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DIVERSITY AND ABUNDANCE OF LEPIDOPTERAN ORDER IN THRUCHENCODE TALUK, NAMAKKAL DISTRICT, TAMILNADU

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ABSTRACT

Biological diversity is the variety of life on earth across all the different levels of biological organizations. High diversity of insects provides potentially high resolution and important changes in the ecosystem. Lepidoptera is the second largest order in the class insect. In view of these facts the present study was designed to diversity and distribution of insects in Tiruchengode Taluk, Namakkal District. Insects were collected during November 2015- April 2016. A total of 33 genera and 42 species belonging to 05 families were identified. Out of these, Nymphalidae was found to be most dominant family with 12 species under 09 genus. Some of the butterfly species were identified as indicators of disturbance of some area. The study may be helpful to known the diversity of butterflies in selected area. The increased human activities, unfavourable climatic condition, complete eradication of host plants and lack of food influence the diversity and distribution of an insect. There is an urgent need to conserve the insects that are seen thrive natural environment.

KEYWORDS: Biodiversity, Lepidoptera.

INTRODUCTION

Insects contribute to more than half of all the species on the planet with recent studies estimating insect diversity close to 3 million species. Moreover, with only one million species being described up until now. The insect diversity needs to be recorded in various faunally rich regions of the earth for a complete understanding of their role in the proper functioning of various ecological niches and for accurate estimating of their taxonomic richness.

Lepidoptera is the second largest order in the class insect. Lepidoptera are regarded as one of the important component biodiversity and are the second largest order among insects made up of approximately 1,50,000 species so far known to the literature. Butterflies are commonly referred to as "insects of the sun" with their eye catching color and delicate charisma. They have been admired for centuries their physical beauty and behavioral display. Among the insects, butterflies occupy a vital position in the ecosystem and their occurrence and diversity are considered as good indicators of the health of any given terrestrial biotope. Butterflies are also good indicator environmental changes as they are sensitive to habitat degradation and climate change. Butterflies are beneficial as they serve as pollinators and indicators of environmental quality and are appreciated for their aesthetic value. The degree of diversity depends upon the adaptability of a species to a particular micro habitat. The dimension, population size and diversity of the species are most significant biological element of an ecosystem **(Bliss 1962).** India is known for its rich heritage of biological diversity, having already documented over 89,000 species of fauna **(Alfred *et. al.*, 1997)** and 45,000 species of flora **(Mudgal and Hajra 1999)** in its 10 biogeographic regions. Butterflies are also good indicators of environmental changes as they are sensitive to habitat degradation and climatic change. Particularly in forest ecosystem when habitats fragmented, butterflies that shift from one habitat to other have increased chance of exposure to predators and are vulnerable to disturbances associated with human activity. The Indian subcontinent **(ISC)** has about 1439 species of butterflies out of which 100 species are endemic to it and at least 26 taxa are today globally threatened as per the **IUCN (1990)** Red list of threaten animals and insects **(Singh and Pandey 2004).** Depletion of nectar and desiccation of host plant cause direct mortality and induce migratory behaviour. Butterflies, being exothermal, are highly sensitive to climate variation and a short generation time makes them an appropriate mode organism to study. In Tamilnadu, 319 species have been recorded. Though many studies have been conducted with respect to the demographic population of butterflies, their economic role and diversity in various regions in Tamilnadu **(Parandhaman *et al.*, 2012; Sharmila and Thatheyus 2013).** The present study was aimed to examine the species richness and diversity of butterflies in and around the Tiruchengode taluk, Namakkal District, Tamilnadu.

MATERIALS AND METHOD

STUDY AREA

Survey for collection and population assessment of insects was carried out in Tiruchengode (Anangur, Devanankurichi, Alampalayam and Veppadai) of, the Taluk division of Namakkal District in the state of Tamilnadu.

SAMPLING PLAN

Sampling of butterflies was conducted from November 2015-April 2016, twice a month. The collection was carried out in the early morning, therefore, it was easy to observe. Butterflies were primarily identified directly in the field and photographed. Photographic documentation was also done and the data was maintained. Since, identified up to species level cannot be done with only photographs, in difficult cases specimen were collected by "sweeping sampling method". They are gently placed with their wings folded together, antennae placed extended in paper envelops of different sizes.

RESULT AND DISCUSSION

A total of 33 genera and 42 species belonging to 05 families were recorded. The maximum temperature was insect life temperature is one of most critical factors. The temperature has a marked effect on insect's development and activities. The develop of the insect also stops at a definite low temperature. In their natural environment insects are well adjusted to prevailing usual temperature. Temperature operates as a restricting factor at unusual periods of hot and cold.

