AVIAN DIVERSITY IN THE PURKABODI RESERVOIR INDISTRICT BHANDARA, MAHARASHTRA,INDIA

Makade S.H[1], BhogamH.A[2] and TelkhadeP.M[3]

[1] Dept. of Zoology, Center for Higher Learning and Research Institute, Sardar PatelMahavidyalaya,Chandrapur(M.S.).
Mail:ID–shishirmakade1@gmail.com.

[2]Dept.ofGeology,Maharashtra Remote Sensing Applications Centre (MRSAC),Nagpur(M.S.).
Mail:ID–hemant.bhogam@gmail.com.

[3]P.G. Dept.ofZoology,Dr.KhatriMahavidyalaya,Chandrapur(M.S.).
Mail:ID–pravintelkhade201@gmail.com.

CorrespondentAuthor-mail:ID–shishirmakade1@gmail.com.

ABSTRACT

The current study's goal was to assess the Purkabodi Reservoir's (in District Bhandara, Maharashtra, India) variation in bird variety. The location of Purkabodi Reservoir is 20°59' 42.31" N latitude and 79 º 47’39.23” E longitudes. Twelve months of the study were conducted, from December 2022 to November 2023. One typical indication used to evaluate changes in the environment is the variance in bird variety across time and space. Such data was traditionally collected by trained observers, however passively collecting auditory data is emerging as a competitive substitute survey method. Because natural habitation is being destroyed, there is currently a loss in avifaunal diversity. The purpose of the research was to determine the avifaunal variety of Purkabodi Reservoir in District Bhandara. The study was conducted in and around Purkabodi Reservoir between December 2022 and November 2023. 36 different kinds of birds were observed during the current survey in the area of the Purkabodi reservoir. The birds were grouped according to their habitat, which included Residential Common, Winter Visitor and Uncommon species. The categories for the diversity of avifaunal life include migratory winter travelers,internal migrants, external migrants, and external emigrants, depending on where each group is located on their normal migratory habitat.

Keywords: Avian diversity,variation in Avian variety,Purkabodi Reservoir, India.

Introduction

India is one of the top ten mega-diverse countries in the world for the diversity of plants and animals, home to about 10% of all species. India contains 26 biotic provinces and 10 biogeographic zones, according to Singh and Kushwaha (2008). A 6.5% of the world’s animal species and 7% of its plant species are found

In order to evaluate the health of the ecosystem, determine conservation priorities, and inform c onservation decisionmakingand it is essential to track the status and trends of animal variety as well as the population levels of indicator specie s.Birds are common monitoring objectives beca use they can be found in almost any type of habi tat and fill almost every niche and these taxa canalso be distinguished from other taxa that mi ght be susceptible to similar ecological circumstances. India is home to numerous bird species with two or more disti nct geographical, races or subspecies, and the diversity of the bird population there reflects the diversity of the nation’secosystem. The dist ribution of birds in India is impacted by several natural elements such as temperature,altitude, fo od availability, nesting sites, and other notewort hy geographic characteristics.These studies now need to includ e the human element, or the extent to which humans protect or harm birds and their habitats.Because of the c omplex interactions between natural and

artificial
factors, the composition and number of birds va ry depending on the habitat, with each supporting a unique group of birds.

The avifauna diversity is one of the most crucial ecological indicators for assessing the quality of habitats. Recently avifaunal diversity has been declining as a result of habitat degradation and human disturbances. The primary cause of the reduction in bird foraging habitat and nesting sites is the indiscriminate destruction of natural habitats by chopping down nesting trees and forage plants for commercial usage of forests and lands. As a result, many bird species might be compelled to live in urban areas and be forced to reproduce there. An ecosystem's diversity of birds is crucial for maintaining a trophic level. To safeguard them, it is crucial to conduct in-depth research on the avifauna and their
ecosystem.The uncontrolled destruction of natur al habitats caused by the exploitation of forage plants and nesting trees for commercial purpose s in forests and lands is the main factor behind t he decline in bird nesting sites and foraging hab itats.Consequently, a great number of bird speci es may be pushed to dwell and breed in urban e nvironments.A high trophic level in an ecosyste m depends on the diversity of birds living there. Researching avifauna and their environments in depth is essential to protecting these organisms.

Birds are an important component of biodiversit y and one of the most important indicators of he althy living systems.The amount of birds in a pa rticular ecosystem is influenced by seasonal vari ations, the environment, and the ecosystem's co mposition.A lot of reservoirs are unique kinds o f artificial ecosystems where lentic and fluviatil e environments coexist with their own unique c haracteristics.Simmons (2009) states that zoopla nkton, phytoplankton, beetles, snails, flies, midg es, and other large larvae are probably plentiful in reservoirs, along with aquaticinsects and the large larvae.

Materials and Methods

Study Areas

Purkabodi Reservoir, which is situated in the ea stern part of Maharashtra, India, served as the re search area.A tiny inland reservoir in the Bhand ara area, Purkabodi Reservoir is located around 45 kilometers southeast of Bhandara.Purkabodi Reservoir's geographic coordinates are latitude 20°59' 42.31" N and longitude 79º47' 3 9.23" E.This reservoir has a total catchment areaof 7.21 square kilometers and a storage cap acity of 1.611 million cubic meters

Figure1: SatelliteimageofPurkabodiReservoir.

