**Avifauna diversity and Conservation status of Majalgaon Reservoir, Maharashtra State, India**

**ABSTRACT**

The Majalgaon Reservoir, located in Beed district, Maharashtra, serves as a significant wetland ecosystem, providing habitat to a diverse range of avifaunal species. This study aims to document the diversity and ecological significance of the avifauna in and around the reservoir. The survey of avifauna was carried out for one year (January 2024 to December 2024). A total of 38 bird species were identified during the study. There are 16 families represented among the recorded bird species. The species belong to 11 different orders. The dominant family is Ardeidae, with 5 species, including Little Egret, Cattle Egret, Large Egret, Grey Heron, and Indian Pond Heron. This dominance indicates the importance of wetlands and aquatic habitats in supporting a diverse range of water birds in the reservoir area. Out of the 38 species, 35 are classified as Least Concern (LC), indicating that they are not currently facing significant threats. However, two species—the Oriental Darter and the Black-winged Pratincole—are classified as Near Threatened (NT), meaning they are at risk of becoming vulnerable if existing threats persist. The Lovebird, an escaped captive species, has a variable conservation status due to its introduced population in the wild. Additionally, several species, including the Black-winged Pratincole and the Rosy Starling, are migratory, emphasizing the importance of conserving their breeding and wintering habitats. The study underscores the importance of the Majalgaon Reservoir as a biodiversity hotspot and calls for the implementation of conservation measures to mitigate threats such as habitat degradation, water pollution, and human disturbances. This research provides baseline data for future studies and contributes to the understanding of wetland ecosystems in semi-arid regions, emphasizing the need for integrated management strategies to ensure the long-term sustainability of avifaunal diversity in the region.

**1. INTRODUCTION**

Birds are one of the most diverse and ecologically significant groups of organisms, playing a crucial role in maintaining ecosystem balance. They contribute to essential ecological functions such as pollination, seed dispersal, and pest control. Additionally, birds serve as bioindicators of environmental health, making the study of avifaunal diversity a key component of ecological research and conservation efforts. Wetlands and reservoirs, in particular, act as critical habitats for a wide range of avian species by providing nesting, feeding, and roosting sites for resident and migratory birds.

The Majalgaon Reservoir, located in the Beed district of Maharashtra, is an important freshwater ecosystem that supports diverse avifaunal species. This man-made reservoir offers a mix of open water, marshlands, and surrounding grasslands, creating ideal conditions for bird populations. Despite its ecological significance, limited systematic studies have been conducted on the avian diversity of this region. Assessing the species composition, abundance, and seasonal variations of birds in the Majalgaon Reservoir can provide valuable insights into habitat utilization patterns and the overall health of the ecosystem.

Numerous studies have been conducted worldwide on avifaunal diversity in wetland and reservoir ecosystems, emphasizing the importance of conservation efforts in mitigating biodiversity loss. Wan Chen et al. (2024) highlighted the significance of future conservation initiatives, particularly in addressing the risks faced by endangered bird species. Yasin and Tekalign (2022) provided evidence that a greater number of insectivorous bird species utilize various types of agroforestry landscapes as habitats and foraging sites, underscoring the need for conservation efforts to focus on these modified ecosystems.

Anthropogenic disturbances have been identified as major threats to avifaunal populations. Sahoo et al. (2020) reported that activities such as boating and the aesthetic recreation of wetlands negatively impact bird populations. Studies have also documented the richness of avifaunal diversity in specific wetland and reservoir habitats. Ali et al. (2024) recorded 117 bird species across 23 families, while Patode et al. (2021) documented 70 species spanning 54 genera, 26 families, and 12 orders. A preliminary survey conducted by Pawar et al. ( 2019) in the Majalgaon reservoir identified 84 bird species, further contributing to the understanding of avian diversity in these ecosystems.

These findings collectively emphasize the need for targeted conservation measures to protect avian biodiversity in wetland and reservoir environments, particularly in light of ongoing habitat modifications and human-induced disturbances (include reference).

