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Determination of Biodiversity Index Value of Tree Species in UCS Forest, UiTM Puncak Alam

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Structured Abstract

Background: UiTM Campus Selangor (UCS) Forest, UiTM Puncak Alam is said to have experienced destructive logging activities in the last few decades. Deforestation activities have negatively affected this forest biodiversity by disrupting its ecological harmony. This study focuses on quantifying the biodiversity components of the tree species in the forest using various indices such as the Shannon-Wiener diversity index and Simpson's Diversity index to investigate the forest's biodiversity status. The purpose of this study is to analyze the variety of types of tree species, their relative abundance as well as their distributions within the UCS Forest.

Methods: Random sampling with a random start was chosen as the method to choose the suitable site. Five quadrats with 20-meter x 20-meter dimensions were set up arbitrarily. Then, smaller quadrats were set up within each quadrat respectively. Samples of leaves and various related pictures were taken and collected for analysis. The taxonomy of the tree species individuals was identified based on their leaf morphology using Google Lens and advice from professionals guidance. All the data gathered were organized and recorded into tables. Biodiversity indices such as the Shannon-Wiener index and Simpson's index were analyzed using PAST Software.

Results: The study reveals that Kayea Kunstleri highly dominated UCS *Forest* with the most tree species abundance. Aside from that, the analysis has also shown that UCS Forest has a high Shannon-Wiener Diversity index value of 3.963, a low Simpson's Diversity index (D') value of 0.029 indicating a highly diverse and low species dominance of tree species composition, a high Margalef index value of 14.45, and a high Pielou's Evenness index of 0.924 which indicates that the forest has a high species evenness as well as a highly even species distribution.

Conclusion: In conclusion, the results of this study reveal that even though UCS Forest was categorized as a secondary forest, it still has an unexceptional diverse biodiversity due to its high variety of tree species within it, with a high abundance, and a high evenly distribution of them. These results serve as a baseline study for further scientific research and conservation efforts.

Keywords: Biodiversity indices, UCS Forest, Shannon-Wiener diversity index, secondary forest

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