

腾格里沙漠南缘脆弱区土地利用变化及其生态环境效应*

王友胜¹, 张磊¹, 刘冰¹, 成晨¹, 赵阳¹, 任正龔², 刘畅^{1,3}

(1.中国水利水电科学研究院 北京 100048; 2.宁夏回族自治区水土保持监测总站 银川 750000; 3.北京林业大学 北京 100084)

摘 要:【目的】沙漠边缘区作为环境变化和人类干扰响应的关键地段,是土地利用变化与环境效应研究的关键区域之一。【方法】以腾格里沙漠南缘脆弱区的沙坡头区 2000 年、2011 年和 2020 年遥感影像为基础,借助 ERDAS、ENVI、ArcGIS 等地理信息与遥感软件,对沙坡头区 2000 年以来的土地利用变化及其生态环境质量开展了定量分析。【结果】2000–2020 年,沙坡头区耕地和未利用地比例呈下降趋势,林草地和建设用地持续增加。土地利用变化以林地、草地、耕地和未利用地之间的转化为主,主要分布在沙坡头区中北部。沙坡头区土地利用系统的有序性和稳定性不断增强,尤其受干扰活动大的区域,其稳定性强于受干扰弱的区域。【结论】沙坡头区生态环境质量整体表现出以好转为主导的发展趋势,退耕还林还草和防沙治沙等保护性政策,使大量未利用地转为生态环境质量指数更高的草地和林地,有效提高了区域生态环境质量。

关键词: 土地利用; 生态环境质量; 沙坡头区

Land use change and its eco-environmental effects on south vulnerable margin areas of Tengger Desert

Abstract: 【Objective】 As a key area in response to environmental change and human disturbance, desert fringe is one of the key areas in the study of land use change and environmental effects. 【Method】 Based on remote sensing images from 2000, 2011, and 2020, this study quantitatively analyzed the land use change pattern and ecological environment quality of Shapotou District, using ERDAS, ENVI, ArcGIS, and other Geographic information and remote sensing software. 【Result】 Unused land and cultivated land in Shapotou District shrunk, while woodland, grassland and construction land continued to increase from 2000 to 2020. Land use change was frequent between woodland, grassland, cultivated land, and unused land, and most of them were distributed in the mid-northeast of the area. The index of land use structure showed that the orderliness and stability of the land use system in Shapotou District increased, especially in large disturbed areas, and its stability was stronger than that in weakly disturbed areas. 【Conclusion】 Improvement of the ecological environment quality exhibited in most regions of Shapotou District. The protective policy, such as: returning farmland to forestry and grassland engineering, sand control and desertification control engineering, which transform large areas of unused land to woodland and grassland, improved the local ecological environment quality.

Key words: land use; ecological environment quality; Shapotou District

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*张磊为通讯作者