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Checklist of Wetland Birds of Sakhya Sagar and Madhav Lakes in the Madhav National Park Shivpuri M.P. India

Abstract

In the present study, an attempt has been made to investigate species diversity of wetland birds and prepared a comprehensive checklist of wetland birds. The study was conducted in Sakhya Sagar Lake and Madhav Lake which is situated inside the Madhav National Park, Shivpuri. A systematic survey of avifauna was done. During the present study a total of 73 species of wetland birds were recorded belonging to 18 families 8 orders. Out of 73 species of wetland birds 69.88 % birds are highly dependent on water bodies of the Madhav National Park.

Keywords: Wetland Birds, Sakhya Sagar Lake, Madhav Lake, Madhav National Park, Shivpuri

Introduction

India is unique in the rich diversity of its vegetation and wildlife. The unmatched variety of flora and fauna that makes it extensively different from the rest of the world. In India, lakes, rivers and other freshwaters support a large diversity of biota representing almost all taxonomic groups. From an ecological point of view, the diversity of species present in the wetlands is an indication of the relative importance of the aquatic biodiversity issue as a whole. Birds are part of the natural habitats of the Indian sub-continent. In India there is no off season for birds. Native birds in any particular area are visible. The Indian sub-continent supports more than 1340 species of birds, which contribute more than 15% of the world's bird species (Ali and Ripley, 1983; Ali, 2002).

Study of avifaunal diversity is an essential ecological tool which acts as an important indicator to evaluate different habitats both qualitatively and quantitatively (Bilgrami, 1995). Unfortunately global diversity of birds is decreasing incessantly primarily due to anthro-pogenic disturbances (Rapoport, 1993) and climate change (Chen *et al.*, 2011; Sekercioglu *et al.*, 2012). No surprise that IUCN Red List of endangered birds has already recognized 1226 bird species as threatened globally and India with 88 threatened bird species is ranked at seventh position (Bird Life International 2010). Gaston and Blackburn (2003) estimated that since pre-agricultural levels overall global bird population has declined by a fifth to a quarter due to change in land-use pattern alone.

Materials and Methods

The observations of bird diversity studies were made by two methods: (i) Observers walked for 5 min continuously and recorded the bird species encountered while walking and (ii) Observers stopped for 2 min and recorded the bird species. The methods used will henceforth be referred to as short-strip transect counts (SSTC) for continuous walk method and point counts (PC) for stop method. In the SSTC method, for every five min, an average distance of 30 m was covered. All birds seen within 20m (10m on either side of the transect) belt were recorded. Observations were made in the SSTC method. In the PC method, all birds seen within a 10 m radius of the stationary observer were recorded and 125 were stops made. Information such as the name of the species, the number of individuals, etc. was recorded during data collection in both the methods. The checklist of wetland birds of Sakhya Sagar Lake and Madhav Lake was prepared by extensive field survey conducted mostly in morning between 0600-1100 hr and in evening from 1500-1900 hr. Surveys were conducted by boat for entering inside the lake area and outer areas of lake covered by walking along the lake banks and in paddy fields. Standard guides such as Ali & Ripley (1987), Grimmett *et al.*, (1999), Manakadan & Pittie (2001) and Ali (2002) were referred for identification, classification and nomenclature (sequence of orders and families) of wetland birds. Sub specific identification was not made because all the observation was visual



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and no birds were shoot and caught for identification in hands. Different research instruments were used for the study are Binocular (Olympus, 7 × 50) using for direct visual count, Global Position System (GPS) (Garmin 60) and Digital Camera (Nikon,10x optical zoom and 12 mega pixel).

Study Area

Madhav National Park is one of the oldest National Parks in the country and it is one of the 9 National Parks of Madhya Pradesh. The Park is a fascinating mix of natural splendors of history, scenic beauty and architectural wonders. Two National Highways viz. Agra-Bombay (NH.3) and Jhansi-Shivpuri (NH.25) pass through the Park and connect it to the important cities of the country. Presently total area of the Park is 354.612 sq. km. and it is protected under the "Wildlife (Protection) Act of 1972". In Madhav National Park, Sakhya Sagar and Madhav Lakes are important biodiversity support systems. These lakes not only add to the natural beauty of the area, but also provide a permanent source of water to the wildlife, and a fine wetland habitat to the aquatic fauna including thousands of wetland birds. These are man-made lakes and about 25 sq. km. of forest is spread around the lakes. The Sakhya Sagar spread in an area of 309.01 hectares and lies between 77° 43' E longitude and 25° 26' N latitude. The Madhav Lake spread in an area of 49 hectares and lies between 77° 44' E longitude and 25° 26' N latitude (Plate -1).

