

Alabama Division of Wildlife and Freshwater Fisheries

CHRONIC WASTING DISEASE

STRATEGIC SURVEILLANCE
AND RESPONSE PLAN (SSRP)

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Executive Summary

Chronic wasting disease (CWD) is a fatal neurological disease classified in the group of diseases called transmissible spongiform encephalopathies (TSEs) that affects members of the family Cervidae, including deer, elk, and moose. The disease attacks the central nervous system and presents symptoms which include abnormal behavior, poor body coordination, extreme weight loss, and excessive salivation/urination. CWD is insidious and has a prolonged incubation period. CWD is infectious, communicable, and always fatal. There is no known treatment or vaccine for the disease.

Currently, there is no U.S. Department of Agriculture approved live animal test for CWD. Diagnosis must be made post-mortem by testing specific portions of the animal's brain stem (i.e., obex) or lymph node tissue (medial retropharyngeal lymph nodes). Samples can be screened using enzyme-linked immunosorbent assay (ELISA) or immunohistochemistry (IHC) testing, but suspect animals must be confirmed as CWD positive using IHC testing.

CWD would be detrimental to the health of the white-tailed deer herd in Alabama and there is no effective treatment to eradicate the disease once it is established. As a result, the Alabama Department of Conservation and Natural Resources, Wildlife and Freshwater Fisheries Division has developed a CWD Strategic Surveillance and Response Plan (SSRP) to monitor for CWD and minimize risk of disease spread for white-tailed deer within Alabama.

Introduction

The mission of Alabama Department of Conservation and Natural Resources (DCNR), Division of Wildlife and Freshwater Fisheries (WFF) is to manage, protect, conserve, and enhance the wildlife and aquatic resources of Alabama for the sustainable benefit of the people of Alabama. Pursuant to Code of Alabama 1975, Section 9-2-8, the Commissioner of DCNR is authorized to make and promulgate such reasonable rules and regulations not in conflict with the provisions of the game and fish laws as deemed the best interest of the conservation, protection, and propagation of wild game, birds, animals, fish and seafood, which rules and regulations shall have the effect of law. WFF has regulatory authority for free-ranging deer and captive deer held under the authority of Game Breeder's Licenses and recognizes the need for cooperation and partnerships among government agencies, conservation organizations, private landowners, hunters, and the public in addressing risk and protecting wildlife resources from chronic wasting disease (CWD) in Alabama. CWD is an infectious neurological disease of cervids, including but not limited to deer, elk, and moose, that is always fatal. Once a deer population is determined to be CWD positive, complete eradication of the disease is highly improbable.

Declining deer hunter participation is likely to follow discovery of CWD in Alabama would also be felt in the state's economy (Bishop 2010, Haus et al. 2017, Kobilinsky 2018, Needham et al. 2004). Deer hunting activities contribute well over \$1 billion into Alabama's economy each year. These monies are vital for many rural towns, counties, and forest landowners. Finding alternatives to fill the void left by declining deer hunting-related revenue would be unlikely.

The occurrence of CWD in Alabama poses a great threat to the state's white-tailed deer population. The disease would negatively impact deer populations statewide (Edmunds et al. 2016) and has the potential to forever change wildlife management within the state of Alabama. Therefore, this CWD Strategic Surveillance and Response Plan (SSRP) is established to serve as a guide to WFF when developing management strategies to monitor for CWD and implementing a management response should CWD occur within the state of Alabama or near its borders.

Overview of Chronic Wasting Disease

CWD is a fatal neurological disease of deer, elk, and moose that has been classified in the group of diseases called transmissible spongiform encephalopathies (TSEs). These diseases are believed to be caused by infectious, self-propagating "prion" proteins. These infectious prions are normal cell proteins whose shape has been transformed in such a way that they cause disease. The disease attacks the central nervous system of the deer, elk, or moose and presents symptoms, including abnormal behavior, poor coordination, extreme weight loss, and excessive salivation/urination. The disease is infectious, communicable and always fatal. CWD is insidious and has a prolonged incubation period. Currently, there is no U.S. Department of Agriculture (USDA)-approved, live animal test for CWD (USDA 2014). Diagnosis must be made by post-mortem testing of specific portions of the animal's brain stem (i.e., obex) or lymph node tissue from the throat (i.e., medial retropharyngeal lymph nodes). Samples can be screened using an enzyme-linked immunosorbent assay (ELISA) or immunohistochemistry (IHC) testing, but suspect animals must be confirmed or

“Detected” using IHC testing at the National Veterinary Services Laboratory (NVSL). No effective treatment or vaccine for the disease is known.

Although considerable research by wildlife health officials is ongoing, the overall biological and epidemiological understanding of CWD remains poor. CWD is closely related to TSEs in other species, including scrapie in sheep and goats, bovine spongiform encephalopathy (BSE) in cattle, and Creutzfeldt-Jakob disease (CJD) and new variant Creutzfeldt-Jakob disease in humans. It is unclear how CWD originated, however, there are two hypotheses that may explain its existence. First, it is possible that CWD arose from Scrapie which has been recognized as a TSE of sheep since the 1940s. Second, CWD could simply be a TSE that spontaneously arose in deer.

CWD was first recognized as a disease syndrome in 1967 in captive mule deer at a wildlife research facility in Fort Collins, Colorado and was recognized as a TSE in 1978 (Williams and Young 1980). CWD was diagnosed in free-ranging deer and elk in the 1980s. To date, CWD has been diagnosed in free-ranging or captive cervids in 26 states and 3 Canadian provinces including (Figure 1): Alberta, Arkansas, Colorado, Illinois, Iowa, Kansas, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Mexico, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, Quebec, Saskatchewan, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming. CWD also has been detected in South Korea (elk), Finland (moose) and Norway (reindeer and moose) (CWD Alliance <http://cwd-info.org/> or USGS <https://www.usgs.gov/centers/nwhc/science/chronic-wasting-disease>).

There are two primary sources of exposure to CWD for uninfected deer: 1) CWD infected deer, and 2) CWD contaminated environment (Williams et al. 2002, Miller et al. 2004, Mathiason et al. 2009). It is believed that some TSE prions may appear spontaneously and sporadically, but there is no evidence of spontaneous CWD. The presence of infected deer over time increases the number of infectious CWD prions in the environment. As CWD becomes established in an area, environmental contamination may become the primary source of exposure for uninfected deer. Conversely, in areas where CWD is not established, and where the environment is relatively uncontaminated, direct animal contact is considered the most likely source of transmission of CWD to uninfected deer. Experiences in New York indicate limiting the growth of environmental contamination through the reduction of infected individuals in the early stages of infection may offer some control in limiting disease prevalence and distribution. However, infected individuals on the landscape serve as a reservoir for prions which will be shed into the environment. Prions are shed from infected animals in saliva, urine, blood, soft-antler material, and feces. There are no known management strategies to mitigate the risk of indirect transmission of CWD once an environment has been contaminated with infectious prions. This makes eradication of CWD very

