

Avifaunal Diversity in and around the Torsa River beside Coochbehar Town of West Bengal

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Abstract: The present report represents the result of a two years study on the avifaunal diversity of the river Torsa proximal to the town of Coochbehar, West Bengal. The study has been restricted only to the open-water, mudflats and banks of river Torsa. A total of 111 species including sub-species of avifauna belonging to 79 genera under 37 families and 14 orders has been recorded from the studied area. 14 species favor open water bodies for their foraging, while 46 species forage in water-edge area and 51 species are terrestrial birds as found in this studied area. Out of total 111 species including sub-species, 27 species of migratory birds, 24 species of resident-migratory / local-migratory and 60 species of exclusively residential birds has been recorded during the study.

Keywords: Avifauna, diversity, Torsa, river bed, Coochbehar

1. Introduction

Birds are the only feathered creature present in this world in all major ecological habitats (Whelan *et al.* 2008). It is due to diverse form and variations in color, shape, texture and size of feathers that attracts an increasing number of people to study and photograph birds. Falling into the warm-blooded category of fauna, they are quite versatile and quickly adapt to diverse kind of habitat. Birds represent a significant role in the biotic community of a region and hence have a great importance in the biodiversity and ecological status of the region (Niemi, 1985).

The Coochbehar town is located at the north eastern part of West Bengal, occupies a pivotal position both historically and geographically. According to census report, the countryside is level and open, undiversified by jheels or many large sheets of water. The greater portion of the district is well cultivated, composed of green fields studded with bamboo clumps and orchards, which surround the homestead of every substantial farmer (Das *et al.* 2013). The river Torsa encircled the Coochbehar town through its western to southern side. A diverse ecological habitat is present on the river bank and on the bed of this river encircling the Coochbehar town. We have studied a stretch of 10 km by 0.75-1 km of river Torsa from 26°19'50.01" N / 89°24'48.05" E to 26°17'25.02" N / 89°27'05.37" E (Figure 1). The aim of our study is to record the diversity of the bird species forages at various ecological niche of the Torsa river including the bank area as well. This report presents the results of a two years study (2014-2016) of the diversity of avifauna in and around the Torsa river encircling Coochbehar town.



Figure 1: Location of the studied area (Courtesy- Google earth)

2. Materials and Methods

Conventional method of observation using field binocular, field guide book and photography using Panasonic FZ50 and Nikon D7100 camera with zoom facilities were used to record bird species during the survey. Species richness and abundance were estimated by fixed-width transects following Emlen, 1977. Bibby, *et al.* (1998) was considered to study the regional specific modification of the counting technique. The avifauna was identified by consulting the literature of Ali and Futehally (2004), Grimmett *et al.* (2007), Majumdar *et al.* (1992), Sanyal and Roychowdhury (2001), Rasmussen and Anderton (2005) and Venkataraman (1995)^{1,2}.

Table 1: Checklist of birds recorded in and around Torsa river beside Coochbehar town.

Scientific name	Common name	Habitat preference	Migratory status	Citation Status
ORDER: ANSERIFORMES				
FAMILY: ANATIDAE				
<i>Dendrocygna javanica</i>	Lesser Whistling-Duck	OW	R	++++

