



Wyoming Game and Fish Department 2023 Chronic Wasting Disease Surveillance Report 4/03/2024

Overview

Chronic wasting disease (CWD), a fatal prion disease of cervids, continues to spread across the state since its initial detection in 1985 (southeast corner, mule deer; Figure 1). The Wyoming Game and Fish Department (WGFD) CWD surveillance program focuses on two to three herd units from the eight WGFD regions each year. Efforts are concentrated on hunter-harvested adult male deer and adult elk (both sexes), with a sample target of 200 (collected within 1-3 consecutive years) in most deer and elk herd units. In non-endemic areas, where CWD has not been detected, opportunistic surveillance continues and utilizes hunter-harvested, road-killed, and targeted animals (targeted defined as showing signs of the disease or found dead with no apparent cause). This design allows for adequate sample sizes without exceeding the WGFD's Wildlife Health Laboratory (WHL) testing capacity.

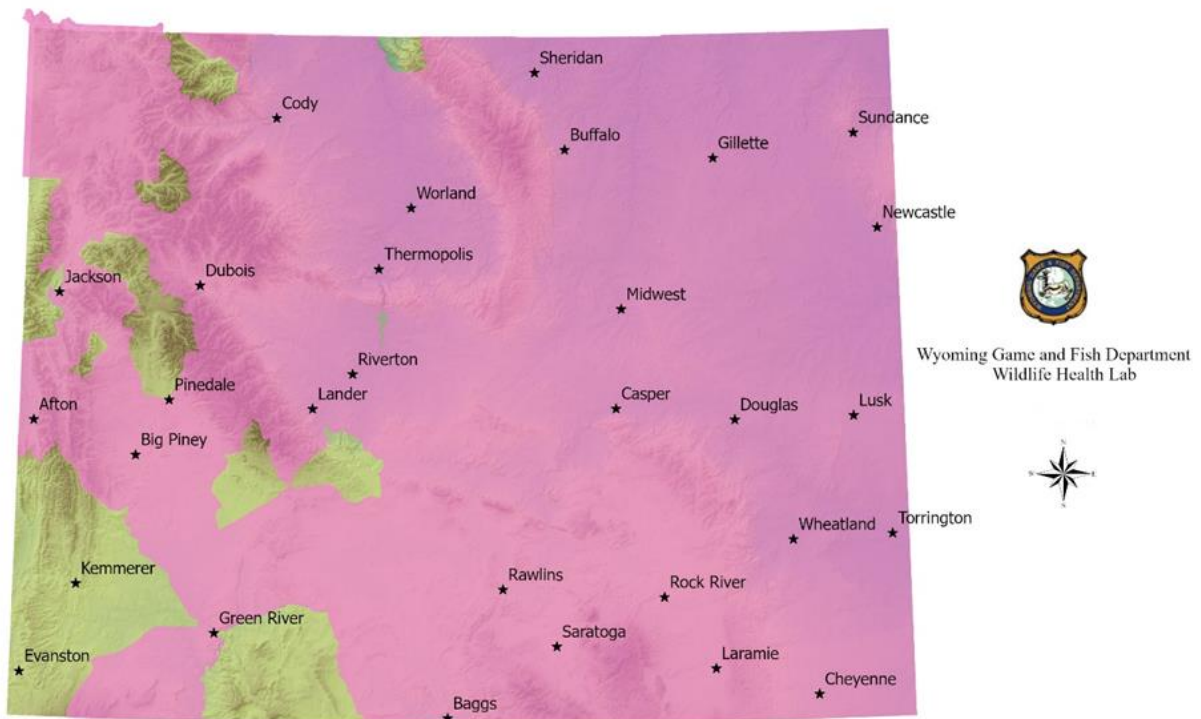


Figure 1. Statewide CWD distribution: All species.

2023 CWD Surveillance

Hunter harvested deer, elk, and moose samples were collected at points of concentration (i.e., meat processors, check stations, and regional offices), with additional opportunistic samples collected from euthanized animals and mortalities. Retropharyngeal lymph nodes were predominantly collected due to their ease of extraction and suitability as a diagnostic tissue. Teeth were collected whenever possible to evaluate age structure, and age specific CWD prevalence within deer herd units.

The WHL is an accredited laboratory for CWD diagnostics and utilizes enzyme-linked immunosorbent assays as the primary diagnostic tool. Immunohistochemistry is utilized as a confirmatory test when necessary. Individual CWD test results are available on the agency’s website in less than three weeks of sample submission.

2023 Results and Discussion

A total of 5,100 deer, elk, and moose samples were analyzed by the WHL, with 711 of those samples testing positive for CWD. This total includes samples from all surveillance categories (hunter-harvest, targeted, and road-killed), and all sexes and age classes (Table 1). Table 2 outlines samples received from hunter-harvest adult (≥ 2 years old) male deer, adult elk and adult moose (both sexes).