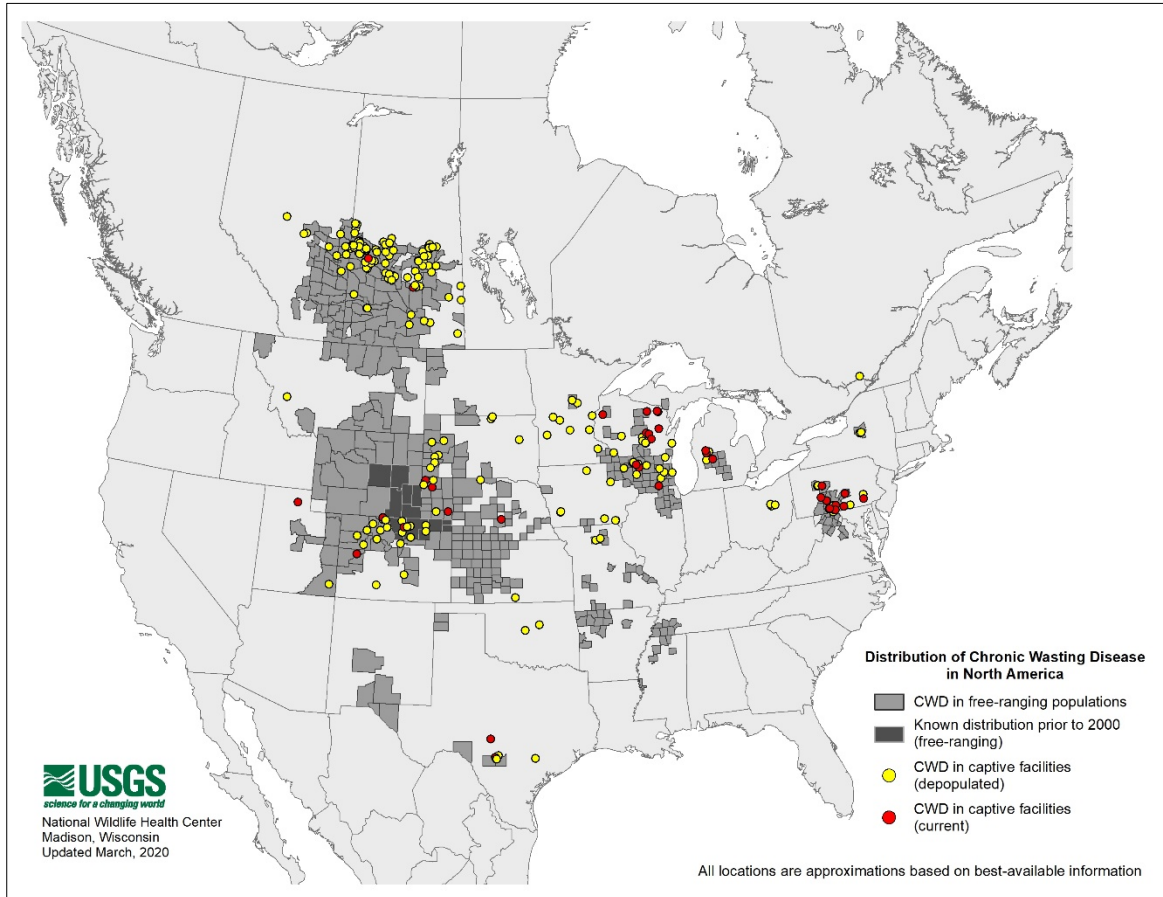


Figure 1. National Wildlife Health Center's identified distribution of Chronic Wasting Disease (CWD), March 2020. The most current CWD distribution data can be accessed from <https://www.usgs.gov/centers/nwhc/maps>.

difficult, if not impossible, in areas where CWD has been established for a long period before initial detection. Although a variety of species can be experimentally infected with CWD, there is currently no evidence that the disease can be spread naturally from cervids to livestock. No case of human disease has been epidemiologically associated with CWD. Examination of the available data has led the U. S. Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) to conclude that there is no scientific evidence of CWD infecting humans. However, as a precaution, WHO and CDC recommends hunters strongly consider testing deer or elk taken from areas where CWD is known to exist prior to consuming the meat (<https://www.cdc.gov/prions/cwd/prevention.html>). CDC also recommends people, or other animals, do not eat any part of an animal confirmed as positive for CWD (<https://www.cdc.gov/prions/cwd/prevention.html>).

Strategic Surveillance and Response Plan (SSRP) Goal and Objectives

The fundamental goal of the CWD SSRP is to the reduce risk of CWD introduction or spread into Alabama's deer populations. The plan is intended to be dynamic; management strategies described within are likely to change as both the epidemiology and management of this disease become better

understood through time. Specific response plans may be developed and incorporated into this plan following local or regional discoveries of CWD. The main objectives of the CWD SSRP are:

1. To prevent introduction of CWD into Alabama's deer populations by maximizing public education efforts and enforcement of current laws and regulations to prevent such an occurrence.
2. Establish and maintain prudent CWD surveillance in cooperation with hunters, landowners, and other stakeholders in Alabama.
3. Minimize direct and indirect impacts of CWD to hunting, hunting related economies, and natural resources conservation in Alabama.

Overview of Alabama's Regulatory Response to CWD

The movement of live cervids from infected areas is a well-documented cause that has accelerated the spread of CWD into uninfected populations. Whole carcasses and high-risk body parts (e.g., brain, spinal cord, neurological tissues) have also been identified as potential sources of risk for spreading CWD from infected to uninfected areas. WFF has taken measures to lessen the likelihood of CWD reaching Alabama through those routes by implementing regulatory measures. The importation of live cervids has been illegal in Alabama since 1973. In 2006, WFF amended an existing regulation to require all animals ≥ 12 months of age that die in a licensed deer breeder facility to be reported to WFF within 24 hours and made available for disease testing. The amended regulation also identified that live cervids may not be transported into Alabama, except for non-stop interstate pass-through transportation authorized by a Letter of Authority, and that captive deer may be moved within Alabama providing the licensed deer breeder notifies WFF in Montgomery prior to moving the animals. In 2016, WFF amended an additional regulation to ban the importation of body parts of cervid species from states, territories, or foreign countries where CWD has been confirmed by either the USDA Animal Plant Health Inspection Service (APHIS) or the Canadian Food Inspection Agency (CFIA). The regulation was further amended in 2018 to include those same body parts from all U.S. states, territories, or possessions, and all foreign countries. The amended regulation does not apply to the importation of: 1) meat taken from cervids, as long as the meat has been completely deboned, 2) cleaned skull plates with attached antlers if no visible brain or spinal cord tissue is present, 3) raw capes if no visible brain or spinal cord tissue is present, 4) upper canine teeth if no root structure or other soft tissue is present, and 5) finished taxidermy products or tanned hides. In 2018, WFF also amended regulation that requires licensed game breeders to submit all inventory records and inventory changes caused by births, deaths, escapes, transports, releases, transfers, sales, purchases or other causes relating to game animals be submitted via the Division's electronic database through individual user accounts, or by phone utilizing a Division approved call center through individual user accounts. Most recently, WFF instituted an additional regulation in 2019 to prohibit the use or possession of natural cervid urine from cervids outside of Alabama while hunting except when that cervid urine is produced in a facility that 1) complies with a federal or a federally approved CWD herd certification program and any federal CWD protocols and record requirements; 2) does not allow importation of live cervids; 3) requires that all cervids exported from the facility be tested for CWD upon death and the results are reported to the facility; 4) is inspected annually by an accredited veterinarian, including inspection of the herd and applicable records; and 5) maintains a fence at least 8 feet high around the facility and, if the facility is located within 30 miles of a confirmed

positive occurrence of chronic wasting disease, is double fenced to prevent direct contact between captive and wild cervids.

Surveillance Strategies

Active surveillance for CWD in Alabama was initiated in the 2002-03 hunting season following the confirmation of CWD in Wisconsin in early 2002. Initial CWD sampling efforts included hunter-killed deer from 49 of 67 counties. This approach was continued through 2015, with samples taken from all 67 counties. To date, WFF has sampled and tested over 8,000 wild white-tailed deer and captive deer of several species, with no CWD detected in those samples. Initial surveillance efforts (2003 through 2015) focused on target and hunter harvested animals. Target animals are deer ≥ 12 -months of age with CWD-like symptoms, which can include abnormal behavior, poor coordination, extreme weight loss, and excessive salivation/urination. Minimum statewide sampling goals were set based on a 95% probability of detecting the disease at a 1% level of infection within the population. The county-level sampling goals from 2003 through 2009 were set based on three criteria: 1) estimated deer densities within the county, 2) presence of known captive elk herds, and 3) confirmed scrapie cases. Counties with known captive elk herds and scrapie had significantly higher sampling goals than other counties. Statewide sampling goals ranged from 550 to 597 animals during this period. Bucks that were 2+ years of age were sampled whenever possible, but deer of both sexes 18 months old or older were used when needed to meet sampling goals. After 2009, county level sampling goals were set based on estimated population levels, placing the statewide sampling goal at 299 animals each year. The same criteria were used to prioritize deer for sampling (i.e., target > hunter harvested, buck > doe, 2+ years old > 18 months old)

Beginning with the 2016-17 hunting season, a sampling goal of 100 animals per District (500 total) was established, with no county level sampling goals. Priority was placed on samples from target and road killed animals since it has been shown these animals are more likely to have CWD than hunter harvested deer in areas that are CWD positive. Hunter harvested animals, deer taken under depredation permits and those collected during annual herd health checks were also sampled.

Continued sampling goals will be conducted at the county level. The county goals will be based on a relative risk assessment for each county. The following factors will be considered when determining each county's risk for having CWD positive animals: estimated county-level deer density, number of licensed deer breeder facilities within the county, number of deer hunting enclosures, and proximity to CWD positive states. Each county will be categorized into one of the following risk levels: severe risk, elevated risk, high risk, moderate risk, or low risk. The risk assessment ranking system is similar to those used by Texas Parks and Wildlife (https://tpwd.texas.gov/huntwild/wild/diseases/cwd/media/CWD_ManagementPlan_02March2015.pdf), Mississippi Department of Wildlife, Fisheries, and Parks (<http://www.mdwfp.com/media/254600/index.html#p=1>), other state wildlife agencies, and those described in Walsh et al 2012.

