Tennessee Wildlife Resources Agency

Chronic Wasting Disease Response Plan

2016

TWRA Wildlife Technical Report 15-12

Contents

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 is no evidence that CWD can be transmitted to humans (Belay et al. 2004).

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, 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, 9,394 free-ranging deer and 80 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 the detection of 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 includes goals that outline:

- Appropriate preventive measures to keep CWD from entering the state.
- Appropriate levels of sampling throughout the state to ensure early detection.
- Methods to determine prevalence and spatial distribution of CWD if detected.
- Management actions that will limit the spread of CWD if detected.
- Determining the origin of any CWD positive cervid.
- Distribution of accurate and effective information on CWD to the public, Agency staff, the Tennessee Fish and Wildlife Commission (TFWC) and other stakeholders.
- Guiding research on CWD to support future management and control efforts.

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 will be refined as the science of CWD detection and management advances.

Eradication of CWD once it is established is unlikely 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.

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 believed to be 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 can cause the animal to exhibit similar symptoms. There is currently no USDA-approved, live-animal test for CWD. The preferred test used to diagnose CWD is 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 captive deer found that mule deer and white-tailed deer infected with CWD died within 41 and 59 months, respectively (Miller and Wild 2004).

The United States Center for Disease Control and Prevention and the World Health Organization have reviewed available scientific data and conclude currently there is no evidence that CWD can be transmitted to humans (Belay et al 2004, Campbell and VerCauteren 2011).

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, Missouri, Montana, Nebraska, New Mexico, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Utah, Virginia, West Virginia, Wisconsin and Wyoming. Additionally, the Canadian provinces of Alberta and Saskatchewan are CWD positive (Chronic Wasting Disease Alliance 2016 http://cwd-info.org/) (Appendix A).

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 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.

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. As of 2016, a total of 9,394 free-ranging white-tailed deer and 80 free-ranging elk have been tested for the disease. CWD has not been detected in Tennessee.

It is well documented that the movement of infected, live cervids and infected carcasses by humans has resulted in broad geographic expansion in the nationwide 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 Permit (Appendix B). The regulation requires that Cervidae being held or harvested in wildlife preserves and imported from a herd outside of Tennessee be obtained only from a herd which has been certified CWD-free for the previous five years and which is authorized for import by the Tennessee Department of Agriculture. Cervidae being held or harvested in wildlife preserves and obtained from a Tennessee source also must be from a herd which has been certified CWD-free continuously for the previous five years. In 2012, the TWRA adopted a regulation that no person may import, transport, or possess a cervid carcass or cervid part from any CWD positive area unless it meets certain criteria that prevent introduction of prions from CWD positive areas (Appendix C). The state ban on possession of live white-tailed deer also helps in limiting the threat of CWD in Tennessee (Appendix D).

The TWRA recognizes the detection of 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 includes goals that outline:

- Appropriate preventive measures to keep CWD from entering the state.
- Appropriate levels of CWD testing throughout the state to ensure early detection.
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- Management actions that will limit the spread of CWD if detected.
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- Distribution of accurate and effective information on CWD to the public, Agency staff, the Tennessee Fish and Wildlife Commission (TFWC) and other stakeholders.
- Guiding research on CWD to support future management and control efforts.

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.

Authority

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 of cervids other than white-tailed deer in these enclosures rests with the Tennessee Department of Agriculture (TDA) (Appendix D). Currently, there is a moratorium on the establishment of new private big game wildlife preserves (Appendix B).

Tennessee Department of Agriculture

Live importation and live possession of cervids other than white-tailed deer and wild elk is legal in Tennessee (Appendix D). The regulatory authority over these activities (i.e., live possession and importation of captive cervids) is the TDA, including the State Veterinarian. More specifically, the State Veterinarian has authority over sanitary disposition 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 E). Participating in the CWD HCP is only 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 (Appendix F).

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

Prevention is the only cure for CWD. Thus, if CWD is detected in Tennessee, the focus will be on containing its spread.

If CWD is ever detected in Tennessee, the following regulatory options exist to help prevent its spread:

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

In order to expedite implementation of these regulatory options, draft language (i.e., wording) for potential regulations will be developed.

Sampling

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

Pre-CWD

Beginning in 2016, TWRA's sampling efforts will be more targeted, focusing on hunter-killed white-tailed deer and wild elk in counties within a 5-mile radius of known captive cervid facilities (Appendix F). Obex samples will be taken from elk while retropharyngeal lymph node samples will be taken from both white-tailed deer and elk. Sampling in these counties will likely have to occur on a rotation to ensure every county is sampled within a certain number of years. Facilities of interest are high-fenced private properties containing white-tailed deer, big game wildlife preserves, captive elk facilities, and captive nonnative cervid facilities (Appendix F). The rationale for focusing sampling efforts around captive cervid facilities is the high potential for CWD spread from captive cervids (Miller 2012). If a sufficient number of samples from these areas cannot be obtained by TWRA alone, taxidermists and meat processors receiving cervids and/or cervid parts from these areas may be enlisted to provide additional animals for sampling. Additionally, more intensive sampling will occur in counties bordering CWD-positive counties in adjoining states.

More intensive sampling of roadkill and reportedly sick deer and elk will also occur statewide beginning in 2016. 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, retropharyngeal lymph node samples will be taken from white-tailed deer according to procedures outlined in Appendix I. The cornerstone of this sampling strategy is maintaining an estimate of the deer population. Regarding elk, obex and retropharyngeal lymph nodes will be taken from hunter-harvested animals and any other elk carcasses available to TWRA within the Containment Area.

III. RESPONSE TO A CWD POSITIVE

While CWD has potentially serious consequences, there is currently no evidence it can be transmitted to humans or domestic animals. Consequently, it is important the response to an outbreak of CWD be proportional to the health risks and economic impact.

Notification Process

The TWRA Disease Coordinator, 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 Big Game and Captive Wildlife Coordinators, the Regional Manager of the detection location, the Chairman of the TFWC, and the Chairman of the Wildlife Management Committee of the TFWC (Appendix J). The above mentioned personnel will be made aware a preliminary positive case of CWD has been found in Tennessee and a second test is being conducted for confirmation. If the original sample is not confirmed, no further actions besides proper notifications will be taken. If the original sample is insufficient size for verification, the initial positive test will be accepted as a true positive.

Upon notification of a confirmed positive CWD test (i.e., second test) result by a USDA-approved laboratory, the TWRA Disease Coordinator will immediately notify the Executive Director, the Chief of the WFD and the Assistant Director of Field Operations; intradepartmental notification will proceed as outlined in Appendix K. 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 where the CWD-positive case occurred prior to a statewide news release being distributed by TWRA's Communications Manager (CM). The press 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 (Appendix L).

The Chief of the WFD and TWRA's CM 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 M). 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 (CWD-AT) leader (Appendix N). Additional Agency leadership will serve on the CWD-AT to support the CWD Response Team's (CWD-RT) (Appendix O) field efforts. The CWD-AT leader will immediately activate the CWD-RT upon positive confirmation of CWD in the state. The CWD-RT will include cervid collection teams, carcass transport teams, and biological data collection teams. The CWD-RT team will be led by the Assistant Chief of the WFD responsible for cervids and will include the statewide big game, captive wildlife, and disease coordinators; the respective Regional Wildlife Program Manager and Law Enforcement Major; the Regional Deer/Elk Biologist; a GIS specialist; and other individuals deemed necessary to coordinate and conduct field response activities (Appendix O).

Management Actions

Eradication of CWD once it is established is unlikely due to the persistence of prions in the environment. This plan focuses on detection and control of the disease with major efforts focused on containing the disease and monitoring its prevalence within a detection area.

Wild Cervids

- Once a CWD positive has been confirmed in a wild cervid, a CWD Containment Area (CA) will be developed. The CA will be established using Geographic Information System (GIS) mapping of a five-mile radius circle (79-mi^2 area) around the location of detection. In addition to the CA, a CWD Enhance Surveillance Area (ESA) will be established. The ESA will encompass the CA and also include the remainder of the county in which the positive CWD test was acquired along with the adjacent counties.
- The CWD-RT will obtain all supplies and materials needed to conduct field activities from the respective TWRA regional office where supplies will be stockpiled.
- The cervid population(s) within the CA will be estimated to determine the appropriate sample size needed to detect another positive if present (Appendix I). This may be accomplished using existing data/records or through population estimates within the area.
- Special regulations for the CA may be adopted by the TFWC. 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 CA. To help facilitate sample collection during deer hunting seasons, mandatory check stations may be established within the CA.
- Hunter-harvested deer within the CA will be sampled, individually tagged and numbered at special CWD check stations. CWD test results will be available to hunters once they are finalized and accessible by the Agency.
- Processors and taxidermists may be recruited in both the CA and ESA to obtain additional biological samples of harvested cervids for CWD testing.

- If needed, additional testing within the CA will commence as soon as possible. The CWD-RT will contact private landowners obtaining permission to access private lands within the CA to secure more samples through TWRA collection operations. Agency staff will also coordinate with managers of any public lands within the CA and ESA to obtain access and samples as needed.
- Samples in the ESA will be collected from road-killed specimens, hunter-harvested cervids and targeted sampling of sick or cervids found dead. Similarly to the CA, if more samples are needed, they may be collected with landowner permission through TWRA collection operations.
- 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 test is acquired within the CA, it will be expanded another five-mile radius from the new positive site, and the above process will be repeated until no new positives are detected. The CA will continue to expand by a five-mile radius until no new positives are detected.
- If a positive test is acquired within the ESA, another CA will be established using the location of the new positive sample and the ESA will be expanded appropriately.
- The CWD-RT will coordinate with the TDA and USDA to conduct inspections and monitoring of all captive cervid facilities within a CA.
- Intense CWD sampling will be reduced and become less targeted if additional positives are not detected after completion of five full sampling seasons following the last positive detected. Hunting regulations will return to what is deemed appropriate by the TWRA based on the cervid population size at that time.

