

So Far, So Good

More than 1,000 Montana deer and elk tested negative for chronic wasting disease. Does that mean we can stop worrying?

BY TOM DICKSON

SAM CURTIS



AT THE U.S. DEPARTMENT of Agriculture National Veterinary Services Laboratory (NVSL) in Ames, Iowa, packages arrive weekly from state conservation agencies throughout the United States. The boxes contain portions of deer and elk brain tissue, placed there by agency staff who hope the veterinary pathologists at the Ames lab don't find evidence of chronic wasting disease (CWD).

Dr. Art Davis, chief of the NVSL pathology biology laboratory, says the process for detecting CWD begins when pathologists fix the brain samples in a formula. They then trim the samples into small pieces, which are placed in a dehydrator. The dried quarter-sized samples are

imbedded in paraffin wax and placed in a microtome, sort of a miniature deli meat

slicer that shaves the brain samples into paper-thin pieces. Each sample is then mounted on a slide and stained with a special dye. Under a standard lighted microscope, similar to the kind used in high school biology classes, pathologists look for signs of CWD.

A reddish pink coloration on the tissue, says Davis, indicates the presence of abnormal prions, the infectious proteins that cause the disease.

Fortunately for Montana's deer and elk populations, no pink showed up on any of the 1,013 deer and elk brain samples tested this past spring by the NVSL. The deadly deer and elk disease that has slowly begun spreading across the country has not reached wild herds in the Treasure State.

At least, not yet. Chronic wasting disease has been detected nearby in Wyoming, South Dakota, Utah, Colorado, and Saskatchewan, among other states and provinces.

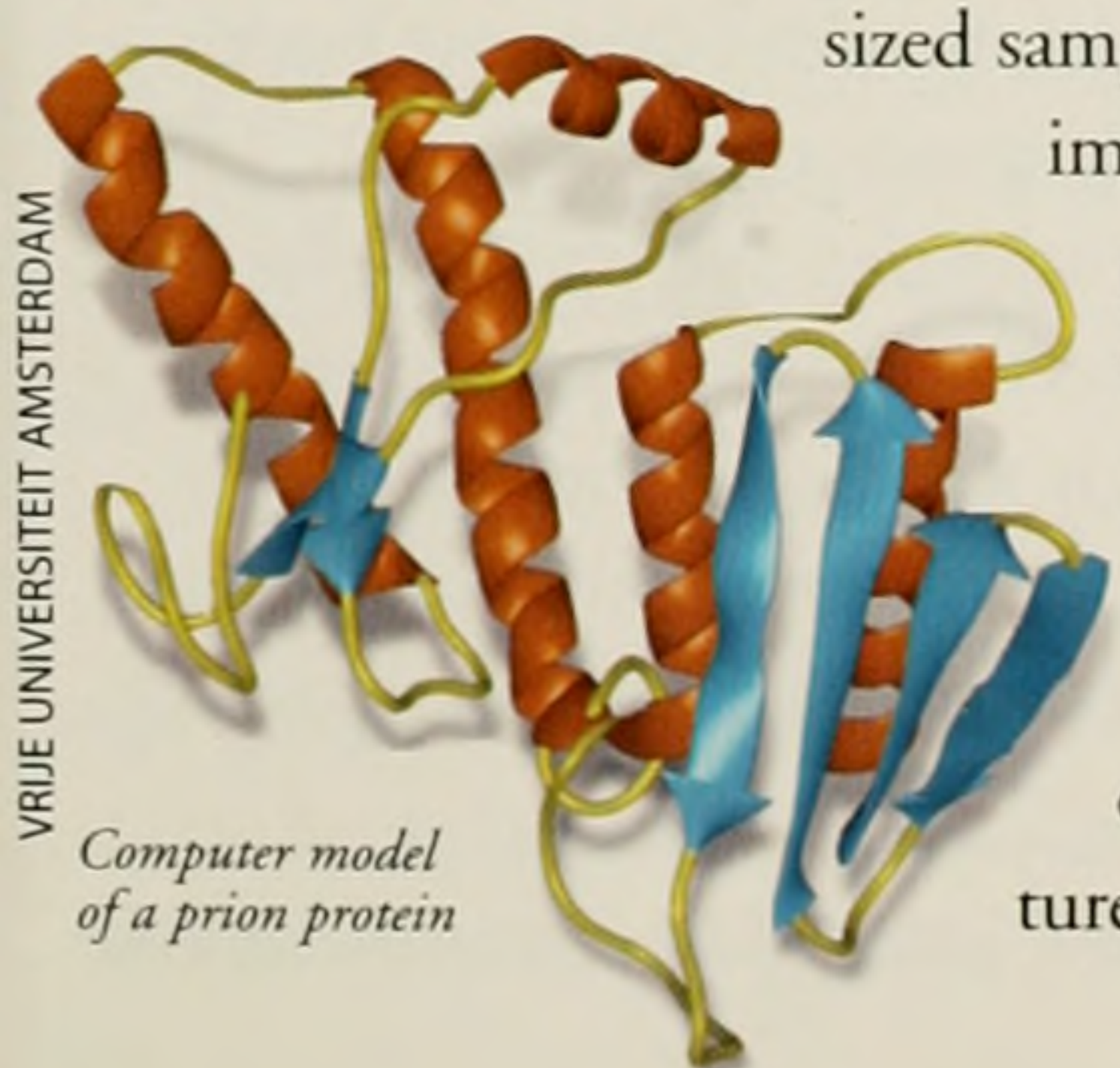
"What the experts are telling me is that it's not a matter of *if* it gets here, but *when* it gets here," says Jeff Hagener, FWP director.

