

# Research Article

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## Birds of Rawanwadi Region Bhandara, Central India

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### ABSTRACT

The region of Rawanwadi reservoir is a good habitat for insects, fishes, reptiles as well as birds. Its geographical location is 21.043197 N, 79.729924 E. Observations were done by two visits on every month from May 2015 to April 2016 in the morning and evening hours. Bird observation and recording were done with the help of binocular and digital cameras. Total 143 species of birds were recorded belonging to 15 orders and 41 families. Out of total 143 species 07 are migrant, 95 are Resident and 41 are Resident migrant. Seasonal variation is well marked in birds due to availability of food and nesting and suitable environmental conditions. Largest number (60) of bird species is recorded from order Passeriformes which belonging to 17 families.

**Key words:** Rawanwadi reservoir, Biodiversity, Birds

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### INTRODUCTION

Birds are described as a 'Feathered Biped'. The senses, sight and hearing are most highly developed in birds. Birds are vertebrate warm blooded animals. The temperature of birds about 38°-44° C. they lack sweat glands. The perfectly streamlined spindle shaped body of bird is designed to offer the minimum resistance to the wind. They cross ocean barriers and find their way to remote region and isolated islands, and exist under physical conditions where their cold-blooded relatives must perish. it also this power of swift and sustained flight that enable birds living in northern lands and to migrate periodically over enormous distance in order to escape from rigors of winter, shortening of food supply and more hospitable climes (Ali 2002). Biodiversity is the varieties of life present on earth. Birds fulfill many ecological functions in their habitats. For instance, they are bioindicators of healthy ecosystems (Mistry *et al* 2008). Biodiversity is affected by climate change but it also makes an important contribution in migration and adaptation of birds. Birds are markers of environmental quality (Chavan *et al* 2015). Out of the more than 9,000 birds of the world, the Indian subcontinent contains about 1,300 species, or over 13% of the world's birds (Grimmett *et al* 1998). Frugivorous birds play an important role in seed dispersal of fleshy fruit-producing plants (Stevenson *et al* 2002). Birds are also important in plant pollination as demonstrated by sunbirds, which participate in crossbreeding of flowering plants, especially those with bird-pollination syndrome (Judd *et al* 2008).

Now a day because of the civilization, constructions and heavy pollutions, habitats of birds are destroying which affect the nesting and rate of reproduction. The Rawanwadi reservoir was constructed as a part of irrigation project by government of Maharashtra in 1960. It is surrounded by the forest woods, grasslands and paddy fields which is a good habitat, rich in food like insects, fishes and amphibians etc. for birds. The food availability and natural habitat of this region is the main attraction for the bird species.

### MATERIAL AND METHOD

The study of birds was done according to the point transect method (Sutherland *et al*. 2004). The birds were recorded with the help of binocular and the photographs which were captured with the help of cameras like Canon 700 D, Sony

cyber shot, Sony handy cam 3.1 MP, Coolpix Nikon. The study of biodiversity of birds was done during the month of April 2015 to March 2016 in the morning and evening hours. Identification of birds was done as per the field guides. Birds were observed, identified, recorded and checklist is prepared.

