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Diversity of Butterflies in Karhandla Region of Umred-Karhandla Wildlife Sanctuary, Maharashtra, India

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ABSTRACT

Umred-Karhandla Wildlife Sanctuary is one of the most important conservation areas of Central India. It is located in Nagpur district of Maharashtra state. The vertebrate fauna of this Sanctuary is well known and includes a few tigers and leopards. However, its invertebrate fauna including Lepidoptera remains largely unknown. Several surveys for butterfly diversity were carried out at various places in and around Karhandla region of the Sanctuary during the period November 2014 to October 2015. This study has revealed a total of 53 species of butterflies in 34 genera of 5 families, inhabiting the area surveyed. Among the five families of butterflies recorded, Papilionidae is represented by 7 species, Pieridae by 10 species, Nymphalidae by 23 species, Lycaenidae by 10 species and Hesperidae is represented by 3 species of butterflies.

Key Words: Butterfly, Fauna, Lepidoptera, Maharashtra, Nagpur, Umred.

INTRODUCTION

Butterflies are arthropods belonging to order Lepidoptera in class Insecta. They are the most visible group among insect fauna on account of their large size, beautiful colours, flying ability and generally diurnal habit. They are present in most terrestrial ecosystems, where some of the species play an important role in pollinating various species of plants, whereas, some butterfly species such as the Lime Butterfly (*Papilio demoleus*) are economically important as pests of cultivated plants. Butterflies provide valuable information on the health and viability of natural ecosystems. According to Kehimkar (2008), butterflies are used by conservation biologists as indicator species to identify habitats that are critical and need to be protected. The diversity of butterflies of Maharashtra and in particular Nagpur which lies in the Vidarbha region of Maharashtra is well

documented. Tiple and Khurad (2009) have reported 145 butterfly species from Nagpur city. Tiple (2011) has reported 166 species of butterflies from the Vidarbha region of Maharashtra. Sharma and Radhakrishnan (2005, 2006) have reported the Lepidoptera of Pench National Park and Tadoba Andhari Tiger Reserve, respectively. Chandrakar *et al* (2007) have reported the butterflies of Melghat Tiger Reserve. The present study is an attempt to ascertain the diversity of butterflies in a newly established conservation area of Nagpur district.

MATERIALS AND METHODS

Nagpur (c. 21.06°N 79.03°E) is located in the Vidarbha region of Maharashtra which lies in Central India. Umred-Karhandla Wildlife Sanctuary (c. 20°50'08"N 79°30'40"E) is situated at a distance of about 55 km. to the south-east of Nagpur. This is recently notified as Wildlife

Sanctuary established in the year 2013. It is spread over an area of 189 sq. km. in Umred, Kuhi and Bhivapur talukas of Nagpur district. This Sanctuary has tropical dry deciduous type forest and is rich in invertebrate and vertebrate fauna. Gajbe (2015) has recently reported the odonate fauna of this region. The Lepidopteran fauna of the Sanctuary was surveyed through monthly visits in and around Karhandla village in the buffer zone of the Sanctuary. This study was carried out during the period November 2014 to October 2015. Most of the butterfly species were identified on sight, whereas, some species which could not be identified in that manner were collected with the help of a sweep net, picked up and identified through the handbook by Kehimkar (2008) and standard references such as Evans (1932) and Wynter Blyth (1957). Wherever possible, the recorded species were photographed for verification and authentication.

RESULTS AND DISCUSSION

The faunal survey of the butterflies of Karhandla region of Umred-Karhandla Wildlife Sanctuary has revealed a total of 53 species in 34 genera of 5 families (Table 1). Among the different types of butterflies found here (Figs. 1-40), family Papilionidae is represented by 7 species, family Pieridae by 10 species, family Nymphalidae by 23 species, family Lycaenidae by 10 species and family Hesperidae is represented by 3 species of butterflies (Table 2). When compared to the study carried out by Tiple and Khurad (2009), it is found that all the butterfly species recorded in this study are commonly found in Nagpur district and are not threatened. Since the area surveyed represents only a small part of the Sanctuary, further studies on butterfly diversity in other regions of the Sanctuary may reveal many more species and provide further inputs to help in their conservation.



