



ROLE OF SMALL WATER BODIES IN SUSTAINING AVIAN DIVERSITY: A CASE STUDY OF DULAHARA POND RATANPUR (DISTT. BILASPUR, C.G.)

Shubhada Rahalkar and Anju Tiwari

Govt. Bilasa Girls P.G. College Bilaspur (C.G)

Corresponding author Email : rahalkar_s@rediffmail.com

Abstract:

Ratanpur a famous pilgrimage, 25 km from Bilaspur is known for an 11th century temple of Goddess Mahmaya. It is also known as city of ponds as it has more than 150 ponds around it. In India ponds are inseparable part of village organization. People are dependent on these ponds to fulfill their daily requirement. These water bodies play a crucial role in storing rain water and surface runoff, thus recharging the ground water; have self sustaining ecosystem and play important role in maintaining socio-ecological balance. These village ponds are home of number of water birds, vegetation around the pond and marshy area also gives shelter to good number of avian fauna. Bird census and monitoring is an extremely cost effective method of measuring overall health of water bodies. Therefore study was undertaken, for two years from April 2008 to March 2010, to document bird fauna of Dulahara pond a prominent pond near Ratanpur. Fifty five avian species were found in present study belonging to thirteen orders, inhabiting Dulahara pond and surrounding area. Out of which Nine species showed local migratory/migratory movements. Twenty seven species of order Passeriformes, six species of order Ciconiiformes, five Species of order Coraciiformes, four species of Cuculiformes, two species each of order Anseriformes, Collumbiformes, Chardiiformes & Gruiformes; and one species each of order Piciformes, Psittaciformes, Falconiformes, Upupiformes and Pelecaniformes was found during study period.

Keywords:

Avian Diversity, Bird diversity

Introduction:

Introduction: Wetlands are dynamic ecosystems; whilst certain pressures on wetlands arise from natural causes, it is the human activities that have significantly affected wetlands in recent decades. Wetlands dependent species are often rare, threatened or found only in a very restricted geographical area. Freshwater lakes and rivers contain just 0.008 per cent of the world's water but are of great importance for biodiversity as they contain twelve percent of all





animal species (Shine and de Klemm, 1999). Ratanpur once a capital of Bilaspur is famous for an 11th century temple of Goddess Mahmaya. It is surrounded by green hills and housing more than 150 ponds. It is 25 km from Bilaspur city. Dulahara pond is one of these ponds, 22.5 km from Bilaspur on NH 111. These ponds house large number of bird species. Winter visitors congregate to these ponds in large numbers. Therefore attempt was made to study faunal wealth of this region. The study was conducted for two years since March 2008 to April 2010 to document the avian diversity of one of prominent pond that is Dulahara pond. The pond is located at the foot hill, surrounded by highland on two sides. It retains water throughout the year. Local people use two of its sides for agriculture in Rabi and grow vegetables at its bank. Because of its location one side is site of human activity, pool of water and other side which is relatively undisturbed provides safe area for birds for foraging and other activities. Thus it has a balance bland of Human- Nature interaction. Area of pond is given in the figure 1. Farms surround the pond towards eastern side; there was a temple on southern side. The pond was scatteredly surrounded by *Ipomoea carnea*. There was grassland around the pond for a short distance and then starts the hillock towards Western side of the pond. Towards western side at the base of hillock was shrubby area. The pond was full of aquatic vegetation especially Lotus, *Nelumba nucifera* and Indian water chestnut, *Trapa bispinospora* providing ample food to water fowl and waders. The pond is also used for pisciculture. Deeper wetlands with a growth of aquatic plants attract more water birds, where they could dabble to acquire their feed (Weller, 1975). The pond and surrounding area was surveyed to document bird species.

Material and Method:

Point count method was adopted to note abundance and diversity of Waterfowl and other water birds. The point count method has been widely used for the study of bird communities in both tropical and temperate regions (Bibby et al.





2000; Raman 2003) However Line Transact method was adapted in surrounding area of wetland to record other avian species. The bird spotted or heard was identified up to species level. Book of Indian Birds By Salim Ali (2002) and A Field Guide to Birds of India By Krays Kazmierczac(2000) and Birds of North India,by Grimmert Richard and Inskipp Tim (2003) was referred for identification. During transect study it was difficult to differentiate Purlpe-rumped Sun bird and Purple Sunbird during non breeding season. Hence the two were recorded as Sunbird for abundance study. Transact was walked in the morning, between 7.15 to 8.15 am in winter and 6.30 to 7.30 am in summer, as this is the peak period of activity of birds. The study sites were sampled quarterly as per following schedule- a- 1st quarter sampling between the months of March to May b- 2nd quarter sampling between the months of June to August c- 3rd quarter sampling between the months of September to November d- 4th quarter sampling between the months of December to February

Result and Discussion:

Result: Fifty five avian species were found in present study during study period belonging to thirteen orders, inhabiting Dulahara pond and surrounding area (Table1). Twenty seven species of order Passeriformes, six species of order Ciconiformes, five Species of order Coraciiformes, four species of Cuculiformes, two species of order Anseriformes, Collumbiformes, Chardiiformes & Gruiformes; and one species each of order Piciformes, Psittaciformes, Falconiformes, Upupiformes and Pelecaniformes was found during study period. Figure 2 shows the habitat preference of avian species. Out of fifty five species; six were confined to open waters, seven were spotted in pond margin and shallow waters, thirty eight species were confined to surrounding area however four species were found in surrounding as well as over the water body in search of food. During study it was recorded that four waders breed in this pond namely *Hydrophasianus chirurgus* (Pheasant tailed Jacana) *Metopidius*





indicus (Bronze winged Jacana) Porphyrio porphyrio (Purple Moor hen), & Nettapus coromandelianus (Cotton Pigmy Goose)

Discussion: During study period few species were found to show seasonal occurrence. The lesser Whistling Teel was recorded in fourth quarter sampling during both the years, Ali (2002) has reported the species as resident of India, but shows local movement

Table 4: Taxonomic composition and No. of individuals of Avian species recorded from Dulahara

S. No.	Order	Species	Common Name	Habitat Preference		Total
1	Anseriformes	<i>Nettapus coromandelianus</i>	Cotton Pigmy Goose	OP	R	11
2		<i>Dendrocygna javanica</i>	Lesser Whistling Teel	OP	LM	78
3	Piciformes	<i>Megalaima haemacephala</i>	Copper Smith	SA	R	4
4	Upupiformes	<i>Upupa epops</i>	Hoopoe	SA	R	1
5	Coreciiformes	<i>Corecias benghalensis</i>	Blue Jay	SA	R	18
6		<i>Halcyon smyrnensis</i>	White Breasted King Fisher	SA+AO	R	5
7		<i>Alcedo atthis</i>	Small Blue King Fisher	SA+AO	R	6
8		<i>Ceryle rudis</i>	Pied King Fisher	SA+AO	R	2
9		<i>Merops orientalis</i>	Green Bee Eater	SA	LM	47
10	Cuculiformes	<i>Eudynamys scolopacea</i>	Koel	SA	R	2
11		<i>Hierococcyx varius</i>	Indian Cocoo	SA	R	3
12		<i>Clamator jacobinus</i>	Crusted pied cucoo	SA	M	4
13		<i>Centropus sinensis</i>	Crow Pheasant	SA	R	7
14	Psittaciformes	<i>Psittacula krameri</i>	Rose Ring Parakete	SA	R	45
15	Collumbiformes	<i>Streptopelia senegalensis</i>	Padaki	SA	R	68
16		<i>Ducula bicolor</i>	White Pegeon	SA	R	23
17	Gruiformes	<i>Gallinula chloropus</i>	Moor Hen	OP	R	33





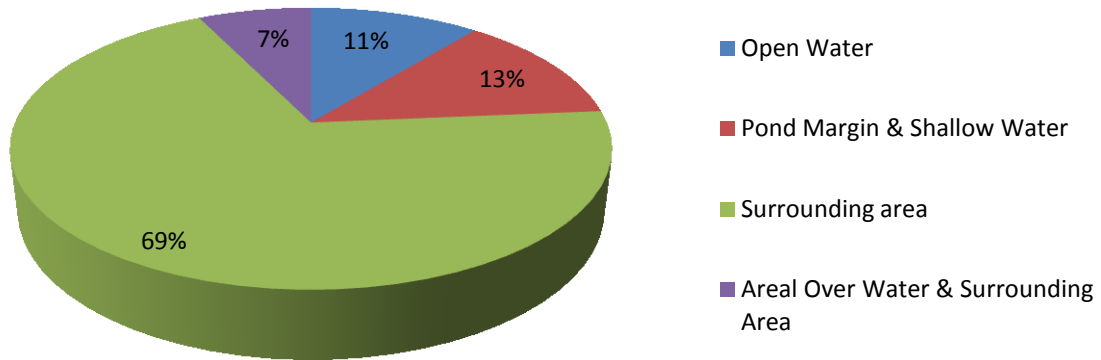
18		<i>Porphyrio porphyrio</i>	Purple moor hen	PM/SH	R	13
19	Chardriiformes	<i>Hydrophasianus chirurgus</i>	Pheasant Tailed Jassana	OP	R	112
20		<i>Metopidius indicus</i>	Bronze Winged Jassana	OP	R	56
21	Falconiformes	<i>Accipiter badius</i>	Shikra	SA	R	3
22	Pelecaniformes	<i>Phalacrocorax niger</i>	Cormorant	OP	R	6
23	Ciconiiformes	<i>Ixobrychus cinnamomeus</i>	Cheast nut Beeten	PM/SH	R	21
24		<i>Bubulcus ibis</i>	Cattle Egret	PM/SH	R	39
25		<i>Egretta garzetta</i>	Little Egret	PM/SH	R	35
26		<i>Ardeola grayii</i>	Paddy Bird	PM/SH	R	67
27		<i>Mesophoyx intermedia</i>	Large White Heron	PM/SH	R	8
28		<i>Anastomus oscitans</i>	Open Bill Storke	PM/SH	R	2
29	Passeriformes	<i>Lanius excubitor</i>	Gray Shrike	SA	LM	2
30		<i>Lanius schach</i>	Roufous backed shrike	SA	LM	1
31		<i>Capsychus saularis</i>	Mag Pied Robin	SA	R	10
32		<i>Dicrurus macrocercus</i>	Drongo	SA+AO	R	56
33		<i>Pycnonotus cafer</i>	Bulbul	SA	R	84
34		<i>Saxicola caprata</i>	Bush Chat	SA	R	50
35		<i>Saxicoloides fulicata</i>	Indian Robbin	SA	R	71
36		<i>Corvus splendens</i>	Crow	SA	R	51
37		<i>Sturnus contra</i>	Pied Myna	SA	R	40
38		<i>Acridotheres tristis</i>	Common Myna	SA	R	92
39		<i>Sturnus pagodarum</i>	Brahmini Myna	SA	R	16
40		<i>Turdoides straitus</i>	Jungle Babler	SA	R	27
41		<i>Turdoides caudatus</i>	Common Babler	SA	R	41
42		<i>Eremopterix grisea</i>	Black Bellied Finch Lark	SA	R	33
43		<i>Mirafra erythroptera</i>	Red Winged Bush Lark	SA	R	17
44		<i>Ammomanes phoenicurus</i>	Roufous Tailed Lark	SA	LM	2
45		<i>Motacilla flava</i>	Yellow Wagtail	SA	M	2