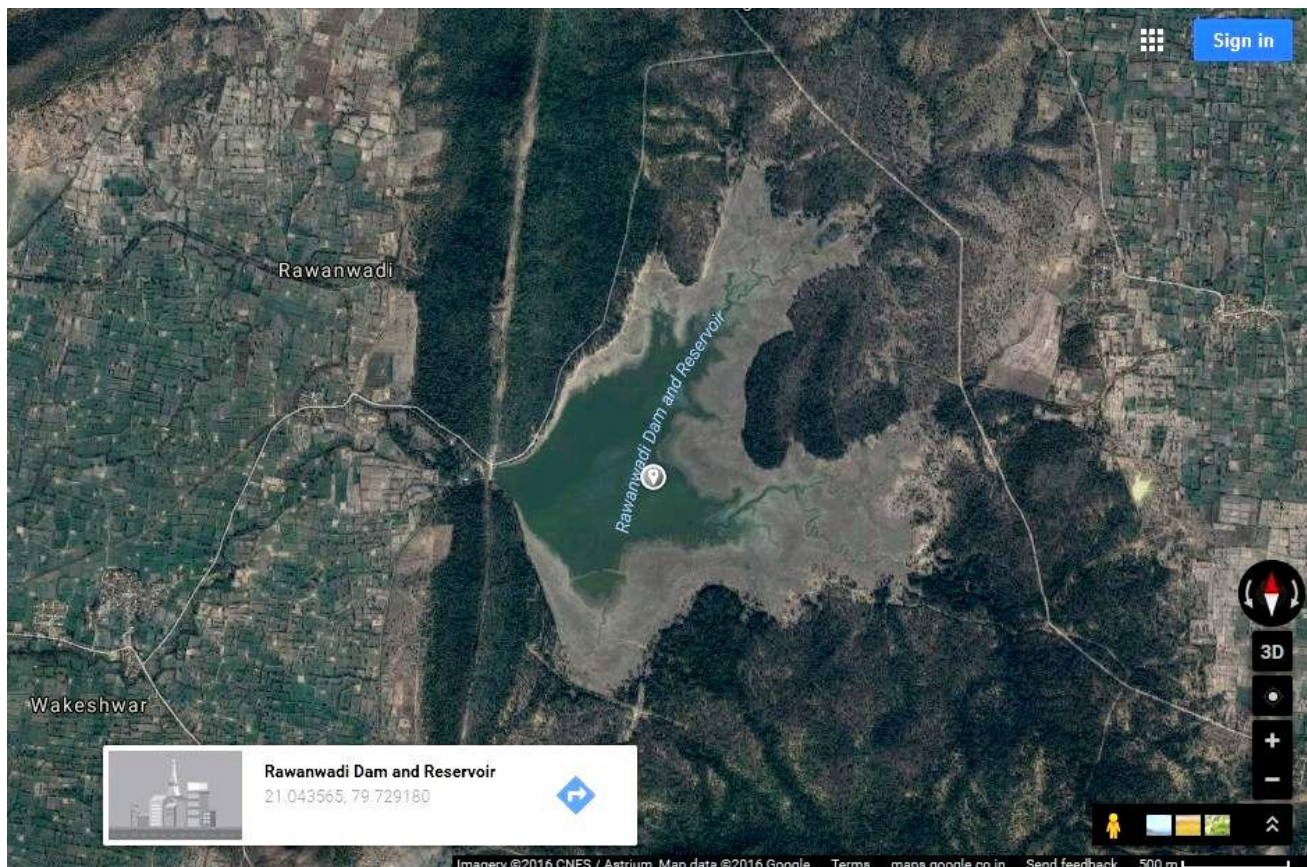


Figure 1: Map showing study area of Rawanwadi reservoir, Dist. Bhandara, Maharashtra, India. (P.C. Google map)

## OBSERVATION

In present investigation, from 15 orders and 41 families 143 bird species were recorded in their natural environment (Table 1 and 2; Fig. 3). The maximum number (60) of species belonging to 17 families is observed under the Order Passeriformes (41.96%) followed by Order Ciconiiformes and other (Table 2; Fig. 1 and 2). The majority of birds belonging from Family Musicapidae of order Passeriformes, comprises of 22 birds like Warblers, Babblers, Indian robin, Prinia, Flycatchers and Thrush (Table 1). Out of 143 species 95 (66.43%) were Resident, 41 (28.67%) were resident migrant and 07 (4.9%) were migrant species (Table 1 and 3). Large number of species were observed during the monsoon and winter months as compared to the summer months probably due to scarcity of food.