Atrophaneura aristolochiae



Graphium agamemnon



Graphium doson



Papilio demoleus



Papilio polytes



Catopsilia pomona



Catopsilia pyranthe



Cepora nerissa



Delias eucharis



Eurema andersoni



Eurema brigitta

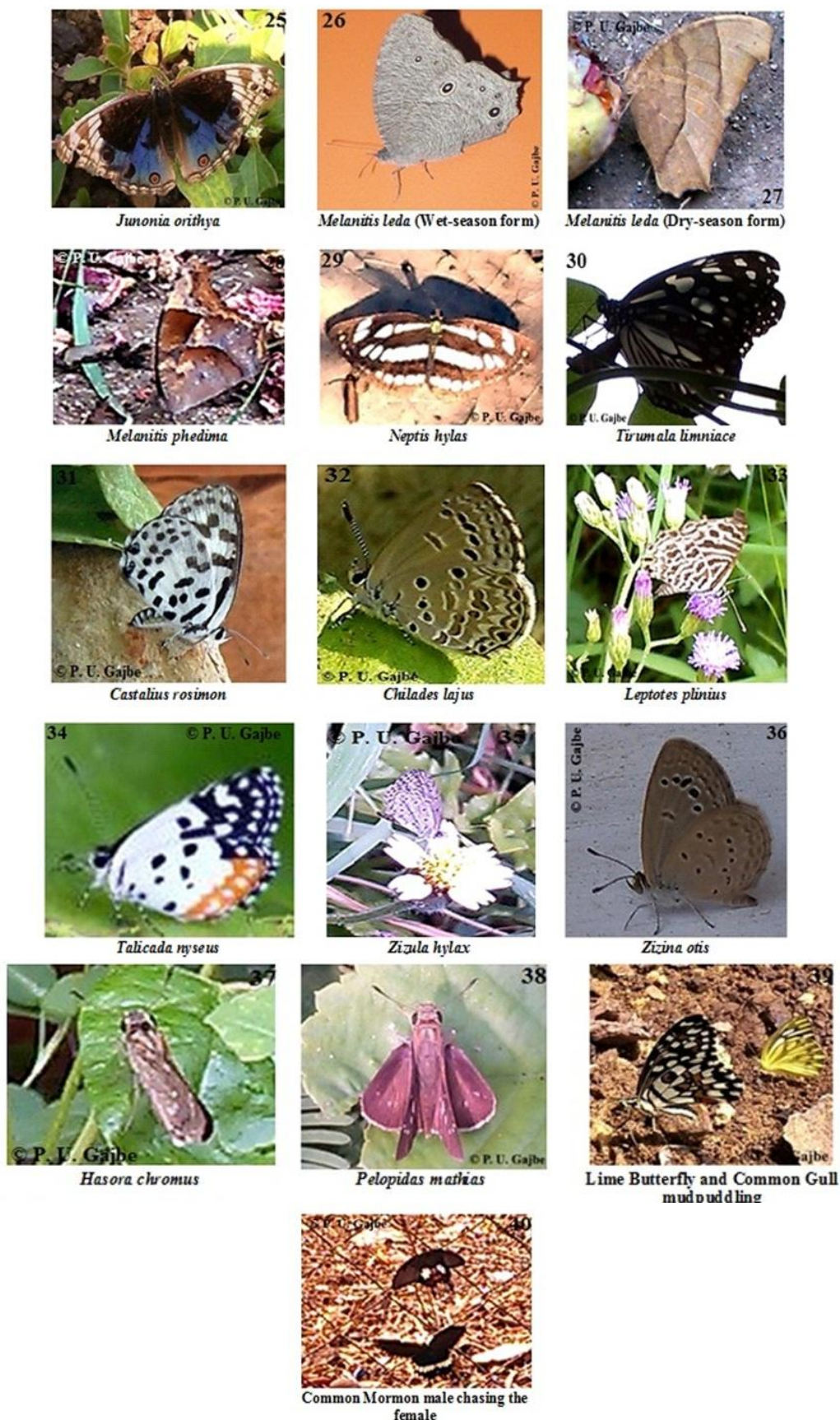


Eurema hecabe

Figs. 1-12: 1. *Atrophaneura aristolochiae* 2. *Graphium agamemnon* 3. *Graphium doson* 4. *Papilio demoleus* 5. *Papilio polytes* 6. *Catopsilia pomona* 7. *Catopsilia pyranthe* 8. *Cepora nerissa* 9. *Delias eucharis* 10. *Eurema andersoni* 11. *Eurema brigitta* 12. *Eurema hecabe*



Figs. 13-24: 13. *Pareronia valeria* (Male) 14. *Pareronia valeria* (Female) 15. *Ariadne ariadne* 16. *Danaus chrysippus* 17. *Euploea core* 18. *Euthalia aconthea* 19. *Hypolimnas bolina* 20. *Hypolimnas misippus* 21. *Junonia almana* 22. *Junonia hierta* (Female) 23. *Junonia hierta* (Male) 24. *Junonia lemonias*



Figs. 25-40: 25. *Junonia orithya* 26. *Melanitis leda* (Wet-season form) 27. *Melanitis leda* (Dry-season form) 28. *Melanitis phedima* 29. *Neptis hylas* 30. *Tirumala limniace* 31. *Castalius rosimon* 32. *Chilades lajus* 33. *Leptotes plinius* 34. *Talicada nyseus* 35. *Zizula hylax* 36. *Zizina otis* 37. *Hasora chromus* 38. *Pelopidas mathias* 39. Lime Butterfly and Common Gull mudpuddling 40. Common Mormon male chasing the female

