



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A Study on Insect Diversity and Their Habitats in the Churu Region (Rajasthan)

Rajani

Research Scholar

Maharaja Ganga Singh University, Bikaner (Rajasthan)

ABSTRACT: This study was carried out in the Churu region of Rajasthan. The study is related to insect diversity and their habitats in the Churu region. This research paper provides important information about the insect species of the Churu region and their habitat. This study proves that insect diversity is found in abundance in the Churu region. Many insect species are found in different habitats like grassland areas, urban areas, around water bodies, agricultural areas, and forests. The author has reported various orders of Insecta class like Lepidoptera, Coleoptera, Diptera, Hemiptera, Hymenoptera, Orthoptera, Thysanura, Odonata etc. in this study area.

KEYWORDS: Churu, habitat, insect, agricultural, forest, Coleopteran, Diptera.

INTRODUCTION: There are many types of organisms found on the earth, so the diversity of the organisms present on this earth is called biodiversity. This biodiversity greatly affects our ecosystem. The balance and equilibrium of the ecosystem depend on biodiversity. The components of an ecosystem are producers, consumers and decomposers. In a habitat, green plants are the producers, and there all the organisms are the consumers. Churu region is a dry region, where there is no river and no lake. Here the desert is spread far and wide. There are many unfavorable conditions for biodiversity. Despite all this, the biological wealth here is very rich. Many Reptiles, Mammals, Aves, Amphibians, and Insects are found here.

Insects are very interesting types of creatures. Insects are very special, and are placed in the Arthropoda phylum of Animal Kingdom. All insects are classified in the Insecta class. Insects are ubiquitous on earth. These insects are found in water, in the soil, in the air, in the desert, in the forests, and everywhere. These are hexapod organisms and most insects are winged. Most insects are capable of flying.

Their body is divided into three sections called the head, thorax, and abdomen. Many types of mouthparts are found in these. Antennae, compound eye, two pairs of legs etc. are found in insects.

These insects are very beneficial to our ecosystem. These insects do an important job of pollination and decomposer in the environment. In this way, these insects work to create a balance in our ecosystem. Rich biodiversity creates a rich ecosystem. Various types of insects are found in different habitats of the Churu region. In this area, these insects play an important role as pollinators at the time of crop production.

STUDY AREA: Churu district of Rajasthan was selected for this work that is, this work has been done in Churu and nearby areas. Churu is located in the north of Rajasthan, which is a desert district. The Churu region is the hottest in summers and the coldest in winters. There is a lot of irregularity in the weather in this region. The sandy soil, desert, drought all around, Khejri forests, heat waves in summer etc. are the salient features of this region. There are no rivers and no lakes in this area. Rain is the only solution for water, in some places groundwater is also used. The rainfall in the Churu region is mostly in the monsoon season, in winter there is also some rain from the Western Disturbance which is known as Maavath.

The biodiversity of this region is very rich despite of adverse conditions for Animals. In this study, the author has tried to find out the insects and their major habitats found in the Churu region.

METHODOLOGY:

1. Study of insect diversity- This research work was completed in the Churu region, which is included in the Shekhawati region of Rajasthan. To complete this research, many methods and many types of materials were used by the author.

Methods- Several methods were used to study insect diversity. For this study, mainly collection method, observation method, video recording method, photography method, etc. were used.

Materials- For this work, the Researcher used important equipment like the microscope, lens, camera, mobile, insect net, insect boxes, killing bottle, cotton, spreading board etc.

2. Preservation of collected insects- Collected Insects Preserved in Insects Storage Boxes by Dry Preservation Method. Entomological pins were also used in this method as required.

3. Identification of collected insects- The collected insects were identified by the identification key. Many research papers, books, and various articles were also used to identify insects.

RESULT AND DISCUSSION- A large number of insect species were observed in different habitats of the Churu region. Insects have been reported in many habitats of this area, in different gardens, terrestrial areas, near water bodies, urban areas, forest areas etc. The author has reported various orders of Insecta class like Lepidoptera, Coleoptera, Diptera, Hemiptera, Hymenoptera, Orthoptera, Thysanura, Odonata etc. in this study area. Insects' diversity in the Churu region is shown in Table -1 with their order and their major habitats in Table -2.

