

Tennessee Wildlife Resources Agency



TWRA CHRONIC WASTING DISEASE RESPONSE PLAN

[This CWD Response Plan is a “living document”, which reflects the ongoing efforts of the Tennessee Wildlife Resources Agency to use the most up to date and effective measures to prevent and manage the potential introduction of Chronic Wasting Disease into Tennessee. The CWD Response Plan will be updated and revised on a regular and continuing basis, as new information on CWD management and control become available.]

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Executive Summary

Chronic Wasting Disease (CWD) is a transmissible, fatal, neurological disease affecting members of the Cervidae (deer) Family. Common members of this family include white-tailed deer (*Odocoileus virginianus*), elk (*Cervus elaphus canadensis*), mule deer (*Odocoileus hemionus*), moose (*Alces alces*), caribou (*Rangifer tarandus*), red deer (*Cervus elaphus elaphus*), and fallow deer (*Dama dama*). Wild free-ranging members of the deer family found in Tennessee include white-tailed deer and elk. Currently, there are no known cases of CWD transmission to humans (Belay et al. 2004). However, the Centers for Disease Control (CDC) recently published guidance on human handling of venison harvested from areas with CWD, recommending that hunters submit a sample of their deer or elk harvested from a CWD endemic area for CWD testing prior to consuming the venison and avoiding consumption of known positive animals.

In the late 1960's, CWD was first recognized in captive mule deer in Colorado. The disease has since been detected in Arkansas, Illinois, Iowa, Kansas, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Mexico, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Utah, Virginia, West Virginia, Wisconsin and Wyoming. Additionally, CWD is present in the Canadian provinces of Alberta and Saskatchewan.

Monitoring for CWD in Tennessee began in 2002. To date, 12,282 free-ranging deer and 109 free-ranging elk have been tested for the disease. CWD has not been detected in Tennessee, but it remains crucial for the Tennessee Wildlife Resources Agency (TWRA) to remain vigilant in its efforts to keep the disease out of Tennessee, and continue sampling efforts to ensure early detection if it were to occur in the state. Additionally, appropriate and immediate actions will be warranted to limit the negative impacts of CWD if ever found in Tennessee.

The TWRA recognizes that CWD in Tennessee would have significant biological, ecological, economic and sociological implications. CWD represents a serious long-term threat to cervid populations in the state. The purpose of this response plan is to provide direction, guidelines and a specific course of action for monitoring and managing CWD in Tennessee, if it were to occur. This plan outlines four over-arching goals aimed at preventing and minimizing the impacts of CWD on native deer and elk populations in Tennessee:

- Prevention
 - Employ appropriate preventive measures to minimize the risk of CWD entering the state.
- Early Detection
 - Implement appropriate sampling strategies (methodologies, sample size and location) throughout the state to ensure early detection.

- Containment
 - Implement appropriate monitoring strategies to determine prevalence and spatial distribution of CWD, if detected.
 - Employ appropriate management actions that will limit the spread of CWD and eliminate or maintain the disease at a low prevalence, if detected.
 - Determine the origin of any CWD positive cervid.
- Communications
 - Distribution of accurate and effective information on CWD to the public, Agency staff, the Tennessee Fish and Wildlife Commission (TFWC) and other stakeholders.

Accomplishing these goals will minimize the impact of CWD on native white-tailed deer and elk in the state. The management of CWD will require a long-term commitment and adaptive approach that will be continually refined as the science of CWD detection and management advances.

Once established, eradication of CWD is unlikely due to the persistence of prions (the infectious agent) in the environment (Williams and Miller 2002). The TWRA CWD Response Plan focuses on prevention, early detection and control of the disease. In the event that CWD is detected in Tennessee, our plan provides details on TWRA actions that will be undertaken to contain and monitor the disease within a defined area. The Plan identifies response and support teams, with specific roles and responsibilities outlined. It also outlines internal and external notification procedures, as well as a Communications Strategy that will be employed throughout the different stages of CWD management. In operationalizing the plan, TWRA will seek the development of partnerships with private citizens and other governmental agencies to manage CWD if it were to occur in Tennessee.

I. INTRODUCTION

Overview of Chronic Wasting Disease

Chronic Wasting Disease (CWD) is a transmissible, fatal, neurological disease affecting members of the Cervidae (deer) Family. The agent for this disease is neither bacterial nor viral, and is caused by misfolding of a normal prion protein that replicates and causes other normal prion proteins to misfold (Fryer and McLean 2011). This neurological disease is in the family of infectious diseases known as transmissible spongiform encephalopathies (TSEs). Other TSEs include bovine spongiform encephalopathy (BSE) in cattle (i.e., mad cow disease), scrapie in sheep, feline spongiform encephalopathy in cats, and Creutzfeldt-Jakob disease (CJD) and variant (vCJD) in humans.

