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Land-Cover Change Analyses in the Volta Basin of Ghana

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ABSTRACT

Multitemporal Landsat Thematic Mapper (TM) images for 1984, 1992, and 1999 were used to map and detect land-cover changes in a 5400-km^2 area within the Volta Lake basin of Ghana. The most dominant land-cover change was the conversion of natural vegetation to cropland, which occurred at an annual rate of 5%. While the data suggest an increase in human pressure, reversible change in woodland and grassland occurred in 4% and 2% of the landscape, respectively. A higher proportion of reversible land-cover changes relating to fallow agriculture occurred in about 14% of the landscape, whereas a higher overall increase in woody biomass (10%), compared to an overall decrease of 9%, indicates a certain level of rainfall-induced resilience in the ecosystem. Further research is needed to quantitatively evaluate the mechanisms enhancing vegetation recovery in dryland areas.

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