Table 1. CWD surveillance totals by species and category (all ages and sexes; 2023).

Surveillance Category	Mule Deer		White-tailed Deer		Elk		Moose		Total	
	Total	CWD Pos	Total	CWD Pos	Total	CWD Pos	Total	CWD Pos	Total	CWD Pos
Hunter-harvest	1,775	306	858	202	1,646	40	33	0	4,312	548
Targeted	280	112	32	18	183	12	11	0	506	142
Road-kill	174	16	21	4	71	1	16	0	282	21
Total	2,229	434	911	224	1,900	53	60	0	5,100	711

Table 2. CWD surveillance of hunter-harvest adults according to species and sex (2023).

Adult Male Mule Deer		Adult Male White-Tailed Deer		Adult Elk		Adult Moose		Total	
Total	CWD Pos	Total	CWD Pos	Total	CWD Pos	Total	CWD Pos	Total	CWD Pos
1,441	272	406	123	1,406	40	28	0	4,269	496

The 2023 surveillance effort identified CWD in three new mule deer hunt areas (90, 131, and 154) and Yellowstone National Park (deceased, collared, mule deer; Figure 2). It was also identified in four new elk hunt areas (28, 58, 92, and 122; Figure 3).

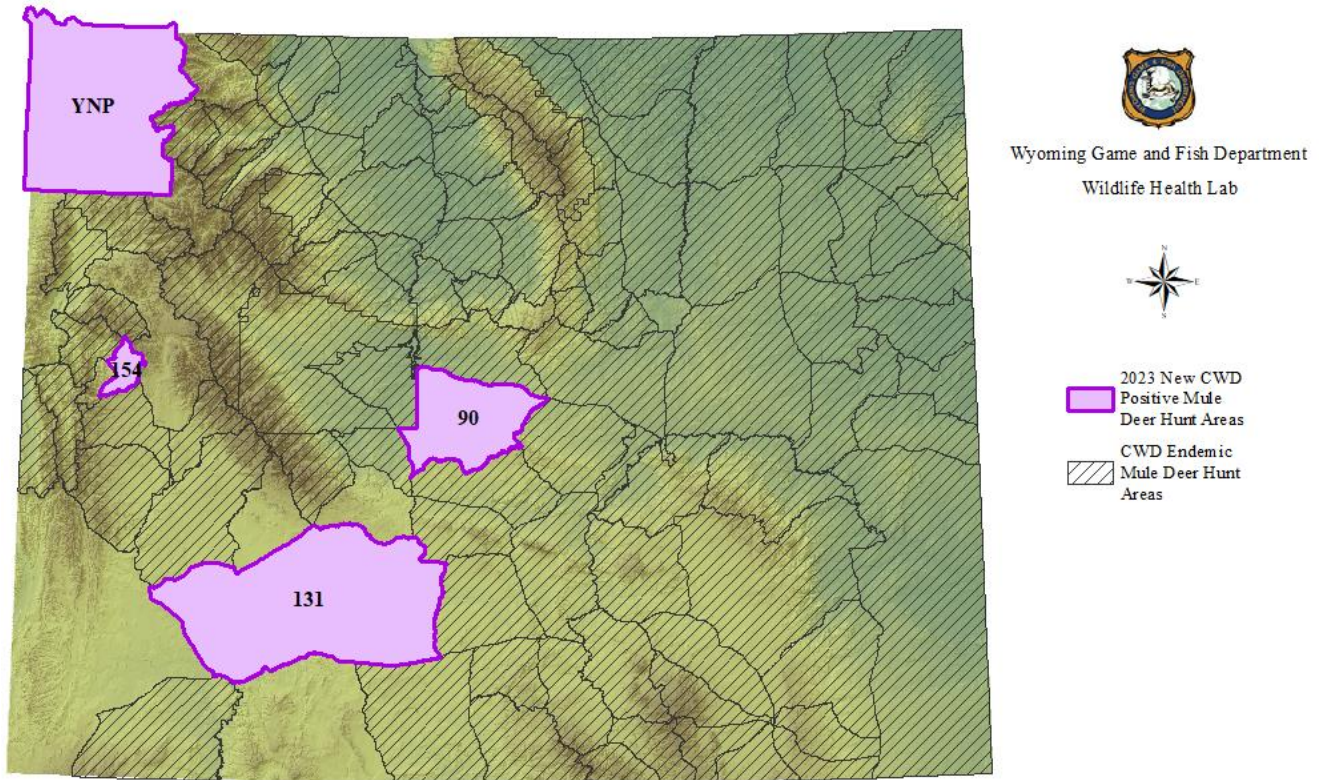


Figure 2. New and endemic CWD deer hunt areas and Yellowstone National Park (2023).

