



ASSESSING THE EFFECTIVENESS OF DEER WARNING SIGNS

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RESEARCH

Introduction

Deer-vehicle crashes are a concern across the country, especially in states like Kansas, where most of the highway mileage is rural. In Kansas, the concern led to passage of state statute 32-966.

Project Objective

One result of this legislation was the initiation of this study to consider the possible causes of deer-vehicle crashes and the implications with respect to effective mitigation. Of particular interest was the effectiveness of deer warning signs. A broader need lies in the development of better means of prioritizing segments for mitigative treatments, such as warning signs or fencing.

Project Description

In Kansas, the most common countermeasure is the deer warning sign, even though its effectiveness is suspect, and accident records have traditionally been used to identify locations for installation. This study examined the effectiveness of deer warning signs by a comparison of crash rates before and after sign installation. Deer-vehicle crashes were then studied with respect to an array of potential predictor variables with the intent of developing a predictive model for deer-vehicle crash rate that could be used to prioritize segments for mitigative action. Two separate analysis techniques were employed: Principal Component Analysis (PCA) followed by Multiple Linear Regression, and Logistic Regression. Principal Component Analysis (PCA) was used to reduce colinearities prior to applying linear regression. A total of 45 predictor variable were considered, 20 of which required field data collection. Data was collected for 123 segments spanning 15 counties in Kansas. One hundred one data points were used for model calibration and 22 data points were used for model validation.

Project Results

Neither analysis approach was able to generate a model with sufficient predictive capability to justify its use in prioritizing segments, but the analysis results provided some helpful insight into the nature of deer-vehicle crashes. The insufficiency of the database to yield a predictive model is in itself a valuable realization. Models developed with lesser data collection efforts must be held suspect unless they are supported by a strong validation effort.

Report Information

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