What Mainers Should Know About Chronic Wasting Disease

What is Chronic Wasting Disease?

Chronic Wasting Disease (CWD) is a fatal disease of the nervous system of deer and elk. The disease belongs to a family of diseases known as transmissible spongiform encephalopathies (TSEs). Other TSEs include scrapie in sheep, BSE or "mad cow disease" in cattle, TME in captive mink, TFE in cats, Creutzfeldt-Jakob disease (CJD) in humans, and variant CJD in humans. Although similar in some respects, there is no known causal relationship between chronic wasting disease and any other TSE of animals or people. To date, BSE, TFE, and variant CJD have not been identified in North America.

Where Has CWD Been Found?

Currently, CWD is known to infect free-ranging deer and elk in portions of Colorado, Illinois, Nebraska, New Mexico, South Dakota, Utah, Wisconsin, Wyoming and Saskatchewan, Canada. In addition, CWD has been found in captive/farmed elk or white-tailed deer herds in Colorado, Kansas, Minnesota, Montana, Nebraska, Oklahoma, South Dakota, Wisconsin, and Alberta and Saskatchewan, Canada

Is CWD Present in Maine?

Although we lack proof, there is no evidence that CWD is present in wild white-tailed deer and moose, or in captive/farmed deer (red, sika, fallow) or elk in Maine. Each year, Department of Inland Fisheries and Wildlife (DIFW) biologists examine 6,000 to 8,000 hunter-killed deer and 2,000 to 3,000 moose for management purposes. While conducting other fieldwork, wildlife biologists observe hundreds of live deer during a typical year. In addition, biologists respond to hunters who contact us when they kill apparently ill or injured individuals. To date, DIFW biologists have not observed symptoms consistent with CWD in Maine.

No sick animals that may fit the clinical profile for CWD have ever been brought to the attention of the Department of Agriculture (DOA) or private veterinarians from among Maine's 111 licensed deer farms. Since autumn of 2001, more than 850 farmed-raised elk and deer slaughtered in Maine have been tested for CWD. To date, all tests have been negative for CWD.

In a 1999 cooperative study, DIFW, DOA, and US Dept. of Agriculture (USDA) officials tested 299 hunter-killed white-tailed deer from the western mountains and foothills of Maine. All deer tested negative for CWD. In 2002, DIFW biologists tested 831 hunter-killed deer from all areas of the state. All deer tested negative for CWD. Similar negative results were obtained from 810 deer in 2003.

At this time, we consider Maine to be CWD-free, based on available evidence. However, we are stepping up surveillance for wild deer and captive/farmed cervids to better evaluate CWD status in Maine, as is being done throughout the U.S.

What Causes CWD?

The prevailing theory is that an infectious, abnormally-shaped protein called a CWD prion (pree-on) causes certain other brain proteins to change to a diseased form. CWD prions then accumulate in the brain and other nervous tissues, where they physically damage affected nerve cells. The disease agent also occurs in lymph tissues, tonsils, salivary glands, pancreas, spleen, bone marrow, eyes, and intestines. CWD prions have not been found in skeletal muscle of infected deer and elk. Infected individuals shed CWD prions in urine, feces, saliva, and eye fluids.

Which Species Have Gotten CWD?

To date, chronic wasting disease has been found only in mule deer, white-tailed deer, and elk. However, based upon molecular similarities, CWD can probably be transmitted to all species in the deer family (cervids), including red deer, fallow deer, sika deer, moose, and caribou. There is no scientific evidence that CWD can be naturally transmitted to species outside the deer family, including cattle, horses, sheep, goats, or swine.

Can CWD Spread to People?

There is currently no scientific evidence that chronic wasting disease can be naturally transmitted to people. **However, public health officials recommend that human exposure to the CWD disease agent be avoided, as they continue to research this question.**

What are the Signs of CWD in Deer and Elk?

