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A SURVEY ON FAUNAL DIVERSITY IN S.R.R. GOVT. ARTS & SCIENCE COLLEGE, KARIMNAGAR

¹Dr. T. Mahesh, ²Dr. K. Surender Reddy, ³Ch.Thirupathi, ⁴P. Raju and ⁵B. Suresh Kumar

^{1,2,3,4&5}Department of Zoology

S.R.R. Govt. Arts & Science College

Karimnagar, Andhra Pradesh, India

Abstract

Fauna is the animals living in the area. Faunal diversity is the diversity of animals living in that particular area and they are indigenous or native to that particular area. A survey was conducted during September 2020 to December 2021 to assess the status of faunal diversity of S.R.R. Govt. Arts & Science College, Karimnagar. A total 88 number of species were observed. Among the 88 species platyhelminthis is only one the hammer headed worm (Bipalium) is identified near the watershed in the college in September. The Annelids are two, Arthropods are 38, two molluscans and 45 are the chordates. Of all the species the chordates are dominant followed by arthropods. Among the chordates the birds are identified as the dominating community. The parrots are much in number in the birds and they are living in all the cracks and burrows of the college building. On the basis of nature of the organisms they are categorized as temporary migrants, nocturnal animals, diurnal animals and rare animals. The study revealed variety of butterflies and dragon flies and insects, which elaborated the need of more research. In our observation Asian palm civet commonly called as Punugu pilli is found, it is one of the rare animals of this region and is reared at the sanctuary of Thirumala thirupathi devasthanam. It is noticed that the increasing pollution and urbanisation is becoming a threat to the fauna. To increase and protect the fauna few parameters followed. Development of plants in the college in the Telanganaku Harithaharam, establishment of Miyawaki forest and protection from the outside animals into the college making the campus rich in faunal diversity. Still, it needs to increase the protective measures.

Keywords: Fauna, Bio Diversity, Line Transact Method, Indigenous.

Introduction

Fauna is the animals living in the area. Faunal diversity in general refers to the animals living in that area which are indigenous or native to that particular area. Now a days the faunal diversity studies has gained much importance because the decreasing habitats, the rise of number of extinction species and focus of governments to conserve the animal species. If the awareness not created among the younger generations, it will become a myth about lived species. So, the current project has undertaken to make a list of animals living in our college campus, S.R.R. Govt. Arts & Science College Karimnagar.

India is rich for its bio diversity and recognised as one of the seventeen mega diversity countries of the world with four biodiversity hot spots -Western Ghats / Sri Lanka, Indo Burma, Himalayas and Sunda land. There are about 1.7 million living species described from all over the world and another 15 million species are waiting to be discovered. In India till date, 100,693 species of animals have been described, but a large number of species are expected to be discovered especially from the lower invertebrate groups occurring in various ecosystems. Also, the status of the higher group of animals especially those in the Schedules need to be studied before their habitats get disappeared. Scientists in ZSI are engaged in exploring, naming, describing, classifying and documenting animals from all over India. But a lot more needs to be done to understand and investigate the faunal diversity of India in the light of the objectives of the Convention of Biological Diversity for scientific use and equitable sharing of the benefits of animal resources of the country.

The Telangana state is more vital for the biodiversity because of its geographical location, climatic conditions and the availability of habitats for various animals. Telangana, located strategically in the central region of the Indian sub-continent, has representatives of Indian plant and animal life. The vegetation found in the state is largely of dry deciduous type with a mixture of teak, and species of the genera Terminalia, Pterocarpus, Anogeissus etc. The varied habitat harbors a diversity of fauna which includes tiger, panther, wolf, wild dog, hyena, sloth bear, Gaur, Black Buck, Chinkara, Chowsingha, Nilgai, Cheetal, Sambar and a number of birds and reptiles in the forest.

