



# Diversity of Aquatic Birds at Surrounding Wetlands of Ekana Stadium, Lucknow, Uttar Pradesh, India

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## ABSTRACT

Birds that dwell on or near water, whether they are freshwater or marine, are referred to as water birds or aquatic birds. Wetlands are a good habitat for many water birds because they provide a modest amount of food due to the enrichment of organic components that contribute to the growth of aquatic weeds, phytoplankton, and zooplankton. This study presents diversity of water birds at Ekana wetlands for a period of four months from January 2023 to April 2023. A total of 17 species from 6 orders and 8 different families were observed throughout the study period. Anatidae family had the highest species density (7 and 41%), followed by Rallidae (2 and 11.7%), Ciconiidae (2 and 11.7%), Alcediinidae (2 and 11.7%), Jacanidae, Charadriidae, and Scolopacidae, which had the lowest species density (1 and 5.8%). The order Anseriformes, which contains 41% of all species, has the highest species abundance, followed by Charadriiformes (3 and 17.6%), Gruiformes, Ciconiiformes and Coraciiformes (2 and 11.7%), and Pelecaniformes (1 and 5.8%). The present study of wetlands helps to maintain a record of water birds to restore and maintain the present condition of wetland. The attempt of study is to provide the information about biodiversity of water birds to recognize these sites as globally important habitat for the conservation of water bird population because baseline information is a condition for planning and monitoring management actions for water birds and their habitats.

**Keywords: Waterbirds, Diversity, Ekana Wetlands, Freshwater or marine, baseline information**

## INTRODUCTION

Birds that live on or near water whether freshwater or marine are referred to as water birds or aquatic birds. However, depending on their location, many aquatic birds have greater terrestrial adaptations than others. Wetlands are a favourable environment for the availability of food to various waterbirds in a moderate amount due to the enrichment of organic elements responsible for the growth of aquatic weeds, phytoplankton, and zooplankton. As a natural indicator for vertebrates and invertebrates as well as a crucial part of the wetland ecosystem; waterbirds are well known for their provisioning functions. Around 310 of the 1340 bird species found in India (R. Manakadan and A. Pittie, 2001) and the approximately 9000 species of birds in the world are known to be dependent on wetlands (A. Kumar, J.P. Sati, P.C. Tak, and J.R.B. Alfred,

2005). Over a hundred bird species are either endemic or threatened, and the number of birds has been steadily declining over the past few decades (U.N. Shukla and A.A. Lone, 2010). All ducks, seabirds, and waders are considered to be waterbirds, which are described as "species of bird that are ecologically dependent on wetlands" (Ramsar convention, 1994, art. 1.2). Depending on their environment, different water birds' adaptations will vary. For example, wading birds are more terrestrial whereas waterfowl are more aquatic. Webbed feet, beaks, and legs, as well as the capacity to dive from the surface or the air to capture aquatic prey, are a few examples of these adaptations. Although they pursue aquatic prey and spend most of their lives on land, some piscivorous birds of prey, including ospreys and sea eagles, are not classified water birds since they rarely stay in the water for long periods of time. Any bird that resides in or relies on water bodies or wetland areas is referred to as a "waterbird" in the context of conservation. For the purposes of implementing the Convention, the Ramsar Convention defines "waterfowl" as a term for bird species that are "ecologically dependent upon wetlands" and "waterbird" as a term that is equivalent with "waterfowl." The type and extent of their application of watery surroundings is a common way to classify waterbirds. True submarine waterbirds have morphological and physiological variations that better prepare them for life sustainability in water. Semi-aquatic birds are those that may not have particular adaptations that make them better divers or swimmers but may nevertheless rely on water and live nearby. These birds frequently rely on aquatic resources, such as fish and aquatic invertebrates, for sustenance. Based on their preferred habitat in an aquatic environment, aquatic birds can also be divided into several subcategories.

## STUDY AREA: EKANA WETLAND

While cities across the world are investing in development of city forests and installing giant air purifiers, Lucknow is lucky to have a lesser known wetland barely a few kilometres from Hazratganj. Located just behind the Atal Bihari Vajpayee International (Ekana) stadium in Gomti Nagar Extension, the place is inhabited by over 100 species of indigenous and migratory birds, including some listed in Schedule 1 of the Wildlife Protection Act, according to naturalists and bird enthusiasts.



