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Preliminary checklist of butterflies from Loharghat forest range, Kamrup

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Abstract

Loharghat Forest Range is a rich biodiversity region dominated by tropical and subtropical forests. A three month study in the region recorded 96 species of butterflies from 6 families. This study is the first to evaluate the diversity and abundance of butterflies, to understand the ecology of this unknown region.

Keywords: Butterflies, loharghat forest range, biodiversity

Introduction

Loharghat Forest Range is an unexplored mosaic of tropical moist deciduous, tropical moist evergreen, and tropical semi-evergreen forests, with sporadic subtropical broadleaf hill forests (Das *et al.*, 2014) [2]. Despite being designated as Key Biodiversity Area by IUCN the region is unexplored forest has remained rich in biodiversity that supports many threatened and rare species endemic to Indo-Burman regions. The research is an integral study of the 7WEAVES Research Foundation's Biodiversity Assessment project.

Materials and Methods**Study Area**

The Loharghat Forest Range is located within the Indo-Malayan Biodiversity Hotspot. The assessed area is 63 square kilometres, with elevations ranging from 55 to 280 metres above sea level. It has a temperate tropical monsoon climate with abundant rainfall and high humidity (Summer maximum at 35-38 °C and winter minimum at 8-10 °C). The region is heterogeneous due to topographic variation, with habitats such as wetland, scrubland, river, forest, and agricultural field (Fig 1).

Methodology

The survey was carried out between January to March 2023. Ten days and five transects were used to conduct it. One in the tea gardens, two in forests, and two close to Lakes i.e. Chandubi and Sakoli Lake. Further opportunistic discoveries and sightings made in the region over the period of the study have been added to the checklist. The Occurrence Status of butterfly species is based on the proportion of days with sightings from the research area over the course of the full survey period: Very Common (VC) >50%, Common (C) = 25-50%, Uncommon (UC) = 5-25%, and Rare (R) = 1-5%. Using Evans (1949), Kehimkar (2016) [4], and Smetacek (2017) [8], butterflies were recognised from images taken in the field guide. All scientific names are consistent with the Varshney & Smetacek (2015) [9] catalogue. Additionally, fieldwork images of a few of the listed species are provided.

Results

The study resulted in the identification of 96 butterfly species from six families. Nymphalidae accounted for nearly half of the list, followed by the Lycaenidae and Hesperidae, which constituted 18% and 17% of the list, respectively (Fig 2). The most common species are Lemon Migrant, Indian Cabbage White, Peacock Pansy, and Common Five Ring, whereas Blackvein Sergeant, Common Birdwing, and Black and White Helen Swallowtail have only been seen once and categorised under Rare Occurrence (R).