CWD is named for the symptoms caused by the disease which include: excessive salivation, appetite loss, weight loss, and behavioral changes (Williams 2005). Diagnosis of the disease cannot be made based on clinical symptoms alone, since other diseases (e.g., epizootic hemorrhagic disease) can cause the animal to exhibit similar symptoms. There is currently no USDA-approved, live-animal test for CWD. The preferred test to diagnose CWD is the enzyme-linked immunoabsorbent assay (ELISA) test, which uses fresh tissue and typically has a 1-3 day turn-around for results, depending on the capacity of the diagnostic laboratory. A positive ELISA test for CWD must be confirmed via the immunohistochemistry (IHC) method, which measures accumulations of CWD-associated prion protein in brain and lymph node tissues. Incubation periods in naturally-exposed, free-ranging deer are difficult to determine, but average incubation periods are thought to be 2 to 4 years but can vary greatly (Williams 2005). From the time clinical symptoms are identified, death occurs within several months (Williams et al 2002). Research on wild white-tailed deer found females infected with CWD died within 2.6 years and infected males died within 2.1 years (Edmunds et al. 2016); infected mule deer survived 1.6 years while uninfected mule deer survived 5.2 years (DeVivo et al. 2017).

The United States Center for Disease Control and Prevention and the World Health Organization have reviewed available scientific data and conclude currently there are no reported cases of CWD transmission to humans (<https://www.cdc.gov/prions/cwd/index.html>). However, in an effort to exercise abundant caution on the potential human health consequences, CDC recently published guidance on human handling of venison harvested from areas with CWD. They now recommend that hunters harvesting a cervid (deer and elk primarily) from a CWD endemic area submit a sample of their animal for CWD testing prior to consuming the venison, and to not consume animals known to be positive¹.

CWD was first detected in mule deer at the Colorado Division of Wildlife captive wildlife research facility in Fort Collins in 1967. The first documented case of CWD in a free-ranging cervid was in 1981 in a Colorado elk. The disease has since been detected in Arkansas, Illinois, Iowa, Kansas, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Mexico, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Utah, Virginia, West Virginia, Wisconsin and Wyoming. Additionally, CWD is present in the Canadian provinces of Alberta and Saskatchewan (Figure 1).

There are two primary forms of exposure to CWD for uninfected cervids: CWD infected cervids or from a CWD-contaminated environment (Williams et al. 2002, Miller et al. 2004, Mathiason et al. 2009). In areas where CWD is not established and where the environment is relatively uncontaminated, direct animal contact may be the most likely source of transmission of

¹ Center for Disease Control Guidelines for consumption of venison harvested from areas with Chronic Wasting Disease (Source: <https://www.cdc.gov/prions/cwd/prevention.html>).

CWD to uninfected cervids (Arkansas Game & Fish Commission 2016). However, as CWD becomes established in an area, environmental contamination could become the primary source of infection (Almberg et al. 2011) as the number of CWD prions increases in the area.

