequent the lake every year anymore.

The family wise richness of birds in Kondakarla Ava lake shows Anatidae (ducks, goose) having the highest species count here with 14 species (Figure 3).

The lake is home to several winter migrants such as Common Pochard, Red-crested Pochard, Common Teal, Fulvous Whistling Duck, Eurasian Wigeon and Eurasian Marsh Harrier. Local migrants including Sandpipers, Ibises, Pipits, and Starlings are also spotted here. Winter migrants have three main criteria for habitat selection- 1. Availability of food, 2. Availability of space and 3. Protection from predators.

Kondakarla Ava lake is a hotspot favouring all three requirements thus hosting thousands of birds every year. Once known as a paradise for migratory birds, recent observations by the authors reveal lesser count of birds in the lake. The decreased avian count in this

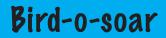


Table 1. Checklist of birds found in Kondakarla Ava freshwater lake, Visakhapatnam, Andhra Pradesh

	Common name	Scientific name	IUCN status	Schedule (WPA, 1972)
I. Anse	eriformes			
а	Anatidae			
1	Common Pochard	Aythya ferina (Linnaeus, 1758)	VU	IV
2	Common Teal*	Anas crecca Linnaeus, 1758	LC	IV
3	Cotton Teal	Nettapus coromandelianus (J.F. Gmelin, 1789)	LC	IV
4	Eurasian Wigeon	Mareca penelope (Linnaeus, 1758)	LC	IV
5	Fulvous Whistling-Duck	Dendrocygna bicolor (Vieillot, 1816)	LC	1
6	Gadwall	Mareca strepera (Linnaeus, 1758)	LC	IV
7	Indian Spot-billed Duck	Anas poecilorhyncha J.R. Forster, 1781	LC	IV
8	Comb Duck*	Sarkidiornis melonotos (Pennant, 1769)	LC	IV
9	Lesser Whistling-Duck	Dendrocygna javanica (Horsfield, 1821)	LC	IV
10	Northern Pintail	Anas acuta Linnaeus, 1758	LC	IV
11	Northern Shoveler	Spatula clypeata (Linnaeus, 1758)	LC	IV
12	Red-crested Pochard	Netta rufina (Pallas, 1733)	LC	IV
13	Ruddy Shelduck	Tadorna ferruginea (Pallas, 1764)	LC	IV
14	Tufted Duck*	Aythya fuligula (Linnaeus, 1758)	LC	IV
II. Galli	iformes	<u>'</u>	ı	
а	Phasianidae			
15	Grey Francolin	Francolinus pondicerianus (J.F. Gmelin, 1789)	LC	IV
III. Pho	penicopteriformes		ļ	I
а	Podicipedidae			
16	Little Grebe	Tachybaptus ruficollis (Pallas, 1764)	LC	IV
IV. Colu	umbiformes			I.
а	Columbidae			
17	Eurasian Collared-Dove	Streptopelia decaocto (Frivaldszky, 1838)	LC	IV
18	Laughing Dove	Streptopelia senegalensis (Linnaeus, 1766)	LC	IV
19	Rock Pigeon	Columba livia J.F. Gmelin, 1789	LC	IV
20	Spotted Dove	Streptopelia chinensis (Scopoli, 1786)	LC	IV
V. Capi	rimulgiformes			I
<u>.</u>	Apodidae			
21	Asian Palm-Swift	Cypsiurus balasiensis (J.E. Gray, 1829)	LC	IV
22	Indian House Swift	Apus affinis (J.E. Gray, 1830)	LC	IV
	culiformes		<u>I</u>	I.
а	Cuculidae			
23	Asian Koel	Eudynamys scolopaceus (Linnaeus, 1758)	LC	IV
24	Common Hawk-Cuckoo	Hierococcyx varius (Vahl, 1797)	LC	IV
25	Grey bellied Cuckoo	Cacomantis passerinus (Vahl, 1797)	LC	IV
26	Greater Coucal	Centropus sinensis (Stephens, 1815)	LC	IV
27	Pied Cuckoo	Clamator jacobinus (Boddaert, 1783)	LC	IV
	uiformes	,	<u> </u>	l .
а	Rallidae			
28	Baillon's Crake	Zapornia pusilla (Pallas, 1776)	LC	IV
29	Common Moorhen	Gallinula chloropus (Linnaeus, 1758)	LC	IV
	Common Coot	Fulica atra Linnaeus, 1758	LC	IV
30	Common Cool			1 11
30 31	Purple Swamphen	Porphyrio porphyrio (Linnaeus, 1758)	LC	IV



