



Documentation of Aquatic Birds With Relation To Feeding Habits In A Lentic Freshwater Tank of Karnataka, India

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Abstract: Birds are the bio-indicator of aquatic ecosystem. They have played an unique role in the development and restoration of natural environment. Birds belong to the top level of food chain and their natural habitats have undergone change as a result of human activities. To conserve the birds in their natural places, there is a need to understand their feeding habits. The present study deals with the documentation of aquatic birds in Malenahalli tank of Bhadravathi taluk, Karnataka, India. During the investigation, 11 species of waterfowls belonging to 7 families were recorded in and around the water body. Out of 11 species, 5 species were categorized as piscivorous, 4 species carnivorous, and 1 species each of granivorous and omnivorous respectively. Out of 11 species, 10 species were recorded as common and one is considered as very common species. The intimate linkages between aquatic bird species and their habitats make them useful for identifying ecosystem health. As such, they will be indicators of deteriorating habitat quality and environmental pollution, also as metrics to work out the success of restoration efforts. Combined with their ability to signal the eminent outbreak of diseases, birds are incredibly useful as indicators to both the fields of ecology and to human health.

Keywords: Aquatic birds, Feeding behaviour, Lentic, Fresh water body, Bhadravathi taluk, Human health

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1. INTRODUCTION

Wetlands help human beings in an assortment of ways, for example, farming, angling, sewage transfer, development of consumable water plants, weed assembling, drinking and gulping by cows. Aside from the above mentioned, it offers a refuge to enormous number of avifauna species, particularly swimming and flying creatures. The vast majority of the wetlands are utilized by the flying creatures as a reproducing, bolstering and stopover destinations. Huge number or transitory just as the occupant flying creatures depend on the wetland for their endurance. Beforehand, explicit investigation of avifauna of various water assemblages of India was completed by Yardiet. *al*¹, Bhatnagar *et. al.*² and Balakrishnan³ separately. Birds have been constantly interested for their capacity to fly in the air and for their stunning colouration. They go about as possible pollinators and foragers and are called as pointers of the environment. The main risk affecting bird populations is the unobstructed environment loss and degradation of aquatic surrounding due to human activities where more than half of the wetlands, estuaries, mangroves and marsh lands across of girth of the Western Ghats has been destroyed. The density and diversity of aquatic birds are influenced by rainfall, temperature humidity and cloudiness^{12,13}. Environmental changes causes changing number of breeding and wintering of aquatic and semiaquatic bird's populations. Bird's populations are a sensitive indicator of pollution in terrestrial as well as in aquatic ecosystem^{14,15}. The present study was done with the following objectives such as: (a) To know the status, species plenitude, creation and regularity of waterfowls. (b) To top off the lacuna in the information on the waterfowl circulation and status in Malenahalli wetland biological system. (c) To survey the avifaunal status based on accessibility of nourishment and food and feeding habits. An annotated checklist of Malenahalli tank waterfowl was prepared from the data collected. This baseline information will be of help to anyone who is interested in planning monitoring or undertaking water bird management in future.

2. MATERIALS AND METHODS

2.1 Study Area

Malenahalli tank of Bhadravathi taluk, Karnataka, India is a freshwater body situated at 75°38' longitude and 13°42' N latitude. The wetland periphery is covered with bushes, shrubs, and trees, which provide a suitable habitat for many birds. The water body is surrounded by agro-pastoral and scrub type of habitat and this wetland contains a rich treasure of flora and fauna. The dominant flora represents, *Hydrilla verticillata*, *Nymphaea species*, *Typha species*, *Cyperus iria*, *Azolla pinnata*, *Trapa bispinosa*, *Jussiaea repens*, *Polygonum glabrum*, *Ipomea aquatica*, *Ceratophyllum demersum* and surrounding marginal flora contain bushes and trees. Fauna of this water body is dominated by a rich variety of aquatic insects, worms, beetles, amphibians and fishes.

2.2 Methodology

Malenahalli wetland and their surrounding area was visited and surveyed on a fortnightly basis during the study period January-December 2011. Observations were carried out by using a field binocular (7X35 made) and identification of

species was done with the help of field guides⁴⁻⁶. In order to get the idea of food items present in and around waterbody, close observations on feeding habits of birds were carried out and accordingly categories as omnivorous, carnivorous, piscivorous, frugivorous and granivorous feeder. Based on the frequency of encounter they were classified as common and very common in their occurrence.

