



RESEARCH ARTICLE

Avian diversity in and around Kunda reservoir, (District-Dhar)

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Key words:Avian diversity, sampling sites,
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In the present investigation, Avian diversity in and around the Kunda reservoir, (District-Dhar) has been studied to know about the current status of this reservoir. There are four sampling sites namely Rajrajeshwar temple, Outlet channel, Kunda village and Feeder channel of Kunda reservoir were selected for present study. There are 22 species of birds were identified from all the four studied site, which belongs to 15 family. Among them Columbidae, Ardeidae, Pycnonotidae, Sturnidae, Passeridae and Cuculidae were found to be dominant.

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Introduction:-

Water is a key factor that affect aquatic vegetation, composition and food resources that influenced bird density, diversity and distribution (Colwell and Taft 2000; Wilcox *et al.*, 2002). The avian species are highly mobile and gregarious in nature since they use different kinds of wetland habitats in search of food, shelter, breeding purposes (George and Zack 2001). Habitat selection in birds may differ from species to species, depending upon the morphology of the bill, availability of prey (i.e. richness and vulnerability to capture) and foraging behavior (White and Main, 2005). It was found that water depth is an important variable factor that affecting the habitat selection in water birds (Isola *et al.*, 2002). The water birds obtain higher net energy intake in shallow water depth than deep water (Kushlan, 2007). In view of above said, an attempt has been made to study the avian diversity in and around the Kunda reservoir, (District-Dhar) to review the current knowledge about this for further research.\

Materials and Method

The Watching and recording of birds were carried out from from January, 2012 to December, 2012 in and around all the four selected sampling stations. It will be observed with the help of ocular binocular with zoom lens and their identification will be done as suggested by Woodcock (1988), Ali (2002) and book "Geo-spatial Atlas for the wetland birds of Thar Desert, Rajasthan" (Kumar *et al.*, 2006). Their colored photographs will be taken with the help of cannon camera.

Result and Discussion

There are 22 species of birds were identified from all the four studied site *viz*; Rajrajeshwar temple, Outlet channel, Kunda village and Feeder channel during 2012 (January 2012- December 2012), which belongs to 15 family. The avian species were identified from all the four studied site, have been summarized in Table-1-3 and presented by Fig -1.

The family Columbidae (Order-Columbiformes) includes two species namely; *Columba livia* (Blue Rock Pigeon) and *Streptopelia chinensis* (Spotted Dove); and family Ardeidae (Order-Ciconiiformes) consists of *Bubulcus ibis* (Cattle Egret), *Ardeola grayii* (Indian Pond Heron) and *Egretta garzetta* (Little Egret). However, the family Anhingidae, Accipitridae and Ciconiidae belong to the same Order (Ciconiiformes) and consists of *Anhinga melanogaster* (Snake Bird), *Anastomus oscitans* (Asian Openbill-Stork) and *Elanus caeruleus* (Black Shouldered

Kite) respectively. The order Passeriformes consists of four family viz; Muscicapidae, Pycnonotidae, Nectariniidae and Sturnidae which consists of *Saxicolodius fulicatus* (Indian Robin), *Pycnonotus cafer* (Red-Vented Bulbul), *Nectarinia zeylonica* (Purple-Rumped Sunbird) and *Acridotheres tristis* (Common Myna) respectively. However, *Amandava amandava* (Red Munia), *Anthus rufulus* (Paddy field Pipit); and *Corvus splendens* (House crow), *Dicrurus macrocercus* (Black Drongo) belongs to the family Passeridae and Corvidae (Order-Anseriformes) respectively. The order Coraciformes include three family namely; Meropidae, Accipitridae and Coraciidae. The family Meropidae have two species viz; *Merops orientalis* (Small Bee-Eater) and *Merops philippinus* (Blue-Tailed Bee Eater) but Accipitridae and Coraciidae consists of *Aquila spe.* (Eagle) and *Coracias benghalensis* (Indian Roller) respectively. Whereas, the family Cuculidae (Order- Cuculiformes) includes two species namely; *Centropus sinensis* (Greater Coucal) and *Eudynamis scolopaceus* (Asian Koel). Among avian species *Columba livia* (Columbidae), *Bubulcus ibis* (Ardeidae), *Pycnonotus cafer* (Pycnonotidae), *Acridotheres tristis* (Sturnidae), *Amandava amandava* (Passeridae) and *Eudynamis scolopaceus* (Cuculidae) were found to be dominant species. However, *Elanus caeruleus*, *Merops philippinus*, *Aquila* and *Coracias benghalensis* were found to be least abundant group.

