



Role of water canals in coservation of avifaunal diversity in and around of karad tahasil of satara district, M.S, India

Sampatrao Shivajirao Patil¹ and Sanjay ShamraoNanware²

¹Department of Zoology, Krishna Mahavidyalaya Rethare (Bk.)- 415108, Shrivnagar, Tal. Karad, Dist. Satara, M. S., India.

²Department of Zoology, Yeshwant Mahavidyalaya, Nanded-431602 M.S.India.

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ABSTRACT

Karad Tahasil is the part of Satara district of Maharashtra state, India. Geographically it lies in between N 72°22'01" latitude and E 17°37'29" longitude. It occupies in and around total an area of 42.0 sq. Kilometers. Receiving an annual rainfall of about 700 -800 mm. It is surrounded by two major rivers (Krishna and Koyana), on it built number of small dams. Also present number of water canal network for agriculture. Most of the land is irrigated surrounded by trees. The water canal are the rich source of food includes fishes, crabs, prawns, mollusc and aquatic plants so birds gets plenty of food, shelter/ hiding place and breeding grounds. The water canals are surveyed to document avian diversity. Total 84-species of birds recorded from the study site during year 2011- 12. Among these 24- birds are migratory and 60- are native birds of 12- Orders and 21- Families. Results revealed that smaller wetlands are very important in conservation of Biodiversity especially for water birds. The preliminary survey of Avifauna will help in facilitate conservation strategy and management plan as these are the key components of ecosystem.

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Introduction

Wetlands, which includes rivers, lakes, reservoirs and watercanals are the most precious life-sustaining water resources. Water is a basic and primary need of all vital processes and it is now well established that the life first arise in aquatic environment. Ever since the pre-historic times man has been intimately associated with water and it has been continuously proved by the evidences of past civilization that all historic human settlements were around inland fresh water resources. These wetlands are traditional zones that occupy intermediate position between dry land and open water (Vachnth et. al. 2012). These wetlands are rich in flora and fauna and birds are one of the important biotic factors which prefer to live near these wetlands.

Materials and methods

Different species of birds have been cited and identified with the help of pair of Canon 7×40 and 20 x 50 power field binoculars. The frequent visits are made throughout year to observe the local and migratory birds to the study site. They were identified with the help of standard literature and field guides on the basis of their special features (R. Grimmett *et. al.* 1998, Salim Ali and Dillon, 1995 and Kukudolkar, 2011). Photographs of different bird species were taken by using Canon 1100 D camera with 18- 55 mm and 55- 250 mm lenses for confirmation of species.

Result and discussion

During the period of study (July 2011 - June 2012), Out of 79- Families of avifauna present in the Indian subcontinent, 21- Families were observed at study site. Total of 84- Species of birds have been recorded in and around water canals of Krishna and koyana rivers. They belonged to 12- Orders and 21- Families. 1- belonged to Podicipediformes, 2- belonged to Pelecaniformes, 15- belonged to Cicconiformes, 4- belonged to Anseriformes, 7- belonged to Falconiformes, 2- belonged to galliformes, 3- belonged to Gruiformes, 5- belonged to

Charadriiformes, 4- belonged from Columbiformes, 3- belonged to Psittaciformes, 2- belonged to Cuculiformes, 2- belonged to Strigiformes, 8- belonged to Coraciiformes, 2- belonged to Apodiformes and 21- Species belonged to Passeriformes (Table No. 1). Among these 14- species are migratory and 60- species birds are native. The water birds are specific in their choice of wetlands. This often strongly associated with prey distribution and abundance (Kelsey & Hassal 1989). Water birds mainly feeds on benthic invertebrates (Van da kam et. al. 2004) which shows wide variations in the density and diversity between seasons and hence the variations in the prey population dynamics should influence the bird populations.