Volume 5 Issue 10, October 2016

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<i>Tadorna ferruginea</i>	Ruddy Shelduck	OW	M	+++
<i>Nettapus coromandelianus</i>	Cotton Pygmy-Goose	OW	M	++
<i>Anas platyrhynchos</i>	Mallard	OW	M	+
<i>Mareca strepera</i>	Gadwall	OW	M	+++
<i>Anas acuta</i>	Northern Pintail	OW	M	++
<i>Netta rufina</i>	Red-Crested Pochard	OW	M	++
<i>Aythya ferina</i>	Common Pochard	OW	M	++
<i>Aythya nyroca</i>	Ferruginous Duck	OW	M	+++
ORDER: BUCEROTIFORMES				
FAMILY: UPUPIDAE				
<i>Upupa epops</i>	Common Hoopoe	TR	R	+++
ORDER: CORACIIFORMES				
FAMILY: CORACIIDAE				
<i>Coracias benghalensis</i>	Indian Roller	TR	R	+
FAMILY: ALCEDINIDAE				
<i>Alcedo atthis taprobana</i>	Common Kingfisher subsp.	WE	R	+++
<i>Alcedo atthis bengalensis</i>	Common Kingfisher subsp.	WE	R	+++
<i>Pelargopsis capensis capensis</i>	Stork-Billed Kingfisher	WE	R	+
<i>Halcyon smyrnensis</i>	White-Throated Kingfisher	WE	R	++++
<i>Ceryle rudis</i>	Pied Kingfisher	WE	R	+++
FAMILY: MEROPIDAE				
<i>Merops orientalis orientalis</i>	Green Bee-eater	TR	R	+++
<i>Merops philippinus</i>	Blue-Tailed Bee-eater	TR	R	++
ORDER: CUCULIFORMES				
FAMILY: CUCULIDAE				
<i>Hierococyx varius</i>	Common Hawk-cuckoo	TR	R	+++
<i>Centropus sinensis</i>	Greater Coucal	TR	R	++
ORDER: COLUMBIFORMES				
FAMILY: COLUMBIDAE				
<i>Columba livia intermedia</i>	Common Pigeon	TR	R	+++
<i>Streptopelia decaocto</i>	Eurasian Collared Dove	TR	R	+++
<i>Spilopelia chinensis</i>	Spotted Dove	TR	R	++++
<i>Streptopelia tranquebarica</i>	Red Collared Dove	TR	R	++
ORDER: GRUIFORMES				
FAMILY: RALLIDAE				
<i>Amaurornis phoenicurus</i>	White-Breasted Waterhen	WE	R	++
<i>Gallinula chloropus</i>	Common Moorhen	WE	RM	+++
<i>Fulica atra</i>	Eurasian Coot	WE	RM	+++
ORDER: CHARADRIIFORMES				
FAMILY: SCOLOPACIDAE				
<i>Tringa nebularia</i>	Common Greenshank	WE	RM	++
<i>Actitis hypoleucos</i>	Common Sandpiper	WE	RM	++
<i>Tringa ochropus</i>	Green Sandpiper	WE	RM	+++
<i>Tringa glareola</i>	Wood Sandpiper	WE	RM	++
<i>Calidris minuta</i>	Little Stint	WE	M	+
<i>Calidris temminckii</i>	Temminck's Stint	WE	M	+++
<i>Gallinago gallinago</i>	Common Snipe	WE	RM	+++
FAMILY: CHARADRIIDAE				
<i>Charadrius dubius</i>	Little Ringed Plover	WE	M	++++
<i>Charadrius alexandrinus</i>	Kentish Plover	WE	M	++
<i>Vanellus duvaucelii</i>	River Lapwing	WE	M	+++
<i>Vanellus cinereus</i>	Grey-Headed Lapwing	WE	M	++
<i>Vanellus indicus indicus</i>	Red-Wattled Lapwing	WE	R	+++
FAMILY: BURHINIDAE				
<i>Burhinus oedinemus indicus</i>	Indian Thick-Knee	TR	M	+
FAMILY: GLAREOLIDAE				
<i>Glareola lactea</i>	Little Pratincole	WE	M	+++
FAMILY: JACANIDAE				
<i>Metopidius indicus</i>	Bronze-Winged Jacana	WE	R	+++
ORDER: ACCIPITRIFORMES				
FAMILY: ACCIPITRIDAE				
<i>Milvus migrans migrans</i>	Black Kite	TR	R	++++
<i>Milvus migrans lineatus</i>	Black-Eared Kite	TR	R	++
<i>Haliastur Indus</i>	Brahminy Kite	TR	R	++
<i>Elanus caeruleus</i>	Black-Shouldered Kite	TR	R	+
<i>Accipiter badius</i>	Shikra	TR	R	+++

