# Washington State Chronic Wasting Disease (CWD) Management Plan

## Amendment August 2024

Washington Department of FISH & WILDLIFE

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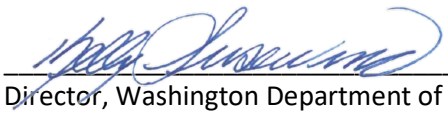

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# Acknowledging the Indigenous People of the Pacific Northwest

Since time immemorial, Indigenous People have lived in the Pacific Northwest and hunted, fished, and gathered natural resources, traditional foods, and medicinal plants to support their diverse cultures. They were the original occupants and stewards of this land that all Washingtonians enjoy today.

The very survival of the Pacific Northwest Tribes is a testament of resiliency of what they have endured and continue to endure throughout generations on this landscape. Through many historical encounters of massacre, renunciation of religious freedom, systemic racism, cultural assimilation of native children through institutional residential schools, and the fight for their inherent rights and liberties, they have prevailed. Throughout this painful history brought by colonization, abrogated treaties, infringement of civil rights, and the salmon protests of the 1960s, the Northwest Tribes and the Washington Department of Fish and Wildlife (WDFW) have founded a commitment of respect, unity, and alliance informed by the realities of the past.

Today, tribal governments and WDFW work collaboratively to conserve and manage aquatic and terrestrial resources statewide and practice sound science to guide management decisions. The Tribes and WDFW work together to ensure the sustainability of fish, wildlife, ecosystems, and culture for the next seven generations and beyond.

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# Executive Summary

## Purpose and Goals

The mission of the Washington Department of Fish and Wildlife (hereafter the Department) is to preserve, protect, and perpetuate the state's fish, wildlife, and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities. This mission represents the deeply held value of connection with the natural world shared by all Washingtonians and forms the basis of the Department's commitment to be prepared and able to respond to emerging situations that represent significant risk to the health and longevity of the state's native wildlife. In the case of risks to big game species like deer (mule deer, *Odocoileus hemionus hemionus*; black-tailed deer, *O.h. columbianus*; white-tailed deer, *O. virginianus*), elk (*Cervus canadensis*), and moose (*Alces alces*), the consequences of inaction could profoundly affect Washington's vibrant hunting and outdoor recreation culture, as well as the economic benefits that support communities and conservation throughout the state. Chronic wasting disease (CWD) is one such risk, and of the many diseases affecting wild cervids (members of the deer family Cervidae) in North America, has the greatest potential to negatively impact wild cervid populations long-term if not proactively addressed and diligently managed.

Proactive prevention and management of CWD is of paramount importance given the increasing evidence that long-term population declines are likely when outbreaks are unmanaged (Monello et al. 2014, Edmunds et al. 2016, DeVivo et al. 2017). Measures to improve prevention and early detection are critical because it is exceedingly difficult, and likely impossible to eliminate CWD with existing management tools once the disease becomes endemic (i.e., established and widespread within an affected population). For example, of the 25 states that have detected CWD in their wild cervid populations, New York is the only one where it was apparently eradicated after detection in wild deer (Evans et al. 2014). New York's presumed success was likely due to a combination of factors, including a robust surveillance program that enabled early detection and response, and once detected, prompt implementation of several emergency regulations to prevent the spread of CWD (Evans et al. 2014).

Successful management of CWD requires substantial funding and staff resources well beyond what state wildlife agencies can support on their own (Bishop 2004, Vaske 2010). Hunters help support disease management activities financially through license purchases and are a valuable resource for obtaining samples for testing. If CWD becomes established in a population, hunters may be less likely to participate in hunting activities (Vaske 2010), which could decrease agency capacity to manage the disease. Any detection of CWD in wild cervids in Washington would need to be addressed through aggressive management to prevent its establishment and spread within the state. This would require sustained commitment by wildlife managers, government entities, Tribes, and the public. Some proposed actions could be difficult to implement due to logistical and budgetary constraints, as well as potential conflicts between CWD best management practices and the societal value of wildlife to various stakeholders. However, if the following actions are implemented in a reasonable manner appropriate to the situation at hand, the long-term ecological and recreational benefits of actively preventing establishment of CWD in Washington would likely outweigh the financial and social costs.

Washington is home to several wild cervid species, including mule deer, black-tailed deer, white-tailed deer, elk, and moose. In addition, two federally protected cervid species, woodland caribou (*Rangifer tarandus caribou*) and Columbian white-tailed deer (*O.v. leucurus*), are native to Washington. The intent of the Department is to respond to the risks and realities of CWD with the goal of preventing introduction of the disease to wild cervid populations in Washington and to minimize the long-term effects of the disease should it become established in these populations. The Washington CWD Management Plan (hereafter the Plan) is structured with the intent to be adaptable and support timely incorporation of new information from peer-reviewed scientific sources and wildlife disease management practitioners as it becomes available. The Plan has been written broadly for known susceptible species and, where applicable, species-specific considerations are addressed. Woodland caribou and Columbian white-tailed deer are managed jointly with the United States Fish and Wildlife Service (USFWS) and local Tribes, thus separate CWD plans will be developed for these two species and they will not be addressed in this Plan.

This Plan identifies specific objectives for addressing the biological, administrative, and social factors involved in effective management of the disease. The Plan also outlines the strategies the Department will implement to meet each objective based on current best management practices for the prevention and management of CWD in the wild, as recommended by the Association of Fish and Wildlife Agencies (AFWA) (Gillin and Mawdsley 2018). These strategies are designed to provide clear, timely, and effective guidance that will present the state of Washington with the best chance to: 1) create a communication model that ensures that the public and identified stakeholders are informed, engaged, and invested in the goals of the Plan; 2) prevent CWD from entering the state; 3) establish a robust surveillance plan to detect CWD as early as possible should it enter Washington; and 4) establish a response plan to minimize the long-term effects of CWD on cervid populations in Washington should the disease be detected. Some proposed actions in this Plan will require support from the Washington State Legislature and the Washington Fish and Wildlife Commission (the Commission) to implement.

## Authority

The establishment of hunting seasons and management of game species, both captive and wild, is consistent with the authorities granted by the Fish and Wildlife Commission and Department of Fish and Wildlife by the Washington State Legislature through Title 77 of the Revised Code of Washington. The Commission develops and adopts regulations (i.e., rules in the Washington Administrative Code) pertaining to management of wildlife resources as granted under Title 77 authority. Various Commission and Department policies and procedures, including this Plan, guide game management as well.

The Department and Commission are responsible for the management and protection of fish and wildlife resources in Washington State. The Legislative mandate (RCW 77.04.012) for the Commission and the Department includes the following directives for wildlife management:

- The Commission, director, and the Department shall preserve, protect, perpetuate, and manage the wildlife.

- The Department shall conserve the wildlife resources in a manner that does not impair the resource. The Commission may authorize the taking of wildlife only at times or places, or in manners or quantities, as in the judgment of the Commission does not impair the supply of these resources.

Development of a management plan to address emergence of a significant wildlife disease is essential to meeting these directives. The Washington State Chronic Wasting Disease Management Plan is consistent within the broader scope of the 2015-2021 Game Management Plan (GMP; WDFW 2014), and in accordance with the Department's Hunting Season Guidelines. The GMP (WDFW 2014) stresses the importance of science as a foundation for developing regulations and conservation approaches to management.

The process of establishing and altering regulatory rules governing game species is a multiple-step process. Legislative mandates and Commission guidelines for management of these species require appropriate information such as current distribution, population status and trend, and harvest and recreational objectives. Using available information, Department staff develop rule recommendations to address emergent management issues, maximize sustainable hunting opportunities, and promote conservation. The final step in the rule development process occurs when the Commission adopts new rules and rule changes based upon recommendations from the Department biological staff and public input. Major hunting season rules are set for three-year intervals; minor adjustments occur annually, such as modifying special permit hunt levels to address crop damage or nuisance problems, or sudden unexpected habitat or environmental changes. Emergency rules can be implemented outside of these cycles in specific circumstances. Emergency rules do not require public notice or hearing. They usually take effect when filed with the Code Reviser and can remain in effect for up to 120 days after filing. An agency can re-file the emergency rule if the agency has started the permanent rulemaking process.

# Chronic Wasting Disease Management Goals, Objectives, and Strategies

## Goal:

To prevent the establishment of CWD in wild cervid populations in Washington and minimize the long-term effects of the disease should it enter these populations.

## Objective 1:

Proactively build trust with and support from the public and stakeholders regarding CWD management activities during each phase of the Plan

## Strategies:

A. Establish a public advisory group within the first year of Plan adoption to provide immediate feedback on proposed activities and assist in development and implementation of strategies to improve communication with the public and stakeholders

B. Implement long-term human dimensions initiative to determine baseline public perceptions and awareness of CWD issues and additional periodic assessments that will inform development and adaptation of culturally appropriate messaging and outreach materials during each phase of the Plan

C. During pre-detection phase, implement annual schedule of communication and outreach activities (Table 3) using **Key Pre-detection Messages** to raise general awareness about CWD, its potential effects if it were to become established, and to remind all parties of actions they can take to reduce the risk of CWD becoming established in Washington

D. During initial-detection phase, implement annual schedule of communication and outreach activities (Table 4) using **Key Initial-detection Response Messages** to increase awareness of management actions the Department is implementing in response to an initial CWD detection and any subsequent need for citizen assistance

## Objective 2:

Reduce known risks for CWD entering Washington

## Strategies:

A. Assess and prioritize risk factors through which CWD may enter the state

B. Assess and make recommendations for adjustments to current regulations and creation of new regulations to mitigate those risks

## Objective 3:

Minimize potential for CWD to become established in Washington by implementing a pre-detection surveillance program upon adoption of the Plan

## Strategies:

A. Secure support for proposed budget and capacity needs required to implement and sustain the program

B. Develop surveillance sampling design and schedule

C. Establish contacts, protocols, and infrastructure for sample acquisition

## Objective 4:

Minimize potential for negative long-term effects of CWD on cervid populations in Washington should CWD be detected during surveillance activities

### Strategies:

A. Organize and complete a "tabletop" exercise with Department staff and stakeholders to test the Initial Emergency Response plan and identify potential deficiencies and needed improvements

B. Implement the Initial Emergency Response when CWD is detected

C. Implement monitoring to obtain estimates of appropriate disease and population metrics to guide decisions regarding ongoing steps in management of the disease

D. Apply an adaptive management framework (Stankey et al. 2005) to monitor and evaluate the effect of implemented management actions and use results to inform and improve efficacy of actions during subsequent monitoring efforts

## Plan Components

The Plan consists of multiple components, each developed as separate chapters that can be adapted and improved as new information becomes available.

### Chapter 1: Background

Presents essential information that provides details about the disease, strategies for responding to a disease outbreak, and the history of CWD surveillance in Washington.

### Chapter 2: Public Outreach and Communication

Outlines outreach activities that will be implemented throughout the evolution and implementation of the Plan.

### Chapter 3: Risk Assessment and Minimization

Discusses risk factors and best management practices for prevention within the context of current Washington state regulations and practices. Also provides prioritized recommendations for revision of current regulations and development of additional regulations critical to successful achievement of the Department's overall CWD management goals.

### Chapter 4: Pre-detection Surveillance

Describes a framework for critical surveillance activities the Department will implement once legislative support and funding has been secured.

### Chapter 5: Initial Emergency Response (amended August 7, 2024)

Describes the Department's initial localized emergency response to a CWD detection. Also, describes the establishment of an Incident Management Team, CWD management areas, and assessment of the

prevalence and distribution of CWD after initial detection, specific to the area where the detection occurred.

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# Chapter 1: Chronic Wasting Disease Background

The background information provided here is not meant to be a comprehensive literature review of the current research and information related to CWD. Rather, it is meant to provide basic foundational knowledge about the disease. The following summary will help the reader understand why proposed management actions in subsequent chapters are appropriate based on current knowledge of the disease and the potential impacts the disease would have on Washington's wildlife resources, economy, and human health.

## Susceptible Species

Chronic wasting disease is a universally fatal brain disease that can afflict members of the cervid (deer) family. To date, natural infections (i.e. diseased animal infects susceptible animal) have been documented in mule deer, white-tailed deer, elk (summarized by Williams et al. 2002), moose (Baeten et al. 2007), reindeer (*Rangifer tarandus*; Benestad et al. 2016), European red deer (*Cervus elaphus*), and sika deer (*Cervus nippon;* Lee et al. 2013). Experimental infections (i.e. animals are infected through routes that do not occur naturally) have produced the disease in fallow deer (*Dama dama;* Hamir et al. 2011), Reeve's muntjac (*Muntiacus reevesi;* Nalls et al. 2013), and several non-cervid species (summarized in Sakudo 2019).

