

2026 National Elk Refuge CWD Response Strategy Update

Prepared By Amy Girard, Wildlife Biologist

Reviewed By Eric Cole, Senior Wildlife Biologist

Approved By Frank Durbian, Project Leader

Background

In collaboration with the USFWS Wildlife Health Office, the National Elk Refuge (NER) developed a Chronic Wasting Disease Response Plan in 2021 (USFWS, 2021). The plan was updated again internally in September 2025 in response to multiple positive detections during the winter and spring of 2025 on Wyoming Game and Fish Department (WGFD) managed feedgrounds in Northwest Wyoming. The following document serves as an update to the

2021/2025 response plan and includes a review of recent CWD prevalence trends in northwest Wyoming, CWD mitigation and monitoring strategies that have been implemented since the 2021/2025 plan was adopted, updates to current research on CWD in shed antlers and potential impacts to local water supply aquifers, and additional recommended actions.

Chronic wasting disease (CWD) is a prion disease of the nervous system that affects cervids, including deer, elk, caribou and moose. Chronic wasting disease is always fatal, though time till death can vary. Chronic wasting disease is contagious, with infectious prions passing between animals and from contaminated environments (including plants and soil) that accumulate prions overtime. There is no treatment or cure, and the health status of the animal does not influence the transmission outcome. Chronic wasting disease prions are very stable in the environment and remain infectious for many years. Since it's detection in 1967, CWD has spread and been detected in 36 states, four Canadian provinces, and four additional countries (Finland, Norway, South Korea, and Sweden). Additional background information can be found in the National Elk Refuge Response Strategy for the Presence of Chronic Wasting Disease in the Jackson Elk Herd (USFWS, 2021).

Recent CWD Prevalence Trends in Northwest Wyoming

In free-ranging cervids, estimated prevalence in core endemic areas has varied from year to year. The prevalence of CWD in adult male mule deer harvested in Wyoming Game and Fish Department (WGFD) hunt area 65 was 12% in 2020, 0 in 2024, and 22% (n = 208) overall during the 2020-2024 study period (WGFD, 2024). Chronic wasting disease prevalence in white-tailed deer within the same hunt area was 10% for the 2020-2024 period (WGFD, 2024). In the Laramie Peak Elk Herd Unit, the CWD prevalence in elk was 8.4% in 2020, 2.9% in 2024, and the 2020-2024 average was 4.3% (WGFD, 2024).

The first CWD detection in the Jackson region was a roadkill mule deer in 2018. The first positive elk was harvested from Grand Teton National Park as part of the elk reduction program in 2020. The number of positive animals has been slow to increase though at least six additional mule deer have tested positive since then. In 2025 a CWD outbreak on the WGDF managed Dell Creek Feedground was identified from 6 positive elk carcasses. This outbreak spilled over to the Black Butte Feedground where an additional elk carcass marked with Dell Creek Feedground ear tags tested positive. Altogether four State-operated feedgrounds tested positive for CWD in 2025, including one elk at Horse Creek and one elk on Scab Creek Feedground. This is significant because elk from the Dell Creek Feedground occasionally cross into the Jackson Elk Herd Unit and are observed on the NER. In the spring of 2025, an elk previously ear tagged on the Dell Creek Feedground was observed on National Elk Refuge feedgrounds. Due to concern with the CWD outbreak on the Dell Creek Feedground, and through cooperation with WGFD, this elk was humanely killed. The WGFD laboratory did not detect CWD prions in the submitted sample.

In spring of 2026, two elk tested positive for CWD on the National Elk Refuge. The first positive

was a 3–5-year-old cow elk that appeared emaciated. This cow had been observed by refuge biologists to be socially isolated and ataxic (lack of voluntary coordination in muscle movements). Based on the exhibition of several CWD signs it was humanely killed on April 15th. The second CWD positive elk was found dead on April 20th with signs of predation. The second cow was also 3-5 years old and in poor condition based on the presence of gelatinous bone marrow.

Notification of the positive CWD testing result was received from WGFD on May 6 for the humanely killed elk sampled April 15. A joint news release with WGFD announcing the positive result received May 5 was issued on May 11 after executive leadership review by USFWS and WGFD. Notification of a positive testing result was received from WGFD on May 15 for the elk sampled April 20.

