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ACKNOWLEDGEMENTS

The field data contained in these reports is the result of the combined efforts of Jackson Region Wildlife Division personnel including District Wildlife Biologists, District Game Wardens, the Disease Biologist, Feedground Manager, Wildlife Management Coordinator, and Region Supervisor, as well as other Department personnel working check stations and in the field. The authors wish to express their appreciation to all those who assisted in data collection.

2024 - JCR Evaluation Form

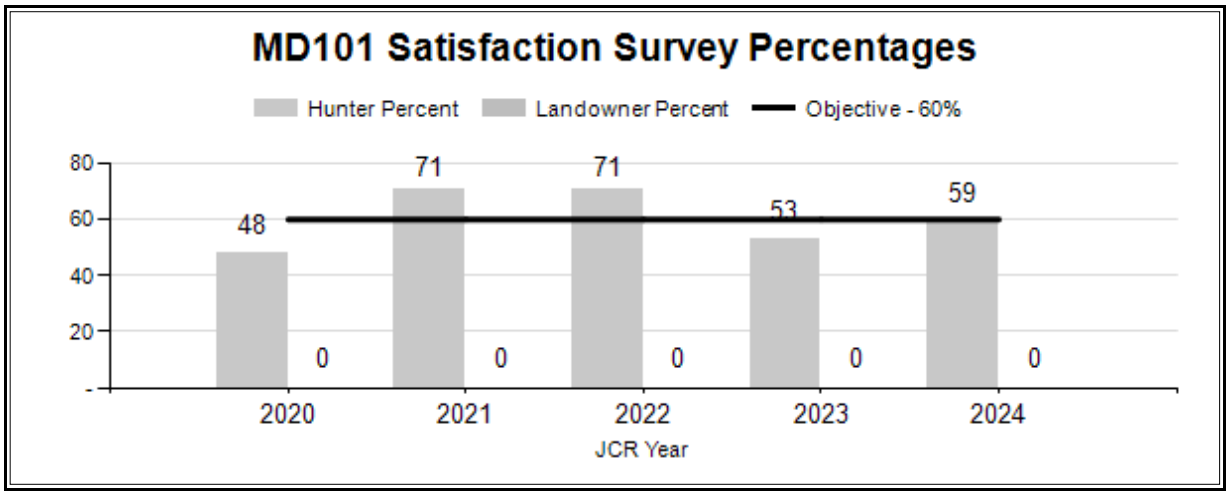
SPECIES: Mule Deer
PERIOD: 6/1/2024 - 5/31/2025

HERD: MD101 - TARGHEE

HUNT AREAS: 149
PREPARED BY: ALYSON COURTEMANCH

	2019 - 2023 Average	2024	2025 Proposed
Hunter Satisfaction Percent	58%	59%	60%
Landowner Satisfaction Percent	NA	NA	NA
Harvest:	20	17	20
Hunters:	75	99	75
Hunter Success:	27%	17%	27%
Active Licenses:	75	98	75
Active License Success:	27%	17%	27%
Recreation Days:	331	405	300
Days Per Animal:	16.6	23.8	15
Males per 100 Females:			
Juveniles per 100 Females			

Satisfaction Based Objective	60%
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	2



2025 Hunting Seasons
Targhee Mule Deer (MD101)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
149	Gen	Sep. 1	Sep. 14	Sep. 15	Sep. 30		Antlered mule deer four (4) points or more on either antler or any white-tailed deer
149	3	Sep. 1	Sep. 14	Sep. 15	Nov. 30	25	Any white-tailed deer
149	8	Sep. 1	Sep. 14	Sep. 15	Nov. 30	25	Doe or fawn white-tailed deer

2025 Regional H Non-Resident Quota: 350 licenses

2024 Hunter Satisfaction: 58.6% Satisfied, 24.2% Neutral, 17.2% Dissatisfied

2025 Management Summary

Hunting Season Evaluation
This herd is managed with a hunter satisfaction objective (60%) instead of a trend count or population model because the majority of deer migrate to winter ranges in Idaho. Hunter satisfaction was 58.6% in 2024. Hunter satisfaction has been below objective for the past two years, which can be explained by the severe winter conditions in 2022/2023 and the population decline. Hunting opportunity in this herd unit is limited due to few access points to public lands, steep terrain, and fall migration of mule deer to Idaho. A total of 99 active hunters harvested 17 mule deer in the herd unit in 2024. Hunter satisfaction is expected to increase as the herd recovers.

This mule deer herd is still recovering from the severe winter in 2022/2023, similar to other herds in Region H. In 2025, the 4-point or more antler point restriction will remain in effect. The season length is extended by 5 days to close September 30 because mule deer numbers are recovering. The non-resident quota for Region H increased by 50 licenses this year to 400.

Eight white-tailed deer were harvested in 2024 (3 with a Type 3 license and 5 with a Type 8 license). Hunter satisfaction was 75%. Keeping white-tailed deer numbers low in this area is a priority for managers. There are no changes to white-tailed deer licenses in 2025.

Management Objective Review
The objective and management strategy for the Targhee Mule Deer Herd was last evaluated in and approved in 2024, and will not be reviewed again until 2029.

Chronic Wasting Disease Monitoring and Management

The Targhee Mule Deer Herd has limited CWD prevalence data available, and no CWD management actions have occurred. Despite limited data, the annual and five-year average CWD prevalence estimates, sample sizes, confidence intervals, and percent of harvest sampled for CWD are presented below for 2020-2024 (Table 1). This herd has not been prioritized for CWD surveillance because deer harvest is very low and widely dispersed in the herd unit, which makes encountering hunter-harvested deer to sample very difficult. CWD has not been detected in this herd.

Table 1. Chronic wasting disease prevalence for hunter-harvested mule deer in the Targhee Mule Deer Herd, 2020-2024

Year(s)	Percent CWD-Positive and sample size (*n*) *Hunter Harvest Only*			Percent of harvested adult males sampled
	Adult Males (CI = 95%)	Yearling Males	Adult Females	
2020	0% (n=0)	0% (n=0)	0% (n=0)	0
2021	0% (n=1)	0% (n=0)	0% (n=0)	3.6
2022	0% (n=2)	0% (n=0)	0% (n=0)	5.3
2023	0% (n=0)	0% (n=0)	0% (n=0)	0
2024	0% (n=1)	0% (n=0)	0% (n=0)	5.9
2020-2024	0% (0-60.2%, n=4)	0% (0-100%, n=0)	0% (0-100%, n=0)	3.7

2024 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2024 - 5/31/2025

HERD: MD131 - WYOMING RANGE

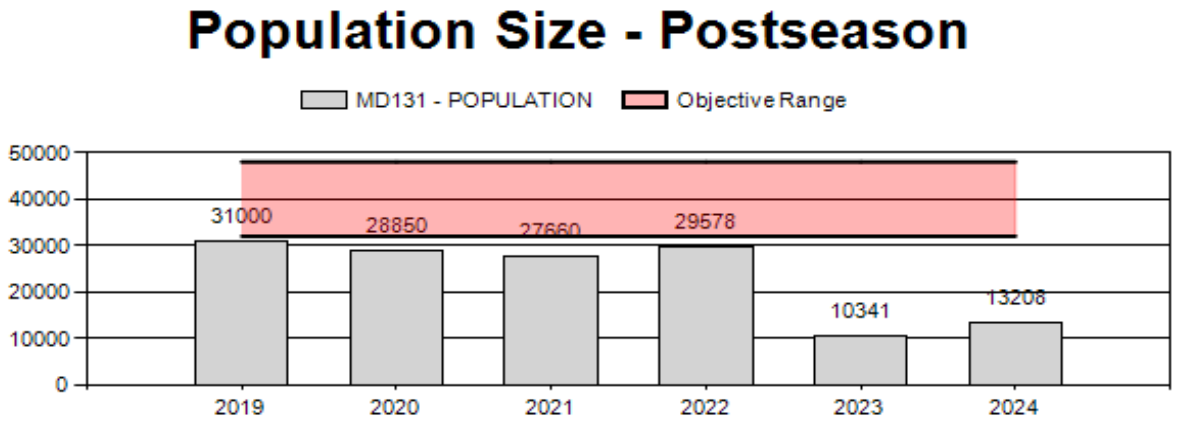
HUNT AREAS: 134-135, 143-145
PREPARED BY: GARY FRALICK

	2019 - 2023 Average	2024	2025 Proposed
Population:	25,486	13,208	16,000
Harvest:	1,384	620	830
Hunters:	4,520	2,978	3,100
Hunter Success:	31%	21%	27 %
Active Licenses:	4,520	2,977	3,100
Active License Success:	31%	21%	27 %
Recreation Days:	25,618	15,696	17,000
Days Per Animal:	18.5	25.3	20.5
Males per 100 Females	32	29	
Juveniles per 100 Females	62	83	

Population Objective (± 20%) :	40000 (32000 - 48000)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-67.0%
Number of years population has been + or - objective in recent trend:	7
Model Date:	02/18/2025

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	JCR Year	Proposed
Females ≥ 1 year old:	NA%	NA%
Males ≥ 1 year old:	25%	17%
Proposed change in post-season population:	1%	1%



2025 HUNTING SEASONS
WYOMING RANGE MULE DEER HERD (MD131)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
134	Gen	Sep. 1	Sep. 30	Oct. 1	Oct. 6		Antlered mule deer or any white-tailed deer
134	Gen-Youth only	Sep. 1	Sep. 30	Oct. 1	Oct. 12		Antlered mule deer or any white-tailed deer; youth only
135	Gen	Sep. 1	Sep. 30	Oct. 1	Oct. 6		Antlered mule deer four (4) points or more on either antler or any white-tailed deer
135	Gen-Youth only	Sep. 1	Sep. 30	Oct. 1	Oct. 12		Antlered mule deer or any white-tailed deer; youth only
143	Gen	Sep. 1	Sep. 14	Sep. 15	Sep.30		Antlered mule deer four (4) points or more on either antler or any white-tailed deer
144	Gen	Sep. 1	Sep. 14	Sep. 15	Sep.30		Antlered mule deer four (4) points or more on either antler or any white-tailed deer
145	Gen	Sep. 1	Sep. 14	Sep. 15	Sep.30		Antlered mule deer four (4) points or more on either antler or any white-tailed deer
145	3	Sep. 1	Sep. 14	Sep. 15	Nov.15	25	Any white-tailed deer
145	3			Nov. 16	Jan. 31		Antlerless white-tailed deer
145	8			Nov. 1	Jan. 31	25	Doe or fawn white-tailed deer

2025 Region G Nonresident Quota: 250 licenses

2024 Hunter Satisfaction: 34% Satisfied, 25% Neutral, 41% Dissatisfied

2025 Management Summary

Hunting Season Evaluation
Throughout the herd unit, the guiding management strategy in recent years has been the elimination of antlerless seasons, antlered deer only hunting, the adoption of Antler Point

Restrictions (APRs) to protect yearling bucks in some years, and generally, assuring seasons close prior to the onset of the fall migration.

In the southern portion of the deer herd (Areas 134 and 135), shorter deer seasons that typically allow only one weekend were retained in 2025. The youth only season will give youth hunters the option of hunting two weekends. In a major departure in deer management over the last 10 years, antler point restrictions will be removed in Hunt Area 134 in 2025.

Deer seasons in the northern areas (Areas 143, 144, and 145) were adjusted in 2025 to reflect the increasing deer population and positive response of higher buck and fawn ratios because of high over-winter survival. That adjustment will entail the addition of 5 days to season length, while retaining the 4-point or more antler point restriction (APR) for antlered mule deer in Areas 143 – 145. The 2025 hunting season will be the third consecutive and final year, in which APRs will be implemented in the northern hunt areas after observing buck to doe ratios that currently approach or achieve the management objective of 30-45 bucks to 100 does. The season extension is also in response to public comment about the 2024 season being too short, forcing all the hunters into the herd unit at the same time, rather than spreading out pressure over a longer season duration.

The effects of 2023 winter mortality were the most severe in at least 40 years. The doe:fawn ratio was observed at 34 fawns:100 does; the lowest in the historical record of the herd (Figure 1, Appendix A). Nonetheless, the favorable winter conditions that followed the 2023 winter resulted in doe:fawn ratios that achieved the highest ratios in 20+ years at 83 fawns:100 does. Fawn ratios in Areas 134 and 135 climbed to all-time highs during the current year attaining a historical high of 88 fawns:100 does (Figure 1, Appendix A).

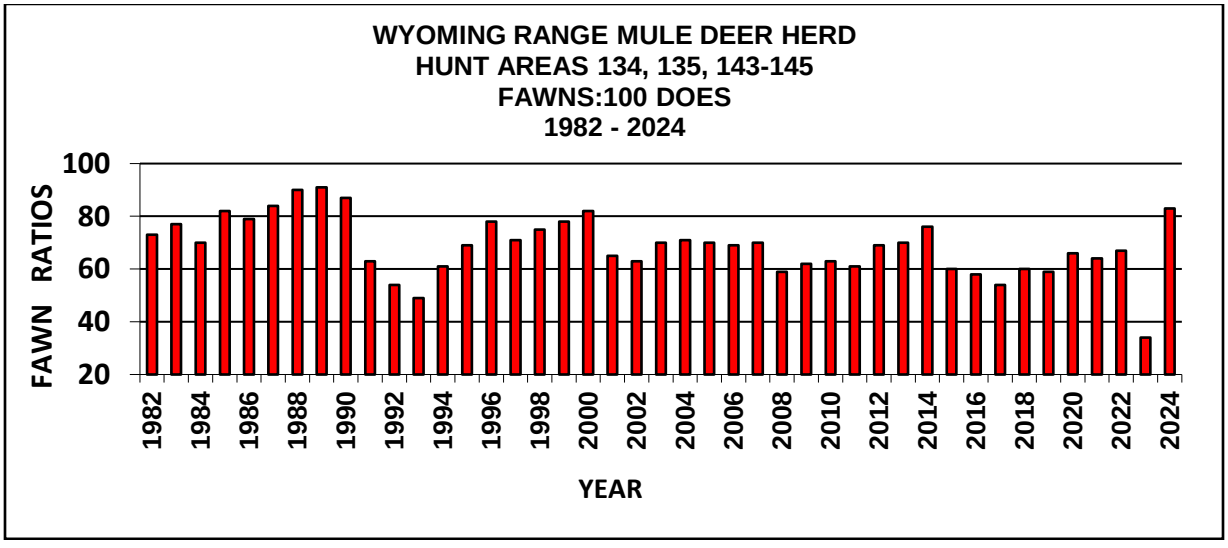


Figure 1. Fawn ratios for the Wyoming Range mule deer herd, 1982-2024.

Buck:doe ratios rebounded from 24 bucks:100 does in 2023 to 28 bucks:100 does in 2024 (Figure 2). The most notable change occurred on the LaBarge area winter ranges where buck ratios increased from 19 bucks in 2023 to 31 bucks:100 does in 2024.

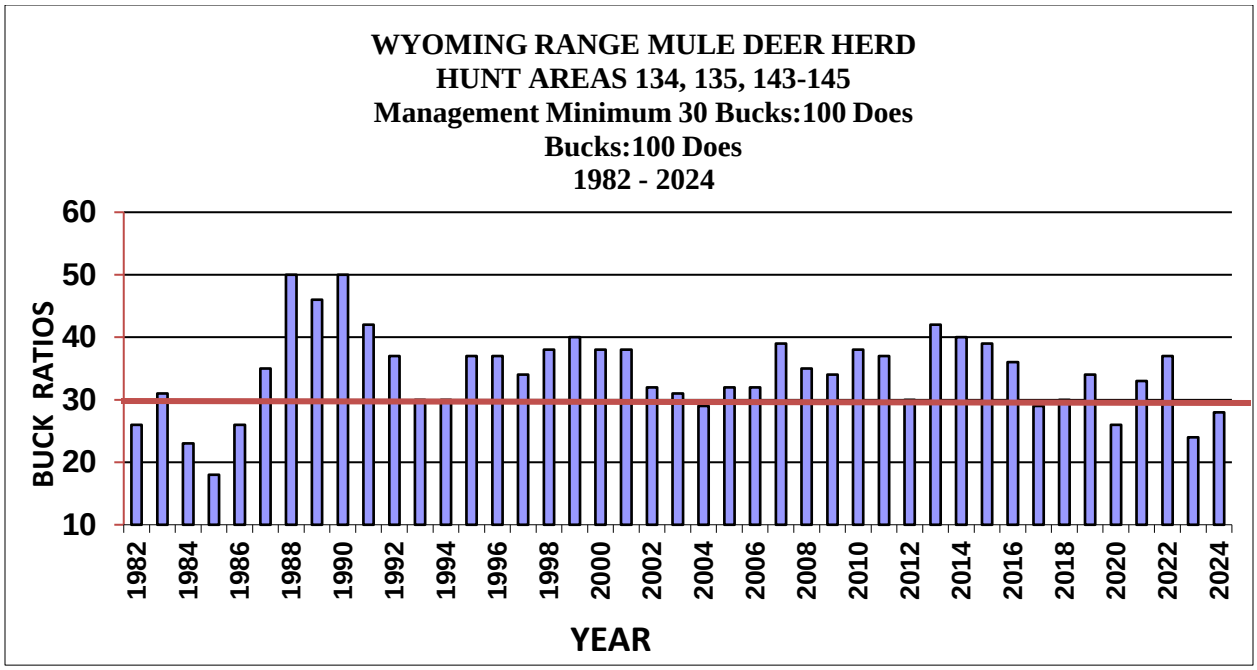


Figure 2. Buck ratios for the Wyoming Range mule deer herd, 1982-2024.

