

UNIVERSITI TEKNOLOGI MARA

**ECOLOGICAL AND BIOLOGICAL
CHARACTERISTICS OF SAPLINGS IN RELATION
TO SOIL NUTRIENTS IN SECONDARY FOREST
OF JENDERAK AT KRAU WILDLIFE RESERVE,
PAHANG, MALAYSIA**

GUFRIN

Thesis submitted in fulfilment
of the requirements for the degree of
Master of Science

Faculty of Applied Sciences

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledge 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 Regulation for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study research.

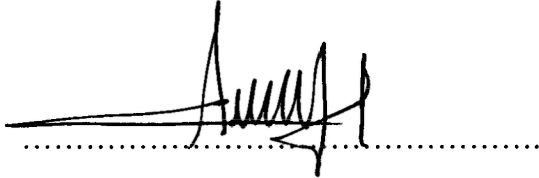
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ABSTRACT

A total of 8,951 saplings of the lowland dipterocarp secondary forest of Jenderak (2 ha plot) were recorded which comprised of 53 families, 136 genera, and 254 species. Result for diversity indices indicates that the secondary forest of Jenderak contains high diversity. Unfortunately, many plants are found to be in rare category; moreover, no dipterocarp sapling is found in the plots study. From Morisita Index of Dispersion, the five dominant saplings in the study area are found to be clumped. The soil compaction consists of two categories: moderate and severe. The carbon, nitrogen, phosphorus and CN ratio were found low as compared to general study in primary forest; however, the exchangeable cations were considered high. Pearson's correlation analyses showed that the soil physical properties significantly correlated to the soil nutrients ($p \leq 0.05$ and r value range from 0.296 to 0.775). Analysis of growth rate found that *M. dispar* was the fastest as compared to others. Multivariate analyses show that, the five highest IVi species have different ability to perform the canopy layer in the forest. The highest value of HC and CC was *S. cauliflora* whereas the lowest was *Baccaurea* sp.1. Correlation analysis found that soil physio-chemical properties have positive correlation with stem density ($p \leq 0.01$); however, the correlation is weak based on r value below 0.5. The detrended correspondence analysis showed that the five commonest species are found to have different preferences in the soil characteristics. Based on the finding, the secondary forest of Jenderak requires appropriate planning for management in the future.

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TABLE OF CONTENTS

	Page
AUTHOR'S DECLARATION	ii
ABSTRACT	iii
ACKNOWLEDGEMENT	iv
LIST OF CONTENTS	v
LIST OF TABLES	ix
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS	xiii
CHAPTER ONE: INTRODUCTION	1
1.1 Background of Study	1
1.2 Statement of Problem	4
1.2.1 Research Questions	5
1.2.2 Hypotheses	6
1.3 Significance and Objectives of Study	6
1.3.1 Significance of Study	6
1.3.2 Objectives of Study	7
1.4 Scope and Limitation	7
CHAPTER TWO: REVIEW ON KRAW WILDLIFE RESERVE, FOREST STRUCTURE, LIGHT INTENSITY AND SOIL PROPERTIES	8
2.1 Krau Wildlife Reserve	8
2.2 Forest	10
2.2.1 Secondary Forest	11
2.2.2 Secondary Forest Structure	13
2.3 Sapling	15
2.4 Regeneration	15
2.5 Soil	17
2.5.1 Soil Texture	18
2.5.2 Soil Compaction	19