Captive Cervids

Captive cervids (excluding incidentally fenced white-tailed deer) are regulated by the TDA and USDA rather than TWRA. 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 CA. The following actions will be implemented if CWD is detected in a captive cervid facility within Tennessee or if a captive cervid facility has within the past 5 years transferred cervids to or received cervids from an out-of-state captive facility in which CWD is detected. We recommend the following actions be considered/taken by the appropriate partners:

- TDA and USDA ensure fencing requirements 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 according to a USDA herd plan.
- Trace-back and trace-forward 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 relevant agencies in other states the cervid may have passed through.
- Wild cervid sampling outside the facility will be conducted in accordance with the guidelines and procedures described in the Wild Cervid Management Actions section of this plan.

Adjacent States with a Confirmed CWD Positive

- 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 five miles of the Tennessee border, a CWD CA will be established within that portion of a five-mile radius falling within Tennessee. Response procedures will be implemented using protocol outlined in the Wild Cervid Management Actions section of this plan.

IV. COMMUNICATIONS FOR A CWD POSITIVE

Internal

There must be good internal communications if this plan is to be implemented successfully. Regular communications among TWRA staff and the TFWC is essential. During a CWD outbreak, regular meetings (e.g., weekly or as needed) will be conducted where the CWD-RT updates the CWD-AT and the CWD-AT then updates the TFWC. Additionally, a representative of the CWD-AT will update the TFWC during their regularly scheduled meetings and provide annual updates.

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.

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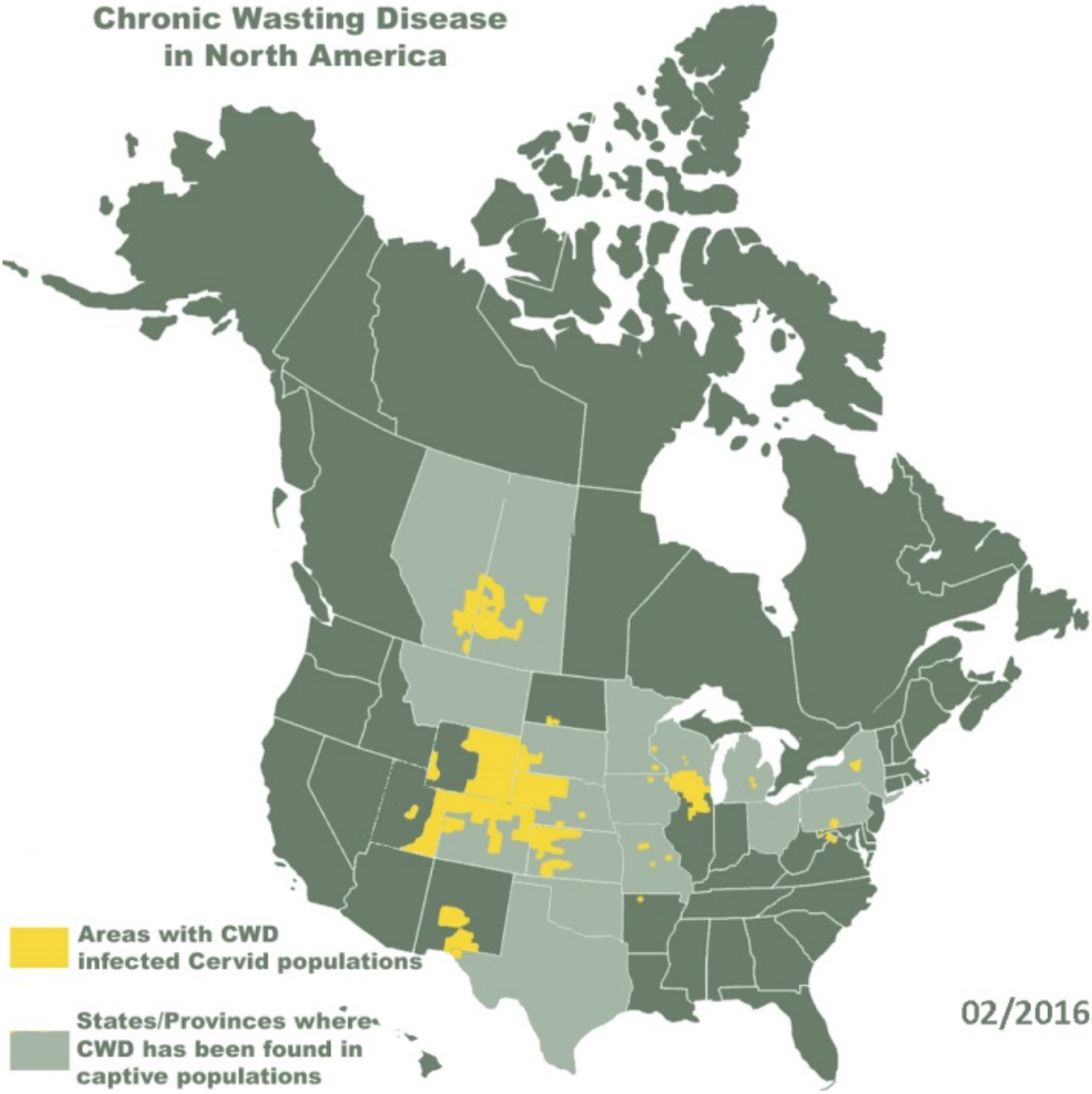
Appendix A: Distribution of confirmed CWD in North America from the Chronic Wasting Disease Alliance. Consult Chronic Wasting Disease Alliance http://cwd-info.org for updates.



RULES
OF
TENNESSEE WILDLIFE RESOURCES AGENCY

CHAPTER 1660-01-11
RULES AND REGULATIONS GOVERNING SHOOTING

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1660-01-11-.01 COMMERCIAL CONTROLLED SHOOTING GROUNDS, DYER COUNTY.

Authority: *T.C.A. §70-1-206.* ***Administrative History:*** *Original rule certified May 8, 1974. Amendment filed August 2, 1982; effective August 31, 1982.*

1660-01-11-.02 OPERATION OF PRIVATE WILDLIFE PRESERVE.

(1) Definitions.

(a) Private Wildlife Preserve means a privately owned or lease controlled tract of land on which a person may hunt captive wildlife originating from a legal source.

(b) Wildlife means all warm-blooded animals classified under TCA 70-4-403 as Class II or Class III Wildlife.

(2) Permits.

(a) Any person desiring to operate a Private Wildlife Preserve as herein defined shall make application to the Wildlife Resources Agency for a permit to do so. The Wildlife Resources Agency will cause an inspection to be made of the wildlife preserve and if same shall be found to be meeting the qualifications of these rules and regulations, a permit will be issued. The permit will grant the privilege to the owner or operator of said Private Wildlife Preserve to release captive wildlife approved by the Wildlife Resources Agency. All Class III species and fowl authorized under this permit must come from sources approved by the Tennessee Department of Agriculture. The species to be released will be indicated on the permit.

(b) As of July 1, 2009, no new facilities will be issued a permit for the purpose of possessing and/or harvesting big game species under the authority of a Private Wildlife Preserve Permit.

(3) Animal Possession and Release.

(a) Wildlife indigenous to Tennessee may not be held, released, or hunted on a wildlife preserve unless specifically authorized by the wildlife preserve permit. All Class I Wildlife species, white-tailed deer (Odocoileus virginianus), wild turkey (Meleagris gallipavos), and black bear (Ursus americanus) are specifically prohibited from being held, released and hunted under the authority of a wildlife preserve permit. Any wildlife on the Endangered or Threatened Species list(s) published by the State of Tennessee or the United States federal government are also prohibited from being held, released or hunted on a wildlife preserve. Game species, excluding black bear, that are naturally occurring within the boundaries of a wildlife preserve may be hunted in accordance with statewide regulations, license and permit requirements.

(Rule 1660-01-11-.02, continued)

(b) Any wildlife authorized for release on the wildlife preserve may be taken with gun, archery equipment or trap. Non-indigenous mammals released on the wildlife preserve and which escape from the wildlife preserve may be recaptured by the owner, operator or regular employees of the preserve by means of tranquilizer gun, trap or with the aid of dogs. The recapture of escaped animals is permitted only with prior approval of the Tennessee Wildlife Resources Agency; however, the recapture of escaped indigenous wildlife is not permitted.

(c) The following species of Cervidae may only be held or harvested by wildlife preserves if such animals 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.

1. Elk/Red Deer (Cervus elaphus)

2. Black-tailed Deer/Mule Deer (Odocoileus hemionus)

3. Moose (Alces alces)

4. Other Class III wildlife species shown to be susceptible to CWD

Wildlife preserves may also hold and harvest the above mentioned species if these animals are obtained within the state of Tennessee from a herd in a CWD surveillance program continuously for the past 5 years or prior to July 1, 2006, whichever time period is shorter, as recognized by Tennessee Department of Agriculture. Animals so obtained shall not have been exposed to non-surveillance animals during the surveillance period. Also, these animals must retain the identification marker(s) placed on the animals while in the surveillance programs.

