

Avifaunal Assemblages of Jhanjimukh-Kokilamukh IBA Complex of Jorhat Assam India-A Potential Ramsar Site of Assam

Nilutpal Mahanta*, Prasanta Kumar Saikia, Malabika Kakati Saikia

Animal Ecology and Wildlife Biology Laboratory, Department of Zoology, Gauhati University, Guwahati-781014, Assam, India
*Corresponding author: nilutpal.mahanta@gauhati.ac.in

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Abstract Wetlands outside protected area are under tremendous anthropogenic pressure such as agriculture expansion, alteration of wetlands and grasslands to farm lands etc. The present study was carried out to understand the avian species composition of Jhanjimukh-Kokilamukh Important Bird and Biodiversity Area (IBA) of Jorhat District, Assam, India. The study was carried out from February, 2016 to April, 2018, which revealed the presence of 205 species of birds belonging to 62 families and 142 genera. Out of 205 avian species, 70 species were migratory and 136 were residential. A total of 26 globally (IUCN) threatened birds species were recorded in the study area. The study also recorded range extensions of two wader species in Northeast India. The IBA site also act as refueling site for many regular and passage migrants as it is situated in a strategic location of the major migratory routes of East-Asia Flyways. Thus, it is an urgent need to protect the IBA site not only for the conservation of resident birds but also for the waterbirds of entire East-Asian Flyways.

Keywords: potential Ramsar site, IBA site, Jhanjimukh-Kokilamukh IBA, Assam, north east India, anthropogenic threats

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1. Introduction

Wetlands regulate ecological processes that contribute to a healthy environment for mankind [1]. They are widely recognized as fragile ecosystems with diverse attributes including distinct avifauna [2]. In recent times, due to anthropogenic pressure, these wetlands are getting affected adversely. It has been estimated that, since 1900, approximately 50% of inland sites have been lost [3]. The principal cause of this loss has been the conversion of wetlands to agro-ecosystems, farm land, residential complex, industrial establishments, and urban expansion etc. a process that is continuing and accelerating in many regions, particularly Asia, Africa and the Neo-tropics [3]. Birdlife International has documented over 12000 Important Birds and Biodiversity Areas (IBAs) around the world to identify places of international significance for the conservation of birds and other biodiversity components (www.birdlife.org). Out of 467 IBA sites in India, a total of 46 IBAs have been recognized by Birdlife International in the state of Assam within India [4]. The Jhanjimukh-Kokilamukh IBA (site code: IN-389) site is an important complex of seven major wetlands such as Nahotiya beel, Kokilamukh beel, Fagua Dowl beel, Bor

Sorola beel, Potia Sorola beel, Da-pathar beel and Missamari beel.

1.1. Study Sites

The study area of Jhanjimukh-Kokilamukh IBA site complex is located on the South bank of river Brahmaputra in the northern parts of Jorhat district of Assam (see [Figure 1](#)). It covers an area of about 25km² (IBA factsheet; [5]) the IBA ranges from Jhanjimukh, confluence zone of river Jhanji (Coordinates: 26°53'43.19"N - 94°21'11.25"E) on the East to Nahotiya (26°49'8.02"N 94° 8'56.75"E) on the west. Jhanjimukh-Kokilamukh IBA is mostly composed of Wetlands, Grasslands, Shrublands and scattered woodlands. The area supports seven major wetlands, namely: Nahotiya beel, Kokilamukh beel, Fagua Dowl beel, Bor Sorola beel, Potia Sorola beel, Da-pathar beel and Missamari beel. All these wetlands are separated from each other either by the artificial embankments (locally called as Mathauri for protection from Flood water) or gravel roads for transportation and human settlements etc. The study area was located on a 23 kilometers stretch of the embankment of river Brahmaputra. Nimati-Ghat is an important location in the study area, which is the commercial harbor of water transport to the Majuli, one of the world's largest human inhabited river islands.

