

## Natural forest dynamics. II. Sampling of tree volume using quadrats in tropical forests of Peninsular Malaysia

### ABSTRACT

This study was carried out on a randomly chosen 10-ha ( $200 \times 500$  m) forest area within the 50-ha area Demography Project of the Forest Research Institute Malaysia (FRIM) at Pasoh Forest Reserve, Negri Sembilan, Malaysia. A modified minimum-variance method was used to determine statistically the most efficient quadrat size among the eight quadrat sizes used. The minimum sampling intensity associated with each quadrat size, at 90% confidence and 10% error, was determined in estimating tree volume. In general, the  $30 \times 30$  m quadrat was found to be statistically the most efficient in sampling tree volume  $\times 15$  cm dbh at 90% confidence and 10% error levels. The percentage sample size requirement differed between species groups, size classes and quadrat sizes used. The implications of the result of the present study are discussed in relation to the current inventory methods used in Malaysia. For example, a 16% sampling intensity is required to inventory all trees  $\times 15$  cm dbh with 90% confidence and 10% error levels using  $30 \times 30$  m quadrat, increasing to 24% when using  $20 \times 50$  m quadrat.

**Keyword:** Dipterocarp; Efficient quadrat size; Non-dipterocarp; Sampling intensity; Tree volume