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Checklist of Migratory Birds West Site of Erai Dam, Chandrapur District (M.S.), India.

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ABSTRACT

The term "migration" refers to the seasonal tendency to relocate. Numerous avian species exhibit this behaviour along a flyway that connects their breeding grounds to their wintering grounds and vice versa all over the globe. This is because migratory birds are very sensitive to even minute shifts in water level, which may be influenced by factors such as flooding or drought on the areas where they nest and spend the winter. In addition to being an essential habitat for migratory and resident birds, wetland habitats are also crucial for the activities of foraging, roosting, and nesting. Wetlands are an important habitat for many sorts of water-dependent birds. While the wetland satisfies the need for water for the agricultural land that is located in the surrounding area, it also serves as a location for the production of food and as a breeding place for a variety of migratory bird species and local inhabitants. Between the months of October and late February, a significant number of birds make their annual migration in the United States.

The current study, which was conducted over the course of two years, uncovered a total of twenty-one species of migratory birds belonging to six orders and twelve families. Between October 2022 and January 2023, as well as between October 2023 and January 2024. The Anatidae family has the most number of species on the list, with seven, followed by the Motacillidae family, which had three species. With two species, the Threskiorthidae family, and the other nine families, each with one species. The current an alysis revealed that some species of birds were classified as Local Migrants (LM), while other species were classified as Summer Migrants (SM), and the other species were classified as Winter Migrants (WM).

Keywords: Avifauna, Erai dam, West Site, Migratory Birds.

1. INTRODUCTION

Birds are warm-blooded animals that lay eggs, and there are over 9000 kinds of birds that are still alive today around the globe. According to Grimmett, R. et al. (1999), the Indian subcontinent is home to over 1300 species from all over the globe, which accounts for approximately 13 percent of the world's bird population. Maharashtra is home to more than 540 species. According to Abdulali (1981), migration of birds is a natural phenomenon. When the conditions at breeding grounds become unfavourable, migratory birds will travel thousands of kilometers in order to locate the optimal ecological condition and habitat for foraging, nesting, and rearing young. There are a great number of migratory birds that visit the Indian subcontinent throughout the winter as well as during the summer. Local migratory birds, also known as resident migratory birds, are named after birds that migrate not over a great distance but rather to other states or regions. Additionally, the number of migrating birds that visit a specific region is a good indicator of the state of the ecology in that region. Salwe, A.A., and Jadhao, M.F. (2019) respectively. Migration of birds occurs at certain times of the year. Over the course of their migration, birds travel hundreds of thousands of km in search of the optimal biological conditions and habitats in which to eat, breed, and raise their young. The patterns of migration might vary greatly from one another. Most birds that migrate from northern breeding grounds to southern wintering grounds do so in the opposite direction. On the other hand, several birds breed in southern regions of Africa and then migrate to northern wintering grounds or horizontally in order to take advantage of the warmer coastal temperatures throughout the winter months. There are other birds that spend the winter months in the lowlands and then migrate up the mountain during the summer months. It is possible for migratory birds to fly quickly and across great distances because their shape and physiology are ideal for this purpose. Most of the time, their voyage is a taxing one, during which they push themselves to their absolute limits. It is not completely known how birds that are migrating figure out how to locate their flight path. It has been shown that they are able to orient themselves based on the sun during the day, the stars during the night, and the geometric field without regard to the time of day. It is also possible for some species to sense polarised light, which is something that many birds that migrate may utilise to navigate at night. (Joshi, P. 2020) The current research is not only being conducted to compile.

