

Chronic Wasting Disease



South Dakota GAME, FISH and PARKS

2019 CWD Open Houses
Chad Switzer, Wildlife Program Administrator



Presentation Outline

- Disease overview
- Disease distribution
- Workgroups
- Draft action plan
- Preventive measures
- Surveillance
- Timeline moving forward
- Website
- Summary



Disease Overview

- Chronic wasting disease (CWD) is a fatal brain disease of cervids that is caused by an abnormal protein called a prion
 - Mule deer, white-tailed deer, elk, moose, reindeer
- Transmissible Spongiform Encephalopathy (TSE)
 - A rare progressive neurodegenerative disorder that affects both humans and animals
 - Transmissible: able to be passed from one individual to another
 - Spongiform: a porous structure that resembles a sponge
 - Encephalopathy: a disease of the brain that alters its function or structure
- Chronic wasting disease is always fatal



Disease Overview

- No cases of human prion disease have been associated with Chronic Wasting Disease
- Other species have been infected by CWD (e.g., mice, non-human primates), but only under laboratory conditions
- The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) makes recommendations on the side of caution
 - The risk appears low, but is not zero



Disease Transmission

- Contagious amongst cervids and uptake is believed to be mostly oral.
- Direct Transmission
 - Animal to animal
 - Body fluids – saliva, urine, feces
 - Carcasses – infectious tissues
- Indirect Transmission
 - Animal to environment to animal
 - Contaminated environment - carcasses, saliva, urine, feces
 - Environmental reservoirs – mineral licks, feeding/baiting,...



Disease Transmission

- Prions are virtually indestructible. They are resistant to many common disinfectants, heat, sunlight, and freezing, as well as other processes that typically kill pathogens.
- Prions can persist in the environment for potentially decades and remain infectious to susceptible animals.
- CWD prions can bind to a type of clay found in soil.
- Certain plants uptake small levels of the prion from contaminated substrate, indicating the potential for susceptible animals to ingest the pathogen.



Disease Symptoms

- Long incubation period (months to years).
- The disease cannot be diagnosed by observation of physical symptoms because many big game diseases affect animals in similar ways.
- Animals infected with CWD show progressive symptoms such as loss of weight and body condition, behavioral changes, excessive salivation, loss of muscle control and eventual death.

