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### BUTTERFLIES OF PERINGOME VAYAKKARA PANCHAYATH, KERALA, INDIA

C. Sneha

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## BUTTERFLIES OF PERINGOME VAYAKKARA PANCHAYATH, KERALA, INDIA

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**Abstract:** The present study was made to assess the butterfly diversity of Peringome Vayakkara Panchayath located in the Western Ghats during 2012–13. The area is almost fully inhabited by humans and is under rapid conversion. A total of 108 species of butterflies belonging to six families were identified from the study area. The number of butterfly species encountered during winter was the highest (101), which decreased to 88 species in summer and it was only 67 during the rainy season. Fifty three species, however, were observed throughout the year. Seasonal variation on abundance was not very prominent in Papilionidae and Riodinidae. But Pieridae, Nymphalidae and Lycaenidae were less during the rainy season. On the other hand, Hesperidae were maximum during the rainy season.

**Keywords:** Butterflies, diversity, Kannur, Kerala, seasonality, Western Ghats.

Butterflies are the most beautiful members among insects. They vary greatly in colour, habits and size (Gay et al. 1992), have important ecosystem roles including pollination, and they are useful in studies of population and community ecology. As butterflies are highly sensitive to environments, they can be considered indicators of ecosystem changes. Hence, it is encouraging that butterflies are now being included in biodiversity studies and biodiversity conservation prioritization programmes (Gadgil 1996). Many butterflies are seasonal in their occurrence. They are common for only a few months and rare or absent in other seasons. The seasons when

they are rare or not active as adults are usually spent either as caterpillars or as pupae. The months when the adults are active are called the “flight period”. Distinct flight periods naturally imply seasonality of the early stages of butterflies as well (Kunte 2000).

Butterflies are one of the best taxonomically studied groups of insects (Robbins & Opler 1997). In India, butterflies have been documented since the turn of the 19th century (Williams 1938) and among 18,000 species recorded worldwide, 1,318 species are known to occur in India (Varshney & Smetacek 2015). The Western Ghats itself account for 334 species of butterflies (Evans 1932; Kunte 2000). From Kerala, 316 species have been reported (Palot et al. 2012). The present study was conducted to estimate the diversity, seasonality and abundance of butterflies in Peringome Vayakkara Panchayath, Kannur, Kerala.

Kannur, the land of looms and lores is situated in the Malabar region of Kerala (11.8745°N & 75.3704°E) and is rich in flora and fauna (Logan 1887). The Western Ghats bounds the district in the east, Kozhikode and Waynad districts in the south, Lakshadweep Sea in the west, and Kasargod District in the north (Fig. 1). The area enjoys humid climate with an oppressive hot season from March to the end of May (Weather parameters of the area during the study period: Mean daily maximum

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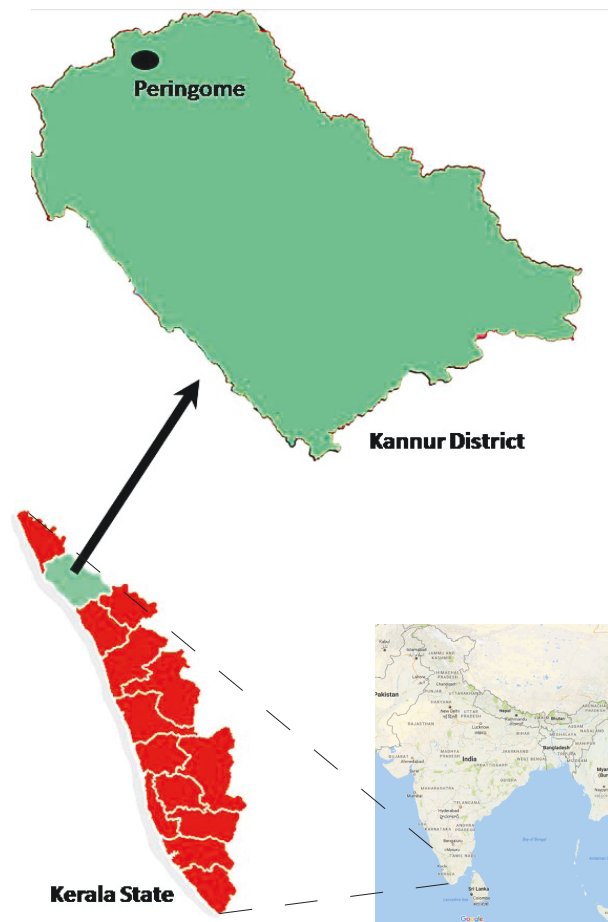