a list of the variety of migrating birds; it is also being conducted to discover the occurrence and unexpected records in order to raise awareness about the need of their collection and preservation. From October 2022 to January 2023 and October 2023 to January 2024, the present investigation was carried out to document the avifauna in and around the West site of Erai Dam, which is located in the Chandrapur district of Maharashtra state. During the course of the study, various species of birds belonging to a variety of orders and families were recorded. There were migratory birds, residential migratory birds, and residential migratory birds among the species that were reported. The Erai Dam is located 18 km away from the city of Chandrapur. Due to the availability of a large quantity of food and a number of different bodies of freshwater that are stagnant, dams are home to an enormous variety of avifaunal species. A number of different kinds of birds, both migratory and resident, have been discovered in the vicinity of the west side of the Erai dam (Savari and Chora). Birds as a result of the availability of food and the existing suitable environmental conditions for the purpose of reproducing up to this point. On rice fields, flocks of birds may be readily seen, and they are there to consume insects and crops in particular. During the winter season, the greatest number of species were seen, followed by the summer season and then the monsoon season in that order. In order to investigate the avian and variety of birds, as well as the seasonal quantity of birds and their migration patterns in and around the research region, the current study endeavour was initiated. When it comes to maintaining a tropical level, birds are an essential component of an ecosystem's animal community. In order to protect them, it is necessary to do in-depth research on the natural balance of avifauna and the variety of their species. When it comes to the formulation of conservation plans for the future, a detailed examination of the avifaunal variety in this area will be of great assistance

2. MATERIALS AND METHODS

Place of study

Located in Chandrapur, Maharashtra, the Erai Dam is a gravity dam and earthfill dam that was built on the Erai river. The Tadoba Andari Tiger Reserve is situated in close proximity to this location. Thirty meters is the height of the dam where the foundation is the lowest. Even if the height is 1620 meters. In terms of volume content and water storage capacity, the Erai Dam has a capacity of 226,500 cubic kilometres. Specifically, the volume content is 985 cubic kilometres. A popular destination for visitors to Tadoba Andhari Tiger Reserve, the dam is a stunning feature that serves as a tourist attraction. The Erai dam can be found in the Chandrapur district of Maharashtra. The latitude and longitudinal area of the dam are respectively 20.1677381 North and 79.3048096 East. Agricultural irrigation, the thermal power plant CSTPS, and Chandrapur City all make use of the water from the dam.

During the period of October 2022 to January 2023 and October 2023 to January 2024, the current study work on the avifaunal variety of the West site of Erai Dam was carried out on Erai Dam and the territories around it. The bird survey was conducted at the West location by visiting twice a day, six to ten in the morning and four to six in the evening. For the duration of the research, which lasted for two years, there were four visits of this kind. At each visit, a qualitative evaluation of the water level, the cover of aquatic vegetation, the state of wetland behaviour and habit, fishing, and agricultural activities that are carried out in the surrounding area is carried out. There was an analysis and tabulation of the information on the order, family, and species composition of the birds that were seen, as well as their residence status, foraging guild, and IUCN status. Birds were viewed and photographed using Nikon Coolpix P900 cameras and Nikon D7500 binoculars with lenses ranging from 18 to 140 millimetres. The observation was carried out with a filled binocular from Olympus that had a magnification of 10 x 50 magnifying. With the assistance of the standard literature developed by Woodcock (1980), Ali, S., and others, the identification of bird species was accomplished. Ripley, South Dakota, Inc. The year 1995, Grimmet, R. Pakshikosh (Maruti Chitampalli, 2002) and et al. (1999) are two examples of this.

3. OBSERVATIONS AND RESULTS

In the course of the current survey, which lasted from October 2022 to January 2023, a total of 21 species of migrating birds belonging to six orders and twelve families were documented from the West site of the Erai dam in Chandrapur. It is the order Passeriformes, which consists of five families. Charadriiformes, which consists of three families, Anseriformes, Cuculiformes, and Falconiformes, each consisting of one family, come next. Over the course of the current survey, which lasted from October 2023 to January 2024, a total of 19 migratory species belonging to five orders and eleven families were located at the west site of the Erai dam in Chandrapur.

