

A Preliminary Study on the Birds of Berhampur University (Bhanja Bihar) Campus, Ganjam, Odisha, India

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Abstract

The study of birds in Berhampur University (Bhanja Bihar) Campus, Ganjam, Odisha was conducted from April 2015 to July 2017. The study revealed occurrence of a total 108 species of birds belonging to 19 orders, 48 families and 86 genera. Occurrence, feeding habits and migratory status of all the bird species were also studied. Out of 108 species a total 59.25% (64 species) are common, 31.48% (34 species) are fairly common and 9.25% (10 species) are rare based on sighting frequency. A total 65.74% (71 species) are resident to this place, followed by 18.51% (20 species) local migrants and 15.74% (17 species) migrants. The family Ardeidae with 8 representatives has the highest number of species. The feeding guild of the birds recorded from the region dominated with insectivore 38.88% (42 species), followed by omnivore 20.37% (22 species) and piscivore 12.96% (14 species).

Keywords: Avifauna, Abundance, Diversity, Occurrence, Species

Introduction

Birds are viable indicators of biological diversity (Sinha *et al.*, 2011). They have exclusive mobile capability and highly responsive to any environmental changes in any ecosystem. About 1408 bird species are found in Indian subcontinent (Praveen *et al.*, 2020) and 524 species of birds found in Odisha (Inskipp, 2014). Less information on the birds of Ganjam district is available, which have deficiency in base line data for further works. Recently, birds of coastal Ganjam have been studied by Mohanta & Behera (2014). They have provided the preliminary checklist of birds in coastal eco-tourism area of Ganjam. Simultaneously, the birds of Balipadar, Bhetonoi community area of Ganjam were studied by Sahu & Kar, (2014). Information on the birds of Berhampur University campus is apparently unavailable. In the present study, an effort has been made to enlist the avifauna of University campus.

Material and Methods

Study Area: The present study was conducted within Berhampur University Campus or otherwise called as

Bhanja Bihar Campus (BBC). The main university campus (19°18'01"–19°17'24"N and 84°52'48"–84°52'12"E) is situated about eight km away from Berhampur city, Ganjam district, Odisha. BBC has a definite area of 1.01 km² at an elevation of 10–43m. BBC has various types of habitats such as human habitation, inland water bodies, fresh water marshes, agricultural lands, plantation area, grassland, open field, moderate forest patches and road networks etc. There are eight water bodies present within the study area. An airstrip, called as Rangeilunda airstrip is an open field with small herbs, shrubs and fewer tree plants. A deer park having an area of 2.61 acres (0.01 km²) consisting more than 50 Spotted deer (*Axes axes*), managed under P.G. Department of Zoology. There are three market complexes. Vegetation of study area comprise of dominating plant species like Sagwan (*Tectona grandis*), *Eucalyptus* sp., Krishnachura (*Delonix regia*), Golden shower (*Cassia fistula*), Mango (*Mangifera indica*), Banyan (*Ficus benghalensis*) and Ashwattha (*Ficus religiosa*). There is a large Sagwan (*Tectona grandis*) plantation area of 0.08 km². BBC experiences three definite seasons *i.e.* winter (December to February), summer (March to June) and rainy or monsoon (July to