Harvest within the herd unit continues to remain at historic lows, which reflects the low population number, hunter participation, and more conservative season structures. The number of deer harvested during the 5-year period from 2019-2023 averaged 1,384 mule deer; only 412 deer were harvested in 2023. That level of harvest did not exhibit any substantial increase in 2024 with only 620 bucks reported in the harvest.

Hunter satisfaction remains at historic lows, with 34% of hunters surveyed indicating they were satisfied and 41% were dissatisfied in 2024. The general dissatisfaction with the 2024 mule deer hunt experience is unsurprising as the population recovers from the 2023 extreme winter mortality event.

Management Objective Review

The objective and management strategy for the Wyoming Range Mule Deer Herd was last evaluated and approved in 2021, and will not be reviewed again until 2026.

Chronic Wasting Disease Monitoring and Management

The Wyoming Range mule deer herd is prioritized for CWD sampling every year. The sample goal of 200 adult males was not obtained in 2024, but the desired sample goal was collected during the period from 2020-2024. A total of 459 samples from adult males were collected during this period (Table 1). During the 2022 sampling period there were two (2) hunter-harvested adult male deer that tested positive. This level of effort provides managers with a more confident and precise estimate of CWD prevalence (0.7% prevalence). With such a low prevalence rate of <1%, CWD is not a significant driver of this population. Since 2020, an average of 8% of all harvested adult mule deer have been sampled

Table 1. CWD prevalence for hunter-harvested mule deer in the Wyoming Range Herd, 2020 - 2024.

Year	Percent CWD-Positive and sample size (n) *Hunter Harvest Only*			Percent of Harvested Adult Males Sampled
	All Adult Male Deer (CI = 95%)	Yearling Males	Adult Females	
2020	0 (n=80)	0% (n-13)	0.0% (6)	5.1
2021	0.6%, 1, (n=176)	0% (n=30)	0.0% (n=17)	10.5
2022	1.4%, 2, (n=140)	0% (n=20)	0.0% (n=7)	7.9
2023	0, (n=27)	0% (n=1)	0.0% (0)	6.5
2024	0, (n=36)	0% (n=1)	0.0% (1)	5.8
2020-2024	0.7%,n=3 (0.1 – 1.9%) (n=459)	0% (65)	0.0% (31)	7.6

Population Modeling

The bio-year 2024 postseason population estimate for this herd unit was 13,208 (CL =11,152 – 15,686) mule deer (2024 JCR Evaluation Form and February 18, 2025 IPM Analysis Report). The most recent sightability survey abundance estimate was conducted in January 2024 and reported in the 2023 Job Completion Report (pages 6-22).

This model was reviewed by Speedgoat Wildlife Solutions, LLC, in Missoula, Montana, as well as the Department's Science, Research, and Analytic Support Unit (SRA), and regional personnel in the Jackson, Pinedale, and Green River Regions for relevancy and accuracy. All entities who reviewed the IPM agree the model's integrity at depicting the population dynamic and parameters of the Wyoming Range IPM is accurate and appropriate.

IPM convergence is likely, with all Rhat values only slightly higher (1.16 and 1.49) than the desired level (>1.1). Buck and fawn ratio estimates produced by the IPM align very well with the recorded data for this herd.

Additional Management Data

Weather

1.) Precipitation: The Parameter-Elevation Relationships on Independent Slopes Model (PRISM) was utilized to estimate precipitation by calculating a climate-elevation regressions for each Digital Elevation Model grid cell (4km resolution) for the Wyoming Range Mule Deer Herd Unit during the period from October 2023 through September 2024 (water year). Annual precipitation was lower than the 30 year (Oct-Sept) average. Precipitation during the growing season (April-June) was below the 30 year average, and precipitation during the spring-summer period (May-July) was also below the 30 year average. The 2023-2024 monthly winter precipitation was below average during November and December, and above average during January, February, and March. Monthly 2024 spring precipitation was below average across the herd unit during both April and May. Summer 2024 precipitation was below average during June and July, and above

average during August. Herd unit precipitation during fall 2024 was below average between September and mid-November (Figure 3).

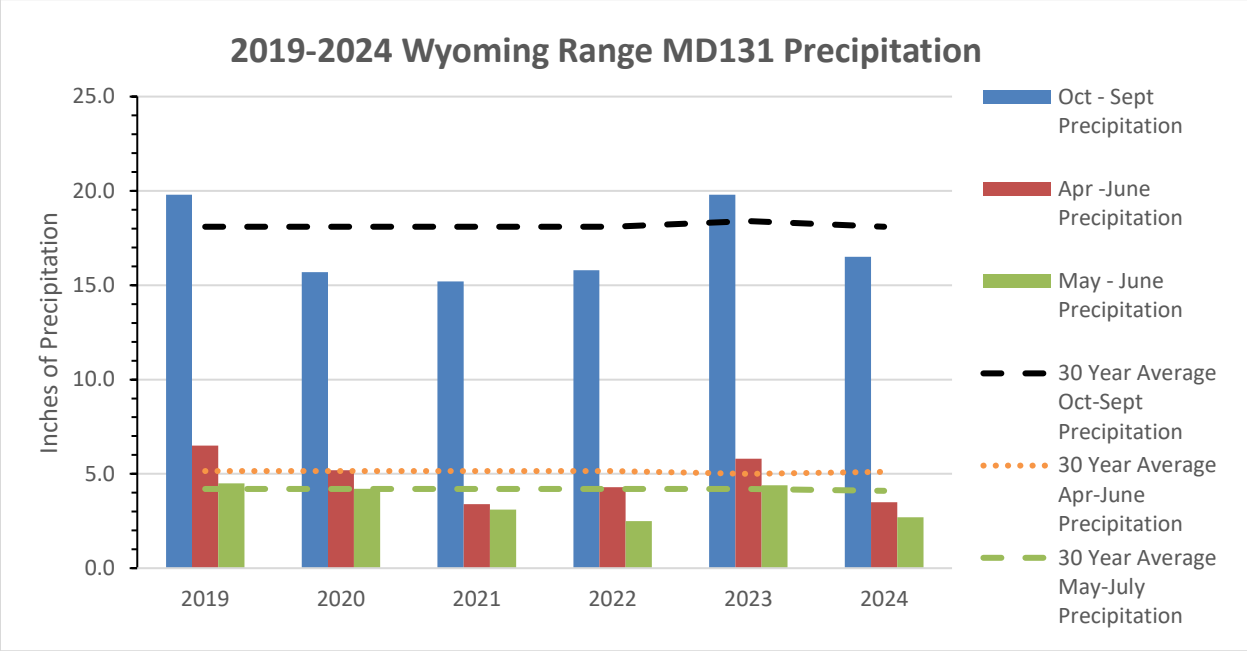


Figure 3. A summary of precipitation (inches) recorded in the Wyoming Range mule deer herd, 2029-2024.

2.) Winter Severity**:** Winter conditions on most winter ranges have been relatively mild and have remained generally open. Shrubs have consistently been available and snow depths have not greatly impacted movement or accessibility. Most low elevation winter ranges experienced a wide range of average monthly snow fall accumulation between November 2024 and February 25, 2025. Reporting locations recorded the following snowfall as a percentage of their long term average snow accumulation: Randolph Utah 29%, Afton 149%, Fossil Butte 107%, and Randolph Utah 88%. SNOWTEL sites at higher elevations showed the snow water equivalent ranging from 114-127% of the median as of February 25, 2025 (120% average across 9 stations), suggesting well above average soil moisture conditions at all locations to begin the 2025 growing season. Average winter 2024-2025 monthly temperatures recorded from locations near winter ranges showed colder temperatures than the long term monthly averages during November and January, and warmer than the average temperatures in December and February.

Habitat

Significant Events: Several habitat improvement efforts occurred within the herd unit during 2024. Approximately 196 acres of aspen conifer mixed stands west of Big Piney and La Barge were treated with prescribed fire to promote aspen regeneration. Three and four tenths miles of fence were converted to wildlife friendly specifications on the Calpet winter range complex. Eleven and seven tenths miles of net-wire fencing was replaced with wildlife friendlier fences along migration routes between the Tunp Range and Smith's Fork River, and the west side of Raymond Mountain. BLM treated Approximately 29,372 acres with aerial Imazapic herbicide to control cheatgrass in

the Rock Creek, Tunp Range, and Christy Canyon areas. Mosaic sagebrush mowing treatments occurred on 1,908 acres of winter range in the east Sillem Ridge area. More details about these projects can be found in the Pinedale and Green River Region sections of the 2024 Statewide Habitat Plan (SHP) report.

Habitat Monitoring: Winter range shrub transects were monitored at five locations through the Calpet/Little Colorado winter range during 2024 to evaluate trends in annual leader growth of true mountain mahogany. The average annual mahogany leader growth of all five sites during 2024 was 1.19 inches, which was less than the long-term average leader growth of 2.72 inches. Department personnel also conducted monitoring associated with past and future cheatgrass control and sagebrush mowing treatments throughout the herd unit during 2024.

Rapid Habitat Assessments: Rapid Habitat Assessments (RHA) were first implemented by the Department in 2015 to generally characterize conditions of important habitat types on the landscape within Mule Deer Initiative Herd Units. Summarized RHA data are used as a habitat component during herd population objective reviews to evaluate whether or not deer numbers are in balance with sustaining habitat at an acceptable level or higher quality condition.

Department personnel completed 395 acres of rangeland RHAs, 328 acres of special feature (tall forb communities) RHAs, 16 acres of riparian RHAs, and 13 acres of aspen RHAs within the Wyoming Range Herd Unit during 2024. Surveys were conducted in summer, migration, and crucial winter range mule deer habitats. Approximately 9% of the acres surveyed in 2024 met objectives for good quality mule deer habitat, 11% of acres surveyed partially met habitat objectives with and upward trend, 5% of the acres were partially meeting habitat objectives, 75% of surveyed acres were partially meeting habitat objectives with a downward trend, and 0% of acres were not meeting habitat condition objectives.

Change-in-Ratio

An Estimation of Winter Fawn Loss Based on the December – April Change-In-Ratio Metric: A systematic survey has been conducted since 1986 in the Wyoming Range herd to estimate minimum winter fawn mortality. The objective has been to determine the percent change in the proportion of fawns to adults from December to April as a relative index of winter fawn mortality on the largest and most expansive sagebrush-dominated winter ranges near LaBarge, Kemmerer, and Evanston. The comparative change in the proportion of fawns:100 adults from the late fall to the following spring provides a relative minimum estimate of the proportion of fawns lost over the winter. Since 1993 the highest years of winter fawn mortality have occurred, on average, approximately every four years (Figure 4). The years with the high estimated fawn mortality occurred in 1993, 2002, 2004, 2011, 2017, 2019, 2020, and 2023 respectively. The highest estimated fawn mortality occurred in 2017 (-86%) and 2023 (-92%), respectively. The estimated losses observed in 2023 are unprecedented in the history of the Wyoming Range mule deer herd. The Wyoming Range herd was conceptualized in 1982.

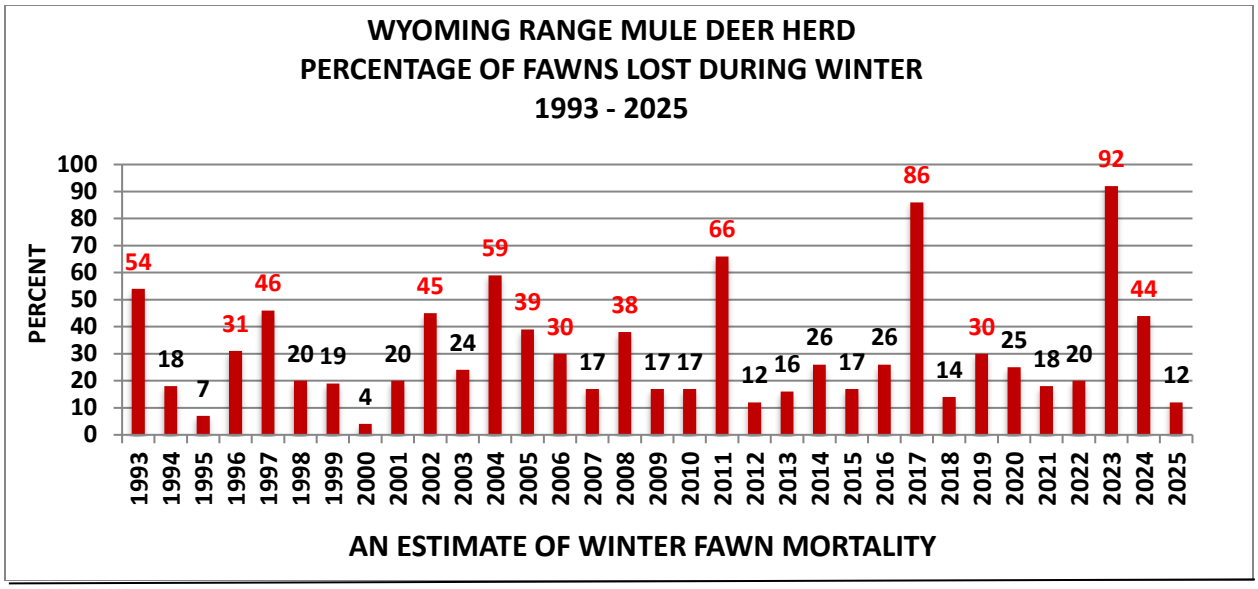


Figure 4. An estimate of minimum winter fawn mortality based on the change of fawns:adults ratio from December to April, 1992 – 2025.

Research – Focal Herd and University of Wyoming/Haub School

Focal Herd Research

The Focal Herd research program and captures commenced on December 19, 2022. In continuation with this initial effort the Department conducted additional captures on December 5, 2023 on LaBarge, Cokeville, Evanston, and Kemmerer winter ranges to supplement the sample size initiated in 2022 (2022 Job Completion Report, Wyoming Range Mule Deer Herd, Wyoming Game and Fish Department).

In December 2024, a total of 73 collars (7 bucks, 5 does, and 61 fawns) were deployed on mule deer captured on Wyoming Range herd winter ranges to supplement deer mortality observed in 2024. On the Big Piney winter ranges, 3 bucks, 2 does, and 15 fawns were captured and collared. The remaining 4 bucks, 3 does, and 46 fawns were captured on the southern winter ranges located near Kemmerer, Evanston, and Cokeville. Deer were not captured on the Star Valley/Salt River winter ranges because the low percentage of mule deer, typically < 5% of the Wyoming Range population, is not representative of annual population survival of mule deer that spend the winter on the expansive low-elevation, sagebrush-dominated winter ranges.

As expected, annual mule deer survival increased during the 2023-2024 and 2024-2025 winters above the extreme losses observed during the 2022-2023 winter (Figures 5, 6, 7). During the 2022-2023 winter, survival was estimated to be the lowest in herd unit history. Winter conditions reflected persistent sub-zero, ambient temperatures and well-above normal snow accumulations on core, sagebrush-dominated winter ranges. Consequently, over winter survival for collared Focal Herd deer was estimated at 39%, 31%, and 0 for bucks, does, and fawns, respectively (Figure 5).

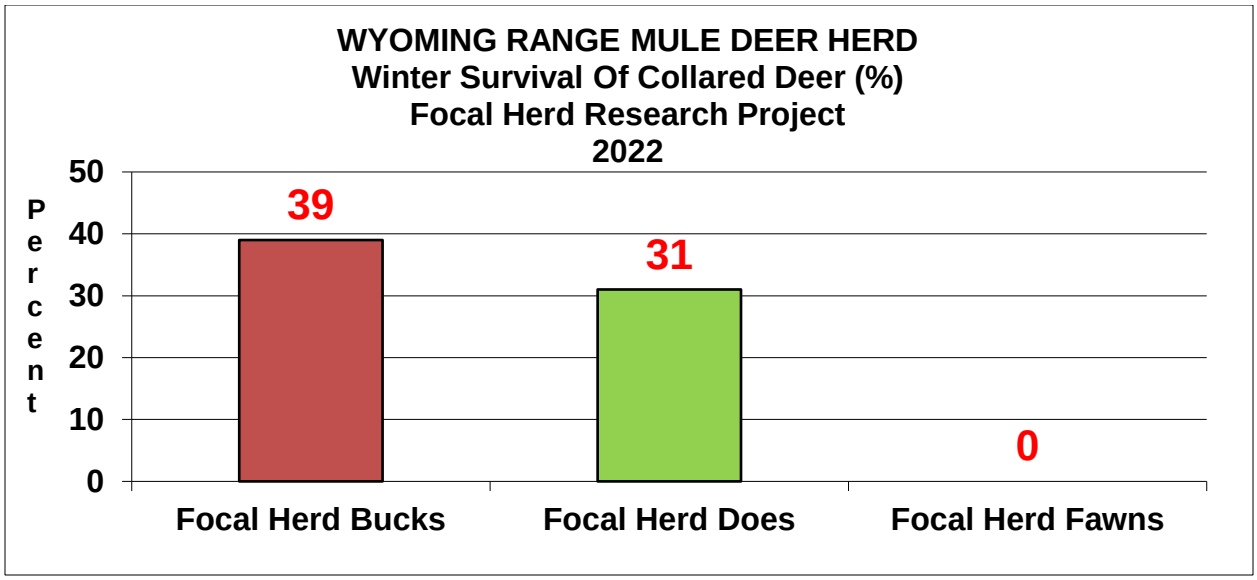


Figure 5. A summary of over-winter survival of bucks, does, and fawns, Wyoming Range Focal Herd research program, Wyoming Range Mule Deer Herd, 2022.