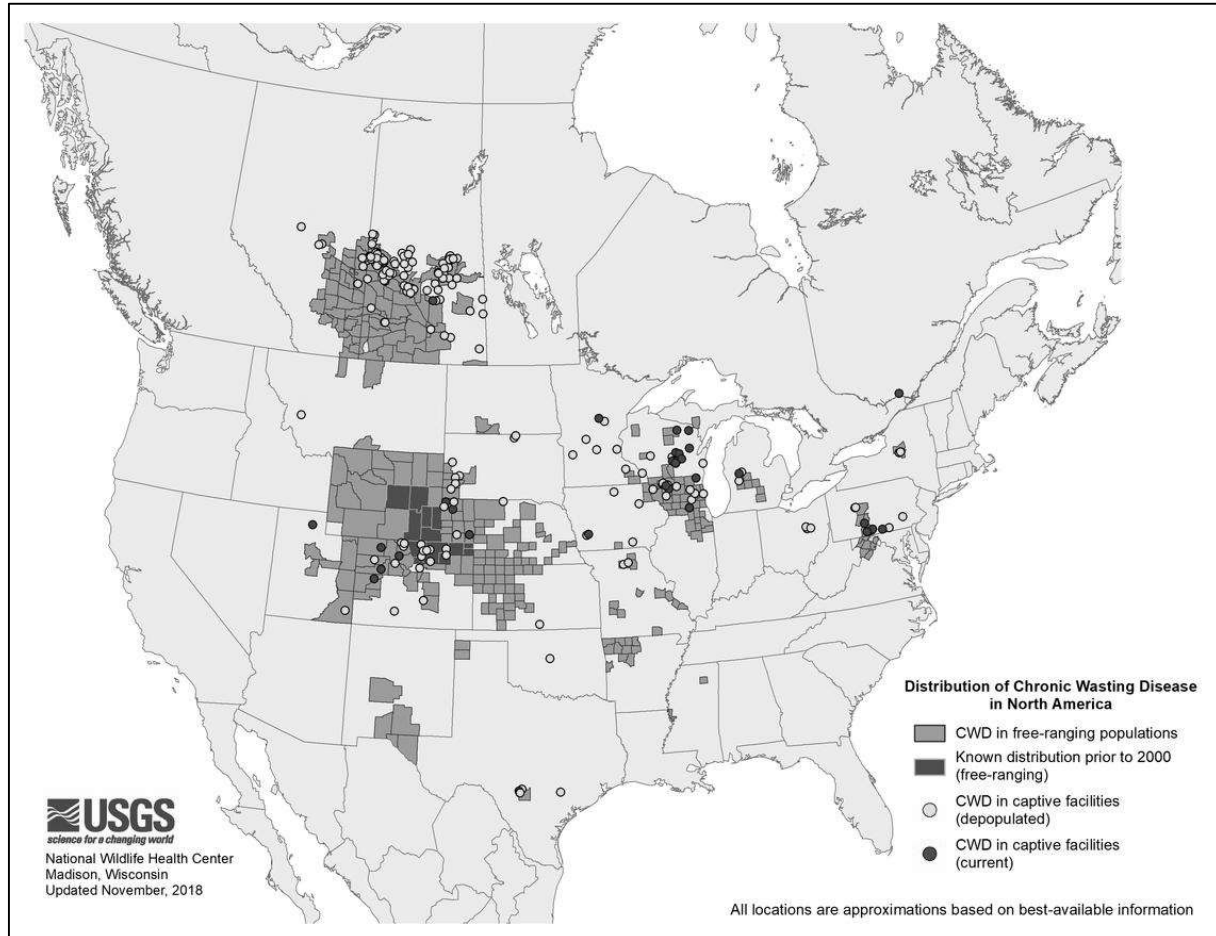


Figure 1. Distribution of Chronic Wasting Disease in North America, December 2018 (USGS National Wildlife Health Center, https://www.usgs.gov/centers/nwhc/science/expanding-distribution-chronic-wasting-disease?qt-science_center_objects=0#qt-science_center_objects)

Chronological Overview of TWRA’s Response to the Threat of CWD

Beginning in 2002, due to increasing national concerns over CWD and the serious nature of the disease, Tennessee Wildlife Resources Agency (TWRA) began CWD monitoring of white-tailed deer and elk. By 2018, a total of 12,282 free-ranging white-tailed deer and 109 free-ranging elk have been tested for the disease. In fall of 2016, a new pilot strategy was implemented, to significantly increase the number of samples obtained on an annual basis. The new approach was to enlist the assistance of taxidermists and game processors, paying them to collect samples. In 2016 and 2017, sample sizes for CWD testing increased by more than 590% (2,014 and 1,799 samples in 2016 and 2017, respectively) (Table 1). As of 2018, CWD has not been detected in Tennessee.

<i>Season</i>	Elk	Red Deer	WT Deer	N/A	Total
2002-2003	22		1,842		1,864
2003-2004	8		4,112		4,120
2004-2005	3		60	673	736
2005-2006			225	341	566
2006-2007			5	253	258
2007-2008			24		24
2008-2009	13	2	363		378
2009-2010	11	9	194		214
2010-2011	19	2	38	160	219
2011-2012		6	316		322
2012-2013	5	4	319		328
2013-2014	5	2	279		286
2014-2015	8	4	361		373
2015-2016	4		288		292
2016-2017	10		2,004		2,014
2017-2018	1		1,852		1,853
Total	109	29	12,282	1,427	13,847

Table 1. Annual summary of CWD testing in Tennessee, 2002-2018.

In 2018, TWRA implemented an enhanced surveillance strategy (Appendix A), which is designed to both assess the risk of CWD introduction into Tennessee, and implement a weighted sampling strategy that integrates deer population and key risk factors. The overall goal of this new surveillance approach is to maximize the chances of early detection of CWD.

It is well documented that the movement of infected, live cervids and infected carcasses by humans has resulted in broad geographic expansion and distribution of CWD. Fortunately, the TWRA has implemented various regulations helping to minimize these threats. In 2009, the TWRA adopted regulations imposing a moratorium on new facilities possessing and/or harvesting big game species under the authority of a Private Wildlife Preserve Permit² (Appendix B). The regulation requires that Cervidae being held or harvested in wildlife preserves are “obtained from a herd outside of the state that has been certified as Chronic Wasting Disease free for the past 5 years, and are authorized for import by the Tennessee Department of Agriculture” (TDA). Cervidae may also be obtained from a source within the state of Tennessee which is enrolled in the TDA CWD Herd Certification Program. TDA established the Tennessee CWD Herd Certification Program (Appendix B), in compliance with the U.S. Dept. of Agriculture’s CWD Herd Certification Program, to provide a mechanism for the importation of live non-native cervids, while reducing the risk of introducing CWD into the state of Tennessee.

² TWRA Rules and Regulations Governing Shooting, Chapter 1660-1-11, <https://publications.tnsosfiles.com/rules/1660/1660-01/1660-01-11.20090812.pdf>

There is growing evidence, however, that the USDA CWD Herd Certification Program is ineffective in minimizing the risks of CWD transmission, and states should seriously consider prohibiting the importation of all live CWD-susceptible cervids (Association of Fish & Wildlife Agencies 2018).

In 2012, the TWRA adopted a regulation that no person may import, transport, or possess a cervid carcass or part from any CWD positive area unless it meets certain criteria that prevent introduction of prions from CWD positive areas. In 2018, these restrictions on cervid carcass transport were expanded to include any area outside Tennessee³. Also, in 2018 the TFWC approved regulations to prohibit the use or possession of cervid urine (except synthetic) products while hunting. This prohibition will take effect in March 2019⁴. The statewide prohibition on possession of live white-tailed deer also helps in limiting the threat of CWD in Tennessee⁵.

The TWRA recognizes CWD in Tennessee would have significant biological, ecological, economic and sociological implications. CWD represents a serious long-term threat to cervid populations in the state. The purpose of this response plan is to provide direction, guidelines and a specific course of action for monitoring and managing CWD in Tennessee, if it were to occur.