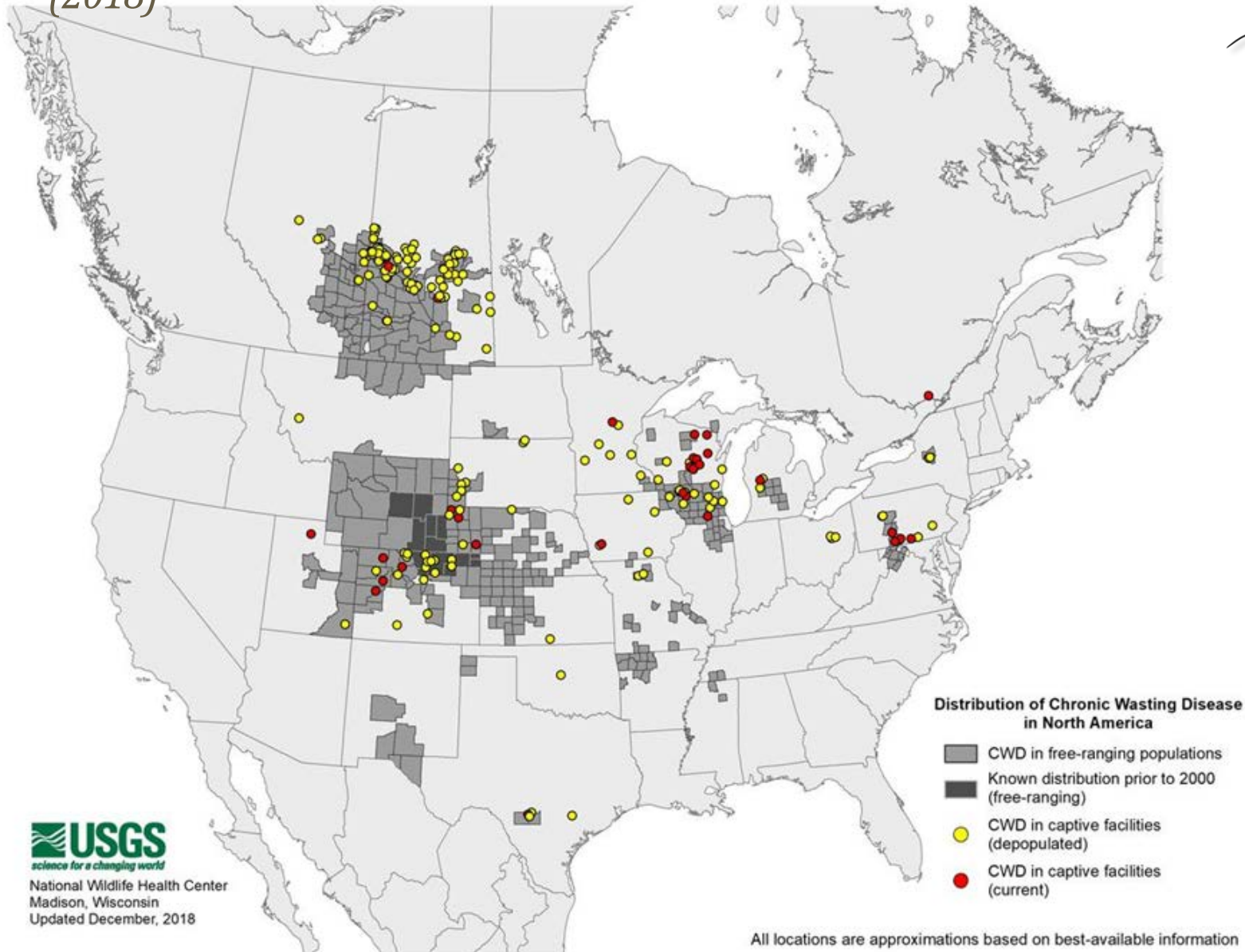


Disease Impacts

- Recent research has documented mortality and herd growth implications due to CWD.
 - Colorado, Mule deer, 25% prevalence rates (Miller et al. 2008)
 - Higher mortality rates; Population growth < 1.0; unhunted
 - Colorado, Elk. 13% prevalence rates (Monello et al. 2014)
 - Higher mortality rates; Population growth < 1.0
 - Wyoming, White-tailed deer (Edmunds et al. 2016)
 - High prevalence rates, Males 29%, Females 42%
 - Mortality rates 4.5 times higher; Population growth 0.9
 - Wyoming, Mule deer (Devivo 2015)
 - Prevalence rates 50% males, 30% females
 - Mortality rates 2.8 times higher; Population growth 0.74

Known Distribution of CWD

(2018)