The total of 58 species of birds belonging to 9 orders and 29 families were recorded from Bamanwada Lake of Maharashtra and found that Passeriformes is the dominating order of birds (Chilke, 2012). However, Delany and Scott (2006) have identified about 878 water bird species belongs to 33 families which are ecologically dependent on wetland habitats, out of which 815 species occur in Asia followed by the Neo-tropics (554) and Africa (542). Whereas, the study on density and diversity of water birds and terrestrial birds in man-made marsh habitat at Putrajaya (Malaysia) using distance sampling point count technique have also been performed. It was found that many bird species are highly dependent on natural marsh habitat and therefore an artificial or man-made marsh habitat may become an alternative habitat for marsh dependent bird species. There are a total of 20010 bird individuals of 102 species representing 31.05% water birds and 68.95% terrestrial birds from March 2009 to June 2010. However, density analysis indicates that bird density is $0.64 + 0.02$ birds ha^{-1} and range from $0.60 - 0.68$ birds ha^{-1} at 95.0% confidence interval. But, terrestrial birds had a higher density $0.74 + 0.02$ birds ha^{-1} than water birds $0.54 + 0.09$ birds ha^{-1} (Zakaria and Rajpar, 2013).

The fresh and saline waterbodies are rich in aquatic vegetation and several kinds of birds in and around Digha, District—East Midnapore (West Bengal, India). There are a total 86 bird species belonging to 10 orders and 35 families were recorded during the 2-year long study period. The Passeriformes is the dominant order of birds (Patra and Chakrabarti, 2014). Whereas, there are a total 61 species of birds belonging to 27 family of avifauna diversity in and around Ansupa lake, Odisha, were identified from June 2012 and May 2013. These birds include both wetland dependant birds and terrestrial birds. Family Ardeidae occupied the list with eight bird species. It was found that the importance of Ansupa lake as a preferred habitat for birds and provided a baseline data about avifauna diversity of the lake (Pradhan *et al.*, 2013). The recent studies show that the freshwater biodiversity are the most threatened of all types of diversity and wetlands are found to be the richest zone of existing avifauna (Anon, 2000). It was found that bird communities appeared to respond strongly to the variables such as predator abundance, human density, competition, and climate, among others (Schmidt and Whelan, 1998; Thornington and Bowman, 2003). Out of these, availability of food and nesting strata and substrate may be an important parameters in avian habitat selection.

Results of the present study are also in conformity with findings of Anon (2000), Chilke (2012), Pradhan *et al.* (2013), Patra and Chakrabarti (2014); Zakaria and Rajpar (2013). The finding of the present investigation exhibit the richness of bird fauna in Kunda reservoir (District- Dhar) which indicates are excellent health of an environment in studied area.

Table-1: List of avian species (with common name) available in studied site during one year (January, 2012 to December,2012)

Sr. No.	Order	Family	Scientific Name	Common Name
1.	Columbiformes	Columbidae	<i>Columba livia</i>	Blue Rock Pigeon
2.			<i>Streptopelia chinensis</i>	Spotted Dove
3.	Ciconiiformes	Ardeidae	<i>Bubulcus ibis</i>	Cattle Egret
4.			<i>Ardeola grayii</i>	Indian Pond Heron
5.			<i>Egretta garzetta</i>	Little Egret
6.		Anhingidae	<i>Anhinga melanogaster</i>	Snake Bird
7.		Accipitridae	<i>Anastomus oscitans</i>	Asian Openbill-Stork
8.		Ciconiidae	<i>Elanus caeruleus</i>	Black Shouldered Kite
9.	Passeriformes	Muscicapidae	<i>Saxicolodius fulicatus</i>	Indian Robin
10.		Pycnonotidae	<i>Pycnonotus cafer</i>	Red-Vented Bulbul
11.		Nectariniidae	<i>Nectarinia zeylonica</i>	Purple-Rumped Sunbird
12.		Sturnidae	<i>Acridotheres tristis</i>	Common Myna
13.	Anseriformes	Passeridae	<i>Amandava amandava</i>	Red Munia
14.			<i>Anthus rufulus</i>	Paddyfield Pipit
15.		Corvidae	<i>Corvus splendens</i>	House crow
16.			<i>Dicrurus macrocercus</i>	Black Drongo
17.	Coraciformes	Meropidae	<i>Merops orientalis</i>	Small Bee-Eater
18.			<i>Merops philippinus</i>	Blue-Tailed Bee Eater
19.		Accipitridae	<i>Aquila spe.</i>	Eagle
20.		Coraciidae	<i>Coracias benghalensis</i>	Indian Roller
21.	Cuculiformes	Cuculidae	<i>Centropus sinensis</i>	Greater Coucal
22.			<i>Eudynamis scolopaceus</i>	Asian Koel

Table -2: Showing list of abundance of avian species available in studied site during one year (January, 2012- December, 2012)