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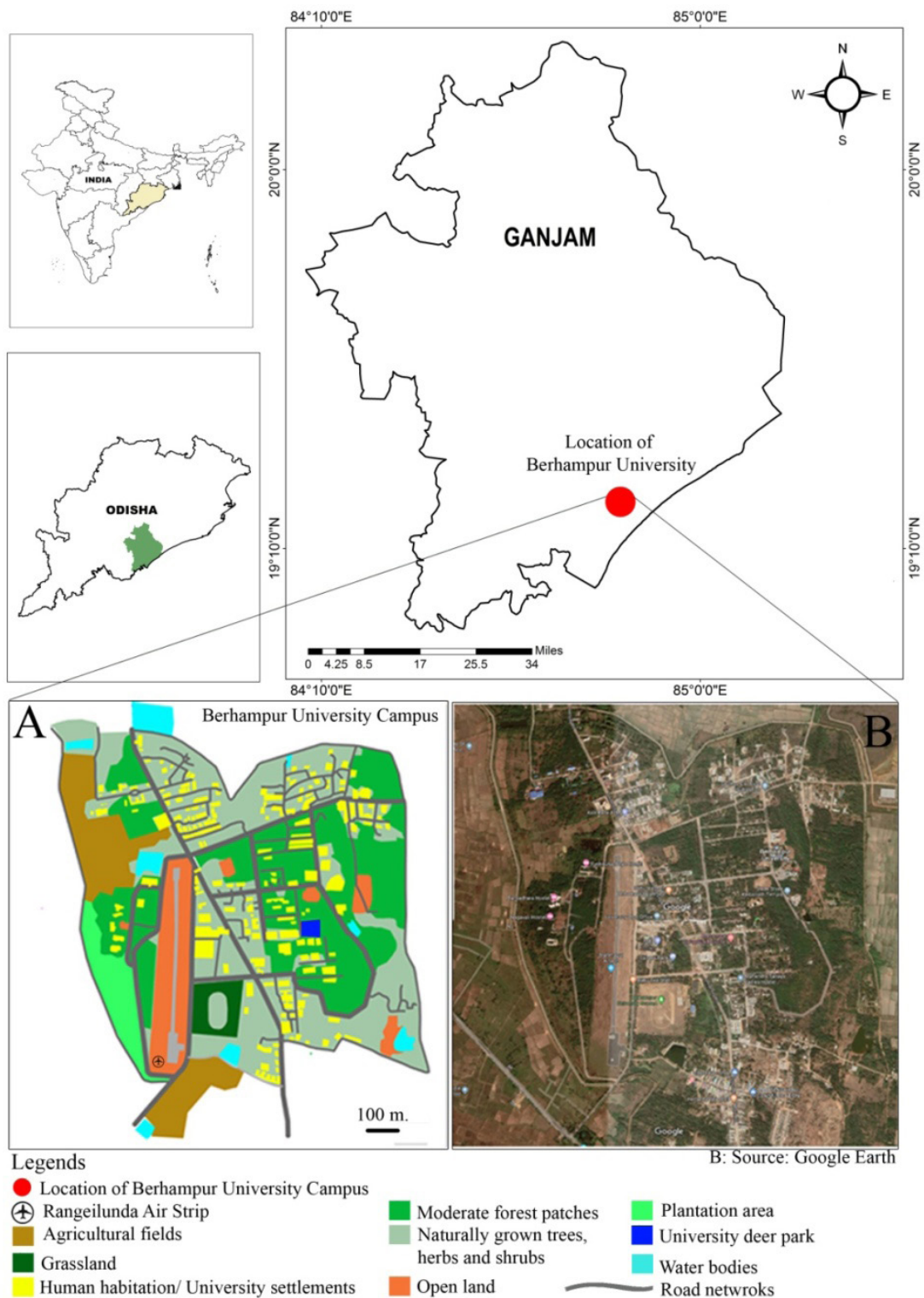
September). The maximum temperature was recorded 46°C in summer and 12°C was the minimum recorded in the winter. The humidity of BBC has been recorded 12–20% during winter, 70–76% during summer and 95–98% during the monsoon.

Field work was carried out from April 2015 to July 2017. Birds were observed during the morning hours (06:00AM to 09:00AM) and in afternoon hours (03:30 to 06:30PM) by walking along the road networks and trails present inside BBC. Field surveys were conducted twice a week whereas some spots were visited regularly to get maximum encounters of the bird species. Birds were observed using 8×40 field binoculars and photo documented using digital camera with 70-300mm telephoto/zoom lens. To know the abundance of the birds of BBC, sighting frequency for each species was recorded and categorised into common (Co), if the sighting frequency is more than 70 percent and found in fairly good numbers; fairly common (FC), found in lesser frequency, i.e. less than 70 percent and more than 10 percent; rare (R), if the sighting frequency is less than 10 percent. Those birds which were encountered almost in every field visit and breed there considered as resident (Re); local migrant (LM), birds which were encountered many times during field visit and breed outside the study area; migrant (M), species which were not resident to this area. Feeding habits of bird species were also observed during field visits and categorised into insectivore, frugivore, granivore, piscivore, nectarivore, carnivore, omnivore and molluscivore etc. Identification was carried out following Ali (2002) and Grimmet *et al.* (2009). The species with confirmed identification only were included in the final checklist. Only one exclusive feeding habit of each bird species was considered while preparing the pie-chart of feeding habit to avoid overlapping feeding habits of many bird species (Figure 1). Birdlife International (2020) was followed for determining the threat category of each bird species.

