

Spatio-temporal Change in Land Use and Land Cover: Implications for Conservation of Fina Faunal Reserve in Mali

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Abstract

The natural resources in FINA reserve of Mali are undergoing intense degradation coupled with increased human pressure on the reserve. Vegetation in this reserve is severely threatened. Existing inventories regarding such threats are currently out dated. There is, therefore, a crucial need to assess land use and land cover change in the reserve. The methodological approach in this study has combined LULC change detection with LULC intensity analysis. Using Landsat images, intensity analysis model was utilised in detecting changes in land use and land cover in the reserve, and the changes were evaluated in relation to agricultural activities in the reserve. The results revealed an increase in agricultural land by 2-4% per annum and a decrease in savannah wood land by 2% per year from 1985 to 2013. Bare land and Savannah woodland were found to be gradually replaced by agricultural land. The observed transition of vegetation cover to agricultural land indicates the extent of human pressure on the reserve. Consequently, to preserve these ecosystems, there is the need to initiate and implement measures aimed at limiting cultivation and other human activities in the reserve. These measures should integrate food production and forestry, as well as involve rural community participation through appropriate incentives.

Keywords: Land Use and Land Cover Change, Category Level Analysis, Vegetation Dynamics, Fina faunal reserve.

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