

Study on the status of avifaunal diversity in social forestry division Bareilly, Uttar Pradesh

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Abstract

The study was conducted in social forestry division Bareilly, Uttar Pradesh from 2013 to 2015. The presented paper involved a survey of bird species and preparing the checklist in the surveyed area. A total of 104 different bird species belongs to 48 families were recorded in the study area. Of which 80 species were resident, followed by 21 migratory and 3 were resident migratory. Of 104, 36 were insectivores followed by 27 carnivorous, 22 omnivores, 6 granivore, 5 frugivore, 6 carnivorous, insectivorous and 2 were insectivorous, frugivores. Of 104 bird species recorded maximum (94) was the least concern status, 6 were nearly threatened, 2 were vulnerable, 2 were endangered and 1 was critically endangered in IUCN red list category. Birds play important role in an agriculture ecosystem and maintain the ecological balance. The presence of birds in an area defines the wealth of ecosystem. For maintaining the bird diversity it is recommended to limit the use of pesticides and fertilizers. Planting the trees in agriculture fields would lead the increase of bird's population in the area.

Key words : birds, avifaunal, survey, biodiversity

INTRODUCTION

Birds are considered as indicator species that serve as monitors of changes in habitat^[1]. There are 1233 species of birds found in India and about 358 bird's species are recorded in Uttar Pradesh^[2]. Urbanization and over exploitation is leading threat to the biodiversity. Conversion and modification of natural habitats in agriculture and economic zone are threatening the birds and pushing them in the verge of extinction. The use of pesticides and chemical fertilizers are also impacting the population of birds. In current scenario many of the bird's species are vanishing and becoming critically endangered.

Numerous studies have focused on the changes in bird diversity associated with urbanization^[1,3,4,5]. Forest destruction is a direct determinant leading to bird diversity loss^[6]. The study was conducted to know the current status and abundance of avifaunal diversity, to major the threats and to prepare the checklist of Social Forestry Division, Bareilly.

STUDY AREA AND METHODOLOGY

The present study was conducted in Social Forestry Division, Bareilly, Uttar Pradesh. The Bareilly district is located in the north western part of Uttar Pradesh and lies between latitude 28°10'N, and longitude 78°23'E. There are six Tehsils namely Bareilly City, Aonla, Baheri, Faridpur, Meeraganj, and Nawabganj and fifteen blocks in Bareilly.

Bareilly is located at the borders of Pilibhit and Shahjahanpur on East and Rampur on West, Udham Singh Nagar (Uttarakhand) in North and Badaun in South. It lies in Ganges plains. The low-lying Ganges plains provide fertile alluvial soil suitable for agriculture. A tract of forest jungle called the Tarai stretches along the villages have a nest the district and teems with large game such as tigers, bears, blue bull, deer and wild boars. Ramganga river is a perennial water source there are seven rivers passing through this district. Bareilly has a humid subtropical climate with high variation between summer and winter temperatures. Summers are

long, from early April to October, with the monsoon season in between. Winter starts in October and peaks in January and is notorious for its heavy fog. Extreme temperature range from 4 °C to 44 °C. the annual mean temperature is 25 °C (77 °F), monthly mean temperatures from 14 °C to 33 °C (58 °F to 90 °F).

