

Kwanjai Khammongkol 2013: Riparian Forest Structure in Mun River Basin. Master of Science (Forestry Biological Science), Major Field: Forest Biological Science, Department of Forest Biology. Thesis Advisor: Assistant Professor Sarawood Sungkaew, Ph.D. 193 pages.

The main objectives of the project entitled 'Riparian forest structure in Mun river basin' were to 1) study the vegetation structure, species composition, density, dominance, similarity and diversity, and 2) study the relationships between environment factors and vegetation. The project was conducted between October 2011 and September 2012. A total of 9 stands (three 30x30 m. temporary sample plots per stand) were laid. Tree species, a set of soil sample (at 0-20 and 20-40 cm. depth), elevation, water mark and duration of flooding were recorded in each sampling plot. An agglomerative cluster analysis of Relative Sorensen Distance and Ward's Linkage Methods were used to classify stands for dominance types based on the Importance Value Index of tree species. An ordination analysis of Canonical Correspondence Analysis (CCA) was also performed to find out how species relate to their environments.

The results showed that, there were 6,009 trees of 85 families, 272 genera and 398 species in the total of 9 stands. The first three dominant families were Leguminosae, Phyllanthaceae and Dipterocarpaceae, respectively. Leguminosae possessed the highest mean basal area (113.75 m<sup>2</sup>/ha), density (487 trees/ha) and was the highest species richness of 48 species. Based on an agglomerative Cluster analysis of Relative Sorensen Distance and Ward's Linkage Methods, four types were obtained by this study, they are; Lagerstroemia floribunda type (LAGF), Dipterocarpus obtusifolius type (DIPO), Mallotus thorelii type (MALT) and Streblus asper type (STRA). Based on an Ordination analysis of Canonical Correspondence Analysis (CCA), the results indicated that the Streblus asper type tended to restrict to the high pH, short flooding duration (7-15 days) and was usually found in the upper river basin. The presence of the Lagerstroemia floribunda type, Mallotus thorelii type and Dipterocarpus obtusifolius type were found in the middle and lower river basin concerning with clay sediment. Mallotus thorelii type tended to occur in the place with high organic matter and long flooding duration (45-60 days). The vertical structure of riparian forest could also be categorized into three layers as follows; upper canopy, sub canopy and undergrowth. The species diversity value, based on the Shannon-Wiener's index, is the highest in Lagerstroemia floribunda type (4.07) and the lowest in Mallotus thorelii type (2.16). The highest similarity was found between Lagerstroemia floribunda type and Dipterocarpus obtusifolius type (32.75%) and the lowest was between Dipterocarpus obtusifolius type and Streblus asper (12.33%).

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Thesis Advisor's signature