

The importance of indigenous territories for the provision of ecosystem services: A case study in the Brazilian Cerrado-Amazon Transition

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Abstract: Ecosystem services (ES) modeling has become an essential tool for assessing the spatial distribution of nature's benefits to people and supporting decision-making in environmental conservation. By integrating biophysical, ecological, and socio-economic data, ES models provide valuable insights into how landscapes sustain key services such as water regulation, carbon storage, and biodiversity maintenance. This study investigates the role of Indigenous Lands (ILs) in providing ES in the Brazilian Cerrado-Amazon transition, a region under intense pressure from the conversion of native vegetation to agriculture and livestock production. Using InVEST models at the watershed scale, we quantified ES related to water supply, erosion control, habitat quality, and terrestrial carbon storage, focusing on the contribution of ILs to these services. Spatial autocorrelation analyses, including the Local Indicators of Spatial Association (LISA) index, were applied to identify significant patterns of contribution from sub-watersheds overlapping ILs. The results indicate that, although ILs cover only 4% of the Cerrado biome, they are crucial for the provision of ES, particularly those related to biodiversity and climate regulation. This research highlights the importance of ILs as protected areas that integrate Indigenous traditional knowledge with biodiversity conservation and ES provision, both of which are essential for regional economies. Public policies must recognize the reciprocal contributions between Indigenous peoples and nature, ensuring land rights and effectively protecting these territories.

Biography: Fernanda Nunes is a specialist in policies for indigenous peoples at the National Foundation for Indigenous Peoples in the Federal District, Brazil. With expertise in territorial and environmental management of indigenous lands, she has significantly contributed to expanding the available knowledge about the role of indigenous peoples in maintaining ecosystem services. Her research interests include environmental analyses through geospatial and data science tools.



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