The Tennessee Department of Agriculture, USDA or TWRA must be notified within 24 hours of the harvest or death of the above mentioned Cervidae. The head and neck of these animals must be retained and refrigerated by the preserve operator for at least 72 hours in order to allow for any necessary testing by the above agencies.

(4) Facilities

(a) The land area for which a permit will be issued must contain a minimum of twenty (20) acres and this land must be in one continuous tract. No artificial structures or devices can be used to create a hunting or training area less than twenty (20) acres. On wildlife preserves that require fencing, the fencing must be done in a continuous manner along the boundaries in such a fashion to prevent the escape of animals being held by the preserve. On wildlife preserves where big game species are hunted, the boundaries must be fenced with woven wire fence of a minimum twelve and half (12.5) gauge wire and such fence shall be a minimum of eight (8) feet in height. On wildlife preserves where only swine, goats or sheep are hunted, the boundaries must be fenced with woven wire fence of a minimum twelve and half (12.5) gauge wire, and such fence shall be a minimum of four (4) feet in height. On wildlife preserves where foxes and raccoons are hunted, the boundaries must be fenced with woven wire fence of a minimum twelve and half (12.5) gauge wire with a maximum of four (4) inch spacing, anchored at the base and such fence shall be a minimum of seventy-two (72) inches in height. On wildlife preserves where rabbits are hunted, the boundaries must be fenced with wire fence with a maximum of two (2) inch spacing anchored at the base and such fence shall be a minimum of thirty-six (36) inches in height. Wildlife preserve boundaries which are fenced with a minimum of eight (8) foot fencing, must have any

(Rule 1660-01-11-.02, continued)

entrance to such preserve posted with signs identifying it as a wildlife preserve. Wildlife preserve boundaries that are fenced with less than eight (8) foot fencing or no fencing at all, must have its boundaries posted every fifty (50) yards with signs identifying it as a wildlife preserve. All signs used to identify a wildlife preserve must be at least 8-1/2 inches by 11 inches and have the words “Wildlife Preserve” printed on the sign in letters not less than 1 inch in height on contrasting background.

(5) Records.

(a) Permittees will maintain records on forms provided by TWRA showing the number and species of wildlife purchased, the name and address of the source of supply, number and species propagated, the number and species released, and the number and species taken. Also, permittees will maintain records on forms provided by TWRA, listing the name and address of each hunt participant, the date of the hunt and their hunt record. These records are to be kept for a minimum of three (3) years and be available for inspection at the address listed on the permit for the Wildlife Preserve by agents of the Tennessee Wildlife Resources agency upon request.

(b) Operator and/or owners of a Wildlife Preserve must have at the address indicated on their preserve permit receipts for all animals held, released, hunted, and/or harvested on such preserve. These receipts must have the name and address of the supplier and be signed by such supplier. The receipts are to list species, numbers, sex, and all identifiers for animal(s) listed on such receipt. These receipts are to be provided to agents of TWRA or the Department of Agriculture upon request.

(6) Seasons.

(a) Private wildlife preserve seasons open and close as promulgated by the Tennessee Wildlife Resources Commission.

Authority: *T.C.A. §§70-1-206 and 70-4-413.* ***Administrative History:*** *Original rule certified May 8, 1974. Amendment filed July 18, 1974; effective August 18, 1974. Amendment filed November 20, 1975. Amendment filed July 14, 1980; effective August 28, 1980. Amendment filed August 2, 1982; effective August 31, 1982. Amendment filed June 9, 1986; effective July 9, 1986. Amendment filed May 11, 1990; effective June 25, 1990. Amendment filed December 14, 1992; effective January 29, 1993. Amendment filed August 9, 1993; effective October 23, 1993. Amendment filed May 28, 1997; effective August 11, 1997. Amendment filed July 19, 2001; effective October 2, 2001. Amendment filed July 25, 2003; effective October 8, 2003. Amendment filed July 13, 2006; effective September 26, 2006. Amendment filed May 29, 2009; effective August 12, 2009.*

RULES
OF
TENNESSEE WILDLIFE RESOURCES AGENCY
WILDLIFE RESOURCES

CHAPTER 1660-01-15
RULES AND REGULATIONS FOR
ANIMAL IMPORTATION

TABLE OF CONTENTS

1660-01-15-.01 IMPORTATION OF LIVE WILDLIFE.

(1) Before any person in the State of Tennessee may have in his or her possession any live wild animal species obtained from outside the State of Tennessee, he or she must import such animal in accordance with the following:

(a) Any permit obtained for importation, other than an annual importation permit, is void when the shipment of animals or any portion thereof is received or when any condition or restriction of the permit is violated.

(b) Wildlife, as referred to in these regulations, is either singular or plural, as the case may be; and is defined as all species normally found in the wild, regardless of whether they were captured in the wild or raised in captivity.

(c) Wildlife obtained through interstate commerce must be in accordance with federal laws, as well as be obtained from a dealer licensed by the U. S. Department of Agriculture under the Animal Welfare Act of 1970.

(d) When any wildlife is being shipped or transported by any carrier, private or public, the carrier shall possess the shipper's copy of the importation permit. The shipper's copy of the importation permit will be left with the consignee upon delivery of the animals. The animals and all pertinent records will be open to inspection by a representative of the Wildlife Resources Agency prior to their release.

(e) Any person, group or business entity importing wildlife for the purpose of release must notify the regional office within 24 hours prior to the arrival of the shipment. Wildlife imported for release will be subject to inspection by the Tennessee Wildlife Resources Agency prior to their release.

(f) Any wildlife imported for release will be subject to the following restrictions:

1. Annual importation permit holders shall notify the Tennessee Wildlife Resources Agency of the intent to import a shipment of captive wildlife to check to determine if the source of that species is approved.

2. The importation of animals from states having endemic disease problems in wild populations that could present a health hazard to native wildlife or the public is specifically prohibited.

3. The Tennessee Wildlife Resources Agency will annually compile a list of species and the states from which they originate that are prohibited from importation. This list will

(Rule 1660-01-15-.01, continued)

be provided to the appropriate agency personnel as well as annual importation permit holders.

(g) Each request to import will be considered on its own merits, taking into consideration human health and safety, competition with or effect on native species, prolific breeders, and agricultural pests.

(h) The above mentioned requirements do not apply to Class III Wildlife.

Authority: *T.C.A. §§ 70-1-206, 70-4-401, and 70-4-404.* ***Administrative History:*** *Original rule filed February 12, 1996; effective April 27, 1996. Amendments filed February 28, 2005; effective May 14, 2005.*

1660-01-15-.02 IMPORTATION OF WILDLIFE CARCASSES, PARTS, AND PRODUCTS.

(1) No person may import, transport, or possess in Tennessee a cervid carcass or carcass part from any area that has a known case of chronic wasting disease (CWD) except as provided herein:

(a) Meat that has bones removed.

(b) Antlers, antlers attached to cleaned skull plates, or cleaned skulls (where no meat or tissues are attached to the skull).

(c) Cleaned teeth.

(d) Finished taxidermy and antler products.

(e) Hides and tanned products.

(2) The Tennessee Wildlife Resources Commission will annually compile a list of these areas and make such list available to the public.

Authority: *T.C.A. §§ 70-1-206 and 70-4-107.* ***Administrative History:*** *Original rule filed July 12, 2005; effective September 25, 2005. Amendment filed January 5, 2009; effective March 21, 2009. Repeal and new rule filed May 3, 2012; effective August 1, 2012.*

Appendix D:

Tenn. Code Ann. § 70-4-403
TENNESSEE CODE ANNOTATED

*** Current through the 2015 Regular Session ***

Title 70 Wildlife Resources
Chapter 4 Miscellaneous Regulations
Part 4 Exotic Animals

Tenn. Code Ann. § 70-4-403 (2015)

70-4-403. Classifications of wildlife.

Live wildlife, kept and maintained for any purpose, shall be classified in the following five (5) classes:

(1) Class I -- This class includes all species inherently dangerous to humans. These species may only be possessed by zoos, circuses and commercial propagators, except as otherwise provided in this part. The commission, in conjunction with the commissioner of agriculture, may add or delete species from the list of Class I wildlife by promulgating rules and regulations. The following is a listing of animals considered inherently dangerous:

(A) Mammals:

(i) Primates -- Gorillas, orangutans, chimpanzees, gibbons, siamangs, mandrills, drills, baboons, Gelada baboons;

(ii) Carnivores:

(a) Wolves -- All species;

(b) Bears -- All species; and

(c) Lions, tigers, leopards, jaguars, cheetahs, cougars -- All species;

(iii) Order Proboscidia: Elephants -- All species;

(iv) Order Perissodactyla: Rhinoceroses -- All species; and

(v) Order Artiodactyla: Hippopotamus, African buffalo;

(B) Reptiles:

(i) Order Crocodylia: Crocodiles and alligators -- All species; and

(ii) Order Serpentes: Snakes -- All poisonous species; and

(C) Amphibians: All poisonous species;

(2) Class II -- This class includes native species, except those listed in other classes;

(3) Class III -- This class requires no permits except those required by the department of agriculture, and includes all species not listed in other classes and includes, but is not limited to, those listed in subdivisions (3)(A)-(Q). The commission, in conjunction with the commissioner of agriculture, may add or delete species from the list of Class III wildlife by promulgating rules and regulations:

(A) Nonpoisonous reptiles and amphibians except caimans and gavials;

(B) Rodents -- Gerbils, hamsters, guinea pigs, rats, mice, squirrels and chipmunks;

