

A preliminary checklist of lepidoptera in oil palm area and Remnant forest at Sandakan bay estates, Sabah, Malaysia

ABSTRACT

Oil palm plantations have been frequently reported with a low insect diversity. However, having a conservation area within the oil palm estate might create a sanctuary for the insects. This study documented and compared the Lepidoptera diversity (butterfly and moths) between a remnant forest and a 30-year-old mature oil palm area within the Sandakan Bay Estates. The Lepidoptera were sampled using Van Someren-Rydon traps and aerial nets from 30 September to 4 October 2022 in the remnant forest and 5 to 9 October 2022 in the oil palm area. The remnant forest recorded 184 individuals of 28 Lepidoptera species while the oil palm area recorded 172 individuals of 19 species. The T-test result showed that there was no significant difference in species richness ($P = 0.108$) between both sites due to differences of nine species recorded. There was also no significant difference in species abundance ($P = 0.577$) between both sites, with differences of 12 individuals recorded. The remnant forest recorded slightly higher Lepidoptera diversity ($H' = 2.6415$) compared to the oil palm area ($H' = 2.2316$). The remnant forest has a higher species richness indicated by the Margalef index, ($D_{mg} = 5.1774$). On the other hand, the oil palm area recorded a lower species richness value ($D_{mg} = 3.4968$) indicating a low Lepidoptera species richness in the area. The similarity index of both sites was 0.3380, sharing 10 butterfly species and two moth species. This preliminary assessment highlighted the importance of having a conservation area to support biodiversity within a monoculture environment.