Ecological Suitability Evaluation of Land-Use Change in a Cross-Border Region of the Tagus River Basin, Portugal

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Abstract:

The intensification of primary production to meet the growing demand for well-being has the potential to degrade the biophysical environment from local to global scales. It is also increasingly recognized that land use decisions have economic, environmental, social, and cultural impacts. To address the pressures on ecosystems and society, stakeholders need information that assists in understanding the implications of land uses for the full range of desired outcomes. Land-use planning practice and policy still lack a landscape perspective, considering landscape history integrated with land suitability. This article presents a method for assessing the ecological suitability of land-use change. This method was applied to a cross-border Portuguese Tagus River basin region. This includes a land suitability analysis based on edaphoclimatic factors and a land use change analysis of its effects on soil quality, especially in soil erosion. The land-use change ecological assessment was made for 50 years, between 1968 and 2018. This paper highlights how integrating land-use changes, land suitability analysis, and soil erosion risks supports land-use policy analysis. Firstly, this research shows how past policies did not consider landscape suitability for the region studied.