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DEVELOPMENT OF A WILDLIFE UNDERPASS MONITORING PLAN

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Abstract
Many transportation agencies throughout the world have recognized the deleterious impacts that highways have on wildlife at population and individual levels. The Colorado Department of Transportation is actively trying to improve the permeability of highways to wildlife movement by building underpasses of various designs. Often, the primary goal is compliance with the Endangered Species Act of 1973 (as amended) by reducing the level of effect of highway projects and ensuring that projects do not jeopardize a listed species, however, public safety concerns over vehicular collisions with wildlife are strong motivating factors. To date, underpasses have been placed at locations viewed as most likely corridors for wildlife movement based on natural history of the target species, regional and local topography, and landscape characteristics. There has been little scientific study of the effectiveness of underpass placement and design in the United States, particularly for areas lacking extensive fencing to guide wildlife to underpasses. We have developed a monitoring plan to examine effectiveness of a variety of wildlife underpasses (ranging from small culverts to spanning bridge structures) with the following objectives:

1. Quantify wildlife use at existing underpasses.
2. Determine if wildlife are preferentially using underpasses or proposed underpass sites relative to random nearby locations and alternative nearby highway-crossing locations.
3. Correlate wildlife use of underpasses with specific structural and habitat features, and human activity patterns.

Results of our monitoring program will assist highway and land use planners in locating and specifying underpasses that minimize risk to humans and animals, and promote coexistence of wildlife and human activities in highway corridors.