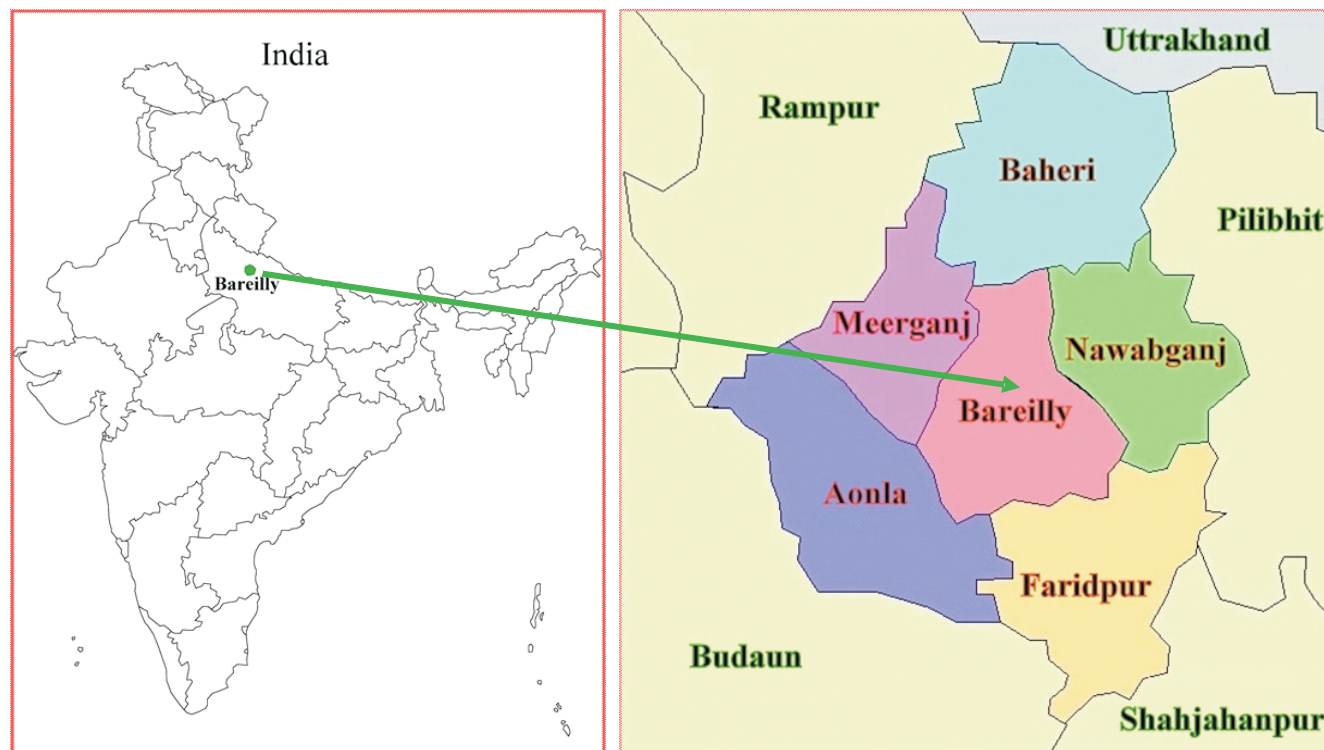
METHODS

The study was carried out in the Social Forestry Division, Bareilly, Uttar Pradesh. The survey was conducted for three years 2013 to 2015. Several field visits were made through walking with the cover of bird's habitat such as like ponds, wetland areas, agricultural areas and alongside of rivers during tenure of study. Map of the area, binocular, digital camera, field stick and bird hide were used during the study period. Direct observation and monitoring of birds were done by visiting the study area. The call of the birds was also observed to identify the species. Interviews and group discussion were also conducted with local inhabitants to get idea about the bird diversity of the area. *Ad libitum* sampling and foot transect method was also used for the investigation of the birds diversity.

RESULTS

Present study was designed to know the current status and abundance of avifaunal diversity in the Social Forestry Division Bareilly, Uttar Pradesh.

A total of 104 bird species belongs to 48 families were recorded in the study area. Of 48 families maximum, 6 were from Ardeidae family followed by five 5 from Accipitridae, Muscipidae and Columbidae, 4 birds from Anatidae, Cuculidae, Motacillidae, Phasianidae, Rallidae, and Sturnidae, 3 from Ciconiidae, Strigidae, Charadriidae, pycnonotidae, Leiothrichidae, Corvidae and Psittaculidae, 2 birds species from Falconidae, Phalacrocoracidae, Meropidae, Alaudidae, Passeridae, Jacanidae and Hirundinidae and at least one bird species of each was listed in family Anhingidae, Tytonidae, Cerylidae, Halcyonidae, Coraciidae, Podicipedidae, Burhinidae,



A. Location map of Bareilly in the state of Uttar Pradesh, India

B. Map of Bareilly district showing six Tehsils

Plate 1: Location map of different tehsil under Bareilly district of Uttar Pradesh, India

