
New tools and methods

NPR: A decision support tool for selecting wildlife mitigation measures

Nezval, Vojtěch^{1*}; Bíl, Michal¹; Kušta, Tomáš²; Keken, Zdeněk³

¹ CDV – Transport Research Centre, Department of Geoinformatics, Brno, Czech Republic

² Czech University of Life Sciences Prague, Department of Game Management and Wildlife Biology, Prague, Czech Republic

³ Czech University of Life Sciences Prague, Department of Applied Ecology, Prague, Czech Republic

* vojtech.nezval@cdv.cz

DOI: 10.20315/evmc.2025.140

Wildlife vehicle collisions (WVC) occur on roads all over the world. In Czechia alone, several thousand WVCs are recorded every year. Since WVCs represent a serious threat for road traffic safety, several mitigation measures have been invented. These include, for example, fences, odour repellents, acoustic devices or wildlife warning signs. Individual measures differ in their parameters, efficiency, price and suitability regarding the given place. Road managers have to select both effective and affordable measures which are appropriate for the roads under their administration. The decision-making process is not, however, always in line with the recent findings from relevant research. This means that inappropriate measures (in terms of effectiveness or overall price) are often implemented.

In order to help the stakeholders, involved in the process of planning, approval, and implementation of measures to reduce WVC, we developed a decision support tool (NPR). It is accessible at <https://npr.cdvinfo.cz>. In the first part, the tool contains information on the most frequently used WVC mitigation measures in Czechia, their pros and cons, recommendations for their application, and links to the relevant scientific literature. In the second part, the user can specify the input parameters, such as the type of considered WVC measure (e.g. fencing, odour repellents, wildlife-warning reflectors), road length, and traffic intensity. Then, the tool automatically evaluates the suitability and benefit of the measure over the longer term. The tool is primarily used by managers of secondary roads who do not have the option to install fencing. Additionally, it is utilized by game management authorities aiming to reduce wildlife casualties on roads. The main benefit of the tool is its cost-benefit analysis, which helps eliminate the deployment of certain measures. Similarly, if any parameter of a given location, such as traffic intensity, reaches high values, the tool will recommend specific measures. With each analysis, the tool informs users about the necessity of maintenance and monitoring of the selected measures. Outputs from the decision support tool can be downloaded in .pdf format for further discussion or comparison of different variants.