## Human Health Concerns

Bovine spongiform encephalopathy (BSE), also known as mad cow disease, caused variant Creutzfeldt-Jakob disease (vCJD) in genetically susceptible humans after consuming BSE-infected beef (Brown et al. 2001). This example of a zoonotic (disease of animals causing illness in humans) prion disease logically warranted studies on the potential for CWD to cause disease in humans, especially raising concerns among the hunting community. Researchers demonstrated that in molecular studies, deer and elk CWD prions did not easily convert normal human prions into a diseased form (Raymond et al. 2000). At the population level, a study conducted in Colorado did not find increased risk of CJD in humans in areas with high CWD prevalence in the local deer and elk populations (MaWhinney et al. 2006). However, transmission of CWD to non-human primates shows discrepancies in susceptibility depending on species. Squirrel monkeys are highly susceptibility to CWD (Race et al. 2014) and cynomolgus macaques, which are closer genetic relatives to humans, lack susceptibility to CWD (Race et al. 2018). Due to these uncertainties in species susceptibility and longer incubation periods (e.g. decades) associated with human prion diseases well beyond study termination dates, it is prudent to exercise caution and reduce exposure to CWD prions (Waddel et al. 2018). The World Health Organization recommends keeping all known prion diseases from entering the human food chain, and the U.S. Centers for Disease Control and Prevention advise against shooting, handling, or eating the meat of any animal that looks sick or is acting strangely. Unfortunately, most CWD positive animals are asymptomatic (not showing illness), so to reduce exposure risk, hunters are advised to wear disposable gloves while field dressing game, thoroughly wash hands and equipment after processing carcasses, avoid cutting and consuming brain, spinal cord, eyes, spleen, pancreas, tonsils, and lymph nodes where CWD prions accumulate, and avoid

consuming meat from an animal that has tested positive (https://wdfw.wa.gov/species-habitats/diseases/chronic-wasting).

## Cause and Pathology

Chronic wasting disease is caused by aberrant (i.e., abnormal) prion proteins which, unlike normal prion proteins that are present throughout the body, are not broken down through normal physiological processes. When the aberrant prion proteins come into contact with normal prion proteins in the brain, they cause the normal prions to transform into aberrant ones. This cascading effect results in the accumulation of protein plaques in the brain that cannot be broken down and causes brain tissue to have a sponge-like appearance microscopically (Prusiner 1991). This latter feature is the basis for the term transmissible spongiform encephalopathy (TSE), a category of diseases which, in addition to CWD, includes other prion diseases such as scrapie in domestic sheep, BSE in cattle, and Creutzfeldt-Jakob disease in humans.

Progression of the disease is slow and infected animals often do not show observable signs of declining health until the later stages. Brain damage caused by CWD prions leads to physical deterioration and abnormal behavior, with affected cervids developing a dull mental status and losing their fear of humans and predators. Drooping ears, excessive water intake, and drooling may occur. In the later stages of CWD, deer become progressively emaciated and eventually die. There are no reports of animals recovering from CWD, and there is no known cure or vaccine.

## Testing

Tests available for CWD vary in reliability and efficient application depending on the species of the animal being tested and if the animal is alive or dead. Current tests for CWD include sampling methods appropriate for live and dead animals, but not all tests are approved for use by the United States Department of Agriculture (USDA). There are also distinct differences between these test types that lend themselves to very different applications in the field. The few USDA-approved live animal tests available require capture and anesthesia of each animal being tested, which makes application in large-scale disease surveillance and monitoring efforts impractical. These live tests are generally better suited for use in research studies where a limited number of wild animals are captured and anesthetized over a relatively short period of time.

Prion accumulation is most abundant in the obex region of the brainstem and the retropharyngeal lymph nodes in the throat (Spraker et al. 2002; Miller and Williams 2002). Prion accumulation within these tissues can vary during disease progression, and sampling single tissues may increase the number of false negatives during surveillance. Preferred tissue samples from deer target the lymph nodes where deer typically accumulate CWD prions early during the disease course (Sigurdson et al. 2002). Accumulation of CWD prions in elk is more variable (Race et al. 2007) and warrants collection of samples from multiple sites to ensure an accurate diagnosis. Consequently, tissue collection is dependent on species, available tissue during sample collection, and circumstances dictated by management goals.

Samples are submitted and analyzed using USDA-accredited laboratories such as the Washington Animal Disease Diagnostic Laboratory (WADDL) in Pullman, Washington.

## Transmission and Epidemiology

In addition to the brain, CWD prions accumulate throughout the body, particularly in lymphatic tissue such as lymph nodes and the spleen (Sigurdson et al. 2002). Infected cervids then excrete CWD prions in saliva, urine, feces, semen and antler velvet potentially for months to years before displaying any sign of the disease (Angers et al. 2009; Haley et al. 2009, 2011; Kramm et al. 2019). In that time, infected cervids can contaminate the environment and expose other cervids to infectious prions (Gough and Maddison 2010; Angers et al. 2009). Transmission to offspring may also occur *in utero* (Nalls et al. 2013; Selariu et al. 2015), and CWD prions are found in trace amounts in the blood, fat, and muscle of deer (Angers et al. 2006; Mathiason et al. 2006; Race et al. 2009); thus, all parts of an infected animal are potential sources of infectious prions.

Aberrant prions, such as those that cause scrapie in domestic sheep and CWD in cervids, can remain infectious in the environment for years and are notorious for being resistant to methods typically used to disinfect environments that are contaminated with other infectious agents (Georgsson et al. 2006). There are no safe or practical methods to remove prions from the environment.

Transmission occurs both directly via animal-to-animal contact (by prions excreted in the saliva, urine, and feces), and indirectly via exposure to contaminated environments with excreta and carcass remains (Mathiason et al. 2009). Infectious CWD prions can pass through the gastrointestinal tracts of scavengers, such as crows and coyotes, which has implications for dispersal but passage through the gut also destroys some infectious prions, further complicating the net impact of scavengers in disease transmission (VerCauteren et al. 2012; Nichols et al. 2015). Prions can bind to soil (Johnson et al. 2006) and, experimentally, were shown to travel up the stems and leaves of wheat grass, which when fed to "cervidized" hamsters (i.e., hamsters genetically modified to express cervid prion proteins), produced a TSE disease demonstrating potential unknown risks native forage poses to wildlife, livestock, and humans (Pritzkow et al. 2015).

Based on statistical models, in a newly affected area, transmission is a function of direct, animal-to-animal contact and is strongly influenced by cervid population density (Almberg et al. 2011). However, over time, these models predicted that CWD-infected cervids excrete prions throughout their environment and indirect CWD transmission becomes more common (Almberg et al. 2011). While these models are intuitively reasonable, transmission dynamics remain poorly understood due to the lack of empirical data early during a CWD epidemic.

In deer, the incubation period (i.e., time from infection until development of clinical signs of disease) for CWD may last several years (average incubation period probably 2-4 years), and disease prevalence generally increases with age (Williams 2005) with higher prevalence in adults relative to young of the year and yearlings (Miller and Conner 2005). In general, CWD prevalence in North American deer is about twice as high in adult males as it is in adult females (Saunders et al. 2012, DeVivo et al. 2017).

Chronic wasting disease prevalence is generally higher in deer than in elk and is relatively rare in moose (summarized by Rivera et al. 2019). Specific to deer, prevalence tends to be higher in mule deer in areas where mule and white-tailed deer are equally common. In areas where a single deer species is dominant, CWD prevalence tends to be comparable (summarized by Rivera et al. 2019).

Genetics play a role in CWD susceptibility, and genetic variation found in deer and elk contributes to variation in infection rates and incubation periods (summarized by Sigurdson and Aguzzi 2007). Studies of these genetic variations reveal potential for selection of genotypes that are less susceptible to CWD in the population over time (DeVivo et al. 2017; Monello et al. 2017). Research has demonstrated that deer with less susceptible genotypes live longer as asymptomatic carriers (Jewell et al. 2005) and deer and elk with less susceptible genotypes may shed fewer prions and for a shorter amount of time compared to their more susceptible counterparts (Plummer et al. 2017). However, CWD is fatal in all infected animals, and resistant genotypes have not been identified in the wild. Even with increasing resilient genotypes in areas with high CWD prevalence, natural selection may not mediate the long-term impacts of CWD on populations (DeVivo et al. 2017).

## Population Effects

Chronic wasting disease has contributed to population declines in some locations in mule deer, white-tailed deer, and elk when prevalence is high (>30% in deer and >13% in elk; Monello et al. 2014, Edmunds et al. 2016, DeVivo et al. 2017). Studies show little to no effect of CWD on reproduction and recruitment of young (Dulberger et al. 2010, DeVivo et al. 2017). Instead, population declines are primarily attributed to the direct effects of CWD on adult survival, which limits lifetime productivity. Some evidence also suggests that CWD-positive animals are more likely to be killed by predators and in animal-vehicle collisions (Krumm et al. 2005, Krumm et al. 2009). Population impacts are most notable at high CWD prevalence, but even low prevalence contribute to overall mortality and can limit population growth.

## Management Implications

In addition to cervid population declines, CWD presents additional potential management challenges, including the direct costs of disease management, redirection of agency staff time and resources, and evaluation of potentially conflicting herd-specific management objectives. After CWD was first detected in Wisconsin in 2002, over $32 million was spent by state agencies over the next 5 years responding to the outbreak, with the Wisconsin Department of Natural Resources contributing 83% of the cost (Stuiber et al. 2006). Most of those costs were spent on sample collection and testing, planning and policy development, public relations and outreach, carcass disposal, deer and elk farm management, and research (Stuiber et al. 2006). Potential declines in hunter participation, the resulting impact to local economies, and loss of public confidence in resource management agencies may occur (Vaske 2010), although hunting pressure remains high in some CWD endemic areas. Managers will also be faced with making decisions about current herd management objectives and how they affect CWD prevalence and potentially undesirable population declines. For example, management strategies that reduce hunting pressure on males may inadvertently increase CWD prevalence in certain populations (Miller et al.

2020). If these management strategies exist in areas with CWD, the Department will need to reevaluate population objectives and consider harvest regimes that reduce the number of males that are more likely to be infected. Shifts in harvest objectives such as this will be challenging without public engagement and support.

## Geographical Occurrence

Chronic wasting disease has been documented in wild or captive cervids in 26 states, 4 Canadian Provinces, Finland, Norway, Sweden, and South Korea. To date, the nearest cases to Washington were detected in Libby, Montana (less than 70 miles east of the Washington state line), where CWD was first diagnosed in a female white-tailed deer that died in May 2019.

Washington-bordering states and provinces (i.e., Idaho, Oregon, and British Columbia) have not detected CWD in wild or captive cervids (CWD Alliance). However, each jurisdiction has their own criteria for testing that may depend on jurisdiction-specific resources, cervid management priorities, and CWD risk management expectations. These differences in surveillance intensity and priorities could produce delays in detection in cervid populations that use multiple jurisdictions, and a lack of detection to date does not guarantee the absence of the disease. Detection of CWD in states without previous detections in neighboring states has occurred (e.g., Colorado, Wisconsin, New York, and West Virginia; CWD Alliance).

## Eradication

Once established in an area, there are no known instances of CWD being eradicated without human intervention. Despite intensive and costly efforts to eradicate CWD from the wild in several states and provinces, there has only been one instance of successful eradication of CWD once it was detected in the wild. This occurred in New York where an established pre-detection surveillance program and an immediate aggressive response to the first detection of CWD in a wild deer was credited with eradicating the disease from the wild population (Saunders et al. 2012). After the first detection of CWD in 2005, New York established a 16 km containment area centered around the initial cases with emergency regulations including mandatory testing of all harvested deer, and bans on rehabilitation of deer, transport of whole carcasses, use of deer and elk urine, and possession of vehicle-killed deer within the containment area (Evans et al. 2014). New York also increased surveillance efforts from testing <1,000 deer annually to >8,000 deer in 2005 (Evans et al. 2014) and depopulated the deer herd within the containment area (Saunders et al. 2012). The estimated cost responding to the initial CWD detection in 2005 for New York State Department of Environmental Conservation (DEC) was $1,000,000 (New York State Interagency Chronic Wasting Disease Response Plan 2015-2025, 2015). In addition to aggressive emergency tactics and access to funds that support wildlife health incidents, the success of DEC's response to CWD was attributed to lack of environmental reservoirs of CWD prions and other unknown disease foci in the state (Saunders et al. 2012) only achievable through pre-detection surveillance and testing hundreds of deer annually. These two latter factors likely separate the success observed in New York and the unsuccessful culling efforts in Wisconsin (Almberg et al. 2011, Saunders et al. 2012).

## Control

It is exceedingly difficult to control any disease once it enters a wildlife population due to many factors inherent to wild animals (e.g., sick animals tend to seclude themselves and are difficult to find). Specific to CWD, the lag between introduction of the disease into a population and observation of symptomatic animals makes successful mitigation even more challenging. Prevention is the best approach available to wildlife managers to avoid the consequences associated with endemic wildlife diseases. Preventive measures often focus on human activities and practices that reduce movement of CWD, such as restrictions on transporting whole carcasses and live cervids and bans on feeding and baiting.

