

## AN ANNOTATED AVIFAUNAL CHECKLIST OF THE SAINT MARTIN'S ISLAND OF BANGLADESH

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### Abstract

Despite being an Ecologically Critical Area (ECA) and a key attraction place for its uniqueness and unique bird fauna to the bird watchers and researchers, a method-based, scientific checklist on the avifauna of the Saint Martin's Island is still lacking. This study was attempted to fill in this gap and produced an annotated bird checklist for the St. Martin's island. A total of 112 species of birds belonging to 36 families under 15 orders was listed. Of these, 37 (33%) species were passerine and 75 (67%) species were non-passerine. Eleven (9.82%) species were found to be very common, 12 (10.72%) species common, nine (8.04%) species uncommon and 80 (71.43%) species rare.

*Key words:* Avifauna, Transect line, Shoreline, Saint Martin's Island, Checklist

### Introduction

Birds are one of the key indicators that play an important role in the food web of an ecosystem (Zöckler 2005). In an ecosystem, birds represents almost all the functional groups that can help to keep all processes going and have the potentials to send important messages on the state of the environment (Zöckler 2005). As found in every ecosystem, birds are highly susceptible to any changes in the habitat they live in, and hence, are good biological indicators and are used in bioassays (Ahsan and Khanom 2005). Regular assessment of the avifaunal status of an ecosystem, therefore, can help to interpret the biological health of that ecosystem.

Bangladesh is a small country of 147,570 square km (Khan 2008). It has a rich biological heritage due to its geographical location between the two major biotic sub regions of the Oriental Region: The Indo-Himalayas and Indo-China (Khan 2008). A total of 138 mammalian species, 566 birds, 167 reptiles and 49 amphibians are reported to occur in Bangladesh (IUCN Bangladesh 2015). In addition, Bangladesh lies at the junction of the Central Asian and East Asian-Australasian flyways (routes that shorebirds use during their migration from the breeding to non-breeding grounds), offering key wintering and staging grounds to numerous migratory waders many of which are of international conservation concern (Chowdhury 2011).

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The Saint Martin's Island is a unique habitat in Bangladesh because it is the only place where coral colonies are found. It has been recognized as an Ecologically Critical Area (ECA) by the Government of Bangladesh in 1999 (DoE 2015) and an important stepping stone along the migration route of many globally concerned migratory birds (BOBLME 2015). Rare bird like Pacific Reef Egret (*Egretta sacra*) and Rosy Starling (*Pastor roseus*) is also found here (Chowdhury 2016, The Daily Star 2010) and an attractive destination for bird watchers. Besides, all five species of marine turtle (including three globally threatened species) known to occur in Bangladesh have been reported from this area (Rashid and Islam 2005). St. Martin's Island is not only significant for its biodiversity value, but also important for Bangladesh in defining its exclusive economic zone and delineating its sea boundary in accordance with the United Nations Convention on the Law of the Sea (Thompson and Islam 2010). However, unregulated tourism, local population explosion and their unsustainable extraction of natural resources have become a great threat to the stability of this ecosystem (Thompson and Islam 2010).

Despite being an Ecologically Critical Area (ECA) and a key attraction place for its uniqueness and unique bird fauna to the bird watchers and researchers, a method-based, scientific checklist on the avifauna of the St. Martin's Island is still lacking. A checklist provides the background on the bird diversity of a place, the uniqueness of that place and to determine the importance of that place based on the presence of endemic, ecologically important or threatened bird species. Moreover, a checklist of any site also provides an accurate reference list and inventory for conservation workers, students, educators, ecologists and naturalists to facilitate documentation and recording of observations (Bryan *et al.* 2006). Therefore, this study attempted to produce an annotated bird checklist for the St. Martin's Island.

### **Materials and Methods**

The Saint Martin's Island is the only coral-associated island of Bangladesh and located between latitude 20.567° and 20.650°N, and longitude 92.327° and 92.327°E (Fig. 1). The total area of this island is only 8 km<sup>2</sup> (3.1 sq. mile) but it possesses as a wide variety of ecosystems providing habitats for a diverse bird species. The key habitats of this island are shallow water marine habitats, including rocky and sandy inter-tidal habitats, offshore lagoons, rocky sub-tidal habitats, coral aggregations, sea grass beds and soft coral habitats. Several lagoons and wetlands associated with mangrove and floodplain areas also occur on the island (Tomascik 1997).

