

Habitat Preference of Lepidoptera (Butterflies), Using Geospatial Analysis in Diyasaru Wetland Park, Western Province, Sri Lanka

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Abstract : Butterflies are found everywhere on Earth, helping flowering plants reproduce through pollination. Wetlands perform many valuable functions such as providing wildlife habitat. Diyasaru Wetland Park was chosen as the study site. It is located in a highly urbanized area of Sri Jayawardenepura Kotte, Sri Lanka. A distribution map was prepared to increase butterfly habitat in the urbanized area, and research was conducted to determine the most suitable sections for using it. As this wetland has footpaths for walking, line transect surveys were used to mark species within the sampling area, and directly observed species were recorded. All data collection was done from 0900 to 1200 hours and 1300 to 1600 hours and fieldwork was done from 11 February 2020 to 20 January 2021. ED binoculars (10.5x45), DSLR cameras (Canon EOS/EFS5 mm 3.5-5.6), and Garmin GPS (Etrex 10) were used to observe butterfly species, identify locations, and take photographs as evidence. Analyzing their habitats using GIS (ArcGIS Pro) to identify their distribution within the park premises, the distribution density of the known size of the population was calculated for each point by kernel density, and local similarity values were calculated for each pair of corresponding features through hotspot analysis, and cell values were determined by inverse distance weighting (IDW) using a linearly weighted combination of a set of sample points. According to the maps prepared to predict the distribution of butterflies in this park, the high level of distribution or favorable areas were near flower gardens and meadows, but some individual species prefer habitats that are more suitable for their life activities, so they live in other areas. Sixty-six (66) species belonging to six (6) families have been recorded in the premises. Sixty (60) species of least concern (LC), two (2) near threatened (NT), and four (4) vulnerable (VU) species have been recorded, and several new species, such as Plum Judy (*Abisara echerius*), were reported. The outcome of the study will form the basis for decision-making by the Sri Lanka Land Development (SLLD) Corporation for the future development and maintenance of the park.

Keywords : wetland, Lepidoptera, habitat, urban, west

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