In 2023 (Figure 6) and 2024 (Figure 7) over-winter survival for males and females exceeded 90%, respectively. During the same two-year period, fawn survival was estimated at 56% (Figure 6) and 73% (Figure 7), respectively.

In years of low snow accumulations and general absence of prolonged subzero temperatures during the winters of 2023-24 and 2024-25, the open, snow-free conditions allowed deer to access forage that is not covered by snow. Consequently, deer dispersed over the entire winter range to utilize forage at 9,000 feet in elevation. Additionally, high precipitation zones that approach 30" or more on Wyoming Range mule deer summer ranges allow a diversity of plants to grow which enables doe deer to produce and care for viable and healthy fawns before they migrate to winter ranges

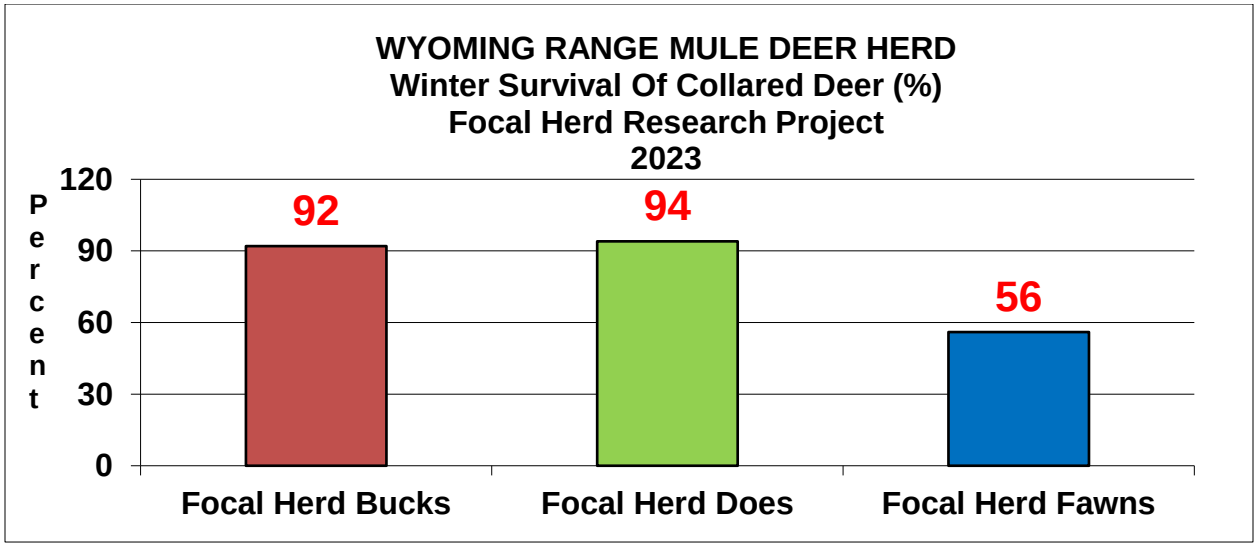


Figure 6. A summary of over-winter survival of bucks, does, and fawns, Wyoming Range Focal Herd research program, Wyoming Range Mule Deer Herd, 2023.

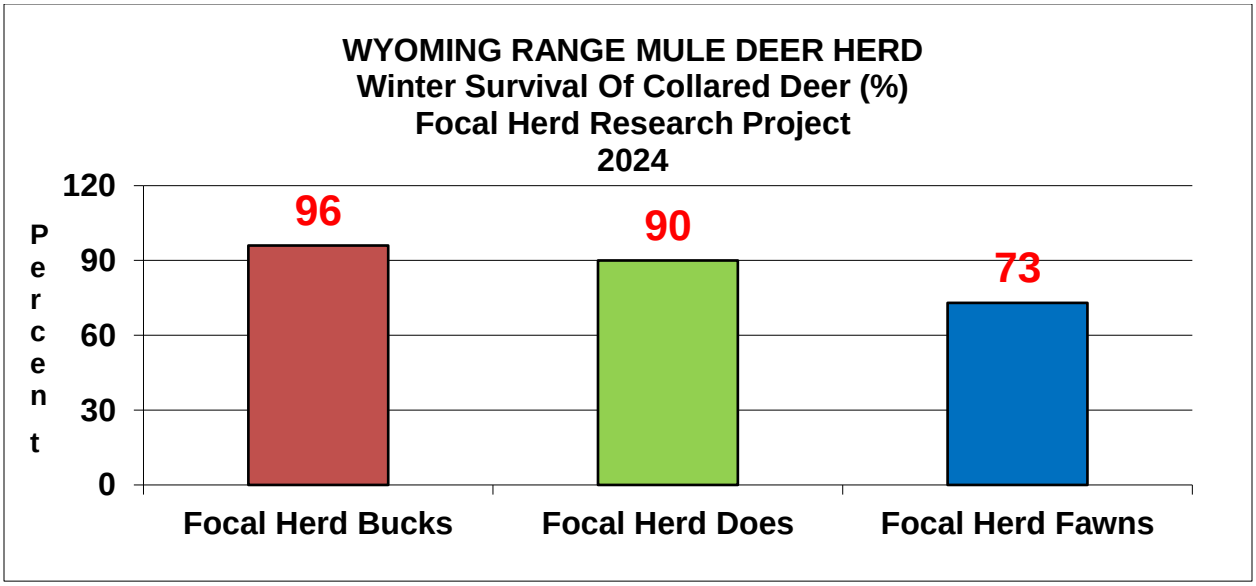


Figure 7. A summary of over-winter survival of bucks, does, and fawns, Wyoming Range Focal Herd research program, Wyoming Range Mule Deer Herd, 2024.

Concurrent with the collaring operation was an effort to quantify the weight of fawns at time of capture. Those data are provided in Table 2, and summarize the weights of fawns since that metric was first collected in 2024.

December fawn weights reflect body condition of the dam and summer range conditions, among other factors associated with the biotic and abiotic environment. During fall captures, mean weights of male and female fawns were slightly heavier in 2024 versus 2023, respectively (Table 2).

Table 2. Juvenile mule deer weights at time of capture, Focal Herd research project, Wyoming Range mule deer herd, 2023-2025.

Sex	Winter	n	Capture Start	Capture End	Mean Wt (lbs)	Min	Max	95% CI
F	2023/24	22	2023.12.2	2023.12.5	74.73	63	88	71.53-77.93
F	2024/25	21	2024.12.5	2024.12.12	76.03	61	100	71.92-80.14
M	2023/24	21	2023.12.2	2023.12.5	76.05	57	92	72.2-79.9
M	2024/25	24	2024.12.5	2024.12.6	82.44	66	102	79.28-85.6

Wyoming Range Mule Deer Research Project – University of Wyoming/Haub School

Body Condition and MAXFAT Metrics

Fall body condition and survival metrics were measured for 89 adult females, 38 adult males, and 53 juveniles during the current winter. The body condition metrics are presented in Figures 8 and 9. Annual winter survival estimates for the age and sex cohorts for the period 2013-2025 are presented in Figures 10, 11, and 12.

Fall body condition is a manifestation of MAXFAT, which reflects the collective thickness of rump fat and to an extent, the experience of doe deer to the biotic and abiotic environment associated with Wyoming Range summer ranges. MAXFAT is often used as a predictor to Ingesta Free Body Fat (IFBF)) which is more of a representation of the total fat content, excluding digestive content, of a deer's body. Consequently, the December 2024 body fat percentages, expressed as MAXFAT, for female deer captured on the North and South Winter ranges were 13% and 12%, respectively (Figure 8).

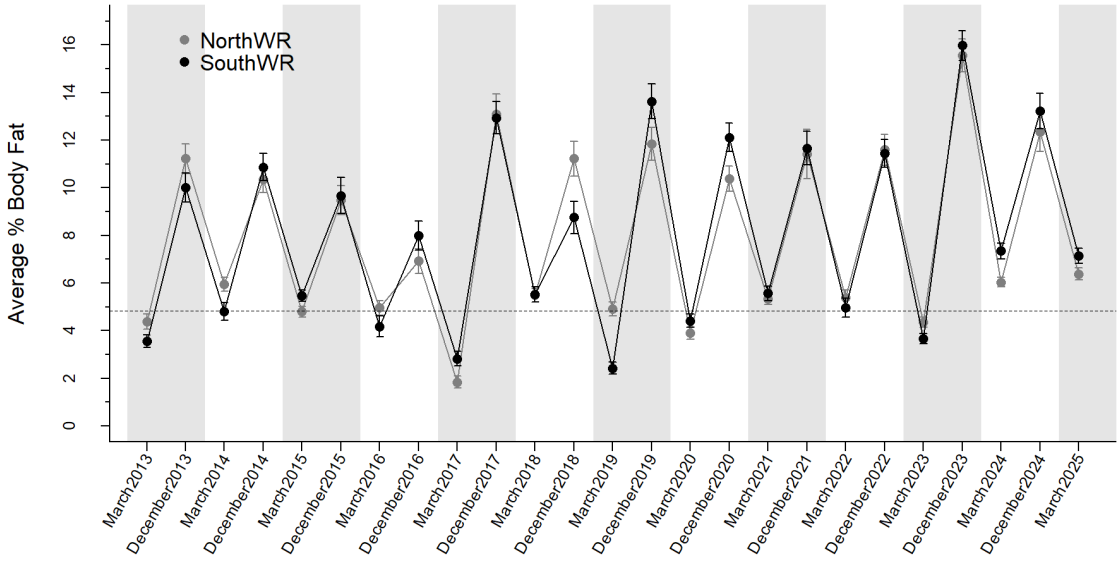


Figure 8. Average MAXFAT (%) estimates of adult female mule deer, December and March, University of Wyoming/Haub School mule deer research project, Wyoming Range Mule Deer Herd, 2013 – 2025.

December body fat percentages of lactating females and non-lactating females during the period of March 2013 – December 2024 describe, in part, the biotic and abiotic conditions on summer ranges (Figure 9). Moreover, body condition metrics expressed as percentages in December 2017, 2019, and 2023 reflect all-time high body fat metrics but are also indicative of high to extreme winter mortality that was observed during the preceding winters of 2016-2017, 2018-2019, and 2022-2023, respectively.

It was during and immediately subsequent to these winters that females lost their fawns during the parturition period because of severely depleted body fat and extremely poor physical condition

(Figure 1, Appendix A). Neonatal fawns were still-born, or died shortly after birth. Consequently, females were liberated from the energetic demands of lactation and fawn rearing, which allowed non-lactating, females to maximize summer forage resources to achieve high (typically >13% or higher) December body condition metrics (Figure 9).

MAXFAT percentages in December that exceed 13% also are indicative of substantial population decline as a result of the previous winter's severity. Evidence of this phenomenon are reflected in December 2023 when MAXFAT body condition metrics approached 20% (Figures 8 and 9), which was the highest December metric on record since inception of the project in 2013.

These metrics are indicative of not only substantial population decline but on a female deer's ability to maintain growth of a viable fetus and produce a healthy fawn. Ultimately the females's inability to produce, provision and recruit fawns into the fall population were observed in postseason herd composition surveys (Figure 1, Appendix A) and in the annual over-winter survival metrics (Figures 10, 11, and 12).

While record high December MAXFAT percentages may project future positive population performance, there were more immediate and sobering impacts of the 2022-2023 winter. Those impacts were associated with historic population level effects. Those effects were: a). loss of at least two age/sex cohorts, b) population decline, c) low postseason doe:fawn ratios, d). low sex/age specific survival estimates, and e) all-time low population estimate.

These metrics provide a foundation for Wyoming Range deer managers to consider in the overall management of the herd. The degree to which deer managers interpret and understand the complex interactions of the biotic and abiotic conditions that result in MAXFAT and survival metrics are essential components population and habitat management. Moreover, management-specific data that pertain to harvest statistics, herd composition data, public sentiment, and habitat management are the foundational components of the management program that guides the research.

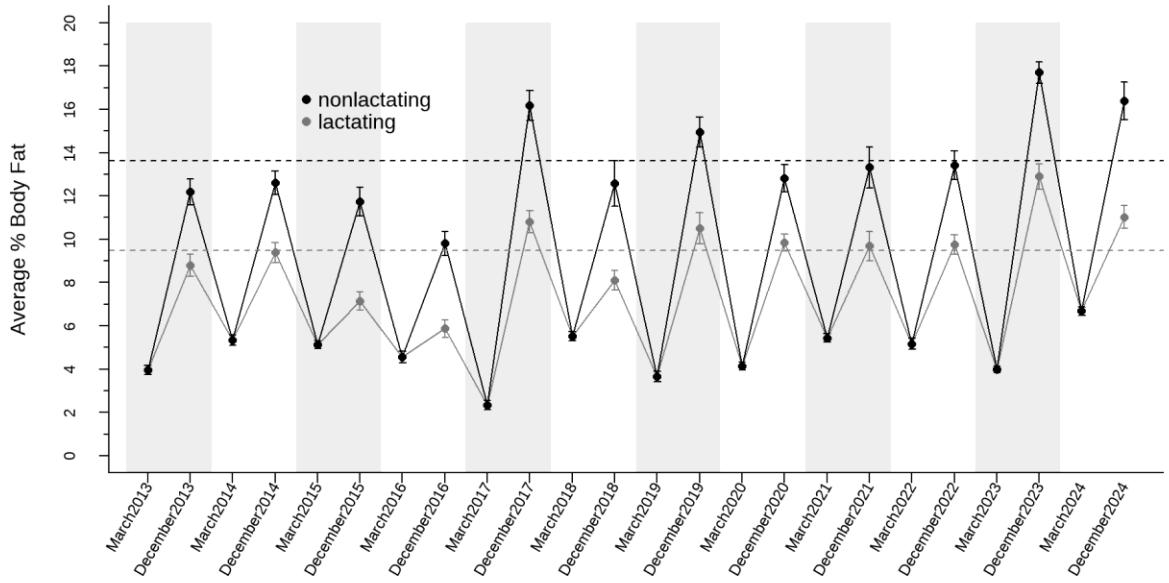


Figure 9. Average MAXFAT (%) estimates of non-lactating and lactating adult female mule deer, December and March, University of Wyoming/Haub School mule deer research project, Wyoming Range Mule Deer Herd, 2013 – 2025.

Overwinter Survival Metrics

Concurrently with December body fat percentages of female deer, winter survival estimates of mule deer were monitored from November 1 – April 30 for the period from 2013 – 2025. Survival estimates for females, males, and juveniles are provided in Figures 10, 11, and 12, respectively. Survival estimates describe specific outcomes of radio-collared males, females, and juveniles that spend the winter on the large, expansive sagebrush-dominated winter ranges near Big Piney/LaBarge and Cokeville/Kemmerer/Evanston.

Over-winter adult female survival and subsequent fawn production and recruitment reflects winter severity, and provides a key indicator on the population's potential to affect positive growth. Consequently, sustained annual population growth, as a function of adult female survival and reproductive potential, has been severely compromised by high to extreme winter mortality during 2016-2017, 2018-2019, and 2022-2023 winters (Figure 10).

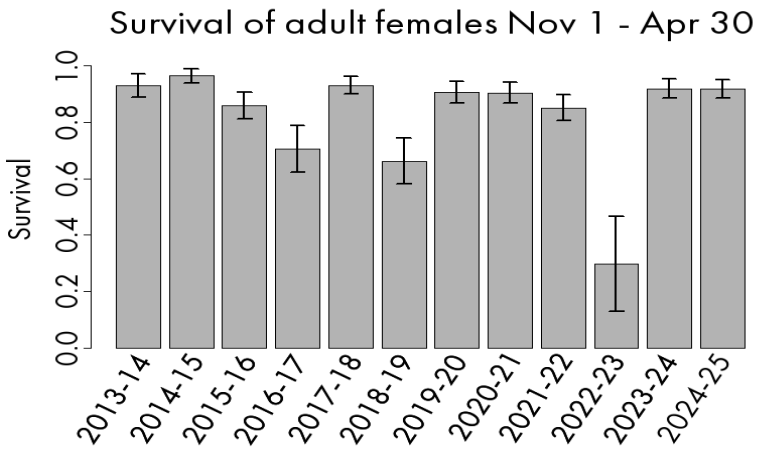


Figure 10. Survival (%) estimates of adult female mule deer from November 1 – April 30, University of Wyoming/Haub School mule deer research project, Wyoming Range Mule Deer Herd, 2013 – 2025.

There are currently 28 radio-collared adult males that are alive and being followed by University of Wyoming personnel. During the most recent 2024-25 winter adult male survival was observed at approximately 94%, which is reflective of daily ambient air temperatures that are consistently above 0 degrees Fahrenheit as well as open and snow-free conditions on core winter ranges (Figure 11).