Field as well as literature surveys were conducted to collect data for this study. Seven field trips were conducted in April, 2016 and between October, 2016 and March, 17. However, due to frequent tropical storm and rough sea condition, study site could not be visited from May to September, 2016. A transect (5.03 L  $\times$  0.1 W) line survey along the mid-section of the island from north to south and a shoreline survey was conducted for observing and recording the bird species (Fig. 1). The transect line surveys were conducted in the early morning (starting from the sunrise) and afternoon (starting from

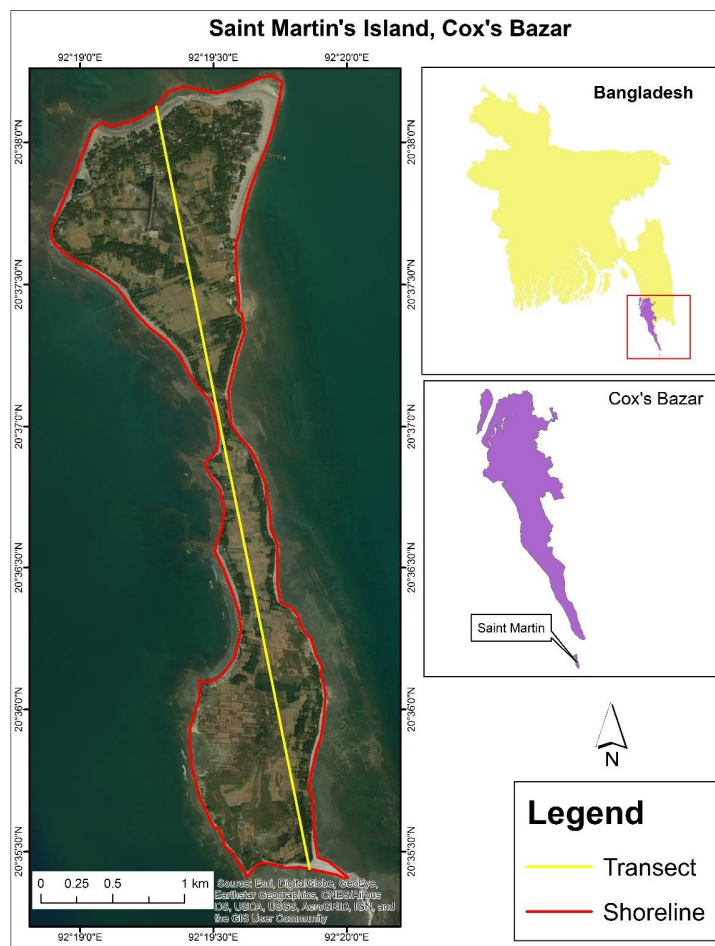


Fig. 1. Study site (St. Martin's Island of Bangladesh). The yellow line showing the transect line followed during the study from north to south of the island and the red line showing the shoreline survey area of the island.

two and a half hours before the sunset). Shoreline survey was started two hours before the high tide and ended two hours after the high tide when they were distributed along the high water line as well as on the adjacent rocks. Relative abundance of bird species was measured into four categories: Very common (75 - 100% encounter of the bird species during the total study period), common (50 - 75%), uncommon (25 - 50%) and rare (1 - 25%). Binocular (Ashika 10 × 42) and Telescope (Swarovski HD 20 - 60 × 65 mm) used to watch the birds in the field. Grimmett *et al.* (1999) and Chowdhury (2011) were used on the field to identify birds and photographs were taken whenever an identification problem arose in the field and subsequently consulted with expert birders. Besides, a thorough literature survey was conducted about previous bird records in the St. Martin's Island through available literature and reports (Islam 2001, Thompson and Islam 2010, BOBLME 2015).

### Results and Discussion

A total of 112 species of birds belonging to 36 families under 15 orders were recorded from the St. Martin's Island (Table 1). Of these species, 37 (33%) species were passerine and 75 (67%) were non-passerine (Fig. 2); 11 (9.82%) species were very common; 12 (10.72%) were common; nine (8.04%) were uncommon and 80 (71.43%) were rare (Fig. 3). Four species, namely Bar-tailed godwit (*Limosa lapponica*), Black-tailed godwit (*Limosa limosa*), Eurasian curlew (*Numenius arquata*) and Black-headed ibis (*Threskiornis melanocephalus*) are near threatened and one species Black-bellied tern (*Sterna acuticauda*) is endangered (IUCN Red List of Threatened Species 2017) whether Black-bellied tern (*Sterna acuticauda*) is critically endangered and Black-headed ibis (*Threskiornis melanocephalus*) is vulnerable (IUCN Bangladesh 2015).

