



RESEARCH ARTICLE

SPECIES DIVERSITY OF BUTTERFLY WITH THEIR RELATIVE STATUS IN SOUTHEAST REGION OF NARMADA VALLEY JABALPUR (M.P.)

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ABSTRACT

Butterflies are one of the most important assemblages of insects that act as biodiversity indicators as well as nature's gardeners. Butterfly (Lepidoptera) were studied in southeast region of Narmada valley Jabalpur, Madhya Pradesh as part of an extensive study of biodiversity. This paper presents a preliminary study and status of butterfly from Jabalpur southeast region having aggregation of up to 25 species belonging to 5 families and categories on the basis of their status. This study is aimed towards contributing to the plan of biodiversity restoration in studied region and development of management strategies so as to ensure sustenance of butterflies and ecosystem services derived from them.

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INTRODUCTION

Butterflies are generally regarded as one of the best taxonomically studied group of insects. Worldwide there are more than 28,000 species of butterflies; with about 80 percent found in tropical regions (Robbins and Oplar, 1997). It may be noted that Antarctica is the only continent on which no Lepidoptera (butterflies) have been found. Lepidoptera is one among the highly specialized insect orders, included scaly winged insect of the holometabolous endopterygote series. Butterfly shows total metamorphosis and pass through various stages such as egg, larva, pupa and adult stage. Narmada valley created an excellent habit and source of alteration for many faunal species like insects, reptiles, birds and mammals (Tiple *et al.*, 2010). Narmada valley lies at the bank of the Gaur and Narmada River in the way of Bargi and about 20 km southeast of Jabalpur. The area is surrounded with a very large variety of trees, mini forest, vast grassland & small hills; these are the elements for architecting a preferred habitat or such species. Butterflies are also good indicators of environmental changes as they are sensitive to habitat degradation and climate changes (Kunte, 2000). Butterflies play an important role in ecosystem where they interact with plants as it is one on the major source of pollination and also a herbivorous insect (Tiple *et al.*, 2006).

The Indian subcontinent hosts about 1,504 species of butterflies (Tiple, 2011) out of which peninsular India and the Western Ghats host 351 and 334 species respectively. In Madhya Pradesh and Vidarbha of central India 177 species of butterfly species have been documented (D'Abreu 1931).

In the recent past, several researchers have studied butterflies from some districts and conservation areas of Madhya Pradesh and Chhattisgarh (Singh 1977; Gupta 1987; Chaudhury 1995; Chandra *et al.*, 2000a, b; 2002; Singh &

Chandra 2002; Siddiqui & Singh 2004; Chandra 2006). Chandra *et al.*, (2007) recorded 174 species of butterflies belonging to eight families from Madhya Pradesh and Chhattisgarh. The present study was started to examine the diversity of butterflies from southeast region of Narmada Valley Jabalpur.

MATERIAL AND METHOD

The findings presented here are based on random surveys carried out February 2015 to September 2015 in the Southeast region of Narmada Valley early morning (5 to 9 AM) and evening (5 to 7 PM).

Butterflies were primarily identified directly in the field by observation and the difficult cases followed capture or photography of the organism. In critical conditions, specimens were collected only with handheld aerial sweep nets. Each specimen was placed in a plastic bottle and carried to the laboratory for further identification with the help of a field guide (Wynter - Blyth 1957; Kunte 2000; Haribal 1992). In the present study, all scientific names followed Varshney (1983) guidelines. The observed butterflies were categorized in five categories on the basis of their abundance in southeast region of Narmada Valley i.e., Very common, Common, Very rare, Rare, Not Rare (Tiple *et al.*, 2006).

RESULT AND DISCUSSION

A total of 25 species of Lepidoptera belonging to 19 genus under 5 families viz., Nymphalidae, Papilionidae, Pieridae, Hesperidae and Lycaenidae. Among these species 2 were very rare, 7 were rare, 1 were not rare, 8 were commonly occurring and 7 were very common (Figure 1.). A total of seven species of butterflies from the study area are designated rare, suggesting the need for strict conservation measures.

Among the species recorded from the valley area, 44% are belonging to the family Nymphalidae showed the maximum species richness, comprising of 11 species, while the others are shown less representatives (Figure 2.) i.e., followed by 4 species of Lycaenidae, 4 species of Pieridae, 3 species Papilionidae and also 3 species Hesperidae. The preference of butterflies for particular habitats is associated with the availability of larval host plants and adult nectar plants. The rich diversity of butterflies, especially the Nymphalids in Narmada Valley indicates a varied assemblage of floral species. The flora in studied site is of mixed type with herbs and shrubs dominating the vegetation in the tropical climate. Singh and Koshta (2007) incorporated the account of butterflies of 135 species and total 48 species were recorded for the first time from central India.