Table 1: Checklist and status of birds in and around Rawanwadi reservoir

S. N.	Order / Family /zoological name	Common name	Status
	<b>Order- Podicipediformes, Family-Podicipitidae</b>		
1.	<i>Podiceps cristatus</i>	Great crested grebe	M
2.	<i>Tachybaptus ruficollis</i>	Little Grebe	RS
	<b>Order -Pelecaniformes, Family-Phalacrocoracidae</b>		
3.	<i>Anhinga melanogaster</i>	Darter	RM
4.	<i>Phalacrocorax carbo</i>	Great Cormorant	RM
5.	<i>Phalacrocorax fuscicollis</i>	Indian Cormorant	RS
6.	<i>Phalacrocorax niger</i>	Little Cormorant	RM
	<b>Order-Ciconiiformes, Family-Ardeidae</b>		
7.	<i>Ardea cinereal</i>	Grey Heron	RM
8.	<i>Ardea insignis</i>	White bellied heron	RS
9.	<i>Ardea purpurea</i>	Purple Heron	RM
10.	<i>Ardeola grayii</i>	Indian Pond Heron	RS

11.	<i>Bubulcus ibis</i>	Cattle Egret	RS
12.	<i>Butorides striata</i>	Little Heron	RS
13.	<i>Casmerodius albus</i>	Large Egret	RS
14.	<i>Dupetor flavicollis</i>	Black Bittern	RM
15.	<i>Egretta garzetta</i>	Little Egret	RS
16.	<i>Egretta intermedia</i>	Smaller Egret	RS
17.	<i>Ixobrychus cinnamomeus</i>	Chesnut Bittern	RM
18.	<i>Ixobrychus minutes</i>	Little bittern	RM
19.	<i>Ixobrychus sinensis</i>	Yellow Bittern	RM
20.	<i>Mesophoyx intermedia</i>	Median Egret	RS
21.	<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	RM
	<b>Family-Ciconiidae</b>		
22.	<i>Anastomus oscitans</i>	Asian open bill stork	RS
23.	<i>Ciconia episcopus</i>	White necked stork	RS
24.	<i>Ciconia nigra</i>	Black stork	M
25.	<i>Mycteria leucocephala</i>	Painted stork	RM
	<b>Family-Threskiornithidae</b>		
26.	<i>Platalea leucorodia</i>	Eurasian spoon bill	RM
27.	<i>Pseudibis papillosa</i>	Black ibis	RS
28.	<i>Threskiornis melanocephalus</i>	Oriental white ibis	RM
	<b>Order-Falconiformes, Family-Accipitridae</b>		
29.	<i>Accipiter virgatus</i>	Besra sparrow hawk	RS
30.	<i>Aviceda jerdoni</i>	Jerdon's baza	RS
31.	<i>Circaetus gallicus</i>	Short toed snake eagle	RS
32.	<i>Elanus caeruleus</i>	Black shouldered kite	RS
33.	<i>Spilornis cheela</i>	Crested serpent eagle	RS
	<b>Family-Falconidae</b>		
34.	<i>Falco jugger</i>	Lagger	RM
	<b>Order-Galliformes, Family-Phasianidae</b>		
35.	<i>Coturnix coturnix</i>	Common quail	RM
36.	<i>Francolinus pondicerianus</i>	Grey francolin	RS
37.	<i>Gallus gallus</i>	Red jungle fowl	RS
38.	<i>Gallus sonneratii</i>	Grey jungle fowl	RS
39.	<i>Pavo cristatus</i>	Indian peafowl	RS
	<b>Order-Gruiformes, Family-Rallidae</b>		
40.	<i>Amaurornis phoenicurus</i>	White breasted waterhen	RS
41.	<i>Fulica atra</i>	Common coot	RM
42.	<i>Gallinula chloropus</i>	Common moorhen	RM
43.	<i>Porzana parva</i>	Little crake	M
44.	<i>Porzana pusilla</i>	Baillon's crake	RM
45.	<i>Porphyrio porphyrio</i>	Purple moorhen	RS
	<b>Order-Charadriiformes, Family-Charadiidae</b>		
46.	<i>Vanellus indicus</i>	Red-wattled lapwing	RS
47.	<i>Vanellus malabaricus</i>	Yellow-wattled lapwing	RS
	<b>Family-Scolopacinae</b>		
48.	<i>Calidris minuta</i>	Little stint	M
49.	<i>Tringa nebularia</i>	Common greenshank	M
	<b>Family-Laridae</b>		
50.	<i>Chlidonias hybridus</i>	Whiskered tern	RM
51.	<i>Sterna albifrons</i>	Little tern	RM
52.	<i>Sterna aurantia</i>	River tern	RM
	<b>Order-Columbiformes, Family-Columbidae</b>		
53.	<i>Columba livia</i>	Blue rock pigeon	RS
54.	<i>Streptopelia chinensis</i>	Spotted dove	RS
55.	<i>Streptopelia decaocto</i>	Eurasian collared dove	RS
56.	<i>Streptopelia orientalis</i>	Oriental turtle dove	RM
57.	<i>Streptopelia senegalensis</i>	Little brown dove	RS
58.	<i>Streptopelia tranquebarica</i>	Red collared dove	RS

