

Chronic Wasting Disease

Chronic Wasting Disease (CWD) affects elk, white-tailed deer and mule deer, but is not known in livestock or humans. No treatment is known and the disease is fatal.



Infected mule deer. Photo courtesy of National Park Service.

Chronic Wasting Disease (CWD) is one of a group of diseases known as transmissible spongiform encephalopathies (TSEs). TSEs include such diseases as scrapie in sheep, bovine spongiform encephalopathy (BSE) in cattle (Mad Cow Disease), and Creutzfeldt-Jakob disease in humans; all are diseases of the nervous system that result in distinctive lesions in the brain. The cause of all TSEs is unknown; however, these diseases are diagnosed by the presence of aberrant prion proteins. These modified proteins are typically found in nervous and lymphatic tissues, but recent experimental evidence shows prions can occur in muscle tissue of mice as well.

CWD is a disease of wildlife that affects elk, white-tailed deer, and mule deer. CWD has not been documented

in livestock or humans. No treatment for CWD is known and the disease is fatal. The mode of transmission of CWD between animals is not known, although direct contact between infected and non-infected animals is the most likely route of transmission. Contamination of soil by excreta from infected animals is thought to be another route of transmission, particularly among captive herds of deer and elk. However, the role of environmental contamination in free-ranging animals is not clearly understood. Infected deer and elk can appear robust and healthy in the early stages of CWD; it may take several years before they show clinical signs of the disease. The clinical signs are not unique to the disease and can be due to other conditions such as malnutrition. Currently all testing for CWD requires the microscopic examination of a

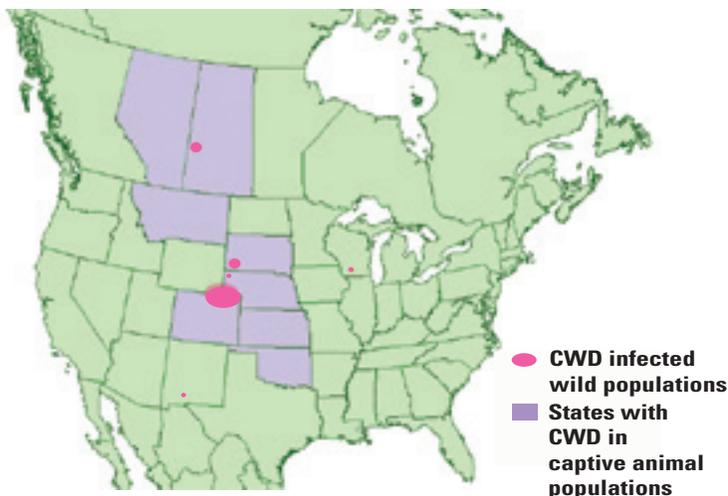
specific portion of the brain or lymph nodes. Recently, a biopsy technique for tonsillar tissues from live deer has been developed; however, this test seems to work for white-tailed deer and mule deer but not for elk.