	Common name	Scientific name	IUCN status	Schedule (WPA, 1972
33	White-breasted Waterhen	Amaurornis phoenicurus (Pennant, 1769)	LC	IV
VIII. Pe	elecaniformes		•	
а	Ciconiidae			
34	Asian Openbill	Anastomus oscitans (Boddaert, 1783)	LC	IV
35	Painted Stork	Mycteria leucocephala (Pennant, 1769)	NT	IV
b	Ardeidae			
36	Cattle Egret	Bubulcus ibis (Linnaeus, 1758)	LC	IV
37	Yellow Bittern	Ixobrychus sinensis (J.F. Gmelin, 1789)	LC	IV
38	Cinnamon Bittern	Ixobrychus cinnamomeus (J.F. Gmelin, 1789)	LC	IV
39	Black Bittern	Ixobrychus flavicollis (Latham, 1790)	LC	IV
40	Black-crowned Night Heron	Nycticorax nycticorax (Linnaeus, 1758)	LC	IV
41	Grey Heron	Ardea cinerea Linnaeus, 1758	LC	IV
42	Great Egret	Ardea alba Linnaeus, 1758	LC	IV
43	Indian Pond-Heron	Ardeola grayii (Sykes, 1832)	LC	IV
44	Intermediate Egret	Ardea intermedia Wagler, 1829	LC	IV
45	Little Egret	Egretta garzetta (Linnaeus, 1766)	LC	IV
46	Purple Heron	Ardea purpurea Linnaeus, 1766	LC	IV
47	Striated Heron	Butorides striata (Linnaeus, 1758)	LC	IV
С	Threskiornithidae			
48	Glossy Ibis	Plegadis falcinellus (Linnaeus, 1766)	LC	IV
49	Red-naped Ibis	Pseudibis papillosa (Temminck, 1824)	LC	IV
d	Phalacrocoracidae			
50	Great Cormorant	Phalacrocorax carbo (Linnaeus, 1758)	LC	IV
51	Indian Cormorant	Phalacrocorax fuscicollis Stephens, 1826	LC	IV
52	Little Cormorant	Microcarbo niger (Vieillot, 1817)	LC	IV
е	Anhingidae			
53	Oriental Darter	Anhinga melanogaster Pennant, 1769	NT	IV
X. Cha	aradriiformes		'	
а	Recurvirostridae			
54	Black-winged Stilt	Himantopus himantopus (Linnaeus, 1758)	LC	IV
b	Charadriidae			
55	Red-wattled Lapwing	Vanellus indicus (Boddaert, 1783)	LC	IV
56	Yellow wattled Lapwing	Vanellus malabaricus (Boddaert, 1783)	LC	IV
С	Jacanidae			
57	Bronze-winged Jacana	Metopidius indicus (Latham, 1790)	LC	IV
58	Pheasant-tailed Jacana	Hydrophasianus chirurgus (Scopoli, 1786)	LC	IV
d	Scolopacidae			
59	Common Sandpiper	Actitis hypoleucos (Linnaeus, 1758)	LC	IV
60	Common Snipe	Gallinago gallinago (Linnaeus, 1758)	LC	IV
61	Wood Sandpiper	Tringa glareola Linnaeus, 1758	LC	IV
X. Acc	ipitriformes	ı	1	1
а	Accipitridae			
62	Black kite	Milvus migrans (Boddaert, 1783)	LC	I
63	Black winged Kite	Elanus caeruleus (Desfontaines, 1789)	LC	I
64	Brahminy Kite	Haliastur indus (Boddaert, 1783)	LC	I
65	Eurasian Marsh-Harrier	Circus aeruginosus (Linnaeus, 1758)	LC	I
66	Shikra	Accipiter badius (J. F. Gmelin, 1788)	LC	I