3. RESULTS AND DISCUSSION

During the study period, 11 species of waterfowls belonging to 7 families were recorded in and around Malenahalli wetland of Karnataka. Out of 11 species 5 species were categorized as piscivorous, 4 species carnivorous, and 1 species each of granivorous and omnivorous respectively. Out of the 11 species, 10 species were recorded as common and one is considered as very common species. A checklist of waterfowl along with their feeding habits and occurrence status has been illustrated in Table 1 and Figure 3. Figure 1 depicts the occurrence of water birds in each family. The family Ardeidae and Alcedinidae consists of 3 species and the rest of the families consists of single species each respectively. Figure 2 shows the percentage occurrence of water birds in relation to feeding habits in Malenahalli tank. Piscivorous are dominant with 45.46% followed by carnivorous with 36.36%. Granivorous and omnivorous water birds constituted 9.09% each respectively. Species like egrets, crow and pond herons were observed to feed upon aquatic insects, molluscs, crustaceans, frogs, tadpoles and fishes, were categorized as carnivorous. Piscivorous birds observed were Kingfisher and Cormorants. Granivorous bird-like Sparrow was feed upon seeds, crop grains, and weed seeds. Omnivorous bird-like Koel feeding upon insects, worms, molluscs, grains, fruits and shoots of aquatic plants were also observed. Dhindsa and Toor⁷, Patel *et.al.*⁸, SalimJaved⁹, Sivaperuman and Jayson¹⁰ and Rathore and Sharma¹¹ also recorded feeding habit dependent categorization of bird species in their area of study. Increased number of water birds population in urban areas could also pose several threats to both human and animals. The bodily discharges of infected birds like deposition of faecal matters and secretions from nose, mouth and eyes can transmit pathogens and viruses that are lethal to organisms that are available contact with them¹⁷. Common examples are avian influenza which affect human and Newcastle Disease Virus which infect other birds¹⁸. Migrating birds are known to circulate highly pathogenic avian influenza H5N1 since 1996, starting at eastern Asia and later spreads to other parts of the planet¹⁹. Migratory water birds with the disease tend to spread throughout its range and it could then be picked by other aquatic birds that further transmit the disease elsewhere. Monitoring this bird's migration has become vital to attenuate the danger and to try to to this accurately, we'd like to know the biology and ecology of the birds involved²⁰. Malenahalli tank is provided with nutrient rich flora and fauna which attract the birds for food resulting into avifaunal diversity, but increasing anthropogenic activities (poaching, stealing of eggs, tree cuffing) and encroachment of water body may be the main cause for the depletion in the bird population and permanent disappearance of some species from this wetland. Such bio diversified spots should be conserved well in order to check the decline of bird population in the future²¹.

Table I. A checklist of waterfowl of the Malenahalli tank, Karnataka					
Sl. No.	Common Name	Scientific Name	Status	F.H.	Abundance (2007)
1	Cormorants Little cormorants	Phalacrocoracidae <i>Phalacrocoraxniger</i>	RM	P	Common
2	Egrets and Herons Little egret Indian Pond Heron Purple Heron	Ardeidae <i>Egretta garzetta</i> (Linnaeus) <i>Ardeola grayii</i> (Sykes) <i>Ardea purpurea</i> (Linnaeus)	R R R	Ca Ca Ca	Common Common Common
3	Coots Common Coot	Rallidae <i>Fulica atra</i> (Linnaeus)	WM	P	Very Common
4	King fishers a.White throated Kingfisher b.Small Blue Kingfisher c.Lesser pied kingfisher	Alcedinidae <i>Halcyon smyrnensis</i> <i>Alcedo at this sp.</i> <i>Cerylerudis sp.</i>	R R R	P P P	Common Common Common
5	Sparrows House Sparrow	Passeridae <i>Passer domesticus</i>	R	G	Common
6	Crows Common Crow	Corvidae <i>Corvus splendens</i>	R	Ca	Common
7	Koel Indian Koel	Cuculidae <i>Eudynamis scolopaceus</i>	RC	O	Common

