

Incorporating the Spatial Road Disturbance Index (SPROADI) in Ecological Impacts Assessment of Roads at Landscape Scale (Case study: Eastern Part of Isfahan Province)

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Abstract

Development of roads can have deleterious effects on natural habitats containing species of conservation concern. Fragmentation of habitat into small, non-contiguous patches may result in dramatic population declines. Thus appropriate studies quantifying ecological impacts of roads at landscape scale are essential. In this study, the Spatial Road Disturbance Index (SPROADI) was applied for the ecological impact assessment of the roads network in Eastern part of Isfahan Province, including Abassabad wildlife refuge and Siahkouh National park, which are among the most important habitats for Asiatic Cheetah (*Acinonyx jubatus venaticus*) classified as Critically Endangered (CR) on the IUCN Red List. This new landscape index uses three sub-indices including traffic intensity, vicinity impact and fragmentation grade to calculate the ecological impacts of roads network. Results obtained through quantifying the Spatial Road Disturbance Index showed that the degree of disturbance by roads network is between 0 and 54.53. Our results also revealed that 12 percent of Abassabad wildlife refuge and wide range of suitable habitats for Asiatic Cheetah were affected by roads network, which presents a conservation concern for this critically endangered species.

Keywords: Conservation, Habitat fragmentation, Landscape Index, Roads, SPROADI.

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