

Seasonal impact on avian diversity and its conservation at Nanda village pond of Bhokar tahshil of Nanded district, MS, India

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Manuscript details:

Available online on
<http://www.ijlsci.in>

ISSN: 2320-964X (Online)

ISSN: 2320-7817 (Print)

Editor: Dr. Arvind Chavhan

Cite this article as:

Jadhav VS, Kanwate VS, Sajjan MB, Karenavar MH, Kulal SR and Salunke GD (2018) Seasonal impact on avian diversity and its conservation at Nanda village pond of Bhokar tahshil of Nanded district MS, India. *Int. J. of. Life Sciences*, Special Issue, A10: 96-100.

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ABSTRACT

The Nanda village pond is 25 Km away from Bhokar. The village is border of Maharashtra and Andhra Pradesh. The pond may be used for drinking, agriculture, washing of clothes, bathing of cattle's, fish culture etc. The Nanda village pond is constructed for the minor irrigation project governed govt. of Maharashtra in 1995. The pond is situated 53° 22' E longitude and 13° 8' N at latitude. The Nanda village pond consist of various aquatic animals and weeds like *Hydrilla sp.*, *Typha sp.*, *Cyperus Sp.*, *Chara sp.*, *Vallisneria sp.*, *Pistia sp.* are present in water bodies. The pond constructed besides Nanda village. The disturbances of birds are more so that the common birds and few piscivorous birds are visited to the ponds. The birds such as Grey heron, little egret, Cattle egret, Spot billed duck, Small blue kingfisher, Crow, Cormorant. Black kite, Small bee-eater etc. So, for no scientific data is available for on the avian fauna of these pond. In the present study total 66 species of birds are recorded during the study period of June 2009 to July 2011. Among these avifauna 22 Residential common, 18 Residential uncommon, 09 Residential rare, 05 Residential migrant common, 05 Residential Migrant rare, 02 migrant common, 02 winter migrant uncommon and 01 winter migrant rare.

Key words- Avian diversity, Nanda village pond.

INTRODUCTION

The Nanda village pond is 25 Km away from Bhokar. The village is border of Maharashtra and Andhra Pradesh. The pond may be used for drinking, agriculture, washing of clothes, bathing of cattle's, fish culture etc. The Nanda village pond is constructed for the minor irrigation project governed govt. of Maharashtra in 1995. The pond is situated 53° 22' E longitude and 13° 8' N at latitude. The Nanda village pond consist of various aquatic animals and weeds like *hydrilla sp.*, *Typha sp.*, *Cyperus Sp.*, *Chara sp.*, *Vallisneria sp.*, *Pistia sp.* are present in water bodies. The pond constructed besides Nanda village. The disturbances of birds are more so that the common birds and few piscivorous birds are visited to the ponds. The birds such as Grey heron, little egret, Cattle egret, Spot billed duck, Small blue kingfisher, Crow, Cormorant. Black kite, Small bee-eater etc.

Shahabuddin *et al.* (2004) Studies birds forest & conservation in Rajasthan, Islam *et al.* (2004) Studies in important bird area in India, Sankar *et al.* (1993) Studies birds of Sariska Tiger reserve Rajasthan, Subramanya *et al.* (2004) Studied Puttanahalli tank Bangalore. He found 126 bird species belonging to 50 birds' families, Rajeevan *et al.* (2004) Studied grey heron breeding in Kerela, Ali (1969) Studied birds of Kerela. David *et al.* (2004) Sighting of thick-billed Warbler near Panchagani Maharashtra, Ahmed (1997). Studied live bird trade in Northern India, Studied some green avadavat in Indian birds trade, Butler (1975-77) Study on avifauna of Mount Aboo and Northern Gujarat, RFS (2003) studied Rajasthan forest statistics Govt. of Rajasthan, Sharma (2002) Studied preliminary biodiversity of survey of protected areas of southern Rajasthan.

MATERIAL METHODS

The present study avian diversity identified at the spots as per guidelines given by Ali and Ripley (1996), Ali (2002), Chitampelli (2002) by using binoculars 7x and 8x Magnification. The direct count method and line transect method are used for observation of birds. The present study is based on observation made June 2009 to July 2011, regular visits for the survey and identification of birds monthly visits were done in morning (7am-10am) and evening (4 to 5-30pm) hours.

