

SOUTH DAKOTA GAME, FISH AND PARKS CHRONIC WASTING DISEASE

SURVEILLANCE

GLOSSARY OF KEY TERMS

CLINICAL SIGNS something abnormal, relevant to disease in an animal, detected and possibly measured by an observer. Animals are considered to have clinical signs instead of “symptoms.”

CWD ENDEMIC AREA geographic area in which animals affected with a certain disease would normally be expected to be found. For the purpose of this document, this is a county or hunting unit where CWD has been confirmed in wild cervids. As of January 2019, South Dakota’s known CWD endemic areas would include the counties of Custer, Fall River, Lawrence and Pennington.

DISEASE DISTRIBUTION: the patterns in which cases of disease are found, e.g., geographically, over certain time periods, gender or age of diseased animals, etc.

MONITORING: efforts to track changes and prevalence of a disease (e.g., CWD) within a population over time.

RETROPHARYNGEAL LYMPH NODES: lymph nodes (see above) located in the back of the upper throat of the animal. In harvested deer, they are frequently used as a sample for CWD testing.

OBEX: the section of brainstem between the brain and the spinal cord frequently used to test for CWD.

PRESENCE: the documentation of CWD in a given population or hunting unit.

PREVALENCE/PREVALENCE RATE: the percentage of cervids in a population or hunting unit that are infected with CWD at a point in time, or over a specified time period.

SURVEILLANCE: efforts to detect the occurrence of a disease, such as CWD, within a specific species and geographic area where the disease is not already known to occur.

SURVEILLANCE

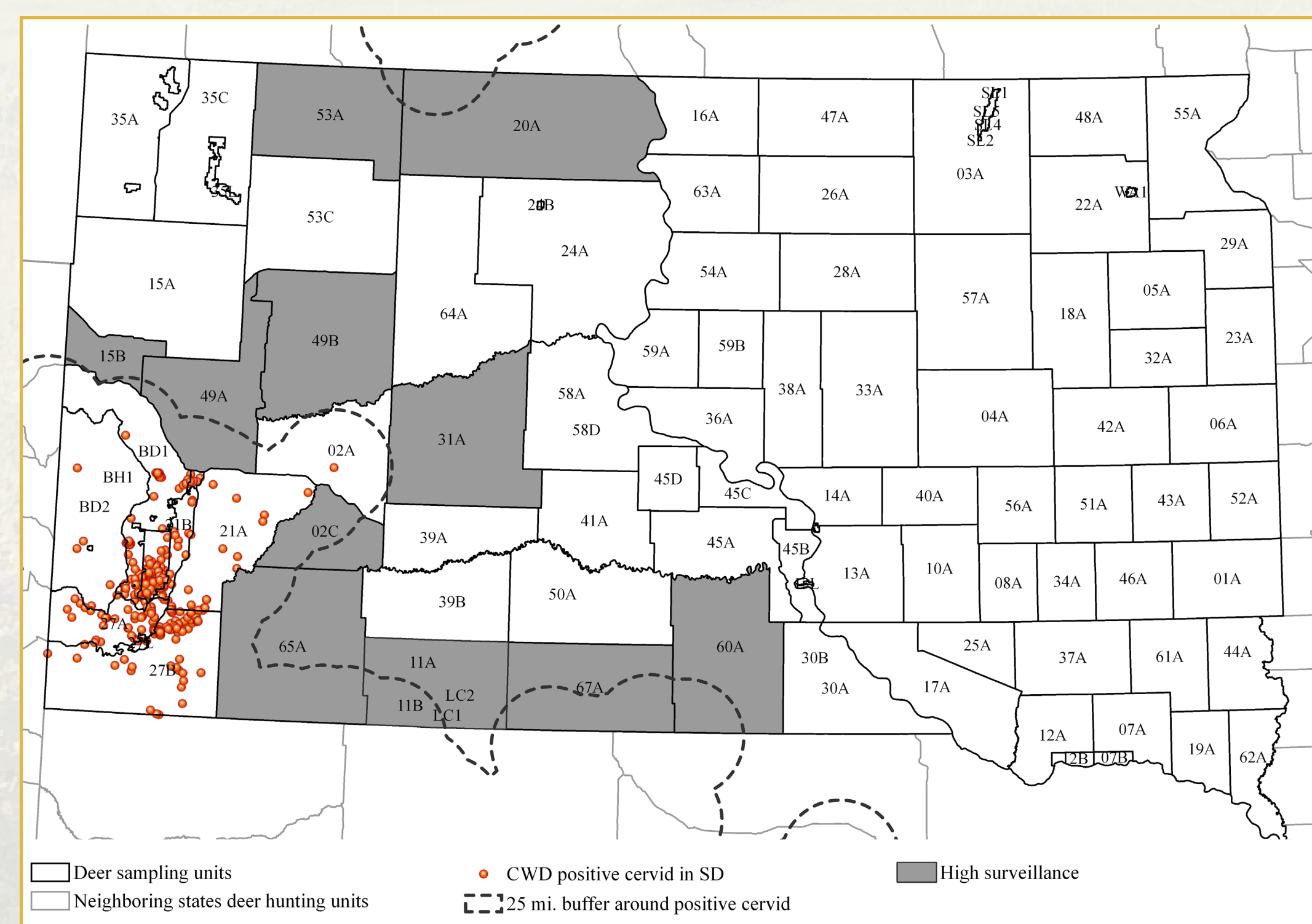
- » The goal of surveillance strategies in South Dakota is to determine the likely spread of CWD to new units where the disease has not been detected in wild, free-ranging cervids.
- » Without pre-determined research design and management objectives, prevalence rates will not be quantified. If research 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. Mandatory submission of samples of CWD testing, however, will still be required for Custer State Park.
- » 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 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 ^a of wild positive cervid
Tier 2 units	Low surveillance	Other priority units determined to be at elevated risk ^b
Tier 3 units	Baseline surveillance	Rest of state—Opportunistic sampling

