

**Full Length Research Paper**

A Preliminary Survey of Aquatic Avifauna of Amarja Reservoir, Aland, Kalaburagi District, Karnataka, India

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Abstract

The study involves avifauna of Amarja reservoir, Aland taluk, Kalaburagi district. The study included evaluate of species composition, relative abundance and distribution of avifauna of the reservoir. Line and point transect technique method were used for the survey purpose. A total of 24 species of birds belonging to 8 orders and 11 families were recorded. The Species consisting 12 residents, 12 winter migrants were identified. Among the birds recorded in this study, 9 species were insectivorous, 3 omnivorous, 9 piscivorous, 1 carnivorous, and a grainivorous respectively.

Keywords: Avifauna, Amarja reservoir, Kalaburagi

Introduction

Birds have functional role in the ecosystem as potential pollinators, scavengers and rightly called as bio indicator (Kulkarni *et al*, 2006). Avian fauna occupies a special position in an aquatic ecosystem. They play an important role in controlling population of different insects and pests. The variety of avian species in ecosystems reflects the well being of its habitat (Balkhande *et al*. 2014). 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). Waterbirds are an important component of most of the wetland ecosystem as they occupy several trophic levels in the food web of wetland nutrient cycles. Activities of waterbirds are considered as indicator of quality of the wetland ecosystem and form the terminal links in many aquatic food chains, and as a result they reflect changes originating in several different ecosystem components (Custer and Osborne, 1977). 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 aquatic avifauna of this reservoir 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 Amarja Reservoir.

Study area

Amarja Dam is located in Aland town near the city of Kalaburagi in the Kalaburagi district of Karnataka. The Amarja Dam is built across the river Amarja that flows through the Krishna basin in the Southern part of India. The dam was constructed in the year 1998 (Figure-1). Amarja dam is located near Aland Taluka in Kalaburagi district. It is born at Duttargoan village, Aland Taluka and flow up to 50-60 kms and will merge into Bheema River at sangam Kshetra, Ghangapur Kalaburagi district, sangam kshetra is a meeting point of Bheema and Amarja Rivers. The dam 960 meter long and 31.85 meter high form the foundation. It covers a catchment area of 53.095 ha. The design flood of the dam is 2837 cumel. The dam has ogee type of spillway and 5 spillway gates. The maximum water level of the dam is 461.5 meters. This is a multipurpose dam the reservoir is used for irrigation of the surrounding areas for providing

water supply and for solving the problems of drinking water in the area. (Neelakanth S.Wali.2014). The dam is fully utilized by the Fisherman’s and village people used for cattle rearing, for bathing, for fishing, and also women used to wash their household cloths.

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 at monthly intervals from January 2014 to December 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).

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).

$$\text{Percentage occurrence} = \frac{\text{No of species of each family}}{\text{Total no. of different species seen}} \times 100$$

Results and Discussion

A total of 24 species of birds belonging to 8 orders and 11 families were recorded (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, 7 families; 2-4, 2 families; 4-6, 2 family), while the maximum relative percentage is from Passeridae and Ardeidae respectively. In the present study, 12 resident 12 winter migrants were recorded. Based on the food/foraging, from the present data it is apparent that the avifauna of these region is dominated by insectivorous (9 species), followed by piscivorous, carnivorous, grainivorous and omnivorous birds (9, 1, 1 and 3 species with respectively (figure 2). Most of the family contained 0-2 species. Maximum percent occurrence was found in the Families: Passeridae (20.833), than Rallidae (16.667), and Podicipitidae (4.167), respectively (Table-1 b).

Our study area has less human interference. It is well known that birds are friends of human as they destroy lot of harmful insects and mosquitoes from the environment (Jaman et al. 1999). The present work establishes the richness of the Amarja dam in respect of bird fauna which are excellent indicators of ecological health.

