

A preliminary checklist of the Rhopalocera of Majathal wildlife sanctuary, Himachal Pradesh, India (Insecta: Lepidoptera)

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Abstract

The current study results from a two-month faunal assessment survey of the Majathal Wildlife Sanctuary, Himachal Pradesh. In total, 54 species from six Lepidoptera families were documented. Herein we present a preliminary checklist procured from the data collected during the short duration of two months. This checklist establishes a baseline for the Rhopalocera diversity of Majathal Wildlife Sanctuary.

Keywords: Insecta, Lepidoptera, checklist, Shiwaliks, Majathal, India.

Lista preliminar de los Rhopalocera del santuario de vida silvestre de Majathal, Himachal Pradesh, India (Insecta: Lepidoptera)

Resumen

El presente estudio es el resultado de un estudio de evaluación faunística de dos meses de duración en el santuario de vida silvestre de Majathal, Himachal Pradesh. En total, se documentaron 54 especies de seis familias de Lepidoptera. Presentamos aquí una lista de comprobación preliminar obtenida a partir de los datos recogidos durante el breve periodo de dos meses. Esta lista establece una línea de base para la diversidad de Rhopalocera del Santuario de Vida Silvestre de Majathal.

Palabras clave: Insecta, Lepidoptera, lista de control, Shiwaliks, Majathal, India.

Introduction

The Lepidoptera have been thoroughly studied by taxonomists, making them one of the most extensively examined insect groups (Robbins & Opler, 1997). Rhopalocera play a crucial role in the ecosystem as they engage in the important task of visiting diverse flowers to nourish themselves with nectar. This act of seeking nectar not only sustains the Rhopalocera but also serves as a vital mechanism for pollination (Tiple et al. 2006). Since the early 18th century, systematic studies on Rhopalocera have been conducted, which resulted in the identification of approximately 18,000 species across the Globe (Martinez et al. 2003). The total number of butterfly species in India is 1,327 (Varshney & Smetacek, 2015; Upadhye et al. 2020).

Majathal wildlife sanctuary is spread over the hilly terrains of the Solan and Shimla districts of Himachal Pradesh. The Sutlej River bounds the sanctuary to the north and a mountain ridge to the south; it is part of the catchment area of the Sutlej. The altitude of the sanctuary varies from 575 m. asl. to 1975 m asl. The average precipitation is 1000 mm per annum, and the temperature ranges from 1°C (winter) to 40°C (summer).