The testing results for the final mortality sample of spring 2026 was received on June 10th, with a testing result of negative for CWD. Once all testing results were confirmed, an additional press release was issued updating the receipt of the second positive detection on May 15, the publishing of the updated CWD response plan, and creation of CWD tracking information that will be updated monthly on the National Elk Refuge website.

The following samples were taken on the National Elk Refuge during the 2025-2026 season: 50 negative hunter-harvested elk samples; two negative hunter-harvested deer samples; and 15 negative samples and 1 CWD positive sample from elk that were found dead and in sufficient condition for samples to be taken. Only one elk was humanely killed during the 2025-2026 winter season, which tested positive for CWD.

More details regarding predicted effects of CWD on the supplementally fed Jackson Elk Herd can be found in Cross et al. (2025). This report was developed as part of the ongoing effort to update the expired 2007 Bison and Elk Management Plan for National Elk Refuge and Grand Teton National Park (USFWS, 2007).

CWD Signs Warranting Removal and Sampling

Once infected, it takes about 16 months for the animal to appear ill, although the animal likely sheds infectious CWD prions in feces, saliva and urine for most of the disease course. Death often occurs within two years after infection.

Animals appear healthy until the later stages of the disease and clinical signs alone are not diagnostic of CWD. Animals exhibiting these signs may be humanely removed under protocols listed in Appendix A. Clinical signs may include:

- Weight loss
- Decreased social interaction, loss of awareness

- Tooth grinding
- Altered posture (head and ears lowered, wide-based stance)
- Head tremors
- Incoordination
- Increased drinking
- Excessive salivation
- Increased urination
- Aspiration pneumonia

Differential Diagnosis

The clinical signs listed above may occur in association with other diseases such as epizootic hemorrhagic disease, bluetongue, brain abscesses and toxicity, and may therefore be indistinguishable from CWD without laboratory diagnostics.

Laboratory Diagnosis

Diagnosis of CWD requires laboratory testing for the detection of PrP^{CWD}. Although live animal sampling techniques have been developed using recto anal mucosa-associated lymphoid tissue (RAMALT) and tonsillar biopsy, these specialized techniques are difficult to perform and have a much lower rate of success in detecting CWD. Immunohistochemistry is the gold standard for testing the medial retropharyngeal lymph nodes (RLN) or the brain stem (obex) post-mortem. Our current protocol, in collaboration with WGFD, is collecting the RLN as the primary sample. All samples collected by the NER are transferred to the WGFD Disease Biologist at the Jackson Office, who forwards all samples from the Jackson Herd Segment to the state laboratory. More information on diagnostic testing can be found in the original response plan (National Elk Refuge, 2021).

Prevention

Because CWD is difficult to manage in free-ranging populations, disease prevention is critical. General preventive measures include:

- Basic epidemiological principle- prevent transmission of PrP^{CWD} from infected to susceptible animals.
- Prevent infected animals from coming in contact with susceptible animals.
- Prevent infected animals from contaminating CWD-free areas.
- Prevent contact between susceptible animals and CWD-contaminated areas.

In practice this means implementing the following response strategies.

Response Strategy Implementation

The 2021 plan outlined strategies to implement once CWD was detected within the Jackson elk herd unit. The purpose of the response strategies is to track CWD prevalence, create pathways to suppress CWD on the Refuge, reduce the transmission risk to nonendemic areas outside the

Refuge, and to create protocols for human safety. The 2021 plan also recommended ways to increase public outreach and communication with partners and other stakeholders. Potential research opportunities to inform our understanding of CWD on the Refuge were also included.

The 2021 plan called for review of the practice of collecting and selling antlers from the Refuge. Current science suggests that hard antlers pose a low risk of transmission due to the ossification and bone growth processes. In CWD positive animals, the innervated velvet that covers growing antlers can contain prions (Angers et al. 2009). Antlers that are found on the Refuge that have retained velvet will be incinerated rather than sold at auction. Additionally, only skulls from elk that test negative for CWD will be collected for auction.

Researchers have found detectable prion loads in surface water near areas where CWD is endemic (Nicolis et al., 2009). Researchers were likely able to measure prions due to high water events washing landscape contamination into surrounding surface waters. The risk of spreading CWD prions into surface and groundwaters surrounding the Refuge is unknown. It has been well demonstrated that prions effectively bind to a variety of soil types. What effect the adsorption properties of soil types on the Refuge might have on prion mobility is uncertain. However, studies have found limited downward movement of prions through soil columns (Somerville et al., 2018). The risk of prion transmission to the alluvial aquifer that serves as the potable water for most of Teton County is unknown but warrants further investigation (Teton County, 2024).