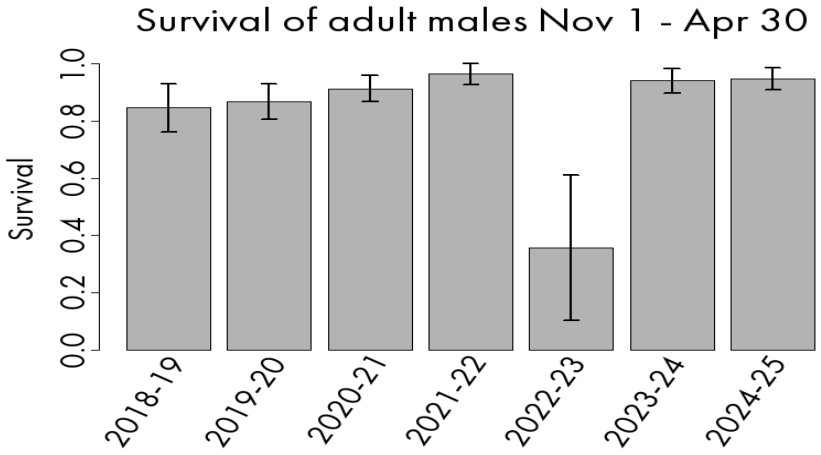


Figure 11. Survival (%) estimates of adult male mule deer from November 1 – April 30, University of Wyoming/Haub School mule deer research project, Wyoming Range Mule Deer Herd, 2018 – 2025.

There are currently 27 radio-collared juveniles still alive and being followed by University of Wyoming personnel. During the most recent 2024-25 winter juvenile survival was observed at approximately 50% (Figure 12).

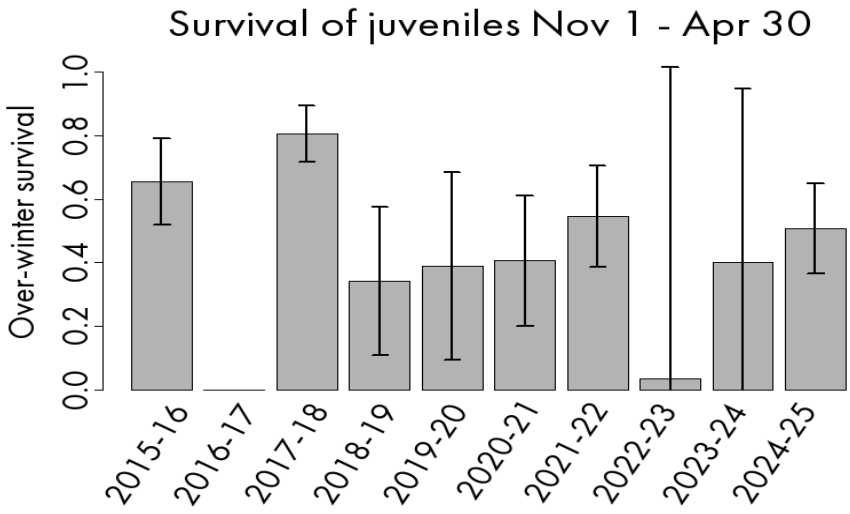


Figure 12. Survival (%) estimates of juvenile mule deer from November 1 – April 30, University of Wyoming/Haub School mule deer research project, Wyoming Range Mule Deer Herd, 2015 – 2025.

Appendix A. Wyoming Range Mule Deer Herd, posthunt herd composition data, 2017-2024.

							Ratio:100 Females			
2017*	Yrlng Males	Adult Males	Total Males	Does	Fawns	Total	Yrlng Males	Adult Males	Total Males	Fawns
HA134	14	153	167	672	389	1228	2	23	25	58
HA135	47	282	329	1105	701	2135	4	25	30	63
HA143	111	348	459	1547	701	2707	7	22	30	45
144/145	Sightability Survey Conducted in February 2018					1405				
TOTAL	172	783	955	3324	1791	7475	5	23	29	54
2018*	Herd Unit Wide Antlered Deer, APR Hunt Season									
HA134	134	135	269	1223	721	2213	11	11	22	59
HA135	197	375	572	1752	1070	3394	11	21	33	61
HA143	178	239	417	1277	742	2436	14	19	33	58
144/145	Survey conducted in February 2019					823				
TOTAL	509	749	1258	4252	2533	8,866	12	18	29	59
2019*	Herd Unit Wide Antlered Deer, APR Hunt Season									
HA134	14	86	100	520	287	907	3	16	19	55
HA135	111	318	429	1346	730	2505	8	24	32	54
HA143	338	365	703	1706	1088	3497	20	21	41	64
144/145	Survey conducted in February 2020					142				
TOTAL	463	769	1232	3572	2105	7051	13	21	34	59
2020	Herd Unit Wide Antlered Deer, 3 points APR Hunt Season									
HA134	14	82	96	635	395	1126	2	13	15	62
HA135	50	260	310	1302	835	2447	4	20	24	64
HA143	120	225	345	937	672	1954	13	24	37	72
144/145	Survey conducted in February 2021					632				
TOTAL	184	577	751	2874	1902	6159	6	20	26	66
2021										
HA134	39	29	68	210	99	377	18	14	32	47
HA135	101	131	232	909	520	1661	11	14	25	57
HA143	141	140	281	620	491	1392	23	22	45	79
144/145	Survey conducted in February 2022					493				
TOTAL	281	300	581	1739	1110	3923	16	17	33	64
2022										
HA134	55	70	125	386	225	736	14	18	32	58
HA135	159	260	419	1283	901	2603	12	20	33	70
HA143	380	411	791	1983	1324	4098	19	21	40	67
144/145	Sightability Survey conducted in February 2023					463				
TOTAL	594	741	1335	3652	2450	7900	16	20	36	67
2023*	Herd Unit Wide Antlered Deer, APR Hunt Season									
HA134	7	36	43	121	37	201	6	30	36	30
HA135	4	43	47	141	60	248	3	30	33	42
HA143	26	74	100	533	174	807	5	14	19	33
144/145	Sightability Survey conducted in January 2024					449				
TOTAL	37	153	190	795	271	1705	5	19	24	34
2024*	Herd Unit Wide Antlered Deer, APR Hunt Season									
HA134	NA	NA	NA	NA	NA	See 134/135	NA	NA	NA	NA
HA134/135	40	168	208	841	738	1787	5	20	25	88
HA143	173	281	454	1470	1191	3115	12	19	31	81
144/145	Survey conducted in January 2025					453				
TOTAL	213	449	662	2311	1929	5355	9	19	28	83

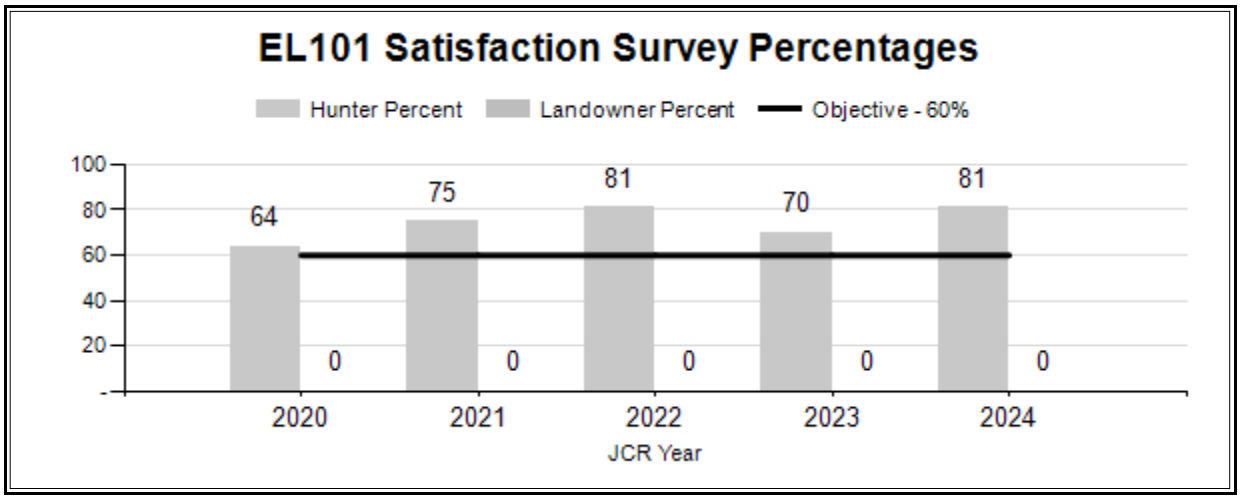
2024 - JCR Evaluation Form

SPECIES: Elk
HERD: EL101 - TARGHEE
HUNT AREAS: 73

PERIOD: 6/1/2024 - 5/31/2025
PREPARED BY: ALYSON COURTEMANCH

	2019 - 2023 Average	2024	2025 Proposed
Hunter Satisfaction Percent	73%	81%	85%
Landowner Satisfaction Percent	NA	NA	NA
Harvest:	46	72	50
Hunters:	122	163	150
Hunter Success:	38%	44%	33%
Active Licenses:	132	182	150
Active License Success:	35%	40%	33%
Recreation Days:	899	1,388	900
Days Per Animal:	19.5	19.3	18
Males per 100 Females:			
Juveniles per 100 Females			

Satisfaction Based Objective	60%
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	5



2025 Hunting Seasons
Targhee Elk (EL101)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
73	Gen	Sep. 1	Sep. 19	Sep. 20	Oct. 25		Any elk
73	6	Sep. 1	Sep. 19				Cow or calf valid in the entire area
73	6			Aug. 15	Jan. 31	35	Cow or calf valid on private land

2025 Nonresident Western Elk Region Quota: 2,775 licenses

2024 Hunter Satisfaction: 81.0% Satisfied, 15.6% Neutral, 3.4% Dissatisfied

2025 Management Summary

Hunting Season Evaluation
This herd is managed with a hunter satisfaction objective (60%) instead of a mid-winter trend count because the majority of elk migrate to winter ranges in Idaho. Hunter satisfaction in 2024 was 81%. Hunting opportunity in this herd unit is limited due to limited access points to public lands, steep terrain, and fall migration of elk to Idaho. Despite relatively low overall harvest numbers (72 elk were harvested in 2024 by 182 active hunters), hunter satisfaction in this herd unit is high and the herd is meeting its hunter satisfaction objective.

There were no changes to the 2025 seasons. Many of these elk migrate into the Island Park Hunting Zone in Idaho, which is over Idaho's management objectives. Due to private lands damage issues, Idaho has relatively liberal late season elk hunting to reduce both cows and bulls in this herd. The numbers and composition of elk in Hunt Area 73 are largely driven by Idaho's elk management. Therefore, Wyoming managers changed the General license season for Hunt Area 73 from an antlered elk, spikes excluded limitation to be valid for any elk beginning in 2024. Restricting harvest in Hunt Area 73 to antlered elk, spikes excluded will not affect herd numbers or composition since the majority of these elk migrate into Idaho during their open hunting seasons. In 2024, General license hunters harvested 40 adult bulls, 4 spike bulls, 26 cows, and 2 calves. We will continue to monitor how this change affects elk harvest and hunter satisfaction in Hunt Area 73 in future years and adjust if necessary.

Management Objective Review
For 2025, the Department is proposing to change the population objective from a Satisfaction Based Objective to a Mid-Winter Trend Count Objective. This proposal is expected to be presented to the public in summer 2025 and is expected to be presented to the Wyoming Game and Fish Commission in fall 2025.

Chronic Wasting Disease Monitoring and Management

The Targhee Elk Herd has limited CWD prevalence data available, and no CWD management actions have occurred. Despite limited data, the annual and five-year average CWD prevalence estimates, sample sizes, and confidence intervals, and percent of harvest sampled for CWD are presented below for 2020-2024 (Table 1). This herd has not been prioritized for CWD surveillance because elk harvest is very low and widely dispersed in the herd unit, which makes encountering hunter-harvested elk to sample very difficult. CWD has not been detected in this herd, however sample size is low, which results in wider confidence intervals and more uncertainty about prevalence.

Table 1. Chronic wasting disease prevalence for hunter-harvested elk in the Targhee Elk Herd, 2020-2024

Year(s)	Percent CWD-positive and sample size (n) *Hunter Harvest Only* **All Adult Elk (CI = 95%)**	Percent of harvested adult elk sampled
2020	0% (n=1)	1.8
2021	0% (n=2)	5.6
2022	0% (n=3)	5.0
2023	0% (n=1)	2.9
2024	0% (n=6)	9.1
2022-2024	0.0% (0-24.7%, n=13)	5.1

2024 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2024 - 5/31/2025

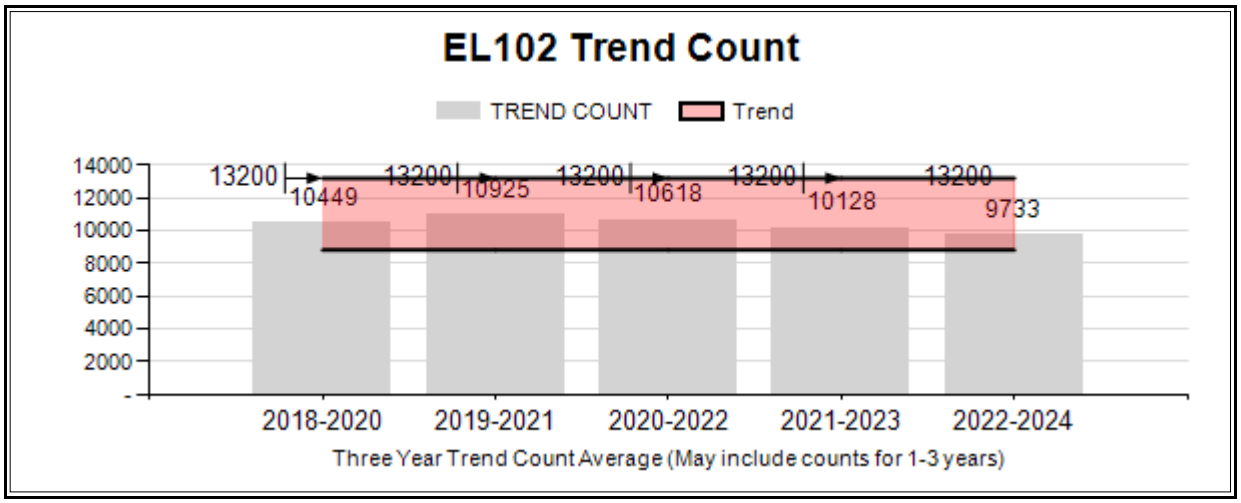
HERD: EL102 - JACKSON

HUNT AREAS: 70-72, 75, 77-83

PREPARED BY: ALYSON COURTEMANCH

	2019 - 2023 Average	2024	2025 Proposed
Trend Count:	10,421	9,870	10,500
Harvest:	1,006	788	600
Hunters:	2,433	2,128	2,000
Hunter Success:	41%	37%	30%
Active Licenses:	2,571	2,303	2,000
Active License Success	39%	34%	30%
Recreation Days:	15,536	15,525	9,000
Days Per Animal:	15.4	19.7	15
Males per 100 Females:	39	30	
Juveniles per 100 Females	22	15	

Trend Based Objective (± 20%)	11,000 (8800 - 13200)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	-10.3%
Number of years population has been + or - objective in recent trend:	3



2019 - 2024 Postseason Classification Summary

for Elk Herd EL102 - JACKSON

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2019		586	1,619	2,205	20%	7,134	66%	1,441	13%	10,780	390	8	23	31	± 0	20	± 0	15
2020*		160	527	687	34%	1,051	52%	287	14%	2,025	290	15	50	65	± 0	27	± 0	17
2021		627	1,855	2,482	23%	6,936	64%	1,474	14%	10,892	484	9	27	36	± 0	21	± 0	16
2022		527	1,660	2,187	22%	6,373	64%	1,414	14%	9,974	446	8	26	34	± 0	22	± 0	17
2023*		173	1,281	1,454	41%	1,697	48%	384	11%	3,535	448	10	75	86	± 0	23	± 0	12
2024*		366	1,440	1,806	21%	6,109	69%	892	10%	8,807	339	6	24	30	± 0	15	± 0	11

*During these years, large numbers of elk were counted but not classified. This was due to various reasons that affected ground classifications on the National Elk Refuge, including COVID restrictions (2020), elk not being fed at the time of the classification due to mild winter conditions (2023), and elk being fed but large groups not coming to the feedlines due to mild weather conditions at the time of the classification (2024).