Information about the efficacy of long-term management strategies remains relatively limited but is increasing as the body of completed CWD research continues to grow. States are also implementing adaptive management frameworks that will allow for improved statistical evaluation of management activities over time. Thus far, a few studies have used predictive modelling to demonstrate that recreational harvest with additional reduction measures, particularly selective removal of certain segments of the affected cervid population, may be effective in maintaining or reducing disease prevalence (reviewed by Uehlinger et al. 2016). Recent work conducted in Colorado showed that increasing or maintaining hunting pressure resulted in flat CWD prevalence trends compared to areas where hunting pressure declined and CWD prevalence increased (Miller et al. 2020). Their findings suggest that with sufficient hunting pressure, CWD could be controlled in some mule deer populations especially when prevalence is low (Miller et al. 2020). However, there are still uncertainties about CWD transmission, persistence in the environment, transmission rates between sexes and among age-classes, and the influences of season and habitat on CWD distribution and spread that make control efforts hard to evaluate and extrapolate outcomes (Uehlinger et al. 2016). The effectiveness of intensive non-selective culling for the control of CWD is debatable and depends on the mode of transmission e.g., whether transmission is primarily direct among cervids or indirect through the environment (reviewed by Uehlinger et al. 2016). General non-selective culling to reduce cervid density and thus, contact rates among cervids is most likely effective when transmission is primarily occurring directly from animal to animal early during an outbreak, prior to significant prion environmental contamination (Almberg et al. 2011). Both harvest and non-selective culling are most effective when implemented during an initial outbreak and requires pre-detection surveillance to determine if certain management strategies are warranted.

## Historical CWD surveillance in Washington

The Department began symptomatic surveillance in 1995, whereby animals showing signs compatible with CWD, such as dramatic weight loss (emaciation), drooling, lack of coordination, drooping ears, or lack of fear of humans were targeted for CWD testing. Thirty-four symptomatic animals have been tested since 1995. From 2001-2011, federal funding enabled the Department to expand CWD surveillance statewide. During this period, 6,133 samples suitable for testing were collected from deer, elk, and moose, primarily from hunter-harvested animals (Table 1, from Washington Department of Fish and Wildlife, 2012).

Table 1. Washington Department of Fish and Wildlife chronic wasting disease surveillance results by species and year, 2001-2011.

| | | Year | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | Result | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | Total |
| BTD | - | 375 | 293 | 144 | 643 | 19 | 26 | 11 | 0 | 0 | 0 | 0 | 1511 |
| | o [a] | -72 | -30 | -4 | -49 | -1 | 0 | -2 | 0 | 0 | 0 | 0 | -158 |
| | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WTD | - | 67 | 189 | 221 | 313 | 272 | 282 | 226 | 177 | 156 | 206 | 158 | 2267 |
| | o | -21 | -34 | -11 | -13 | 0 | -2 | -5 | -3 | -6 | -3 | -3 | -101 |
| | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mule Deer | - | 111 | 296 | 197 | 597 | 140 | 85 | 43 | 54 | 47 | 82 | 46 | 1698 |
| | o | -17 | -32 | -9 | -49 | -6 | -2 | -1 | -1 | -4 | -2 | 0 | -123 |
| | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Deer Unk | - | 4 | 11 | 17 | 28 | 7 | 20 | 16 | 3 | 22 | 38 | 7 | 173 |
| | o | 0 | -3 | -2 | -2 | -2 | 0 | -5 | 0 | 0 | 0 | 0 | -14 |
| | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Elk | - | 104 | 119 | 72 | 52 | 13 | 5 | 31 | 11 | 12 | 36 | 23 | 478 |
| | o | -17 | -21 | -8 | -8 | 0 | -1 | -6 | 0 | -2 | -1 | -3 | -67 |
| | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Moose | - | | | | | | | 0 | 0 | 4 | 0 | 1 | 5 |
| | o | | | | | | | -1 | 0 | 0 | 0 | 0 | -1 |
| | + | | | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | - | 661 | 908 | 651 | 1633 | 451 | 418 | 328 | 245 | 241 | 362 | 235 | 6133 |
| | o | -127 | -120 | -34 | -121 | -9 | -5 | -19 | -4 | -12 | -6 | -6 | -463 |
| | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Collected | 788 | 1028 | 685 | 1754 | 460 | 423 | 347 | 249 | 253 | 368 | 241 | 6596 |

BTD; Black-tailed Deer, WTD; White-tailed Deer, Unk.; Unknown species, -; Negative, o; Indeterminate, +; Positive.

[a] Indeterminate results were usually obtained when the submitted tissue was not suitable for testing.

When federal funding ended in 2012, the Department reverted to symptomatic surveillance only, which greatly reduced the available samples to test. All samples to date were negative and CWD has not been detected in Washington.

During this time of limited surveillance, known cases of CWD were hundreds of miles away from Washington's borders. However, in April 2019 CWD was detected in Libby, Montana approximately 70mi from Washington's eastern border (Montana Fish, Wildlife, and Parks 2020). The CWD positive deer in northwest Montana brought attention to a growing concern for cervid managers and warranted renewal of the Department's actions to mitigate CWD risks and update its CWD management plan.

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# Chapter 2: Public Outreach and Communication

Public outreach and communication are essential for successful management of cervid populations and mitigating concerns related to wildlife diseases. Most of the management actions proposed in this plan rely on a well-informed public that understands the vital importance of reducing Washington's risk of introducing CWD. With understanding comes a willingness to modify behaviors that will mitigate risks associated with disease transmission. Risk minimization and disease prevention are the best tools to combat CWD before it becomes an issue that results in great losses to our wildlife, ecosystems, and economy.

Experiences from other states where CWD has been detected indicate it will be imperative that the Department's stakeholders support and understand the importance of management actions the Department proposes to implement in response to an initial CWD detection should it occur (see Chapter 5). This is especially true if proposed actions involve reductions in deer numbers within the infected area. To garner that support, the Department will need to invest in development and implementation of extensive public outreach efforts that build on those completed during the development and adoption of this Plan. Key Messages listed in Appendix A represent the Department's initial effort to capture the most important information to communicate to the public during both surveillance and post-detection phases. However, the rigorous human dimensions work outlined below will greatly enhance the Department's ability to deliver essential, actionable information to the public in a timely manner. The greater intent of this work is to identify specific modes of communication and culturally appropriate messaging that best speak to the shared values of our many diverse constituents and stakeholders. The ultimate deliverable of these efforts will be an adaptive and responsive communication plan to help provide transparency and foster trust when management actions are initiated.

## CWD Communication Objectives and Strategies

**Objective:** Proactively build trust with and support from the public and stakeholders regarding CWD management activities during each phase of the Plan

### Strategies:

A. Establish a public advisory group within the first year of Plan adoption to provide immediate feedback on proposed activities and assist in development and implementation of strategies to improve communication with the public and stakeholders.

B. Implement long-term human dimensions initiative to determine baseline public perceptions and awareness of CWD issues and additional periodic assessments that will inform development and adaptation of culturally appropriate messaging and outreach materials during each phase of the Plan.

C. During pre-detection phase, implement annual schedule of communication and outreach activities (Table 2) using **Key Pre-detection Messages** (Appendix A) adapted for key

constituencies based on the results of human dimensions work to raise general awareness about CWD, its potential effects if it were to become established, and to remind all parties of actions they can take to reduce the risk of CWD becoming established in Washington.

D. During initial-detection phase, implement annual schedule of communication and outreach activities (Table 3) using **Key Initial-detection Response Messages** (Appendix A) adapted for key constituencies based on the results of human dimensions work to increase awareness of management actions the Department is implementing in response to an initial CWD detection and any subsequent need for citizen assistance.

## Target Audiences (beyond general public)

- Department: Staff, Commission, citizen advisory, and other volunteer groups
- Recreational: Hunters, wildlife watchers, hikers, outdoor guides and outfitters, game processors, taxidermists, sportswomen and sportsmen groups, license vendors
- Tribal Governments
- WA State Agencies: Departments of Agriculture, Health, Natural Resources, Ecology, Parks & Recreation, Community and Economic Development, and Transportation
- Elected Officials: Governor, state and federal legislators, county commissioners, city, and local officials
- Federal Agencies: U.S. Department of Agriculture, Department of Interior, Department of Social and Health Services, and Department of Defense affiliated bureaus
- Other state and provincial wildlife agencies: Oregon, Idaho, British Columbia, and Alberta
- Livestock producers and industry organizations
- Environmental and conservation organizations
- Washington State Veterinary Medical Association
- Universities
- Zoos and wildlife preserves
- Captive cervid owners
- Local residents

## Pre-detection Communication Schedule:

Table 2. Timing of CWD-related pre-detection public outreach information and staff responsible for developing content.

| Responsible staff | Communication method | Timing |
|---|---|---|
| Public Affairs & CWD Team[a] | News releases | Aug/Sept/Oct (to remind hunters of current transport regulations) |
| | Public meeting(s) | When the CWD Plan is adopted, and as new information is available |
| | Department CWD webpage updates | As new information is available |
| | Social media (Facebook, Twitter, YouTube, Instagram, WDFW blog) | Regularly |
| | Select news media contacts | When testing provides photo opportunities for feature stories |
| Game & Licensing | Outreach to hunters<br>• Direct e-mail to licensed big game hunters<br>• Presentations at hunting organization meetings<br>• Displayed info at sportsmen show booths<br>• Display signage on I-90 to remind out-of-state hunters about carcass import restrictions<br>• Add information to Hunter Education Program curriculum | At outset of hunting seasons, with meeting opportunities, winter/early spring shows |

[a] The CWD team will be Department staff in the Science and Game Divisions that work on cervid species

## Initial-detection Communication Schedule:

Table 3. Timing of post-detection CWD-related public outreach information and staff responsible for developing content.

| Responsible staff | Communication method | Timing |
|---|---|---|
| Public Affairs & CWD-Incident Management Team | Notification of CWD detection<br><br>(internal and external phone trees set up in advance by Wildlife Program to alert other state, federal and Tribal natural resource management agencies, governor and elected officials, WA Dept. of Ag, livestock producer associations, and nearby livestock producers | ASAP (within 24 hours) when CWD detection is made |
| | Develop key talking points for consistent staff response | ASAP when CWD detection is made |
| | News release | ASAP when CWD detection is made |
| | Key talking points (based on news release and FAQ update) for all staff | ASAP when CWD detection is made |
| | Public meeting(s) | Prior to planning and implementation of on-the-ground response efforts |
| | News media responses, provision of photos if available, personal interviews | As inquiries fielded |
| Wildlife Health & Public Affairs | WDFW website CWD webpage updates, especially FAQs for link to news release | ASAP when CWD detection is made |
| | WDFW website Roadkill Salvage Permit webpage updates, such as adding carcass transport restrictions and sample collection needs | ASAP when CWD detection is made |
| | Outreach to agricultural community through Washington Farm Bureau, Cattlemen's Association, | When changes to hunting rules and regulations, and |

| Responsible staff | Communication method | Timing |
|---|---|---|
| | other producer groups' communication systems (e-mail, blogs, newsletters, specialty media, etc.) | landowner permits are warranted |
| Public Affairs social media team, keying off news releases and webpage updates | Social media posts (Facebook, Twitter, YouTube, Instagram, WDFW blog, etc.) | ASAP when CWD detection is made |
| Game & Licensing | E-mail to licensed big game hunters with key points including proper disposal of carcasses, and especially with changes to hunting regulations and procedural details | ASAP when CWD detection is made and when changes to hunting rules and regulations are warranted |
| Game | E-mail to citizen advisory groups (Game Management, Hunter Education Instructors, Master Hunters, Wildlife Diversity) with key points | When changes to hunting rules and regulations are warranted |

# Chapter 3: Risk Assessment and Minimization

Once a disease enters a wildlife population, it becomes exceedingly expensive and difficult to control. There are very few instances of any disease being eradicated, or even successfully managed, after it became established in a wild population (see Background, Eradication for example). There are no vaccines or treatments for CWD. Prevention is the most practical and effective tool available to avoid the establishment of CWD in Washington.

The following is a qualitative assessment of known risk factors for the introduction and establishment of CWD into new areas. Relevant regulations and practices that currently exist in Washington are discussed, as well as recommendations for changes to those regulations and practices to minimize the risk of CWD becoming established in Washington. Recommendations are based on the AFWA Technical Report on Best Management Practices for the Prevention, Surveillance, and Management of Chronic Wasting Disease (Gillin and Mawdsley 2018).

## Live Cervid Movement

**Overview and assessment**.— Movement of infected live cervids is considered to be the greatest risk factor for the introduction and establishment of CWD into new geographical areas (Williams et al. 2002, Joly et al. 2003, Travis and Miller 2003). This can occur via human-mediated transport, particularly in the commercial captive cervid industry (Sohn et al. 2002, Argue et al. 2007) and via natural movements of wild free-ranging infected cervids as the disease expands within a localized area (Miller et al. 2000, Conner and Miller 2004). In Washington, risks associated with the transport of live cervids include importation of captive cervids into Washington, transport of captive cervids within the state, relocation of native wild cervids for management purposes, and transport of wild cervids (particularly fawns) for rehabilitation purposes.

**Captive Cervids.**— Due to the animal movement inherent within the captive cervid industry, this practice and associated facilities pose significant disease risks to sympatric (i.e., overlapping) free-ranging cervid populations. Chronic wasting disease may be directly transmitted from animal to animal via fence-line contact between captive and free-ranging cervids (Vercauteren et al. 2007), and from captive cervid escapees co-mingling with wild cervids. Captive facilities may also become contaminated with CWD prions, providing a persistent source of indirect CWD transmission to cervids that subsequently use the same area (Miller et al. 2006). Where captive cervid facilities are allowed, it is critical that CWD captive cervid monitoring programs are in place to quickly detect and respond to new cases before the disease becomes established and spreads. Because CWD can be passed between captive and wild cervid populations, both wild and captive cervids must be considered in a CWD management plan.