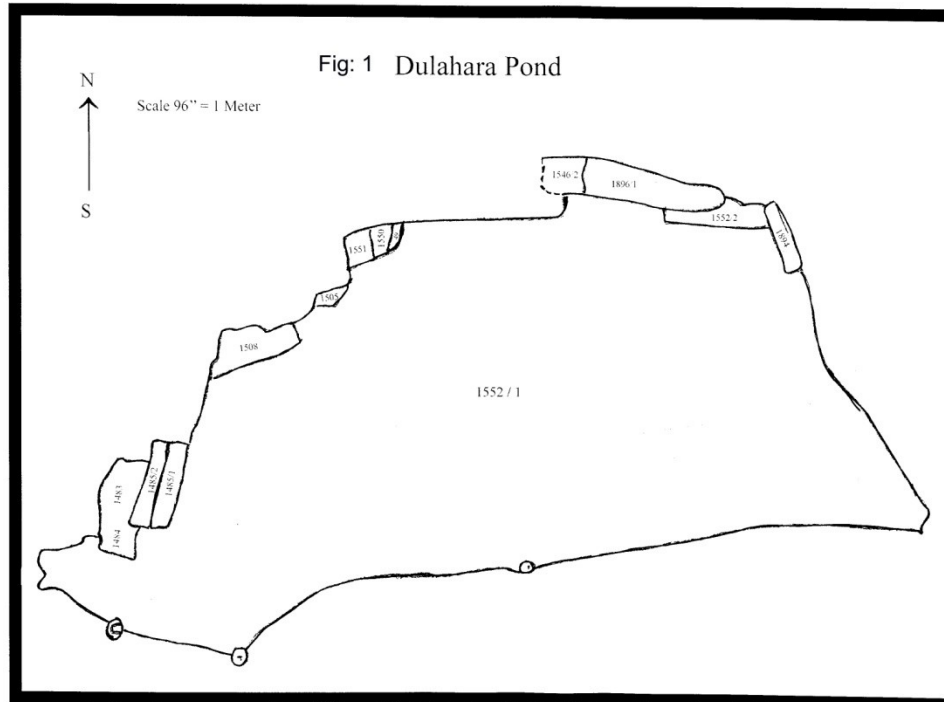




46		<i>Prinia Spp.</i>	Plain Prinia	SA	R	7
47		<i>Prinia socialis</i>	Ashy Wren Warbler	SA	R	20
48		<i>Amandava amandava</i>	Red Munia	SA	R	47
49		<i>Lonchura malabarica</i>	Silver Throated Munia	SA	R	54
50		<i>Lonchura punctulata</i>	Spoted munia	SA	R	88
51		<i>Nectarinia zeylonica, N. asiatica</i>	Purple Rumped Sun Bird, Purple sun Bird	SA	R	20
52		<i>Anthus spp.</i>	Pipit (paddy field)	SA	R	31
53		<i>Phoenicurus ochruros</i>	Black Red Start	SA	M	2
54		<i>Chrysomma sinense</i>	Yellow eyed Babler	SA	R	4
						1587

Habitat Preference of Bird Species During Present Investigation





Conclusion:

Village ponds have an important role in conservation of avian species. Traditionally ponds are an essential component of Indian villages; they involuntarily contribute in conservation of avian diversity. It provides opportunity for local migratory movements of water birds and helps the survival of these birds in local landscape.

Acknowledgement:

I am thankful to UGC Bhopal for providing financial support through minor project entitled "Study of Avifaunal Biodiversity of Bilaspur City and Surrounding". This work is a part of the project.





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