



Diversity and abundance of wetland birds around Gudavi bird sanctuary, Sorab, Karnataka

Dayananda GY

Department of P.G. Studies and Research in Applied Zoology, Bioscience Complex, Jnana Sahyadri, Kuvempu University, Shankaraghatta, Shimoga, Karnataka, India

Abstract

The present study deals with the diversity and abundance of wetland birds around Gudavi bird sanctuary, Sorab, Karnataka during 2006 to 2010. The total of 61 species of birds belonging to 14 families was recorded in the five years study at Gudavi wetlands. Most of the families were represented by less than ten species except for Ardeidae (10 species, 16.39%) and Anatidae (11 species, 18.03%). These include 29 residents, 23 resident migratory, 5 winter migratory and 4 migratory birds. 61 species of water dependent birds were recorded from the wetlands of the sanctuary. Among the birds recorded in this study, about 42.62% are piscivores, 34.43% insectivores and 22.95% omnivores. These wetlands attracted several local and migratory bird species. The diversity and abundance may be attributed the moderate volume of water storage, availability of food and assured protection to these birds. In order to protect these wetland birds, the wetland should be conserved by controlling encroachment, pollution and other anthropogenic activities. This paper provides an overview of status of wetland birds in the study area.

Keywords: wetland birds, diversity, abundance, Gudavi bird sanctuary, Sorab

Introduction

Wetlands are the treasures of avifaunal species richness. The social demand and dependence on the wetlands provide an unaccountable economic value to such habitats. Wetlands of lentic group form a favorable habitat to various groups of animals specially waterfowl. The study on avifauna of wetlands gained its momentum only after Ramsar convention (1971). Wetlands are known to be most productive and diverse ecosystems on the earth. Water birds are perhaps the most visible manifestation of faunal diversity but many other groups also inhabit these wetlands. Wetlands are fragile ecosystems, which are fast deteriorating and shrinking due to man made activities. India has 65,000 wetlands covering an area of 4.5 million hectares (Anon, 1990) [3]. Indian subcontinent represents 2094 forms belonging to 1200 species of avifauna (Ali and Ripley, 1995) [2]. The abundance and diversity of avian community obviously indicate the high ecological diversity of the country. The present work deals with the studies on the diversity and abundance of wetland birds around Gudavi bird sanctuary.

Materials & methods

Study area

Gudavi bird sanctuary (GBS), which is one of the well known bird sanctuaries of Karnataka, with notification, AHFF-262-fwl 86/ dt. 10:07:1989 has been selected for the study. It is located at 13 km away from Sorab city and 0.5 km away from Gudavi village, Karnataka, India. This sanctuary occupies the water spread area of about 33 ha, in rainy season, out of the total 73.68 ha. Remaining area is moist deciduous forest inhabiting various tree species. The sanctuary lies between latitude 14° 25' 59" to 14° 26' 41" and longitude 75° 6' 43" to 75° 25' 28" (Fig. 1).

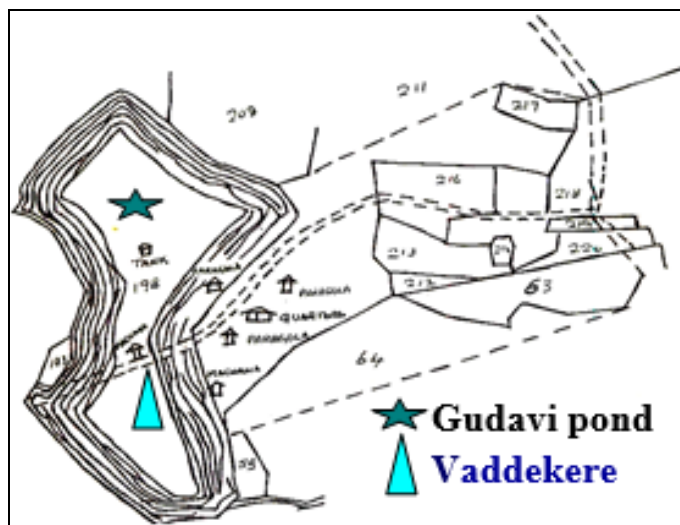


Fig 1: Map of Gudavi bird sanctuary

The checklist of wetland birds around the Gudavi bird sanctuary were made by sighting the birds with 8 x 50 binoculars. The field guides (Ali, 1996; Sonobe and Usui, 1993; Inskipp and Inskipp, 1991; Fleming *et al.* 2000; Kazmierczak and Perlo, 2000; Grimmett *et al.* 2001) [1, 10, 7, 5, 8, 6] were used for bird identification. The wetland bird census was conducted in morning hours from 0600 am to 1000 am and evening 0400 pm to 0600 pm. Study of wetland birds around the Gudavi bird sanctuary was carried out from 2008 to 2010, every month at regular interval by direct counting method (Colin *et al.*, 1993; William, 1997) [4, 11].

