

Diversified Species of Butterflies in Akathiyur Village

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ABSTRACT

Butterfly variety in Akathiyur village, Thrissur, Kerala, India, was studied in various regular aspects. Species diversity was observed and analyzed. Based on different parameters species richness was analysed. An aggregate of 110 butterfly species under 5 families are listed. The village proves itself as a home for myriads of butterflies. Families Nymphalidae, Lycaenidae, Hesperidae, Pieridae and Papilionidae, were distinguished. Maximum number of butterflies recorded in this study was in the family Nymphalidae (3587 sightings; 39.14%), followed by Lycaenidae (2326 sightings; 25.38%), Hesperidae (1557 sightings; 16.99%), Pieridae (1004 sightings; 10.95%) and Papilionidae (690 sightings; 7.52%). The findings unveil that the comparatively small study area constitutes high richness of butterfly species.

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Introduction

The Indian subcontinent bearing a diverse terrain, climate and vegetation hosts about 1,504 species of butterflies [1]. Butterflies enable sustenance of ecosystem services through their role in pollination and serving as important food chain components. Being potential pollinating agents of their nectar plants as well as indicators of the health and quality of their host plants and the ecosystem as a whole, exploration of butterfly fauna thus becomes important in identifying and preserving potential habitats under threat. Butterflies are potentially useful ecological indicators of urbanization because they can be readily surveyed, and they are sensitive to changes in microclimate, temperature, solar radiation, and the availability of hostplants for ovipositing and larval development [2]. Increased urban features, including roads, buildings and moved lawns, correspond with decreases in butterfly species richness, diversity and abundance [3]. Urbanization also is associated with habitat degradation including decreased plant species diversity, reduced water quality and increased air and soil pollutions [4]. India, with its differentiated biological systems going from the snow-clad mild woodlands in the Himalayas to the tropical wet evergreen backwoods of the Western Ghats, has a rich butterfly fauna. Up until now, about 1500 types of butterflies have been recorded from India, of which around 314 species are found in Kerala, which incorporates a high extent of uncommon and endemic species. These butterflies are found in the Western Ghats locale also [5]. A significant number of butterfly species are carefully occasional and incline toward just a specific arrangement of natural surroundings and they are acceptable pointers as far as anthropogenic aggravation and territory quality [6]. The soonest logical records of the butterflies of Western Ghats go back to the eighteenth-century records by Linnaeus, Fabricus and Cramer. From that point forward, there have been numerous investigations on butterflies from various pieces of southern India [7]. In Peninsular India, 334 butterfly species were accounted for from the Western Ghats [8] and 150

species from the Eastern Ghats locale [9]. The reductions in amount and quality of natural habitat associate with urban development negatively affect nature biodiversity. In India pioneering work in butterfly studies dates back to the 19th Century. Since, there have been many studies on butterflies from different parts of the India, specially Kerala. [10]. The number of Indian butterflies amount to one fifth of the world of butterfly species [11]. In view of the essential ecosystem services rendered by butterflies and to promote conservation management, the present study was aimed at the estimation of the butterfly diversity across the village areas of Kalashamala, Thrissur, Kerala, India and the results of the study are expected to supplement the necessary information on the ecological roles and conservation management of the butterfly species in Thrissur, Kerala India and similar geographical areas.

Materials and Methods

Study site

The study site is located at Akathiyur village, (22°74'88" N and 88° 35' 46" E) which belongs to the Porkulam Panchayath, Near Chowannur village, in Thrissur district of Kerala state. There is an area which is a heritage site, Kalasamala, which is labeled as protected area of the department of State government of Kerala. The research area is spread over 200 acres having tropical shrub and herb vegetation of naturally growing bushy shrubs, herbs, climbers, small grasses and large trees. Good source of nectar, coconut gardens, paddy fields, butterfly gardens in abundance food plants suitable for egg laying, open sunny space, no pesticides and less anthropological disturbance has resulted in varied species diversity of butterflies in the area.