Map 1 : Satellite Map showing Ekana Wetland, Lucknow

## MATERIALS AND METHODS

The field surveys on waterbirds diversity were carried out in the study area for a period of four months, from January to April 2023. Observations were done in the morning from 8 a.m. to 10 a.m. using open ended line transect method. Photographs taken with a **Canon EOS 100** camera. The birds were identified using standard field guide books (Ali and Ripley, 1995, Grimmett et al., 2011 and Salim Ali, 2002).

## RESULT AND DISCUSSION

The checklist of the species spotted in the study area as shown in (Table no.1). During the study period, a total of 17 species belonging to 6 orders and 8 different families were recorded in the study area. Among all the families of waterbirds, Anatidae was the richest family in the study area comprised (7 and 41%) followed by Rallidae (2 and 11.7%), Ciconiidae (2 and 11.7%), Alcediinidae (2 and 11.7%), Jacanidae, Charadriidae, Scolopacidae, Ardeidae were the lowest comprising (1 and 5.8%) species.

The maximum abundance of species was recorded from order Anseriformes comprising 41% of species followed by the order Charadriiformes (3 and 17.6%), Gruiformes, Ciconiiformes and Coraciiformes (2 and 11.7%), Pelecaniformes (1 and 5.8%). Feeding Habit of waterbirds showed that maximum species 29% were vegetarian, followed by piscivorous (4), Insectivorous (4) carnivorous (2), omnivorous (1) and insectivorous/vegetarian (1).

**Table 1. Checklists of Water birds recorded in the study area**

S.N.	Family	Order	Common name	Zoological Name	Feeding habit
1.	Ciconiidae	Ciconiiformes	Asian openbill stork	<i>Anastomus oscitans</i>	Piscivorous
2.			Painted stork	<i>Mycteria leucocephala</i>	Piscivorous
3.	Rallidae	Gruiformes	Purple moorhen	<i>Porphyrio porphyrio</i>	Insectivorous/Vegetarian
4.			White breasted waterhen	<i>Amaurornis phoenicurus</i>	Insectivorous
5.	Jacanidae	Charadriiformes	Bronzed- winged jacana	<i>Metopidius indicus</i>	Omnivorous
6.	Charadriidae		Red -wattled lapwing	<i>Vanellus indicus</i>	Insectivorous
7.	Scolopacidae		Sand piper	<i>Scolopacidae</i>	Carnivorous
8.	Anatidae	Anseriformes	Cotton pygmy goose	<i>Nettapus coromandelianus</i>	Vegetarian
9.			Whistling duck	<i>Dendrocygna javanica</i>	Insectivorous
10.			Indian spot - billed duck	<i>Anas poecilorhyncha</i>	Vegetarian
11.			Gadwall	<i>Mareca strepera</i>	Vegetarian
12.			Common pochard	<i>Aythya ferina</i>	Vegetarian
13.			Eurasian teal	<i>Anas crecca</i>	Insectivorous
14.			Northern pintail	<i>Anas acuta</i>	Vegetarian
15.	Alcedinidae	Coraciiformes	Pied kingfisher	<i>Ceryle rudis</i>	Piscivorous
16.			Common kingfisher	<i>Alcedo atthis</i>	Piscivorous
17.	Ardeidae	Pelecaniformes	Pond heron	<i>Aredola grayii</i>	Carnivorous