The amount of food and ideal habitat, the Purka bodi Reservoir was found to be a better site for assessing bird evenness diversity.Binoculars we re used for identification, and morning and evening bird watching was done. A top of the line Pentax digital camera with a telephoto lens wasused to take pictures of the birds. The standard texts of Haslem *et al.* (2008) and Natarajan *et al*. (2013) were used to help in identification.

Results and Discussion

The Purkabodi Reservoir region was found to be a very good site for identifying bird communities.The Purkabodi Reservoir is shown in the table and has an extremely high abundance of bird diversity. A total of 36 bird species were identified, of which 31 were common residential visits, 4 were common winter visitor s, and 1 was uncommon residential visitors. In the present study the good congregation of Egretta garzetta, 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.Among the best indicators of the environment are birds.Somewh ere, their presence conveys a lot about the environment, including whether or not things ar e going well.The significance of the region's biodiversity, or more accurately, its biol ogical value, is further demonstrated by the abundance of birds.Birds can be found almost a nywhere in the world, at almost any temperature and height.For birds, flying is highly effective.T hey are good bioindicators for possible scavengers and pollinators.The population of birds is a sens itive indicator of pollution in both terrestrialand aquatic habitats.Many ecologists h ave studied and interactions between birds and other communities.

The Purkabodi Reservoir's bird population distri bution is influenced by a wide range of natural f actors, such as elevation, temperature, and preci pitation, as well as important geographical featu res and the accessibility of food and nesting loc ations.There are variances in the variety and abu ndance of birds due to the intricate interaction b etween natural and artificial factors, since every environment harbors a unique population of birds. Birds are currently becoming extinct dueto civilization, which has an immediate imp act on their ability to reproduce and build nests (Patil and Tijare, 2012).The many numerous lakes and wetlands serve as a balanced reservoir to support the local animals and veget ation. In the course of the current investigation,36 different species of birds were i dentified in the vicinity of Purkabodi Reservoir. The birds were grouped according to their habit at, which included the Residential Common, Winter Visitor, and Uncommon habitats.Thakor *et al.* (2010) discovered 104 different species of birds on or around two reservoirs.Acc ording to Baker (1930) claimed that there are twenty five different species of birds living at Siregoan lake. Kulkarni *et al.*(2006), there are ninety-three species of birds in Shikhachi Wadi, belong ing to sixteen orders and 39 families. In the Nanded district of Maharashtra, there is a reservoir called Salim Ali Lake, where Yardi *et al.* (2004) disco vered 64 species of birds. According to Kulkarni and Goswami (2008), the increased nu mber of birds in agroecosystems throughout Au gust and December indicated that there were more birds in croplands because of the heavy production of grains and vegetables during this time.

At this period, mature grains of sorghum, pearl millet, and maizeparticularly those of Shik ra, Munia, and common Myna, attracted a lot of birds.

The current study found that the highest birds species populations were found during the early monsoon and winter seasons, and the lowest numbers of species were found during the late summer.

Table 1: Avifaunal diversity of Purkabodi Reservoir during December 2022 to November 2023.

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

Reference

1. Baker, ECS (1930): The Fauna of British India (including Ceylon and Burma) (2nd Ed). Vol. 6. Taylor and Francis, Red lion Court, London.
2. Haslem A, Bennett AF (2008). Birds in agricultural mosaics: the influence of landscape pattern and countryside heterogeneity. Ecological Applications, 18:185–196.
3. Kulkarni, A.K., Kanwate V.S., and Deshpande V.D (2006): Check List of birds of Shikhachi wadi reservoir. Distt. Nanded, Maharashtra. J. Aqua. Biol, 21(1): 80-85.

ISSN (PRINT): 2393-8374, (ONLINE): 2394-0697, VOLUME-11, ISSUE-9, 2024
DOI: 10.21276/ijcesr.2024.11.9.9

4. Kulkarni, A.N. and Goswami P. (2004): Avian fauna of summer Hill, Himachal Pradesh. Zoo's print J. (in press) (2008) Bird Life International. Threatened Birds of the World, 2004. CD-ROM. Cambridge: Bird Life International.
5. Natarajan Mariappan, B.K. Ahamed Kalfan and Srinivasagam Krishnakumar (2013): Assessment of Bird Population in Different Habitats of Agricultural Ecosystem IJSRES, 1(11), 306-3016.
6. Patil KG and Tijare RV (2012): Study of feeding habitat of Avifauna in vicinity Gorewada Lake, Nagpur, M.S. India,J. Bio. Frontiers Spe. Issu. 112-114
7. Singh J.K. and kushwaha S.P. (2008): Forest Biodiversity and its Conservation in India, International Forestry Review, Vol. 10, No. 2.
8. Simmons K.E.L (2009): Anting and the problem of Self-stimulation, Journal of Zoology 149 (2).
9. Sahu, HK and Dutta SK (2005): Status of aquatic birds in Mayurbhanj district, Orissa, India. Ind. J. Env. & Ecoplan. 10(3): 883-888.
10. Thakor, F.J.,Acharya C.A.,Bhoi D.K., Prajapati J.R. and Vaidya J.S (2010) A comparative study of avifauna from two reservoirs in kheda District, Gujrat (India), *J. Aqua. Biol.* 25 (1): 41-45.
11. WHO (2011) Guidelines for Drinking Water Quality. 4th Edition World Health Organization, Geneva, Switzerland.
12. Yardi, D, Patil S.S. and Auti R.G. (2004): Diversity of Avian Fauna from Salim Ali Lake of Aurangabad. Paper presented in 21st meet of birds lovers of Maharashtra held at Nanded on 3rd, 4th April - 2004.