National Wildlife Health Center
Madison, Wisconsin
Updated December, 2018

All locations are approximations based on best-available information

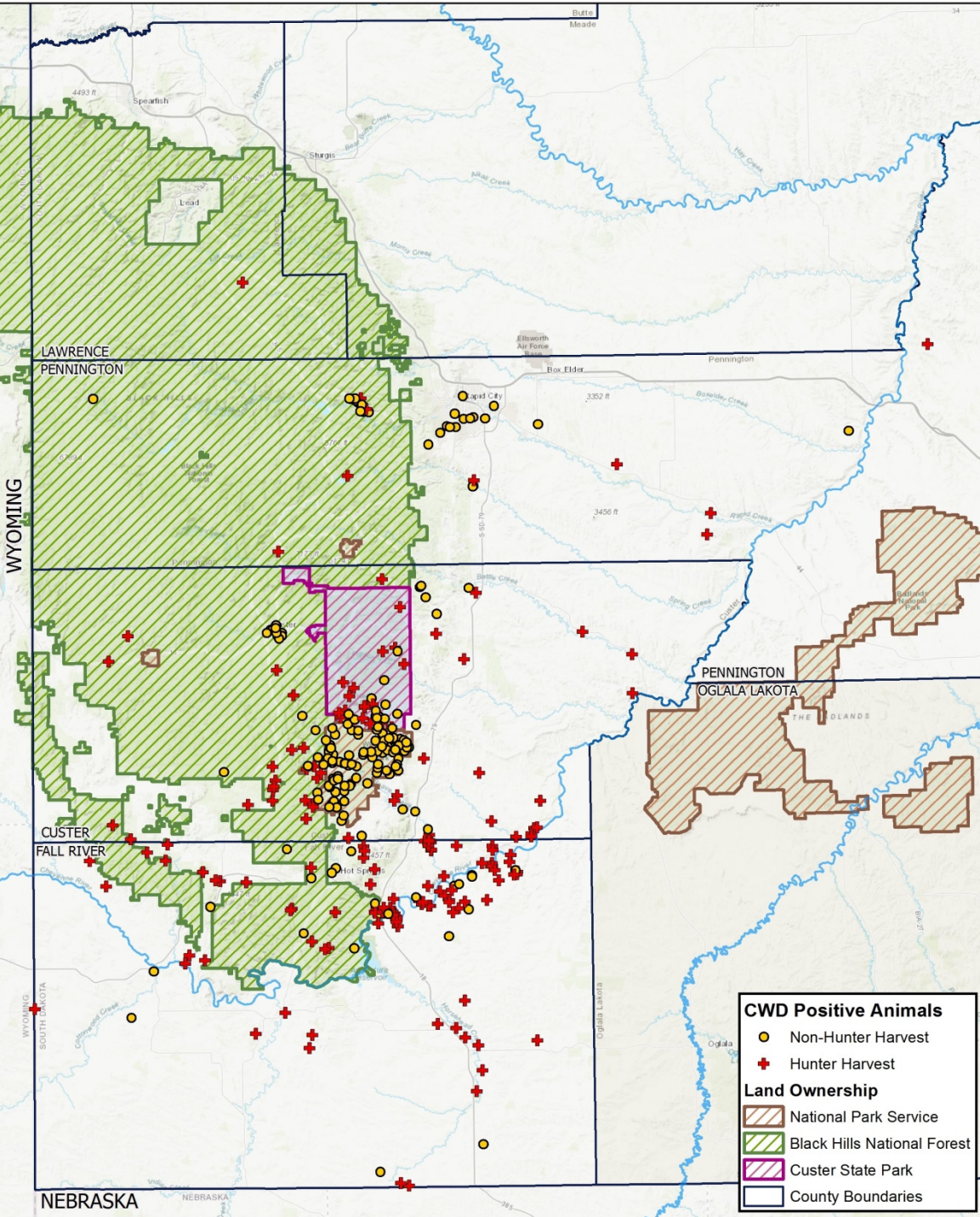
South Dakota CWD Timeline





CWD Positives

- Free-ranging deer and elk





Department Priority

- The following was identified through the gap analysis and budgeting review process that took place during the Department strategic planning review process:
 - *“Enhance the department’s efforts to manage Chronic Wasting Disease (CWD) in deer and elk across the state and launch a strategic communications plan to educate and inform public about the safety, risks and any new regulations.”*
- Why now a priority?
 - New research findings and the suggested negative impact to deer and elk population growth rates.
 - Updated and concerning prevalence rates from elk within Wind Cave National Park (WICA) and Custer State Park (CSP).
 - The importance of deer and elk to hunters and their critical role with contributions to wildlife management.

Workgroups



- An internal CWD workgroup was assembled and has been meeting on a regular basis since June of 2018. Includes a diverse representation of around 18 staff and Commissioner Jon Locken.
- A CWD Stakeholder Group was assembled and includes around 25 members that represent the following: hunters, private landowners, commercial game processors, taxidermists, captive cervid owners, Sportsmen Against Hunger, conservation organizations, public land managers and other state and tribal agencies.

Draft CWD Action Plan (cont.)



- Outline of draft CWD Action Plan
 - Purpose
 - Introduction
 - Public Involvement
 - Preventative Measures
 - Surveillance
 - Management Response of Detection
 - Management and Research Coordination
 - Communication and Outreach
 - Budget and Staff Needs

Draft CWD Action Plan



- Goal Statement
 - To determine presence/absence of CWD, reduce the spread of CWD, and have an informed public that understand, support and participate with CWD management practices to ensure viable deer and elk populations for future generations.
- Information sharing and outreach to the public will serve as the foundation for successful implementation of this action plan.
- Providing the public with examples of best management practices (BMPs) is critical and an immediate management action.
- Where the promotion of BMPs is likely not enough to address identified concerns, new or modified regulations are presented that should be considered by the GFP Commission or dictate changes to GFP protocols.
- Monitoring and managing CWD will be a long-term project for GFP, hunters, and other stakeholders.

