



Study of the Faunal Diversity of Isabella Thoburn College, Lucknow, Uttar Pradesh, India

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ABSTRACT

*Faunal diversity refers to the diversity of animals that are native to or indigenous to that particular place and that live there. It includes odonates (predators), coleopteran, hymenoptera (pollinators), herpetofauna, avifauna, fish, mammals, and butterflies. Animal diversity assessment describes their food, habitat, ecology, and their population. To evaluate the status of the faunal diversity of **Isabella Thoburn College, Lucknow** a survey was conducted. The goal of the study was to identify and catalogue the many families, genera, and species of animals that can be found in the area, as well as their distribution and habitats. The study includes a total of 56 species, which were detected during a period of 4 months, from January to April 2023. These species belonged to 4 phyla. The Phylum Arthropoda has the highest species abundance, with a total of 30 species accounting for 54% of all species. According to the observational study, the presence of green areas, variety of vegetation and water facilities made it a significant home for various animal species. The study emphasizes the value of preserving or expanding green spaces at educational institutions to support biodiversity conservation efforts and provide habitat for animal species.*

Keywords: Faunal diversity, Isabella Thoburn College, distribution and habitats, species abundance, green spaces, educational institutions

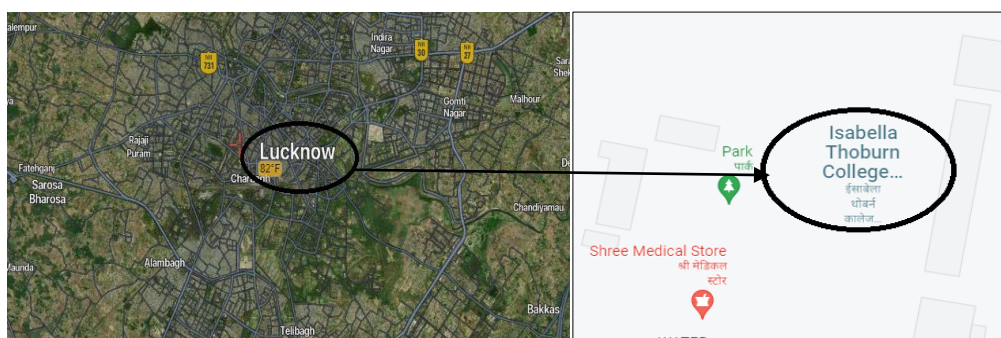
INTRODUCTION

Biodiversity is the variety and variability of living organisms on the earth. It includes genetic diversity within and between species and of ecosystems. Thus, in essence, biodiversity is in part a function of climate that represents all life. It brings enormous benefits to mankind from direct harvesting of plants and animals for food, medicine, fuel, construction materials and other uses to aesthetic, cultural, recreational and research values. Even though we have come a long way from the crude caves in deep forests to skyscrapers in concrete jungles, we can't really boast of being a step ahead in competing with nature. We have made some serious alterations in our natural surroundings so as to suit our basic requirements and some of these alterations have taken revenge on us in a drastic manner. We have had a lot of lessons to learn from landslides and flash floods. But we seem to be more comfortable turning a blind eye towards them. Those who ask what difference the extinction of a species would or two make, don't quite understand

the importance of biodiversity in an ecosystem. All plant and animal species, including humans, are interdependent, and the extinction of any one of them might have a negative impact on the other species that are either directly or indirectly dependent on it. For instance, the extinction of the apex predator of a particular biome is bound to result in severe depletion of the vegetation cover here as the number of herbivores because to a lack of predators to control their growth, will rise. Microorganisms too contribute to biodiversity as they play a crucial role in smooth functioning of the ecosystem. For instance, a basic requirement for plant growth is nitrogen which is produced by the nitrogen fixing bacteria in the soil. If these bacterial species became extinct, the plants will have no nitrogen to grow, and this will result in the devastation of the agricultural sector. Thus, biological diversity is undoubtedly one of the most important components of the ecosystem. So, it is of utmost importance to conserve. Biodiversity and implements wildlife conservation measures to save our ecosystem. Biodiversity fundamentally is a multidimensional concept- a term that came into use only in 1985. The exploration of the biodiversity requires in depth studies on one hand and skilful evaluation vis-a-vis interpretation of the gathered information on the other hand. The term "fauna" describes the creatures that were present in a certain area, era, or environment. In Roman mythology, "Fauna" represented the sister of faunus, the benevolent spirit of the forest and animals. The fauna of any given region is usually explained in biological terms to include the genus and species of animal life, their preferred growing or breeding habits and their connection to one another in the environment as well. The documentation of local fauna means to make an organized collection or record by describing the morphology and number of a particular animal at a given area and particular time. The creatures that inhabit the area are called fauna. Animals that live there and are local or native to that place are referred to as having a diverse flora or fauna. Because of the shrinking habitats, the rise in the number of extinction species, and the government emphasis on animal conservation, studies of faunal diversity have recently gained significant relevance. Local fauna study is a study we use to describe the variety of life in a specific area of a country.