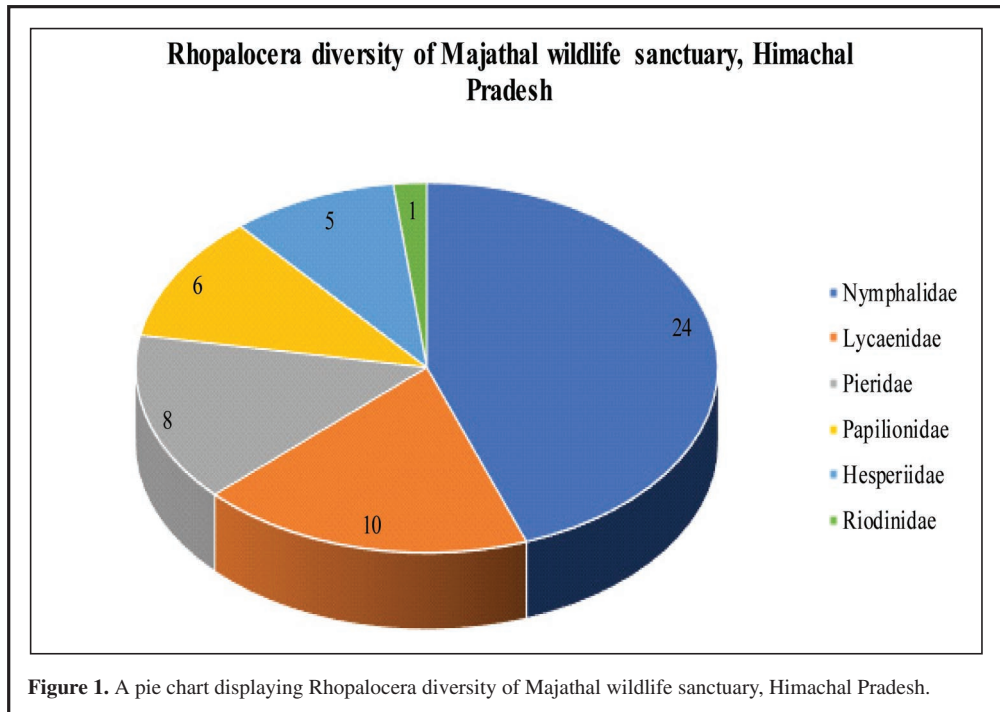
Materials and methods

This study was carried out during the faunal assessment of the Majathal wildlife sanctuary. We surveyed the sanctuary area for two months, from 01-III-2021 to 30-IV-2021. During the survey, 54 species of Rhopalocera were recorded within the confines of the protected area.

We visited the field mainly during the daytime, 6 AM to 10 AM and 12 PM to 6 PM. We used a Nikon Monarch 3 binoculars to spot the butterflies and captured them using Nikon D5600 DSLR and Nikon COOLPIX P1000 telephoto digital camera. No specimens were collected or preserved during the study. Kunte (2000), Kehimkar (2008), Varshney (2010), Varshney & Smetacek (2015), and Smetacek (2017) were followed for identification alongside the expert consultations and comments.

Results and discussion

We found 54 species of Rhopalocera belonging to six families (Figure 1). Nymphalidae dominates the checklist with 24 species, followed by Lycaenidae having ten, and Pieridae with eight species. We further recorded six species of Papilionidae, five Hesperidae, and a single species belonging to Riodinidae. A detailed checklist of the butterflies recorded in the Majathal wildlife sanctuary is presented in Table 1. All 54 species recorded during the survey are given in Figure 2. and Figure 3. No previous studies are available in this area so no comparisons could be made. Forest fires are very common in the sanctuary (Bhardwaj et al. 2022), posing a significant threat to the Rhopalocera populations. In addition, two cement manufacturing units are in the vicinity of the protected area, which could be a pollution threat to the sanctuary. Necessary measures should be taken, such as creating and maintaining good fire lines within the fire-prone areas of the sanctuary to conserve the butterfly populations. This checklist is important as it yields the baseline information which could be further expanded by consequent surveys. We recorded 55 species within the short duration of two months and believe that there is more to it and suggest the site be thoroughly surveyed for a longer duration.



