

## 2018 Research Symposium

## Reducing Wildlife Mortality on Roads in Vermont

## & STIC Annual Meeting

### RESEARCH PROJECT TITLE

Reducing Wildlife Mortality on Roads in Vermont: Determining Relationships Between Structure Attributes and Wildlife Movement Frequency Through Bridges and Culverts to Improve Related Conservation Investments

### STUDY TIMELINE

March 2017 – May 2019

### INVESTIGATORS

Paul Marangelo, The Nature Conservancy in Vermont

### VTRANS CONTACTS

James Brady, Environmental Specialist, VTrans

This fact sheet was prepared for the 2018 VTrans Research and Innovation Symposium & STIC Annual Meeting held at the State House in Montpelier, VT, on **September 12, 2018** from **8:00 am– 1:00 pm**.

Fact sheets can be found for additional projects featured at the 2018 Symposium at

<http://vtrans.vermont.gov/planning/research/2018symposium>

Additional information about the **VTrans Research Program** can be found at

<http://vtrans.vermont.gov/planning/research>

Additional information about the **VTrans STIC Program** can be found at <http://vtrans.vermont.gov/boards-councils/stic>

### Introduction

Road corridors fragment wildlife habitat, and wildlife need to cross busy roads to move between valuable habitats, endangering both wildlife and highway users. We assessed wildlife use of culverts and bridges to clarify relationships between design characteristic of transportation structures and the frequency of wildlife use for under-road movement. Project is ongoing, and results will refine our recently developed understanding of relationships between structure and site characteristics and wildlife use to identify sound investment opportunities to modify transportation structures to increase their usability by wildlife.

### Methodology

We assessed wildlife through-passage frequency at culverts and bridges designed for fluvial conveyance in order to clarify newly developed relationships between structural dimensions and frequency of wildlife use of transportation structures. Eighty-four game cameras were set up at 26 culverts/bridge sites on State, US, and Interstate highways in Vermont within road segments important for wildlife habitat connectivity. We selected bridges and culverts that were most likely to be used by large terrestrial mammals (Marangelo and Farrell 2016; Shilling et al 2012). Structures represented a range of structure design characteristics (round pipe, box, and “squash pipe” culverts, bridges with and without: concrete abutment footings, riprap banks vs. no riprap.



### Next Steps

Ongoing project, no data analysis yet. Data-based observations thus far suggest that structures that newly constructed (post-Irene) structures that conform to new hydrologic specifications has been minimal due to terrestrial habitat alterations from de-vegetated structure construction footprints. Also, AOP related design features needed in high-gradient stream crossings (concrete flow baffles) appear to deter wildlife use. Also, we have collected some structure-wildlife interaction data for bears and moose. Also, frequent human visitation of some sites appears to deter wildlife use. Full project analysis will be available in May 2019.

### Potential Impacts and VTrans Benefits

Project results will improve our evolving understanding of wildlife transportation structure use in ways that can assess the benefits of proposed structure-related conservation investments. Also, after project conclusion, results will be used to develop a terrestrial wildlife passage prioritization screening tool for transportation structures in Vermont.