Results and discussion

A total of 61 species of birds were found associated with the

Gudavi bird sanctuary. Of which 31 species are resident, 23 residents with local migratory and 6 are migratory. During study 61 bird species belonging to 14 families on the wetland (Table-1). The status based upon percent occurrence of bird species representing different families with respect to total bird species presently recorded was Anatidae (18.03%) > Ardiidae (16.39%) > Charadriidae (11.48%) > Jacanidae (8.20%) = Alcedinidae (8.20%) = Motacillidae (8.20%) > Threskiornithidae (6.56%) = Rallidae (6.56%) > Phalacrocoracidae (3.28%) = Ciconiidae (3.28%) = Scolopacidae (3.28%) = Laridae (3.28%) > Podicipedidae (1.64%) = Recurvirostridae (1.64%) (Table. 2). The Anatidae and Ardiidae had more than 10 species, this can be considered good indicators of the health of these wetlands.

The diversity may be attributed the moderate volume of water storage, availability of food and assured protection to these birds. Family Anatidae was recorded to be the most

diversified during survey, which was represented by eleven species and comprised 18.03% of the total birds of the study area. Ardeidae was represented by ten species, but followed it, with relative abundance of 16.39%. Charadriidae was represented by seven species and Jacanidae, Alcedinidae and Motacillidae were represented by five species.

Motacillidae and Alcedinidae were represented by five species. Threskiornithidae, Rallidae, Jacanidae were represented by four species. Accipitridae was represented by three species each and Phalacrocoracidae, Ciconiidae, Scolopacidae, Laridae, Alaudidae, Corvidae and Ploceidae were represented by two species each whereas Podicipedidae, Recurvirostridae and Sturnidae had single species each. Among the birds recorded in this study, about 36.76 % (25 species) are both piscivores and insectivores and 22.06 % (15 species) are omnivores and 4.41 % (3 species) are carnivores respectively (Table. 1).

Table 1: Wetland bird diversity around Gudavi bird sanctuary.

Sl. No.	Systematics list	Scientific Name	RS	FH	RA
I	Podicipedidae				
1.	Little Grebe	<i>Tachybaptus ruficollis</i>	R	P	C
	Phalacrocoracidae				
2.	Little Cormorant	<i>Phalacrocorax niger</i>	RM	P	A
3.	Oriental Darter	<i>Anhinga melanogaster</i>	RM	P	C
II	Ardeidae				
4.	Grey Heron	<i>Ardea cinerea</i>	RM	P	C
5.	Purple Heron	<i>Ardea purpurea</i>	RM	P	C
6.	Pond Heron	<i>Ardeola grayii</i>	R	P	A
7.	Night Heron	<i>Nycticorax nycticorax</i>	R	P	A
8.	Cattle Egret	<i>Bubulcus ibis</i>	R	P	C
9.	Large Egret	<i>Casmerodius albus</i>	RM	P	A
10.	Median Egret	<i>Mesophoyex intermedia</i>	R	P	A
11.	Little Egret	<i>Egretta garzetta</i>	R	P	A
12.	Chestnut Bittern	<i>Ixobrychus cinnamomeus</i>	RM	P	O
13.	Yellow Bittern	<i>Ixobrychus sinensis</i>	RM	P	O
III	Threskiornithidae				
14.	Black-headed Ibis	<i>Threskiornis melanocephalus</i>	R	P	A
15.	Black Ibis	<i>Pseudibis papillosa</i>	RM	P	A
16.	Eurasian Spoonbill	<i>Platalea leucorodia</i>	RM	P	A
17.	Glossy Ibis	<i>Plegadis falcinellus</i>	RM	P	A
IV	Ciconiidae				
18.	White-necked Stork	<i>Ciconia nigra</i>	M	P	O
19.	Open-bill Stork	<i>Anastomus oscitans</i>	RM	P	O
V	Anatidae				
20.	Lesser-whistling Teal	<i>Dendrocygna javanica</i>	R	O	A
21.	Common Teal	<i>Anas crecca</i>	RM	O	A
22.	Spot-billed Duck	<i>Anas poecilorhyncha</i>	RM	O	A
23.	Garganey	<i>Anas querquedula</i>	RM	O	A
24.	Nakta or Comb Duck	<i>Sarkidiornis melanotos</i>	R	O	A
25.	Shoveller	<i>Anas clypeata</i>	WM	O	A
26.	Cotton Teal	<i>Nettapus coromandelianus</i>	R	O	A
27.	Mallard	<i>Anas platyrhynchos</i>	WM	O	O
28.	Pintail	<i>Anas acuta</i>	WM	O	O
29.	Brahminy Duck	<i>Tadorna ferruginea</i>	RM	O	O
30.	Marbled Teal	<i>Marmaronetta angustirostris</i>	RM	O	UC
VI	Rallidae				
31.	White-breasted Water hen	<i>Amaurornis phoenicurus</i>	R	I,G	C
32.	Indian Moorhen	<i>Gallinula chloropus</i>	R	O	A
33.	Purple Moorhen	<i>Porphyrio porphyrio</i>	R	O	A
34.	Common Coot	<i>Fulica atra</i>	R	O	A
VII	Jacanidae				