This plan outlines four over-arching goals aimed at preventing and minimizing the impacts of CWD on native deer and elk populations in Tennessee:

- Prevention
 - Employ appropriate preventive measures to minimize the chances of CWD entering the state.
- Early Detection
 - Implement appropriate methodologies and levels of sampling strategies (methodologies and sample size) throughout the state to ensure early detection.
- Containment
 - Implement appropriate monitoring strategies to determine prevalence and spatial distribution of CWD, if detected.
 - Employ appropriate management actions that will limit the spread of CWD and eliminate or maintain the disease at a low prevalence, if detected.
 - Determine the origin of any CWD positive cervid.
- Communications
 - Distribution of accurate and effective information on CWD to the public, Agency staff, the Tennessee Fish and Wildlife Commission (TFWC) and other stakeholders.

³TWRA Rules and Regulations For Animal Importation, Chapter 1660-1-15, <https://publications.tnsosfiles.com/rules/1660/1660-01/1660-01-15.20180719.pdf>

⁴ Tennessee Fish & Wildlife Commission, Proclamation 18-05, Manner and Means of Hunting, Taking and Trapping; <https://publications.tnsosfiles.com/pub/proclamations/06-09-18.pdf>

⁵ Tennessee Code Annotated, Title 70, Chapter 4 - [70-4-403](#)

Accomplishing these goals will minimize the impact of CWD on white-tailed deer and elk in the state. The management of CWD will require a multi-year adaptive management approach that can be refined as the science of CWD detection and management advances.

Prevention is the only cure for CWD due to the persistence of prions (the infectious agent) in the environment (Williams and Miller 2002). This plan focuses on prevention, early detection and control of the disease with major efforts focused on containing the disease and monitoring its prevalence within a defined area.

Response and support teams are identified with specific responsibilities outlined. The TWRA will rely on partnerships with private citizens and other governmental agencies to manage CWD if it were to occur in Tennessee.

Authorities

Tennessee Wildlife Resources Agency

Tennessee Code Annotated Title 70 provides the overall authority to the TWRA for all native wildlife (e.g., white-tailed deer, wild elk, etc.) and its management, conservation, protection and propagation. Pursuant to TCA 70-1-302(a)(5), the Agency has the authority to exercise control measures of undesirable species.

Pursuant to TCA 70-4-107, the Tennessee Fish and Wildlife Commission (TFWC) has the authority to issue proclamations in order to set seasons, manner, means, etc. TCA 70-4-107(c)(3) authorizes the Commission to summarily close, reopen and/or extend seasons during emergency conditions.

Additionally, pursuant to TCA 70-4-113 the Executive Director and his designees have the authority to use any device to capture or kill any animal for specific purposes, or when it is considered necessary by the Executive Director to reduce or control any species that may be detrimental to human safety, health or property.

Importation and possession of live white-tailed deer is illegal in Tennessee. However, white-tailed deer may be incidentally contained within a property with high enough fencing to prevent escape and there is no restriction on high-fencing of properties. Although white-tailed deer are likely contained within these properties, the ownership of these deer remains with the state. TWRA is also responsible for permitting private big game wildlife preserves, but the regulatory authority for cervids other than white-tailed deer in these enclosures rests with the Tennessee

Department of Agriculture (TDA)⁶. Currently, there is a moratorium on the establishment of new private big game wildlife preserves.

Tennessee Department of Agriculture

Importation and possession of live cervids, other than white-tailed deer and wild elk, is legal in Tennessee. The TDA, including the State Veterinarian, has regulatory authority over these activities. More specifically, the State Veterinarian has authority over sanitary disposal of any dead animal, and disease related issues with all live animals. Furthermore, the State Veterinarian can order vaccination, quarantine and destruction of any animal.

It is not entirely known how many captive cervid facilities exist in the state since they are not required to be registered or permitted unless they are involved in interstate movement of CWD-susceptible cervids. Operators of cervid facilities involved in interstate movement of CWD-susceptible species are required to participate in TDA's CWD Herd Certification Program (HCP) (Appendix B). Participating in the CWD HCP is voluntary for those facilities not involved in interstate movement of Cervidae. Therefore, some captive cervid facilities are unknown by TDA and TWRA. As a result, TWRA is working to identify the locations of all captive cervid facilities in Tennessee and map them to assist with CWD prevention and/or control efforts.

United States Department of Agriculture Veterinary Services

If CWD is found in a captive cervid herd, the United States Department of Agriculture (USDA) Veterinary Services will work in concert with the State Veterinarian to develop a herd plan outlining protocol for animal movement into and out of the facility and possible euthanasia, disposal, indemnity, etc. In a case where white-tailed deer have been incidentally contained within a CWD-positive captive cervid facility, TWRA will work with USDA and the State Veterinarian to properly manage these whitetails following a USDA herd plan.

II. PRE-DETECTION PREPARATION

Regulatory Action

There is no vaccination or treatment for CWD, thus prevention is the first and most effective strategy for minimizing the chances of CWD becoming established in Tennessee. TWRA has implemented several regulatory mechanisms to minimize the chances that a CWD-positive animal (live or dead) will be brought into the state. First, as noted previously, the importation and possession of live white-tailed deer and wild elk into Tennessee is prohibited by state statute

⁶ Tennessee Code Annotated, Title 70, Chapter 4 - [70-4-403](#)

Second, TWRA regulates the shooting of captive cervids on Private Wildlife Preserves. Since 2009, a moratorium has been placed on the establishment of new big game wildlife preserves. Third, TWRA restricts the transportation of cervid carcasses from areas outside Tennessee to include only a) meat that has bones removed; b) antlers, antlers attached to cleaned skull plates, or cleaned skulls; c) cleaned teeth; d) finished taxidermy and antler products; e) hides and tanned products. Finally, TWRA established regulations to prohibit the use or possession of cervid urine, except synthetic, for hunting, to become effective March 1, 2019.

