Consideration of the Changing and Self-Organizing Trend in Hur-Al-Azim Wetland by Using Image Processing to Refer Landscape Ecology Approach-Khuzestan-Iran

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Extanded Abstract

Introduction

Hoor-al-azim wetland is one of the most important wildlife refuges and marine ecosystems in the south-west of Iran where structure and function has been significantly affected by different changes during the 2 recent decades. Changes in water regime of Hoor-al-azim wetland and human activities are some of the most important factors. Changes in water regime and anthropogenic activities in the region are the most important factors that affected the wetland. nevertheless the foundation of our concerns must be put on the assessment of ecosystem's ability and determining the system's self-organizing level for reaching the balance which helps the system to diminish impacts of disturbances. Reviewing and determining self-organizing potential of the system not only can recognize existing mechanisms and indicate a true image of them, but also can show convenient amendatory strategies for reduction or elimination of their impacts. In fact, reviewing self-organizing mechanism in a specific period can give a rather precise image of the progressive and developing or declining process of the system.

Materials & Methods

Considering the importance of scale in ecology, particularly landscape ecology, the process of degradation was studied in three different scales: patch, zone, and landscape. The basis is

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maintenance of more valuable patches, relating suitable patches to the Hour (water and habitat patches) for better function of wetland. Using satellite images and interpreting them is fundamental approach in the ecology of wetlands. So in the process of environmental planning for preparing base line studies in areas where sensitive wetlands are subject to local changes this approach is widely used (UNEP, 2001).

GIS and RS are some others tools which have been used in this study. In this process and in the first step after field visits some points were chosen as bench marks using GPS for later use in satellite images analysis. ER Mapper6.4 and GIS part Arc view 3.1 software were used for analysis of satellite images.

Results and discussion

The result of this study from analysis and landscape ecology principles using metrics indicate was showed that the size of disturbance and natural patches have significantly changed between 1991 & 2002 the size of saline, dried and vegetation patches haves increased while the size of matrix and water patches have significantly decreased.

Generally based on the findings of this study the trend of metrics in different years and zones. Change of dominant matrix of the area from an area whit both water and vegetation in 1991 to disturbance dried matrix in 2002 spatially in zones 1 & 3 indicates the structural and functional changes in these zones. The amount of disturbance patches in 1991 was lower than in 2002. Amongst disturbance patches have had highest growth and zone 3 has had the highest descending trend.

Conclusion

The results along with observations show that factors such as road construction, oil digging, lack of criterion and efficient protecting rules causes easy degeneration of the wetland and transforming it in this section. In addition to searing the wetland and transforming it to dry land, building dams on the mouth of wetland also causes acceleration and decrease in the area and water-depth. Another important factor in the downtrend process in Hoor-al azim wetland is dam construction in superior position.

Regarding the wetland need for water and the direct relation of this amount of water with wetland size, continuing the current process will endanger the growth and reproduction of unique nautical species.

According to study of the region structure in two periods, road construction is developed around the wetland and consequently patched the wetland and led in an increase in dryness and salinity of blobs and drainage of the wetland. And this is indicative of human interference in wetland destruction. It is anticipated that continuing this process will lead in the inability of the system in reviving and consequently self organizing of the wetland and of course continuing this process will destroy the wetland.