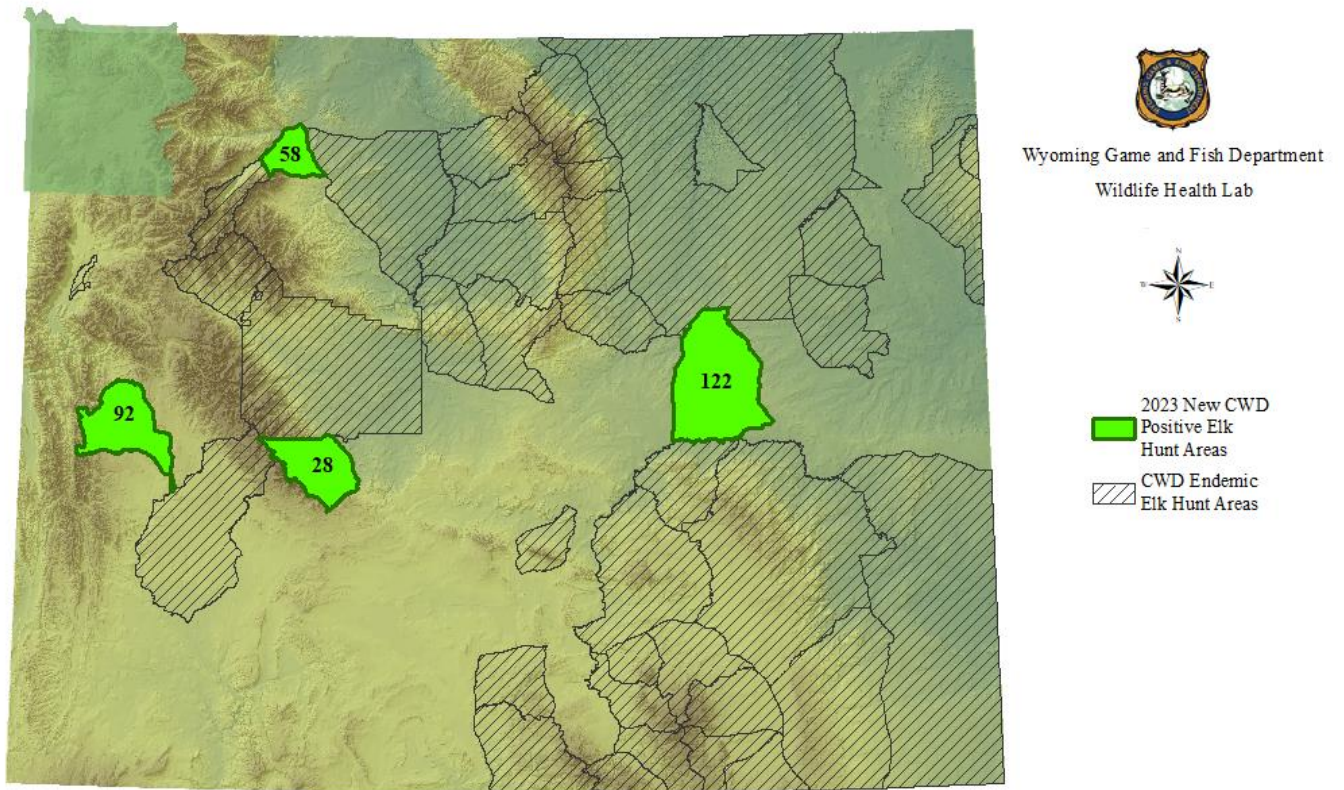


Figure 3. New and endemic CWD elk hunt areas (2023).

Priority Deer and Elk Herd Units for 2023

For mule deer, the 2023 CWD surveillance focused on ten herd units; including mandatory CWD sampling in six hunt areas and continuous surveillance in two (Figure 4). For elk, the 2023 CWD surveillance focused on six herd units (Figure 5) with continuous surveillance in three. Of the eleven herd units, not under continuous surveillance, six reached 50% or greater of the surveillance goal of 200 samples, five herds reached less than 50% of their goal (Table 3). The Sublette and Wyoming Range mule deer herds, along with the Afton, Fall Creek, and Jackson elk herds are sampled annually at an adequate level and do not fall within the three-year limitation.