Chronic wasting disease is a slowly progressive disease; signs of sickness are usually not seen for 5 to 36 months after the disease agent enters the deer or elk. Individuals showing symptoms of CWD tend to be 18 months of age or older. CWD damages the brain of infected animals, causing them to display unusual behavior, lose bodily functions, become very thin, and inevitably to die within 1 to 12 months after symptoms of the illness first appear. Clinical signs identified in captive/farmed deer and elk include excessive drooling, excessive thirst, frequent urination, sluggish behavior, isolation from herd, teeth grinding, holding the head in a lowered position, and drooping ears. It should be noted that some of these symptoms can be seen after a very severe winter in Maine, when deer may appear very thin and weak. Although rare in cervids, rabies may produce some symptoms in common with CWD, such as erratic behavior, and drooling.

How is CWD Diagnosed?

At present, CWD can only be diagnosed from dead animals. Samples of brain and/or lymph tissue from suspect deer are examined for the presence of CWD prions or for the damage CWD prions cause in brain tissues, using laboratory techniques called immunohistochemistry and histopathology, respectively. In the near future, new, more rapid types of CWD tests may become available, possibly enabling testing of live deer.

How do Deer and Elk Get CWD?

The ways in which CWD is passed among deer and elk are not well understood. CWD prions are very hardy; they are not easily destroyed by environmental factors, heat, or disinfection. Therefore, CWD prions can remain in contaminated environments for many years. Scientists are not sure if these prions can be passed from mother to offspring during pregnancy. In most cases, CWD prions are probably eaten or swallowed by susceptible animals. Since prions occur in saliva, urine, feces, and eye fluids, CWD is likely transmitted by direct contact with infected individuals, or by contact with contaminated soil, leaves, bedding, feed, or water. Practices that concentrate deer and elk in close proximity, such as supplemental feeding, raising deer or elk in fenced enclosures, and perhaps even natural deer yarding may favor the spread of the disease. In addition, sites where CWD-infected cervids had died (or were placed) may become contaminated, as tissues decompose. Whether or not predators and scavengers can transmit CWD prions after consuming infectious parts of CWD-infected deer or elk is currently being researched. Once established in an area, CWD may be spread when infected wild deer or elk travel to new locations, or when infected captive/farmed cervids are transported to other farms. Contact between wild and fenced cervids along fence lines can spread CWD in either direction.

Are Commercial Deer Feeds Safe?

In theory, prions from CWD-infected deer could be present in commercial deer and elk foods, if they were formulated using rendering products (e.g., meat and bone meal or MBM) containing CWD-infected slaughter and processing wastes. In 1997, the U.S. Food and Drug Administration (FDA) placed a total ban on the use of MBM from cattle, sheep, goats, and cervids as a component in commercial feeds for ruminants (including wild and domestic deer and elk). Assuming all feed companies are complying with the FDA ban, commercial feeds commonly used to supplement the diets of captive/farmed or wild cervids would currently be free of CWD infectivity. We don't know, however, if MBM from CWD-infected deer or elk was ever incorporated into commercial ruminant feeds distributed in Maine prior to 1997. Nor do we know if commercial feeds currently formulated for nonruminants (horse, swine, poultry, dog, and cat) sometimes contain MBM from CWD-infected deer or elk. **When feeding wild deer or captive/farmed cervids, use only commercially available products formulated specifically for ruminants (deer, cattle, sheep, goats), or use whole grains (e.g. oats, corn) without supplements.**

Winter Feeding of Deer

If supplemental feeds are free from CWD infectivity, the practice of feeding deer in winter cannot cause a CWD outbreak. However, the close contact and crowding typically seen among deer at winter feeding sites can greatly accelerate the spread of infectious diseases like CWD, if an outbreak occurs from other sources. Because of the long incubation period for CWD, an outbreak among white-tailed deer at feeding sites may spread to a large area long before clinically-ill individuals are observed. This would greatly hamper efforts to control the disease. Discontinuing the practice of winter feeding of deer makes great sense as a measure to prevent the spread of CWD. **If you feed wild deer in Maine, please consider phasing out of the practice as soon as possible, as a disease prevention measure.** DIFW has produced an excellent video highlighting the pitfalls involved in feeding wild deer. It is available at nominal cost at their online store: www.mefishwildlife.com.

Are Urine-Based Deer Lures Safe?