STUDY AREA

Ms. Isabella Thoburn founded the college on 18 April 1870 in a single room in Aminabad's city centre market. There were only six of them back then. By 1871, the school had grown and moved to LalBagh, the home of the last Nawab of Awadh's treasurer. This connection was terminated in 1894 in favour of a new one with Allahabad University. Lucknow University has now accepted the College's affiliation. Since the 1920s, it has built student hostels, lecture halls, laboratories, a library, a college chapel, and a large hall on the Chand Bagh campus. Bachelor of Arts (B.A.), Bachelor of Commerce (B.Com.), Bachelor of Science (B.Sc.), Bachelor of Education (B.Ed.), and Bachelor of Library and Information Science (B.LISc.) degrees are available from the College. It also provides nine postgraduate courses that lead to the Master of Arts (M.A.) and Master of Science (M.Sc.) degrees.



Map 1: Satellite Map of Isabella Thoburn College, Lucknow

MATERIALS AND METHODS

Line Transect method was used in a pre-defined area for the study. A line transect of 1-100 meter was prepared and the birds were monitored on both the sides of transect by close end transect up to 2 Km. without stopping. It works well for observable birds in open environments. Additionally, identification was accomplished with the aid of websites, books; photography by **Camera Canon EOS 100D (Super zoom lenses)**.

RESULT AND DISCUSSION

Observation Table

Checklist of the Faunal Diversity observed in Isabella Thoburn College, Lucknow

S.N.	Class	Family	Common Name	Zoological Name
1.	Clitellata	Glossiphoniidae	Leeches	<i>Hirudo medicinalis</i>
2.	Clitellata	Megascolecidae	Earthworm	<i>Pheretima posthuma</i>

S.N.	Class	Family	Common Name	Zoological Name
1.	Lepidoptera	Lycanidae	Plains cupid	<i>Chilades pandava</i>
2.	Lepidoptera	Nymphalidae	Plain tiger	<i>Danaus chrysippus</i>
3.	Lepidoptera		Common evening brown	<i>Melanitis leda</i>
4.	Lepidoptera		Common castor	<i>Ariadne merione</i>
5.	Lepidoptera		Common tiger	<i>Danaus genutia</i>
6.	Lepidoptera	Papilionidae	Lime butterfly	<i>Papilio demoleus</i>
7.	Lepidoptera		Common mormon	<i>Papilio polytes</i>
8.	Lepidoptera		Common grass yellow	<i>Eurema hecabe</i>
9.	Lepidoptera	Pieridae	Common emigrant	<i>Catopsilia promona</i>
10.	Lepidoptera		Common wanderer	<i>Pareronia valeria</i>

S.N.	Class	Family	Common Name	Zoological name
1.	Arachnida	Araenidae	Signature spider	<i>Argiope anasuja</i>
			Garden cross spider	<i>Argiope pulchella</i>
			Bordered orb weaver	<i>Neoscona adianta</i>
2.	Arachnida	Oxyopidae	Striped lynx spider	<i>Oxyopes javanus</i>
			Green lynx spider	<i>Peucetia viridans</i>
3.	Arachnida	Pholcidae	Tailed cellar spider	<i>Crossopriza lyoni</i>
			Long bodied cellar spider	<i>Pholcus phalangiodes</i>

Table 4: Checklist of Insects

S.N.	Common Name	Class	Family	Zoological Name
1.	Common green	Insecta	Calopterygidae	<i>Neurobasis</i>
2.	Common parasol	Insecta	Libellulidae	<i>Neurothemis fluctuans</i>
3.	Jewels	Insecta	Chlorocyphidae	<i>Rhinocypha bisignata</i>
4.	White tailed skimmer	Insecta	Libellulidae	<i>Libellula lydia</i>
5.	Flame skimmer	Insecta	Libellulidae	<i>Libellula saturate</i>
6.	Housefly	Insecta	Muscidae	<i>Musca domestica</i>
7.	Common house mosquito	Insecta	Culicidae	<i>Culex pipiens</i>
8.	Asian tiger mosquito	Insecta	Culicidae	<i>Aedes albopictus</i>
9.	Honeybee	Insecta	Apidae	<i>Apis indica</i>
10.	Termites	Insecta	Blattidae	<i>Coptotermes formosanus</i>
11.	Cockroach	Insecta	Blattidae	<i>Periplaneta americana</i>
12.	Grasshopper	Insecta	Arcrididae	<i>Omocestus viridulus</i>
13.	Beetle	Insecta	Belidae	<i>Weevil</i>

