



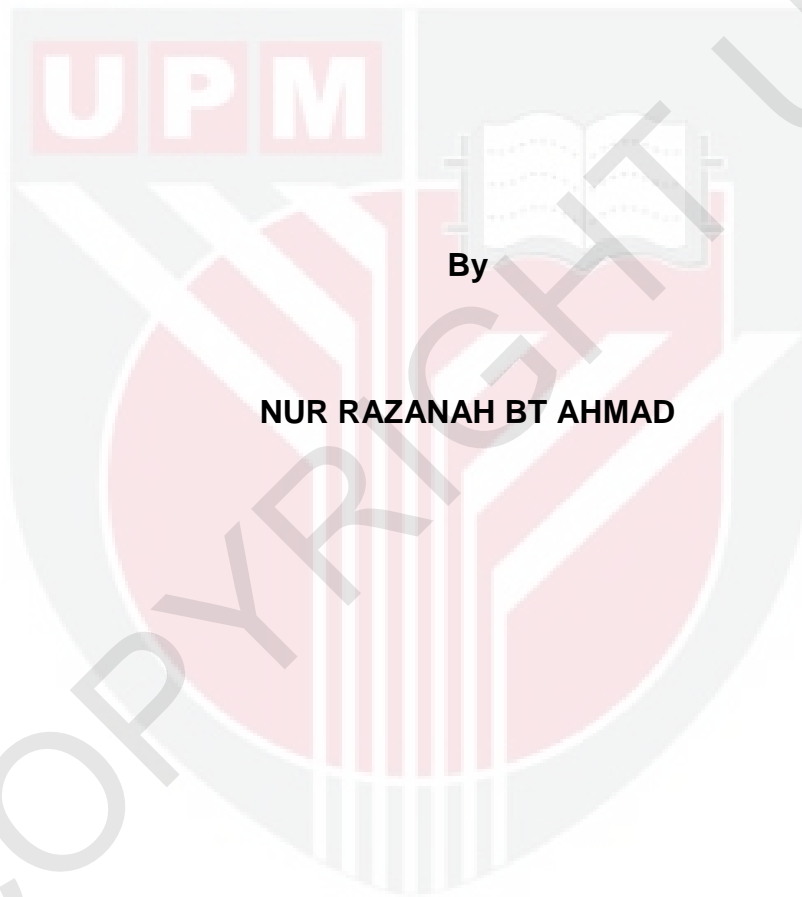
UNIVERSITI PUTRA MALAYSIA

***BIODIVERSITY ASSESSMENT IN COMPARTMENT 6, SUNGAI
MENYALA VIRGIN JUNGLE RESERVE, NEGERI SEMBILAN***

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**BIODIVERSITY ASSESSMENT IN COMPARTMENT 6, SUNGAI MENYALA
VIRGIN JUNGLE RESERVE, NEGERI SEMBILAN**



By

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**A Project Report Submitted in Partial Fulfillment of the Requirements for
the Degree of Bachelor of Forestry Science in the
Faculty of Forestry
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DEDICATION

This work is especially dedicated to my beloved late dad,

AHMAD BIN ARIFFIN

Who is still, even without his physical presence, be the inspiring one to me and
be the reason of me to keep going.

And to my beloved mom,

NORASNI BTE AMAN

For always being the pillar of my strength, without whom I may not survive and
am probably nothing.

My dearest sister and brother,

For the endless encouragements, support and love.

And never to forget,

To my best buddies and the people who have helped me throughout my final
year.

Thank you so much .

ABSTRACT

Virgin Jungle Reserve (VJR) in Peninsular Malaysia defines a network of small protected areas meant to serve as undisturbed areas of natural vegetation for scientific research. This study was conducted in two ha plot of Compartment 6, Sungai Menyala Virgin Jungle Reserve, Negeri Sembilan to describe the tree composition and assess its species diversity. It was expected that the biodiversity status on the study site reflects its definition of being untouched and protected. However, challenges like forest management problems and natural occurrences somehow contribute to the determination of current biodiversity status in study site. A total of 20 plots measuring 20 m x 50 m were set up to collect data, and data were analyzed using Paleontological Statistic (PAST) software to calculate species diversity and richness index. At the study plot, there were 322 trees with a total basal area of 38.6 m², comprising 29 families, 40 genus and 54 tree species. The Dipterocarpaceae (12 species) was the most species-rich family. It dominated the forest by 69 % of the basal area, with *Shorea leprosula* as the most dominant species. The most important tree species valued by Importance Value Index (IVI) was *Shorea parvifolia*, followed by *Porterandia anisophylla* and *Shorea leprosula*. There were 29 unique tree species recognized within this Dipterocarp-dominated study area. Having a relatively high species diversity and species richness with low species evenness, this study area has profound importance in stabilizing natural ecosystem, especially to its local scales.

