

Abstract proposal for IENE 2010 conference

Gap analysis in road permeability - towards a mitigation action plan for wildlife

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Existing road and rail networks can comprise significant movement barriers to wildlife which may adversely affect species management and conservation. Mitigation is possible, but it may not be self-evident where and how remedying measures should be taken. We developed a pragmatic GIS based approach to help the Swedish Road Administration identifying potential deficiencies in habitat connectivity for larger wildlife caused by the existing infrastructure network and setting up a mitigation action plan to resolve important barriers. The approach employed multiple steps: 1) We mapped potential barriers based mainly on traffic and road characteristics combined with road safety policy. 2) We evaluated existing conventional bridges and tunnels with respect to their probable use by wildlife and estimated their remedying effect on the identified road barriers. 3) We developed criteria for weighting mitigation need and feasibility of unresolved barriers in dialogue with regional and local experts, engineers and land owners. 4) The criteria included various biological, ecological, administrative as well as practical concerns and were used in a mitigation action plan by the Road administration. In our paper, we focus on the GIS work, its fundamental assumptions, important practical simplifications and implementation barriers, which, inevitably, produce rather pragmatic results. We present its application to the western administrative region of the Road Administration and along the European highway E4 in particular.

Keywords: de-fragmentation, barrier effects, traffic mortality, mitigation action plan, transport infrastructure, ecological impact, mitigation, GIS, wildlife passage.

Note: Work with this project is still ongoing. A final version of this abstract will be available during spring 2010.