

Full Length Research Article

STUDY ON DIVERSITY OF BUTTERFLIES IN COURTALLAM HILLS, TAMIL NADU, SOUTH INDIA

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The diversity of butterflies in Courtallam hills situated in Tamil Nadu, India was studied for two years using transect method. There was prevalence of one hundred and one species, representing five families. Nymphalidae was the most prevalent family and the least represented family was Hesperidae.

Key words: Courtallam hills, Butterfly diversity, Nymphalidae, Papilionidae, Pieridae, Lycaenidae, Hesperidae.

INTRODUCTION

Butterflies are among the most charismatic group of animals. Butterflies receive reasonable amount of attention throughout the world, not only by the entomologists but also by lay men. They play important roles in many ecosystems as pollinators, herbivores and as food for a wide range of species, for example bats and birds. In India, pioneering work in butterfly studies dates back to the 19th century (Goankar, 1996). The number of Indian butterflies amount to one-fifth of the world species (Kunte, 2000). There are 16,823 species recorded from all over the world and among them 1501 species of butterflies are recorded from India (Goankar, 1996). Butterflies pollinate more than fifty economically important crops (Borges *et al.*, 2003). There are a number of records of butterflies in various places in India. Biological diversity is increasingly recognized as a vital parameter to assess global and environmental changes. This attempt was made to fill the investigations on the diversity of butterflies at the Courtallam hills in Tirunelveli District.

MATERIALS AND METHODS

Study site: Tirunelveli District is one of the largest districts of Tamil Nadu. The Courtallam hills is 06 km from Tenkasi and the elevation reaches 650 mts. The sampling was carried out at three sites in the Courtallam hills as given in Table 1. The Courtallam hills survey on butterflies was carried out at the three sites on sunny days every month continuously for two years from November 2009 to October 2011. The abundance and seasonality was observed from 9 to 15 hrs by transect counting. The study site comprised a 5 km × 5 km grid. Collection of specimen was avoided and photographic documentation was done. Butterflies were identified by various field guides (Kunte, 2000, Antram, 2002).

RESULTS AND DISCUSSION

The surveyed for two years had representatives of 101 species, which included the five families (Tables 2-6).

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Nymphalidae was the dominant family with 32 species followed by lycaenidae (25 species), Pieridae (23 species), Papilionidae (12 species) and Hesperidae (9 species) (Fig.1). Predominance of Nymphalidae had been reported by earlier workers also (Kunte *et al.*, 1999, Dolio *et al.*, 2008). The Nymphalids are a large group of robust bodied butterflies that come in every shape and colour. Highest number of butterfly species belong to this family. Few species are distributed throughout the year. Family lycaenidae has blue upper sides and they are the prettiest and smallest butterflies, which include 25 species. The family Pieridae has the most familiar butterflies. Over 35 species are represented in this family in peninsular India, out of which 33 species are found in Western Ghats and 23 species in Courtallam hills.

Table 1. Sampling sites selected at Courtallam hills

S.No	STUDY SITE
1.	Surrounding area of Main falls
2.	Surrounding area of Five falls
3.	Surrounding area of Old Courtallam falls

Among them, common Jezebel is endemic to peninsular India and Sri Lanka. Common grass yellow of this family is abundant. The species abundance rose from the beginning of monsoon, from the months June to July and reached a peak in the months from August to November. A decline in species abundance was observed from the months December to January and continued up to the end of May. Even though family Lycaenidae, Pieridae and Nymphalidae exhibited maximum species diversity, the reason for the abundance of Nymphalidae in the study area may be due to the dominance of larval food plants in the region (Balasubramaniam *et al.*, 2001). About 105 species of swallow tails (papilids), of the world's 700 are found in India, among them 19 species are present in the peninsular India, of which 12 species are reported from Courtallam hills. India's largest butterfly Southern Bird wing endemic to the western Ghats was also seen in Courtallam hills. The Papilionidae also includes Crimson rose and Blue mormon endemic to India and Sri Lanka. Most browns are less seen due to their retiring habits.

Table 2. Nymphalidae butterflies of Courtallam hills

S. No	Common name	Zoological Name
1	Angled castor	<i>Ariadne ariadne</i>
2	Baronet	<i>Euthalia nais</i>
3	Black raja	<i>Charaxes solon</i>
4	Blue pansy	<i>Junonia orithiya</i>
5	Blue spotted crow	<i>Euploea midamus</i>
6	Common baron	<i>Euthalia aconthea</i>
7	Chocolate pansy	<i>Junonia iphita</i>
8	Club beak	<i>Libythea lepita</i>
9	Commander	<i>Moduza procris</i>
10	Common four ring	<i>Ypthima huebneri</i>
11	Common indian crow	<i>Euploea core</i>
12	Common lascar	<i>Neptis hordonia</i>
13	Common leopard	<i>Phalanta phalanta</i>
14	Common nawab	<i>Polyura athamas</i>
15	Danaid eggfly	<i>Hypolimnas misippus</i>
16	Dark blue tiger	<i>Tirumala septentrionis</i>
17	Evening brown	<i>Melanitis leda</i>
18	Gladeye bush brown	<i>Mycalesis patnia</i>
19	Great egg fly	<i>Hypolimnas bolina</i>
20	Grey pansy	<i>Junonia atlites</i>
21	Jungle glory	<i>Thaumantis diores</i>
22	Lemon pansy	<i>Junonia lemonias</i>
23	Long brand bush brown	<i>Mycalesis visala</i>
24	Peacock pansy	<i>Junonia almana</i>
25	Plain tiger	<i>Danaus chrysippus</i>
26	Sailer	<i>Neptis hylas</i>
27	Striped tiger	<i>Danaus genuita</i>
28	Tawny coster	<i>Acraea violae</i>
29	White five ring	<i>Ypthima baldus</i>
30	White four ring	<i>Ypthima ceylonica</i>
31	Yellow pansy	<i>Junonia hierta</i>
32	Yellow sailer	<i>Neptis ananta</i>