4. DISCUSSION

A total 64 species of migratory birds belonging to 44 genera and 27 families spread in 9 orders (Accipitriformes, Anseriformes, Charadriiformes, Ciconiformes, Coraciiformes, Cuculiformes, Falconiformes, Passeriformes, Piciformes) have been documented from the research region. In the past,

Kumar, P., and Gupta, S.K. were found in Haryana. In 2009, a total of 54 species were documented from Kurukshetra. P.C. Tak, A. I.e. Singh, A., and al. (2010) reported a total of 31 species that were found in the Yamunanagar district. in addition to Laura, J.S. There were 34 species that were documented from Rohtak in Haryana in 2013. It was discovered that winter migratory birds begin arriving in October and remain in this area until the end of March, but summer visitors begin arriving in April and remain here until October. The third type is that of migrants who are in transit on their way to their final destination, for example. The Rosy Starling

There is one species of each of the following families: Cisticolidae, Estrilidae, Charadriidae, Scolopacidae, Threskiornithodae, and Anatidae. Among the eleven species of migratory birds, one species was found to be Red Listed, one species was found to be Near Threatened, and the other eight species were found to be in the Least Concern category. According to the findings of the current inquiry, four species of birds were identified as local migrants (LM), two species were identified as summer migrants (SM), and the other five species were identified as winter migrants (WM) Chavhan, A.S. alongside Pawar, P.B. In the year 2023, the Nandur Madhyameshwar Birds sanctuary is not an exception to the rule that wetland and natural grasslands are essential habitats for the world's bird population. Because it is one of the few winter homes for species of birds that migrate, it is of utmost significance, and because of this reputation, it is also very essential. The illustrious title of Bharatpur in the state of Maharas htra has been bestowed upon it. 2002 film by Salim Ali.

According to Chatterjee, A. et al. (2015), "We were informed that the majority of intercontinental migrate winter visitors would arrive in the late year." The avifaunal variety of Kharbanbda lake in the Gondia area also noted several unique species such as Gadawall, Pochard, Black-headed Ibis, coot, and wagtail. (Puri, S.D. and Virani, R.S. 2016) Chatterjee, A., was found in Nal sarovar, which is located in the state of Gujarat. In their study on the variety of early winter migratory and resident birds, et al. (2016) observed 36 distinct species of birds belonging to 20 different families. They then classed these birds according to their IUCN status, distinguishing between migratory and food habitats.

The Darekar, P.V (2016) when the photographer saw a variety of fish-eating birds in the vicinity of the Ekrukh reservoir in Solapur. In comparison to other migrating birds according to their habitat migration, there are 18 distinct species of fish-eating birds that can be found in Bhadakwadi lake in Indapur. Additionally, there are 26 species of water migratory birds. According to the species documented, migration has been recorded from Siberia, Iraq, Iran, Afghanistan, and the Arctic. The statistics for rainfall and temperature in the atmosphere revealed that they were filling up between the years 2011 and 2017. It was discovered that the painted stork nesting colony activity at Bhadalwadi lake was the largest one ever discovered. On the other hand, since there was a lack of rain fall in the area, the reservoir dried up, and there was no nesting or breeding behaviour. In the course of Gantaloo, United States, and Dongare, South-Boy. 2014 year. On account of the fact that there was no information available on the migration of birds from this area, the data obtained from the current survey may be used as baseline data for subsequent research. It is necessary for migratory birds to have optimal circumstances on their breeding and feeding sites, as well as along their migration routes. Climate change has the potential to disrupt conditions in all phases of migration.

There are seven species in the Antatidae family, three species in the Motacillidae family, two species in the Threskiornithidae family, and one species in each of the following families: Recurvirostridae, Scolopacidae, Muscicopidae, Oriolidae, and Sturnidae. The first table. In the course of this research, the following migratory birds were seen and recorded: the Red-crowned Pochard, the Common Pochard, the Bar-headed Goose, the Green-Winged Teal, the Rudy Shelduck, the Black-Winged Stilt, the Wood Sandpiper, the Little Ring Plover, the Blyth's Reed Warbler, the Bluethroat, and the Rosy Starling. The wanjari, A. From the Tipeshwar wildlife sanctuary in Maharashtra, et al. (2013) identified 158 different species of birds belonging to 46 different groups. According to their findings, 129 of these birds were resident, 12 were local migrants, and 17 were migrants. Twenty-four of the thirty-five species of migratory birds that Pawar and Salunkhe (2014) documented in and around Pandharpur city were winter visitors, while eleven of the birds were seasonal local migrants. These birds belonged to six orders and thirteen families together.