Table 1: Avifaunal biodiversity in Social Forestry Division, Bareilly

S. No.	Common name of bird	Scientific name	Status	Abundance	Feeding Habit
Family Accipitridae					
1.	Black shouldered kite	<i>Elanus caeruleus</i> (LC)	R	C	Cv
2.	Black kite	<i>Milvus migrans</i> (LC)	R	C	Cv
3.	Shikra	<i>Accipiter badius</i> (LC)	R	C	Cv
4.	Egyptian Vulture	<i>Neophron percnopterus</i> (EN)	R	C	Cv
5.	Long billed vulture	<i>Gyps indicus</i> (CR)	M	R*	Cv
Family Falconidae					
6.	Peregrine falcon	<i>Falco peregrinus</i> (LC)	M	UC	Cv
7.	Common kestrel	<i>Falco tinnunculus</i> (LC)	M	FC	Cv
Family Phalacrocoracidae					
8.	Indian shag	<i>Phalacrocorax fuscicollis</i> (LC)	M	UC	Cv
9.	Little cormorant	<i>Phalacrocorax niger</i> (LC)	R	C	Cv

Family Anhingidae					
10.	Darter or snake bird	<i>Anhinga melanogaster</i> (NT)	R	R*	Cv
Family Ardeidae					
11.	Black crowned night heron	<i>Nycticorax nycticorax</i> (LC)	R	UC	Cv
12.	Large egret	<i>Casmerodius albus</i> (LC)	R	C	Cv
13.	Indian pond heron	<i>Ardeola grayii</i> (LC)	R	C	Cv
14.	Cattle egret	<i>Bubulcus ibis</i> (LC)	R	C	Cv
15.	Median egret	<i>Mesophoyx intermedia</i> (LC)	R	C	Cv
16.	Purple heron	<i>Ardea purpures</i> (LC)	R	FC	Cv
Family Anatidae					
17.	Mallard	<i>Anas platyrhynchos</i> (LC)	M	UC	In
18.	Cotton teal	<i>Nettapus coromandelianus</i> (LC)	M	C	In
19.	Lesser whistling duck	<i>Dendrocygna javanica</i> (LC)	R	C	O
20.	Comb duck	<i>Sarkidiornis melanotos</i> (LC)	R	FC	O
Family Ciconiidae					
21.	Painted stork	<i>Mycteria leucocephala</i> (NT)	RM	R*	Cv
22.	Asian openbill stork	<i>Anastomus oscitans</i> (LC)	R	FC	Cv
23.	Lesser Adjutant-Stork	<i>Leptoptilos javanicus</i> (VU)	M	R*	Cv
Family Tytonidae					
24.	Barn owl	<i>Tyto alba</i> (LC)	R	UC	Cv
Family Strigidae					
25.	Eurasian eagle owl	<i>Bubo bubo</i> (LC)	R	R*	Cv
26.	Jungle owlet	<i>Glaucidium radiatum</i> (LC)	R	FC	Cv
27.	Spotted owlet	<i>Athene brama</i> (LC)	R	C	Cv
Family Cerylidae					
28.	Lesser pied kingfisher	<i>Ceryle rudis</i> (LC)	R	C	Cv
Family Halcyonidae					
29.	White breasted kingfisher	<i>Halcyon smyrnensis</i> (LC)	R	C	Cv
Family Coraciidae					
30.	Indian roller	<i>Coracias benghalensis</i> (LC)	R	C	Cv, In

Family Podicipedidae					
31.	Little grebe	<i>Tachybaptus ruficollis</i> (LC)	R	C	Cv, In
Family Burhinidae					
32.	Indian stone curlew	<i>Burhinus indicus</i> (LC)	R	UC	Cv, In
Family Sternidae					
33.	River tern	<i>Sterna aurantia</i> (NT)	R	UC	Cv, In
Family Cuculidae					
34.	Indian cuckoo	<i>Cuculus micropterus</i> (LC)	M	UC	Cv, In
35.	Pied crested cuckoo	<i>Clamator jacobinus</i> (LC)	M	UC	Cv, In
36.	Asian koel	<i>Eudynamys scolopacea</i> (LC)	R	C	O
37.	Lesser coucal	<i>Centropus bengalensis</i> (LC)	R	C	O
Family Apodidae					
38.	Indian swiftlet	<i>Collocalia unicolor</i> (LC)	R	UC	Cv
Family Caprimulgidae					
39.	Large tailed nightjar	<i>Caprimulgus macrurus</i> (LC)	R	UC	Cv
Family Charadriidae					
40.	River lapwing	<i>Vanellus duvaucelli</i> (NT)	R	R*	In
41.	Red wattled lapwing	<i>Vanellus indicus</i> (LC)	R	C	In
42.	White tailed Lapwing	<i>Vanellus leucurus</i> (LC)	M	UC	In
Family Meropidae					
43.	Blue tailed bee-eater	<i>Merops philippinus</i> (LC)	M	FC	In
44.	Small bee eater	<i>Merops orientalis</i> (LC)	R	C	In
Family Upupidae					
45.	Common hoopoe	<i>Upupa epops</i> (LC)	RM	FC	In
Family Alaudidae					
46.	Indian Bush Lark	<i>Mirafra erythroptera</i> (LC)	R	FC	In
47.	Ashy crowned sparrow-lark	<i>Eremopterix grisea</i> (LC)	R	UC	In
Family pycnonotidae					
48.	White eared bulbul	<i>Pycnonotus leucotis</i> (LC)	RM	UC	In
49.	Red vented bulbul	<i>Pycnonotus cafer</i> (LC)	R	C	In
50.	Red whiskered bulbul	<i>Pycnonotus jocosus</i> (LC)	R	FC	In

