

**Testimony of Jason A. Summers
Resource Science Division Chief, Missouri Department of Conservation**

**Before the U.S. House of Representatives
Committee on Natural Resources
Subcommittee on Oversight and Investigations**

**Chronic Wasting Disease: The Impact on a State Fish and Wildlife Agency
June 25, 2019**

The white-tailed deer (*Odocoileus virginianus*) is arguably the most important game animal in North America and certainly one of Missouri's most valuable natural resources. Deer are both socially and economically important to the citizens of Missouri. Moreover, white-tailed deer hunting has become an important part of Missouri's wildlife conservation heritage and modern-day traditions. Annually, nearly 500,000 individuals pursue white-tailed deer in Missouri and spend an estimated 2.5 million days afield. Deer hunting in Missouri has more than \$700 million dollars in direct economic impact and supports more than 12,000 jobs.

Chronic wasting disease (CWD) is one of the most significant challenges facing state fish and wildlife agencies. It is not only a threat to deer and elk populations, but big game hunting, our hunting heritage, and the North American model of wildlife conservation. Further, potential impacts to human health are unknown, and health experts strongly caution that hunters avoid consuming meat from CWD-infected animals, but many deer harvested in CWD-infected areas are not tested. One estimate suggests that 7,000-15,000 CWD-infected animals are being consumed every year.

The unfortunate reality for most state fish and wildlife agencies is that it is not a matter of if, but when you will join the list of states that have detected CWD. For the Missouri Department of Conservation that day occurred in late February 2010 when a CWD-positive deer was detected in a confined cervid facility in Macon County, Missouri (Figure 1). In October of 2011 a second confined cervid facility holding white-tailed deer detected CWD. During the 2011 fall firearms deer season an adult buck harvested within a mile of the second CWD-positive facility tested positive for CWD. Since that time several additional scattered areas of infection have been detected. Most of these detections have small geographic distributions and low prevalence (proportion of infected individuals in the population), which indicates the CWD has and is being repeatedly introduced into new areas of Missouri (Figure 2).

There are two primary sources of exposure to CWD for uninfected deer: 1) CWD infected live and dead deer, and 2) CWD contaminated environment. The first goal of any effective disease management strategy is to limit the avenues that the disease can be introduced in to a local population. Therefore, states have attempted to limit the potential routes of disease introduction by restricting movement of live cervids through interstate transport, quarantining and depopulating confined cervid herds where CWD has been detected, placing restrictions on inter- and intra-state movement of cervid carcass parts that could spread the disease, and implementing

hunting regulations and localized culling (sharp-shooting) efforts to limit prevalence and spread in free-ranging populations (Figure 3).

Reducing densities limits the spread by reducing the number of individuals dispersing out of the contaminated area but may not appreciably decrease the negative effects of CWD. Targeted culling and increased hunter harvest in areas where newly developed hotspots, which result from infected individuals dispersing out of CWD endemic areas, is currently the only management strategy effective at minimizing prevalence and slowing the further expansion of the area impacted by CWD. Additionally, human activities like feeding and placement of salt and other minerals can increase the likelihood of disease transmission by increasing the interaction among social groups by altering the distribution and concentrating animals around these sites (Figure 4).