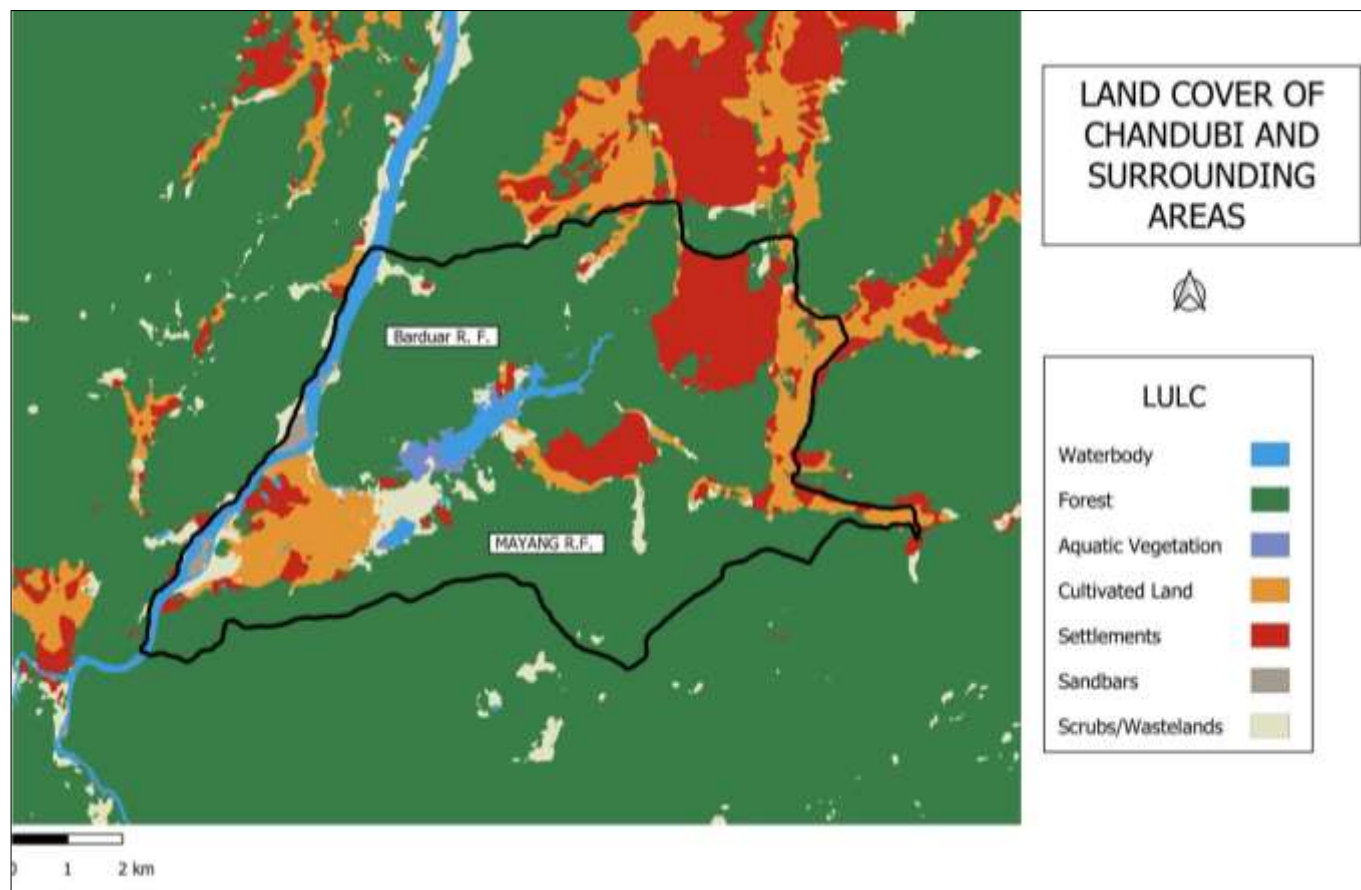


Fig 1: Land use land cover map of loharghat forest range (Source: ESRI)