If CWD is detected in Tennessee, TWRA will shift its focus to active monitoring and containment of the disease in the area where the detection is made (Note: CWD surveillance activities will continue in the remainder of the state, in an effort to maintain an early detection system for CWD). The following regulatory options will be considered as strategies to minimize its prevalence in the population and to contain its spread:

- A ban on feeding and rehabilitating wild cervids in defined TWRA CWD Management Zone (CMZ).
- Ban on removal of cervid carcasses and parts from defined TWRA CWD Management Zone.
- Mandatory sampling of hunter-harvested deer and elk from within TWRA CWD Management Zone at physical checking stations.
- Increase deer bag limits, extended deer seasons and/or allow additional weapon types in TWRA CWD Management Zone(s).
- TWRA-sanctioned culling actions in TWRA CWD Management Zone.
- Mandate disposal requirements for hunter-killed cervids taken in TWRA CWD Management Zone.

Surveillance Sampling

The TWRA Disease Coordinator will be responsible for keeping an inventory of equipment and supplies for CWD sampling (Appendix C) and a CWD response (Appendix D). These items will be distributed to field staff as needed or upon request.

Pre-CWD

To facilitate TWRA's goal of early detection of CWD, sampling efforts is incorporating a risk-based weighted surveillance strategy that takes into account 1) TWRA biologists' perceptions of risk factors, 2) surrounding states' surveillance, regulations, and CWD status, and 3) a framework for future CWD sampling (Appendix A). Obex and retropharyngeal lymph node samples will be taken from elk, while only retropharyngeal tissues will be collected from white-tailed deer. If a sufficient number of samples cannot be obtained by TWRA alone in some areas,

taxidermists and meat processors receiving cervids and/or cervid parts from these areas may be enlisted to provide additional animals for sampling.

Early detection of CWD can also be enhanced by focusing more intensive sampling on reportedly sick deer and elk. To facilitate this and increase awareness of sick deer and elk, the Agency will encourage the public to report cervids appearing unhealthy and whenever possible, these animals will be sampled and tested. In cases where sampling cannot occur, the location of the reportedly sick cervid will be documented.

Post-CWD

In the event of a confirmed positive detection of CWD, enhanced sampling will commence in a defined CWD Management Zone, with sampling procedures similar to those outlined in Appendix A. The TWRA Wildlife Disease Coordinator, TWRA Wildlife Veterinarian, and CWD Response Team leader (i.e., Asst. Chief of Wildlife & Forestry) will consult on the appropriate sample size and methodologies for obtaining samples, depending on the situation, within the CWD Management Zone. The purpose of this monitoring will be to establish a baseline prevalence rate and distribution of CWD within the CWD Management Zone.

III. RESPONSE TO A CWD POSITIVE

Notification Process

The TWRA Disease Coordinator and/or UT/TWRA Wildlife Veterinarian, upon receiving notification of a preliminary CWD positive sample from a USDA-approved laboratory, will ensure key personnel within the Agency and the Tennessee Fish and Wildlife Commission (TFWC) are notified. This will include but not be limited to the Executive Director, the Assistant Director of Field Operations, the Chief of the Wildlife and Forestry Division (WFD), the Chief of the Boating and Law Enforcement Division, the Deer and Elk Program Leaders, and Captive Wildlife Program Coordinator, the Regional Wildlife Program Managers, the Chairman of the TFWC, and the Chairman of the Wildlife Management Committee of the TFWC (Appendix E). The above mentioned personnel will be made aware that a preliminary positive case of CWD has been found in Tennessee via ELISA test and a confirming IHC test is being conducted at the USDA Veterinary Services Laboratory in Ames, Iowa. If the confirmatory test results in a non-detect finding, no further action besides proper notifications will be taken. If the original sample is insufficient for a confirmatory test, the initial positive test will be accepted as a positive for an index case.

Upon notification of a confirmed positive CWD test result by a USDA-approved laboratory, the TWRA Disease Coordinator will immediately notify the Executive Director, the Chief of the

Wildlife & Forestry Division and the Assistant Director of Field Operations; intradepartmental notification will proceed as outlined in Appendix F. The TWRA Executive Director will notify the Governor's Office, all TFWC members, the Commissioner of Agriculture, the Commissioner of the Department of Health, the Commissioner of the Department of Environment and Conservation, the Tennessee State Veterinarian, and the U.S. Fish and Wildlife Service. Concurrently, the Assistant Director of Field Operations' designees will notify the relevant Agency partners and the wildlife chiefs in bordering states. Also, TWRA's Legislative Liaison will contact legislators in district(s) where the CWD-positive case occurred, prior to a statewide news release being distributed by TWRA's Chief of Communications and Outreach. The news release will include a media packet providing background information on CWD, a synopsis of TWRA's CWD sampling efforts, and any other CWD-related materials deemed appropriate.

