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STUDIES ON THE DIVERSITY OF BUTTERFLY FAUNA IN KONGUNADU COLLEGE OF ARTS AND SCIENCE CAMPUS, G.N.MILLS, COIMBATORE, TAMIL NADU

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Abstract

Butterflies are one of the important groups of insects which can act as indicators of change in ecosystem. Urbanisation going on around the globe leads to the habitat destruction of these insects. Survival of these butterflies is now under threat. Present survey is focussed on the assessment of the butterfly diversity and its conservation priorities. A total of 12 species of butterflies belonging to four families were identified from the Kongunadu college of arts and campus of Sciences. Butterfly fauna of the campus dominated with Nymphalidae family. Abundance of the butterfly in the campus showed seasonal variations and preferences. The present study focussed to have a checklist of the butterfly population in our campus which will later contribute for planning campus development programmes.

Keyword: Butterfly,Nymphalidae,Adundance

1.INTRODUCTION

Butterflies are beautiful and brightly coloured, nectar sucking, flying insects with two pairs of scaly wings. They come under the clade Rhopalocera from the order Lepidoptera. It is regarded as one of the best taxonomically studied group of insects. Tropical region contributes about 80% of the population across the globe. India has wide variety of butterflies. They form an important part of the food chain [1, 2]. Adult butterflies depend on plants for their nectar and pollen but caterpillars depend mainly for its foliage [3]. There exist a positive relationship between the diversity of butterflies and plant diversity. Among insects, butterflies perform major roles in pollination and bear a history of co-evolution with herbivores and plants. Being good pollinators they play an important role in the existence of the ecosystem. These close relations with the ecosystem make it as a good indicator species to analyse the quality of the ecosystem and climate change [4]. India has bestowed with around 1,501 species of butterflies and among that 316 species have been reported from Kerala. Biological diversity of an area is closely associated with the effect of anthropocentric developments [8, 14].

Alarming rate of increase in urban development programmes and air pollution results in complete disturbance of the ecosystem and extinction of various species. In the present scenario it is important to have a checklist of the biological species in an area to have an evaluation on the disturbance of the ecosystem [5, 6]. In the present study, an attempt has been made to document the diversity of butterflies in Kongunadu College of arts and science campus, since there was no known published checklist of butterflies in the campus till date.

2.MATERIALS AND METHODOLOGY

Study was conducted in Kongunadu college of arts and science campus which is surrounded by diverse habitat. Campus is located at G.N.Mills, Coimbatore district surrounded by a mosaic of concrete buildings. It is blessed with lush green vegetation having large trees, shrubs, herbs and long grasses which serves as shelter to the butterflies. Core area of observation was a plant garden which is located in the campus. Study area experiences tropical climate with hot summers (Temperature range: 26.3 C). Area received major portion of its rainfall from the south-west monsoon between June and September. The mean annual rainfall is 618 mm with mean number of rainy days per year. The

findings presented here are based on the random survey conducted from October 2018 to December 2018.

Study site was visited once in a week and observations were made from morning 9AM to evening 5PM by transect menthod. Species identity and scientific names were confirmed with the help of the field guides [5, 6, 7]. Butterflies were photographed from different angles as often as possible to obtain sufficient photographs to enable positive identification of species.

3.RESULTS

Table-1 Showing the Checklist of butterflies of Kongunadu college of arts and science campus, G.N.Mills, Coimbatore, Tamil Nadu

S.No	Common Name	Scientific Name	Family Name
1	Lemon pansy	*Junonia lemonias*	Nymphalidae
2	Plain tiger	*Danus chrysippus*	Nymphalidae
3	Striped tiger	*Danus genita*	Nymphalidae
4	Tawny coaster	*Acreae terpsicore*	Nymphalidae
5	Blue tiger	*Tirumala limniace*	Nymphalidae
6	Commonevening brown	*Melanitis leda*	Nymphalidae
7	Common crow	*Euploea core*	Nymphalidae
8	Common mormon	*Papilio polytes*	Papilionidae
9	Common mormon	*Papilio Romulus*	Papilionidae
10	Common grass yellow	*Eurema hecabe*	Pierideae
11	Lemon emigrant	*Catopsilis Pomona*	Pieriadae
12	Common pierrot	*Castalius rosimon*	Lycaenidae

