DIVERSITY AND ABUNDANCE OF SOME INSECT FAUNA AT KUALA LOMPAT, KRAU WILDLIFE FOREST RESERVE, PAHANG, MALAYSIA.

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5.2 Enhanced Executive Summary

The present work is designed to study diversity and abundance of three insect orders (Diptera, Orthoptera and Hemiptera) in Kuala Lompat, Krau Wildlife Reserve Forest and to evaluate the relationship between diversity of insects with the changes in environmental gradient from forest fringe to the inner forest. The study site was at Kuala Lompat, Krau Wildlife Reserve Forest. Samplings were conducted using Malaise traps. Three trails were established which were: Trail A (represented the forest fringe), Trail B and Trail C (represented the inner forest). During this study, a total of 1236 individuals under 29 families and 58 morphospecies were collected. Binary data of three orders revealed that the species richness of Hemiptera was higher at the inner forest while Diptera and Orthopera were most abundant at the forest fringe. There was no significant interaction ($P>0.05$) on the total morphospecies and abundance of individual per family for all three orders from all study site. For Diptera, Trail C had the highest diversity index ($H' =2.65$) while Trail B ($H'=1.75$) had the lowest diversity. For Orthoptera, the results showed that Trail B had the highest diversity index ($H' =1.88$) while Trail C had the lowest diversity ($H'=1.59$). Meanwhile, for Hemiptera, the results showed that Trail C had the highest diversity index ($H' = 1.78$) while Trail B showed the lowest diversity index with $H' = 0.94$. The H' value are not significantly different ($P>0.05$) between Trail A and Trail B, Trail A and Trail C and between Trail B and C for all three orders studied. It is found that diversity patterns vary widely between taxa that differ in dispersal ability, habitat requirements, food specialization or trophic level.

5.3 Introduction

Insects are the most abundant animals on earth and two thirds of insects inhabit the tropical rain forest. These forests provide habitats for thousands of insects species that are functionally important to forest ecosystems. There are many roles of insects which are significant for human and diversity through their action as herbivores, pollinators, scavengers and decomposers (Idris *et al.,* 2009).

The present work is designed to study the diversity and abundance of some insect orders in the forest reserve. The study includes study and comparison of the faunal diversity (including family and morphospecies) of three insect orders (Diptera, Orthoptera and Hemiptera) and evaluate the relationship between diversity of those three orders with the changes in environmental gradient from forest fringe to the inner forest.

5.3.1 Problem statement

Information on the diversity and abundance of insect in Southeast Asia, including Peninsular Malaysia, is still very sparse despite their ecological importance not only as insect predators or being at the top of terrestrial insect food web but also as effective pollinators of various plants, and could be considered as one of the most important bio-indicators for environmental condition changes.

The destruction of natural habitats due to logging and development pose the greatest threat to insect's communities in the forest. Since most of insect's reproduction depend on plants and other insects, their own population and role will be severely affected by reduction of host population as a consequent of habitat destruction.

The changes of insect's natural habitats by habitat conversion, destruction and the simplification of landscape structure are the main reasons for the world-wide loss of biodiversity. As a consequence, ecosystem services provided by natural habitats may disappear and been threaten (Didham *et al.*, 2007).