(C) Rabbits, hares, moles and shrews;

(D) Ferrets and chinchillas;

(E) Llamas, alpacas, guanacos, vicunas, camels, giraffes and bison;

(F) Avian species not otherwise listed, excluding North American game birds, ostriches and cassowary;

(G) Semi-domestic hogs, sheep and goats;

(H) All fish held in aquaria;

(I) Bovidae not otherwise listed;

(J) Marsupials;

(K) Common domestic farm animals;

(L) Equidae;

(M) Primates not otherwise listed;

(N) Bobcat/domestic cat hybrids;

(O) Hybrids resulting from a cross between a Class II species and a domestic animal or Class III species;

(P) Cervidae except white-tailed deer and wild elk. Elk originating from a legal source while held in captivity for the purpose of farming shall be regarded as Class III wildlife. All other elk shall be wild elk and shall be regarded as Class II wildlife. No person shall possess elk in captivity within the eastern grand division of the state as defined in § 4-1-202 without having documentary evidence indicating the origin of the elk being held. This documentary evidence will be presented to the agents of the department of agriculture or the wildlife resource agency upon request. Sale documentation of offspring of purchased elk is not required; and

(Q) Furbearing mammals, including those native to Tennessee, raised solely for the sale of fur;

(4) Class IV -- This class includes those native species that may be possessed only by zoos and temporary exhibitors; provided, that rehabilitation facilities may possess Class IV wildlife as provided by rules established by the commission if authorized by a letter from the director of the agency:

(A) Black bear (*Ursus americanus*);

(B) White-tailed deer (*Odocoileus virginianus*);

(C) Wild turkey (*Meleagris gallapavo*), including the eggs of wild turkey;

(D) Hybrids of a Class IV species other than bobcat shall be Class IV; and

(E) Animals that are morphologically indistinguishable from native Class IV wildlife shall be Class IV; and

(5) Class V -- This class includes such species that the commission, in conjunction with the commissioner of agriculture, may designate by rules and regulations as injurious to the environment. Species so designated may only be held in zoos under such conditions as to prevent the release or escape of such wildlife into the environment.

TENNESSEE DEPARTMENT OF AGRICULTURE

JULIUS JOHNSON
COMMISSIONER

REGULATORY SERVICES
ANIMAL HEALTH

Chronic wasting disease (CWD) is a transmissible spongiform encephalopathy of cervidae that causes the loss of weight and eventual death of the infected animal. The spread of this disease could have a severe economic impact on the production of captive cervidae and the cervidae population in the wild. In view of the threat posed by the disease to the health of the state's livestock and livestock industry, the state veterinarian, pursuant to the authority vested in him by T.C.A § 44-2-102, hereby ORDERS as follows:

Tennessee Chronic Wasting Disease (CWD) Herd Certification Program (HCP)

Although voluntary, participation in this program is required for the interstate movement of CWD susceptible cervidae .This program also provides for the detection and control of CWD in the state of Tennessee.

1. Definitions

   a. Cervid – All members of the *Cervidae* family and hybrids including deer, elk, moose, caribou, reindeer, and related species.

   b. Certified status - is granted after program enrollment of 5 years with no evidence of disease, or identification as a trace-back or trace forward herd Renewal of "certified" status is contingent upon annual (10-14 months) inspection and continued compliance with program standards.

   c. Susceptible *Cervidae* - The species known to be susceptible to CWD are Rocky Mountain Elk (Cervus canadensis), Red Deer (Cervus elaphus), Mule deer (Odocoileus hemionus), Black-Tailed Deer (Odocoileus hemionus), Sika deer (Cervus nippon), and Moose (Alces alces) or as determined by USDA.

2. Premises Requirements

   a. All owners of captive cervidae in Tennessee shall obtain a premise identification number from the Tennessee Department of Agriculture.

   b. All cervidae premises that participate in the Tennessee CWD HCP shall have suitable handling facilities to allow inspection, identification, or testing of animals in a safe and humane manner.

c. All captive cervidae premises established subsequent to the effective date of the National CWD Rule (Aug 12, 2012), shall be enclosed by perimeter fences at least 8 feet in height and must be structurally sound, maintained in good repair, and of sufficient construction to prevent ingress and egress of farmed and free-ranging wild cervids/ animals.

d. In herd premises already existing at the time of the effective date of the National CWD Rule (Aug 12, 2012), fencing must comply with the previous TN State policy requiring a minimum of six foot perimeter fencing.

3. Identification Requirements

a. Each animal 12 months of age or older (and animals under 12 months of age leaving the premises), shall have a minimum of two forms of animal identification. One of these animal identifications must be a nationally unique official animal identification. The official animal identification device must be a device approved by APHIS, and must be an 840 visual tag, 840 radio frequency identification device (RFID), electronic implant (840 RFID injectable transponder / microchip), steel USDA tag or other approved device. Information on official animal identification devices can be found on the APHIS Traceability website at the following address:
http://www.aphis.usda.gov/traceability/downloads/AIN_device_list.pdf

b. The second form of identification must be a unique form of identification to that animal in the herd and can be any official animal identification device listed above or a farm bangle tag or ear/flank tattoo.

c. Animals that lose their identification should be retagged as soon as possible. All animals 12 months of age or older must have individual identification and reconciled in herd records before the herd status can be advanced.

4. Enrollment, Inspections and Record Keeping Requirements

a. After receipt of an enrollment application for the CWD HCP, an initial complete physical herd inventory is required as well as a recording of all individual identification. Records shall be reconciled during inspections and inventories. These inspections and inventories shall be submitted on an inspection form supplied by the state veterinarian's office and signed by an accredited veterinarian or by state or federal personnel. Owners are responsible for assembling, handling, and restraining animals for physical inventories or other inspections under conditions that will allow the accredited veterinarian, APHIS employee, or State Official to safely read all identification on the animals. The owners are responsible for the costs that may be incurred to present the animals for inspection and must agree that any liability or injury to the animals during handling rests with the owner.

b. Inspections shall be conducted annually. Physical inventories shall be conducted every three years by state or federal animal health officials or TN accredited veterinarians. Annual inspections consist of an inspection of the facility, a visual inspection of the herd including a count of the cervids and verification that each cervid twelve months of age or older has at least one official visible individual identification. Physical inventories shall be conducted in such a manner that the two forms of identification on each animal twelve months of age or older can be read and recorded. Both annual and physical inventories should correspond with herd records.

c. Participants in the CWD HCP shall submit their herd inventories in a format prescribed by the state veterinarian's office. Herds may not advance in status until the annual inspections have been completed, submitted, reconciled, and approved.

d. Herd records must be maintained that include a complete inventory of animals that states the species, age, and sex of each animal; the date of acquisition and source of animals not born into the herd; the date of disposal and/or destination of animals removed from the herd; and all individual identification numbers associated with each animal.

e. Animals can only be introduced into an enrolled herd from herds that are the same or higher status in the national CWD HCP in order to maintain their existing status. Should animals with a lesser program status be introduced into the herd, the herd will revert to the status of the newly introduced animals.

f. Documentation of any deaths, interstate movements, or any other disposition of animals since the last inventory shall be included in the records. Annual herd inventories shall be completed between 10 to 14 months of the enrollment date and within 10 to 14 months of the anniversary date thereafter.

5. Reporting and Testing Requirements

a. Immediate reporting of all deaths 12 months of age or older and subsequent CWD testing of those mortalities at the owner's expense shall be required and documented by an accredited veterinarian or state or federal personnel. Testing shall be performed by the National Veterinary Services Laboratory in Ames, IA. All lab results must be received by the state veterinarian. Exemptions may be approved only by the state veterinarian after consultation with the herd owner and herd veterinarian.

i. Tissues from all CWD-exposed or CWD-suspect animals that die or are depopulated must be submitted for testing regardless of the age of the animal.

ii. Carcasses and tissues from sampled animals must be disposed of in accordance with State regulation. Remains of CWD-positive or CWD-exposed shall be disposed of in compliance with all Federal, State and local regulations as approved by the State Veterinarian.

iii. All deaths of cervidae and any animal exhibiting signs of CWD shall be immediately reported to the Tennessee State Veterinarian.

6. Epidemiologic Investigations

a. All animals reported as CWD-suspects will be investigated promptly.

b. An epidemiologic investigation will be conducted of CWD-positive, CWD-exposed, and CWD-suspect herds that will include the designation of suspect and exposed animals, identifying animals to be traced. States that are found to have received any animals involved in a trace will be notified immediately.

c. Trace-backs of CWD-positive animals and trace-outs of CWD-exposed animals will be conducted. Appropriate states will be notified promptly after notification of a CWD positive animal has been received.

d. Trace-backs based on slaughter or other sampling will be conducted promptly after receipt of notification of a CWD-positive animal at slaughter.

e. If herds are found to have CWD-positive, CWD-exposed, or CWD-suspect animals, the herd will be designated as such and the herd will be promptly quarantined until it has been determined if the herd contains or has contained a CWD-positive animal.

f. Designated herds will be subjected to a herd plan as developed by the TN State Veterinarian with completion of herd plan requirements before quarantines are removed. "Certified" status also would be suspended.

7. Enforcement

a. Captive cervidae escaping their premises shall be immediately reported to the state veterinarian's office and recaptured by the owner within 72 hours of

escape. If an escaped farm-raised cervid is returned to the herd more than 72 hours after it escapes, it loses any status that it may have had in a herd certification or herd status program and is treated as a new addition to the herd.