The importation, possession, propagation, and trade of cervids is regulated by the Department. Cervids native to Washington are regulated under Washington Administrative Code (WAC) 220-450-030 (Live Wildlife), and certain species of non-native cervids are regulated under WAC 220-640-200 (Deleterious

Exotic Wildlife). Both WACs provide exceptions for authorized research institutions or Association of Zoos and Aquariums (AZA) - accredited facilities.

With exceptions for research institutions and AZA facilities, the importation, possession, propagation, and trade of the following cervid species are prohibited in Washington: cervid species native to Washington, European red deer, all nonnative subspecies of *Cervus elaphus*, and all hybrids with North American elk; fallow deer (*Dama dama*), axis deer (*Axis axis*), rusa deer or sambar deer (*Cervus unicolor*, *Cervus timorensis*, *Cervus mariannus* and *Cervus alfredi*), sika deer (*Cervus Nippon*), reindeer (all members of the genus *Rangifer* except *Rangifer tarandus caribou*), and roedeer (all members of the genus *Capreolus*). Although listed as prohibited under WAC 220-640-200, this WAC does provide exceptions for the importation, possession, propagation, and trade of reindeer and fallow deer under certain conditions.

The Washington State Department of Agriculture (WSDA) regulates disease testing and other entry requirements for the importation of authorized cervids under WAC 16-54-180 (Wild and Exotic animals - Importation and Testing Requirements). WAC 16-54-180 does not currently prohibit the importation of live cervids originating in states or provinces where CWD is present in captive or wild populations, nor are there cervid importation restrictions based on CWD testing or enrollment of the originating herd in a state or federal CWD herd certification program. Both shortcomings increase the risk of CWD entering Washington with imported cervids.

According to WSDA records (as of December 2021), 101 cervids have been legally imported into Washington from 2009-2021. Some of these cervid importations have been between AZA - accredited facilities. In 1 instance, a muntjac deer was imported as a pet in 2018. The majority of cervid importations have been privately-owned, domesticated reindeer.

Every few years, the Department's Enforcement Program conducts a statewide inventory of properties known to house non-native captive cervids. As of the last inventory in 2016, there were 30 known premises in the state with non-native captive cervids on-site. In addition to the 30 premises known to the Department, WSDA is aware of an additional 4 premises that house reindeer (A. Itle, pers. comm.). Captive native cervid species are currently held at AZA-accredited facilities in western Washington, Washington State University research programs in Pullman, and the Olympic Game Farm in Sequim.

Both WAC 220-450-030 and 220-640-200 include several requirements that are recognized as essential to effective disease tracking and management in captive animals, including: adequate fencing, official individual animal identification, annual animal inventory, regular reporting, and specified disease testing. Inspections of these facilities by Department staff are required to ensure that these requirements are being met. However, some uncertainty exists as to Department legal authority to conduct such inspections, and currently there are no dedicated staff assigned to do them. Both WACs include testing provisions for certain diseases and parasites, but CWD is not among them. The current absence of regular inspections and of a CWD monitoring program for captive cervid facilities in Washington precludes the opportunity for early detection and response to CWD should it occur in a captive cervid facility in the state.

**Native Free-Ranging Cervids**.—The Department has historically moved native deer and elk within the state for herd augmentation and other management purposes, and in the 1990s, imported woodland caribou from Canada in an effort to recover this native endangered species in Washington. Similarly, the Department continues to work with the USFWS, local Tribes, and the Oregon Department of Fish and Wildlife to recover threatened Columbian white-tailed deer within their range in southwestern Washington, including occasional translocations from adjacent range in Oregon into Washington. Due to geographically and numerically limited translocations of Columbian white-tailed deer, this practice is not considered to present a significant CWD risk at this time. Further, the Department is currently working with Columbian white-tailed deer co-managers to develop a CWD plan specific to the species.

Moose that wander into Spokane and other urban areas and become a nuisance or public safety threat are routinely captured and relocated throughout eastern Washington. Deer and elk are similarly captured and relocated, although not as frequently as moose. Senate Bill 5474, passed during the 2017 Washington legislative session, prohibits the translocation of live elk from an area affected by hoof disease to any other location. Substitute House Bill 2276, passed during the 2018 Washington legislative session, requires the Department to provide notice and hold a public hearing prior to relocating or importing game animals for population enhancement. There will likely remain an occasional need to relocate individual cervids from urban and suburban areas to more suitable habitat within a given region. This practice is believed to present a negligible CWD risk at the present time but will be re-evaluated should CWD be detected in Washington.

Licensed wildlife rehabilitators are prohibited by the Department from importing cervids from outside Washington, although they have historically been permitted to accept deer fawns and elk calves from throughout the state, rehabilitate them, and release them in areas independent of where they originated. Rules enacted in 2018 prohibit this latter practice, and rehabilitated fawns and calves now must be admitted and released only within the Department administrative region where they originated (WAC 220-450-150). Current wildlife rehabilitation regulations and practices are not believed to present a significant CWD risk at the present time but will be re-evaluated should CWD be detected in Washington.

**Risk Minimization Recommendations**.— To minimize the risk of CWD introduction and establishment in Washington via the movement of live cervids, the Department recommends updates to WACs 16-54-180 (Wild and Exotic animals - Importation and Testing Requirements), 220-450-030 (Live Wildlife), and 220-640-200 (Deleterious Exotic Wildlife).

According to AFWA, the best management practice to eliminate the risk of anthropogenic introduction and establishment of CWD through the movement of live cervids is to prohibit their importation into Washington, and this is the Department's preferred approach. However, if complete prohibition of live cervid importation is deemed to be infeasible or undesirable the Department recommends working with WSDA to update WAC 16-54-180 to prohibit the importation of live cervids that originate in states or provinces where CWD is present in captive or wild populations, and to require that any cervid entering Washington be from a herd that is enrolled in a WSDA and Department-approved state or federal CWD herd certification program such as the USDA Chronic Wasting Disease Herd Certification Program.

Several changes are needed to improve the effectiveness of WAC 220-450-030 and 220-640-200 at preventing the entry and establishment of CWD in Washington. In order to minimize the number of non-native captive cervids entering the state, and in keeping with AFWA recommendations, the Department recommends that the possession, propagation, and trade of all non-native cervid species be prohibited in Washington, not just the 10 species currently listed. If complete prohibition is deemed to be infeasible or undesirable, the Department must obtain legal clarification of its authority to conduct inspections of existing facilities and, if needed, recommend the necessary rule changes or seek the necessary authority to conduct such inspections. Further, dedicated staff should be assigned to conduct annual inspections and ensure that these regulations are being followed. Finally, the Department recommends that a requirement for a CWD monitoring program for captive cervid facilities be added to these WACs.

## Cervid Carcass Importation and Disposal

**Overview and Assessment**.—Chronic wasting disease prions accumulate in the tissues of infected cervids, even before the animal begins to show signs of disease (Sigurdson et al. 1999). These prions persist in the animal's tissues after death and will contaminate the environment as the carcass decomposes. Studies have demonstrated that infectious CWD prions from infected decomposed deer carcasses can persist in the environment for nearly 2 years, presenting an exposure hazard to other cervids in the area (Miller et al. 2004). Prions that cause scrapie in domestic sheep, a disease very similar to CWD, may persist in the environment for up to 16 years (Georgsson et al. 2006).

Due to the risk of importing CWD into Washington via infected carcasses or carcass parts, the Department updated WAC 220-413-030 (Importation and Retention of Dead Nonresident Wildlife) in the early 2000s to prohibit the importation of intact carcasses and certain carcass parts of cervids harvested in states and provinces where CWD is known to occur. This WAC also requires hunters to notify the Department within 24 hours if they are informed that a deer or elk they harvested in another state or province subsequently tested positive for CWD.

Over the past 2 decades, there have been very few years that CWD was not diagnosed for the first time in at least 1 new state or province. Accordingly, it has been necessary for the Department to update its carcass importation rules to add newly positive states and provinces nearly annually. Further, it is increasingly recognized that CWD is likely to be present in a state or province for months to years before it is first detected. Given this information, there is a clear risk that cervid carcasses or parts could be legally imported into Washington from a CWD-positive state or province before that state or province reports its first CWD case and it is added to WAC 220-413-030.

Despite efforts to inform hunters traveling out of state about WAC 220-413-030, nearly every year the Department documents cases where cervid carcasses, carcass parts, or meat from CWD-positive animals are brought into Washington from states or provinces with CWD documented in wild cervids. In many cases, the hunter was unaware that importation of the carcass or parts was illegal. To date, the Department has addressed these situations on a case-by-case basis, usually involving confiscation of the prohibited or unwanted carcass parts or meat and proper disposal by Department staff. During the fall

of 2019, Department staff adopted standard operating procedures (SOP) for dealing with such cases. Currently, the Department disposes of potentially infected intact carcasses and large carcass parts (i.e., skulls) in Department-approved landfills, and boneless meat via cremation.

**Risk Minimization Recommendation**.—To minimize the risk of CWD introduction and establishment in Washington via imported carcasses or parts and their improper disposal, the Department recommends updates to WAC 220-413-030 (Importation and Retention of Dead Nonresident Wildlife). In addition, the Department should conduct additional outreach to hunters, game meat processors, and taxidermists.

According to AFWA, the best management practice for reducing the risk of CWD transmission and establishment via movement of hunter-harvested cervid carcasses and tissues is to prohibit the importation of intact cervid carcasses from all states and provinces. Therefore, the Department recommends updating WAC 220-413-030 to apply to all cervid species and to prohibit the importation of carcasses or carcass parts, with exceptions currently listed, from any state, province, or territory, regardless of CWD status of wild or captive cervids in those states, provinces, or territories.

To address the problem of illegal cervid carcass and tissue importation, the Department should conduct more intensive outreach to Washington residents who hunt out of state in order to increase their awareness of the carcass importation regulations in WAC 220-413-030 (see Public Outreach and Communication section of this Plan). Similarly, the Department should contact all game meat processors and licensed taxidermists to provide educational material on CWD transmission and the risks associated with improper disposal of potentially infected carcasses and tissues, and request that all cervid remains be disposed of in a Department-approved landfill and not on the landscape.

## Artificial Feeding and Baiting

**Overview and Assessment**.—Baiting and recreational or supplemental feeding of any wildlife species has the potential to artificially concentrate animals (Janousek et al. 2021) and increase the transmission of infectious disease agents among them (Sorenson et al. 2014). Attraction of animals to artificial feed can also result in contamination of the feedstuffs and the environment by disease agents, such as prions, that are present in saliva, urine, and feces of CWD-infected cervids (Mathiason et al. 2009, Henderson et al. 2015, Plummer et al. 2017). For example, it has been demonstrated that white-tailed deer with CWD deposit prions at mineral licks, creating environmental reservoirs of CWD prions (Plummer et al. 2018).

There are currently no prohibitions against recreational feeding of cervids in Washington, and the practice is common throughout the state. Current regulations allow baiting for the purposes of hunting deer and elk under certain conditions (WAC 220-414-030). Department-sponsored feeding occurs on a very limited basis and is largely restricted to a historic winter-feeding program in southcentral Washington implemented to reduce chronic localized conflict between elk and neighboring agricultural operations.

**Risk Minimization Recommendations**.—According to AFWA, the best management practice to reduce the risk of CWD transmission and establishment through unnatural concentrations of cervids, is for states and provinces to eliminate the baiting and feeding of all wild cervids using regulatory mechanisms, such as jurisdictional bans. Therefore, the Department recommends seeking authority or rule changes to prohibit the feeding of wild cervids, including eliminating the exceptions to baiting for the purposes of hunting deer and elk that currently exist in WAC 220-414-030. A public information campaign on the disease risks associated with feeding cervids will be initiated as soon as feasibly possible (see Public Outreach and Communication section of this Plan).

The Department currently feeds elk in southcentral Washington to prevent agricultural damage in the winter. This practice results in unnaturally high concentrations of animals and may increase disease transmission risk. Considering the substantial threat associated with CWD, this program needs to be re-evaluated to determine the costs and benefits of feeding elk while mitigating both disease and agricultural damage. This will require effort to collect both biologic and economic data to develop a bioeconomic model to evaluate the impacts of management with and without feeding (Maloney et al. 2020). Furthermore, assessment and mitigation of the potential disease risk posed by feeding will require engagement by stakeholders from many sectors of Washington's economy. With the adoption of the Plan, the Department will prioritize research to investigate the impacts of feeding and disease transmission and will test any symptomatic cervids observed in the vicinity of established winter-feeding areas.

## Urine-based Scents and Attractants

**Overview and Assessment**.—CWD prions are shed in the urine of infected deer for months to years before they show signs of disease, and an infected deer may shed thousands of infectious doses during its lifetime (Henderson et al. 2015). There are currently no practical tests to detect the presence of CWD prions in urine. Hunters use commercial urine-based products to mask human scent and to attract deer, particularly males, within shooting range. These products are readily available for purchase at sporting goods stores and online. The urine used in these products is collected from deer in captive facilities, typically using a grate system that also collects feces and other excretions (Spitznagel 2012) and is frequently batched/combined from multiple captive cervid facilities (Nark 2017).