Current Actions

Chronic wasting disease was first detected in the Jackson Elk Herd Unit in December of 2020. Since then, the following response strategies have been implemented based on recommendations from the previous plan.

1. Reporting

- The National Elk Refuge provides CWD testing results to the National Park Service – Grand Teton National Park and other stakeholders upon request.

2. Hunting regulations

- Chronic wasting disease testing is mandatory for all elk and white-tailed deer harvested on the NER. Heads are deposited in bear-proof barrels staged at hunter access sites. Hunters are provided with head tags to record hunter information and mortality locations.
- Working with WGFD to maintain hunting pressure to keep elk from aggregating on the Refuge as late in the season as possible.
- Increased communication with hunting guides to ensure compliance with CWD sampling for guided hunts and retrieval services.
- Created signs at hunter parking areas to educate hunters on CWD and requirements including carcass transportation regulations.

3. Biosecurity

- Non-porous CWD sampling equipment is cleaned with an enzyme detergent then soaked in a concentrated bleach solution to inactivate prions.
- Dedicated CWD sampling/winter mortality documentation equipment or disposable equipment is used to reduce contamination.
- Elk exhibiting CWD signs are humanely killed and tested when appropriate. (See Appendix A)
- Wildlife identified as a potential CWD disease risk are immediately loaded into the crematory upon death to lower transmission risk and reduce environmental contamination.
- Wildlife mortalities not identified as a CWD risk are left on the landscape for scavengers. Once the carcass is mostly scavenged, remaining portions are loaded into the crematory.
- No cervid carcasses from outside of the NER will be accepted for cremation on the Refuge to lower transmission risk and reduce environmental contamination.
- All personnel involved with field operations have a second pair of boots used solely for field work or feeding to reduce potential prion spread.
- If CWD is detected on an active refuge feedground, feeding will be adjusted to avoid laying feed lines on top of the mortality location. Feeders will be informed of areas to avoid through shareable electronic maps.
- Equipment belonging to the National Elk Refuge is not shared to reduce the risk of disease transmission outside of the Refuge.

4. Biosafety

- Job Hazard Analyses are reviewed by NER biological staff and approved by the Project Leader.
- Appropriate PPE is used when handling potentially infectious material.
- Vehicles that contact carcasses or other potentially contaminated materials are cleaned before leaving Teton County.

5. Heightened CWD surveillance

- Elk are observed for a minimum of 60 minutes daily during feeding operations.
- Elk are observed weekly during ungulate counts for individuals with clinical signs of CWD.
- Surveillance for off-feed ground elk mortalities and individuals with clinical signs of CWD on the Refuge occurs when conditions and time allows.

6. CWD testing

- All cervids with retropharyngeal lymph nodes or the obex intact are tested for CWD.
- Mortalities are examined for signs of wolf predation to increase our understanding of the role of predation in CWD management on the Refuge.

7. Information management and data sharing

- A NER GIS-based dashboard was created to provide information on wildlife mortalities and CWD results in real-time.
- A summary of ungulate mortality and CWD prevalence trends will be updated on a monthly basis and available on the National Elk website.

8. Disposal

- A crematory to dispose of animals that meets the requirements to inactivate prions through high intensity heat is stationed and used on the refuge.
- Air quality regulations for the crematory are followed per Wyoming Department of Environmental Quality requirements.
- A dedicated skid steer for loading was purchased and is housed at the crematory to reduce disease transmission risk on the NER.
- Created a backup plan in the event the crematory is inoperable. Dead animals will be taken to the Teton County Transfer Station. Animals will be transported in a container that prevents contamination and can be disinfected.

9. Research

- Partnering with USGS and WGFD to establish baseline data for environmental prion contamination and the relationship between elk aggregation and density patterns and CWD prevalence.

Additional Actions Needed

Additional strategies have been identified from the previous plan or from recent research that could be implemented in the future to improve CWD management on the NER. Several of these are being evaluated and/or are ongoing.