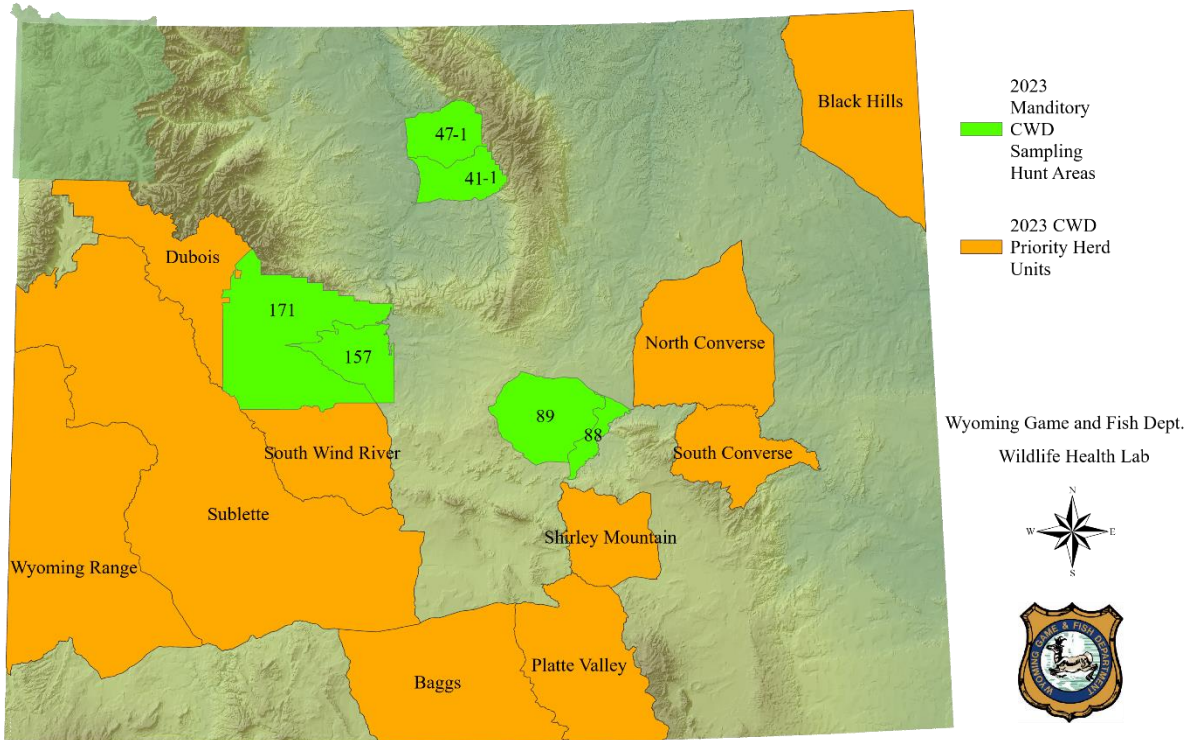


Figure 4. CWD sampling priority mule deer herd units and mandatory hunt areas (2023).

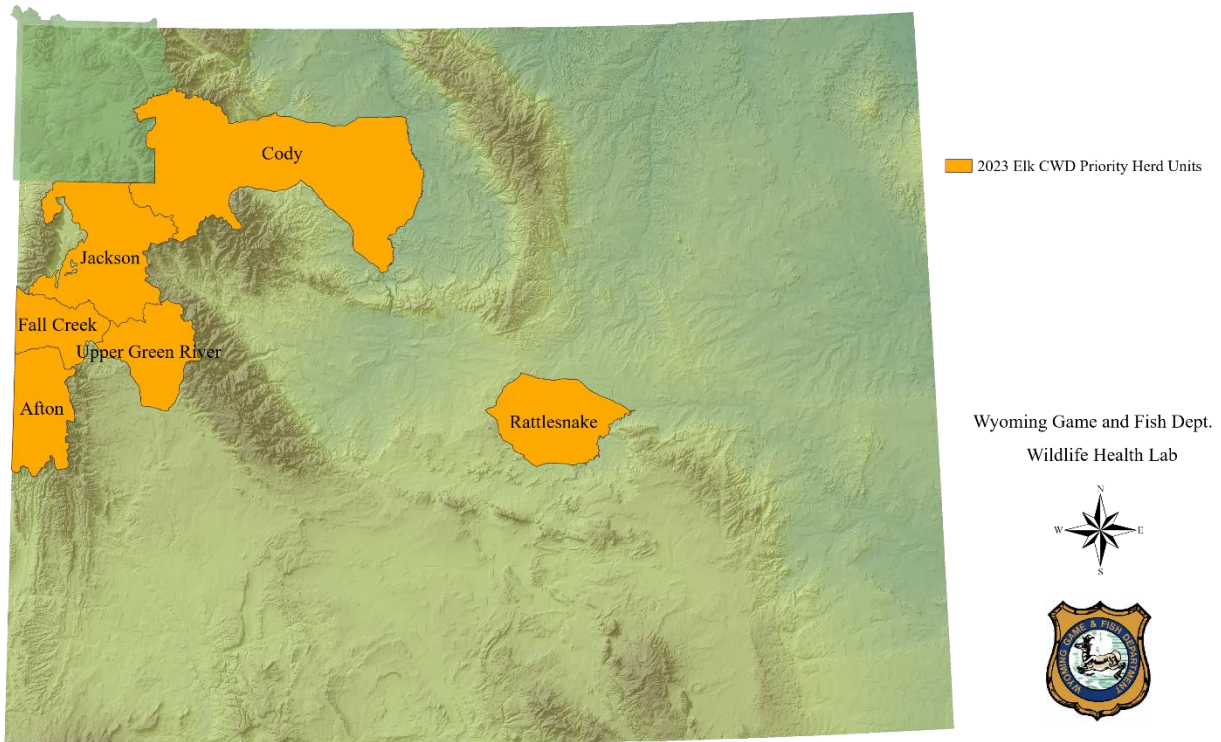


Figure 5. CWD sampling priority elk herd units (2023).