ABSTRAK

Hutan Simpan Dara di Semenanjung Malaysia merupakan rangkaian kawasan perlindungan kecil yang berfungsi sebagai kawasan vegetasi semulajadi tidak terganggu untuk tujuan penyelidikan saintifik. Penyelidikan ini dilakukan di dalam plot berkeluasan dua hektar di Kompartmen 6, Hutan Simpan Dara Sungai Menyala, Negeri Sembilan untuk mengenal pasti komposisi pokok serta menilai kepelbagaian spesis pokok di tapak kajian. Diandaikan bahawa status kepelbagaian biologi di kawasan ini menggambarkan ciri-ciri yang sepatutnya ada pada Hutan Simpan Dara yang tidak diganggu dan terpelihara. Namun begitu, faktor pengurusan dan alam semulajadi turut mempengaruhi status terkini kepelbagaian biologi pokok di kawasan penyelidikan. Sejumlah 20 plot berukuran 20 m x 50 m didirikan untuk mengumpul data dan data seterusnya dianalisis menggunakan perisian *Paleontological Statistic* (PAST) bagi menentukan kepelbagaian spesis dan indeks kekayaan spesis. Di dalam plot kajian, terdapat sebanyak 322 pokok dengan keseluruhan 38.6 m² luas pangkal, terdiri daripada 29 famili, 40 genus dan 54 spesis pokok. Famili Dipterocarpaceae (12 spesis) adalah merupakan famili yang paling kaya dengan spesis. Ia mendominasi 69 % dari keseluruhan keluasan pangkal dengan *Shorea leprosula* sebagai spesis paling dominan. Spesis paling penting yang dinilai menggunakan Indeks Nilai Kepentingan (IVI) di kawasan kajian ialah *Shorea parvifolia* diikuti oleh *Porterandia anisophylla* dan *Shorea leprosula*. Terdapat sebanyak 29 spesis unik dikenalpasti dalam kawasan yang didominasi oleh famili Dipterokarp ini. Dengan ciri-ciri kekayaan spesis dan kepelbagaian sepsis yang tinggi beserta nilai kesamarataan spesis yang rendah, hutan simpan dara ini mempunyai nilai kepentingan tersendiri yang tinggi untuk kestabilan ekosistem, terutamanya bagi kawasan-kawasan setempat.

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APPROVAL SHEET

I certify that this research project report entitled “Biodiversity Assessment in Compartment 6, Sungai Menyala Virgin Jungle Reserve, Negeri Sembilan” by Nur Razanah Bt Ahmad has been examined and approved as a partial fulfillment of the requirement for the degree of Bachelor of Forestry Science in the Faculty of Forestry, Universiti Putra Malaysia.

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LIST OF ABBREVIATIONS

a.s.l	Above sea level
DBH	Diameter at Breast Height
E	East
FDPM	Forest Department Peninsular Malaysia
FR	Forest Reserve
FRIM	Forest Research Institute Malaysia
FSC	Forest Stewardship Council
HCVF	High Conservation Value Forest
IUCN	International Union for Conservation of Nature
IVI	Important Value Index
N	North
PAST	Paleontological Statistics
PFR	Permanent Forest Reserve
SFM	Sustainable Forest Management
Sg.	Sungai
Sp.	Species
Spp.	Many species
VJR	Virgin Jungle Reserve

CHAPTER ONE

INTRODUCTION

1.1 Background

The total area of tropical rainforest in Malaysia is 18.48 million ha and roughly 5.83 million ha of the tropical rainforest is located in Peninsular Malaysia, 4.4 million ha in Sabah and a total of 8.23 ha is in Sarawak. According to National Forestry Act, 4.94 million ha of forest in Peninsular Malaysia is currently categorized as Permanent Reserved Forest and divided into two main type of forests; Production Forests with a total area of 2.98 mil ha and 1.95 mil ha of Protection Forest. The smaller portion of Protection Forest compared to Production Forest can be further classified into several different classes based on the functional classes. One of the classes is Virgin Jungle Reserve (VJR) which currently covers a total area of 23,002 ha of various forest types in all over Peninsular Malaysia (Forestry Department of Peninsular Malaysia, 2013).

VJR was originally established with one of the aims is to serve as permanent nature reserves, as a control of production forest areas that are being harvested and silviculturally treated, and undisturbed natural forest areas for general ecological and botanical studies (Wyatt-Smith, 1950). Therefore, VJRs which located within Permanent Forest Reserves are lawfully prohibited from any sort of disturbance, cutting, burning or any harmful environmental activities by human.

The VJRs continue to be the examples of the untouched and undisturbed forests in the country. However when the Federal Government of Malaysia launched the “Second Malaysia Plan” in 1970s, large forested areas was converted into agriculture land (Henderson et al., 1977). Since then, it was realized that the VJRs had been gradually expanded to be an important and valuable to the forest biodiversity conservation.

1.2 Problem Statement

One of the most crucial parts of preserving the VJR is to justify its importance not only to our local ecosystem but also for the wellbeing of ecosystem around the world. Generally, the larger area of Production Forest compared to the Protection Forest is worrying as it may expand in future and cause the Protection Forest to shrink. In the other hand, Sungai Menyala VJR is like every other VJR, which has its own challenges such as; exposure to the strong sea breeze that cause canopy opening, it is easily being accessed by the public and also subjected to tremendous urbanization pressure due to its location. Protections of this fragile ecosystem from both natural and man-made disturbances are therefore very important and critical where it needs immediate attention and proper planning.

In order to do protection, planning and strategies need to be supported by research activities particularly on finding out the biodiversity status of the Sungai Menyala VJR. This study was aimed to find out current biological diversity of Sungai Menyala VJR which might assist the administrator of such

remnant forest to develop their conservation plan and management strategies. This might also give an insight about the value of this VJR through its unique biodiversity.

1.3 Objective

The general objective of this study was to assess the plant diversity in Compartment 6 of Sungai Menyala Virgin Jungle Reserve (VJR), Negeri Sembilan. Specific objectives are as follows:

1. To determine the plant family and species composition.
2. To recognize species dominance, species abundance, specific density and the most important species.

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