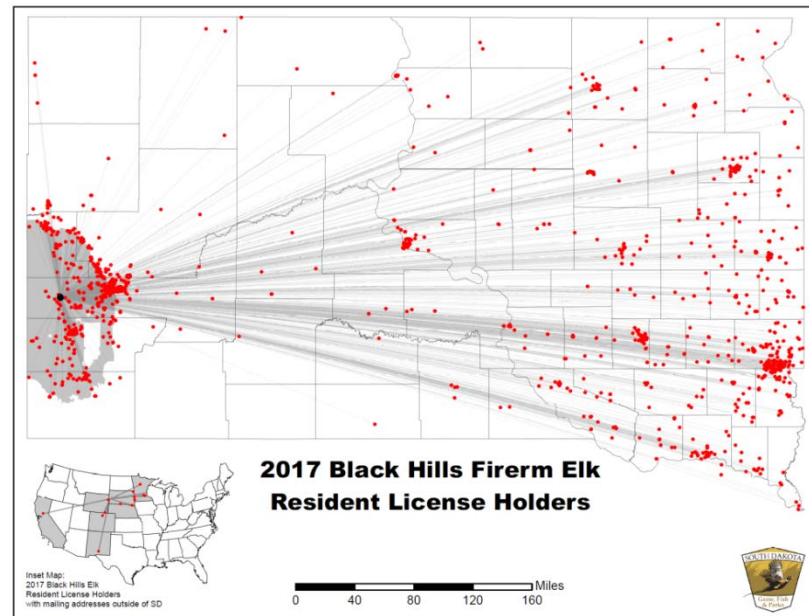
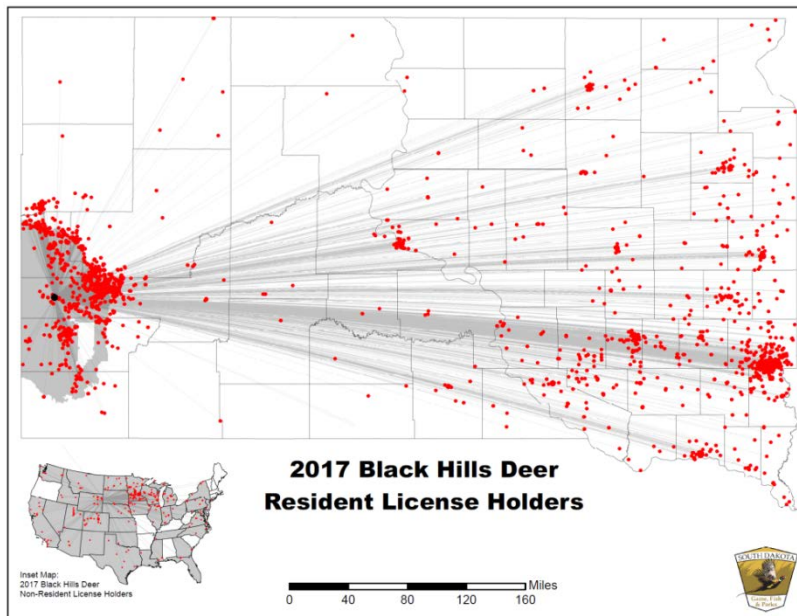


Preventive Measures

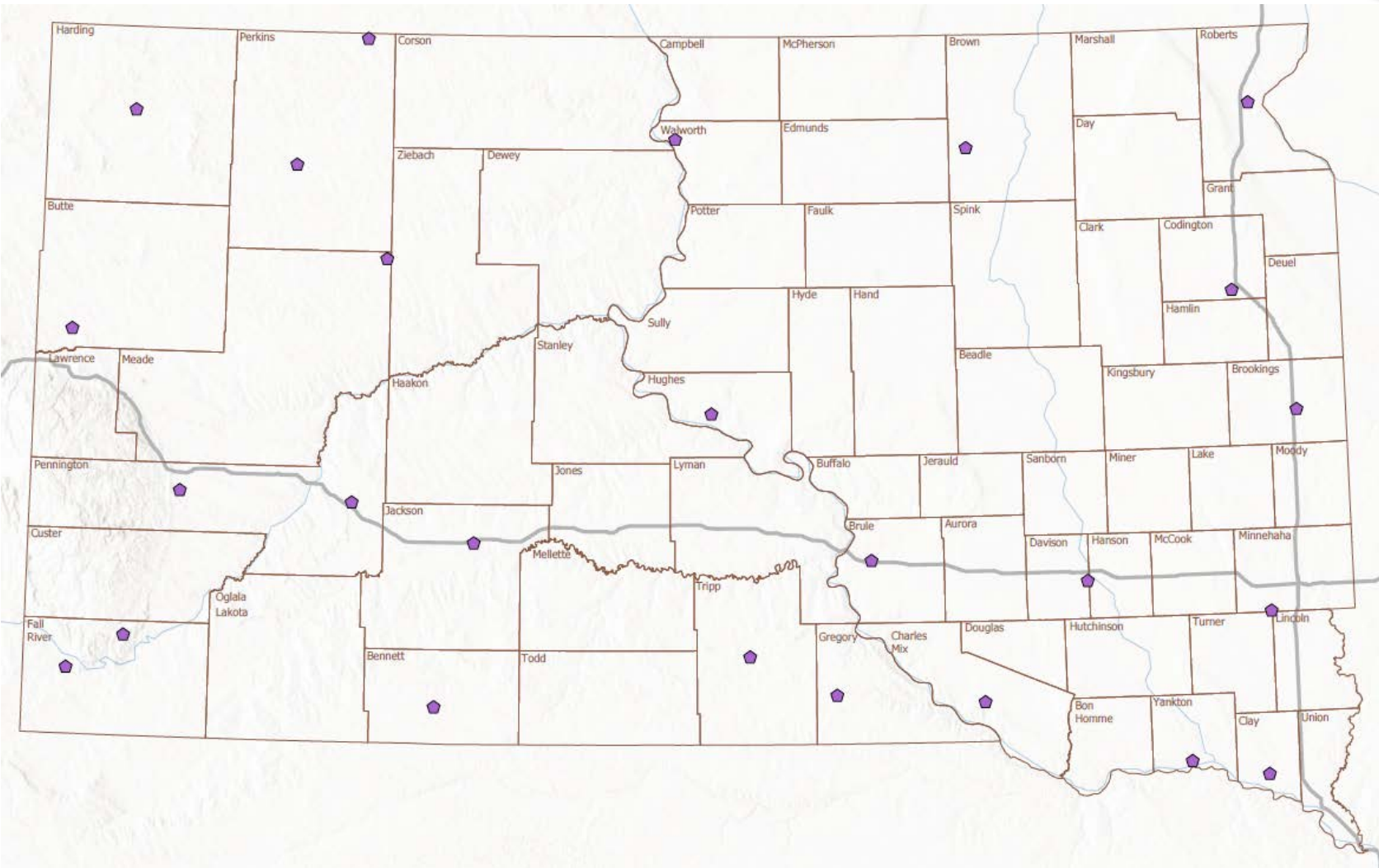
- This is a key section of the action plan that includes the following topics:
 - Best Management Practices
 - Carcass Transportation and Disposal
 - Feeding
 - Urine-based Scents and Lures
 - Translocation of Cervids
 - Game Processing
 - Taxidermy
 - Urban Areas
 - Donation of Venison