Deer urine production and sales are not regulated by any agency, nor are there any testing or labeling requirements for urine products. The Archery Trade Association (ATA) offers a voluntary certification program for deer urine businesses which is designed to mitigate the risk of spreading CWD via commercial deer urine products. However, there are shortcomings with the ATA certification program (Gillin and Mawdsley, 2018), and the organization has no technical ability or regulatory authority to detect or prevent the distribution of contaminated urine products.

Bans or restrictions on the use of urine-based scents and attractants for hunting cervids exist in 12 states and 4 Canadian provinces, and are being considered in another 5 states. The use of urine-based scents and attractants is currently allowed in Washington under WAC 220-414-030. The extent to which

these products are used in Washington is unknown, but they could serve as a source of CWD introduction into the state.

**Risk Minimization Recommendations**.—According to AFWA, the best management practice for reducing the risk of CWD transmission and establishment through use of natural cervid urine-based products is to "eliminate the sale and use of natural cervid urine-based products." Therefore, the Department recommends that WAC 220-414-030 be updated to prohibit the use or possession of urine-based scents and lures for deer and elk hunting.

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# Chapter 4: Pre-Detection Surveillance

Early detection of CWD in Washington is critical, should it occur, as successful management of the disease is more likely when prevalence is low and environmental contamination by prions is minimal (Gross and Miller 2001). There has only been one instance where CWD is believed to have been successfully eradicated from wild cervids. This was in New York, where a pre-detection surveillance program that tested thousands of animals, and a prompt and aggressive response once the first case was detected, were credited with preventing CWD from becoming established in the wild white-tailed deer population (Evans et al. 2014).

The Department currently tests adult cervids throughout the state that are reported with clinical signs commonly associated with CWD, and under this Plan will continue to do so. Targeted surveillance of symptomatic animals is helpful, but alone is unlikely to detect CWD early enough for effective management intervention, since infected animals can survive months to years without showing signs of the disease (Miller et al. 2000). Similarly, testing of healthy hunter-harvested or vehicle-killed cervids alone is not likely to result in early detection of CWD in Washington (Williams et al. 2002).

To maximize the chances of early detection of CWD, sampling of both symptomatic and apparently healthy hunter-harvested or vehicle-killed cervids will be conducted as part of the Department's pre-detection surveillance program. However, most of the Department's pre-detection surveillance samples will be obtained through systematic collection of samples based on known CWD geographical and demographic risk factors, as described below.

## Geographical Risk Factors

While it would be ideal to conduct systematic pre-detection CWD surveillance statewide, financial and logistical constraints make such an approach infeasible, at least initially. Prioritization of areas to sample is necessary and the majority of sampling will be based on known geographical and demographic risk factors for detecting CWD positive animals.

The Department will initially focus geographical sampling for surveillance along Washington's eastern border, where natural westward expansion of CWD by movements of free-ranging cervids would be most likely to occur (currently the closest known CWD detections are in northwest Montana near Libby and in western Idaho near Lucile), and where proximity to several captive cervid facilities in northern Idaho present an increased CWD transmission risk to native wild cervids relative to other parts of the state. A total of nine CWD Surveillance Units (CSUs) based on Game Management Units (GMUs) are delineated for white-tailed deer (five units) and mule deer (four units) populations believed to be at the greatest risk of exposure to CWD (Figure 1) at the time of this plan development. As new information and new detections are made in surrounding states and provinces, CSUs may be modified and/or new CSUs may be established to account for the changing risk landscape.

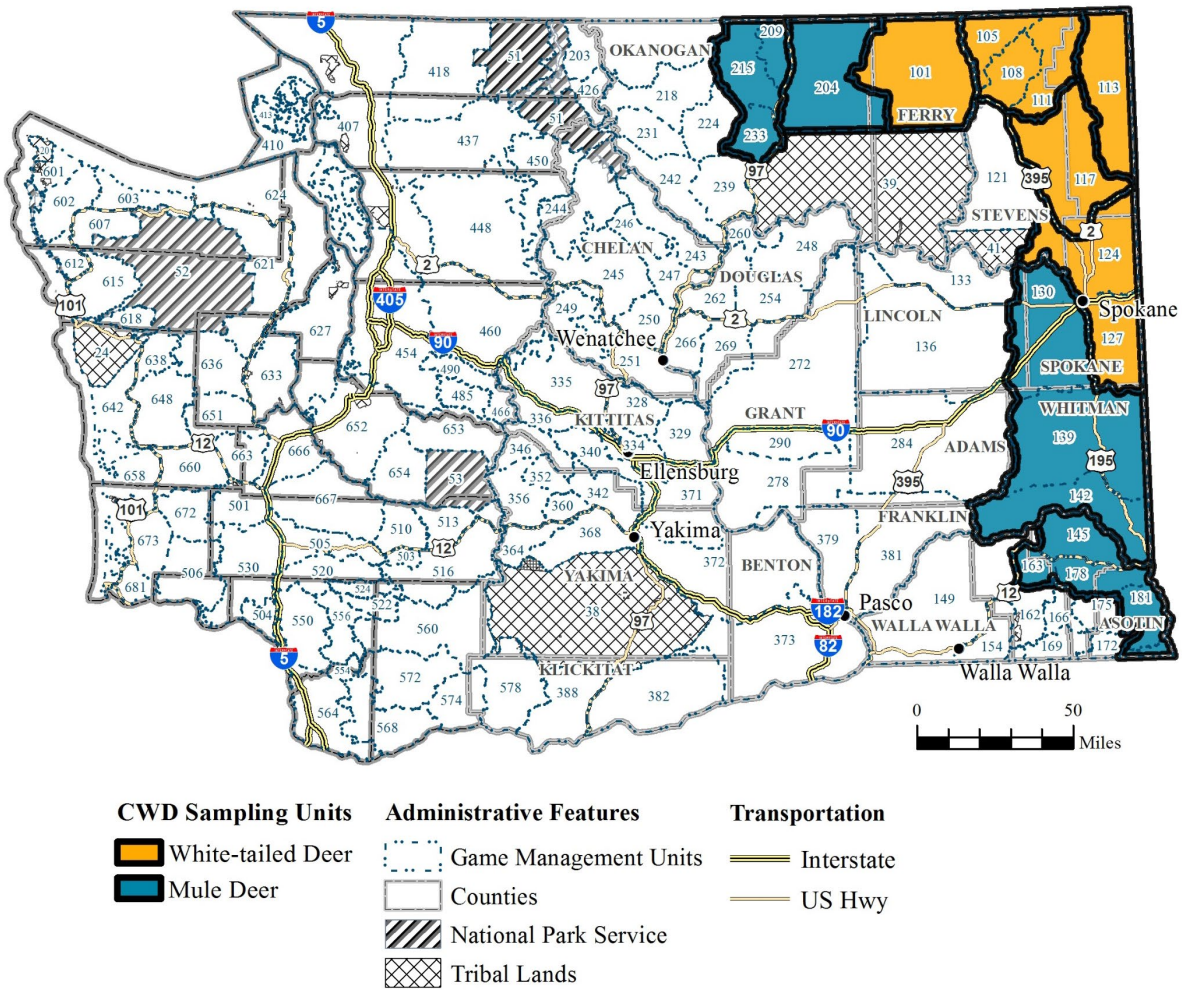


**Figure 1. CWD surveillance units delineated based on Game Management Units that represent populations of mule and white-tailed deer in Washington State believed to be at greatest risk of contracting CWD.**

Evidence to date suggests that CWD epidemics in white-tailed deer and mule deer are different and that in areas where these species coexist, CWD prevalence is greater in mule deer populations relative to sympatric white-tailed deer. This has been observed in both Wyoming (Edmunds et al. 2016, DeVivo et al. 2017) and Colorado (Miller and Connor 2005, summarized by Rivera et al. 2019). To account for documented differences between white-tailed deer and mule deer with respect to CWD epidemiology, sampling and analysis of surveillance results will be addressed separately for these two species. While CSU's are delineated based on the predominant deer species (white-tailed or mule deer) in the area, either species may be opportunistically sampled, even if not the focus species for that particular CSU. Results, however, will be analyzed separately by species.

Because the prevalence of CWD is substantially lower in elk than in deer (Spraker et al. 1997, Miller et al. 2000) and is relatively rare in moose (Kreeger et al. 2006, Ricci et al. 2017), systematic sampling of these

species is not likely to be as productive as sampling deer. Nonetheless, elk and moose may be sampled opportunistically, and results will be analyzed separately by species.

*White-tailed Deer.*—Northeastern Washington is home to Washington's most abundant white-tailed deer populations. In 2019 CWD was detected in Libby, Montana, which is approximately 70mi from Washington's border, with the area in between consisting of continuous suitable white-tailed deer habitat. This suggests that one highly likely route for animal-mediated introduction of CWD to Washington would occur via natural animal-to-animal contact and disease diffusion from western Montana into eastern Washington.

*Mule Deer.*—Mule deer are believed to be more susceptible to CWD than white-tailed deer (Spraker et al. 1997, Miller et al. 2000). In 2021, CWD was detected in 2 mule deer north of Lucile, Idaho, approximately 40mi from Washington's border. Disease transmission may be elevated in mule deer herds that concentrate on winter range (Conner and Miller 2004) and the migratory behavior of some mule deer populations could facilitate the westward spread to central and southeastern Washington should CWD enter eastern Washington from Montana or Idaho.

Chronic wasting disease surveillance units for both white-tailed and mule deer were established to provide geographic coverage of deer populations based on Department GMUs that restrict CSUs to ≤ 15,000 deer based on known population distribution for the two species (Figure 1).

In addition to CSU-based sampling in eastern Washington, the Department will also opportunistically collect samples from taxidermists and game meat processors from throughout the state to potentially catch any samples that were harvested in a CSU and processed elsewhere in the state. Further, while not as rigorous an approach as CSU-based sampling in eastern Washington, collection of samples from game meat processors and taxidermists statewide may provide samples from animals collected in areas with additional, but difficult to quantify, risk factors such as proximity to captive cervid facilities, cervid carcass dump sites, artificially high concentrations of cervids, and areas where CWD-contaminated urine lures may have been used for hunting. Moreover, hunters from across the state harvest animals in other states and provinces known to have CWD, and potentially bring back infected carcasses without properly transporting or disposing carcass remains. Results from this sampling will be analyzed separately from the CSU-based sampling described previously.

## Demographic Risk Factors

Adult cervids showing clinical signs consistent with CWD are far more likely to test positive for CWD than are apparently healthy animals (Miller et al. 2000). As a result, sampling of symptomatic cervids will remain a high priority of the Department's pre-detection surveillance plan regardless of species or location in the state.

Research from CWD-endemic states has found that adult animals are more likely to test positive than yearling or young of the year age classes (older animals have had more time to become infected and for that infection to progress). This pattern is generally consistent for both mule deer and white-tailed deer (Miller and Conner 2005, Grear et al. 2006, Montana Fish, Wildlife and Parks 2020). In some GMUs,

yearlings make up the majority of harvested deer. Given this information, for pre-detection surveillance, the Department will only sample animals 12 months of age or older.

Although male cervids are more likely to test positive for CWD than females in most studied systems, given constraints related to animals available for testing and influences such as harvest structure within a given surveillance unit, there will be no discrimination between males and females for sampling. However, the majority of deer harvest in Washington is targeted towards males and the structure in place will most likely result in males being overrepresented in samples. The Department will also make efforts to collect as many samples as possible from cervids presented to taxidermists, which will increase the adult male segment of the total sample.

While most samples will likely be collected from hunter-harvested adult animals, the Department will also collect samples from animals killed by vehicles by accessing Washington State Department of Transportation carcass disposal sites. In addition, the Department will also take advantage of any research being conducted that might provide additional samples from cervids associated with those efforts, including cervids killed by predators.

## Sample Size Calculations and Data Analysis

Following the methods of Cannon and Roe (1982) the goal of our pre-detection surveillance will be to collect testable samples from 300 cervids within each identified CSU, which will allow us to conclude with 95% confidence that we would detect CWD if it is present in as little as 1% of the population. Should sample size goals not be met for a given CWD surveillance unit, the methods of Cannon and Roe (1982) and Cameron and Baldock (1998) will be used to calculate both: 1) the confidence level of detecting disease if present in 1% or less of the population in that unit, given the sample size obtained, and 2) the proportion of deer in a CSU that could be infected before we detected the first case, given the sample size obtained. For example, if 150 samples are obtained in a given CSU, we would be able to conclude with only 78% confidence that we would have detected CWD if it was present in $\leq$1% of the deer population in that unit. Using the same calculation methods, if 150 samples were obtained within a CSU, the disease could be present in up to 2% of the population before we detected our first case rather than our goal of 1%. Assuming a population size of 15,000 deer in a CSU, this would mean that 300 positive deer could be present in the population, rather than 150, before our sampling detected the first positive. The latter two calculations will inform prioritization and decision-making for CWD sampling in the identified CSUs to improve the odds of achieving stated sampling goals.

