



Risk Assessment and Mapping of Desertification in Bostaq Plain, Southern Khorasan with Emphasis on the Key Criteria of Soil and Water

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Abstract

Today, degradation of soil and water resources are the most important factors of desertification in arid and semi-arid areas as a result of mismanagement and improper human behavior. Enforcement measures in relation to desertification control have to be based on knowledge of the current state of desertification risk and its severity. In the present study, to evaluate the risk and severity of desertification in Bostaq Plain in Southern Khorasan Province, two key criteria of water and soil were used in the IMDPA model, each having four indices. To this end, indices were scored and then averaged (geometric mean) to form the final desertification map in Arc GIS 10.2. Results of the study showed that in terms of water criteria, electric conductivity (EC) with geometric mean of 3.33 and in terms of soil, surface stone cover with mean of 2.69 were the critical desertification indices in the region. Total desertification status could be further divided into two classes of 96.29% (22111.74 ha) as medium and 3.7% (849.63 ha) as severe. Generally, Bostaq Plain with geometric mean of 2.13 was in the medium desertification class and is due to protection and development of desertification management strategies which can reduce the effects of desertification and should be implemented in managerial practices in the Bostaq plain.

Keywords: desertification model, risk zoning, criteria and indices, Bostaq Plain.

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