CHAPTER 22
Reducing Vehicle-Animal Crashes

KEY TOPICS

- deer population
- research

GOALS

- Decrease vehicle-animal collisions.
- Reduce the number of fatalities and severity of motorist injury from vehicle-deer crashes.
- Increase driver capacity to anticipate and respond to the presence of deer in the roadway.

BACKGROUND

Vehicle-animal collisions have occurred since the advent of the automobile. Wildlife mortality associated with roadways has continually increased as vehicle speed and traffic volumes have increased.

Each locale has its own wildlife and roadway conflicts. These include desert tortoises in California, reptiles in Florida, and elk and grizzly bears in the northwest and Canada. For Iowa and many other states, deer are the primary concern.

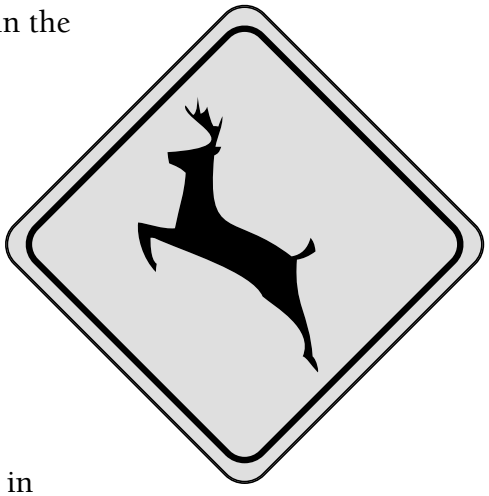
For deer, there are few effective solutions to counter this trend toward more vehicle-animal collisions. Remedies studied include crosswalks, fencing, deer herd reduction, underpasses and overpasses, reflectors, vehicle mounted whistles, highway lighting, right-of-way plantings and intercept feeding, warning signs, chemical repellant, and active deer warning systems. It has been observed that both drivers and deer become accustomed to warning devices and effectiveness fades with time. Most research outcomes have not been as effective as hoped.

NATIONWIDE

National Facts

Each year, more than 200 motorists are killed and thousands more are injured in vehicle-animal collisions, according to the Wildlife Society. The insurance industry estimates that the annual cost to society for these fatalities and injuries is $200 million. Motorists usually incur at least $2,000 in vehicle repair costs every time they hit a deer.

It is estimated that 750,000 vehicle-deer crashes occur annually in the United States. (Note that vehicle-deer crashes typically result in substantially lower rates of personal injury and fatalities as compared to other types of motor vehicle crashes and may be underreported.)



IOWA

Deer Population and Vehicle Miles Traveled

From the late 1800s to about 1930, Iowa's white tail deer were believed to be near extinction. White tail deer were reintroduced in Iowa during the 1930s. The white tail deer population has grown dramatically in recent years. The combination of increasing deer population and increasing volumes of traffic, coupled with urban sprawl, has greatly increased the likelihood of conflicts between deer and vehicles on roadways. See table of Iowa deer population and vehicle miles traveled for an illustration of these two trends between 1980 and 1999/2000. The map provided shows the number of crashes relative to county.

Iowa Deer Population and Vehicle Miles Traveled

	1980	1999/2000*	Percent Increase 1980 to 1999/2000
Estimated Iowa white tail deer population	55,000	210,000	281
Iowa million vehicle miles traveled	18,305	29,727	62

*1999 for miles traveled; 2000 for deer population.

Iowa Facts

- Iowa vehicle-deer crashes increased from 3,700 crashes in 1980 to 13,147 crashes in 1997.
- In 1999, there were an estimated 11,366 vehicle-deer crashes in Iowa.
- About two vehicle-deer crash-related fatalities occur in Iowa per year.
- Over 10% of all motor vehicle crashes (and over 30% of all rural crashes) in the state result from a vehicle-deer collision.
- In Iowa alone, the combined annual cost of vehicle-deer collisions to society could be as high as $25 million.

Iowa Solutions and Study

Choosing appropriate solutions for Iowa is a challenge. Deer fencing with an underpass is the only sure way to dramatically reduce vehicle-deer crashes; however, this method is expensive to install and maintain. Reducing the size of the deer herd also reduces the crash rates but is not popular with many Iowans.

Iowa will continue to research crash reduction methods that appear to be effective and will monitor research and analysis that is conducted around the nation. Effective analysis models would require data such as habitat types, vehicle traffic volumes, deer migration patterns, vegetation and feeding habits, deer population estimates, distance to rivers or marshes, distance to towns, and season of the year.