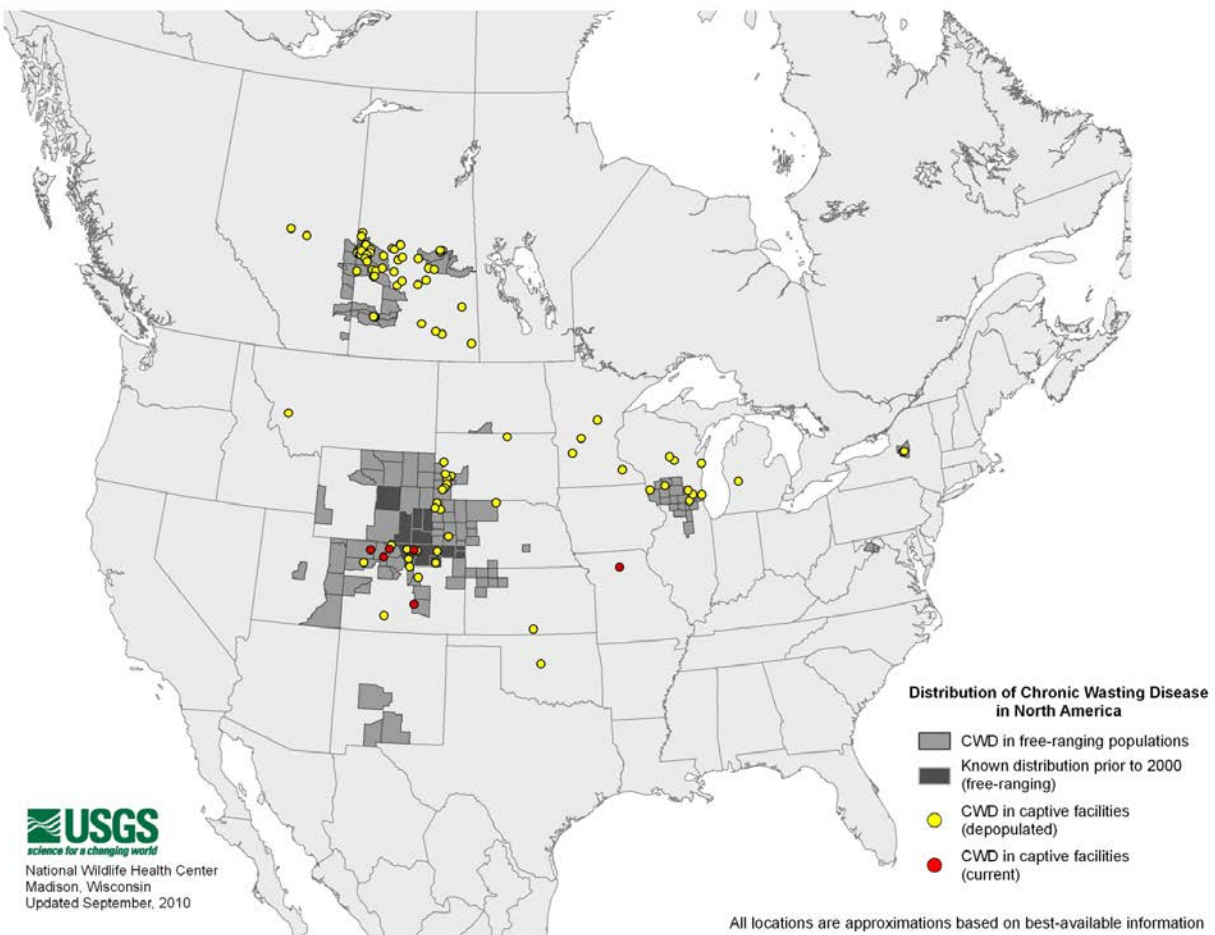


Figure 1. Known distribution of Chronic Wasting Disease when it was first detected in North-Central Missouri in February 2010.