Table 1 Systematic list of Lepidoptera (butterflies) reported from Narmada Valley, Jabalpur

S.No.	Scientific Name of species	Common Name	Status
Order : Lepidoptera			
Suborder : Rhopalocera			
Family – Nymphalidae (11 Species)			
1	<i>Tirumala limniace</i> (Cramer)	Blue tiger	Very Common
2	<i>Junonia orithya</i> (Linnaeus)	Blue Pansy	Common
3	<i>Junonia lemonias</i> (Linnaeus)	Lemon Pansy	Very Common
4	<i>Limnitis procris</i> (Cramer)	Commander	Rare
5	<i>Danaus chrysipus</i> (Linnaeus)	Plain Tiger	Very Common
6	<i>Charaxes solon</i> (Fabricius)	Black Rajah	Very Rare
7	<i>Hypolimnas bolina</i> (Linnaeus)	Great Eggfly	Common
8	<i>Hypolimnas misippus</i> (Linnaeus)	Danaid Eggfly	Common
9	<i>Acraea violae</i> (Fabricius)	Tawny Coster	Common
10	<i>Junonia hierta</i> (Fabricius)	Yellow Pansy	Very Rare
11	<i>Junonia almanac</i> (Linnaeus)	Peacock Pansy	Common
Family – Papilionidae (3 species)			
12	<i>Papilio demoleus</i> (Linnaeus)	Lime	Very Common
13	<i>Pachliopta aristolochiae</i> (Fabricius)	Common Rose	Not Rare
14	<i>Papilio polytes</i> (Linnaeus)	Common Mormon	Common
Family – Pieridae (4 Species)			
15	<i>Eurema hecabe</i> (Linnaeus)	Common Grass Yellow	Very Common
16	<i>Eurema laeta</i> (Boisduval)	Spotless Grass Yellow	Common
17	<i>Anaphaeis aurota</i> (Fabricius)	Pioneer	Rare
18	<i>Catopsilia pomona</i> (Fabricius)	Lemon Emigrant	Very Common
Family – Lycaenidae (4 Species)			
19	<i>Castalius rosimon</i> (Fabricius)	Common Pierrot	Rare
20	<i>Arhopala amantes</i> (Hewitson)	Large Oakblue	Rare
21	<i>Chilades parrhasius</i> (Butler)	Small Cupid	Rare
22	<i>Zizula hylax</i> (Fabricius)	Tiny Grass Blue	Rare
Family – Hesperidae (3 Species)			
23	<i>Hasora chromus</i> (Cramer)	Common Banded Awl	Very Common
24	<i>Borbo cinnara</i> (Wallace)	Rice Swift	Common
25	<i>Telicota ancilla</i> (Herrich-Schaffer)	Dark Palm Dart	Rare

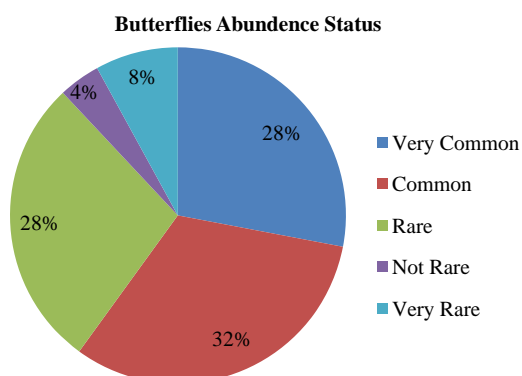


Figure 1 Abundance Status of Butterflies in Narmada Valley

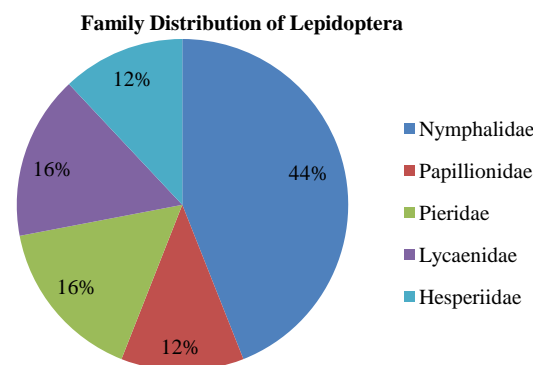


Figure 2 Distribution of families of Lepidoptera in Narmada Valley

Butterflies also serve as major pollinators of both wild and cultivated plants (Tiple *et al.*, 2006). Owing to habitat destruction for developmental activities in urban environment and unscientific management of natural resources, much of our native butterflies are fast disappearing and at present, their survival is under threat.

CONCLUSION

With the pressing needs of the growing human population in India, natural greeneries are being clear-felled giving way to urbanization, pollution and overgrazing. Loss of prime habitat is the major threat to all wildlife including butterflies. In addition to these, a variety of threats from human recreational activities, trampling, run-off from roads, litter deposition and weeds are common factors which affect butterfly populations. Although we cannot completely nullify the ill effects of urbanization and development, we can at least try to reduce them by planting endemic trees and plants supporting the local wildlife. This will make sure that at least the common species will not go on to the verge of extinction. If the landscaping and maintenance of forest area and plantation are carefully planned, the diversity of butterflies may increase in studied area providing a rich ground for butterfly conservation as well as for research. For our next generation we can save wonderful attractive creature on our surrounding garden & forest.

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