<i>Clanga hastata</i>	Indian Spotted Eagle	TR	R	+
<i>Aquila nipalensis</i>	Steppe Eagle	TR	M	+
<i>Aquila heliaca</i>	Eastern Imperial Eagle	TR	M	+
FAMILY: PANDIONIDAE				
<i>Pandion haliaetus</i>	Osprey	WE	R	++
ORDER: FALCONIFORMES				
FAMILY: FALCONIDAE				
<i>Falco tinnunculus</i>	Common Kestrel	TR	R	+
ORDER: PODICIPEDIFORMES				
FAMILY: PODICIPEDIDAE				
<i>Tachybaptus ruficollis</i>	Little Grebe	OW	RM	+++
<i>Podiceps cristatus</i>	Great Crested Grebe	OW	M	+
ORDER: SULIFORMES				
FAMILY: PHALACROCORACIDAE				
<i>Phalacrocorax carbo</i>	Great Cormorant	OW	RM	++
<i>Microcarbo niger</i>	Little Cormorant	OW	R	++++
<i>Phalacrocorax fuscicollis</i>	Indian Cormorant	OW	R	+
ORDER: PELECANIFORMES				
FAMILY: ARDEIDAE				
<i>Nycticorax nycticorax</i>	Black-Crowned Night Heron	WE	RM	+++
<i>Ardeola grayii</i>	Indian Pond Heron	WE	R	++++
<i>Ardea purpurea</i>	Purple Heron	WE	M	++
<i>Ardea cinerea</i>	Grey Heron	WE	M	++
<i>Butorides striata</i>	Green-Backed Heron	WE	M	+
<i>Ardea alba</i>	Great White Egret	WE	M	++
<i>Ardea intermedia</i>	Intermediate Egret	WE	R	++
<i>Egretta garzetta</i>	Little Egret	WE	R	+++
<i>Bubulcus ibis</i>	Cattle Egret	WE	R	++++
<i>Ixobrychus cinnamomeus</i>	Cinnamon Bittern	WE	R	+
<i>Ixobrychus sinensis</i>	Yellow Bittern	WE	R	++
FAMILY: THRESKIORNITHIDAE				
<i>Pseudibis papillosa</i>	Red-Naped Ibis	WE	M	+
ORDER: CICONIIFORMES				
FAMILY: CICONIIDAE				
<i>Anastomus oscitans</i>	Asian Openbill	WE	RM	++++
ORDER: PASSERIFORMES				
FAMILY: LANIIDAE				
<i>Lanius cristatus</i>	Brown Shrike	TR	M	+++
<i>Lanius schach erythronotus</i>	Long-Tailed Shrike	TR	R	+++
<i>Lanius schach tricolor</i>	Long-Tailed Shrike(sub sp)	TR	RM	+
FAMILY: CORVIDAE				
<i>Corvus splendens splendens</i>	House Crow	TR	R	++++
<i>Corvus macrorhynchos</i>	Large-Billed Crow	TR	R	++
FAMILY: ARTAMIDAE				
<i>Artamus fuscus</i>	Ashy Wood Swallow	TR	R	++
FAMILY: DICRURIDAE				
<i>Dicrurus macrocercus</i>	Black Drongo	TR	R	++++
<i>Dicrurus aeneus</i>	Bronzed Drongo	TR	R	++
FAMILY: MUSCICAPIDAE				
SUB FAMILY: TURDINAE				
<i>Luscinia svecica</i>	Bluethroat	WE	RM	+++
<i>Copsychus saularis</i>	Oriental Magpie Robin	TR	R	++++
<i>Saxicola torquatus</i>	Common Stonechat	TR	R	+++
FAMILY: SYLVIIDAE				
<i>Bradypterus luteoventris</i>	Brown Bush Warbler	TR	R	+
<i>Acrocephalus dumetorum</i>	Blyth's Reed Warbler	TR	R	++
<i>Orthotomus sutorius</i>	Common Tailorbird	TR	R	++++
<i>Phylloscopus collybita</i>	Common Chiffchaff	TR	RM	+++
<i>Megalurus palustris</i>	Striated Grassbird	TR	RM	+++
FAMILY: TIMALIIDAE				
<i>Turdoides striata</i>	Jungle Babbler	TR	R	++++
FAMILY: STURNIDAE				
<i>Sturnus malabaricus</i>	Chestnut-Tailed Starling	TR	R	+++
<i>Sturnus contra</i>	Asian Pied Starling	TR	R	++++
<i>Acridotheres tristis</i>	Common Myna	TR	R	++++

