UNDERSTORY PLANTS IN MOUNT SINGAI, SARAWAK, MALAYSIA

A Sayok[1], Joanna McLellan[2], G. T. Noweg[3], Louisa McLellan[2], and H.Y. Khong[4]

[1]Institute of Biodiversity and Environmental Conservation, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia (Email:ksalexender@ibec.unimas.my, Corresponding author)
[2]University of Waikato, Private Bag 3105, Hamilton, 3240, New Zealand
[3]Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia
[4]Universiti Teknologi MARA (UiTM), 94300 Kota Samarahan, Sarawak, Malaysia

ABSTRACT

Mount Singai in Bau District was settled by BiSingai tribe for almost 300 years before they moved downhill to 14 villages some 40 years ago. They extracted forest products and planted crops in their clearings at the mountain. The documentation of these plants and impacts of these activities on their composition in the area would be an interesting discovery. A survey on understory plants at undertaken to determine these information. Two subplots of 2 m x 2 m were made in each of the 16 plots (50 m by 10m) established along the main trail to the mountain top. All understory plants including epiphytes were recorded in these subplots. Preliminary results show that a total of 1,148 understory plants comprising of 142 species from 66 families were recorded. Family Selaginellaceae with 174 individuals (15.16% of total) dominates while Apocynaceae with 75 and Euphorbiaceae with 70 individuals are a distant second and third respectively. Families Verbenaceae, Theaceae, Rhamnaceae and Icacinaceae were among the 11 families with one individual each and were considered the least. Seedlings of middle to upper canopy trees with 396 individuals (34.5%) dominate the type of plants recorded. Mosses (*Selaginella canaliculata*) with 170 individuals (14.8%) form a distant second. Most of the mosses are found at the foothills (62.4%) where the forest floor is moister. Almost all plants have uses for man apart from their ecological role. About 16% (182 plants) can be used for landscaping or has ornamental value while 10% (112 plants) for other uses (timber, cultural, and handicrafts) followed by 7% (83 plants) have medicinal values. The remainder 771 plants (67.1%) have overlapping or combining uses for food, medicinal, landscaping and others. Although the study was only undertaken along a single trail which traverses through an abandoned settled area and farms, plants at Mount Singai are considered abundant and that the locals activities and presence have little impact on the plants there. Because it was discovered that the plots set-up missed more than 15% of the species and 21% of the family, it was suggested that more or bigger subplots be established to capture most plants. Studies on different trails in Mount Singai are being planned to understand more on the understory plants there. Further analysis and characterisation on the data collected as well as information on their distribution and their relationships with some environmental variations in the area such as soils and microhabitats will also be undertaken.

Key words: Mount Singai, understory vegetation, tropical plants, plant type and uses

INTRODUCTION

Due to the wet tropical climate which is conducive to species growth and the evolution, great diversity of ecosystems of seas, rivers, lakes, forests, mountains and mangrove swamps, Malaysia has one of the richest biodiversity of fauna and flora in the world, second only to Indonesia in South East Asia. The 2001 Global Diversity Outlook recognized Malaysia as one of the 12 mega-diversity countries in the world, hosting grounds to more than 170,000 of fauna and flora species. Higher endemism is expected in the herbaceous flora with some of the larger genera estimated to be endemic in more than 80% of their species. Many endemic plants are localised in their distribution, being found only in a few valleys or mountain tops. Endemism in plant species is high in freshwater habitats.

Borneo is conservatively estimated to contain 15,000 plants species, of which 6,000 are endemic, and may well have the highest plant diversity of any region of the world. In the last 25 years, some 422 new species of plants were discovered in Borneo alone (Biluh, 2009). The Chief Minister of Sarawak, Honorable Pehin Sri Taib Mahmud (2000) stated that Malaysian Borneo has 2,500 species of orchids and 214 palms species and 25 genera identified. He also said that the greatest concentration of palm species in the world occurs at nearby Gunung Matang whereby over 100 species had been found. As recently as 1990, three new palm species were collected during a study of palms in Kubah National Park. Many of the orchids (25%) are still not described.

Meanwhile, the region including Sarawak is also characterised by some of the highest rates of rainforest loss (Achard et al, 2002). Many forests had been cleared and transformed mainly to agricultural expansion as Sarawak aspires to be among developed states in Malaysia by 2020. With the loss of forests, the number and species of these plants are also gone. And what is more disheartening is that a lot of them have not been described and identified of the uses. The worst affected may be the understorey plants because most of the published results of studies on plants in Malaysia focus on woody plants forming the canopy layer especially timber trees.