Name of Avian species	Avian species			
	Rajrajeshwar temple	Outlet channel	Kunda village	Feeder channel
<i>Columba livia</i>	++++	++++	++++	++++
<i>Streptopelia chinensis</i>	++	++	++	++
<i>Bubulcus ibis</i>	++++	+++	++++	++++
<i>Ardeola grayii</i>	+++	+++	+++	+++
<i>Egretta garzetta</i>	+++	+++	+++	+++
<i>Anhinga melanogaster</i>	+++	++	+++	+
<i>Anastomus oscitans</i>	+++	++	++	++
<i>Elanus caeruleus</i>	+	+	+	+
<i>Saxicoloides fulicatus</i>	++	++	++	+
<i>Pycnonotus cafer</i>	+++	+++	+++	+++
<i>Nectarinia zeylonica</i>	+++	+++	+++	+++
<i>Acridotheres tristis</i>	+++	+++	+++	+++
<i>Amandava amandava</i>	+++	+++	+++	+++
<i>Anthus rufulus</i>	++	++	++	++
<i>Corvus splendens</i>	+++	+++	+++	+++
<i>Dicrurus macrocercus</i>	+++	+++	+++	+++
<i>Merops orientalis</i>	+++	+++	+++	+++
<i>Merops philippinus</i>	+	+	+	+
<i>Aquila spe.</i>	+	+	+	+
<i>Coracias benghalensis</i>	+	+	++	+
<i>Centropus sinensis</i>	++	+	++	+
<i>Eudynamis scolopaceus</i>	+++	+++	+++	+++

++++=Dominant, +++=Most Abundant, ++=Abundant, +=Least abundant

Table-3: Showing family wise Avian species in studied site during one year (January 2012- December 2012)

S.N.	Family	Number of species
1.	Columbidae	2
2.	Ardeidae	3
3.	Anhingidae	1
4.	Accipitridae	1
5.	Ciconiidae	1
6.	Muscicapidae	1
7.	Pycnonotidae	1
8.	Nectariniidae	1
9.	Sturnidae	1
10.	Passeridae	2
11.	Corvidae	2
12.	Meropidae	2
13.	Accipitridae	1
14.	Coraciidae	1
15.	Cuculidae	2
	Total	22

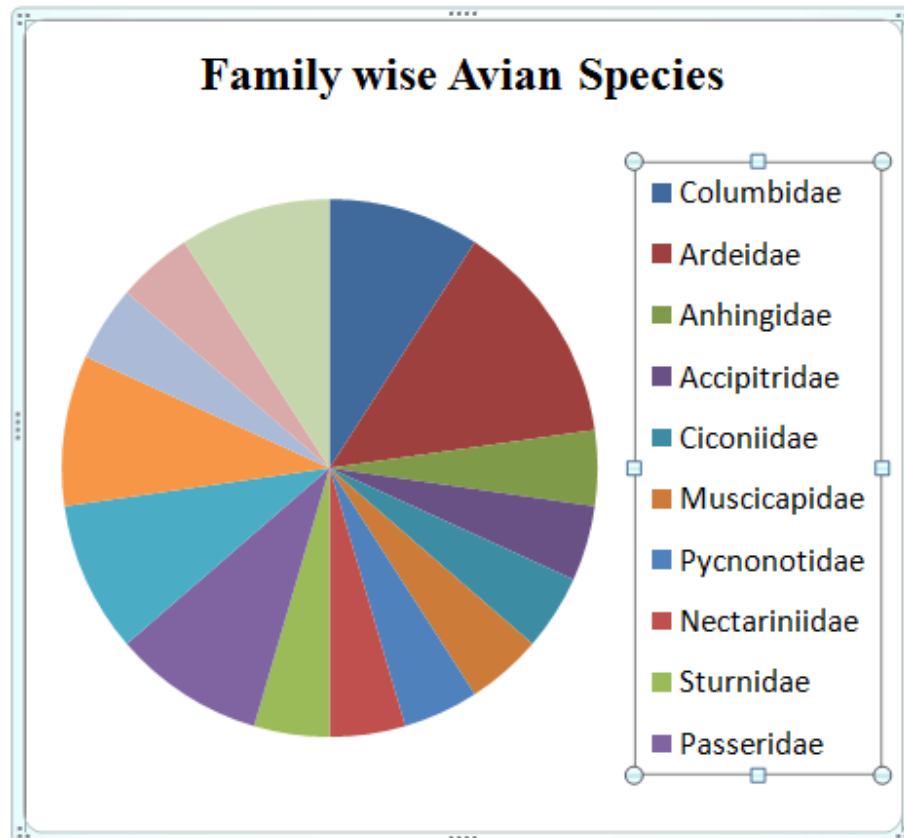


Fig-1: Showing family wise Avian species in studied site during one year (January 2012- December 2012)

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