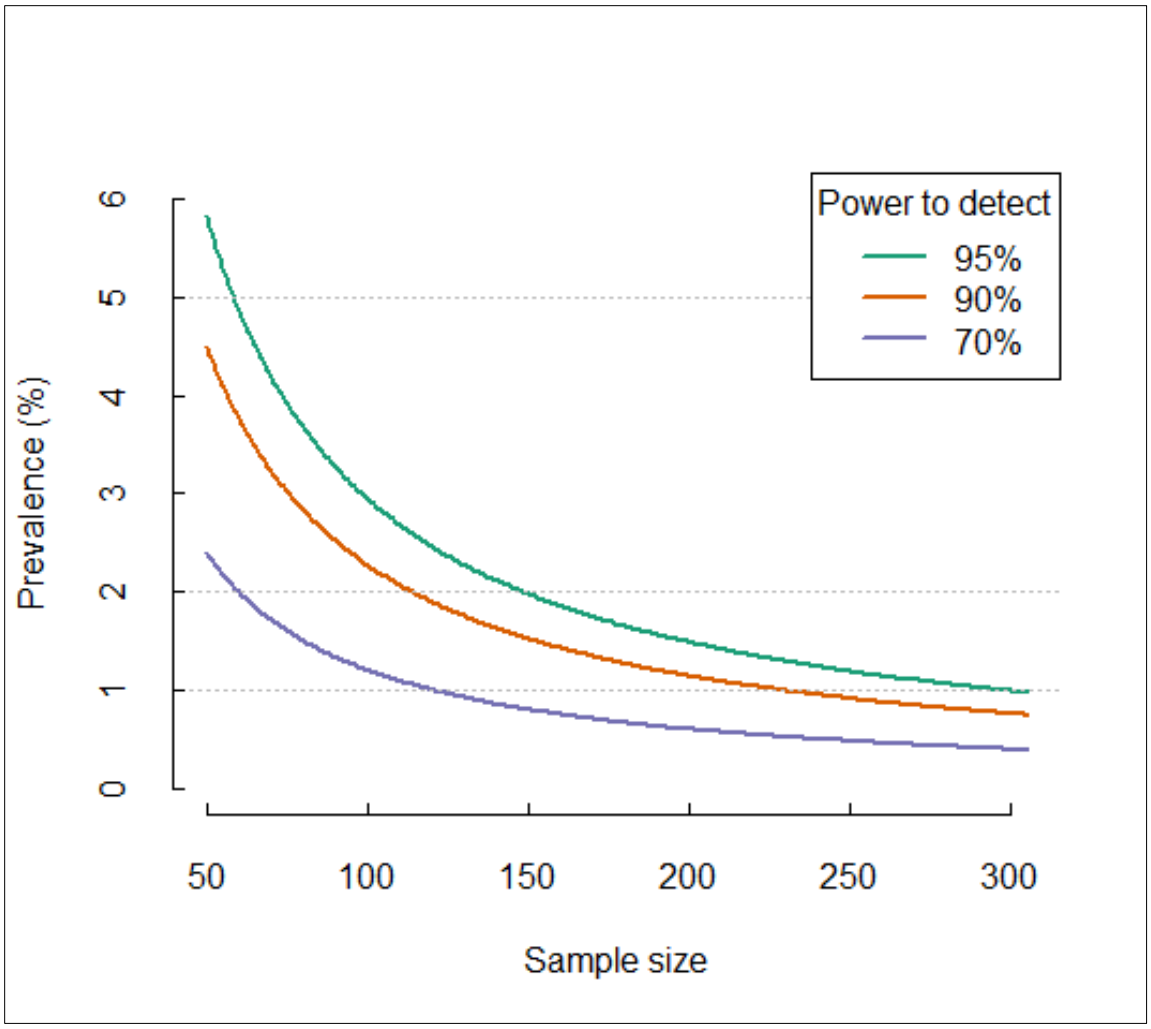


**Figure 2. Relationship of prevalence and sample size with varying power of detection.**

Surveillance efficiency may be enhanced by using a weighted (i.e., risk-based) sampling scheme that would target individuals most likely to test positive for CWD based on species, age, sex, and cause of death (Walsh and Miller 2010). Currently, no risk data are available specific to CWD epidemics in Washington; however, weighted values are available for mule deer and elk from Colorado (Walsh and Miller 2010) and white-tailed deer in Wisconsin (Jennelle et al. 2018). A weighted surveillance strategy may be pursued using data from other states when and where feasible.

# Sources of Samples for Pre-detection Surveillance

## Symptomatic Cervids

Inform staff and public about clinical signs of CWD and importance of sampling symptomatic cervids

Provide and promote process for reporting, e.g. the online sick/injured/dead reporting tool and sampling symptomatic cervids

Allocate staff time to respond to, collect, and ship samples from symptomatic animals statewide

## Hunter-Harvested Animals

Collaborate with Tribes to sample tribal harvest

Collaborate with state and federal land managers to facilitate collection of samples from relevant major public lands.

Check Stations

- Existing Deer Park check station
- Existing Elk-Chattaroy check station
- Existing Lincoln County Enforcement check station
- Re-establish Asotin Check Station
- Establish new check stations, particularly in the Selkirk WDMZ

Game Meat Processors and Taxidermists

- Contact game meat processors and taxidermists throughout Washington and arrange for them to retain cervid heads for collection and testing
- Consider paying an incentive for each head retained for sampling

Hunting and Wildlife Conservation Groups

- Engage with local hunting and wildlife conservation groups to assist with outreach and sample submission from members

Damage or Special Hunts

- Consider requiring Master Hunters and holders of damage or special hunt permits to retain heads for CWD sampling

Collection Sites

- Place barrels at collection sites for hunters to deposit deer heads
- Train Department staff at Regional and District offices to collect samples from cervid heads dropped off by public
- Train hunters to collect their own samples and submit to WDFW

*Vehicle-killed Cervids*

Washington State Department of Transportation (WSDOT) carcass disposal pits

- Work with WSDOT to identify carcass disposal pit locations and gain access for CWD sampling
- Provide staff time to visit pits and collect samples

Convenience Vehicle-killed Samples

- Inform Department staff, other agencies, volunteers, and the public of the Department's interest in collecting samples from vehicle-killed deer and request that they report locations of vehicle-killed cervids to WDFW Regional Offices
- Promote the use of the online reporting tool to report sick, injured, and dead animals as a means to inform staff of potential sampling opportunities

Salvage Tag Holders

- Request holders of salvage tags to retain heads for CWD sampling

### Research-related samples

Advise Department staff and external researchers of the Department's desire to collect samples from any cervid mortalities associated with research efforts by either direct (radio-collared cervids) or indirect (carcasses discovered during investigation of potential carnivore kill sites) means

## Sample and Data Management

Retropharyngeal lymph nodes (RPLN) will be collected from deer. From elk and moose, the brainstem is the preferred sample for CWD testing and, if possible, will be collected instead of the RPLN. Samples will be placed in a cryovial labeled with the following information: date, species, sex, location (GMU, coordinates), hunter identification (if applicable), sample type (RPLN, brainstem), sample collector, and source (symptomatic animal, hunter-harvest, vehicle-killed, other). Cryovials will also be labeled with a unique barcode to facilitate data entry and transmittal to WADDL. Samples will be frozen until submitted to the laboratory where they will be tested using an enzyme-linked immunosorbent assay (ELISA). Confirmation of any positive ELISA results will be done using immunohistochemistry.

Department data management staff will develop a process for data collection in the field, as well as a database for storage and retrieval of CWD surveillance field data and test results. A web application will be developed and made available on the Department website for hunters to look up test results of their harvested animals.

## Training

Designated Department staff will conduct training for additional Department field staff (and potentially taxidermists, university students, Tribal co-managers, and volunteers) on CWD sample collection, data entry, labeling, storage, and shipping.

## Budget

Table 4. Estimated Annual Budget for Pre-detection Surveillance (Note: final values are subject to change).

| Item | Need(s) | Cost |
|---|---|---|
| Staff Salary & Benefits | Surveillance design and data analysis; develop and maintain sample database; develop and maintain test result look-up web application for hunters; public outreach and education (news releases, blog, social media, design posters and brochures); field sampling; data entry, sample packaging and shipping; training; annual report writing and planning | $272,100 |
| Vehicle Expenses | Travel to check stations, taxidermists, game meat processors, and WSDOT pits to collect samples; deliver laboratory samples; dispose of cervid heads and carcasses | $9,000 |
| Goods & Services | Sampling and shipping supplies; sample shipping; PPE for samplers; lab fees; payment to taxidermists and game meat processors for cervid heads; print and mail letters to taxidermists and game meat processors; cervid carcass and head disposal fees; print and distribute brochures and/or posters. | $101,420 |
| | TOTAL | $382,520 |

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# Chapter 5: Initial Emergency Response

The Initial Emergency Response is the guiding document to be used in the event of a first detection of chronic wasting disease (CWD) in Washington. This document outlines the actions and process the Washington Department of Fish and Wildlife (hereafter the Department) will undertake after the first detection of a CWD-positive cervid in Washington. The original Initial Emergency Response adopted by the Department's director in December 2021 is updated in this amendment to reflect additional knowledge gained through a Department-led tabletop exercise conducted in June 2022 and lessons learned from other states and provinces that are managing CWD within their jurisdictions.

The tabletop exercise was a discussion-based exercise that addressed scenarios of a CWD detection within and outside of the CWD Surveillance Units that are delineated in the CWD Management Plan, Chapter 4: Pre-Detection Surveillance. The exercise was designed to challenge the Department's CWD Management Plan and move participants through major phases and key issues of a CWD detection in Washington. Participating organizations and partners included Washington Department of Ecology, Washington Department of Health, Washington Animal Disease Diagnostic Laboratory, Washington State Department of Agriculture, Washington Department of Transportation, US Army, US National Park Service, US Fish and Wildlife Service, the Washington State Archery Association, Colville Tribes Fish and Wildlife, Nez Perce Tribe Wildlife Division, and the Inland Northwest Wildlife Council.

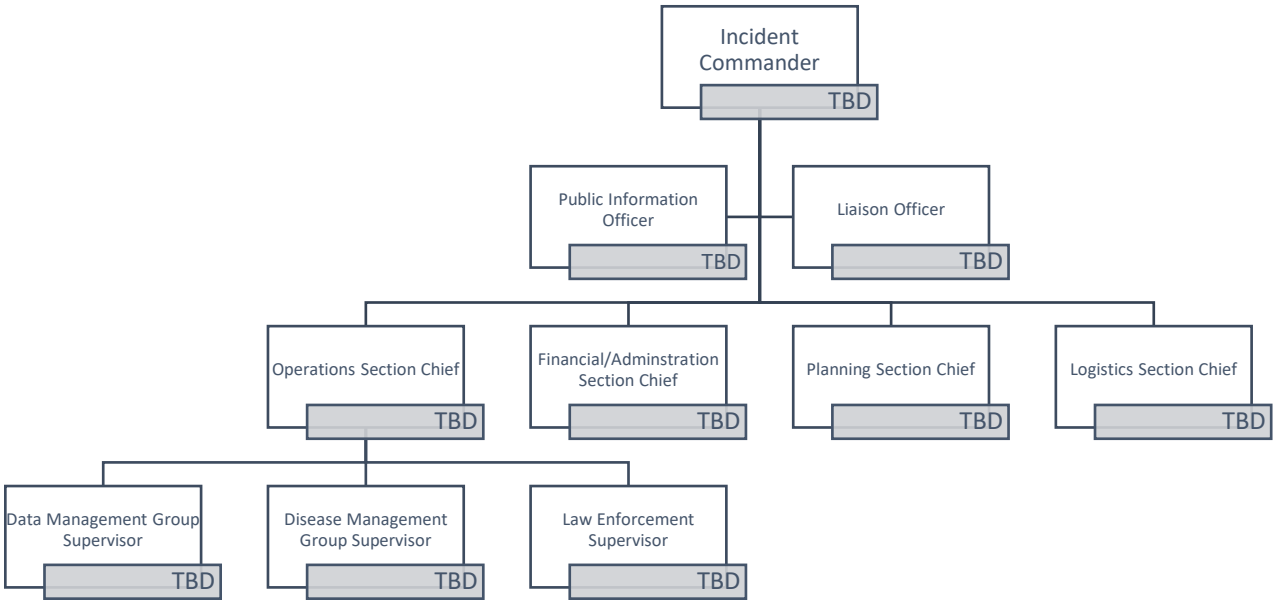
Three themes of improvement were identified in the after-action report and improvement plan: coordination, communication, and planning. Coordination improvements included using a standardized incident management system, identifying members of the CWD incident management team, and identifying roles and responsibilities of organizations and partners involved with CWD response actions. Communication improvements included adopting agreements with tribes related to CWD response, providing a notification list of individuals who have been identified for initial and continued communication during a response, developing a Multi-Agency Coordination (MAC) Group, and developing a system to communicate with hunters about a CWD detection. Planning improvements included providing a checklist of response actions for response personnel, developing an acronym list, developing a decision tree, and addressing personnel shortages that would hinder or delay a detection of CWD.

The original Initial Emergency Response chapter referenced several aspects of Montana Fish, Wildlife, and Parks' CWD Management Plan (Montana Fish, Wildlife, and Parks CWD Action Team 2020) that was updated in 2020. After four years of implementation of Montana's plan responding to CWD within their jurisdiction, they have modified their response to improve on clarity and communication of actions for agency personnel and the public, specifically hunters participating in surveillance (personal comm. Emily Almberg). As a result, the Department will modify the CWD response to reflect lessons learned by other agencies that are already managing CWD. While certain aspects of the original response have been updated, the goal to prevent CWD from becoming established in the population assuming CWD is detected early during the outbreak remains the same. Additionally, the Department will maintain the primary objective of containment within the immediate area of detection by reducing the density of the

affected cervid population, removing attractants that artificially congregate cervids, and restricting movement of CWD infected animals and materials.

