

Dr. Deer's™ PRESCRIPTION



The Sky Is Not Falling

Chronic Wasting Disease comes to Texas

By Dr. James C. Kroll

Well, it finally happened! Chronic Wasting Disease (CWD) recently was discovered in two West Texas mule deer from a sample of 31 submitted to the Texas A&M Veterinary Diagnostic Laboratory. The announcement came in a TPWD press release dated July 10, 2012; about three years since I first predicted its appearance in the Lone Star state. Press reports carried the same old “cut and paste” materials, reading:

“Chronic Wasting Disease (CWD) is a neurological disease in deer, elk, moose and other members of the deer family, known as “cervids.” The disease was first recognized in 1967 in captive mule deer in Colorado, and has since been documented in captive and free-ranging deer in 21 states and two Canadian Provinces. This disease presents numerous challenges for state wildlife agencies across North America. Of concern is the potential for significant declines within deer, elk, or other susceptible cervid populations. In addition, CWD could have indirect impacts on hunting, hunter participation, and economic benefits derived from big game hunting.”

In this case, however, the press release did not carry the usual admonition that CWD is an always-fatal disease, but it did contain the worn out comment that CWD first appeared in a “captive” deer facility in Colorado in 1967.

If you study the distribution maps for the disease in wild and captive cervids (see USDA maps), CWD has been pretty much restricted to the Rocky Mountains, where it presumably had originated. We have no idea when it or how it actually appeared, just that it was first noticed in a research facility in Colorado. The current distribution of CWD in wild cervids includes about 21 states and two Canadian provinces.

There are some plausible explanations for how it originated, but this article is probably the only place you will read about them. The original location map provided in a presentation by Dr. Trent Bollinger to the One World, One Health Symposium in 2004 shows CWD first appeared in five state research facilities. I also have discovered the disease also appeared about that time in two zoological parks. The story behind how the disease might have originated and how it was spread by humans is fascinating, if not also frustrating. But, before we continue, you need to understand a bit more about CWD.

CWD primer

CWD is one of several diseases or conditions known collectively as Transmissible Spongiform Encephalopathies (TSEs). Many species of mammals, including humans, have a TSE disease. The

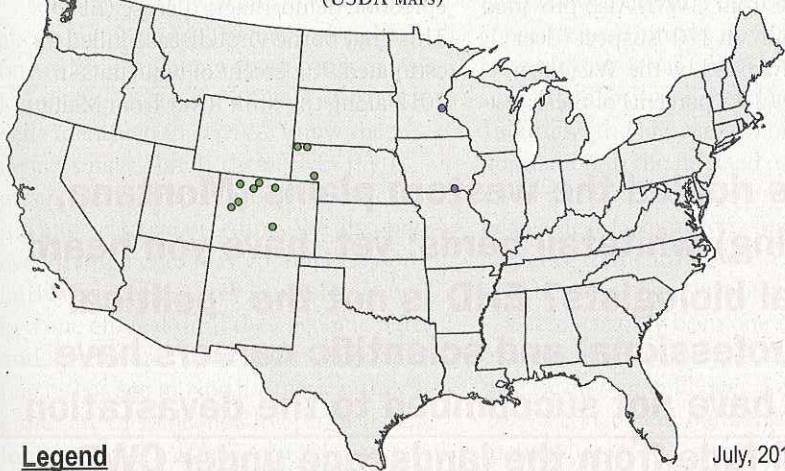
name is hard to pronounce, but a simple translation is that the name means it is infectious and can turn your brain into a “Swiss cheese.” The latter happens as malformed proteins called prions (pre-ions) naturally occurring in your nervous system become lodged in your brain, eroding holes in it.

The disease in humans is called Creutzfeldt-Jakob disease, which occurs at the rate of one in a million. The rate is higher in some South Pacific primitive peoples who, as a ceremonial habit, eat the brains of dead relatives. It also is higher in manganese miners, probably from the implication of this heavy metal. The result of the disease is a wasting and general neurological function decline, leading in many cases to death.

The two variations of the disease affecting livestock are the well-known “mad cow” disease in cattle and scrapie in sheep. So, CWD’s appearance is not all that surprising. There is considerable evidence the disease in various species can be genetically related as well as nutritionally related. It also is fairly probable the prions can mutate and become infective of other species, particularly true for scrapie in sheep.