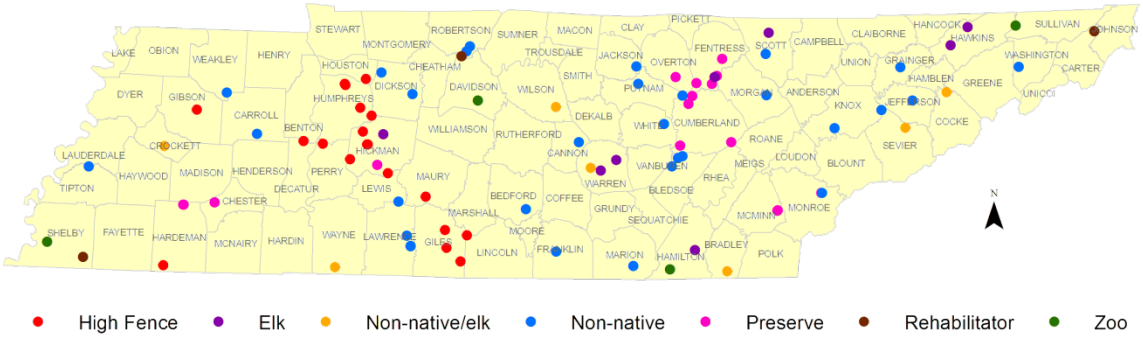
b. "Certified" status is granted after program enrollment of 5 years with no evidence of disease or herd designation. Renewal of "certified" status is contingent upon annual inspection, sampling and continued compliance with program standards.

c. "Certified" status may be revoked for failure to comply with program standards and requirements as provided in this order.

IT IS SO ORDERED

Charles W. Hatcher, DVM
State Veterinarian

Appendix F: Location of captive cervid facilities as of 05/04/2016.



Appendix G: Supplies Needed for Collecting CWD Samples.

Scalpel Handles

Scalpel Blades

Sharps Containers

Stainless Steel Knives—Swiss Army from Amazon

Deer Jaw Spreaders—Forestry Suppliers

Whirl Pak Bags—U Line

Permanent Fine-tipped Markers—Staples

Water Resistant Paper—Forestry Suppliers

Styrofoam Insulated Shipping Boxes—Uline

Blue Ice Packs—Uline

Nitrile Gloves—Fisher Scientific

Bleach—Walmart

Hand Sanitizer—Walmart

Freezers—1 in each region

Appendix H: Additional supplies, equipment and facilities needed for CWD response.

Animal Collection

Rifles and Ammo
Night vision Scopes
Spotlights

Personal Protection

Tyvek suits
Coveralls
Rubber Boots
Face shields/goggles
N95 respirators

Transport/Storage Equipment

Covered Trailers
Large Plastic Totes w/ lids
Tackle Boxes
Freezers (emergency purchase)
Refrigerators (emergency purchase)

Specimen Handling

Large poly tarps (10X10 etc.)
Heavy Plastic Sheeting
Poly Rope
Bungee cords
Paper Tags w/ wire
Trash Bags
Adhesive Labels
Large Plastic Zippered Bags
Small Plastic Zippered Bags
Large Coolers
Biological Substance, Category B / UN3373 labels

Cleaning and Disinfecting

Plastic Wash Tubs
LpH sterile disinfectant
Lifeguard or Cidex disinfectant
Autoclave
Sharps containers
Paper Towels
Incinerators (emergency purchase)

Surgical

Stainless Steel Tables
Folding Chairs
Jars w/ 10% Buffered Neutral Formalin
Forceps
Scalpel Handles and Blades
Stainless Steel Pans
Spray Lubricant (e. g. WD40)
Needle Nose Pliers
Surgical Scissors
Stainless Steel Surgical Trays
Jaw Cutters
Plastic Buckets

Data Handling

Lap Top Computers with Internet Connection
Programs for Recoding Data and Preparing Reports

Facilities

A building with water, a concrete floor, and a lot of space to work in to process samples that is heated and air conditioned (e.g., Necropsy room)

Incinerator to dispose of carcasses (requires permitting fromTDEC)

Appendix I: Procedure for Determining Sample Size for Post-CWD Testing.

There are 2 sets of data needed to determine sample size requirements for CWD testing; a recent estimate of the Tennessee deer population and an estimate of available deer habitat (km^2).

The most recent population estimate was derived from thermal imaging surveys and the analysis followed the methods outlined in Adams et al. (in review). Thermal imaging surveys were stratified by physiographic region as outlined in Table 1 below.

Deer density was calculated from thermal imaging surveys using the program DISTANCE (Buckland et al. 2001). The best density estimate based on AIC_c (Akaike 1973) was used to calculate a population estimate.

Available deer habitat (km^2) was based on estimated acreage of National Land Cover Data (NLCD) land types excluding open water and high density housing. TWRA GIS staff obtained this data for the thermal image survey period.

The deer population estimate (P) was calculated for each physiographic region by:

$$P = D \times H$$

D = deer density estimate from thermal imaging surveys and Program DISTANCE (deer/km^2)

H = available deer habitat estimate from NLCD data (km^2)

Sample size was determined based on the most recent deer population estimate as outlined in Table 2, adapted from Samuel et al. (2002) and Cannon and Roe (1982). Sampling is based on an assumed CWD prevalence rate of 1% and a desired probability of 95%.

Samples are then allocated equally among counties within each physiographic region; see Table 3 for sample allocation. Using this table, once a Containment Area (CA) (5-mile radius) has been delineated after an outbreak, the appropriate county population estimates can be used to determine the necessary sample size for testing (Table 3).

When a confirmed CWD outbreak occurs and the CA is identified, data from the most recent population estimate will be used to assign sample sizes for each county within the CA.

Table 1. Physiographical regions of Tennessee and counties within them.

Physiographic Region	Counties included in Region
East Gulf Coastal Plain-West (EGCP-W)	Crockett, Dyer, Fayette, Gibson, Haywood, Lake, Lauderdale, Obion, Shelby, Tipton, Weakley
East Gulf Coastal Plain-East (EGCP-E)	Benton, Carroll, Chester, Hardeman, Henderson, Henry, Madison, McNairy
Highland Rim-North (HR-N)	Cheatham, Macon, Montgomery, Robertson, Stewart, Sumner
Highland Rim-Central (HR-C)	Dickson, Hickman, Houston, Humphreys
Highland Rim-South (HR-S)	Decatur, Hardin, Lawrence, Lewis, Perry Wayne
Central Basin-North (CB-N)	Davidson, DeKalb, Jackson, Smith, Trousdale, Wilson
Central Basin-Central (CB-C)	Bedford, Cannon, Coffee, Marshall, Maury, Rutherford, Warren, Williamson
Central Basin-South (CB-S)	Franklin, Giles, Lincoln, Moore
Cumberland Plateau (CP)	Anderson, Bledsoe, Campbell, Clay, Cumberland, Fentress, Grundy, Hamilton, Marion, Morgan, Overton, Pickett, Putnam, Scott, Sequatchie, Van Buren, White
Ridge and Valley (RV)	Blount, Bradley, Knox, Loudon, McMinn, Meigs, Monroe, Polk, Rhea, Roane
Unaka Mountains & Ridge Valley (UMRV)	Carter, Claiborne, Cocke, Grainger, Greene, Hamblen, Hancock, Hawkins, Jefferson, Johnson, Sevier, Sullivan, Unicoi, Union, Washington

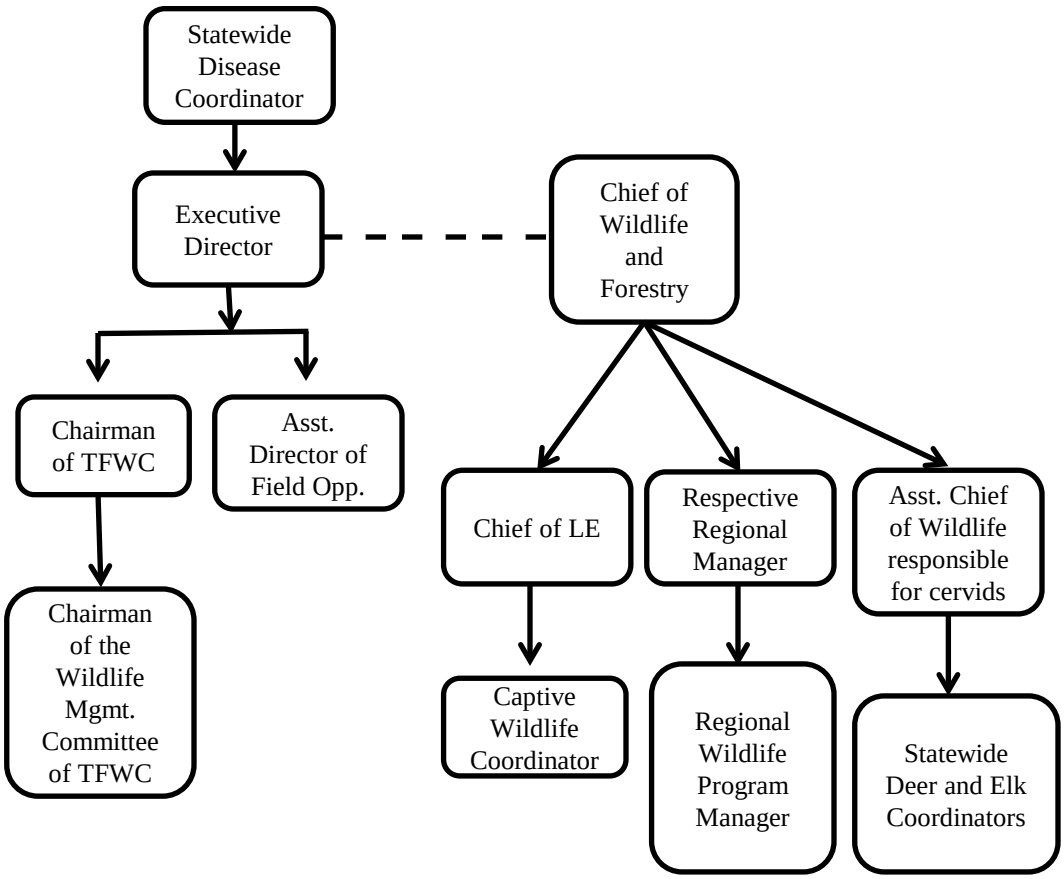
Table 2. Sample size based on white-tailed deer population estimate.