RESULTS & DISCUSSION

The observed birds are listed on the basis of their common names, scientific names, total counts and nature of abundances and migratory behavior. The Nanda village Pond total 66 species of birds were identified out of them 22 Residential Common (RC), 18 Residential Uncommon (RU), 09 Residential rare (Rr), 05 Residential Migrant common (RMc), 05 Residential Migrant rare (RMr), 02 Migrant rare (Mr), 02 Winter migrant common (WMc), 02 Winter migrant uncommon (WMu), and 01 Winter migrant rare (WMr).

The different types of birds were recorded at Nanda village Pond due to local environmental conditions and season has impact on composition and diversity occurrence birds. The bird's population was more during winter and summer (Kulkarni *et al.* (2005)). It was noted that birds move out from one station to other to avoid unfavorable, environmental conditions. (Ghazi

(1962), Davidar (1985), Ali (1932), Kulkarni *et al.* (2006), Singh (1929), Gaikwad *et al.* (1997), Manakadan *et al.* (2001), Wadatkar (2001), Prasad (2003), Jathar *et al.* (2004), FSI (2001), Bird Life international (2001), Gazetteer of India (1974). The species feed on fishes therefore affecting reservoir fishery. They are also carries pathogens (Lagler (1978), Jhingran (1988)) and there it is necessary to reduce their population. These can be done by eradicating aquatic weeds and clearing the periphery margins of reservoirs. Present research work focused on the qualitative and quantitative aspects of avian diversity that can be used to understand and help in prioritization of areas for conservation. In order to conserve local bird population structure and status of bird is essential. The seasonal impacts on the avian diversity are seen in rainy season but in winter and summer are suitable for food and breeding. During study period there is no observed globally threatened species or nearly threatened species of birds.

Conservation and suggestion

The following action plan is proposed for the conservation of birds and wetlands of Nanda village Pond. The area is required to be stopped appropriately to check the illegal hunting to prevent further population loss of birds. We have to strengthen enforcement of existing restrictions on the hunting of migratory birds. Anthropogenic factors are the root causes for wetland degradation and habitat destruction of water birds. Therefore, conservation education and awareness programmes are essential for local farmers, students and fishing community to the pond. Studies on vegetation have revealed that intensive biomass extraction (mainly through grazing and fuel wood collection) is leading to changes in vegetation structure and composition of the forest. These changes in forest structure are leading to changes in bird species composition.

Agricultural areas in India probably experience the most heavy and indiscriminate use of pesticides leading to direct and indirect mortality of predatory and frugivorous birds. Despite the above studies, the state of our knowledge on bird control is preliminary. In fact, this area is still developing even in the developed countries and there is a lot of scope for innovative work. Nature awareness programmes regarding birds, mangrove forests and importance of wetland ecosystem for daily sustenance of life to be given to the local people for the conservation of this avian diversity.

Table 1: Check List of Birds of Nanda Village Pond.

