

## Human-animal conflicts and social dimension

### Mitigating the human-wildlife conflict on roads: Czech perspective

Bíl, Michal<sup>1\*</sup>; Kubeček, Jan<sup>1</sup>; Andrášik, Richard<sup>1</sup>; Sedoník, Jiří<sup>1,2</sup>

<sup>1</sup> CDV – Transport Research Centre, Department of Geoinformatics, Brno, Czech Republic

<sup>2</sup> Czech University of Life Sciences Prague, Faculty of Forestry and Wood Sciences, Prague, Czech Republic

\* michal.bil@cdv.cz

DOI: 10.20315/evmc.2025.033

Czechia has a dense transportation network. The vast majority of roads are unfenced, which even applies to certain sections of motorways. Along with high populations of wildlife, particularly roe deer and wild boar, this creates a potential for conflicts on transportation infrastructure. Between 2010 and 2019, the number of recorded events in the form of traffic accidents –collisions with wildlife– tripled. Currently, wildlife-vehicle collisions (WVCs) make up 50% of all traffic accidents occurring outside built-up areas. This places a significant administrative burden on traffic police, and as a result, reporting of these events is gradually being discontinued in various districts in the official traffic accident database. Thus, the official data after 2019 shows a decline. On the other hand, data from hunters is unreliable, as hunters are not motivated to report roadkill. Therefore, at CDV, we created a model that aims to estimate the true number of these incidents. From our estimates, it appears that the official WVC numbers reported by the police today represent about half of the actual situation.

To gain an overview of WVCs that are not captured through official reporting channels, we developed a tool to integrate reports of such incidents as well as findings of carcasses. Srazenazver.cz is a platform that integrates official data from the police, traffic information systems, hunters, and also volunteers. As of October 2024, this database contained nearly 160,000 records, with 76% of incidents involving roe deer and 9% wild boar. For road managers, we offer the identification of high-risk locations, which are then remediated. This also applies to WVC. For the national road authority, we developed the kdebouame.cz, which includes WVC hotspots. To detect hotspots, we used our own KDE+ method (<https://www.kdeplus.cz/en/>).

WVCs are a complex issue, and their solution goes beyond transportation infrastructure, extending into the landscape. It is connected to management practices in hunting, forestry, and agriculture. To offer proven solutions, we test the effectiveness of various mitigation measures. The most widely used, dominant measure in Czechia is odour repellents. We have been studying their effectiveness since 2014. Recent research suggests they may reduce collisions, but only for a limited time frame of several weeks. Since our research was based on carcass collection, we cannot provide insights into animal behaviour or the circumstances of collisions. Therefore, we are preparing testing aimed at understanding animal behaviour near these measures. For this, we are testing tools for analysing GPS collar data and methods for image analysis. However, a vehicle is also required for wildlife collisions. Therefore, we also focus on drivers and methods to influence their behaviour. In our current research, we are testing, using surveys, radars, driving simulators, and other tools, how drivers perceive the "wildlife" traffic sign. The goal of our activities is to describe the wildlife collision issue in Czechia and contribute to reducing the number of these incidents.