High-tech equipment may help reduce wildlife-vehicle collisions

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As part of a six-year study, the Western Transportation Institute at Montana State University helped test and develop this animal-detection system on U.S. Highway 191 in Yellowstone National Park. The system reliably detects elk on, or near, the roadway ahead and warns drivers. Credit: Photo by Marcel Huijser, WTI-MSU

As part of a six-year study, researchers at the Western Transportation Institute at Montana State University have helped test and develop an animal-detection system that may give motorists the upper hand in avoiding crashes with wildlife across the nation.

The system, by Sensor Technologies & Systems of Scottsdale, Ariz., reliably detected elk on U.S. Highway 191 in Yellowstone National Park. How effective the system is in reducing animal-vehicle collisions will be evaluated over the next two years.

The testing and development of the system was just one part of a 271-page report summarizing all the available information on animal-detection systems in the world: data from more than 30 study sites and 15 different animal-detection technologies in place across United States and Europe. One Swiss study showed collisions with large animals were reduced 82 percent in locations with animal-detection systems.

Animal detection systems use passive or active infrared signals, lasers, microwaves, or seismic sensors to activate warning signs that urge drivers to slow down, be more alert, or both, when large animals are on, or near, the road ahead.

"This is a very promising technology that can make U.S. roadways safer. Our results urge us to fine tune this technology so that it can be used across the country," said Marcel Huijser, the study's lead investigator at the WTI.

WTI researchers also calculated the average total costs associated with an animal-vehicle collision for three species: $7,890 for deer, $17,100 for elk, and $28,100 for moose. Further calculations showed that animal detection systems could be cost effective; they may pay for themselves at locations that have at least five deer, three elk or two moose collisions per mile per year on average.

Nationally, roughly 200 people are killed, more than 15,000 injured and 300,000 vehicles damaged annually from collisions with wildlife and domestic animals, according to federal safety data.

In Montana alone, five people were killed and 123 injured in 2005 out of 1,866 recorded wildlife-vehicle collisions, according to the Montana Highway Patrol.

The Oregon Department of Transportation was the lead funding agency for the study, but reducing animal-vehicle collisions has a broad national interest and the departments of transportation from California, Indiana, Iowa, Kansas, Maryland, Montana, Nevada, New Hampshire, New York, North Dakota, Pennsylvania, Wisconsin, Wyoming, Alaska, as well the Federal Highway Administration all participated.

"Animal detection systems are a relatively new application of these technologies. This study gives us some data on how effective they are," said Barnie Jones of the Oregon Department of Transportation, the lead state in managing the research project.

"Despite these technologies being exposed to extreme cold, snow and rain, the project helped develop a system that detects elk reliably," Jones said. "States such as Arizona, California, Colorado, New Mexico and Nevada are all planning on adding animal detection systems to their roadways."

The study also generated ideas on how to make animal-detection systems smaller and more reliable. Another follow-up project will aim to set standards for reliability by comparing different systems at the same location under similar circumstances in Lewistown, Mont.

Source: Montana State University