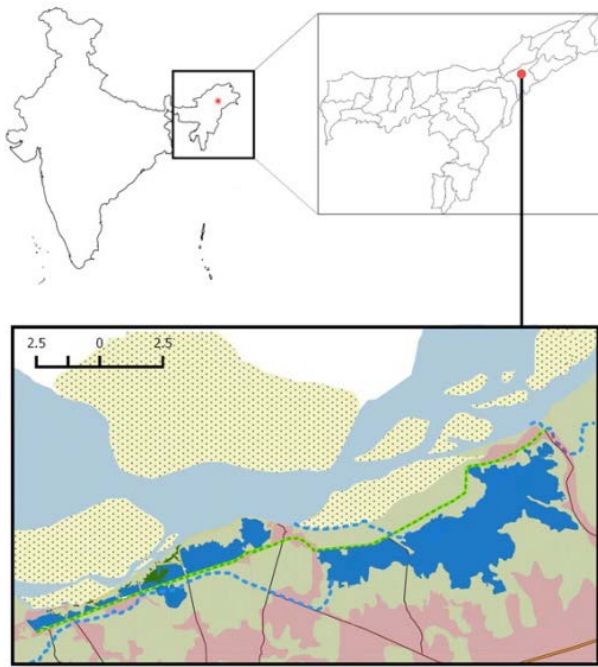


Figure 1. Jhanjimukh-Kokilamukh IBA Complex in Jorhat Districts of eastern Assam

The climate of the study area is experienced by mesothermal wet climate. January is the coldest month with temperature of 6.1°C. July and August are the warmest period with an average monthly temperature of 29°C. The average relative humidity in a year is 78.7%. The average annual rainfall computed for ten years from 1998 to 2007 was 1,867.08mm [6].

1.2. Survey and Data Collection

The study was carried out for a period of two years starting from February 2016 through April 2018. Field surveys were carried out from 06:00 hrs. to 11:00 hrs. in the morning and 15:00 hrs. to 16:00 hrs. in the afternoon. Two sampling methodologies were applied for data collection, that were such as line transect and point transects [7]. Altogether 12 line transects of 500m in lengths were laid along the embankments and spars of the wetlands for surveys and data collections in Nahotiya, Kokilamukh, Fakua Dowl and Bor-Sorola wetlands. Total of 22 random points of 100m radius were also established randomly to survey and data collections in Potiya-Sorola, Da-Pathar, and Missamari wetlands. To avoid double count, the points were selected minimum of 200m apart from each other in entire study area. Additional (opportunistic observations) data were also added to the list whenever any birds were sighted outside the regular transects, so that no such birds species data were missed in any occasions during the entire survey periods. In some strategic locations of the habitat, hides were also erected using naturally dried water hyacinths exists nearby for better observations and photograph the birds for authentication of observations. Surveys were conducted using a pair of binoculars (Zeiss Terra ED 8x32, Solognac 10x42), Digital Camera (Canon SX60, Nikon Coolpix, P510), Garmin GPS (etrax 30) and a sound recorder (Zoom H6 handheld recorder). Each species sighted were photographed for easy reference and documentation.

Photographs and videos were obtained to justify the species type for those were difficult to identify in the field. Birds were identified as per the taxonomic keys of Ali and Ripley [8] and Grimmett *et al.* [9]. The IUCN threatened species of birds were categorized in the checklist as per the IUCN Red List of Threatened Species, Version 3.1 [10]. Resident and Migratory status of birds were categorized as per the information given by Grimmett *et al.* [9], Choudhury [11] and Saikia and Saikia (2010) [12] and Saikia and Bhattacharjee, (1993) [13].

2. Results

During survey period, a total of 205 species of birds belonging to 142 genera, 62 families and 18 orders were recorded from the study area (see Table 1). Majority of bird species were recorded from the order Passeriformes with 59 species, followed by Charadriiformes 34 species, Anseriformes 21 species, Accipitriformes 19 species, Pelecaniformes 15 species, Gruiformes nine species, Coraciiformes seven species, Piciformes, Ciconiiformes and Columbiformes with six species each, Cuculiformes and Strigiformes both supported five species, Suliformes and Pelicaniformes with four species, Falconiformes, Podicipediformes and Psittaciformes with two species, Bucerotiformes and Galliformes both supported with one species each in the study area(see Figure 2).