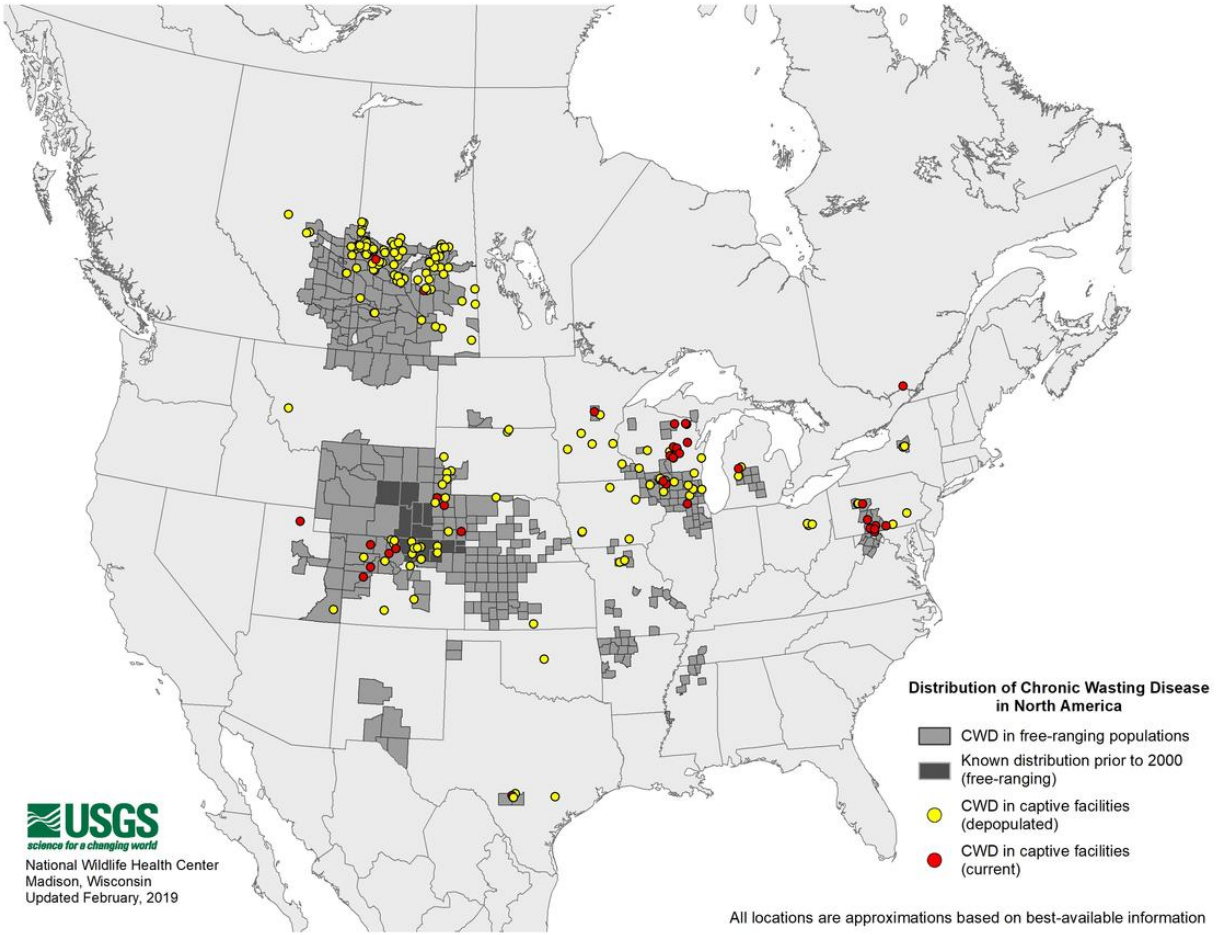
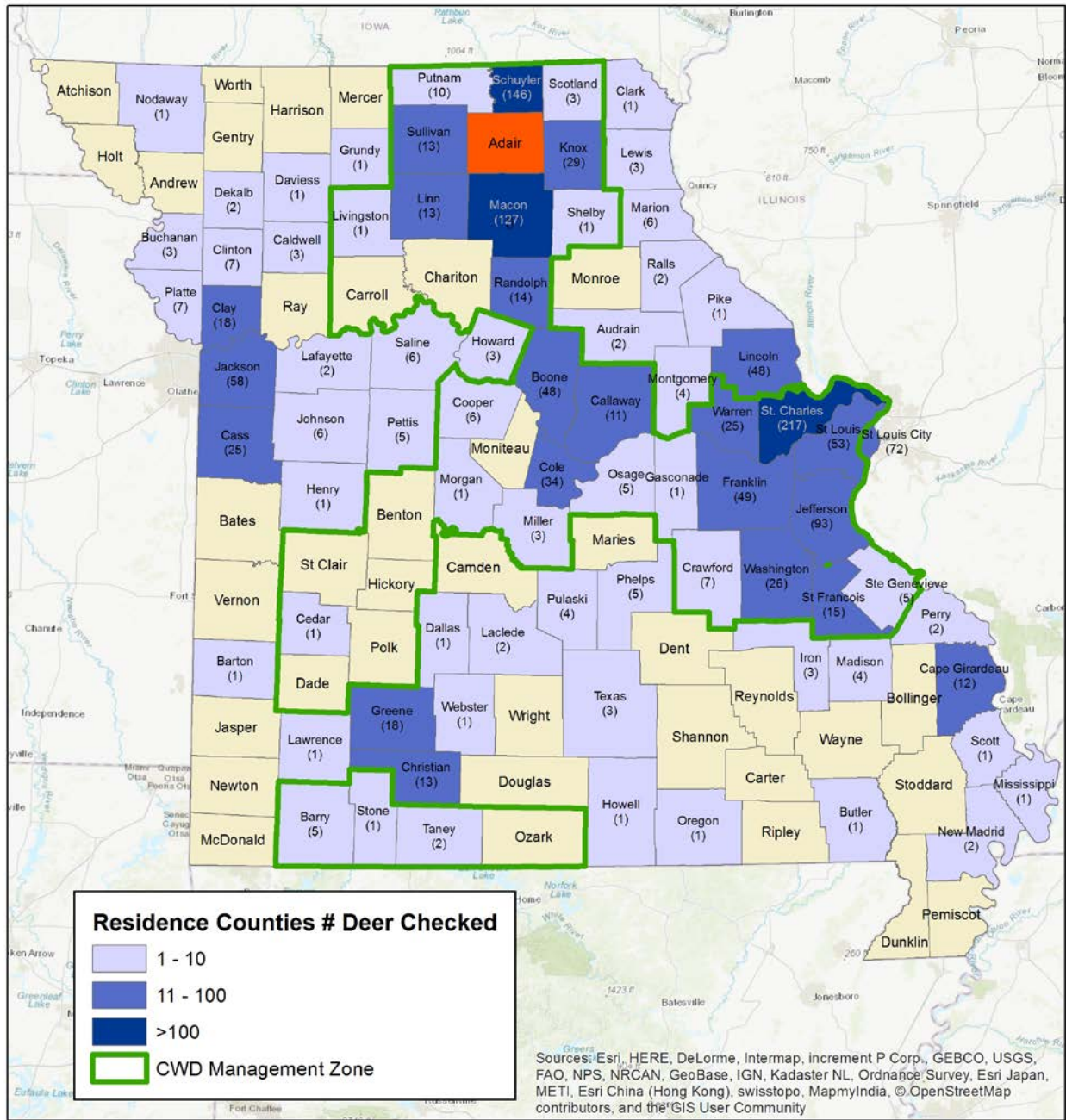