CWD surveillance samples are submitted to a USDA approved, Alabama Department of Agriculture and Industries (ADAI) Veterinarian Diagnostic Laboratory (AVDL) to test for the presence of CWD. If the result of a sample is negative for CWD (i.e. CWD not detected) then no

further actions are required. If the result of a sample is suspect for CWD, ADAI notifies WFF that a suspect CWD-positive sample has been found in Alabama. At that time AVDL will immediately send a back-up sample to a second independent USDA approved laboratory for confirmation testing. If the back-up sample confirms as CWD detected, ADAI notifies WFF and an applicable Response Protocol is implemented. If a back-up sample is not available for confirmatory testing, then the initial suspect sample will be considered as CWD detected and an applicable Response Protocol will be initiated.

Response Strategies to a CWD Positive Detection

WFF's SSRP outlines the agency's management activities to determine the prevalence and geographic extent of the CWD infection and minimize transmission of the disease should it be detected in Alabama or within 50 miles of the Alabama border. While CWD has profound consequences to cervid populations, there is currently no evidence that it has been transmitted to humans or domestic animals. Thus far, CWD management actions in other states have not completely eradicated CWD from free-ranging deer populations. Eradication, while desired, is not the primary goal for free-ranging deer and it is important the response to an outbreak of CWD is in proportion to the health risks and economic impact the disease poses. There is no effective treatment to eradicate the disease once it is established. However, management actions aimed at lowering deer densities, adult buck to doe ratio, and managing for a younger age structure in a population has been shown to reduce transmission and disease prevalence most consistently (Potapov et al. 2016, Storm et al. 2013). Consequently, the goal of WFF's response strategy is to minimize disease spread and impacts of CWD on free-ranging white-tailed deer in the state.

If CWD is discovered in a free-ranging cervid, the primary objectives of WFF's response will be as follows

- Determine the origin of a CWD positive cervid.
- Determine the prevalence and spatial distribution of CWD.
- Apply management actions to minimize risk of disease spread, including but not limited to regulations focused on reducing deer density, adult buck to does ratio, and population age structure.

If CWD is discovered in a captive cervid (deer within enclosures are not included as captive cervid, see definitions on pages 30 and 31), the primary objectives of WFF's response will be to minimize risk of disease transmission as follows:

- Conduct trace-backs and trace-forwards to identify any CWD-exposed animals and/or herds transferred or released from the CWD positive captive cervid facility for CWD testing to determine management actions.
- Where applicable implement management actions to reduce risk of CWD exposure to free-ranging white-tailed deer population.
- Determine if CWD is also present in free-ranging deer surrounding the CWD positive captive cervid facility.

The management of CWD will not be a single year effort but will require a multi-year adaptive management approach that will be refined as the science of CWD management evolves.

Response Protocol A: Confirmed Positive Detection In-State, Free Ranging Deer Population

Upon notification from ADAI that a CWD positive sample has been confirmed within Alabama, the following management actions will be implemented:

- ❖ WFF Director will notify WFF Section Chiefs as outlined in Appendix 1 and the Wildlife Section Chief will prepare a memo (Appendix 2) to inform the DCNR Commissioner a CWD positive sample has been detected in Alabama.
- ❖ WFF Director or designee(s) and DCNR Commissioner will make calls to key constituents (Appendix 1) to inform them that a CWD positive sample has been detected in Alabama.
- ❖ Wildlife Section Chief will assemble a CWD Response Team (CWD-RT) and any additional WFF staff deemed necessary to coordinate and conduct response activities.
- ❖ WFF Director or designee(s) will prepare an intradepartmental memo (Appendix 3) that will proceed down the divisional chain of command informing all WFF staff a CWD positive case has been detected within Alabama and the relevant protocols for handling inquiries.
- ❖ Within 24-48 hours of receiving confirmation of a CWD positive within Alabama, the public will be advised of the positive case through a DCNR press release and/or announcement (Appendix 4).
- ❖ WFF will place up-to-date information on the DCNR Outdoor Alabama website (www.outdooralabama.com), and/or social media to fully inform citizens about CWD (Appendix 5) and response efforts.
- ❖ CWD-RT will map the location of the CWD positive index case and initial CWD Management Zones (CMZ) (Figure 2) using a Geographic Information System (GIS). Three CWD Management Zones (CMZ) will be delineated around the index case: a five-mile radius Core Zone (CZ), a 10-mile radius High Risk Zone (HRZ), and a 25-mile radius Buffer Zone (BZ). Each designated CMZ will be delineated using county and/or state-maintained roads or other geographic features when possible and may be refined or altered after the initial sampling event.

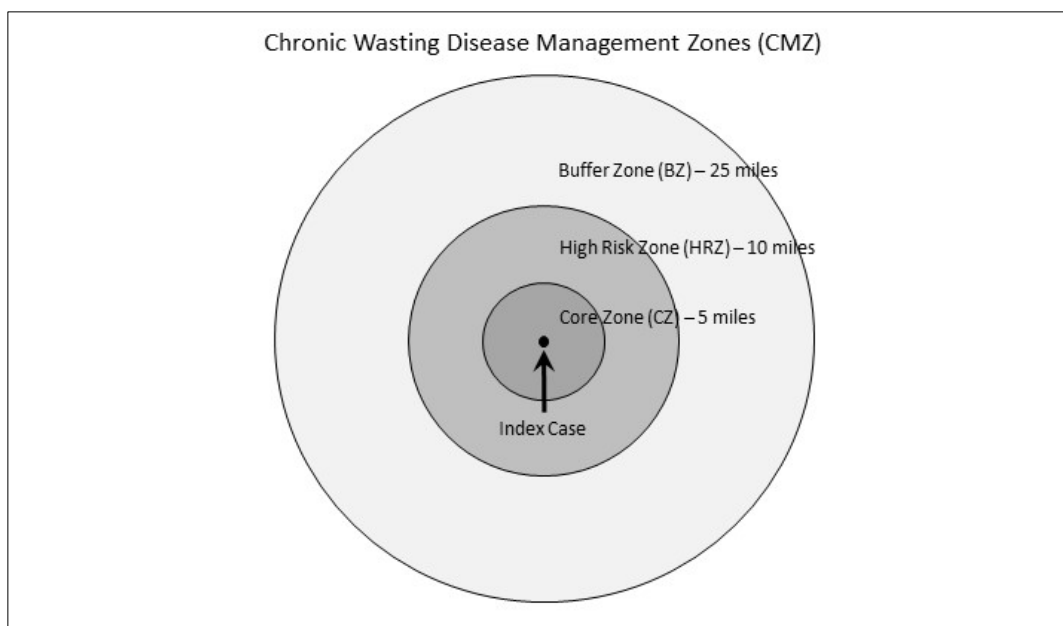


Figure 2. Representation of Chronic Wasting Disease Management Zones (CMZ) delineated at five, ten, and twenty-five miles around an index case (distances not depicted to scale).

- ❖ Special CMZ specific regulations will be implemented (Appendix 6) and may include, but not limited to, mandatory CWD testing with designated CWD check stations, extended deer seasons and/or increased bag limits to reduce deer densities, prohibition of deer rehabilitation and supplemental wildlife feeding/baiting, limitations on carcass transportation, and where applicable prohibit movement and/or depopulation of captive cervid facilities within appropriate CMZ's to limit risk of disease spread.
- ❖ An initial sampling effort within the CZ will require collecting at minimum 60 samples within 60 days (from notification of a CWD positive index case) to accurately delineate the CZ. As more positive cases are identified, the boundaries of the CZ may need to be expanded.
- ❖ If additional infected deer are detected in the CZ, a new five-mile radius will be extended from the location of the new positive(s) and subsequent sampling will be conducted from the newly expanded CZ. As new positives are confirmed and the CZ increases, the required sample size will increase proportionately to increase confidence that additional positive deer will be detected, if present. As sampling progresses, delineation of an encompassing CZ boundary will be identified using all available biological information and cultural/geographic features. Any CZ size increase will also be applied to the HRZ and BZ.
- ❖ Within each CMZ a deer density will be estimated using the best available county-level data (e.g., Game Check harvest, DMAP harvest, WMA harvest, etc.). The density estimate will be used to determine the number of samples needed from within each CMZ to determine the prevalence of CWD within the area (Appendix 7).