The first-ever report on faunal diversity of Telangana published by the Zoological Survey of India (ZSI) titled 'Current status of Faunal Diversity of Telangana revealing that the State is home to 2,450 species of fauna, of which 1,744 are invertebrates and 706 are vertebrates. These include 380 species of birds, 169 species of fishes, 74 of mammals, 66 of reptiles and 17 species of amphibians. However, more than half of the 2,450 species - around 52 per cent, belong to the phylum Arthropoda which includes Arachnida (spiders and scorpions), Crustacea (water fleas, freshwater shrimp and crabs) and Insecta. The State is also home to 64 species



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of molluscs and 9 species of centipedes. However, this is not the final account of total biodiversity of Telangana as most of the districts and some faunal groups remain unexplored.

There are as many as 82 species of fauna endemic to Telangana, meaning they are not found anywhere else. The State is also home to 93 species of threatened fauna that have been classified as Critically Endangered, Endangered or Vulnerable by the IUCN.

Review of literature:

The various scientists across the world and India have surveyed and reported the faunal diversity. Even many studies are exploring the diversity still there are many un known species to human are available so it is quite important to take a study of diversity.

Sri P.K. Sharma (IFS Retd.), Director Zoological survey of India in collaboration with the forest department of Telangana has published a report on status of faunal diversity in Telangana and reported the diversity of Telangana as 2939 plant species, 365 bird species, 103 mammal species and 28 reptile species. The tourism department Medak district identified and published the many species of amphibians, arachnids, butterflies, insects, fish, reptiles, mammals and their habitat diversity. India, occupying 2 percent of global space (Ghosh, A.K. 1990, 1994), documents nearly 7 percent of global faunal diversity. In Phylum Arthropoda, India has 6.13 percent of total species recorded so far in the world (60,383 species out of 98, 3744) (ZSI, 1991). Forest arthropod communities and their role in conservation is studied by G. Mathew, K. P. Kumar, M. Chandrashekaraiah and reported the arthropods and among the insects are dominant, and among insects, beetles are one of the most diverse and abundant groups on the planet. For every species of plants and birds in the forest, one can find 20,83 and 312 species of arthropods, respectively. Arthropods carry out a vital role in ecosystem services and need to be conserved. But they are often ignored in conservation and management plans. Reducing habitat loss, human intervention, impact of global warming and invasive species would go a long way in arthropod conservation.

Faunal diversity of Fergusson College campus in Pune from 2011 to 2014. Four vertebrate classes (Amphibia, Reptilia, Aves, Mammalia) and two invertebrate classes Arachnida, Araneae and Lepidoptera: Papilionoideae) were investigated. Our effort resulted in the documentation of 90 spider (28 families), 93 butterfly (8 families), 5 amphibian (3 families), 26 reptile (9 families), 137 bird (52 families) and 19 mammal (13 families) species.

Objectives of the study

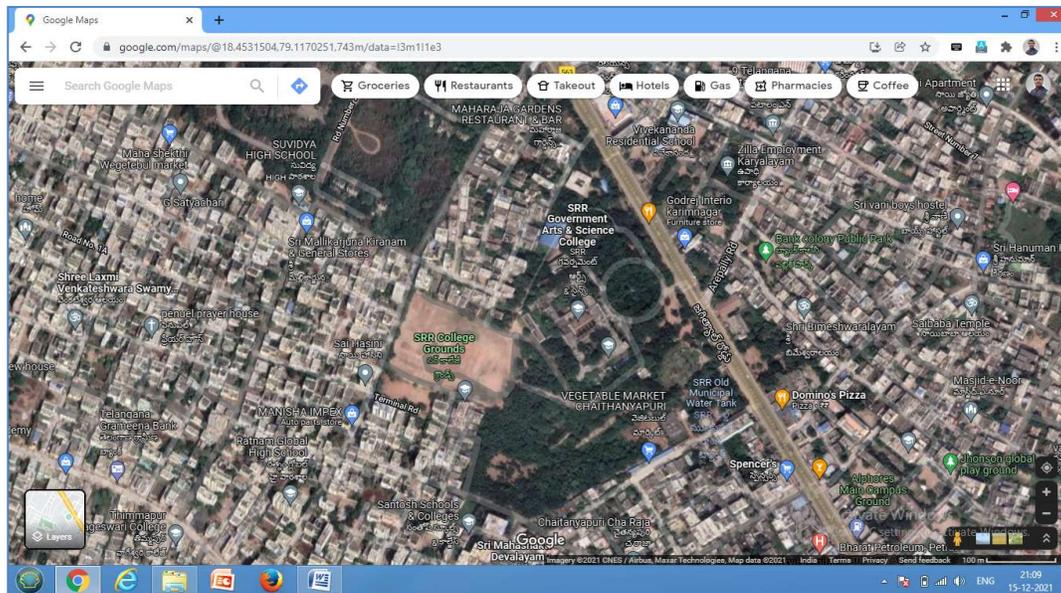
The present study is selected mainly for the following purpose

