

## STUDY OF AVIFAUNAL DIVERSITY OF GANDHI SAGAR LAKE, NAGPUR, MAHARASHTRA

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### ABSTRACT

*During the study period from January 2010 to September 2010 Gandhisagar lake [ 21°10'N & 79°05'E] represented 34 species of birds . All the species were recorded as resident and common. On the basis of food preference 09 species were recorded as carnivorous, 13 species as omnivorous, 06 as insectivorous, 04 species piscivorous, and 02 species as frugivorous. House sparrow and House crow were recorded in huge number throughout the study period. Avifaunal diversity of Gandhisagar lake confirm the lake as a suitable habitat for residential and common birds in Nagpur city but increasing developmental activities around the lake are causing threat to the lake and avifauna.*

**Key Words:** *Gandhi sagar lake, avifauna, suitable habitat, developmental activities.*

### INTRODUCTION

A wetland is a land area that is saturated with water, either permanently or seasonally, such that it takes on the characteristics of a distinct ecosystem (Butler, 2010). Wetlands constitute a treasury of biodiversity and provide homes for a huge diversity of birds (Buckton, 2007). Many wetlands are being negatively affected due to overexploitation beyond their rejuvenating capacity. These impacts are difficult to detect and quantify but they will ultimately accelerate the rate of conversion of the wetland to a terrestrial one. Wetland supports congregation of large number of migratory and resident species of birds as it has high nutritional value as well as productivity . The bird assemblages are affected by various factors like the food availability, the size of the wetland and the abiotic changes in the wetlands and are therefore good indicators of the general condition of

wetland habitats (Wetzel, 1983). In Central India majority of wetlands harbors a number of residential and migratory avifauna and acts as a suitable habitat for their breeding, nesting and roosting. Gandhi sagar lake in Nagpur, Central India is a freshwater lake which harbors a number of birds. The proposed work is to study the avifaunal diversity of Gandhisagar lake and its surrounding area.

### Methodology

Nagpur city [21°07'N & 79°07'E], the winter capital of the state of Maharashtra, located at geographical centre of India lies on the Deccan plateau of the Indian Peninsula and has a mean altitude of 310.5 meters above sea level .Nagpur city is endowed with various natural and man-made lakes and these water bodies are wonderful and natural habitats for resident and migratory birds. Gandhi sagar lake [21°10'N & 79°05'E] is

a man-made lake located near Raman Science Center about one km east of Nagpur (Fig 1 & 2). It is said to exist for more than 275 years. The lake was established as a source of water supply by Chand Sultan, the then ruler of Nagpur. The picturesque rectangular shaped Gandhi Sagar reservoir is now enclosed with stonewalls and iron railings. One can also find a small island in the middle of the lake with an attractive Shiva temple and a garden.

Lake was surveyed on a weekly basis by field observations during January 2010 to September 2010. The birds were observed from a safe distance by using a field binocular (10X50, Olympus made). Identification and status of the birds was based on the field guides given by Salim Ali and Ripley (1995), Salim Ali (1996 and 2002) and Grimith and Inskipp (1999). Close observations of feeding habits of the birds were carried out and accordingly were categorized as carnivorous, omnivorous, piscivorous, insectivorous and frugivorous. A checklist of birds was prepared as actually observed by the author and reported by other birdwatchers in their field trips on the website [www.nagpurbirds.org](http://www.nagpurbirds.org). Unrecognized species were not taken into consideration.

## **Result and Discussion**

The study reveals the presence of 34 species of birds in and around the Gandhisagar lake. All species were recorded as resident and common. (Table 1: Fig. 3). Similar trend was observed in the Koradi lake of Nagpur

(Chinchakhede & Kedar, 2012) while Ambazari lake represented 70 residential species in and around the lake (Kedar 2012).

Resident birds were observed throughout the study period. During the study period, the avifaunal diversity was more in the months of winter. This probably was due to higher movement of birds in this area in winter season. According to Kershaw and Cranswick (2003), water birds tend to be highly mobile in winter, moving to other areas in response to factors such as cold weather and changes in water levels and in food resources. The minimum diversity was recorded in the months of monsoon due to heavy rain, increased flow of water, non-availability of food and return of migratory birds. Similar observations were also made by Bhat et al., (2009) in Anekere wetland of Karnataka, India. During the study, birds such as Common Crow and House Sparrow were recorded in huge numbers as garbage and eatables from worshippers of nearby temples were left and thrown around the lake. Throughout the study period, 09 species were recorded as carnivorous, 13 species as omnivorous, 04 species piscivorous, 06 as insectivorous and 02 species as frugivorous.

