Determining the Effect of Social and Ecological Factors on Land Use Land Cover Diversity in Northern Upland Vietnam using Spatial Regression

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This research explores the relationship between land use land cover (LULC) diversity, socio-economic and ecological factors in five border districts of Lào Cai Province, Vietnam from 1999 to 2009. Within this area, a series of government policies and unique ethnic minority livelihood strategies have influenced local land use decisions. Diversity was regressed against elevation, slope, distance to border, distance to roads and distance to markets using a global regression and geographically weighted regression. The results suggest a drastic increase in forest cover and urban regions as well as a decrease in agricultural fields. This may indicate a shift in livelihood strategies to cardamom production or diversified strategies such as textile sales or tourism initiatives. Overall, the five variables were effective predictors of LULC diversity. Ecological variables are more significant indicators of diversity in 2009 suggesting that land use is inhibited by ecological variables when social variables increase in extent and accessibility.

Most significant factors predicting LULC diversity in (a) 1999 and (b) 2009