

Thanwarat Anan 2012: Object Oriented Satellite Image Analysis for the Differentiation of Eucalyptus Plantation in the Area of Sanam Chai Khet District, Chachoengsao Province. Master of Science (Forest Resource Administration), Major Field: Forest Resource Administration, Faculty of Forestry. Thesis Advisor: Assistant Professor Kankhajane Chuchip, Dr.rer.nat. 111 pages.

The study was aimed to differentiate eucalyptus plantations into proper classes according to the variety of species and age-classes in the area of Sanamchaikhet district, Chachoengsao province. Object-oriented image analysis (OOIA) was used to classify a satellite image of the study area. Firstly, the multispectral SPOT-5 image of the study area was initially segmented based on homogeneity, compactness and smoothness criteria. This was performed with different scale-parameters varied from coarse to fine spatial levels suitable for proper classification. R, NIR, SWIR spectral band and NDVI of the image, as well as grey-level-co-occurrence matrix (GCLM) were taken into account. A robust rule base was then set up in the classification algorithm. Supervised classification with maximum likelihood classifier was also applied as a pixel-based method used for comparison purpose. Accuracy assessment was hence applied to both supervised maximum likelihood and OOIA by means of overall accuracy and kappa coefficients. The results showed that OOIA with medium (value = 50) and fine scale (value = 25) of the image segmentation gave higher accuracy than the supervised maximum likelihood classification.

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Thesis Advisor's signature