Family leiothrichidae					
51.	Jungle babbler	<i>Turdoides striatus (LC)</i>	<i>R</i>	<i>C</i>	<i>In</i>
52.	Large grey babbler	<i>Turdoies malcolmi (LC)</i>	<i>R</i>	<i>C</i>	<i>In</i>
53.	Common babbler	<i>Turdoides caudate (LC)</i>	<i>R</i>	<i>C</i>	<i>In</i>
Family Cisticolidae					
54.	Graceful prinia	<i>Prinia gracilis (LC)</i>	<i>R</i>	<i>UC</i>	<i>In</i>
Family Muscipidae					
55.	Black redstart	<i>Phoenicurus ochruros (LC)</i>	<i>M</i>	<i>UC</i>	<i>In</i>
56.	Oriental magpie robin	<i>Copsychus saularis (LC)</i>	<i>R</i>	<i>C</i>	<i>In</i>
57.	Indian chat	<i>Cercomela fusca (LC)</i>	<i>R</i>	<i>C</i>	<i>In</i>
58.	Rusty tailed flycatcher	<i>Muscicapa ruficauda (LC)</i>	<i>M</i>	<i>UC</i>	<i>In</i>
59.	Indian robin	<i>Saxicoloides fulicatus (LC)</i>	<i>R</i>	<i>C</i>	<i>In</i>
Family Motacillidae					
60.	Paddy field Pipit	<i>Anthus rufulus (LC)</i>	<i>R</i>	<i>C</i>	<i>In</i>
61.	Citrine wagtail	<i>Motacilla citreola (LC)</i>	<i>M</i>	<i>FC</i>	<i>In</i>
62.	White wagtail	<i>Motacilla alba (LC)</i>	<i>M</i>	<i>FC</i>	<i>In</i>
63.	Yellow Wagtail	<i>Motacilla flava (LC)</i>	<i>M</i>	<i>UC</i>	<i>In</i>
Family Nectariniidae					
64.	Purple sunbird	<i>Cinnyris asiaticus (LC)</i>	<i>R</i>	<i>FC</i>	<i>In</i>
Family Passeridae					
65.	Yellow throated sparrow	<i>Petronia xanthocollis (LC)</i>	<i>R</i>	<i>FC</i>	<i>In</i>
66.	House sparrow	<i>Passer domesticus (LC)</i>	<i>R</i>	<i>C</i>	<i>In</i>
Family Scolopacidae					
67.	Common sandpiper	<i>Actitis hypoleucos (LC)</i>	<i>M</i>	<i>UC</i>	<i>In</i>
Family Oriolidae					
68.	Black hooded oriole	<i>Oriols xanthornus (LC)</i>	<i>M</i>	<i>FC</i>	<i>In, F</i>
Family Phasianidae					
69.	Grey francolin	<i>Francolinus pondicerianus (LC)</i>	<i>R</i>	<i>C</i>	<i>O</i>
70.	Red jungle fowl	<i>Gallus gallus (LC)</i>	<i>R</i>	<i>UC</i>	<i>O</i>