This updated Initial Emergency Response will follow the standardized incident command system (ICS) developed by FEMA. ICS is one of the four National Incident Management System (NIMS) structures, and is a standardized, on-scene, all-hazard incident management concept that allows users to adopt an integrated organizational structure to match the complexities and demands of incidents. The other three NIMS structures are Emergency Operations Centers (EOC), the Multi-Agency Coordination Group (MAC Group), and the Joint Information System (JIS). The MAC Group is a high-level multi-agency coordination body that supports ICS through policy and scarce resource allocation. Both the ICS and MAC Group will be executed during a CWD incident. The EOC and JIS will not be initially implemented unless the incident becomes more complex. A CWD detection falls under the characteristics of a Type 3 Incident where all the appropriate ICS positions in the Incident Management Team (IMT) will be filled to match the complexity of the incident and the incident will extend into multiple operational periods requiring a written Incident Action Plan (IAP).

# Incident Management Team




## Incident Commander

- Decides which incident objectives are moved forward to decision makers.
- Moves rule and regulation changes through appropriate processes.
- Establishes incident objectives, and
- Ensures that incident activities work to accomplish objectives.

## Public Information Officer

- Interfaces with the public and media and/or with other agencies with incident-related information requirements.
- Gathers, verifies, coordinates, and disseminates accurate, accessible, and timely information on the incident's cause, size, and current situation; resources committed; and other matters of general interest for both internal and external audiences.

## Liaison Officer

- Point of contact for representatives of other governmental agencies, nongovernmental organizations, and the private sector (with no jurisdiction or legal authority) to provide input on their agency's policies, resource availability, and other incident-related matters within their respective functional areas.
- Representatives from assisting or cooperating agencies and organizations coordinate through the Liaison Officer.

## Financial/Administration Section Chief

- Schedules incident meetings, shares out tasks, tracks progress of incident, tracks expenditures, and helps with contracts.

## Planning Section Chief

- Looks beyond the current and next operational period and anticipates potential problems or events.
- Maintains resource status, develops the IAP, and develops alternative strategies.

## Logistics Section Chief

- Responsible for all support requirements such as supplies, facilities, and ground support.

## Operations Section Chief

- Directs and coordinates on-the-ground activities to achieve the incident objectives established by the Incident Commander.
- Works with the Data Management Group, Disease Management Group, and Law Enforcement to implement on-the-ground activities within their functional areas.

## Data Management Group

- Manages data collection applications, database, data inquires, and performs data quality assurance and quality control.
- Produces mapping products to ensure clear communication on incident activities and operational boundaries.

## Disease Management Group

- Collects samples for testing, data for analyses to guide response activities, and disseminates public education and executes outreach.

- Ensures proper disposal of carcasses and contaminated materials.

## Law Enforcement

- Enforces CWD-related laws and regulations and,
- Provides input on compliance rates of CWD-related activities.

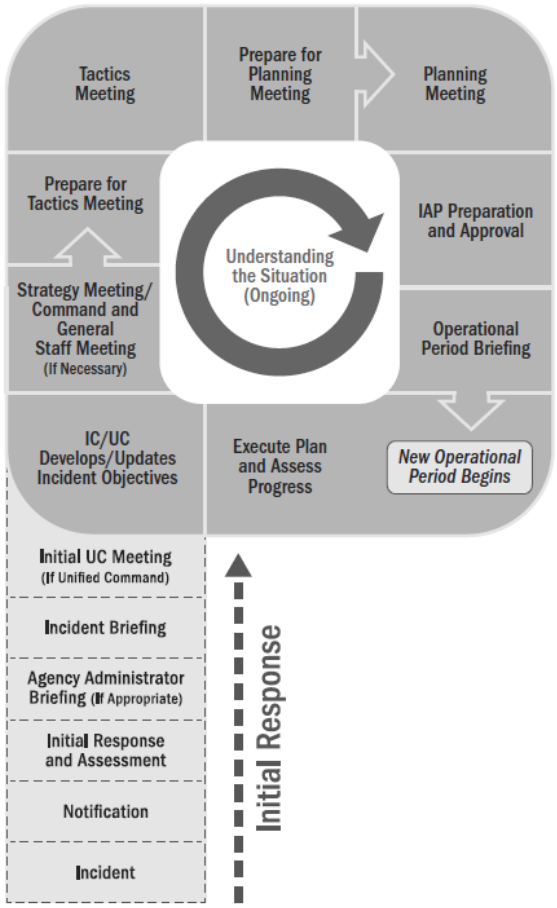
## MAC Group

Representatives from the following groups will be encouraged to participate as their input and resources will improve disease management.

| Organization/Institution |
|---|
| Tribes |
| Washington Department of Ecology |
| Washington Department of Health |
| Washington Animal Disease Diagnostic Laboratory |
| Washington State Department of Agriculture |
| Washington Department of Transportation |
| US National Park Service |
| US Fish and Wildlife Service |
| US Forest Service |
| State Parks |
| Department of Natural Resources |
| BLM |
| Universities |

## The Planning P

This framework is used in Emergency Management to transition from the Initial Response to a more formalized, structured response:




## Operational Period Planning Cycle

1. *Incident*: CWD is detected in a sample collected from Washington.

2. *Notification*: The Incident Commander will notify all those in the MAC Group, IMT, Department Administrators, Department Commission, and other's directly affected by the detection regarding the details of the incident and will schedule an incident briefing meeting. The Public Information Officer will prepare and disseminate the News Release. If the incident is associated with a harvested or salvaged animal, the Operations Section Chief will notify the hunter/salvager and work with the Disease Mangement Group Supervisor to determine the disposition of the carcass and carcass parts for appropriate disposal.

3. *Incident Briefing*: The Incident Commander will outline the details of the incident with assistance from those that intially responded to the incident, describe next steps, and take feedback from the MAC Group and IMT.

4. *Objectives Development/Update*: The Incident Commander and IMT establishes the incident objectives for the initial operational period. After the initial operational period, the Incident Commander reviews the incident objectives and may validate them, modify them, or develop new objectives.

5. *Strategy Meeting/Command and General Staff Meeting*: The Incident Commander meets with the IMT and Policy leads to discuss the incident objectives and provide direction. This meeting determines how best to meet the incident objectives, share information, and jointly determine the initial approach to response operations.

6. *Tactics Meeting/Command and General Staff and others:* The IMT and other key players review and discuss proposed tactics developed by the Operations Section Chief and to conduct planning for resource assignments.

7. *Preparing for Planning Meeting*: The IMT collaborate to identify support needs and assign specific operational resources to accomplish the operational plan.

8. *Planning Meeting*: Serves as a final review and approval of operational plans and resource assignments. Ideally, the Planning Meeting involves no surprises and simply serves as a review of a plan that the Command and General Staff have collaboratively developed and agreed upon. At the end of the Planning Meeting, Command and General Staff, and any Department officials involved, confirm that they can support the plan.

## Incident Action Plan

The IAP should at minimum 1) delineate the initial response area (IRA), 2) delineate the transport restriction zone (TRZ), 3) outline the actions that will be implemented to contain the disease within the TRZ and the actions that will reduce contact rates among live cervids, 4) outline the actions that will increase our knowledge regarding distribution, prevalence, and affected species, and 5) outline the information campaign to communicate and educate the public on the Department's CWD IAP.

1. *Initial Response Area (IRA)*: This area is designed to delineate an area of intensive sampling for CWD. The original Response Plan used a radius of 10 miles around the site of detection; however, lessons learned from MTFWP suggests this arbitrary delineation is difficult to define and communicate to staff and the public. Additionally, if the detection of CWD and subsequent distribution is found to be widespread, continued boundary expansion using vague landmarks becomes confusing and cumbersome. The recommendation is to use well-defined, already established boundaries known to the Department and hunters. For this reason, we recommend the IRA is delineated using Game Management Unit (GMU), county, or other jursidictional boundaries.

2. *Transport Restriction Zone (TRZ)*: In addition to the IRA, the Department will define a TRZ to minimize the potential for geographic spread of CWD. The TRZ will include a larger area than the IRA to provide reasonable access to meat processors and taxidermists and to ensure appropriate sanitary disposal of carcass parts is possible. Within the TRZ the following actions will be considered to prevent the spread of CWD to other areas:

    a. Carcass Transport Restrictions and Disposal

        i. From within the IRA, only the following can be lawfully transported outside of the TRZ boundaries:

            1. Boned-out meat

            2. Skulls and antlers, antlers attached to the skull plate, or upper canine teeth (bugler, whistlers, ivories) from which all soft tissue has been removed, including antler velvet

            3. Hides or capes without heads attached

            4. Tissue for use by a diagnostic or research laboratory

            5. Finished taxidermy mounts

    b. Identification of Department-approved landfills and incinerators will be made available online and updated as needed

    c. Handling, Transport, and Attraction of Live Cervids

        i. Rehabilitation of cervid species will be prohibited within the TRZ and rehabilitated cervids cannot be lawfully released within the TRZ

        ii. Relocation of live cervids into and out of the TRZ for conflict mitigation will be prohibited, and limited within the TRZ under special circumstances where public safety is threatened

    d. Request the public to remove points of artificial cervid concentration such as feeding and baiting stations, mineral licks, and guzzlers

    e. All ongoing cervid capture operations and requests for scientific collection permits within the TRZ that involve transport of live or dead cervids will be reviewed by the IMT to ensure capture and research protocols do not contribute to CWD transmission and geographic spread

    f. Reduction in cervid density at artificially concentrated areas (e.g. feeding stations) within the TRZ may require hunters or Department personnel to cull animals with landowner cooperation if not on public lands

3. *Prevalence and Distribution*: Sampling to estimate prevalence and distribution within the IRA will be primarily achieved using existing public hunting mechanisms whenever possible, and to the degree practical. However, there may be circumstances where public hunting is not suitable or is unlikely to achieve the desired results, such as in areas with high human densities and resulting potential for human conflict. If a sex or age class is under-sampled, additional sampling may be required. In these cases, other sampling strategies, such as landowner permits, or Department-directed removals may be considered in addition to existing public hunts. Samples will also be collected from salvaged roadkill to determine the distribution of CWD across the landscape. While pre-detection surveillance aims to detect CWD at no more than 1% of the population infected, true CWD prevalence will be unknown for the affected target area. To ensure CWD prevalence is estimated to a degree of precision with adequate power to detect a higher than the 1% expected prevalence, sample size can be calculated as $n = p(1-p)\left(Z_{\alpha/2} + Z_{1-\beta}\right)^2/(p-p_0)^2$, where $p$ is the true prevalence, $p_0$ is the minimum CWD prevalence threshold, $\alpha/2$ is the confidence interval, and $1-\beta$ is power (Figure 3).

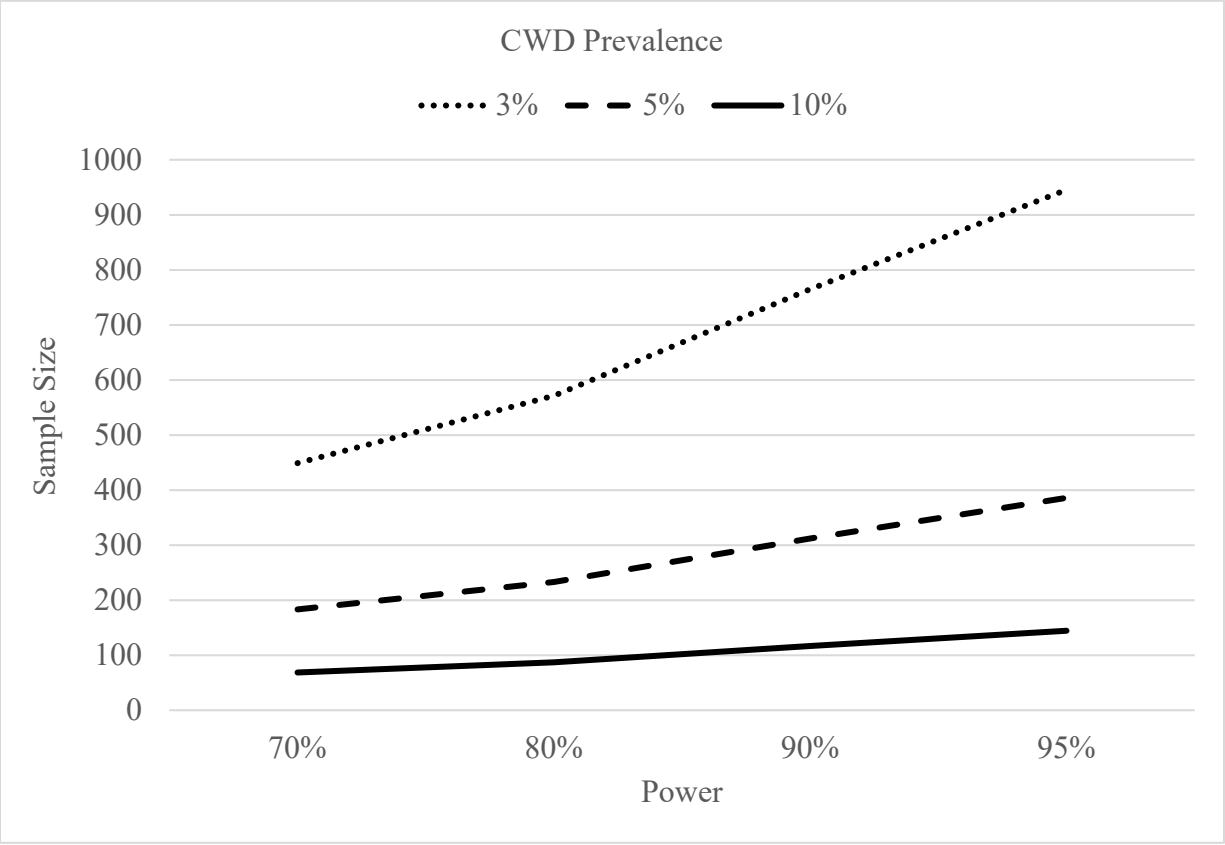



Figure 3. Sample size calculation for a 95% confidence interval centered at 3%, 5%, or 10% CWD prevalence with 70%-95% power to detect the true prevalence is higher than the expected 1%.

