

# Wildlife Road Crossing Structures

## A DOI Nature-Based Solutions Roadmap Fact Sheet



**Wildlife road crossing structures** (WRCS) are infrastructure built with the joint goals of increasing habitat connectivity across roads and reducing wildlife-vehicle collisions. These structures can take many forms, and are sited and designed differently depending on the type of wildlife present in the nearby ecosystem. Different forms of WRCS fall along a continuum of gray to green infrastructure; all include some form of gray infrastructure, but most also utilize natural infrastructure.<sup>1</sup>

### TECHNICAL APPROACH

There are three primary steps to planning and installing WRCS:<sup>1</sup>

- **Habitat connectivity planning:** This is an assessment to understand what habitats the road is impacting, which wildlife species use those habitats, and which species are most likely to be impacted by the road.
- **Selection of appropriate WRCS designs:** There are two primary types of WRCS: overpasses and underpasses. Selecting which type(s) to use and how to space them depend on the goals of the WRCS, the type of wildlife expected to use them, and landscape topography.
- **Installation of WRCS:** The final step is installation. It is possible that there will also be installation of wildlife behavior modifying structures to encourage use of the WRCS and/or discourage crossings in areas where WRCS don't exist.

### BENEFITS

#### Social and Economic

- Public health and safety

#### Ecological

- Supports wildlife
- Increased habitat connectivity



A mountain lion uses a highway underpass in Oregon. Photo credit: [Oregon Department of Transportation](#). CC BY 2.0 DEED.

## SITE SUITABILITY FACTORS

- ✓ Locations where wildlife would naturally travel
- ✓ Locations important for landscape connectivity
- ✗ Steep slopes

## EXAMPLE PROJECT

The State Highway 9 wildlife crossing project in Grand County Colorado installed a series of wildlife crossings along 10 miles of highway.<sup>2</sup> The stretch of highway had high incidence of wildlife vehicle collisions with mule deer and elk prior to the project. Two overpasses, five underpasses, and over 10 miles of fencing were installed. The project has been considered a success, as wildlife vehicle collisions (and associated collision costs) have dropped by 90 percent.



One of the project's wildlife overpasses. Photo credit: [Colorado Parks and Wildlife](#)

## KEY RESOURCES

Title and Link	Site Suitability	Design and Construction	Monitoring Guidance	Example Projects
<a href="#">Wildlife Crossing Structure Handbook: Design and Evaluation in North America</a>	✓	✓	✓	—
<a href="#">Wildlife Vehicle Collision and Crossing Mitigation Measures</a>	✓	✓	✓	—

## LEARN MORE

Visit the DOI Nature-Based Solutions Roadmap for more information on wildlife road crossing structures, other nature-based solutions, and principles and considerations broadly relevant for nature-based solutions projects. The wildlife road crossing structure summary includes additional details on each section included in this fact sheet, plus information on operations and maintenance, common barriers, and more resources and example projects.

### Explore the Roadmap



Full Roadmap Document



Wildlife Road Crossing Structures Section

[www.nicholasinstitute.duke.edu/roadmap](http://www.nicholasinstitute.duke.edu/roadmap)

## REFERENCES

- 1 Federal Highway Administration. (2011). *Wildlife Crossing Structure Handbook*. U.S. Department of Transportation. [https://www.fhwa.dot.gov/clas/ctip/wildlife\\_crossing\\_structures/](https://www.fhwa.dot.gov/clas/ctip/wildlife_crossing_structures/)
- 2 “The Colorado Highway 9 Wildlife Crossing Project.” n.d. Colorado Parks and Wildlife. <https://cpw.state.co.us/conservation/Pages/CON-Highway-9.aspx>.

## CITATION

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