Estimated Population	Sample Size
500	225
1,000	259
1,500	271
2,000	278
2,500	282
3,000	285
3,500	287
4,000	288
4,500	289
5,000	290
6,000	292
7,000	293
8,000	294
9,000	294
10,000	295
50,000	298
100,000	298
Over 100,000	299

Table 3. CWD sample allocation based on 2011 Tennessee white-tailed deer population data.

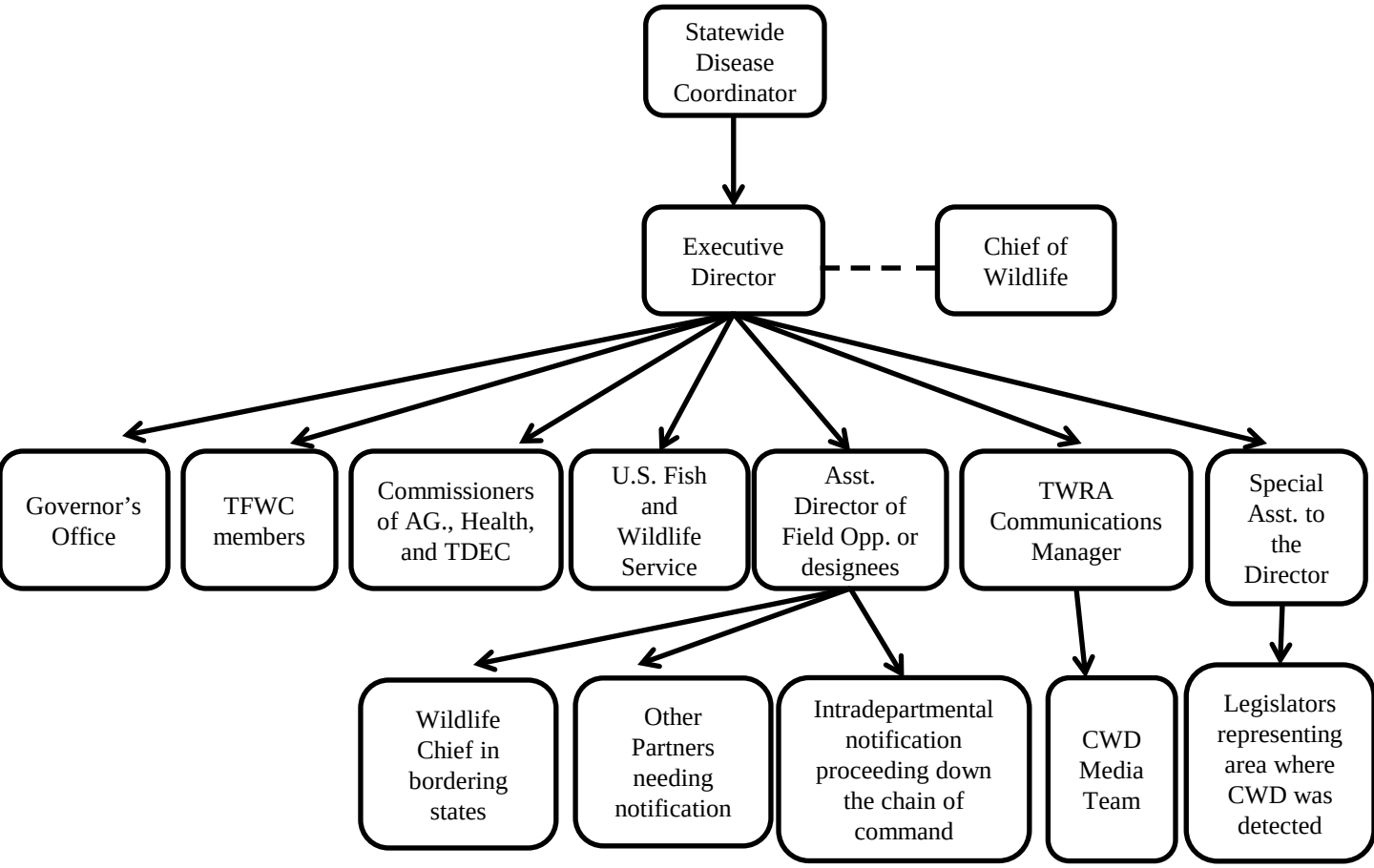
Region	Deer Population Estimate	Sample Size	Number of Counties in Region	Samples per County
ECGP-W	26,372	296	11	27
EGCP-E	62,538	298	8	37
HR-N	55,571	298	6	50
HR-C	50,627	298	4	75
HR-S	31,573	296	6	49
CB-N	54,105	298	6	50
CB-C	65,849	298	8	37
CB-S	96,308	298	4	74
CP	59,603	298	17	17
RV	26,223	298	10	30
UMRV	34,746	296	15	20

Appendix J: TWRA notification sequence for preliminary chronic wasting disease positive.



Statewide Disease Coordinator: Roger Applegate
Executive Director: Ed Carter
Chief of Wildlife: Mark Gudlin
Assistant Director of Field Operations: Bobby Wilson
Chief of Boating and Law Enforcement: Darren Rider
Regional Managers:
Region 1- Alan Peterson
Region 2- Tim Cleveland
Region 3- John Mayer
Region 4- John Gregory
Regional Wildlife Program Mangers:
Region 1-Jim Hamlington
Region 2-Richard Kirk
Region 3-Kirk Miles
Region 4-John Mike
Asst. Chief of Wildlife responsible for cervids: Chuck Yoest
Captive Wildlife Coordinator: Walter Cook
Deer/Elk Coordinator: Vacant
Chairman of TN. Fish and Wildlife Commission (TFWC): Harold Cannon
Chairman of the Wildlife Mgmt. Committee for the TFWC-Trey Teague

Appendix K: TWRA notification sequence for a confirmed positive chronic wasting disease test.



Statewide Disease Coordinator: Roger Applegate
Executive Director: Ed Carter
Chief of Wildlife: Mark Gudlin
Assistant Director of Field Operations: Bobby Wilson
Communications Manager: Doug Markham
Special Assistant to the Director: Chris Richardson

Appendix L: Mock draft press release and other outreach materials.

First Case Of Chronic Wasting Disease Discovered In Tennessee

Although the Tennessee Wildlife Resources Agency has worked for many years to prevent chronic wasting disease from infecting the state's deer or elk populations, the agency recently discovered the first instance of this serious disease.

(*Paragraph or two on where the disease was found and how it was found and if it was found in a deer or an elk……)*

Chronic wasting disease is contagious infection that wildlife biologists believe is confined to the deer family and is spread through animal-to-animal contact, or possibly through shared water or food sources. It is deadly to the animals that contract it.

"Despite our best efforts to sample our deer populations for more than *(??? Years)* and keeping and establishing regulations designed to thwart CWD, I'm sorry to say that we now have to deal with this serious threat to our deer *(or elk) population," said ????????, the executive director of the TWRA.*

While CWD is known to infect cervids—members of the deer family—it has not ever been documented in livestock or humans. However, it is potentially a devastating disease that without intervention could infect a large number of Tennessee's deer (*or elk*).

"We created a chronic wasting disease plan many years ago and have updated frequently as we have learned more about this disease and the best ways to stop it from spreading," *said ??????? (our executive director).*

"We intend to implement that plan and we will be explaining it in public meetings we will announce as soon as possible. We also intend to stream these pubic meetings on our website (www.tnwildlife.org)for those who cannot attend them*," said (executive director)….*

Abnormal proteins known as prions cause chronic wasting disease in cervids. Located in the brain, this neurological infection is similar to mad cow disease. Symptoms include weight loss, behavioral changes, excessive salivation, difficulty swallowing, and excessive thirst.

While the wildlife agency will work to stop the spread of CWD, it also wants to remind anyone transporting deer, elk, mule deer, or moose carcasses (all cervids) to the state must follow handling guidelines explained in the agency's hunting and trapping guide.

That guide can be found on the agency's website, or in hard-copy issues of it available from businesses that sell hunting and fishing licenses.

"We have a fight in front of us and we plan to keep the public informed, but we also need everyone's help to keep this disease as isolated as possible," *said executive director*.

Questions & Answers

On Chronic Wasting Disease For Hunters

What is Chronic Wasting Disease (CWD)?

CWD is a neurological (brain and nervous system) disease found in deer, elk and moose (collectively referred to as cervids) in certain geographical locations in North America. The disease belongs to a family of diseases known as transmissible spongiform encephalopathies (TSE) or prion diseases. CWD attacks the brains of infected cervids and is always fatal. Though CWD is similar to mad cow disease in cattle and scrapie in sheep, there is no known relationship between CWD and any other TSE found in animals or humans.