Figure 2. Known distribution of Chronic Wasting Disease in February 2019.



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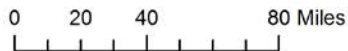


Figure 3. The map shows the county of residence for hunters that harvested deer in Adair County during the 2017 deer hunting season. If hunters return home and improperly dispose of high-risk carcass parts they could be contributing to the spread of CWD within Missouri.



Figure 4. Chronic Wasting Disease infected female white-tailed deer using a man-made mineral lick on one of the first the properties where CWD was initially detected in free-ranging deer in Macon County, Missouri. Photo credit: Raymond Bloomer

Missouri's CWD management approach

Following the detection of CWD in free-ranging white-tailed deer in Missouri we developed a CWD surveillance and management plan with 5 major goals.

- (1) Detect the disease, as early as possible, where it has not yet been found;
- (2) Determine the prevalence and monitor the distribution of CWD in the affected area(s);
- (3) Provide accurate and relevant information on CWD to the public, agency staff and other stakeholders;
- (4) Apply management actions to limit the further spread of CWD; and
- (5) Support and conduct applied research on CWD and its epidemiology to support management of CWD

It is important to note that effectiveness of various management interventions for dealing with CWD are very different for states or locations in the early stages of CWD compared to those

where the disease is widely distributed and endemic in the population (Figure 1 or 2). When CWD was found in north central Missouri, the distribution and prevalence indicated a likely recent introduction.

The first and best option is to take steps to prevent the introduction of CWD entirely. Once CWD has been introduced to a population, direct treatment interventions are limited because there is no known cure or vaccine. The only tested management strategy that can limit the rate of CWD growth is removing infected deer, but this method may only be practical or impactful when the level of infection is relatively limited. The distribution of infected individuals is clustered near the point of introduction. Removing infected individuals from the population can interrupt direct transmission.

Therefore, we have invested substantial effort in localized targeted culling to have a meaningful impact on the trajectory of the disease in the state. As a result, we developed three primary management objectives following the detection of CWD: (1) Eliminate where possible; (2) Limit the geographic spread; and (3) Manage the proportion of infected individuals. Elimination of CWD is unlikely in most scenarios, and there are only a handful of examples where CWD was detected in one or a few animals with no additional detections overtime. But, even without elimination there is significant value in limiting the number of infected animals on the landscape. Limiting the amount of CWD in a population can help minimize population-level impacts overtime but may also allow for future intervention as science advances and new tools for management become available.

Chronic wasting disease management in free-ranging populations will require a long-term, adaptive approach in which patience and persistence will be essential to the success of meeting disease management goals. Additionally, ninety-three percent of Missouri is in private ownership. Because of this, support and cooperation from private landowners, hunters and the public are critical to ensuring our ability to sustain management actions.

We have committed a substantial amount of effort to building strong cooperative working relationships with local landowners by investing in frequent, year-round communications. To increase support and “buy-in,” landowners are given the option to either allow MDC sharpshooters to remove deer following the hunting season or to remove deer themselves. Landowners in areas where CWD is found are also encouraged to harvest as many deer as possible during regular hunting seasons and are given the opportunity to take multiple antlered deer, exceeding the annual bag limit. We believe that by providing landowners with additional harvest opportunities they will be more willing to remove additional antlered and antlerless deer during the hunting season.

