

Article

Checklist of moth fauna of Peshawar, Pakistan

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Abstract

A taxonomic survey of moth fauna was carried out in Peshawar from June to August in 2010 to know about moth species present in this area. A total number of 1375 moth specimens were collected by using simple light traps operated from dusk to dawn daily for sixty nights. A total of 18 moth species belonging to six families were recorded in Peshawar during this study.

Keywords moth; Peshawar; family; traps.

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1 Introduction

More than half of the world's known animal species are insects (Wilson, 1992; Zhang, 2010, 2011) in which Lepidoptera is the second largest and more diverse order in class Insecta (Benton, 1995). Uptill now, more than 100,000 species of lepidopterous insects have been studied (Richard and Davies, 1977). Economically lepidopterans are of great importance in larval stages. These are phytophagous and act as serious pests, defoliators, pollinators and parasites. Majority of species devour foliage and shoots of trees and crops. A smaller number bore into stems or attack underground parts. The saturniids and bombycids yield silk of commercial value. Moths and butterflies were collected and identified from different parts of the Indo-pak subcontinent by De Niceville and Marshall (1982-90), Bingham (1905, 1907), Bell (1919), Bell and Scot (1937), Talbot (1939-47) and Mani (1986). Daniel (1965) and Elbert (1969) studied the Sphingid moths from Iran and Afghanistan.

Lepidoptera is probably one of the most suitable groups for most quantitative comparisons between insect faunas to be valid, for the many reasons elaborated by Holloway (1980, 1984 and 1985), especially their abundance, species richness, response to vegetation and climate, their ease of sampling using light traps and relatively advanced taxonomy (Zhang and Wei, 2009; Perveen and Ahmad, 2012). Although light trapping of macrolepidoptera has been carried out widely in temperate and tropical regions throughout the world, generally results are not directly comparable between areas because of different light sources, trap design, trapping periods and taxonomic coverage. A recent review by Holloway (1987) of the many light trap samples

of macrolepidoptera throughout the Indo-Australian tropics gives a very useful summary of the existing information from the area and suggests some general trends in relation to altitude, isolation and disturbance. However, for the reasons mentioned above, results from such sample comparisons can only be tentative until more standardized information is available, although obtaining this can be difficult, time consuming and often not practical in isolated areas.

Moths, and particularly their caterpillars, are a major agricultural pest in many parts of the world. Examples include corn borers and bollworms. The caterpillar of the gypsy moth (*Lymantria dispar*) causes severe damage to forests in the northeast United States, where it is an invasive species. In temperate climates, the codling moth causes extensive damage, especially to fruit farms. In tropical and subtropical climates, the diamondback moth (*Plutella xylostella*) is perhaps the most serious pest of brassicaceous crops.

Several moths in the family Tineidae are commonly regarded as pests because their larvae eat fabric such as clothes and blankets made from natural proteinaceous fibers such as wool or silk (Scott, 1995).

The main objective of this research study was to collect, identify and enlist species of moths of Peshawar region.

2 Materials and Methods

This study was carried out in Peshawar which is a historical city of Pakistan and is situated near the eastern end of the Khyber Pass with a total area of 1257 sq.km (Fig. 1). Moths were collected by using simple light traps consisting of a plastic jar; sprinkled with a commercial insecticide “Coopex” powder (Permethrin 0.5%). The jars were covered with large plastic funnels and 200 watt tungsten bulbs were used as a light source for the traps. These traps were set up at different sites in Peshawar and were operated from dusk to dawn continuously for sixty nights from June to August 2010. Moths, caught in the traps were brought to the laboratory and were identified with the help of available literature (Hampson, 1894). In Peshawar area the main vegetations are *Delbergia sissoo* (Shisham), *Citrus acida*, *Duranta repens*, *Cupressus sempervirens*, *Cassia fistula* and grasses etc. which constitute the major habitats of insect fauna particularly moths.