^a Based on mean yearling white-tailed deer dispersal distance from studies in IL, MD, MT, PA, and WI (Long et al. 2005; Lutz et al. 2016; Nixon et al. 1994; Nixon et al. 2007; Peterson et al. 2017; Rosenberry et al. 1999; Skuldt et al. 2008).

^b Criteria could include units near major cities where hunters may be more likely to transport carcasses from known CWD endemic areas (e.g., Sioux Falls) or units where landscape features (e.g., river drainages) or known migration routes may facilitate natural movement from known CWD endemic areas.



Proposed high surveillance deer sampling units (gray shaded polygons) ≤25 miles of known CWD positive wild cervid.

MORTALITY SOURCE	R	n
Clinical suspect; community reported	33.333	4
Clinical suspect; hunter harvested	9.091	15
Found dead from unknown cause	7.317	19
Hunter-harvested ≥2.5 yr. old male	3.226	43
Hunter-harvested ≥2.5 yr. old female	1.304	106
Hunter-harvested 1.5 yr. old male	1.000	138
Hunter-harvested 1.5 yr. old female	0.850	162
Vehicle collision	0.216	639
Hunter-harvested 0.5 yr. old female	0.084	1,643
Hunter-harvested 0.5 yr. old male	0.001	138,000

Targeted surveillance weights (R; Jennelle et al. 2018) and approximate number of samples (n) needed to achieve 75% detection probability of finding ≥1 CWD positive if disease prevalence is ≥1% (i.e., High surveillance strategy).

NOTE: Sampling will be repeated for 3 consecutive years (n = 414) to obtain >98% probability of detecting CWD at 1% prevalence rates.

STRATEGIES FOR MEETING 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:
 - Contract sample collection from deer-vehicle-collisions.
 - Contract sample collection from taxidermists.
 - Contract sample collection from game processors.
 - Facilitate volunteer sampling.
 - Mandatory road checks.

HUNTER SUBMISSION FOR TESTING

- » Hunters will serve as an essential partner in the successful implementation of this action plan.
- » Currently, each successful elk or deer hunter shall submit samples for CWD testing for all elk and deer harvested from any CSP hunting unit.
- » Moving forward, hunters with licenses to harvest deer in Tier 1 surveillance areas will be mailed information on how to submit voluntary CWD samples.
- » Hunters who harvest deer or elk in Tier 2 or 3 surveillance areas can still have their animal tested for CWD. As a voluntary submission, hunters will be responsible for the cost of shipping and any professional sample collection costs unless a location is provided by GFP.
- » The South Dakota Department of Game, Fish and Parks will pay for the testing cost of the sample at SDSU ADRDL. Results will be sent to both the hunter and GFP. These results will supplement GFP’s surveillance effort across the state.
- » The process for collecting samples from a harvested deer or elk and how to properly submit to SDSU ADRDL can be found at gfp.sd.gov/cwd-testing.