- ❖ Subsequent CWD focused surveillance sampling will be conducted on free ranging deer within the CMZ using various methods (e.g., hunter-harvested animals, road kills, controlled harvest, etc.). Whenever possible, sampling will be accomplished using hunter harvested deer during regular deer season and/or through extended special seasons. When necessary, WFF may also collect deer in areas when other means of sample collection are inadequate, but only with permission and full cooperation of private landowners. Landowner permission will be obtained prior to collecting any deer from private property.
- ❖ Stakeholders such as deer processors and taxidermists will be asked to assist in sampling efforts by saving portions of deer carcasses during all or selected portions of the deer hunting seasons.
- ❖ Alabama Department of Transportation (ADOT), Alabama Law Enforcement Agency (ALEA), county highway departments, and/or sheriff offices may be asked to assist by reporting road kill deer within the CMZ to WFF for sampling.
- ❖ Liberal and/or extended hunting seasons may be used to supplement CWD sampling in the HRZ through special regulations (Appendix 6).
- ❖ Targeted surveillance sampling for CWD will be intensified within all counties that intersect or are immediately adjacent to the BZ (Appendix 7).
- ❖ All captive cervid facilities **within the CMZ** will be placed on non-movement qualified status until testing can determine CWD prevalence of the captive cervid facilities. Facility operators will be required to check the integrity of the perimeter fencing daily. Each captive cervid facility will be treated as an individual population. The population for a captive cervid facility will be estimated as the average of the last two inspection counts for licensed game breeder facilities, and the average of the last two inventories reported for permitted facilities. If a captive cervid facility has been operating for less than two years, then the current inventory will be used as the estimated population count. An initial sample of approximately 10% of the estimated population of the facility, or a sample target as otherwise recommended on a case-by-case basis through consultation with Southeastern Cooperative Wildlife Disease Study (SCWDS) and ADAI, will be used to determine CWD prevalence within the facility. Sampling of captive cervid facilities will be initiated in the CZ and progress outward to the HRZ. The 10% prevalence sample must be taken after the initial CWD positive detection date and will be randomly selected from current inventory. The captive cervid facility can substitute up to half of the deer randomly selected for testing with deer of similar age, sex, and time on the facility. Captive cervids considered eligible for sampling must be at least 12 months of age or older. If a CWD positive is detected within the captive facility or the initial sample **Response Protocol B: Positive Detection In-state Captive Deer** is implemented. If CWD is not detected in captive facilities after initial prevalence testing is complete, then non-movement qualified status of captive facilities will be lifted, and movement will be allowed within the CMZ.
- ❖ CWD focused surveillance sampling will continue in a CMZ until the sample goal is reached. If no additional positive cases are detected for a period of one year, then targeted surveillance

for CWD will be continued for four additional years in the CMZ and all counties that intersect or are adjacent to the BZ. If no new cases of CWD have been found for five consecutive years, CWD sampling within the CMZ will be reduced to standard surveillance levels, and CMZ specific regulations and non-movement qualified status of captive cervid facilities located within the CMZ will be lifted.

Response Protocol B: Positive Detection In-state Captive Deer:

Upon notification from ADAI that a CWD positive sample from a captive cervid (deer within enclosures are not included as captive cervid, see definitions on pages 30 and 31) has been confirmed within Alabama, the response protocol for captive cervids will follow USDA-APHIS CWD Program Standards outlined in www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information and the following measures will be implemented as rapidly as possible:

- ❖ WFF Director will notify WFF Section Chief as outlined in Appendix 1 and prepare a memo (Appendix 2) to inform the DCNR Commissioner a CWD positive sample has been detected in Alabama.
- ❖ Wildlife Section Chief will assemble a CWD Response Team (CWD-RT) and any additional WFF staff deemed necessary to coordinate and conduct response activities.
- ❖ WFF Director or designee(s) will prepare an intradepartmental memo (Appendix 3) that will proceed down the divisional chain of command informing all WFF staff a CWD positive case has been detected within Alabama and the relevant protocols for handling inquiries.
- ❖ Within 24-48 hours of receiving confirmation of a CWD positive within Alabama, the public will be advised of the positive case through a DCNR press release and/or announcement (Appendix 4).
- ❖ All captive cervid facilities will be placed on non-movement qualified status. The process of trace-back and trace-forward will be performed to identify any potential CWD-exposed animals, herds, captive cervid facilities or enclosures that will require CWD testing to prevent further infection and minimize risk of disease transmission. Any facility or enclosure identified as CWD-exposed will be considered as non-movement qualified status until testing can confirm CWD prevalence.
- ❖ For free-ranging white-tailed deer, actions outlined in **Response Protocol A: Confirmed Positive Detection In-State, Free Ranging Deer Population** will be implemented using the captive cervid facility as the index case.
- ❖ All CWD-exposed captive cervid facilities or enclosures under non-movement qualified status will be required to check the integrity of perimeter fencing daily and immediately report all cervid escapes and deaths to the LE Game Breeder Coordinator and make all dead cervids available for testing **regardless of age**.
- ❖ Each CWD-exposed captive cervid facility will be treated as an individual population. The population for a captive cervid facility will be estimated as the average of the last two

inspection counts for licensed game breeder facilities, and the average of the last two inventories reported for permitted facilities. If operation a captive cervid facility has been operating for less than two years, then the current inventory will be used as the estimated population count. An initial prevalence sample of approximately 10% of the estimated population of the facility, or a sample target as otherwise recommended on a case-by-case basis through consultation with SCWDS and ADAI, will be used to determine CWD prevalence within the facility. The 10% prevalence sample must be taken after the initial CWD positive detection date and will be randomly selected from current inventory. The captive cervid facility can substitute up to half of the deer randomly selected for testing with deer of similar age, sex, and time on the facility. Captive cervids considered eligible for sampling must be at least 12 months of age or older.

- ❖ Population density estimates for CWD-exposed enclosures will be established. An initial sample of approximately 10% of the estimated population of the enclosure, or a sample target as otherwise recommended by SCWDS will be used to determine CWD prevalence within the CWD-exposed enclosure. The 10% prevalence sample must be taken after the initial CWD positive detection date. All cervids that die in the CWD-exposed enclosure, no matter the cause of death, will be submitted for testing. Captive cervids considered eligible for a prevalence sample must be at least 12 months of age or older.
- ❖ In cooperation with ADAI and WFF, any captive cervid facility or enclosure testing positive for CWD will be depopulated and/or required to maintain a double fencing standard to exclude and prevent contact between free ranging deer and cervids within the CWD positive facility and develop a herd management plan to monitor the progression of CWD prevalence. Fencing standards will follow AFWA recommendations and USDA-APHIS CWD Program Standards (<http://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/cervid/cervids-cwd/cervid-cwd>).

Response Protocol C: Out-of-State Detection in Free Ranging and/or Captive Deer Within 25 Miles of the Alabama Border:

Upon notification from an adjacent state agency of a CWD positive detection within 25 miles of an Alabama border, the following management actions will be implemented:

- ❖ WFF Director will notify WFF Section Chiefs as outlined in Appendix 1 and prepare a memo (Appendix 2) to inform the DCNR Commissioner a CWD positive sample has been detected within 25 miles of the Alabama border.
- ❖ WFF Director or designee(s) and DCNR Commissioner will notify appropriate constituents (Appendix 1) to inform them that a CWD positive sample has been detected within 25 miles of the Alabama border.
- ❖ Wildlife Section Chief will assemble a CWD Response Team (CWD-RT) and any additional WFF staff deemed necessary to coordinate and conduct response activities.

- ❖ WFF Director or designee(s) will prepare an intradepartmental memo (Appendix 3) that will proceed down the divisional chain of command informing all WFF staff a CWD positive case has been found within 25 miles of the Alabama border and the relevant protocols for handling inquiries.
- ❖ WFF Director will remain in contact with the CWD infected state's Director to stay apprised of the infected state's status.
- ❖ Within 24-48 hours of confirmation of the out-of-state case, the public will be advised of the CWD positive case through a DCNR press release (Appendix 4).
- ❖ WFF will place up-to-date information on the DCNR Outdoor Alabama website, and/or social media to fully inform citizens about CWD (Appendix 5) and response efforts.
- ❖ CWD-RT will map the location of the nearest out-of-state CWD positive index case and initial CWD Management Zones (CMZ) (Figure 2) using a Geographic Information System (GIS). Three CWD Management Zones (CMZs) will be delineated around the out-of-state index case: a five-mile radius Core Zone (CZ), a 10-mile radius High Risk Zone (HRZ), and a 25-mile radius Buffer Zone (BZ) (Figure 2). Each designated CMZ will be delineated using county and/or state-maintained roads or other geographic features.
- ❖ A deer density within each portion of a CMZ that falls within Alabama, will be estimated using the best available county-level data (e.g. Game Check harvest, DMAP harvest, WMA harvest, etc.). The density estimate will be used to determine the number of samples needed from within each CMZ (Appendix 7).
- ❖ Targeted CWD surveillance sampling will be intensified within the Alabama portions of a CMZ (Appendix 6).
- ❖ If a CWD positive is detected in the Alabama portion of a CMZ, steps outlined in **Response Protocol A: Confirmed Positive Detection In-State, Free Ranging Deer Population** will be implemented
- ❖ Subsequent years of CWD sampling intensity and management actions will be determined based on results of sampling by the infected state and sampling results in the Alabama portion of a CMZ.