70.	Red jungle fowl	<i>Gallus gallus</i> (LC)	R	UC	O
71.	Indian peafowl	<i>Pavo cristatus</i> (LC)	R	C	O
72.	Common quail	<i>Coturnix coturnix</i> (LC)	M	UC	In, F
Family Gruidae					
73.	Sarus crane	<i>Grus antigone</i> (VU)	R	C	O
Family Rallidae					
74.	White breasted waterhen	<i>Amaurornis phoenicurus</i> (LC)	R	C	O
75.	Water cock	<i>Gallicrex cinerea</i> (LC)	M	FC	O
76.	Common moorhen	<i>Gallinula chloropus</i> (LC)	R	C	O
77.	Purple moorhen	<i>Porphyrio porphyrio</i> (NT)	R	R*	O
Family Jacanidae					
78.	Bronze winged jacana	<i>Metopidius indicus</i> (LC)	R	C	O
79.	Pheasant tailed jacana	<i>Hdrophasianus chirurgus</i> (LC)	R	FC	O
Family Sturnidae					
80.	Common myna	<i>Acridotheres tristis</i> (LC)	R	C	O
81.	Jungle myna	<i>Acridotheres fuscus</i> (LC)	R	C	O
82.	Bank myna	<i>Acridotheres ginginianus</i> (LC)	R	C	O
83.	Asian pied starling	<i>Sturnus contra</i> (LC)	R	FC	O
Family Corvidae					
84.	Indian treepie	<i>Dendrocitta vagabunda</i> (LC)	R	C	O
85.	House crow	<i>Corvus splendens</i> (LC)	R	C	O
86.	Common raven	<i>Corvus corax</i> (LC)	R	UC	O
Family Dicruridae					
87.	Black drongo	<i>Dicrurus macrocercus</i> (LC)	R	C	O
Family Recurvirostridae					
88.	Black winged stilt	<i>Himantopus himantopus</i> (LC)	R	C	In
Family Columbidae					
89.	Blue rock pigeon	<i>Columba livia</i> (LC)	R	C	G
90.	Eurasian collared dove	<i>Streptopelia decaocto</i> (LC)	R	C	G
91.	Red collared dove	<i>Streptopelia tranquebarica</i> (LC)	R	C	G

92.	Spotted dove	<i>Streptopelia chinensis</i> (LC)	R	C	G
93.	Laughing dove	<i>Streptopelia senegalensis</i> (LC)	R	C	G
Family Estrildidae					
94.	Indian silverbill	<i>Lonchura malabarica</i> (LC)	R	FC	G
Family Psittaculidae					
95.	Rose ringed parakeet	<i>Psittacula krameri</i> (LC)	R	C	F
96.	Plum headed parakeet	<i>Psittacula cyanocephala</i> (LC)	R	FC	F
97.	Alexandrine parakeet	<i>Psittacula eupatria</i> (NT)	R	R*	F
Family Bucerotidae					
98.	Indian grey hornbill	<i>Ocyrceros birostris</i> (LC)	R	FC	F
Family Megalaimidae					
99.	Brown headed barbet	<i>Megalaima zeylanica</i> (LC)	R	FC	F
Family Hirundinidae					
100.	Red rumped swallow	<i>Cecropis daurica</i> (LC)	R	FC	In
101.	Wire tailed swallow	<i>Hirundo smithii</i> (LC)	R	C	In
Family Laniidae					
102.	Rufous backed shrike	<i>Lanius schach</i> (LC)	R	FC	In
Family Ploceidae					
103.	Baya weaver	<i>Ploceus philippinus</i> (LC)	R	C	In
Family Emberizidae					
104.	Crested bunting	<i>Melophus lathami</i> (LC)	M	FC	In

Status

R- Resident
M- Migratory
RM- Resident migratory

Abundance

C- Common
F- Fairly common
UC- Uncommon
R*- Rare

Feeding Habits

Cv- Carnivorous
I- Insectivorous
O- Omnivorous
F- Fruigivorous
G- Granivorous

Conservation status

LC- Least concern
NT- Near threatened
VU- Vulnerable
EN- Endangered
CE- Critically Endangered

Sternidae, Apodidae, Caprimulgidae, Upupidae, Cisticolidae, Nectariniidae, Scolopacodae, Oriolidae, Gruidae, Dicruridae, Recurvirostridae, Estrildidae, Bucerotidae, Megalaimidae, Laniidae, Ploceidae and Emberizidae.