**Table 1: Avifaunal Diversity of Gandhi sagar Lake , Nagpur .**

**Feeding Habits** - Ca= Carnivorous ; O=Omnivorous ; P=Piscivorous ;I= Insectivorous ; F=Frugivorous;

**Distribution Status** - C=Common **Residential Status** - C=Common

Sr No.	Common Name	Scientific Name	R. S.	F. H.	Dis.
1	Asian Pied Starling	<i>Strunus contra</i>	R	O	C
2	Bank Myna	<i>Acridotheres ginginianus</i>	R	O	C
3	Bay Back Shrike	<i>Lanius vittatus</i>	R	Ca	C
4	Black –Cr. Night Herron	<i>Nycticorax nycticorax</i>	R	Ca	C
5	Black Drongo	<i>Dicrurus macrocercus</i>	R	I	C
6	Black Kite	<i>Milveus migrans</i>	R	Ca	C
7	Black Shouldered Kite	<i>Elanus caeruleus</i>	R	Ca	C
8	Blue Rock Pigeon	<i>Columba libia</i>	R	O	C
9	Brahminy Starling	<i>Stumas pogodarum</i>	R	O	C
10	Plum headed parakeet	<i>Psittacula cyanocephala</i>	R	F.	C
11	Cattle Egret	<i>Bubulcus ibis</i>	R	Ca	C
12	Common Babbler	<i>Turdoidas caudatus</i>	R	O	C
13	Common Myna	<i>Acridotheres tristis</i>	R	O	C
14	Common Tailor bird	<i>Orthotomus sutorius</i>	R	O	C
15	Euresian Golden Oriole	<i>Oriolus oriolus</i>	R	O	C
16	Greater Coucal	<i>Centropus sinensis</i>	R	Ca	C
17	House Swallow	<i>Hirundo rustica</i>	R	O	C
18	House Crow	<i>Corvus splendens</i>	R	O	C
19	House Sparrow	<i>Passer domesticus</i>	R	O	C
20	Indian Robin	<i>Saxicolaoides fulicata</i>	R	I	C
21	Indian Roller	<i>Coracias benghalensis</i>	R	I	C
22	Little Cormorant	<i>Pholacocorax niger</i>	R	P	C
23	Little Egret	<i>Egretta garzetta</i>	R	Ca	C
24	Pied Kingfisher	<i>Ceryle rudis</i>	R	P	C
25	Pied Wagtail	<i>Motacilla maderaspatensis</i>	R	P	C
26	Pond Herron	<i>Ardeola grayii</i>	R	Ca	C
27	Purple Sunbird	<i>Netarinia asiatica</i>	R	O	C
28	Red Vented Bulbul	<i>Pycnonotus cafer</i>	R	O	C
29	Rose Ringed Parakeet	<i>Psittacula krameri</i>	R	F	C
30	Shikra	<i>Accipiter badius</i>	R	Ca	C
31	Small Blue Kingfisher	<i>Alcedo meninting</i>	R	P	C
32	Small Green Bee - Eater	<i>Meropis orientalis</i>	R	I	C
33	W. Br. Fantail Flycatcher	<i>Rhipidura aureola</i>	R	I	C
34	Wire tailed Swallow	<i>Hirundo smithi</i>	R	I	C

