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Lepidopteran fauna of Mandaithivu mangrove ecosystem, Jaffna, Sri Lanka

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The mangrove forests, which support the survival of both terrestrial and aquatic inhabitants, are considered some of the most productive ecosystems. Mangrove faunal diversity is well known for its vertebrates and invertebrates but is poorly known for insects. Mangroves and insects have strong relationships in which mangroves provide a suitable habitat for insect habitation. Meanwhile, the feeding activities of insects contribute to the detritus formation and sustainability of the mangrove ecosystem. They connect mangroves with adjoined terrestrial and marine ecosystems through their eco-services such as pollination, herbivory, predation and being food for other predators. Lepidopterans, consisting of moths and butterflies, are the most widely recognized insects as indicators of the ecosystem's health and are considered in conservation strategies. This study was designed to identify the variety of butterflies and moths in the Mandaithivu mangrove ecosystem from August 2019 to March 2020, which is located in the Northern Province of Sri Lanka. This study was carried out since there were no studies carried on the lepidopteran flora of Sri Lankan mangroves. True mangrove species such as *Avicennia marina*, *Rhizophora mucronata*, *Ceriops tagal* and *Pemphis acidula* are distributed as patches around this island. Butterflies and moths were collected using sweep netting and hand-picking methods from two different locations on the west and south borders of the Mandaithivu island based on the abundance of mangrove vegetation. They were then identified based on their morphological characteristics. A total of 13 butterfly species, belonging to four families, and 6 moth species, belonging to three families, were recorded. The highest species composition was recorded from *Avicennia marina* than from *Rhizophora mucronata*, which has fewer insects, probably due to the thickness of their leaves. The plain tiger (*Danaus chrysippus*) was the most common and abundant butterfly, followed by the mottled emigrant (*Catopsilia pyranthe*) and the small salmon arab (*Colotis amata*). The yellow pansy (*Junonia hierta*), a critically endangered (CR) species, was also found in this forest. The other twelve species are listed as least concerned (LC) nationally. All the moth species recorded are listed as not assessed as per the IUCN red list. These results confirm that further extensive surveys in the Mandaithivu mangrove ecosystem will expose more diverse assemblages of lepidopterans that can be utilized in threat assessment and conservation strategy planning.

Keywords: *Butterfly, Moth, Mangrove ecosystem.*