*Available online at www.jpsscientificpublications.com*
*Volume – 6; Issue - 3; Year – 2020; Page: 2037 – 2044*
**DOI: 10.22192/iajmr.2020.6.3.1**

Indo – Asian Journal of Multidisciplinary Research (IAJMR)
**ISSN: 2454-1370**

# STUDY OF VARIOUS FAMILIES AND SPECIES OF BUTTERFLIES AT DIFFERENT SEASONS IN UTHANGARAI

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**Abstract**

Arthropods are good indicators of habitat biodiversity because they respond quickly to environmental changes, and are a highly diverse taxon. Lepidoptera (butterflies and moths) are the second largest order of arthropods and making them particularly useful for biodiversity surveys. The butterflies are the best indicator of these changes and can be used as surrogate to assess the conservation threat to the biodiversity. The purpose of present study is to understand the butterfly diversity, seasonal variations and to analyse changes in abundance of butterflies diversity and species richness in Uthangarai. Butterflies are diurnal insects which typically have a slender body with knobbed antennae and broad colorful wings, A total of 2694 individuals belonging to 30 species of butterflies were recorded during the period and highest numbers of species was recorded from the family level of Nymphalidae, Papilionidae Pieridae and Hesperidae and Lycaenidae. However the seasonal change plays an vital role in the distribution of butter in different seasons.

**Key words**: Butterfly, Biodiversity, Species and Seasonal variations..

## 1. Introduction

Biological diversity is increasingly being recognized as a vital parameter to assess global and local environmental changes and sustainability of developmental activities (Murugesan *et al*., 2013). Butterflies are insects admireable, because they present beautiful and brilliant patterns of coloration, metamorphic birth and striking reproduction, nutritional behaviour and death. Butterflies are taxonomically well studied group, which have received a reasonable amount of attention throughout the world (Ghazoul, 2002). India has around 1,501 species of butterflies, out of which 334 species are reported from the Western Ghats. However, very little attention has been given to eastern plain areas of southern India. Species richness provides an extremely useful measure of diversity when a complete catalogue of species in the community is obtained (Magurran, 1988).The purpose of present investigation is to understand the effects of habitat characteristic on butterfly diversity, community composition and density. Butterflies are cold blooded invertebrates are easily affected by changes in climate and like most animals their distribution too is greatly affected by these changes (Kehimkar, 2008).Increases in human population combined with advances in technology have directly subjected in the ecosystems of the world to many changes and leads to decline in the habitats of many species. The different urban landscapes showed variations in the family and species abundance, richness and percent frequency of species. The purpose of present investigation is to understand the butterfly diversity, seasonal variations and to analyze changes in abundance of butterflies diversity and species richness in Uthangarai.

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***Received*: 03.05.2020; *Revised*: 10.05.2020;
*Accepted*: 14.05.2020.



Insects comprise more than half of the world's known animal species (Wilson, 1992) of which the second largest and more diverse order is Lepidoptera of class Insecta (Benton, 1995). There are16,823 species recorded from all over the world among them 1501 species of butterflies are recorded in from India (Gaonkar,1996). Many of butterfly species are strictly seasonal and prefer only a particular set of habitats (Kunte, 1997) and they are good indicators in terms of anthropogenic disturbance and habitat quality.

**Study area**

Our college campus- it has the botanical garden and tree plantion area, which can be surrounded by the agricultural land. It is situated in Uthangarai which is situated in 12°15' latitude and 78°33' longitude of Krishnagiri district of Tamil Nadu.