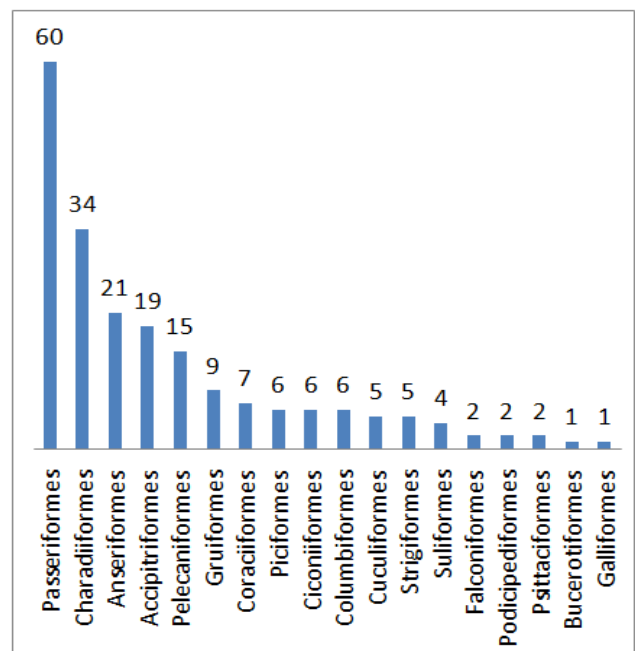


Figure 2. Bar diagram showing the numbers of avian species against different orders in the study area during study period

Of the total 205 bird species recorded in the study area, 69 were migratory and 136 were residential bird species. There were altogether 26 globally (IUCN) threatened species of birds recorded in the study area, that includes two **critically endangered** species such as Slender-billed vulture-*Gyps tenuirostris* and White-rumped vulture-*Gyps bengalensis*, two **endangered** species, such as Greater Adjutant Stork-*Leptoptilos dubius* and Yellow-breasted bunting- *Emberiza aureola*, seven **vulnerable** species, such as Common Pochard-*Aythya ferina*, Lesser Adjutant

Stork-*Leptoptilos javanicus*, Woolly-necked Stork-*Ciconia episcopus*, Swamp francolin-*Francolinus gularis*, Greater spotted Eagle-*Clanga clanga*, Pallas's Fish Eagle- *Haliaeetus leucoryphus*, Marsh Babbler-*Pellorneum palustre* and 14 near threatened species, Ferruginous duck-*Aythya nyroca*, Falcated Duck-*Mareca falcata*, Spot billed Pelican-*Pelecanus philippensis*, Black headed Ibis-*Threskiornis melanocephalus*, Curlew Sandpiper-*Calidris ferruginea* Black necked stork-*Ephippiorynchus asiaticus*, Oriental darter-*Anhinga melanogaster*, Northern lapwing-*Vanellus vanellus*, River lapwing-*Vanellus duvaucelii*, Black tailed Godwit-*Limosa melanuroides*, Eurasian Curlew-*Numenius arquata*, Himalayan Griffon vulture-*Gyps himalayensis*, Grey headed

fish eagle-*Ichthyophaga ichthyaetus*, Red necked falcon-*Falco chicquera* and Alexandrine parakeet-*Psittacula eupatria*. Study also revealed the presence of 26 raptor species belonging to four orders viz., Accipitriformes, Pandionidae, Falconiformes, Strigiformes and five families such as Accipitridae, Pandionidae, Falconidae, Strigidae and Tytonidae. Of the total 26 species, nine species were migratory and 17 were residential in nature. Among all the Raptors, seven species were globally threatened.

The Study also reported range extension two wader species, Long-billed dowitcher-*Limnodromus scolopaceus* (Say, 1823) and Curlew Sandpiper-*Calidris ferruginea* (Pontoppidan 1763) in North East India.

Table 1. Comprehensive lists of avian fauna recorded in the Jhajimukh-Kokilamukh IBA sites during February, 2016 to April 2018 (LC: Least Concern; NT: Near Threatened; VU: Vulnerable; EN: Endangered; CR: Critically Endangered; M: Migratory; R: Resident)

