



## AVIAN DIVERSITY (LOCAL AND MIGRATORY BIRDS) AND HABITAT USE OF NANDUR MADHYAMESHWAR BIRD SANCTUARY, NASHIK DISTRICT, MAHARASHTRA (INDIA)

**Sanket Mokal**

Assistant Professor, Department of Zoology, K. J. Somaiya College of Arts, Commerce and Science Kopergaon, Dist. Ahmednagar.

**Shantaram Bhoys\***

Assistant Professor, Department of Zoology at Shri Pundlik Maharaj Mahavidyalaya, Nandura Rly. Dist. Buldana. \*Corresponding Author

### ABSTRACT

This study is mainly based on observation of bird community in Nandur Madhyameshwar area. Nandur Madhyameshwar has a very good biodiversity as well as a wide variety of plants and animals. It is surrounded by large humid terrain and a variety of flowers and fruit trees, providing food, breeding and nesting support for avian animals. Birds have stable wings, beak, feathers and body temperature. The feathers below keep the birds warm. Contour wings help birds to fly and attract mates. Birds need a high energy diet to get energy for flight. Light bodies and strong muscles help birds to fly. The pushes the wings to hold the bird in the air. The birds hatch their eggs and keep them in nests. When the chicks come out, they are prehospital or altruistic. A total of 24 different bird species are observed including 14 residents migratory, 2 migratory and 8 residents. It turns out that the respective communities show significant diversity.

**KEYWORDS :** Nandur Madhyameshwar, Birds, Diversity, Wetland, Migratory.

### INTRODUCTION:

Nandur Madhyameshwar Wildlife Bird Sanctuary (NMWBS) is located in Niphad tehsil of Nashik district. NMWBS is about 40 Km. from Nashik District. The sanctuary does not exceed a total area of 19-20 km<sup>2</sup>. The Wildlife Bird Sanctuary was established in 1983 under the Wildlife Conservation Act 1972. The main objective behind the establishment of Nandur Madhyameshwar Wildlife Bird Sanctuary is protection and conservation of forest dwellers as well as migratory bird species. NMWBS also has a lake (wet land) which is an excellent habitat for various plants and animals. Wetland is transitional zone between terrestrial and aquatic ecosystems are defined as wetlands where the water table is usually at or near the surface or the land is covered by shallow water. ([https://rsis Ramsar.org/RISapp/files/4026954/documents/IN2410\\_mgt181223\\_1.pdf](https://rsis Ramsar.org/RISapp/files/4026954/documents/IN2410_mgt181223_1.pdf)).

Birds are a group of warm-blooded vertebrates with feathers, toothless jaws, stiff eggs, high metabolic rate, four-chambered heart, and a strong but light skeleton. Reptiles have many characteristics of birds. Like reptiles, birds are vertebrates. The legs and feet of birds are covered by thick scales covering the bodies of reptiles. Also, bird eggs contain amniotic sacs and shells, similar to the eggs of reptiles, Yonezawa, T, et. al., (2017). Birds also have many distinctive features. For example, the eggshells of birds are harder than those of reptiles. Birds have wings and feathers. They also have a rough beak instead of jaws with teeth. Also, birds can use heat from activity in their cells to keep their body temperature stable. While many species of birds are economically important as raw materials for food and production for human consumption, domesticated birds are important sources of eggs, meat and feathers. Species of songbirds, parrots and other birds are popular as pets. Guano (bird droppings) is harvested for use as fertilizer, (wikipedia.com).

The study of the arrangement of feathers (pterylosis) to determine the natural affinity of different birds that varies in different order, in families, and even in species. The feathers that cover the body of a bird fall into 3 categories: (1) Common outer feathers are known as contour feathers or feathers, whether they cover the whole body or are known as pinions or flight feathers or tail feathers which act as rudder and brakes. (2) Contour feathers can be compared to fluffy down feathers and flannel underclothes covered by wings, whether they are confined to nests or last a lifetime. (3) Philo-plums-like hairs that do not appear much until the other wing is removed. They

