

Monitoring the Rate of Expansion of Agricultural Fields in Mwekera Forest Reserve Using Remote Sensing and Geographic Information Systems

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Abstract : Due to the rampant population growth coupled with retrenchments currently going on in the Copper mines in Zambia, a number of people are resorting to land clearing for agriculture, illegal settlements as well as charcoal production among other vices. This study aims at assessing the rate of expansion of agricultural fields and illegal settlements in protected areas using remote sensing and Geographic Information System. Zambia's Mwekera National Forest Reserve was used as a case study. Iterative Self-Organizing Data Analysis Technique (ISODATA), as well as maximum likelihood, supervised classification on four Landsat images as well as an accuracy assessment of the classifications was performed. Over the period under observation, results indicate annual percentage changes to be -0.03, -0.49 and 1.26 for agriculture, forests and settlement respectively indicating a higher conversion of forests into human settlements and agriculture.

Keywords : geographic information system, land cover change, Landsat TM and ETM+, Mwekera forest reserve, remote sensing

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