Moreover, in the study site, various human activities like shooting, sporting, picnic, fuel wood collection by locals, grazing by livestock are common. The place is also famous for its aesthetic value and religious rituals. A temple, is present at the study site. The present survey was aimed to prepare a check list of the butterflies found in kalashamala and related area. Since there is no research on butterflies done before.

Sampling

In the present study observations were made during September, 2016-November, 2015 i.e. post monsoon season following modified Pollard Walk Method [12] A fixed three transects of 200 m length walked twice a day with 5 m on either side covered in an hour walking at constant pace between 06:00 hrs and 17:00 hrs. The samplings were done for every 2 days interval and resulted in a final count of 180 transects from study location. All the butterflies on the line as well as 5 m on each side were recorded with respective time and number of individuals seen. Butterfly species were identified directly in the field following photography and identification. No capture or collections were made during the present study. Butterflies were photographed from different angles as often as possible to obtain sufficient photographs to enable positive identification of species. The observed butterflies were categorized in five categories on the basis of their abundance in the study site (Table 1): C-regular (40-100 sightings), Uncommon (10-40 sightings, R-Rare (1-10) sightings were recorded

Statistical Analysis

Shannon index or H' : Species diversity was calculated using the Shannon I relative abundance of each species [13]

$$H' = -\sum p_i \ln p_i$$

Here, p_i is the proportion of the i th species in the total sample. The number of species (species richness) in the community and their evenness abundance (or equitability) are the two parameters that define H' .

Pielou's Evenness index (Equitability) or J'

The species evenness is the relative abundance or proportion of individuals among the species. Evenness of species reveals how their relative abundance is distributed in a particular sample or site. [14].

$$J' = H' / \ln S$$

Here, S is the number of species present in the site. The value of J' range from 0 to 1. The less variation in communities between the species, the higher the value of J' .

Simpson's dominance index or Ds

Species dominance across habitats was estimated by Simpson's dominance index [15]. This index was used to determine the proportion of more common species in a community or an area by the following formula

$$D_s = \sum \frac{n_i(n_i-1)}{[N(N-1)]}$$

Where, n_i is the population density of the i th specie and is the total population density of all component species in the study site.

Results and Discussion

During the systematic survey, a total of 9164 sightings consist of 110 species of butterfly belonging to five families were recorded and enlisted in Table 1. Nymphalidae showed the maximum number of individuals, comprising of Nymphalidae (3587 individuals (39.14%), followed by Lycaenidae 2326 individuals, 25.38%), Hesperidae (1557 individuals, 16.99%), Pieridae ((1004 individuals, 10.95%), and Papilionidae (690). Study reveals high species richness and evenness and low dominance at the study area. This is most likely due to suitable micro-environmental conditions and easy availability of host plants. Habitat- Butterflies association can be directly related to the availability of larval host plants, vegetation cover of herbs, shrubs and trees for nectaring of butterflies [16] Butterfly in the tropics is highly endemic and diversity is mostly depends on forest vegetation [17] In this present study Shannon Weiner Diversity (H') for

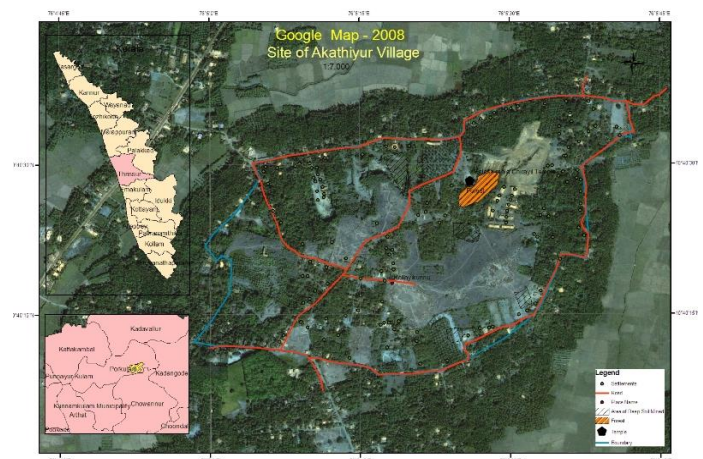
all the samples of all 72 genera is 4.55063 indicates significant diversity for the sampled area. Pielou's Evenness Index for the study samples is 0.968121979 which indicates significant evenness therefore no significant disturbance in their habitat. Therefore dominance is at very low level and therefore high evenness.