- To know the faunal diversity of our college.
- To create ecological awareness among the students.
- To produce faunal data of the area for the students and researchers.
- To create the aesthetical values among the students.

Methodology

S.R.R. Govt. Arts & Science College, Karimnagar is located in the Karimnagar district of Telangana. The college has 22 acres of open land and big college building. This college campus is enriched with large trees and it looks like a mini forest. It also has Miyawaki forest and Municipal Corporation established Town Park with nearly 50 variety of plants. As this college is established in 1965 it provided the habitat for many species of animals. So, survey project has been taken to study the diversity of fauna in the college campus.

Location of the site



Collection of data

Methods for surveying and monitoring fauna will depend on the types of fauna that the study is looking for. Animal diversity assessment goal is the conservation of animals and their interaction between biodiversity. Assessment also includes their habitat and taking actions to conserve the faunal species. Animal diversity includes vertebrate animals and invertebrate animals. Faunal diversity includes odonate, coleoptera, hymenoptera, herpetofauna, avifauna, fish, mammals, and butterflies. Animal diversity assessment describes their food, habitat, ecology, and their population. Animal diversity assessment technique describes impact of pollution on their environment.

The data collection is made during the months of September 2021 to December 2021. The groups of 6 students are guided to visit the college campus in morning and evening hours. They are allotted to particular grids/ blocks for observation of the fauna. The animals were photographed wherever is possible.

For this purpose, the used methods are

The data collection was based on direct observation on the animals in the field.

Plot counting method: In this the large area is divided in to plots and the count of those particular organisms will be counted in each plot and the final number and type of organisms are obtained. This method is particularly used for the amphibians and reptiles.

Transect line counting and block counting method: The college campus is divided in to imaginary lines and particular grids are made in the area of the counting. The total teams of students are standing in particular grids or blocks and the animals like birds and mammals are counted.

During the observations, necessary equipments like colour coated binoculars, telescope, digital still camera and mobile camera and photo editor applications were used.

Results and Discussion

The animal observed are identified with the standard keys and as well as by browsing in internet. They are tabulated as follows.

Table.1. Showing the identified fauna during the study period.

S.No	Scientific name	Common name	Family	Phylum
1.	Bipalium	Hammer headed worm	Geoplanidae	Platyhelminthes
2.	Pheretima posthuma	Earthworm	Megascolecidae	Annelida



