

Restoring ecological networks across transport corridors in Bulgaria

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Abstract: Bulgaria faces the challenge developing a sustainable road and railroad network that facilitates the needs for efficient transport of goods and people but does not threaten areas that are especially valuable for nature conservation. Currently plans have been developed to substantially upgrade and expand the national transportation networks. The existing transportation corridors and the proposed extensions pose a threat to wildlife and affect the development and functionality of both a national and Pan-European ecological network. The overall objective of our study is to set up a national road mitigation program to minimize the fragmentation effects of these expanding transportation corridors so as to preserve biodiversity and develop a coherent and sustainable ecological network across the country. The main questions we addressed are: (1) What sections of the rail and road networks are expected to significantly affect the viability of wildlife populations? (2) Which of these sections need to be addressed most urgently? And: (3) What measures could be taken to solve the problems? With the help of population viability analysis 283 bottleneck locations were identified in the existing road and railroad network of Bulgaria. About 30% of all bottlenecks are classified as *high priority* locations. Immediate action is recommended at these locations as these have been identified as locations where the impact on population viability is high and/or wildlife is frequently killed in traffic. The construction of 213 wildlife passages across the country is recommended, as well as retrofitting 331 existing road tunnels, viaducts or bridges, to allow for better use of these structures by wildlife. The implementation of this plan for road and railroad mitigation will significantly improve the population viability of most threatened wildlife species and, as such, is an indispensable first step in preserving Bulgaria's biodiversity and developing a coherent and sustainable ecological network across the country.