The Chief of the Wildlife & Forestry Division and Chief of Communications and Outreach and/or their designees will be assigned as TWRA CWD media contacts through which all CWD-related questions from the public and the media will be routed, including public appearances and interviews. These persons will comprise the TWRA's CWD Media Team (Appendix G). The Media Team will develop and use specific talking points when interacting with the media and members of the public about CWD. Along with TWRA staff, TFWC members should also direct media related requests and public inquiries to the TWRA Media Team. The Media Team is also responsible for TWRA's social media communication regarding CWD. Other TWRA staff and TFWC members should refrain from posting/commenting on CWD matters and leave all CWD-related communications to the Media Team. Lastly, the Media Team is responsible for coordinating well-advertised CWD public meetings to be held in the area of the CWD detection.

Response Teams

The Assistant Director of Field Operations or their designee will serve as the CWD Administrative Team Leader (Appendix H). Additional Agency leadership will serve on the CWD Administrative Team to support the Field Response Team's (Appendix I) activities. The CWD Administrative Team leader will immediately activate the CWD Field Response Team upon positive confirmation of CWD in the state. The CWD Field Response Team may include cervid collection teams, carcass transport teams, and biological data collection teams. The CWD Field Response Team will be led by the Assistant Chief of the Wildlife & Forestry Division and will include appropriate field staff, as deemed necessary for the specific situation and response (Appendix I).

Management Actions

Once established, eradication of CWD from a locality is difficult due to the persistence of prions in the environment. Therefore, once a CWD-positive is detected in Tennessee or in an

area within 25 miles of the border, TWRA will initiate its response efforts focused on determining the prevalence and distribution of CWD within a defined CWD Management Zone. The goals of these efforts will be containment and management of the disease, including eradication if feasible. There are at least 3 likely scenarios of CWD detection in Tennessee that would precipitate management actions by TWRA: 1) Detection in a free-ranging white-tailed deer or elk within the borders of Tennessee; 2) Detection in a captive cervid facility within Tennessee, and; 3) Detection in a free-ranging or captive cervid in an adjacent state, within 25 miles of the Tennessee border.

Detection in a free-ranging wild cervid within the borders of Tennessee:

- Once CWD has been confirmed in a wild cervid, a CWD Management Zone (CMZ) will be developed. The Management Zone will be comprised of a Core Zone (approximately 5-mile radius), a 10-mile High Risk Zone, and a 25-mile Buffer Zone (Figure 2).
- The Field Response Team will obtain all supplies and materials needed to conduct field activities from the respective TWRA regional office, or supplies will be drop shipped to the specific location where needed.
- A CWD Monitoring Strategy will be employed, with the objective of determining the prevalence and distribution of the disease within the CWD Management Zone.
- Special regulations for the CMZ may be adopted by the TFWC, as indicated in *Regulatory Actions* (pages 8-9). For example, if the first positive occurs during an archery-only or muzzleloader/archery deer hunting season, a special gun hunting season may be utilized to supplement harvest and CWD sampling in the CMZ. To help facilitate sample collection during deer hunting seasons, mandatory check stations may be established within the CMZ.
- Hunter-harvested deer within the CMZ will be sampled, and individually identified. CWD test results will be available to hunters once they are finalized and accessible by the Agency.
- If needed, processors and taxidermists within the CMZ will be recruited to obtain additional biological samples of harvested cervids for CWD testing.
- If needed, additional testing within the CMZ will commence as soon as possible. The Field Response Team will contact private landowners obtaining permission to access private lands within the CMZ to secure additional samples through TWRA collection operations. Agency staff will also coordinate with managers of any public lands within the CMZ to obtain access and samples as needed. Samples will also be collected from road-killed specimens, and sampling of sick or cervids found dead.
- All sampling locations will be recorded using GPS coordinates and entered into a GIS database maintained by TWRA's GIS staff.
- If an additional positive animal(s) is identified within the CMZ, the CMZ will be expanded as appropriate to ensure that all areas of potential CWD presence are included

in the CMZ. Consultation with the TWRA Wildlife Veterinarian, TWRA Wildlife Disease Coordinator, Tennessee State Veterinarian, and others will help to determine the appropriate size and extent of the CWD Management Zone.

- The CWD Response Team will coordinate with the TDA and USDA to conduct inspections and monitoring of all captive cervid facilities within a CWD Management Zone.
- Response efforts will be scaled back if additional positives are not detected after five full sampling seasons following the last positive detected. Appropriate hunting regulations during and after the 5-year response period will be determined by the TWRA based on the estimated cervid population size at that time.