Figure 1. Location map of Peringome Vayakkara Panchayath, Kannur, Kerala

temperature 35°C; mean daily minimum temperature 20°C, average rain fall 320cm). Peringome Vayakkara Panchayath is situated in the northwestern side of the district and is spread over an area of 76.98km<sup>2</sup>. The area can be divided into highlands and laterite hillocks of middle lands. Available records show that highlands which fall in the Western Ghats were thick forests till the beginning of the 20<sup>th</sup> century.

#### MATERIALS AND METHODS

The survey area includes bare lands in laterite hillocks, homesteads, sacred groves, plantations of rubber, coconut, areca nut, cashew etc., and riversides. Field observations were made once in 15 days from July 2012 to July 2013 over a one-year period. All habitat types were covered on foot and observations were made. The species encountered were identified in flight and species that could not be identified were photo-documented and identified with the help of a field guide by Kunte (2000). The status was scored using presence-absence

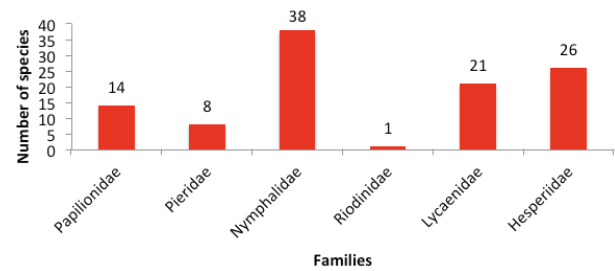


Figure 2. Family wise distribution of butterflies in Peringome Vayakkara Panchayath

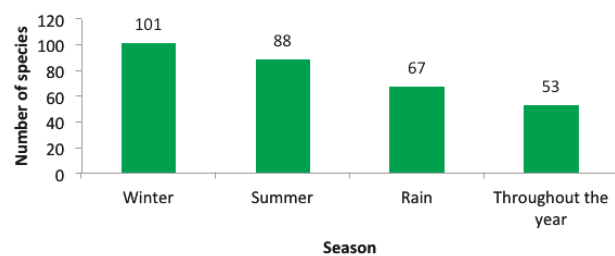


Figure 3. Seasonal variation in number of butterfly species in Peringome Vayakkara Panchayath

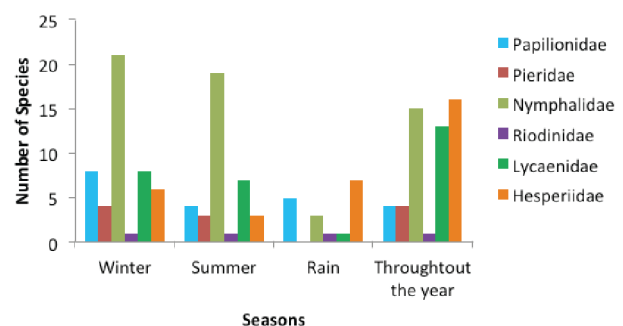


Figure 4. Seasonal variation in the number of butterfly species with respect to their families in Peringome Vayakkara Panchayath

scoring method and then percentage of abundance was calculated to determine the status. Based on the abundance, each butterfly species were categorized under different score classes such as very common (VC) 80–100 %, common (C) 60–80 %, occasional (O) 40–60 %, rare (R) 20–4% and very rare (VR) below 20%.