2025 Hunting Seasons
Jackson Elk (EL102)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
70	Gen	Sep. 1	Sep. 19				Any elk
70	Gen			Sep. 20	Oct. 31		Antlered elk, spikes excluded
71	Gen	Sep. 1	Sep. 19				Any elk
71	Gen			Sep. 20	Oct. 31		Antlered elk, spikes excluded
72							Closed
75	4			Nov. 15	Dec. 7	10	Antlerless elk; the Snake River Bottom and Antelope Flats portions shall be closed
75	6			Nov. 15	Dec. 7	10	Cow or calf; the Snake River Bottom and Antelope Flats portions shall be closed
77				Nov. 1	Nov. 26		General license and unused limited quota licenses; antlerless elk
77	Youth only			Nov. 27	Nov. 30		National Elk Refuge permits shall be issued only for those in possession of a full price youth elk license, any elk; youth only
77				Dec. 1	Dec. 5		General license and unused limited quota licenses, antlerless elk
77	6			Dec. 8	Dec. 19	100	Cow or calf
78	Gen	Sep. 1	Sep. 25				Any elk valid in the entire area
78	Gen			Aug. 15	Oct. 31		Antlerless elk valid on private land
78	1			Aug. 15	Sep. 25	75	Any elk valid off national forest
78	1	Sep. 1	Sep. 25	Sep. 26	Jan. 31		Any elk valid in the entire area
78	2	Sep. 1	Sep. 25				Any elk valid in the entire area

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
78	2			Aug. 15	Oct. 31	50	Any elk valid on private land
78	6			Aug. 15	Sep. 25	175	Cow or calf valid off national forest
78	6	Sep. 1	Sep. 25	Sep. 26	Jan. 31		Cow or calf valid in the entire area
79							Closed
80	Gen	Sep. 1	Sep. 25	Sep. 26	Oct. 31		Any elk
80	6	Sep. 1	Sep. 25	Oct. 15	Nov. 30	25	Cow or calf
81	Gen	Sep. 1	Sep. 25				Any elk
81	Gen			Sep. 26	Oct. 25		Antlered elk, spikes excluded
82	Gen	Sep. 1	Sep. 25				Any elk
82	Gen			Sep. 26	Oct. 25		Antlered elk, spikes excluded
82	4	Sep. 1	Sep. 9	Sep. 10	Nov. 2	40	Antlerless elk
82	4			Nov. 3	Jan. 31		Antlerless elk valid on private land; also valid on private land in Areas 70 and 81
83	Gen	Sep. 1	Sep. 30				Any elk
83	Gen			Oct. 1	Oct. 25		Antlered elk, spikes excluded

2025 Nonresident Western Elk Region Quota: 2,775 licenses

2024 Hunter Satisfaction: 65.9% Satisfied, 18.3% Neutral, 15.8% Dissatisfied

2025 Management Summary

Hunting Season Evaluation

The 2024 mid-winter trend count was 9,870 elk and the 3-year average is 9,733 elk. The calf:cow ratio was 15 and the bull:cow ratio was 30. Both of these are low compared to the most recent 3-year averages of 22 and 34, respectively. This is the third year that the herd has been below the 11,000 objective, but it remains within 20%.

Elk distribution this winter was unusual with very few elk in the Gros Ventre drainage and larger numbers of elk on the National Elk Refuge (NER) and Hunt Area 80. There were a total of 416 elk in the Gros Ventre drainage with 205 elk on Patrol Cabin feedground, none on Fish Creek feedground, and 211 on native winter range. This is compared to the most recent 3-year average

of 2,203 elk in the Gros Ventre. Collared elk data indicates that similar to the winter of 2017/2018, the majority of elk left the drainage and wintered elsewhere, including the NER, Dubois, and Meeteetse. Since some of these elk are known to have left the herd unit, this could also partially explain this winter's relatively low trend count. Collared elk data from previous years have shown that when elk leave the Gros Ventre drainage to winter, they all subsequently return to their normal spring, summer, and fall ranges, therefore we anticipate elk will return to the Gros Ventre drainage this spring. The majority of the herd was counted on the NER and to the east in Hunt Area 80 (9,294 elk; 94% of the trend count). There were smaller numbers of elk in the Buffalo Valley (145) and a few other native winter ranges that made up the total trend count.

The NER initiated feeding on February 18, 2025, a week before the classification took place, however warm temperatures around the time of the classification caused many elk to not come to feedlines. This caused difficult ground classification conditions since many of the elk were not lined out on feedlines, but were instead grouped up, making it difficult to see calves that were hidden behind adults. This most likely resulted in a less accurate classification. This may partly explain the low calf ratio this winter compared to recent years. Additionally, a group of 1,024 elk near the Poverty Flats feeding area on the NER could not be classified but the total was estimated. Despite these challenges, this year's low calf ratio and the 3-year average trend count being below objective warrant more conservative hunting seasons in 2025.

Overall harvest success in the Jackson Elk Herd in 2024 was 37%. A total of 788 elk were harvested, which is on the lower end for this herd. Due to mild fall conditions, backcountry antlered elk hunting was average however some backcountry hunt areas were significantly impacted by closures and smoke from the Pack Trail Fire, mainly Hunt Areas 81 and 83, although to a lesser extent Hunt Areas 82 and 70. This may have contributed to the below average hunter satisfaction this year of 65.9% compared to the most recent 3-year average of 71.6%. Harvest in Hunt Area 81 was significantly reduced at 84 elk compared to the most recent 3-year average of 140 elk. The harvest in Hunt Area 83 was less affected because it is always relatively low around 40-70 elk. Many hunters were displaced by fire closures and had to change plans to hunt elsewhere. Harvest during late season cow/calf hunts was below average due to mild conditions and late migrations.

During the 2024/2025 hunting season, there were two authorizations for auxiliary elk harvest in this herd unit under the Chapter 34 Regulation. These auxiliary hunts were for cow or calf elk in Hunt Areas 78, 70, 81, and 82 and ran from February 1-15, 2025. In total, a minimum of 3 cow elk were harvested under these authorizations in addition to totals reported in the harvest survey. Details are as follows:

- **Auxiliary Elk Hunt Area 78** (valid in entire area)
    - Teton County – valid in the entire hunt area
    - Season Dates: February 1-15, 2025
    - Unused Hunt Area 78 Type 1 and Type 6 licenses valid; no new licenses issued
    - Minimum harvest = 0 elk

- **Auxiliary Elk Hunt Areas 70, 81, 82** (private land only)
    - Teton County – 2 participating landowners
    - Season Dates: February 1-15, 2025

- Auxiliary licenses and unused Area 82 Type 4 licenses
- Minimum harvest = 3 adult cow elk (all with auxiliary licenses)

The changes to hunting seasons in 2025 responded to the need to reduce hunting pressure on cows because the 3-year trend count average is below the 11,000 objective. Hunting seasons were changed in four ways: 1) Type 4 and Type 6 licenses in Hunt Area 75 in Grand Teton National Park were reduced, 2) the season in Hunt Area 77 on the NER was shifted more toward a limited quota structure, 3) Type 6 licenses in Hunt Area 80 were reduced from 300 to 25, and 4) Type 4 licenses in Hunt Area 82 were reduced. The justifications for these changes are described below:

GTNP Elk Reduction Program (Hunt Areas 75 and 79)
The WGFD and GTNP jointly review post-season herd data and estimate the anticipated pre-season elk population size to decide if reduction of the herd is needed, and if so, jointly set the season structure. The GTNP Elk Reduction Program is described in Congressional legislation: "An Act to establish the Grand Teton National Park in the State of Wyoming, and for other purposes, approved February 26, 1929" (45 Stat. 314) (Section 6 of Public Law 81-787 and 16 United States Code Chapter 6, Section 673c). In this legislation, "The Wyoming Game and Fish Commission and the National Park Service shall devise, from technical information and other pertinent data assembled or produced by necessary field studies or investigations conducted jointly by the technical and administration personnel of the agencies involved, and recommend to the Secretary of the Interior and the Governor of Wyoming for their joint approval, a program to insure the permanent conservation of the elk within the Grand Teton National Park established by this Act. Such program shall include the controlled reduction of elk in such park,…when it is found necessary for the purpose of proper management and protection of the elk."

After jointly reviewing the herd data, WGFD and GTNP concluded that the GTNP Elk Reduction Program was warranted this year but at a reduced level. The projected 2025 pre-season population will be slightly above 11,000 elk, therefore a small reduction of elk in GTNP is needed to continue to manage the herd toward the population objective.

National Elk Refuge (Hunt Area 77)
Cow elk seasons on the NER have traditionally allowed hunters with unfilled, valid elk licenses from anywhere in the state to hunt in Hunt Area 77 with a Hunter Management Area access permission slip. This structure is a holdover from when the herd was above objective and cow harvest was liberal throughout the herd unit. Now that the herd is trending below objective, managers are experimenting with shifting toward a Hunt Area 77-specific license structure (Dec 8-19 with 100 Type 6 licenses), while still allowing for some opportunity with the traditional structure (Nov 1-26 and Dec 1-5) and retaining the Youth Hunt (Nov 27-30). Collared elk data show that in recent years most of the elk in Hunt Area 77 and Hunt Area 80 during the traditional open season (late-October through mid-November) are from summering herd segments with low calf recruitment such as the long-distance migrants from Teton Wilderness and Yellowstone National Park and some Gros Ventre elk. Short-distance migrants that have higher calf recruitment and cause damage on private lands in the summer are typically the last herd segment to migrate to the NER in mid-December. Shifting to a later season with 100 Type 6 licenses will result in harvesting more short-distance migrants and fewer elk from herd segments that have lower

recruitment. The Type 6 season is also expected to improve hunter experience and safety in Hunt Area 77, as well as reduce elk wounding loss.

Finally, Type 6 licenses were reduced in Hunt Area 80 for similar reasons to Hunt Area 77; collared elk data show that most elk in the open hunt area are from herd segments where liberal cow harvest is not desired. Managers would like to allow some harvest opportunity, but not at a high level.

Management Objective Review

The objective and management strategy for the Jackson Elk Herd was last evaluated in 2016. The review was scheduled for 2021, however herd unit managers decided to postpone the objective review until the Wyoming Elk Feedgrounds Plan (2024) and Jackson Elk Herd Feedgrounds Management Plan (FMAP) were completed. The FMAP is expected to be completed in 2025 with a herd unit objective review to follow.

Chronic Wasting Disease Monitoring and Management

The Jackson Elk Herd is prioritized for CWD sampling every year. The annual and five-year average prevalence estimates, sample sizes, confidence intervals, and percent harvest sampled for CWD are presented below for 2020-2024 (Table 1). The first CWD-positive elk in this herd unit was detected in 2020 in Hunt Area 75. No additional positive elk have been detected. Sample sizes are consistently high in this herd due to mandatory sampling in Hunt Areas 75 (Grand Teton National Park) and 77 (National Elk Refuge) and efforts by Department personnel in the Jackson Region to collect samples from meat processors, head barrels, and from hunter contacts in the field. However, sample distribution is skewed to the southern hunt areas that are primarily antlerless harvest where access is easier. Samples are limited from backcountry hunt areas, however Department personnel are working to improve this by prioritizing time spent contacting backcountry camps and trailheads. Currently, CWD management activities are focused on proper carcass disposal and surveillance through hunter-harvested elk, road-kills, and any elk that is exhibiting signs of sickness.

Table 1. Chronic wasting disease prevalence for hunter-harvested elk in the Jackson Elk Herd, 2020-2024.

Year(s)	Percent CWD-positive and sample size (n) *Hunter Harvest Only* **All Adult Elk (CI = 95%)**	Percent of harvested adult elk sampled
2020	0.2% (n=466)	39.4
2021	0% (n=201)	29.8
2022	0% (n=545)	46.1
2023	0% (n=137)	16.7
2024	0% (n=166)	21.6
2020-2024	0.1% (0-0.4%, n=1515)	32.7

Feedgrounds and Disease Management

Conditions during winter 2024/2025 were average, resulting in typical feedground start and end dates in the Jackson Elk Herd (Table 2). A total of 22 elk were captured at two feedgrounds within the Jackson Herd this winter, all were yearling and older females and 19 were sampled for exposure to *Brucella abortus*, the bacteria responsible for causing brucellosis, with 12 samples testing positive indicating a 63% seroprevalence (Table 3). However, the sample size was not statistically adequate for estimating prevalence and captures were primarily geared toward deploying GPS collars. GPS collars on a sample of the elk are used to facilitate monitoring of feedground populations throughout the brucellosis transmission season with the goal of at least 10 collars deployed per feedground at any given time. This monitoring helps in identifying and addressing any potential risks of elk-cattle disease transmission, and enables the monitoring of elk response to adjustments in feeding strategies aimed at lowering disease transmission rates during the feeding season. Collars are programmed to record locations at 2-hour intervals for a duration of four years.

A large-scale shift in elk distribution within the Jackson Elk Herd was documented during the winter of 2024/2025. Approximately 81% of elk that have wintered in the Gros Ventre drainage in recent years (including Patrol Cabin and Fish Creek Feedgrounds) moved to the National Elk Refuge to winter this year. Several collared elk also went to winter ranges outside of the herd unit, such as Dubois. This phenomenon most recently occurred during the 2017/2018 winter. Minimal numbers of elk were fed at the Gros Ventre feedgrounds this winter with just over 200 elk being classified on feed in late February.

Table 2. 2024-2025 Feedground start and end dates.

Feedground	Start Date	End Date	Days fed
Gros Ventre (Patrol Cabin and Fish Creek)*	12/18/2024	3/30/2025	103
National Elk Refuge	2/18/2025	3/23/2025	34

*No elk fed at Fish Creek in 2024-2025

Table 3. 2025 Jackson Elk Herd Brucellosis Surveillance.

Feedground	Capture Method	GPS collars deployed	# Captured	# Tested	# Seropositive	% Prevalence (2025)
National Elk Refuge	Dart	19	20	17	11	65%
Patrol Cabin	Dart	2	2	2	1	50%
2025 Totals		21	22	19	12	63%

A total of 229 elk were sampled for CWD within the Jackson Elk Herd Unit from the beginning of hunting season through the end of the feeding season, with 166 samples from hunter harvested adult elk. An additional 83 samples were collected from juvenile elk (49), road kill (5), and animals found dead/euthanized (29), and were therefore not included in prevalence estimates. However, all samples tested negative during the reporting period. Chronic wasting disease was detected in

one elk within this herd in 2020. The Jackson Elk Herd is currently a priority herd, with the goal of collecting 200 samples from adult elk over three consecutive years. Currently in year 2, CWD samples now total 303, allowing for a reliable estimate of prevalence of CWD in this herd.

Ear tags are permanently attached to all elk that are captured and released as part of brucellosis surveillance and research initiatives and are retrieved when an animal is harvested or when a carcass is discovered. This undertaking enhances our understanding of elk distribution and dispersion, and improves our knowledge of how diseases may potentially spread among elk herds. Ear tag returns from elk captured at Jackson elk herd feedgrounds (National Elk Refuge, Patrol Cabin and Fish Creek Feedgrounds) were reported from nine elk, with eight harvested within the Jackson elk herd boundary, and one road killed on Highway 89. There was also an ear tag return on a yearling male elk captured on the NER that was harvested in hunt area 84.

Research

Managers are wrapping up a collaring project on the Gros Ventre herd segment this year. From 2018-2025, a total of 76 cow elk were collared in the Gros Ventre drainage. The purpose of this project was to gain information about the seasonal movements and survival of this herd segment. In 2024, collared elk survival was 82%. The average over the course of the study was also 82% (range 71%-91%). From 2018-2024, 30 collared elk died. The causes of death included wolf predation (20%), mountain lion predation (3%), harvest and wounding loss (30%), disease/infection (7%), birth complications (3%), and undetermined (37%). The majority of harvest mortalities have occurred outside of the Jackson Herd Unit in adjacent hunt areas 68, 93, and 95. Over the course of the study, 43% of collared elk switched winter ranges from one year to the next, demonstrating flexibility in where they choose to winter. Nineteen percent of collared elk always wintered on the NER, 39% always wintered in the Gros Ventre, and 43% switched between the NER, Gros Venter, and other areas such as Dubois, Buffalo Valley, and Meeteetse. A final project report will be completed in 2025.

We are planning to start a new project in the Jackson Elk Herd in 2025. This project will focus on the following objectives: 1) estimate abundances of the four herd segments of the Jackson Elk Herd and trends over time, 2) utilize fine scale movement data from short-distance migratory elk during the fall and early winter to target harvest on these elk, while protecting other herd segments from over-harvest, 3) evaluate how management changes such as additional harvest on short-distance migrants affects numbers in all four population segments over time, 4) estimate adult vital rates (cow survival, bull survival, calf ratios, pregnancy, etc.) to help develop an integrated population model for the herd, which would inform harvest targets for the different herd segments, including Grand Teton National Park's Elk Reduction Program, 5) track the influence of chronic wasting disease on elk survival in the different herd segments as prevalence increases over time, and 6) monitor changes in elk competition with moose and bighorn sheep on winter ranges over time.

Journal Publications and Reports

Cook, J.D., Cotterill, G.G., McEachran, M.C., Graves, T.A., Cole, E.K., and P.C. Cross. 2025 Decision framing overview and performance of management alternatives for bison and elk feedground management at the National Elk Refuge in Jackson, Wyoming, chap. A *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 2024–5119, 19 p., https://doi.org/10.3133/sir20245119A.

Cotterill, G.G., Cross, P.C., Cole, E.K., Cook, J.D., McEachran, M.C., and T.A. Graves. 2025 Evaluating elk distribution and conflict under proposed management alternatives at the National Elk Refuge in Jackson, Wyoming, chap. C *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 2024–5119, 32 p., https://doi.org/10.3133/sir20245119C.

Cross, P.C., Cook, J.D., and E.K. Cole. 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 2024–5119, 22 p., https://doi.org/10.3133/sir20245119B.