Out of 104 bird species, 50 bird species were common followed by 24 were fairly common, 22 were uncommon and 8 were rare in the study area. Of 104 bird species 36 were insectivores followed by 27 carnivorous, 22 omnivores, 6 Granivore, 5 Fruigivore, 6 carnivorous, insectivorous and 2 were insectivorous and fruigivore. Maximum 80 bird species were

resident followed by 21 migratory and 3 were resident migratory in the study area. Of 104, 94 birds species was received least concern conservation status in IUCN red list category followed by 6 were near threatened, 2 were vulnerable, 2 were endangered and 1 was critical endangered.

DISCUSSION

There were 104 species of birds recorded from the different habitats in different period in Social Forestry Division, Bareilly, Uttar Pradesh. The area has the suitable land use pattern support

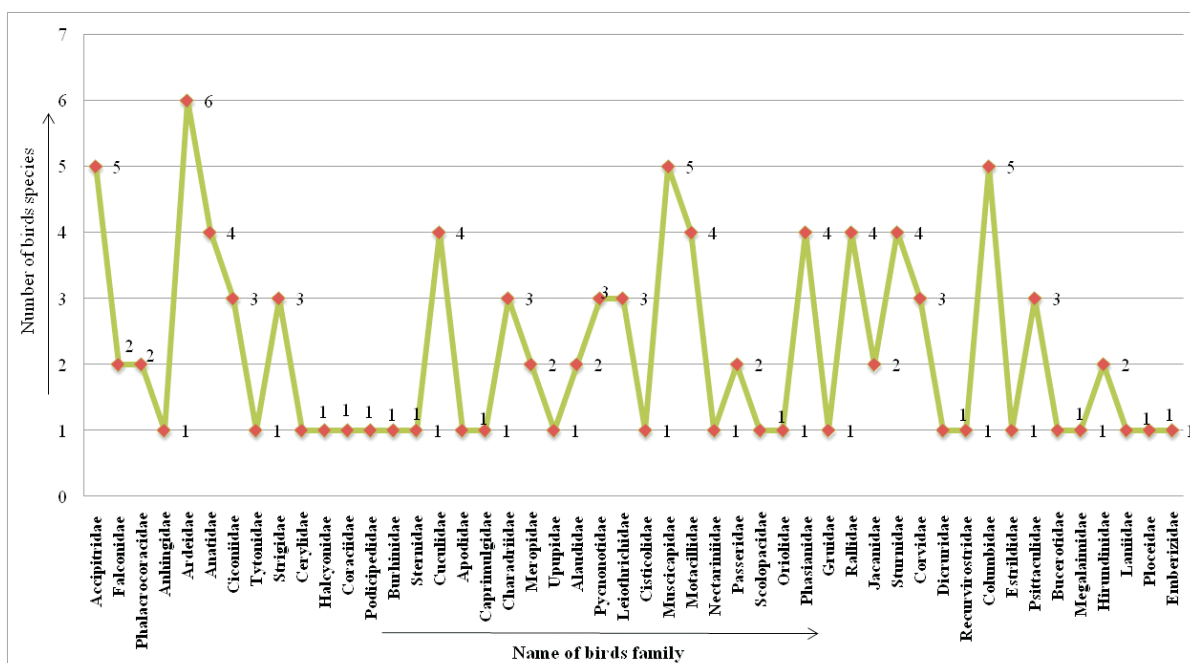


Figure 1: Avifunal diversity in Social Forestry Division in Bareilly, Uttar Pradesh