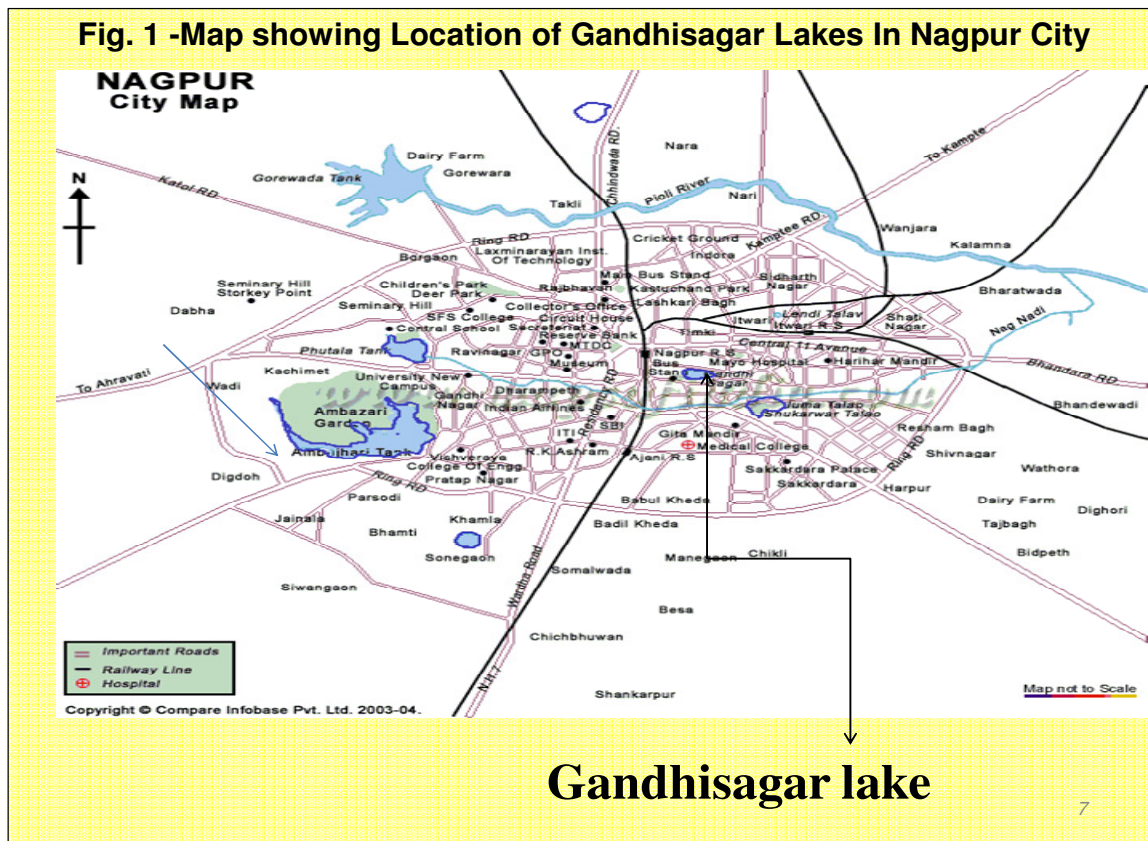






Fig.2 - Gandhisagar Lake ,Nagpur ,Mahatrashttra.





Fig. 3- Avifaunal Diversity of Gandhisagae kake

<p data-bbox="446 388 657 420">House Sparrow</p> 	<p data-bbox="1047 388 1274 420">Common Myna</p> 
<p data-bbox="414 871 690 903">Red Vented Bulbul</p> 	<p data-bbox="1031 871 1291 903">Common Babbler</p> 
<p data-bbox="381 1344 722 1375">Euresian Golden Oriole</p> 	<p data-bbox="1047 1344 1274 1375">Pied Kingfisher</p> 

Small Green Bee-eater



Indian Roller



Black Shouldered Kite



Black Kite



Black Drongo



Purple Sunbird



## Conclusion

Avifaunal diversity of Gandhisagar lake confirm the lake as a suitable habitat for residential and common birds in Nagpur city. The lake and its surrounding area provides a roosting ground to the residential birds, but developmental activities and human interference is a source of major threat to this lake. Since a part of the lake was claimed for the development of the Vegetable Market and other buildings, only one fourth of the original lake has become available to the present generation. The temples of Lord Ganesh and Zulelal situated around the

lake is visited by a large number of worshippers who unknowingly contaminate water of the lake by throwing the flowers, garlands and other materials like polythene bags and garbage in to the lake. Immersion of Ganesh & Durga idols during festival has spoilt the water resulting in destruction of habitat of birds. Hence regulation on these anthropogenic activities is needed. However available data is not sufficient to come up to any conclusion and needs the regular follow up which will be taken by author in future.

## References

- Butler, S. (2010).** *Macquarie Concise Dictionary* (5th ed.). Sydney Australia: Macquarie Dictionary Publishers Ltd ISBN 978-1-876429-85-0.
- Bhat, P.I., Cristopher, S.S. & Hosetti, B.B. (2009).** Avifaunal diversity of Anekere Wetland, Udupidistrict, Karnataka, India, *Journal of Environmental Biology*,30(6),1059-1062.
- Buckton, S. (2007).** Managing Wetlands for Sustainable Livelihoods at Koshi Tappu Danphe. 16(1/4).
- Chinchkhede, K. H . & Kedar, G.T. (2012).** Avifaunal diversity of Koradi Lake in Nagpur District of central India. *Journal of research in Biology* 1: 001-006.
- Grimmet, R., Carol, I. & Inskipp, T. (1999).** A pictorial guide to the birds of the Indian Subcontinent ,Oxford University Press,Mumbai.
- Kedar, G.T. (2012).** Ambazari Lake - A Potential Stopover Point Of Winter Migrants In Central India , *Indian Streams Research Journal* Vol. 6(6).
- Kershaw, M. & Cranswick, P. A. (2003).** Deriving Population Estimates for Wintering Wildfowl in Great Britain. *Ornis Hungarica*. 12-13:75-87.
- Ali, S. & Ripley, S.D. (1995).** A pictorial guide to the birds of Indian Subcontinent. Bombay Natural History Society, Mumbai
- Ali, S. (1996).** The book of Indian birds, Twelveth Revised Edition, Bombay Natural History Society Oxford University Press,Mumbai.
- Ali, S. (2002).** The book of Indian birds, Thirteenth Revised Edition, Bombay Natural History Society Oxford University Press,Mumbai.
- Wetzel, R.G. (1983).** Limnology, 2nd edn., Saunders College Publishing, Philadelphia, USA.