A detailed analysis of the species of migratory birds in the Western Ghats area was carried out, with a particular emphasis on the variations in arrival and departure periods that have occurred as a result of climate change fluctuations. Although the research offered insightful information on phenolic shift, it did not give a detailed analysis of the characteristics that were associated with the microclimate. S. Iyer, A. in addition to Pillai, R. Out of the total 35 species of birds that were seen throughout the research period, which consisted of eight visits during each season, thirteen species were observed for the longest duration of time, which is equivalent to more than fifty percent, while the other species were only seen seldom during the winter season. Relatively four of the thirty-five species are seen throughout the summer season, while the other species are observed relatively seldom, and twelve of the species are not observed during the summer

season. As a result of the availability of ample water (made water holes), food, decent shelter, and ideal climatic circumstances, particularly normal temperature, the winter season was seen to have a greater number of bird species than the summer season. There were fewer species of birds seen during the summer season due to the fact that there was less water available (due to the drying up of artificial water holes), less shelter (due to the drying up of trees and forest fires), and unfavorable climatic conditions, including high temperatures and pollution. As a result of a rise in the number of tourists and the number of cattle that are grazing (Puri, S. D. 2014). Considering that avifauna is responsible for maintaining the food chain, it is possible to argue that it is of critical importance in ecology. Because the population of birds is responsible for sustaining the environment, migratory birds serve as a driving force that brings about changes in the distribution of the population. According to this point of view, the study has found 21 different kinds of birds in the surrounding area of Nashik, which is located in the state of Maharashtra. There is a possibility that the majority of the birds that were discovered to be common or moderately frequent on the lists of avifauna may be investigated. According to what Sanjay said, G.V. as well as Sanjayrao, K.S. (2018) It is possible to make an accurate prediction of the state of the environment based on the variety of migrating birds.

Around the Bembla spillway and reservoir, as well as the land that surrounds it, a total of 102 species of birds belonging to five orders and twenty-one families were seen and documented. This is first birds survey record of Bembla dam in Yavatmal district of Maharashtra State which shows good migratory birds diversity on the medium water project included 89 Whispered Winter Visitor (W), 5 Passage Visitor (PV), 4 Breeding Migrant (BM) and 4 Resident Migrant (RM) these verities of migratory winter visitor birds visit every year to this dam might be due to wide area , migratory route (flyway), and presence of ample amount of food in the form of aquatics weeds, aquatic invertebrates and diversity of fishes in the water and surrounding agriculture and grassland. A total of eleven species of migrating birds belonging to four orders and nine families were documented during the current survey, which took place between August 2022 and January 2023, according to Joshi, P. (2020). Oriolus came in second place on the list, followed by the families Sturnidae and Motacillidae, which each had two species represented respectively.

There are more species that spend the winter in this region than there are that migrate here during the summer. There were a total of 64 migratory species that were documented from the area, and out of them, 57 species were winter visitors, while just seven species were summer visitors. The majority of the migratory species occurred during the winter months, with the exception of the Lesser Whistling Duck, the Indian Plaintive cuckoo, the Pied created cuckoo, and the Small pranticole. This study investigated the impact that severe weather events, which are amplified by climate change, had on the migration of birds in India. However, they emphasised that there is a dearth of preventative models that may forecast future repercussions, despite the fact that they discovered a link between severe occurrences and altered migratory patterns. In further research, predictive models must to be developed and used in order to better plan for the effects of these repercussions. L. Gupta, P. as well as Chaturvedi, N. The year 2022

We evaluated the function that protected areas play in providing assistance for migrating birds in the face of climate change. In spite of the fact that protected areas are very important, the assessment revealed that many of them are not strategically situated along migration pathways. Spatial analysis is required in order to identify and conserve important stopping places for migrating birds, which is a gap in the study that needs to be filled. R. Mehta, Jr. I.e. that is, (2022)

The effects of increasing temperatures on the reproductive success of migrating birds in India were investigated. Their analysis revealed that there is a large knowledge gap in terms of comprehending the connection between the variations in temperature and the behaviour of reproduction mechanisms. Specifically, they indicated that further experimental investigations are required in order to shed light on the mechanism by which temperature influences breeding (D. Srivastava and Rao, S. 2023).

