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Abstract

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2.3. Valuation approach



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Table 1

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Abstract

A GIS-based approach was designed to spatially estimate direct use value of ecosystem services and to map results for a case study at county scale. The approach highlights the use of GIS to collect data, perform spatial analysis, and map economic values of ecosystem services. Three key steps of spatial valuation for agricultural products, forest products, and tourism services were illustrated in the GIS-based technical framework. We applied this approach to the Tiantai County (1423.8 km²) in Zhejiang province of southeast China. Selected components of natural products and tourism services in the case area were mapped as data layers in GIS, with each layer containing monetary values for every 25 m cell. The total direct use value of ecosystem services was estimated in RMB to be approximately 538 million Yuan in 2005 (Chinese currency, 8.2 Yuan = US\$1), of which agricultural products, forest products and tourism services accounted for 65%, 30% and 5%, respectively. The critical areas for management purpose were identified depending on the heterogeneity of direct use services learned from the case study. The spatially explicit measures provide a mechanism for incorporating spatial context into ecosystem services evaluation. Based on the present GIS-based approach and case study, the suggestions and implications for local resources protection and eco-environmental management were extensively discussed. The work was expected to highlight research avenues to advance the ecosystem services framework as an operational basis for regional ecosystem-based management.

Keywords

Ecosystem services; Direct use value; Geographic Information System (GIS); Valuation approach; Management implications

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