Table 1 a: 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		
Accipitridae		
Laridae		
Dacelonidae		

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

S.No.	Families	Percent Occurrence
1	Podicipitidae	4.167
2	Phalacrocoracidae	4.167
3	Ardeidae	20.833
4	Ciconiidae	4.167

5	Threskiornithidae	4.167
6	Accipitridae	4.167
7	Rallidae	16.667
8	Charadriidae	12.5
9	Laridae	4.167
10	Dacelonidae	4.167
11	Passeridae	20.833

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

Scientific Name	Common Name	S	F
Podicipedidae			
<i>Tachybaptus ruficollis</i>	Little Grebe	R	P
Phalacrocoracidae			
<i>Phalacrocorax niger</i>	Little Cormorant	WM	P
Ardeidae			
<i>Ardea purpurea</i>	Purple Heron	WM	P
<i>Ardea cinerea</i>	Grey Heron	WM	P
<i>Nycticorax nycticorax</i>	Night Heron	R	P
<i>Bubulcus ibis</i>	Cattle Egret	WM	P
<i>Egreta intermedia</i>	Median or Small Egret	WM	P
Ciconiidae			
<i>Ciconia episcopus</i>	White-necked stork	WM	P
Threskiornithidae			
<i>Threskiornis ethiopia</i>	White ibis	R	P
Accipitridae			
<i>Milvus migrans</i>	Common Pariah Kite	R	C
Rallidae			
<i>Amaurornis phoenicurus</i>	Water Hen	R	I, G
<i>Porphyrio porphyrio</i>	Purple Moorhen	R	O

<i>Gallinula chloropus</i>	Common Moorhen	R	O
<i>Fulica atra</i>	Coot	R	O
<i>Himantopus himantopus</i>	Black-winged stilt	R	I
<i>Vanellus indicus</i>	Red-wattled lapwing	R	I
<i>Vanellus malabaricus</i>	Yellow-wattled lapwing	R	I
Laridae			
<i>Stema hirundo</i>	Common Tern	WM	P
Dacelonidae			
<i>Halcyon smyrnensis</i>	White-Breasted kingfisher	R	P
Passeridae			
<i>Motacilla flava</i>	Yellow Wagtail	WM	I
<i>Motacilla citreola</i>	Yellowheaded Wagtail	WM	I
<i>Motacilla cinerea</i>	Grey Wagtail	WM	I
<i>Motacilla alba</i>	White Wagtail	WM	I
<i>Motacilla maderaspatensis</i>	Large Pied Wagtail	WM	I



Figure 1: Photograph of the Study Area

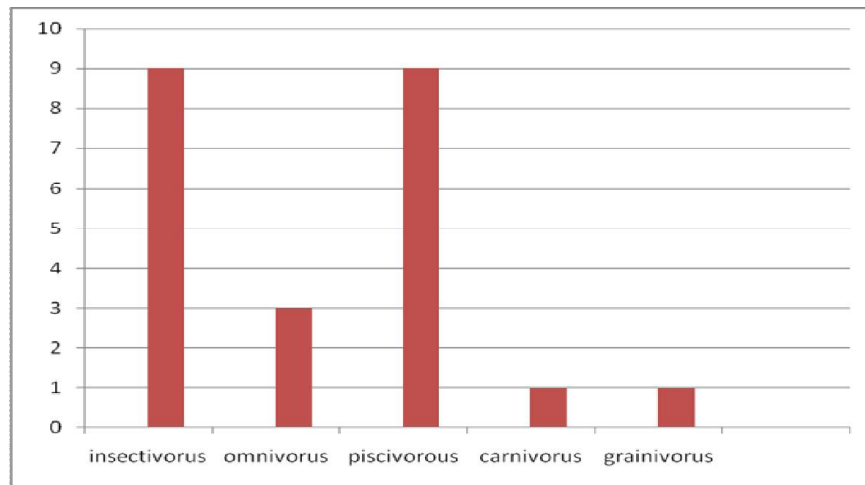


Figure 2: Distribution of Birds According to their Feeding in the Study Area

Conclusion

From the above results it could be conclude that the abundance of avifauna indicates the healthy status of dam owing the availability of water, safe habitat and food sources for both adults and nestlings and essential nesting/roosting sites in and around the dam are important for the occurrence and abundance of aquatic bird populations. Proper awareness class regarding the importance of birds and vital role in daily life to the local peoples through different massive programs will ultimately help the protection of birds of this region.

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