Table 3. Papilionidae butterflies of Courtallam hills

S. No	Common Name	ZOOLOGICAL NAME
1	Blue Bottle Jay	<i>Graphium sarpedon</i>
2	Blue Mormon	<i>Papilio polymnestor</i>
3	Common Banded Peacock	<i>Papilio crino</i>
4	Common Jay	<i>Graphium doson</i>
5	Common Mormon	<i>Papilio polytes</i>
6	Common Rose	<i>Atrophaneura aristolochiae</i>
7	Crimson Rose	<i>Atrophaneura hector</i>
8	Glassy Blue Bottle	<i>Graphium cloanthus</i>
9	Lime Butterfly	<i>Papilio demoleus</i>
10	Southern Birdwing	<i>Troides minos</i>
11	Spot Sword Tail	<i>Graphium nomius</i>
12	Tailed Jay	<i>Graphium agamemnon</i>

Table 4. Pieridae butterflies of Courtallam hills

S. No	Common Name	ZOOLOGICAL NAME
1	Chocolate Albatross	<i>Appias lyncida</i>
2	Common Albatross	<i>Appias albino</i>
3	Common Emigrant	<i>Catopsila crocale</i>
4	Common Grass Yellow	<i>Eurema hecabe</i>
5	Common Gull	<i>Cepora nerissa</i>
6	Common Jezebel	<i>Delias eucharis</i>
7	Common Wanderer	<i>Pareronia valeria</i>
8	Crimson Tip	<i>Colotis danae</i>
9	Dark Wanderer	<i>Pareronia ceylanica</i>
10	Great Orange Tip	<i>Hebomia glaucippe</i>
11	Large Salmon Arab	<i>Colotis fausta</i>
12	Lesser Gull	<i>Cepora nadina</i>
13	Mottled Emigrant	<i>Catopsila pyranthe</i>
14	One Spot Grass Yellow	<i>Eurema andersoni</i>
15	Pioneer	<i>Belonisa aurora</i>
16	Psyche	<i>Leptosia nina</i>
17	Small Grass Yellow	<i>Eurema brigitta</i>
18	Small Salmon Arab	<i>Colotis amata</i>
19	Striped Albatross	<i>Appias libythea</i>
20	Three Spotted Grass Yellow	<i>Eurema blanda</i>
21	White Arab	<i>Colotis vestalis</i>
22	White Orange Tip	<i>Ixias marianne</i>
23	Yellow Orange Tip	<i>Ixias pyrene</i>

Table 5. Lycaenidae butterflies of Courtallam hills

S. No	Common Name	ZOOLOGICAL NAME
1	African Babul Blue	<i>Azanus jesus</i>
2	Banded Blue Pierrot	<i>Discolampa ethion</i>
3	Centraur Oak Blue	<i>Arhopala pseudocentaurus</i>
4	Common Cerulean	<i>Jamides celeno</i>
5	Common Pierrot	<i>Castalius rosimon</i>
6	Common Silver Line	<i>Spindasis vulcanus</i>
7	Elbowed Pierrot	<i>Caleta elna</i>
8	Forget Me Not	<i>Catochrysops strabo</i>
9	Indian Sun Beam	<i>Curetis thetis</i>
10	Large Guava Blue	<i>Deudorix perse</i>
11	Lesser Grass Blue	<i>Zizina otis</i>
12	Lime Blue	<i>Chilades lajus</i>
13	Malayan	<i>Megisba malaya</i>
14	Monkey Puzzle	<i>Rathinda amor</i>
15	Pale Grass Blue	<i>Pseudozizeeria maha</i>
16	Plum Judy Brown	<i>Abisara echerius</i>
17	Point Ciliated Blue	<i>Anthene lycaenina</i>
18	Red Pierrot	<i>Talicauda nyseus</i>
19	Rounded-6-Line Blue	<i>Nacaduba berenice</i>
20	Silver Line Blue	<i>Spindasis lohita</i>
21	Striped Pierrot	<i>Tarucus nara</i>
22	Tailed Line Blue	<i>Prosotas felderi</i>
23	Tailless Line Blue	<i>Prosotas dubiosa</i>
24	Transparent 6 Line Blue	<i>Nacaduba kurava</i>
25	Zebra Blue	<i>Leptotes plinius</i>