- Work with WGFD and federal partners to find additional ways to increase CWD sample sizes for short distance migrants on the Refuge (ongoing).
- Find efficient methods to facilitate removing winter mortalities from areas with difficult topography within the boundaries of human safety (ongoing).
- Designate Refuge vehicles that are driven minimally through areas with higher CWD transmission risk for travel outside of the county (ongoing).
- Incorporate antemortem CWD sampling methods during elk capture and handling events as the sensitivity of assay methods (e.g. RT-QuIC) increases.
- Continue to monitor research and evaluate visitor access and antler collection for human health and safety risks, e.g., potential risk of CWD positive antlers entering food or medicinal chains (Gillin et. al. 2018). At this time published research does not indicate a need for significant changes to current elk antler collection processes.
- Reduce our reliance on supplemental feeding to decrease artificial congregations of animals (ongoing).
- Reducing the number of elk wintering on the Refuge via increased harvest of short-distance migratory elk (ongoing).

Appendix A. Field Euthanasia of Ungulates

According to the American Veterinary Medical Association Euthanasia Guidelines (2020), gunshot is an acceptable method of euthanasia in free-ranging wildlife when the brain is destroyed. Non-inhaled agents, specifically barbiturates and barbituric acid derivatives (such as pentobarbital) are also acceptable. Current federal drug regulations require strict accounting for barbiturates, and these must be used under the supervision of personnel registered with the US Drug Enforcement Agency (DEA).

Given that these drugs are not always available for use by biologists without the presence of a veterinarian, and that chemical euthanasia may create secondary toxicity in scavengers and humans, the methods of euthanasia listed in this fact sheet are alternatives to euthanasia by lethal injection and are all considered acceptable with conditions. This categorization means that: certain conditions must be met to consistently produce humane death; the euthanasia methods may have greater potential for operator error or human safety hazard, are not well documented in the scientific literature or may require a secondary method to ensure death. Acceptable practices for physical methods of euthanasia also suggests that sedation or anesthesia is used in conjunction with these methods as a best practice.

Irrespective of the approach chosen, all methods of euthanasia should be performed in a low stress, quiet environment and only by properly trained personnel. Contact the Wildlife Health office for more detailed information and training opportunities on humane euthanasia techniques for free-ranging wildlife.

Which method of euthanasia is right for your situation?

The chart on the next page lists the euthanasia techniques that are acceptable with conditions and can be applied by a biologist in the field. The method you choose will depend on several factors:

- The ability of personnel to induce loss of consciousness and death using a given technique without causing pain or distress.
- Reliability and safety of the technique.
- Training and logistics required for use of the technique in the field or facility.
- The health status of the animal and how easily it can be captured.
- Compatibility with the purpose for euthanasia (such as needing to preserve brain and lymph node tissue for diagnosis of CWD).

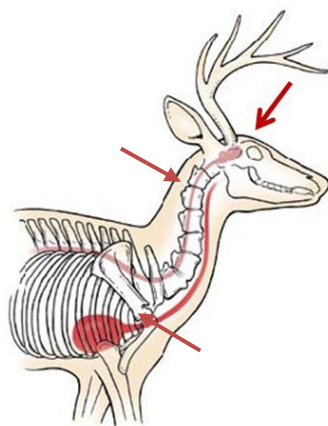
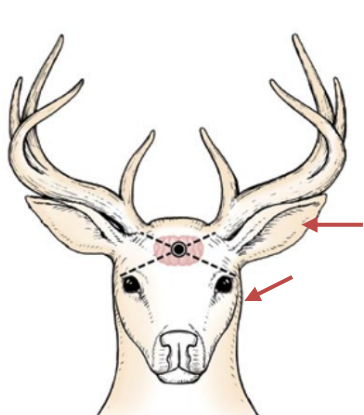
Unacceptable methods of euthanasia for all species: freezing, drowning, use of car exhaust or other unapproved gases, injection of chemicals other than anesthetics or euthanasia solution(s).

Please do not hesitate to contact us with questions:

- Sam Gibbs: 571-216-5776, Samantha_Gibbs@fws.gov

Categorized as acceptable with conditions for ungulates

	Gunshot or Captive bolt
Mode of action	Head shot - physical damage to brain, direct concussion of brain tissue. Cervical spinal cord – respiration and cardiac function cease. Heart shot – blood loss. **A neck shot may be preferable to a head shot in order to preserve the lymph nodes and brainstem for CWD testing**
Training required	Yes
Animal welfare considerations	If the animal is injured but not killed, it should be dispatched by a second shot or exsanguination
Restraint necessary	No – may be applied to free-roaming animals; may also be performed at point-blank with animal inside cage trap
Rapidity	Immediate, muscle activity may continue
Safety for personnel	Injury to personnel, the public, and other animals
Biosafety/ biosecurity concerns	Exposure to brain tissue and blood
Carcass consumption by scavengers	Depends on type of shot used; animals euthanized with lead shot should be made unavailable to scavengers
Impacts on sample collection	Cannot use brain for diagnostics if a head shot is used
Portable into the field	Yes
Equipment needed	Firearm, ammunition; captive bolt, charge
Cost	\$800 – 2,000



