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A studies on wintering wetland avifauna of Sundargarh forest division, Sundargarh, India

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Abstract

The study on bird diversity and status of Sundargarh Forest Division of Sundargarh district, Odisha was carried between December, January and February (winter season). During the study period, a total of 62 species belonging to 27 families were recorded. Of these 79.03% (n=49) were resident, 20.97% (n=13) were winter visitors. Based on frequency of sightings, 54.84% (n=34) bird species were common, 29.04% (n=18) were uncommon, 12.90% (n=8) were rare and 3.22% (n=2) were occasional. According to IUCN 2 recorded species were near threatened and 60 species were places in the Least Concern category. This paper provides an overview of status of wetland birds and threats to them in the study area.

Keywords: Wintering wetland avifauna, bird diversity, Sundargarh Forest Division, Sundargarh.

Introduction

Wetland area unit outlined as lands transmutation between terrestrial and aquatic system wherever the water label is typically at or close to the surface or the land is roofed by shallow water[1]. Wetlands provide home for a huge diversity of wildlife such as birds mammals and fishes. Birds act as key components as they are potential indicators of ecosystem health. They provide important ecosystem services and play various roles as scavengers, pollinators, predators, seed disperser and nutrient depositor[2,3]. Wetland birds give America with a number of nature's most fantastic sight. Avifauna are continuously threatened due to habitat loss and degradation, hunting, pollution, invasive species and disease[3]. Objectives of the present study, to prepare a checklist of wetland avifauna in the Sundargarh Forest Division, management of wetlands, identification and calculation of population density of birds in different wetlands of the Sundargarh Forest Division for their conservation plans and better management.

Methodology

Study area: The Sundargarh Forest Division lies between 21.47'7" to 22.32'2"N latitude and between 83.32'19" to 84.34'18"E longitude.

This division shares its boundaries in following manner: Jharkhand and Chhattishgarh state in the north, Jharasuguda and Bamra Forest Division in south, Rourkela division in the east and Chattishgarh in the west and south west. The geographical area of re-organised Sundargarh forest division is 3576.39 square kilometre, Out of this forest cover spread over 1720.54 square kilometre, which is 48.1% of the total geographical area of the division. The division comprises 6 territorial Ranges namely Sundargarh, Ujalpur, Lephripara, Gopalpur, Hemgir and Bargaon.

The study was carried out in 7 wetland habitats namely Sankara pond, Kirei pond, IB River, Rengali dam, Sarafgarh dam (Lephripara), Nakadihi pond (Ujalpur), Sibsagar pond (Hemgir), situated around Sundargarh Forest Division.

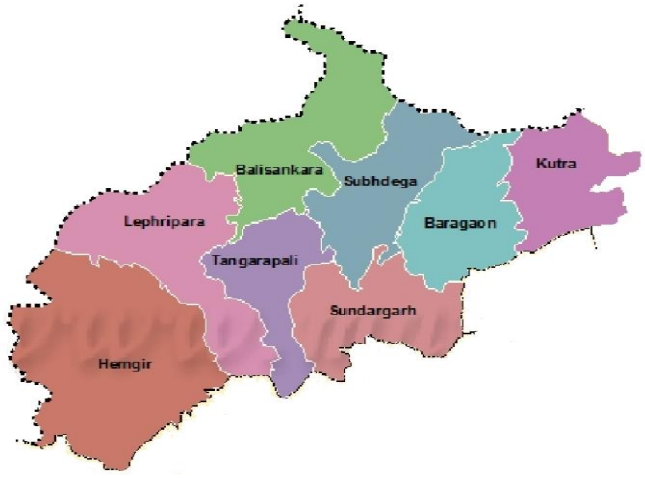

Figure-1: Map of Sundargarh Forest Division.

Methodology: Various wetland were selected first in the Sundargarh Forest Division named Sankara pond, Kireipond, Indiravati River, Rengalidam, Sarafgarhdam, Ujalpur/Nakadihi pond, Sibsagar pond etc. There we made a survey team about 10 members including myself also. Survey were conducted when birds were most active i.e. in the time of sunrise and sunset. Birds were observed by standard methods like block count and point count[4]. Observation were carried out with the aid of 10×50 and 7×35 NIKON binocular from 6 to 8 AM and 4to 5:30 PM.