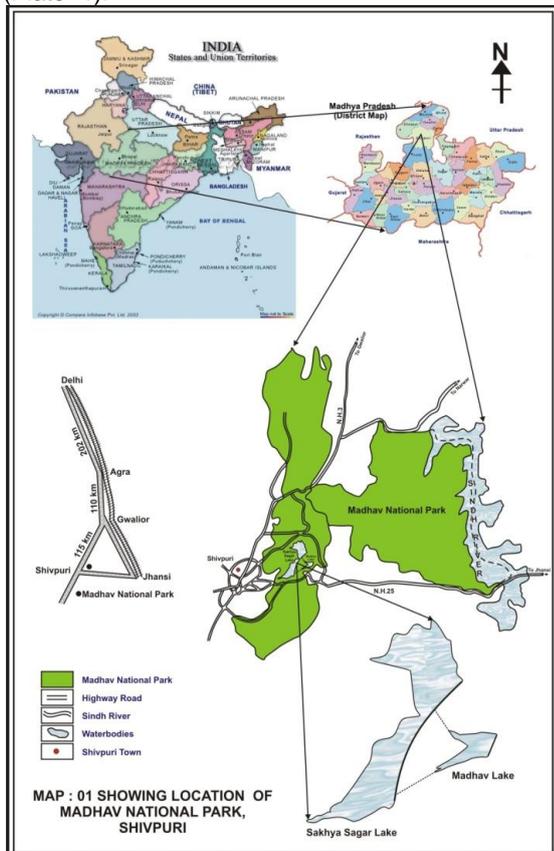


Plate – 1

Location of Madhav National Park, Shivpuri



Plate – 2

Sakhya Sagar Lake and Madhav Lake in Madhav National Park, Shivpuri

Results and Discussion

The water bodies of Madhav National Park are very favorable habitat for number of wetland birds. The present survey revealed presence of 73 species of wetland birds of 18 families belonging to 8 orders. Salim Ali visited Madhav National Park in September 1978 and was attracted with the avian fauna of the park and on the basis of the environmental conditions he suggested establishment of a birds sanctuary in the park. Perennou (1990) also considered that water bodies of the Madhav National Park as one of the most important wetlands in India for sustaining the population of migratory birds. Based on management plan of the Madhav National Park, during 93-94, birds of 227 species have been listed in the park by Bombay Natural History Society biologists. Some work on birds has been done by Saxena (1990; 1991) especially on cranes and his work has been largely concentrated on their distribution and some behavioral observations. Shrivastava (1994) reported 230 resident and 72 migrant birds at Madhav National Park. Chandra and Nema (2006) studied the avian fauna of Madhav National Park and prepared a checklist of birds, which includes 239 species of birds pertaining to 160 genera under 58 families. Kumar and Gupta (2009) reported a total of 54 species of wetland birds belonging to 36 genera and 15 families distributed in 5 orders. Acharya *et al.*, (2010) reported 100 species of birds belonging to 22 families from Shingba Sanctuary, Sikkim. Raj *et al.*, (2010) recorded total 101 species of resident and migratory birds and give a consolidated checklist of birds in the Pallikaranai wetlands, Chennai. Shukla and Lone (2010) recorded 63 species of water birds, belonging to 17 families from Sur Sarover Lake, Agra U.P., India. Nair (2009) surveyed National Chambal Sanctuary and during the survey 118 bird species were sighted of which 16 were migratory. Malhotra *et al.*, (2005) reported 32 species of waterfowls from Sirpur tank, Indore, belonging to 10 families and 7 orders. Thus, Madhav National Park is found to be a favorite place for sustaining the good population of wetland birds. The details of all observed 73 species of wetland birds with their identification, taxonomic position (sequence of orders and families) scientific names, common names and local names have been given in table 1.

Conservation and Management

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Due to increasing demand of food, freshwater, timber, fiber and fuel the wetland ecosystem has been changed dramatically. This results a substantial loss in the diversity of life on earth with 10-30% of the mammals, birds and amphibian species currently threatened with extinction. Increasing tourist inflow, most of the local people are involved with tourism activities. Also, cattle herders and laborers engaged in road construction are associated with the park. The current threats from these groups are illegal felling and removal of original dense strands of firs, rhododendrons for timber, firewood and construction. The increasing tourism activity has immense pressure on the vegetation and birds of the Madhav National Park. Conservation measures need to be strengthened and practically implemented. As the regeneration is slow due to climate, cattle grazing should be banned completely. Alternative fuel such as LPG (liquefied petroleum gas) and kerosene should be made available to the local communities to control deforestation. **The forest staff should be increased for deployment in the National Park.** Tourist's influx should be regulated at a number of visitors the region can sustain without degradation. A code of conduct for tourists and stake holders should be established and followed strictly. The formation of biodiversity management and ecotourism committees with the involvement of local people would be an effective step in the implementation of conservation measures. An awareness program dealing with importance of forests and wildlife should regularly be conducted targeting villagers, students, tourist entrepreneurs, herders, defense personnel and laborers. Capacity building programmes such as a tourism management course, training in bird watching and exposure tour for local communities are important tools for quality tourism as well as biodiversity conservation in this region.

