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Analysis of Landscape Pattern Evolution in Banan District, Chongqing, Based on GIS and FRAGSTATS

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Abstract : The study of urban land use and landscape pattern is the current hotspot in the fields of planning and design, ecology, etc., which is of great significance for the construction of the overall humanistic ecosystem of the city and optimization of the urban spatial structure. Banan District, as the main part of the eastern eco-city planning of Chongqing Municipality, is a new high ground for highlighting the ecological characteristics of Chongqing, realizing effective transformation of ecological value, and promoting the integrated development of urban and rural areas. The analytical methods of land use transfer matrix (GIS) and landscape pattern index (Fragstats) were used to study the characteristics and laws of the evolution of land use landscape pattern in Banan District from 2000 to 2020, which provide some reference value for Banan District to alleviate the ecological contradiction of landscape. The results of the study show that: Banan District is rich in land use types, of which the area of cultivated land will still account for 57.15% of the total area of the landscape until 2020, accounting for an absolute advantage in the land use structure of Banan District; From 2000 to 2020, land use conversion in Banan District is characterized as: Cropland > woodland > grassland > shrubland > built-up land > water bodies > wetlands, with cropland converted to built-up land being the largest; From 2000 to 2020, the landscape elements of Banan District were distributed in a balanced way, and the landscape types were rich and diversified, but due to the influence of human interference, it also presented the characteristics that the shape of the landscape elements tended to be irregular, and the dominant patches were distributed in a scattered manner, and the patches had poor connectivity. It is recommended that in future regional ecological construction, the layout should be rationally optimized, the relationship between landscape components should be coordinated, and the connectivity between landscape patches should be strengthened, and the degree of landscape fragmentation should be reduced.

Keywords : land use transfer, landscape pattern evolution, GIS and FRAGSTATS, Banan District
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