

Stand structure and species composition of forest in Timbah Virgin Jungle Reserve, Sabah

Abstract

The stand structure and tree composition of Timbah Virgin Jungle Reserve (VJR Timbah) were studied. Three locations in the VJR were selected, and at each location, 1-ha study plot was established. The plots were sub-divided into 10×10 m² sub-plots, and in each sub-plot, stem diameters of trees > 5 cm diameter-at-breast-height (DBH) were measured. The trees were identified, and their relative density and relative basal area per hectare were calculated. Little difference was found in tree density and basal area per ha between the plots. From the plots, 2,369 trees > 5 cm DBH were enumerated. Total basal area of the trees was 119.5 m². Stem diameter class distribution of the trees was found to follow the inverse J-shape pattern. Many of the trees had 5 – < 20 cm DBH (75.9 % of the total stem). Only 4.2% had > 60 cm DBH. Total densities of the trees > 5 cm and > 10 cm DBH were 790 and 474 trees ha⁻¹, respectively and total basal areas per ha were 39.8 and 38.4 m² ha⁻¹, respectively. In this study, 47 tree families, 118 genera and 117 species of trees were identified. Many of the trees were Dipterocarpaceae (20% of the total stems). The most abundant species was *Dryobalanops beccarii* (4.3% of the total stems; 34 trees ha⁻¹). Pioneer and disturbed forest trees were found at a very low density. The results suggest that VJR Timbah's soils are infertile, since *D. beccarii*, the most abundant species in the plots, prefers leached whitish or yellowish sandy soils. The results also suggest that the VJR had experienced a less significant logging encroachment or invasion of disturbed forest trees. The results imply that VJR Timbah still maintains its undisturbed forest stand structure and tree composition, although it is relatively small in size and surrounded by a large matrix of heavily logged forest.