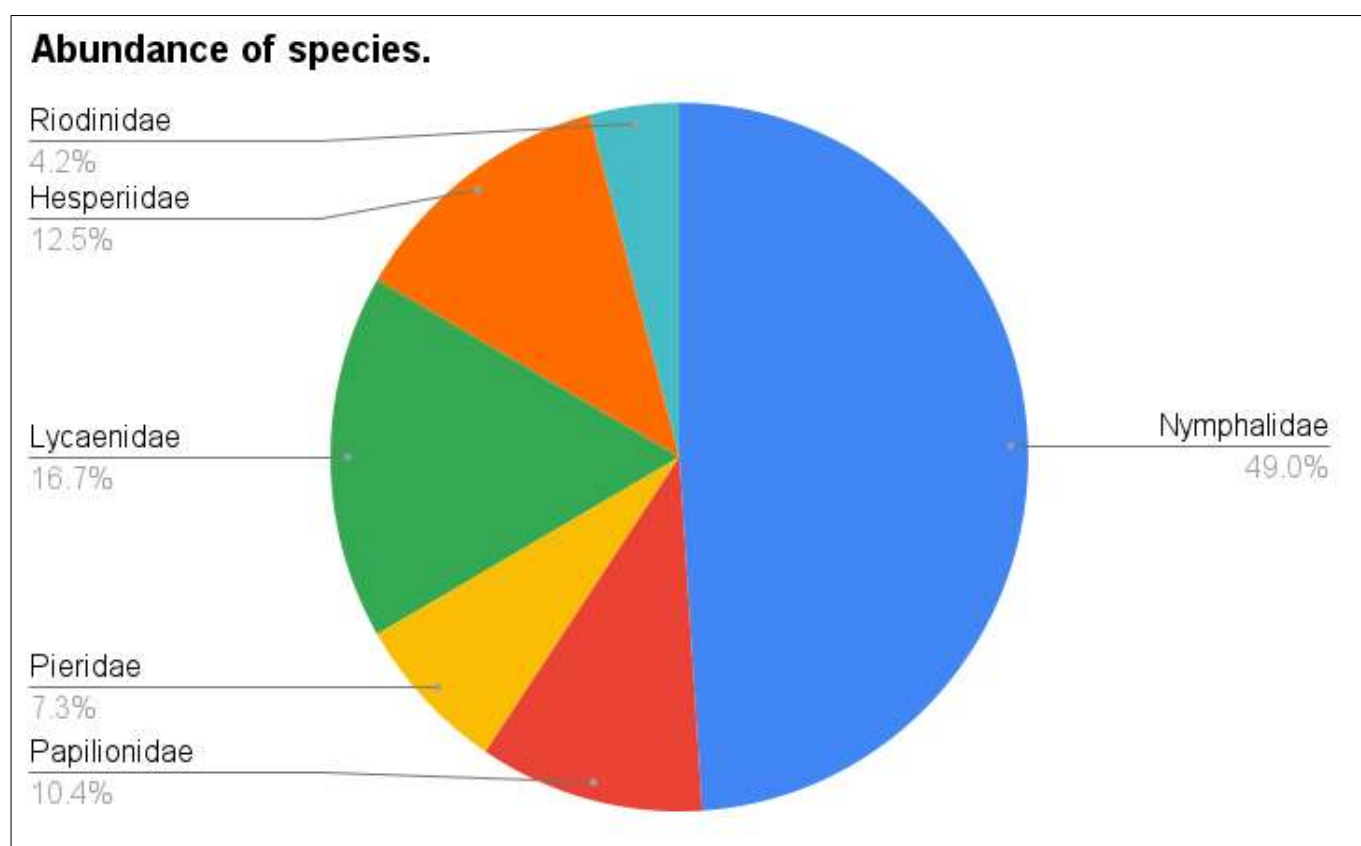


Fig 2: Total species recorded in Loharghat Forest Range under Family.

Nymphalidae family are the most common in Loharghat Range comprised of 29 genus with 47 species, followed by Lycaenidae of 15 genus with 16 species, Hesperiidae of 11

genus with 12 species, Papilionidae of 6 genus with 12 species, Pieridae of 6 genus with 7 species and Riodinidae of 2 genus with 2 species.