	<b>Order-Psittaciformes, Family-Psittacidae</b>		
59.	<i>Psittacula cyanocephala</i>	Plum headed parakeet	RS
60.	<i>Psittacula eupatria</i>	Alexandrine parakeet	RS
61.	<i>Psittacula himalayana</i>	Slaty headed parakeet	RS
	<b>Order-Cuculiformes, Family-Cuculidae</b>		
62.	<i>Centropus bengalensis</i>	Lesser coucal	RS
63.	<i>Centropus Sinensis</i>	Greater coucal	RS
64.	<i>Clamator jacobinus</i>	Pied crested cuckoo	RM
65.	<i>Cuculus canorus</i>	Common cuckoo	RM
66.	<i>Eudynamis scolopacea</i>	Asian koel	RS
67.	<i>Surniculus lugubris</i>	Drongo cuckoo	RS
	<b>Order-Strigiformes, Family-Strigidae</b>		
68.	<i>Athene brama</i>	Spotted owl	RS
69.	<i>Bubo cormandus</i>	Dusky eagle owl	RS
70.	<i>Tyto alba</i>	Barn owl	RM
	<b>Order-Caprimulgiformes, Family-Caprimulgidae</b>		
71.	<i>Caprimulgus asiaticus</i>	Common Indian nightjar	RS
72.	<i>Caprimulgus indicus</i>	Indian jungle nightjar	RM
	<b>Order-Coraciiformes, Family-Alcedinidae</b>		
73.	<i>Alcedo atthis</i>	Small blue kingfisher	RM
74.	<i>Ceryle rudis</i>	Lesser pied kingfisher	RS
75.	<i>Halcyon smyrnensis</i>	White breasted kingfisher	RS
	<b>Family-Meropidae</b>		
76.	<i>Meropus orientalis</i>	Small bee eater	RS
77.	<i>Meropus philippinus</i>	Blue tailed bee eater	RM
	<b>Family-Coraciidae</b>		
78.	<i>Coracias benghalensis</i>	Indian roller	RS
	<b>Family-Upupidae</b>		
79.	<i>Upupa epops</i>	Common hoopoe	RM
	<b>Family-Bucerotidae</b>		
80.	<i>Ocyrceros birostris</i>	Indian grey hornbill	RS
	<b>Order-Piciformes, Family-Capitonidae</b>		
81.	<i>Megalaima haemacephala</i>	Coppersmith barbet	RS
	<b>Family-Picidae</b>		
82.	<i>Chrysocolaptes festivus</i>	Black shouldered woodpecker	RS
83.	<i>Dinopium benghalense</i>	Lesser golden backed woodpecker	RS
	<b>Order-Passeriformes, Family-Alaudidae</b>		
84.	<i>Galerida cristata</i>	Common crested lark	RS
85.	<i>Mirafra cantillans</i>	Singing bush lark	RS
	<b>Family-Hirundinidae</b>		
86.	<i>Hirundo concolor</i>	Dusky crag martin	RS
87.	<i>Hirundo fluvicola</i>	Streak throated swallow	RS
88.	<i>Hirundo rustica</i>	Common swallow	RM
89.	<i>Hirundo smithii</i>	Wire tailed swallow	RS
	<b>Family-Daniidae</b>		
90.	<i>Lanius excubitor</i>	Great grey shrike	RM
91.	<i>Lanius schach</i>	Rufous backed shrike	RS
	<b>Family-Oriolidae</b>		
92.	<i>Oriolus oriolus</i>	Eurasian golden oriole	RM
	<b>Family-Dicruridae</b>		
93.	<i>Dicrurus macrocercus</i>	Black drongo	RS
94.	<i>Dicrurus paradiseus</i>	Greater racket tailed drongo	RS
	<b>Family-Sternidae</b>		
95.	<i>Acridotheres tristis</i>	Common myna	RS
96.	<i>Sturnus contra</i>	Asian pied starling	RS
97.	<i>Sturnus pagodarum</i>	Brahminy starling	RS
98.	<i>Sturnus roseus</i>	Rosy starling	M
	<b>Family-Corvidae</b>		

