


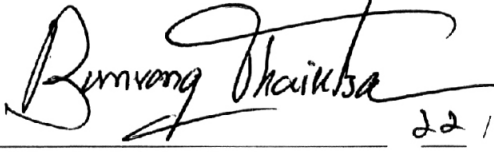
Kongsak Meekaew 2008: Silviculture of *Mansonia gagei* J.R.Drummond in Prachuap Khiri Khan Province. Doctor of Philosophy (Forestry), Major Field: Forestry, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Bunvong Thaitutsa, Ph.D. 111 pages.

The study on silviculture of *Mansonia gagei* J.R. Drummond was carried out in Prachuap Khiri Khan province with particular emphases on natural habitat and ecology as well as reproductive phenological phenomena in the natural stands and growth and yields in plantation. Three national parks were considered as study sites of natural stands, while a 10-year-old plantation was in an adjacent area.

The results showed that stand composition of the species varied among sites. In Kuiburi, Namtok Huai Yang and Khao Sam Roi Yot National Parks, there were 28, 63 and 27 tree species, respectively; while *M. gagei* tree densities were 27, 32, and 35 trees per ha and the species diversity indices were 1.486, 2.767 and 2.014, respectively for those 3 national parks. The most richness of the species was found in Namtok Huai Yang National Park, while the least was found in Khao Sam Roi Yot National Park. IVI of *M. gagei* at Kuiburi, Namtok Huai Yang and Khao Sam Roi Yot National Parks were 28.523, 13.270 and 13.108, respectively. Crown cover of *M. gagei* was in the upper layer in every study site. The natural existence of *M. gagei* in these national parks showed that the species tolerated various soil types. Soil pH, however, showed strong impact on tree growth.

Reproductive period of *M. gagei* from flower bud sprout to mature fruit took 6 months, from July to December. Every day there was 1 or 2 flowers opening in one inflorescence, up to 20 flowers in one twig. Flower opened around 7 am with its peak receptive period around 7-9 am. The flower then closed from 10 am to 5 pm and reopened from 5 to 7 pm. Only 25.79 % of flowers could develop to mature fruits. The fruit was samara and considered as a seed. Seed weight with wing and de-winged had the averages of 366.3 ± 92.8 and 272.9 ± 58.8 g per 1,000 seeds, respectively. Fruit color was found to be a good indicator for seed maturity. Mature seed was greenish brown in late December. Seed longevity was less than 90 days. The seedling growth was rather slow compared to other native species. Height, diameter at ground level and DBH of 10-year-old trees in plantation were 6.59 m, 11.67 cm and 9.16 cm, respectively. The estimation on stem, branch, leaf, and total aboveground biomass were of 25.023 t/ha, 11.473 t/ha, 3.568 t/ha and 40.065 t/ha, respectively with the stem volume of $31.125 \text{ m}^3/\text{ha}$.


Student's signature


Thesis Advisor's signature

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