Table 1: Butterflies of Loharghat Forest Range

	Family	Common name	Scientific name	Occurrence status
1	Nymphalidae	Dark-banded Bushbrown	<i>Mycalasis mineus</i>	UC
2		Dingy Bushbrown	<i>Mycalasis perseus</i>	C
3		Long Band Bushbrown	<i>Mycalasis visala</i>	UC
4		White-bar Bushbrown	<i>Mycalasis anaxias</i>	UC
5		Striped Blue Crow Butterfly	<i>Euploea mulciber</i>	UC
6		Common Crow Butterfly	<i>Euploea core</i>	C
7		Magpie Crow	<i>Euploea radamanthus</i>	UC
8		Double Banded Crow Butterfly	<i>Euploea sylvester</i>	C
9		Common Leopard	<i>Phalanta phalantha</i>	VC
10		Common Sailer	<i>Neptis hylas</i>	VC
11		Yellow Pansy	<i>Junonia hierta</i>	C
12		Lemon Pansy	<i>Junonia lemonias</i>	VC
13		Chocolate Pansy	<i>Junonia iphita</i>	C
14		Peacock Pansy	<i>Junonia almana</i>	VC
15		Blue Pansy	<i>Junonia orithya</i>	C
16		Gray Pansy	<i>Junonia allites</i>	C
17		Common Five Ring	<i>Ypthima baldus</i>	VC
18		Common Four Ring	<i>Ypthima huebneri</i>	UC
19		Grey Count	<i>Tanaecia lepidea</i>	C
20		Indian Common Duffer	<i>Discophora sondaica</i>	C
21		Himalayan Orange Oakleaf	<i>Kalima inachus</i>	UC
22		Knight	<i>Lebadea martha</i>	VC
23		Common Evening Brown	<i>Melanitis leda</i>	C
24		Great Evening Brown	<i>Melanitis zitenius</i>	UC
25		Dark Evening Brown	<i>Melanitis phedima</i>	UC
26		Glassy Tiger	<i>Parantica aglea</i>	C
27		Constable	<i>Dichorragia nesimachus</i>	UC
28		Common Lascar	<i>Pantoporia hordonia</i>	C
29		Common Castor	<i>Ariadne merione</i>	C
30		Common Sergeant	<i>Athyma perius</i>	UC
31		Coloured Sergeant	<i>Athyma nefte</i>	UC
32		Blackvein Sergeant	<i>Athyma ranga</i>	R
33		Staff Sergeant	<i>Athyma selanophora</i>	R
34		Smooth-eyed Bushbrown	<i>Orsotriaena medus</i>	UC
35		Leopard Lacewing	<i>Cyathia cyane</i>	UC
36		Plain Tiger	<i>Danaus chrysippus</i>	VC
37		Commander	<i>Moduza procris</i>	UC
38		Common Yeoman	<i>Cirrochroa tyche</i>	C
39		Large Yeoman	<i>Cirrochroa aoris</i>	UC
40		Tawny Rajah	<i>Charaxes bernardus</i>	C
41		Bamboo Treebrown	<i>Lethe europa</i>	R
42		Common Palmfly	<i>Elymnias Hypermnestra</i>	C
43		Great eggfly	<i>Hypolimnas bolina</i>	C
44		Popinjay	<i>Stibochiona nicea</i>	UC
45		Gaudy Baron	<i>Euthalia lubentina</i>	UC
46		Medus Brown	<i>Orsotriaena medus</i>	R
47		Common Earl	<i>Tanaecia julii</i>	UC
48	Papilionidae	Red Helen Swallowtail	<i>Papilio helenus</i>	C
49		Lime Swallowtail	<i>Papilio demoleus</i>	C
		Black and White Helen Swallowtail	<i>Papilio nephelus</i>	R
50		Yellow Helen	<i>Papilio nephelus</i>	UC
		Common Rose Swallowtail	<i>Pachliopta aristolochiae</i>	UC
		Common Birdwing	<i>Troides helena</i>	C
51		Golden Birdwing	<i>Troides aeacus</i>	R
52		Common Nawab	<i>Polyura athamas</i>	UC
53		Common Jay	<i>Graphium doson</i>	C
54		Five-bar Swordtail	<i>Graphium antiphates</i>	C
55		Common Bluebottle	<i>Graphium sarpedon</i>	UC
57		White Dragonail	<i>Lamproptera curius</i>	R
58	Pieridae	Indian Cabbage White	<i>Pieris canidia</i>	VC
59		Lemon Migrant	<i>Catopsilia pomona</i>	VC
60		Red-spot Jezebel	<i>Delias descombesi</i>	VC
61		Striped Albatross	<i>Appias libythea</i>	C
62		Chocolate Albatross	<i>Appias lyncida</i>	UC
63		Psyche	<i>Leptosia nina</i>	UC