*Passerine species:* The passerine group consisted of 37 species belonging to 16 families of birds. Maximum six species was found under the family Motacillidae, and the families like Passeridae, Pycnonotidae, Alaudidae, Campephagidae and Ploceidae included one species each. However, more than 300 species of birds in Bangladesh are passerines (IUCN Bangladesh 2015).

*Non-passerine species:* Of the 112 bird species of this checklist, 75 species were non-passerine. The order Charadriiformes dominated (34 species) among the non-passerines. The order Bucerotiformes, Caprimulgiformes, Suliformes and Pelecaniformes included one species each. Of all families of the recorded bird species, Scolopacidae contains large number of bird species (16 species). In Bangladesh, the orders Charadriiformes and Accipitriformes have higher numbers of species among the non-passerine birds (IUCN

Table 1. Avifaunal checklist of the St. Martin's Island of Bangladesh.

Sl. No.	Order	Family	English name	Scientific name	Global (National) IUCN status
1	Anseriformes	Anatidae	Northern shoveler*	<i>Spatula clypeata</i>	LC (LC)
2	Anseriformes	Anatidae	Eurasian wigeon*	<i>Mareca penelope</i>	LC (LC)
3	Anseriformes	Anatidae	Ruddy shelduck*	<i>Tadorna ferruginea</i>	LC (LC)
4	Anseriformes	Anatidae	Common shelduck*	<i>Tadornatadorna</i>	LC (LC)
5	Anseriformes	Ardeidae	Indian pond heron	<i>Ardeola grayii</i>	LC (LC)
6	Anseriformes	Ardeidae	Grey heron*	<i>Ardeacinerea</i>	LC (LC)
7	Anseriformes	Ardeidae	Little egret	<i>Egretta garzetta</i>	LC (LC)
8	Anseriformes	Ardeidae	Intermediate egret	<i>Ardea intermedia</i>	LC (LC)
9	Anseriformes	Ardeidae	Cattle egret*	<i>Bubulcus ibis</i>	LC (LC)
10	Anseriformes	Ardeidae	Striated heron*	<i>Butoridesstadius</i>	LC (LC)
11	Anseriformes	Ardeidae	Great egret*	<i>Ardea alba</i>	LC (LC)
12	Anseriformes	Ardeidae	Pacific reef egret*	<i>Egretta sacra</i>	LC
13	Anseriformes	Ardeidae	Black-crowned night Heron*	<i>Nycticorax nycticorax</i>	LC (LC)
14	Passeriformes	Passeridae	House sparrow	<i>Passer domesticus</i>	LC (LC)
15	Passeriformes	Corvidae	House crow	<i>Corvus splendens</i>	LC (LC)
16	Passeriformes	Corvidae	Large-billed crow	<i>Corvus macrorhynchos</i>	LC (LC)
17	Passeriformes	Dicruridae	Black drongo	<i>Dicrurus macrocercus</i>	LC (LC)
18	Passeriformes	Dicruridae	Ashy drongo*	<i>Dicrurus leucophaeus</i>	LC (LC)
19	Passeriformes	Sturnidae	Common myna	<i>Acridothera tristis</i>	LC (LC)
20	Passeriformes	Sturnidae	Asian pied starling	<i>Gracupica contra</i>	LC (LC)
21	Passeriformes	Sturnidae	Asian glossy starling*	<i>Aplonis panayensis</i>	LC (LC)
22	Passeriformes	Sturnidae	Rosy starling*	<i>Pastor roseus</i>	LC (LC)
23	Passeriformes	Pycnonotidae	Red-vented bulbul	<i>Pycnonotus cafer</i>	LC (LC)
24	Passeriformes	Alaudidae	Oriental skylark*	<i>Alauda gulula</i>	LC (LC)
25	Passeriformes	Campephagidae	Black-winged Cuckooshrike*	<i>Lalage melaschistos</i>	LC (LC)
26	Passeriformes	Lanidae	Brown shrike	<i>Lanius cristatus</i>	LC (LC)
27	Passeriformes	Lanidae	Grey-backed shrike*	<i>Lanius tephronotus</i>	LC (LC)
28	Passeriformes	Lanidae	Long-tailed shrike	<i>Lanius schach</i>	LC (LC)
29	Passeriformes	Ploceidae	Baya weaver	<i>Ploceus philippinus</i>	LC (LC)
30	Passeriformes	Motacillidae	White wagtail	<i>Motacilla alba</i>	LC (LC)
33	Passeriformes	Motacillidae	Western yellow Wagtail*	<i>Motacilla flava</i>	LC (LC)

(Contd.)