Table 5: Checklist of Phylum Mollusca

S.N.	Common Name	Class	Family	Zoological Name
1.	Snail	Gastropoda	Helicidae	<i>Helix pomatia molluscus</i>

Table 6: Checklist of Amphibia

S.N.	Common Name	Class	Family	Zoological Name
1.	Tree frog	Amphibia	Hylidae	<i>Hylabatus</i>
2.	Bull frog	Amphibia	Dicroglossidae	<i>Rana tigrina</i>
3.	Common frog	Amphibia	Bufoidea	<i>Duttaphrynus melanostictus</i>

Table 7: Checklist of Reptilia

S.N.	Common Name	Class	Family	Zoological Name
1.	House gecko	Reptilia	Gekkonidae	<i>Hemidactylus frenatus</i>
2.	Garden lizards	Reptilia	Agamidae	<i>Calotes versicolor</i>
3.	Wall lizard	Reptilia	Gekkonidae	<i>Hemidactylus frenatus</i>

Table 8: Checklist of Aves

S N.	Class	Family	Common name	Zoological Name
1.	Aves	Columbidae	Feral pigeon	<i>Columbia livia domestica</i>
2.	Aves	Columbidae	Spotted dove	<i>Spilopelia chinensis</i>
3.	Aves	Corvidae	House crow	<i>Corvus splendens</i>
4.	Aves	Leiothrichidae	Jungle babbler	<i>Turdodius striata</i>
5.	Aves	Muscicapidae	Brown rock chat	<i>Cercomela fusa</i>
6.	Aves	Pycnonoyusjocosus	Red-Whiskered bulbul	<i>Pycnonoyus jocosus</i>
7.	Aves	Muscicapidae	Oriental Magpie robin	<i>Copsychus saularis</i>
8.	Aves	Nectariniidae	Purple sunbird	<i>Cinnyris asiaticus</i>
9.	Aves	Sturnidae	Common myna	<i>Acridotheres tristis</i>

10.	Aves	Estrildidae	White Throated munia	<i>Euodice malabarica</i>
11.	Aves	Phasianidae	Indian Peafowl	<i>Pavo cristatus</i>

Table 9: Checklist of mammals

S.N.	Common Name	Class	Family	Zoological Name
1	Three Stripped palm squirrel	Mammal	Sciuridae	<i>Funambulus palmarum</i>
2.	Free ranging cat	Mammal	Felidae	<i>Felis domesticus</i>
3.	Free ranging dog	Mammal	Canidae	<i>Canis familiaris</i>
4.	House Mouse	Mammal	Muridae	<i>Mus musculus</i>
5.	Field Rat	Mammal	Muridae	<i>Bandicota bengalensis</i>

RESULT AND DISCUSSION

The data representing in above tables is the total identified species 56 of 4 phyla. In the phylum Annelida 2 species (3.5%) from 1 class i.e. Clitellata, is observed. In phylum Arthropoda 30 species (54%) from 3 classes are observed followed by 10 species from Lepidoptera 7 species from Arachnida and 13 species from class Insecta. In Phylum Mollusca 1 species (2%) from class Gastropoda is observed remaining all 23 species belongs to the phylum Chordate (41%). The 23 species of Chordates belong to the division Amphibia (3 species), Reptilia (4 species), Aves (11 species), and Mammals (5 species) respectively.

Table 10: Showing the fauna phylum wise.

S.N.	Phylum	No. of Species	%
1.	Annelida	2	3.5%
2.	Arthropoda	30	54%
3.	Mollusca	1	2%
4.	Chordata	23	41%