The growth rates of Lepidoptera individuals depend on the host plants with constitute the Nutritional composition of the insects **(Salnsky 1992).**The decline and abundance of butterflies in many ecosystem is directly proportional to the type and abundance plant growth in the area. The most important threat to butterflies diversity is urbanization. Human activities have an undeniably strong influence on the butterfly diversity of all existing species. **Singh (2004)** reported that increased human activities were associated with decreased butterfly species and claimed that rich, rare and specialized species were the most affected. A total of 23 common species were reported from all the study sites. And also he reported 5 species belonging to 4 families of Lepidoptera 223 species of belonging to 9 families from North West Himalayas.

Prabakaran *et. al.*, (2014) reported 63 genus, 97 species in 9 taluk of Tiruvalluvar District. In the present study Nymphalidae were found to be dominant with 12 species under 09 genus, followed by the family Lycaenidae with 10 species under 11 genus, family Hesperidiae with 09 species under 06 genus, followed by the family pieridae with 08 species under 06 genus, Pappilionidae with 04 species under 02 genus. Lepidoptera inhabitat all terrestrial habitats ranging from desert to rainforest, from lowland, grassland to mountain plateaus. The butterfly diversity study suggested that the development of industrial area within this area having chemical zone can affect to the butterfly diversity. Although, study area supports a good number of butterfly species but much has still to be explored. Conservation is necessary to keep these rare species from extinction. In addition, it is necessary to identify the rare butterfly species and conserve them by establishing conservatories or Butterfly Park.

COLLECTION FROM FOUR SITE DURING THE STUDY PERIOD

S.No	Common name	Scientific name
Family:Papilionidae		
1.	Lime butterfly	*Papilio demoleus*
2.	Common Mormon	*Papilio polytes*
3.	Malabar Raven	*Papilio dravidarum*
4.	Common Blue Bottle	*Graphium sarpedon*
Family:Nymphalidae		
5.	Club Beak	*Libythea myrrha*
6.	Blue Tiger	*Tirumala limniace*
7.	Plain Tiger	*Danaus chrysippus*
8.	Stripped Tiger	*Danus genutia*
9.	Common Indian Crow	*Euploea core*
10.	Dark Banded Bushbrown	*Mycalesis mineus*
11.	Common Fourring	*Ypthima huebneri*
12.	Common Salier	*Neptis hylad*
13.	Sullied sailer	*Neptis soma*
14.	Blue Pansky	*Junonia orithya*
15.	Danaid Eggfly	*Hypolimnus misippus*
16.	Great Eggfly	*Hypolimnas*
Family:Pieridae		
17.	Indian Cabbage White	*Pieris canidia*
18.	Common Jezebel	*Deliaas eucharis*
19.	Nilgiri Clouded Yellow	*Colias nilgiriensis*
20.	Common Grass Yellow	*Eurema hecabe*
21.	Plain Orange Tip	*Colias eucharis*
22.	Common Wanderer	*Pareronia valeria*
23.	Mottled Emigrant	*Catopsilia pyranthe*
24.	Small Grass Yellow	*Eurema brigitta*
Family:Hesperiidae		
25.	Indian Palm Bob	*Suastus gremius*

26.	Common Dart	*Potanthus pseudomaesa*
27.	Common Awal	*Hasora Badra*
28.	Common Banded Awl	*Hasora chromus*
29.	Indian Ace	*Halpe homolea*
30.	Blank Swift	*Caltoris kumara*
31.	Confucian	*Potanthus Confucius*
32.	Bush Hopper	*Ampittia dioscorides*
Family:Lycaeniidae		
33.	Indigo Flash	*Rapala varuna*
34.	Common Onyx	*Horago onyx*
35.	Peacock Royal	*Tajuria cippus*
36.	Gram Blue	*Euchrysops cnejus*
37.	Lime Blue	*Chilades Laius*
38.	Common Hedge Blue	*Acytolepis pupsa*
39.	Bright Babul Blue	*Azanus ubaldus*
40.	Apefly	*Spalgis epis*
41.	Large Guava Blue	*Virachola perse*
42.	Lesser Grass Blue	*Zizeeria Otis*

TABLE-I MONTHLY VARIATION IN TEMPERATURE

S.No	Months	Temperature	
		Maximum	Minimum
1.	November	33	20
2.	December	32	19
3.	January	32	18
4.	February	35	23
5.	March	39	22
6.	April	38	25

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