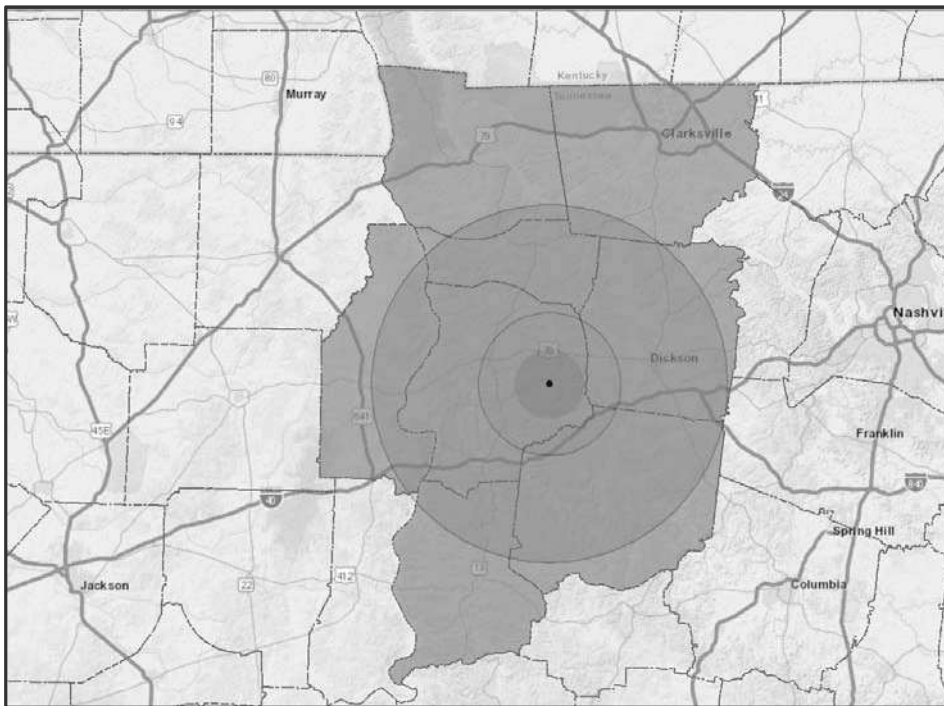


Figure 2. Example CWD Management Zone (with 5-mile Core Zone, 10-mile High Risk Zone, and 25-mile Buffer Zone), and counties.

Detection in a captive cervid facility within Tennessee:

Captive cervids (excluding incidentally fenced white-tailed deer) are regulated by the TDA and USDA. However, a CWD-positive cervid from a captive facility will activate TWRA’s CWD Response Plan, with the CWD-positive captive facility serving as the center point of the Core Zone and CMZ. We recommend the following actions be considered/taken by the appropriate partners if CWD is detected in a captive cervid facility within Tennessee, or if a captive cervid facility has transferred or received cervids within the past 5 years from an out-of-state captive facility in which CWD is detected:

- TDA and/or USDA ensure fences are maintained to avoid possible escapes. Additionally, recommend double fencing to exclude wild cervids from direct contact with cervids inside the enclosure.
- Immediate quarantine of the facility to ensure no cervid movement in or out of the enclosure.
- Depopulation and sanitary disposal of all cervids in the facility and decontamination of the facility to the maximum extent possible. TWRA may depopulate and test any incidentally contained white-tailed deer.
- Epidemiological investigation of cervids in contact with CWD infected animals to determine the origin and prevent further infection.
- If records indicate a captive cervid from such a facility leaves Tennessee, then the final destination state wildlife agency will be notified along with other relevant agencies.
- If the facility is a shooting preserve, shooters who may have killed any cervids within the facility will be notified that the facility tested positive for CWD.
- Wild cervid sampling outside the facility will be conducted in accordance with the guidelines and procedures described in the *Detection in a free-ranging wild cervid within the borders of Tennessee* section of this plan.

Detection in a free-ranging or captive cervid in an adjacent state, within 25 miles of the Tennessee border

- The TWRA will coordinate with the state wildlife agency in the adjoining state where CWD has been detected. TWRA staff will obtain information from that state's CWD response program.
- If the index location is within 25 miles of the Tennessee border, a CWD Management Zone will be established within that portion of a 25-mile radius falling within Tennessee. Response procedures will be implemented using the protocol(s) outlined in the *Detection in a free-ranging wild cervid within the borders of Tennessee* section of this plan.

IV. COMMUNICATIONS STRATEGY

An effective CWD Communications Strategy, including a Public Information Plan, is an essential component of a successful CWD Response Plan. As indicated earlier, the communications goal of TWRA's CWD Response Plan is to distribute accurate and effective information on CWD to the public, Agency staff, the Tennessee Fish and Wildlife Commission (TFWC) and other stakeholders. To be effective, communications must be embedded throughout the process of the Response Plan, including the Pre- and Post-detection phases. The following objectives, from the state of Montana's CWD Management Plan, provide a good starting point for TWRA CWD Communications Strategy:

- Increase awareness of CWD and current CWD management strategies among targeted audiences.
- Provide clear understanding of surveillance program goals and accomplishments.
- Increase awareness and understanding of TWRA's CWD Response Plan.
- Increase support for CWD Response Plan among targeted audiences.
- Generate support for response activities so response plan goals can be achieved.

Pre-Detection

The Association of Fish and Wildlife Agencies (AFWA) published its *Best Management Practices for Prevention, Surveillance, and Management of Chronic Wasting Disease* in 2018 (Gillin and Mawdsley 2018), which included a section on CWD online communications with the public. Their recommended Best Management Practices for CWD websites include (but not be limited to) the following information:

1. General information about CWD:
 - a. History
 - b. Species affected
 - c. Pathogenesis
 - d. Clinical signs
 - e. Distribution across the state/province, country, world
2. Public health concerns:
 - a. CDC recommendations
 - b. Risk for livestock, domestic species
3. Recommendations for hunters:
 - a. Hunt planning information (where applicable)
 - i. Location (units, counties) of CWD sampling areas (mandatory, voluntary).
 - ii. Check station locations, if applicable.
 - iii. Options for submitting samples for CWD testing outside of sampling areas.
 - iv. Relevant contact information, e.g. regional offices.
 - b. Hunting in CWD-positive areas:
 - i. Recognizing clinical signs
 - ii. Personal Protective Equipment
 - c. Post hunt processing:
 - i. Field dressing
 - ii. Deboning for transport
 - iii. Preparing for taxidermy
 - iv. Disposal of parts
 - d. Movement of carcasses/parts/disposal recommendations

