

“AQUATIC AVIFAUNA OF SHRI SHARANABASAVESHWARA LAKE, GULBARGA DISTRICT, KARNATAKA”

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ABSTRACT

Abundance of avifauna indicates the healthy status of lake. Observations were made on the occurrence, abundance, richness of avifauna in Shree Sharanabasaveshwara lake Gulbarga district in the Indian state Karnataka. Point transect technique method were used for the survey purpose. A total of 26 species of birds belonging to 08 orders and 13 families were recorded. The Species consisting 14 residents, 12 winter migrants were identified. Among the birds recorded in this study, 10 species were insectivorous, 3 omnivorous, 12 piscivorous, 1 carnivorous, and 2 grainivorous.

KEYWORDS: Avifauna, Shree Sharanabasaveshwara Lake, Gulbarga

INTRODUCTION

Birds are the most apparent and familiar wildlife in wetlands. Wetlands are vital feeding and nesting grounds for waders, feeding areas for fish-eating birds and wintering grounds for migratory birds. Birds are found throughout the world, at approximately all altitudes and in nearly every climate. Birds are often common denizens of the ecosystems and they have been considered as an indicator species of inhabited areas (Blair, 1999). Population of birds is a sensitive indicator of pollution in both terrestrial and aquatic ecosystem (Gaston, 1975; Hardy et al, 1987).

The various reservoirs, shallow ponds and numerous tanks support wetland biodiversity and add to the country's wetland wealth. It is estimated that freshwater wetlands alone support 10 percent of the known range of biodiversity in India (Deepa and Ramachandra 1999).

Wetlands are the most productive and biologically diverse in the world but very fragile ecosystems (Gibbs, 1993). Wetlands and waterbirds are inseparable elements and support a rich array of waterbird communities (Grimmett and Inskipp, 2007). The various lakes and wetlands in any city serve as a balancing reservoir for sustaining native flora and fauna (Grimmett and Inskipp, 2007; Surana et al, 2007). Now-a-days, avifaunal diversity has been decreasing due to the destruction of natural habitats and human disturbances.

Since no data pertaining to avifauna of this lake is available it was decided to prepare a checklist of birds along with their approximate population, challenges before them and study probable steps for conservation. The present work was done at SHRI SHARANABASAVESHWARA LAKE (APPAN KERE) Gulbarga city.

STUDY AREA

Gulbarga is township situated in the northern part of Karnataka state (76° -04" to 77° - 42" longitude and 16° - 12" to 17°-46" latitude) located 454 meters above msl. Sharanabasaveshwara Lake is situated in the heart of city.

The total area of the Sharanabasaveshwara Lake is 102 Acres (Figure 1, Figure 2). The main source of water to this lake is rainwater and sewage flowing in to this from North and North Western part of the City. The City is spread over an area of 65 km², Average annual rainfall observed is about 750 mm and the mean daily temperatures for the same period ranges from 19 °C in winter (November-December) to over 40°C in summer (March-June).

The tank is fully utilized by the Fisherman's Co-operative society. Shri Sharanbasaweshwara Lake exists from many decades. Since from early days this lake is used for cattle rearing, for bathing, for fishing, and also women used to wash their household cloths. After few decades, the municipal administration joined the sewage drains Ward A (Shahabazar area) of Gulbarga city into this lake. That's the point from which the lake got polluted & silted up. Incidences of fish kill happened 2 to 3 times.

Very recently the City administration has taken up steps to desilt the tank and added fresh water in it, apart from that they also constructed stone lining/pitching & fencing throughout the periphery of the lake. Now it is well protected from animals and anthropogenic hindrances. It is now being used for contractual recreational boating only.

MATERIALS AND METHODS

The study area was surveyed for recording of avifauna diversity by applying line transect method, (Sale and Berkmueller 1988), and point transect method (Verner 1985). The study was conducted from March 2014 to May 2014. The other most important aspect kept in consideration was to make the observations during the peak activity of birds. Since the peak activity in most birds lasts for 1 or 2 hours after sunrise or before sunset, so monitoring of transects was done either in early morning or late evening hours as used by Thakur [Thakur, M.L. 2008].

Bird sampling was made by walking at a slow pace (about 1-1.5 km hr⁻¹) along the bank of the lakes (as the aquatic birds are usually found around or in the lake) as followed (Gaston 1975) and (Bibby et al. 2000). However, wherever necessary point count of birds was also made within the visible radius by stopping briefly for 2-3 min as followed by other workers (Froneman et al, 2001; Kaul and Howman, 1992; Urfi et al, 2005). Identification, counting of the birds was made in the morning between 07:30 and 10:30 hr or in the afternoon between 15:00 and 18:00 hr, depending on the light conditions (Namgail et al, 2009).

Photography was done by making use of Sony DH-7 (8.1 mp with x15 optical zoom lenses) camera. For identification and field-diagnosis of birds, colored plates of (Ali and Ripley 1968-74), were used.

The following formula was used for determining percentage of occurrence of Families (Basavarajappa, 2006).

$$\text{Percentage Occurance} = \frac{\text{No. of species of each Family}}{\text{Total No. Different species seen}} \times 100$$

RESULTS AND DISCUSSIONS

Avifauna in Shri Sharanbasaweshwara Lake is good. The study reveals the occurrence of 26 species of birds belonging to 08 orders of 13- families (Table 2). (Table 1 a) details the relative percentage of total bird species belonging

to different families. Most of the families represented by one or two species (relative percentage of species 0-2, 9 families; 2-4, 1 families; 4-6, 2 families), while the maximum relative percentage is from Passeridae respectively). In the present study, 14 resident 12 winter migrants were recorded. Based on the food/foraging, from the present data it is apparent that the avifauna of these regions is dominated by insectivorous (10 species), followed by piscivorous, carnivorous, grainivorous, and omnivorous birds (12, 1, 2, and 3 species with respectively (figure 3). Most of the family contained 0-2 species. Maximum percent occurrence was found in the Families: Passeridae(19.23077), than Rallidae (11.538462), and Ciconiidae(3.84615), respectively (Table-1 b).