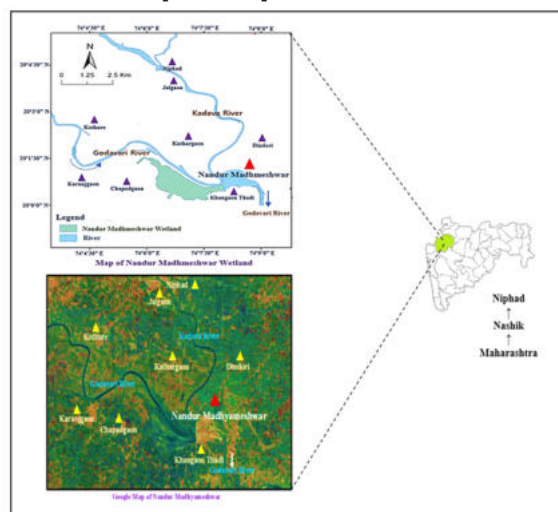
are especially noticeable, for example, in an uprooted pigeon, (The book of Indian bird - Dr. Salim Ali, 2012). Most birds can fly. Ancestors of flightless birds, such as ostriches, can also fly. Therefore, it is not surprising that birds have many adaptations for flight. The most obvious feature associated with flight is the wings. But birds also have lighter bodies, (Kovacs, et. al., 2000).

### MATERIAL & METHOD:

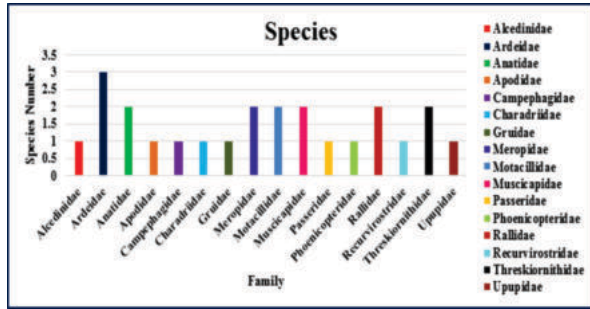
#### Study Area:

Nandur Madhyameshwar Wildlife Bird Sanctuary (NMWBS) is located at Khangaon Thadi Village, Niphad Tehsil of Nashik District in Maharashtra state lies between 20° 00'11. 82"N to 20° 01'35. 66"N and 74° 05'53. 08"E to 74° 07'56. 68"E and located around 40 km from Nashik. It is a famous bird sanctuary established by Dr. Salim Ali. The study site lies in and around backwater of Nandur-Madhyameshwar dam, situated on Godavari and Kadwa river.

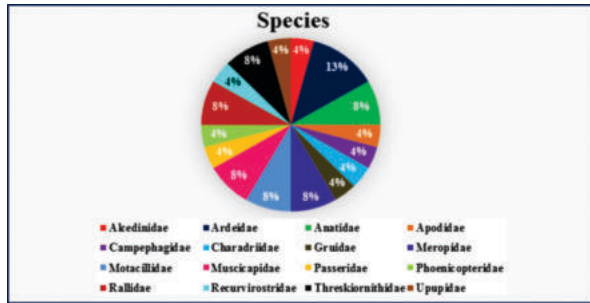
Birds identified using photographic capturing method and birds classified into different categories. The points selected for record the data were visited on foot. 02 to 03 hours were spent on each point. Using the NIKON P900 digital auto-zoom camera 2000 mm range, the avian variety was digitally recorded by photos and videos. The Olympus binocular was used to observe birds and their movements at a distance of 1.0 to 1.5 km. The observation hours were from 6.00 am to 11.00 am and from 3.00 pm to 6.00 pm.



**RESULTS:**



**Chart 1:** Species diversity in different families found in region of wildlife bird Sanctuary Nandur Madhymeshwar



**Chart 2:** Percentile Analysis Of Bird's Family Observed From Region Of Wildlife Bird Sanctuary Nandur Madhymeshwar

**Table 1:**

Sr. No.	Family	Common Name	Species	Migratory Status	IUCN Key
1.	Alcedinidae	Small Blue Kingfisher	Alcedo atthis	RM	A
2.	Ardeidae	Cattle egret	Bubulcus ibis	RM	Vc
		Purple Heron	Ardea purpurea	RM	C
		Grey Heron	Ardea cinerea	RM	O
3.	Anatidae	Spot-billed duck	Anas poecilorhyncha	RM	Uc
		Eurasian wigeon	Mareca penelope	M	Lc
4.	Apodidae	Asian palm-swift	Cypsiurus balasiensis	R	Lc
5.	Campephagidae	Scarlet minivet	Pericrocotus flammeus	R	Lc
6.	Charadriidae	Red wattled Lapwing	Vanellus indicus	R	Vc
7.	Gruidae	Demoiselle crane	Grus virgo	M	Lc
8.	Meropidae	Small bee-eater	Merops orientalis	R	Vc
		Blue-cheeked bee-eater	Merops persicus	RM	A
9.	Motacillidae	White wagtail	Motocila alba	RM	Uc
		Yellow wagtail	Motocila flava	RM	Uc
10.	Muscicapidae	Indian robin	Saxicoloides fulvicata	R	Vc
		Indian Blue Robin	Luscinia brunnea	RM	Lc