Table- 1: Insect diversity with Order

| S.N. | Orders | Diversity of Insects |
|------|-------------|---|
| 1. | Coleoptera | Ground beetles (<i>Scarites</i>), Ladybug (<i>Coccinella septempunctata</i>), Click beetle, Blister beetle (<i>Lytta</i>), Khapra beetle, Flour beetle (<i>Tribolium</i>), Long horn beetle (<i>Xystrocera globosa</i>), Dung beetles (<i>Scarabaeus</i>), Red pumpkin beetles (<i>Raphidopalpa</i> sp.), |
| 2. | Hymenoptera | Carpenter bee (<i>Xylocopa</i>), Honey bee (<i>Apis florea</i>), Honey bee (<i>Apis dorsata</i>), Paper wasp (<i>Ropalidia marginata</i>), Potter wasp (<i>Eumenes</i>), House ant (<i>Tapinoma</i> sp.), Carpenter ant (<i>Camponotus</i>), |
| 3. | Hemiptera | Stink bug (<i>Halyomorpha halys</i>), Red cotton bug (<i>Dysdercus cingulatus</i>), Bed bug (<i>Cimex</i>), Red pumpkin bug (<i>Coridius</i> sp.), Jewel bug, Green bug (<i>Aphids</i>), Leaf hopper |
| 4. | Lepidoptera | Swallowtail butterfly (<i>Papilio demoleus</i>), Plain tiger butterfly (<i>Danaus chrysippus</i>), Emigrant butterfly (<i>Catopsilia pamona</i>), Common grass yellow (<i>Eurema hecabe</i>), Crimson rose butterfly (<i>Pachliopta</i> sp.), Moth (<i>Uthetheisa pulchella</i>), Moth (<i>Plusia</i> sp.), |
| 5. | Orthoptera | Locust (<i>Schistocerca gregaria</i>), Painted Grasshopper (<i>Poekilocerus pictus</i>), Chinese Grasshopper, Field Cricket (<i>Gryllus</i>), House cricket (<i>Gryllodes sigillatus</i>), Mole cricket, Dune cricket (<i>Schizodactylus monstrosus</i>) |
| 6. | Isoptera | Termite (<i>Macrotermes serrulatus</i>) |
| 7. | Thysanura | Silverfish (<i>Lepisma</i>) |
| 8. | Odonata | Dragon fly |
| 9. | Mantodea | Praying mantis |
| 10. | Diptera | House fly (<i>Musca domestica</i>), Hover fly |

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|-----|----------|---|
| | | (<i>Marmalade</i> spp.), Mosquito (<i>Aedes aegypti</i>), Mosquito (<i>Culex</i>), Fruit fly (<i>Drosophila</i>), Ber fruit fly (<i>Carpomyia</i> spp.) |
| 11. | Mantodea | Praying Mantis, |

Table- 2: Various Habitats and Major Insects

| S.N. | Habitats | Major Insects |
|------|-----------------------|--|
| 1. | Agricultural habitats | Beetles, Bugs, Moths, Locusts, Field cricket, Dune crickets, Caterpillars, Bees, Wasps, Crickets |
| 2. | Grassland habitats | Grasshoppers, Locusts, |
| 3. | Urban areas | Butterflies, Moths, Beetles, Dragon flies, Flies, Mosquitoes |
| 4. | Forest habitats | Beetles, Bugs, Ants, Crickets, Bees |
| 5. | Around water bodies | Dragon flies, Mosquitoes, Flies |
| 6. | Gardens | Butterflies, Grasshoppers, Beetles, Bugs, Ants, |

CONCLUSION: This study concludes that the Churu region has a desert environment but insect diversity is sufficient. There are many unfavorable conditions here but insects are found in abundance in different habitats. Insects are found in almost every habitat in the Churu region. Insect species are found everywhere in the fields, in the grass, in the forests, and around the water bodies.

ACKNOWLEDGEMENT: The author expresses his gratitude to the Head of the Department of Zoology, MJD Govt. College, Taranagar (Churu) for this research work.

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