35.	Bronze-winged Jacana	<i>Metopidius indicus</i>	R	I/G	A
36.	Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	RM	I/G	A
37.	Indian bluebreasted banded Rail	<i>Rallus striatus</i>	R	I	O
38.	Brown Crake	<i>Amourornis akool</i>	R	I	C
39.	Water Cock or Kora	<i>Gallixrex cinerea</i>	RM	I	O
VIII	Charadriidae				
40.	Red-wattled Lapwing	<i>Vanellus indicus</i>	R	I	C
41.	Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	R	I	C
42.	Little-ringed Plover	<i>Charadrius dubius</i>	RM	I	A
43.	Grey Plover	<i>Pluvialis squatarola</i>	M	I	O
44.	Curlew	<i>Numenius arquata</i>	M	I	C
45.	Common Sandpiper	<i>Actitis hypoleucos</i>	RM	I	C
46.	Marsh Sandpiper	<i>Tringa stagnatilis</i>	R	I	C
IX	Recurvirostridae				
47.	Black-winged Stilt	<i>Himantopus himantopus</i>	M	I	O
X	Scolopacidae				
48.	Painted Snipe	<i>Rostratula benghalensis</i>	R	I	C
49.	Common Snipe	<i>Gallinago gallinago</i>	RM	I	C
XI	Laridae				
50.	Indian River Tern	<i>Sterna aurantia</i>	WM	P	O
51.	Common Tern	<i>Sterna hirundo</i>	WM	P	O
XII	Alcedinidae				
52.	Lesser-pied Kingfisher	<i>Ceryle rudis</i>	R	P	A
53.	Small-blue Kingfisher	<i>Alcedo atthis</i>	R	P	A
54.	Blue-eared Kingfisher	<i>Alcedo meninting</i>	R	P	C
55.	White-breasted Kingfisher	<i>Halcyon smyrnensis</i>	R	P	C
56.	Stork-billed Kingfisher	<i>Pelargopsis capensis</i>	R	P	C
XIII	Motacillidae				
57.	Large pied Wagtail	<i>Motacilla maderaspatensis</i>	R	I	A
58.	White Wagtail	<i>Motacilla alba</i>	RM	I	C
59.	Yellow Wagtail	<i>Motacilla flava</i>	R	I	C
60.	Yellow-headed Wagtail	<i>Motacilla citreola</i>	RM	I	UC
61.	Paddy Field Pipit	<i>Anthus novaeseelandiae</i>	R	I	O

Common & Scientific names are as followed by Manakadan and Pittie, 2001.

Food habit of the birds

I- Insectivore; **P-** Piscivore; **O-**Omnivore; **I/G** –Insectivore with Grainivore
Residential Status of the birds

R- Resident, **M** –Migratory, **RM** –Resident with migratory, **WM-** Winter migratory.
Relative abundance of the birds

C- Common, **A-**Abundant, **O-**Occasional, **UC-**Uncommon

Table 2: Status of wetland bird families recorded around GBS

S. No.	Family	No. of species	% occurrence
1	Podicipedidae	1	1.64
2	Phalacrocoridae	2	3.28
3	Ardeidae	10	16.39
4	Threskiornithidae	4	6.56
5	Ciconiidae	2	3.28
6	Anatidae	11	18.03
7	Rallidae	4	6.56
8	Jacaniidae	5	8.20
9	Charadriidae	7	11.48
10	Recurvirostridae	1	1.64
11	Scolopacidae	2	3.28
12	Laridae	2	3.28
13	Alcedinidae	5	8.20
14	Motacillidae	5	8.20

References

1. Ali S. The Book of Indian Birds. BNHS, Oxford University Press, Mumbai, 1996.
2. Ali S, Ripley SD. A Pictorial Guide to the Birds of the Indian Subcontinent, Oxford University Press, Delhi, 1995, 165.
3. Anon. Wetlands of India - A Directory. Government of India, Forests and Environment Department, New Delhi, 1990.
4. Colin Bibby J, Niel Burgess D, David Hill A. Birds census

- Techniques. Academic press Ltd. London, 1993.
5. Fleming RL (Sr), Fleming (Jr) RL, Bangdel LS. Birds of Nepal with reference to Kashmir and Sikkim. First Adarsh Impression, Gaurav Offset, Delhi, 2000.
 6. Grimmett R, Inskipp C, Inskipp T. Pocket Guide to the Birds of the Indian Subcontinent. Oxford University Press, New Delhi, 2001.
 7. Inskipp C, Inskipp T. A Guide to the birds of Nepal. Christopher Helm. London, 1991.
 8. Kazmierczak K, Perlo BV. A field Guide to the Birds of the Indian Subcontinent. Yale University Press, New Haven and London, 2000.
 9. Manakadan R, Pittie A. Standardized common and scientific names of the Birds of the Indian subcontinent. *Buceros*. 2001; 6(1):1-37.
 10. Sonobe K, Usui S. A Field Guide to the Water Birds of Asia. Wild Bird Society of Japan, Tokyo, 1993.
 11. William Sutherland J. Ecological Census Techniques a handbook. Cambridge University Press U.K, 1997.