The Rocky Mountains have been the home of probably as many sheep ranchers as anywhere in North America, making trans-species infection a dis-

Current Distribution of CWD among Farmed Cervid Herds
(USDA MAPS)



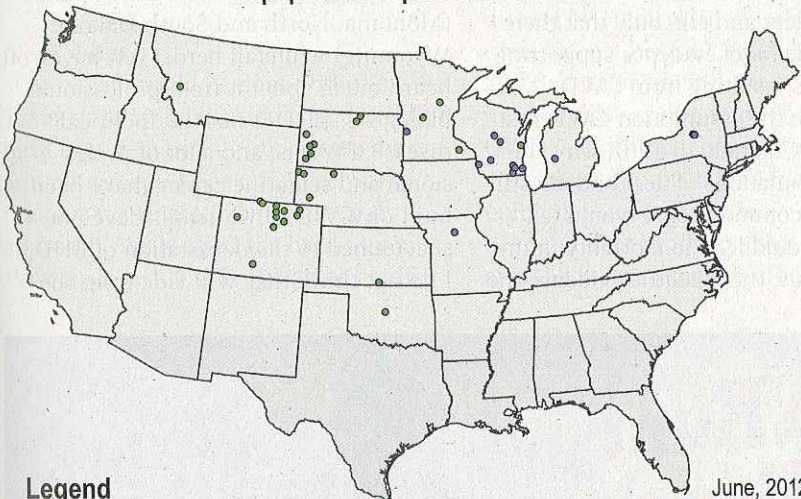
Legend

Farmed Herds Currently CWD Positive

- Captive Elk
- Captive Deer
- Captive Elk and Deer

July, 2012

Depopulated Captive Cervid Herds



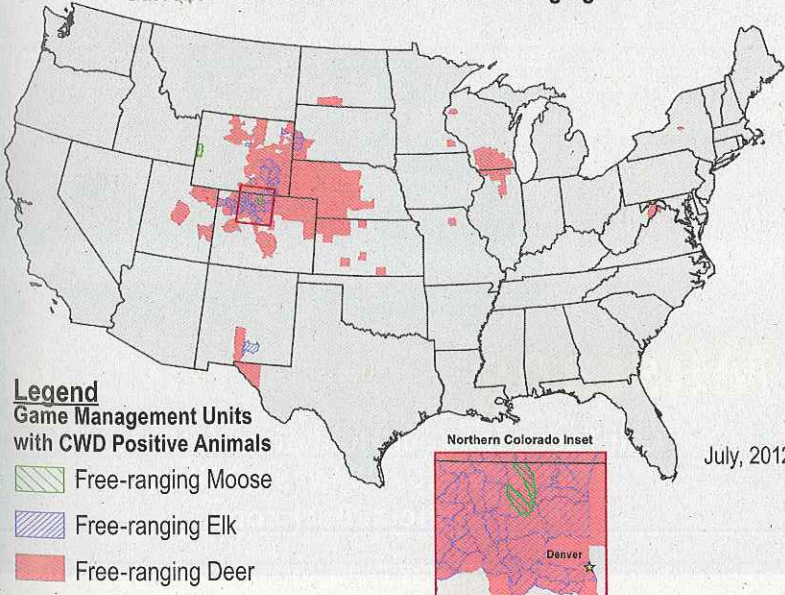
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Captive Herds that were CWD Positive and Depopulated

- Captive Elk
- Captive Deer

June, 2012

Current Distribution of CWD in Free-Ranging Cervids

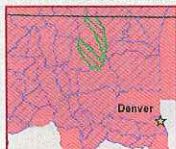


Legend

Game Management Units with CWD Positive Animals

- Free-ranging Moose
- Free-ranging Elk
- Free-ranging Deer

Northern Colorado Inset



July, 2012

tinct possibility. The spontaneity of the disease, either through genetic mutation or nutritional issues, also is very possible. So, CWD could have appeared by either means; we just do not know when. It is the “how” that gets interesting.

Smoking gun

If you study the maps provided in this article, there appears to be a “smoking gun” among research facilities operated by state agencies. Yet, when have you heard this? The deer in these facilities had two interesting characteristics. First, they most certainly came from the wild, the first stock brought into the facilities from wild sources; then were moved to other facilities. Next, intermingling of deer and elk in these facilities did occur, and elk appear to be more susceptible to CWD than deer. Subsequently, animals either ended up in private facilities or animals within deer farms were exposed through contact with wild deer or elk. The appearance and reports of infected deer farm animals certainly fits this idea geographically. It is a totally defensible statement that CWD DID NOT originate in private deer farms. I am reasonably comfortable saying CWD was brought to you in part by state agencies! Indeed, according to Hal Herring in an article published in “Bugle” magazine:

“In 1990, Colorado Division of Wildlife officials confiscated a group of elk from a game farmer who had stolen them from the wild. They then held them for several months in the CWD-infected Fort Collins research pens. The wildlife officials then traded these wild elk to game farmers for red deer. At the time, red deer were popular on elk farms for their ease of handling and the supposed “hybrid vigor” they could offer domestic elk herds. But as biologists grew increasingly concerned that these “reds” would escape and genetically contaminate wild elk herds, Colorado joined many other states and provinces in banning them. Mike Miller confirmed to the Rocky Mountain News that these trades did indeed occur in 1991, and said they realized after the trades that “it wasn’t such a good idea,” and tried to buy the elk back. They recovered and killed 13 of them, and all tested negative for CWD. But several of the others disappeared into the elk industry!”

