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## Evaluation and Management of Chronic Wasting Disease Transmission

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### National Wildlife Research Center Scientists Assess the Potential for Chronic Wasting Disease (CWD) Transmission Between Wild and Domestic Cervids and Develop Methods to Reduce/Manage the Disease

Wildlife Services' (WS) National Wildlife Research Center (NWRC) is the only Federal research organization devoted exclusively to resolving conflicts between people and wildlife through the development of effective, selective, and acceptable methods, tools, and techniques.

As increased urbanization leads to a loss of traditional wildlife habitat, the potential for conflicts between people and wildlife increases. Such conflicts can take many forms, but recently the potential for the transmission of diseases among wildlife, livestock, and humans has received greater attention.

Chronic wasting disease (CWD) is a fatal neurological disease that infects captive and wild cervids, including deer and elk. CWD is arguably the most important management issue for wild cervids because it has the potential to reduce populations long-term and have major socio-economic impacts. North American cervids susceptible to CWD include white-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), and elk (*Cervus elaphus*).

CWD is caused by abnormal proteins that lack nucleic acids called prions. Prions change normal proteins in the host animal's cells

#### Major Research Accomplishments:

- WS studied interactions between farmed and wild cervids at fencelines to assess the potential for CWD transmission.
- WS developed new censusing methods for cervids, as well as new methods for locating and eradicating disease-infected animals.
- WS made progress toward the development of a CWD vaccine.
- WS evaluated white-tailed deer and mule deer ecology along riparian areas relative to the transmission and spread of CWD.
- WS developed new methods to test for the presence of CWD in live and dead animals.
- WS is aiding in the development of products to disinfect surfaces and areas contaminated with CWD.
- WS is helping to determine the origin and transmission routes of CWD.



resulting in concentrations of abnormal proteins. Over time these abnormal proteins accumulate in the central nervous and lymphatic systems causing a degenerative lack of control and a "wasting-away" death.

There is no known cure or vaccine for CWD. The origin of CWD is unknown. The disease may have existed in the wild or began in captivity under abnormally high deer densities. CWD was first observed in 1967 at the Colorado Division of Wildlife's Research Facility in Fort Collins, CO, where it was initially believed to be malnutrition. In 1977 CWD was determined to be a transmissible spongiform encephalopathy and the first infected wild animal, an elk from Rocky Mountain National Park, was documented in 1981.

### Applying Science and Expertise to Wildlife Challenges

**Interactions of Wild and Farmed Cervids Through Game-Farm Fences**—NWRC biologists are using track plots and motion-activated video to determine how farmed and wild cervids (mule deer, white-tailed deer, and Rocky Mountain elk) interact through game-farm fences. The primary objective of the study is to determine if disease transmission risk exists along game-farm fences. Nine fences around elk farms in Colorado and five fences around white-tailed deer farms in Michigan are being evaluated.

