Distriminant analysis of soil and plant relationships in dry dipterocarp forest.

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Thai J. For. 13:98-113., 1994.

ABSTRACT

The relationships of soil and plant in dry dipterocarp forest were studied at the SERS by randomly laid out 16 square plots of 2,500 $m.^2$ to represent 16 stands of the forest. Tree census was carried out by measuring tree size (DBH and H) and species recorded of tree with DBH $\geq$ 4.5 cm. Triangular pattern of soil sampling was made in each plot and soil samples taken by varying depth of 0 - 5, 10 - 20, 20 - 30 and 30 - 50 cm. Quanlitative ecological parameters of plant composing of mean size and basal area, total aboveground biomass, species diversity and it 's relates, resemblance function and clustering were analyzed. Soil properties were also analyzed in terms of organic matter and nutrient storage in soils down to 50 cm depth of each stand. Discriminant analysis was adopted to relate soil quantities with stand cluster. Trees of the Sakaerat dry dipterocarp forest was found to be composed of 46 species in total and varied among stands and less diverse. Resemblance functions suggested 2 - 3 groups of clustering based on number of species and number of individuals of the 16 stands studied. Discriminant analysis suggested that storages of organic matter and calcium in soil profiles were important factors in discriminating between two groups of stands than other nutrients. The high organic matter but low calcium storage group showed high values of mean tree height, basal area, total aboveground biomass and stand density but lower species diversity while the low organic matter but high calcium storage group showed the opposite trend with high species diversity.