

# Accumulation of energy and nutrient control of *Arundinaria pusilla* in the dry dipterocarp forest.

NIWAT RUANGPANIT and SOMNEUK PONGUMPHAI.

Final report submitted to the National Research Council., 1983.

## ABSTRACT

The standing live standing crop of Yaaphet (*Arundinaria pusilla*) on both strata peak in November at 364.27 g/m<sup>2</sup> on stratum 1 and 312.74 g/m<sup>2</sup> on stratum 2. The standing dead standing crop on stratum 1 peak in March at 202.02 g/m<sup>2</sup> and 193.86 g/m<sup>2</sup> in February on stratum 2. The litter standing crop on both strata peak in May at 236.65 g/m<sup>2</sup> on stratum 1 and 199.44 g/m<sup>2</sup> on stratum 2. The belowground biomass in the upper 40 cm of soil profile were 2,668.22 and 2,589.38 g/m<sup>2</sup> on stratum 1 and 2 respectively. The distribution of belowground biomass were 62.45 and 64.80 percent in 0 – 10 cm, 90.54 and 91.26 percent in 0 – 20 cm, 96.51 and 96.98 percent in 0 – 30 cm of soil depth on stratum 1 and 2 respectively. The ratio of aboveground and belowground standing crop were 1 : 5.1 on stratum 1 and 1 : 5.9 on stratum 2. The energy accumulation of the aboveground standing crop were 2,053.14 kcal/m<sup>2</sup> and 1,715.62 kcal/m<sup>2</sup> on stratum 1 and 2 respectively, while that of the belowground were 10,361.88 kcal/m<sup>2</sup> on stratum 1 and 10,062.32 kcal/m<sup>2</sup> on stratum 2.

The nutrient content of calcium, magnesium, phosphorus, sulfur and potassium of the standing live were higher than that of the standing dead. The nutrients trended to increase in the rainy season up to the early of the dry season and decreased there after . Calcium in the litter of Yaa phet trended to increase in the rainy season but potassium and magnesium were decreased. The highest potassium and lowest phosphorus content were found in the aboveground standing crop of Yaa phet on both strata. The amount of accumulation of potassium, calcium, magnesium, sulfur and phosphorus in the aboveground standing crop were 26.96, 18.34, 8.51, 3.72 and 2.95 kg/ha on stratum 1 and 22.15, 13.04, 6.58, 3.11 and 2.58 kg/ha on stratum 2 respectively.

The calcium content of belowground standing crop of Yaa phet was increased in the rainy season and decreased in the dry season but sulfur and potassium decreased in the rainy season. There were only slightly fluctuation of magnesium and phosphorus content of the belowground standing crop. The maximum amount of calcium and minimum amount of phosphorus were found in

the belowground standing crop on both strata. On the average, the accumulation of calcium, potassium, magnesium, sulfur and phosphorus in the belowground standing crop were 78.51, 62.65, 21.63, 12.07 and 10.37 kg/ha on stratum 1 and 79.44, 56.58, 23.67, 11.76 and 9.97 kg/ha on stratum 2, respectively.