

A CASE STUDY

## Studies on lepidopteran (Rhopalocera: Butterfly) diversity in Himachal Pradesh of the Western Himalaya

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**ABSTRACT :** The present study revealed the presence of 107 species of butterflies belonging to 73 genera spread over nine families. Family wise analyses revealed that family Nymphalidae dominated the diversity with 27 species, followed by Pieridae (19 spp.), Satyridae (18 spp.), Papilionidae (14 spp.), Hesperidae (9 spp.), Danaidae and Lycaenidae (8 spp. each), Erycinidae (3 spp.) and Acraeidae (1 sp.). The study also revealed the presence of some pest species like *Papilio demoleus demoleus* Linn., *Pieris canidia indica* Evans, *Pieris brassicae nepalensis* Doubleday, *Euchrysops cnejus* (Fabr.), *Lampides boeticus* (Linn.), *Virachola isocrates* (Fabr.), *Melanitis leda* (Cramer) and *Udaspus folus* (Cramer).

**Key words :** *Lampides boeticus*, Lepidopteran, Diversity

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### INTRODUCTION

The butterflies are cosmopolitan in distribution and occur in every suitable environment, from plains to deserts, forests and valleys of hills to mountains. Butterflies are holometabolous endopterygotes, often provided with tails, a characteristic venation and clothed by overlapping scales. The mouth parts are modified into coiled proboscis, the antennae are knobbed or clubbed, hesperidae at the anterior end. Butterfly larvae feed on the leaves of their host plants or diverse plants and some are predaceous on Coccidae (scale insects), Aphididae and Membracidae. Some Lycaenid-larvae lives in nests of ants and often devour ant-larvae. They are good pollinators and help in cross pollination of flowers and other plants. The adults visit flowers for nectar, while some of the male species congregate on damp or moist places near streams. Some of the species are attracted in large numbers by rotting or over ripe fruit, animal dung and bird-droppings, etc. While a majority of butterflies are found in sheltered and shaded areas, several others occur in open ground, among bushes and over tree tops (Sudheendrakumar *et al.*, 1999).

There were many workers who made the collections of butterflies from Himalayas; Carlovon Hugel (1844-1848); Hardwick's collections were described by

Doubleday and Gray (1846) and Redtenbacder (1848). Besides, collections were also made by Lt. Colonel A.M. Lang from N.W. Haimalayas and Mr. A.G. Young from Kullu, which were included by Major G.F.L. Marshall and L. de Niceville in *The Butterflies of India, Burma and Ceylon* (vols. 1 to 3 : 1882-1890), and Rev. J.H. Hocking from Kangra district and were published by Moore (1882).

Subsequently, these were included in publications by Evans (1932, 1949), and Talbot (1939, 1947). De Rhe-Philipe (1931) was probably the first to publish a comprehensive list of 246 butterflies of Shimla Hills and later Wynter-Blyth (1940-1946) listed as many as 294 species of butterflies from Shimla Hills. These were also included by the latter in a book *Butterflies of the Indian Region* (1957). Mani (1986) described 377 species of butterflies except Hesperidae from Himalayas.

### RESEARCH METHODS

In the present work, an attempt has been made to study the butterfly diversity of Himachal Pradesh (situated at 30°22' to 33°12' N latitude and 75°45' to 79°04' E longitude). The boundaries of the state extend from the plains of Haryana and Punjab to the snowy ranges adjoining Jammu and Kashmir, Uttarakhand and Tibet. The most of the regions of the state are mountainous and