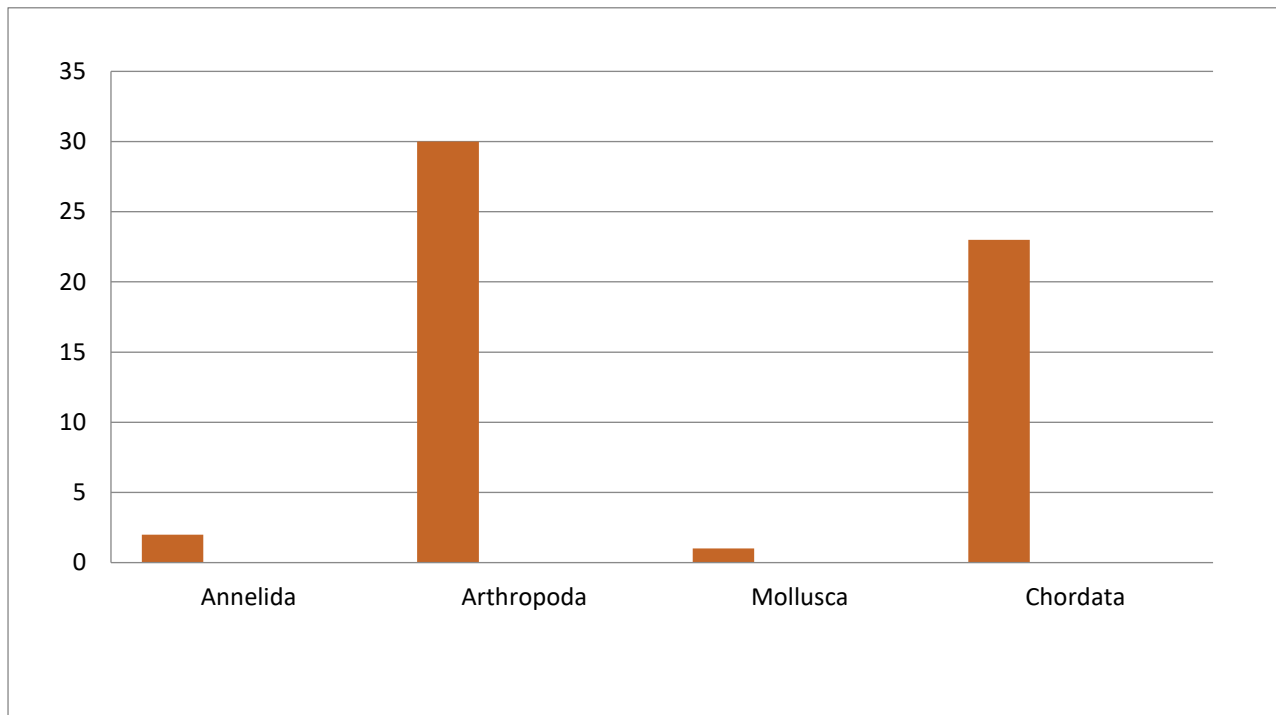


Figure 1: Bar Chart showing No. of species (Phylum wise)