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3.	Hirudo medicinalis	Leeches	Glossiphoniidae	Annelida
4.	Papilio gigon	Butterfly	Papilionidae	Arthropoda
5.	Junonia lemonias	Lemon pansy (butterfly)	Nymphalidae	Arthropoda
6.	Zizeeria karsandra	The dark glass blues (butterfly)	Lycaenidae	Arthropoda
7.	Castalius rosimon	Butterfly	Lycaenidae	Arthropoda
8.	Jamides celeno	Butterfly	Lycaenidae	Arthropoda
9.	Micronia aculeata	Moths	Uraniidae	Arthropoda
10.	Opodiphthera eucalypti	Moths	Uraniidae	Arthropoda
11.	Eurrhyncha hortulata	Moths	Crambidae	Arthropoda
12.	Diplacodes trivialis	Dragon flies	Libellulidae	Arthropoda
13.	Ischnura heterosticta	Dragon flies	Calopterygidae	Arthropoda
14.	Sympetrum flaveolum	Dragon flies	Aeshnidae	Arthropoda
15.	Calopteryx splendens	Damselflies	Calopterygidae	Arthropoda
16.	Orthetrum sabina	Slender skimmer dragonflies	Libellulidae	Arthropoda
17.	Diplacodes trivialis	Ground skimmer	Libellulidae	Arthropoda
18.	Calliphora vomitoria	Houseflies	Calliphoridae	Arthropoda
19.	Aedes albopictus	Asian tiger mosquito	Culicidae	Arthropoda
20.	Condylostylus comatus	Flies	Dolichopodidae	Arthropoda
21.	Weevil	Beetle	Belidae	Arthropoda
22.	Bactrocera cucurbitae	Fruit fly	Tephritidae	Arthropoda
23.	Coelophora inaequalis	Ladybug	Coccinellidae	Arthropoda
24.	Argiope anasuja	Spider	Araneidae	Arthropoda
25.	Holocnemus pluchei	Spider	Araneidae	Arthropoda
26.	Polyspilota aeruginosa	Grasshopper	Mantidae	Arthropoda
27.	Poekilocerus pictus	Grasshopper	Pyrgomorphidae	Arthropoda
28.	Mantis reticulata	Amantis reticulata	Gonyleptidae	Arthropoda
29.	Geotrupes egeriei	Earth boring dung beetle	Geotrupidae	Arthropoda
30.	Thaumetopoea pityocampa	Pine processionary insect	Notodontidae	Arthropoda
31.	Anoplodesmus saussurii	Millipede	Paradoxosomatidae	Arthropoda
32.	Periplaneta americana	Cockroach	Blattidae	Arthropoda
33.	Coptotermes formosanus	Termites	Blattidea	Arthropoda
34.	Argyroneta	Water spider (diving bell spider)	Dictynidae	Arthropoda
35.	Solenopsis	Red ant fire ant	Formicidae	Arthropoda
36.	Apis indica	Honeybee	Apidae	Arthropoda
37.	Selenops insularis	Wall spider	Selenopidae	Arthropoda



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38.	Psocoptera	Booklice	Trogiidae	Arthropoda
39.	Cimex lectularius	Bed bug (nalli)	Cimicidae	Arthropoda
40.	Vespula germanica	Wasp	Vespidae	Arthropoda
41.	Holento la tamulus	Scorpion	Scorpionidae	Arthropoda
42.	Stylommatophora	Land slug	Gastropoda	Mollusca
43.	Helixpomatia molluscus	Snails	Gastropoda	Mollusca
44.	Labeo rohita	Freshwater fish	Cyprinidae	Fish
45.	Clarius batracus	Maarupu	Claridae	Fish
46.	Channa	Gurija	Channidae	Fish
47.	Channa striatus	Snake headed murrel	Channidae	Fish
48.	Du laphrynus melanostictus	Common toad	Microhylidae	Amphibia
48.a.	Hyla batus	Tree frog	Hylidae	Amphibia
48.b.	Rana tigrina	Bull frog	Dicroglossidae	Amphibia
48.c.	Bufo melanasticus	Common frog	Ranidae	Amphibia
49.	Hemidactylus frenatus	Wall lizard	Gekkonidae	Reptelia
50.	Calotes versicolor	Garden lizard	Agamidae	Reptelia
51.	Chamaeleo calyptratus	Chameleon	Chamaeleonidae	Reptelia
52.	Nerodia sipedon	Common water snake	Colubridae	Reptelia
53.	Ptyas mucosa	Rat snake	Colubridae	Reptelia
54.	Naja naja	Cobra	Elapidae	Reptelia
55.	Lissemys punctata	Tortoise	Trionychidae	Reptelia
56.	Varanus varius	Monitor lizard	Varanidae	Reptelia
57.	Riopa punctata	Common garden dotted skink	Scinidae	Reptelia
58.	Ardea alba modesta	Crane	Ardeidae	Aves
59.	Ardeola grayii	Indian crane	Ardeidae	Aves
60.	Psilacula krameri	Parrot	Psittaculidae	Aves
61.	Halcyon smyrnensis	Kingfisher	Alcedinidae	Aves
62.	Passer domesticus	Sparrows	Passeridae	Aves
63.	Columba livia domestica	Pigeons/Doves	Columbidae	Aves
64.	Corvus splendens	Crow	Corvidae	Aves
65.	Bubo bubo	Owl	Tytonidae	Aves
66.	Acridotheres tristis	Indian myna	Sturnidae	Aves
67.	Anas platyrhynchos domesticus	Indian runner duck	Anatidae	Aves
68.	Cygnus olor	Indian swan	Anatidae	Aves
69.	Archilochus colubris	Ruby-throated hummingbird	Trochilidae	Aves
70.	Gallus gallus domesticus	Rooster hen	Phasianidae	Aves
71.	Cacomantis	Fan-tailed cuckoo	Cuculidae	Aves