The study of avifaunal diversity in the Majalgaon Reservoir is significant for biodiversity conservation, as documenting bird species helps in understanding local ecosystems and supports conservation planning. Birds serve as bioindicators, making ecological monitoring essential to detect environmental changes, pollution levels, and habitat degradation. Understanding bird diversity also aids in the sustainable management of the reservoir and its surrounding areas. Additionally, studying seasonal migration patterns provides insights into breeding cycles and habitat preferences. Identifying potential threats such as habitat loss, pollution, and human disturbances is vital for developing effective conservation strategies. Furthermore, this study will provide baseline data for future ecological and conservation research. The primary objectives of this study are to document bird species diversity in the Majalgaon Reservoir and to identify key threats affecting avifaunal populations while recommending suitable conservation measures.

**2.MATERIAL AND METHODS**

**Study Area**

The Majalgaon Reservoir, located in Beed district, Maharashtra, India, is situated at approximately 19°7'57" North latitude and 76°6'33" East longitude.

This reservoir, also known as Majalgaon Dam, is constructed across the Sindphana River, a major tributary of the Godavari River.

**Survey Methods**

Field surveys were conducted over a one-year period from January 2024 to December 2024 to capture seasonal variations in avifaunal presence. Surveys were carried out twice monthly, covering morning (06:00–10:00) and evening (16:00–19:00) periods.

Birds were observed during the study period. The identification carried out with the help of the book of Ali and Fatehali (2003), avifaunal field guidebooks (Kazmierczak , 2003; Grimmett et al., 2011) and online bird databases (put the site reference). The checklist of bird species was compiled following the established guidelines for bird checklists (Abdulali, 1981; Ali and Ripley, 1983). Nikon Coolpix L4 Camera is used for bird photography.

**Map 1 : Study area of Majalgaon Reservoir**



**RESULT AND DISCUSSION**

The presence of 38 bird species across 16 families and 11 orders highlights the rich avifauna diversity of the Majalgaon Reservoir (Table 1). The order Passeriformes is the most diverse, comprising 15 species across multiple families. The Corvidae family includes the *House Crow*, while the Dicruridae family is represented by the *Black Drongo*. The Laniidae family contains the *Brown Shrike* and *Long-tailed Shrike*. The Turdidae family includes the *Common Blackbird*, whereas the Muscicapidae family has the *Indian Robin* and *Indian Robin (Female)*. The Pycnonotidae family features the *Red-vented Bulbul*, while the Sturnidae family includes the *Brahminy Starling, Common Myna, Rosy Starling, and Indian Pied Myna*. The Motacillidae family contains the *Eastern Yellow Wagtail*, and the Alaudidae family has the *Indian Bushlark* and *Eurasian Skylark (Bushlark)*. All these species are classified as Least Concern(LC), except for the Rosy Starling, which is a Winter Migrant.

The order Charadriiformes consists of 6 species distributed among multiple families: the Recurvirostridae family with the *Black-winged Stilt*; the Glareolidae family containing the *Black-winged Pratincole* (classified as Near Threatened - NT); the Charadriidae family with the *Yellow-wattled Lapwing* and *Little Ringed Plover*; and the Scolopacidae family containing the *Common Sandpiper* and *Wood Sandpiper*.

The order Pelecaniformes contains 5 species, all belonging to the Ardeidae family, which includes the *Indian Pond Heron, Cattle Egret, Great Egret, Grey Heron,* and *Little Egret*. All these species are classified as Least Concern (LC).

The order Coraciiformes has 3 species in two families: the Alcedinidae family, featuring the *Common Kingfisher* and *White-throated Kingfisher*, and the Meropidae family, which consists of the *Green Bee-eater*. All species are classified as Least Concern (LC**)**.

The order Suliformes includes 2 species, each belonging to different families: the Phalacrocoracidae family, represented by the *Little Cormorant*, and the Anhingidae family, which includes the *Oriental Darter* (classified as Near Threatened - NT).

The order Gruiformes comprises 2 species, both from the Rallidae family: the *White-breasted Waterhen* and *Eurasian Coot*, both classified as Least Concern (LC).