Results

A total of 108 species of birds belonging to 19 orders, 48 families and 86 genera have been documented. The family Ardeidae with eight species has the highest number of species. Anatidae, Scolopacidae has six species each, whereas Sturnidae and Muscicapidae have five species each. Three families such as Accipitridae, Rallidae and Charadriidae have four species each. Three species from each of these families like Columbidae, Cuculidae, Corvidae, Pycnonotidae, Sylviidae and Motacillidae were observed. Fourteen families such as Ciconiidae, Threskiornithidae, Falconidae, Jacanidae, Recurvirostridae, Psittacidae, Meropidae, Megalaimidae, Dicruridae, Oriolidae, Hirundinidae, Alaudidae, Cisticolidae, Nectarinidae has two species each. Rest 20 families such as Phasianidae, Dendrocygnidae, Podicipidae, Phalacrocoracidae, Anhingidae, Tytonidae, Stirgidae, Apodidae, Upupidae, Bucerotidae, Halcyonidae, Cerylidae, Alcedinidae, Coracidae, Piccidae, Lanidae, Leiothrichidae, Estrildidae, Turdidae and Passeridae were represented by one species each during this study.

Out of 108 species, 65.74% (n=71) species were found to be residents, 18.51% (n=20) species were local migrants and 15.74% (n=17) species were winter migrants. Among all species, 64 species (59.25%) were common, 34 species (31.48%) were fairly common and 10 species (9.25%) were rare. Some of the near threatened bird species, recorded during the study period were Painted stork (*Mycteria leucocephala*), Black-headed ibis (*Threskiornis melanocephalus*), Red-necked falcon (*Falco chiquera*), Oriental darter (*Anhinga melanogaster*) and Alexandrine parakeet (*Psittacula krameri*). The feeding guild of the birds recorded from the region dominated with 38.88% (n=42) insectivore, 20.37% (n=22) omnivore, 12.96% (n=14) piscivore, 10.18% (n=11) carnivore, 8.33% (n=9) granivore, 7.40% (n=8) frugivore, 2.77% (n=3) molluscivore and 1.85% (n=2) nectarivore. The final checklist is given with all the data compiled in (Table 1; Figures 1 & 2; Plates 1 & 2)



Map 1. Location and vegetation of Berhampur University Campus, Odisha, India.

Table 1. Checklist of avifauna of Berhampur University (Bhanja Bihar) Campus.

Sl.No.	Family	Common Name	Scientific Name	Abundance	Migratory status	IUCN status	IWPA	Feeding Habit	Habitat
Order: Galliformes									
1	Phasianidae	Grey francolin	<i>Francolinus pondicerianus</i> (Gmelin, 1789)	Co	Re	LC	IV	C	G, OF
Order: Anseriformes									
2	Dendrocygnidae	Lesser whistling duck	<i>Dendrocygna javanica</i> (Horsefield, 1821)	Co	Re	LC	IV	O	IB
3		Spot-billed duck	<i>Anas poecilorhyncha</i> Forster, 1781	FC	M	LC	IV	O	IB
4		Gadwall	<i>Anas strepera</i> (Linnaeus, 1758)	FC	M	LC	IV	O	IB
5		Northern pintail	<i>Anas acuta</i> Linnaeus, 1758	FC	M	LC	IV	O	IB
6	Anatidae	Red crested pochard	<i>Netta rufina</i> (Pallas, 1773)	FC	M	LC	IV	O	IB
7		Cotton pygmy goose	<i>Nettapus coromandelianus</i> Gmelin, 1789	Co	Re	LC	IV	O	IB,M
8		Northern shoveler	<i>Spatula clypeata</i> (Linnaeus, 1758)	FC	M	LC	IV	O	IB
Order: Podicipediformes									
9	Podicipedidae	Little grebe	<i>Tachybaptus ruficollis</i> (Pallas 1764)	Co	Re	LC	IV	P	IB
Order: Ciconiiformes									
10	Ciconiidae	Asian openbill	<i>Anastomus oscitans</i> (Boddaert, 1783)	Co	Re	LC	IV	M	IB,AG,M
11		Painted stork	<i>Mycteria leucocephala</i> (Pennant, 1769)	R	LM	NT	IV	P	M
Order: Pelecaniformes									
12	Threskiornithidae	Black headed ibis	<i>Threskiornis melanocaphalus</i> (Latham, 1790)	FC	M	NT	IV	P	M,AG
13		Glossy ibis	<i>Plegadis falcinellus</i> (Linnaeus, 1766)	FC	M	LC	IV	C	M,G,AG

Table 1. (continued)

