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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

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 38⁰-44⁰ 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 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 Muscicapidae 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 |
|------|---------------------------------|-------------------|--------|
| 1.   | Podiceps cristatus              | Great crested grebe | M      |
| 2.   | Tachybaptus ruficollis          | Little Grebe      | RS     |
| 3.   | Anhinga melanogaster           | Darter            | RM     |
| 4.   | Phalacrocorax carbo             | Great Cormorant   | RM     |
| 5.   | Phalacrocorax fuscullis         | Indian Cormorant  | RS     |
| 6.   | Phalacrocorax niger             | Little Cormorant  | RM     |
| 7.   | Ardea cinerea                   | Grey Heron        | RM     |
| 8.   | Ardea insignis                  | White belled heron| RS     |
| 9.   | Ardea purpurea                  | Purple Heron      | RM     |
| 10.  | Ardeola grayii                  | Indian Pond Heron | RS     |
| No. | Scientific Name                  | Common Name                     | Order/Family                                      |
|-----|---------------------------------|---------------------------------|--------------------------------------------------|
| 11. | Bubulcus ibis                   | Cattle Egret                    |                                                  |
| 12. | Butorides striata               | Little Heron                    |                                                  |
| 13. | Casmerodius albus               | Large Egret                     |                                                  |
| 14. | Duleptor flavicollis            | Black Bitter                    |                                                  |
| 15. | Egretta gularis                 | Little Egret                    |                                                  |
| 16. | Egretta intermedia              | Smaller Egret                   |                                                  |
| 17. | Isybrucus cinnamomeus           | Chesnut Bitter                  |                                                  |
| 18. | Isybrucus minutus               | Little bittern                  |                                                  |
| 19. | Isybrucus sinensis              | Yellow Bitter                   |                                                  |
| 20. | Mesophoix intermedia            | Median Egret                    |                                                  |
| 21. | Nycticorax nycticorax           | Black-crowned Night Heron       |                                                  |
|     | **Family-Ciconiidae**           |                                 |                                                  |
| 22. | Anastomus oscitans              | Asian open bill stork           |                                                  |
| 23. | Ciconia episcopus               | White necked stork              |                                                  |
| 24. | Ciconia nigra                   | Black stork                     |                                                  |
| 25. | Mycteria leucocephala           | Painted stork                   |                                                  |
|     | **Family-Threskiornithidae**    |                                 |                                                  |
| 26. | Platalea leucorodia             | Eurasian spoon bill             |                                                  |
| 27. | Pseudibis papillosa             | Black ibis                      |                                                  |
| 28. | Threskiornis melanoccephalus    | Oriental white ibis             |                                                  |
|     | **Order-Falconiforms, Family-Accipitridae** |                              |                                                  |
| 29. | Accipiter virgatus              | Besra sparrow hawk              |                                                  |
| 30. | Aoida jerdoni                   | Jerdon's baza                   |                                                  |
| 31. | Ciraeus gallicus                | Short toed snake eagle          |                                                  |
| 32. | Elamus caeruleus                | Black shouldered kite           |                                                  |
| 33. | Spilornis cheela                | Crested serpent eagle           |                                                  |
|     | **Family-Falconidae**           |                                 |                                                  |
| 34. | Falco jugger                    | Lagger                          |                                                  |
|     | **Order-Galliformes, Family-Phasianidae** |                           |                                                  |
| 35. | Coturnix coturnix               | Common quail                    |                                                  |
| 36. | Francolinus pondicerianus       | Grey francolin                  |                                                  |
| 37. | Gallus gallus                   | Red jungle fowl                 |                                                  |
| 38. | Gallus sonerattii               | Grey jungle fowl                |                                                  |
| 39. | Pavo cristatus                  | Indian peafowl                  |                                                  |
|     | **Order-Gruiformes, Family-Rallidae** |                           |                                                  |
| 40. | Amaurornis phoenicurus           | White breasted waterhen         |                                                  |
| 41. | Fulica atra                     | Common coot                     |                                                  |
| 42. | Gallinula chloropus             | Common moorhen                  |                                                  |
| 43. | Porzana parva                   | Little crane                    |                                                  |