	Common name	Scientific name	IUCN status	Schedule (WPA, 1972)
XI. Stri	giformes			
а	Strigidae			
67	Spotted Owlet	Athene brama (Temminick, 1821)	LC	I
XII. Bu	ceriformes			
а	Upupidae			
68	Common Hoopoe	Upupa epops Linnaeus, 1758	LC	IV
XIII. Pi	ciformes			
а	Picidae			
69	Lesser Golden-backed Woodpecker	Dinopium benghalense (Linnaeus, 1758)	LC	IV
b	Ramphastidae			
70	Coppersmith Barbet	Psilopogon haemacephalus (Statius Muller, 1776)	LC	IV
XIV. Co	oraciiformes			
а	Meropidae			
71	Blue-tailed Bee-eater	Merops philippinus Linnaeus, 1767	LC	IV
72	Green Bee-eater	Merops orientalis Latham, 1801	LC	IV
b	Coraciidae			
73	Indian Roller	Coracias benghalensis (Linnaeus, 1758)	LC	IV
С	Alcedinidae			
74	Common Kingfisher	Alcedo atthis (Linnaeus, 1758)	LC	IV
75	Pied Kingfisher	Ceryle rudis (Linnaeus, 1758)	LC	IV
76	White-throated Kingfisher	Halcyon smyrnensis (Linnaeus, 1758)	LC	IV
XV. Fal	coniformes			I
а	Falconidae			
77	Peregrine Falcon	Falco peregrinus Tunstall, 1771	LC	1
XVI. Ps	sittaciformes			l
a	Psittaculidae			
78	Alexandrine Parakeet	Psittacula eupatria (Linnaeus, 1766)	NT	IV
79	Rose-ringed Parakeet	Psittacula krameri (Scopoli, 1769)	LC	IV
XVII. P	asseriformes			I
а	Oriolidae			
80	Indian Golden Oriole	Oriolus kundoo Sykes, 1832	LC	IV
81	Black hooded Oriole	Oriolus xanthornus (Linnaeus, 1758)	LC	IV
b	Artamidae		+	
82	Ashy Woodswallow	Artamus fuscus Vieillot, 1817	LC	IV
C	Dicruridae			
83	Ashy Drongo	Dicrurus leucophaeus Vieillot, 1817	LC	IV
84	Black Drongo	Dicrurus macrocercus Vieillot, 1817	LC	IV
85	White- bellied Drongo	Dicrurus caerulescens (Linnaeus, 1758)	LC	IV
d	Laniidae	2.5. arao odorarosocrio (Elimaeus, 1750)		I V
86	Brown Shrike	Lanius cristatus Linnaeus, 1758	LC	IV
87	Bay backed Shrike	Lanius vittatus Valenciennes, 1826	LC	IV
e	Corvidae	Lamus viitatus valentietines, 1020	1 20	I V
	House Crow	Corvus splendens Vieillot, 1817	LC	V
88		-		•
89	Large-billed Crow	Corvus macrorhynchos Wagler, 1827	LC	IV IV
90	Rufous Treepie	Dendrocitta vagabunda (Latham, 1790)	LC	IV
f	Nectariniidae	Observation and attitude (I. III. 47700)	1.0	n./
91	Purple Sunbird	Cinnyris asiaticus (Latham, 1790)	LC	IV

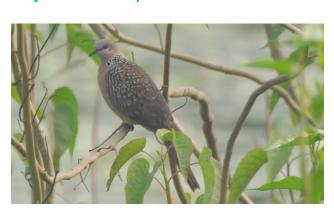
	Common name	Scientific name	IUCN status	Schedule (WPA, 1972)
92	Purple-rumped Sunbird	Leptocoma zeylonica (Linnaeus, 1766)	LC	IV
g	Ploceidae			
93	Baya Weaver	Ploceus philippinus (Linnaeus, 1766)	LC	IV
94	Streaked Weaver	Ploceus manyar (Horsfield, 1821)	LC	IV
h	Estrildidae			
95	Indian Silverbill	Euodice malabarica (Linnaeus, 1758)	LC	IV
96	Black-headed Munia	Lonchura malacca (Linnaeus, 1766)	LC	IV
i	Passeridae			
97	House Sparrow	Passer domesticus (Linnaeus, 1758)	LC	IV
j	Motacillidae			
98	Grey Wagtail	Motacilla cinerea Tunstall, 1771	LC	IV
99	Paddyfield Pipit	Anthus rufulus Vieillot, 1818	LC	IV
100	Richard's Pipit	Anthus richardi Vieillot, 1818	LC	IV
101	Blyth's Pipit	Anthus godlewskii (Taczanowski, 1876)	LC	IV
102	Western Yellow Wagtail	Motacilla flava Linnaeus, 1758	LC	IV
103	White- browed Wagtail	Motacilla maderaspatensis J.F. Gmelin, 1789	LC	IV
k	Alaudidae			
104	Ashy-crowned Sparrow-Lark	Eremopterix griseus (Scopoli, 1786)	LC	IV
105	Jerdon's Bushlark	Mirafra affinis Blyth, 1845	LC	IV
i	Cisticolidae			
106	Ashy Prinia	Prinia socialis Sykes, 1832	LC	IV
107	Common Tailorbird	Orthotomus sutorius (Pennant, 1769)	LC	IV
108	Plain Prinia	Prinia inornata Sykes, 1832	LC	IV
m	Acrocephalidae			
109	Booted Warbler	Iduna caligata (M.H.C. Lichtenstein, 1823)	LC	IV
110	Blyth's Reed Warbler	Acrocephalus dumetorum Blyth, 1849	LC	IV
111	Clamorous Reed Warbler	Acrocephalus stentoreus (Hemprich & Ehrenberg, 1833)	LC	IV
n	Hirundinidae			
112	Barn Swallow	Hirundo rustica Linnaeus, 1758	LC	IV
113	Wire-tailed Swallow	Hirundo smithii Leach, 1818	LC	IV
О	Pycnonotidae			
114	Red-vented Bulbul	Pycnonotus cafer (Linnaeus, 1766)	LC	IV
115	Red-whiskered Bulbul	Pycnonotus jocosus (Linnaeus, 1758)	LC	IV
р	Sylviidae			
116	Yellow-eyed Babbler	Chrysomma sinense (J.F. Gmelin, 1789)	LC	IV
q	Leiothrichidae			
117	Yellow-billed Babbler	Turdoides affinis (Jerdon, 1845)	LC	IV
118	Jungle Babbler	Turdoides striata (Dumont, 1823)	LC	IV
r	Sturinidae			
119	Asian Pied Starling	Gracupica contra (Linnaeus, 1758)	LC	IV
120	Brahminy Starling	Sturnia pagodarum (J.F. Gmelin, 1789)	LC	IV
121	Common Myna	Acridotheres tristis (Linnaeus, 1766)	LC	IV
122	Jungle Myna	Acridotheres fuscus (Wagler, 1827)	LC	IV
s	Muscicapidae	, ,		
123	Indian Robin	Saxicoloides fulicatus (Linnaeus, 1766)	LC	IV
*Taken	from previous records, but not sighted		1	1