#### RESULTS

A total of 108 species of butterflies belonging to six families were identified from the study area (Table 1). The family-wise distribution of butterflies is given in Fig. 2. Family Nymphalidae (brush-footed butterflies) dominated the butterfly fauna of Peringome Vayakkara Panchayath with 38 species followed by Hesperidae (Skippers) 26 species, Lycaenidae (Blues) 21 species,

Table 1. Checklist of butterflies of Peringome Vayakkara Panchayath along with seasonality and status

	Common name	Scientific name	Season	Status
<b>Papilionidae</b>				
1	Southern Birdwing	<i>Troides minos</i>	W, S, R	VC
2	Common Rose	<i>Pachliopta aristolochiae</i>	S, R	O
3	Crimson Rose	<i>Pachliopta hector</i>	R	C
4	Common Bluebottle	<i>Graphium sarpedon</i>	W, R	VC
5	Common Jay	<i>Graphium doson</i>	W	R
6	Tailed Jay	<i>Graphium agamemnon</i>	W, R	C
7	Common Mime	<i>Papilio clytia</i>	W, S, R	VC
8	Lime Butterfly	<i>Papilio demoleus</i>	W, S	C
9	Common Mormon	<i>Papilio polytes</i>	W, S, R	VC
10	Blue Mormon	<i>Papilio polymnestor</i>	W, S, R	VC
11	Red Helen	<i>Papilio helenus</i>	W, R	O
12	Paris peacock	<i>Papilio paris</i>	W, S	R
13	Malabar Banded Peacock	<i>Papilio buddha</i>	W	R
14	Malabar Raven	<i>Papilio dravidarum</i>	W, S	C
15	Common Emigrant	<i>Catopsilia pomona</i>	W, S	VC
16	Mottled Emigrant	<i>Catopsilia pyranthe</i>	W, S	O
17	Common Grass Yellow	<i>Eurema hecabe</i>	W, S, R	VC
18	Small Grass yellow	<i>Eurema brigitta</i>	W, S, R	VC
19	Three-spot Grass Yellow	<i>Eurema blanda</i>	W, S, R	VC
20	Common Jezebel	<i>Delias eucharis</i>	W, S	C
21	Psyche	<i>Leptosia nina</i>	W, S, R	VC
22	Common Wanderer	<i>Pareronia valeria</i>	W	O
<b>Nymphalidae</b>				
23	Common Evening Brown	<i>Melanitis leda</i>	W, S, R	VC
24	Common Bushbrown	<i>Mycalesis perseus</i>	W, S, R	VC
25	Gladeye Bushbrown	<i>Mycalesis patina</i>	W, R	C
26	Common Palmfly	<i>Elymnias permnestra</i>	W, S, R	C
27	Bamboo Treebrown	<i>Lethe europa europa</i>	W, S, R	O
28	Common Five-ring	<i>Ypthima baldus</i>	W, S, R	C
29	Common Four-ring	<i>Ypthima huebneri</i>	W, S, R	VC
30	Nigger	<i>Orsotriaena medus</i>	R	VC
31	Tawny Coster	<i>Acraea violae</i>	W, S	C
32	Rustic	<i>Cupha erymanthis</i>	W, S	O
33	Common Nawab	<i>Charaxes athamas</i>	W, S	R
34	Cruiser	<i>Vindula erota</i>	R	O
<b>Riodinidae</b>				
35	Common Leopard	<i>Phalanta phalantha</i>	W, S	C
36	Small Leopard	<i>Phalanta alcippe</i>	W, S	O
37	Common Sailer	<i>Neptis hylas</i>	W, S, R	VC
38	Chestnut-streaked Sailer	<i>Neptis jumbah</i>	W, S, R	R
39	Commander	<i>Limenitis procris</i>	W, S	O
40	Clipper	<i>Parthenos sylvia</i>	W, S	VC
41	Tamil Yeoman	<i>Cirrochroa thais</i>	W, S	O
42	Common Lascar	<i>Pantoporia hordonia</i>	W, S, R	VC
43	Blackvein Sergeant	<i>Athyma ranga</i>	W, S	O
44	Grey Count	<i>Tanaecia lepidea</i>	W, S, R	C
45	Common Baron	<i>Euthalia aconthea</i>	W, S, R	C
46	Angled Castor	<i>Ariadne ariadne</i>	W, S	VC
47	Common Castor	<i>Ariadne merione</i>	W, S	R
48	Lemon Pansy	<i>Junonia lemonias</i>	W, S	VC
49	Peacock Pansy	<i>Junonia almanac</i>	W, S	C
50	Grey Pansy	<i>Junonia atlites</i>	W, S	VC
51	Chocolate Pansy	<i>Junonia iphita</i>	W, S, R	VC
52	Danaid Eggfly	<i>Hypolimnas misippus</i>	W, S, R	VC
53	Great Eggfly	<i>Hypolimnas bolina</i>	W, S, R	VC
54	Glassy Blue Tiger	<i>Parantica aglea</i>	W, S	O
55	Blue Tiger	<i>Tirumala limniace</i>	W, S	VC
56	Dark Blue Tiger	<i>Tirumala septentrionis</i>	W, S	VC
57	Plain Tiger	<i>Danaus chrysippus</i>	W, S	C
58	Striped Tiger	<i>Danaus genutia</i>	W, S	C
59	Common Crow	<i>Euploea core</i>	W, S, R	VC
60	Malabar Tree Nymph	<i>Idea malabarica</i>	W	O
<b>Lycaenidae</b>				
61	Plum Judy	<i>Abisera echerius</i>	W, S, R	VC
62	Apefly	<i>Spalgis epius</i>	W, S	C
63	Common Pierrot	<i>Castalius rosimon</i>	W, S, R	VC
64	Angled Pierrot	<i>Caleta decidia</i>	W, S, R	VC
65	Blue Banded Pierrot	<i>Discolampa ethion</i>	W, S, R	VC
66	Plains Cupid	<i>Chilades pandava</i>	W, S, R	VC
67	Common Hedge Blue	<i>Acytolepis puspa</i>	W, R	C
68	Dark Grass Blue	<i>Zizeeria karsandra</i>	W, S, R	R
69	Lesser Grass Blue	<i>Zizina otis</i>	W, S	VC
70	Malayan	<i>Magisba Malaya</i>	W, S, R	C
71	Quaker	<i>Neopithecops zalmora</i>	W, S, R	C

