

8. Diversity of Macromoths (Lepidoptera: Heterocera) in Lubuk Sembilang, Langkawi Island, Kedah, Malaysia

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Abstract

The diversity and abundance of the macromoth (Lepidoptera: Heterocera) were investigated in a lowland dipterocarp forest of Lubuk Sembilang, Langkawi Island, Kedah from 11th to 16th August 2008 and from 25th to 30th July 2009. A total sampling efforts of 576 trap-nights was achieved by using four modified Pennsylvanian light-traps; two traps both at the ground (<2 m) and canopy level (≥ 20 m). Three hundred and sixty nine individuals comprising of 99 species and 13 families were recorded from the site. The overall species diversity index for the macromoths was found to be considerably low with Fisher's alpha diversity index, $\alpha=44.35\pm 2.07$. Arctiidae family with (24 species and 121 individuals) represented the most diverse and abundant macromoth in the area, followed by Noctuidae (23 species and 56 individuals) and Geometridae (16 species and 73 individuals). Four species were reported as a new distribution record to be found in Peninsular Malaysia, which are; *Cispia punctifascia* (Lymantriidae), *Egnasia sundana* (Noctuidae: Catocalinae), *Sartagine ovafricta* (Noctuidae: Herminiinae) and *Gonoglasa camptogramma* (Noctuidae: Catocalinae).

Introduction

Zoogeographical distribution and patterns of terrestrial biodiversity on offshore islands of Malaysia are poorly known, contributes to our limited understanding and knowledge of island biodiversity and biogeography in the region. Studies on moth diversity in different habitats and conditions in Malaysia such as tropical rainforest (Barlow & Woiwod, 1989; Schulze & Fiedler, 1997), lowland tropical rainforest (Robinson & Tuck, 1993; Intachat & Holloway, 2000), hill dipterocarp forest (Abang & Karim, 2005), peat swamp forest (Abang & Karim, 1999) and plantation area (Chey, 1994) elucidated that the diversity values differ due to the differences in vegetation types, altitudes and status of the forest. Islands are interestingly to observe the nature of the island biota; how it differs from that of its source colonist and the nature of the adaptations of the immigrant species that allowed them to reach and to colonize the island. Secondly, to quantify the number of species that an island can support and thirdly, to study how

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