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Natural forest dynamics. I. Homogeneity of species distribution

ABSTRACT

This study was carried out on a randomly chosen 10-ha (200 × 500 m) forest area within the 50-ha Demography Project area of the Forest Research Institute Malaysia (FRIM) in Pasoh Forest Reserve, Negri Sembilan, Malaysia. The 10-ha study area contained 13 950 trees of 5 cm dbh and larger with a total of 619 species. Of the total 619 species, 26 (4.2%) species were of dipterocarps, 525 (84.8%) non-dipterocarps and 68 (11.0%) miscellaneous species. The results indicate that there is a 95% chance of detecting trees belonging to either all dipterocarp, all non-dipterocarp, or miscellaneous species groups by using a contiguous area of 5 ha; a contiguous area of 2 ha is sufficient to detect trees of all diameter size classes from 5 cm dbh onwards. For practical purpose, a contiguous area of 5 ha is sufficiently large to sample and detect tree distribution by species group and size class simultaneously. The implications of the results of the present study are discussed in relation to the need of establishing larger plot size to enumerate tree parameters, especially in monitoring forest growth dynamics by major species grouping and size class.

Keyword: Dipterocarp; Heterogeneity; Homogeneity; Non-dipterocarp; Species distribution; Species-area curve