Response Protocol D: Out-of-State Detection in Free Ranging and/or Captive Deer Within 25 to 50 Miles of the Alabama Border:

If CWD is detected in an adjacent state within 25 to 50 miles of an Alabama border, the primary response effort will be to communicate and coordinate with the public and other agencies on issues related to CWD and the actions being taken by WFF.

- ❖ WFF Director or designee(s) and DCNR Commissioner will notify appropriate parties identified in Appendix 1. WFF Director will contact the CWD infected state's Director to remain apprised of the infected state's status.

- ❖ Wildlife Section Chief will assemble a CWD Response Team (CWD-RT) and any additional WFF staff deemed necessary to coordinate and conduct response activities.
- ❖ WFF Director or designee(s) will prepare an intradepartmental memo (Appendix 3) that will proceed down the divisional chain of command informing all WFF staff a CWD positive case has been found within 50 miles of the Alabama border and the relevant protocols for handling inquiries.
- ❖ Within 24-48 hours of confirmation of the out-of-state case, the public will be advised of the out-of-state positive CWD case through a DCNR press release (Appendix 4).
- ❖ WFF will place up-to-date information on the DCNR Outdoor Alabama website, and/or social media to fully inform citizens on CWD and response efforts.
- ❖ Targeted CWD surveillance sampling in Alabama counties nearest to the out-of-state CWD positive area will be increased to levels beyond standard surveillance rates currently in place for those counties.
- ❖ If a CWD positive sample is detected in Alabama, steps outlined in **Response Protocol A: Confirmed Positive Detection In-State, Free Ranging Deer Population** will be implemented.
- ❖ Subsequent years of increased CWD sampling and management actions will be determined based on results of sampling by the infected state and sampling results in Alabama.

Response Protocol E: Adjacent State Detection in Free Ranging and/or Captive Deer Over 50 Miles from the Alabama Border:

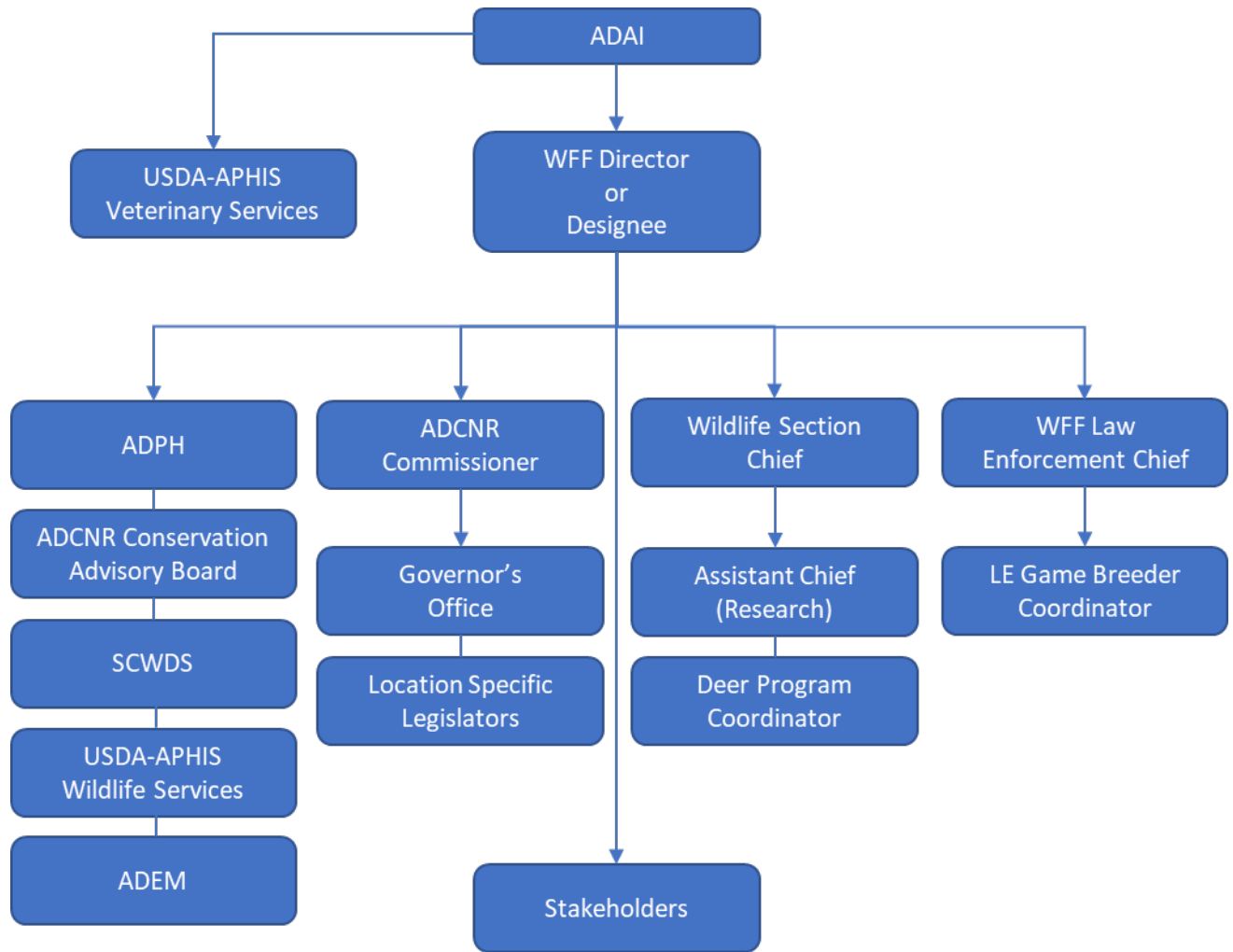
If CWD is detected in adjacent state more than 50 miles from an Alabama border, the primary response effort will be to communicate and coordinate with the public and other agencies on issues related to CWD.

- ❖ WFF Director or designee(s) and DCNR Commissioner will notify appropriate parties identified in Appendix 1. WFF Director will contact the CWD infected state's Director to remain apprised of the infected state's status.
- ❖ WFF Director or designee(s) will prepare an intradepartmental memo (Appendix 3) that will proceed down the divisional chain of command informing all WFF staff a CWD positive case has been found in an and the relevant protocols for handling inquires.
- ❖ Within 24-48 hours of confirmation of the out-of-state case, the public will be advised of the CWD positive case through a DCNR press release, website, and/or social media (Appendix 4).

Summary

Information and understanding of all aspects of CWD is continually growing and changing. As current information becomes available, WFF will incorporate new strategies to improve CWD surveillance and prevent the introduction of this disease into Alabama. The actions outlined in this strategic response plan are based on the most current knowledge available and incorporate information provided by the experiences of various states in battling CWD.

APPENDIX 1: Notification Protocol Following a CWD Positive in Alabama



APPENDIX 2: Draft Memo to Commissioner Following Confirmed CWD Positive

MONTH DAY, YEAR

MEMORANDUM

TO: FIRST LAST, Commissioner
Alabama Department of Conservation and Natural Resources

FROM: FIRST LAST, Chief
Wildlife Section

THROUGH: FIRST LAST, Director
Division of Wildlife and Freshwater Fisheries

SUBJECT: Confirmed CWD Positive in Alabama

On MONTH DAY, YEAR, I received confirmation of a CWD positive test for a deer from COUNTY, Alabama. The deer was a AGE SEX taken HOW on MONTH DAY, YEAR near TOWN/COMMUNITY. The samples were confirmed CWD positive by the XXXX Lab in CITY, STATE. Plans to implement Response Protocol X from the ADWFF's Chronic Wasting Disease Strategic Surveillance Response Plan are underway.

