Stratification of dry dipterocarp forest at Sakaerat.

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ABSTRACT

Vertical stratification employing four different methods namely, profile diagram, crown depth diagram, *M-w* diagram and symmetric type difference diagram was carried out in the four dominant types of the dry dipterocarp forest namely : *Shorea floribunda – Quercus kerrii* , ($s_{1.1}$, $s_{1.2}$, $s_{1.3}$, $s_{1.4}$ and $s_{1.5}$) *S. obtusa –S. siamensis* ($s_{2.1}$, $s_{2.2}$, $s_{2.3}$, $s_{2.4}$ and $s_{2.5}$), *S. obtusa – Pterocarpus macrocarpus* ($s_{3.1}$, $s_{3.2}$, $s_{3.3}$, $s_{3.4}$ and $s_{3.5}$) and *S. siamensis – S. floribunda* ($s_{4.1}$, $s_{4.2}$, $s_{4.3}$, $s_{4.4}$ and $s_{4.5}$) at Sakaerat Environmental Research Station (SERS), Amphur Pak Thong Chai Changwat Nakhon Rachsima, Northeast Thailand. This investigation aims at finding the most suitable method for analyzing forest stratification. Five sample plots of 20 X 100 m^2 were laid out in each dominant type. All trees over 4.5 cm in DBH contained in each plot were mapped and stem diameter at 1.3 m above the ground (DBH), total tree height (H), height of the lowest living main branch (H_B) were measured.

Natural forest community is made up of different overlap population consisting of individuals of different species and ages. To stratify the individuals of a forest stand into elementary subpopulation four different methods were employed. The results revealed that stand ($s_{2.1}$, $s_{2.2}$, $s_{2.3}$, $s_{4.2}$, $s_{4.4}$ and $s_{4.5}$) can be precisely divided into three layers by crown depth diagram while stands , $s_{1.1}$, $s_{1.2}$, $s_{1.3}$, $s_{1.4}$, $s_{1.5}$, $s_{2.4}$, $s_{2.5}$, $s_{3.1}$, $s_{3.2}$, $s_{3.3}$, $s_{3.4}$, $s_{3.5}$, $s_{4.1}$ and $s_{4.3}$) were divided into two layers. Using the *M-w* diagram, the size structure of stands $s_{3.4}$ and $s_{4.4}$ were divided into three groups. However, stands $s_{1.1}$, $s_{1.2}$, $s_{1.3}$, $s_{1.4}$, $s_{1.5}$, $s_{2.1}$, $s_{2.2}$, $s_{2.3}$, $s_{2.4}$, $s_{2.5}$, $s_{3.1}$, $s_{3.2}$, $s_{3.3}$, $s_{3.5}$, $s_{4.1}$, $s_{4.2}$, $s_{4.3}$and $s_{4.5}$ were divided into two groups but the distinction of the two groups in stands $s_{4.2}$ and $s_{4.3}$ was not so clear. Stands $s_{4.1}$; $s_{1.1}$, $s_{1.4}$, $s_{1.5}$, $s_{2.1}$, $s_{2.2}$, $s_{2.5}$, $s_{3.1}$, $s_{3.3}$, $s_{3.4}$, $s_{4.3}$ and $s_{4.5}$; $s_{1.2}$, $s_{1.3}$, $s_{2.3}$, $s_{2.4}$, $s_{3.2}$, $s_{3.5}$, $s_{4.2}$ and $s_{4.4}$ can be stratified into one, two and three layers, by the symmetric type difference diagram. The results of the symmetric type difference diagram and the profile diagram are almost similar.

It cannot be concluded which method is the best for forest stratification. But it seems that crown depth diagram method is the most convenient for stratifying the dry dipterocarp forest because of discontinuous crowns and the H and H_B parameters are easily measured.