How is it spread?

The disease spreads through prions, abnormally shaped proteins. Studies have shown that the disease can be spread both directly (animal-to-animal contact) and indirectly (through soil or other surfaces). The most common mode of transmission from an infected animal is believed to be through saliva, feces and possibly other body secretions. There is strong evidence that people have helped spread the disease over long distances by moving live infected animals and infected carcasses.

Where has it been found?

CWD is known to infect cervids in the following states: Arkansas, Colorado, Illinois, Iowa, Kansas, Maryland, Michigan, Minnesota, Missouri, Montana, Nebrask, New Mexico, New York, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Utah, Virginia, West Virginia, Wisconsin and Wyoming. In Canada, it has been documented in Alberta and Saskatchewan.

Is it dangerous to humans?

There is currently no evidence that CWD is transmissible to humans. However, public health officials recommend that human exposure to the CWD agent be avoided as they continue to research the disease.

Is it dangerous to livestock?

There is no current evidence that CWD can spread to cows, pigs and other domestic livestock.

Is the meat safe to eat?

Although the agent that causes CWD has not been positively identified, strong evidence suggests that prions are responsible. Prions are abnormally shaped proteins that are not destroyed by cooking. Accordingly, hunters are advised not to eat meat from animals known to be infected with CWD. Research completed to date indicates that prions generally accumulate in certain parts of infected animals — the brain, eyes, spinal cord, lymph nodes, tonsils and spleen. Based on these findings, hunters in CWD areas are advised to completely bone out harvested cervids in the field and not consume those parts of the animal where prions likely accumulate.

What precautions should hunters take?

Health officials advise hunters not to shoot, handle or consume any animal that is acting abnormally or appears to be sick. In addition, they suggest hunters take the normal, simple precautions when field dressing a carcass. A complete list of current hunter recommendations is available at www.cwd-info.org.

How can you tell if a deer or elk has CWD?

Infected animals may not show any obvious signs of CWD until late in the course of the disease. In late stages of the disease, infected animals begin to lose bodily functions and display abnormal behavior such as staggering or standing with very poor posture. Animals may show an exaggerated, wide stance or carry their head and ears lowered. Infected animals become emaciated (thus, wasting disease) and will appear in very poor body condition. Some infected animals drink large amounts of water. Drooling or excessive salivation may be apparent. Note that these symptoms may also be characteristic of diseases other than CWD.

Tennessee Wildlife Resources Agency Authorization No. ??????, ?? copies, May, 2016. This public document was promulgated at a cost of $?? per copy

What should I do if I see a deer or elk that shows signs of CWD?

Many things can cause emaciation or neurological disease in wild cervids. Unless the Tennessee Wildlife Resources Agency (TWRA) or another appropriate authority has issued other instructions or regulations, you should accurately document the location of the animal and immediately contact the nearest TWRA regional office. Do not attempt to contact, disturb, kill or remove the animal.

Can I have a deer or elk tested?

In general, most states conduct surveillance for CWD through a network of certified laboratories. If you are hunting in an area where surveillance is occurring, you may be required to submit your harvested animal for testing. If you are not, but still wish to have your animal tested for CWD, contact the TWRA for the appropriate procedures and submission location. Remember, such testing is an important tool for detecting CWD, but it is not a food safety test.

When was CWD detected in Tennessee?

Where did the positive case come from?

What is the TWRA going to do now that CWD has been found in Tennessee?

What is being done to combat CWD?

Extensive surveillance programs that monitor CWD distribution and prevalence have been instituted nationwide. In CWD-positive and -exposed facilities for captive cervids, the preferred management approach is quarantine, followed by depopulation and appropriate carcass disposal. A management option currently utilized by several wildlife agencies is to reduce the density of wild cervids in infected areas in an effort to slow the transmission of the disease. This is primarily being done by increasing hunter bag limits in these areas. Additionally, some states selectively harvest animals suspected to have been directly exposed to the disease. Nearly every state wildlife agency has increased surveillance efforts to detect the potential presence of CWD. Many state agencies have banned the importation of live deer and elk into their states, and some also have halted intrastate movement of deer and elk. A number of states have banned supplemental feeding and baiting, which artificially congregates animals and enhances disease transmission.

Several states also have implemented regulations that allow only boned meat, quarters (without spinal column or head) or processed meat from deer or elk to be exported or imported from certain areas containing CWD. Clean skull plates with antlers attached can also be transported. Check with the state wildlife agency in the state where you hunt and where you live to determine if such restrictions apply. Other states have limited the importation of hunter-killed deer and elk to only boned or processed meat. An interactive North American map summarizing state and provincial carcass transportation regulations can be found at www.cwd-info.org.

A national chronic wasting disease plan was developed and delivered to Congress in 2002. The plan outlines a coordinated approach for states and federal agencies to develop research, surveillance and management strategies for CWD as well as communication plans for disseminating information on a regional or national scale.

The plan can be viewed at www.cwd-info.org.

TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P.O. BOX 40747
NASHVILLE, TENNESSEE 37204

CHRONIC WASTING DISEASE

Is CWD dangerous to humans?

Researchers with the Federal Center for Disease Control and Prevention (CDC) along with the World Health Organization (WHO), have studied CWD and have found no evidence that CWD poses a serious risk to humans or domestic animals. Years of monitoring in affected areas has found no similar disease in people or cattle living there. However, as a precaution, the CDC advises that no part of a deer or elk with evidence of CWD should be consumed by people or other animals.

Why shouldn't I eat certain parts of my deer and elk?

While research has shown that prions may be present in a wide variety of tissues and body fluids, including blood and muscle, they are most prevalent in the brain, eyes, spinal cord, lymph nodes, tonsils and spleen. Thus, it is recommended that hunters bone out harvested cervids in the field, and take extra precautions when handling organs where prions are most likely to accumulate.

If you wish to have your animal tested for CWD, contact the Tennessee Wildlife Resources Agency (TWRA) for information regarding appropriate procedures and submission locations. Remember, while disease testing is an important tool for detecting CWD, it is not a food safety test.

Simple Precautions Advised for Hunters

Health officials advise hunters not to consume meat from animals known to be, or believed to be, infected with CWD or any other disease. Since it's not always apparent that a deer may be carrying a disease, hunters should take simple precautions.

- Avoid consuming the meat from any animal that tests positive for the disease.
- Do not shoot, handle or consume any animal that is acting abnormally or appears to be sick.
- Contact the TWRA if you see or harvest an animal that appears sick.
- Wear latex or rubber gloves when field dressing your deer or elk.
- Bone out the meat from your animal. Don't saw through bone, and avoid cutting through the brain or spinal cord (backbone).
- Minimize the handling of brain and spinal tissues.
- Wash hands and instruments thoroughly after field dressing is completed. The best recommendation for hunters wishing to disinfect home butchering equipment is to clean all surfaces with a 50/50 solution of chlorine bleach and water.
- Avoid consuming brain, spinal cord, eyes, spleen, tonsils and lymph nodes of harvested animals. (Normal field dressing coupled with boning out a carcass will remove most, if not all, of these body parts. Cutting away all fatty tissue will remove remaining lymph nodes.)
- If you have your deer or elk commercially processed, request that your animal is processed individually, without meat from other animals being added to meat from your animal.

Disposal of carcass

Little is known about how infected cervid parts may or may not contaminate the environment. Researchers have discovered, however, that prions readily adhere to various soil elements and remain infectious for many years. Therefore, it is recommended that bones and other carcass parts be double bagged in strong garbage bags and disposed of at a landfill with an approved dead animal disposal area.

Know Before You Go

Chronic Wasting Disease

Do you hunt big game outside Tennessee?

Then you need to fully understand the cervid carcass importation regulations of Tennessee, as well as all other states you travel through with your harvest.

In 2005, the TWRA adopted regulations to help prevent chronic wasting disease from entering the state through infected cervid carcasses.

A cervid is any member of the Cervidae family, which includes white-tailed deer, mule deer, elk, moose, red deer, sika deer, fallow deer and caribou.