APPENDIX 3: Draft Interdepartmental Memo from Director Following a CWD Positive

MONTH DAY, YEAR

MEMORANDUM

TO: Division of Wildlife and Freshwater Fisheries Staff

FROM: FIRST LAST, Director
Division of Wildlife and Freshwater Fisheries

SUBJECT: Confirmed CWD Positive in Alabama

On MONTH DAY, YEAR, we received confirmation of a CWD positive test for a deer from COUNTY, Alabama. The deer was a AGE SEX taken HOW on MONTH DAY, YEAR near TOWN/COMMUNITY. The samples were confirmed CWD positive by the XXXX Lab in CITY, STATE. Plans to implement Response Protocol X from ADWFF's Chronic Wasting Disease Strategic Surveillance Response Plan are underway.

All inquiries from the public, media outlets, or any other entity should be directed to FIRST LAST, Media Team, at xxx-xxx-xxxx or FIRST.LAST@dcnr.alabama.gov.

APPENDIX 4: Sample Press Release Following Discovery of CWD in Alabama

FOR IMMEDIATE RELEASE

DATE

CONTACT: FIRST AND LAST NAME

CONTACT PHONE NUMBER

Chronic Wasting Disease Found in XXXXXXXXXX County TYPE OF DEER

MONTGOMERY — Samples from NUMBER AND TYPE OF DEER recently collected in NAME OF COUNTY near NAME OF NEAREST TOWN have been confirmed positive for Chronic Wasting Disease (CWD). These are the first cases of CWD detected in Alabama’s deer herd. Wildlife officials believe the event is currently isolated in the area surrounding the location where these CWD positive TYPE OF DEER were discovered.

CWD is a member of the group of diseases called transmissible spongiform encephalopathies (TSEs). Other diseases in this group include scrapie in sheep, bovine spongiform encephalopathy (BSE or mad cow disease) in cattle, and Cruetzfeldt-Jakob disease in humans. CWD among cervids is a progressive, fatal disease that commonly results in altered behavior as a result of microscopic changes made to the brain of affected animals. An animal may carry the disease for years without outward indication, but in the latter stages, signs may include listlessness, lowering of the head, weight loss, repetitive walking in set patterns, and a lack of responsiveness. CWD is not known to affect humans.

The animal(s) that tested positive for CWD was/were a TYPE OF CERVID AND CIRCUMSTANCES OF DEATH (HUNTER-HARVESTED OR OTHERWISE) inspected as part of the state’s CWD surveillance and testing procedures. Preliminary tests performed at the FIRST TEST LOCATION discovered the positive case, which was confirmed by NAME OF USDA APPROVED CONFIRMATION LABORATORY.

“Now that we have detected CWD in Alabama, our primary objective is to contain this disease,” said FIRST AND LAST NAMES, TITLE AND AGENCY. “Working collaboratively with experts in the field we have developed protocols to address CWD and implementation is already under way.”

There is no vaccine or cure for CWD, but steps have been taken to minimize the risk of the disease spreading from beyond the area where it currently exists. For example, human-induced movements of wild or captive deer, elk, or other susceptible species will be restricted and mandatory hunter check stations will be established.

“This is obviously an unfortunate and rather significant development,” said **TITLE AND AGENCY**, **FIRST AND LAST NAMES**. “We take the presence of this disease very seriously and have a plan of action to deal with it. The Department will do whatever is prudent and reasonable to protect the state’s deer resources and our hunting heritage.”

Although wildlife officials cannot say how long the disease has been present in Alabama or if it occurs in other areas of the state, they have had an active CWD surveillance program for more than a decade.

“We have tested more than **NUMBER** wild deer in Alabama since 2002, and the captive-deer industry has submitted more than **NUMBER** CWD test results as well,” said **FIRST AND LAST NAMES**, **POSITION** with **AGENCY**.

Alabama’s Department of Agriculture and Industries oversees a voluntary CWD herd monitoring status program with the intent to facilitate trade and marketability for interested cervid producers in Alabama. The basis of the program is that enrolled cervid producers must ensure that all mortalities during the previous year were tested for CWD and the disease was not detected.

Wildlife biologists, hunters, and landowners would certainly have preferred for Alabama’s deer populations to have not been dealt this challenge, but WFF has developed a CWD Management Plan that includes management practices intended to contain the disease

The disease was first recognized in 1967 in captive mule deer in Colorado. CWD has also been documented in captive and/or free-ranging deer in 24 states, 2 Canadian provinces, Norway, and South Korea.

More information on CWD can be found on DCNR’s website, <http://www.outdooralabama.com/research-mgmt/publications/wasting-disease.cfm>, or at the Chronic Wasting Disease Alliance website, <http://www.cwd-info.org>.

More information on WFF’s CWD Response Plan can be found at www.outdooralabama.com.

APPENDIX 5: CWD Fact Sheet

Alabama Division of Wildlife and Freshwater Fisheries Chronic Wasting Disease Facts

Chronic wasting disease (CWD) is a fatal neurological disease of deer, elk, and moose that has been classified in the group of diseases called transmissible spongiform encephalopathies (TSEs). The disease is infectious, communicable, and always fatal. TSEs are believed to be the result of the transformation of normal prions (proteinaceous infectious particles) into infectious, self-propagating, abnormal prions. Their shape is transformed in such a way that they cause disease. These abnormal prions are found throughout the deer's body, but concentrate in the brain, other tissues of the nervous system, and some lymph tissues. They eventually cause degeneration of brain cells, creating microscopic holes in the brain. **What animals are affected by CWD?**

CWD affects several species in the deer family (cervids). White-tailed deer, mule deer, elk, red deer, moose, sika deer, and caribou/reindeer have all been found to be susceptible to the disease. Although a variety of species can be experimentally infected with CWD, there is currently no evidence that the disease can be spread naturally from cervids to livestock. **Can humans get CWD?**

To date, no case of human disease has been directly linked to CWD. Examination of the available data has led the U.S. Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) to conclude that “there is no strong evidence for the occurrence of CWD in humans, and it is not known if people can get infected with CWD prions” (www.cdc.gov/prions/cwd/transmission.html). However, experimental studies raise concern that CWD may pose a risk to people and suggest that it is important to prevent human exposure (www.cdc.gov/prions/cwd/transmission.html). **What preventive measures should hunters take?**

Public health and wildlife officials advise hunters to take the following precautions when pursuing or handling deer and elk that may have been exposed to CWD:

- Do not shoot, handle, or consume any animal that is acting abnormally or appears to be sick.
- Wear latex or rubber gloves when field dressing your deer.
- 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.
- 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 commercially processed, request that your animal be processed individually, without meat from other animals being added to meat from your animal.
- If hunting in a known CWD positive area, strongly consider having all harvested deer or elk tested before consuming the venison.
- ***CDC recommends you do not consume venison from a deer or elk that has tested positive for CWD.***

Where and how did CWD originate?

The origin of CWD is unknown and it may never be possible to definitively determine how or when CWD arose. It was first recognized as a syndrome in captive mule deer held in wildlife research facilities in Colorado in the late 1960s, but it was not identified as a TSE until the 1970s. Scrapie, a TSE of domestic sheep and goats, has been recognized in the United States since 1947 and it is possible that CWD was derived from scrapie. It also may be possible that CWD is a spontaneous TSE that arose in deer in the wild or in captivity..

How does CWD spread?

Prions are shed through saliva, blood, feces, and urine, which makes direct contact with infected deer a primary route of transmission. In areas where CWD has not been detected, such as Alabama, movement of infected, naturally dispersing, free-range animals, movement of infected captive animals, and movement of carcasses or high-risk body parts of infected animals are the most likely routes for the initial infection. In addition, the presence of infected deer over time increases the number of infectious CWD prions shed into the environment (e.g., soil, etc.). There are no known management strategies to mitigate the risk of indirect transmission of CWD once an environment has been contaminated with infectious prions. This makes eradication of CWD very difficult, if not impossible, in areas where CWD has been established for a long period before initial detection.

What are the symptoms of CWD?

CWD is insidious and has a prolonged incubation period. Infected animals may not show any evidence of being sick for 12 months or more. The disease attacks the central nervous system of the deer, elk, or moose and presents symptoms, including extreme weight loss, excessive salivation, abnormal behavior, and poor coordination, which are similar to other diseases or illnesses of these deer species, such as brain abscesses and chronic cases of hemorrhagic disease.**How is CWD detected?**

Clinical signs of CWD alone are not conclusive, and there is currently no practical live animal test. Currently, the only conclusive diagnosis involves an examination of the brain, tonsils, or lymph nodes performed after death.

Why are we concerned about CWD?