The spread of CWD in

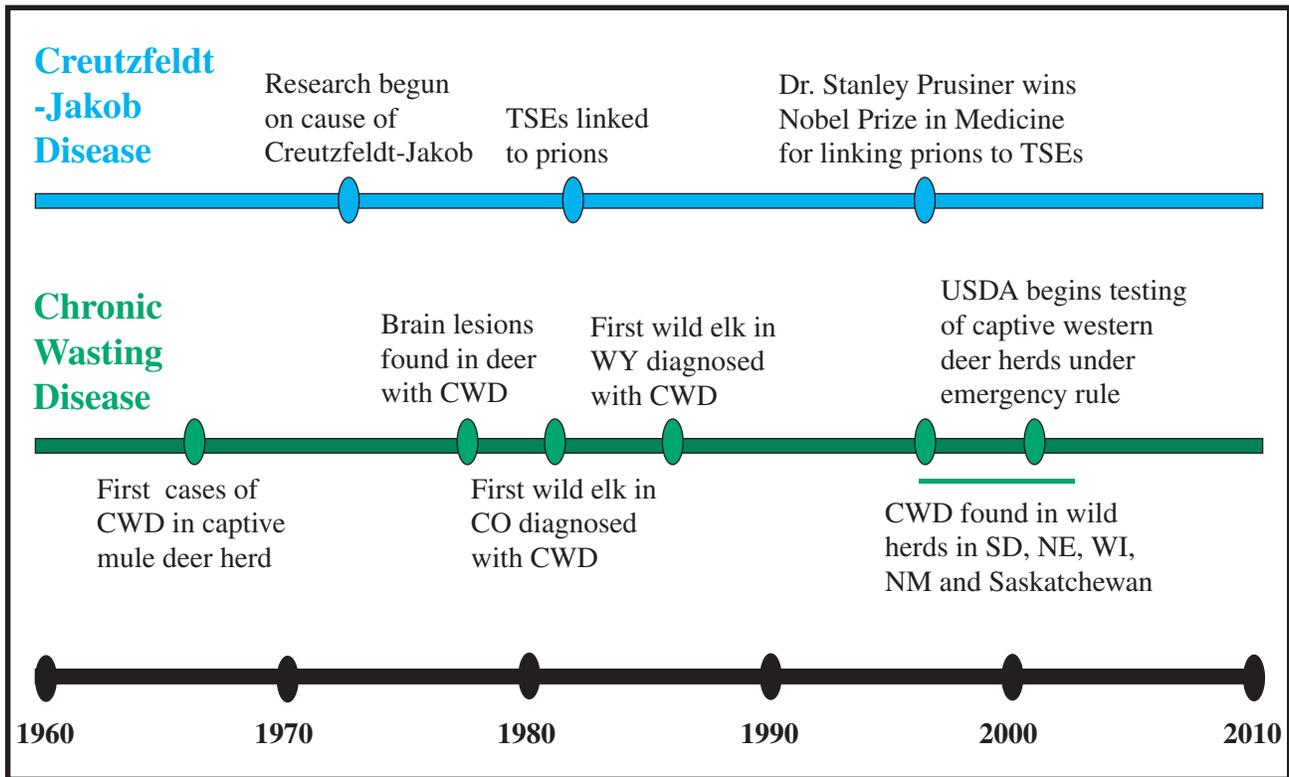
wild animals is of great concern. The disease was originally described in captive animals 35 years ago in Colorado. However, over the last five years, CWD has been detected in wild herds in several surrounding states and Canada. In 2002, CWD was detected in wild deer in South Dakota, Wisconsin and New Mexico. Researchers speculate that CWD could have been spread long distances as a result of interstate shipment of infected animals.

The recent detection of CWD in the wild white-tailed deer herd in Wisconsin is of particular concern. White-tailed deer appear more susceptible than mule deer and elk to CWD with a greater percentage of the herd becoming infected. Until now, CWD was found in white-tailed deer herds in Colorado, Wyoming, and Nebraska where deer occur at densities of approximately 2-5 deer per square mile. In Wisconsin, deer are found at 75+ animals per square mile (conservative estimate by Wisconsin Department of Natural Resources). No one knows how rapidly CWD will spread among white-tailed deer at these densities or what long term effect this disease will have on a herd of this size (approximately 1.5 million animals).

For more information on Chronic Wasting Disease, please contact Dr. Scott Wright, USGS National Wildlife Health Center, (608) 270-2460, or Mr. Paul Slota, USGS National Wildlife Health Center, (608) 270-2420.



Chronic Wasting Disease in North America. Map courtesy of Wisconsin Department of Natural Resources.



Highlights in understanding of Chronic Wasting Disease and related efforts in human medicine.



White-tailed deer. Photo courtesy of P.E. Johns.

For additional information on this disease, please try some of the following websites:

USGS: National Wildlife Health Center
US Department of Agriculture: Veterinary Services
Canadian Food Inspection Agency

Colorado Division of Wildlife
Montana Department of Livestock
Wisconsin Department of Natural Resources
Wyoming Game and Fish Department

<http://www.nwhc.usgs.gov>
<http://www.aphis.usda.gov/vs/naahps/cwd/index.html>
<http://www.inspection.gc.ca/english/anima/heasan/disemala/cwdmdce.shtml>
<http://wildlife.state.co.us/CWD/index.asp>
<http://www.liv.state.mt.us/WASTINGDISEASE/CWD.HTM>
<http://www.dnr.state.wi.us/org/land/wildlife/whealth/issues/cwd/>
<http://gf.state.wy.us/HTML/hunting/chronicwast.htm>