Koser, T., A. Martin, A. Courtemanch, L. Thompson, B. Wise, G. Fralick, S. Dewey, A. Girard, B. Scurlock, J. Rogerson, K. Oyen, and P. Cross. 2025. Winter tick sharing between ungulates in the Greater Yellowstone Ecosystem and implications for apparent competition. *Ecosphere* **16**(1):e70129

McEachran, M.C., Don Carlos, A., Cotterill, G.G., Cole, E.K., and J.D. Cook. 2025. Estimating the social and economic consequences of proposed management alternatives at the National Elk Refuge, chap. E *of* Cook, J.D., and Cross, P.C., eds., Decision analysis in support of the National Elk Refuge bison and elk management plan (ver. 1.1, May 2025): U.S. Geological Survey Scientific Investigations Report 2024–5119, 11 p., https://doi.org/10.3133/sir20245119E.

McKee, J.L., J. Fattebert, E.O. Aikens, J. Berg, S. Bergen, E.K. Cole, H.E. Copeland, A.B. Courtemanch, S. Dewey, M. Hurley, B. Lowrey, J.A. Merkle, A.D. Middleton, T.A. Nuñez, H. Sawyer, and M.J. Kauffman. 2024. Estimating ungulate migration corridors from sparse movement data. *Ecosphere* **15**(9):e4983.

2024 - JCR Evaluation Form

SPECIES: Elk
HERD: EL103 - FALL CREEK
HUNT AREAS: 84-85

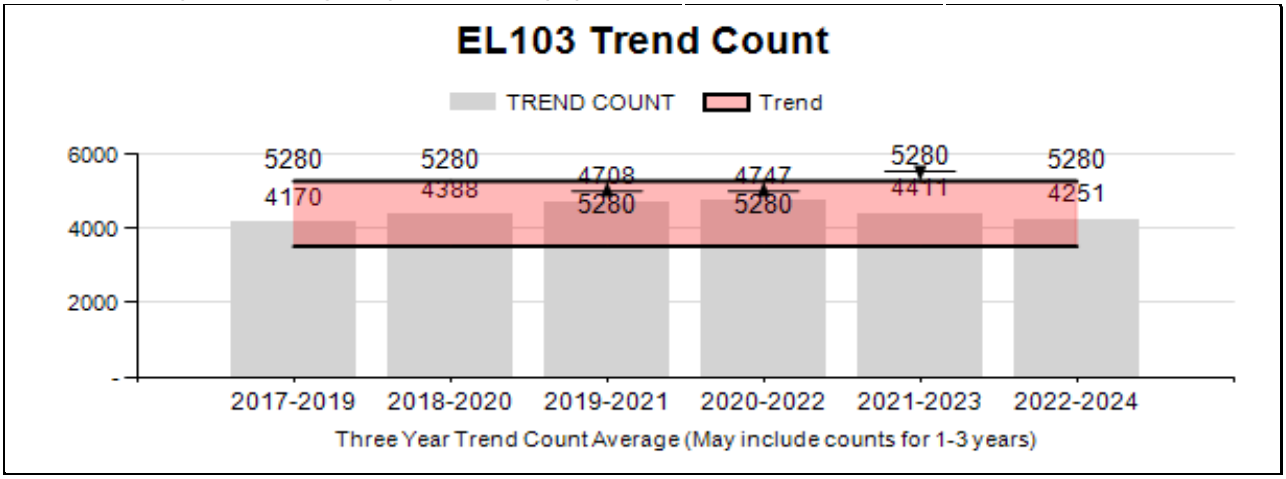
PERIOD: 6/1/2024 - 5/31/2025
PREPARED BY: GARY FRALICK

	2019 - 2023 Average	2024	2025 Proposed
Trend Count:	4,461	4,572	4,250
Harvest:	600	825	1,000
Hunters:	1,548	1,874	1,925
Hunter Success:	39%	44%	52 %
Active Licenses:	1,659	2,172	1,925
Active License Success	36%	38%	52 %
Recreation Days:	10,358	13,230	12,980
Days Per Animal:	17.3	16.0	13.0
Males per 100 Females:	19	18	
Juveniles per 100 Females	29	27	

Trend Based Objective (± 20%)	4,400 (3520 - 5280)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	4%
Number of years population has been + or - objective in recent trend:	1

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	JCR Year	Proposed
Females ≥ 1 year old:	NA%	NA%
Males ≥ 1 year old:	NA%	NA%
Juveniles (< 1 year old):	NA%	NA%
Total:	NA%	NA%
Proposed change in post-season population:	NA%	NA%



2025 HUNTING SEASONS
FALL CREEK ELK HERD (EL103)

Hunt Area	Type	Archery Dates Opens	Archery Dates Closes	Season Dates Opens	Season Dates Closes	Quota	Limitations
84	Gen	Sep. 1	Sep. 25				Any elk
84	Gen			Sep.26	Oct. 31		Any elk, spikes excluded
84	Gen			Nov. 1	Nov. 15		Antlerless elk
84	1			Nov. 1	Jan. 31	100	Any elk valid on private land west of U.S. Highway 191 and north and east of the Snake River starting at the South Park Bridge
84	6	Sep. 1	Sep. 25	Sep.26	Nov. 30	400	Cow or calf; that portion of Area 84 east and south of Shoal Creek to the Hoback River shall be closed after Nov. 20
84, 85	7			Aug.15	Jan. 31	250	Cow or calf valid on private land in Area 84; also valid in that portion of Area 85 on or within 200 yards of irrigated land north of Fall Creek
85	Gen	Sep. 1	Sep. 25				Any elk
85	Gen			Sep.26	Oct. 31		Any elk, spikes excluded
85	6	Sep. 1	Sep. 25	Sep.26	Nov. 15	100	Cow or calf

2025 Nonresident Western Elk Region Quota: 2,775 licenses

2024 Hunter Satisfaction: 67% Satisfied, 22% Neutral, 11% Dissatisfied

2025 Management Summary

Hunting Season Evaluation
While the population remains within objective, several elk feedgrounds, notably Camp Creek and Horse Creek in Area 84, and Dog Creek in Area 85 had elk numbers that are above desired numbers.

During the 2024 trend count 4,572 elk were counted, which is a slight increases from the 4,396 elk counted in 2023 (Appendix A). Bull-to-cow ratios continue to hover below the management minimum threshold of 20 bulls:100 cows. This reflects a chronically low bull:cow ratio that has

persisted in this herd unit for at least 15 years. In 2023, 19 bulls:100 were observed, while during the current year 18 bulls:100 were recorded. Calf ratios continue to exhibit a generally stable trend over the last two years, with 27 calves:100 cows observed.

Hunter satisfaction remains at some of the highest levels for elk herds in western Wyoming. In 2024, 67% of hunters surveyed indicated they were satisfied with their elk hunt experience.

The hunting season structure will promote any elk, spikes excluded hunting opportunity from September 26 - October 31. Any elk hunting opportunities, in which hunters may select antlerless elk, can decrease hunting pressure on the antlered segment of the population and thereby potentially increase the number of antlered elk observed in the postseason population. The spikes excluded restriction will likely persist into the future as popularity with segments of the hunting public will successfully petition the Department to continue with this limitation.

A total of 2,640 elk were counted between Camp Creek and Horse Creek feedgrounds. The number of Type 6 licenses in Area 84 will increase from 350 to a total of 400 licenses. The limitation to close the area east and south of Shoal Creek to the Hoback River on November 20 is targeted at preventing elk damage to private property in Dell Creek (Hunt Area 87). The later closing date in November for Type 6 license holders offers 91 days of opportunity, and is an attempt to address elk numbers that are above desired levels on the Camp Creek and Horse Creek feedgrounds.

The late season elk hunts in Hunt Area 84 provide an opportunity to harvest elk in areas where depredation to privately stored crops or co-mingling with livestock occurred. Type 1 licenses were increased by 50 resulting in 100 licenses issued in 2025. Type 7 limited quota licenses were maintained at 250 licenses in 2025.

The hunting season structure will promote any elk, spikes excluded hunting opportunity from September 26 - October 31. Any elk hunting opportunities, in which hunters may select antlerless elk, can decrease hunting pressure on the antlered segment of the population and thereby potentially increase the number of antlered elk observed in the postseason population.

In Area 85, general license any elk, spikes excluded hunting season will open September 26 and run through October 31. The number of Type 6 cow/calf licenses will remain at 100 and the season will close on November 15 in order to maintain harvest pressure on the antlerless segment of the population.

In an effort to minimize damage to private property and co-mingling with domestic livestock, the Department initiated one auxiliary license hunt under the guidance of Auxiliary Chapter 34 permit and the other under a Department-administered Chapter 56 permit. Those results for the 2024 JCR reported period are provided below.

- **Auxiliary Hunt 1 – Elk Hunt Area 84/85**
    - Teton County – 3 participating landowners
    - Season Dates: February 1-February 28, 2025

- 7 Auxiliary licenses issued
- Minimum harvest = 4 elk (3 cows and 1 calf)
- Estimated harvest = 4 elk (3 cows and 1 calf

- **Chapter 56 Permit – Elk Hunt Area 84**
  - Teton County – 1 participating landowner
  - Permit Dates: February 1, 2025 – February 28, 2025
  - Authorization for removal of up to 50 antlerless elk
  - Total harvest = 1 elk (1 bull)

Management Objective Review

The objective and management strategy for the Fall Creek Elk Herd was last evaluated and approved in 2017, and will not be reviewed again until 2026.

Chronic Wasting Disease Monitoring and Management

The Fall Creek elk herd is a Tier 2 surveillance herd. The five-year annual and average prevalence estimates for CWD are presented below (Table 1). Robust sampling over the last 5-years has resulted in 409 samples collected and tested from all hunter-harvested adult elk with zero positive samples. Since 2020, an average of 13% of all harvested adult elk have been sampled.

Table 1. CWD prevalence for hunter-harvested elk in the Fall Creek Elk Herd, 2020 – 2024.

Years	Percent CWD-Positive and sample size (n) *Hunter Harvest Only*	Percent of Harvest Adult elk Sampled
	All Adult Elk (CI = 95%)	
2020	0.0% (n=87)	13
2021	0.0% (n=63)	15
2022	0.0% (n=101)	19
2023	0.0%(n=74)	10
2024	0.0% (n=84)	11
2020 - 2024	0.0% (n=409)	13

Disease Management

The winter of 2024-2025 was average, resulting in typical feedground start and end dates in the Fall Creek Elk Herd (Table 1). A total of 18 elk were captured at four feedgrounds within the Fall Creek herd unit this winter, all were adult females that were sampled for exposure to Brucella abortus, the bacterial responsible for causing brucellosis, with seven samples testing positive indicating a 39% seroprevalence (Table 2). However, the sample size was not statistically adequate for estimating prevalence and captures were primarily geared toward deploying GPS collars. GPS collars on a sample of the elk are used to facilitate monitoring of feedground populations throughout the brucellosis transmission season with the goal of at least 10 collars deployed per feedground at any given time. This monitoring helps in identifying and

addressing any potential risks of elk-cattle disease transmission, and enables the monitoring of elk response to adjustments in feeding strategies aimed at lowering disease transmission rates during the feeding season. Collars are programmed to record locations at 2-hour intervals for a duration of four years.

Extensive time and effort was spent working with the elk feeders on the Fall Creek Elk Herd feedgrounds to better utilize available feeding area in hopes of decreasing overwinter calf mortality due to necrobacellosis. In an effort to address persistently high calf mortality rates at Horse Creek Feedground, WGFD implemented a strategy to expand the supplemental feeding area. Hay harvested off Horse Creek Mesa was stored on the mesa, allowing WGFD personnel to effectively feed elk in the area with minimal additional effort. Starting March 10, elk were transitioned up to Horse Creek Mesa to reduce the exposure of fed elk to conditions that lead to necrobacellosis outbreaks. From March 10 through March 23rd, 43.5 tons of hay were fed over a 14 day period. Over winter calf mortality was markedly decreased especially on Horse Creek and Camp Creek feedgrounds, with three (3) documented necrobacellosis mortalities occurring within this feedground complex during the 2024-25 feeding season.

Table 1. 2024-2025 Feedground start and end dates.

Feedground	Start Date	End Date	Days Fed
South Park	1/13/2025	3/30/2025	77
Horse Creek	12/21/2024	3/31/2025	101
Camp Creek	12/21/2024	3/31/2025	101
Dog Creek	12/19/2024	4/2/2025	105

Table 2. 2025 Fall Creek Elk Herd Brucellosis Surveillance.

Feedground	Capture Method	GPS collars deployed	# Captured	# Tested	# Seropositive	% Prevalence (2025)
Horse Creek	Dart	5	7	7	2	29%
South Park	Dart	6	6	6	1	19%
Dog Creek	Dart	5	5	5	4	80%
2025 Totals		16	18	18	7	39%

A total of 152 elk were sampled for CWD within the Fall Creek elk herd unit from the beginning of hunting season through the end of the feeding season, with 84 samples from hunter harvested adult elk. An additionally 68 samples were collected from juvenile elk (50), road kill (11), and animals found dead (7), and were therefore not included in prevalence estimates. Two adult cow elk tested positive for CWD during this reporting period. In late November 2024, an adult cow elk was found dead in the Granite Creek drainage by a nearby landowner and reported to WGFD. An additional adult cow elk was found dead on Horse Creek feedground in February of 2025 and tested positive of CWD. The Fall Creek elk herd is currently a priority herd, with the goal of collecting 200 samples from adult elk over three consecutive years. Currently in year 2, CWD samples now total 158; a total of 42 samples are needed to be collected during the 2025-26

hunting seasons in order to reliably estimate prevalence of CWD in this herd for the 3-year period.

Ear tags are permanently attached to all elk that are captured and released as part of brucellosis surveillance and research initiatives and are retrieved when an animal is harvested or when a carcass is discovered. This undertaking enhances our understanding of elk distribution and dispersion, and improves our knowledge of how diseases may potentially spread among elk herds. Ear tag returns from elk captured at Fall Creek elk herd feedgrounds (South Park, Horse Creek, Camp Creek and Dog Creek Feedgrounds) were reported from 19 elk, with 13 harvested in hunt area 84, 3 road killed on HWY 89, and 3 natural mortalities (cause undetermined). There were also two ear tag returns from adult cow elk that were captured at South Park Feedground and were either harvested or found dead in hunt area 78.

Appendix A. Fall Creek Elk Herd, posthunt herd composition data, 2019-2024.

							Ratio:100 Females			
2019	Adult Males	Yrlng Males	Total Males	Cows	Calves (Unc Elk)	Total	Adult Males	Yrlng Males	Total Males	Calves
84 HCFG	181	89	270	1194	314	1778				
84 CCFG	10	27	37	563	201	801				
84 SPFG	88	45	133	553	185	871				
84 NR	18	13	31	46	29(56)	162				
85 DCFG	54	39	93	705	177	975				
85 NR	2	5	7	12	14(45)	78				
TOTAL	353	218	571	3073	920(101)	4665	11	7	18	30
2020										
84 HCFG	124	43	167	671	205	1043				
84 CCFG	19	39	58	990	201	1249				
84 SPFG	63	48	111	541	134	786				
84 NR	44	11	55	139	26(175)	395				
85 DCFG	28	14	42	398	78	518				
85 NR	15	2	17	30	1(369)	417				
TOTAL	293	157	450	2769	645(544)	4408	10	6	16	23
2021										
84 HCFG	175	125	300	1314	320	1934				
84 CCFG	14	50	64	688	203	955				
84 SPFG	72	60	132	539	193	864				
84 NR	1	0	1	0	0(174)	174				
85 DCFG	47	42	89	660	265	1014				
85 NR	6	1	7	0	0(111)	111				
TOTAL	315	278	593	3201	981(277)	5052	10	8	18	31
2022										
84 HCFG	175	91	266	1126	341	1733				
84 CCFG	39	31	70	710	168	948				
84 SPFG	94	67	161	555	233	949				
84 NR	48	18	66	34	7(29)	136				
85 DCFG	34	45	79	563	235	877				
85 NR	36	3	39	35	9(55)	138				
TOTAL	426	255	681	3023	993(84)	4781	14	8	22	33
2023										
84 HCFG	168	44	212	911	203	1326				
84 CCFG	36	38	74	855	253	1182				
84 SPFG	90	59	149	499	145	793				
84 NR	8	1	9	11	0 (78)	98				
85 DCFG	31	53	84	552	153	789				
85 NR	13	4	17	8	1 (182)	208				
TOTAL	346	199	545	2836	755(260)	4396	12	7	19	27
2024										
84 HCFG	171	65	236	1124	260	1620				
84 CCFG	20	30	50	710	260	1020				
84 SPFG	79	35	114	442	125	681				
84 NR	3	4	7	29	9(128)	173				
85 DCFG	57	36	93	683	154	930				
85 NR	24	21	45	51	18(34)	148				
TOTAL	354	191	545	3039	826 (162)	4572	12	6	18	27

