DIVERSITY AND CONSERVATION STATUS OF COMMON BIRDS OF ARMY AREA (AMBALA CANTT)

PROJECT REPORT

SUBMITTED TO

DEPARTMENT OF ENVIRONMENTAL STUDIES

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CERTIFICATE

Certified that the project entitled, **"Diversity And Conservation Status of Common Birds of Army Area Ambala Cantt** is an original piece of work carried out by **Mr. Tarun Kumar** from B.Sc. Medical First Year in the Department of Environmental Studies, SD College Ambala Cantt.

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ACKNOWLEDGEMENT

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B.Sc Medical (Ist year)

STUDY OF COMMON BIRDS

What has two wings, two legs, a beak or bill, and feathers? Of course, the answer is a bird. There are nearly 10,000 different kinds of birds, and they come in all sizes. The smallest is the hummingbird and the largest is the ostrich.

BIRDS CAN BE GROUPED IN SEVERAL DIFFERENT WAYS:

PLACES THEY LIVE:
Land birds
Water birds
Arctic birds
Tropical birds

WHAT THEY EAT:
Insects
Fruits and Seeds
Meat and Fish

SHAPE OF THEIR:
Feet
Beaks
Wings

ALL BIRDS HAVE THE FOLLOWING CHARACTERISTICS IN COMMON WITH EACH OTHER:

- Birds have feathers, which help them in many ways.
- Birds have two legs and two wings, though a few birds do not fly.
- All birds have a beak or bill, which also help them in different ways.
- They lay eggs, when after a certain amount of time the young hatch.
- All birds are warm-blooded, and have backbones, just like mammals.

There are many interesting facts about the different birds found all over the world. The birds that do not fly include the ostrich, emu, and penguin. Many birds migrates or fly south to escape cold winters. Birds use their feathers to help them fly: protect themselves from different types of weather; to swim, dive, and float; keeping clean; and much more.

Most of a bird's body is made of feathers and hollow bones. They do not weigh very much, which help them fly using their wings. In addition, they also have very strong muscles which allow them to fly for long period of time.

Finally, birds fly differently depending on their wing type. Some birds can soar through the sky, others must always flap their wings, some wings are helpful for diving, and a few birds can fly staying in one place.

CHARACTERISTICS OF BIRDS

Modern birds all have certain characteristics in common. A bird is an endothermic vertebrate that has feathers and a four-chambered heart. A bird also lays eggs.

ADAPTATIONS FOR FLIGHT:

The bodies of most birds are adapted for flight. Many of a bird's bones are nearly hollow, making the bird lightweight. In addition, the bones of a bird's forelimbs form wings. Flying birds have large chest muscles that move the wings. Finally, feathers help birds fly. Birds are the only animals with feather.

Feathers are not all the same. If you have eve picked up a feather, it was probably a contour feather. A contour feather is one of the large feathers that give shape to a bird's body. The long contour feathers that extend beyond the body on the wings and tail are called flight feathers. When a bird flies, these feathers help it balance and steer. A contour feather consists of a central shaft and many projection, called barbs. Hooks hold the barbs together. When birds fly, their barbs may pull apart, "unzipping" their feathers. Birds often pull the feathers through their bills to "zip" the barbs back together again.

In addition to contour feathers, birds have short, fluffy down feathers that are specializes to trap heat and keep the bird warm. Down feathers are found right next to the bird's skin, at the base of the contour feathers. Down feathers are soft and flexible, unlike contour feathers.

OBTAINING OXYGEN:

Flying uses a lot of energy. Therefore, cells must receive plenty of oxygen to release the energy contained in food. Birds have a high efficient way to get oxygen into their bodies and to their cells. Birds have a system of air sacs in their bodies. This system connects to the lungs. The air sacs enable birds to obtain more oxygen from each breath of air than other animals can.

The circulatory systems of birds are also efficient at getting oxygen to the cells. Birds have hearts with four chambers – two atria and two ventricles. The right side of a bird's heart pumps oxygen-poor blood to the lungs, where oxygen is picked up. Oxygen-rich blood returns to the left side of the heart, which pumps it to the cells.

The advantage of a four-chambered heart over a three-chambered heart is that oxygen-rich blood does not mix with oxygen-poor blood. Therefore, blood carried to the cells of the body has plenty of oxygen.

AIMS AND OBJECTIVES

- To understand and acknowledge about the avian diversity found in the Ambala Cantt, Haryana.
- To ensure the conservation status of the bird species found in the about said area.
- The project is also used for the conservation of the avian fauna as well as creating awareness among the people about the avian diversity.

