



PROJECT TITLE

State Highway 9 Wildlife Crossings
Monitoring

STUDY TIMELINE

November 2015 - November 2020

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FURTHER RESOURCES

[https://www.codot.gov/programs/
research/pdfs/2021-research-
reports](https://www.codot.gov/programs/research/pdfs/2021-research-reports)

<https://cpw.state.co.us/hwy9>

Colorado Wildlife and Transportation
Alliance

**Success of the Wildlife-Highway Mitigation on State Highway 9,
Grand County**

Introduction

In 2015 and 2016, Colorado’s first two wildlife overpasses, five wildlife underpasses, 10.3 miles of wildlife exclusion fencing, and other mitigation features were constructed on State Highway 9 between Kremmling and Green Mountain Reservoir. The project was designed to improve motorist safety by reducing wildlife-vehicle collisions (WVC) while providing permeability for wildlife across the highway. The Colorado Department of Transportation and Colorado Parks and Wildlife supported a five-year research study to determine how well the investments in mitigation infrastructure achieved these goals.

Methodology

This study analyzed WVC crash and carcass data to determine the project’s contribution to reductions in WVC and used 62 motion activated cameras to record wildlife reactions to the infrastructure. The photo data were analyzed to evaluate the effectiveness of the seven wildlife crossing structures, 13 of 29 wildlife guards, 14 of 61 escape ramps, three pedestrian access points, and the fence end.

Conclusions

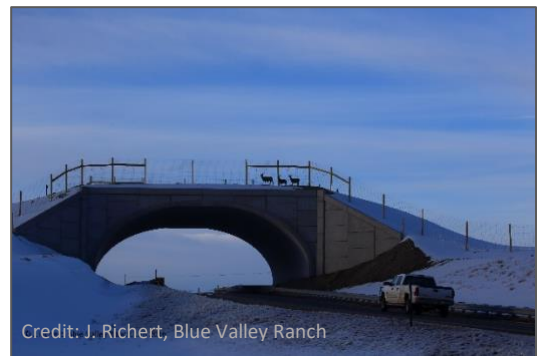
The study established that the mitigation investments on SH 9 resulted in a 92% reduction in WVC crashes and a 90% reduction in carcasses. In addition to improving safety for motorists, the study demonstrated the success of the crossing structures in maintaining connectivity for mule deer across SH 9 for all age and gender classes of the population. The research documented 112,678 mule deer successful passages across the seven structures, with an overall success rate of 96%. The study also established the value of the wildlife crossing structures and other mitigation for a number of other species, including elk, pronghorn, moose, bighorn sheep, white-tailed deer, black bear, mountain lion, bobcat, coyote, and other meso and small mammals.

The research found that round bar wildlife guards were most effective at keeping ungulates out of the right-of way (ROW, 90%), and flat bar designs were also an effective design (83% deterrence rate). Escape ramps that allow

wildlife caught in the ROW to return to the habitat side of the fence were most effective when they were located below the road grade and without rail fence on top.

Potential Impacts and Benefits

This study demonstrated the success of the SH 9 wildlife crossing structures and other mitigation for both wildlife and motorist safety. Results confirmed the value of the wildlife overpass and underpass designs in maintaining connectivity for mule deer in winter range and helping to reduce WVC. The findings of this study and resulting recommendations will help transportation and wildlife agencies continue to site and design wildlife crossing mitigation for maximum success.



Credit: J. Richert, Blue Valley Ranch