

Bow Bunlue 2010: Applications of Geo-informatics in Monitoring Forest Landuse Changes in Khao Ang Rue Nai Wildlife Sanctuary, Chachoengsao Province. Master of Science (Forest Resource and Environmental Administration), Major Field: Forest Resource and Environmental Administration, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Wanchai Arunpraparut, D.Agr. 100 pages.

Forest land use changes in Khao Ang Rue Nai Wildlife Sanctuary, Chachoengsao Province was monitored by using Remote Sensing (RS), Geographic Information System (GIS), Global Positioning System (GPS) for study of the land use pattern in 2001, 2005 and 2009. Markov chain and Cellular Automata (CA-Markov) was applied to study land use change during 2001-2005 and 2005-2009. The trend of land use in 2013 was then predicted.

The results showed that Khao Ang Rue Nai Wildlife Sanctuary, Chachoengsao Province covers an area of 1,078.39 square kilometers or approximately 673,993.75 rai. The land use pattern of these area can be classified into 14 patterns consisting of Acacia mangium Willd., Grass, Paddy, Dry Evergreen Forest, Moist Evergreen Forest, Disturbed Forest, Dry Dipterocarp Forest, Mixed Deciduous Forest, Secondary Forest, Horticulture, Field Crop, Para Rubber Plantation, Forest Plantation and Water Body. Data analysis revealed that during 2001-2005 the land use change occurred in an area of 32.92 km² or 3.05% of a total area. The ratio of land use change area revealed that dry evergreen decreasing forest area showed the highest change. The area was, 14.96 km² or 45.42%. The rubber plantation showed the highest area increasing of 5.68 km² or 17.26%. In 2005-2009, the land use change occurred in an area of 56.96 km² or 5.28% of a total area. The ratio of land use change showed that forest plantations area has the highest area increasing of 21.70 km² or 38.10% and grassland area has the highest area decreasing of 16.13 km² or 28.32%. The prediction of land use in 2013 showed that patterns of area ratio of land use with approximately 14.27 km² difference or 5.09% of total area. The land use 14.27 km² or 5.09% of study areas.

Overall accuracy of the prediction model was 96.46%. The results of this study will be applied for planning and management of Khao Ang Rue Nai Wildlife Sanctuary which will be useful for a long term plan of this forest conservation area.

Student's signature

Thesis Advisor's signature