Table 3. CWD samples tested from hunter harvested adult mule deer bucks and adult elk in priority herds.

Herd Unit	Species	Targeted Surveillance Years	2023 Samples	3 Year Total (percent of 200 sample goal)
Baggs	Mule Deer	2023-2025	99	50% (99)
Black Hills	Mule Deer	2021-2023	44	80% (160)
Dubois	Mule Deer	2023-2025	48	24% (48)
North Converse	Mule Deer	2023-2025	39	20% (39)
Platte Valley	Mule Deer	2023-2025	113	57% (113)
Shirley Mountain	Mule Deer	2023-2025	43	22% (43)
South Converse*	Mule Deer	2022-2024	16	82% (163)
South Wind River	Mule Deer	2023-2025	50	25% (50)
Sublette	Mule Deer	Continuous	63	163% (325)
Wyoming Range	Mule Deer	Continuous	27	172% (343)
Afton	Elk	Continuous	58	100% (200)
Cody	Elk	2023-2025	115	58% (115)
Fall Creek	Elk	Continuous	74	119% (237)
Jackson	Elk	Continuous	137	440% (880)
Medicine Lodge	Elk	2021-2023	20	91% (181)
Upper Green River	Elk	2022-2024	33	41% (82)

*Mandatory in 2023

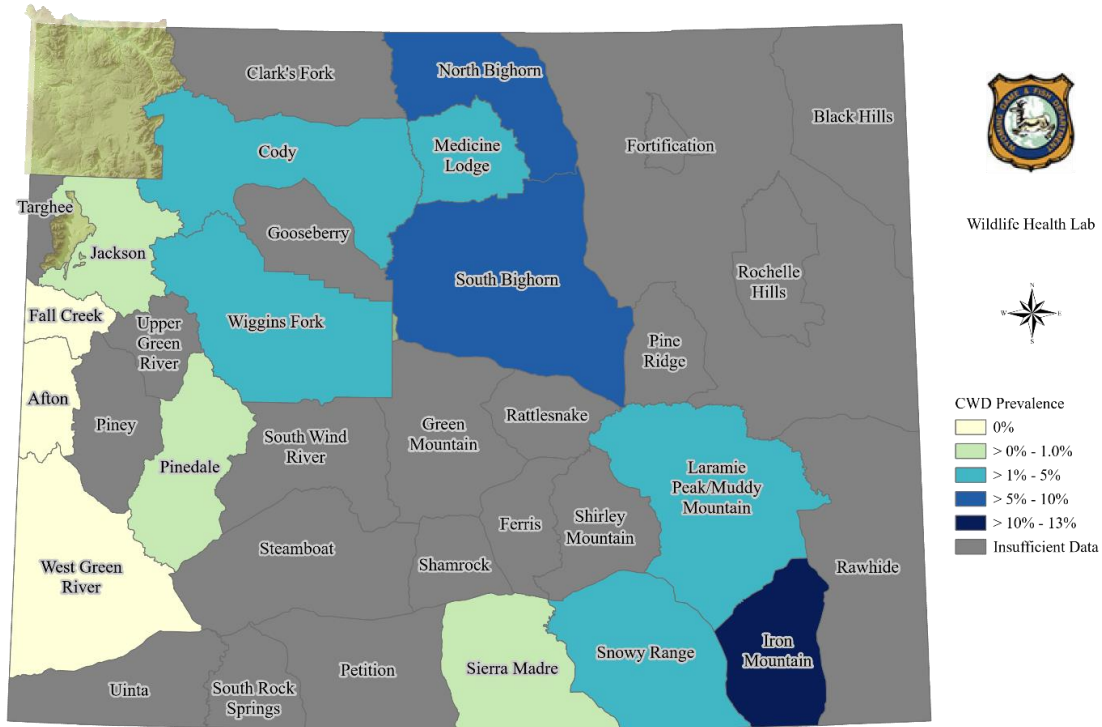


Figure 7. Chronic wasting disease prevalence in hunter harvested adult elk by herd unit (2019 – 2023; data insufficient if less than 100 samples in a consecutive 3 year period).

