



## **Wyoming Game and Fish Department 2022 Chronic Wasting Disease Surveillance Report Published March 2023**

### **Overview**

Chronic wasting disease (CWD) is a fatal disease of the central nervous system of cervids caused by abnormally folded infectious proteins called prions. This disease was first identified in Wyoming in 1985 in a free-ranging deer from the southeastern corner of the state, and has since slowly spread north and west; now covering the majority of the state (Figure 1). In consideration of the wide distribution of CWD across Wyoming, the surveillance program shifted from detection based, to a monitoring based program in those hunt areas where CWD is endemic. Continued monitoring of this disease over time is necessary to understand the potential population impacts and to evaluate future management actions. To achieve adequate sample sizes, surveillance is focused in only two to three herd units within each of the eight Wyoming Game and Fish Department (WGFD) regions each year, allowing for coverage of the entire state every four to five years. This approach focuses on adequate sample sizes to monitor the disease without exceeding the WGFD's Wildlife Health Laboratory (WHL) testing capacity. Monitoring efforts are concentrated on hunter-harvested adult male deer or adult elk (both sexes), with a sample target of 200 (collected within 1-3 consecutive years) in most deer and elk herd units. In areas where CWD has not been detected, active surveillance continues and utilizes hunter-harvested, road-killed, and targeted animals (those showing signs of the disease).

### **2022 CWD Surveillance**

Hunter harvested deer, elk, and moose samples were collected at points of concentration (i.e., meat processors, check stations, and regional offices). Samples were also collected from road-killed and targeted animals, and from any deer or elk taken with a WGFD issued lethal take permit. In addition, teeth were collected whenever possible to evaluate age structure, and age specific CWD prevalence within deer herd units. Predominantly retropharyngeal lymph nodes were sampled due to their ease of extraction and suitability as a diagnostic tissue. The WHL is an accredited laboratory for CWD diagnostics and utilized enzyme-linked immunosorbent assays (ELISA) as the primary diagnostic tool. Immunohistochemistry (IHC) is also used through an outside accredited laboratory when necessary. Individual CWD test results were available on the agency's website in less than three weeks of sample submission. This year, hunters were not directly notified via mail or email of their CWD results.