2024 - JCR Evaluation Form

SPECIES: Elk
HERD: EL105 - AFTON
HUNT AREAS: 88-91

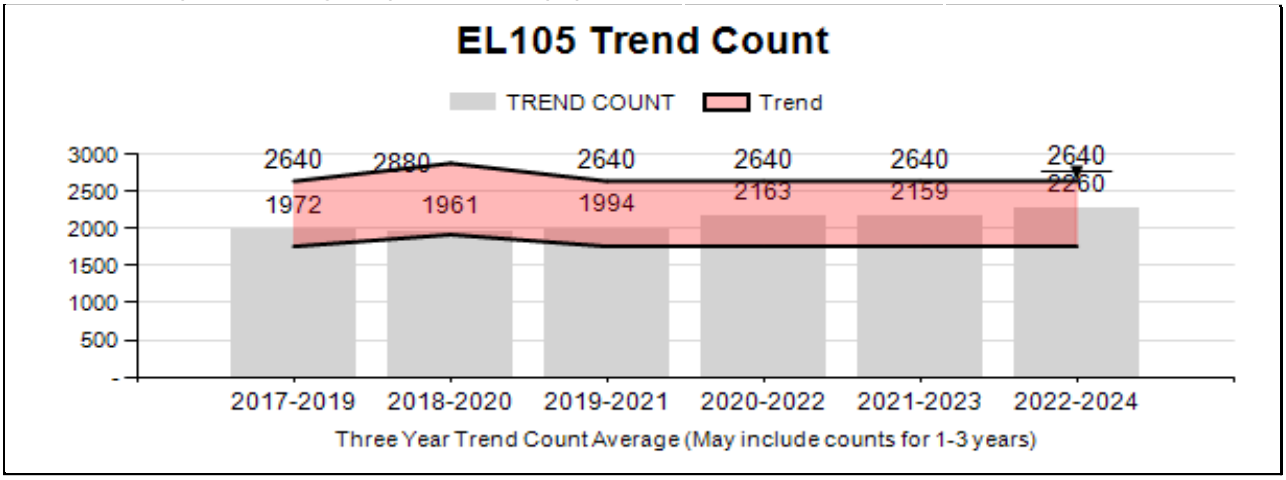
PERIOD: 6/1/2024 - 5/31/2025
PREPARED BY: GARY FRALICK

	2019 - 2023 Average	2024	2025 Proposed
Trend Count:	2,098	2,273	2,100
Harvest:	839	841	910
Hunters:	2,342	2,353	2,480
Hunter Success:	36%	36%	37 %
Active Licenses:	2,461	2,539	2,480
Active License Success	34%	33%	37 %
Recreation Days:	15,237	16,957	15,890
Days Per Animal:	18.2	20.2	17.5
Males per 100 Females:	21	22	
Juveniles per 100 Females	35	32	

Trend Based Objective (± 20%)	2,200 (1760 - 2640)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	3%
Number of years population has been + or - objective in recent trend:	9

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	JCR Year	Proposed
Females ≥ 1 year old:	NA%	NA%
Males ≥ 1 year old:	NA%	NA%
Juveniles (< 1 year old):	NA%	NA%
Total:	NA%	NA%
Proposed change in post-season population:	NA%	NA%



2025 HUNTING SEASONS
AFTON ELK HERD (EL105)

Hunt Area	Type	Archery Dates Opens	Archery Dates Closes	Season Dates Opens	Season Dates Closes	Quota	Limitations
88	1	Sep. 1	Sep. 30	Oct. 1	Oct. 31	80	Any elk
88	1			Nov. 1	Jan. 31		Antlerless elk valid south of Peterson Lane and south and west of the Greys River Wildlife Habitat Management Area Elk Fence
89	Gen	Sep. 1	Sep. 30	Oct.15	Oct. 26		Any elk
90	Gen	Sep. 1	Sep. 30	Oct.15	Oct. 26		Any elk
90	6	Sep. 1	Sep. 30	Oct.15	Oct. 26	50	Cow or calf
91	Gen	Sep. 1	Sep. 30	Oct.15	Oct. 31		Any elk
91	Gen			Nov. 1	Nov. 15		Antlerless elk
91	1	Sep. 1	Sep. 30	Oct. 1	Oct. 31	100	Any elk
91	1			Nov. 1	Dec. 31		Antlerless elk
91	1			Jan. 1	Jan. 31		Antlerless elk valid off national forest
91	6	Sep. 1	Sep. 30	Oct. 1	Dec. 31	350	Cow or calf
91	6			Jan. 1	Jan. 31		Cow or calf valid off national forest
91	7	Sep. 1	Sep. 30	Dec. 1	Jan. 31	100	Cow or calf valid off National Forest west of U.S. Highway 89 and south of Wyoming Highway 239

2025 Nonresident Western Elk Region Quota: 2,775 licenses

2024 Hunter Satisfaction: 64% Satisfied, 24% Neutral, 12% Dissatisfied

2025 Management Summary

Hunting Season Evaluation
In Greys River, Hunt Areas 89 and 90, the management strategy has been to reduce harvest pressure on the antlered segment of the population in order to promote bull numbers and ratios that approach or exceed the recreational management minimum of 20 bulls:100 cows. In Area 91, Salt River, management has focused on persistent and chronic elk damage to stored crops and comingling with domestic livestock.

A total of 2,273 elk were counted during the most recent trend count, which is a slight decrease from the 2,366 elk counted in 2023 (Appendix A). In 2023, 20 bulls:100 were observed, while 22 bulls:100 were recorded in the current year. The observed cow:calf ratios were observed at levels that consistently allow this population to perform at or near the population trend objective. In 2023, 27 calves:100 cows were observed, while in 2024 the proportion of calves in the population increased to 32 calves:100 cows.

Harvest within the herd unit continues to remain at stable levels, which reflects the consistency and success of the management strategy for this herd since 2020. The number of elk harvested during the period from 2019-2023 averaged 839 elk, and is commensurate with the annual population growth. In 2023, 834 elk were harvested, while in 2024, 841 elk were estimated in the harvest.

Area 88 is one of the smallest hunt areas and offers some of the most conservative hunting seasons in Wyoming; within it lies the Greys River elk feedground. The extension of the antlerless opportunity in the 2025 season will address elk damage and comingling on private property with horses and cattle in southern portion of the hunt area. The solution to minimizing elk damage to private property and co-mingling with livestock will increase the number of Type 1 licenses from 40 to 80 licenses, and close the antlerless elk only portion of the late season hunt on January 31. Maintaining one license type in the hunt area is consistent with historic management in this unit.

In Area 89, the 12-day season was designed to promote antlered elk retention in the postseason population, while offering two full weekends of opportunity. Elk numbers are within desired population management objectives, but public sentiment continues to express concern about low bull numbers and the general absence of 3+ bulls in the population.

In the upper Greys River, Hunt Area 90, an effort was initiated in 2021 to the increase total elk and bulls numbers on the Forest Park feedground after one of the lowest number (N=399) of elk documented on this feedground since its inception in 1979. In 2022 and 2023 surveys, a total of 703 and 709 elk have been counted, respectively. During the 2024 survey, 695 elk were counted on Forest Park feedground. This season structure appears to be achieving management goals, so no major changes were made.

In Area 91, the current hunting season continues a management strategy initiated in 2022 that emphasizes elk harvest along the Idaho-Wyoming Stateline and along the eastern portion of the hunt area. The Region will continue issuance of a Type 7 license that will focus on antlerless elk along the Idaho-Wyoming Stateline from October 1 – January 31. In addition, management will promote additional antlerless elk harvest by allowing general license hunters the opportunity to hunt November 1 – November 15. Managers believe this management response to elk numbers, largely from elk moving into Wyoming from Idaho and along the National Forest, private land interface in the eastern portion of the hunt area will alleviate damage and co-mingling concerns that historically have proven difficult to manage. In order to promote antlerless elk harvest, Type 6 licenses will increase from 300 to 350 licenses. Concurrently, managers want to accommodate access to private property by ensuring the number of licenses are commensurate with access

opportunity. Therefore, the number of Type 7 licenses will decrease from 150 licenses to 100 licenses.

In an effort to minimize damage to private property and co-mingling with domestic livestock, the Department initiated one auxiliary license hunt under the guidance of Chapter 34 permit and the other under a Department-administered Chapter 56 permit. Those results of the 2024 JCR reported period are provided below.

- **Auxiliary Hunt 1 – Elk Hunt Area 91**
  - Lincoln County – 3 participating landowners
  - Season Dates: February 1- February 28, 2025
  - 19 Auxiliary licenses issued
  - Minimum harvest = 4 elk (4 cows)
  - Estimated harvest = 4 elk (4 cows)

Management Objective Review
The objective and management strategy for the Afton Elk Herd was last evaluated and approved in 2017, and will not be reviewed again until 2026.

Chronic Wasting Disease Monitoring and Management
The Afton elk herd is a Tier 2 surveillance herd. The five-year annual and average prevalence estimates for CWD are presented below (Table 1). During the 2024 sampling period there no positive hunter-harvested elk that tested positive. Robust sampling over the last 5-years has resulted in 297 samples collected and tested from all hunter-harvested adult elk with zero positive samples. Since 2020, an average of 8% of all harvested adult elk have been sampled

Table 1. CWD prevalence for hunter-harvested elk in the Afton Elk Herd, 2020 – 2024.

Years	Percent CWD-Positive and sample size (n) *Hunter Harvest Only*	Percent of Harvested Adult Elk Sampled
	All Adult Elk (CI = 95%)	
2020	0.0% (n=59)	7
2021	0.0% (n=86)	11
2022	0.0% (n=57)	7
2023	0.0% (n=58)	7
2024	0.0% (n=37)	5
2020 - 2024	0.0% (n=297)	8

Disease Management
The winter of 2024-2025 was average, resulting in typical feedground start and end dates in the Afton Elk Herd (Table 1). A total of 92 elk were captured at two feedgrounds within the Afton herd unit this winter, with 41 yearling and older females that were sampled for exposure to Brucella abortus, the bacterial responsible for causing brucellosis, with ten samples testing positive indicating a 24% seroprevalence (Table 2). However, only one feedground (Greys River)

was adequately sampled for a statistically valid estimate of seroprevalence. Due to weather and elk behavior, we were unable to get an adequate catch in the Forest Park corral trap, and after extensive effort, decided to capture elk for collaring via chemical immobilization at that feedground (Table 2). GPS collars on a sample of the elk are used to facilitate monitoring of feedground populations throughout the brucellosis transmission season with the goal of at least 10 collars deployed per feedground at any given time. This monitoring helps in identifying and addressing any potential risks of elk-cattle disease transmission, and enables the monitoring of elk response to adjustments in feeding strategies aimed at lowering disease transmission rates during the feeding season. Collars are programmed to record locations at 2-hour intervals for a duration of four years.

Table 1. 2024-2025 Feedground start and end dates.

Feedground	Start Date	End Date	Days Fed
Greys River	12/22/2024	4/6/2025	106
Forest Park	1/1/2025	4/9/2025	99

Table 2. 2025 Afton Elk Herd Brucellosis Surveillance.

Feedground	Capture Method	GPS collars deployed	# Captured	# Tested	# Seropositive	% Prevalence (2025)
Greys River*	Trap	8	82	31	3	10%
Forest Park	Dart	10	10	10	7	70%
2025 Totals		18	92	41	10	24%

*statistically significant *n* for estimated prevalence to be within +/- 15% of true prevalence

A total of 51 elk were sampled for CWD within the Afton elk herd unit from the beginning of hunting season through the end of the feeding season, with 37 samples from hunter harvested adult elk. An additionally 14 samples were collected from juvenile elk (9), and animals found dead (5), and were therefore not included in prevalence estimates. However, all samples tested negative and CWD has not been detected in elk within this herd. The Afton elk herd is currently a priority herd, with the goal of collecting 200 samples from adult elk over three consecutive years. Currently in year 2, CWD samples now total 95; a total of 105 samples are needed to be collected during the 2025-26 hunting seasons in order to reliably estimate prevalence of CWD in this herd for the 3-year period.

Ear tags are permanently attached to all elk that are captured and released as part of brucellosis surveillance and research initiatives and are retrieved when an animal is harvested or when a carcass is discovered. This undertaking enhances our understanding of elk distribution and dispersion, and improves our knowledge of how diseases may potentially spread among elk herds. Ear tag returns from elk captured at Greys River feedground were reported from 4 elk, with 1 harvested in hunt area 89, and 3 feedground mortalities. Ear tag returns from elk captured at Forest Park feedground were reported from three elk, all of which were harvested in hunt area 90. There was also an ear tag return on an adult cow elk captured at Dog Creek that died due to predation in hunt area 89.

Appendix A. Afton Elk Herd, posthunt herd composition data, 2019-2024.

							Ratio:100 Females			
Year	Adult Males	Yrlng Males	Total Males	Cows	Calves	Total	Adult Males	Yrlng Males	Total Males	Calves
2019										
88 GRFG	22	13	35	343	110	488				
88 NR	0	1	1	3	1	5				
89 NR	15	10	25	187	82 (63)	357				
90 FPFG	36	25	61	318	108 (2)	489				
90 NR	3	0	3	6	4	13				
91 NR	20	7	27	18	9 (230)	284				
TOTAL	96	56	152	875	314(295)	1636	11	6	17	36
2020										
88 GRFG	33	16	49	400	95	544				
88 NR	0	0	0	2	3	5				
89 NR	19	7	26	59	21(156)	262				
90 FPFG	31	6	37	312	50	399				
90 NR	0	0	0	7	5	12				
91 NR	70	34	104	175	102(776)	1157				
TOTAL	153	63	216	955	276(932)	2379	16	7	23	29
2021										
88 GRFG	30	36	66	385	132	583				
88 NR	0	0	0	0	0	0				
89 NR	2	9	11	54	22(270)	357				
90 FPFG	50	24	74	407	169	650				
90 NR	0	0	0	1	2	3				
91 NR	19	9	28	95	51(201)	375				
TOTAL	101	78	179	942	376(471)	1968	11	8	19	40
2022										
88 GRFG	35	15	50	313	108	471				
88 NR	0	0	0	0	0	0				
89 NR	5	13	18	144	33	195				
90 FPFG	64	46	110	446	147	703				
90 NR	0	0	0	0	0	0				
91 NR	5	0	5	0	0(768)	783				
TOTAL	109	74	183	903	288 (768)	2142	12	8	20	32
2023										
88 GRFG	20	17	37	312	55	404				
88 NR	0	0	0	0	0	0				
89 NR	8	2	10	0	0 (541)	551				
90 FPFG	63	46	109	453	147	709				
90 NR	NS	NS	NS	NS	NS	NS				
91 NR	12	6	18	102	31 (551)	702				
TOTAL	103	71	174	867	233(1092)	2366	12	8	20	27
2024										
88 GRFG	33	12	45	358	92	495				
88 NR	0	0	0	0	0(31)	31				
89 NR	10	7	17	242	72	331				
90 FPFG	95	35	130	405	160	695				
90 NR	0	0	0	0	0	0				
91 NR	23	6	29	20	8(664)	721				
TOTAL	161	60	221	1025	332(695)	2273	16	6	22	32

2024 - JCR Evaluation Form

SPECIES: Moose

PERIOD: 6/1/2024 - 5/31/2025

HERD: MO101 - TARGHEE

HUNT AREAS: 16, 37

PREPARED BY: ALYSON COURTEMANCH

	2019 - 2023 Average	2024	2025 Proposed
Population:		N/A	N/A
Harvest:	4	5	5
Hunters:	5	5	5
Hunter Success:	80%	100%	100%
Active Licenses:	5	5	5
Active License Success:	80%	100%	100%
Recreation Days:	62	70	60
Days Per Animal:	15.5	14	12

Limited Opportunity Objective:

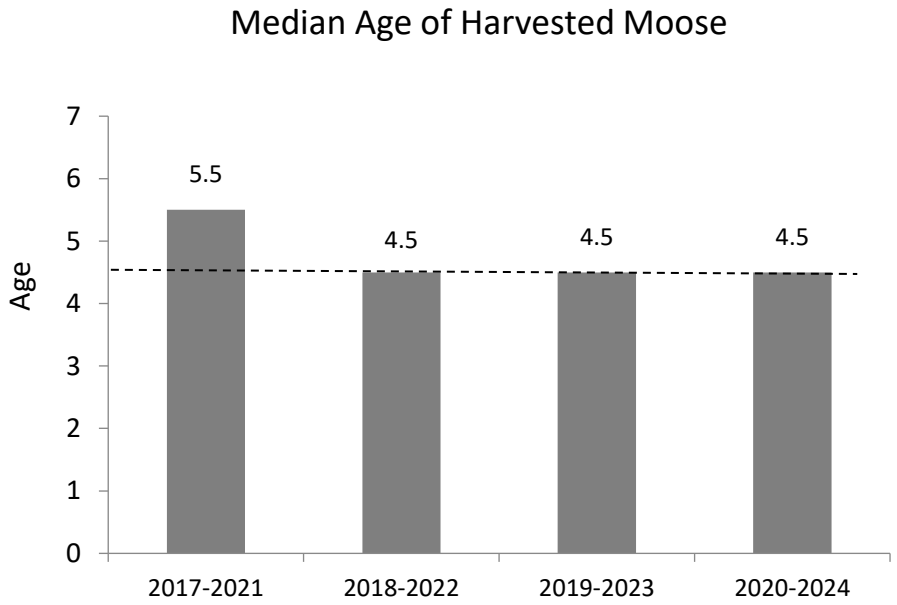
5-year median age of > 4.5 years for harvested moose