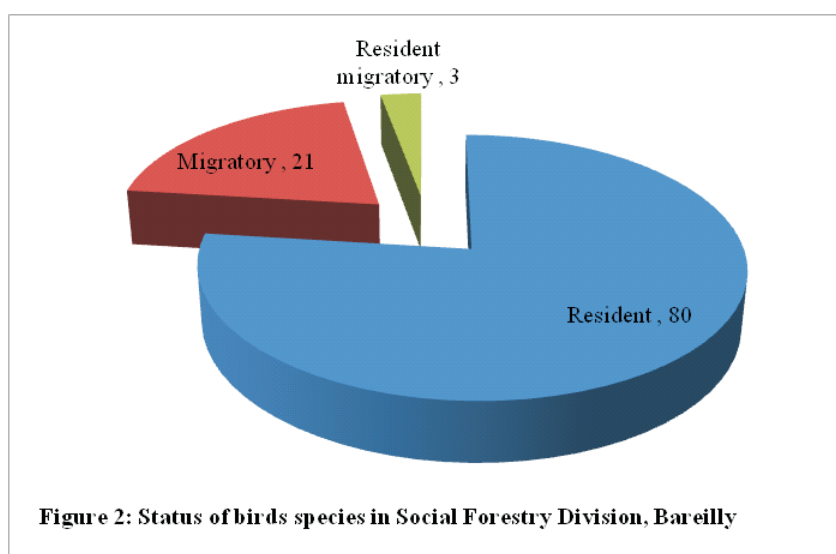


Figure 2: Status of birds species in Social Forestry Division, Bareilly

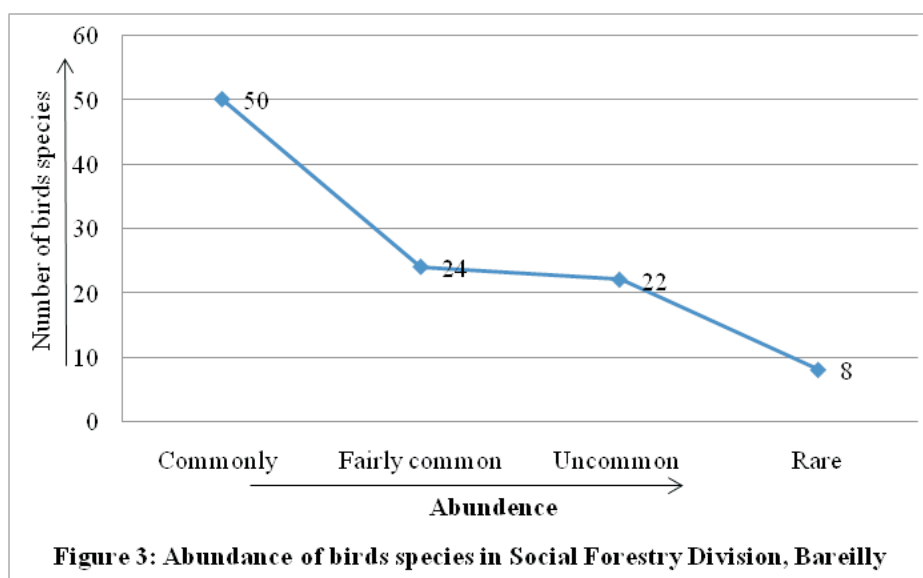
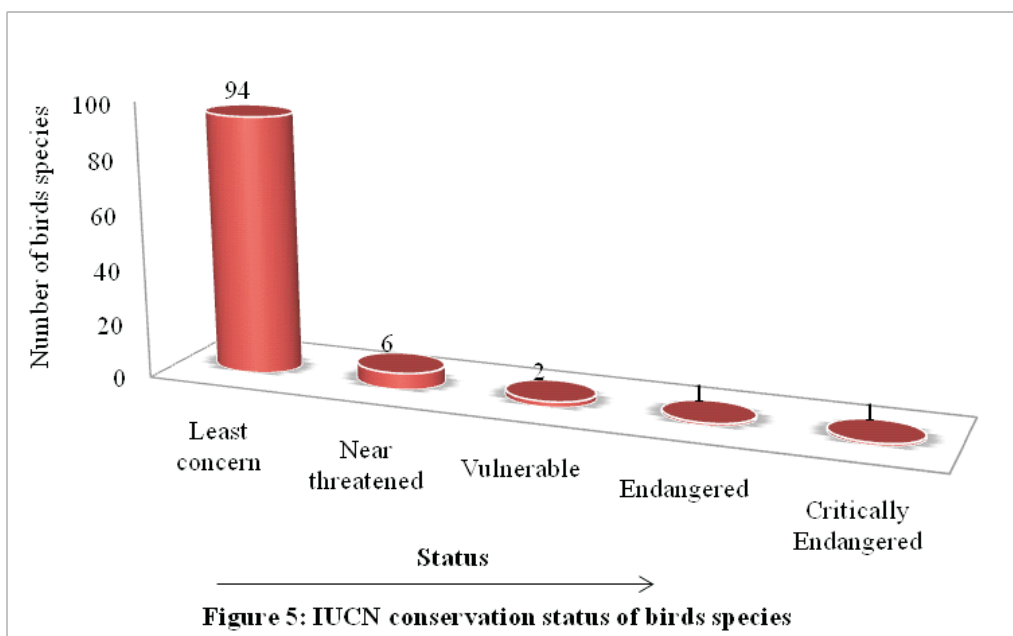
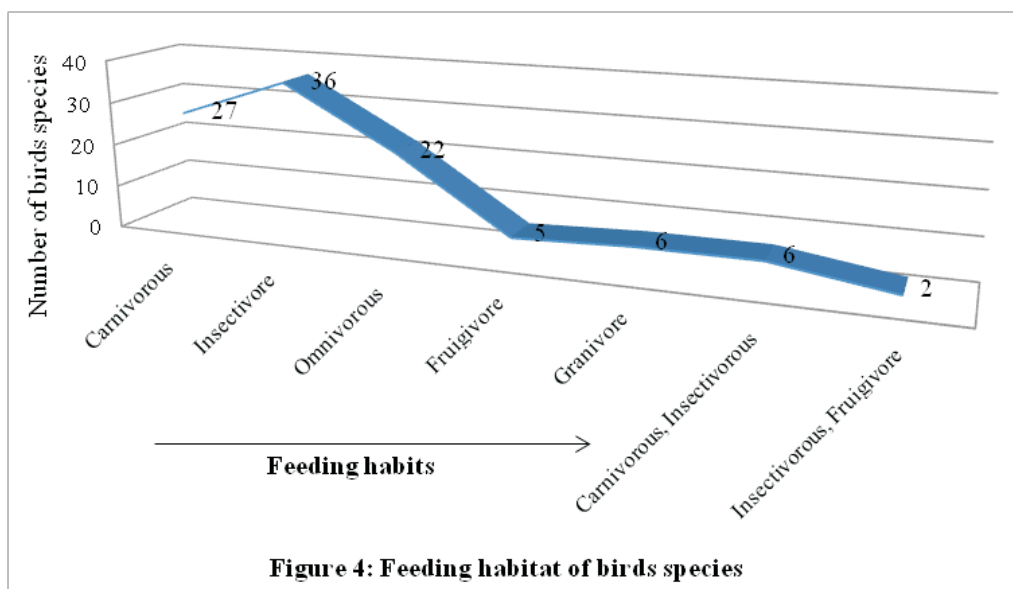