Some birds photograph were captured by the NIKON point and shoot camera 25 megapixel. Identification of birds were done by field guides[5,6]. Identified species were recorded in the note pad. Checklist were prepared using standardized common and scientific names of the birds[6].

Results and discussion

Total 62 species belonging to 27 families recorded from the study area. The present investigation revealed that Anatidae family (9 species) dominated the avian species in this area, followed by Ardeidae (8 species), Rallidae (4 species), Charadriidae, Scolopacidae, Meropidae, Hirundinidae, Motacillidae (3 species each), Podicipedidae, Phalacrocoracidae, Threskiornithidae, Jacanidae, Columbidae, Alcedinidae, Accipitridae (2 species each), Ciconiidae, Pycnonotidae, Cuculidae, Apodidae, Coraciidae, Upupidae, Alaudidae, Corvidae, Cisticolidae, Nectariniidae, Dicruridae, Sturnidae (1 species each). Among the avifauna 49 (79.03%) were resident, 13 (20.97%) were winter visitors. Further analysis of avian abundance revealed that 34 (54.84%) species were common, 18 (29.04%) as uncommon, 8 (12.90%) as rare and 2 (3.22%) as occasional. Among the recorded species 2 species were Near Threatened according to IUCN (International Union for Conservation of Nature) Global Red List. All the remaining 60 species were places in the Least Concern category. According to WPA (Indian Wildlife Protection Act, 1972) India, 2 recorded species were placed in Convention schedule I and 60 species were placed in schedule IV. According to the data of CITES, only one species fulvous whistling duck has appendix III schedule and other recorded species are not applicable.

Table-1: List of the birds recorded in wetlands around Sundargarh Forest Division.

Common name	Scientific name	Family	IUCN	WPA 1972	Cites	Abundance	Migratory Status
Little Grebe	*Tachybaptusruficollis*	Podicipedidae	LC	IV	NA	R	R
Little cormorant	*Microcarboniger*	Phalacrocoracidae	LC	IV	NA	C	R
Little egret	*Egrettagarzetta*	Ardeidae	LC	IV	NA	C	R
Median egret	*Ardea intermedia*	Ardeidae	LC	IV	NA	UC	R
Cattle egret	*Bubulcus ibis*	Ardeidae	LC	IV	NA	C	R
Indian pond heron	*Ardeolagrayii*	Ardeidae	LC	IV	NA	C	R
Asian openbilled strok	*Anastomusoscitans*	Ciconiidae	LC	IV	NA	C	R
Black ibis	*Pseudibispapilosa*	Threskiornithidae	LC	IV	NA	O	R
Lesser whistling duck	*Dendrocygnajavanica*	Anatidae	LC	IV	NA	UC	R
Brahminyshelduck	*Tadornaferruginea*	Anatidae	LC	IV	NA	R	R
Redcrestedpochard	*Nettarufina*	Anatidae	LC	IV	NA	UC	WV
Northen pintail	*Anasacuta*	Anatidae	LC	IV	NA	R	WV
White breasted waterhen	*Amaurornisphoenicunus*	Rollidae	LC	IV	NA	UC	R
Common coot	*Fulicaatra*	Rollidae	LC	IV	NA	UC	R
Common moorhen	*Gallinule chloropus*	Rollidae	LC	IV	NA	UC	R
Bronze winged jacana	*Metopidiusindicus*	Jacanidae	LC	IV	NA	UC	R
Pheasant tailed jacana	*Hydrophasianuschirurgus*	Jacanidae	LC	IV	NA	UC	R
Red wattled Lipwing	*Vanellusindicus*	Charadriidae	LC	IV	NA	C	R