99.	<i>Corvus corax</i>	Common raven	RS
100.	<i>Corvus splendens</i>	House crow	RS
101.	<i>Dendrocitta vagabunda</i>	Indian treepie	RS
	<b>Family-Campephagidae</b>		
102.	<i>Pericrocotus cinnamomeus</i>	Small minivet	RS
103.	<i>Pericrocotus flammeus</i>	Scarlet minivet	RS
	<b>Family-Irenidae</b>		
104.	<i>Aegithina tiphia</i>	Common iora	RS
	<b>Family-Pycnonotidae</b>		
105.	<i>Pycnonotus cafer</i>	Red vented bulbul	RS
	<b>Family-Musicapidae</b>		
106.	<i>Acrocephalus agricola</i>	Paddy field warbler	RM
107.	<i>Cercomela fusca</i>	Indian chat	RS
108.	<i>Chaetornis striatus</i>	Brestled grass warbler	RS
109.	<i>Chrysomma sinense</i>	Yellow eyed babbler	RS
110.	<i>Copsychus saularis</i>	Oriental magpie robin	RS
111.	<i>Cyornis rubecuooides</i>	Blue throated flycatcher	RS
112.	<i>Cyornis tickelliae</i>	Tickell's blue flycatcher	RS
113.	<i>Eumyias thalassina</i>	Verditer flycatcher	RS
114.	<i>Hypothymis azurea</i>	Black naped monarch flycatcher	RS
115.	<i>Luscinia brunnea</i>	Indian blue robin	RM
116.	<i>Luscinia svecica</i>	Blue throat	RM
117.	<i>Oenanthe isabellina</i>	Isabelline wheatear	RM
118.	<i>Prinia socialis</i>	Ashy prinia	RS
119.	<i>Prinia syloatica</i>	Jungle prinia	RS
120.	<i>Phoenicurus ochruros</i>	Black redstart	RM
121.	<i>Rhipidura albicollis</i>	White throated fantail flycatcher	RS
122.	<i>Saxicoloides fulicata</i>	Indian robin	RS
123.	<i>Turdoides caudatus</i>	Common babbler	RS
124.	<i>Turdoides striatus</i>	Jungle babbler	RS
125.	<i>Terpsiphone paradise</i>	Asian paradise flycatcher	RM
126.	<i>Zoothera citrine</i>	Orange headed thrush	RM
127.	<i>Zoothera citrina cyanotus</i>	White throated thrush	RS
	<b>Family-Dicaeidae</b>		
128.	<i>Motacilla alba</i>	White wagtail	RM
129.	<i>Motacilla cinerea</i>	Grey wagtail	M
130.	<i>Motacilla citreola</i>	Citrine wagtail	RM
131.	<i>Motacilla maderaspatensis</i>	Large pied wagtail	RS
	<b>Family-Nectariniidae</b>		
132.	<i>Nectarinia asiatica</i>	Purple sunbird	RS
133.	<i>Nectarinia lotenia</i>	Loten's sunbird	RS
134.	<i>Nectarinia zeylonica</i>	Purple rumped sunbird	RS
	<b>Family-Zosteropidae</b>		
135.	<i>Zosterops palpebrosus</i>	Oriental white eye	RS
	<b>Family-Ploceidae</b>		
136.	<i>Passer domesticus</i>	House sparrow	RS
137.	<i>Petronia xanthocollis</i>	Yellow throated sparrow	RS
	<b>Family-Estrildinae</b>		
138.	<i>Amandava amandava</i>	Red munia	RS
139.	<i>Lonchura malabarica</i>	White throated munia	RS
140.	<i>Lonchura malacca</i>	Black headed munia	RS
141.	<i>Lonchura punctulata</i>	Spotted munia	RS
142.	<i>Lonchura striata</i>	White rumped munia	RS
	<b>Family-Emberizidae</b>		
143.	<i>Melophus lathami</i>	Crested bunting	RS