CWD poses serious problems for wildlife managers, and the implications for free-ranging deer are significant:

- Ongoing surveillance programs are expensive and draw resources from other wildlife management needs.
- Impacts of CWD on population dynamics of deer and elk are presently unknown. Computer modeling suggests that CWD could substantially reduce infected cervid populations by lowering adult survival rates and destabilizing long-term population dynamics.
- Where it occurs, CWD may alter the management of wild deer and elk populations. It has already begun to do so in some areas where the disease has been present for an extended period (10+ years).

APPENDIX 6: Recommended CWD Emergency Regulations

Pursuant to Code of Alabama 1975, Section 9-2-8, the Commissioner of DCNR is authorized to make and promulgate such reasonable rules and regulations not in conflict with the provisions of the game and fish laws as he may deem for the best interest of the conservation, protection, and propagation of wild game. Such rules and regulations shall have the effect of law.

Current Captive Cervid Regulations

- 220-2-.25 – Imported Game Birds, Game Animals, and Raw Furs Subject to State Law
- 220-2-.26 – Restrictions on Possession, Sale, Importation and/or release of Certain Animals and Fish
- 220-2-.138 – Licensed Game Breeders
- 220-2-.156 – Release of Captive Raised Cervids

- 9-11-30 – Game Breeder’s License - Issuance; Expiration.
- 9-11-31 – Game Breeder’s License – Sales by License.
- 9-11-31.1 – Game Breeder’s License - Violations

Suggested Emergency Regulations and Management Actions if CWD is Confirmed in Alabama:

- Liberalize hunting season lengths and bag limits. This will be defined once the circumstances (i.e., captive vs. free range, time of year, prevalence rate, deer density, etc.) of the positive sample are identified.
- Strengthen CWD sampling requirements within CMZ for captive cervid facilities and enclosure to the following:
 - CWD test any white-tailed deer displaying clinical signs of CWD.
 - CWD test any white-tailed deer that dies within a breeding pen. Samples are required **immediately** upon death of animal.
 - If a deer had been moved from a breeding pen within a CMZ to an enclosure outside the CMZ, prior to the creation of the CMZ, that deer must be tested upon its death, either natural or hunter harvested.
- Require cervid facilities to immediately report all cervid escapes and deaths to the LE Game Breeder Coordinator and make all cervid deaths available for testing regardless of age.
- Partner with Alabama Department of Agriculture and Industries (ADAI) to develop regulations for CWD susceptible exotic cervids.
- Suspend Hunters Helping the Hungry Program and other food bank/donation programs.

Zone Specific Regulations Recommended Once CWD is Discovered in Alabama

Core Zone (CZ) – Five-mile radius from a confirmed CWD positive cervid

- Create and utilize mandatory check stations to sample hunter-harvested deer, until the minimum number of CWD samples are obtained. Mandatory CWD sampling within the CZ

may be implemented for all or only a portion of the deer season (e.g., opening weekend of gun season, first three Saturdays, etc.) to adequately sample the CZ.

- No whole deer carcass can be removed from the CZ, utilizing 220-2-.25 language. Exceptions include:
 - completely deboned meat,
 - cleaned skull plates with attached antlers, if no visible brain or spinal cord tissue is present,
 - raw capes, if no visible brain or spinal cord tissue is present,
 - upper canine teeth, if no root structure or other soft tissue is present, and
 - finished taxidermy products and tanned hides.
 - All meat processors will need to be permitted in order to insure compliance.
- Suspend all white-tailed deer rehabilitation permits within the CZ.
- Establish permit system for meat processors and taxidermists
 - No processor may accept and process bone-in meat from both within and outside the CZ.
 - Each hunter must provide a game check confirmation number with each deer.
 - Processors and taxidermists must maintain an accurate logbook of customer's game check confirmation numbers for all deer received at their facility. Deer that do not require a game check confirmation number (e.g., road kills) must have the customer driver's license number maintained in the logbooks.
- Issue management tags to cooperating landowners allowing harvest of white-tailed deer outside of the normal season structure within the CZ.
- When necessary WFF may also collect deer within/near CZ to reduce population densities as an attempt to minimize localized CWD spread.
- Establish a moratorium on movement of all captive cervids and all cervid reproductive material out of, the CZ.
- Immediately prohibit the use of bait while hunting and the feeding of wild game in all counties located within or contacting the CZ. Permit applications to allow the feeding of wild game will be considered by the DCNR Commissioner on a case by case basis.
- Finalize deer carcass disposal regulations to require discarded parts to be bagged and deposited into a lined landfill, or direct burial of harvest on-site to a depth of at least eight feet.

High Risk Zone (HRZ) – 10-mile radius from a confirmed CWD positive cervid

- Create and utilize voluntary check stations to sample hunter-harvested deer.
- Immediately prohibit the use of bait while hunting and the feeding of wild game in all counties located within or contacting the HRZ. Permit applications to allow the feeding of wild game will be considered by the DCNR Commissioner on a case by case basis.
- Suspend all white-tailed deer rehabilitation permits within the HRZ.
- Establish a moratorium on movement of all captive cervids, and all cervid reproductive material out of, the HRZ.
- No whole deer carcass can be removed from the HRZ. Exceptions include:
 - Completely deboned meat,
 - cleaned skull plates with attached antlers, if no visible brain or spinal cord tissue is present,

- raw capes, if no visible brain or spinal cord tissue is present,
- upper canine teeth, if no root structure or other soft tissue is present, and
- finished taxidermy products and tanned hides.
- All meat processors will need to be permitted in order to ensure compliance.
- Establish permit system for meat processors and taxidermists.
 - No processor may accept and process bone-in meat from both within and outside the HRZ.
 - Each hunter must provide a confirmation number with each deer.
 - Processors and taxidermists must maintain an accurate logbook of customer confirmation numbers of all deer received at their facility. Deer that do not require a game check confirmation number (e.g., road kills) must have the customers driver's license number maintained in the logbooks.

Buffer Zone (BZ) – 25-mile radius from a confirmed CWD positive cervid

- Create and utilize voluntary check stations to sample hunter-harvested deer.
- Suspend all white-tailed deer rehabilitator permits within the BZ.
- Immediately suspend all supplemental feeding in all counties located or contacting the BZ.
- Establish a moratorium on movement of all captive cervids, and all cervid reproductive material out of, the BZ.

APPENDIX 7: Sampling Recommendations for Free Ranging Deer

Population Size	Sample Size Recommendation (95% Probability of Detecting One Positive at 1% Prevalence) ¹
10	10
50	50
150	96
200	156
300	190
400	211
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
Infinite	299

¹ Cannon, R.M. and Roe, R.T. (1982).

APPENDIX 8: Stakeholders and Contacts*

Organization	Contact Name	Mailing Address	Phone

*Stakeholders and contacts have been intentionally removed from the table to protect personnel contact information.

Definitions

Active surveillance – Sampling of healthy cervids from either hunter killed, road killed, herd health checks, or those killed under depredation permits.

ADAI Veterinary Diagnostic Laboratory System (AVDL) – Four laboratories in the State that provide diagnostic services to the animal industries.

Alabama Department of Agriculture and Industries (ADAI) – The State agency responsible for initial CWD screening of all samples collected from wild and captive cervids in Alabama.

Alabama Department of Conservation and Natural Resources (DCNR) – The State agency consisting of five Divisions, including the Administrative Division, Marine Resources Division, State Lands Division, State Parks Division, and Wildlife and Freshwater Fisheries Division.

Alabama Department of Public Health (ADPH) - The primary state health agency for the state of Alabama. ADPH's mission is to promote, protect, and improve the health of individuals and communities of Alabama.

Alabama Division of Wildlife and Freshwater Fisheries (WFF) – The State agency responsible for protecting and managing deer and other game birds and mammals in Alabama.

Approved laboratory – A private, State, Federal, or university laboratory that has passed an annual proficiency test for CWD disease testing. All CWD testing must be done in a laboratory approved by NVSL. ADAI's Thompson-Bishop-Sparks State Diagnostic Laboratory in Auburn is an approved laboratory for CWD testing in Alabama.

Captive Cervid – Members of the Family Cervidae held under a Game Breeder's License, propagation or public display of captive wildlife permit, or captivity permit.

Captive Cervid Facility – Any licensed game breeder facility or permitted cervid facility, not considered as an enclosure. See definition of enclosure.

Cervid – Any members of the Family Cervidae including but not limited to white-tailed deer, mule deer, black-tailed deer, elk, moose, caribou, fallow deer, axis deer, sika deer, red deer, and reindeer.

Chronic Wasting Disease (CWD) – The Transmissible Spongiform Encephalopathy (TSE) of cervids.