- e. Reporting requirements
- f. Use of natural deer urine products
- g. Issues with feeding/baiting
- 4. Current CWD surveillance and response activities
 - a. Background on how surveillance is being conducted
 - i. Maps of CWD locations and prevalence
 - 1. Include species, hunt area/unit, county, or other relevant units
 - 2. Known data on infection rates and disease distribution.
 - ii. Testing over time with positives/negatives
 - b. Identify partners or locations where samples are collected (taxidermists, deer processors, drop-off or check stations)
 - c. CWD management activities
 - d. CWD research projects, if applicable
- 5. Public reporting of sick or diseased animals:
 - a. Multiple methods for the public to report: Online forms, social media monitoring
 - b. Provide relevant addresses and phone numbers
 - c. Provide information urging people not to shoot sick animals or transport carcasses to reduce risks of contamination.
 - d. Links to licensed wildlife rehabilitators
- 6. Reiterate relevant regulations, including:
 - a. Carcass movement regulations
 - b. Wildlife feeding/baiting
 - c. Wildlife rehabilitation (fawn and elk/moose calf)
 - d. Reporting requirements
- 7. CWD test result reporting
 - a. Ability for partners and hunters to submit samples and check test results
 - i. Must have unique identifier number that is meaningful to diagnostic laboratory or state/provincial agency
 - ii. Ability to mark specific locations using standardized coordinate systems (e.g. UTM or latitude/longitude)
- 8. Educational materials
 - a. Fact sheets
 - i. Should be printable
 - ii. Include information on transmission, species affected, distribution, etc.
 - iii. Can be customized for specific groups (e.g., taxidermists, meat processors, wildlife rehabilitators, hunters, public)
 - b. Frequently asked questions (FAQs)
 - c. Other relevant websites
 - i. CWD Alliance: <http://cwd-info.org/>

ii. Other states and provinces

Post-Detection

In the event that a CWD positive cervid is identified in Tennessee, the need for effective communications and a good Public Information Plan will be critical in handling anticipated media requests and information needs for the general public. It is likely that requests for accurate and up-to-date information from the news media, and from the general public will increase dramatically in the immediate aftermath of the detection of a CWD-positive cervid. At the same time, there will be a need for increased communications with TWRA personnel, (especially those involved in the CWD Response Team, Administrative Team, and Media Team), and key external stakeholders such as Dept. of Agriculture and USDA, among others. These needs will be handled through Internal and External communications channels.

Internal

Regular communications among TWRA staff and the TFWC is essential. Following a CWD detection, regular meetings (e.g., weekly or as needed) will be conducted where the CWD Field Response Team updates the CWD Administrative Team, which then updates the TFWC. Additionally, a representative of the CWD Administrative Team will update the TFWC during their regularly scheduled meetings and provide annual updates. Consideration should be given to developing standard reporting documents that provide updated information to Agency staff on a regular basis. The Louisiana Dept. of Wildlife and Fisheries developed a weekly Incident Action Plan and daily Situational Report documents to keep Agency staff and others informed on ongoing CWD activities.

External

As referenced earlier in this document, good and consistent external communications are also required. The TWRA CWD Media Team will be relied upon solely to communicate CWD matters to the public. Thus, all public and media inquiries to TWRA staff and the TFWC regarding CWD should be directed to TWRA's Media Team. Staff and commissioners not on the Media Team should refrain from making public comment or commenting on social media about CWD in Tennessee, and instead should refer questions to the Media Team. In addition to the Media Team's interactions with media, the Agency should consider regular updates on CWD response activities be posted on the Agency's web site and through Agency social media platforms.

V. Costs of Implementing this Plan

The costs of implementing a CWD Response Plan can be substantial, both during the pre- and post-detection phases, but especially after a CWD-positive cervid has been detected. During the pre-detection phase, when the Agency has a goal of early detection of the disease, the majority of costs in implementing this plan include pre-detection sampling (according to the Risk

Assessment and Surveillance Strategy), procurement of supplies and equipment in preparation of sampling, developing communications materials for web and social media platforms, and other planning efforts.

During the post-detection (Containment goal) phase of a CWD response, the Agency can anticipate that costs, in terms of both financial outlays and personnel commitments, will increase substantially to meet the needs of implementing CWD management activities. These costs are primarily associated with the increased sampling in the CWD Management Zone. Other anticipated costs include testing diagnostics, employee travel expenses, sampling supplies and equipment, etc.

Additional to the financial costs of a post-detection response are the personnel deployments that are necessary to carry out the proposed activities in this plan. States such as Missouri and Arkansas, which have been in a post-detection CWD response for several years, have re-directed considerable personnel resources to CWD Response activities. These re-directions of staff time can obviously impact other fish and wildlife programs, and strain staff resources. Some of this can be counteracted through the hiring of hourly or seasonal staff, but agencies should prepare for significant outlays of staff time and resources during the early stages of a CWD response to a positive detection.