Sl. No.	Common name	Scientific name	IUCN status	Migratory status
		Order: Anseriformes		
		Family: Anatidae		
1	Bar-headed goose	<i>Anser indicus</i>	LC	M
2	Greylag goose	<i>Anser anser</i>	LC	M
3	Common teal	<i>Anas crecca</i>	LC	M
4	Eurasian wigeon	<i>Anas penelope</i>	LC	M
5	Northern pintail	<i>Anas acuta</i>	LC	M
6	Northern shoveler	<i>Anas clypeata</i>	LC	M
7	Indian spot-billed duck	<i>Anas poecilorhyncha</i>	LC	R
8	Gadwall	<i>Anas strepera</i>	LC	M
9	Garganey	<i>Anas querquedula</i>	LC	M
10	Mallard	<i>Anas platyrhynchos</i>	LC	M
11	Ferruginous duck	<i>Aythya nyroca</i>	NT	M
12	Tufted duck	<i>Aythya fuligula</i>	LC	M
13	Common pochard	<i>Aythya ferina</i>	VU	M
14	Lesser whistling teal	<i>Dendrocygna javanica</i>	LC	R
15	Fulvous whistling teal	<i>Dendrocygna bicolor</i>	LC	R
16	Knob-billed duck	<i>Sarkidiornis melanotos</i>	LC	R
17	Falcated duck	<i>Mareca falcata</i>	NT	M
18	Red-crested pochard	<i>Netta rufina</i>	LC	M
19	Cotton pigmy goose	<i>Nettapus coromandelianus</i>	LC	R
20	Common shelduck	<i>Tadorna tadorna</i>	LC	R
21	Rudy shelduck	<i>Tadorna ferruginea</i>	LC	M
		Order: Pelecaniformes		
		Family: Pelecanidae		
22	Spot-billed pelican	<i>Pelecanus philippensis</i>	NT	R
		Family: Threskiornithidae	NT	M
23	Black-headed ibis	<i>Threskiornis melanocephalus</i>		
24	Glossy ibis	<i>Plegadis falcinellus</i>	LC	R
25	Eurasian spoonbill	<i>Platalea leucorodia</i>	LC	M
		Family: Ardeidae		
26	Cattle egret	<i>Bubulcus ibis</i>	LC	R
27	Intermediated egret	<i>Mesophoyx intermedia</i>	LC	R
28	Little egret	<i>Egretta garzetta</i>	LC	R
29	Black-crowned night heron	<i>Nycticorax nycticorax</i>	LC	R
30	Sriated heron	<i>Butorides striata</i>	LC	R
31	Grey heron	<i>Ardea cinerea</i>	LC	R
32	Great egret	<i>Ardea alba</i>	LC	R
33	Purple heron	<i>Ardea purpurea</i>	LC	R
34	Indian Pond heron	<i>Ardeola grayii</i>	LC	R
35	Cinnamon bittern	<i>Ixobrychus cinnamomeus</i>	LC	R
36	Black bittern	<i>Ixobrychus flavicollis</i>	LC	R