Preventive Measures

- Thousands of deer and elk carcasses are transported out of our known CWD endemic areas, both within and outside of South Dakota.
- Reducing the spread of CWD from anthropogenic movement of carcasses is a priority. This gets very complex as it not only includes hunters, but also taxidermists, game processors, landfills and waste management providers.
- Proper carcass transportation/disposal can help reduce the spread of CWD; will require that most hunters and others do certain things a different way.

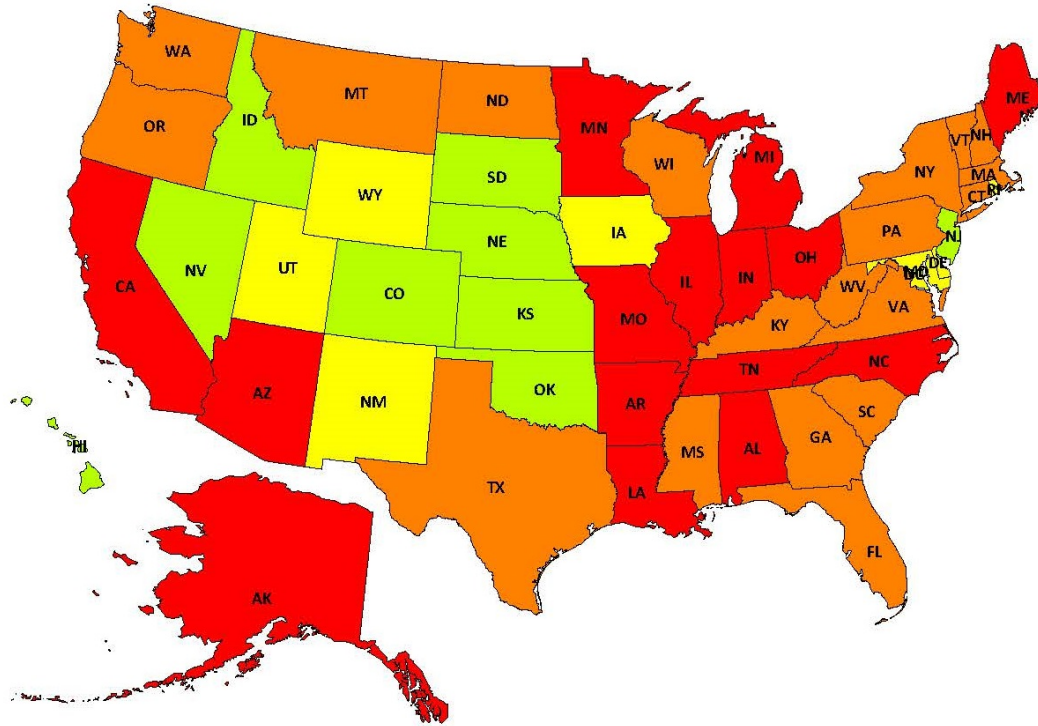


Permitted Landfills for Carcasses





Rules Governing Interstate Transport of High-risk Cervid Carcass Parts^{1,2}



Red No high-risk parts, regardless of CWD status of exporting jurisdiction (15)

Orange Import rules apply to entire CWD-positive jurisdiction, regardless of number or distribution of cases (19)

Yellow Import rules apply to positive units only, not entire jurisdiction (7)

Light Green No rules restricting importation of high-risk cervid parts (9)

¹High risk carcass parts may include one or more of the following: head (brain, tonsils, eyes, lymph nodes), spinal cord, spleen, skull plate with attached antlers if visible brain or spinal cord is present, cape if visible brain or spinal cord is present, upper canine teeth if root structure or other soft material is present, any object or article containing visible brain or spinal cord material or brain-tanned hide.

