

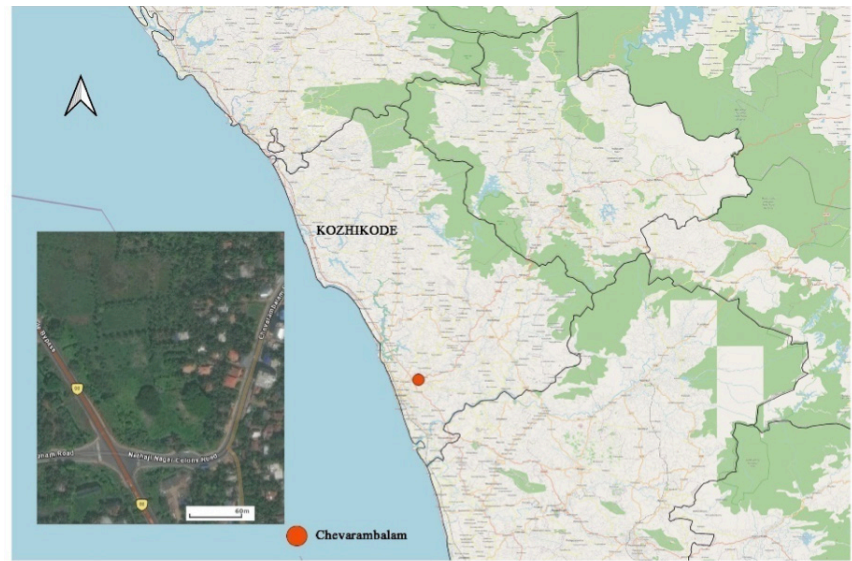
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## Preliminary report on the butterfly diversity of a suburb area in Kozhikode district, Kerala, India

Chevarambalam is a suburb of Kozhikode district which is 7 km far from the City. The area of study is situated at an elevation of 23 m and between  $11.284^{\circ}$  N,  $75.811^{\circ}$  E. The major vegetation type in this area are shrubs, herbs, home garden, plantation and most observed plants are *Clerodendrum paniculatum*, *Passiflora edulis*, *Musa acuminata*, *Citrus limon*, and *Ixora coccinea*.

The average rainfall of the area during the six month study period was 492.33mm (19.383 inches). The temperature during the study period ranges from a minimum of  $22.8\text{--}25.1^{\circ}\text{C}$  and a maximum of  $27.9\text{--}32.8^{\circ}\text{C}$  with a relative humidity of 74–90%. The Shrubbery area was selected for the survey of



Location map of Chevarambalam, Kozhikode District, Kerala, India.

the butterfly population. The site was under observation from April to September 2020.

The line transect count method was adopted to estimate the butterfly abundance of the selected study area (Kunte 2000). The count was performed with individual species in 2.5 m left and right side and 5 m front and above the observer.

The butterflies observed in the transect were recorded regularly at an interval of seven days for six months (April–September 2020). The observation was recorded twice a day, 08:00–11:00h and 15:00–17:00h.

The survey was only performed during suitable weather conditions, mostly in the absence of rain or strong wind. Identification

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of butterflies was conducted on the site with the help of field guides (Palot et al. 2003; Kasambe 2018). For the documentation of the data on butterfly diversity and abundance, individual butterfly species from the site were photographed using a digital (SONY HDR-CX190E) camera. The identified butterflies were classified into five categories based on their abundance as VC–Very Common (>100 sightings), C–Common (51–100 sightings), O–Occasional (16–50 sightings), R–Rare (3–15 sightings). VR–Very Rare (1–2 sightings).

In the present study, the diversity and abundance of butterfly population from the suburb area, (Chevarambalam) of Kozhikode district of Kerala were observed and recorded (Table 1). During the study period, 52 species of butterflies representing five families and 40 genera have been recorded. The relative abundance of butterflies was examined and it was observed that among the five families, Nymphalidae was the dominant family constituting 19 genera (47.5%) with 25 species (48.08%) followed by Hesperidae comprising seven genera (17.5%) and seven species (13.46%), Lycaenidae; six genera (15%) with six species (11.54%), Papilionidae; four genera (10%) with ten species (19.23%) and Pieridae with four genera (10%) and four species (7.69%), respectively.