Sl.No.	Family	Common Name	Scientific Name	Abundance	Migratory status	IUCN status	IWPA	Feeding Habit	Habitat
14	Ardeidae	Little egret	<i>Egretta garzetta</i> (Linnaeus, 1766)	Co	Re	LC	IV	P	IB,M,G,PA
15		Intermediate egret	<i>Ardea intermedia</i> Wagler, 1829	Co	Re	LC	IV	P	IB
16		Cattle egret	<i>Bubulcus ibis</i> (Linnaeus, 1758)	Co	Re	LC	IV	I	IB,M,G,PA,HH
17		Indian pond heron	<i>Ardeola grayii</i> (Sykes, 1832)	Co	Re	LC	IV	P	IB,M
18		Black bittern	<i>Ixobrychus flavicollis</i> (Latham, 1790)	R	LM	LC	IV	P	IB,M
19		Cinnamon bittern	<i>Ixobrychus cinnamomeus</i> (Gmelin, 1789)	R	LM	LC	IV	P	IB,M
20		Great egret	<i>Casmerodius albus</i> (Linnaeus, 1758)	Co	Re	LC	IV	P	IB,M
21	Purple heron	<i>Ardeola purpurea</i> Linnaeus, 1766	Co	Re	LC	IV	P	IB	
22	Phalacrocoracidae	Little cormorant	<i>Phalacrocorax carbo</i> (Vieillot, 1817)	Co	Re	LC	IV	P	IB,M
Order: Suliformes									
23	Anhingidae	Oriental darter	<i>Anhinga melanogaster</i> Pennant, 1769	Co	Re	NT	IV	P	IB,M
Order: Falconiformes									
24	Falconidae	Common kestrel	<i>Falco tinnunculus</i> Linnaeus, 1758	R	M	LC	IV	C	IB,M,AG
25		Red-necked falcon	<i>Falco chiqueira</i> Daudin, 1800	R	LM	NT	I	C	O,FFP
Order: Accipitriformes									
26	Accipitridae	Black kite	<i>Milvus migrans</i> (Boddaert, 1783)	Co	Re	LC	I	C	HH,G,PA,AG
27		Brahminy kite	<i>Haliastur indus</i> (Boddaert, 1783)	Co	Re	LC	I	C	IB,M,HH,G,AG
28		Shikra	<i>Accipiter badius</i> (Gmelin, JF, 1788)	Co	Re	LC	I	C	FP,AG,PA
29		Black winged kite	<i>Elanus caeruleus</i> (Desfontaines, 1789)	Co	Re	LC	I	C	O,FFP
Order: Gruiformes									
30	Rallidae	White-breasted waterhen	<i>Amaurornis phoenicurus</i> Pennant, 1769	Co	Re	LC	IV	O	IB
31		Common moorhen	<i>Gallinula chloropus</i> (Linnaeus, 1758)	Co	Re	LC	IV	O	IB
32		Grey-headed swamphen	<i>Porphyrio poliocephalus</i> (Latham, 1801)	Co	Re	LC	IV	O	IB,M
33		Common coot	<i>Fulica atra</i> Linnaeus, 1758	Co	Re	LC	IV	O	IB

Table 1. (continued)

Sl.No.	Family	Common Name	Scientific Name	Abundance	Migratory status	IUCN status	IWPA	Feeding Habit	Habitat
Order: Charadriiformes									
34	Jacanidae	Pheasant-tailed jacana	<i>Hydrophasianus chirurgus</i> (Scopoli, 1786)	Co	LM	LC	IV	M,I	IB,M
35		Bronze-winged jacana	<i>Metopidius indicus</i> (Latham, 1790)	Co	Re	LC	IV	O	IB,M
36	Recurvirostridae	Pied avocet	<i>Recurvirostra avosetta</i> Linnaeus, 1758	Co	Re	LC	IV	I	IB,M,AG
37		Black-winged stilt	<i>Himantopus himantopus</i> (Linnaeus, 1758)	Co	Re	LC	IV	I	IB,M,AG
38		Yellow-wattled lapwing	<i>Vanellus malabaricus</i> (Boddaert, 1783)	Co	Re	LC	IV	I	AG,O,E,G
39	Charadriidae	Red-wattled lapwing	<i>Vanellus indicus</i> (Boddaert, 1783)	Co	Re	LC	IV	I,G	AG,O,E,G
40		Little ringed plover	<i>Charadrius dubius</i> (Legge, 1880)	Co	Re	LC	IV	I	IB,M,AG
41		Pacific golden plover	<i>Pluvialis fulva</i> (Gmelin, 1789)	FC	LM	LC	IV	I	IB,M
42	Scolopacidae	Common sandpiper	<i>Actitis hypoleucos</i> (Linnaeus, 1758)	Co	Re	LC	IV	M,I	IB,M,AG
43		Wood sandpiper	<i>Tringa glareola</i> Linnaeus, 1758	Co	Re	LC	IV	I	IB,M,AG
44		Green sandpiper	<i>Tringa ochropus</i> Linnaeus, 1758	FC	LM	LC	IV	I	IB,M,AG
45		Common greenshank	<i>Tringa nebularia</i> (Gunnerus, 1767)	FC	M	LC	IV	C	IB,M,AG
46		Common redshank	<i>Tringa tetanus</i> (Linnaeus, 1758)	FC	M	LC	IV	I	IB,M,AG
47		Common snipe	<i>Gallinago gallinago</i> (Linnaeus, 1758)	FC	Re	LC	IV	I	IB,M
Order: Columbiformes									
48	Columbidae	Common pigeon	<i>Columba livia</i> Gmelin, JE, 1789	Co	Re	LC	IV	G	HH,AG,PA,OF
49		Spotted dove	<i>Stigmatopelia chinensis</i> (Temminck, 1809)	Co	Re	LC	IV	G	FP
50		Eurasian collared dove	<i>Streptopelia decaocto</i> (Frisvaldszky, 1838)	Co	Re	LC	IV	G	FP,AG
Order: Cuculiformes									
51	Cuculidae	Common hawk-cuckoo	<i>Herocoryx varius</i> (Vahl, 1797)	FC	Re	LC	IV	I	FP,PA,G
52		Asian koel	<i>Eudynamis scolopacus</i> (Linnaeus, 1758)	Co	Re	LC	IV	O	HH,FP,PA
53		Southern coucal	<i>Centropus sinensis</i> (Stephens, 1815)	Co	Re	LC	IV	O	AG,G,FP