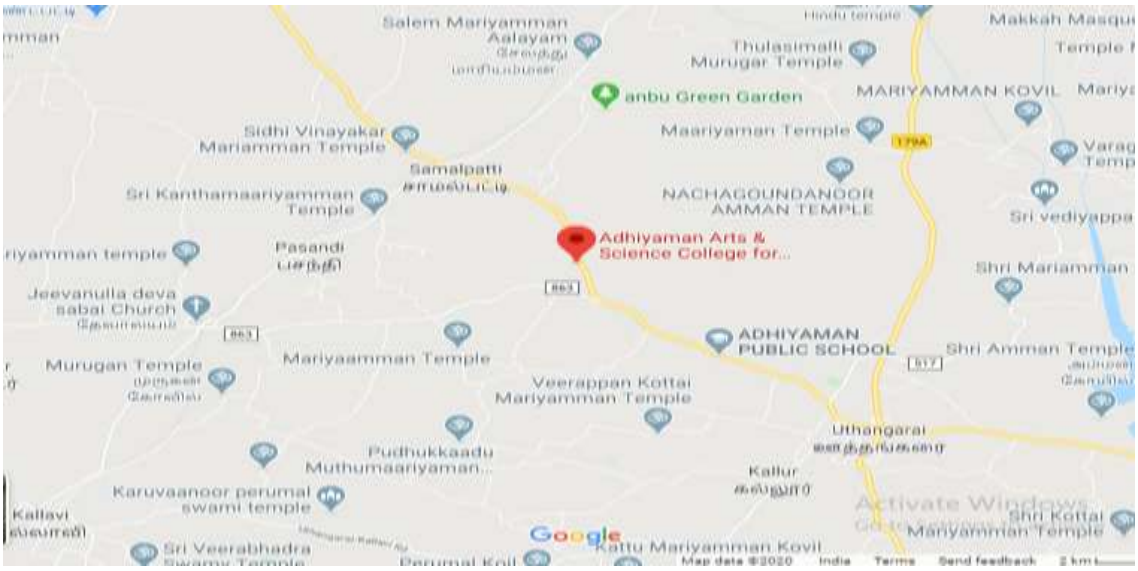


**Figure - 1: Map of Study area**

**Figure - 2: Photograph of Study area**

## 2. Materials and Methods

The study was carried out during the day from 9 am to 5 pm for a period of 32 months (2years and 8 months) when the insect density is high in these study area. The butterflies were collected by various methods such as Netting and Handpicking Techniques. All butterflies sighted were identified in the field during day time. Some species were collected with the help of sweeping nets and photographed (Jeyapraba and Ajaz Haja Mohideen, 2017). The different habitat of our college campus was studied in the botanical garden and tree plantation area. Photographic documentation was done and the

data was maintained. Pollard walking method was followed for observing butterflies (Pollard, 1977). Since, identification up to the species level cannot be done with only photographs, additional methods used were survey methods where in the individuals were collected by plain bag of mosquito hand net Adult butterflies were collected by sweeping net. Once the butterfly is caught in the net, it is secured as quickly as possible in a fold of the net. Then they are gently placed with their wings folded together, antennae placed extended in paper envelopes of different sizes. Collected butterflies identified up to the species level and monitored.

The period of study has been divided as two seasons, Season 1 from August to October and Season 2 as March to May in the places after rainfall and winter respectively. In both seasons the butter flies were abundant and also widely occur throughout the season. The whole study is from 2017 August to 2020 March totally 32 months (2 years and 8 months).

**Table – 1: Classification of Butterflies**

| S.No | Scientific name | Common name | Family |
|---|---|---|---|
| 1 | *Pachliopta hector* | Crimson Rose | Papilionidae |
| 2 | *Papilio dravidarum* | Malabar Raven | Papilionidae |
| 3 | *Papilio demoleus* | Lime | Papilionidae |
| 4 | *Eurema hecabe* | Common Grass Yellow | Pierideae |
| 5 | *Leptosia nina* | Psyche | Pierideae |
| 6 | *Eurema blanda* | Three Spot Grass Yellow | Pierideae |
| 7 | *Catopsilia pomona* | Common Emigrant | Pierideae |
| 8 | *Appias albinia* | Common Albatross | Pierideae |
| 9 | *Ypthima huebneri* | Common Four Ring | Nymphalide |
| 10 | *Mycalesis mineus* | Dark Brand Bushbrown | Nymphalide |
| 11 | *Acraea violae* | Tawny Coster | Nymphalide |
| 12 | *Danaus chrysippus* | Plain Tiger | Nymphalide |
| 13 | *Euploea core* | Common Indian Crow | Nymphalide |
| 14 | *Melanitis leda* | Common Evening Brown | Nymphalide |
| 15 | *Orsotriaena medus* | Nigger | Nymphalide |
| 16 | *Cirrochroea thais* | Tamil Yeoman or Maravan | Nymphalide |
| 17 | *Cethosia nietnri* | Tamil lacewing | Nymphalide |
| 18 | *Clipper* | Parthenos Sylvia | Nymphalide |
| 19 | *Vanessa indica* | Indian red admiral | Nymphalide |
| 20 | *Ypthima singala* | Sinhalese five wing | Nymphalide |
| 21 | *Tirumala limniace* | Blue tiger | Nymphalide |
| 22 | *Danus genutia* | Stripped tiger | Nymphalide |
| 23 | *Euploea sylvester coreta* | Double brander crow | Nymphalide |
| 24 | *Tarucus indica* | Transparent pierrot | Lycaenidae |
| 25 | *Tarucus balkanica nigra* | Black spotted pierrot | Lycaenidae |
| 26 | *Hypolycaena nilgirica* | Nilgiris tit | Lycaenidae |
| 27 | *Catochrysops panormus* | Silver forget me not | Lycaenidae |
| 28 | *Horagaonyxcingalensis* | Common onyx | Lycaenidae |
| 29 | *Telicota ancilla* | Dark palm dart | Hesperridae |
| 30 | *Iambrix salsala luteipalpis* | Chesnut bob | Hesperridae |