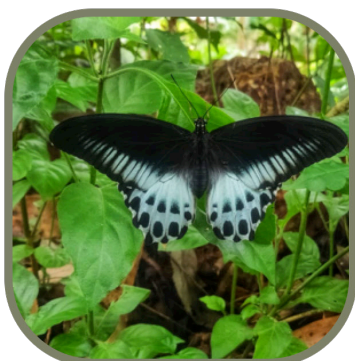
Out of 52 species recorded, 11 species are very common (21.15%), 5 species are common (9.62%), 10 species are occasional (19.23%), 13 species are rare (25%), and 13 species are very rare (25%). The results revealed that the common species of butterfly population are Common Mormon (*Papilio polytes*) out of all forms *cyrus* is the most abundant form, Chocolate Pansy (*Junonia iphita*), Common Crow (*Euploea core*), Blue Tiger (*Tirumala limniace*), Psyche (*Leptosia nina*) and Common Grass Yellow (*Eurema hecabe*).

Further, the study also documented that among the 52 species, three species namely Malabar Banded Swallowtail, Malabar Banded Peacock (*Papilio liomedon*), Southern Birdwing (*Troides minos*) is endemic to the Western Ghats. Two species namely Glad-eye Bush Brown (*Mycalesis patnia*) and Tamil Yeoman (*Cirrochroa thais*) are endemic to the Western Ghats and Srilanka. The flight period of *Papilio liomedon* was observed during May and *Papilio buddha* during August and May.

The present investigation is the first attempt to explore the butterfly diversity within the suburb region of Kozhikode City. The study area supports a reasonably good number of butterfly species that obviously supports



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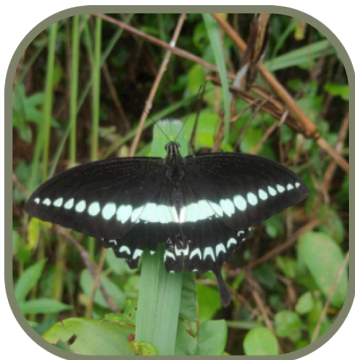
*Papilio polymnestor*  
Blue Mormon



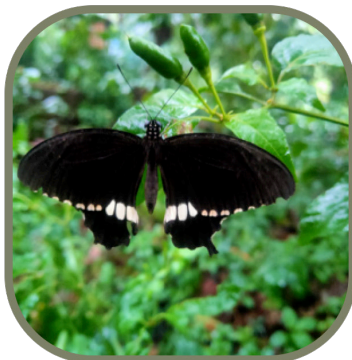
*Pachliopta hector*  
Crimson Rose



*Papilio demoleus*  
Lime Butterfly



*Papilio liomedon*  
Malabar Banded Swallowtail



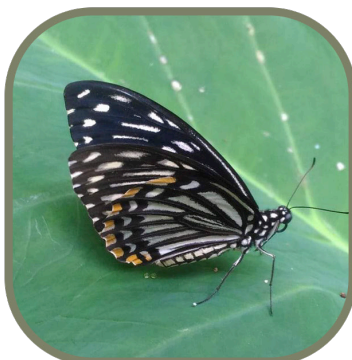
*Papilio polytes*  
Common Mormon



*Papilio buddha*  
Malabar Banded Peacock



*Troides minos*  
Southern Birdwing



*Papilio clytia*  
Common Mime



*Graphium tereon*  
Southern Bluebottle



*Papilio paris*  
Paris Peacock



*Parthenos sylvia*  
Clipper



*Neptis hylas*  
Common Sailer



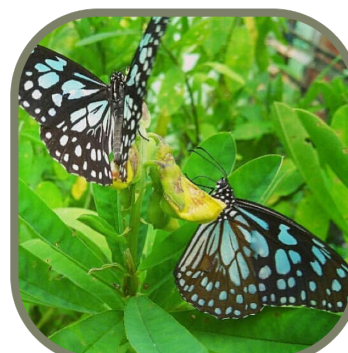
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*Acraea terpsicore*  
Tawny Coster



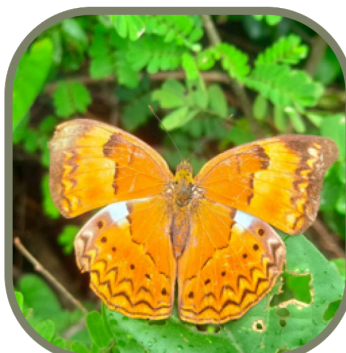
*Ariadne ariadne*  
Angled Castor



*Tirumala limniace*  
Blue Tiger



*Parantica aglea*  
Glassy Tiger



*Cirrochroa thais*  
Tamil Yeoman



*Cynitia lepidea*  
Grey Count



*Euploea core*  
Common Crow



*Pantoporia hordonia*  
Common Lascar



*Moduza procris*  
Commander



*Elymnias caudata*  
Tailed Palmfly



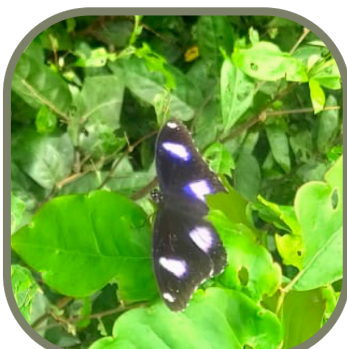
*Cupha erymanthis*  
Rustic



*Orsotriaena medus*  
Medus Brown



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*Hypolimnas misippus*  
Danaid Eggfly