Physico-chemical parameters of Krishna and Koyana rivers and its water canals, show monthly variations from July 2011 to June 2012. The air temperature ranges from 23° C to 35° C and that of water ranges from 20° C to 29° C. Both air temperature and water temperature are important which determines the distribution of different life forms. In this study it has been found that air and water temperatures go more or less parallel, proving the fact that the atmospheric temperature governs water temperature (Welch, 1952 and Yadav, 2003). The pH values ranges from 7.96 to 8.85. It was minimum in the month of Jul., Aug. and maximum in the month of May. Krishna Ram H. et. al. (2007) showed similar range of pH. Higher values were recorded during summer which may be due to high growth rate of algal population utilizes CO₂ through photosynthetic activity (Powar and Sonawane, 2012).

Conclusion

The rivers and their canals are very important in conservation of biodiversity especially for water birds. The preliminary survey of Avifauna and Limnological study will help in facilitate conservation strategy and management plan as these are the key components of ecosystem. It is very important in conservation of biodiversity especially water birds. The water birds are very specific in their choice of wetland/s.

Table 1: Systemic list of bird species observed during the year 2011- 12 in and around Krishna and Koyana rivers and their canals, according to their taxonomical group

Sr. No.	Common Name	Scientific Name	Order	Family	Status
1	Little Greb/ Dabchick	<i>Podiceps ruficollis (S)</i>	Podicipitiformes	Podicipedidae	C
2	Little Cormorant	<i>Phalacrocorax niger (V)</i>	Pelecaniformes	Phalacrocoracidae	VC
3	Large Cormorant	<i>Phalacrocorax carbo (S)</i>	Pelecaniformes	Phalacrocoracidae	VR
4	Pond Heron / Paddybrd	<i>Ardeola grayii (S)</i>	Ciconiiformes	Ardeidae	VC
5	Little Egret	<i>Egretta garzetta (L)</i>	Ciconiiformes	Ardeidae	C
6	Indian Reef Heron	<i>Egretta gularis (H)</i>	Ciconiiformes	Ardeidae	Ra
7	Eastern Purple Heron	<i>Ardea purpurea (M)</i>	Ciconiiformes	Ardeidae	VR
8	Large Egret/Great White Heron	<i>Ardea alba (L)</i>	Ciconiiformes	Ardeidae	Ra
9	Cattle Egret	<i>Bubulcus ibis (B)</i>	Ciconiiformes	Ardeidae	Ra
10	Little Green Heron	<i>Butorides striatus (H)</i>	Ciconiiformes	Ardeidae	VR
11	Chestnut Bittern	<i>Ixobrychus cinnamomeus (G)</i>	Ciconiiformes	Ardeidae	VR
12	Painted Stork	<i>Mycteria leucocephala (P)</i>	Ciconiiformes	Ciconiidae	Ra
13	Openbill Stork	<i>Anastomus oscitans (B)</i>	Ciconiiformes	Ciconiidae	VR
14	White Necked Stork	<i>Ciconia episcopus (B)</i>	Ciconiiformes	Ciconiidae	Ra
15	Painted Stork	<i>Myceteria leucocephala (P)</i>	Ciconiiformes	Ciconiidae	Ra