In most cases, the urine used to formulate commercial "doe-in-heat" or other buck lures is collected from captive deer or elk farms. If CWD prions are passed in the urine of CWD-infected deer and elk, the infective agent may be present in these lures. If present, then CWD prions may inadvertently be placed where susceptible Maine deer may contact and ingest them. Depending upon how the lure is handled, CWD contaminated deer lures could also be a source of exposure (and inadvertent ingestion) by people.

At this time, we do not know whether any captive/farmed deer or elk used by the lure industry have ever contracted CWD. To date, deer lures are not being checked for the presence of CWD prions. Until more is known about whether commercial deer lures pose a realistic risk of spreading CWD, **we recommend that hunters use caution in spreading urine-based lures in the environment, and avoid placing the lures on their clothing or skin. Avoid placing deer lures on the ground or on vegetation where deer can reach them.** Deer lures can be safely placed above deer height, allowing air circulation to disperse the scent.

Why are We Concerned about CWD in Maine?

Where it occurs, CWD poses serious problems for wildlife managers, and the implications for free-ranging deer are significant. If it emerges in Maine, CWD could seriously reduce infected deer populations by lowering adult survival and de-stabilizing populations. Monitoring and control of CWD is extremely costly and would divert already scarce funding and staff resources away from other much-needed programs. Public concerns and perceptions about human health risks associated

with all TSEs may erode hunter willingness to harvest deer, leading to unwanted population growth in areas that remained CWD-free. Major reductions in deer hunting would adversely affect Maine's economy, since deer hunting currently contributes more than $200 million to the economy of our rural state. Perceptions about the safety of farmed venison as human food could cause the collapse of Maine's $1 million deer farming industry. **Preventing the arrival of CWD in Maine is an urgent state priority.**

What is Being Done to Prevent CWD Outbreaks in Maine?

The Departments of Agriculture, Human Services, and Inland Fisheries and Wildlife are coordinating efforts to prevent CWD from entering the state. They are also working closely with other states, the federal government, and private organizations on various CWD-related topics. The activities cover 3 key areas:

- Preventing introduction of CWD. The Maine Department of Agriculture has banned imports of live cervids from other states until a fail-safe importation system can be implemented. The Department of Inland Fisheries and Wildlife has issued advisories covering:
  1. safe ways to import hunter-killed deer or elk from states harboring CWD;
  2. cautious use and placement of urine-based deer hunting lures, while the safety of these products can be evaluated;
  3. voluntarily modifying or ending the widespread practice of feeding deer in winter, as a preventive measure.
- Monitoring wild and farmed deer for CWD. Efforts to monitor wild and captive/farmed deer in Maine for the presence of CWD, as are most other states are increasing. Plans include testing a representative, statewide sample of the deer harvest for CWD each year for the foreseeable future. Captive/farmed deer will be monitored for the presence of CWD (using on-farm health monitoring practices), and by testing certain farmed deer for CWD at slaughter.
- Outreach. Good communication is important to disease prevention. Advisories to hunters, meat processors, taxidermists, deer farmers, and the public, suggesting ways to lessen the risks of introducing CWD into Maine, and providing basic facts about the disease will be issued.

What Can Deer and Elk Hunters Do to Avoid CWD Risks?

If you plan to hunt deer or elk in a state/province **known or suspected to harbor CWD** (see above for list of states and provinces), there are some commonsense precautions you should take to avoid handling, transporting, or consuming potentially CWD-infected specimens. The following precautions are adapted from the Wisconsin Department of Natural Resources:

General precautions:
- Do not eat the eyes, brain, spinal cord, spleen, tonsils, or lymph nodes of any deer.
- Do not eat any part of a deer that appeared sick.
- If your out-of-state deer is sampled for CWD testing, wait for the test results before eating the meat.

Field dressing:
- Wear rubber or latex gloves while handling the carcass.
- Minimize contact with the brain, spinal cord, spleen, and lymph nodes (lumps of tissue next to organs or in fat and membranes) as you work.
- Use a hunting knife, not knives used at the dinner table.

- Remove all internal organs for proper disposal by burial, or other means that prevents contact by live deer.
- Clean knives and equipment of residue and disinfect in a 50/50 solution of household chlorine bleach and water for 1 hour.