Doing nothing is not an option

A survey of Illinois residents and hunters in the areas affected by CWD found >70% approval, among the public and hunters surveyed, for nearly every management action (banning feeding and baiting, reducing deer numbers, increased restrictions on deer and elk farms, etc.) except for “take no action to manage CWD” which had 12% approval and “eradicate deer populations in the affected area” which had 48% approval. Acceptance of management actions by landowners

and hunters in the affected area is likely to decrease over time. A 2017 post-season deer hunter survey found that 74% of the respondents agreed that CWD was a significant threat to the health of Missouri's deer herd. Additionally, the continued participation and support for localized management efforts, 7 years after initial implementation, indicate continued support for management actions.

Research indicates that growing CWD prevalence increases the probability that hunters either quit hunting or change locations. In the long-term, a decline in hunter numbers could significantly impact the agency's ability to manage deer populations and would have social and economic impacts. For example, in Wisconsin and South Dakota, 10% and 20% of deer hunters reported that they would stop hunting in their management unit if CWD prevalence rates were a modest 5-20%. Additionally, in a survey of hunters from 8 western states, when asked how they would respond to a CWD prevalence rate of 30%, 4-9% indicated that they would either give up hunting or change hunting locations. If prevalence was increased to 50%, 14-39% of hunters would give up hunting or change locations. Therefore, even modest prevalence rates could substantially impact hunter participation.

Any CWD-related regulation change or management action is likely to result in strong opposition and criticism of the agency. Therefore, effective education and clear communication are critical in maintaining support for management efforts. We have utilized many different communication techniques aimed at maintaining credibility in managing the disease and clearly articulating management goals to the public, hunters, and local landowners. However, we need to continue to evaluate which messages and methods are the most effective at communicating a very complicated and emotionally charged issue with multiple stakeholder groups.

The cost of implementing management actions

Implementation of an effective management strategy to mitigate the impacts of CWD on the deer population is extremely taxing on both financial and staff resources. Since CWD was detected in the free-ranging deer herd in 2012, MDC has spent more than \$9 million dollars and 350,000 staff hours on surveillance, management, and outreach efforts (Figure 5). Over the last 3 years we have had a substantial increase in effort and expenditure with the implementation of mandatory sampling of hunter harvested deer on opening weekend of the firearms season, and management efforts because of continued expansion of the disease within Missouri's borders and from neighboring states like Iowa and Arkansas. We simply do not have the capacity to absorb the cost of expanding efforts or make the necessary investments to enhance communication and conduct critically needed research.

The time and resources spent working to manage CWD comes at a cost to habitat management and restoration projects, working with private landowners, management and restoration of species, including threatened and endangered species, public outreach and engagement programs, and many other conservation related activities that are of great interest to the public and benefit fish, forest and wildlife.