A discussion was held about the influence that climate change has on the migration patterns of raptors in India. According to the findings of their research, changes in migration pathways are occurring as a result of increasing temperatures and changing seasonal wind patterns. Due to the fact that there was a paucity of data about the interaction between climate change and human causes like urbanization, it is recommended that future study take into consideration these combined impacts in order to give a full picture (Patel and Joshi, V. N. 2024)

An investigation of the influence that a changed monsoon pattern has on the migration of wetland birds in India was carried out. They came to the conclusion that the time and intensity of the monsoon had an influence on the availability of wetland resources and food supplies. On the other hand, their study brought to light a lack of information about how these changes affect the health of birds and their survival rate when they are migrating. Monitoring and evaluation of health over an extended period of time are indicated (Banerjee and Das 2024).

Table -1 Migratory Birds of West Site of Erai Dam, Chandrapur (October 2022 - January 2023)

Order	Family	Scientific Name	Common Name	IUCN Status	Status
Anseriformes	Anatidae	*Tadorna ferruginea*	Ruddy shelduck	LC	WM
		Aythya fuligula	Gadwall	LC	WM
		Netta rufina	Red crested pochard	LC	WM
		Aythya ferina	Common pochard	LC	WM
		Spatula querquedula	Garganey	LC	WM
		Anas carolinensis	Green winged teal	LC	WM
		Nettapus coromandelianus	Cotton pygmy goose	LC	WM
Charadriiformes	Recurvirostridae	*Himantopus himantopus*	Black-winged stilt	LC	WM
	Scolopacidae	*Tringa glareola*	Wood sandpiper	LC	WM
	Charadriidae	*Charadrius dubius*	Little ringed plover	LC	LM
Cuculiformes	Cuculidae	*Clamator jacobinus*	Pied cuckoo	LC	SM
Falconiformes	Falconidae	*Falcotinnuculus*	Common indian kastrel	LC	WM
Pelecaniformes	Threskiornithidae	*Pseudibis papillosa*	Red naped ibis	LC	LM
		Threskiornis melanocephalus	Black headed ibis	LC	LM
Passeriformes	Acrocephalidae	*Acrocephalus bistrigiceps*	Blyths reed warbler	LC	WM
	Muscicapidae	*Luscinia svecica*	Bluethroat	LC	WM
	Motacillidae	*Motacilla alba*	White wagtail	LC	WM
		M.flava	Yellow wagtail	LC	WM
		M.citreola	Citrine wagtail	LC	WM

	Oriolidae	*Oriolus oriolus*	Indian golden oriole	LC	SM
	Sturnidae	*Sturnus roseus*	Rosy starling	LC	WM

Order	Family	Scientific Name	Common Name	IUCN Status	Status
Anseriformes	Anatidae	*Aythya fuligula*	Gadwall	LC	WM
		Netta rufina	Red crested pochard	LC	WM
		Aythya ferina	Common pochard	LC	WM
		Spatula querquedula	Garganey	LC	WM
		Anas carolinensis	Green winged teal	LC	WM
		Nettapus coromandelianus	Cotton pygmy goose	LC	WM
Charadriiformes	Recurvirostridae	*Himantopus himantopus*	Black-winged stilt	LC	WM
	Scolopacidae	*Tringa glareola*	Wood sandpiper	LC	WM
	Charadriidae	*Charadrius dubius*	Little ringed plover	LC	LM
Cuculiformes	Cuculidae	*Clamator jacobinus*	Pied cuckoo	LC	SM
Pelecaniformes	Threskiornithidae	*Pseudibis papillosa*	Red naped ibis	LC	LM
		Threskiornis melanocephalus	Black headed ibis	LC	LM
Passeriformes	Acrocephalidae	*Acrocephalus bistrigiceps*	Blyths reed Warbler	LC	WM
	Muscicapidae	*Luscinia svecica*	Bluethroat	LC	WM
	Motacillidae	*Motacilla alba*	White wagtail	LC	WM
		M.flava	Yellow wagtail	LC	WM