Sl. No.	Common name	Scientific name	IUCN status	Migratory status
		Order: Ciconiiformes		
		Family: Ciconiidae		
37	Asian openbill	<i>Anastomas oscitans</i>	LC	R
38	Lesser adjutant stork	<i>Leptoptilos javanicus</i>	VU	R
39	Greater adjutant stork	<i>Leptoptilos dubius</i>	EN	R
40	Black necked stork	<i>Ephippiorynchus asiaticus</i>	NT	R
41	Woolly necked stork	<i>Ciconia episcopus</i>	VU	R
42	Black stork	<i>Ciconia nigra</i>	LC	M
		Order: Suliformes		
		Family: Phalacrocoracidae		
43	Little cormorant	<i>Phalacrocorax niger</i>	LC	R
44	Indian cormorant	<i>Phalacrocorax fuscicollis</i>	LC	R
45	Great cormorant	<i>Phalacrocorax carbo</i>	LC	R
		Family: Anhingidae		
46	Oriental darter	<i>Anhinga melanogaster</i>	NT	R
		Order: Charadiiformes		
		Family: Recurvirostridae		
47	Pied avocet	<i>Recurvirostra avosetta</i>	LC	M
48	Black winged stilt	<i>Himantopus himantopus</i>	LC	M
		Family: Charadriidae		
49	Northern lapwing	<i>Vanellus vanellus</i>	NT	M
50	River lapwing	<i>Vanellus duvaucelii</i>	NT	R
51	Grey headed lapwing	<i>Vanellus cinereus</i>	LC	M
52	Red-wattled lapwing	<i>Vanellus indicus</i>	LC	R
53	Pacific golden plover	<i>Pluvialis fulva</i>	LC	M
54	Little ringed plover	<i>Charadrius dubius</i>	LC	R
		Family: Burhinus		
55	Indian Thick-knee	<i>Burhinus indicus</i>	LC	R
		Family: Jacanidae		
56	Bronze winged jacana	<i>Metopidius indicus</i>	LC	R
57	Pheasant tailed jacana	<i>Hydrophasianus chirurgus</i>	LC	R
		Family: Scolopacidae		
58	Common sandpiper	<i>Actitis hypoleucos</i>	LC	M
59	Wood sandpiper	<i>Tringa glareola</i>	LC	M
60	Green sandpiper	<i>Tringa ochropus</i>	LC	M
61	Marsh sandpiper	<i>Tringa stagnatilis</i>	LC	M
62	Spotted redshank	<i>Tringa erythropus</i>	LC	M
63	Common redshank	<i>Tringa totanus</i>	LC	M
64	Common greenshank	<i>Tringa nebularia</i>	LC	M
65	Ruff	<i>Philomachus pugnax</i>	LC	M
66	Black tailed godwit	<i>Limosa limosa</i>	NT	M
67	Temminck's stint	<i>Calidris temminckii</i>	LC	M
68	Curlew sandpiper	<i>Calidris ferruginea(? Check)</i>	NT	M
69	Dunlin	<i>Calidris alpina</i>	LC	M
70	Eurasian curlew	<i>Numenius arquata</i>	NT	M
71	Long-billed dowitcher	<i>Limnodromus scolopaceus</i>	LC	M
		Family: Rostratulidae		
72	Greater painted snipe	<i>Rostratula benghalensis</i>	LC	R
73	Pintail snipe	<i>Gallinago stenura</i>	LC	R
74	Common snipe	<i>Gallinago gallinago</i>	LC	R
		Family: Glareolidae		
75	Small pratincole	<i>Glareola lactea</i>	LC	M
		Family: Laridae		
76	Black headed gull	<i>Chroicocephalus ridibundus</i>	LC	M
77	Brown headed gull	<i>Chroicocephalus brunnicephalus</i>	LC	M
78	Pallas's gull	<i>Ichthyaetus ichthyaeus</i>	LC	M
79	Whiskered tern	<i>Chlidonias hybrida</i>	LC	R
		Family: Turnicidae		
80	Barred buttonquail	<i>Turnix suscitator</i>	LC	R