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Table-1: Check List of Wetland Birds of Sakhya Sagar and Madhav Lakes in Madhav National Park, Shivpuri							
ORDER	FAMILIES	ENGLISH NAME	SCIENTIFIC NAME	HINDI NAME			
PODICIPEDIFORMES	PODICIPITIDAE	Little Grebe	Tachybaptus ruficollis	Pandubi , Pantiri, Dubdubi , Churaka			
			(Pallas)				
PELECANIFORMES	PELECANIDAE	Great White Pelican	Pelecanus onocrotalus	Hawasil			
			(Linnaeus)				
			PHALACROCORACIDAE		Little Cormorant	Phalacrocorax niger	Chota Pan-Kowwa , Jograbi,
						(Vieillot)	
						Great Cormorant	
Phalacrocorax carbo							
(Linnaeus)							
INDIAN SHAG	Indian Shag	Phalacrocorax fuscicollis	Pan-kowwa, Ganhill				
		(Stephens)					
		Darter or Snake Bird		Panwa, Pandubi			
		Anhinga melanogaster					
(Pennant)							
CICONIIFORMES	ARDEIDAE	Indian Pond-Heron	Ardeola grayii	Andha bagla, Chama, Khunch Bagla			
			(Sykes)				
			Grey Heron		Anjan, Kabud, Sain, Nari-Bagla		
			Ardea cinerea				
			(Linnaeus)				
			Purple Heron		Lal-anjan		
			Ardea purpurea				
			(Linnaeus)				
			Little Green Heron		Kancha Bagla		
			Butorides striatus				
			(Linnaeus)				
			Night Heron		Kwaak, Tal bagla		
			Nycticorax nycticorax				
(Linnaeus)							
Cattle Egret	Surkhia Bagla, Gai or Doria Bagla						
Bubulcus ibis							
(Linnaeus)							
Large Egret	Bada-Bagla						
Casmerodius albus							
(Linnaeus)							
Median Egret	Madhayam or Manjhla Bagla						
Mesophoyx intermedia							
(Wagler)							
Little Egret	Karchia, Kilchia Bagla						
Egretta-garzetta							
(Linnaeus)							
CICONIIDAE	Painted Stork	Mycteria leucocephala	Janghil, Dokh				
		(Pennant)					
		Asian Open bill Stork		Ghonghila, Gungla, Ghungil			
		Anastomus oscitans					
		(Boddaert)					
European White Stork	Laglag, Haji laglag, Ujli, Bada retwa						
Ciconia ciconia							
(Linnaeus)							
White- Necked Stork	Laglag						
Ciconia episcopus							

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			(Boddaert)	
		Black-Necked Stork	Ephippiorhynchus asiaticus	Banaras, Loharjang, Loha-sarang
			(Latham)	
		Lesser Adjutant Stork	Leptoptilos javanicus	Chinjara Chandana, Chhota garur
			(Horsfield)	
	THRESKIORNITHIDAE	Oriental White Ibis	Threskiornis melanocephalus	Safed baza, Didhar, Munda
			(Latham)	
		Black Ibis	Pseudibis papillosa	Kala baza, Karan- kul
			(Temminck)	
		Eurasian Spoonbill	Platalea leucorodia	Chamcha, Dabil, Chamach-baza
			(Linnaeus)	
ANSERIFORMES	ANATIDAE	Grey- leg Goose	Anser-anser	Kalhans, Badi-Satpeti Bat
			(Linnaeus)	
		Bar-headed Goose	Anser-indicus	Rajhans, Sawan, Birwa, Kareyee-hans
			(Latham)	
		Brahminy or Ruddy Shelduck	Tadorna ferruginea	Surkhab, Chakwa, Chakwi
			(Pallas)	
		Comb Duck	Sarkidiornis melanotos	Nakta
			(Pennant)	
		Lesser Whistling Duck	Dendrocygna javanica	Choti Seelhi, Seelkahi
			(Horsfield)	
		Large Whistling Duck	Dendrocygna bicolor	Bada Seelhi
			(Vieillot)	
		Northern-Pintail	Anas-acuta	Seenkh par, Sand
			(Linnaeus)	
		Gadwall	Anas-strepera	Myla, Beykhur, Bhuar
			(Linnaeus)	
		Shoveller	Anas-clypeata	Tidari, Punana, Ghirah, Tokarwala
			(Linnaeus)	
		Common Teal	Anas crecca	Choti murghabi, Kerra, Souchuruka
			(Linnaeus)	
		Red-Crested Pochard	Rhodonessa rufina	Lal-sir, Lal-chonch
			(Pallas)	
		Cotton Teal	Nettapus coromandelianus	Girri, Girija, Girja
			(Gmelin)	
		Ferruginous or White-eyed	Aythya nyroco	Kurchiya, Burar-mada