Table 1. (continued)

Sl.No.	Family	Common Name	Scientific Name	Abundance	Migratory status	IUCN status	IWPA	Feeding Habit	Habitat
Order: Psittaciformes									
54	Psittacidae	Rose- ringed parakeet	<i>Psittacula krameri</i> (Scopoli, 1769)	Co	Re	LC	IV	E,G	HH,FP,PA
55		Alexandrine parakeet	<i>Psittacula eupatria</i> (Linnaeus, 1766)	Co	Re	NT	IV	F	HH,FP,PA
Order: Strigiformes									
56	Tytonidae	Barn owl	<i>Tyto alba</i> (Scopoli, 1769)	FC	Re	LC	IV	C	HH,FP,PA
57	Strigidae	Spotted owl	<i>Athene brama</i> (Temminck, 1821)	Co	Re	LC	IV	C	FP,PA
Order: Apodiformes									
58	Apodidae	Asian palm swift	<i>Cypsiurus balasiensis</i> (Grey, 1829)	R	Re	LC	IV	I	AG,OF
Order: Bucerotiformes									
59	Upupidae	Common hoopoe	<i>Upupa epops</i> Linnaeus, 1758	FC	Re	LC	IV	I	FP,G,PA
60	Bucerotidae	Indian grey hornbill	<i>Ocyroceros birostris</i> (Scopoli, 1786)	Co	Re	LC	IV	F	FP,PA
Order: Coraciiformes									
61	Halcyonidae	White throated kingfisher	<i>Halcyon smyrensis</i> (Linnaeus, 1758)	Co	Re	LC	IV	C	IB,M
62	Ceryllidae	Pied kingfisher	<i>Ceryle rudis</i> (Linnaeus, 1758)	FC	Re	LC	IV	P	IB,M
63	Alcedinidae	Common kingfisher	<i>Alcedo atthis</i> (Linnaeus, 1758)	FC	Re	LC	IV	P	IB,M
64	Meropidae	Small bee-eater	<i>Merops orientalis</i> Latham, 1801	FC	LM	LC	IV	I	IB,G,AG,M,PA
65		Blue-tailed bee-eater	<i>Merops philippinus</i> Linnaeus, 1767	FC	Re	LC	IV	I	IB,G,AG,M,PA
66	Coraciidae	Indian roller	<i>Coracias benghalensis</i> (Linnaeus, 1758)	Co	Re	LC	IV	I	AG,OF,PA
Order: Piciformes									
67	Megalaimidae	Brown-headed barbet	<i>Psilopogon zeylonica</i> (Gmelin, 1788)	Co	Re	LC	IV	F	FP,PA
68		Coppersmith barbet	<i>Psilopogon haemacephala</i> (Muller, 1776)	Co	Re	LC	IV	F	FP,PA
69	Picidae	Black-rumped flameback	<i>Dinopium benghalense</i> (Linnaeus, 1758)	FC	Re	LC	IV	I	FP,PA

Table 1. (continued)

