



## Avian diversity in the Rawanwadi Reservoir in District Bhandara, Maharashtra, India

**Shishir Homraj Makade** ✉

Department of Zoology, Center for Higher Learning and Research Institute, Sardar Patel Mahavidyalaya, Chandrapur (M.S.), India

**Pravin Madhukarrao Telkhade**

Department of Zoology, Dr. Khatri Mahavidyalaya, Chandrapur (M.S.), India

**Chandrashekhar Dongarwar**

P.G. Dept. of Zoology, Arts, Commerce and Science College, Tukum, Chandrapur

| ARTICLE INFO   | ABSTRACT   |
|--|--|
| <p>Received : 08 September 2023<br/>Revised : 15 October 2023<br/>Accepted : 06 November 2023</p> <p>Available online: 15 January 2024</p> <p><b>Key Words:</b><br/>Indicators<br/>Internal migratory<br/>Migratory<br/>Avifauna</p> | <p>The variation in bird variety over geography and time is a common indicator for assessing environmental changes. Traditionally, such data was gathered by experienced observers, but passively collect acoustic data is quickly developing as a viable alternative survey technique. Now-a-days, avifaunal diversity has been decline due to the demolition of natural habitation. The aim of the study to identify avifaunal diversity of Rawanwadi reservoir, Rawamwadi District Bhandara, investigation period was from month of November 2020 to October 2022, in and around of Rawanwadi Reservoir. In the present investigation, a total of 39 species of birds were spotted during the current inquiry near the Rawanwadi reservoir. Based on their habitat, such as Residential Common, Winter Visitor, and Uncommon, the birds were divided into different groups. The Avifaunal diversity have been categories in diverse group's position on their regular migratory habitat residential are as migratory winter traveler, internal migratory visitor, external migratory visitors and external emigratory visitors.</p> |

### Introduction

India is a mega-diverse nation that houses approximately 10% of the world's species and is one of the top ten countries in the world with the most diverse plants and animals. According to Singh and Kushwaha (2008), India has 10 biogeographic zones and 26 biotic provinces. There are 7% of the world's plant species and 6.5% of its animal species. Monitoring the status and trends of animal variety, as well as population levels of indicator species, is crucial for assessing ecosystem health, identifying conservation priorities, and guiding conservation decision making. Birds are popular monitoring targets since they can be found in practically any environment and occupy nearly every niche. These taxa are also noticeable in comparison to other taxa that may be vulnerable to comparable ecological conditions. Many species of birds in India have two or more unique geographical races or subspecies, and the diversity of the country's birds mirrors the

diversity of its ecosystems. The bird distribution in India is influenced by a number of natural factors, including climate, altitude, temperature, food supply, nesting and other significant geographic features. The human component, or the degree to which humans harm or preserve birds and their habitats, must now be added to these studies. This intricate interplay of natural and man-made variables affects bird composition and abundance differently, with each habitat supporting a distinct group of birds. Birds are not restricted to the nation's 'natural' environment. A wide variety of ecosystems that are impacted and controlled by humans are emerging in India. These are either highly altered natural landscapes, such as agricultural fields, caused by human activity, or newly constructed areas, such as buildings and bridges. The avifauna diversity is one of the most crucial ecological indicators for assessing the quality of habitats. Recently, avifaunal

Corresponding author E-mail: [shishirmakade1@gmail.com](mailto:shishirmakade1@gmail.com)

Doi: <https://doi.org/10.36953/ECJ.26722648>

This work is licensed under Attribution-Non Commercial 4.0 International (CC BY-NC 4.0)

© ASEA

diversity has been declining as a result of habitat degradation and human disturbances. The primary cause of the reduction in bird foraging habitats and nesting sites is the indiscriminate destruction of natural habitats by the consumption of nesting trees and forage plants for commercial use in forests and lands. As a result, many bird species might be compelled to live in urban areas and be forced to reproduce there. The diversity of birds in an ecosystem is crucial for maintaining a high trophic level. To safeguard these organisms, it is crucial to conduct in-depth research on avifauna and their ecosystems.