a. Use Existing Hunting Mechanisms, Damage Prevention Programs, and the Salvage Program: When feasible, the Department will attempt to use existing hunting mechanisms, damage prevention programs, and salvage program to achieve a sufficient sample of cervids for CWD testing. Individuals will be required to follow additional rules and regulations when hunting and/or salvaging roadkill within the IRA including:

    i. Mandatory sampling of all harvested and salvaged cervids within the IRA

    ii. Hunters and road-kill salvagers will have 72 hours to report their harvest/salvage and to submit a sample at a Department-approved location

    iii. Submission may include the whole head or appropriate tissues for CWD testing depending on species (e.g., retropharyngeal lymph nodes from deer, obex region of the brainstem and retropharyngeal lymph nodes from elk and moose)

    iv. Hunters and salvagers must provide all information as requested by the Department

    v. Hunters and salvagers who harvest/salvage a cervid that tests positive for CWD will be informed by the Department to ensure proper disposal of unwanted meat and carcass parts and provide guidance on cleaning processing equipment

    vi. The Department will assess the circumstances of issuing replacement tags for those that harvest a CWD-positive animal on a case-by-case basis to ensure populations and disease management are not impacted.

    vii. All hunters and salvagers who submit a CWD sample will be able to look up their CWD results using the lookup tool on the Department CWD website using their WILD ID and Salvage Permit ID https://wdfw.wa.gov/species-habitats/diseases/chronic-wasting/test-results.

    viii. Cervid entrails, hides, bones, and trimmings may be left at the kill site or disposed of at a Department-approved landfill or via other Department-approved means within the TRZ. Salvagers must remove the entire carcass, including entrails, from the road right of way per WAC 220-400-040.

b. Modify Existing Hunting Mechanisms and Damage Prevention Programs: Current hunting seasons and number of permits may not achieve sample sizes needed to provide a meaningful estimate of CWD prevalence. To meet sample size needs, the Department will attempt to maximize hunting opportunities by:

i. Adjusting hunting season dates for specific species and weapon types most likely to result in an increased harvest of the species and sex and age class(es) of interest

ii. Adjusting antler point restrictions for specific species and GMUs

iii. Adjusting special permit opportunities for specific species, sexes, age classes, and GMUs most likely to result in an increase harvest of the species of interest

# Appendix A. Key CWD Management Messages for Public Outreach Efforts

## Key Pre-detection Messages

*What Is Chronic Wasting Disease?*

Chronic wasting disease (CWD) is a disease of the deer family Cervidae (cervids); including white-tailed, mule deer, black-tailed deer, elk, moose, and caribou.

It is a form of transmissible spongiform encephalopathy (TSE), an infectious and always fatal disease characterized by deterioration of brain tissue.

TSEs are caused by malformed proteins called prions ("pree-ons"). Other TSEs include scrapie of domestic sheep and goats, bovine spongiform encephalopathy (BSE) of cattle (i.e., mad cow disease), and Creutzfeldt-Jacob disease (CJD) and variant CJD (transmitted by consuming beef from animals with BSE) of humans.

There is no cure or vaccine for CWD or any other TSE.

To date, CWD has not been detected in Washington but has been detected in white-tailed deer, mule deer, elk, and moose in nearby states and provinces.

CWD can cause population-level declines once it becomes widespread in a herd

*How Is CWD Spread?*

Infected cervids shed CWD prions in their saliva, urine, and feces; and their decomposing carcasses contaminate the environment.

CWD can be transmitted between cervids through both direct contact with infected animals, and indirectly through contact with contaminated materials in the environment like soil or vegetation and bodily fluids from infected animals.

CWD prions can persist in the environment for years and potentially decades, and there are no practical methods for removing them from the landscape once present.

*What Practices Increase the Risk of CWD Spread?*

Infected captive cervids have been the source of CWD introduction into several other states and provinces, and the movement of captive cervids is considered to be the biggest risk for introducing CWD into a new area.

CWD can be spread through transport of infected hunter-harvested carcasses and carcass parts to areas where CWD is not present.

Feeding and baiting creates CWD transmission hotspots where animals become infected through direct or indirect contact with infectious prions by congregating at artificially high densities and for long durations at these sites.

Urine-based scent lures for hunting pose a risk of spreading CWD if the urine was collected from an infected cervid farm. There are no reliable tests to determine if the product is free of CWD prions.

*How Do I Know if an Animal has CWD?*

Most cervids with CWD appear and behave normally until the later stages of the disease. Animals in the terminal phase of CWD may have excessive weight loss, appear uncoordinated and lethargic with heads down and ears drooping, salivate excessively, drink more water than usual, and isolate themselves from other animals.

Clinical signs associated with CWD can also be seen with other disease conditions, and alone are not conclusive evidence that an animal has CWD. Diagnosis requires testing of certain lymph nodes or the brainstem from dead animals.

Live animal tests are used in some research and captive settings, but due to the invasive nature of the procedure, less accuracy for detecting CWD prions, and the need to capture animals for testing, are impractical for large scale surveillance of free-ranging cervids.

*Does CWD Affect Humans? What About Other Animals?*

There is no conclusive evidence that CWD can be transmitted from cervids to humans. Nonetheless, the U.S. Centers for Disease Control and Prevention advise against eating the meat of *any* animal known to be infected with a TSE, and the Washington Department of Fish and Wildlife (WDFW) advises against shooting, handling, or eating the meat of any animal that appears sick or is acting abnormally.

While prions may be found in all tissues of infected animals, hunters can decrease their risk of exposure by not consuming tissues where CWD prions accumulate (e.g., brain, spinal cord, eyes, spleen, pancreas, lymph nodes), wearing disposable gloves while field dressing game, thoroughly washing hands and equipment after processing carcasses with soap and water, and disinfecting processing equipment by soaking in a 40% household bleach solution (mixed with water) for a minimum of 5 minutes then rinsing with water.

There are no confirmed cases of CWD transmission from cervids to pets, livestock, or other wild ungulate species such as bighorn sheep, mountain goats, and pronghorn.

*What is WDFW Doing about CWD?*

Washington took action to reduce the state's risk of CWD in 1993 by curtailing most cervid farming, including a ban on the importation of live deer, elk, and other cervids (Washington Administrative Code (WAC) 220-450-030 and 220-640-200).

In 2005 the Washington Fish and Wildlife Commission adopted permanent rules (WAC 220-413-030) restricting the importation and possession of certain deer, elk, and moose carcass parts into Washington from states and Canadian provinces where CWD has been found in wild cervid populations; and requiring hunters to notify WDFW within 24 hours of learning that a cervid they harvested in another state or province has tested positive for CWD.

WDFW conducted systematic surveillance for CWD from 2001-2011 when Federal funding was available for this activity. Systematic surveillance for CWD is essential to detect disease early in wild deer and elk populations and is critical to the success of disease management because once the disease becomes established and widespread in a population, it becomes increasingly difficult to control.

With the end of Federal funding, CWD testing in Washington has been limited to animals showing clinical signs consistent with the disease.

*What Can I Do to Help?*

Hunter cooperation is needed to keep Washington deer, elk, and moose populations healthy. Compliance with WAC 220-413-030, which regulates how hunters can bring meat and trophies back to Washington from other states and provinces, is critical for preventing the introduction of CWD into our state.

If hunters are notified by another state or provincial wildlife agency that their animal has tested positive for CWD, they are required to notify the Department within 24 hours for instructions on how to properly dispose of high-risk carcass parts and unwanted meat.

Cervids showing clinical signs consistent with CWD should be reported to WDFW online, or to the nearest WDFW Regional Office.

Remove existing feed and bait sites to minimize artificially concentrating cervids and potentially spreading disease.

Get your harvested or salvaged roadkill tested for CWD if testing is available in the area where you hunt or collect roadkill

## Key Initial-detection Response Messages

Washington's first case of Chronic Wasting Disease (CWD) was detected [insert date] when results were received from a sample collected from a (e.g., injured elk that was reported by hunters) in the [insert specific area].

CWD is a transmissible spongiform encephalopathy (TSE) that infects members of the Cervidae 'deer' family. TSEs are caused by malformed proteins called prions. Other TSEs include scrapie of domestic sheep and goats, bovine spongiform encephalopathy (BSE) of cattle (i.e., mad cow disease), and Creutzfeldt-Jacob disease (CJD) and variant CJD (transmitted by consuming BSE-infected beef) of humans.

CWD, which is always fatal and for which there is currently no cure, can spread to other wild cervids (deer, caribou, elk, and moose) and over time can reduce cervid populations if allowed to become widespread.

WDFW has been intermittently looking for evidence of the disease in Washington since 1995; CWD has been documented in wild or captive cervids by 34 other states and 4 provinces (first documented in Colorado in 1967).

Managing CWD has proven difficult due to various obstacles such as lack of a vaccine or treatment for infected animals, long incubation period and shedding of prions by asymptomatic individuals, and the persistence of CWD infectious materials in the environment for many years. While challenging, other wildlife agencies continue to take steps to prevent or minimize the spread of the disease, and WDFW is committed to doing the same.

To date there are no confirmed cases of CWD transmission from wildlife to domestic animals and from cervids to other wild ungulate species, such as bighorn sheep, mountain goats, and pronghorn.

Although CWD is not known to transfer from wild cervids to domestic livestock, the Department is also working to share disease information and updates with the Washington State Department of Agriculture, local livestock producer associations, and individual producers.

While there currently is no scientific evidence of CWD being transmitted from cervids to humans, the United States Centers for Disease Control and Prevention recommends against consuming meat from an animal that has tested positive for CWD.

Although CWD is not known to affect humans, hunters who harvest elk, deer, or moose in the affected area, or anyone who salvages a road-killed animal can take actions to minimize their risk of becoming infected. The Department advises hunters to:

Avoid harvesting any animal that appears sick or is behaving strangely, but report location and other relevant data about the sighting to WDFW as soon as possible (give contact info or information needs).

Wear disposable gloves while field dressing game.

Thoroughly wash hands and equipment after processing carcasses.

Knives, field dressing, and meat processing equipment should be cleaned first of any tissue and then disinfected by soaking in a 40% household bleach solution (mixed with water) for a minimum of 5 minutes, and rinse after soaking with water.

Avoid consuming parts where the CWD prion accumulates including brain, spinal cord, eyes, spleen, pancreas, tonsils, and lymph nodes.

Avoid cutting through bone, brain, and spinal cord.

*The following messages are talking points to address potential management actions:*

WDFW staff are collecting tissue samples from many deer and elk within the Initial Response Area (IRA), which is an area that includes game management units (GMUs) [insert affected GMUs], and from hunter-harvested elk, deer, and moose to help determine the prevalence and distribution of the disease.

If more diseased animals are found, the Department will evaluate and adjust as needed current surveillance and response areas.

If deemed necessary, the affected population will be reduced to limit the spread, possibly using special hunts, landowner kill permits, and Department-led reductions.

WDFW is collaborating with landowners, land management agencies, state and local governments, tribal partners and sportsperson and conservation groups in the affected area to respond to this disease and attempt to reduce its spread.

Residents/landowners within the IRA have been notified and asked to be alert to other symptomatic animals and report them to WDFW by emailing CWD@dfw.wa.gov.

WDFW has defined a Transport Restriction Zone (TRZ) to minimize the potential for geographic spread of CWD. The TRZ surrounds the IRA to provide reasonable access to meat processors and taxidermists, and to ensure appropriate sanitary disposal of carcass parts is possible.

Hunters who harvest deer, elk, or moose within an IRA will be required to dispose of any entrails, hides, bones, and trimmings not left at the kill site at a Department-approved landfill or via other Department-approved means within the defined TRZ to reduce the risk of transporting CWD to other areas. Hunters can transport de-boned meat, cleaned (no tissue such as muscle, brain, and antler velvet) skulls, antlers, antlers attached to skull plates, upper canine teeth (i.e., buglers, whistlers, and ivories), hides or capes without head attached, and finished taxidermy mounts.