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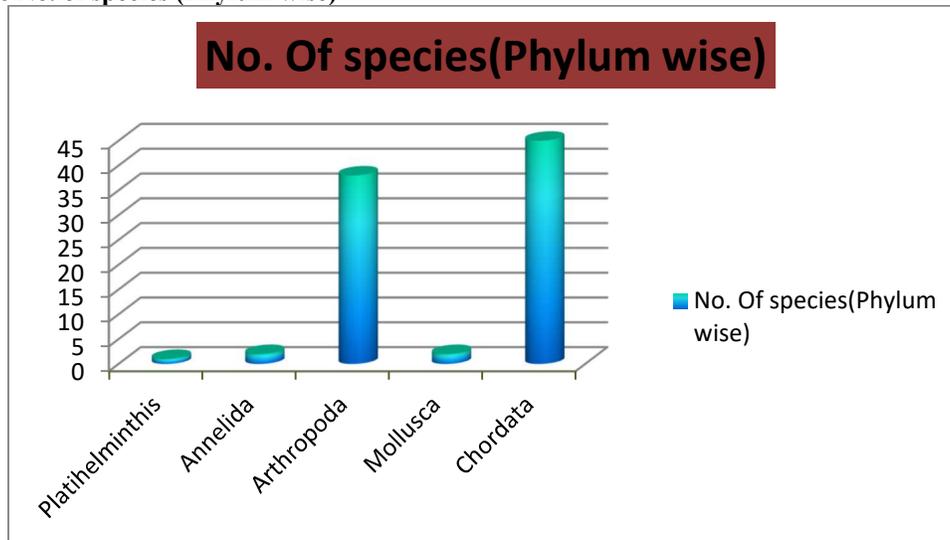
72.	<i>Clanga hastata</i>	Eagle	Accipitridae	Aves
73.	<i>Buteo jamaicensis</i>	Hawk	Accipitridae	Aves
74.	<i>Homo sapiens sapiens</i>	Human beings	Hominidae	Mammal
75.	<i>Rattus norvegicus</i>	Rat	Muridae	Mammal
76.	<i>Bos indicus</i>	Cows and Bull	Bovidae	Mammal
77.	<i>Bubalus bubalis</i>	Buffallow	Bovidae	Mammal
78.	<i>Canis lupus familiaris</i>	Dogs	Canidae	Mammal
79.	<i>Prionailurus rubiginosus</i>	Cats	Felidae	Mammal
80.	<i>Equus hencionus khur</i>	Donkey	Equidae	Mammal
81.	<i>Macaca mullala</i>	Monkey	Cercopithecidae	Mammal
82.	<i>Funambulus palmarum</i>	Squirrel	Sciuridae	Mammal
83.	<i>Herpestes</i>	Mongoose	Herpestidae	Mammal
84.	<i>Equus ferus caballus</i>	Horse	Equidae	Mammal
85.	<i>Paradoxurus hermaphrodites</i>	Asian palm civet (punugu pilli)	Viverridae	Mammal

The data representing in table no.1 is the total identified species are 88 of 5 phyla. The platihelminthis organisms identified only one. The annelids 2 identified belong to two families. The arthropods are identified 38 which belong to the 33 families. The molluscans 2 are identified and they belong to one order, remaining all 45 belong to the phylum chordate. The 45species of chordates belong to the divisions of Pisces, amphibian, reptelia, aves and mammals 4, 4,9,16 and 12 respectively.

