

International Conference on Ecology & Transportation (ICOET) 2001 Proceedings  
[http://www.icoet.net/ICOET\\_2001/01proceedings\\_directory.html#](http://www.icoet.net/ICOET_2001/01proceedings_directory.html#)

ICOET 2003 Proceedings [http://www.icoet.net/ICOET\\_2003/03proceedings.html](http://www.icoet.net/ICOET_2003/03proceedings.html)

The Wildlife Crossings Toolkit is a searchable database of case histories of mitigation measures, and articles on decreasing wildlife mortality and increasing animals' ability to cross highways. <http://www.wildlifecrossings.info/beta2.htm>

Sky Island Alliance Wildlife Monitoring Program: Citizen scientists help protect wildlife in the Sky Island region. <http://www.skyislandalliance.org/wildlife.htm>

Citizen monitoring of decommissioned roads on the Clearwater National Forest  
<http://www.wildlandscpr.org/databases/field-notes/field-index.html>

The Use of Highway Underpasses by Large Mammals in Virginia and Factors Influencing their Effectiveness (by B.M. Donaldson)  
[http://www.virginiadot.org/vtrc/main/online\\_reports/pdf/06-r2.pdf](http://www.virginiadot.org/vtrc/main/online_reports/pdf/06-r2.pdf)

#### Abstract

The rapid increase in animal-vehicle collisions on U.S. roadways is a growing concern in terms of human safety, property damage and injury costs, and viability of wildlife populations. Wildlife crossing structures are gaining national recognition by transportation agencies as effective measures to reduce animal-vehicle collisions and connect wildlife habitats across transportation corridors. In Virginia, white-tailed deer and black bear pose the highest risk. This 1-year study was conducted to monitor various underpass structures in Virginia to determine the structural and location attributes that make a crossing successful in terms of use by large mammals. The underpasses, most of which were not specifically designed as wildlife crossings, consist of box culverts and bridges of varying sizes.

Remote cameras installed at seven underpass sites in Virginia have recorded more than 2,700 wildlife photographs and documented 1,107 white-tailed deer crossings in the most heavily used structures. Underpasses with a minimum height of 12 ft were successful at facilitating deer passage. Such structures were also heavily used by a variety of wildlife species, including coyote, red fox, raccoon, groundhog, and opossum. Structures with drainages that mimic natural waterways can encourage use by a diversity of terrestrial, semi-aquatic, and aquatic species.

This report provides guidance in choosing cost-effective underpass design and location features that are necessary to consider to increase motorist safety and habitat connectivity. The findings also demonstrate that if only a minimal number of deer-vehicle collisions is prevented by an effective underpass, the savings in property damage alone can outweigh the construction costs of the structure.