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城市土地利用变化对生态系统服务的影响 ——以淮北市为例

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摘要:城市是一类以人类活动为中心的社会-经济-自然复合生态系统。城市的快速蔓延及强烈的人类活动显著地改变了城市的土地利用结构,进而严重影响了城市生态系统服务及人居环境。通过遥感、GIS 技术及生态系统服务价值评估等方法,对淮北市 1987 年、2000 年和 2007 年 3 个时期 20a 间的土地利用结构及生态系统服务价值的演变进行定量评价。研究表明:1987—2007 年间淮北市生态用地空间结构和面积发生剧烈变化,生态用地占城市面积的比例由 91.45% 降低至 71.86%。1987—2000 年,农田面积大幅度下降,而林地和水体都呈不同程度的增加趋势,建设用地面积增长迅速。2000—2007 年,农田面积有所增加,林地和水体面积却明显下降,建设用地总面积虽然没有明显变化,但其聚集度显著增加。20 年间,城市生态服务功能的价值呈现先增加后减少的趋势,在 2000 年达 31.32 亿元。2000—2007 年,以废物处理和水源涵养功能退化最为严重。可见,城市土地利用结构的变化与生态服务功能密切相关,此结果可为淮北市景观格局优化及土地合理调控和管理提供一定的科学依据。

关键词:土地利用;生态用地;生态系统服务;城市

Effects of land use change on ecosystem service value: a case study in Huaibei City, China

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Abstract: City is a kind of social-economic-natural complex ecological systems. Urban ecological land is an important component of urban ecosystem, which plays a key role to guarantee urban social-economy sustainable development, provide urban ecosystem services and improve residents' quality. The rapid spread of urban area and intensive human activities have significantly changed the urban land use structure and ecological land quantity, thus seriously impacted the urban ecological service and human living environment. However, little information was available on the influence of urban land structure on ecosystem services in resource-exhausted cities. Through the remote sensing, GIS technology and evaluation method of ecological service value, the variations of land use structure and ecological service value were assessed in a typical resource-exhausted city—huaibei during 1987 to 2007 in this study. The results showed that from 1987 to 2007, the total area and structure of ecological land in this city were drastically changed, with the proportion of ecological land area decreased from 91.45% to 71.86%. From 1987 to 2000, the area of farmland substantially reduced, but the areas of forest, water and built-up lands increased. While from 2000 to 2007, the area of farmland increased but the area of forest and water significantly reduced. Although there were no obvious changes of total areas of the built-up land in this period, the

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