

# DISTRIBUTION OF FRUIT TREES AT DIFFERENT ELEVATIONS AT MOUNT SINGAI, BAU, SARAWAK, MALAYSIA

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## Abstract

Singai Bidayuhs (BiSingai) once settled on Mount Singai, Bau district, Sarawak in eight villages about 230 meters up the mountain. Since their farms were located downhill, they had to commute between their farms and their mountain villages. Along the trails there are fruit trees and other cash crops, resulting in a mosaic of forest types while areas further up the mountain have been left undisturbed. An inventory of the fruit trees was made along a trail that lead from the foothill to the top of Mount Singai, passing through the old mountain village, to determine if the occurrence of fruit trees followed a particular pattern or not. Sampling was carried out in the 16 plots established earlier for the tree/timber survey, each plot measured 50 meters away from the trail and 10 meters wide. A total of 254 fruit trees from 12 different families were recorded. The fruit trees along the route to the farm land occurred most frequently nearer to the trail (within 10 meters) than further away from the trail. In general the distribution of fruit trees decreases with increasing elevation and becomes rare at elevations 425-557 m (plots 13-16) where only 2 fruit trees were found. The majority of the fruit trees surveyed were found at the site of the abandoned village and at the foothill. In terms of distribution, the Meliaceae family with 98 individuals is the dominant family while the family Anacardiaceae, Burseraceae and Flacourticeae is the least with only 1 individual each. This study showed that the cultivation habits of the BiSingai affects the distribution of fruit trees on Mount Singai and that the number of fruit trees decreases with distance from trail.

**Keywords:** fruit trees, old settlement, Singai, Bau District, Sarawak, Malaysia

## Introduction

Wild fruits are important sources of nutrients for vertebrate frugivores especially birds and mammals that in turn provide dispersal services to the plant. Plants have evolved many characteristics that influence the choice of fruit by the animals, including colour, size, smell, protection, accessibility, palatability and nutrient content of edible parts. In a study of interaction between 122 fruits and 39 species of vertebrate frugivore it was found that monkeys choose fruits that are brightly coloured, generally weigh 5-50 g, and are either dehiscent with arillate seeds, or are succulent fleshy fruits (Gautier-Hion *et al.* 1985). Primates are important seed dispersers (Chapman and Onderdonk 1998), and in a study by Chapman and Chapman (1996) they accounted for up to 75% of the seed removed from a fruiting tree by frugivores. Human primates play an important role in seed dispersal but in a manner peculiar to their unique behaviour, culture and tradition. Their impact is on the dispersal of domesticated fruits whose seed they either purposely plant (fruit that they liked) or casually throw away after consuming the edible flesh.

The BiSingai (= the people of Singai) lived in eight mountain villages located about 230 meters above sea level as a form of protection from pirates and headhunters. Their rice growing activities probably began at the foothills of Mount Singai some 300-400 years ago and then as all suitable forest land has been cleared they moved to the plains (Nuek 2002). Evidence for this is the presence of huge durian (*Durio zibenthinus*) trees at the foot of Mount Singai compared to smaller ones on the plains. The distribution pattern of these fruit trees reflects the cultivation habits, culture and tradition of the BiSingai.

Many fruit trees are found along these routes and the objective of this paper is to determine their distribution along elevational gradient at Mount Singai. If the seeds were dispersed by wild life then the distribution would either be random if the fruits are small (eg. Langsat) or clump if the fruits are large (eg. Durian) (Chapman and Onderdonk 1998). However this effect would be modified by human activities so that it is unlikely to occur along the farm routes. If the fruit were dispersed by humans then it would follow a pattern. One pattern would be that its density would be higher closer to the trail