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Status of the Birds Inhabitating of Narmada Valley, Jabalpur Region, Madhya Pradesh

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Abstract

Bird's diversity important for endangered ecosystems because birds are good indicator species and their presence could give clues about the overall health of these systems. In the present study richness, abundance, and flight period of birds have been revealed in the tropical ecosystem of Narmada Valley in Jabalpur, Madhya Pradesh. The avian diversity of Narmada Valley and its surrounding areas at Jabalpur district was studied for a period of two years during January 2015 to December 2015. This area inhabits many residential and migratory bird species. In the present survey reported 86 species of birds belonging to 35 families and 13 orders out of which 65 species were prominent resident species of the study area. The great variety of different types of plants, availability of food in different seasons, agricultural land, water availability in surrounding areas were favorable conditions for birds to nesting and survival in this area. The study determines various species of birds which will help in preparing a list for the evaluation and comparison of possible changes regarding the bird fauna in the future and provide measures for their conservation.

Keywords: Avian diversity, Narmada valley, Migratory species, Residential species, conservation.

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Introduction

India has world's unique mega diversity of flora and fauna. The unmatched variety of flora and fauna that makes it extensively different from the rest of the world. Birds are one of the most populous life form in our planet. Their biodiversity leads to a richness of life and beauty. Birds serve as important component to study any ecosystem as they have the ability to fly away and avoid any obnoxious condition. Hence, they are considered as important health marker as well as indicator of the ecological conditions and productivity of an ecosystem (Newton, 1995; Desai and Shanbhag, 2007; Li and Mundkur, 2007). When consequent environmental changes exceeded the tolerance limit of species habitat change also become an ultimate cause for long term changes in the bird distribution. Bird's population frequently used as an indicator of environment quality and are thought to be a useful proxy for assessing the impact of urbanization, anthropogenic activities and human influence on biodiversity. The urbanization processes leads to a reduction in biodiversity (Blair, 1996; McKinney and Lockwood, 1999) due to the transformation of natural habitats into agricultural, industrial and urbanized areas. Thus, urban development reduces available habitat and has resulted in declines in animal populations (Foster 1996; Kahn and McDonald, 1997; Hostetler and Knowles-Yanez, 2003).

The avifaunal density (Patterson, 1976; Nilsson and Nilsson, 1978), diversity (Krebs, 1985) and richness (Nilsson and Nilsson, 1978; Weller, 1978; Murphy, et al., 1984) mirrors the diversity and richness of habitat and its favorable conditions which is important parameter to study bird Increasing levels of urban densification, anthropogenic activities and human interference are calling attention to those measures that can mitigate urban area effects (Mazza and Rydin, 1997) or compensate for the overload of pollutants in (urban) air and soil (Mc Pherson et al., 1994). The bird diversity affected by various factors like the food availability, the size of the green space (Paracuellos, 2006), vegetation (Able and Noon, 1976; Terbrgh, 1985; Hawkins, 1999; Joshi et al., 2012) and abiotic changes in the habitat (Lagos et al., 2008). Not only the birds but all the organisms, belonging to the plant and the animal communities, are affected by the physical characteristics of the environment (Wilson and Keddy, 1986).

The great variety of different types of plants also makes Narmada Valley of Jabalpur an attracting place for birds to nesting and living. The greater the variety of habitats regardless of the cause, the more likely is that additional bird species can find suitable habitat (Weller, 1978). Bustling all day long with the chirping and tweeting of colourful birds of different varieties alighted here from far away countries, the Narmada valley is a paradise for bird watchers, nature lovers and photographers. Spotting the migratory birds

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happily indulging in their day to day activities in their natural habitat is indeed an intriguing experience. The most noteworthy birds generally encountered at the Narmada basin include Egrets, Flamingos, Purple Moorhen, Common Coot, Cotton Pigmy Goose, Red Crested Pochard, Common Kingfisher, Pond Heron and many others.

Forest ecosystem including trees, shrubs and herbs around the large urban area is making the environment of Narmada valley in Jabalpur region full to green. In this direction, the purpose of this paper presents bird species composition, abundance and species diversity in and around Narmada valley in Jabalpur region and also aims to explore the relationship between the urban forest structure and the abundance of certain bird species.