The following items are the only portions allowed to be imported, transported or possessed in Tennessee from any known chronic wasting disease infected area:

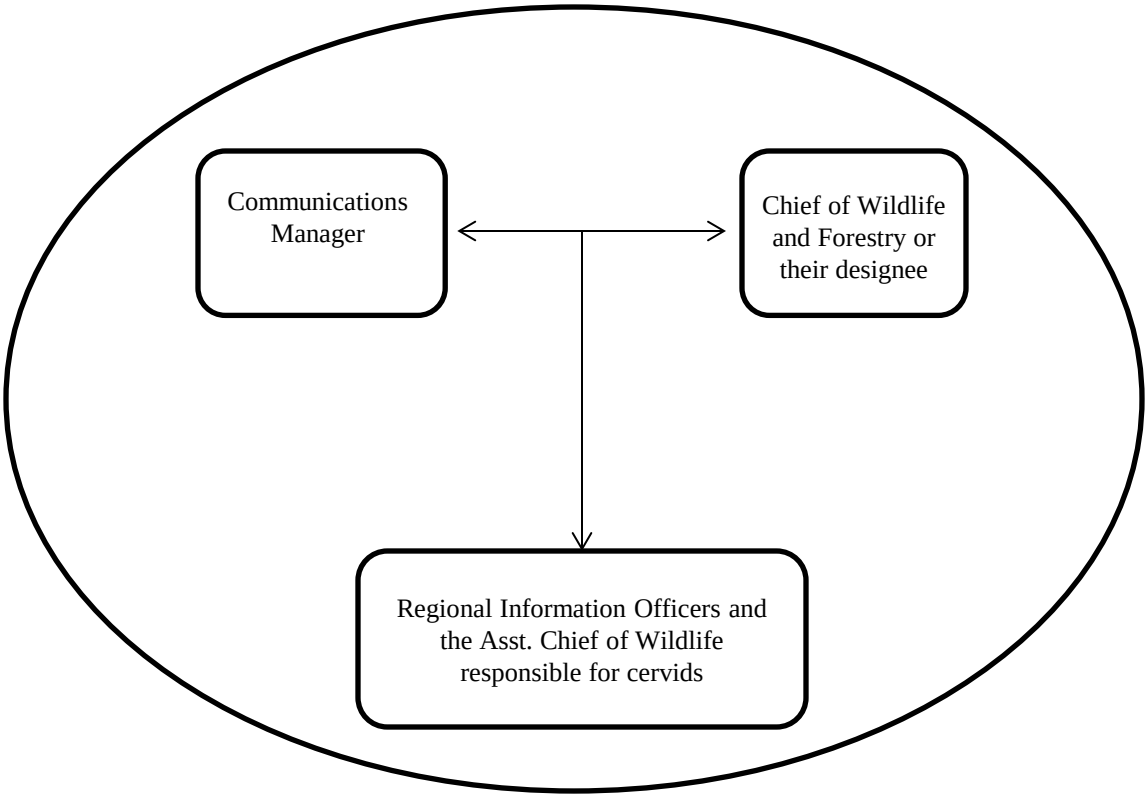
- Antlers and/or antlers attached to clean skull plate or cleaned skulls;
- Meat with all bones removed;
- Cleaned teeth;
- Finished taxidermy products, and
- Hides or tanned products.

TENNESSEE WILDLIFE RESOURCES AGENCY

Questions? Call 615-555-5555.

For more CWD information visit: cwd-info.org

Appendix M: TWRA Chronic Wasting Disease Media Team.



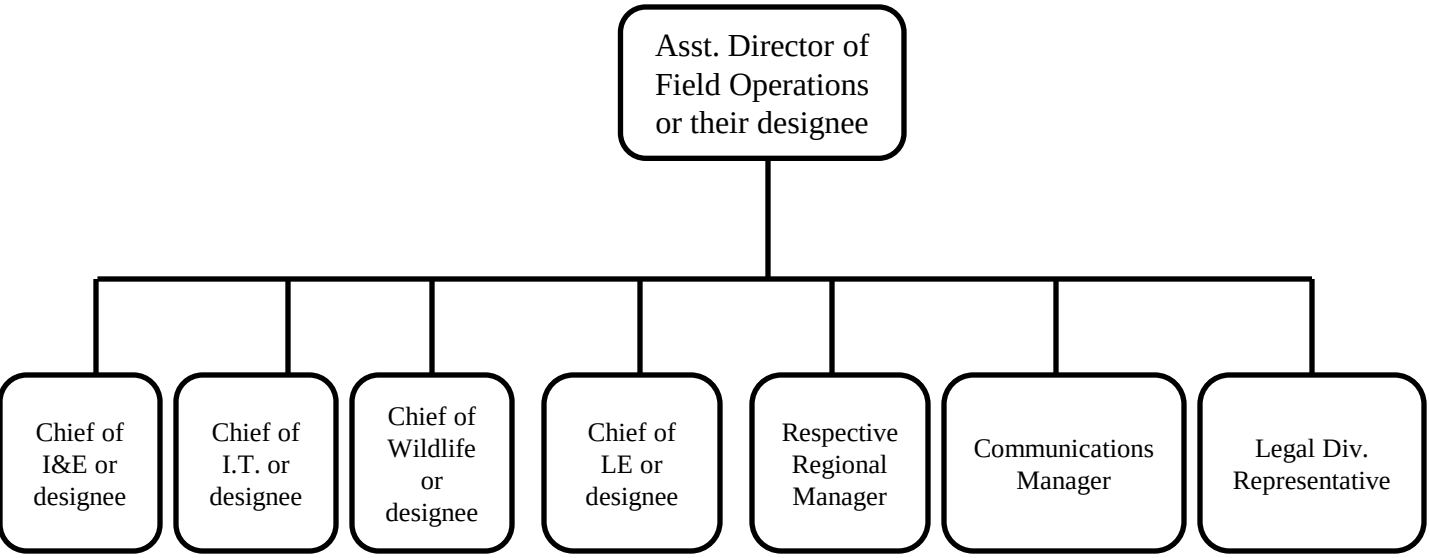
TWRA Communications Manager: Doug Markham

Regional Information Officers:
Region 1- Dave Gabbard
Region 2- Barry Cross
Region 3-Mime Barnes
Region 4-Matt Cameron

Chief of Wildlife: Mark Gudlin

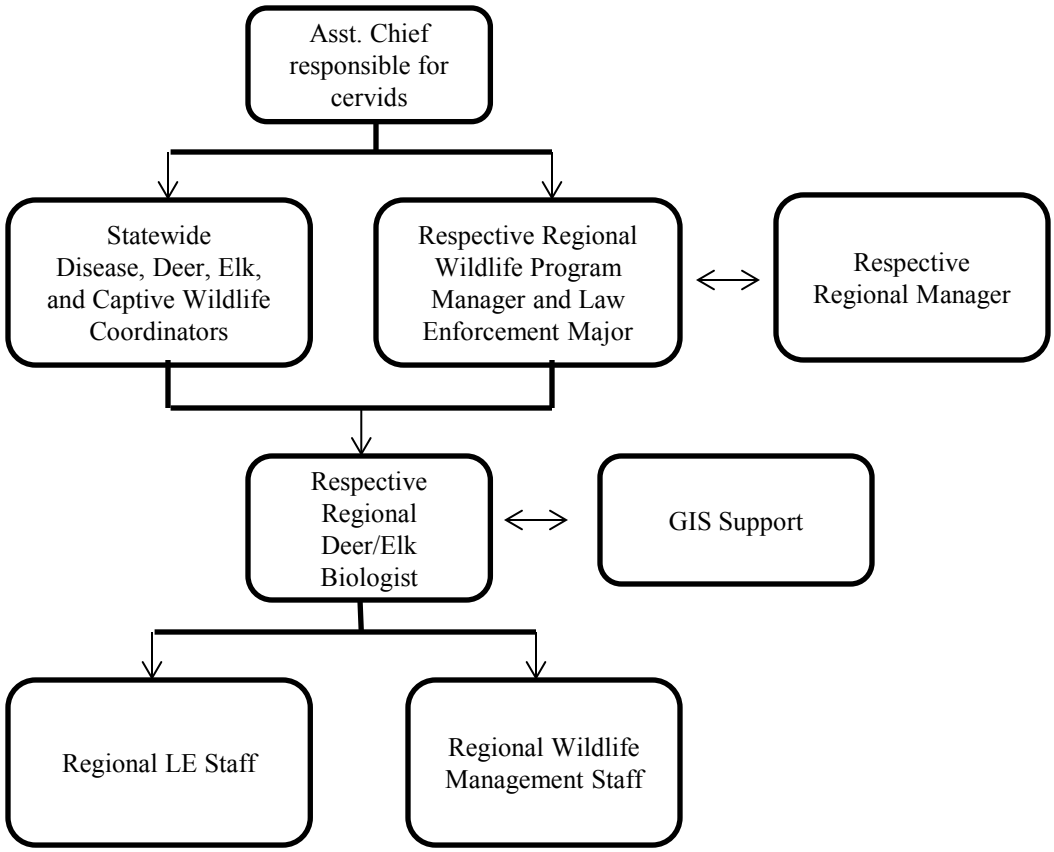
Asst. Chief of Wildlife responsible for Cervids: Chuck Yoest

Appendix N: TWRA Chronic Wasting Disease Administrative Team (CWD-AT).



Assistant Director of Field Operations: Bobby Wilson
Chief of Info. and Ed.: Don King
Chief of I.T.: Michael May
Chief of Wildlife: Mark Gudlin
Chief of Boating and Law Enforcement: Darren Rider
Regional Managers:
Region 1- Alan Peterson
Region 2- Tim Cleveland
Region 3- John Mayer
Region 4- John Gregory
Communications Manager: Doug Markham
Legal Division Rep.: Tracey Boyers

Appendix O: TWRA Chronic Wasting Disease Response Team (CWD-RT).



Asst. Chief of Wildlife responsible for cervids: Chuck Yoest
Statewide Disease Coordinator: Roger Applegate
Statewide Deer and Elk Coordinator: Vacant
Captive Wildlife Coordinator: Walter Cook
Regional Managers:
- Region 1- Alan Peterson
- Region 2- Tim Cleveland
- Region 3- John Mayer
- Region 4- John Gregory

Regional Wildlife Program Managers:
- Region 1-Jim Hamlington
- Region 2-Richard Kirk
- Region 3-Kirk Miles
- Region 4-John Mike

Regional LE Program Majors:
- Region 1-Brian Thompson
- Region 2- Mitch Bailey
- Region 3- C.J. James
- Region 4- Brian Ripley

Regional Deer Biologists:
- Region 1-Daniel Stanfield
- Region 2-Russ Skoglund (North) &Tabitha Lavacot (South)
- Region 3-Ben Layton
- Region 4-Dan Gibbs

GIS Support: Lynn Barrett