Knowing where sampling efforts were concentrated provides a deeper understanding into prevalence (Figures 8 and 10). Prevalence calculated at the herd unit level provides managers with perspective on herd health and can direct herd level management actions, however, CWD levels are not uniform across a herd and can accumulate in “hot spots” of higher concentrations within these herd units (Figures 9 and 11).

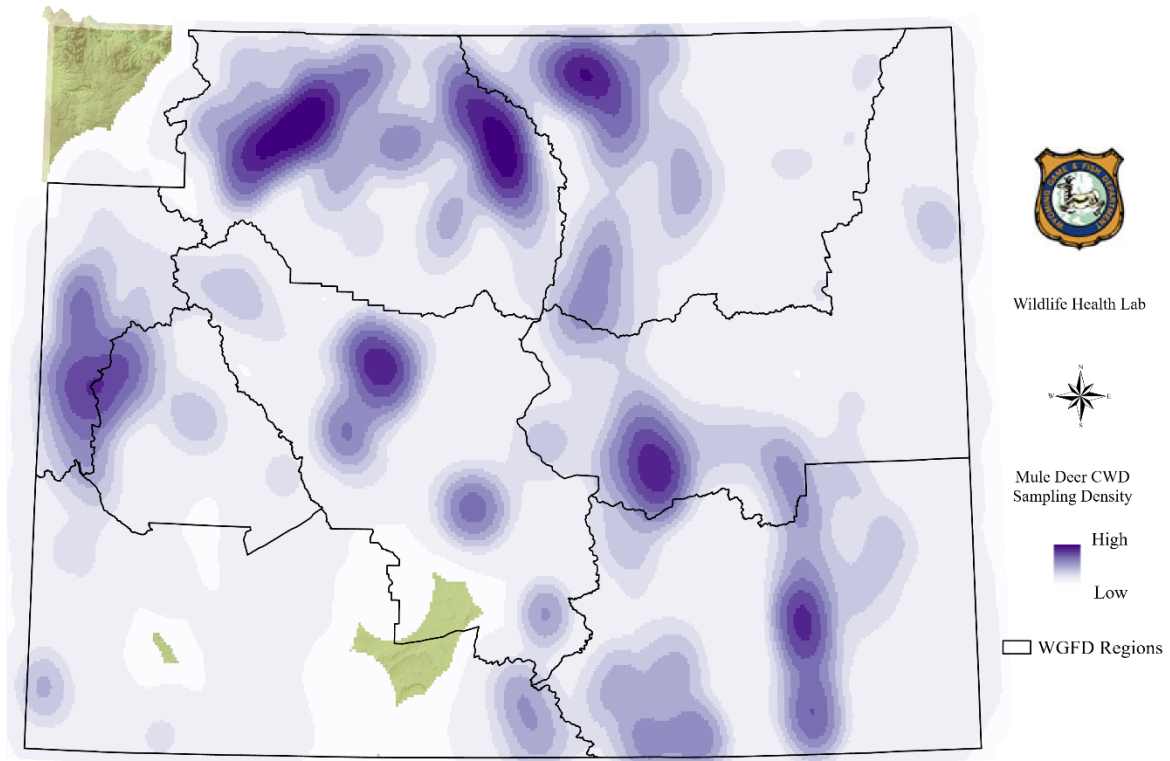


Figure 8. Mule Deer CWD sampling density: all age, sex and surveillance type (2019-2023).