Birds are the most essential markers of well-balanced living systems and are vital parts of biodiversity. The composition of the ecosystem, the environment, and seasonal changes all influence the number of birds in a given ecosystem. Many reservoirs are special types of man-made ecosystems where lentic and fluvial conditions coexist, as do their own special features. According to Simmons (2009), reservoirs are likely abundant in zooplankton, phytoplankton, beetles, snails, flies, midges, and other large larvae as well as aquatic insects and other large larvae.

### Materials and Methods

The Rawanwadi Reservoir was found to be a better site for determining bird evenness diversity due to the abundance of food and suitable environment. Identification was performed by using binoculars; birdwatching was performed during the morning and evening. Photographs of the birds were taken with a high-end Pentax digital camera and telephoto lens. The standard texts of Natarajan *et al.* (2013) and Haslem *et al.* (2008) were used to help in identification.

### Results and Discussion

The Rawanwadi Reservoir region was found to be a very good site for identifying bird communities. As a comparison of other lakes. The Rawanwadi Reservoir has a very high abundance of avian diversity and is represented in the table. A total of thirty-nine species of birds were recorded, among which 34 were residential common, 4 were winter visitors common and 1 was residential uncommon. In the present study the good congregation of

*Egretta garzetta*, *Bulbulous idis*, *Acipeter badius*, *Ardeola grayii*, *Alcedo atthis* and *acridotheres tristis* was observed during day time and regularly found on lake, *Actitis hypoleucos*, *Black-winged Stilt*, *Long-billed Pipit* and *Pycnonotus luteolus* were noticed during winter season during the survey period. Birds are among the best environmental indicators. Their existence somewhere says a lot about the surroundings, whether everything is okay or anything is wrong. The presence of birds further demonstrates the region's biological value, or, to be more precise, its biodiversity significance. Around the globe, birds may be found at nearly every temperature and at nearly every height. Flying is quite effective for birds. In terms of potential pollinators and scavengers, they are good bioindicators. A sensitive indicator of pollution in both terrestrial and aquatic ecosystems is the bird population. Numerous ecologists have focused on how birds interact with other communities

Numerous natural elements, including climate, height, temperature, the availability of food and nesting places, and significant geographical features, affect the distribution of birds in the Rawanwadi Reservoir. Because each ecosystem supports a distinctive group of birds, there are variations in the composition and quantity of birds as a result of this complex interplay of natural and man-made variables. Currently, owing to civilization, birds are going extinct, which immediately affects their reproduction and nesting (Patil and Tijare, 2012). The many lakes and wetlands in any city act as a balancing reservoir for sustaining native flora and wildlife. A total of 39 species of birds were identified during the current study near the Rawanwadi Reservoir. Based on their habitat, such as the Residential Common, Winter Visitor, or Uncommon habitat, the birds were divided into different groups. A total of 104 species of birds were found by Thakor *et al.* (2010) on and near two reservoirs. According to Baker (1930), Siregoan Lake is home to 25 different kinds of birds. Kulkarni *et al.* (2006) recorded the presence of 93 species of birds from Shikhachi Wadi, representing 39 families and 16 orders. Yardi *et al.* (2004) found 64 species of birds in Salim Ali Lake, a reservoir in the district of Nanded, Maharashtra. Kulkarni and Goswami (2008) stated that due to the intensive production of vegetables and grains from August to December, the

increase in birds in agroecosystems revealed that there were more birds in croplands during this time. During this time, a large number of birds were drawn to the mature grains of sorghum, pearl millet, and maize, especially those of Shikra, Munia, and the

common Myna. In the present investigation the early monsoon and winter seasons had the highest populations of bird species, while in late summer, the lowest numbers of species were observed.