graph 1 showing species found in our study area

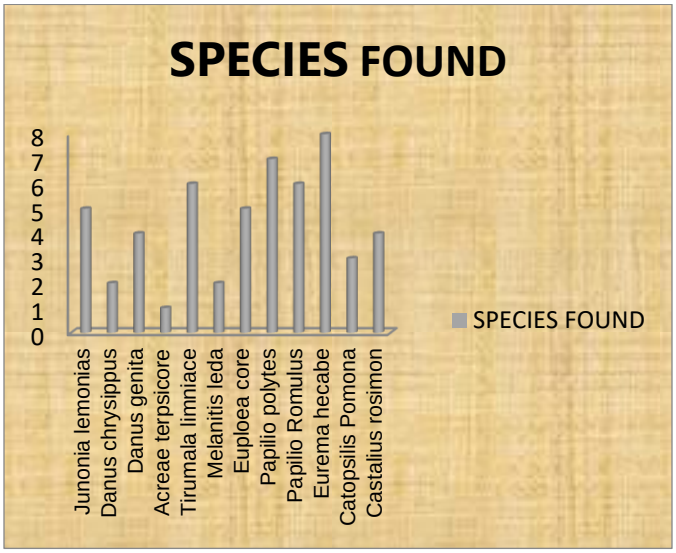


Table-1 and Graph 1 Showing the Checklist of butterflies of Kongunadu College of arts and science campus, G.N.Mills, Coimbatore, Tamil Nadu. The family-wise composition of butterfly species at Kongunadu College of arts and science campus was recorded.A total of 12 butterfly species belonging to four families were surveyed. Family Nymphalidae (n=7) which was dominant species(*Junonia lemonias, Danus chrysippus, Danus genita, Acreae terpsicore, Tirumala limniace, Melanitis leda, Euploea core)* followed by Papilionidae (n=2) species (*Papilio polytes, Papilio romulus),*Pieridae (n=2) butterfly species (*Eurema hecabe, Catopsilis Pomona),*Lycaenidae (n=1) species (*Castalius rosimon)* were observed during the study period.

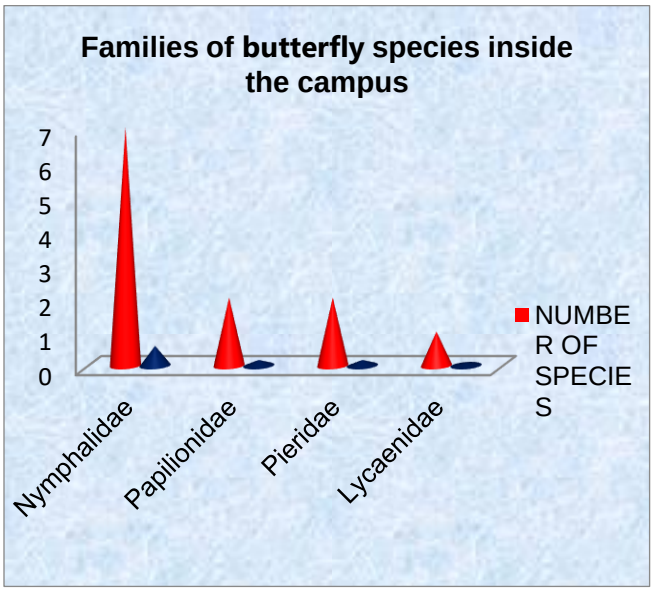
The present study also documented the butterfly with the host plant species. The study area was dominated by plant species belonging to the families Annonaceae, Apocynaceae, Fabaceae, Malvaceae, Acanthaceae,

Rubiaceae, Urticaceae, Tiliceae, Euphorbiaceae, Passifloraceae, Poaceae, includes *Ficus sp, Calotropis sp, Tridax sp, sPolyalthia longifolia, Cassia fistula, Tabernaemontana sp, Alstonia scholaris, Ixora sp, Lantana camara, Cleome viscose, Aegle sp, Citrus sp, Terminalia arjuna, Murraya sp, Pisidium guajava, Areca catechu, Cocos nucifera, Mangifera indica, Hibiscus sp, Zizyphus jujuba, Justicia sp, Sida sp, Nerium sp, Mussaenda frondosa, Cosmos sp, Zinnia sp, Bougainvillea sp* and grasses which provide diverse habitat, food and breeding sites for butterflies.