| 44. | Porzana pusilla                 | Bailon's crane                  |                                                  |
| 45. | Porphyrp ortophyrip             | Purple moorhen                  |                                                  |
|     | **Order-Charadiformes, Family-Charadiidae** |                       |                                                  |
| 46. | Vanellus indicus                | Red-wattled lapwing             |                                                  |
| 47. | Vanellus malabaricus            | Yellow-wattled lapwing          |                                                  |
|     | **Family-Scoplopecinae**        |                                 |                                                  |
| 48. | Calidris minuta                 | Little stint                    |                                                  |
| 49. | Tringa nebularia                | Common greenshank               |                                                  |
|     | **Family-Laridae**              |                                 |                                                  |
| 50. | Chlodonias hybrida              | Whiskered tern                  |                                                  |
| 51. | Sterna albifrons                | Little tern                     |                                                  |
| 52. | Sterna aurantia                 | River tern                      |                                                  |
|     | **Order-Columboiforms, Family-Columbidae** |                       |                                                  |
| 53. | Columba livia                   | Blue rock pigeon                |                                                  |
| 54. | Streptopelia chinensis          | Spotted dove                    |                                                  |
| 55. | Streptopelia decaocto           | Eurasian collared dove          |                                                  |
| 56. | Streptopelia orientalis         | Oriental turtle dove            |                                                  |
| 57. | Streptopelia senegalensis       | Little brown dove               |                                                  |
| 58. | Streptopelia tranquebarica      | Red collared dove               |                                                  |
| No. | Order                | Family                     | Scientific Name               | Common Name                  | Authority |
|-----|----------------------|----------------------------|-------------------------------|------------------------------|-----------|
| 59  | Order-Psittaciformes, Family-Psittidae |                           | Psittacula cyancephala        | Plum headed parakeet         | RS        |
| 60  |                      |                            | Psittacula eupatria           | Alexandrine parakeet         | RS        |
| 61  |                      |                            | Psittacula himalayana         | Slaty headed parakeet        | RS        |
| 62  | Order-Cuculiformes, Family-Cuculidae |                           | Centropus bengalensis         | Lesser coucal                | RS        |
| 63  |                      |                            | Centropus Sinensis           | Greater coucal               | RS        |
| 64  |                      |                            | Clamator jacobinus           | Pied crested cuckoo          | RM        |
| 65  |                      |                            | Cuculus canorus              | Common cuckoo                | RM        |
| 66  |                      |                            | Eulophus scolopaceus         | Asian koel                   | RS        |
| 67  |                      |                            | Sarus coromandus             | Drongo cuckoo                | RS        |
| 68  | Order-Strigiformes, Family-Strigidae |                           | Athene brama                 | Spotted owlet                | RS        |
| 69  |                      |                            | Bubo cornatus                | Barn owl                     | RM        |
| 70  | Order-Caprimulgiformes, Family-Caprimulgidae |                   | Caprimulgus asiaticus        | Common Indian nightjar       | RS        |
| 71  |                      |                            | Caprimulgus indicus          | Indian jungle nightjar       | RM        |
| 72  | Order-Coraciiformes, Family-Alcedinidae |                       | Alcedo atthis                | Small blue kingfisher        | RM        |
| 73  |                      |                            | Ceryle rudis                 | Lesser pied kingfisher       | RS        |
| 74  |                      |                            | Halcyon smyrnensis           | White breasted kingfisher    | RS        |
| 75  | Order-Meropidae       |                           | Meropus orientalis           | Small bee eater              | RS        |
| 76  |                      |                            | Meropus philippinus          | Blue tailed bee eater        | RM        |
| 77  | Order-Coraciidae      |                           | Coracias benghalensis        | Indian roller                | RS        |
| 78  | Family-Cardinalidae   |                           | Upupa epops                  | Common hoopoe                | RM        |
| 79  |                      |                            | Family-Bucerotidae           | Indian grey hornbill         | RS        |
| 80  | Order-Piciformes, Family-Capitonidae |                     | Megalaima haemacephala       | Coppersmith barbet           | RS        |
| 81  |                      |                            | Family-Picidae               | Black shouldered woodpecker   | RS        |
| 82  |                      |                            |    Chrysocolaptes festivus    | Lesser golden backed woodpecker | RS    |
| 83  | Order-Passeriformes, Family-Aegithalidae |               | Dinopium melanorhynchos      | Common crested lark          | RS        |
| 84  |                      |                            |    Galerida cristata          | Singing bush lark            | RS        |
| 85  | Family-Hirundinidae   |                           |    Ornithorhyncus colluris    | Dusky crag martin            | RS        |
| 86  |                      |                            |    Hirundo flaviolus          | Streak throated swallow      | RS        |
