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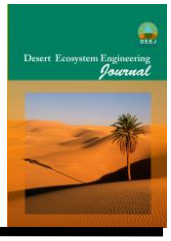

Evaluating the Ecological Potential of Tourism Development Using the Spatial Analysis of Suitable Zones for Ecotourism: A Case Study of Kashan City

Sayyed Hojjat Mousavi[1]

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Extended Abstract

Introduction: Ecotourism is closely related to the environmental potential of the ecosystem. Therefore, the feasibility study of suitable zones for ecotourism can help identify the relevant capacities, improve the developmental programs, protect the environment, and sustainably develop tourism, especially ecotourism. Moreover, more accurate identification of suitable zones for ecotourism and careful setting of well-designed plans to enable the zones' potential in this regard seems to be an effective solution, playing a key role in sustainable development, improvement of the living standards in target communities, and maintenance of the ecosystem's natural balance.

Considered as a tourist destination in Iran, Kashan City enjoys a wide range of tourism capacities in terms of resources, attractions, infrastructures, facilities, etc. However, the ecological potential of the region has not been assessed scientifically in terms of ecotourism development. Therefore, this study sought to evaluate the ecological potential of Kashan City for developing centralized extensive ecotourism so that appropriate plans could be set for developing nature-based tourism, taking advantage of the city's landscapes as the natural potential for sustainable development.

Methodology: The current study attempted to assess the ecological potential of Kashan City for developing ecotourism using spatial analysis via ArcGIS, ENVI, and Google Earth software. Moreover, the tourism development model was used to assess the environmental potential of the study area. The criteria used in this regard consisted of climatic factors, including temperature, sundial, wind velocity, and precipitation. landscape factors such as slope, aspect, elevation, bedrock, and soil order, and ecological factors such as vegetation density, greenness value, plant height, and species were also taken into account.

On the other hand, a set of base maps, a digital elevation model, spatial data, satellite images, climatic data, field surveys, and library studies were used to collect the required data. Finally, after providing the digital layers of the aforementioned indicators and applying the thresholds, the areas for developing ecotourism were classified into three categories, including highly suitable, suitable, and unsuitable areas.

1. Associate Professor, Department of Geography and Tourism, Faculty of Natural Resources and Earth Sciences, University of Kashan, Kashan, Iran; hmousavi15@kashanu.ac.ir
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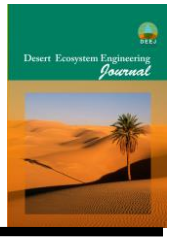

Discussion: The results of land suitability analysis for developing ecotourism in Kashan showed that 1859.58, 2690.27, and 476.97 sq. Km (42.2, 6.06, and 84.84 percent) of the total study area were highly suitable for ecotourism in terms of climatic, landscape, and ecological criteria, respectively. Moreover, 1859.58 and 2730.29 sq. Km (42.2% and 61.97%) of the region were highly suitable zones for extensive ecotourism in terms of climate and landscape criteria, respectively.

On the other hand, the final results of the feasibility study for ecotourism development in Kashan city revealed that 60.63 and 39.34 percent (1730.86 and 2667.71 sq. Km), and 63.09 and 22.65 percent (2778.82 and 997.63 sq. Km) of the region enjoyed highly suitable capabilities for centralized extensive ecotourism, respectively. Furthermore, as can be seen in climatic factors maps, the northern to southeastern regions (as a continuous zone) have the highest land capability, and the western to southern areas have the lowest land capability in terms of extensive tourism development.

Considering the same influence of climatic status on centralized and extensive ecotourism, the spatial distribution of proportional classes was found to be the same for both types of ecotourism zones. Moreover, as far as climatic factors are concerned, wind velocity and precipitation maps suggested the highest spatial diversity and temperature and sundial maps showed the least spatial diversity. On the other hand, considering their distinct role in the type of ecotourism and different alteration threshold of each parameter, the landscape factors offer a greater variety than the climatic ones.

On the other hand, the slope, aspect, bedrock, and soil order maps revealed the highest spatial diversity, while the elevation map suggested the least spatial diversity. The high spatial diversity among vegetation-related factors could be attributed to the distribution of plant species (from shrubs to trees), the extent of greenness, vegetation density, plant height, and the range of changes in tourism classes in terms of such indices. In general, the highest land suitability belonged to the areas with maximum greenness.

Conclusion: The analysis of land suitability maps for the development of extensive centralized tourism in Kashan City suggested that the city was highly suitable for the development of various types of nature-based tourism, including ecotourism, mountain sports tourism (mountaineering and rock climbing), agricultural tourism, medical tourism and nature therapy (sand therapy, halotherapy, and desert tourism), bio-tourism (species and gene biodiversity), astronomy tourism, rural tourism, etc. Moreover, regions covered with vegetation are highly appealing for all types of tourism, especially if they are located in arid lands with natural shrubs and trees.

On the other hand, more than 84% of the study area was found to be suitable for ecotourism development in terms of climatic and landscape factors, indicating the lack of vegetation in the region, which is quite justifiable as it is located in an arid land with a dry climate. In contrast, the highly suitable areas for ecotourism development are scattered throughout the region with a focus on the center, south, west, and east of the study area, most of which are covered with agricultural lands and vegetated mountainous areas. Furthermore, it could be argued that due to the reputation of Kashan City for its Rosa damascene flowers, the city's agricultural areas are suitable places for agricultural tourism, bio-tourism, event tourism, and flower and rose festivals.

Keywords: Ecotourism, Feasibility Study, Extensive and Concentrated Tourism, Kashan.