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		Pochard	(Guldenstadt)	
		Common Pochard	Aythya ferina (Linnaeus)	Lal seer
		Tufted Pochard	Aythya fuligula (Linnaeus)	Dubaru, Ablak, Rahwara
		Mallard	Anas platyrynchos (Linnaeus)	Nilsir, Nil rugi
		Eurasian Wigeon	Anas penelope (Linnaeus)	Peasan, Patari
		Garganey	Anas querquedula (Linnaeus)	Chaita, Khira
FALCONIFORMES	ACCIPITRIDAE	Marsh Harrier	Circus aeruginosus (Linnaeus)	Kutar, Safed sira
		Osprey	Pandion haliaetus (Linnaeus)	Machhlimar
GRUIFORMES	GRUIDAE	Common Crane	Grus grus (Linnaeus)	Kurunch
		Sarus Crane	Grus antigone (Linnaeus)	Saras
	RALLIDAE	White-Breasted Waterhen	Amaurornis phoenicurus (Pennant)	Dauk, Jal-murghi, Bansmurghi, Kharem
		Common Moorhen	Gallinula chloropus (Linnaeus)	Jal-murghi
		Purple Moorhen	Porphyrio-porphyrus (Linnaeus)	Kharim, Kaim, Kalim
		Common Coot	Fulica atra (Linnaeus)	Aari, Thekari, Dasari, Dasarni, Khuskul
CHARADRIIFORMES	JACANIDAE	Pheasant-Tailed Jacana	Hydrophasianus chirurgus (Scopoli)	Jalmor, Pihor, Pihuya
		Bronze-Winged Jacana	Metopidius indicus (Latham)	Jalmakhani, Dal or Jal pipi
	CHARADRIIDAE	Red-Wattled Lapwing	Vanellus indicus (Boddaert)	Titeeri, Titai, Titi, Titari
		Golden Plover	Pluvialis fulva (Gmelin)	Chhota batan
		Little ringed Plover	Charadrius dubius (Scopoli)	Zierrea, Merwa
		Spotted Redshank	Tringa erythropus	Batan, Gatni, Surma

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			(Pallas)	
		Common Redshank	Tringa totanus (Linnaeus)	Chhota batan
		Marsh Sandpiper	Tringa stagnatilis (Bechstein)	Chhota gotra
		Common Sandpiper	Actitis hypoleucos (Linnaeus)	Panewa
		Jack Snipe	Limnocyptes minimus (Brunnich)	Chhota chaha
		Little Stint	Calidris minuta (Leisler)	Chhota panlowwa
		Ruff	Philomachus pugnax (Linnaeus)	Gehwala, Bagbad
	ROSTRATULIDAE	Painted Snipe	Rostratula benghalensis (Linnaeus)	Rajchaha
	RECURVIROSTRIDAE	Black Winged Stilt	Himantopus-himantopus (Linnaeus)	Gazpaon, Tinghur
	BURHINIDAE	Stone-Curlew	Burhinus oedicephalus (Linnaeus)	Karwanak, Barsiri
	GLAREOLIDAE	Indian Courser	Cursorius coromandelicus (Gmelin)	Nukri
	LARIDAE	River Turn	Sterna aurantia (J.E.Gray)	Badi kurri
		Little Turn	Sterna albifrons (Pallas)	Choti kurri
		Brown headed Gull	Larus brunnicephalus (Jerdon)	Dhomra
		Indian Skimmer	Rynchops albicollis (Swainson)	Panchira
CORACIIFORMES	ALCEDINIDAE	Lesser Pied Kingfisher	Ceryle rudis (Linnaeus)	Koryala
		Small Blue Kingfisher	Alcedo atthis (Linnaeus)	Chhota Kilkila
		White-breasted- Kingfisher	Halcyon smyrnensis (Linnaeus)	Kilkila, Kourilla
8	18	73		