34	Passeriformes	Motacillidae	Paddyfield pipit	<i>Anthusrufulus</i>	LC (LC)
35	Passeriformes	Motacillidae	Olive-backed pipit*	<i>Anthushodgsoni</i>	LC (LC)
36	Passeriformes	Muscicapidae	Oriental magpie robin	<i>Copsychussauraris</i>	LC (LC)
37	Passeriformes	Muscicapidae	Blue rock thrush	<i>Monticola solitarius</i>	LC (LC)
38	Passeriformes	Muscicapidae	Taiga flycatcher	<i>Ficedulaalbicilla</i>	LC (LC)
39	Passeriformes	Estrillidae	Scaly-breasted munia	<i>Lonchurapunctulata</i>	LC (LC)
40	Passeriformes	Estrillidae	Black-headed munia	<i>Lonchuramalacca</i>	LC (LC)
41	Passeriformes	Nectarinidae	Purple-rumped sunbird	<i>Leptocomazeylonica</i>	LC (LC)
42	Passeriformes	Nectarinidae	Purple sunbird	<i>Cinnyrisasiaticus</i>	LC (LC)
43	Passeriformes	Sylviidae	Common chiffchaff	<i>Phylloscopuscollybita</i>	LC (LC)
44	Passeriformes	Sylviidae	Common tailorbird	<i>Orthotomussutorius</i>	LC (LC)
45	Passeriformes	Sylviidae	Thick-billed warbler	<i>Acrocephalusaedon</i>	LC (LC)
46	Passeriformes	Hirundinidae	Barn swallow	<i>Hirundorustica</i>	LC (LC)
47	Passeriformes	Hirundinidae	Red-rumped swallow*	<i>Hirundodaurica</i>	LC (LC)
48	Passeriformes	Oriolidae	Black-naped oriole*	<i>Orioluschinensis</i>	LC (LC)
49	Passeriformes	Oriolidae	Black-hooded oriole*	<i>Oriolusxanthornus</i>	LC (LC)
50	Columbiformes	Columbidae	Eurasian golden oriole	<i>Oriolusoriolus</i>	LC (LC)
51	Columbiformes	Columbidae	Rock pigeon	<i>Columba livia</i>	LC (LC)
52	Columbiformes	Columbidae	Spotted dove	<i>Streptopeliasuratensis</i>	LC (LC)
53	Columbiformes	Columbidae	Eurasian collared dove	<i>Streptopeliadecaocto</i>	LC (LC)
54	Piciformes	Picidae	Eurasian wryneck	<i>Jynxstorquilla</i>	LC (LC)
55	Piciformes	Picidae	Lesser golden-backed Woodpecker*	<i>Dinopiumbenghalense</i>	LC (LC)
56	Piciformes	Picidae	Fulvous breasted Woodpecker	<i>Dendrocoposmacei</i>	LC (LC)
57	Coraciformes	Alcedinidae	Common kingfisher	<i>Alcedoatthis</i>	LC (LC)
58	Coraciformes	Alcedinidae	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	LC (LC)
59	Coraciformes	Alcedinidae	Black-capped Kingfisher*	<i>Halcyon pileata</i>	LC (LC)
60	Coraciformes	Alcedinidae	Collared kingfisher*	<i>Todiramphuschloris</i>	LC (LC)
61	Coraciformes	Meropidae	Green bee-eater*	<i>Meropsorientalis</i>	LC (LC)
62	Coraciformes	Meropidae	Chestnut-headed bee-Eater*	<i>Merops leschenaultia</i>	LC (LC)
63	Cuculiformes	Cuculidae	Plaintive cuckoo*	<i>Cacomantismerulinus</i>	LC (LC)
64	Cuculiformes	Cuculidae	Asian koel	<i>Eudynamysscolopaceus</i>	LC (LC)
65	Cuculiformes	Cuculidae	Greater coucal	<i>Centropussinensis</i>	LC (LC)
66	Strigiformes	Tytonidae	Spotted owl*	<i>Athene drama</i>	LC (LC)

(Contd.)