Sr. no.	Scientific name	Family
1.	<i>Aglais caschmirensis aesis</i> (Fruhstorfer, 1912)	Nymphalidae
2.	<i>Nymphalis xanthomelas</i> (Esper, 1781)	Nymphalidae
3.	<i>Issoria lathonia</i> (Linnaeus, 1758)	Nymphalidae
4.	<i>Lasiommata schakra</i> (Kollar, 1844)	Nymphalidae
5.	<i>Libythea lepita</i> (Moore, 1858)	Nymphalidae
6.	<i>Neptis hylas</i> (Linnaeus, 1758)	Nymphalidae
7.	<i>Athyma perius</i> (Linnaeus, 1758)	Nymphalidae
8.	<i>Junonia iphita</i> (Cramer, 1779)	Nymphalidae
9.	<i>Parantica aglea</i> (Stoll, 1782)	Nymphalidae
10.	<i>Symbrenthia lilaea</i> (Hewitson, 1864)	Nymphalidae
11.	<i>Ypthima avanta</i> (Moore, 1875)	Nymphalidae
12.	<i>Telinga lepcha</i> (Moore, 1880)	Nymphalidae
13.	<i>Kaniska canace</i> (Linnaeus, 1763)	Nymphalidae
14.	<i>Junonia lemonias</i> (Linnaeus, 1758)	Nymphalidae
15.	<i>Vanessa indica</i> (Herbst, 1794)	Nymphalidae
16.	<i>Junonia hierta</i> (Fabricius, 1798)	Nymphalidae
17.	<i>Lethe rohria</i> (Fabricius, 1787)	Nymphalidae
18.	<i>Mycalesis mineus</i> (Linnaeus, 1753)	Nymphalidae
19.	<i>Lethe verma</i> (Kollar, 1844)	Nymphalidae
20.	<i>Vanessa cardui</i> (Linnaeus, 1758)	Nymphalidae
21.	<i>Kallima inachus</i> (Boisduval, 1846)	Nymphalidae
22.	<i>Charaxes solon</i> (Fabricius, 1793)	Nymphalidae
23.	<i>Dilipa morgiana</i> (Westwood, 1850)	Nymphalidae
24.	<i>Callerebia annada</i> (Watkins, 1925)	Nymphalidae
25.	<i>Heliophorus sena</i> (Kollar, 1844)	Lycaenidae
26.	<i>Rapala nissa</i> (Kollar, 1844)	Lycaenidae
27.	<i>Lycaena phlaeas</i> (Linnaeus, 1761)	Lycaenidae
28.	<i>Tarucus callinara</i> (Butler, 1886)	Lycaenidae
29.	<i>Everes huegelii</i> (Gistel, 1857)	Lycaenidae
30.	<i>Celastrina huegelii</i> (Moore, 1882)	Lycaenidae
31.	<i>Iraota timoleon</i> (Stoll, 1790)	Lycaenidae
32.	<i>Celastrina argiolus</i> (Linnaeus, 1758)	Lycaenidae
33.	<i>Pseudozizeeria maha</i> (Kollar, 1844)	Lycaenidae
34.	<i>Celatoxia marginata</i> (Nicéville, 1884)	Lycaenidae
35.	<i>Colias fieldii</i> (Menetries, 1855)	Pieridae
36.	<i>Gonepteryx rhamni</i> (Linnaeus, 1758)	Pieridae
37.	<i>Pieris brassicae</i> (Linnaeus, 1758)	Pieridae
38.	<i>Catopsilia pomona</i> (Fabricius, 1775)	Pieridae
39.	<i>Eurema brigitta</i> (Stoll, 1780)	Pieridae
40.	<i>Delias belladonna</i> (Fabricius, 1793)	Pieridae
41.	<i>Pontia daplidice</i> (Linnaeus, 1758)	Pieridae
42.	<i>Eurema laeta</i> (Boisduval, 1836)	Pieridae
43.	<i>Papilio machaon</i> (Linnaeus, 1758)	Papilionidae
44.	<i>Papilio polytes</i> (Linnaeus, 1758)	Papilionidae
45.	<i>Graphium cloanthus</i> (Westwood, 1841)	Papilionidae
46.	<i>Papilio protenor</i> (Cramer, 1775)	Papilionidae

47.	<i>Papilio agestor</i> (Gray, 1831)	Papilionidae
48.	<i>Papilio polyctor</i> (Boisduval, 1836)	Papilionidae
49.	<i>Dodona durga</i> (Kollar, 1844)	Riodinidae
50.	<i>Abaratha agama</i> (Moore, 1857)	Hesperiidae
51.	<i>Sarangesa purendra</i> (Moore, 1882)	Hesperiidae
52.	<i>Potanthus sp.</i>	Hesperiidae
53.	<i>Parnara sp.</i>	Hesperiidae
54.	<i>Sarangesa dasahara</i> (Moore, 1866)	Hesperiidae
55.	<i>Celaenorhinus ratna daphne</i> Evans, 1949	Hesperiidae