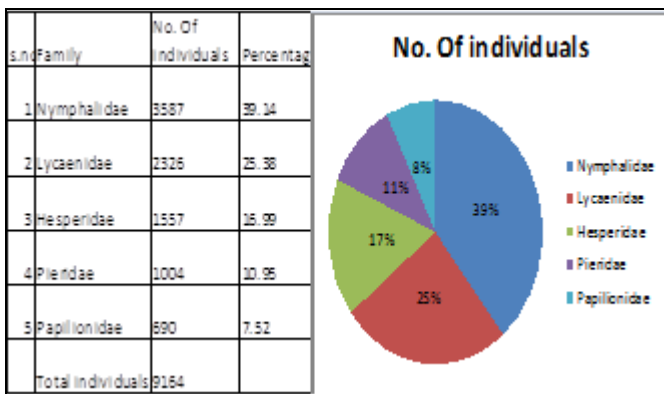
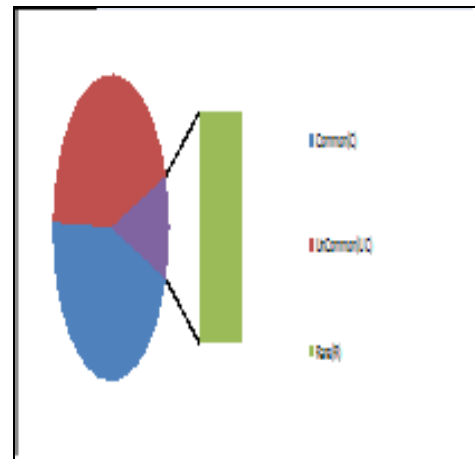
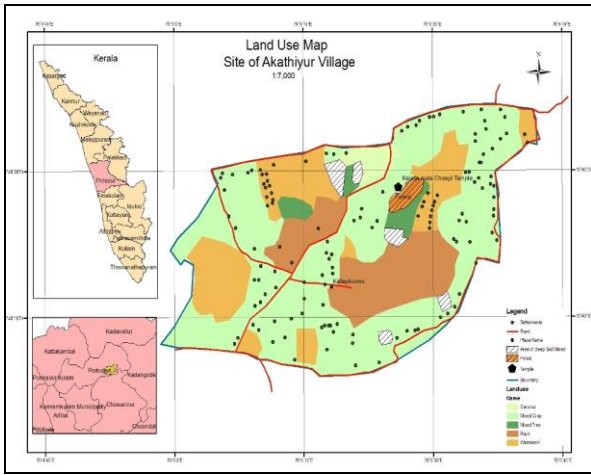
Conclusion

The present study indicates the importance of nature preservation, particularly protection of the study area, serves as a preferred habitat for butterflies. The study site recently, offer economical services, for example, Tourism advancement undertaking ought to deliberately be executed the ecofriendly methods for appropriate protection of the zone. Despite the fact that the territory is controlled and protected by the administration, nearby and visiting people does harm to the natural habitat and landscape, without knowing its importance. The rare plant species, *Syzygium travancoricum*, of this specific zone is at the edge of extinction. On the off chance that the landscape and the native flora are conserved in sustainable manner, the diversity of butterflies may increase in the study area providing a rich ground for butterfly conservation as well as for research and ecotourism. Findings of this study will also contribute to future attempts in understanding the complex nature of mutualistic interaction between butterflies and flowering plants that is essential for continuity of ecosystem services. No butterfly abundance study have been performed in study sites, this is one of the pioneering effort in exploring the butterfly diversity at this region. It may be noted that only a small selected area I was studied and that too for shorter time span, a more intensive study would surely result in identifying many more species. Detailed studies could be made to improve the list of butterfly species and to ascertain their characteristic distribution in different habitat patches from the present location. The impact of anthropogenic alteration of the habitats in Akathiyur also needs intensive studies. This investigation prescribes for well-set up butterfly garden with adequate host plants, which will sure improve the biodiversity and Eco-Tourism industry program in maimum level.