Common sandpiper	*Actitishypoleucos*	Scolopacidae	LC	IV	NA	C	WV
Wood sandpiper	*Tringaglareola*	Scolopacidae	LC	IV	NA	UC	WV
Spotted dove	*Spilopeliachinensis*	Columbidae	LC	IV	NA	C	R
Laughing dove	*Spilopeliasenegalensis*	Columbidae	LC	IV	NA	C	R
Red vented bulbul	*Pycnonotus cafer*	Pycnonotidae	LC	IV	NA	C	R
Lesser coucal	*Centropusbengalensis*	Cuculidae	LC	IV	NA	UC	R
Common swift	*Apusapus*	Apodidae	LC	NL	NA	C	R
White throated kingfisher	*Halcyonsmyrnensis*	Alcedinidae	LC	IV	NA	C	R
King fisher	*Alcedoatthis*	Alcedinidae	LC	IV	NA	C	R
Chestnut headed bee eater	*Meropsleschenaulti*	Meropidae	LC	NL	NA	UC	R
Indian roller	*Coraciasbenghalensis*	Coraciidae	LC	IV	NA	C	R
Common hoopoe	*Upupaepops*	Upupidae	LC	NL	NA	C	R
Bush lark	Mirafraerythroptera	Alaudidae	LC	IV	NA	UC	R
Commom swallow	*Hirundo rustica*	Hirundinidae	LC	IV	NA	C	R
Wire tailed Wallow	*Hirundosmithii*	Hirundinidae	LC	IV	NA	R	R
White wagtail	*Motacillaalba*	Motacillidae	LC	IV	NA	UC	WV
Citrine wagtail	*Motacilla citreola*	Motacilladae	LC	IV	NA	UC	WV
Paddy field pipit	*Anthusrufulus*	Motacilladae	LC	IV	NA	C	R
Little ring plover	*Charadriusdubius*	Charadrridae	LC	IV	NA	C	WV
Little stint	*Calidris minuta*	Scolopacidae	LC	IV	NA	O	WV
Purple moorhen	*Porphyrioporphyrio*	Rallidae	LC	IV	NA	C	R
Godwall	*Anas strepera*	Anatidae	LC	IV	NA	C	R
Cotton teal	*Nettapuscoromandelianus*	Anatidae	LC	IV	NA	C	R
Purple heron	*Ardeapurpurea*	Ardeidae	LC	IV	NA	C	R
Spangled drongo	*Dicrurusbracteatus*	Dicruridae	LC	IV	NA	UC	R
Little green heron	*Butorides virescens*	Ardeidae	LC	IV	NA	R	WV
Eurasian wigeon	*Maraca penelope*	Anatidae	LC	IV	NA	UC	WV
Black bittern	*Lxobrychusflavicollis*	Ardeidae	LC	IV	NA	C	R

Black headed oriental ibis	*Threskiornis melanocephalus*	Threskiornithidae	NT	IV	NA	C	WV
Fulvous whistling duck	*Dendrocygnabicolor*	Anatidae	LC	IV	Appendix III	C	R
Great crested grebe	*Podiceps cristatus*	Podicipedidae	LC	IV	NA	C	R
Rufous tree pie	*Dendrocittavagabunda*	Corvidae	LC	IV	NA	C	R
Common ringed plover	*Charadriushiaticula*	Charadriidae	LC	IV	NA	UC	WV
Tailor bird	*Orthotomussutorius*	Cisticolidae	LC	IV	NA	C	R
Indian Shikra bird	*Accipiter badius*	Aceipitridae	LC	I	NA	C	R
Purple sun bird	Cinnyrisasiaticus	Nectariniidae	LC	IV	NA	C	R
Black drongo	*Dicrurusmacrocercus*	Dicruridae	LC	IV	NA	C	R
Little green bee eater	*Meropsorientalis*	Meropidae	LC	NL	NA	R	R
Blue bearded bee eater	*Nyctyornisathertoni*	Meropidae	LC	NL	NA	R	R
Red rumped swallow	*Cecropisdaurica*	Hirundinidae	LC	IV	NA	UC	WV
Pied starling	*Lamprotornisbicolar*	Sturnidae	LC	IV	NA	C	R
Cinnamon bittern	*Lxobrychus cinnamomeus*	Ardeidae	LC	IV	NA	C	R
Tufted duck	*Aythyafuligula*	Anatidae	LC	IV	NA	C	R
Rufous bellied eagle	*Lophotriorchiskienerii*	Accipitridae	NT	I	NA	R	R

LC- Least Concern, NT- Near Threatened, Abundance (C- Common, UC- Uncommon, R- Rare, O- Occasional), Migratory status (R- Resident, WV- Winter Visitors)

Table-2: Status of the families recorded in wetland around Sundargarh:

Family	No. of species	Percentage %
Podicipedidae	2	3.22
Phalacrocoracidae	1	1.61
Ardeidae	8	12.90
Ciconiidae	1	1.61
Threskiornithidae	2	3.22
Anatidae	9	14.51
Pycnonotidae	1	1.61
Rallidae	4	6.45
Jacanidae	2	3.22

