APHIS Stakeholders Announcement

Wildlife Services

June 22, 2009

USDA Study Shows High-Intensity Discharge Lamps Enhance Awareness Of Deer To Approaching Vehicles

Researchers from the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) studying different vehicle-mounted lighting systems for warning deer of approaching vehicles found that a combination of standard tungsten-halogen (TH) lamps and constant illumination of a high-intensity discharge (HID) lamp increased the distance in which white-tailed deer reacted to an approaching vehicle, on average by as much as 20 meters.

The article titled "Enhancing the perceived threat of vehicle approach to deer" was published in the January issue of the *Journal of Wildlife Management* (volume 73:1). These findings could potentially aid in the development of new vehicle lighting systems that enhance deer detection of approaching vehicles and, thus, lower the number of deer-vehicle collisions (DVCs) occurring in the United States and abroad.

In semi-controlled experiments with free-ranging deer, scientists with NWRC in Sandusky, Ohio, tested how the spectrum from two currently available automobile lighting systems might serve to alert deer to approaching vehicles. Most cars are equipped with TH lamps, which might not provide the best compliment to deer visual capabilities at night. NWRC scientists measured flight-initiation distance of white-tailed deer to an approaching vehicle relative to lighting scenarios involving standard TH lamps alone and in combination with a HID lamp set to constant illumination or pulsed. Numerous trials were conducted at various times during the night and seasonally to determine which lighting scenario was most effective. Though the experiment resulted in a more rapid response by deer to approaching vehicles, further studies are needed to account for variations in deer behavior and habitat types.

Each year, DVCs are responsible for more than $1.1 billion in damages, injuries and loss of animals in the United States. Many factors contribute to the number of DVCs in an area, including deer population, demographics, traffic volume and speed, activity patterns, seasonality, and habitat features. Although the majority of these factors are unchangeable, the ability to develop vehicle lighting systems that enhance deer avoidance may be one factor that could be improved.

The NWRC is the research arm of USDA's wildlife services program. It is the federal institution devoted to resolving problems caused by the interaction of wild animals and society. The center applies scientific expertise to the development of practical methods to resolve these problems and to maintain the quality of the environments shared with wildlife. To learn more about NWRC, visit its Web site at http://www.aphis.usda.gov/wildlife_damage/nwrc/.

Note to Stakeholders: Stakeholder announcements and other APHIS information are available on the Internet. Go to the APHIS home page at http://www.aphis.usda.gov and click on the "Newsroom" button. For additional information on this topic, contact Gail Keirn (970) 266-6007 or e-mail: gail.m.keirn@aphis.usda.gov.