	Common name	Scientific name	Season	Status
72	Common Cerulean	<i>Jamides celeno</i>	W, S, R	C
73	Dark Cerulean	<i>Jamides bochus</i>	W, S, R	VC
74	Common Line-blue	<i>Prosotas nora</i>	W, S, R	VC
75	Red Pierrot	<i>Talica niseus</i>	W, S	VC
76	Common Silverline	<i>Spindasis vulcanus</i>	W, S	C
77	Yamfly	<i>Loxura atymnus</i>	W, S	C
78	Red Spot	<i>Zesius chrysomallus</i>	W, S, R	C
79	Common Imperial	<i>Cheritra freja</i>	W, S, R	VC
80	Monkey Puzzle	<i>Rathinda amor</i>	W, S	C
81	Fluffy Tit	<i>Zeltus amasa</i>	W, S	O
82	Indian Sun Beam	<i>Curetis thetis</i>	W, S, R	C
<b>Hesperiidae</b>				
83	Common Banded Awl	<i>Hasora chromus</i>	W, S, R	VC
84	Common Awl	<i>Hasora badra</i>	W, S, R	C
85	Brown Awl	<i>Badamia exclamations</i>	R	O
86	Bush Hopper	<i>Ampittia dioscorides</i>	W, S	C
87	Pygmy-scrub Hopper	<i>Aeromachus pygmaeus</i>	W, S	C
88	Chestnut Bob	<i>Iambrix salsala</i>	W, S, R	VC
89	Coon	<i>Psolos fuligo</i>	W, S	O
90	Common Banded Demon	<i>Notocrypta paralysos</i>	W, S, R	C