METHODOLOGY:

- Random method was used to record the avian diversity.
- For identification of the bird species, field guide were used following Salim Ali, 2002 and Arlott, 2015.
- Nomenclature and conservation status were assigned using IUCN Red List.

OBSERVATION AND RESULTS:

During the present study total 15 visits were conducted in and around Ambala Cantt, Haryana from 20th December, 2021 to 31th January, 2022. All the visits were done during the morning time from 11:00 a.m. to 4:00 p.m. with some variations. Maximum birds species were reported 9th, 13th and 15th on 20th January, 2022 to 30th January 2022 and least number of species were reported in 3rd visit on 23rd December 2021.

A checklist was prepared of the observed avian fauna which include Common Name, Scientific Name, Order, Family, IUCN status and Global Population Trend. In the visits, total 24 bird species were recorded that are belonging to 19 families which are Passeridae, Pycnonotidae, Dicruridae, Muscicapidae, Sturnidae, Corvidae, Motacillidae, Hirundinidae, Columbidae, Ardeidae, Cuculidae, Recurvirostridae, Charadriidae, Accipitridae, Phasianidae, Psittaculidae, Rallidae, Phalacrocoracidae, Scolopacidae and these belongs to 12 different orders which are Saurischia, Passeriformes, Columbiformes, Pelecaniformes, Cuculiformes, Charadriiformes, Accipitriformes, Galliformes, Psittaciformes, Suliformes, Charadriiformes, Gruiformes. The most abundant species found in every visit includes Little Cormorant, Common Myna, Rock Dove, Common Coot, Red-wattled Lapwing, Black-winged Stilt, House Crow etc. the rare species found were Bar-headed goose, Red crested Pochard, Ferrunginoun Pochard, Great crested Grebe, Lesser Whitethroat, Black-Necked Grebe, Greater White-fronted Goose, River Tern, Black-headed Gull, Garganey, Pied Avocet etc. Mostly, common resident species of Haryana and winter migratory species were observed.

In all the bird species found, 93.36% species belongs to the least concern category of IUCN, 2.82% were Near Threatened and 2.82% were Vulnerable. Among the 12 orders, maximum number of birds recorded belongs to order Passeriformes and least number of species were recorded in orders such as Bucerotiformes, Gruifores, Strigiformes, and Piciformes, Cuculiform and Caprimulgiformes. The most abundant families of bird species were recorded are Anatidae, Muscicapidae and Columbidae.

RARE SIGHTINGS:

In this present study of avifaunal diversity of Ambala Cantt region, rare or first sighting of different species at this place were recorded. It includes the following birds species-

Greater White-fronted Goose, Black-necked Grebe, Black-headed Gull.

Other rare bird species found are – Lesser Whiitethort, Pied Avocet, River Tern, Bar headed Goose, Red-crested Pochard, Ferruginous Duck, Garganey, Great Crested Grebe etc.

TABLE 1. DATE AND TIMING OF FIELD VISITS FOR ASSESSMENT OF AVIAN BIODIVERSITY

Field Visit	Date	Phase of the day	Visit time	No. of bird species reported
1	20/12/2021	Morning	11:00A.M.-4:00P.M.	09
2	22/12/2021	Morning	11:00A.M.-4:00P.M.	11
3	23/12/2021	Morning	11:00A.M.-4:00P.M.	06
4	29/12/2021	Morning	11:00A.M.-4:00P.M.	08
5	30/12/2021	Morning	11:00A.M.-4:00P.M.	14
6	03/01/2022	Morning	11:00A.M.-4:00P.M.	15
7	05/01/2022	Morning	11:00A.M.-4:00P.M.	18
8	09/01/2022	Morning	11:00A.M.-4:00P.M.	24
9	13/01/2022	Morning	11:00A.M.-4:00P.M.	21
10	15/01/2022	Morning	11:00A.M.-4:00P.M.	22
11	20/01/2022	Morning	11:00A.M.-4:00P.M.	20
12	24/01/2022	Morning	11:00A.M.-4:00P.M.	16
13	28/01/2022	Morning	11:00A.M.-4:00P.M.	19
14	29/01/2022	Morning	11:00A.M.-4:00P.M.	12
15	31/01/2022	Morning	11:00A.M.-4:00P.M.	19