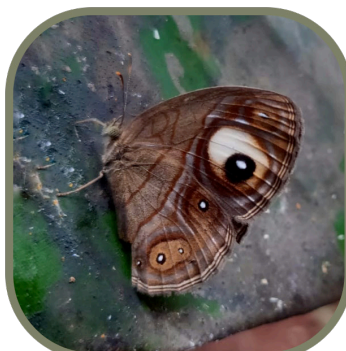
*Ypthima baldus*  
Common Fivering



*Ypthima huebneri*  
Common Fourring



*Mycalesis perseus*  
Common Bushbrown



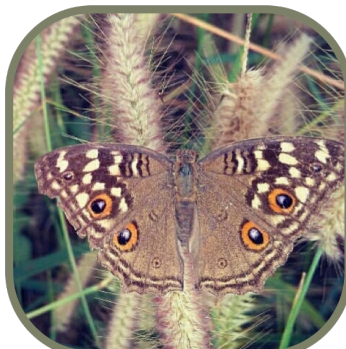
*Mycalesis patina*  
Glad-eye Bushbrown



*Melanitis leda*  
Common Evening Brown



*Melanitis phedima*  
Dark Evening Brown



*Junonia lemonias*  
Lemon Pansy



*Junonia iphita*  
Chocolate Pansy



*Junonia almana*  
Peacock Pansy



*Junonia atlites*  
Gray Pansy



*Leptosia nina*  
Psyche



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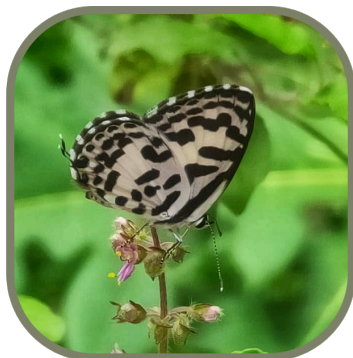
*Eurema hecabe*  
Common Grass Yellow



*Delias eucharis*  
Common Jezebel



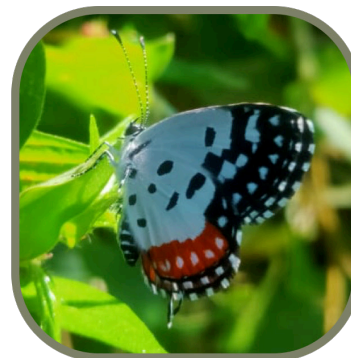
*Catopsilia Pomona*  
Common Emigrant



*Castalius rosimon*  
Common Pierrot



*Jamides celeno*  
Common Cerulean



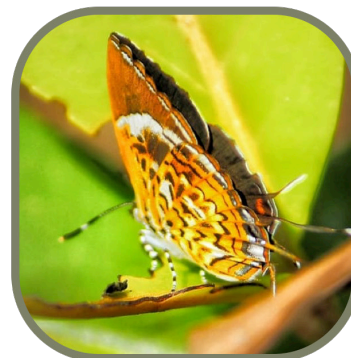
*Talica nyseus*  
Red Pierrot



*Loxura atymnus*  
Yamfly



*Chilades pandava*  
Plains Cupid



*Rathinda amor*  
Monkey Puzzle



*Sarangesa dasahara*  
Common Small Flat



*Tagiades litigiosa*  
Water Snow Flat



*Udaspes folus*  
Grass Demon

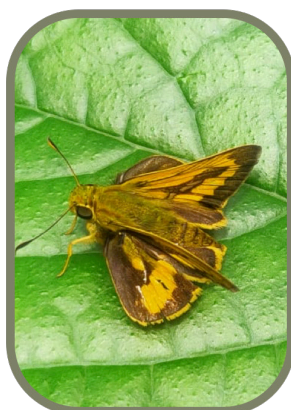


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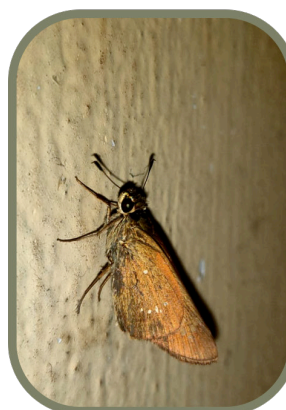
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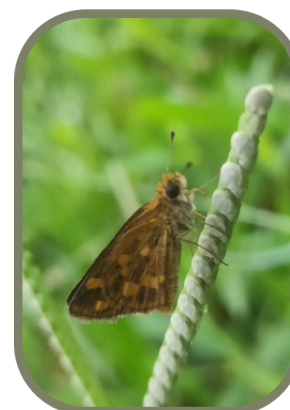
*Iambrix salsala*  
Chestnut Bob