**Photographs of the Aquatic Birds recorded in the Ekana Wetland**



**Asian openbill Stork**



**Painted Stork**



**Purple Moorhen**



**White breasted waterhen**



**Bronzed winged Jacana**



**Red-wattled Lapwing**



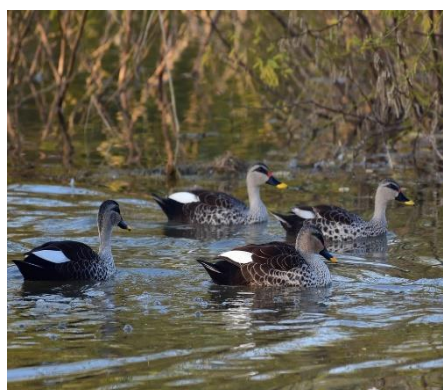
**Sand Piper**



**Cotton pygmy Goose**



**Whistling Ducks**



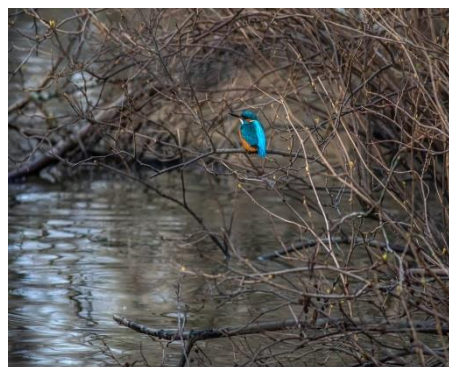
**Indian spot-billed duck**



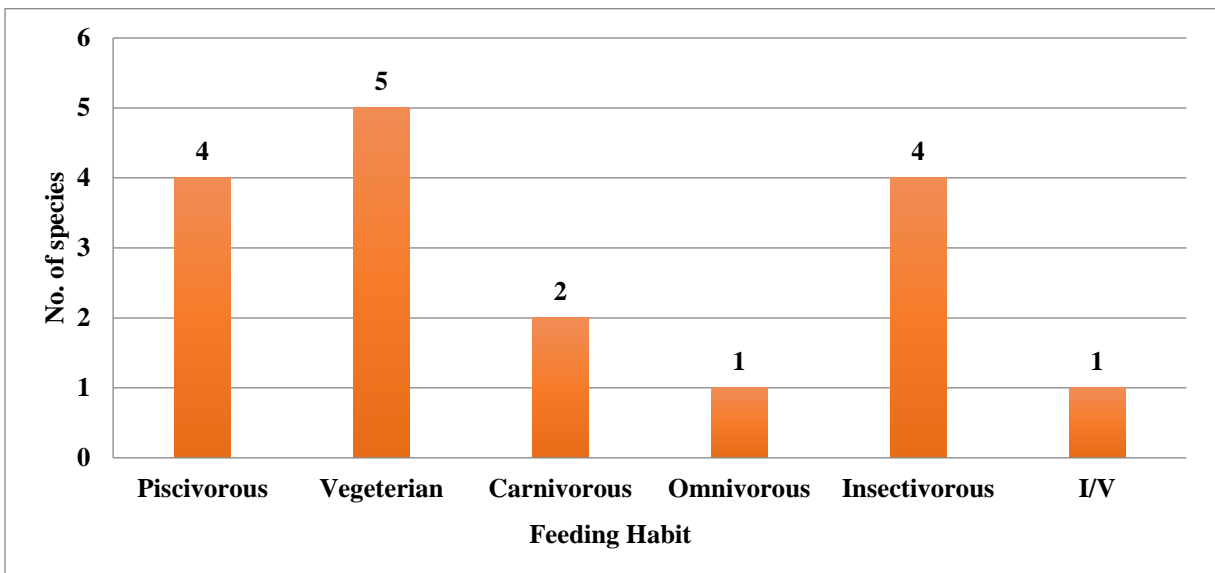
**Gadwall**



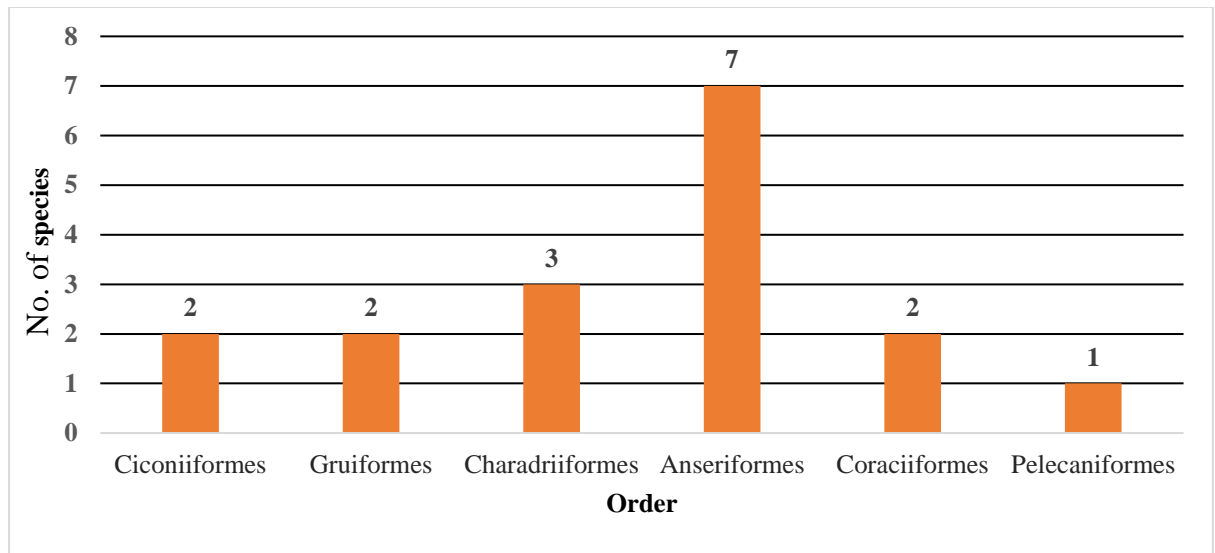