<i>Acridotheres ginginianus</i>	Bank Myna	TR	R	++
FAMILY: HIRUNDINIDAE				
<i>Hirundo rustica</i>	Barn Swallow	TR	M	++
<i>Riparia paludicola</i>	Plain Martin	WE	R	++++
FAMILY: PYCNONOTIDAE				
<i>Pycnonotus cafer</i>	Redvented Bulbul	TR	R	++++
FAMILY: CISTICOLIDAE				
<i>Prinia gracilis</i>	Graceful Prinia	TR	RM	+
<i>Cisticola juncidis</i>	Zitting Cisticola	TR	M	+++
FAMILY: ALAUDIDAE				
<i>Calandrella raytal</i>	Sand Lark	TR	RM	+++
<i>Mirafra assamica</i>	Bengal Bush Lark	TR	RM	+++
FAMILY: MOTACILLIDAE				
<i>Motacilla alba alboides</i>	White Wagtail subsp.	WE	RM	+
<i>Motacilla alba baicalensis</i>	White Wagtail subsp.	WE	R	+++
<i>Motacilla alba dukhunensis</i>	White Wagtail subsp.	WE	RM	++
<i>Motacilla madaraspatensis</i>	White-Browed Wagtail	WE	RM	++
<i>Motacilla citreola</i>	Citrine Wagtail	WE	RM	+++
<i>Anthus rufulus</i>	Paddyfield Pipit	WE	R	+++
<i>Anthus roseatus</i>	Rosy Pipit	WE	RM	++
<i>Anthus hodgsoni</i>	Olive-Backed Pipit	WE	RM	+
FAMILY: PASSERIDAE				
SUB FAMILY: PASSERINAE				
<i>Passer domesticus</i>	House Sparrow	TR	R	+++
FAMILY: PLOCEIDAE				
SUB FAMILY: PLOCEINAE				
<i>Ploceus philippinus</i>	Baya Weaver	TR	R	+++
FAMILY: ESTRILDIDAE				
SUB FAMILY: ESTRILDENAE				
<i>Lonchura punctulata</i>	Scaly-Breasted Munia	TR	R	+++
<i>Lonchura malacca</i>	Black-Headed Munia	TR	R	++
<i>Lonchura atricapilla</i>	Chestnut Munia	TR	R	+

OW = Open water
 WE = Water edge
 TE = Terrestrial

R = Resident
 M = Migratory
 RM = Residen / Local-migratory

+ = Rare
 ++ = Uncommon
 +++ = Regular / Common
 ++++ = Abundant



Figure 2: Habitat preference of recorded birds.

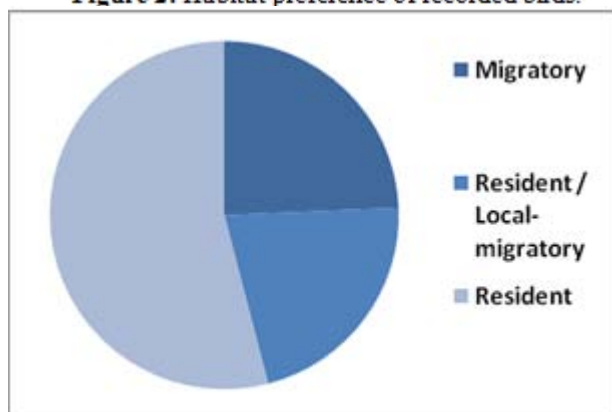


Figure 3: Migratory status of recorded birds.