Table.2. Showing the fauna phylum wise.

S.No	Phylum	No. Of species
1	Platihelminthis	01
2	Annelida	02
3	Arthropoda	38
4	Mollusca	02
5	Chordata	45

Figure1. Showing the No. of species (Phylum wise)

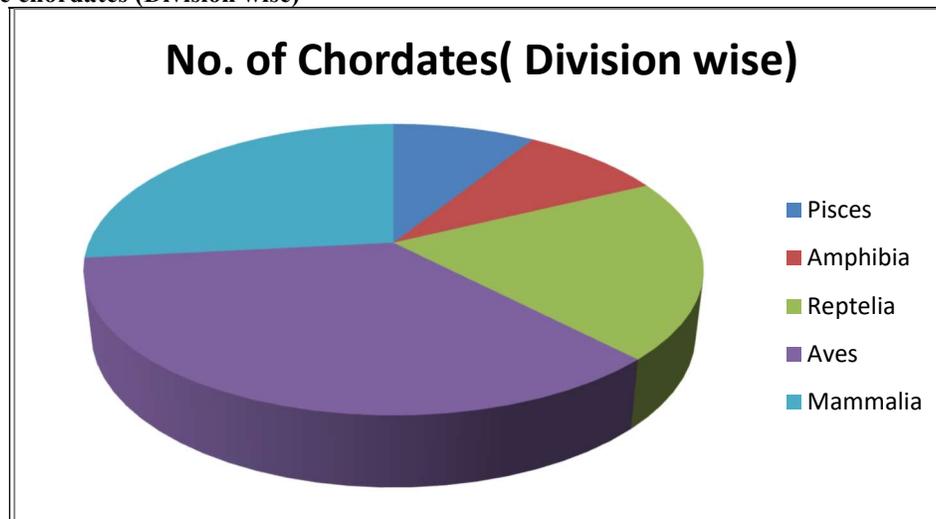


The above data is showing that the total number of species identified is 88 and the dominant group is chordate followed by the arthropod. The annelids and molluscans are 2 in number and the plathelminth only one species is identified and is the lowest representative.

Table.3. Showing the chordates (Division wise)

S.No	Division	No. of species
1	Pisces	4
2	Amphibia	4
3	Reptelia	9
4	Aves	16
5	Mammalia	12

Figure.2. Showing the chordates (Division wise)



The above table and figure explain that the chordates are dominant among the surveyed fauna. Among the chordates the dominant division is mammalia with a number of 12 species. The second dominant is aves with a number of 16 species followed by the reptiles, fish and amphibians 9,4,4 respectively.

Based on the data collected the fauna is divided in to various categories on observation.

Temporary migrants: The animals which visit the college occasionally for food and shelter are categorised as temporary migrants. Cow, Bulls, buffalos and goat are observed only often in the campus. They come to the college for only food and shelter. They do not have permanent habitat in the college.

Seasonal animals: The animals which are observed during the particular season are classified as seasonal animals. The frogs, snails are observed as seasonal animals. The numbers of frogs are observed during the September in rainy season. The number is gradually decreased up to the December. It is observed that those frogs undergone aestivation. The snails, slugs are actively observed during the rainy season but only the shells of snails are seen in the December.

Nocturnal animals: The fauna which are active during the night time are called as nocturnal animals. In the listed fauna mainly the bat, rats and snakes are observed as nocturnal animals. They are observed much in number during the night.

Diurnal animals: The animal which are active during the day time are diurnal animals. The chameleon, garden lizard, spiders and many insects, butterflies are observed active during the day time and included in this category.

Rare animals: The Asian palm civet (Punugu pilli) is seen in the college campus. But the corpse of the animal is found in the college. This is one of the rare animals in this area. This is reared in the sanctuary of Thirumala thitupathi devastanam. It is one of the good signs to see the animal.



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