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RESEARCH ARTICLE

PRELIMINARY STUDY ON AVIAN FAUNAL DIVERSITY OF POLIPATHAR AREA IN JABALPUR (M.P.)

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A B S T R A C T

Greenspaces and forest trees contribute to a number of environmental functions in urban environments, such as the survival of urban-dwelling species (e.g., bird species). This paper analyzes the relationship between greens pace characteristics (structural and spatial attributes) and the diversity of avian ecology species. Urban ecosystem has been largely ignored throughout many decades of ecological research. The present study is based on observation and sighting of birds and started with an aim of preparing the checklist of Birds from Polipathar region in Jabalpur city. The area is 1.5 km away from Narmada River Gwarighat. This is suburb area of Jabalpur. 77 Species of birds belong to 34 families and 13 orders were observed from surveyed area. Most of them are residential whereas winter migrate, aquatic birds also recorded from the area. The aim of this study is to prepare a list of species and to provide measures for their conservation.

INTRODUCTION

There are 1124 species of birds reported from India and Indian subcontinent. The beginning of 21st century can be characteristics by terminus growth of urban area. Since the early 1990s, a different view emerged accepting urban setting as there ecosystems that are structurally and functionally same as other natural ecosystems (Mc. Donnell and Pickett, 1990). Forest trees are also essential for the survival of many animal and plant species in urban environments. In particular, studies have demonstrated positive effects of forest trees on both invertebrate and vertebrate species, such as spiders (Alaruikka *et al*., 2002), ants (Yamaguchi 2004), butterflies (Hermy and Cornelis 2000), carabides (Niemela *et al*., 2002; Magura *et al*., 2005), and passerines (Wiens 1989; Mortberg and Wallentinus 2000). Bird's population is frequently used as an indicator of environment quality and are thought to be a useful proxy for assessing the impact of human influence of on biodiversity. The diversity and richness of avian fauna is a community and also mirrors the diversity and richness of habitat. Increasing levels of urban densification are calling attention to those measures that can mitigate urban island effects (Mazza and Rydin 1997) or compensate for the overload of pollutants in (urban) air and soil (Mc Pherson *et al*., 1994).

Polipathar area of Jabalpur city is a residential Suburb area. It is in 1.5 km distance from Narmada River, Gwarighat. Its ecosystem is suburb type and most of the houses are single to double stories. Trees, shrubs and herbs all are located in large number making the environment full to green. In this direction, this paper aims to explore the relationship between the urban forest structure and the abundance of certain bird species.

MATERIAL AND METHOD

Avifaunistic field observations of Polipathar residential area in Jabalpur were carried out since 2012 to 2014. The birds were monthly observed during most active period of the day i.e., 6:00am to 9:00am. 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 Manakandan and Pittie, (2001).

RESULT AND DISCUSSION

A list of recorded birds has been prepared from that area in the present study, all together 77 bird species belonging to 34 families and 13 orders were recorded from the study area during study period.

Most of the birds fauna are resident and out of these, 56 species were Resident (R), 15 species Resident Migrant (RM), 3 Migratory (M) and 3 were Winter Visitor (WV) species. The recorded study shown that Passeriformes is very rich with 33 species followed by Ciconiiformes and Coraciiformes with 10 and 8 species respectively with less number of representatives. In the same way Talmale *et al*., (2012) recorded mostly Passeriformes from Singhori Wildlife Sanctuary in Raisen district which shows the abundance of Passeriformes in the locality of central India. Common Myena, Blue Rock Pigeon, Dove, Crow, House Sparrow, Ashy Prenin, Sun Birds are found in abundance. Migratory

Table 1 Checklist of Birds of Polipathar Residential Area, Jabalpur (M.P.)