RM- Resident migratory
RC –Resident Common
G-Granivorous

R- Resident
F.H.-Feeding habit
Ca-Carnivorous

WM-Winter migratory
P-Piscivorous
O-Omnivorous

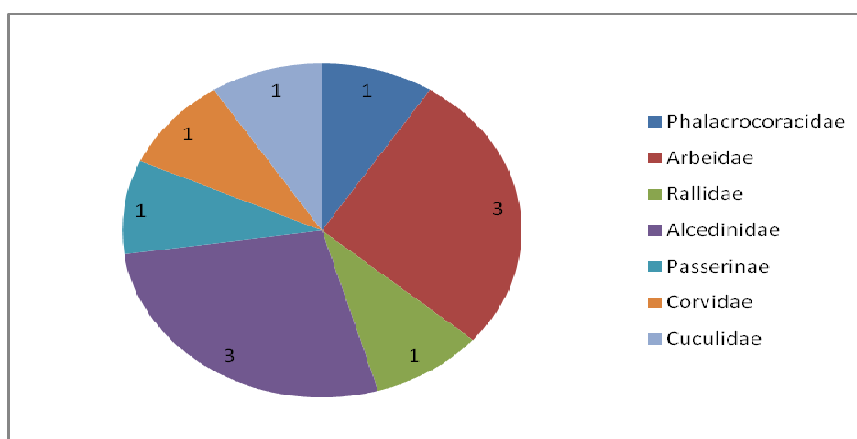


Fig 1. Number of Waterfowls in each family.

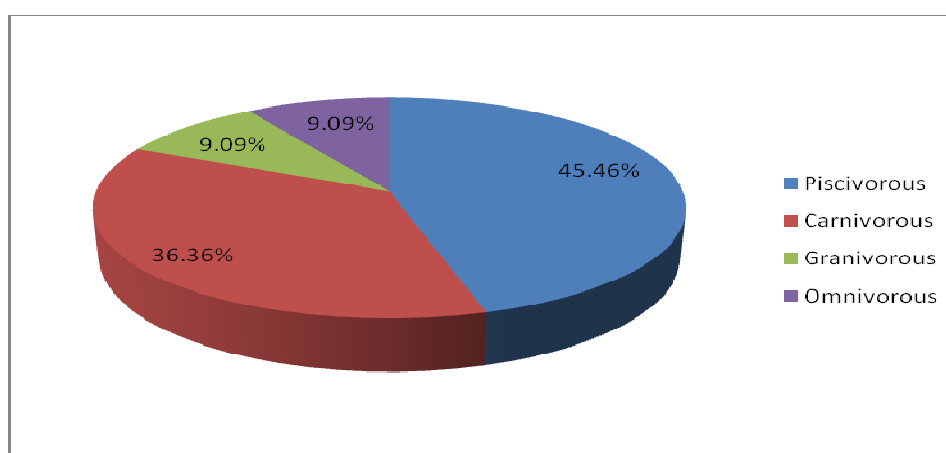


Fig 2. Percentage occurrence of waterbirds in relation to feeding habits in Malenahalli tank

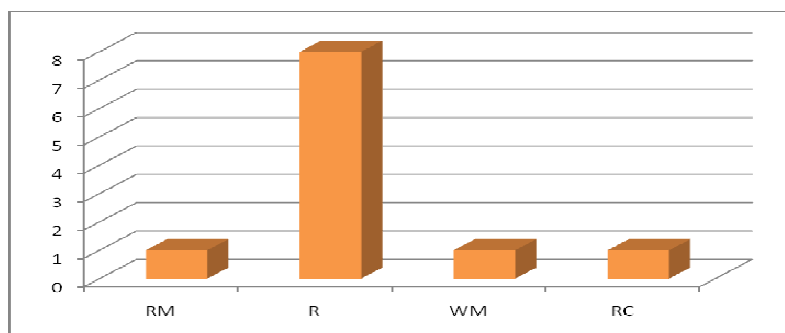


Fig 3. Status of aquatic birds in Malenahalli tank

4. CONCLUSION

The conservation of wetlands is vital for the survival of aquatic birds because they supply the birds with specialized microhabitats and different sorts of food sources. Loss of wetlands and introduction of latest age chemicals in agriculture is threatening the life network due to large scale habitat destruction. Bird protection practices like presentation or reduction in habitat loss, habitat deterioration and habitat fragmentation got to specialise in the small details like shielding bird nests, protecting migratory neighborhoods and providing an eco-friendly environment so as to raise and appreciate the massive spectrum of life. Since birds has a great impact to the health of the humanity, it is in our responsibility to guard and nurture a number of these extraordinary life forms.

5. AUTHORS CONTRIBUTION STATEMENT

Dr. K.Harish Kumar conceptualized and collected the data

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with regard to this work. Dr.B.R.Kiran analyzed the data and necessary inputs were given towards the designing of the manuscript. Both the authors discussed the methodology and results and contributed to the final manuscript.

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7. CONFLICT OF INTEREST

Conflict of interest declared none.

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