Diversity of Rhopalocera in Different Vegetation Types of PC Hills, Philippines

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Abstract : Distribution patterns and abundance of butterflies respond in the long term to variations in habitat quality. Studying butterfly populations would give evidence on how vegetation types influence their diversity. In this research, the Rhopalocera diversity of PC Hills was assessed to provide information on diversity trends in varying vegetation types. PC Hills, located in Palo, Leyte, Philippines, is a relatively undisturbed area having forests and rivers. Despite being situated nearby inhabited villages; the area is observed to have a possible rich butterfly population. To assess the Rhopalocera species richness and diversity, transect sampling technique was applied to monitor and document butterflies. Transects were placed in locations that can be mapped, described and relocated easily. Three transects measuring three hundred meters each with a 5-meter diameter were established based on the different vegetation types present. The three main vegetation types identified were the agroecosystem (transect 1), dipterocarp forest (transect 2), and riparian (transect 3). Sample collections were done only from 9:00 A.M to 3:00 P.M. under warm and bright weather, with no more than moderate winds and when it was not raining. When weather conditions did not permit collection, it was moved to another day. A GPS receiver was used to record the location of the selected sample sites and the coordinates of where each sample was collected. Morphological analysis was done for the first phase of the study to identify the voucher specimen to the lowest taxonomic level possible using books about butterfly identification guides and species lists as references. For the second phase, DNA barcoding will be used to further identify the voucher specimen into the species taxonomic level. After eight (8) sampling sessions, seven hundred forty-two (742) individuals were seen, and twenty-two (22) Rhopalocera genera were identified through morphological identification. Nymphalidae family of genus Ypthima and the Pieridae family of genera Eurema and Leptosia were the most dominant species observed. Twenty (20) of the thirty-one (31) voucher specimen were already identified to their species taxonomic level using DNA Barcoding. Shannon-Weiner index showed that the highest diversity level was observed in the third transect (H' = 2.947), followed by the second transect (H' = 2.6317) and the lowest being in the first transect (H' = 1.767). This indicates that butterflies are likely to inhabit dipterocarp and riparian vegetation types than agroecosystem, which influences their species composition and diversity. Moreover, the appearance of a river in the riparian vegetation supported its diversity value since butterflies have the tendency to fly into areas near rivers. Species identification of other voucher specimen will be done in order to compute the overall species richness in PC Hills. Further butterfly sampling sessions of PC Hills is recommended for a more reliable diversity trend and to discover more butterfly species. Expanding the research by assessing the Rhopalocera diversity in other locations should be considered along with studying factors that affect butterfly species composition other than vegetation types.