Under field conditions, gunshot can be targeted at the brain from in front of the animal (at close range) or the side; at the vertebral column (neck shot is acceptable if it severs the vertebral column and spinal cord); or the heart. A second shot may be required to ensure quick death.

Firearms and shot placement:

- Using firearms greater than .22 caliber is essential to penetrate the skull of adult animals, solid-point bullets are preferable
- Rifles are more appropriate for euthanasia of ungulates than shotguns, as some types of slugs have high expansion with poor penetration
- Have two firearms on-site and ready with appropriate ammunition for euthanasia operations to ensure a second shot can be placed quickly when necessary
- If no diagnostic tests are planned, and no specimen preservation is needed for health or forensics, a shot to the brain is the preferred method
- If a necropsy is planned, or CWD testing is desired, a neck shot should be implemented
- If a neck shot is not suitable in a field setting, gunshot to the chest can be used. Heart shots are considered humane killing because they do not result in a rapid enough death to be considered euthanasia.
- Death of shot animals should always be confirmed by observing the following:
 - Absence of rhythmic, respiratory movements
 - Absence of heartbeat
 - Absence of eye protection reflex (corneal reflex) or 'blink' when surface of eye is touched
 - A fixed, glazed expression in the eyes
 - Loss of color in mucous membranes (become mottled and pale without refill after pressure is applied)

References

- Angers, R. C., Seward, T. S., Napier, D., Green, M., Hoover, E., Spraker, T., O'Rourke, K., Balachandran, A., and Telling, G. C., 2009, Chronic Wasting Disease Prions in Elk Antler Velvet. *Emerging Infectious Diseases*. May;15(5):696-703
- AVMA euthanasia guidelines 2013:
<https://www.avma.org/KB/Policies/Documents/euthanasia.pdf>
- Cross, P.C., Cook, J.D., and Cole, E.K., 2025, Predictions of elk and chronic wasting disease dynamics at the National Elk Refuge in Jackson, Wyoming, and surrounding areas, chap. B of Cook, J.D., and Cross, P.C., eds., *Decision analysis in support of the National Elk Refuge bison and elk management plan: U.S. Geological Survey Scientific Investigations Report 2025–5076*, 22 p., <https://doi.org/10.3133/sir20255076B>. [Supersedes USGS Scientific Investigations Report 2024–5119.]
- Gillin, Colin M., and Mawdsley, Jonathan R. (eds.). 2018. *AFWA Technical Report on Best Management Practices for Surveillance, Management and Control of Chronic Wasting Disease*. Association of Fish and Wildlife Agencies, Washington, D. C. 111 pp.

- Nichols T.A., Pulford B., Wyckoff A.C., Meyerett C., Michel B., Gertig K., Hoover E.A., Jewell J.E., Telling G.C., Zabel M.D. 2009. Detection of protease-resistant cervid prion protein in water from a CWD-endemic area. *Prion*. Jul-Sep;3(3):171-83.
- Somerville, R. A., Fernie, K., Smith, A., Bishop, K., Maddison, B. C., Gough, K. C., and Hunter, N. 2019. BSE Infectivity Survives Burial for Five Years with only Limited Spread. *Archives of Virology*. 164, 1135–1145
- Teton County. 2024. Water Quality Management Plan. Teton County Planning and Building Services.
- U. S. Fish and Wildlife Service. 2007. Bison and Elk Management Plan for the National Elk Refuge and Grand Teton National Park. U.S. Fish and Wildlife Service, Jackson, Wyoming. 46 pp.
- U.S. Fish and Wildlife Service. 2021. National Elk Refuge Response Strategy for the Presence of Chronic Wasting Disease in the Jackson Elk Herd. U.S. Fish and Wildlife Service, Jackson, Wyoming. 14 pp.
- Wyoming Game and Fish Department. 2024. Big Game Job Completion Report: Casper Region report. Wyoming Game and Fish Department, Cheyenne, Wyoming.