



Evaluating the effectiveness of Isfahan province protected areas against climate change and human intervention

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Abstract

Habitat heterogeneity plays an important role in increasing species diversity. Heterogeneity of habitats and protected areas can increase the ability of species to adapt to climate change. It is expected that appropriate heterogeneity is necessary for sustainability of protected areas. The influence of altitude on parameters such as temperature and precipitation and the role of microclimates in determining the flora and fauna suggest that elevational heterogeneity can be used as a Criteria for selecting more heterogeneous, resilient and diverse protected areas. This is especially important in the central desert regions of Iran because of the size and variation in elevation of these regions. The present research was undertaken to evaluate the status of Isfahan province's protected areas in terms of topographic diversity. For this purpose, a digital elevation model map of Isfahan province was divided into 39 classes and the elevational diversity of Isfahan's protected areas was compared using the Shannon diversity index. Next, the conservation status of the province in terms of elevational diversity was evaluated using a conservation index. The results indicate that 16.9% of the area is dedicated to protected areas and the province's elevational conservation status is suitable according to its conservation index value (0.69). The Ghamsar and Barzok protected areas with an elevational diversity of 2.842 and Kolahghazi National Park with an elevational diversity of 1.720 have the highest and the lowest elevational diversity, respectively. Analysis of land use in the region showed that the conservation index of the 1400-2600 m elevation zone, which includes over 80% of the urban and industrial development of the province, is weak. These results indicate the need for creation of new protected areas in low-lying areas and in regions with a high rate of human activity.

Keywords: Isfahan province, elevational diversity index, protected areas, elevational heterogeneity, Shannon diversity index.

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