²Consult state's website for complete rule details. Intended as a summary of **general** rules only.

State/Province Rules & Regulations



- Continue to review the following information:
 - Agency jurisdiction over captive cervids
 - Standard state regulations
 - CWD regulations for captive cervids and wildlife
 - Status of new CWD regulations
 - CWD testing program for captive cervids and wildlife
 - Feeding and baiting regulations
 - Regulations on movement of animal parts
 - Locations of confirmed CWD positive captive cervids and free-ranging wildlife

CWD Surveillance



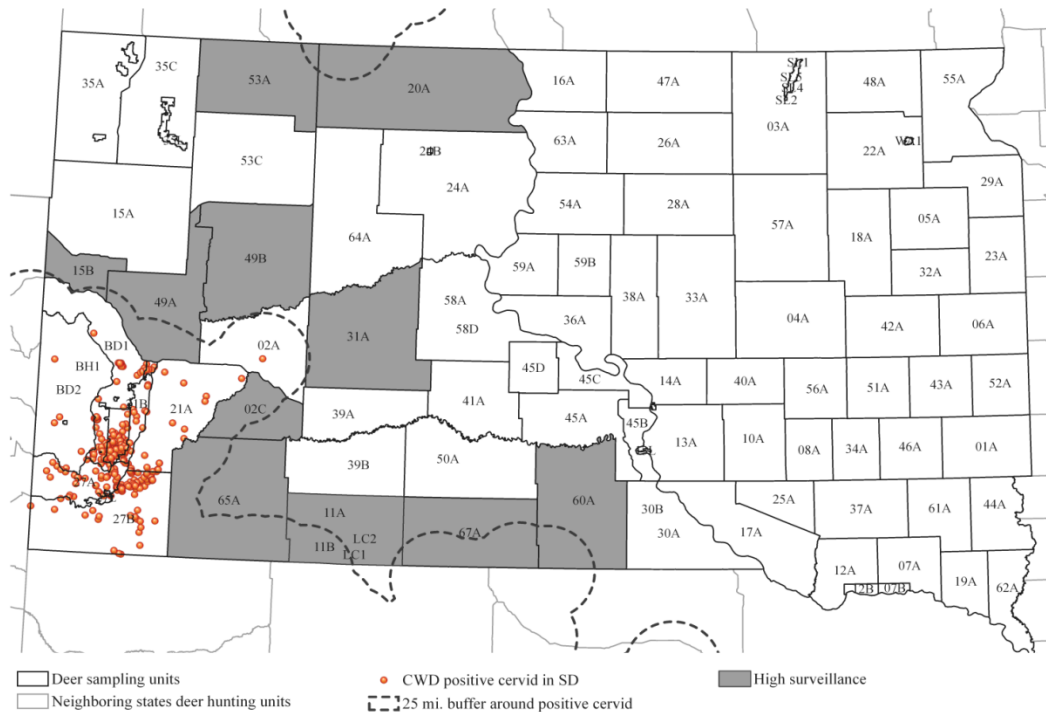
- The goal of surveillance strategies in South Dakota is to determine the likely spread of CWD to new units where the disease has not been detected in wild, free-ranging cervids.
- Without pre-determined research design and management objectives, prevalence rates will not be quantified. If research objectives require prevalence rates or a management strategy will be implemented based on prevalence rate thresholds (i.e., implement management strategy X if prevalence exceeds Y%), prevalence will be estimated by collecting a representative sample with desired levels of precision.
- In the event CWD is detected in a captive cervid facility, GFP will coordinate with AIB to determine surveillance strategies, which should focus sampling efforts near the contaminated facility.

CWD Surveillance



CWD disease status unit classification and recommended surveillance strategies.

Unit Class	Surveillance Strategy	Comments
Known Positives		
Wild	Baseline surveillance	Areas with ≥ 1 wild positive cervid (CWD endemic areas)
Captive	Sample near source	Determine surveillance after coordination with AIB
No Positives		
Tier 1 units	High surveillance	Units ≤ 25 miles of wild positive cervid
Tier 2 units	Low surveillance	Other priority units determined to be at elevated risk
Tier 3 units	Baseline surveillance	Rest of state—Opportunistic sampling





Strategies for Sampling Goals

No minimum sample size goals will be required for units with baseline surveillance strategies, but sampling will continue with voluntary sample submission and testing of all cervid carcasses that displayed behavior or symptoms consistent with an unknown sickness before death (e.g., emaciated, drooling, disoriented).