Sl.No.	Family	Common Name	Scientific Name	Abundance	Migratory status	IUCN status	IWPA	Feeding Habit	Habitat
Order: Passeriformes									
70	Lanidae	Brown shrike	<i>Lanius cristatus</i> Linnaeus, 1758	Co	M	LC	IV	I	FRPA
71	Dicruridae	Black drongo	<i>Dicrurus macrocercus</i> Gieillot, 1817	Co	Re	LC	IV	I	HH,FRPA
72		White-bellied drongo	<i>Dicrurus caeruleus</i> (Linnaeus, 1758)	R	LM	LC	IV	I	FP
73	Oriolidae	Black-hooded oriole	<i>Oriolus xanthornus</i> (Linnaeus, 1758)	Co	Re	LC	IV	O	FRPA
74		Indian golden oriole	<i>Oriolus oriolus</i> Sykes, 1832	FC	M	LC	IV	O	FRPA
75	Corvidae	House crow	<i>Corvus splendens</i> Vieillot, 1817	Co	Re	LC	IV	O	HH,FRPA,G
76		Jungle crow	<i>Corvus macrorhynchus</i> Wagler, 1827	Co	Re	LC	IV	O	HH,FRPA
77		Rufous treepie	<i>Dendrocitta vagabunda</i> (Latham, 1790)	FC	Re	LC	IV	O	FRPA
78	Hirundinidae	Red rumped swallow	<i>Hirundo daurica</i> (Laxmann, 1769)	R	LM	LC	IV	I	AG
79		Barn swallow	<i>Hirundo rustica</i> Linnaeus, 1758	FC	M	LC	IV	I	AG
80	Alaudidae	Indian bush lark	<i>Mirafra erythroptera</i> Blyth, 1845	FC	LM	LC	IV	G	AG,G
81		Ashy-crowned sparrow-lark	<i>Eremopterix griseus</i> (Scopoli, 1786)	Co	Re	LC	IV	G	OFG
82		Red-vented bulbul	<i>Pycnonotus cafer</i> (Linnaeus, 1766)	Co	Re	LC	IV	F	FRPA
83	Pycnonotidae	Red-whiskered bulbul	<i>Pycnonotus jocosus</i> (Linnaeus, 1758)	FC	Re	LC	IV	F	FRPA
84		White browed bulbul	<i>Pycnonotus luteolus</i> (Lesson, 1841)	Co	Re	LC	IV	F	FRPA
85	Cisticolidae	Ashy prinia	<i>Prinia socialis</i> Sykes, 1832	FC	Re	LC	IV	I	FRPA
86		Plain prinia	<i>Prinia inornata</i> (Sykes, 1832)	FC	Re	LC	IV	I	FRPA
87		Common tailor bird	<i>Orthotomus sutorius</i> (Pennant, 1769)	FC	Re	LC	IV	I	FRPA
88	Sylviidae	Common chiffchaff	<i>Phylloscopus collybita</i> (Vieillot, 1817)	Co	M	LC	IV	I	G,PA
89		Blyth's reed warbler	<i>Acrocephalus dumetorum</i> Blyth, 1849	Co	M	LC	IV	I	G,PA

Table 1. (continued)

Sl.No.	Family	Common Name	Scientific Name	Abundance	Migratory status	IUCN status	IWPA	Feeding Habit	Habitat
90	Leiothrichidae	Jungle babbler	<i>Turdoides siriatus</i> (Dunomt, 1823)	Co	Re	LC	IV	I	FP,PA,HH
91		Brahminy starling	<i>Sturnus pagodarum</i> (Gmelin, 1789)	Co	LM	LC	IV	I	AG
92		Asian pied starling	<i>Gracupica contra</i> (Linnaeus, 1758)	Co	Re	LC	IV	I	HH,OF,AG
93	Sturnidae	Common myna	<i>Acridotheres tristis</i> (Linnaeus, 1766)	Co	Re	LC	IV	O	HH,OF,AG
94		Bank myna	<i>Acridotheres ginginianus</i> (Latham, 1790)	Co	LM	LC	IV	O	IB
95		Jungle myna	<i>Acridotheres fuscus</i> (Wagler, 1827)	Co	Re	LC	IV	O	HH,PA,OF
96		Asian brown flycatcher	<i>Muscicapa dauurica</i> Pallas, 1811	R	LM	LC	IV	I	FP
97		Verditer flycatcher	<i>Eumyias thalassinus</i> (Swainson, 1838)	R	LM	LC	IV	I	FP
98	Muscicapidae	Pied buschchat	<i>Saxicola caprata</i> (Linnaeus, 1766)	FC	LM	LC	IV	I	G, PA
99		Indian robin	<i>Saxicoloides fulicata</i> (Linnaeus, 1766)	Co	Re	LC	IV	I	FP
100		Oriental magpie robin	<i>Copsychus saularis</i> (Linnaeus, 1758)	Co	Re	LC	IV	I	FP,PA
101		Purple sunbird	<i>Cinnyris asiaticus</i> (Latham, 1790)	Co	Re	LC	IV	N	FP,PA,HH
102	Nectariniidae	Purple rumped sunbird	<i>Leptocoma zeylonica</i> (Linnaeus, 1766)	Co	Re	LC	IV	N	FP,PA,HH
103	Estrildidae	Scaly breasted munia	<i>Lonchura punctulata</i> (Linnaeus, 1758)	FC	LM	LC	IV	G	FP,PA
104	Turdidae	Orange headed thrush	<i>Goekichla citrina</i> (Latham, 1790)	FC	LM	LC	IV	I	FP
105	Passeridae	House sparrow	<i>Passer domesticus</i> (Linnaeus, 1758)	Co	LM	LC	IV	G	AG
106		Paddyfield pipit	<i>Anthus rufulus</i> Vieillot, 1818	FC	LM	LC	IV	I	AG,G
107	Motacillidae	White wagtail	<i>Motacilla alba</i> Linnaeus, 1758	FC	M	LC	IV	I	AG,M,IB
108		Citrine wagtail	<i>Motacilla citreola</i> Pallas, 1776	FC	M	LC	IV	I	AG,M,IB