16	White Ibis	<i>Threskiornis aethiopica (L)</i>	Ciconiiformes	Threskiornithidae	VR
17	Indian Black Ibis	<i>Pseudibis papillosa (T)</i>	Ciconiiformes	Threskiornithidae	Ra
18	Spoonbill	<i>Platalea leucorodia (T)</i>	Ciconiiformes	Threskiornithidae	VR
19	Spotbill Duck	<i>Anas poecilorhyncha (F)</i>	Anseriformes	Anatidae	C
20	Ruddy Shelduck / Brahminy Duck	<i>Tadorna ferruginea (P)</i>	Anseriformes	Anatidae	VR
21	Common Teal	<i>Anus crecca (L)</i>	Anseriformes	Anatidae	UC
22	Pintail	<i>Anus acuta (L)</i>	Anseriformes	Anatidae	UC
23	Pariah kite	<i>Milvus migrans (S)</i>	Falconiformes	Accipitridae	C
24	Indian Sparrow Hawk	<i>Accipiter nisus (H)</i>	Falconiformes	Accipitridae	C
25	Blackwinged Kite	<i>Elanus caeruleus (L)</i>	Falconiformes	Accipitridae	C
26	Brahminy Kite	<i>Haliastur Indus (B)</i>	Falconiformes	Accipitridae	Ra
27	Tawny Eagle	<i>Aquila rapx (F)</i>	Falconiformes	Accipitridae	VR
28	Buzzard	<i>Buteo buteo japonicas (T)</i>	Falconiformes	Accipitridae	UC
29	Short Toad Eagle	<i>Circaetus gallicus (G)</i>	Falconiformes	Accipitridae	UC
30	Grey Quail	<i>Coturnix coturnix (L)</i>	Galliformes	Phasianidae	VC
31	Indian Peafowl	<i>Pavocristatus (L)</i>	Galliformes	Phasianidae	C
32	White breasted Water hen	<i>Amaurornis phoenicurus (P)</i>	Gruiformes	Rallidae	C
33	Purple Moorhen	<i>Porphyrio poliocephalus (L)</i>	Gruiformes	Rallidae	Ra
34	Coot	<i>Fulica atra (L)</i>	Gruiformes	Rallidae	VC
35	Spotted Sandpiper	<i>Tringa glareola (L)</i>	Charadriiformes	Charadriidae	Ra
36	Redwattled lapwing	<i>Vanellus indicus (B)</i>	Charadriiformes	Charadriidae	UC
37	Indian little Ringed Plover	<i>Charadrius dubius (L)</i>	Charadriiformes	Charadriidae	VR
38	Blackwinged Stilt	<i>Hemantopus hemantopus (L)</i>	Charadriiformes	Charadriidae	UC
39	Indian River Tern	<i>Sterna aurantia (G)</i>	Charadiiformes	Laridae	UC
40	Blue Rock Pigeon	<i>Columba livia (H)</i>	Columbiformes	Columbidae	VC
41	Indian Ring Dove	<i>Strptopelia decacto (F)</i>	Columbiformes	Columbidae	C
42	Indian Spotted Dove	<i>Strptopelia chinensis (G)</i>	Columbiformes	Columbidae	UN
43	Indian Red Turtle Dove	<i>Strptopelia tranquebarica (H)</i>	Columbiformes	Columbidae	C
44	Roseringed Parakeet	<i>Psittacula krameri (B)</i>	Psittaciformes	Psittacidae	C
45	Southern Blossom Headed Parakeet	<i>Psittacula cyanocephala (L)</i>	Psittaciformes	Psittacidae	Ra
46	Indian Lorikeet	<i>Loriculus vernalis (S)</i>	Psittaciformes	Psittacidae	VR
47	Common Crow-Pheasant	<i>Centropus sinensis (S)</i>	Cuculiformes	Cuculidae	C
48	Indian Cuckoo	<i>Cuculus micropterus (G)</i>	Cuculiformes	Cuculidae	VR
49	Indian Barn Owl	<i>Tyto alba (H)</i>	Strigiformes	Strigidae	VR
50	Western Spotted Owl	<i>Otus spilocephalus (H)</i>	Strigiformes	Strigidae	VR
51	White breasted	<i>Halcyon smyrnensis (B)</i>	Coraciiformes	Alcedinidae	VC