**Common Pochard**

**Eurasian Teal****Northern Pintail****Pied Kingfisher****Common Kingfisher****Pond Heron****Table 2. Birds of Ekana wetland according to their Feeding Habit**

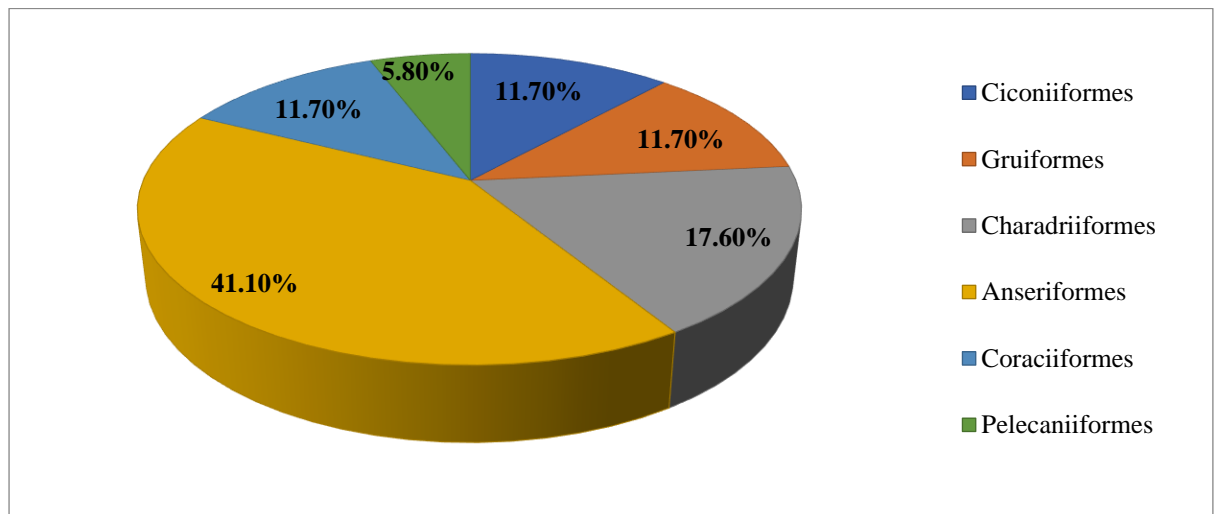
<b>S.N.</b>	<b>Feeding Habit</b>	<b>No. of species</b>	<b>% composition</b>
1.	<b>Piscivorous</b>	<b>4</b>	<b>23.5%</b>
2.	<b>Vegetarian</b>	<b>5</b>	<b>29.4%</b>
3.	<b>Carnivorous</b>	<b>2</b>	<b>11.7%</b>
4.	<b>Omnivorous</b>	<b>1</b>	<b>5.8%</b>
5.	<b>Insectivorous</b>	<b>4</b>	<b>23.5%</b>
6.	<b>Insectivorous/Vegetarian</b>	<b>1</b>	<b>5.8%</b>