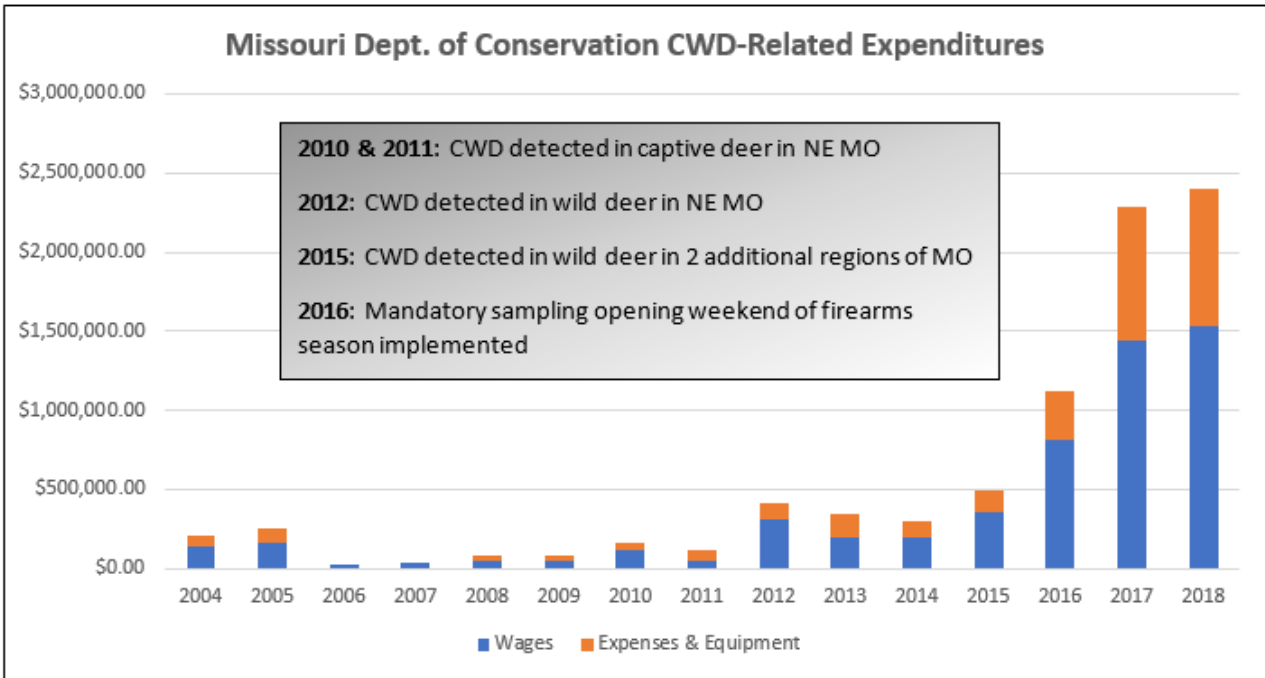


Figure 5. Expenditures by the Missouri Department of Conservation related to chronic wasting disease surveillance and management from 2004 through 2018.

Gaps in knowledge or understanding of how to manage CWD

We don't fully understand the extent and distribution of CWD across North America. In 2011 when federal funding provided through USDA-APHIS to support surveillance activities was eliminated, many states dramatically reduced or stopped CWD surveillance efforts. In the absence of consistent long-term monitoring, the disease is not likely to be detected until it has reached a broad geographic distribution and high prevalence. For example, by the time CWD was detected in Arkansas (2016) and Tennessee (2018) it had become well established and spread geographically and exceeds 25% within the endemic area. With the tools available to us today, it becomes very difficult to manage CWD once it is found at high prevalence and broad geographic distribution. This issue is of great concern to Missouri because of eastern expansion of the disease across Kansas and Nebraska, along with the northern expansion of CWD from Arkansas, all of which puts the Missouri deer population at risk. This also highlights the need for a regional approach to CWD management.

To date the approach to managing CWD has largely taken a state-centric approach. However, with the potential for hunters and cervid breeders to move cervids and carcass parts long-distances and the instant connection (social media) that allows news to travel far and fast highlights the need for greater coordination and collaboration across jurisdictional boundaries is significant. Additionally, communications that work toward consistency regarding the basic state of the science, implementation of reasonable management practices, and consistency of messaging with hunters and the public regarding the risk associated with feed, improper carcass

movement and disposal, etc. would lessen confusion and skepticism and help increase support for CWD management and surveillance efforts across the county. Efforts like the Best Management Practices (BMPs) adopted by the Association of Fish and Wildlife Agencies and regional coordination meetings among state agencies are a step in the right direction, but more needs to be done.

From my perspective there are few significant priority research areas that need to be addressed: 1) Evaluation of management strategies, especially targeted culling and adaptive harvest management; 2) CWD transmission dynamics – which routes of spread are most important and how are our management actions/regulations impacting those variables; 3) Carcass disposal methods/options. This issue continues to build more steam every year, no one knows what to do, and it isn't going away; 4) Work that helps us “traceback” sources of CWD introduction. Strain typing may or may not be the path forward to understanding the broader questions of disease movement across North America; 5) Testing methodology and capacity– moving towards rapid tests or even field side tests to help with lessening wait time, keeping hunters and processors engaged, and address lab capacity issues that are only going to continue over time. 6) Human dimensions and evaluation of communication – i.e. using science to inform messaging/communication to influence CWD management.

In closing, states have the responsibility of ensuring the health of deer and elk population and carry the burden of managing the disease. We cannot do that without continued support from hunters, businesses interest, or public will. Because CWD doesn't know boundaries and moves across fences we must commitment to partnering among state and federal agencies to better understand the disease, implementation of management actions, mitigate risk of continuing to introduce the disease to new areas through the movement of cervids and cervid parts, and develop and test science-based solutions to slow the spread and lessen the impact of CWD. Simply, we within conservation, science, and public service communities must work together toward a shared solution. Finally, most Missouri hunters realize that CWD is a threat to the health of the deer herd and have aggressive management actions. As a result, CWD is a rare disease in our state – we want to keep it that way!