Material and Methods

Jabalpur is one of the important destinations of the country. It has some of the best places of the country. Jabalpur is located between 23°10'N latitude and 79°56'E longitude. The avian fauna field observations of Narmada Valley Jabalpur region were carried out since January 2015 to December 2015. The birds were monthly observed during most active period of the day i.e., 6:00 am to 9:00 am. However observations were also made during other timing according to the convenience. This report is based on self-sighting the birds using binocular and snapping photographs and recording the location of bird. Field characteristic and identification was done using field guides of Ali and Ripley (1995, 1996) and Grimmett et al., (2000). The checklist was prepared by using standard common and scientific names of the birds of Indian subcontinent by Manakand and Pittie (2001). Flight period of birds was classified as: R- Resident; M- Migrant; RM- Resident Migrant; WV- Winter Visitor.

Table 1
Inhabitating birds in Narmada valley, Jabalpur (M.P.)

S. No.	Name of Order	No. of Families	Flight Period			
			R	RM	M	WV
1.	*Anseriformes*	1	-	1	-	-
2.	*Apodiformes*	1	1	-	-	-
3.	*Charradriiformes*	4	4	-	2	1
4.	*Ciconiformes*	4	4	7	-	1
5.	*Columbiformes*	1	3	-	-	-
6.	*Coraciiformes*	5	5	3	-	-
7.	*Cuculiformes*	1	2	-	-	-
8.	*Falconiformes*	1	5	-	-	-
9.	*Gruiformes*	2	1	2	1	-
10.	*Passeriformes*	12	37	-	-	2
11.	*Pelecaniformes*	1	1	-	-	-
12.	*Psitariformes*	1	1	1	-	-
13.	*Strigiformes*	1	1	-	-	-
14.	**Grand Total**	**35**	**65**	**14**	**3**	**4**

Result and Discussion

A list of recorded birds has been prepared from that area in the present study. All together 86 species of birds belonging to 35 families and 13 orders were recorded from the study area during study period. Most of the birds fauna are resident and out of these, 65 species were Resident (R), 14 species Resident Migrant (RM), 3 Migratory (M) and 4 were Winter Visitor (WV) species. The recorded data of study has shown that Passeriformes was very rich with 39 species followed by *Ciconiiformes* with 12 species, *Coraciiformes* with 8 species, *Charradriiformes* with 7 species, *Falconiformes* with 5 species, *Gruiformes* with 4 species, *Columbiformes* with 3 species, *Cuculiformes* and

Psittariformes with 2 species each and *Anseriformes*, *Apodiformes*, *Pelecaniformes* and *Strigiformes* with 1 species each shown in Figure I and Figure II below.