*Telicota bambusae*  
Dark Palm Dart



*Pelopidas mathias*  
Small Branded Swift



*Taractroceras ceramas*  
Tamil Grass Dart

Table 1. Checklist of butterflies of Chevarambalam, Kozhikode, Kerala

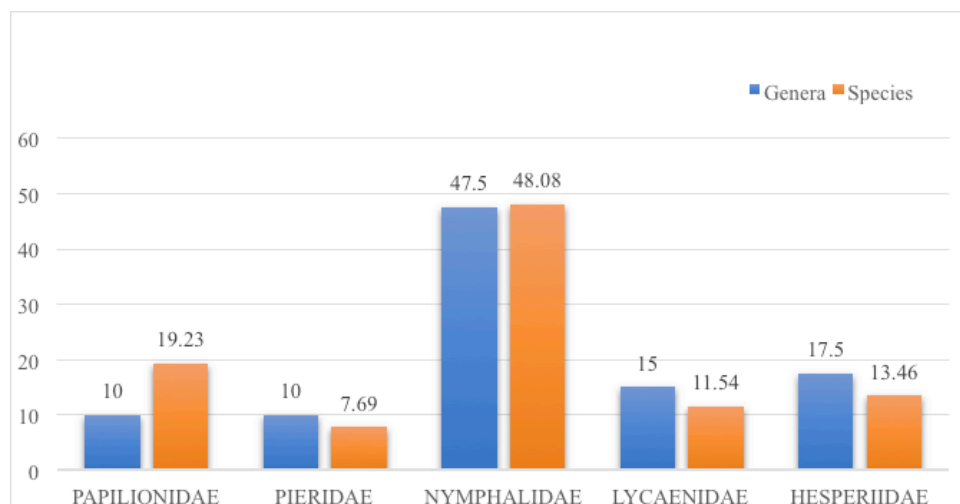
| S  | Scientific Name            | Common Name                  | Family       | Status |
|----|----------------------------|------------------------------|--------------|--------|
| 1  | <i>Papilio polymnestor</i> | Blue Mormon                  | Papilionidae | C      |
| 2  | <i>Pachliopta hector</i>   | Crimson Rose                 | Papilionidae | R      |
| 3  | <i>Papilio demoleus</i>    | Lime Butterfly               | Papilionidae | O      |
| 4  | <i>Papiliolus liomedon</i> | Malabar Banded Swallowtail** | Papilionidae | VR     |
| 5  | <i>Papilio polytes</i>     | Common Mormon                | Papilionidae | VC     |
| 6  | <i>Papilio buddha</i>      | Malabar Banded Peacock**     | Papilionidae | R      |
| 7  | <i>Troides minos</i>       | Southern Birdwing**          | Papilionidae | R      |
| 8  | <i>Papilio clytia</i>      | Common Mime                  | Papilionidae | VR     |
| 9  | <i>Graphium tereon</i>     | Southern Bluebottle          | Papilionidae | R      |
| 10 | <i>Papilio paris</i>       | Paris Peacock                | Papilionidae | VR     |
| 11 | <i>Parthenos sylvia</i>    | Clipper                      | Nymphalidae  | VR     |
| 12 | <i>Neptis hylas</i>        | Common Sailer                | Nymphalidae  | VC     |
| 13 | <i>Acraea terpsicore</i>   | Tawny Coster                 | Nymphalidae  | VC     |
| 14 | <i>Ariadne ariadne</i>     | Angled Castor                | Nymphalidae  | C      |
| 15 | <i>Tirumala limniace</i>   | Blue Tiger                   | Nymphalidae  | VC     |
| 16 | <i>Parantica aglea</i>     | Glassy Tiger                 | Nymphalidae  | R      |
| 17 | <i>Cirrochroa thais</i>    | Tamil Yeoman***              | Nymphalidae  | VR     |
| 18 | <i>Cynitia lepidea</i>     | Grey Count                   | Nymphalidae  | R      |
| 19 | <i>Euploea core</i>        | Common Crow                  | Nymphalidae  | VC     |
| 20 | <i>Pantoporia hordonia</i> | Common Lascar                | Nymphalidae  | VR     |
| 21 | <i>Moduza procris</i>      | Commander                    | Nymphalidae  | VR     |
| 22 | <i>Elymnias caudata</i>    | Tailed Palmfly               | Nymphalidae  | O      |
| 23 | <i>Cupha erymanthis</i>    | Rustic                       | Nymphalidae  | VR     |
| 24 | <i>Orsotriaena medus</i>   | Medus Brown                  | Nymphalidae  | O      |
| 25 | <i>Hypolimnas misippus</i> | Danaid Eggfly                | Nymphalidae  | R      |
| 26 | <i>Ypthima baldus</i>      | Common Fivering              | Nymphalidae  | O      |