Acknowledgement

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Status	%
Common	Above 40
Uncommon	10-40
Rare	Bbelow 10

Status of butterfly species at study site

Zone-wise Data indices of observed Butterflies in the site

Location	No. of species	No. of individuals	Evenness index	Diversity index	Dominanceindex
Shola GI	42	1832	0.946700955	3.538455398	0.153185936
Grassland GII	26	1831	0.970263906	3.161213473	0.064403564
Pond GIII	19	1869	0.942431146	2.774931	0.028851968
Mountain GIV	12	1855	0.970260191	2.411006	0.011992559
Agrie field GV	11	1777	0.926682256	2.222087	0.005661683
Total	110	9164	0.96812198	4.550638	

Family-wise Data indices of Butterflies observed in study site

Family	Diversity (H)	No. of Species(S)	Ln (S)	Evenness	Dominance
Nymphalidae	3.538455	42	3.73767	0.946701	0.153186
Lycaenidae	3.161213	26	3.258097	0.970264	0.064404
Hesperiidae	2.774931	19	2.944439	0.942431	0.028852
Pieridae	2.411006	12	2.484907	0.97026	0.011993
Papilionidae	2.222087	11	2.397895	0.926682	0.005662

A Checklist of Butterflies of Akathiyyur, Thrissur, Kerala.

	Common Name	Scientific Name	S1	S2	S3	Status
FAMILY : NYMPHALIDAE						
1.	Black rajah	Charaxes solon	√		√	Uncommon
2.	Black ivein isergeant (SC-II)	Athyma ranga		√	√	Uncommon
3.	Blue pansy	Junonia orithya	√	√	√	Common
4.	Blue tiger	Thirumala liminiace	√	√	√	Common
5.	Chestnutstreakedsailor (SCII)	Neptis jumbah	√	√	√	Common
6.	Chocolate pancy	Junonia iphita	√	√	√	Common
7.	Clipper (SCII)	Parthenos sylvia	√		√	Uncommon
8.	Club beak	Libythea lepita	√		√	Uncommon
9.	Commander	Limnitis procris	√	√	√	Common
10.	Common banded sailer	Neptis hylas papaja	√	√	√	Common
11.	Common baron (SCII)	Euthalia aconthea			√	Rare