Cutting and processing:

- Wear rubber or latex gloves.
- Minimize handling brain or spinal tissues. If removing antlers, use a saw designated for that purpose only.
- Do not cut through the spinal column except to remove the head. Use a knife or saw designated only for this purpose.
- Bone out the meat from the deer and remove all fat and connective tissue (the web-like membranes attached to the meat). This will also remove lymph nodes.
- Dispose of feet, hide, brain and spinal cord, bones, and head by burial, or other means that prevents contact by live deer.
- Thoroughly clean and sanitize equipment and work areas with 50/50 bleach water after processing.
- If processing deer from out-of-state CWD management or eradication zones, keep meat and trimmings from each deer separate.

Can I Bring Intact Deer Carcasses From Other States Into Maine?

To prevent the introduction of CWD into Maine, we are encouraging hunters who travel to **any** other states and provinces to hunt deer or elk to avoid returning to Maine with carcass parts that pose a risk of containing CWD prions. **We recommend that you return to Maine only with boned-out meat, hardened antlers (with or without skull caps), hides without the head portion, and finished taxidermy mounts.** If still attached, skull caps should be cleaned free of brain and other tissues.

At this time, no state or province can claim to be free of CWD - - too little monitoring has been conducted to realistically evaluate CWD status. **Accordingly, this advisory against importing potentially high-risk carcass parts applies to wild deer and elk taken in any state and province outside Maine, and to cervids killed in commercial hunting preserves everywhere.**

Can I Get My Maine Deer or Moose Tested for CWD?

Currently, there is a high demand for CWD testing in states known to harbor CWD. Unfortunately, existing laboratory tests for CWD are expensive, time-consuming, and they can only be performed at a small number of federally-approved labs. Although our system can accommodate enough samples (less than 1,000) from farm-raised and wild deer to scientifically monitor for CWD, we are not able to routinely test hunter-killed deer in Maine at this time.

What If I see a Deer Showing Signs of CWD in Maine?

Hunters and wildlife watchers should realize that deer (and moose) are subjected to a wide array of illnesses and injuries that may cause unusual behavior or unthrifty appearance. For example, healthy deer at feeding sites are easily approached by people, these same deer may appear thin and unhealthy for weeks following a severe winter, and deer injured by vehicles or predators may limp and appear sick. Reporting all encounters of sick deer by the public would quickly overwhelm state agency personnel.

On the other hand, if CWD were to emerge in Maine, early detection of diseased individuals provides the best means we have of controlling or eradicating the disease. Therefore, if you observe

a deer that clearly shows symptoms of CWD, **do not kill or handle the deer.** Report the sighting to an Inland Fisheries and Wildlife biologist or game warden (see phone numbers below). **Again, report only deer showing all or most of these CWD symptoms: extreme thinness, unaware or unafraid of people, shaking or unable to walk normally, drooling, can't raise the head, and ears drooping.**

Wildlife Biologists and Game Wardens:

Gray – (207) 657-2345
Sidney – (207) 547-5318
Jonesboro – (207) 434-5927
Strong – (207) 778-3324
Greenville – (207) 695-3756
Enfield – (207) 732-4132
Ashland – (207) 435-3231
Bangor – (207) 941-4466

For More Information:

The following websites are good sources of information about Chronic Wasting Disease:

www.mefishwildlife.com
www.state.me.us/agriculture
www.aphis.usda.gov/oa/cwd
www.cwd-info.org
www.cdc.gov
www.scwds.org

If you have questions about CWD prevention efforts in Maine, the following contacts are suggested:

* Hunting, monitoring of wild deer:
  Information Center, Dept. of Inland Fisheries and Wildlife
  284 State Street, 41 SHS, Augusta, ME 04333-0041
  (207) 287-8000 webmaster_ifw@state.me.us

* Regulation of Captive/Farmed Deer or Elk:
  Dr. Don Hoenig, DVM or Shelley Doak, Director, Animal Health & Industry,
  Dept. of Agriculture, Food, and Rural Resources
  Deering Bldg, AMHI Complex, SHS #28, Augusta, ME 04333-0028
  (207) 287-3701 Donald.E.Hoenig@state.me.us

* Questions about CJD, variant CJD, or other Human TSEs:
  Maine Dept. of Human Services, Bureau of Health,
  SHS #11, Augusta, ME 04333-0011
  (207) 287-7087