Table 1: List of Butterflies of Karhandla Region of Umred-Karhandla Sanctuary

S. NO.	COMMON NAME	ZOOLOGICAL NAME
Family Papilionidae (Swallowtails)		
1.	Common Rose	<i>Atrophaneura aristolochiae</i> (Fabricius, 1775)
2.	Crimson Rose	<i>Atrophaneura hector</i> (Linnaeus, 1758)
3.	Tailed Jay	<i>Graphium agamemnon</i> (Linnaeus, 1758)
4.	Common Jay	<i>Graphium doson</i> (C. & R. Felder, 1864)
5.	Common Bluebottle	<i>Graphium sarpedon</i> (Linnaeus, 1758)
6.	Lime Butterfly	<i>Papilio demoleus</i> Linnaeus, 1758
7.	Common Mormon	<i>Papilio polytes</i> Linnaeus, 1758
Family Pieridae (Whites and Yellows)		
8.	Pioneer	<i>Belenois aurota</i> (Fabricius, 1793)
9.	Common Emigrant	<i>Catopsilia pomona</i> Fabricius, 1775
10.	Mottled Emigrant	<i>Catopsilia pyranthe</i> (Linnaeus, 1758)
11.	Common Gull	<i>Cepora nerissa</i> Fabricius, 1775
12.	Common Jezebel	<i>Delias eucharis</i> (Drury, 1773)
13.	One Spot Grass Yellow	<i>Eurema andersoni</i> (Moore, 1886)
14.	Small Grass Yellow	<i>Eurema brigitta</i> (Cramer, 1780)
15.	Common Grass Yellow	<i>Eurema hecabe</i> (Linnaeus, 1758)
16.	Spotless Grass Yellow	<i>Eurema laeta</i> Boisduval, 1836
17.	Common Wanderer	<i>Pareronia valeria</i> (Cramer, 1776)
Family Nymphalidae (Brush-footed Butterflies)		
18.	Tawny Coster	<i>Acraea terpsicore</i> (Linnaeus, 1758)
19.	Angled Castor	<i>Ariadne ariadne</i> (Linnaeus, 1763)
20.	Common Castor	<i>Ariadne merione</i> (Cramer, 1777)
21.	Common Sergeant	<i>Athyma perius</i> (Linnaeus, 1758)
22.	Plain Tiger	<i>Danaus chrysippus</i> (Linnaeus, 1758)
23.	Striped Tiger	<i>Danaus genutia</i> (Cramer, 1779)
24.	Common Crow	<i>Euploea core</i> (Cramer, 1780)
25.	Baronet	<i>Euthalia nais</i> (Forster, 1771)
26.	Common Baron	<i>Euthalia aconthea</i> (Hewitson, 1874)
27.	Great Eggfly	<i>Hypolimnas bolina</i> (Linnaeus, 1758)
28.	Danaid Eggfly	<i>Hypolimnas misippus</i> (Linnaeus, 1764)