[**Abundance:** Common (Co), fairly common (FC) and rare (R). **Migratory Status:** Resident (Re), local migrant (LM), and migrant (M). **Food Habit:** Carnivore (C), frugivore (F), granivore (G), insectivore (I), molluscivore (M), nectarivore (N), omnivore (O), and piscivore (P). **Habitats:** Human habitation (HH), inland water bodies (IB), marshes (M), grassland (G), agricultural land (AG), plantation area (PA), open field (OF), and moderate forest patches (FP)].

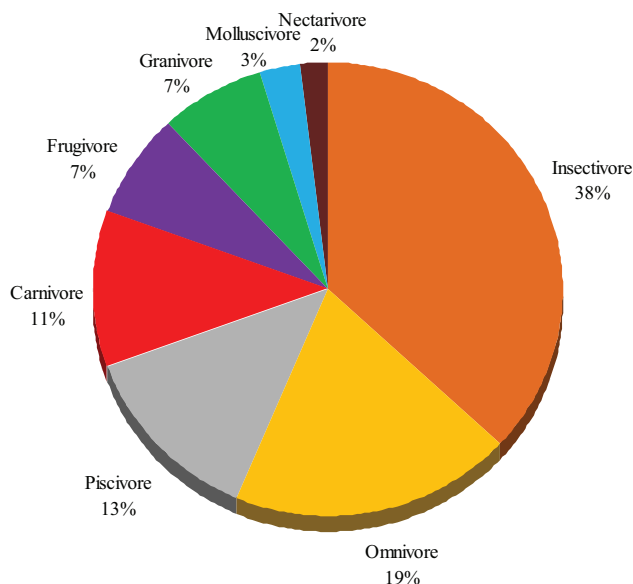


Figure 1. Feeding habit of Birds in Bhanja Bihar Campus (Berhampur University)

