Road and Landcover Characteristics Affecting Deer Highway Crossings and Mortality along U.S. Highway 93 on the Flathead Indian Reservation, Montana, USA

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Animal vehicle collisions (AVCs) affect people and wildlife. On the Flathead Indian Reservation in western Montana, in an effort to reduce AVCs and increase highway safety, federal, state and tribal governments agreed to reconstruct the main highway through the reservation for the safety of travelers, but with considerations for cultural resources including wildlife. In this study we investigate road and land-cover characteristics associated with deer (*Odocoileus spp.*) collision and crossing locations preceding highway reconstruction effort

Deer movements across the highway corridor were obtained from deer mortality records of highway accident and carcass removal reports; and live deer highway crossing locations from an associated tracking study. A geographic information system was used to determine proportions of landcover variables within three spatially buffered layers centered on U.S. 93. Binary logistic and multiple linear regressions were used to evaluate models, and Akaike's Information Criterion (AIC) was used to rank models and variables. The results showed that landcover variables could be used to predict crossing or kill location. Top predictors included a positive correlation to forest cover, distance to the nearest city, and low intensity residential development. Negative correlations were found for distance to nearest water and population density. Results of this project will be used for comparison to post-construction movement patterns.