## Wyoming Chronic Wasting Disease (CWD) Statewide Distribution: All Species

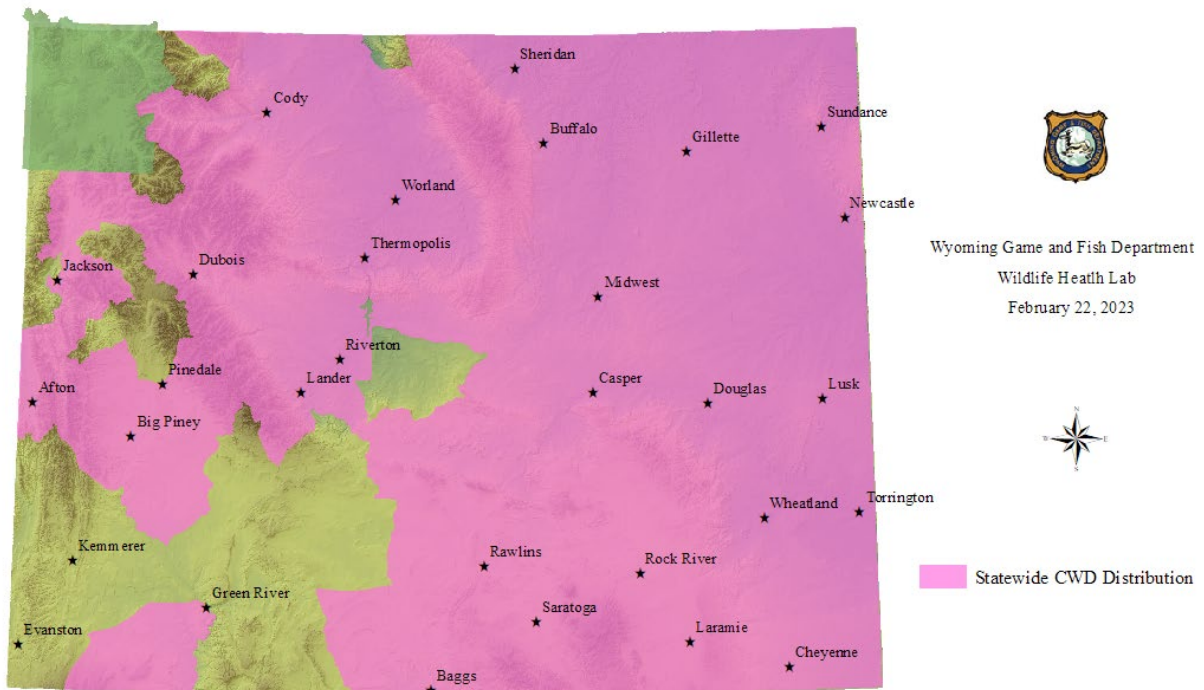


Figure 1. Statewide CWD distribution as of February 2023

### 2022 Results and Discussion

A total of 6,701 Wyoming deer, elk, and moose samples were analyzed by the WHL, with 826 of those samples testing positive for CWD. This total includes samples from all surveillance categories (hunter-harvest, targeted, and road-killed), and all age classes (Table 1). Total samples received and testing outcomes are further broken down in Table 2, which outlines samples received from hunter-harvest adult ( $\geq 2$  years old) male deer, adult elk and adult moose (both sexes). Data in Table 2 are used to determine prevalence estimates used throughout this report.

The 2022 surveillance effort identified CWD in two new deer hunt areas (HA): HA 143 east of Big Piney, and HA 155 near Jackson which includes the National Elk Refuge and the Gros Ventre Range (Figure 2). Chronic wasting disease was also documented for the first time in five elk HAs: HA 33 southeast of Kaycee, HA 47 east of Thermopolis, HA 49 south of Worland, HA 59 which includes Carter Mountain and the southern portion of the Absaroka Range, and HA 127 encompassing the Wind River Indian Reservation (Figure 3).

Table 1. 2022 CWD surveillance totals by species and category

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	2,265	363	1,245	257	2,295	42	53	0	5,858	662
Targeted	193	86	54	27	127	12	25	0	399	125
Road-kill	256	29	53	6	121	4	14	0	444	39
<b>Total</b>	<b>2,714</b>	<b>478</b>	<b>1,352</b>	<b>290</b>	<b>2543</b>	<b>58</b>	<b>92</b>	<b>0</b>	<b>6,701</b>	<b>826</b>

Table 2. Distribution of hunter-harvest samples from adults and proportion of positives according to species

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
1,735	305	602	156	1,956	41	46	0	4,339	502

