

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

Sounak Das¹, Debashis Das²

¹North Bengal Dental College, Siliguri-734011, Darjeeling, WB, India

²Department of Zoology, Tufanganj Mahavidyalaya, Coochbehar-736160, WB, India

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 | ++++ |

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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 | +++ |

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|-----------------------------------|----------------------------|----|----|------|
| <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 | ++++ |

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|-----------------------------------|----------------------|----|----|------|
| <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 albaoides</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 | R = Resident | + | = Rare |
| WE = Water edge | M = Migratory | ++ | = Uncommon |
| TE = Terrestrial | RM = Residen / Local-migratory | +++ | = Regular / Common |
| | | ++++ | = Abundant |

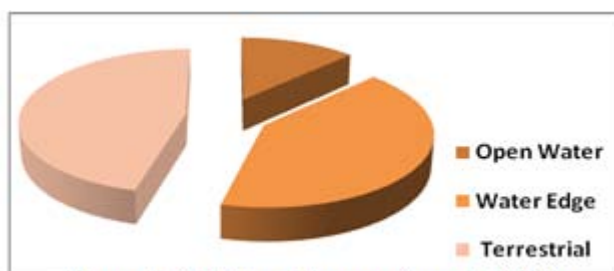


Figure 2: Habitat preference of recorded birds.

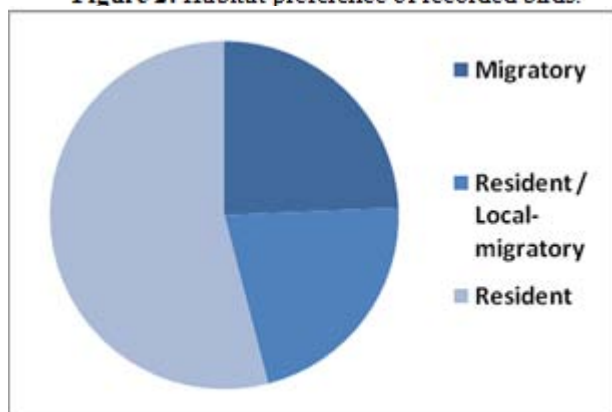


Figure 3: Migratory status of recorded birds.

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 oedipnemus 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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