Egrets in Kondakarla Ava Lake. ©VNR.



**Grey-headed Swamphen.** ©VB.



Spotted Dove. ©VB.



Plain Prinia. ©VB.



Common Moorhen. ©VB.



Richard's Pipit. ©VB.



Pheasant-tailed Jacana. ©VB.



Black-winged Stilt. ©VNR.



**Great White Egret. ©VNR.** 



White-throated Kingfisher. ©VB.



Red-wattled Lapwing. ©VB.



Little Grebe. ©VB.



**Eurasian Collared Dove. ©VB.** 

study is supported by previous work and observations too (Lakshmi 2001; ENVIS 2016). With the tremendous pressure from different sectors of developmental forces, the lake is now at the verge of losing its suitability for the migrants. This study reveals the lake harbouring an almost equal number of water birds, terrestrial birds and water dependant

birds. The lake can be divided into different habitat types like open waters, deep shallow lake bed area, wet borders of channels, drains, & lake fringes, and marginal areas. The multiple micro habitats present within the lake have stabilized over years forming what can be seen now as the perfect habitat for different requirements of birds, mammals,

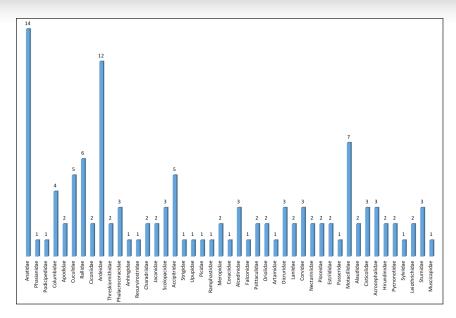


Figure 3. Number of species in each family in Kondakarla Ava.

reptiles, and other living organisms too.

# Conclusion

Avian diversity in an ecosystem designs the fate of the same. With Kondakarla Ava harbouring over 100 different species of birds, it plays an important role in giving shelter to the feathered friends and thus to the occupants of the entire trophic tree here.

This paper concludes the importance of this place in terms of its avian diversity, thus making it clear why there is an urgent need to take steps towards its conservation and prevention from further deterioration.

# References

**Abdulali, H. (1945)**. Birds of the Vizagapatnam District. The Journal of the Bombay Natural History Society 45: 333–347.

**Ali, S. (1996).** The Book of Indian Birds. 12<sup>th</sup> Edition. Oxford University Press. Delhi.

#### Ali, S. & S.D. Ripley (1983).

Handbook of the birds of India and Pakistan together with those of Bangladesh, Nepal, Bhutan and Sri Lanka. Compact ed. Oxford University Press.

# Azous, A.L. & R.M. Horner.

**(2001)**. Wetlands and urbanization: implications for the future. Lewis Publishers, Boca Raton, USA.

BirdLife International (2017). The IUCN Red List of Threatened Species. ENVIS (2016). Aquatic Flora, Fauna depleting in Kondakarla Ava lake. Environmental Information System, SACON. <a href="http://saconenvis.nic.in/ebulletin-may-2016-files/Kondakarla.">http://saconenvis.nic.in/ebulletin-may-2016-files/Kondakarla.</a>

**Hilden, O. (1965).** Habitat selection in birds. *Ann. Zool. Fenn.* 2:53-75.

#### Kumar, P. & S.K. Gupta (2009).

Diversity and abundance of wetland birds around Kurukshetra, India. *Our* 

Nature 7: 212–217. **Lakshmi, B. (2001)**. Avifauna of Kondakarla lake near Visakhapatnam Andhra Pradesh. *Journal of Nature conservation* B(1): 107–115.

Praveen, J., R. Jayapal & A. Pittie (2016). A checklist of the birds of India. *Indian Birds* 11(5&6): 113–172.

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