	Common name	Scientific name	Season	Status
91	Restricted Demon	<i>Notocrypta curvifascia</i>	W, S, R	C
92	Grass Demon	<i>Udaspes folus</i>	W, S, R	O
93	Indian Palm Bob	<i>Suastus gremius</i>	W, S, R	C
94	Common Grass Dart	<i>Taractrocera maevius</i>	W, S, R	VC
95	Pale Palm Dart	<i>Telicota colon</i>	W, S, R	VC
96	Dark Palm Dart	<i>Telicota ancilla</i>	W, S, R	VC
97	Bevan's Swift	<i>Borbo bevani</i>	W, S, R	C
98	Rice Swift	<i>Borbo cinnara</i>	W, S, R	VC
99	Small Branded Swift	<i>Pelopidas mathias</i>	W, S, R	VC
100	Suffused Snow Flat	<i>Tagia desgana</i>	W, R	C
101	Water Snow Flat	<i>Tagia deslitigiosa</i>	R	VC
102	Common Yellow-breasted Flat	<i>Gerosia bhagava</i>	R	C
103	Common Small Flat	<i>Sarangesa dasahara</i>	W, R	C
104	Spotted Small Flat	<i>Sarangesa purendra</i>	W, S, R	VC
105	Tricoloured Pied Flat	<i>Coladenia indrani</i>	R	C
106	Fulvous Pied Flat	<i>Pseudocola deniadan</i>	W, R	C
107	Indian Skipper	<i>Spialia alba</i>	W, S, R	C
108	Golden Angle	<i>Caprona ransonnetii</i>	W, S, R	C

VC - very common, C - common, O - occasional, R - rare, VR - very rare, W - winter, S - summer, R - rainy season

Papilionidae (Swallowtails) 14 species, Pieridae (Whites and Yellows) eight species, and Riodinidae (Judies and Punches) with a single species.

The seasonality in the occurrence of different species was also recorded during the study. Figure 3 represents seasonal variation in species richness of different families observed during the study. The number of butterfly species encountered during winter was the highest (101), which decreased to 88 species in summer and it was only 67 during the rainy season; however, 53 species were observed throughout the year (see Table 1).

Among the members of Papilionidae and Riodinidae families, seasonal variation on abundance was not very prominent. But Pieridae, Nymphalidae and Lycaenidae members were less during the rainy season (zero, three and one respectively). On the other hand, Hesperidae members were seen the maximum during the rainy season (Fig. 4).

## DISCUSSION AND CONCLUSION

Out of 316 species reported from Kerala, 108 species were recorded from Peringome Vayakkara Panchayath; to conclude that the study area is rich in butterfly diversity. Among 108 species, two species (*Pachliopta hector* and *Hypolimnas misippus*) are in Schedule I and six species (*Papilio paris*, *Parthenos sylvia*, *Tanaecia lepidea*, *Euthalia aconthea*, *Pareronia valeria* and *Phalanta alcippe*) are in Schedule II as per Indian Wildlife Protection Act, 1972. The study area also contains two endemic species of the Western Ghats (*Papilio buddha* and *Idea malabarica*).

Monsoons govern the distribution of butterfly communities of India (Tiple & Khurad 2009). Food habits among species (Kitahara et al. 2000) also influence the relationship between climate and butterfly diversity and abundance (Southwood 1975). From the present study, it has been observed that among the total number of butterfly species present in the area only half of them were seen throughout the year. Occurrence of water bodies and abundance of larval host plants and nectar plants may be the reasons for the high butterfly biodiversity of the area.

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### Miscellaneous

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