FY 2010 RESEARCH PROBLEM STATEMENT

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TITLE (*more info*)

Comparing the effectiveness of different types of vertebrate passage structures

PROBLEM (Description of need) (*more info*)

Wildlife collisions on roads are a serious issue resulting in property damage costs, injury to and possible death of the driver and passengers, and typically fatal results for the wildlife. Given the impacts to both drivers and wildlife recent attention has been given to retrofitting or modifying road design to facilitate wildlife passage. There has not been sufficient research to determine the actual utilization of various wildlife passage structures in Oregon. In fact, there is very little infomation that assesses the effectiveness of different types of mitigation aimed at decreasing wildlife collisions.

To help answer which passage structures work and which ones are less effective, we are conducting a study, funded by OTREC, that compares animal movements at a distance from the road versus through wildlife passage structures under the new Boeckman Road Extension, Wilsonville, Oregon. The Boeckman Road Project provides a unique opportunity to examine the efficacy of multiple types of passage and prevention structures in a given area where no road existed previously. This road facilitates potential wildlife passage with a bridge, two large box culverts, and 12 small round culverts to facilitate wildlife passage. We are using motion detection cameras and tracking methods to determine the types and frequency of animal (mammal, amphibian, and reptile) passage. In addition, it is lined with an amphibian wall and deer fence to prevent wildlife from getting onto the road. Our current study, however, lacks the funds to compare the species-specific effectiveness of each type of structure.

PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY (*more info*)

We propose to evaluate the effectiveness of each type of structure for deer as well as other mammals and also amphibians and reptiles at the site. We would install additional cameras and equipment to monitor environmental variables so every structure could be monitored. This additional monitoring would allow us to understand the variability between passages that is due to structure type, surrounding environment, and species. We are also collecting data on road mortality at the site (and other sites with and without passage structures). The combination of the road mortality data and passage structure use data together help assess the effectiveness of the structures.

We would be monitoring a number of environmental variables in and around the structures as well in order to track over time what variables affect animal use. Measuring variables such as amount of water in and around the structures also will help identify the effectiveness of culverts in maintaining the hydrology of the area.

BENEFITS (*more info*)

This project directly relates to ODOT's mission to increase safety to the travelilng public and to the research problem area priority of Roadway Environmental Issues. The information from the project on species-specific use of the different types of structures will enable us to match structure type to species of most concern. It would be useful for improving animal use and avoiding costs of less effective passages. The proposed project is an important step in a broader study that will include comparisons of other roadways, with and without culverts and fencing, and additional types of passage structures.

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