Charadriidae	3	4.83
Scolopacidae	3	4.83
Columbidae	2	3.22
Cuculidae	1	1.61
Apodidae	1	1.61
Alcedinidae	2	3.22
Meropidae	3	4.83
Coraciidae	1	1.61
Upupidae	1	1.61
Alaudidae	1	1.61
Hirundinidae	3	4.83
Motacilladae	3	4.83
Corvidae	1	1.61
Accipitridae	2	3.22
Nectarinidae	1	1.61
Dicruridae	2	3.22
Sturnidae	1	1.61
Cisticolidae	1	1.61

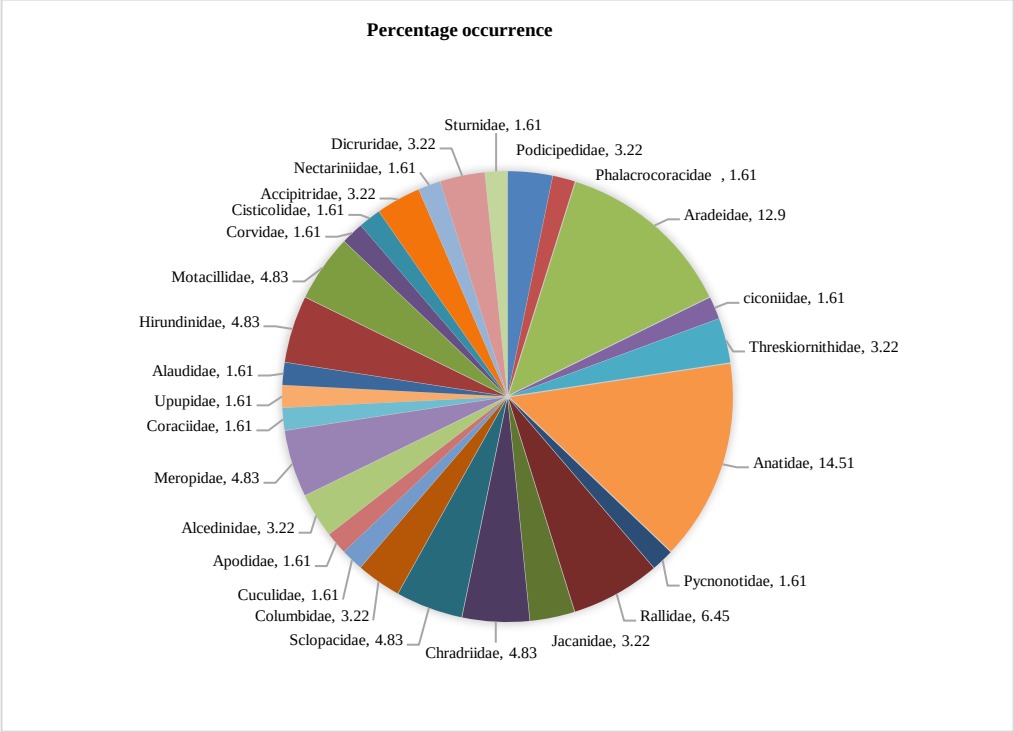

Figure-2: Percentage occurrence of different Families of birds.

