Yuttana Sangthong 2006: Assessment of Biomass Losses from Forest Fire in Deciduous Forest at Huai Kha Khaeng Wildlife Sanctuary Using Remote Sensing Techniques. Master of Science (Forestry), Major Field: Forest Management, Department of Forest Management. Thesis Advisor: Assistant Professor Kankhajane Chuchip, Dr.rer.nat. 209 pages.
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Remote sensing techniques have been applied for the assessment of biomass losses caused by forest fire in deciduous forest (dry deciduous forest and mixed deciduous forest) at Huai Kha Khaeng Wildlife Sanctuary. This study is to find out the relationship between the quantity of surface biomass in form of the quantity of surface leaf fuel as a dependent variable and the quantity of leaf biomass, derived from allometry equation, and the quantity of leaf biomass assessing from fractional green vegetation cover (fc), and other vegetation indices derived from Landsat 5 TM image as independent variables. In addition, the relationship between the quantity of surface leaf fuel (Y) and fractional green vegetation cover, and other vegetation indices derived from Landsat 5 TM image have also been analysed with out using allometry equation. Regression Analysis was adopted for describing those relationships. The best suited relationship equation was used to estimate the quantity of surface biomass, in other means as the quantity of surface leaf fuel in the study area. This led to be able to assess the surface biomass losses in form of the quantity of surface leaf fuel from forest fire in the study area.

The study shows that the quantity of surface biomass in form of the quantity of surface leaf fuel in dry deciduous forest and mixed deciduous forest could be estimated from Landsat 5 TM imagery. The average quantity of surface leaf fuel in both forest types were 499.82 kilogram per rai and 561.99 kilogram per rai, respectively. The percentage of the quantity of surface leaf fuel losses caused by forest fire in both forest types were 35.34 percent and 35.09 percent, respectively. The quantity of surface leaf fuel losses caused by forest fire in dry deciduous forest and mixed deciduous forest were 6,359,971.21 kilograms or 6,359.97 tons and 13,300,721.60 kilograms or 13,300.72 tons, respectively. The damaged area from forest fire in dry deciduous forest and mixed deciduous forest were 36,005.85 rai and 67,447.00 rai, respectively.

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