CONCLUSIONS

From the above results it could be conclude that the abundance of avifauna indicates the healthy status of lakes owing the availability of water, safe habitat and food sources for both adults and nestlings and essential nesting/roosting sites in and around the lakes are important for the occurrence and abundance of aquatic bird populations. As water depth, quality and tropic structure are the important habitat characteristics that influence the abundance and diversity of aquatic birds in lakes, the proper and regular maintenance of these lakes would further increase the aquatic bird populations. The results of this study will help to conserve water bird populations in Shri Sharanbasaweshwara Lake, Gulbarga, Karnataka, India.

Table 1a: Relative Percentage of Number of Species in Various Families of Birds in the Study Area

Relative Percentage of Species		
0-2	2-4	4-6
Podicipitidae	Rallidae	Ardeidae
Phalacrocoracidae	Charadriidae	Passeridae
Ciconidae		
Threskiornithidae		
Anatide		
Accipitridae		
Rostratulidae		
Laridae		
Dacelonidae		

Table 1b: Percentage of Species Occurrence in Avifauna Represented in Families

Sl.No.	Families	Percent Occurrence
1	Podicipedidae	3.84615
2	Phalacroccoracidae	3.84615
3	Ardeidae	19.23077
4	Ciconiidae	3.84615
5	Threskiomithidae	3.84615
6	Anatidae	3.84615
7	Accipitridae	3.84615
8	Rallidae	15.38462
9	Charadriidae	11.53846
10	Rostratulidae	3.84615
11	Laridae	3.84615
12	Dacelonidae	3.84615
13	Passeridae	19.23077

Table 2: List of Birds with Their Status and Food Habitat in the Study Area

Scientific Name	Common Name	S	F
Podicipedidae			
Tachybaptusruficoliis	Little Grebe	R	P
Phalacrocoracidae			
Phalacrocoraxniger	Little Cormorant	WM	P
Ardeidae			
Ardeapurpurea	Purple Heron	WM	P
Ardeacinerea	Grey Heron	WM	P
Nycticoraxnycticorax	Night Heron	R	P
Bubulcus ibis	Cattle Egret	WM	P
Egretaintermedia	Median or Small Egret	WM	P
Ciconiidae			
Ciconiaepiscopus	White-necked stork	WM	P
Threskiomithidae			
Threskiornisaethiopia	White Ibis	R	P
Anatidae			
Anaspoecilohyncha	Spotbill	WM	P
Accipitridae			
Milvusmigrans	Common Pariah Kite	R	C
Rallidae			
Amaurornisphoenicurus	Water Hen	R	I, G
Porphyrioporphyrus	Purple Moorhen	R	O
Gallinuliacachloropus	Common Moorhen	R	O
Fulicaatra	Coot	R	O
Charadriidae			
Himantopuslimantopus	Black-winged stilt	R	I
Vanellusindicus	Red-wattled lapwing	R	I
Vanellusmalabaricus	Yellow-wattled lapwing	R	I
Rostratulidae			
Rostratulabengalensis	Painted Snipe	R	G, I
Laridae			
Gelochelidonnilotica	Gullbilled tern	WM	P
Dacelonidae			
Halcyon smyrnensis	White-Breasted kingfisher	R	P
Passeridae			
Motacillaflava	Yellow Wagtail	WM	I
Motacillacitreola	Yellowheaded Wagtail	WM	I
Motacillacinerea	Grey Wagtail	WM	I
Motacilla alba	White Wagtail	WM	I
Motacillamaderaspatensis	Large Pied Wagtail	WM	I



Figure 1: Map of the Study Area



Figure 2: Shree Sharnabasveshwar Lake (Appan Kere)

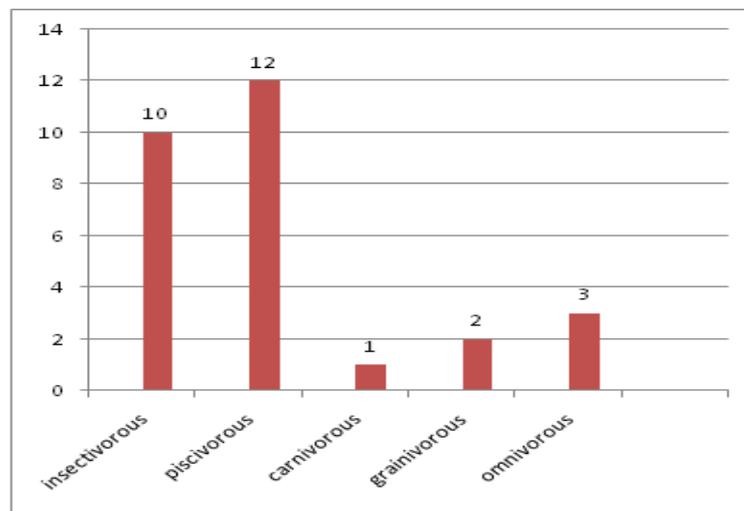


Figure 3: Distribution of Birds According to Their Feeding in the Study Area

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