**Table 1: Avifaunal diversity of Rawanwadi reservoir during 2020-2022**

| SN | Name of the species                     | Common Name                        | Status |
|----|---|------------------------------------|--------|
| 1  | <i>Mesophoyx intermedia</i> (Wagler)    | Median Egret                       | R,C    |
| 2  | <i>Dendrocygna javanica</i> (Horsfield) | Lesser Whistling-Duck              | R,C    |
| 3  | <i>Acridotheres tristis</i> (Linnaeus)  | Common Myna                        | R,C    |
| 4  | <i>Copsychus saularis</i> (Linnaeus)    | Oriental Magpie-Robin              | R,C    |
| 5  | <i>Phalacrocorax niger</i> (Vieillot)   | Little Cormorant                   | R,C    |
| 6  | <i>Aquila hastata</i>                   | Indian spotted eagle               | VU     |
| 7  | <i>Streptopelia chinensis</i>           | Spotted Dove                       | R,C    |
| 8  | <i>Nettapus coromandelianus</i>         | Cotton Teal                        | R,C    |
| 9  | <i>Actitis hypoleucos</i> (Linnaeus)    | Common Sandpiper                   | WV,C   |
| 10 | <i>Cairina scutulata</i>                | White-winged wood duck             | EN     |
| 11 | <i>Amaurornis phoenicurus</i> (Pennant) | White-breasted Waterhen            | R,C    |
| 12 | <i>Chlamydotis undulata</i>             | Houbara bustard                    | VU     |
| 13 | <i>Spilornis cheela</i> (Latham)        | Crested Serpent-Eagle              | L,C    |
| 14 | <i>Tachybaptus ruficollis</i> (Pallas)  | Little Grebe/Dabchick              | R,C    |
| 15 | <i>Charadrius dubius</i> Scopoli        | Little Ringed Plover               | R,C    |
| 16 | <i>Bubulcus ibis</i> (Linnaeus)         | Cattle Egret                       | R,C    |
| 17 | <i>Tringa guttifer</i>                  | Nordmann's greenshank              | EN     |
| 18 | <i>Sphenocichla humei</i>               | Wedge-billed wren-babbler          | NT     |
| 19 | <i>Seicercus whistleri</i>              | Whistler's warbler                 | LC     |
| 20 | <i>Ardeola grayii</i> (Sykes)           | Indian Pond-Heron                  | R,C    |
| 21 | <i>Columba linia</i> (Gmelin)           | Blue Rock Pigeon                   | R,C    |
| 22 | <i>Egretta garzetta</i>                 | Little egret                       | R,C    |
| 23 | <i>Elanus caeruleus</i> (Desfontaines)  | Black-shouldered Kite              | R,C    |
| 24 | <i>Rhinomyias brunneata</i>             | Brown-chested flycatcher           | VU     |
| 25 | <i>Amandaya amandaya</i> (Linnaeus)     | Red Munia                          | R,C    |
| 26 | <i>Accipiter badius</i> (Gmelin)        | Shikra                             | R,C    |
| 27 | <i>Pycnonotus xantholaemus</i>          | Yellow-throated bulbul             | VU     |
| 28 | <i>Prinia cinereocapilla</i>            | Gray-crowned prinia                | VU     |
| 29 | <i>Coturnix coromandelica</i> (Gmelin)  | Black-breasted Quail or Rain Quail | LC     |
| 30 | <i>Alcedo atthis</i> (Linnaeus)         | Small Blue Kingfisher              | R,C    |
| 31 | <i>Turdoides striatus</i>               | Jungle Babbler                     | R,C    |
| 32 | <i>Gallus sonneratii</i> (Temminck)     | Gray Junglefowl                    | R,C    |
| 33 | <i>Eudynamis scolopaceus</i> (Linnaeus) | Asian Koel                         | L,C    |
| 34 | <i>Fulica atra</i> (Linnaeus)           | Australian Coot                    | L,C    |
| 35 | <i>Pycnonotus luteolus</i>              | White-browed Bulbul                | WV,    |
| 36 | <i>Vanellus indicus</i> (Boddaert)      | Red-wattled Lapwing                | R,C    |
| 37 | <i>Dicrurus macrocerus</i> Vieillot     | Black Drongo                       | R,C    |
| 38 | <i>Dinopium benghalense</i>             | Black-rumped flameback             | R,C    |
| 39 | <i>Milvus migrans</i> (Boddaert)        | Black Kite                         | R,     |