The following orders each have only one species:

* Columbiformes, with the Columbidae family, represented by the *Eurasian Collared Dove* (Least Concern - LC).
* Accipitriformes, with the Accipitridae family, featuring the *Black-shouldered Kite* (Least Concern - LC).
* Anseriformes, with the Anatidae family, represented by the *Indian Spot-billed Duck* (Least Concern - LC).
* Podicipediformes, with the Podicipedidae family, featuring the *Little Grebe* (Least Concern - LC).
* Psittaciformes, with the Psittaculidae family, containing the *Lovebird (Escaped Captive)* (Varies between Near Threatened - NT and Least Concern - LC, as it is an introduced species).

Conservation Status and Key Insights

* Out of 38 species, 35 are classified as Least Concern (LC), indicating they are not currently under significant threat.
* Two species—the Oriental Darter and the Black-winged Pratincole—are classified as Near Threatened (NT), meaning they are at risk of becoming vulnerable if threats persist.
* The Lovebird (Escaped Captive) has a variable conservation status, as its population in the wild is introduced.
* Several species, such as the Black-winged Pratincole and the Rosy Starling, are migratory, highlighting the importance of conserving both breeding and wintering habitats.
* Resident species such as the Indian Robin, Common Myna, and Red-vented Bulbul are well-adapted to local environments, but habitat destruction and urbanization could impact their populations in the future.
* Wetland-dependent birds like the Great Egret, Grey Heron, and Eurasian Coot rely on healthy aquatic ecosystems, making wetland conservation crucial.

The current study's findings align with previous research on avifaunal diversity in various regions. Chavan et al. (2015) reported 168 bird species from the Godavari River Basin in Nanded District, Maharashtra, highlighting the area's rich bird diversity. Similarly, Thakur et al. (2003) conducted studies in the Balh Valley of Mandi District in the lower Himalayan region of Himachal Pradesh, contributing valuable insights into the avian diversity of that area. Further investigations by Mahabal and Mukherjee (1991), Mahabal (2000), Thakur (2008), and Thakur et al. (2002, 2006, 2010) documented resident, altitudinal migrant, summer, and winter visitor birds in different areas of Himachal Pradesh, underscoring the region's avifaunal richness. In a study by Tiple et al. (2010), out of 140 bird species observed, 16% were very commonly seen, 42% were common, 32% were not rare, and 10% were rare, indicating varying levels of abundance among species. Rasal and Chavan (2011) reported 61 bird species from different habitats within the Aurangabad University campus, including watershed catchments, flowering tree shelters, and marshy areas, emphasizing the importance of diverse habitats in supporting avian diversity. In (2017), Shendokar and Kukade conducted a comprehensive survey in Akola District, identifying 313 bird species from 58 families. Further south, Bhivate and Patil ( 2016) assessed avian diversity around the Shivaji University campus in Kolhapur District. Over a two-year period, they recorded 122 bird species spanning 18 orders and 54 families. These studies collectively highlight the rich avifaunal diversity across various regions and the importance of diverse habitats in supporting bird populations.

