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## Road expansion: a challenge to conservation of mammals, with particular emphasis on the endangered Asiatic cheetah in Iran

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### Abstract

Anthropogenic activities, including road expansion, are one of the main drivers of biodiversity loss in Iran. Central and northeastern Iran have been among the most vulnerable areas where expanding anthropogenic activities (in particular construction of road networks) have come into conflict with conservation and management of the endangered Asiatic cheetah (*Acinonyx jubatus venaticus*), along with other large mammals. The present study aimed to determine hotspot locations along an extremely high-risk road for mammals in northeast Iran (Touran Biosphere Reserve [TBR]) and propose mitigation measures for mammals such as the Asiatic cheetah. Using a spatially-explicit algorithm to estimate collision incidences, we adopted the kernel density estimation (KDE) and the distance method with respect to EDGE (evolutionarily distinct and globally endangered) and home range values for all locations. Also, a habitat suitability map was prepared to create habitat patches and applied to corridor modeling for the Asiatic cheetah. We investigated locations of 73 wildlife–vehicle collisions (WVCs) and crossing data from 2005 – 2016, that included Persian gazelles (*Gazella subgutturosa*), Asiatic cheetahs, striped hyenas (*Hyaena hyaena*), golden jackals (*Canis auerus*), red fox (*Vulpes vulpes*), European hare (*Lepus europaeus*), caracal (*Caracal caracal*), and

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