3. Result and Discussion

A total number of 111 species along with sub-species of Avifauna belonging to 79 genera, under 37 families and 14 orders are recorded from the studied area. A checklist of birds recorded (Table 1) and graphical presentation of the number of birds recorded in different habitat preference (Figure 2) and migratory status (Figure 3) are given for at a glance consideration. Fifty one different species of migratory birds are recorded, of which 27 are exclusively migratory and other 24 varieties belong to the status of resident-migratory or local-migratory. Sixty types of residential species are also identified which prefers the region for their forage and other activities. Sixty species of water birds also recorded from the studied area, of which 14 species use open water area for their foraging and 46 types forage at bank area or marshy zones of the river. As per IUCN two 'Vulnerable', Indian Spotted Eagle (*Clanga hastata*) Vulnerable C2a(ii) and Eastern Imperial Eagle (*Clanga heliaca*) Vulnerable C2a(ii); and two 'Near Threatened', Ferruginous Duck (*Aythya nyroca*) and River Lapwing (*Vanellus duvaucelii*) species has also been identified during the course of our study (ver 3.1; 2016-2) which need attention of the appropriate authority to restrict the area for conservation of avifauna.

Plate 1: Photographs of birds recorded from Torsa char (bank) area.



Tadorna ferruginea



Anas platyrhynchos



Anas acuta (F)



Alcedo atthis taprobana



Aythya nyroca



Cisticola juncidis



Alcedo atthis bengalensis



Ceryle rudis



Calandrella raytal



Centropus sinensis



Tringa nebularia



Tringa ochropus



Tringa glareola



Calidris minuta



Calidris temminckii



Charadrius dubius



Charadrius alexandrinus



Burhinus oedicephalus indicus



Glareola lactea



Milvus migrans lineatus



Aquila nipalensis



Aquila heliaca



Butorides striata



Lonchura Malacca



Luscinia svecica



Acrocephalus dumetorum



Hirundo rustica

Das and Mitra (2007) recorded 226 bird species from Coochbehar district of West Bengal, Roy *et al* (2011) recorded 73 bird species from Neora Valley National Park of North Bengal, Das *et al.* (2012) recorded 171 avifauna from Rasik Beel Wetland complex of Coochbehar, West Bengal, Roy *et al* (2012) recorded 117 bird species from three different regions of North Bengal. All findings corroborate with the result of present study with the identification of 18 newly recorded species from the region. Photograph of some of few remarkable species including the newly recorded species are presented in Plate 1. Newly recorded species of this region are *Alcedo atthis taprobana*, *Calidris minuta*, *Calidris temminckii*, *Charadrius alexandrinus*, *Burhinus oediconemus indicus*, *Glareola lactea*, *Milvus migrans lineatus*, *Aquila nipalensis*, *Aquila heliaca*, *Phalacrocorax fuscicollis*, *Butorides striata*, *Pseudibis papillosa*, *Megalurus palustris*, *Riparia paludicola*, *Prinia gracilis*, *Cisticola juncidis*, *Calandrella raytal* and *Mirafra assamica*. River bed paddy cultivation using synthetic fertilizer, injudicious fishing practice, anthropogenic overutilization of river water are the major threats of the avifauna of this region.

4. Conclusion

The result of the present study has depicted that Torsa river bed is a good habitat for avifauna diversity. If the anthropogenic interference do not alter the natural ecological niche of the river bed the region may be considered for avifaunal conservation as well as for research purpose. This study has listed a total bird species in a region not presenting the seasonal fluctuation of the various species which can give dimension of the species dynamics and sustainable capacity of that region. Further study on that angle is important to enrich the researcher and for the purpose of education.

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