RS- Resident, RM- Resident migratory, M- Migratory

Table 2: Biodiversity of birds in respective orders

S N.	Order	No. of families	No. of species
1	Podicipediformes	1	2
2	Pelecaniformes	1	4
3	Ciconiiformes,	3	22
4	Falconiforms	2	6
5	Galliformes,	1	5
6	Gruiformes	1	6
7	Charadiformes,	3	7
8	Columbiformes,	1	6
9	Psittaciformes	1	3
10	Cuculiformes	1	6
11	Strigiformes	1	3
12	Caprimulgiformes	1	2
13	Coraciiformes	5	8
14	Piciformes	2	3
15	Passeriformes	17	60
<b>Total</b>	<b>15</b>	<b>41</b>	<b>143</b>

Table 3: Status of birds

S. N.	Status of birds	No. of bird species	% of bird species
1	Resident	95	66.43
2	Resident migratory	41	28.67
3	Migratory	07	04.90

Figure 2: Species of birds present in respective orders

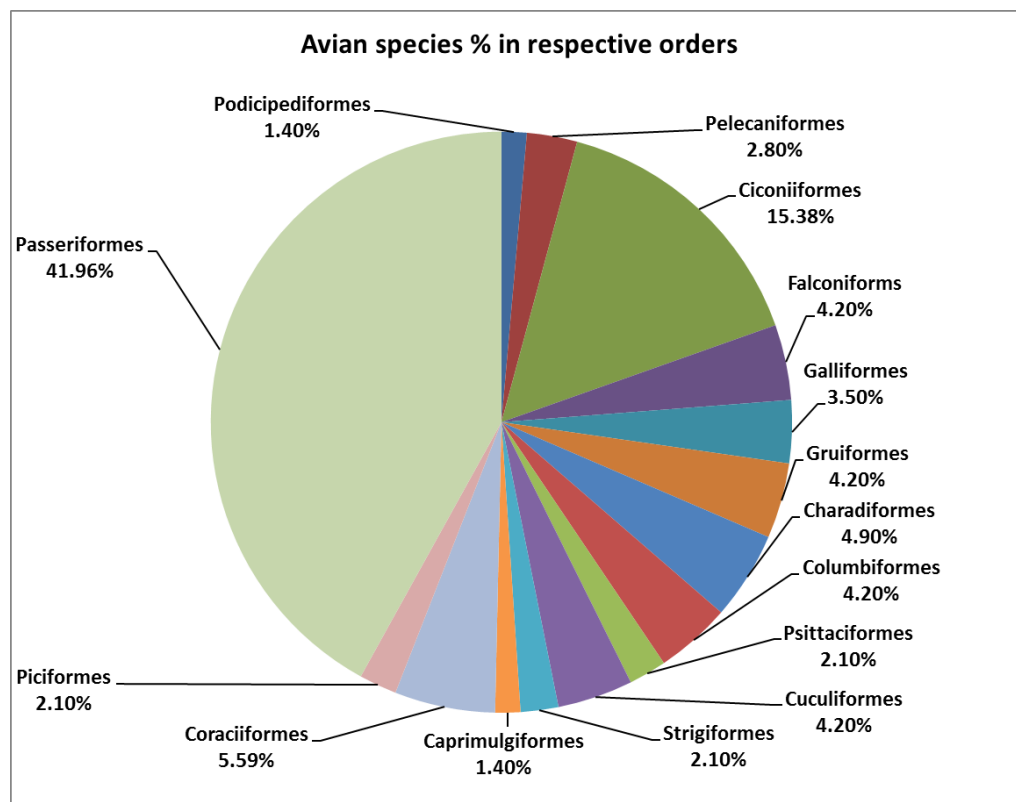


Figure 3: Bird families' diversity in respective orders

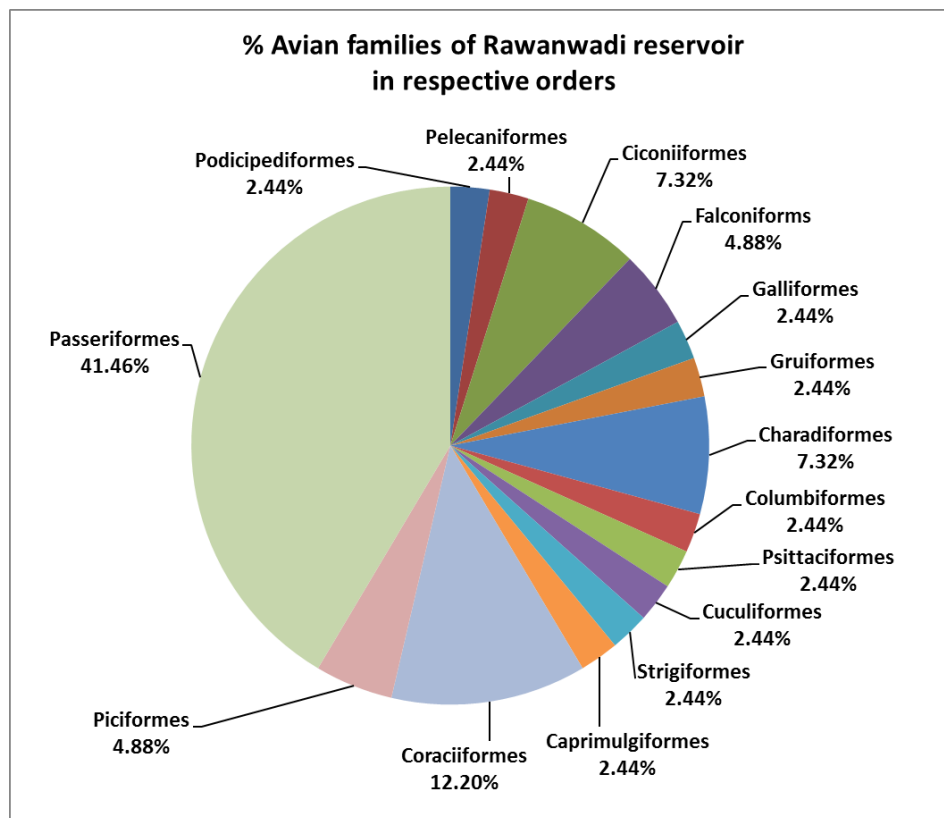
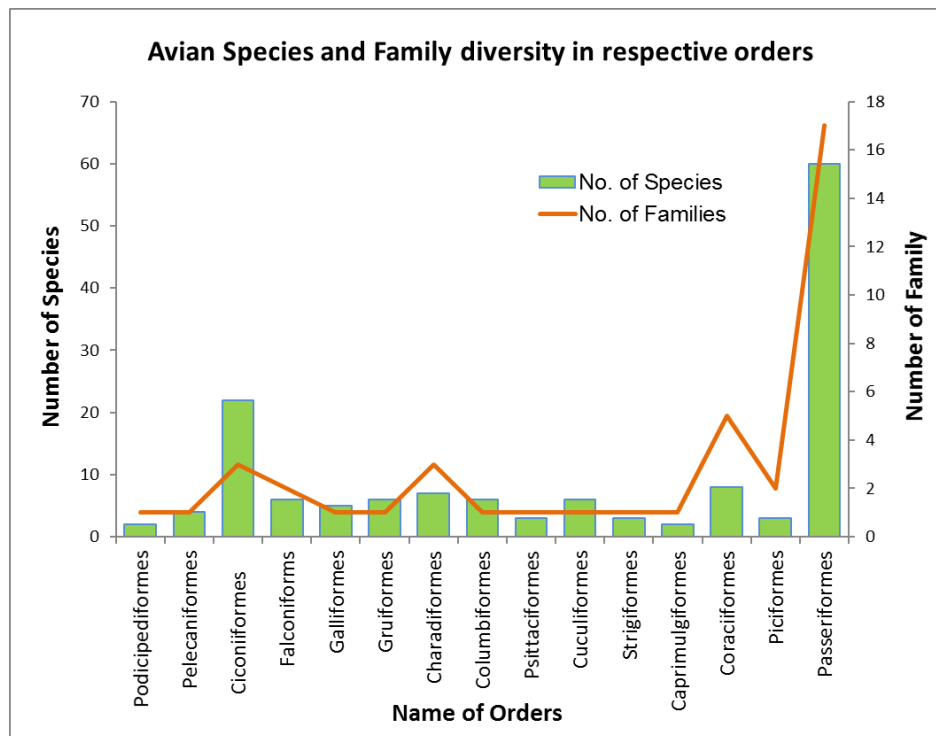