67	Strigiformes	Tytonidae	Common barn owl*	<i>Tyto alba</i>	LC (LC)
68	Bucerotiformes	Upupidae	Common hoopoe	<i>Upupaepops</i>	LC (LC)
69	Caprimulgiformes	Hemiprocridae	Asian palm swift	<i>Cypsiurus balasiensis</i>	LC (LC)
70	Gruiformes	Rallidae	Ruddy breasted crane	<i>Zapornia fusca</i>	LC (LC)
71	Gruiformes	Rallidae	Common moorhen*	<i>Gallinula chloropus</i>	LC (LC)
72	Charadriiformes	Scolopacidae	Common snipe	<i>Gallinago gallinago</i>	LC (LC)
73	Charadriiformes	Scolopacidae	Common sandpiper	<i>Actitis hypoleucos</i>	LC (LC)
74	Charadriiformes	Scolopacidae	Eurasian curlew	<i>Numenius arquata</i>	NT (NT)
75	Charadriiformes	Scolopacidae	Whimbrel	<i>Numenius phaeopus</i>	LC (LC)
76	Charadriiformes	Scolopacidae	Ruddy turnstone	<i>Arenaria interpres</i>	LC (LC)
77	Charadriiformes	Scolopacidae	Ruff	<i>Calidris pugnax</i>	LC (LC)
78	Charadriiformes	Scolopacidae	Sanderling*	<i>Calidris alba</i>	LC (LC)
79	Charadriiformes	Scolopacidae	Pintail snipe*	<i>Gallinago stenura</i>	LC (LC)
80	Charadriiformes	Scolopacidae	Broad-billed sandpiper*	<i>Limicola falcinellus</i>	LC (LC)
81	Charadriiformes	Scolopacidae	Bar-tailed godwit*	<i>Limosa lapponica</i>	NT (NT)
82	Charadriiformes	Scolopacidae	Black-tailed godwit*	<i>Limosa limosa</i>	NT (NT)
83	Charadriiformes	Scolopacidae	Spotted redshank*	<i>Tringa erythropus</i>	LC (LC)
84	Charadriiformes	Scolopacidae	Wood sandpiper*	<i>Tringalareola</i>	LC (LC)
85	Charadriiformes	Scolopacidae	Common greenshank*	<i>Tringanebularia</i>	LC (LC)
86	Charadriiformes	Scolopacidae	Common redshank*	<i>Tringa tetanus</i>	LC (LC)
87	Charadriiformes	Scolopacidae	Terek sandpiper*	<i>Xenus cinereus</i>	LC (LC)
88	Charadriiformes	Charadriidae	Lesser sand plover	<i>Charadrius mongolus</i>	LC (LC)
89	Charadriiformes	Charadriidae	Greater Sand plover	<i>Charadrius leschenaultia</i>	LC (LC)
90	Charadriiformes	Charadriidae	Pacific golden plover	<i>Pluvialis fulva</i>	LC (LC)
91	Charadriiformes	Charadriidae	Little ringed plover	<i>Charadrius dubius</i>	LC (LC)
92	Charadriiformes	Charadriidae	Grey-headed lapwing	<i>Vanellus cinereus</i>	LC (LC)
93	Charadriiformes	Charadriidae	Kentish plover	<i>Charadrius alexandrinus</i>	LC (LC)
94	Charadriiformes	Charadriidae	Grey plover*	<i>Pluvialis squatarola</i>	LC (LC)
95	Charadriiformes	Charadriidae	Red-wattled lapwing*	<i>Vanellus indicus</i>	LC (LC)
96	Charadriiformes	Laridae	Little tern	<i>Sterna albifrons</i>	LC (LC)
97	Charadriiformes	Laridae	Black-headed gull	<i>Larus ridibundus</i>	LC (LC)
98	Charadriiformes	Laridae	Brown-headed gull	<i>Larus brunnicapillus</i>	LC (LC)
99	Charadriiformes	Laridae	Whiskered tern*	<i>Chlidonias hybridus</i>	LC (LC)
100	Charadriiformes	Laridae	Gull-billed tern*	<i>Gelochelidon nilotica</i>	LC (LC)
101	Charadriiformes	Laridae	Pallas's gull*	<i>Larus ichthyætes</i>	LC (LC)
102	Charadriiformes	Laridae	Black-bellied tern*	<i>Sterna acuticauda</i>	EN (CR)

(Contd.)

