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Overall Diversity Of Fruit-Feeding Butterflies (Lepidoptera: Nymphalidae) Along Vertical Gradient In A Peat Swamp Forest, Kota Samarahan, Sarawak

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ABSTRACT

A study which aims to investigate the vertical distribution pattern of nymphalids had been conducted in a peat swamp forest of Kota Samarahan, Sarawak. This 60-day sampling period which utilised baited traps as the main sampling method, had resulted to 104 individuals from both ground and canopy levels. The lower stratum revealed a higher diversity index (H'= 1.17466) in comparison with the canopy stratum. Nymhalinae represents the most diverse subfamily at both levels, dominating almost half of the total individuals respectively. In general, species richness and abundance decrease with the increasing strata height, and was observed in all subfamilies. Analyses on the relationship between forewing length and strata revealed significant result for both male and female of Satyrinae, while for body design, it was only significant for male Nymphalinae and female Satyrinae. Overall, the study on strata preference of the nymphalids had led to a better understanding on their dependence on microclimatic conditions, as well as the status of their habitat.

Keywords**:** Butterflies, peat swamp, Sarawak, vertical distribution

INRODUCTION

Vertical studies have been established around the world and utilised as one of the major methods in assessing information on species diversity (Butler, 2005). Investigation on the forest canopy has enhanced and improved to be more descriptive, and thus this approach has assist majorly in the assessment of ecological study (Butler, 2005). As a result, stratification along the vertical gradient has produced specific patterns in terms of abundance and species richness which has the influence from the habitat itself.

In the tropical rainforest, previous and current canopy studies usually took place in primary mixed dipterocarp forest (Beck & Schulze, 2000; DeVries & Walla, 2001; Schulze *et al.*, 2001). Hence, due to the lack of documentation at the other types of forest, this study was conducted in a secondary peat swamp forest. Characterised with damp and excessive

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drainage, in comparison with the other types of forest, the vegetation and stratification are different, and specifically for entomofauna which are host plant-specific, the diversity is expected to be varied.

The fruit-feeding butterfly is a good indicator tool as they characterised the habitat they sustained (Fermon *et al.*, 2000; Schulze*et al.*, 2001). By sampling these nymphalids with baited traps installed at both strata, their faunistic composition can be assessed and thus the general patterns of vertical distribution can be produced.