

Wapree Sensit 2009: Structure and Composition of Lower Montane Forest at Phu Luang Wildlife Sanctuary, Loei Province. Master of Science (Forestry), Major Field: Forest Biology, Department of Forest Biology. Thesis Advisor: Mr. Sarayudh Bunyavejchewin, Ph.D. 82 pages.

Structure and floristic of lower montane forest at Phu Luang Wildlife Sanctuary were described based on all trees ≥ 4.5 cm. dbh of four of 1-ha plots (100 x 100 m). The plots located along the altitude gradient, 1,013 m a.s.l. (plot 1), 1,373 m a.s.l. (plot 2), 1,418 m a.s.l. (plot 3) and 1,480 m a.s.l. (plot 4). Plot 1 was the highest basal area stand ($34.51 \text{ m}^2/\text{ha}$) while the highest density found in plot 2 (1,430 individuals). Plot 4 contained lowest both basal area ($12.06 \text{ m}^2/\text{ha}$) and density (978 individuals). Plot 1 was the most rich of species (97 species) and the poorest was in plot 4 (45 species). Lauraceae ranked first in number of species in all plots and Fagaceae were the top five. Fagaceae was the highest basal area in plot 1, 3 and 4, but plot 2 was Podocarpaceae. Diameter distributions of all plots was negative exponential. Species diameter distribution exhibited various patterns, from negative exponential (mostly of middle and lower strata species) to irregular to unimodal. Many of the upper stratum species such as *Dacrydium elatum*, *Quercus semiserrata*, *Michelia floribunda*, *Castanopsis hystrix*, *Castanopsis acuminata* and *Distylium indicum* shown unimodal diameter distribution pattern. The species diversity of Shannon-Wiener's function (H') and Fisher's α shown similar trend. The highest diversity was in plot 1 ($H' = 3.95$ and $\alpha = 26$) and the lowest in plot 4 ($H' = 2.94$ and $\alpha = 10.59$). A pair of plots 2 and 3 was the most similar in terms of floristic and less in a pair of plots 1 and 4. The soil properties of plot 4 was extremely high in sand (>90%) and low in silt, clay, OM and CEC, which differed significantly to those of the plot 1, 2 and 3.

Student's signature

Thesis Advisor's signature