11.	Passeridae	Red-vented Bulbul	Pycnonotus cafer	R	A
12.	Phoenicopteridae	Greater flamingo	Phoenicopterus ruber	RM	Lc
13.	Rallidae	Common coot	Fulica atra	RM	Uc
		Purple moorhen	Porphyrio porphyrio	R	Vc
14.	Recurvirostridae	Black-winged stilt	Himantopus himantopus	RM	C
15.	Threskiornithidae	Black ibis	Pseudibis papillosa	R	Vc
		Glossy ibis	Plegadis falcinellus	RM	Lc
16.	Upupidae	Common Hoopoe	Upupa epops	RM	Vc

LC=Least Concern, NT=Near Threatened, R=Residential, O=Occasional, C=Common, Uc=Uncommon, Vc=Very common, RM=Residential migratory, M=Migratory, V=Visitors and A=Abundant.

**DISCUSSION:**

A variety of exotic birds come to this place and they create a heaven on land. Wetlands and natural grasslands are important habitats for bird populations around the world and Nandur Madhyameshwar Bird Sanctuary is no exception. As one of the few winter habitats for migratory bird species, it is extremely important and due to this reputation, it has earned the prestigious title of 'Bharatpur' in Maharashtra, (Dr. Salim Ali, 2011). We were informed that the majority of intercontinental migrant winter visitors would arrive late that year, (Chatterjee, et. al., 2015).

The avifaunal diversity of Kharbanda Lakes at Puri and Virani in Gonia district also observed some unusual species like Gadwall, Pochard, Black-headed ibis, Coot, Wagtail. (Puri and Virani, 2016). In Nal Sarovar the state of Gujarat, Chatterjee A. et. al. studied the diversity of early winter migratory and resident birds and observed 36 different birds from 20 different families and classified them with IUCN status with migratory and food habitat, (Chatterjee, et. al., 2015). Darekar P.V. observed various fish-eating birds near Ekrakh reservoir in Solapur and captured them in photographs. They identified 18 different fish-eating birds, (Darekar, et. al., 2016). A preliminary study was conducted on Birds in wildlife bird Sanctuary Nandur Madhyameshwar study 105 species of birds were recorded from 12 different count points, they were belonging to 14 orders and 40 families. 64 (60.9%) species were migratory of that 48 (45.7%) were Local Migratory and 16 (15.2%) were winter migratory have reached here from Northern Himalaya, China and parts of Europe. Resident species 41 (39.0%). 02 were breeding migrant. Of the recorded 105 species 04 were Near Threatened, 01 Critically Endangered (0.9%) and 01 belongs to Endangered category (0.9%) it was red crested Pochard and Critically Endangered (CR) White bellied Heron was recorded, (Shivaji Prabhakar Chavan, 2018).

In the present study, 24 species of birds from 16 different families have been recorded, Alcedinidae (4%), Ardeidae (13%), Anatidae (8%), Apodidae (4%), Campephagidae (4%), Charadriidae (4%), Gruidae (4%), Meropidae (8%), Motacillidae (8%), Muscipidae (8%), Passeridae (4%), Phoenicopteridae (4%), Rallidae (8%), Recurvirostridae (4%), Threskiornithidae (8%) and Upupidae (4%) are confirm in Nandur Madhyameshwar Wildlife Bird Sanctuary which is shown in (Table 1).

Three species belong to the family Ardeidae. These family birds are considered in all resident migratory (RM). The two

species belongs to Anatidae, Meropidae, Motacillidae, Muscicapidae, Rallidae and Threskiornithidae. Some birds of this family are considered as Migratory (M), Resident (R) and Resident Migrant (RM). One species belong to family Alcedinidae, Apodidae, Campephagidae, Charadriidae, Gruidae, Passeridae, Phoenicopteridae, Recurvirostridae and Upupidae. This study has shown that the Wildlife Bird Sanctuary Nandur Madhyameshwar region is rich in a variety of avifauna species. The family-wise distribution of the collected data is illustrated in the pie chart.

#### CONCLUSION:

During the six-month study at Wildlife Bird Sanctuary, Nandur Madhyameshwar, District Nashik were observed various species of local and migratory birds. Out of 24 different bird species, 14 species are resident migratory, 2 species are migratory and 8 species are resident.

A total of 16 bird families were observed during the study period. During the study period, the water level in the reservoir varied from season to season. No hunting of the reservoir was done with minimal human intervention and minimal pollution was observed at the study site. All of these parameters make the reservoir an ideal location for many species of birds. This natural beauty of the reservoir should be preserved and the area should be kept free from pollution and human hassle.

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