GRISLY SCIENCE FWP laboratory technician Jen Southers removes brain tissue at the FWP wildlife research laboratory. Samples from 1,013 deer and elk were sent to the National Veterinary Services Laboratory, where they tested negative.

FATAL TO DEER AND ELK

CWD is a rare though always fatal neurological disease found in a small percentage of wild deer and elk in a few areas of North America. It belongs to a family of diseases called transmissible spongiform encephalopathies (TSEs). Other TSEs include scrapie in domestic sheep, "mad cow disease" in cattle, and the extremely rare Creutzfeldt-Jakob disease in humans.

Though similar to these diseases, there is no evidence that CWD is transferable to humans, say public health officials with the U.S. Centers for Disease Control. They point out that even though the related disease scrapie has existed in sheep for at least 300 years, there has never been a case of scrapie reported in a human being. That's true even among people who work with



Computer model of a prion protein

sheep and the millions of people who eat lamb and mutton each year. Nevertheless, scientists continue to study the disease to see if it could pose any risk to human health.

CWD attacks the brains of infected deer and elk, causing the animals to grow thin, stagger, and eventually die. Testing is done by sampling part of the brain, tonsils, or lymph nodes from the heads of dead animals.

“There is no practical way to test live animals for CWD,” says Keith Aune, supervisor of the FWP wildlife research laboratory in Bozeman, “and so far no cure has been found for the disease.”

Though CWD has not been found in Montana’s wild deer or elk populations, in 1999 it was diagnosed in nine captive elk on an alternative livestock facility (game farm) near Philipsburg. All the animals there were destroyed and the facility was quarantined. Montana voters passed an initiative the following year that prohibits transfer of existing game farm licenses, ends new licensing, and forbids shooting captive elk. Still, roughly 75 of the facilities still exist, selling elk for meat, antlers, and breeding.

MYSTERIOUS ORIGINS

No one is sure where CWD came from. It first showed up in 1967 in northeastern Colorado and spread slowly through that state and into southeastern Wyoming. Since then, the disease has been detected in wild herds or game farms in twelve states and two provinces. Though scientists aren’t sure how CWD is transmitted, wildlife officials suspect the disease has spread by the trade

or sale of captive elk among facilities in different states and provinces. Studies have traced outbreaks to the movements of captive elk, many of which have been traced back to alternative livestock facilities in the endemic area of Colorado.