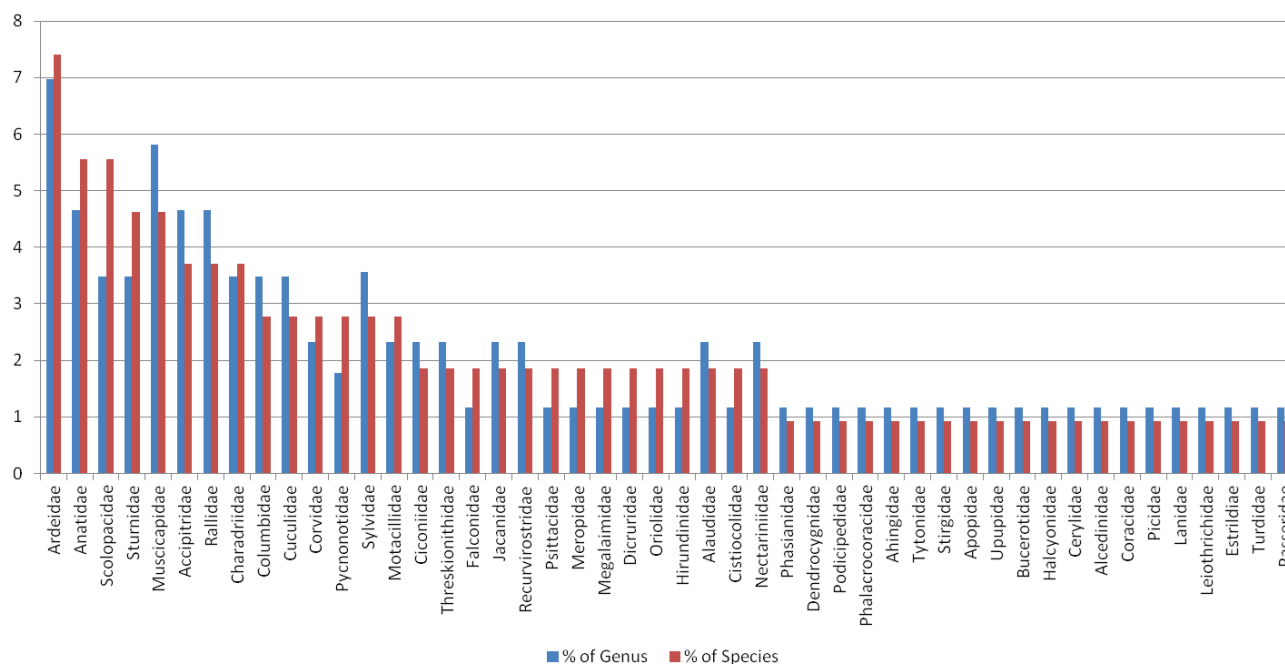


Figure 2. Genus and species percentage of birds of Bhanja Bihar Campus (Berhampur University).

Discussion

Various kinds of terrestrial and inland aquatic habitats are available inside BBC for all the bird species found there. Competition for food was observed to be decreasing among birds due to the presence of various habitat types (Palei *et al.*, 2017). Common seasonal and perennial

fruiting tree plants offer food and shelter for the resident frugivore bird species; hence the frugivore birds are seen throughout the year in BBC.

The water bodies along with the marshy area provide good foraging ground for aquatic birds. Ramachandrapur pond is the largest among all, which harbours many

water birds throughout the year and is also a best place to observe the winter migrants. Reed beds nearer to the edges of these water bodies provide good shelter for waterfowls including the bitterns and herons. This pond is also residential home for bird species like Common coot (*Fulica atra*), Common moorhen (*Gallinula chloropus*), Purple heron (*Ardeola purpurea*), Indian pond heron (*Ardeola grayii*), Grey-headed swampphen (*Porphyrio poliocephalus*), Egrets and Kingfishers. Parakeets (*Psittacula sp.*) and Spotted owl (*Athene brama*) are also frequently seen among the large trees, which are present around this pond.

The open land at the Rangeilunda air strip provide good habitat for ground nesting birds like Yellow-wattled lapwing (*Vanellus malabaricus*), Ashy-crowned sparrow-lark (*Eremopterix griseus*) and Blue-tailed bee-eater (*Merops philippinus*). As the lapwings lay eggs on bare ground, this open-air strip provide enough coverage and protection to this bird. The deer park is a moderately dense forest, which is the home for some of the forest bird like Orange-headed thrush (*Geokichla citrina*). Most of the time the park remains closed. Presence of agricultural fields around the BBC is also providing food for granivore birds. While in off season the granivore birds depend upon the naturally available food sources.

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Poaching and netting of some birds like Little Cormorant (*Phalacrocorax carbo*), White-throated kingfisher (*Halcyon smyrensis*) and some waders by the locals is an emerging issue. Ongoing construction of buildings by the university authority in the campus is creating temporary disturbances. Building awareness and educating the students, teaching staffs of the BBC and local people about the importance of birds will help them to understand about its rich avifaunal diversity and their sustainability in this area.

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Plate 1. Threatened birds (1-5) of Berhampur University Campus.



1. Painted stork *Mycteria leucocephala*



2. Black-headed ibis *Threskiornis melanocephalus*



3. Oriental darter *Anhinga melanogaster*



4. Alexandrine Parakeet *Psittacula krameri*



5. Red-necked falcon *Falco chiquera*

Plate 2. Birds (a-j) of Berhampur University Campus, Odisha.



a. Red-crested pochard *Netta rufina*



b. Little cormorant *Phalacrocorax carbo*



c. Common coot *Fulica atra*



d. Common moorhen *Gallinula chloropus*



e. White breasted waterhen *Amaurornis phoenicurus*



f. Grey-headed swampphen *Porphyrio poliocephalus*



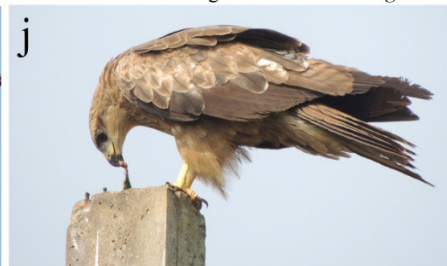
g. Shikra *Accipiter badius*



h. White-bellied sea eagle *Haliaeetus leucogaster*



i. Black-winged kite *Elanus caeruleus*



j. Black kite *Milvus migrans*