POTENTIAL STRATEGIES

Legislation, Policy, and Enforcement

- Reduce size of Iowa deer herd by a combination of methods:
  - Extend hunting season.
  - Promote selected thinning.
  - Increase either sex harvest.
  - Allow an earlier or longer gun-hunting season.
  - Increase number of deer hunting permits granted.

Education and Public Awareness

- Employ public service announcements such as “do not veer for deer.” (Hitting a deer generally carries less risk than veering or leaving the roadway to avoid a hit.)
- Post the actual number of vehicle-deer crashes in a given period on a given segment of road to heighten driver caution in highest risk locations.

Design and Technology

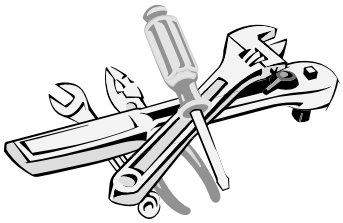
- Install fencing at selected locations.
- Monitor active warning national research.
- Remove “unwarranted” deer crossing warning signs.

- Participate in regional pooled research and studies.
- Monitor deer whistle technology, including electronic emitters.

Other Initiatives

- Work with the Iowa Department of Natural Resources (Iowa DNR) to address habitat impact and potential remedies in urban/rural development areas.
- Continue ongoing dialogue with the Transportation Research Board.
- Identify trails and migration patterns to predict high-risk locations.

SUCCESSES AND STRATEGIES IMPLEMENTED



- The Iowa Safety Management System (Iowa SMS) formed the Animal Related Accident Task Force in 1996. This group identified nine strategies.
- The Task Force on Animal Vehicle Collisions (a joint effort of the Iowa Department of Transportation [Iowa DOT] and Iowa DNR) provided grants to the Department of Animal Ecology at Iowa State University to identify and evaluate existing deer-control methodologies; study deer-control methodologies applicable to Iowa; and conduct field tests on their effectiveness. The study, *A Literature Review for Assessing the Status of Current Methods of Reducing Deer-Vehicle Collisions* (completed in 1998), concluded that there are few effective solutions to counter Iowa's rising vehicle-deer crashes. Possible remedies are noted in the Background section of this chapter.
- Active deer warning system: The Iowa DOT is working with 11 other states to evaluate the feasibility of an active deer warning system that detects deer in the roadside and provides an active warning system to warn approaching motorists. The first pilot system will be installed in Yellowstone National Park.

NOTE

The potential strategies in this chapter do not represent specific recommendations of the Iowa SMS Coordination Committee or any agency, group, or individual represented in Iowa SMS. The strategies represent a range of alternatives for legislators, department or agency directors, local governments, and citizen groups to consider when they elect to address a specific highway safety concern.

This toolbox is a living document that will continue to provide information, direction, and ideas for highway safety decision makers. Any strategies selected for implementation by Iowa SMS or any other entity will require further development through identifying potential partners, entities impacted, potential funding, steps for implementation, evaluation, and other pertinent tasks.

RESOURCES

Information in this chapter is drawn from many individuals and sources. Known sources are listed here. **Contributors:** Steve Gent (primary), Becky Hiatt, Dave Little, Tom McDonald, John Nervig, Andy Loonan, Jaime Reyes, Randy Schlei, Don Tebben, and Tom Welch.

Center for Transportation Research and Education, Iowa State University
www.ctre.iastate.edu/index.html

Federal Highway Administration
Critter Crossings—Linking Habitats and Reducing Roadkill:
www.fhwa.dot.gov/environment/wildlifecrossings/main.htm

Iowa Department of Natural Resources
www.state.ia.us/government/dnr/index.html

Iowa Department of Transportation
www.dot.state.ia.us

Iowa Safety Management System
www.IowaSMS.org
Iowa Strategic Highway Safety Plan (Aug. 1999):
www.iowasms.org/pdfs/ishsp.pdf
Iowa Strategic Highway Safety Plan Goals and Strategies: Statewide Survey of Adults (Oct. 2000):
www.iowasms.org/pdfs/publicopinionsurveyexecsumm.pdf
Animal Related Accident Task Force (Nov. 6, 1996):
Nine strategies identified.

The Task Force on Animal Vehicle Collisions (Iowa DOT and Iowa DNR)
A Literature Review for Assessing the Status of Current Methods of Reducing Deer-Vehicle Collisions (Sept. 1998):
Conducted by Brent J. Danielson and Dr. Michael W. Hubbard.

This toolbox is a living document. Last updated November 2001.