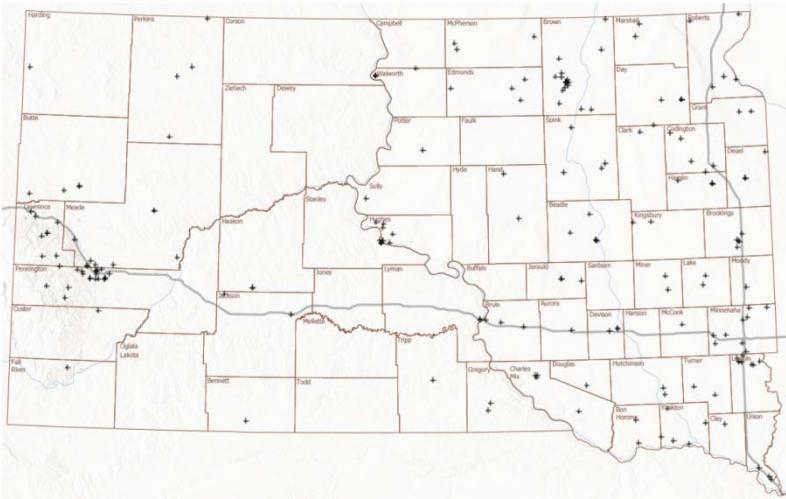
For units with established sampling goals, GFP staff will attempt to collect representative sample sizes by sequentially implementing the following strategies:

1. Contract sample collection from deer-vehicle-collisions.
2. Contract sample collection from taxidermists.
3. Contract sample collection from game processors.
4. Facilitate volunteer sampling.
5. Mandatory road checks.

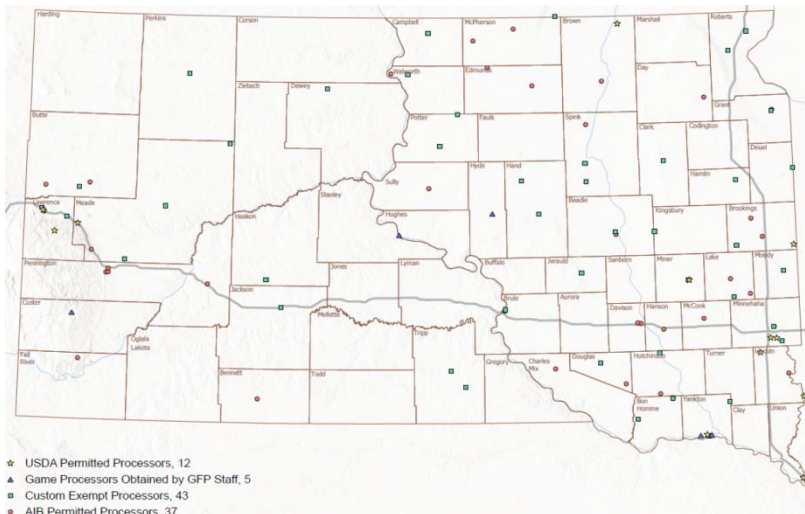
Collection of CWD Samples



Taxidermists

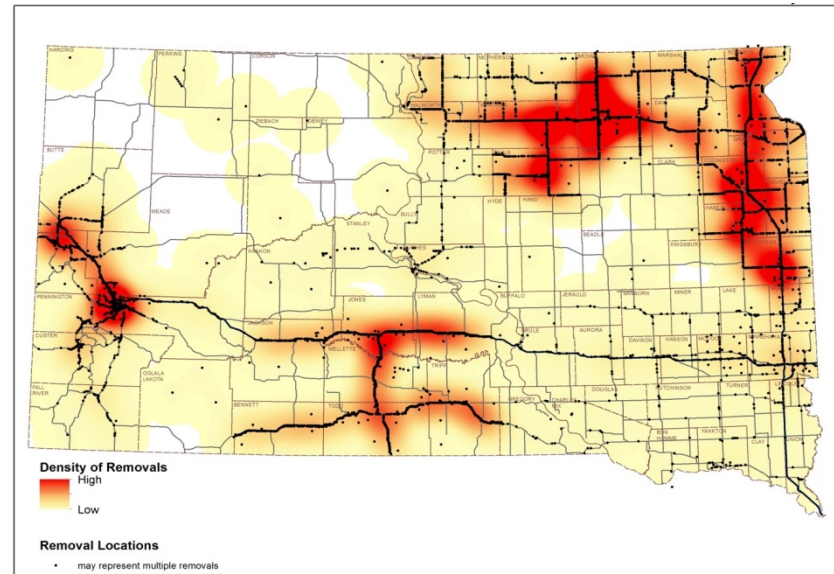


Game Processors



- ☆ USDA Permitted Processors, 12
- ▲ Game Processors Obtained by GFP Staff, 5
- Custom Exempt Processors, 43
- AIB Permitted Processors, 37