| | | |
|---|---|---|
|  Crimson Rose |  Three Spot Grass Yellow |  Tawny Coster |
|  Malabar Raven |  Common Emigrant |  Plain Tiger |
|  Lime |  Common Albatross |  Common Indian Crow |
|  Common Grass Yellow |  Common Four Ring |  Common Evening Brown |
|  Psyche |  Dark Band Bush Brown |  Nigger |

| | | |
|---|---|---|
|  Dark Palm Dart |  Chestnut Bob |  Tamil Yeoman |
|  Tamil Lacewing |  Clipper |  Indian Red Admiral |
|  Common Onyx |  Transparent Pierrot |  Black spotted Pierrot |
|  Nilgiris Tit |  Sinhales Five Ring |  Silver Forget me not |
|  Blue Tiger |  Double Branded Crow |  Stripped Tiger |

## 3. Results

Throughout the study period of 32 months different species of butterflies occurs in various manner and the study have been conducted in the years of 2017, 2018, 2019 and 2020. In the year of 2017 from August to 2018 May nearly fifteen species have been monitored. In 2018 August to 2019 May newly 6 Species found and in the year of August 2019 to 2020 March again 9 new and also rare species were found in the study area. So, totally 30 species of common and rare butterflies have been monitored in the whole study duration, in that 5 families is identified such as Nymphalidae as majority of 15 species, in that rare species like Transparent pierrot, Black spotted pierrot, Nilgiris tit, Silver forget me not, Common onyx and Sinhalase five ring also seen in 2019, then the families of Pierideae and Lycaenidae are having five species for each. Papilionidae three species and Hesperridae two species also identified. In the year of 2019, nearly 30 species of butterflies have been identified and in the study period having high number of species in all five families. But in the year 2020, upto March only three months the study has been carried out and 15 species is monitored.

**Table – 2: Species of Butterflies throughout the study period**

| S.No | Family name | Number of Species |
|---|---|---|
| 1 | Nymphalidae | 15 |
| 2 | Pierideae | 05 |
| 3 | Lycaenidae | 05 |
| 4 | Papilionidae | 03 |
| 5 | Hesperridae | 02 |

**Table – 3: Occurance of Butterflies in the year 2017**

| S.No | Family Name | Number of Butterflies |
|---|---|---|
| 1 | Papilionidae | 3 |
| 2 | Pierideae | 5 |
| 3 | Nymphalide | 7 |

**Table – 4: Occurance of Butterflies in the year 2018**

| S.No | Family Name | Number of Butterflies |
|---|---|---|
| 1 | Papilionidae | 3 |
| 2 | Pieridea | 3 |
| 3 | Nymphalide | 10 |
| 4 | Lycaenidae | 1 |

**Table – 5: Occurance of Butterflies in the year 2019**

| S.No | Family Name | Number of Species |
|---|---|---|
| 1 | Nymphalidae | 15 |
| 2 | Pierideae | 05 |
| 3 | Lycaenidae | 05 |
| 4 | Papilionidae | 03 |
| 5 | Hesperridae | 02 |

**Table – 6: Occurance of Butterflies in the year 2020**

| S.No | Family Name | Number of Species |
|---|---|---|
| 1 | Nymphalidae | 07 |
| 2 | Pierideae | 03 |
| 3 | Lycaenidae | 03 |
| 4 | Papilionidae | 01 |
| 5 | Hesperridae | 01 |

**4. Conclusion**

The most important threat to butterfly diversity is urbanization. Complete eradication of greenery in an area drives the butterfly population away since there is a lack of food and reduced chances to increase the progeny. Human activities have an undeniably strong influence on the biodiversity of all existing species. Even though parks, sanctuaries and other protected areas are specifically kept off limits for humans, the effect of pollution which is a direct result of urbanization nevertheless affects biodiversity. This was also evident from the fact the butterflies were most commonly seen near agricultural and the borders of forest areas and less in areas near human dwellings. Clark *et al.* (2007) reported that increased human activities were associated with decreased butterfly species and claimed that the rich, rare and specialized species were the most affected. Conservation is hence necessary to keep these rare species from being pushed to extinction.

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**DOI Number** DOI: 10.22192/iajmr.2020.6.3.1

**Thomson Reuters Researcher ID** K-4194-2016

**ISI Impact Factor** 3.652

**How to Cite this Article:**

**S. Sathiyavathi. 2020. Study of various Families and Species of Butterflies at different seasons in Uthangarai. *Indo - Asian Journal of Multidisciplinary Research*, 6(3): 2037 – 2044.**

**DOI: 10.22192/iajmr.2020.6.3.1**