Sl. No.	Common name	Scientific name	IUCN status	Migratory status
		Order: Gruiformes		
		Family: Rallidae		
81	Ruddy breasted crane	<i>Zapornia fusca</i>	LC	R
82	Slaty breasted rail	<i>Lewinia striata</i>	LC	R
83	Brown cheeked rail	<i>Rallus indicus</i>	LC	R
84	Watercock	<i>Gallixrex cinerea</i>	LC	R
85	Purple swampphen	<i>Porphyrio porphyrio</i>	LC	R
86	Common moorhen	<i>Gallinula chloropus</i>	LC	R
87	White breasted waterhen	<i>Amauornis phoenicurus</i>	LC	R
88	Eurassian coot	<i>Fulica atra</i>	LC	R
		Family: Gruidae		
89	Common crane	<i>Grus grus</i>	LC	M
		Order: Podicipediformes		
		Family: Podicipedidae		
90	Little grebe	<i>Tachybaptus ruficollis</i>	LC	R
91	Great crested grebe	<i>Podiceps cristatus</i>	LC	M
		Order: Galliformes		
		Family: Phasianidae		
92	Swamp francolin	<i>Francolinus gularis</i>	VU	R
		Order: Coraciiformes		
		Family: Meropidae		
93	Green bee-eater	<i>Merops orientalis</i>	LC	R
94	Blue-tailed bee-eater	<i>Merops philippinus</i>	LC	M
		Family: Coraciidae		
95	Indian roller	<i>Coracias benghalensis</i>	LC	R
		Family: Alcedinidae		
96	White-throated kingfisher	<i>Halcyon smyrnensis</i>	LC	R
97	Common kingfisher	<i>Alcedo atthis</i>	LC	R
98	Stork-billed kingfisher	<i>Pelargopsis capensis</i>	LC	R
99	Pied kingfisher	<i>Ceryle rudis</i>	LC	R
		Order: Bucerotiformes		
		Family: Upupidae		
100	Common hoopoe	<i>Upupa epops</i>	LC	R
		Order: Accipitriformes		
		Family: Accipitridae		
101	Himalayan griffon vulture	<i>Gyps himalayensis</i>	NT	R
102	Slender-billed vulture	<i>Gyps tenuirostris</i>	CR	R
103	White-rumped vulture	<i>Gyps bengalensis</i>	CR	R
104	Shikra	<i>Accipiter badius</i>	LC	R
105	Oriental honey-buzzard	<i>Pernis ptilorhynchus</i>	LC	M
106	Greater spotted eagle	<i>Clanga clanga</i>	VU	M
107	Booted eagle	<i>Hieraaetus pennatus</i>	LC	M
108	Grey-headed fish eagle	<i>Ichthyophaga ichthyaeus</i>	NT	R
109	Pallas's fish eagle	<i>Haliaeetus leucoryphus</i>	VU	R
110	White-tailed eagle	<i>Haliaeetus albicilla</i>	LC	M
111	Short-toed snake eagle	<i>Circaetus gallicus</i>	LC	R
112	Eurasian marsh-harrier	<i>Circus aeruginosus</i>	LC	M
113	Eastern marsh-harrier	<i>Circus spilonotus</i>	LC	M
114	Pied harrier	<i>Circus melanoleucos</i>	LC	M
115	Changeable hawk eagle	<i>Nisaetus cirrhatus</i>	LC	R
116	Black kite	<i>Milvus migrans</i>	LC	R
117	Black-winged kite	<i>Elanus caeruleus</i>	LC	R
118	Brahminy kite	<i>Haliastur indus</i>	LC	R
		Family: Pandionidae		
119	Osprey	<i>Pandion haliaetus</i>	LC	M
		Order: Falconiformes		
		Family: Falconidae		
120	Common kestrel	<i>Falco tinnunculus</i>	LC	M
121	Red-necked falcon	<i>Falco chicquera</i>	NT	R

Sl. No.	Common name	Scientific name	IUCN status	Migratory status
		Order: Strigiformes		
		Family: Strigidae		
122	Asian barred owl	<i>Glaucidium cuculoides</i>	LC	R
123	Spotted owl	<i>Anthene brama</i>	LC	R
124	Brown hawk owl	<i>Ninox scutulata</i>	LC	R
125	Oriental scops owl	<i>Otus sunia</i>	LC	R
		Family: Tytonidae		
126	Common barn owl	<i>Tyto alba</i>	LC	R
		Order: Columbiformes		
		Family: Columbidae		
127	Eurasian collared dove	<i>Streptopelia decaocto</i>	LC	R
128	Red collared dove	<i>Streptopelia tranquebarica</i>	LC	R
129	Spotted dove	<i>Streptopelia chinensis</i>	LC	R
130	Oriental turtle dove	<i>Streptopelia orientalis</i>	LC	R
131	Yellow-footed green pigeon	<i>Treron phoenicopterus</i>	LC	R
132	Green imperial pigeon	<i>Ducula aenea</i>	LC	R
		Order: Psittaciformes		
		Family: Psittacidae		
133	Rose-ringed parakeet	<i>Psittacula krameri</i>	LC	R
134	Alexandrine parakeet	<i>Psittacula eupatria</i>	NT	R
		Order: Piciformes		
		Family: Picidae		
135	Eurasian wryneck	<i>Jynx torquilla</i>	LC	M
136	Fulvous-breasted woodpecker	<i>Dendrocopos macei</i>	LC	R
137	Greater goldenback	<i>Chrysocolaptes lucidus</i>	LC	R
		Family: Megalaimidae		
138	Lineated barbet	<i>Psilopogon lineata</i>	LC	R
139	Blue-throated barbet	<i>Psilopogon asiaticus</i>	LC	R
140	Coppersmith barbet	<i>Psilopogon haemacephalus</i>	LC	R
		Order: Passeriformes		
		Family: Campephagidae		
141	Large cuckooshrike	<i>Coracina macei</i>	LC	R
		Family: Aegithinidae		
142	Common iora	<i>Aegithina tiphia</i>	LC	R
		Family: Hirundinidae		
143	Barn swallow	<i>Hirundo rustica</i>	LC	R
144	Pale martin	<i>Riparia diluta</i>	LC	R
		Family: Alaudidae		
145	Sand lark	<i>Alaudala raytal</i>	LC	R
		Family: Emberizidae		
146	Black-faced bunting	<i>Emberiza spodocephala</i>	LC	M
147	Yellow-breasted bunting	<i>Emberiza aureola</i>	EN	M
		Family: Sturnidae		
148	Hill myna	<i>Gracula religiosa</i>	LC	R
149	Common myna	<i>Acridotheres tristis</i>	LC	R
150	Jungle myna	<i>Acridotheres fuscus</i>	LC	R
151	Great myna	<i>Acridotheres grandis</i>	LC	R
152	Bank myna	<i>Acridotheres ginginianus</i>	LC	R
153	Asian pied starling	<i>Gracupica contra</i>	LC	R
154	Chestnut-tailed starling	<i>Sturnia malabarica</i>	LC	R
		Family: Motacillidae		
155	Citrine wagtail	<i>Motacilla citreola</i>	LC	M
156	White wagtail	<i>Motacilla alba</i>	LC	M
157	Grey wagtail	<i>Motacilla cineria</i>	LC	M
158	Olive-backed pipit	<i>Anthus hodgsoni</i>	LC	M
159	Paddy-field pipit	<i>Anthus rufulus</i>	LC	R