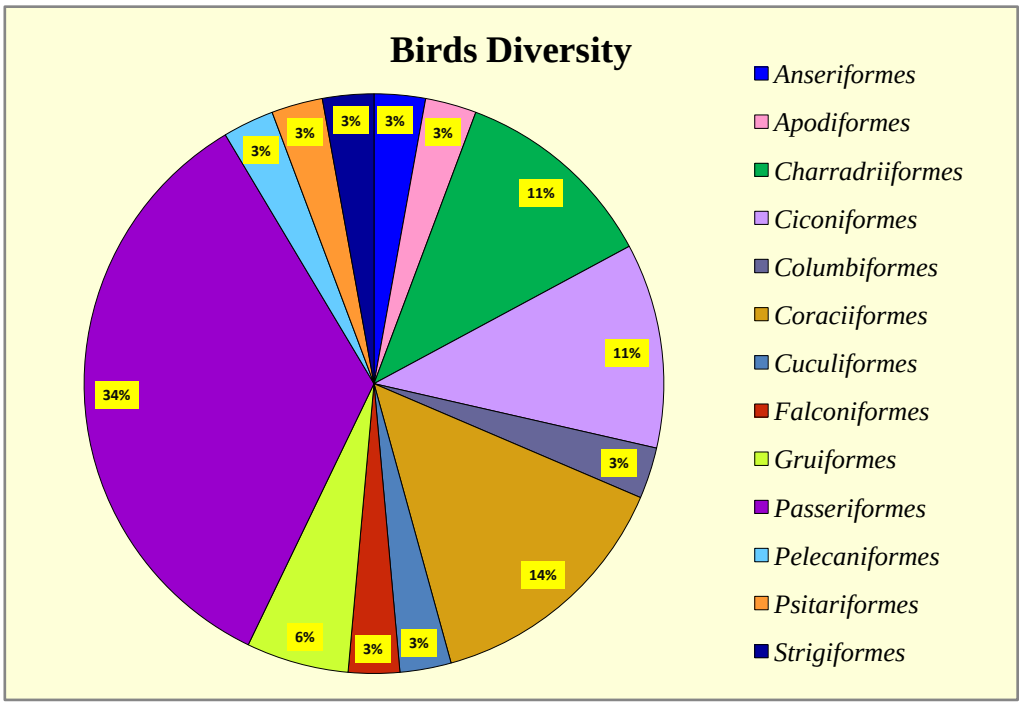

Figure I
Order wise birds diversity in Narmada valley at Jabalpur region, M.P.

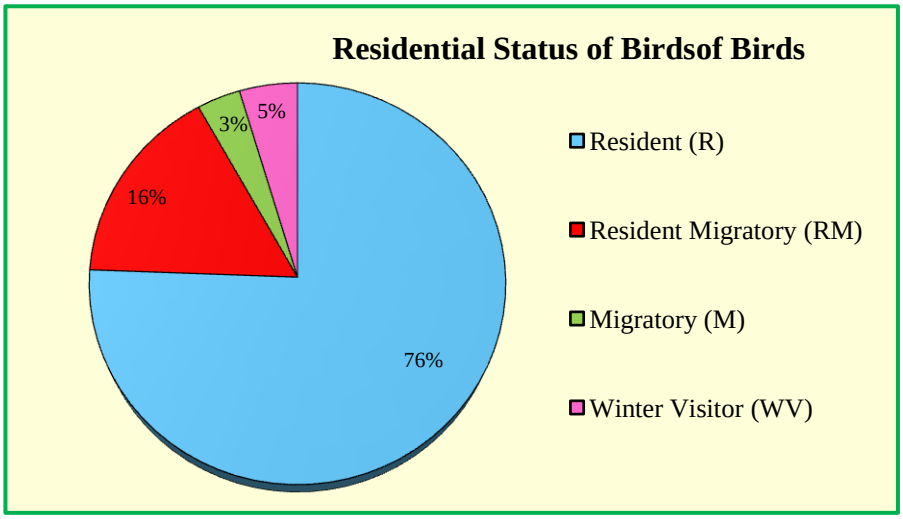

Figure II
Residential Status of Birds in Narmada Valley at Jabalpur region, M.P.

The most of birds observed during this study were resident species. Resident species were 76% (65 species) of total record while resident migratory were 16% (14 species), migratory were 3% (3 species) and winter visitor were 5% (4 species) shown in Figure 2. Lameed (2011) reported that the species that are winter visitor use wetlands for rest and other activities while waiting for the favorable condition of their home range. In the same way Sharma and Shukla (2015) have surveyed Gwarighat region of river Narmada for two years and observed 77 Species of birds belong to 34 families and 13 orders where order, Passeriformes was diversified group. Urban ecosystem has been largely ignored throughout many decades of ecological research. Douglas M. Green and Micheal G. Baker (2002) encountered a total of 118 bird species were significantly

correlated to birds diversity variables related to urban development such as house density, road density, and exotic vegetation volume during the census period. Migratory species play important role in the ecosystem.

Conclusions and Further Directions for Research

Conservation of all ideal habitats for birds is essential; it's a prime need for conservation of nature and natural treasures like birds. By comparing the differences among habitats, such as vegetation and freshwater areas, we can draw more conclusions and improve the reliability of our research on factors affecting bird diversity and abundance of the same bird populations as well impacts of pollution on bird species. With more area studies it is then more possible to co-relate other variables like weather, the nature of human activities and surrounding land use areas to better inform policy-making concerning sanctuaries for these selected bird populations. Birds play an important role in all types of ecosystem in pollination, seed dispersal, predation, pest control, scavenging and also recycling of nutrients. There is hence an urgent need to create awareness among local peoples on the importance of the riverine habitat and its fauna and the need to conserve them for future generations.

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