Table 2:-Checklist Of Avian Fauna in Ambala Cantt Of Haryana

Sr. No.	Common Name	Scientific Name	Family	Order
1.	House Sparrow	Passer domesticus	Passeridae	Saurischia
2.	Red-vented bulbul	Pycnonotus cafer	Pycnonotidae	Passeriformes
3.	Black Drongo	Dicrurus macrocercus	Dicruridae	Passeriformes
4.	Indian Robin	Saxicoloides fulicatus	Muscicapidae	Passeriformes
5.	Common Myna	Acridotheres tristis	Sturnidae	Passeriformes
6.	House Crow	Corvus splendens	Corvidae	Passeriformes
7.	White Wagtail	Motacilla alba	Motacillidae	Passeriformes
8.	Wire-tailed Swallow	Hirundo smithi	Hirundinidae	Passeriformes
9.	Rock Dove	Columba livia	Columbidae	Columbiformes
10.	Laughing Dove	Spilopelia senegalensis	Columbidae	Columbiformes
11.	Eurasion Collar Dove	Streptopelia decaocto	Columbidae	Columbiformes
12.	Cattle Egret	Bubulcus ibis	Ardeidae	Pelecaniformes
13.	Crow Pheasant	Centropus sinensis	Cuculidae	Cuculiformes
14.	Asian Koel	Eudynamys scolopacea	Cuculidae	Cuculiformes
15.	Black-winged stilt	Himantopus himantopus	Recurvirostridae	Charadriiformes
16.	Red-wattled Lapwing	Vanellus indicus	Charadriidae	Charadriiformes
17.	Black Kite	Milvus migrans	Accipitridae	Accipitriformes
18.	Indian Peafowl	Pavo cristatus	Phasianidae	Galliformes
19.	Rose-ringed Parakeet	Psittacula krameri	Psittaculidae	Psittaciformes
20.	Common Moorhen	Gallinula chloropus	Rallidae	Gruiformes
21.	Little Cormorant	Microcarbo nigar	Phalacrocoracidae	Suliformes
22.	Green Sandpiper	Tringa ochropus	Scolopacidae	Charadriiformes
23.	White-breasted Waterhen	Amaurornis phoenicurus	Rallidae	Gruiformes
24.	Common Coot	Fulica atra	Rallidae	Gruiformes

Table 3. Checklist of Avian Fauna recorded in Army Area, Ambala Cantt Haryana.

Sr. No.	Common Name	IUCN Conservation Status	IUCN GPT Status
1.	House Sparrow	LC	↓
2.	Red-vented bulbul	LC	↑
3.	Black Drongo	LC	?
4.	Indian Robin	LC	→
5.	Common Myna	LC	↑
6.	House Crow	LC	→
7.	White Wagtail	LC	→
8.	Wire-tailed Swallow	LC	↑
9.	Rock Dove	LC	↓
10.	Laughing Dove	LC	→
11.	Eurasion Collar Dove	LC	↑
12.	Cattle Egret	LC	↑
13.	Crow Pheasant	LC	→
14.	Asian Koel	LC	→
15.	Black-winged stilt	LC	↑
16.	Red-wattled Lapwing	LC	
17.	Black Kite	LC	→
18.	Indian Peafowl	LC	→
19.	Rose-ringed Parakeet	LC	↑
20.	Common Moorhen	LC	→
21.	Little Cormorant	LC	
22.	Green Sandpiper	LC	
23.	White-breasted Waterhen	LC	
24.	Common Coot	LC	↑

THREATS TO BIRD LIFE

- Habitat Loss and Degradation- Habitat, the physical environments inhabited by living organisms, are fundamentally important to species survival. Birds habitats provide cover from predators; breeding, wintering, and migration stopover sites; and places to forage and roost. There is 89% of loss in bird diversity due to loss of their habitat. He habitat destruction is due to human settlements, construction projects, deforestation and fragmentation etc.
- Climate Change- Climate change alters abundance, distribution, behavior and genetic composition of Birds. It affects the natural behavior of birds.
- Pollution- Birds also face threats due to pollution like humans. Due to exposure to some pollutants like DDT weaken their egg shell and thus reduces their population. An exposure to polycyclic aromatic hydrocarbons emitted by vehicles causes reduced egg production and hatching of eggs in birds.
- Radiation- the radiations emitted by mobile towers damaged bird's eggs and embryos. Therefore a radiation also proves to be lethal one.

REFERENCES:

Birds are very fascinating creatures of nature and are important part of biodiversity. The Ambala Cantt, Haryana is highly rich is flora and fauna. In this study of present area, 71 species of avifauna are observed, out of which two are vulnerable, two are near threatened and 67 other species are least concern as per IUCN Red List. Rich flora diversity aids to rich fauna diversity. Most of the species were from the order Passeriformes.

Number of stress factors like human activities, habitat destruction, and continuous use of pesticides or pesticides treated seeds in the agricultural fields nearby study areas by farmers to prevent damage from pests, reduction in water resources, environmental pollution may be responsible for the reduction of species.