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Diversity of Butterfly Species in Urban and Semi-Urban Areas of Sri Lanka

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Abstract

Butterflies, belonging to the order *Lepidoptera*, are highly sensitive to environmental changes, and both natural processes and human activities have increasingly altered their habitats in recent years. In highly urbanized regions such as Colombo and its surrounding areas where rapid land-use conversion, infrastructure expansion, and population growth continue at an accelerated pace these changes have resulted in extensive habitat loss and fragmentation, posing a significant threat to the survival and diversity of many butterfly species. This study aims to identify the diversity and distribution of butterfly species by selecting Kurunduwatta Grama Niladhari Division as an urban area and Mulleriyawa Grama Niladhari Division as a semi-urban area. The Kurunduwatta Grama Niladhari Division, characterized as an urban environment, consists predominantly of built-up residential and commercial structures with limited green spaces, home gardens, and ornamental vegetation. In contrast, the Mulleriyawa Grama Niladhari Division represents a semi-urban landscape that includes a greater extent of home gardens, scattered agricultural fields, water bodies, and patches of natural vegetation that provide more suitable habitats for butterfly populations. Field observations were conducted in November 2024 during the time periods of 8:30-10:00 a.m. and 4:00-5:30 p.m. on 12 sampling sites. Data were collected on the number of individuals and the habitats of each butterfly species. The guidebook "Common Butterflies of Sri Lanka" was used for species identification. The Shannon diversity index was applied to calculate species diversity and abundance. A total of 5 butterfly species were recorded from Kurunduwatta, while 13 species were recorded from Mulleriyawa. The Shannon diversity index value for Kurunduwatta was 1.45, whereas for Mulleriyawa it was 2.3. According to this study, Mulleriyawa had relatively higher butterfly diversity. The most abundant species in the Kurunduwatta area was the Common Sailer (*Neptis hylas*), while in Mulleriyawa the most abundant species was Psyche (*Leptosia nina*). Seasonal changes, particularly the pre and post monsoon periods, have a significant influence on butterfly distribution. The key finding of this study is that semi-urban zones play a decisive role as transitional habitats for butterflies.

Keywords: *Urban and semi-urban butterflies, Butterfly diversity, Butterfly abundance, Shannon diversity index*