Temporal and Spatial Analysis of Tourism Disturbance on Landscape Pattern in the Li River Basin of Guangxi

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Abstract: The impact of tourism activities on landscape pattern is an important reflection of tourism disturbance, while landscape structure variation coefficients are the quantitative indices in reflecting the changes of landscape pattern. On the basis of physical geographical information, socio-economic statistics and multi-year land use data, this paper employed landscape variation coefficients to evaluate the tourism disturbance in the Li River Basin of Guangxi, China, which is the core area of tourism development in Guilin. By the means of GIS spatial model tools, three typical sources of human disturbance in the region, i. e. residents, scene spots and roads, were identified and their notable influential scopes were determined, through which the disturbing intensity of each disturbance was compared; Then the dynamic changes of scene spots disturbance in the tourism development phases of 1989—2000 and 2000—2010 were explored, and the spatial distributing characteristics with elevation, slope and GDP were analyzed. The results showed as follows: firstly, tourism development has become an significant human disturbance source in the Li River Basin, exerting immediate influences on the landscape pattern, and the disturbing intensity varied with the number, scale and type of scene spots; secondly, the disturbance of scene spots showed considerable spatial differentiation characteristics, under the constraints of physical environment and socio-economic conditions of the region, while several parts presented specificity for their tourism configuration features; thirdly, the apparent scene spots disturbance in the Li River Basin could be classified into two types, and future tourism development should be emphasized on the exploration of suitable modes, to achieve the adaptive management of watershed ecosystems.

Key words: tourism disturbance; landscape variation coefficient; temporal and spatial differentiation; Li River Basin

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