Sr. No.	Common Name	Scientific Name	Status	Rainy -09	Winter -10	Summer 10	Rainy -10	Winter -10	Summer -11	Total
1	Galliformes Phasianidae Grey Francolin	<i>Francolinus pondicerianus</i>	Rr	7	5	8	6	4	10	40
2	Common Quail	<i>Coturnix coturnix</i>	RMr	4	3	5	4	6	8	30
3	Indian Peafowl	<i>Pavo cristatus</i>	RC	10	12	12	5	20	9	68
4	Anseriformes Anatidae Spot-billed Duck	<i>Anas poecilorhyncha</i>	RMc	10	8	7	6	12	6	49
5	Common Pochard	<i>Aythya ferina</i>	WMr	-	8	-	-	9	-	17
6	Piciformes Picidae Black-shouldered Woodpecker	<i>Chrysocolaptes festivus</i>	Rr	5	5	4	3	4	5	26
7	Megalaimidae Coppersmith Barbet	<i>Megalaima haemacephala</i>	Rr	-	4	-	4	5	4	17
8	Coraciiformes Coraciidae Indian Roller	<i>Coracias benghalensis</i>	Rr	-	4	-	3	3	5	15
9	Alcedinidae Lesser Pied Kingfisher	<i>Ceryle rudis</i>	RU	8	10	12	8	13	2	53
10	Small Blue Kingfisher	<i>Alcedo atthis</i>	RU	5	8	14	10	8	6	51
11	Blue-eared Kingfisher	<i>Alcedo meninting</i>	RU	6	7	8	6	10	8	45
12	Meropidae Small Bee-eater	<i>Merops orientalis</i>	RMc	-	6	7	4	7	6	30
13	Cuculiformes Cuculidae Pied Crested Cuckoo	<i>Clamator jacobinus</i>	Mr	-	6	10	7	8	5	36
14	Asian Koel	<i>Eudynamys scolopacea</i>	RC	7	14	18	12	10	15	69
15	Centropodidae Greater Coucal	<i>Centropus sinensis</i>	RU	6	5	8	3	7	5	34
16	Psittaciformes Psittacidae Rose-ringed Parakeet	<i>Psittacula krameri</i>	RC	10	14	10	12	8	18	72
17	Apodiformes Apodidae House Swift	<i>Apus affinis</i>	RMr	12	18	12	10	14	20	86
18	Strigiformes Strigidae Eurasian scops-owl	<i>Otus scops</i>	RMr	-	1	-	3	-	2	6
19	Columbiformes Columbidae Blue Rock Pigeon	<i>Columba livia</i>	RC	18	14	12	16	22	21	103
20	Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	RC	12	8	10	6	7	5	48
21	Spotted Dove	<i>Streptopelia chinensis</i>	RU	6	7	4	8	10	7	42
22	Gruiformes Gruidae Demoiselle Crane	<i>Grus vigro</i>	Mr	-	5	-	-	6	-	11
23	Rallidae White breasted Waterhen	<i>Amaurornis phoenicurus</i>	RC	5	8	9	8	10	12	52
24	Purple Moorhen	<i>Porphyrio porphyrio</i>	RC	10	12	8	10	13	15	68
25	Ciconiiformes Pteroclididae Chestnut-billed Sandgrouse	<i>Pterocles exustus</i>	Rr	6	3	4	5	7	9	34
26	Scolopacidae Common Sandpiper	<i>Actitis hypoleucos</i>	WMu	-	6	-	-	8	-	14
27	Curlew Sandpiper	<i>Calidris ferruginea</i>	Wmu	-	5	-	-	7	-	12
28	Jacanidae Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	RMr	-	3	6	6	8	3	26
29	Charadriidae Red-wattled Lapwing	<i>Vanellus indicus</i>	RC	78	51	21	47	73	65	335
30	Black-winged Stilt	<i>Himantopus himantopus</i>	WMc	-	12	-	-	18	-	30
31	Accipitridae Black Kite	<i>Milvus migrans</i>	RU	-	3	4	-	2	3	12
32	Shikra	<i>Accipiter badius</i>	Rr	-	8	-	9	-	6	23

Table 1: Continued...