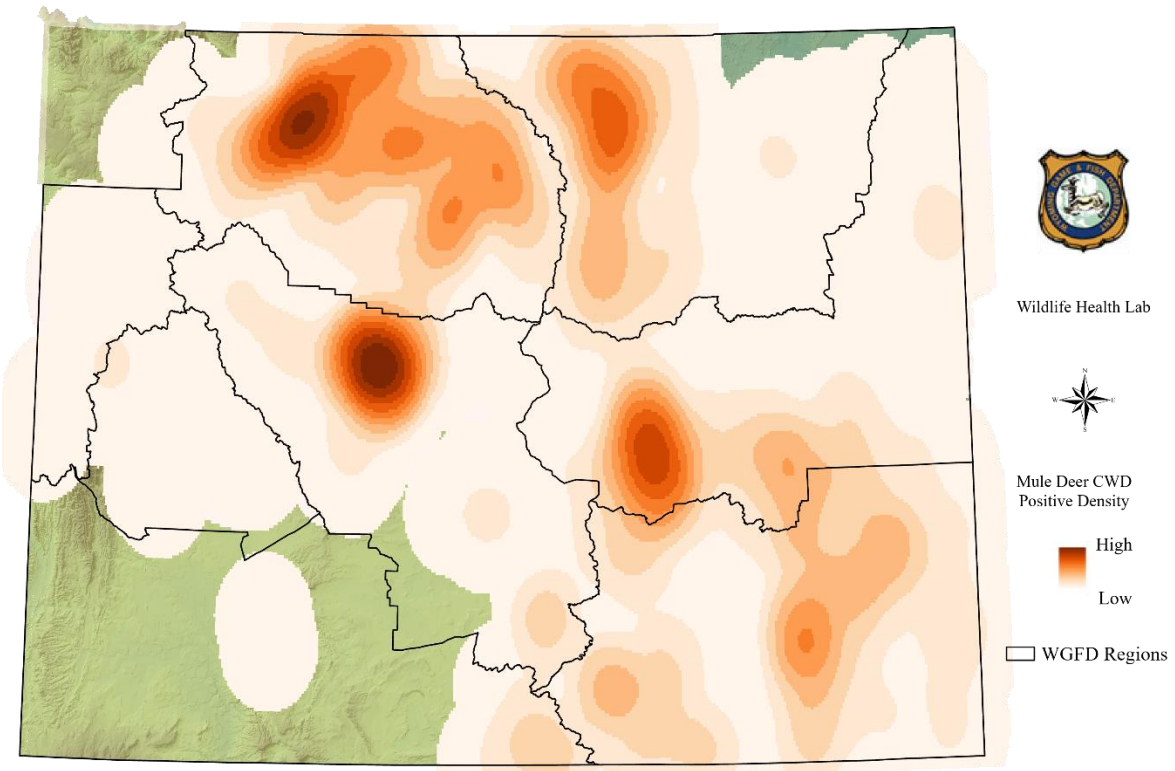


Figure 9. Mule Deer CWD positive sample density: all age, sex and surveillance type (2019-2023).

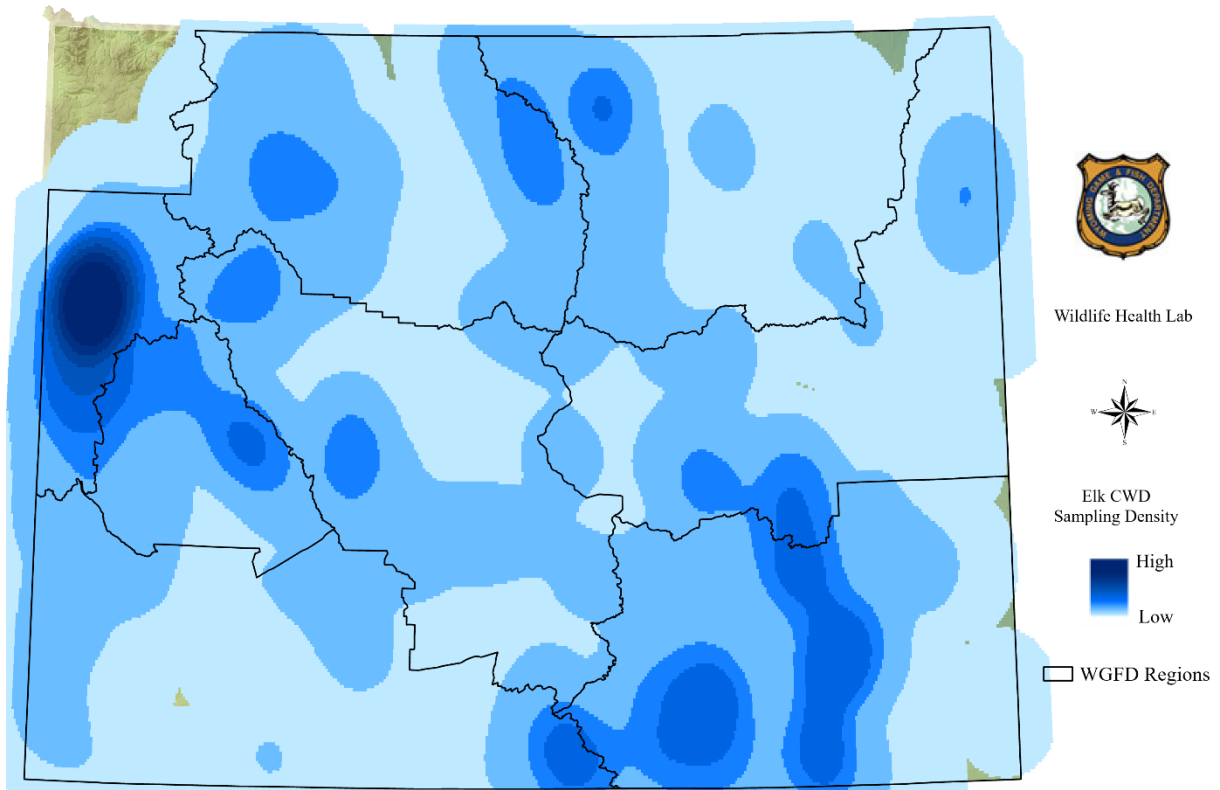


Figure 10. Elk CWD sampling density: all age, sex and surveillance type (2019-2023).