12.	Common Bush Brown	<i>Mycalasis perseus</i>	√	√	√	Common
13.	Common Castor	<i>Ariadne merione</i>		√	√	Uncommon
14.	Common evening brown (SCII)	<i>Melanitis leda</i>	√	√	√	Common
15.	Common five ring	<i>ypthima baldus</i>		√	√	Uncommon
16.	Common Indian crow (SCII)	<i>Euploea core</i>	√	√	√	Common
17.	Common Lascar	<i>Pantoporia hordonia</i>	√		√	Uncommon
18.	Common Leopard	<i>Phalantha phalantha</i>	√		√	Uncommon
19.	Common Nawab	<i>Polyura athamas</i>		√	√	Uncommon
20.	Common Palm fly	<i>Elymnias hypermnestra</i>		√	√	Uncommon
21.	Common Sailor	<i>Neptis hylas</i>		√	√	Uncommon
22.	Common Seargeant	<i>Athyma perius</i>		√	√	Uncommon
23.	Dark banded bush brown (SCII)	<i>Mycalasis orcha</i>		√	√	Uncommon
24.	Danaid Egg fly (SCII)	<i>Hypolimnas missippus</i>	√	√	√	Common
25.	Dark blue tiger	<i>Thirumala septentrionis</i>	√	√	√	Common
26.	Dark evening brown (SCII)	<i>Melanitis phedima</i>		√	√	Uncommon
27.	Glad eye bush brown	<i>Mycalasis patina</i>	√		√	Uncommon
28.	Glassy tiger	<i>Parantica aglea</i>	√	√	√	Common
29.	Great egg fly	<i>Hypolimnas bolina</i>	√	√	√	Common
30.	Grey count (SCII)	<i>Tanaecia lepidea</i>			√	Rare
31.	Grey pansy	<i>Junonia atlites</i>	√	√	√	Common
32.	Lemon pansy	<i>Junonia lemonias</i>	√	√	√	Common
33.	Malabar Tree Nymph	<i>Idea malabarica</i>	√	√	√	Common
34.	Nigger	<i>Orsotrioena medus</i>	√	√	√	Common
35.	Peacock pansy	<i>Junonia almana</i>	√		√	Uncommon
36.	Plain tiger	<i>Danaus chrysippus</i>		√	√	Uncommon
37.	South Indian Blue oak leaf	<i>Kallima horsfieldi</i>	√		√	Uncommon
38.	Southern Rustic	<i>Cupha erymanthis</i>	√	√	√	Common
39.	Striped tiger	<i>Danaus genutia</i>	√	√	√	Common
40.	Tamil Yeoman	<i>Cirrochora thais</i>	√		√	Uncommon
41.	Tawny coster	<i>Acraea violae</i>	√		√	Uncommon
42.	Yellow Pansy	<i>Junonia hierta</i>	√	√	√	Common
	FAMILY: PAPILIONIDAE					
43.	Blue mormone	<i>Papilio polymnestor</i>		√	√	Uncommon
44.	Common blue bottle	<i>Graphium doson eleius</i>	√		√	Uncommon
45.	Common mormon	<i>Papilio polytes</i>	√	√	√	Common
46.	Common rose	<i>Pachilocta hector</i>	√	√	√	Common
47.	Crimson rose	<i>Pachilocta hector</i>			√	Rare
48.	Five bar swordtail	<i>Graphium antiphates</i>	√		√	Uncommon
49.	Great mormon	<i>Papilio mermon</i>		√	√	Uncommon
50.	Lime butterfly	<i>Papilio demoleus</i>		√	√	Uncommon
51.	Malabar Banded swallowtail	<i>Papilio liomedon</i>		√	√	Uncommon
52.	Red Helen	<i>Papilio helenus</i>		√	√	Uncommon
53.	Southern Birdwing	<i>Troides minos</i>	√		√	Uncommon
54.	Tailed jay	<i>Graphium agamemnon</i>	√	√	√	Common
	FAMILY: PIERIDAE					
55.	Chocolate albatross	<i>Appias lyncida</i>	√		√	Uncommon
56.	Common albatross	<i>Appias albina</i>	√	√	√	Common
57.	Common grass yellow	<i>Eurema hecabe</i>	√	√	√	Common
58.	Common jezebel	<i>Delias eucharis</i>	√	√	√	Common
59.	Lemon emigrant	<i>Catopsilia Pomona</i>	√	√	√	Common
60.	Mottled Emmigrant	<i>Catopsilia Pyranthe</i>	√	√	√	Common
61.	Plain Puffin	<i>Appias indra</i>	√		√	Common
62.	Psyche	<i>Leptosia nina</i>	√	√	√	Common
63.	spotless grass yellow	<i>Eurema laeta</i>	√	√	√	Common
64.	Striped albatross	<i>Appias libythea</i>	√	√		Uncommon
65.	Yellow orange tip	<i>Ixias pyrene</i>	√	√	√	Common
	FAMILY: LYCAENIDAE					
66.	Angled pierrot	<i>Caleta caleta</i>	√	√	√	Common
67.	Blue banded pierrot	<i>Talacada nyseus</i>		√	√	Common
68.	Centaur oak blue	<i>Thaduk multicaudata</i>			√	Rare
69.	Common Acacia blue	<i>surendra quercetorum</i>	√	√	√	Common
70.	Common cerulean	<i>Jamides celeno</i>	√	√	√	Common
71.	Common hedge blue	<i>Actolepis puspa</i>	√		√	Uncommon
72.	Common imperial	<i>Cheritra freja</i>	√	√	√	Common
73.	Common lime blue	<i>Prosotas nora</i>	√	√	√	Common
74.	Common silverline	<i>Spindasis vulcanus</i>	√	√	√	Common
75.	Dark Cerulean	<i>Jamides bochus</i>	√		√	Common

