

南四湖湿地景观格局变化的生态系统服务价值响应

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Response of Ecosystem in Service Value to Changes in Landscape Pattern of the Nansi Lake Wetland

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摘要

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摘要 利用1987—2010年5期卫星遥感影像监测南四湖湿地景观格局变化,并且采用市场比较法、影子工程法、工业制氧成本法、碳税法和价值替代法等多种评估方法对南四湖湿地景观格局变化的生态系统服务功能价值响应进行深入探讨。结果表明,南四湖湿地中大量芦苇、荷田等自然湿地景观转化为养殖水域、水稻田等人工湿地,景观格局趋于破碎化;湖泊湿地景观格局变化对于湿地的供给功能、调节功能、文化功能和支持功能均有影响,其中对供给功能和调节功能影响最大。以2010年不变价计算,南四湖湿地景观格局变化导致2010年湿地生态系统服务功能价值比1987年总体上减少了3.06亿元,其中大气成分调节功能价值损失11.7亿元,净化功能价值损失3.77亿元,涵养水源功能损失0.65亿元,而物质生产功能价值则增加13.06亿元,其他功能价值对湿地景观格局变化的响应不明显。

关键词: 生态系统服务功能 湿地 景观格局 响应 南四湖

Abstract: Changes in landscape pattern of the Nansi Lake wetland were monitored with the fifth round of satellite remote-sensing images (1987 – 2010). Response of the ecosystem of the wetland in service value to the changes were analyzed, using the market comparison approach, shadow project approach, industrial oxygen generation cost method, carbon tax method and value substitution method. Results show that large tracts of reed- and lotus-dominated natural wetlands had been converted into artificial wetlands, such as aquacultural farms, paddy fields, etc., thus promoting the enhancingment of landscape fragmentation. Impacts of the changes on supply function, regulataory function, cultural function and support function were quite obvious, especially on supply function and regulatory function. Calculation based on the constant prices of 2010 shows that the changes caused decreases in service value of the ecosystem, which included the decrease of in atmospheric element regulation function by 1 170 million yuan(RMB), the purification function by 377 million yuan, and the water conservation function by 65 million yuan. While the changes did increase materials and food product function of the ecosystem by 1306 million yuan. Ultimately, a decrease of 306 million yuan were caused by the changes from 1987 to 2010. Responses of the ecosystem in other functions, including mitigation of flood, conservation of soil, habitats, biodiversity, entertainment, culture and science ,functions, etc. were not so obvious.

Keywords: ecosystem service value wetland landscape pattern response the Nansi Lake

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