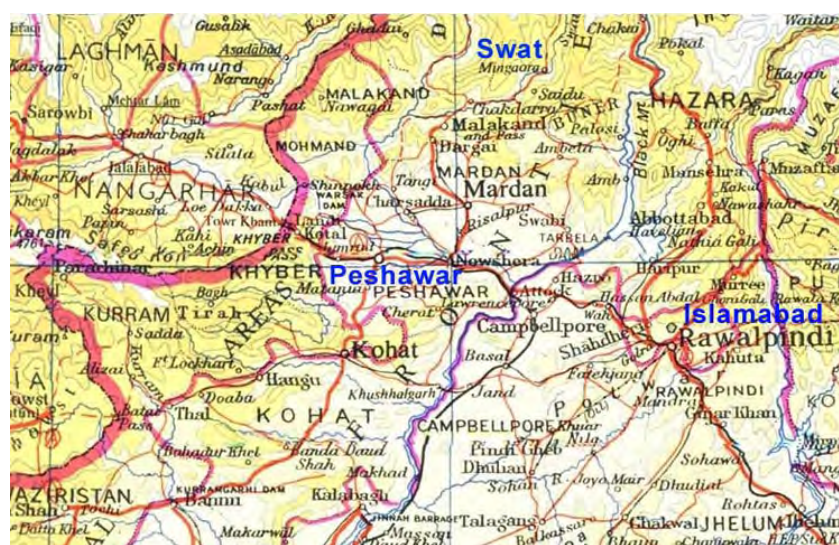


Fig. 1 Map showing Peshawar area.

3 Results and Discussion

During this study, a total of 1375 specimens of moths, comprising 18 species and belonging to six families were collected in Peshawar area by using light traps. Table 1 shows complete list of moth species and their families recorded in Peshawar during this study.

Table 1 The names of moth species and families collected by light traps in Peshawar area.

No.	Species	Family
1	<i>Zinckenia fascialis</i> Cram	Pyralidae
2	<i>Glyphodes indica</i> Saund	Pyralidae
3	<i>Lepyrodes geometralis</i> Guen	Pyralidae
4	<i>Heliothis armigera</i> Hubn	Noctuidae
5	<i>Agrotis ypsilon</i> Rott	Noctuidae
6	<i>Plusia orichalcea</i> Fabr	Noctuidae
7	<i>Plecoptera reflexa</i> Guen	Noctuidae
8	<i>Ophiusa conficiens</i> Wlk	Noctuidae
9	<i>Acherontia styx</i> Westw	Sphingidae
10	<i>Dilephila livornica</i> Esp	Sphingidae
11	<i>Theretra alecto</i> Linn	Sphingidae
12	<i>Herse convolvuli</i> Linn	Sphingidae
13	<i>Euproctis vitellina</i> Koll	Lymantriidae
14	<i>Sterrha sacraria</i> Linn	Geometridae
15	<i>Alphaea quadriramosa</i> Koll	Arctiidae
16	<i>Cyana peregrina</i> Wlk	Arctiidae
17	<i>Utetheisa pulchella</i> Linn	Arctiidae
18	<i>Ceryx godarti</i>	Arctiidae

Vegetation plays an important role for the existence of insect fauna in a community as it provides the main source of food etc. for insects. For instance, the occurrence of a rich and diversified fauna in some parts of Nilgiri Biosphere region was largely attributed to the conservation of forests in this region (Larsen, 1987). Conservation of the natural habitats is very essential for the existence of many species of lepidopterans. The survival of a large number of endemic species in a community or habitat warrants frequent monitoring of the ecological processes besides adoption of appropriate conservation strategies in order to safeguard its rich genetic diversity (Mathew et al., 1993).

The total number of individuals caught in a trap is an indication of biomass although more care has to be taken in its interpretation than for diversity as the size of a light trap catch can be influenced significantly by the setting of the trap, interference from other lights and lunar cycles (Barlow and Woiwod, 1989).

This work was an attempt to describe the species of moths of Peshawar region. A lot of further work is necessary in this regard and further collections are essential for getting a detailed periodic estimate of the faunal diversity of moths in this area. Ultimately it is hoped that such work may lead to the development of standard monitoring procedures which could be of value in assessing the environmental stability of areas under cultivation for different crops and the prediction of the effect on the structure of moth populations of tropical forest destruction (Barlow and Woiwod, 1989).

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