Figure 4: Number of bird species and family diversity in respective orders



### DISCUSSION

In the present study, the total 143 species of birds were recorded from 15 orders and 41 Families. Out of total 143 bird species, 95 (66.43%) are resident, 41 (28.67%) are resident migratory and 07 (4.9%) are migratory. Muscipidae was the

largest family comprising of maximum number of bird species (22). The present observation is coincided with Shende and Patil (2015), they were recorded 190 species from 17 orders and 51 families in Gorewada International biopark, Nagpur. Out of which 89 species are resident, 77 species were resident migratory and 24 were migratory. The order Passeriformes was the largest order which covered 20 families out of 51. Patil and Tijare (2012) also recorded 82 species from 11 orders and 36 families in Vicinity of Gorewada Lake, Nagpur. Wanjari *et al* (2013) were also recorded 158 species from 46 families in Tipeswar wildlife sanctuary, Maharashtra. Out of which 129 species are resident, 12 are resident migrant and 17 are migrant. Kulkarni *et al* (2011) recorded 151 species from 44 Families and 16 orders around Nanded city. Chinchkhede and Kedar (2012) recorded 120 species of birds in Navegaon national park, Maharashtra. Chavan *et al* (2015) were recorded 168 species from 53 Family and 15 order. Maximum species 73 were recorded from order Passeriformes in Godawari River Basin of Nanded district of Maharashtra state. Pachlore and Chandrakar, (2011) recorded 97 species of birds from three wetland area of Amravati region. Out of 97 species of birds 66 are local, 20 are resident and 12 migrants. Joshi *et al* (2013) recorded 146 species of 46 families in 16 orders within different habitats of Kernala bird sanctuary, Maharashtra. Species richness was highest in deciduous forest habitats (40) where it was lowest in rocky habitats (17). Talmale *et al* (2012) recorded 173 species of birds from 16 orders and 49 families from Singhori wildlife sanctuary, Raisen district, Madhya Pradesh.

The above observations are similar to the present study of biodiversity of birds in Rawanwadi where, the Passeriformes is a largest order and resident birds are predominant than that of the resident migratory and migratory birds. The birds are seen in all the three seasons but mostly in winter season and less in summer season because of scarcity of food.

## CONCLUSION

Rawanwadi reservoir is a natural habitat for birds with hilly terrain and Forest. This region is suitable for feeding, nesting and breeding. Rawanwadi is an important place for resident and migratory birds for their conservation. The present investigation concludes the record of 143 bird species from 15 orders comprising of 41 families. The Passeriformes is a largest order consisting of 17 families, reporting maximum number of bird species. This study contributes to the knowledge of bird diversity in Rawanwadi reservoir and provides the most recent status of bird diversity. This study of biodiversity of birds will be helpful in the protection and conservation of threatened and vulnerable birds.

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