### New CWD Positive Mule Deer (MD) Hunt Areas in 2022

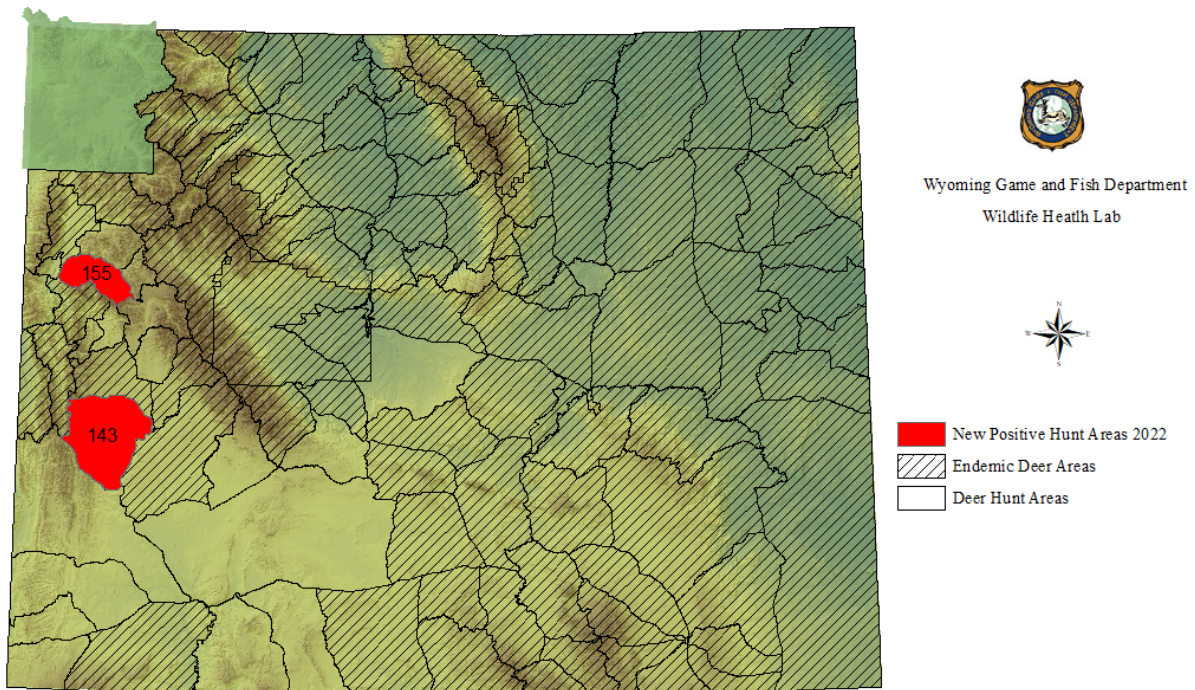


Figure 2. 2022 New and endemic CWD deer hunt areas



## New CWD Positive Elk Hunt Areas in 2022

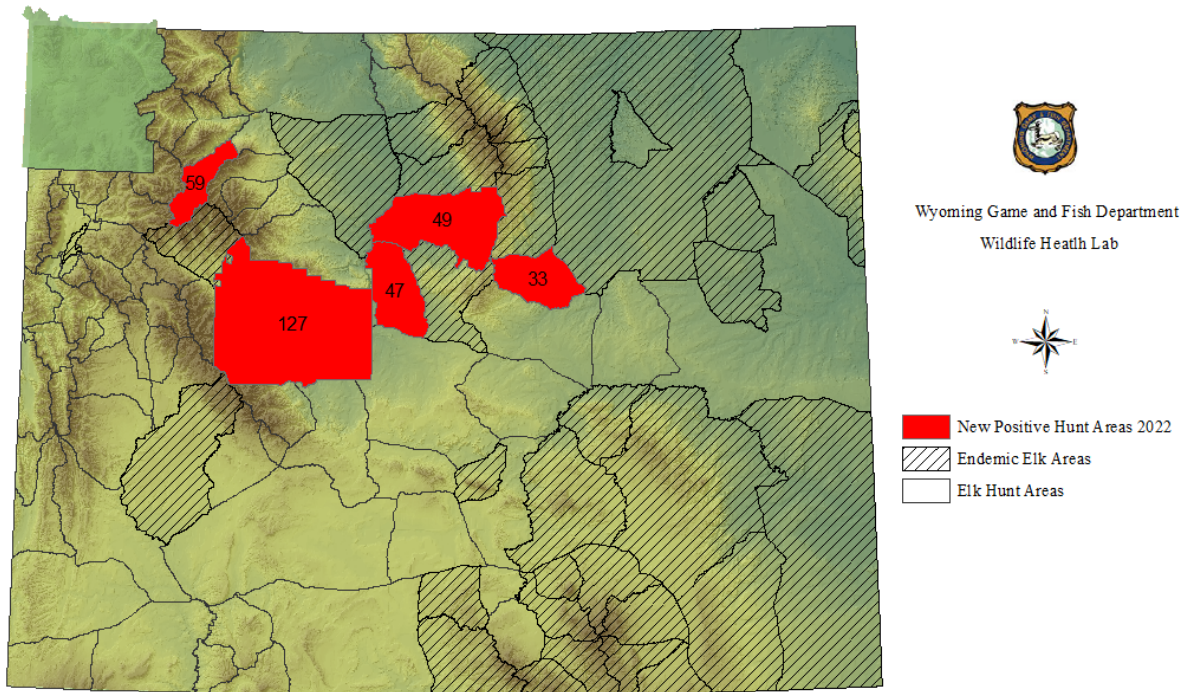


Figure 3. 2022 New and endemic CWD elk hunt areas

### Target Deer and Elk Herd Units for 2022

The 2022 CWD surveillance effort focused on 8 mule deer units and nine elk herd units within the state. Of the 17 focal herd units, 7 completed their three-year surveillance effort in 2022. Two of those herd units surpassed the surveillance goal of 200 samples, two obtained at least 93%, one obtained 72%, and two acquired at least 58% of the 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.