Sl. No.	Common name	Scientific name	IUCN status	Migratory status
Family: Dicruridae				
160	Black drongo	<i>Dicrurus macrocercus</i>	LC	R
161	Hair-crested Drongo	<i>Dicrurus hottentottus</i>	LC	R
162	Bronzed drongo	<i>Dicrurus aeneus</i>	LC	R
Family: Oriolidae				
163	Black-hooded oriole	<i>Oriolus xanthornus</i>	LC	R
Family: Paridae				
164	Great tit	<i>Parus major</i>	LC	R
Family: Muscicapidae				
165	Common stonechat	<i>Saxicola torquatus</i>	LC	M
166	White-rumped shama	<i>Kittacincla malabarica</i>	LC	R
167	Oriental Mag-pie robin	<i>Copsychus saularis</i>	LC	R
168	Bluethroat	<i>Luscinia svecica</i>	LC	M
169	Siberian rubythroat	<i>Calliope calliope</i>	LC	M
170	Taiga flycatcher	<i>Ficedula albicilla</i>	LC	M
171	Grey-headed canary flycatcher	<i>Culicicapa ceylonensis</i>	LC	R
172	Daurian redstart	<i>Phoenicurus auroreus</i>	LC	M
Family: Pycnonotidae				
173	Red-vented bulbul	<i>Pycnonotus cafer</i>	LC	R
174	Red-whiskered bulbul	<i>Pycnonotus jocosus</i>	LC	R
Family: Laniidae				
175	Grey-backed shrike	<i>Lanius tephronotus</i>	LC	M
176	Brown shrike	<i>Lanius cristatus</i>	LC	M
177	Long-tailed shrike	<i>Lanius schach</i>	LC	R
Family: Cisticolidae				
178	Common tailorbird	<i>Orthotomus sutorius</i>	LC	R
Family: Corvidae				
179	Large-billed crow	<i>Corvus macrorhynchos</i>	LC	R
180	House crow	<i>Corvus splendens</i>	LC	R
181	Rufous tree pie	<i>Dendrocitta vagabunda</i>	LC	R
Family: Phylloscopidae				
182	Tickell's leaf warbler	<i>Phylloscopus affinis</i>	LC	R
183	Dusky warbler	<i>Phylloscopus fuscatus</i>	LC	R
Family: Acrocephalidae				
184	Thick billed warbler	<i>Arundinax aedon</i>	LC	M
185	Oriental reed warbler	<i>Acrocephalus orientalis</i>	LC	M
Family: Pellorneidae				
186	Marsh babbler	<i>Pellorneum palustre</i>	VU	R
Family: Leiotrichidae				
187	Jungle babbler	<i>Turdoides malcolmi</i>	LC	R
188	Striated babbler	<i>Turdoides earlei</i>	LC	R
Family: Timaliidae				
189	Chestnut-capped babbler	<i>Timalia pileata</i>	LC	R
Family: Locustellidae				
190	Striated grassbird	<i>Megalurus palustris</i>	LC	R
Family: Turdidae				
191	Black-throated thrush	<i>Turdus atrogularis</i>	LC	M
Family: Zosteropidae				
192	Oriental white eye	<i>Zosterops palpebrosus</i>	LC	R
Family: Chloropseidae				
193	Golden-fronted leafbird	<i>Chloropsis aurifrons</i>	LC	R
Family: Nectariniidae				
194	Purple sunbird	<i>Cimmyris asiaticus</i>	LC	R
195	Crimson sunbird	<i>Aethopyga siparaja</i>	LC	R
Family: Passeridae				
196	Eurasian tree sparrow	<i>Passer montanus</i>	LC	R
197	House sparrow	<i>Passer domesticus</i>	LC	R