Table 6. Hesperidae butterflies of Courtallam hills

S. No	Common Name	ZOOLOGICAL NAME
1	Chestnut Bob	<i>Lambrix salsala</i>
2	Common Banded Awl	<i>Hasora chromus</i>
3	Common Snow Flat	<i>Tagiades japedus</i>
4	Dark Palm Dart	<i>Telicota ancilla</i>
5	Golden Angle	<i>Caprona ransonnetti</i>
6	Pale Palm Dart	<i>Telicota colon</i>
7	Southern Spotted Ace	<i>Thoressa astigmata</i>
8	Spotted Angle	<i>Caprona agama</i>
9	White Banded Awl	<i>Hasora taminatus</i>

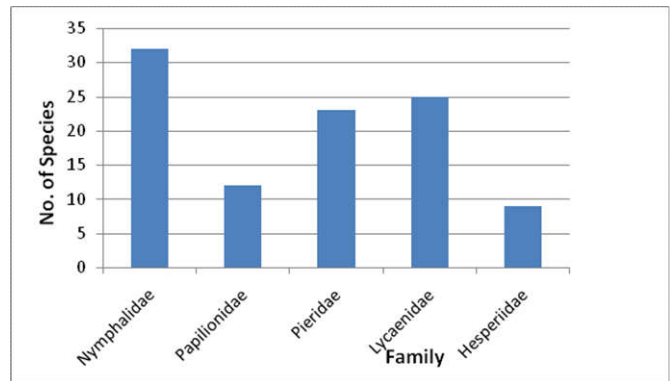


Fig. 1. Butterfly diversity (family wise) in Courtallam hills

They keep to shady undergrowth and they are usually sighted inside the forests and bushes. This might be the reason for the prevalence of 9 species of Hesperids. Butterfly diversity studies carried out at various places showed a varied pattern the Lakkavalli range of Bhadra Wildlife Sanctuary, Karnataka with 54 species, west Singhbhum in Jharkand revealed 71 species (Arun, 2010). Nymphalid butterflies in Rani-Garbhangra reserve forest, Assam had 109 species (Saikia *et al.*, 2010). The diversity in tropical forest research institute, Jabalpur, had 66 species (Tiple, 2012). Among the 101 species recorded only two species crimson rose and Danaid Egg Fly are in schedule-I and common baron on Schedule-II, as per the

Indian Wildlife Protection Act (1972). The study area also has five species Crimson rose, Blue mormon, Southern Bird wing and Common Jezebel endemic to peninsular India and Sri Lanka. The present study has thrown light on the biodiversity of the butterflies in the Courtallam hills.

REFERENCES

- Antram, C.B. 2002 .Butterflies of India, Mittal Publication, New Delhi, 226 pp. Arun, P.S. 2010. Butterfly diversity in tropical moist deciduous sal forest of Ankur reserve forest, Jharkand India. *Journal of Threatened Taxa*, 2 (9): 1130 – 1139.
- Balasubramanian.P, Mahendramani, P. and Padmapriya, K. 2001. Comparison of plant diversity pattern of various disturbed habitats of Moongilpallam area in the Western Ghats report,Salim Ali Centre for ornithology and natural history, Coimbatore, 56-70 p.
- Borges, R.M., Gowda, V. and Zacharias, M. 2003. Butterfly pollination and high contrast visual signals in a low density distylous plant. *Oceologia*, 136: 571-573.
- Dolio, J., Devy, M.S., Aravind, N.A and Kumar, A. 2008. Adult butterfly communities in coffee plantations around a protected area in the western Ghats, India. *Animal Conservation*, 11:26-34.
- Gaonkar, H. 1996. Butterflies of Western Ghats, India including Sri Lanka; A biodiversity assessment of threatened mountain system. A report submitted to Center for Ecological Sciences IISc, Bangalore 86pp.
- Kunte, K.J 2000. Butterflies of Peninsular India. Indian Academy of Sciences, Bangalore and university press, Hyderabad.
- Kunte,K., Joglekar, A., Utkarsh, G. and Pramod, P. 1999. Patterns of butterfly, bird and tree diversity in Western Ghats. *Current Science India*, 29:1-14.
- Ragavendra, G., Vijaya Kumara, H.T., Pramod, A.F. and Hosetti, B.B. 2011. Butterfly diversity, seasonality and status in Lakhavalli range of Bhadra wildlife sanctuary, Karnataka. *World Journal of Science & Techology*, 11: 67-72.
- Saikia, K.M., Jatin,k. and Prasanta, K.S 2010. Seasonality of Nymphalid butterflies in Rani-Garbhangra reserve forest, Assam, India. *NeBio*, 1(4): 10-21.
- Tiple, A.D 2012. Butterfly species diversity, relative abundance and status in Tropical Forest Research Institute, Jabalpur, Madhya Pradesh, Central India. *Journal of threatened Taxa*, 7: 2713-2717.