S. No.	Order	Family	Scientific Name	Common Name	Habit
1	Anseriformes	Anatidae	Nettapus coromandelianus	Cotton Teal	RM
2	Apodiformes	Apodidae	Apus affinis	House Swift	R
3	Charradriiformes	Charradridae	Vanellus malabarius	Yellow-Wattled Lapwing	R
4			Vanellusindicus	Red-Wattled Lapwing	R
5		Jacanidae	Hydrophasianus chirurgus	Pheasant-Tailed Jacana	R
6			Metopedius indicus	Bronze-winged Jacana	R
7		Recurvirostridae	Himantopus himantopus	Black Winged Stilt	WV
8		Scolopacidae	Tringa gareola	Sand Piper	M
9			Tringa solitoria	Semipal mated Piper	M
10	Ciconiiformes	Ardreidae	Bubulcus ibis	Cattle Egret	R
11			Egretta garzetta	Little Egret	RM
12			Casmerodius albus	Large Egret	RM
13			Ardeola grayii	Indian Pond Heron	R
14			Mesophoyx intermedia	Median Egret	RM
15			Nycticorax nycticorax	Black-crowned Night Heron	RM
16			Plegadis falcinellus	Glossy Ibis	RM
17		Anhingidae	Anhinga melanogaster	Darter or Snake Bird	RM
18		Ciconiidae	Anastomus oscitance	Asian Openbill-Strok	RM
19		Threskiornithidae	Pseudibis papillosa	Red-napped Ibis	R
20	Columbiformes	Columbidae	Streptopelia chinensis	Spotted Dove	R
21			Streptopelia tranquebarica	Red Collard-Dove	R
22			Columba livia	Blue Rock Pigeon	R
23	Coraciiformes	Alcedinidae	Ceryle rudis	Lesser Pied Kingfisher	RM
24			Alcedo atthis	Small Blue Kingfisher	R
25			Halcyon smyrnensis	White –Breasted Kingfisher	R
26		Meropidae	Merops oriaentalis	Small Bee-Eater	R
27			Merops philippinus	Blue-Tailed Bee Eater	RM
28		Coraciidae	Coracias benghalensis	Indian Roller	RM
29		Upupidae	Upupa epops	Common Hoopoe	R
30		Bucerotidae	Ocyceros birostris	Indian Grey Hornbill	R
31	Cuculiformes	Cuculidae	Eudynamys scolopaceus	Asian Koel	R
32			Centropus sinesis	Greater Coucal	R
33	Falconiformes	Accipitridae	Haliastur indus	Brahmin Kite	R
34			Milvusmigrans	Pariah Kite	R
35			Elanus careuleus	Black Shouldered Kite	R
36			Aquila spe.	Eagle	RM
37	Gruiformes	Rallidae	Porphyrio porophyrio	Purple Moorhen	R
38			Fulica atra	Common Coot	RM
39			Gallinule chloropus	Common Moorhen	RM
40		Otididae	Ardeotis nigricepts	Great Indian Bustard	M
41	Passeriformes	Alaudidae	Galerida deva	Skykes's Crested Lark	R
42			Eremopterix grisea	Ashy-crowned Sparrow-Lark	R
43		Pittidae	Pitta brachyuran	Indian Pitta	R
44		Corvidae	Dicrurus macrocercus	Black Drongo	R
45			Corvus splendens	House crow	R
46		Motacilliadae	Motacilla flava	Yellow-Wagtail	WV
47			Motacilla alba	White-Wagtail	R
48			Motacilla maderaspatensis	Pied Wagtail	WV
49		Passeridae	Anthus rufulus	Paddy field Pipit	R
50			Amandava amandava	Red Munia	R
51			Ploceus megarhynchus	Finn's Weaver	R
52		Hirundinidae	Hirundo rustica	Common Swallow	R
53			Hirundo smithii	Wire-tailed Swallow	R
54		Laniidae	Turdoides striat	Jungal Babbler	R
55			Zoothera citrine cyanotus	White-Throated Thrush	R
56			Saxicoldies fulicatus	Indian Robin	R
57			Sexicola torquala	Common syonechat	R
58			Turdoides caudatus	Common Babbler	R
59			Prinia socialis stewarti	Ashy Prinia	R
60			Rhipidura albicollis	Whight-throted Fintail Flycatcher	R
61			Orthotomus sutorius	Common Tailor bird	R
62			Saxicola caprata	Pied Bushchat	R
63			Laniusschach	Rufous-Backed Shrike	R
64			Lanius excubitor	Great Grey Shrike	R
65			Phoenicurus ochruros	Black Redstart	R
66		Pyconotidae	Pycnonotus cafer	Red-Vented Bulbul	R
67			Pycnonotus melanicterus	Black-crested Bulbul	R
68		Nectariniidae	Nectarini azeylonica	Purpl-Ramped Sunbird	R
69		Zoosteropidae	Zosterops palpebrosus	Oriental White-eyed	R
70		Muscicapidae	Myiophonus horsfieldii	Malabar Whistling-Thrush	R
71			Sturnus pagodarum	Brahminy Starling	R
72			Acridotheres trisits	Common Myna	R