CWD gained widespread national attention in 2002 when it was detected in wild white-tailed deer in Wisconsin, the first time it was found east of the Mississippi River.

Since then Wisconsin has tested more than 41,000 deer. Most of the 207 that tested positive came from an isolated area in the state’s southeast corner, where sharpshooters have begun killing deer to reduce the population and the chances that the disease will spread.

WHY SO WORRISOME

Like those in Wisconsin and other states and provinces, Montana wildlife officials dread the possibility of CWD infecting deer or elk herds. Among their concerns:

- reduction in deer and elk numbers
- loss of hunting and wildlife watching opportunities
- reduction in management effectiveness



JEFF HENRY/ROCHEJAUNE PICTURES

STILL STANDING Though game farms still exist, a voter initiative ended canned hunts, new licenses, and the transfer of existing licenses.

- (if hunters will not hunt due to health concerns, the agency loses its most effective wildlife management tool and the funding that comes from license sales)
- unnecessary waste of meat causing sanitation problems and illegal wanton waste
- possible effects to human health (though this has not yet been proved).

Though the natural spread of CWD is slow, over time it can depress wildlife numbers. In Colorado, which has had the disease for 35 years, up to 30 percent of the deer population is infected in some areas.

“We’ve found in recent years that any infection rate of over 15 percent can cause a population drop,” says Aune.