Table 3. Total CWD samples tested from hunter harvested adult mule deer bucks, white-tailed deer bucks (WTD) and adult elk. Percent of total surveillance goal out of 200 in parenthesis. See Figures 5 & 6 for herd unit locations.

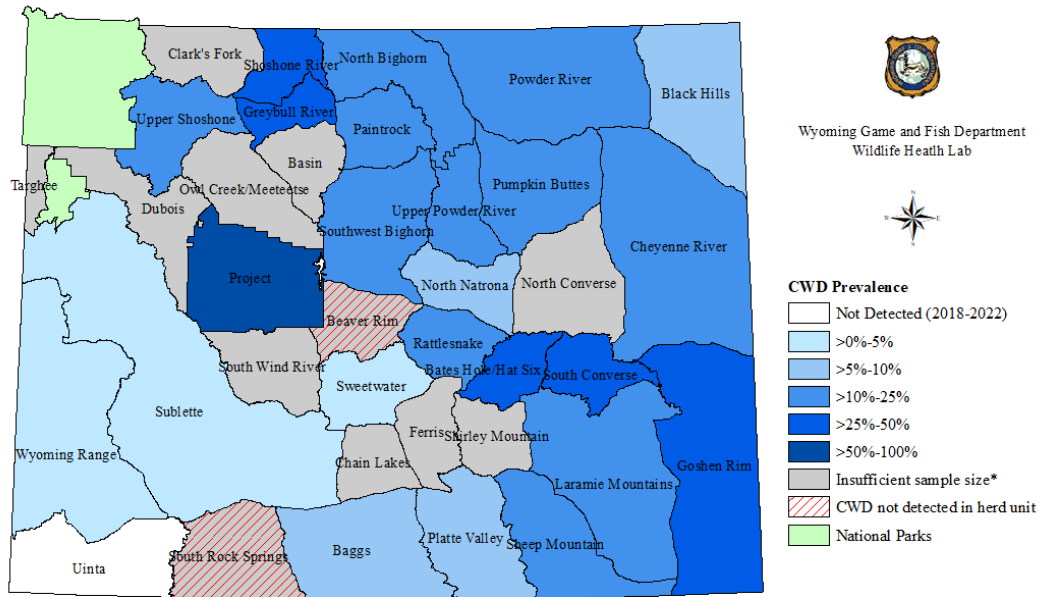
Herd Unit Name	Targeted Surveillance Years	2022 Samples	3 Year Total (percent of 200 goal)	3 year CWD Prevalence (2020-2022)
<b>Deer</b>				
Bates Hole	2020-2022	72	162 (81%)	28.4%
Black Hills	2021-2023	27	120	6.7%
Greybull River	2020-2022	15	116 (58%)	44.8%
**Laramie Mountains	2022-2023	390	545	18.3%
**Project	2020-2022	54	144 (72%)	67.4%
**South Converse	2022-2023	147	182	23.1%
Sublette	Continuous	109	368	1.4%
Wyoming Range	Continuous	140	396	0.8%
<b>Elk</b>				
Afton	Continuous	56	201	0.0%
Fall Creek	Continuous	100	250	0.0%
Jackson	Continuous	542	1,209	0.08%
Laramie Peak	2022	222	432 (100%)	5.6%
Medicine Lodge	2021-2022	81	188 (94%)	1.1%
South Bighorn	2022-2023	127	207	5.3%
Upper Green River	2022-2024	49	98	0.0%
West Green River	2020-2022	33	187 (93.5%)	0.0%
Wiggins Fork	2021-2022	100	212 (100%)	1.4%

\*\*Mandatory in 2022

### Monitoring CWD Prevalence

The WGFD continues to monitor CWD prevalence in all deer and elk herds around the state. The overall five-year CWD prevalence estimates of Wyoming's mule deer herds are in Figure 4 and elk in Figure 5. It is important to note that hunter harvest of mule deer is primarily male and therefore prevalence estimates do not account for prevalence in females. Chronic wasting disease prevalence in female mule deer has been shown to be lower than that of males in herd units where females are harvested, as well as in road-killed and targeted surveillance data. Chronic wasting disease prevalence estimates in elk include both adult males and females.