73			Sturnus contra	Asian Pied Starling	R
74	Pelecaniformes	Phalacrocoracidae	Phalacrocorox niger	Little Cormorant	R
75	Psittaciformes	Psittacidae	Psittacula krameri	Parakeet	RM
76			Psittacula eupatria	Alexendrin Parakeet	R
77	Strigiformes	Strigidae	Gluacidium radiatum	Jungle owlet	R

RM= Resident Migratory, R= Resident, WV= Winter Visitor

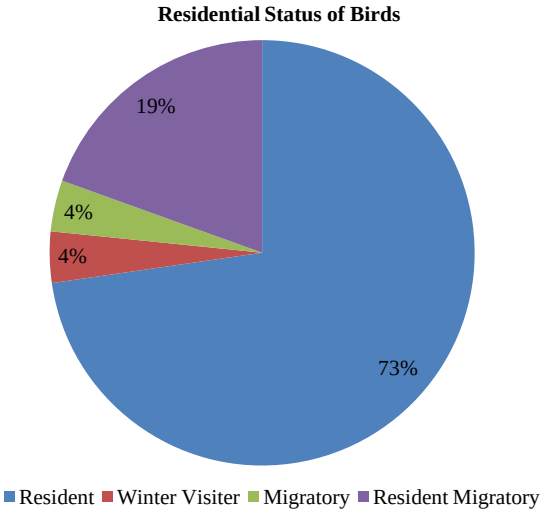

Figure 1

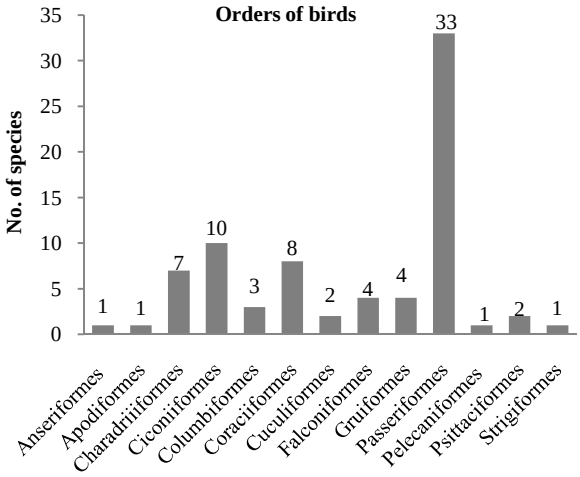

Figure 2 Order wise birds diversity in Polipathar region, Jabalpur

birds and winter visitor were also recorded.

Various studies have been done on the bird biodiversity and its conservation issue in the residential areas.

CONCLUSION

The interaction of man with different ecosystem has been concern largely due to the rapid population growth accompanied the development and further pollution, deforestation, development of roads and railways, urbanisation, and building of residential area etc. However the future of this avian fauna is in danger due to advancement and development of residential area, urbanisation, over exploitation of trees and other purpose. The dimension of greenspaces and the amount of tree cover are critical factors supporting avian ecological diversity in urban environments. As a consequence, urban forest planners and managers should promote the planning and design of large greens lands within cities and the connection of them with the surrounding landscape elements. The structural heterogeneity of forest trees within the study area is a fundamental aspect supporting high level of species abundance of birds. The conservation of species diversity in urban areas should be based on the knowledge on one or more indicators species having different habitat requirements in terms of vegetation and trees' structure (Ficetola *et al*., 2007).

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