Deer-Vehicle Collisions



CWD Action Plan Timeline



March 12-26	Hold seven public open house meetings across South Dakota.
March 21	Internal workgroup meeting.
April 1	Provide 1st draft plan to GFP staff, stakeholder group and public.
April - May	Continue any identified communication and outreach needs with stakeholders. Include CWD information and best management practices in deer and elk applications.
May 9	SDPB - South Dakota Focus.
May 13	Next CWD stakeholder group meeting.
May 14	Internal workgroup meeting.
May 14-31	Incorporate feedback from GFP staff, stakeholder group and public comment period.
June 6-7	Present final draft action plan to Commission and allow for public comment period
July 8-9	Ask for formal plan adoption by Commission <u>AND</u> present Department recommendations for Commission consideration.
September 5-6	Ask Commission to finalize proposed rule changes that would go into effect for the 2020 deer and elk hunting seasons. Provide best management practices to hunters and public for 2019 hunting seasons.

Public Open Houses



Upcoming open houses related to the management of chronic wasting disease.

Date	Location
03/12/2019	Aberdeen - Best Western Ramkota
03/13/2019	Sioux Falls - University Center
03/18/2019	Rapid City - GFP Outdoor Campus
03/19/2019	Hot Springs - Mueller Center
03/25/2019	Wall - Community Center
03/26/2019	Pierre - Capitol Lake Visitors Center
03/27/2019	Huron - Crossroads Hotel & Event Center

CONSERVATION

- ENVIRONMENTAL REVIEW
- NATURAL HERITAGE PROGRAM
- SCIENTIFIC COLLECTOR'S PERMIT
- ▼ WILDLIFE DISEASES
 - Avian Flu (Bird Flu)
 - Bovine Tuberculosis (TB)
 - ▼ Chronic Wasting Disease (CWD)
 - CWD Defined
 - Where Does CWD Occur
 - CWD Testing
 - CWD Transmission
 - How Does CWD Impact Me
 - What's Being Done
 - What Can I Do
 - Epizootic Hemorrhagic Disease (EHD)
 - White-Nose Syndrome
 - Other Diseases

Chronic Wasting Disease (CWD)

What is CWD?

Chronic wasting disease (CWD) is a fatal brain disease of deer, elk, and moose that is caused by an abnormal protein called a prion. Animals infected with CWD show progressive loss of weight and body condition, behavioral changes, excessive salivation, increased drinking and urination, depression, loss of muscle control and eventual death. Chronic wasting disease is always fatal for the afflicted animal. The disease can not be diagnosed by observation of physical symptoms because many big game diseases affect animals in similar ways.

What is a cervid?

A cervid is a mammal of the family Cervidae, which includes white-tailed deer, mule deer and elk.

What is a prion?

A prion is defined as an abnormal form of cellular protein that is most commonly found in the central nervous system and in lymphoid tissue. The prion "infects" the host animal by promoting conversion of normal cellular protein to the abnormal form.

The CWD infectious agent is smaller than most viral particles and does not evoke any detectable immune response or inflammatory reaction in the host animal. Based on experience with other **transmissible spongiform encephalopathies (TSEs)**, the CWD infectious agent is assumed to be resistant to enzymes and chemicals that normally break down proteins, as well as resistant to heat and normal disinfecting procedures.

What does this mean to the future of these wildlife populations in South Dakota?

- CWD Transmission
- How Does CWD Impact Me
- What's Being Done
- What Can I Do
- Epizootic Hemorrhagic Disease (EHD)
- White-Nose Syndrome
- Other Diseases

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abnormal form.

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What does this mean to the future of these wildlife populations in South Dakota?

Research has shown that if prevalence of CWD gets to high levels that population may not be able to sustain themselves and hunting of these populations may have to cease in order to maintain desired population levels.

Related Documents

- CWD Hunter Submission Form
- CWD Overview Presentation
- CWD Regulations by State/Province
- US Summary of Carcass Restrictions

Related Maps

- Other Approved Big Game Carcass Disposal Sites
- Other Known Distribution of CWD

Related Pages

- CWD Defined
- Where Does CWD Occur
- CWD Testing
- CWD Transmission
- How Does CWD Impact Me
- What's Being Done
- What Can I Do



Summary



- CWD is a fatal disease that could inhibit population growth of deer and elk in South Dakota.
- CWD cannot be eliminated, but we can take a proactive approach to limit it's spread and possibly reduce prevalence rates.
- Management efforts will be more successful with an informed public and their willingness to assist with surveillance efforts.
- Future management actions will benefit long-term health and sustainability of South Dakota's deer and elk populations.



End of Presentation ➡ Breakout Stations