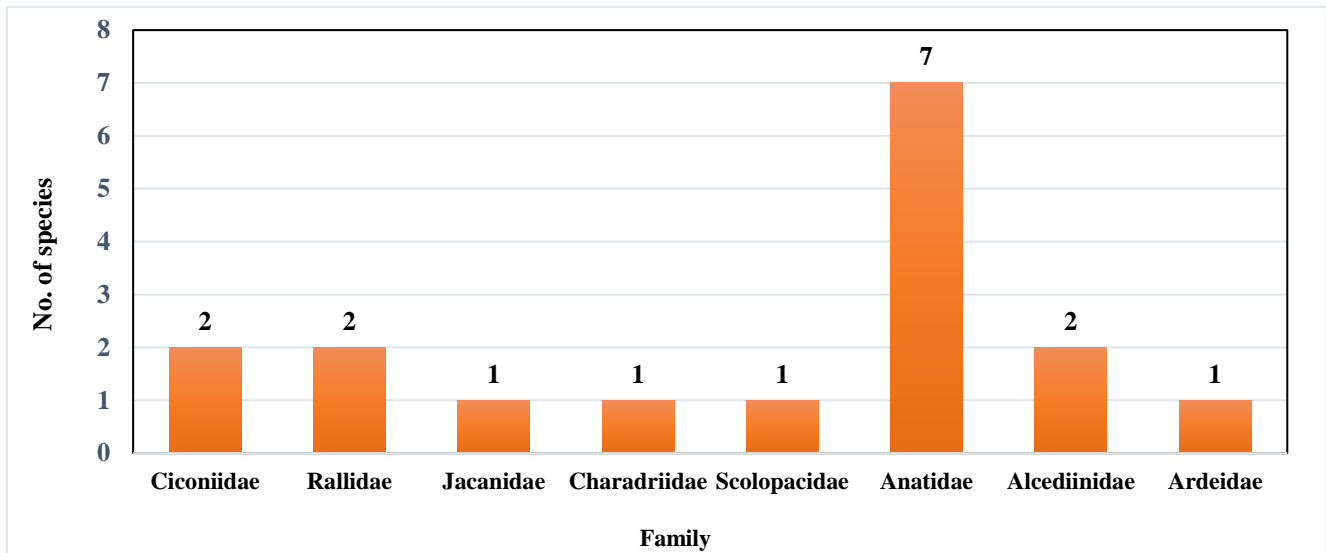
Graph 1. Birds of Ekana wetlands according to their Feeding Habit



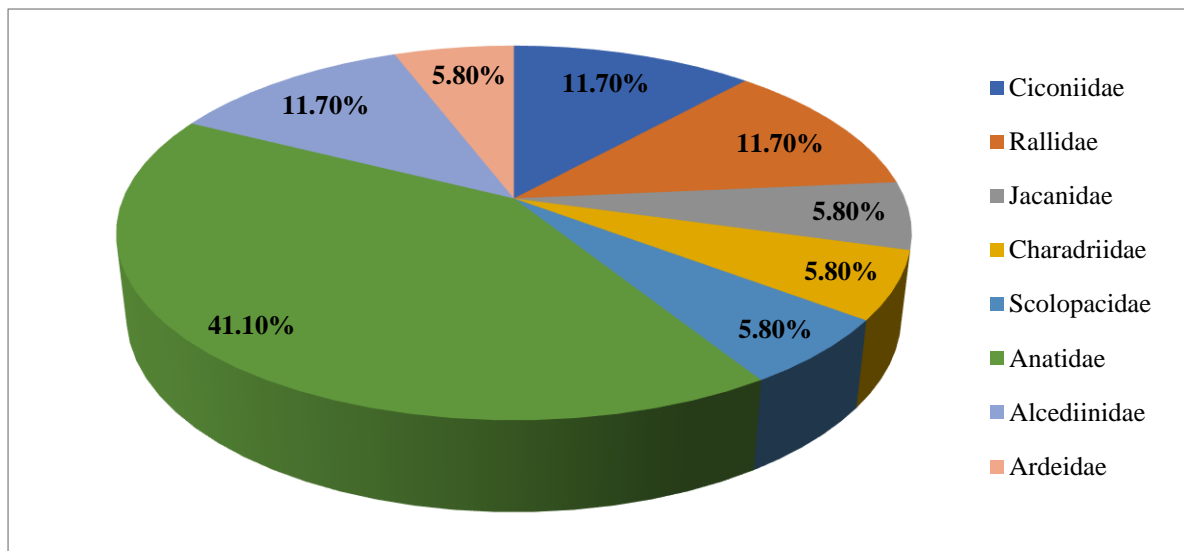
Graph 2. Order wise composition of birds in the study area



Graph 3. Pie chart depicting the maximum % composition of species according to order



Graph 4. Family wise composition of birds in the study area



Graph 5. Pie chart depicting the maximum % composition of species according to family

**CONCLUSION**

The study of waterbirds in and around Ekana Wetlands included a total of 17 species belonging to 6 orders and 8 different families, which were observed during 4 months from January to April 2023. This study provides the information about biodiversity of water birds to recognize these sites as globally important habitat for the conservation of water bird population because baseline information is a basic requirement for planning, monitoring and management actions for waterbirds and their habitats. Ekana Wetland in Lucknow has high probability to support a good number of waterbirds species.

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