76.	Eastern Plain Hedgeblue	Celastrina Limbatus	√	√	√	Common
77.	Forget-me-not	Catochrysops strabo	√		√	Common
78.	Gram blue	Euchrysop cnejus	√		√	Uncommon
79.	Grass Jewel	Freyeria trochylus	√	√	√	Common
80.	Lime Blue	Chlades lajus	√	√	√	Common
81.	Many Tailed Oak Blue n	Thaduka multicaudata	√		√	Uncommon
82.	Metallic Cerulean	Jamides alecto	√	√	√	Common
83.	Monkey Puzzle	Rathinda amor	√	√	√	Common
84.	Plain hedge blue	celestrina lavedularis	√	√	√	Common
85.	Quaker	Neopithecops zalmora	√	√	√	Common
86.	Red Pierriot	Talicauda nyseus		√	√	Uncommon
87.	short banded cerulean	Jamides celeno	√	√	√	Common
88.	Slate Flash	Rapala manea		√	√	Uncommon
89.	Tiny Grass Blue	Zizula hylax	√	√	√	Common
90.	Yamfly	Loxura atymnas	√		√	Uncommon
91.	Zebra Blue	Leptotes plinius	√	√	√	Common
	FAMILY:HESPERIDAE					
92.	Banded Awl	Hasara chramus	√	√	√	Common
93.	Brown Awl	Badramia exclamationis	√	√	√	Common
94.	Chestnut bob	Iambrix salsala	√	√	√	Common
95.	Common Awl	Hasara badra	√	√	√	Common
96.	Fulvous Pied Flat	Pseudocola deniadan	√	√	√	Common
97.	Giant red ey	Gangara thyrsis	√	√	√	Common
98.	Grass demon	Udaspes folus	√	√	√	Common
99.	Immaculate largeSnow flatt	Tagiades gana	√		√	Uncommon
100.	Indian Grizzled Skipper	Sipalia galba	√	√	√	Common
101.	Indian Palm bob	Suastus igremius	√		√	Uncommon
102.	Oriental Grass Dart	Taratctrocera m.sagara	√		√	Uncommon
103.	Restricted demon	Notocrypta curvifascia	√		√	Uncommon
104.	Rice swift	Borbo cinnara	√	√	√	Uncommon
105.	Smaller Dartlett	Oriens Goloides	√		√	Uncommon
106.	Spotted Small flat	Sarangesa purendra	√		√	Uncommon
107.	Tricoloured piedFlat	Coladenia indrani		√	√	Uncommon
108.	Water snow flat	Tagiades litigiosa		√	√	Uncommon
109.	Common Grass Dart	Taratctrocera maeuius	√		√	Uncommon
110.	Coon	Psolos fuligo	√		√	Uncommon

Shola - GI, Grassland - GII, Pond GIII, Mountain GIV, Agrie field GV

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FAMILY: NYMPHALIDAE

1 *Acraea terpsicore* (Linnaeus, 1758)



2 *Athyma perius* (Linnaeus, 1758)



3 *Athyma ranga* Moore, [1858]



4 *Charaxes bharata* C. & R. Felder, [1867]



5 *Charaxes solon* (Fabricius, 1793)



6 *Cirrochroa thais* (Fabricius, 1787)



7 *Cupha erymanthis* (Drury, [1773])



8 *Danaus chrysippus* (Linnaeus, 1758)



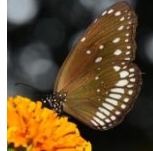
9 *Danaus genutia* (Cramer, [1779])



