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SPATIAL AND TEMPORAL CHANGE OF RURAL ECO-ENVIRONMENT, ECOSYSTEM SERVICES AND FARMER HOUSEHOLD LIVELIHOOD CAPITAL IN A KARST AREA OF CHINA: A CASE STUDY OF SINAN COUNTY

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Abstract

Changes in the livelihood capital of farming households have impacted the rural eco-environment and have become important factors driving global change. In the case of fragile environments, such as karsts, changes in the livelihood capital of farming households can have significant effects. The grey relational evaluation model (GREM) and coupling coordination model (CCM) were used to explore spatial and temporal changes in the rural eco-environment, ecosystem services, and farming capital during 2015-2021. The results showed that the five major types of farming household livelihood capital improved to varying degrees from 2015 to 2021, with the exception of natural capital, which declined in this period. High ecosystem service value (ESV) was mainly concentrated in urban areas and their surrounding space; whereas, low (ESV) was mainly concentrated in county areas and areas with relatively slow eco-environment restoration. The total ESV in Sinan County continued to rise, owing to increased forestland. Furthermore, there is a high correlation between farming household livelihood capital and the rural eco-environment system, which indicates a trend of continuous optimization of the coupling between ESV and farming household livelihood. Eco-protection and farming household livelihood optimization present a benign interactive development trend in Sinan County.

Key words: China, ESV, farmer household livelihood capital, karst area, rural eco-environment

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