64		Common Grass Yellow	<i>Eurema hecabe</i>	UC
65	Lycaenidae	Dark Grass Blue	<i>Zizeeria karsandra</i>	C
66		Pale Grass Blue	<i>Pseudozizeeria maha</i>	VC
67		Common Tit	<i>Hypocylaena erylus</i>	C
68		Fluffy Tit	<i>Zeltus amasa</i>	UC
69		Common Pierrot	<i>Castalius rosimon</i>	C
70		Elbowed Pierrot	<i>Caleta elna</i>	UC
71		Angled Pierrot	<i>Caleta decidia</i>	UC
72		Purple Sapphire	<i>Heliophorus epicles</i>	C
73		Common Imperial	<i>Cheritra feja</i>	UC
74		Common Ciliate Blue	<i>Anthene emolus</i>	UC
75		Lime Blue	<i>Chilades lajus</i>	C
76		Dark Oak Blue	<i>Arhopala centaurus</i>	C
77		Common Yamfly	<i>Loxura atymnus</i>	UC
78		Cooper Flash	<i>Rapala pheretima</i>	UC
79		Common Red Flash	<i>Rapala iarbus</i>	UC
80		Angled Sunbeam	<i>Curetis acuta</i>	UC
81	Hesperiidae	Common Snow Flat	<i>Tagiades japedus</i>	UC
82		Dark-edged Snow Flat	<i>Tagiades menaka</i>	UC
83		Forest Hopper	<i>Astictopterus jama</i>	C
84		Common Bush Hopper	<i>Ampittia dioscorides</i>	UC
85		Oriental Straight Swift	<i>Parnara bada</i>	C
86		Chestnut Bob	<i>Iambrix salsala</i>	C
87		Large Forest Bob	<i>Scobura cephaloides</i>	UC
88		Dusty Partwing	<i>Psolos fuligo</i>	C
89		Chestnut banded angle	<i>Odontoptilum angulata</i>	C
90		Chocolate Demon	<i>Ancistroides nigrata</i>	C
91		Common Small Flat	<i>Sarangesa dasahara</i>	UC
92		Indian Skipper	<i>Spialia Galba</i>	UC
93	Riodinidae	Double Banded Judy	<i>Abisara bifasciata</i>	UC
96		Punchinello	<i>Zemeros flegyas</i>	C

Discussions

According to the study, the overall butterfly fauna of the Loharghat Forest Range is expected to exceed more than 300, in regions overlapping with the Khasi Hills, Garo Hills, and Kamrup regions. In the last days of our surveys, our species accumulation curve was still rapidly increasing. The Nymphalidae family is the most common butterfly family in the tropical region (Medhi *et al.* 2018) ^[7] and they are also the

most common in Loharghat Range.

Saikia (2011) ^[10] conducted the study on the variety of butterflies in the area surrounding Chandubi Lake, recording 106 nymphalid species alone. Kunte *et al.* (2012) ^[5] recorded 298 species of butterflies in Garo hills and expected to have more than 600 in the entire region.

Pictures of Butterflies from Loharghat Forest Range



I.



II.



III.



IV.



V.



VI.



VII.



VIII.



IX.



X.



XI.



XII.



XIII.



XIV.



XV.



XVI.



XVII.



XVIII.



XIX.



XX.



XXI.



XXII.



XXIII.



XXIV.



XXV.



XXVI.



XXVII.



XXVIII.



XXIX.



XXX.



XXXI.



XXXII.



XXXIII.



XXXIV.



XXXV.



XXXVI.



XXXVII.



XXXVIII.



XXXIX.



XL.

Labelled Pictures

- I. Angled Forester
- II. Bamboo Treebrown
- III. Blackvein Sergeant
- IV. Black Yellow Helen Swallowtail
- V. Chestnut-banded Angle
- VI. Chocolate Demon
- VII. Chocolate Pansy
- VIII. Common Bluebottle
- IX. Common Bush Hopper
- X. Common Ciliate Blue
- XI. Common Duffer
- XII. Common Evening Brown
- XIII. Common Jay
- XIV. Common Nawab
- XV. Common Rose Swallowtail
- XVI. Coloured Sergeant
- XVII. Common Tit
- XVIII. Common Yamfly
- XIX. Copper Flash
- XX. Dark-grass Blue
- XXI. Dingy Bushbrown
- XXII. Dull Oakblue
- XXIII. Five-bar Swordtail
- XXIV. Fluffy Tit
- XXV. Gaudy Baron
- XXVI. Great Eggfly
- XXVII. Himalayan Orange Oakleaf
- XXVIII. Knight
- XXIX. Leopard Lacewing
- XXX. Lime Blue
- XXXI. Little Braided Swift

- XXXII. Long-band Bushbrown
- XXXIII. Lime Swallowtail
- XXXIV. Magpie-crow Butterfly
- XXXV. Oriental Straight Swift
- XXXVI. Psyche
- XXXVII. Punchinello
- XXXVIII. Smooth-eyed Bushbrown
- XXXIX. Striped Albatross
- XL. Suffused Snow Flat

Conclusion

This is the first study to assess the diversity and abundance of butterflies in the Loharghat Forest Range in a very short range of time in the biodiverse region. The data collected will serve as a baseline for future research. More extensive butterfly research and monitoring are needed to better understand the diversity and composition of butterflies in the Loharghat Forest Range.

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