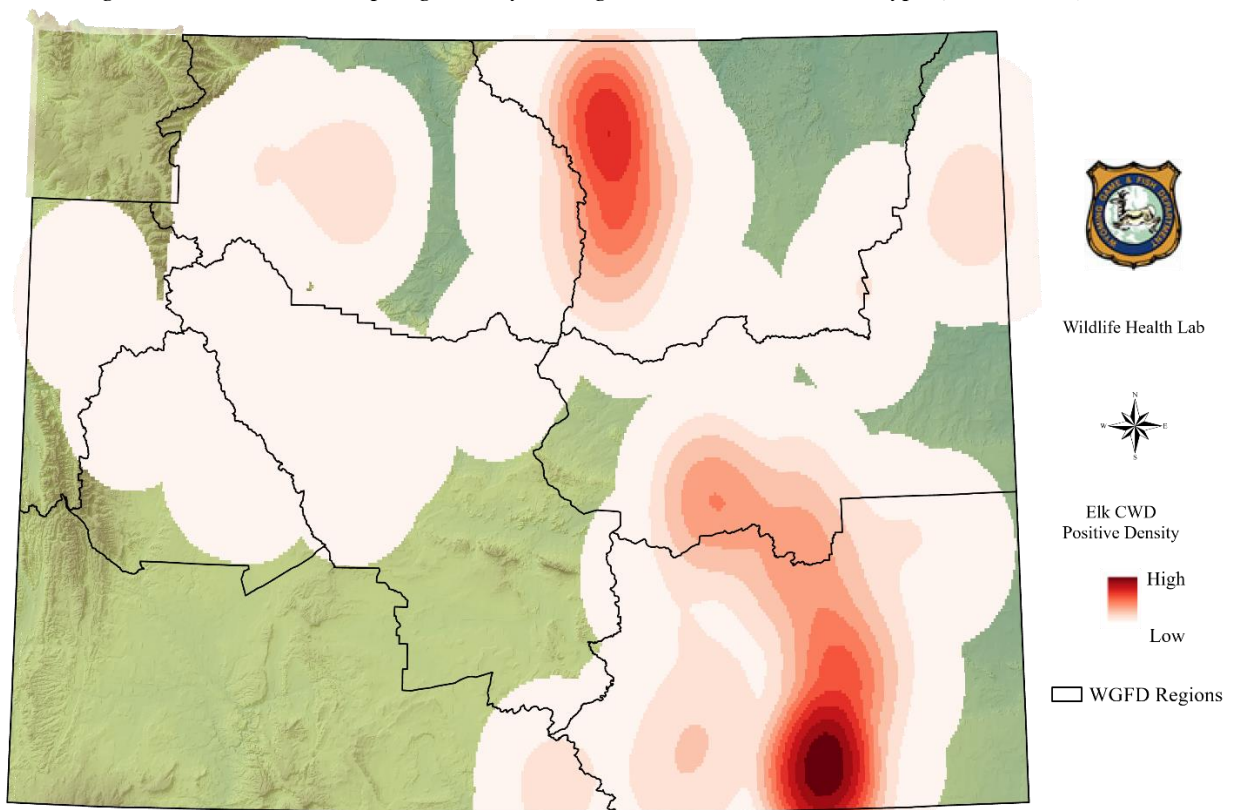


Figure 11. Elk CWD positive sample density: all age, sex and surveillance type (2019-2023).

CWD in Western Wyoming

As sampling efforts have increased from year to year, so have CWD detections in new hunt areas. In 2023, CWD has continued to spread west, being detected in three new deer hunt areas, four new elk hunt areas, and a national park, in western Wyoming. Over the past five years, CWD has been detected in sixteen deer and two elk that were collected from hunt areas that contain at least one elk feedground. This raises concern that this disease is becoming established in feedground-utilized populations and it raises questions about how this may affect deer and elk populations in the future.

Sampling Effort in Non-Endemic Hunt Areas

Currently, 21% of Wyoming's deer hunt areas and 65% of elk hunt areas are considered non-endemic. Opportunistic surveillance for the disease continues in the non-endemic areas by utilizing hunter-harvested, road-killed and targeted animals (Table 4). Adequate sample sizes in these hunt areas are critical for early detection of the disease as management strategies can change with the status of CWD prevalence.

Table 4. Chronic wasting disease surveillance in non-endemic hunt areas of adult animals by species and surveillance type (2023).

Species	Hunter-harvest	Road Killed	Targeted	Total
Adult deer*	80	15	16	111
Adult elk	712	22	112	846
Adult moose	28	11	5	44
Total	820	48	133	1,001

*Includes both mule deer and white-tailed

For complete information on CWD in Wyoming, please visit: <http://wgfd.wyo.gov/CWD>