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| **S.No** | **Common Name** | **Scientific Name** | **Order** | **Family** | **IUCN Status** | **Ecological Status** |
| 1 | Indian Robin | *Copsychus fulicatus* | Passeriformes | Muscicapidae | LC (Least Concern) | Resident |
| 2 | Indian Robin (Female) | *Copsychus fulicatus* | Passeriformes | Muscicapidae | LC (Least Concern) | Resident |
| 3 | Common Blackbird | *Turdus merula* | Passeriformes | Turdidae | LC (Least Concern) | Resident |
| 4 | Red-vented Bulbul | *Pycnonotus cafer* | Passeriformes | Pycnonotidae | LC (Least Concern) | Resident |
| 5 | House Crow | *Corvus splendens* | Passeriformes | Corvidae | LC (Least Concern) | Resident |
| 6 | Black Drongo | *Dicrurus macrocercus* | Passeriformes | Dicruridae | LC (Least Concern) | Resident |
| 7 | Brahminy Starling | *Sturnia pagodarum* | Passeriformes | Sturnidae | LC (Least Concern) | Resident |
| 8 | Common Myna | *Acridotheres tristis* | Passeriformes | Sturnidae | LC (Least Concern) | Resident |
| 9 | Rosy Starling | *Pastor roseus* | Passeriformes | Sturnidae | LC (Least Concern) | Winter Migrant |
| 10 | Indian Pied Myna | *Gracupica contra* | Passeriformes | Sturnidae | LC (Least Concern) | Resident |
| 11 | Brown Shrike | *Lanius cristatus* | Passeriformes | Laniidae | LC (Least Concern) | Winter Migrant |
| 12 | Long-tailed Shrike | *Lanius schach* | Passeriformes | Laniidae | LC (Least Concern) | Resident |
| 13 | Eastern Yellow Wagtail | *Motacilla tschutschensis* | Passeriformes | Motacillidae | LC (Least Concern) | Winter Migrant |
| 14 | Indian Bushlark | *Mirafra erythroptera* | Passeriformes | Alaudidae | LC (Least Concern) | Resident |
| 15 | Eurasian Skylark (Bushlark) | *Alauda arvensis* | Passeriformes | Alaudidae | LC (Least Concern) | Resident |
| 16 | Green Bee-eater | *Merops orientalis* | Coraciiformes | Meropidae | LC (Least Concern) | Resident |
| 17 | White-throated Kingfisher | *Halcyon smyrnensis* | Coraciiformes | Alcedinidae | LC (Least Concern) | Resident |
| 18 | Common Kingfisher | *Alcedo atthis* | Coraciiformes | Alcedinidae | LC (Least Concern) | Resident |
| 19 | Black-winged Stilt | *Himantopus himantopus* | Charadriiformes | Recurvirostridae | LC (Least Concern) | Resident/Migrant |
| 20 | Black-winged Pratincole | *Glareola nordmanni* | Charadriiformes | Glareolidae | NT (Near Threatened) | Migrant |
| 21 | Yellow-wattled Lapwing | *Vanellus malabaricus* | Charadriiformes | Charadriidae | LC (Least Concern) | Resident |
| 22 | Little Ringed Plover | *Charadrius dubius* | Charadriiformes | Charadriidae | LC (Least Concern) | Migrant |
| 23 | Common Sandpiper | *Actitis hypoleucos* | Charadriiformes | Scolopacidae | LC (Least Concern) | Migrant |
| 24 | Wood Sandpiper | *Tringa glareola* | Charadriiformes | Scolopacidae | LC (Least Concern) | Migrant |
| 25 | Eurasian Coot | *Fulica atra* | Gruiformes | Rallidae | LC (Least Concern) | Resident/Migrant |
| 26 | White-breasted Waterhen | *Amaurornis phoenicurus* | Gruiformes | Rallidae | LC (Least Concern) | Resident |
| 27 | Cattle Egret | *Bubulcus ibis* | Pelecaniformes | Ardeidae | LC (Least Concern) | Resident |
| 28 | Great Egret | *Ardea alba* | Pelecaniformes | Ardeidae | LC (Least Concern) | Resident/Migrant |
| 29 | Grey Heron | *Ardea cinerea* | Pelecaniformes | Ardeidae | LC (Least Concern) | Resident/Migrant |
| 30 | Little Egret | *Egretta garzetta* | Pelecaniformes | Ardeidae | LC (Least Concern) | Resident/Migrant |
| 31 | Indian Pond Heron | *Ardeola grayii* | Pelecaniformes | Ardeidae | LC (Least Concern) | Resident |
| 32 | Oriental Darter | *Anhinga melanogaster* | Suliformes | Anhingidae | NT (Near Threatened) | Resident |
| 33 | Little Cormorant | *Microcarbo niger* | Suliformes | Phalacrocoracidae | LC (Least Concern) | Resident |
| 34 | Little Grebe | *Tachybaptus ruficollis* | Podicipediformes | Podicipedidae | LC (Least Concern) | Resident |
| 35 | Indian Spot-billed Duck | *Anas poecilorhyncha* | Anseriformes | Anatidae | LC (Least Concern) | Resident |
| 36 | Black-shouldered Kite | *Elanus caeruleus* | Accipitriformes | Accipitridae | LC (Least Concern) | Resident |
| 37 | Eurasian Collared Dove | *Streptopelia decaocto* | Columbiformes | Columbidae | LC (Least Concern) | Resident |
| 38 | Lovebird (Escaped Captive) | *Agapornis spp.* | Psittaciformes | Psittaculidae | Varies (Most NT to LC) | Captive/Introduced |

Table 1 : Avifauna diversity of the Majalgaon Reservoir