Whatever the case, two infected populations now occur, a large one in the wild and a much smaller one in farmed deer. The latter is declining, as mandatory and voluntary testing has taken place. The vast majority of deer farmers have “tested” their way out of or significantly reduced infection risk. To date there have been some 164,000 farmed deer and over 775,000 wild deer tested for CWD. Since there are an estimated 1.2 million farmed deer and elk, the 171 testing positive is not a large percentage. Yet, public perception is that deer farms are “riddled” with CWD and deer farms are the source for the disease. Of the wild

deer tested to date, 3,130 were positive. In Texas, from 2002 to 2010, 31,325 deer have been tested, with 12,879 of these coming from deer farmers, none of which to date have been positive. Further, the

in the Zone of which 11 (12.1 percent) tested positive from CWD. Also provided was information on 170 "suspect" deer that were euthanized by the Wisconsin DNR staff; 40 (23.5 percent) of these test-

impact is as large as another deer disease, epizootic hemorrhagic disease (EHD). This gnat borne viral disease killed an estimated 90 percent of whitetails in 2012 along the Milk River from Malta

For years, EHD periodically has riddled the western plains (Montana, North and South Dakota, Wyoming) whitetail herds; yet, have you heard much about it from professional biologists? EHD is not the "political" disease CWD is, and a lot of professional and scientific careers have been built on CWD. If whitetails have not succumbed to the devastation of EHD, I do not think they will fade from the landscape under CWD.

majority of positives in both wild and farmed cervids have been for elk. When you take out mule deer and elk from the data, whitetails come up fairly "clean."

Interestingly enough, we can at best, account for a handful of actual deaths by cervids to CWD. For example, in my role as "Deer Trustee" for Wisconsin, my team asked for data on mortalities of wild deer from CWD in the well-publicized CWD Zone near Mount Horeb, Wisconsin. We received reports on 91 deer found dead

ed positive. Similar data are not available for other states; conspicuously the Rocky Mountain states. I am not saying CWD cannot kill deer and elk, only that there is not a whole lot of evidence supporting mass die-offs resulting from CWD.

If we make the assumption CWD first appeared in Colorado in 1967, why are huntable populations of deer and elk still there? Sure, common sense would tell you CWD would lead to mortality in infected animals, there is little evidence the

to east of Glasgow, MT. And, this was not uncommon. For years, EHD periodically has riddled the western plains (Montana, North and South Dakota, Wyoming) whitetail herds; yet, have you heard much about it from professional biologists? EHD is not the "political" disease CWD is, and a lot of professional and scientific careers have been built on CWD. If whitetails have not succumbed to the devastation of EHD, I do not think they will fade from the

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landscape under CWD.

There are other reasons to be confident about my position. The most obvious one is what we know about genetics. We know there has been a CWD resistance gene identified in elk. We know sheep farmers have "bred" themselves pretty much out of scrapie through genetic testing and selective breeding. We also know even though deer may contract CWD fairly early in life, they generally do not become clinical until they become older; and, by the time most of the whitetails reach that age in North America, they either are in someone's freezer or have long since been eaten. Again, I am not minimizing CWD in any way, only putting things into perspective. Even the devastated cattle industry of England is back on track through better animal husbandry.

Now what?

So, what should be done with the Texas situation? Texas Parks and Wildlife have been remarkably quiet since the announcement. I hope they are working on a reasonable, common sense approach. We learned the hard way in Wisconsin that CWD cannot be eradicated.

Although a lot of criticism has been given to feeding deer, because it concentrates animals, no one can say the New Mexico-Texas mule deer population supports density-dependence for CWD! Talking with New Mexico biologists, the population in the infected area is very low. I must add here, there has never been a deer farm in New Mexico, lending credence to the idea CWD can be either spontaneous or environmentally linked.


There has only been one instance of eradication working to eliminate a disease among wild deer. For example, in 1924 a concurrent outbreak of foot-and-mouth disease in California cattle and black-tailed deer (*Odocoileus hemionus*) was eradicated by killing more than 22,000 deer, along with cattle in a localized area (Stanislaus National Forest) (Keane 1927). Elimination of a wildlife disease by eradication of larger populations has not been successful (Wobeser 2002). Wisconsin spent over \$32 million in tax dollars trying to do that with CWD, and ultimately was unsuccessful.

The best approach for Texas, in my opinion, is to limit the movement of deer and deer products from the CWD area. Next, even though officials were

very much aware the disease was just across the border, CWD monitoring was not what anyone would call "intensive." According to the data, the total sampling effort for the entire state by geographic region shows only 421 deer were tested from 2002-2010 in the Trans-Pecos, Mountains and Basins region, with only 32 in 2008-09, and 30 in 2009-10. The irony is by increasing CWD sampling in the area where the infected animals were found may amount to an "eradication program," since there are so few deer there anyway. However, the geographic distribution of the disease must be defined before a sound plan can be implemented. That is standard, textbook wildlife disease management protocol.

What will be the outcome of CWD in Texas? Well, I can assure you the sun will rise tomorrow on deer! Nationally, are we finding more CWD because it is spreading, or are we testing more intensively for it? After four decades of studying whitetails, my money is on the deer. They have withstood the onslaught of EHD for perhaps thousands of years, and we have had to learn to "manage around this disease." Why can't we do the same for CWD? 🦌

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