Table- 2 Showing the families of butterflies in Kongunadu college of arts and science campus, G.N.Mills, Coimbatore,Tamil Nadu

Family	Number Of Species	Relative Abundance
Nymphalidae	7	58.33%
Papilionidae	2	16.66%
Pieridae	2	16.66%
Lycaenidae	1	8.33%

graph-2 showing the families of butterflies in kongunadu college of arts and science campus, g.n.mills, coimbatore, tamil nadu



From the Table 2 & graph 2 showing the different families of butterflies inKongunadu college of arts and science college. Famliy Nymphalidae with maximum of (n=7) species consist of 58.33%, followed by Papilionidae with (n=2) species which includes 16.66% of butterflies, family Pieridae with (n=2) species constitute of 16.66%,Lycaenidae with (n= 1) species which represents of 8.33% were recorded.

4.DISCUSSION

A total of 12 species of butterflies belonging to 5 familiesNymphalidae,PapilionidaePieridae,Lycaenidae,and Hesperridae were recorded.The family Nymphalidae (Brush-footed) outnumbered with maximum species comprising of 7 species , this is because of their ecological adaptation speciation and high dispersal ability [10], this pattern contradicts with that of [11], [12] , however, it is consistent with that [13] who reported high diversity of Nymphalid butterflies at the edge of undisturbed and disturbed forest and in the disturbed forest, followed by Papilionidae 2 species, Pieridae 2 species, and Lycaenidae 1 species were observed during the survey. The diversity and abundance of butterfly species highly correlated with the availability of food plants and varied assemblage of floral species in the surroundings [14]. The present study area is dominated by plant species belonging to families *Annonaceae, Apocynaceae, Fabaceae, Malvaceae, Acanthaceae, Rubiaceae etc. namely Ficus sp, Calotropis sp, Tridax sp, Polyalthia longifolia, Cassia fistula, Tabernaemontana sp, Alstonia scholaris, Ixora sp, Lantana camara, Cleome*

viscosa, Aegle sp, Citrus sp, Terminalia arjuna, Murraya sp, Psidiu.m guajava, Areca catechu, Cocos nucifera, Mangifera indica, Hibiscus sp, Zizyphus jujuba, Justicia sp, Sida sp, Nerium sp, Mussaenda frondosa, Cosmos sp, Zinnia sp, Bougainvillea sp and grasses which provide diverse habitat, food and breeding sites for butterflies.Famliy Nymphalidae with maximum of (n=7) species consist of 58.33%, followed by Papilionidae with (n=2) species which includes 16.66% of butterflies, family Pieridae with (n=2) species constitute of 16.66%,Lycaenidae with (n= 1) species which represents of 8.33% were recorded.

With the gradual decrease in greenery and increase in pollution, butterflies, birds and all wildlife are fast disappearing. This ecosystem destruction directly affects the destruction of butterfly diversity in that area. These modified habitats often influence butterfly species and their dynamics. Anthropogenic activities including intense encroachment stress from urban expansion, alteration of agricultural lands to monoculture rubber plantation etc. presently acting as potential threats.

5.CONCLUSION

Observations made in the present study conclude that Nymphalidae was the most dominant family in terms of number of species followed by Lycaenidae, Papilionidae, and Pieridae. The study reports underline the importance of institutional campus as a preferred habitat for butterflies. If the diversity of the plants in the campus could maintain through proper landscaping and gardening, the diversity of butterflies may increase in the campus. Further, systematic research is essential to understand the status of butterflies. The present list of butterfly species is not conclusive a future exploration will be needed to update this checklist.

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