

An analysis of spatial distribution pattern of tree species in dry dipterocarp forest, Sakaerat by using $m^* - m$ regression method.

ORAWAN PUNYAPONVITTAYA.

Thesis. Kasetsart University., 1986.

ABSTRACT

Study on the $m^* - m$ regression and ρ index to the analysis of spatial distribution pattern and interspecies association of tree population in Dry Dipterocarp Forest at Sakaerat by changing the quadrat size were carried out in 4 subtypes. One sample plot of $100 \times 100 \text{ m}^2$ was laid out in each subtypes and subdivided into 100 subplots ($10 \times 10 \text{ m}^2$). Stem position of trees with 4.5 cm. in DBH and over existing in each subplot were mapped, botanical name were recorded, height also measured and classified into canopy, subcanopy and gap maker. The results revealed that total individuals and gap maker in all subtype showed random pattern. Canopy showed contagious pattern, clump size range $400-2,500 \text{ m}^2$ while subcanopy showed random pattern. Based on their DBH, all trees were classified into 4 groups, A(DBH < 10 cm.) showed contagious pattern, clump size range $900-2,500 \text{ m}^2$, B($10 < \text{DBH} < 20 \text{ cm.}$) and C($20 < \text{DBH} < 30 \text{ cm.}$) showed random pattern, D(DBH < 30 cm.) showed random rather uniform. Major species showed contagious, the rest showed random or rather uniform.

Analysis of interspecies association showed that *Shorea floribunda* and *Quercus kerrii* are independent distribution of two populations comprising randomly distributed colonies. *Shorea floribunda* and *Pterocarpus macrocarpus* are negative association of two species due to density gradients in the opposite directions. *Shorea floribunda* and *Dipterocarpus intricatus* are positive association of two species being distributed uniformly. *Quercus kerrii* and *Pterocarpus macrocarpus* are independent mixture of random distributions. *Quercus kerrii* and *Dipterocarpus intricatus* are independent mixture of random distributions. *Pterocarpus macrocarpus* and *Dipterocarpus intricatus* are negative association of two species being segregated in an irregular pattern. *Shorea obtusa* and *Shorea siamensis* are negative association of two species due to density gradients in the opposite directions. *Shorea obtusa* and *Pterocarpus macrocarpus* are independent mixture of random

distributions. *Shorea floribunda* and *Shorea siamensis* are negative association of two species due to density gradients in the opposite directions.