33	White eyed Buzzard	<i>Butastur teesa</i>	RMr	9	-	1	7	2	3	22
34	Podicipedidae Little Grebe	<i>Tachybaptus ruficollis</i>	RMc	7	1	-	4	2	17	31
35	Phalacrocoracidae Little Cormorant	<i>Phalacrocorax niger</i>	RMc	9	6	8	11	6	12	52
36	Ardeidae Indian Pond Heron	<i>Ardeola grayii</i>	RC	28	23	18	15	28	29	129
37	Cattle Egret	<i>Bubulcus ibis</i>	RC	30	15	41	26	71	71	254
38	Little Egret	<i>Egretta garzetta</i>	RC	12	22	20	14	21	23	112
39	Threskiornithidae Black Ibis	<i>Pseudibis papillosa</i>	RU	-	6	5	3	7	8	29
40	Passeriformes Lanidae Great Grey Shrike	<i>Lanius excubitor</i>	RU	6	11	10	16	7	14	64
41	Bay-backed Shrike	<i>Lanius vittatus</i>	RU	-	4	5	3	3	4	19
42	Corvidae House Crow	<i>Corvus splendens</i>	RC	6	9	4	10	8	15	52
43	Black Drongo	<i>Dicrurus macrocerus</i>	RC	10	6	7	9	10	15	58
44	White-bellied Drongo	<i>Dicrurus caeruleus</i>	RU	-	7	5	2	3	4	21
45	Common Woodshrike	<i>Tephrodornis pondicerianus</i>	RU	6	4	5	6	8	7	36
46	Muscicapidae Little pied Flycatcher	<i>Ficedula westermanni</i>	RC	69	30	25	15	60	48	247
47	Indian Robin	<i>Saxicoloides fulicata</i>	RU	4	8	4	6	7	8	37
48	Sturnidae Common Myna	<i>Acridotheres tristis</i>	RC	5	6	10	19	15	20	75
49	Asian Pied Starling	<i>Sturnus contra</i>	RU	-	4	3	4	6	5	22
50	Paridae Great tit	<i>Parus major</i>	Rr	-	3	2	4	5	2	16
51	Hirundinidae Common Swallow	<i>Hirundo rustica</i>	RMc	8	9	5	7	10	6	45
52	House Swallow	<i>Hirundo tahitica</i>	RC	7	13	18	13	16	15	82
53	Dusky Crag-Martin	<i>Hirundo concolor</i>	RC	11	12	8	15	15	20	81
54	Pycnonotidae Red-vented Bulbul	<i>Pycnonotus cafer</i>	RC	66	45	30	40	61	47	289
55	Black Bulbul	<i>Hypsipetes leucocephalus</i>	Rr	-	4	8	5	4	3	24
56	Cisticolidae Plain Prinia	<i>Prinia inornata</i>	RU	-	5	7	10	6	8	36
57	Common Tailorbirds	<i>Orthotomus sutorius</i>	Rr	3	3	4	2	-	8	20
58	Silvidae Large Grey Babbler	<i>Turdoides malcolmi</i>	RC	6	8	11	10	12	13	60
59	Nectarinidae Purple-rumped Sunbird	<i>Nectarinia zeylonica</i>	RU	6	8	10	6	8	10	48
60	Small Sunbird	<i>Nectarinia minima</i>	RU	40	18	19	30	32	18	157
61	Passeridae House Sparrow	<i>Passer domesticus</i>	RC	39	31	20	30	59	50	229
62	Yellow Wagtail	<i>Motacilla flava</i>	WMc	-	9	-	-	10	-	19
63	Baya Weavers	<i>Ploceus philippinus</i>	RC	12	8	6	8	10	13	57
64	White-throated Munia	<i>Lonchura malabarica</i>	RC	28	28	22	20	35	15	148
65	Spotted Munia	<i>Lonchura punctulata</i>	RU	8	8	5	6	8	11	46
66	Black-throated Munia	<i>Lonchura kelaarti</i>	RU	-	6	5	8	10	5	34

Abbreviation and total species : RC -(Residential Common)= 22, RU- (Residential Uncommon) =18, Rr - (Residential rare) = 09, RMc - (Residential Migrant common) = 05, RMr - (Residential Migrant rare) = 05, Mr - (Mirant rare) = 02, WMc - (Winter Migrant common) = 02, WMu - (Winter Migrant uncommon) = 02, WMr - (Winter Migrant rare) = 01 .

Active patrolling should be carried out by the forest department, at least five groups with four forest guards are recommended for patrolling at different parts of this

area to stop poaching and deforestation. In-depth studies on the avifauna, especially endangered birds, should be undertaken. Hence urgent conservation

measures have to be implemented and a protected area has to be evolved for preserving the remaining tract of mangroves and faunal heritage of this unique region.

Local people should be made aware of the importance of wetlands, waterfowl and other common birds. Without the involvement of common people of this region conservation of the wetlands will not be successful. As grasslands are preclimax they are maintained by annual burning, grazing and floods. Grasslands are managed by the annual prescribed burning at the beginning of the dry season and this is the most important and crucial management activity. However, burning may be harmful to grassland birds, especially if it is carried out too frequently or too intensively. Control and management of accidental fires in the forest, during early summer has some adverse effect on the forest dwelling species. Measurement of water chemistry should be done on a regular basis to allow long-term monitoring of changes in nutrient levels and other parameters.

Thus, the site is an ideal place for conservation of endemic and globally threatened birds and also to a large number of important flora and fauna. Due to the increase in human population the forest is presently facing disturbance in the edges which will increase in due course of time if proper conservation measures are not taken up immediately. Conservation awareness programmes among the local people is required to sensitize the people about the sustainable use of the forest resources to conserve it for future generations. This suggests that the providing natural habitat, availability of food, water, climatic conditions and surrounding vegetation are favorable for avian fauna

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