Figure 3: Abundance of birds species in Social Forestry Division, Bareilly



a : Asian open billed stork (*Anastomus oscitans*)



b : Pheasant tailed jacana (*Hidrophasianus chirurgus*)



c : A flock of little cormorant



d : A flock of lesser whistling duck



e : Common myna (*Acridotheres tristis*)



f : Indian Thick-knee (*Burhinus indicus*)

Plate 1a.: Avifunal diversity in Social Forestry Division Bareilly



g : Indian grey hornbill (*Ocyrceros birostris*)



h : Pied crested cuckoo (*Clamator jacobinus*)



i : Wire tailed swallow (*Hirundo smithii*)



j : Large grey babbler (*Turdoies malcolmi*)



k : Indian robin (*Saxicoloides fulicatus*)



l : Red whiskered bulbul (*Pycnonotus jocosus*)

Plate 1b.: Avifunal diversity in Social Forestry Division Bareilly

the bird's diversity with the availability of food, places for nesting and breeding. The number of birds diversity influence with the season. These results were in agreement with 114 species of birds belonging to 30 families and 12 orders were sighted on the Central zone of Taleigao Plateau, the seat of Goa University Campus^[7]. Similarly, 64 species of wetland birds belonging to 10 orders and 17 families were seen from the Raipur village pond in Karnal district^[8]. In Faridpur Tehsil under Bareilly District of Uttar Pradesh, total of 39 families and 75 bird species were recorded^[9].

CONCLUSION

The present study showed that the area has the good bird diversity for the healthiness of ecosystem. There is need of more studies to conservation of birds and their natural habitat of this particular area. Natural water resources and forests should be conserving to maintain the wealth of ecosystem. Awareness programs should be conducted to raise awareness among the villagers. The hunting of birds and egg stealing were also reported in some places for meat. There is urgent need to implement of law to stop these practices.

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