

Lepidopteran Diversity and their Host Associations in the Rajarata University Campus Park, Mihintale

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The status of many lepidopteran species in Sri Lanka cannot be determined due to lack of data on their occurrence, distribution and host associations. The present study focused on the diversity of lepidopterans and their host associations in the Rajarata University Campus Park, in Mihintale. Specific objectives of the study were to identify the lepidopteran fauna inhabiting the study site, identify their host plant associations, identify the floral structure and characteristics of the nectar plants and identify the predators of lepidopterans.

Five sampling plots, each of a size of one acre, located in an area of approximately 108 acres with varying wild shrub densities and human disturbances were selected. Data were collected from January to March 2008. Six samplings were carried out in each sampling site and a total of 30 samples were studied. A sweep net and a Robinson light trap were used to collect lepidopterans. Diversity indices were used to calculate species richness, abundance and dominance. MINITAB package was used in statistical analysis.

During the study a total of 2376 butterflies and 546 moths were collected. There were 43 butterfly species belonging to eight families and 12 moth species belonging to seven families. They were associated with 37 host plant species belonging to 15 families and 34 genera. Thirty of these species were nectar plants. Butterflies preferred a variety of corolla colours and types. The most preferred shape was tubular (78%). There was no significant difference in temperature ($p = 0.943$) among the samples. The temperature range recorded was 27 – 31°C. Species richness (mean $D_{mg} = 3.53$) and species abundance (mean $H' = 2.15$) were highest in the sampling plot where the highest wild shrub density and the mildest human disturbances were present. The lowest species richness (mean $D_{mg} = 2.34$) and the lowest species abundance (mean $H' = 1.75$) were found in the sampling plot with lowest shrub density and the most human disturbances. Species richness was significantly affected ($p = 0.001$) by wild shrub density and by human disturbances. Predatory animals were ants, spiders, praying mantises, lizards and domestic cats. Butterfly species were subject to mortality due to road accidents, and 16 dead specimens due to road accidents were collected. Host plant associations were highly disturbed due to buildings and road constructions.

Appropriate conservation measures should be launched to conserve lepidopterans together with their food plants in repositories at the national museum in order to facilitate future research on the taxonomy of lepidopterans.