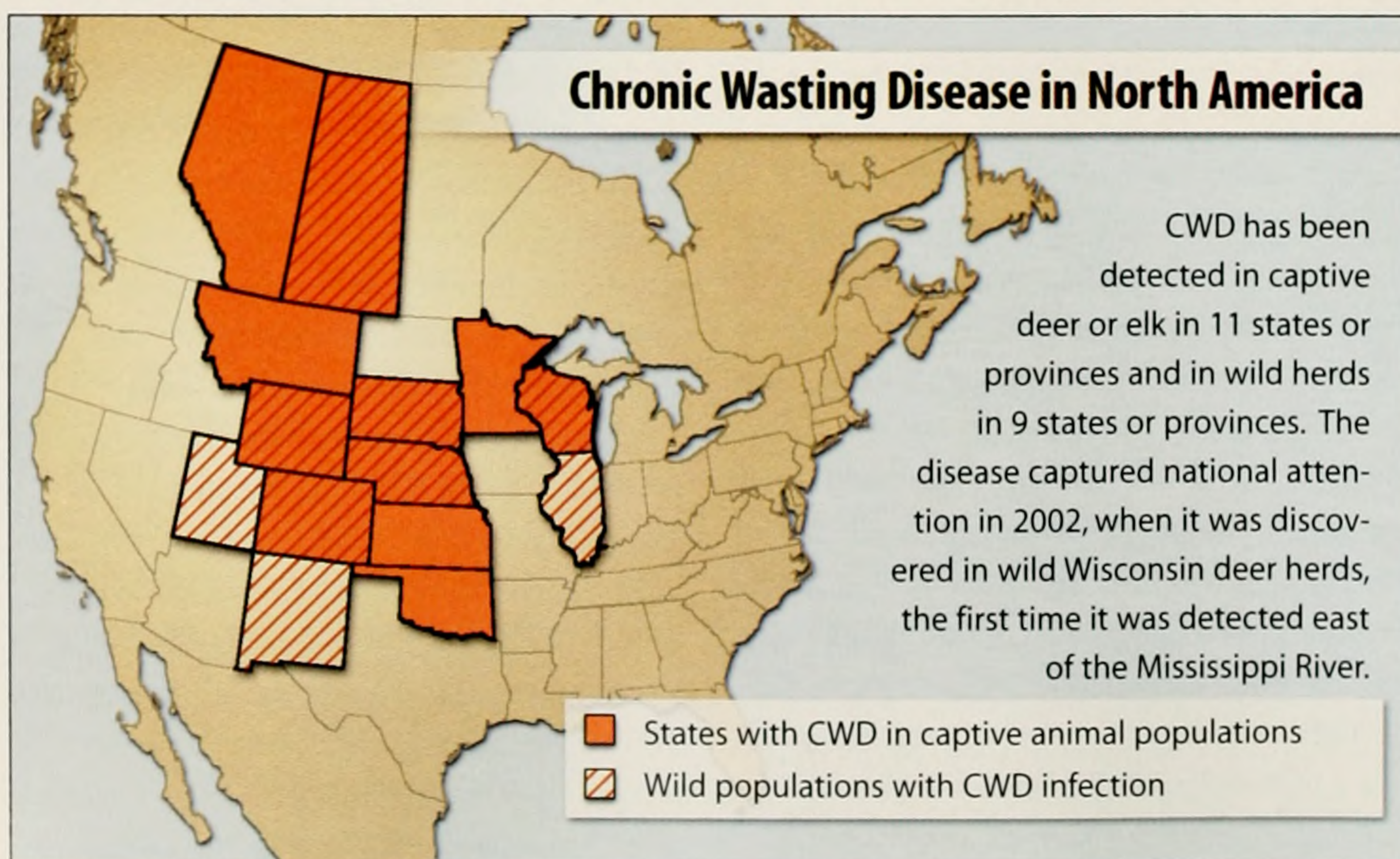
MONTANA’S RESPONSE

FWP is Montana’s lead agency for managing the CWD issue. The department provides information to the public, tests wild animals, and adjusts policy as necessary. It also works closely with other state health and livestock agencies.

“We’re anticipating and planning for the disease,” says Aune. “There’s nothing to suggest that it won’t cross the border.”

Montana first began monitoring deer and elk for CWD in 1996, following reports of

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the disease in Wyoming. In 1998, FWP and the Montana Department of Livestock increased scientific surveillance of both wild and captive deer and elk in Montana.

Roughly 2,300 captive deer and elk from livestock facilities were tested between 1996 and 2001. None tested positive for CWD except those in the facility near Philipsburg.

So far, FWP has tested roughly 2,700 wild deer and elk, mostly in the high-risk areas near Philipsburg and along the state's eastern borders.

"We'd expect to find CWD first in the border areas, where it would more likely enter from neighboring states," says Aune.

However, just because no wild deer or elk samples have tested positive doesn't mean FWP officials can relax. They continue to test any emaciated or sick-looking deer or elk. And this fall, the department will collect additional deer and elk tissue samples from animals harvested by hunters, focusing most on high-risk border areas.

FWP is also developing statewide management plans that identify ways to detect, contain, and prevent the spread of CWD.

"Like with any wildlife disease," says Aune, "if you can detect it early, you have a good chance of taking aggressive action and keeping it contained. But if we wait until we have two, three, or more percent infection in our herds, then there's nothing we can do."

How would FWP respond to a CWD outbreak? Aune says the first step would be to inform the public, including nonresident hunters, and all appropriate federal, state, and local agencies of when and where the infected animals were found. The department would then convene public meetings in affected areas to discuss findings and possible management options.

"There really aren't a lot of options," says Aune. "We can't just go give infected elk and deer a shot and cure them."

Montana could follow the example of Wyoming and simply monitor the deer and elk populations. Or it could respond aggressively like Wisconsin, which aims to eradicate deer in areas where the disease has been identified.

"We can't say now for certain what we'll do if CWD gets here," says Hagener. "But one thing's for sure: We're extremely serious about being proactive and being prepared to tackle this issue head on." 🐾



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▶ JUST IN CASE

Though CWD has not been found in Montana, hunters who want to be extra safe can follow normal precautions applicable to all game animals:

- Don't shoot or get near any strange-acting wildlife. If you see one, contact the nearest FWP office.
- Use latex or rubber gloves when field dressing an animal.
- Wash hands, knives, and saws thoroughly after field dressing.
- Bone out all meat, and don't saw bones.
- Avoid handling brain and spinal tissues.

For more information, call the Montana Department of Public Health and Human Services, (406) 444-0273, or go on-line at cwd-info.org or fwp.state.mt.us (click on "Hunting" and then click "Know Before You Go").