

FLORISTIC COMPOSITION, STAND STRUCTURE, DIVERSITY AND BIOMASS OF TREE SPECIES IN LIMESTONE FORESTS AT GUNUNG PAYANG, SARAWAK, MALAYSIA

ROHAIZA, D.^{1*}, MEEKIONG, K.², FATIN SHAFIRA, J.², AIDA SHAFREENA, A.P.², NIZAM, M. S.³, A. LATIFF⁴ AND AHMAD FITRI, Z.⁴

¹Centre for Pre-University Studies, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak.

²Department of Plant Science and Environmental Ecology, Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak.

³Institute of Climate Change (IPC), Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor.

⁴Department of Biological Sciences and Biotechnology, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, 43600, Bangi, Selangor.

*Corresponding author

Email: drohaiza@unimas.my

Abstract: A study was conducted to determine the tree species composition, stand structure, diversity and to estimate biomass at Gunung Payang in the Serian-Padawan-Tebedu limestone areas, Sarawak. Twenty-five plots of 20 m x 20 m (1 ha) were established and all trees with diameter at breast height (DBH) of ≥ 5 cm were enumerated. A total of 607 individual trees was enumerated and identified to 37 families, 89 genera and 109 species. Euphorbiaceae is the largest family comprises 10 genera and 13 species. Based on stem density, Euphorbiaceae recorded the highest density with 206 individuals/ha. The Importance Value Index (IVI) of Euphorbiaceae was 23.81%. The Shannon-Weiner Diversity Index (H') indicated a value of 3.81. The total above-ground biomass of trees was estimated at 278.59 t/ha. This study showed that three species were listed as vulnerable by IUCN Red Data Book and their population trends decreased. The floristic composition implies that the study area can serve as a conservation site for the threatened plant species.

Key words: Floristic composition, stand structure, diversity, biomass, limestone.

INTRODUCTION

Limestone hill forest is one of the forest types documented in Sarawak. According to Julaihi (2004) and Banda et al. (2004), the limestone hill forest covers about 520 m² of the total area (124, 449.5 km²) of the state. It is particularly vulnerable because only 0.4% of the land area is occupied by limestone hill forests in Sarawak. The situation has worsened over time with the fact that many of the species that thrive in the area are rare and endemic. For example, *Nepenthes northiana* Hook.f. is restricted only in the Bau limestone hill forest and *Nepenthes mapuluensis* J.H.Adam & Wilcock in Kalimantan (Adam and Ibrahim 1992).