103	Charadriiformes	Laridae	Lesser crested tern*	<i>Sterna bergii</i>	LC (LC)
104	Charadriiformes	Laridae	Caspian tern*	<i>Sterna caspia</i>	LC (LC)
105	Charadriiformes	Glareolidae	Oriental pratincole*	<i>Glareolamaldivarum</i>	LC (LC)
106	Suliformes	Phalacrocoracidae	Little cormorant	<i>Microcarboniger</i>	LC (LC)
107	Pelecaniformes	Threskiornithidae	Black-headed ibis	<i>Threskiornis melanocephalus</i>	NT (VU)
108	Accipitriformes	Accipitridae	Shikra*	<i>Accipiter badius</i>	LC (LC)
109	Accipitriformes	Accipitridae	Brahminy kite*	<i>Haliastur Indus</i>	LC (LC)
110	Accipitriformes	Pandionidae	Osprey*	<i>Pandion haliaetus</i>	LC (LC)
111	Falconiformes	Falconidae	Peregrine falcon	<i>Falco peregrines</i>	LC (LC)
112	Falconiformes	Falconidae	Common kestrel*	<i>Falco tinnunculus</i>	LC (LC)

(LC = Least concern, NT = Near threatened, VU = Vulnerable, CR = Critically endangered and EN = Endangered). \* Historic records

Passerine and Non-Passerine bird sp.

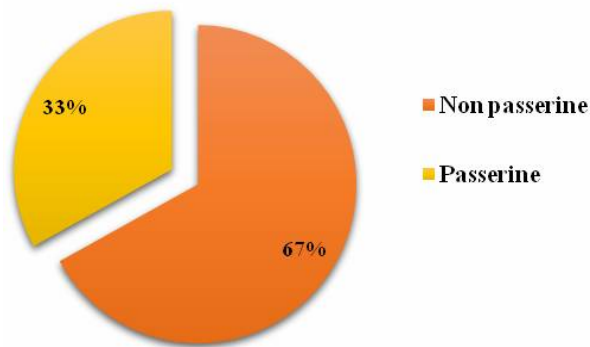


Fig. 2. Two major groups of the recorded bird species; non-passerine birds dominated in this landscape showing its ecological uniqueness.

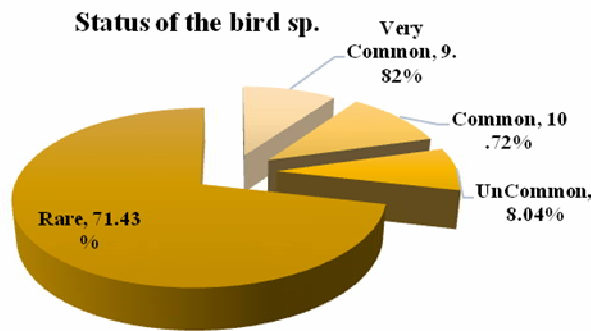


Fig. 3. Status of bird species at the St. Martin’s Island; most bird species are rare and hence emphasizing the need of protection of this ecosystem.



Bangladesh 2015). Ahsan and Hannan (2002) recorded 141 bird species at the Karnaphuli river delta and adjacent areas of Chittagong, Bangladesh. Comparing to Karnaphuli river delta and adjacent areas of Chittagong, The St. Martin's Island is a very small Island, but 112 bird species are recorded. A total of 28 wader species was recorded at the Sonadia Island (49.16 km<sup>2</sup>), Cox's Bazar, south east coast of Bangladesh (Chowdhury *et al.* 2011). In contrast, 24 species of waders were found in the St. Martin's Island of Bangladesh. However, the scale of congregation differs in a large scale. Sonadia Island recorded a congregation of 12,710 individuals of shorebirds (Chowdhury *et al.* 2011) compared to the St. Martin's Island where a congregation of 820 individuals had been recorded.

We hope that this checklist will act as a baseline source for further study on avifaunal species and their conservation at this site in the face of growing human activities and interventions. Also it will help in future monitoring the environmental health of this island.

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