| 87  |                      |                            |    Hirundo rustica           | Common swallow               | RM        |
| 88  |                      |                            |    Hirundo smithii           | Wire tailed swallow          | RS        |
| 89  | Family-Danidae        |                           |    Lanius excubitor          | Great grey shrike            | RM        |
| 90  |                      |                            |    Lanius schach             | Rufous backed shrike         | RS        |
| 91  | Family-Oriolidae      |                           |    Oriolus oriolus           | Eurasian golden oriole       | RM        |
| 92  |                      |                            | Family-Dicruridae            | Black drongo                 | RS        |
| 93  |                      |                            |    Dicrurus macrorhynchos     | Greater racket tailed drongo | RS        |
| 94  | Family-Sternidae      |                           |    Dicrurus paradiseus       | Black drongo                 | RS        |
| 95  |                      |                            |    Sturnus roseus            | Rosy starling                | M         |
| 96  | Family-Corvidae       |                           |    Acrocephalus scrutis      | Common myna                  | RS        |
| 97  |                      |                            |    Sterna contra             | Asian pied starling          | RS        |
| 98  |                      |                            |    Sterna pagodarum           | Brahminy starling            | RS        |
| No. | Scientific Name              | Common Name                | Status |
|-----|----------------------------|----------------------------|--------|
| 99  | Corvus corax               | Common raven               | RS     |
| 100 | Corvus splendens           | House crow                 | RS     |
| 101 | Dendrocitta vagabunda      | Indian treepie             | RS     |
|     | **Family-Campephagidae**   |                            |        |
| 102 | Pericrocotus cinnamomeus   | Small minivet              | RS     |
| 103 | Pericrocotus flammeus      | Scarlet minivet            | RS     |
|     | **Family-Irenidae**        |                            |        |
| 104 | Aegithina tiplia           | Common iora                | RS     |
|     | **Family-Pycnonotidae**    |                            |        |
| 105 | Pycnonotus cafer           | Red vented bulbul          | RS     |
|     | **Family-Musicapidae**     |                            |        |
| 106 | Acrocephalus agricola      | Paddy field warbler        | RM     |
| 107 | Cercomela fusca            | Indian chat                | RS     |
| 108 | Chaetornis striatus        | Brestled grass warbler     | RS     |
| 109 | Chrysomma sinense          | Yellow eyed babbler        | RS     |
| 110 | Copsyps saularis           | Oriental magpie robin      | RS     |
| 111 | Cyornis rubecuoides        | Blue throated flycatcher   | RS     |
| 112 | Cyornis tickellae          | Tickell’s blue flycatcher  | RS     |
| 113 | Eumyias thalassina         | Verditer flycatcher        | RS     |
| 114 | Hypothymis azurea          | Black naped monarch flycatcher | RS |
| 115 | Luscinia brunnea           | Indian blue robin          | RM     |
| 116 | Luscinia svecica           | Blue throat                | RM     |
| 117 | Oenanthe isabellina        | Isabelline wheatear        | RM     |
| 118 | Prinia socialis            | Ashy prinia                | RS     |
| 119 | Prinia sylvestica          | Jungle prinia              | RS     |
| 120 | Phoenicurus ochrurus       | Black redstart             | RM     |
| 121 | Rhipidura albicollis       | White throated fantail flycatcher | RS |
| 122 | Saxicola fulicolora        | Indian robin               | RS     |
| 123 | Turdoides caudatus         | Common babbler             | RS     |
| 124 | Turdoides striatus         | Jungle babbler             | RS     |
| 125 | Terpsiphone paradise       | Asian paradise flycatcher  | RM     |
| 126 | Zoothera citrine           | Orange headed thrush       | RM     |
| 127 | Zoothera citrina cyanotus  | White throated thrush      | RS     |
|     | **Family-Dicaeidae**       |                            |        |
| 128 | Motacilla alba             | White wagtail              | RM     |
| 129 | Motacilla cinerea          | Grey wagtail               | M      |
| 130 | Motacilla citreola         | Citrine wagtail            | RM     |
| 131 | Motacilla maderaspatensis  | Large pied wagtail         | RS     |
|     | **Family-Nectariniidae**   |                            |        |
| 132 | Nectarinia asiatica        | Purple sunbird             | RS     |
| 133 | Nectarinia lotenia         | Loten’s sunbird            | RS     |
| 134 | Nectarinia zeylonica       | Purple rumped sunbird      | RS     |
|     | **Family-Zosteropidae**    |                            |        |
| 135 | Zosterops palpebrosus      | Oriental white eye         | RS     |
|     | **Family-Ploceidae**       |                            |        |
| 136 | Passer domesticus          | House sparrow              | RS     |
| 137 | Petronia xanthocollis      | Yellow throated sparrow    | RS     |
|     | **Family-Estrildidae**     |                            |        |
| 138 | Amandava amandava          | Red munia                  | RS     |
| 139 | Lonchura malabarica        | White throated munia       | RS     |
| 140 | Lonchura malacca           | Black headed munia         | RS     |
| 141 | Lonchura punctulata        | Spotted munia              | RS     |
| 142 | Lonchura striata           | White rumped munia         | RS     |
|     | **Family-Emberizidae**     |                            |        |
| 143 | Melophus lathami           | 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    | Falconiformes       | 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             |
| **Total** |               | **15**       | **41**         | **143**        |

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
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. Musicapidae 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 Tipeshwar 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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