CWD: Game Management's Worst Nightmare

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In an April 9, 2014, news release the Iowa Department of Natural Resources reported its first confirmed case of Chronic Wasting Disease (CWD) in wild deer. This bad news was not a surprise. With CWD in every bordering state, Iowa knew it was just a matter of time and had been testing its deer for more than a decade.

If ever wildlife managers faced a nightmare disease, CWD is it. Deer, elk, and moose are all susceptible, there is no treatment or cure for it, and it is always fatal.

The first report of CWD was in captive mule deer at a wildlife research facility in Colorado in 1967 and in 1978 it was diagnosed as a transmissible spongiform encephalopathy (referring to its infectious nature and degenerative effects on the brain). Next came reports of CWD in both deer and elk in captive situations such as research facilities, zoological gardens, and game farms. The first report of CWD in a wild population came from Colorado in 1981, where it was found in elk.

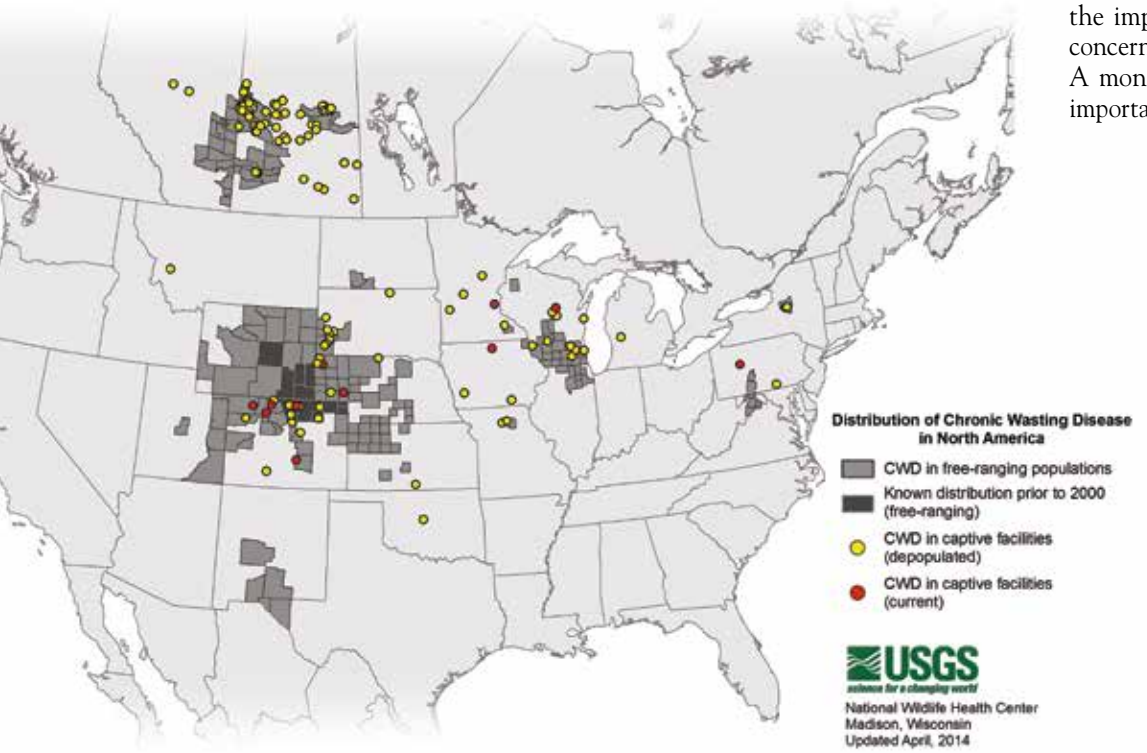
CWD has since been found in game farms and other captive situations and in free-ranging populations in several states and Canadian provinces. Its known distribution in wild populations has a close association with its occurrence in captive herds (see map). Infected animals show no signs for at least 16-18 months; then they begin to suffer weight loss, weakness, and literally "waste away" until death. There is no way to test for CWD in live animals. This is a huge problem because infected animals begin shedding the causative agent in urine, feces, and saliva for nearly a year before showing visible signs of illness. Thus CWD typically goes undetected for years, providing ample opportunity for transmission and spread.

The causative agent, prions, are downright creepy and there is much we don't know about them. Not even a type of microbe, prions are mis-folded proteins that animals pick up from one another or from the environment, and that cause proteins in the infected animal's brain and neural system to assume the mis-folded state. They survive heat treatments and chemicals that would easily destroy "conventional" disease agents such as bacteria and viruses. Because prions persist in soils for years, the only option is to quarantine and fence sites of infection, creating what one colleague calls "mini-Superfund sites."

Scientists are trying to figure out just how prions work, considering that they are not even alive yet have such devastating effects on infected animals. Another transmissible spongiform encephalopathy, Creutzfeldt-Jakob disease, occurs in humans and one source is believed to be consumption of beef infected with bovine spongiform encephalopathy, otherwise known as "mad cow disease." While there are no known cases of transmission of CWD to humans, the Center for Disease Control advises that CWD-positive animals should not be eaten. The possibility that CWD may jump to humans is a spooky thought indeed, and some hunters in areas of known or suspected CWD occurrence choose to eliminate risk by passing up on hunting.

A 2011 study by Vaske and Lyon (*Risk Analysis*, Vol. 31 No. 3) looked at CWD-related factors that would influence hunters' decision to give up deer hunting in a state. One factor is CWD prevalence; 52 percent of hunters said they would give up hunting in a state if prevalence of CWD reaches the 50 percent level. Add in the hypothetical situation of a human death due to CWD, and the quit rate jumps to 64%. Such studies show how CWD spread undermines the hunting heritage by eroding confidence in a nutritious food source, and by reducing hunter participation and associated revenues needed for wildlife conservation and management.

Given the close association of CWD spread to captive cervids, the best strategy is to eliminate deer farms or, at the very least, to prevent the movement of deer at facilities of known or suspected CWD occurrence. Such decisions occur on a state-by-state basis, and there is recent good news from a couple of states. In September 2013 Florida banned the importation of live captive deer over concerns about the introduction of CWD. A month later New York announced an importation ban on captive cervids, aiming



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to protect the state's wild deer and the $780 million that deer hunting contributes annually to the economy.

Many scientific and conservation organizations provided input to these decisions, as part of a continuing effort to discourage the captive breeding and movement of native cervids. In the past year the Boone and Crockett Club weighed in with two new position statements, one opposing the genetic manipulation of game and the other supporting state bans on the importation or export on captive cervids.

It seems these days that every issue has its share of deniers and conspiracy theorists, and CWD is no exception. A Google search on "CWD hoax" will turn up an array of claims about CWD, from a purported beef industry hoax to accusations of conspiracy involving state and federal governments. These serve no useful purpose in furthering understanding of this problem. Fortunately there are excellent sources for getting informed and staying current on the latest CWD developments.

Of particular value to hunters is the website of the CWD Alliance (cwd-info.org), a joint project launched by the Boone and Crockett Club, Mule Deer Foundation, and Rocky Mountain Elk Foundation in 2002 and that now includes many other organizations. Another excellent source is the website of the USGS National Wildlife Health Center (nwhc.usgs.gov). Both websites contain a wealth of information and links to other solid sources.

Knowledge is power so keep informed about CWD and share what you know! ■

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