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|    |                              |                       |             |    |
|----|------------------------------|-----------------------|-------------|----|
| 27 | <i>Ypthima huebneri</i>      | Common Fourring       | Nymphalidae | O  |
| 28 | <i>Mycalesis perseus</i>     | Common Bushbrown      | Nymphalidae | C  |
| 29 | <i>Mycalesis patnia</i>      | Glad-eye Bushbrown*** | Nymphalidae | VR |
| 30 | <i>Melanitis leda</i>        | Common Evening Brown  | Nymphalidae | O  |
| 31 | <i>Melanitis phedima</i>     | Dark Evening Brown    | Nymphalidae | R  |
| 32 | <i>Junonia lemonias</i>      | Lemon Pansy           | Nymphalidae | O  |
| 33 | <i>Junonia iphita</i>        | Chocolate Pansy       | Nymphalidae | VC |
| 34 | <i>Junonia almana</i>        | Peacock Pansy         | Nymphalidae | R  |
| 35 | <i>Junonia atlites</i>       | Gray Pansy            | Nymphalidae | C  |
| 36 | <i>Leptosia nina</i>         | Psyche                | Pieridae    | VC |
| 37 | <i>Eurema hecabe</i>         | Common Grass Yellow   | Pieridae    | VC |
| 38 | <i>Catopsilia pomona</i>     | Common Emigrant       | Pieridae    | VC |
| 39 | <i>Delias eucharis</i>       | Common Jezebel        | Pieridae    | O  |
| 40 | <i>Castalius rosimon</i>     | Common Pierrot        | Lycaenidae  | O  |
| 41 | <i>Jamides celeno</i>        | Common Cerulean       | Lycaenidae  | VC |
| 42 | <i>Talica niseus</i>         | Red Pierrot           | Lycaenidae  | R  |
| 43 | <i>Loxura atymnus</i>        | Yamfly                | Lycaenidae  | VR |
| 44 | <i>Chilades pandava</i>      | Plains Cupid          | Lycaenidae  | R  |
| 45 | <i>Rathinda amor</i>         | Monkey Puzzle         | Lycaenidae  | R  |
| 46 | <i>Sarangesa dasahara</i>    | Common Small Flat     | Hesperiidae | VC |
| 47 | <i>Tagiades litigiosa</i>    | Water Snow Flat       | Hesperiidae | R  |
| 48 | <i>Udaspes folus</i>         | Grass Demon           | Hesperiidae | O  |
| 49 | <i>Iambrix salsala</i>       | Chestnut Bob          | Hesperiidae | C  |
| 50 | <i>Telicota bambusae</i>     | Dark Palm Dart        | Hesperiidae | VR |
| 51 | <i>Pelopidas mathias</i>     | Small Branded Swift   | Hesperiidae | VR |
| 52 | <i>Taractroceras ceramas</i> | Tamil Grass Dart      | Hesperiidae | VR |

\*\*—Endemic to Western Ghats | \*\*\*—Endemic to Western Ghats & Srilanka |  
VC—Very Common | C—Common | O—Occasional | R—Rare | VR—Very Rare.



Relative abundance  
of butterfly genera  
and species at  
Chevarambalam,  
Kozhikode, Kerala.



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to be an indicator of the urban biodiversity. However, most of the greenery areas of the selected sites remain unexplored. Hence, proper conservation of natural resources may help survive the butterfly species.

The present checklist of butterflies is not final, and future exploration needs to update the checklist. The preliminary survey's outcome forms a basis for future studies on the documentation of butterfly assemblages of Kerala's urban regions, which may support the conservation of butterflies in Kerala.

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**Citation:** Abharish, C.T. & E.M. Manogem (2022).

Preliminary report on the butterfly diversity of a suburb area in Kozhikode district, Kerala, India. Bugs R All #237, In: *Zoo's Print* 37(4): 01–09.

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