	Kingfisher				
52	Small Blue Kingfisher	<i>Alcedo atthis (G)</i>	Coraciiformes	Alcedinidae	UC
53	Pied Kingfisher	<i>Ceryle lugubris (H)</i>	Coraciiformes	Alcedinidae	VC
54	Stork Billed Kingfisher	<i>Pelargopsis (L)</i>	Coraciiformes	Alcedinidae	VR
55	Green Bee Eater	<i>Merops orientalis (J)</i>	Coraciiformes	Meropidae	VC
56	Hoopoe	<i>Upupa epops (L)</i>	Coraciiformes	Upupidae	VC
57	Indian Roller/ Blue Jay	<i>Coracias benghalensis (L)</i>	Coraciiformes	Coraciidae	UN
58	Grey Hornbill	<i>Tockus birostris (S)</i>	Coraciiformes	Bucerotidae	UC
59	Palm Swift	<i>Cypsiurus parvus (G)</i>	Apodiformes	Apodae	C
60	House Swift	<i>Apus affinis (A)</i>	Apodiformes	Apodae	C
61	Crimsonbreasted Barbet/Coppersmith	<i>Megalaia haemacephala (L)</i>	Piciformes	Capitonidae	UC
62	Indian Koel	<i>Eudynamis scolopacea (L)</i>	Cuculiformes	Cuculidae	C
63	Indian Little Nightjar	<i>Caprimulgus indicus (L)</i>	Caprimulgiformes	Caprimulgidae	VR
64	Magpie Robin	<i>Copsychus saularis (L)</i>	Passeriformes	Muscicapidae	C
65	Tickells Babbler	<i>Trichastoma tickelli (S)</i>	Passeriformes	Muscicapidae	C
66	White- eye	<i>Zosterops palpebrosa (H)</i>	Passeriformes	Zosteropidae	UC
67	Yellow Wagtail	<i>Motacilla flava (B)</i>	Passeriformes	Motacillidae	C
68	White browed Wagtail	<i>Motacilla moderaspatis (S)</i>	Passeriformes	Motacillidae	C
69	Pied Bush Chat	<i>Saxicola caprata (L)</i>	Passeriformes	Turdinae	C
70	Purple Sunbird	<i>Nectarinia asiatica (L)</i>	Passeriformes	Nectariniidae	C
71	Singing Bush Lark	<i>Mirafra javanica (B)</i>	Passeriformes	Alaudidae	UC
72	Indian Wire Tailed Swallow	<i>Hirundo smithii (S)</i>	Passeriformes	Hirundinidae	VC
73	Rufous Backed Shrike	<i>Lanius schach (V)</i>	Passeriformes	Laniidae	C
74	Oranged Billed Jungle Myna	<i>Acridotheres javanicus (B)</i>	Passeriformes	Sturnidae	C
75	Indian Jungle Crow	<i>Corvus macrorhynchos (S)</i>	Passeriformes	Corvidae	VC
76	House Crow	<i>Corvus splendens (S)</i>	Passeriformes	Corvidae	VC
77	Peninsular Scarlet Minivet	<i>Pericrocotus flammeus (F)</i>	Passeriformes	Campephagidae	C
78	Common Iora	<i>Aegithina tiphia (L)</i>	Passeriformes	Irenidae	UC
79	Redvented Bulbul	<i>Pycnonotus cafer (L)</i>	Passeriformes	Pycnonotidea	VC
80	Red Whiskered Bulbul	<i>Pycnonotus Jocosus (B)</i>	Passeriformes	Pycnonotidea	VC
81	Indian Golden Oriole	<i>Oriolus oriolus (S)</i>	Passeriformes	Oriolidae	Ra
82	Black Drongo/King crow	<i>Dicrurus adsimilis (V)</i>	Passeriformes	Dicruridae	C
83	Black Headed/ Brahminy Myna	<i>Sturnus pagodarum (G)</i>	Passeriformes	Sturnidae	C
84	Indian Myna	<i>Acridotheres tritis (L)</i>	Passeriformes	Sturnidae	VC

Following abbreviations are used:

C- Common, VC- Very Common, UC- Uncommon, Ra- Rare, VR- Very Rare, C- Common, UC- Uncommon

This often strongly associated with prey distribution and its abundance.

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