		M.citreola	Citrine wagtail	LC	WM
	Oriolidae	*Oriolus oriolus*	Indian golden oriole	LC	SM
	Sturnidae	*Sturnus roseus*	Rosy starling	LC	WM

Table -2 Migratory Birds of West Site of Erai Dam, Chandrapur (October 2023 - January 2024)

WM: Winter Migratory, **SM:** Summer Migratory, **LM:** Local Migratory,
E: Endangered, **NT**: Not Threatened, **V:** Vulnerable, **LC:** Least Concern

Fig. 1. Satellite View of Erai Dam, Chandrapur Maharashtra, India

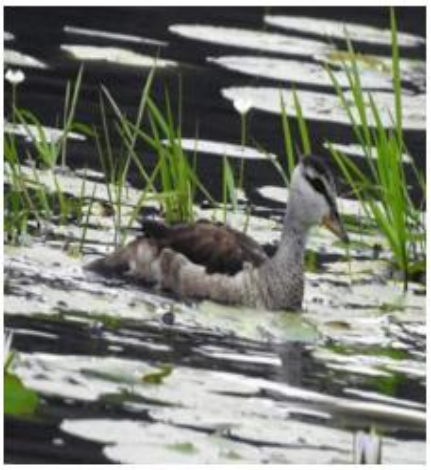
Fig. 2. A View of Erai Dam West Site at (Sawari and Chora)

Figure 3. List of migratory birds recorded in and around west site of Erai Dam, Chandrapur District.

Wood sandpiper (*Trianga glareola)*

Black headed ibis *(Threskiornis melanocephal)*

Common teal (*Anas crecca*)



Cotton pymy goose (*Nettapus coromandelianus*)

Gadwall (*Tadorna ferruginea)*

Ruddy shelduck (*Mareca strepera)*

Red-crested Pochard (*Pseudibis papillosa*) **Red-naped Ibis (*Netta rufina)***

5. CONCLUSION

The present survey higher diversity of bird was found in and around Erai dam. The highest diversity of bird due to more diversity of plants which give more choice for the food preference of the bird's species as well as nesting and breeding placed avifaunal diversity and their conservation created great awareness among the student community. Due to rapid growth and development in the urbanization, industrialization and many developed developmental sector, the threat to the local biodiversity is increase in the alarming rate. Human interference such as pollution, grazing activity, transportation and exploitation etc. Cause in the decrease forest wealth and area increase in temperature which again responsible to the loss of forest wealth. This will cause of conservation of forest into barren land there is a urgent need of biodiversity conservation of the degrading area. The presence of total birds species West area of Erai dam. Area indicates a healthy and thriving ecosystem. The study areas surrounded by forest and Tadoba Tiger Reserve Chandrapur. Provide sample resources for diver's range of bird species. The majority of the observed bird species belong to order Passeriformes and highlighting rich avifaunal diversity supported by the area. The abundance of a food and water resources facilitate by the adjacent forest contributes to the attractions of the habitat for the various resident bird as well as migratory bird in winter season. Additionally availability of suitable nesting sites further enhances the area suitability for Avifauna. Given significance of the forest habitat in supporting diverse avifauna, conservation efforts should prioritize the preservation and management of through meticulous study and analysis we aim to contribute the growing body of knowledge that informs conservation practice and enhances our appreciation for the intricate relationship between birds and environment. Avifaunal diversity of the Erai dam confirms the dam is a suitable habitat for residential as well as migratory birds. But the birds present in an around dam are affected by anthropogenic activities, disturbances, fishing practice and many pollution by Chandrapur Super Thermal Plant (CSTPS) in nearby area. Keeping in view the varied avifauna recorded steps should be taken to do proper maintenance and conservation of Erai dam Chandrapur District Maharashtra.

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