Composting – Controlled aerobic biological decomposition of moist organic solid matter; an optional disposal method of cervid carcasses.

CWD Management Zone (CMZ) – The geographic area of Alabama influenced by a positive case of CWD. It is in this area that related CWD management activities will take place.

CWD Strategic Surveillance and Response Plan (SSRP) – WFF’s management document that describes the active CWD monitoring and general response to a CWD positive detection.

CWD-Exposed - Likely contact with a CWD-positive animal, herd, enclosure, or facility.

CWD-Exposed Enclosure – An enclosure, by definition, that has received animals directly from an identified CWD positive captive facility.

CWD-Positive - An animal/sample submitted for CWD screening where results indicate presence of CWD and the secondary sample has been confirmed CWD positive by an immunohistochemistry (IHC) test from the National Veterinary Services Laboratory (NVSL).

Disease Suspect – Animal, herd, or facility or material suspected of carrying a contagious disease.

Enclosure – Real property surrounded by fencing that effectively restricts the ingress and egress of cervids.

Enzyme-Linked Immunosorbent Assay (ELISA) – A screening test used to detect the presence of antibodies or antigen in a sample. In terms of CWD testing, all non-negative results must be confirmed by an immunohistochemistry (IHC) test.

Exposure Risk Factors – Those factors that increase the likelihood that CWD prions will infect cervids in Alabama.

Focus Surveillance – Intensified sampling of cervids from a localized area where CWD is known to occur.

Free-ranging Deer – Members of the Family Cervidae that are not confined in a captive cervid facility.

Game Breeder Facility – Facility or facilities of any game breeder licensed pursuant to Alabama Code Section 9-11-30, for breeding members of the family Cervidae.

Herd – One or more animals that live, feed, migrate together, or are kept together under supervision on one or more parts of any single premises (e.g., facility, lot, farm, or ranch).

Immunohistochemistry (IHC) – Microscopic localization of specific antigen in tissues by staining with antibodies labeled with fluorescent or pigmented material; or a laboratory test performed to identify prions and other infectious agents.

Index Case – Any cervid submitted for CWD testing where lab results indicate CWD is detected as positive and initiates the establishment of a CWD Management Zone (CMZ).

National Veterinary Services Laboratories (NVSL) – The USDA-APHIS-VS laboratory responsible for confirmation of CWD positive tissues located in Ames, Iowa.

Non-movement qualified – An order issued by a State restricting the movement of animals from or into a premises or facility for a given period of time during which a facility, vehicle, animal, or material suspected of carrying a contagious disease is detained under enforced isolation to prevent spread of disease.

Permitted Cervid Facility – Facility or facilities of any propagation or public display of captive wildlife permitted pursuant to Alabama Code 9-11-261 or Alabama Regulation 220-2-.154 respectively, or captivity permit for members of the family cervidae.

Prevalence – Number of cervids affected with CWD at a specific time as a percent of those that are susceptible to the disease (the at-risk population).

Prion – Normal proteins whose shape can be transformed to cause disease.

Rehabilitators – Persons permitted by WFF who help rehabilitate animals to health for potential return to their habitat.

Rendering – A method of disposal of cervid carcasses that are not positive for or exposed to CWD positive animals or CWD contaminated environments.

Ruminant – Animals that have a stomach with four compartments and chew cud, examples include cattle, sheep, goats, and cervids.

Southeastern Cooperative Wildlife Disease Study (SCWDS) – SCWDS was founded in 1957 by the Southeastern Association of Fish and Wildlife Agencies to determine the cause of widespread die-offs of white-tailed deer. It is headquartered at The University of Georgia's College of Veterinary Medicine in Athens, Georgia. This was the first diagnostic and research service to be established for the specific purpose of investigating wildlife diseases. The objectives of SCWDS are to: 1) detect causes of sickness and death in wildlife, 2) define the impact of diseases and parasites upon wild animal populations, 3) delineate disease interrelationships between wildlife and domestic livestock, and 4) determine the role of wildlife in transmission of human diseases.

Surveillance – Activities related to the detection of a disease.

Suspect Sample - An animal/sample submitted for CWD screening where results indicate presence of CWD but the sample has not been confirmed CWD positive with a secondary immunohistochemistry (IHC) test from the National Veterinary Services Laboratory (NVSL).

Targeted Surveillance – Sampling of cervids displaying clinical signs consistent with CWD.

Trace-back – The process of identifying the origin(s) of exposed or potentially exposed animals or locations that will require CWD testing to prevent further infection and minimize the risk of disease transmission.

Trace-forward - Process of identifying exposed or potentially exposed destination from captive cervid facilities that will require CWD testing to prevent further infection and minimize the risk of disease transmission.

Transmissible Spongiform Encephalopathy (TSE) – Syndromes believed to be caused by misfolded prions in the brain. Examples include Scrapie in sheep and goats, CWD in cervids, Bovine Spongiform Encephalopathy (BSE) in cattle, and variant Creutzfeldt-Jakob Disease in humans.

United States Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services (USDA-APHIS-VS) – An agency of APHIS in charge of domesticated animal health activities within the United States. The mission of Veterinary Services (VS) is to protect and improve the health, quality, and marketability of our nation's animals, animal products, and veterinary biologics by preventing, controlling, and/or eliminating animal diseases, and monitoring and promoting animal health and productivity.

United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services (USDA-APHIS-WS) – An agency of APHIS to assist in wildlife health activities within the United States. The mission of Wildlife Services (WS) is to provide Federal leadership in managing problems caused by wildlife.

Literature Cited

- Bishop R. C. 2010. The Economic Impacts of Chronic Wasting Disease (CWD) in Wisconsin, *Human Dimensions of Wildlife*, 9:3, 181–192, DOI: [10.1080/10871200490479963](https://doi.org/10.1080/10871200490479963)
- Cannon, R. M. and Roe, R. T. 1982. *Livestock disease surveys. A field manual for veterinarians.* Bureau of Resource Science, Department of Primary Industry. Australian Government Publication Service. Canberra. 35.
- Edmonds, D.R., M. J. Kaufmann, B. A. Schumaker, F. G. Lindzey, W. E. Cook, T. J. Kreeger, and T. E. Cornish. 2016. Chronic wasting disease drives population decline in white-tailed deer. *PLOS ONE* 11(8).
- Haus, J. M., T. B. Eyler, M. D. Duda, and J. L. Bowman. 2017. Hunter perceptions towards chronic wasting disease: implications for harvest and management. *Wildlife Society Bulletin* 41(2):294-300.
- Kobilinsky, D., 2018. Catching a killer: Surveillance for Chronic Wasting Disease ramps up. *The Wildlife Professional* 12(1):18-26
- Mathiason, C. K., S. A. Hays, J. Powers, J. Hayes-Klug, J. Langenberg, S. J. Dahmes, D. A. Osborn, K. V. Miller, R. J. Warren, G. L. Mason, and E. A. Hoover. 2009. Infectious prions in pre-clinical deer and transmission of chronic wasting disease solely by environmental exposure. *PLoS ONE* 4: e5916.
- Miller, M.W., E.S. Williams, N.T. Hobbs, and L.L. Wolfe. 2004. Environmental sources of prion transmission in mule deer. *Emerging Infectious Disease* 10: I 003-1 006.
- Needham, M. D., J. J. Vaske, and M. J. Manfredo. 2004. State and residency difference in hunters' responses to Chronic Wasting Disease. *Human Dimension of Wildlife* 11:1159-176
- Potapov, A., E. Merrill, M. Pybus, and M. A. Lewis. 2016. Chronic Wasting Disease: transmission mechanisms and the possibility of harvest management. *PLOS ONE* 11(3).
- Storm, D. J., M. D. Samuel, R. E. Rolley, P. Shelton, N. S. Keuler, B. J. Richards, and T. R. Van Deelen. 2013. Deer density and disease prevalence influence transmission of chronic wasting disease in white-tailed deer. *Ecosphere* 4(1):10
- United States Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services (USDA APHIS VS). 2014. *Chronic Wasting Disease (CWD) Program Standards.* USDA APHIS, Washington, D. C. 66 pp.
- Walsh, D. P., ed., 2012. Enhanced surveillance strategies for detecting and monitoring chronic wasting disease in free-ranging cervids: U.S. Geological Survey Open-File Report 42. (<http://pubs.usgs.gov/of/2012/1036/>).

Williams, E. S., M. W. Miller, T. J. Kreeger, R. H. Kahn, and E. T. Thome. 2002. Chronic wasting disease of deer and elk: a review with recommendations for management. *Journal of Wildlife Management* 66:551-563.