Sl. No.	Common name	Scientific name	IUCN status	Migratory status
		Family: Ploceidae		
198	Baya weaver	<i>Ploceus philippinus</i>	LC	R
		Family: Estrildidae		
199	Scaly-breasted munia	<i>Lonchura punctulata</i>	LC	R
200	White-rumped munia	<i>Lonchura striata</i>	LC	R
		Order: Cuculiformes		
		Family: Cuculidae		
201	Asian koel	<i>Eudynamys scolopaceus</i>	LC	R
202	Plaintive cuckoo	<i>Cacomantis merulinus</i>	LC	R
203	Common hawk cuckoo	<i>Hierococcyx varius</i>	LC	R
204	Lesser coucal	<i>Centropus bengalensis</i>	LC	R
205	Greater coucal	<i>Centropus sinensis</i>	LC	R

3. Discussion

Study opined that, the existence of 205 avian fauna in an unprotected 25 km² area in Jhanjimukh-Kokilamukh IBA site has indicated the high potentiality of avian fauna and as well as wetland habitat complex in eastern Assam. In other occasions, the Deepor beel wildlife sanctuary and Ramsar site of Assam has reported only 232 avian fauna [14]. From the present study, it could also be suggested that, the Jhanjimukh-Kokilamukh IBA site be a second potential Ramsar site of Assam after Depor beel Ramsar Site. The present study site supports various types of avifaunal habitat such as marshy land, shore line habitat, muddy habitat aquatic mat, free floating habitat, high lands, scattered forest vegetation and reeds bed etc. that is also another reason why diversified avian fauna harbored in the study area. The variation in habitat types is one of the probable reasons behind holding a diversified avifauna. Raptors constitute 13% of the species composition in the study area, which is a good indicator of wetland habitat and IBA sites. According to Therrien *et al.* [15], raptors are sensitive bio-indicators of ecosystem changes; variations in the numbers of individual species also may reflect changes in the health of the environment. Again, the importance of the presently studied wetland complexes also highlighted by the presence of 14% globally threatened species (28 species) amongst all the species encountered during present study.

The Study also reported range extension two wader species, Long-billed dowitcher-*Limnodromus scolopaceus* (Say, 1823) and Curlew Sandpiper-*Calidris ferruginea* (Pontoppidan 1763) in North East India [16]. There are very few recorded reports of *L. scolopaceus* in India. *C. ferruginea* is a globally threatened (IUCN near threatened) coastal wader species. This is the first record of these two waders from North Eastern India. This observation also expands our curiosity to understand more about the unprotected wetlands of Jhanjimukh-Kokilamukh IBA.

4. Conclusion

The recent existence of anthropogenic threats like extensive agriculture, habitat alterations and hunting may cause loss of biodiversity in near future. Such types of threats were also suggested by the earlier studies on

wetland birds in Brahmaputra valley of Assam [13]. Thus, further studies also need to be initiated with major focus on the threats facing by the IBA site. The proposed Ramsar site Jhanjimukh-Kokilamukh IBA is situated in a strategic location of the major migratory routes of East-Asia Flyways where most of the regular and passage migrants stop over for refueling. So, it is an urgent need to protect the IBA site not only for the conservation of resident birds but also for the water-birds of entire East-Asian Flyways.

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