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A study of butterflies diversity from Mandi Dabwali, Western part of Haryana, India

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Abstract

The present study was conducted to assess butterfly biodiversity in Mandi Dabwali, a town of Sirsa district of Haryana state. Butterflies are part of our natural heritage which adds to increase the aesthetic value of our nature. They are very sensitive and are severely affected by the slightest variations in the environment. They form an important biota of the class Insect, belonging to the order Lepidoptera. In our study a total of 28 butterfly species belonging to of order Lepidoptera were recorded. Lycaenidae and Pieridae family butterflies were recorded the most abundant as they have broad host range. It also shows that these butterflies are very well adapted to the environment of Dabwali region. Hesperidae, Papilionidae and Nymphalidae family butterflies were recorded the least.

Keywords: Butterfly, insects, diversity, Dabwali, Haryana

Introduction

India having only 2.3 percent of the total land mass of the world so far recorded around 7.3% of the total world animal species (Alfred *et al.*, 1998) ^[1]. Among them, insects are important components of biodiversity, which are closely related to plants. Variation of insect diversity is of significance for assessing forest ecosystem health. Butterflies are one of the most charming and easily recognizable insects that belong to order Lepidoptera. They have a fairly clear taxonomy, and their life history and biology are well defined (Nelson and Anderson, 1994) ^[2]. Their ability to adapt virtually any climate, has made them some of the most successful creatures on earth. Butterflies are considered important flagships for insect conservation (New *et al.*, 1995) ^[3]. More attention is paid throughout the world, because of their important service in environmental quality assessment under terrestrial ecosystem (Ghazoul, 2002) ^[4]. Butterflies are the most beautiful and attractive than most other insects and have fascinated human imagination and creativity. They are valuable pollinators and are the one of the important food chain components. (Kumar *et al.* 2007) ^[5]. Due to various reasons such as habitat destruction, fire, use of pesticides and weedicides and illegal collection for trade, many species have become very rare and some are on the verge of extinction (Sharma *et al.*, 2006) ^[6]. Therefore, the present study makes a modest attempt to explore the existing diversity of butterflies from Dabwali.

Material and methods

Geographical location of study Area

The study area is situated in Sirsa district of Haryana in northern part of India. It is located on the border of Haryana, great Thar Desert of Rajasthan, and Malwa belt of Punjab. Due to its unique geographically location, it provides a blend of cultures from all three states. The major vegetation of this area consists of Rutaceae, Fabaceae, Brassicaceae, Capparaceae, Poaceae, Malvaceae, Solanaceae, Rhamnaceae, Passifloraceae Asclepiadaceae and Asteraceae family. The temperature varies between 20°-49 °C in summer, whereas between 0°-28 °C during winter.

Collection and identification of sample

Butterflies were sampled using the transect walk method or Pollard Walk (Pollard and Yates, 1993) ^[7]. An extensive collection of butterfly was made during study. Butterflies primarily were identified directly in the field and some difficult cases individuals were transferred into

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to the laboratory. Identification of adult individuals was carried out using identification keys provided by Marshall & de Niceville (1882) [8] and de Moore (1890-1903) [9].

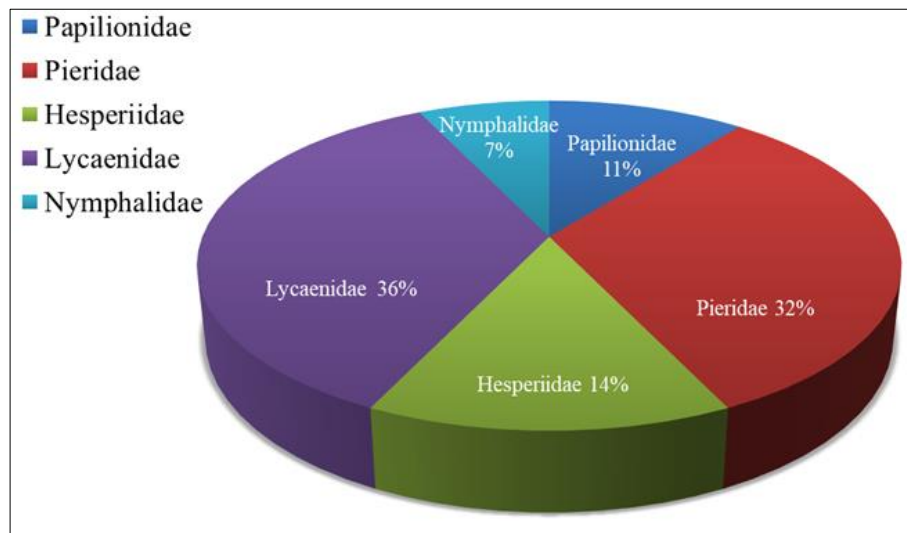
Results and discussion

This is the first study on the distribution and richness of species of butterflies in the Dabwali region of Haryana. Table-1 showing the butterfly species belonging to 5 families of order Lepidoptera was recorded in Dabwali during the study period. Both Lycaenidae (35.71%) and Pieridae (32.14%) family butterflies were recorded the most abundant as they have broad host range. It also shows that these butterflies were very well adapted to the environment of Dabwali region. Hesperidae (14.28%), Papilionidae (10.71%) and Nymphalidae (07.14%) family butterflies were recorded the least. All butterflies were found on the host plant family of Rutaceae, Fabaceae, Brassicaceae, Capparaceae, Poaceae, Malvaceae, Solanaceae, Rhamnaceae, Passifloraceae Asclepiadaceae and Asteraceae etc. The association between butterflies and plants is highly specific. Thus pollination, a crucial link in the survival of ecosystem, is one such factor that needs to be well

understood to develop appropriate strategies for conservation of the biodiversity. Since butterflies require all kinds of vegetation for survival of larval, pupal and adult stage, their ideal habitat should be a mixture of grasslands, herbs, shrubs, and flowering trees. Depletion of natural habitats of animals all over the globe, the Government of India took significant steps in establishing the Indian Board for Wildlife in 1952 followed by the Indian Wildlife (Protection) Act, 1972 Anonymous (2003) [10]. From the point of view, this study will help in conservation of insect's biodiversity and develop standard common methodology for study to conserve these valuable creatures in future.

Table 1: Number and percent distribution of species under different families recorded in study region.

S. N.	Family	Number of genera found out of total 28	Percentage (%)
1	Papilionidae	03	10.71
2	Pieridae	09	32.14
3.	Hesperidae	04	14.28
4.	Lycaenidae	10	35.71
5	Nymphalidae	02	07.14



Graph 1: Observed percent occurrence of butterfly species under different families.

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