The present investigation concluded and blessed to protect its biodiversity. It has been determined that to draw more and more avifauna in urban areas, we need to establish a variety of fruit trees in our backyards as well as provide appropriate nesting locations for birds. Similarly, Sahu and Dutta (2005) stated that reforestation is now required to create some natural habitat, such as gardens, parks, and lakes, in addition to human habitation to facilitate bird foraging, sheltering, and breeding.

## Conclusion

The present study revealed that the Rawanwadi Reservoir harbors rich avian diversity. A total of 39 bird species were recorded from the reservoir. The study concluded that a greater diversity of birds was

found within and around the reservoir due to the very high biodiversity of plant fauna, which provide more food as well as nesting and breeding places.

These plants play major functional ecological roles in ecosystems as very high prospective pollinators and scroungers and are appropriately called bioindicators. They play a key role in managing the population diversity of distinctive pests; the depletion of the water level in this reservoir during the hot summer season has led to an increase in birdlife diversity.

## Conflict of interest

The authors declare that they have no conflicts of interest.

## References

- Baker, E.C.S. (1930). *The Fauna of British India* (including Ceylon and Burma) (2<sup>nd</sup> Ed). Vol. 6. Taylor and Francis, Red lion Court, London.
- Haslem A & Bennett A. F. (2008). Birds in agricultural mosaics: the influence of landscape pattern and countryside heterogeneity. *Ecological Applications*, 18:185–196.
- Kulkarni, A.K., Kanwate V.S., & Deshpande V.D. (2006). Check List of birds of Shikhachi wadi reservoir. Distt. Nanded, Maharashtra. *J. Aqua. Biol*, 21(1): 80-85.
- Kulkarni, A. N., & Goswami, P. (2008). Avian Fauna of Summer Hill, Shimla-Himachal Pradesh. *The Bioscan*, 7(1), 61-64.
- Natarajan Mariappan, B.K. Ahamed Kalfan & Srinivasagam Krishna kumar (2013). Assessment of Bird Population in Different Habitats of Agricultural Ecosystem *IJSRES*, 1(11), 306-3016.
- Patil K. G. & Trijare R. V. (2012). Study of feeding habitat of Avifauna in vicinity Gorewada Lake, Nagpur, M.S. India, *J. Bio. Frontiers Spe. Issu.* 112-114
- Sahu, H. K. & Dutta S. K. (2005). Status of aquatic birds in Mayurbhanj district, Orissa, India. *Ind. J. Env. & Ecoplan.* 10(3): 883-888.
- Simmons K.E. L. (2009). Anting and the problem of Self-stimulation, *Journal of Zoology* 149 (2).
- Singh J.K. & kushwaha S.P. (2008). Forest Biodiversity and its Conservation in India, *International Forestry Review*, Vol. 10, No. 2.
- Thakor, F.J., Acharya C.A., Bhoi D.K., Prajapati J.R. & Vaidya J.S. (2010). A comparative study of avifauna from two reservoirs in Kheda District, Gujrat (India), *J. Aqua. Biol.* 25 (1): 41-45.
- Yardi, D, Patil S.S. & Auti R.G. (2004). *Diversity of Avian Fauna from Salim Ali Lake of Aurangabad*. Paper presented in 21<sup>st</sup> meet of birds lovers of Maharashtra held at Nanded on 3<sup>rd</sup>, 4<sup>th</sup> April - 2004.

**Publisher's Note:** The ASEA remains neutral with regard to jurisdictional claims in published maps and figures.