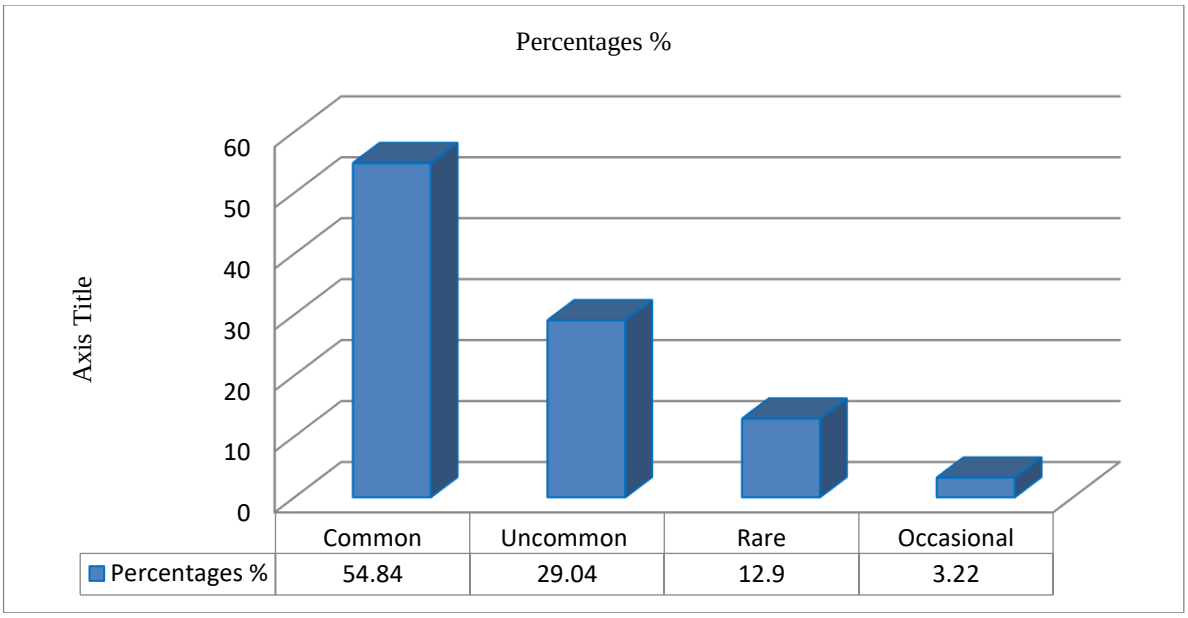

Figure-3: Abundance of birds.

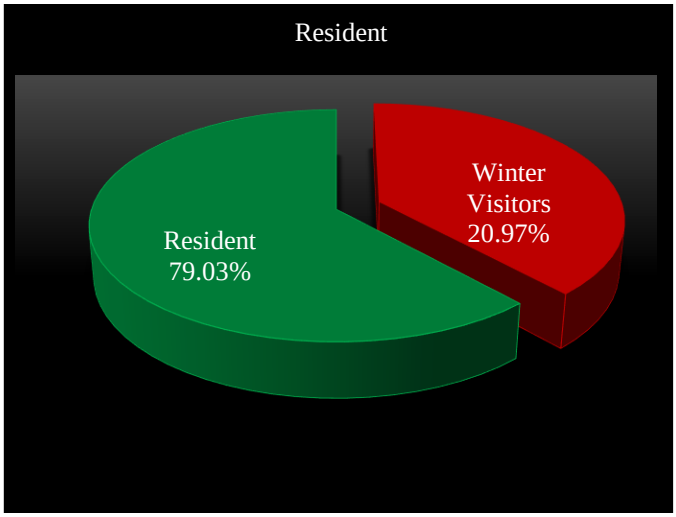

Figure-4: Migratory status.

Figure-6: Indian Pond Heron.

Figure-5: Little egret.

Figure-7: Purple Moorhen.

Figure-8: Bronze Winged Jacana

Figure-9: Common Coot.

Figure-10: Gadwall (male and female).

Figure-11: White Throated Kingfisher.

Discussion: Sundargarh Forest Division represents a high avifaunal diversity. The high richness of birds in this area can be attributed to the high habitat heterogeneity of both inland aquatic and terrestrial habitats of the study region. The study area has a fair diversity of fruiting trees and shrubs and rich in the diversity and abundance of insects, which provide food to the variety of bird species. Macrophytes are involved in several feedback mechanisms that tend to keep the water clear even in relatively high nutrient loadings[7]. Water depth and air temperature were found to affect most frequently the seasonal dynamics of total plant mass as well as abundance of individual macrophyte group or species[8]. This is clearly revealed in the present study of macrophyte abundance.

Birds play a vital role in various agro ecosystems, their diversity is an indication of congenital habitat for survival[9]. The bird density or the number of individuals were more in December, January and February (winter season) rather than other season as there was optimum water storage, availability of abundant food, increased vegetation and the arrival of migratory bird. Similar observations were made by Saxena[10] on avifauna of Keoladeo National Park, Bharatpur and Bhat et al.[11] on avifauna of Anekere wetland, Karnataka.

The waterfowl population and distribution regulates by invertebrates, wetland birds largely feed on a wide range of the invertebrate community and small fishes[12] and some other wetland depended bird feed on crops and fruits. Aggregations of migratory birds in water body significantly change the water quality by the addition of extra loads of nutrients[13]. Which in turn determine habitat selection by wintering waterbirds. The present study revealed it.

Conclusion

From the above study wetlands of Sundargarh Forest Division should take care proper and sustainable management needed for the wetland ecosystem to attract more avifauna as well as ecotourism.

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