10 *Elymnias hypermnestra* (Linnaeus, 1763)



11 *Euploea core* (Cramer, [1780])



12 *Euthalia aconthea* (Cramer, [1777])



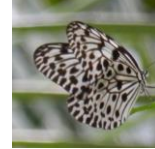
13 *Hypolimnias bolina* (Linnaeus, 1758)



14 *Hypolimnias misippus* (Linnaeus, 1764)



15 *Idea malabarica* (Moore, 1877)



16 *Junonia almana* (Linnaeus, 1758)



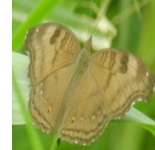
17 *Junonia atlites* (Linnaeus, 1763)



18 *Junonia hierta* (Fabricius, 1798)



19 *Junonia iphita* (Cramer, [1779])

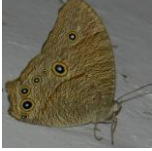
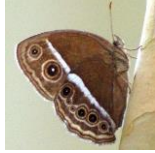
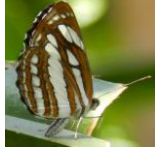
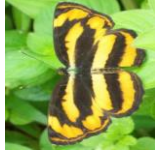
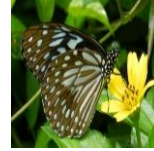


20 *Junonia lemonias* (Linnaeus, 1758)



21 *Junonia orithya* (Linnaeus, 1758)














22 *Kallima horsfieldii* (Kollar, [1844])23 *Libythea myrrha* Godart, 18192424 *Melanitis leda* (Linnaeus, 1758)25 *Melanitis phedima* (Cramer, [1780]) SCII26 *Moduza procris* (Cramer, [1777])27 *Mycalesis mineus* (Linnaeus, 1758)28 *Mycalesis patnia* (Moore, 1857)29 *Mycalesis perseus* (Fabricius, 1775)30 *Neptis hylas* (Linnaeus, 1758)31 *Neptis jumbah* Moore, [1858]32 *Neptis nata* Moore, [1858]33 *Orsotriaena medus* (Fabricius, 1775)34 *Pantoporia hordonia* (Stoll, [1790])35 *Parantica aglea* (Stoll, [1782])36 *Parthenos sylvia* (Cramer, [1775])38 *Tanaecia lepidea* (Butler, 1868)39 *Tirumala limniace* (Cramer, [1775])40 *Tirumala septentrionis* (Butler, 1874)41 *Ypthima baldus* (Fabricius, 1775)42 *Ypthima huebneri*, (Kirby, 1871)

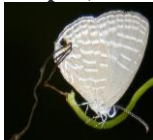
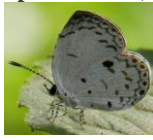
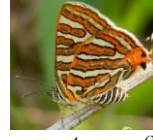
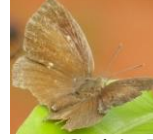
FAMILY: PAPILIONIDAE

- | | | |
|---|---|---|
| 1 <i>Graphium paphus</i> (de Nicéville, 1886) (Spectacle) | 5 <i>Pachliopta hector</i> (Linnaeus, 1758) | 9 <i>Papilio memnon</i> Linnaeus, 1758) |
|  |  |  |
| 2 <i>Graphium agamemnon</i> (Linnaeus, 1758) | 6 <i>Papilio demoleus</i> Linnaeus, 1758) | 10 <i>Papilio polymnestor</i> Cramer, 1775) |
|  |  |  |
| 3 <i>Graphium sarpedon</i> (Linnaeus, 1758) | 7 <i>Papilio helenus</i> Linnaeus, 1758) | 11 <i>Papilio polytes</i> Linnaeus, 1758) |
|  |  |  |
| 4 <i>Pachliopta aristolochiae</i> (Fabricius, 1775) | 8 <i>Papilio liomedon</i> Moore, [1875] | 12 <i>Troides minos</i> (Cramer, [1779]) |
|  |  |  |

