

UNIVERSITI TEKNOLOGI MARA

**COMMUNITY STRUCTURE,
ENDEMISM AND EDAPHIC
RELATIONSHIP OF TREE
COMMUNITIES AT
SUNGAI LALANG FOREST
RESERVE, SELANGOR, MALAYSIA**

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MSc

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

This study was conducted at Sungai Lalang Forest Reserve, Selangor to determine the community structure, diversity and distribution of tree communities in relation to edaphic factors. The study area comprised of 20 x 25 m 14 subplots in 0.7 hectares plot. All trees with diameter at breast height (DBH) of 5 cm and above were measured, identified and recorded. Soil samples were collected and analysed to determine their chemical and physical properties. A total of 562 trees were enumerated where 82 species, 67 genera and 34 families were recorded. The Dipterocarpaceae was the most speciose family with 12 species and *Syzygium myrtifolium* (Myrtaceae) was the most distributed in all plots. Dipterocarpaceae recorded the highest density with 96 ind/ha while *Syzygium myrtifolium* (Myrtaceae) had the highest species density with 87 ind/ha. The total tree basal area (BA) was 32.05 m²/ha and the family with the highest BA was Dipterocarpaceae with 13.29 m²/ha while at the species level, *Shorea leprosula* (Dipterocarpaceae) recorded the highest BA of 4.29 m²/ha. The Shannon-Weiner Diversity Index (H') of tree communities showed a value of 3.64 (H'max = 4.41) while the Evenness Index was 0.83 which indicates that the frequencies between tree species are similar. Dipterocarpaceae is the most dominant family with the highest Importance Value of 19.60%. The soil analysis showed that sandy clay dominated the soil texture at all plots whilst the percentage of organic matter content ranged from 5.60% to 14.67% with a mean pH value of 4.17±0.11. Total cation exchange capacity (CEC) recorded a value of 2.05 ± 0.31 meq/100g while the value of nutrient availability for N, Mg, K and P are 0.12 ± 0.02 µg/g, 28.79 ± 1.24 µg/g, 267.46 ± 20.28 µg/g and 2.23 ± 0.27 µg/g, respectively. The Redundancy Analysis (RDA) showed that *Scaphium linearicarpum* (Malvaceae) was strongly correlated to nitrogen (N) while *Shorea parvifolia* (Dipterocarpaceae) had positive association with phosphorus (P). Overall, the distribution pattern of tree communities at the study site was associated with soil characteristics and further forest management is needed to conserve the endemic and threatened tree species.

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