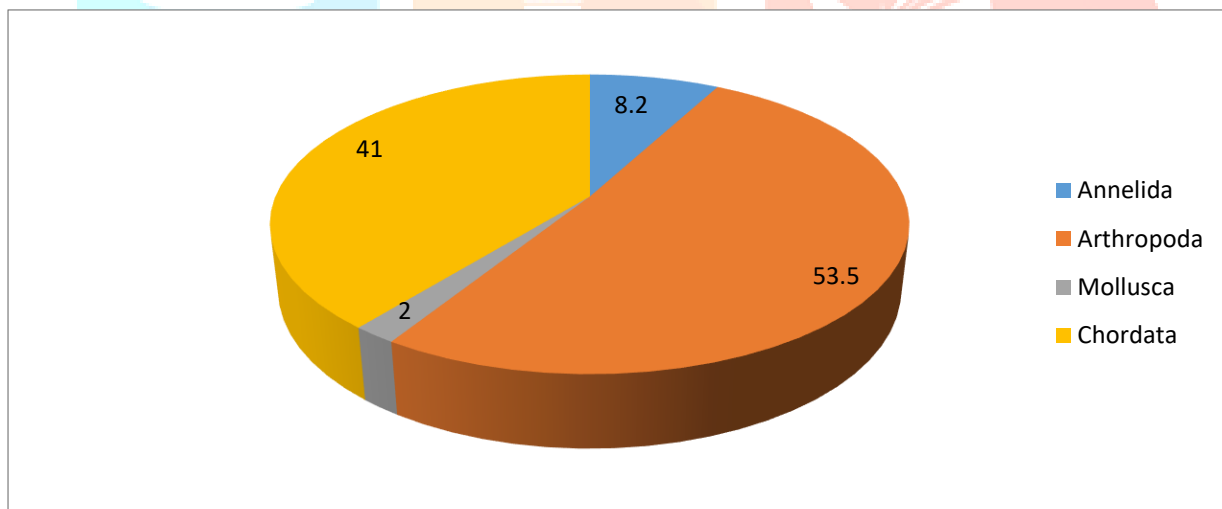
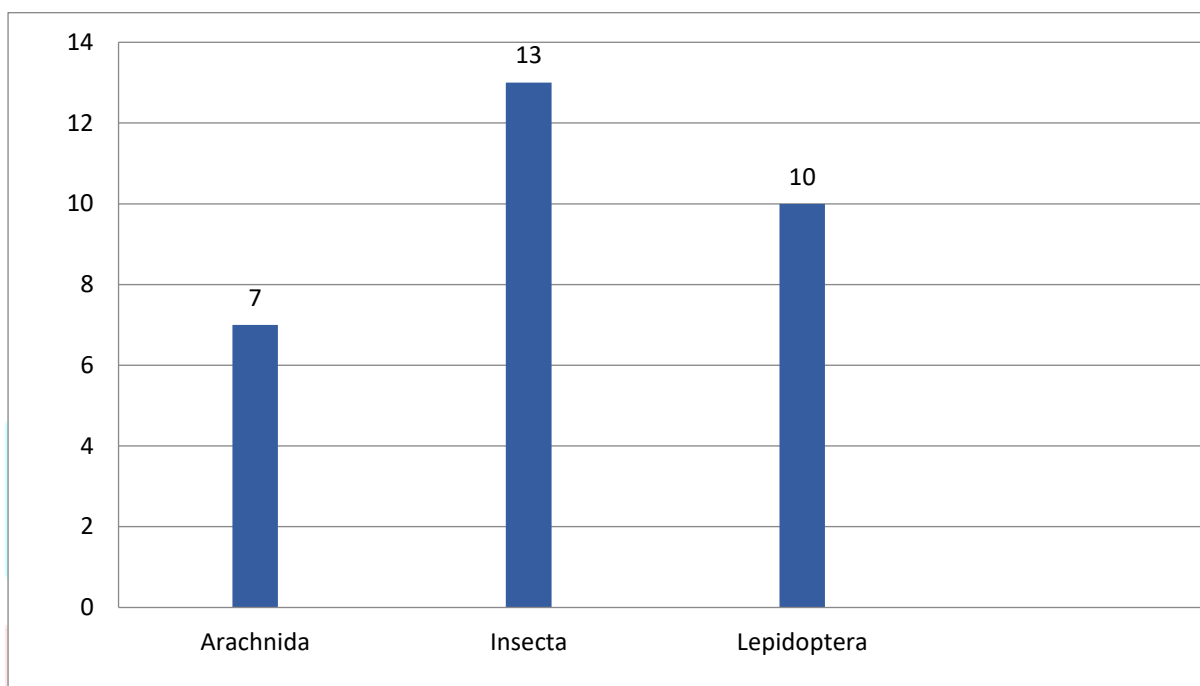


Figure 2: Pie Chart showing % of species (Phylum wise)

The above data is showing that the no. of species identified was 56 and the dominant group was Arthropoda which is total of 30 species in 54 % followed by Chordata total of species 23 in 41%. Annelida are 2 in number (3.5%) and in Mollusca only 1 species (2%) was identified respectively.

Table 11: Showing Arthropods (Class wise).

S.N.	Class	No. of species
1.	Arachnida	7
2.	Insecta	13
3.	Lepidoptera	10

**Figure 3: Bar Chart showing the No. of Arthropoda (Class wise)**

The above **Tables and Charts** explains that the Arthropods are dominant among the surveyed fauna with total number of 30 species. Among the arthropods the dominant class is Insecta with a number of 13 species followed by Lepidoptera with a number of 10 species and Arachnida 7 respectively.

CONCLUSION

In this study, the Faunal Diversity found at the Isabella Thoburn College in Lucknow, Uttar Pradesh, is highlighted. The study includes a total of 56 species, which were detected during a period of 4 months, from January to April 2023. These species belonged to 4 phyla. The Phylum Arthropoda has the highest species abundance, with a total of 30 species accounting for 54% of all species. Thus, efforts can be made to raise and conserve fauna and employ their control agents in a variety of ways. This study makes recommendations for habitat preservation, pollution control, and monitoring human activities to keep the environment suitable for spiders and other flora and animals to thrive naturally.

ACKNOWLEDGEMENT

Authors express their gratitude to the Head and Professor, Department of Zoology, Isabella Thoburn College, Lucknow, **Dr. Chitra Singh** for the timely guidance and support in the dissertation research work. And the never ending thanks to the I.T. College Staff for their continuous help and support.

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