29.	Peacock Pansy	<i>Junonia almana</i> (Linnaeus, 1758)
30.	Grey Pansy	<i>Junonia atlites</i> (Linnaeus, 1763)
31.	Yellow Pansy	<i>Junonia hierta</i> (Fabricius, 1798)
32.	Chocolate Pansy	<i>Junonia iphita</i> (Cramer, 1779)
33.	Lemon Pansy	<i>Junonia lemonias</i> (Linnaeus, 1758)
34.	Blue Pansy	<i>Junonia orithya</i> (Linnaeus, 1758)
35.	Common Evening Brown	<i>Melanitis leda</i> (Linnaeus, 1758)
36.	Dark Evening Brown	<i>Melanitis phedima</i> (Cramer, 1780)
37.	Common Bushbrown	<i>Mycalesis perseus</i> (Fabricius, 1775)
38.	Common Sailer	<i>Neptis hylas</i> (Linnaeus, 1758)
39.	Common Leopard	<i>Phalanta phalantha</i> (Drury, 1773)
40.	Blue Tiger	<i>Tirumala limniace</i> (Cramer, 1775)
Family Lycaenidae (Blues)		
41.	Common Pierrot	<i>Castalius rosimon</i> (Fabricius, 1775)
42.	Forget-Me-Not	<i>Catochrysops strabo</i> (Fabricius, 1793)
43.	Lime Blue	<i>Chilades lajus</i> (Cramer, 1782)
44.	Plains Cupid	<i>Chilades pandava</i> (Horsfield, 1829)
45.	Common Cerulean	<i>Jamides celeno</i> (Cramer, 1775)
46.	Zebra Blue	<i>Leptotes plinius</i> (Fabricius, 1793)
47.	Striped Pierrot	<i>Tarucus nara</i> Kollar, 1848
48.	Red Pierrot	<i>Talicauda nyseus</i> (Guerin, 1843)
49.	Tiny Grass Blue	<i>Zizula hylax</i> (Fabricius, 1775)
50.	Lesser Grass Blue	<i>Zizina otis</i> (Fabricius, 1787)

Family HesperIIDae (Skippers)		
51.	Common Banded Awl	<i>Hasora chromus</i> (Cramer, 1782)
52.	Small Branded Swift	<i>Pelopidas mathias</i> (Fabricius, 1798)
53.	Dark Palm Dart	<i>Telicota ancilla</i> (Herrich-Schäffer, 1869)

Table 2: Number of Butterfly Genera and Species recorded in each Family

S. NO.	FAMILY	NUMBER OF GENERA	NUMBER OF SPECIES
I.	Papilionidae	03	07
II.	Pieridae	06	10
III.	Nymphalidae	13	23
IV.	Lycaenidae	09	10
V.	HesperIIDae	03	03
	5 Families	34 Genera	53 Species

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