

Rachasak Phaowongsa 2010: Change of Landcover and Plant Community of the Seasonal Floodplain Forest in Lam-Se-Bai Watershed. Master of Science (Forestry), Major Field: Forest Management, Department of Forest Management. Thesis Advisor: Assistant Professor Kankhajane Chuchip, Dr.rer.nat. 153 pages.

The aim of this study was to determine appropriate method of land cover classification using remotely sensed data to delineate seasonal floodplain forest in Lam-Se-Bai watershed, to analyze the influence of some physical factors on the distribution of the seasonal floodplain forest, to analyze characteristics of plant communities in the forest, and to analyze seasoning change of land cover and plant community structure of the seasonal floodplain forest as vital information for formulating management guidelines.

The classification of Landsat TM image based on the so called pixel-based analysis and object-oriented analysis has been tried out. It was indicated that both methods gave relatively good results with the overall accuracy of 84.55 and 89.70 percent, respectively. The study also showed that some physical data (namely, elevation from mean sea level, distance to water bodies, rainfall, and NDVI) has statistical relationship with the distribution of the seasonal floodplain forest in the study area. Field survey using 38 of 10x10 meter-size sample plots revealed that there were 2685 trees found with 70 species, 61 genera in 36 families. *Dipterocarpus obtusifolius* was the most dominant tree species with IVI of 57.26, while *Hymenocardia wallichii* was the most dominant species (IVI of 57.36) for the group of shrubs found in the area. In addition, the community of the floodplain forest can be classified into 5 groups based on species composition and the topography of the area.

Satellite image derived from various date in a year has been adopted to classify land cover types relevant to flooding and non-flooding period of the floodplain forest area in year round. It was found that the seasoning change of the land cover caused image miss-classification. The confusion of the classification occurred in the area of floodplain forest cover, water surface, and other land. Finally, study of seasoning change of the floodplain forest in Lam-Se-Bai watershed showed that survival rate of trees, sapling-shrubs-bamboo, and seedling with undergrowth plants, were 100, 92.11 and 52.59 percent, respectively.

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Thesis Advisor's signature