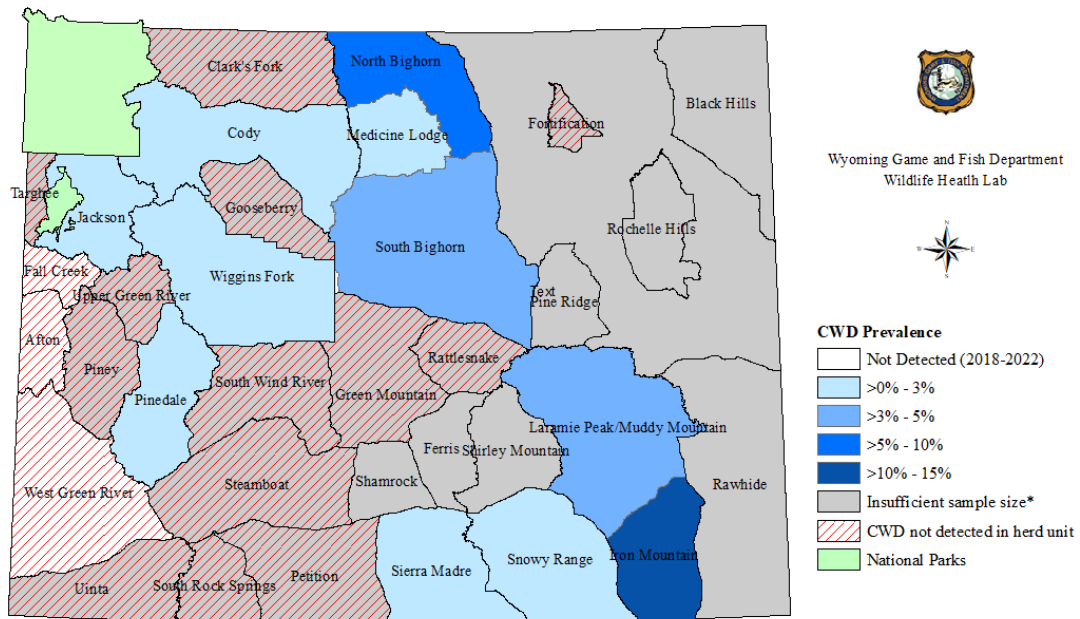
## Chronic Wasting Disease Prevalence in Hunter Harvested Adult Male Mule Deer by Herd Unit 2018-2022



\*Data insufficient if less than 100 samples are tested in a three year period

*Figure 4. Chronic wasting disease prevalence in hunter harvested adult male mule deer by herd unit 2018-2022*

## Chronic Wasting Disease Prevalence in Hunter Harvested Adult Elk by Herd Unit 2018-2022



\*Data insufficient if less than 100 samples are tested in a three year period

*Figure 5. Chronic wasting disease prevalence in hunter harvested adult elk by herd unit 2018 – 2022*

### **CWD in Western Wyoming**

As sampling efforts have increased from year to year so have chronic wasting disease detections in new hunt areas. The western half of Wyoming has several deer HA's where CWD has not been detected, mostly concentrated in Sweetwater, Uinta and Teton counties. Unfortunately, this disease continues to spread west and was detected in two new deer and four new elk HA's in the western half of the state in 2022. Over the past five years, CWD has been detected in 20 deer and 6 elk that were collected from HA's in and around elk feedgrounds. This raises considerable 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**

Non-endemic hunt areas are defined as those having no positive detections of CWD to date and are defined by species type. Currently 20% of deer hunt areas and 71% of elk hunt areas are considered non-endemic. Annual surveillance for the disease continues in the non-endemic areas by utilizing hunter-harvested, road-killed and targeted animals. 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. Surveillance numbers from CWD non-endemic hunt areas are reported in Table 4.

*Table 4. Chronic wasting disease surveillance in non-endemic hunt areas of adult animals by species and surveillance type in 2022*

<b>Species</b>	<b>Hunter-harvest</b>	<b>Road Killed</b>	<b>Targeted</b>	<b>Total</b>
<b>Adult deer*</b>	314	35	4	353
<b>Adult elk</b>	961	45	64	1070
<b>Adult moose</b>	46	8	10	64
<b>Total</b>	1321	88	78	1487

\*Includes both mule deer and white-tailed

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