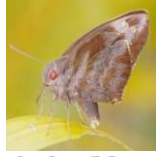
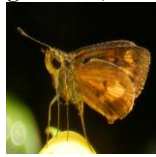
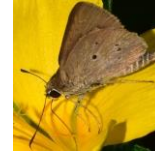
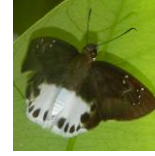
FAMILY: PIERIDAE

- | | |
|---|--|
| 1 <i>Appias albina</i> (Boisduval, 1836) | 7 <i>Eurema hecabe</i> (Linnaeus, 1758) |
|  |  |
| 2 <i>Appias indra</i> (Moore, [1858]) | 8 <i>Catopsilia pomona</i> (Fabricius, 1775) |
|  |  |
| 3 <i>Appias libythea</i> (Fabricius, 1775) | 9 <i>Eurema laeta</i> (Boisduval, 1836) |
|  |  |
| 4 <i>Appias lycida</i> (Cramer, [1777]) | 10 <i>Ixias pyrene</i> (Linnaeus, 1764) |
|  |  |
| 5 <i>Catopsilia pyranthe</i> (Linnaeus, 1758) | 11 <i>Leptosia nina</i> (Fabricius, 1793) |
|  |  |
| 6 <i>Delias eucharis</i> (Drury, 1773) | |
|  | |

FAMILY: LYCANIDAE

1 *Acytolepis puspa* (Horsfield, [1828])2 *Arhopala centaurus* (Fabricius, 1775)3 *Caleta decidia* (Hewitson, 1876)4 *Catochrysops strabo* (Fabricius, 1793)5 *Celastrina lavendularis* (Moore, 1877)6 *Cheritra freja* (Fabricius, 1793)7 *Chilades lajus* (Stoll, [1780])8 *Chilades parrhasius* (Fabricius, 1793)9 *Discolampa ethion* (Westwood, [1851])10 *Euchrysops cnejus* (Fabricius, 1798)11 *Freyeria trochylus* (Freyer, 1845)12 *Jamides alecto* (C. Felder, 1860)13 *Jamides bochus* (Stoll, [1782])14 *Jamides celeno* (Cramer, [1775])15 *Jamides elpis* (Godart, [1824])16 *Leptotes plinius* (Fabricius, 1793)17 *Loxura atymnus* (Stoll, 1780)18 *Neopithecops zalmora* (Butler, [1870])19 *Prosotas nora* (C. Felder, 1860)20 *Rapala manea* (Hewitson, 1863)21 *Rathinda amor* (Fabricius, 1775)22 *Spindasis vulcanus* (Fabricius, 1775)23 *Surendra quercetorum* (Moore, [1858])24 *Talicauda nyseus* (Guérin-Méneville, 1843)25 *Thaduka multicaudata* Moore, [1879]26 *Zizula hylax* (Fabricius, 1775)

FAMILY: HESPERIIDAE

1 *Badamia exclamationis* (Fabricius, 1775)2 *Borbo cinnara* (Wallace, 1866)3 *Coladenia indrani* (Moore, [1866])4 *Gangara thyrsis* (Fabricius, 1775)5 *Hasora badra* (Moore, [1858])6 *Hasora chromus* (Cramer, [1780])7 *Lambrix salsala* (Moore, [1866])8 *Notocrypta curvifascia* (C. & R. Felder, 1862)9 *Oriens goloides* (Moore, [1881])10 *Pseudocoladenia dan* (Fabricius, 1787)11 *Psolos fuligo* (Mabille, 1876)12 *Sarangesa purendra* Moore, 188213 *Spialia galba* (Fabricius, 1793)14 *Suastus gremius* (Fabricius, 1798)15 *Tagiades gana* (Moore, [1866])16 *Taractrocera danna* (Moore, 1865)17 *Taractrocera maevius* (Fabricius, 17)18 *Udaspes folus* (Cramer, [1775])19 *Tagiades gana* (Evans, 1934) suffused snow flat