Ecological studies of tropical semi-evergreen rain forest at Sakaerat, Nakhon Ratchasima, Northeast Thailand: I. Vegetation patterns.

SARAYUDH BUNYAVEJGHEWIN.

Natural History Bulletin of the Siam Society 34(1) : 35-58 P. 1986., 1986.

ABSTRACT

Quantitative data on species of trees and shrubs and environmental characteristics were obtained in 12 stands of tropical semi-evergreen rain forest at Sakaerat Environmental Research Station, Nakhon Ratchasima Province, NE Thailand. A polythetic agglomerative cluster analysis was used to classify sample stands into two dominance-types according to their dominant species: the *Hopea ferrea* type and the *Shorea henryana* type. The basal area and density of all stems (10 cm.dbh) differed slightly between the two types (30 m-2/ha and 562 trees/ha, respectively, in the *Hopea ferrea* type and 27 m^{-2}/ha and 514 trees/ha in the *Shorea henryana* type. Half of the species of the two type were identical. Indirect ordination also separated the sample stands into the same two groups as cluster analysis. Both groups were related to gradients of moisture and fertility (including Ca, P, organic matter). The *Hopea ferrea* type was characterized by low calcium and high moisture content while the *Shorea henryana* type was characterized by high calcium but low moisture content. Size-class analysis indicated a similar structure in the two dominance-types. Both were well described by a negative power curve and negative exponential distribution. Size-class distributions of individual species exhibited variable patterns.

Topographic and soil parameters were used for stepwise multiple regressions to develop predictive equations for the distribution of tree species. Species distributions were related to soil fertility and elevation while community distributions was related moisture content and soil fertility.