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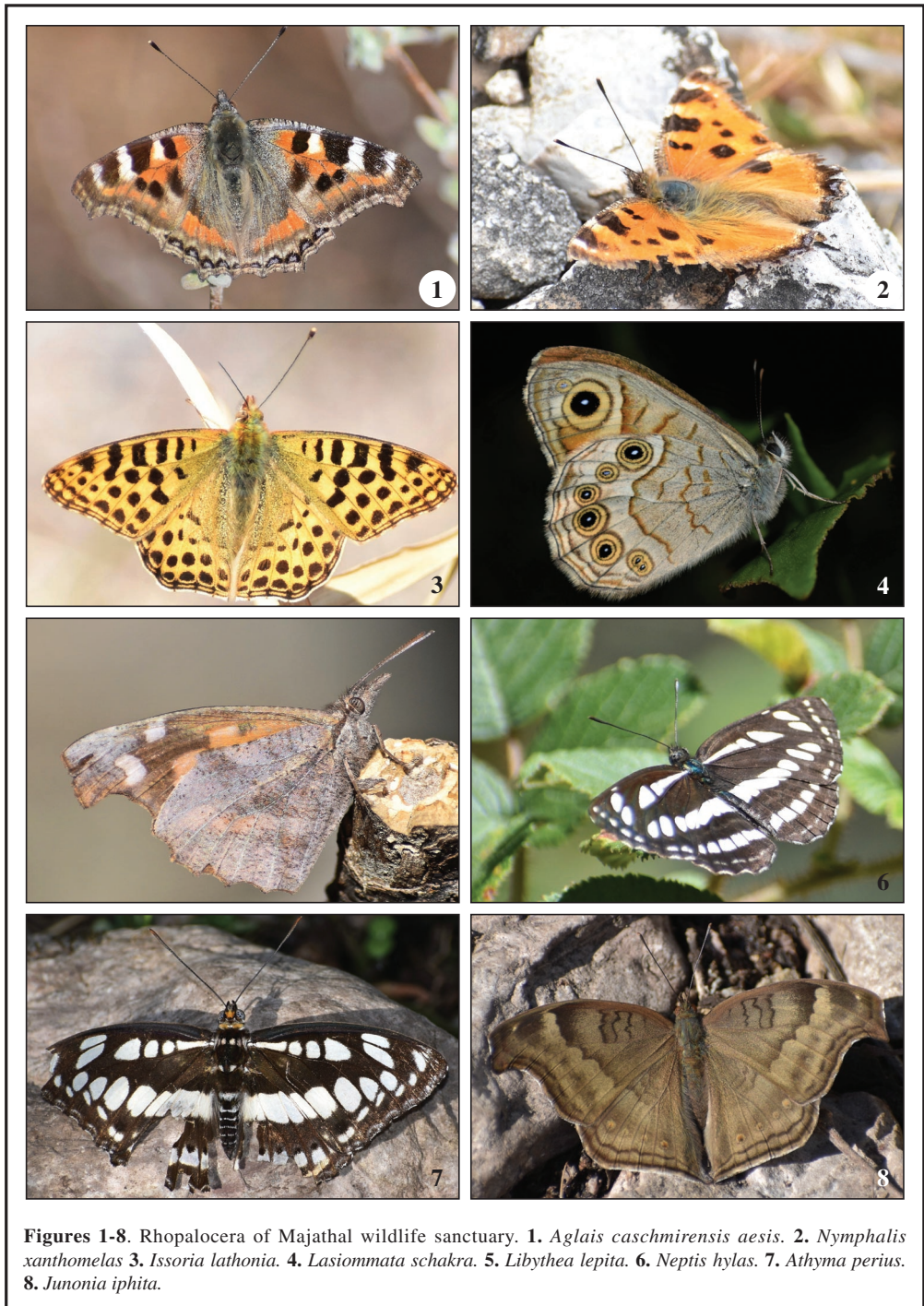
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Figures 1-8. Rhopalocera of Majathal wildlife sanctuary. 1. *Aglais caschmirensis aesis*. 2. *Nymphalis xanthomelas* 3. *Issoria lathonia*. 4. *Lasionmata schakra*. 5. *Libythea lepita*. 6. *Neptis hylas*. 7. *Athyma perius*. 8. *Junonia iphita*.

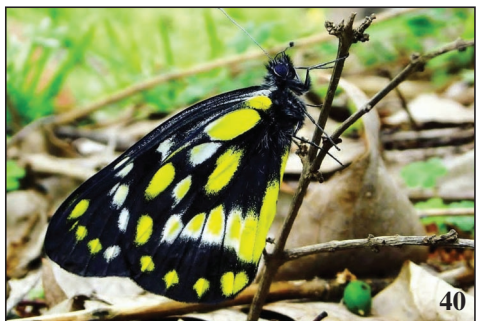




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