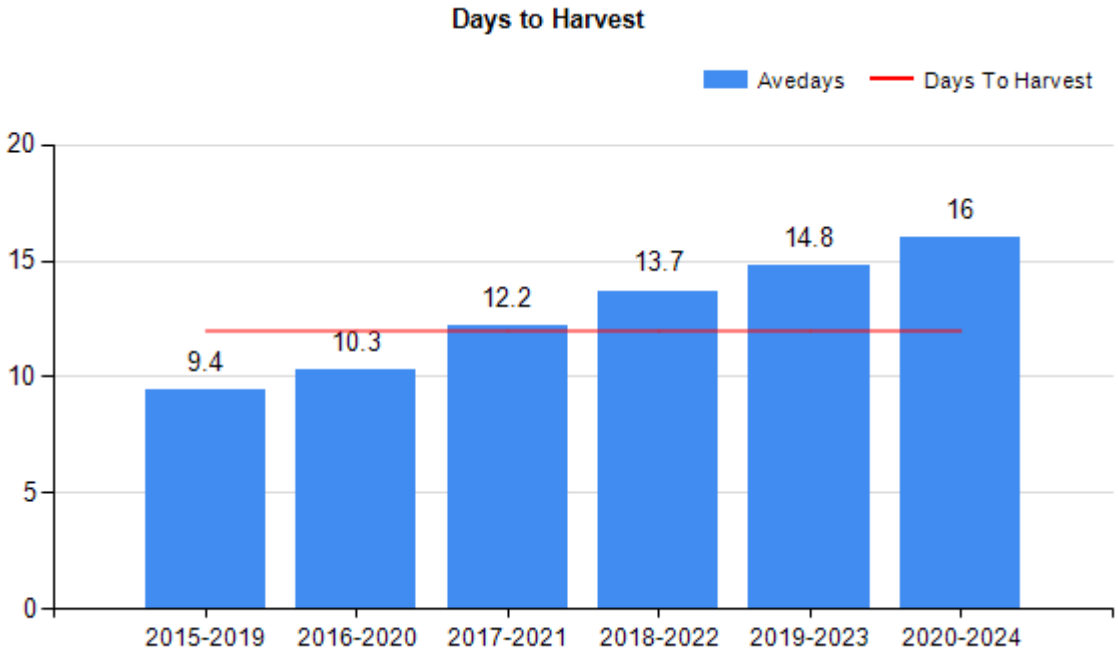
5-year average of <= 12 days/animal to harvest

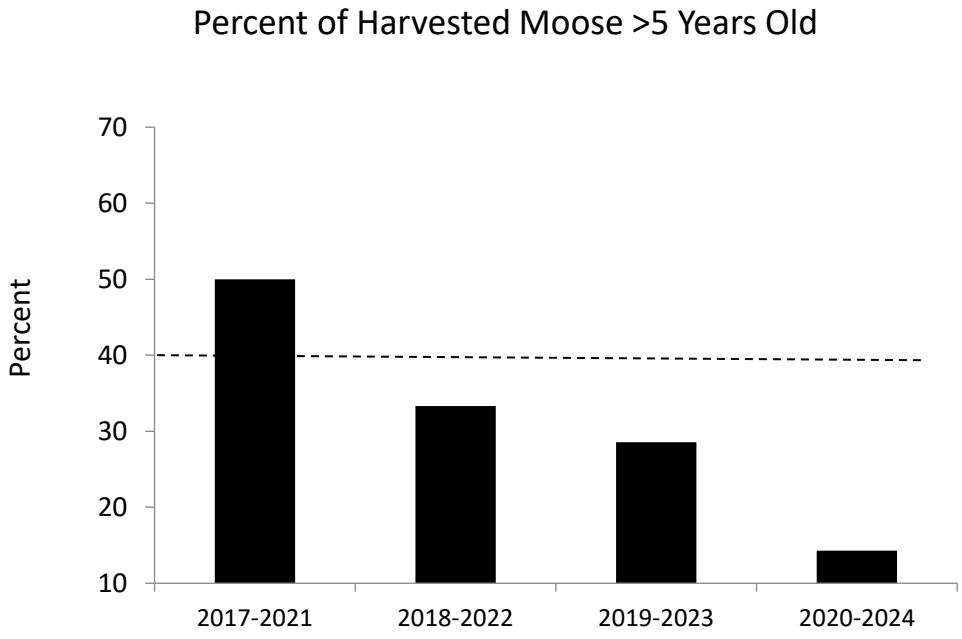
Secondary Objective:

5-year average of 40% of harvested moose are > 5 years of age

Management Strategy: Special




Days to Harvest
Avedays
Days To Harvest
20
15
10
5
0
9.4
10.3
12.2
13.7
14.8
16
2015-2019
2016-2020
2017-2021
2018-2022
2019-2023
2020-2024


Percent of Harvested Moose >5 Years Old
Percent
70
60
50
40
30
20
10
2017-2021
2018-2022
2019-2023
2020-2024

2025 Hunting Seasons
Targhee Moose (MO101)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
16, 37	1	Sep. 1	Sep. 14	Sep. 15	Nov. 15	5	Antlered moose (5 residents)

2025 Management Summary

Hunting Season Evaluation

Management of this herd is not based on a mid-winter trend count because the majority of moose migrate to winter ranges in Idaho and the small areas of winter ranges in Wyoming are difficult to survey due to forest cover. Herd objectives are based on 1) median age of harvested moose ≥4.5 years, 2) at least 40% of harvested moose over 5 years old, and 3) average days to harvest less than 12. This herd met objective #1 this year but not objectives #2 or #3. Five of 5 license-holders hunted in 2024 and harvest success was 100%. Only one of the five hunters submitted teeth for aging. The median harvest age for the past 5 years is 4.5 years old, however, the trends in age have been steadily decreasing since 2015. Days to harvest was 14 (5-year average is 16) and has been steadily increasing. Only 14% of harvested moose over the past 5 years have been over 5 years old, and this has been trending down over time.

The hunting seasons remained the same in 2025, except for the license allocation to residents and nonresidents. All licenses will go to residents in 2025 (one license went to a nonresident in 2024). Due to the 90% resident/10% nonresident license split, one nonresident license will be issued every other year in this herd unit (every 10^{th} license), as long as license allocations remain consistent. Managers will need to improve tooth submissions from hunter-harvested moose to effectively monitor herd objectives in the future. Managers will monitor the declining trend in age of harvested moose and increasing days to harvest, which may indicate a changing population and may warrant a reduction in licenses in the future.

Management Objective Review

The objective and management strategy for the Targhee Moose Herd was last evaluated and approved in 2024, and will not be reviewed again until 2029.

2024 - JCR Evaluation Form

SPECIES: Moose

PERIOD: 6/1/2024 - 5/31/2025

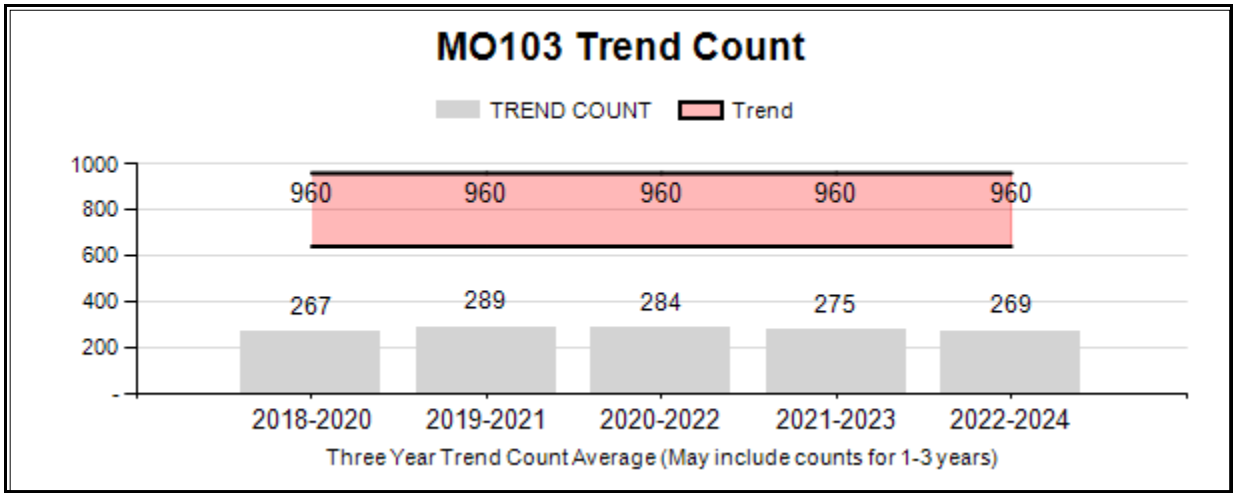
HERD: MO103 - JACKSON

HUNT AREAS: 7, 14-15, 17-19, 28, 32

PREPARED BY: ALYSON COURTEMANCH

	2019 - 2023 Average	2024	2025 Proposed
Trend Count:	274	306	325
Harvest:	9	2	15
Hunters:	10	3	15
Hunter Success:	90%	67%	100%
Active Licenses:	10	3	15
Active License Success	90%	67%	100%
Recreation Days:	109	17	180
Days Per Animal:	12.1	8.5	12
Males per 100 Females:	88	87	
Juveniles per 100 Females	48	34	

Trend Based Objective (± 20%)	800 (640 - 960)
Management Strategy:	Special
Percent population is above (+) or (-) objective:	-61.8%
Number of years population has been + or - objective in recent trend:	20



2019 - 2024 Postseason Classification Summary

for Moose Herd MO103 - JACKSON

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2019		1	98	99	32%	139	45%	69	22%	307	265	1	71	71	± 0	50	± 0	29
2020		0	77	77	35%	91	42%	51	23%	219	210	0	85	85	± 0	56	± 0	30
2021		0	118	118	36%	130	40%	76	23%	324	291	0	91	91	± 0	58	± 0	31
2022		0	121	121	41%	125	43%	48	16%	294	271	0	97	97	± 0	38	± 0	20
2023		0	82	82	42%	83	43%	29	15%	194	189	0	99	99	± 0	35	± 0	18
2024		0	117	117	39%	135	45%	46	15%	298	265	0	87	87	± 0	34	± 0	18

2025 Hunting Seasons
Jackson Moose (MO103)

Hunt Area	Type	Archery Dates Opens	Archery Dates Closes	Season Dates Opens	Season Dates Closes	Quota	Limitations
7							Closed
14							Closed
15							Closed
17, 28	1	Sep. 1	Sep. 14	Sep. 15	Nov. 15	5	Antlered moose (4 residents, 1 nonresident)
18	1	Sep. 1	Sep. 30	Oct. 1	Nov. 15	5	Antlered moose (5 residents)
19							Closed
32							Closed

2025 Management Summary

Hunting Season Evaluation

A total of 306 moose were counted during the 2024 mid-winter trend count. The 3-year average is 269 moose. The calf:cow ratio was 34.1 and the bull:cow ratio was 86.7. This herd has had low, but stable numbers ranging from 250-350 moose for the past 20 years. The calf:cow ratio was high from 2016-2022 (45-58 calves per 100 cows), but has since dropped to 34-38 for the past 3 years. This year's survey was thorough due to good weather conditions and most moose were concentrated along riparian areas with few tracks observed on adjacent forested slopes.

The 2024 hunting season was very challenging due to a large wildfire (Pack Trail Fire) that burned approximately 90,000 acres and impacted the open hunt areas. Due to the fire and associated area

closures implemented by Bridger-Teton National Forest, hunters were offered to apply for either a license carry-over to 2025 or a license refund. Three out of 10 hunters chose to hunt in 2024 and 2 harvested. Due to the carry-over licenses, there may be additional hunters in Hunt Area 18 in 2025, but not Hunt Area 17/28. The impacts of this fire on moose habitat and distribution are yet to be seen. In general, the fire burned at mostly low and moderate severities in Hunt Area 17. In Hunt Area 18, more acreage burned at high severity, particularly in and around Purdy Basin, Burnt Ridge, Trail Creek, and Bacon Creek. Fortunately, a moose collaring study in cooperation with the Wyoming Cooperative Research Unit at the University of Wyoming was already underway in this area when the fire burned. This will enable us to monitor collared moose movements and habitat use in the burned areas for the next several years. Depending on how the fire affects moose habitat use and distribution, licenses may be adjusted in the future.

Even though the herd continues to be well below the objective of 800 moose, managers feel that limited antlered moose hunting in some areas is still sustainable due to high bull ratios. Even though the bull ratio during winter surveys is very high, feedback from hunters is that bulls are very difficult to find during the hunting season. Fall hunting seasons have been very warm and dry in recent years. For this reason, managers extended the season to November 15 in 2023 to allow hunters more time to harvest. Seasons will remain the same in 2025, except for changes to the 90% resident/10% nonresident license allocation per hunt area. Since a total of 10 licenses are typically issued for this herd unit, managers are alternating the one nonresident license between Hunt Area 17/28 and Hunt Area 18 annually. In 2025, the nonresident license will be in Hunt Area 17/28.

Management Objective Review

The objective and management strategy for the Jackson Moose Herd was last evaluated and approved in 2020. For the 2025 5-year objective review, the current winter trend count objective of 800 and special management strategy will be maintained for the next five years following an internal evaluation. Although the 800 moose objective is likely not attainable in the near future, managers would like to maintain that objective as a goal for the herd.

Research

There are three research projects currently occurring in the Jackson Herd Unit. Managers initiated a moose GPS-collaring project in collaboration with Wyoming Department of Transportation (WYDOT) in the southern end of the herd unit and northern end of the Sublette Moose Herd Unit in winter 2019 to evaluate moose movements around roadways in relation to moose-vehicle collisions. The areas surrounding the Snake River Bridge on Highway 22 have the highest rate of moose-vehicle collisions in Teton County. For that reason, four wildlife underpasses were incorporated into the design for the Snake River Bridge replacement project, which is scheduled to be completed in 2025. Since 2019, a total of 29 cow moose have been GPS-collared to provide movement data for the wildlife crossings project. Funding support has been provided by WYDOT, Teton Conservation District, Greater Yellowstone Coalition, U.S. Geological Survey at Montana State University, Veterinary Initiative for Endangered Wildlife, and Teton County Government. The first phase of this collaring project was completed in 2024. A second phase was started in winter 2025 to monitor moose movements post-construction. Managers deployed 4 new collars on cow moose in the project area in January 2025 and plan to deploy additional collars in winter 2026. We are also partnering with WYDOT to install cameras in the wildlife underpasses in spring 2025 to monitor wildlife use.

A second moose study that was a partnership with the U.S. Geological Survey and Montana State University wrapped up in 2024. This study investigated winter ticks (*Dermacentor albipictus*) and their effects on moose in the Jackson area. Most research on winter ticks has occurred in the eastern United States with very little known about winter tick life cycles, survival, etc. in the West. This project studied 1) winter tick abundance in different habitat types during the fall when they are attaching to moose and how long they are active, 2) quantified winter tick numbers on captured moose and linked tick load to spring hair loss severity, health indictors through urine and feces, and calf survival, 3) evaluated winter tick survival and fecundity in the spring after falling off moose using experimental plots in different habitat types, and 4) investigated genetic similarity of winter ticks between elk and moose to determine how each host species is contributing to tick population dynamics. Results from this study were shared through a PhD dissertation and several published papers (see below).

We are currently partnering with the Wyoming Cooperative Fish and Wildlife Research Unit at the University of Wyoming to study how moose learn to migrate and survival/cause-specific mortality during early years of life. This project will also provide data on moose seasonal ranges and movements in portions of the Jackson Herd Unit where collaring has never occurred (the Gros Ventre drainage). This project began in March 2023 with a small pilot project capturing and collaring 5 cow and calf pairs to test the fit of expandable calf collars. The main project began in January 2024 with the capture and GPS-collaring of moose cow and calf pairs in the Buffalo Valley and Gros Ventre River drainages. Captures occurred again in January 2025. In total, 30 cows and 32 calves have been collared. Please see Appendix B for an annual report.

Journal Publications

Koser, T., A. Martin, A. Courtemanch, L. Thompson, B. Wise, G. Fralick, S. Dewey, A. Girard, B. Scurlock, J. Rogerson, K. Oyen, and P. Cross. 2025. Winter tick sharing between ungulates in the Greater Yellowstone Ecosystem and implications for apparent competition. *Ecosphere* **16**(1):e70129

Koser, T., A. Hurt, L. Thompson, A. Courtemanch, B. Wise, and P. Cross. 2025. Scent detection dogs detect a species of hard tick, *Dermacentor albipictus*, with comparable accuracy and efficiency to traditional tick drag surveys. *Parasites & Vectors* **18**(126): https://doi.org/10.1186/s13071-024006519-8

2024 - JCR Evaluation Form

SPECIES: Bighorn Sheep

PERIOD: 6/1/2024 - 5/31/2025

HERD: BS106 - TARGHEE

HUNT AREAS: 6

PREPARED BY: ALYSON COURTEMANCH

	2019 - 2023 Average	2024	2025 Proposed
Population:		N/A	N/A
Harvest:	0.4	2	1
Hunters:	1.2	2	1
Hunter Success:	30%	100%	100%
Active Licenses:	1.2	2	1
Active License Success:	30%	100%	100%
Recreation Days:	14	61	14
Days Per Animal:		30.5	14

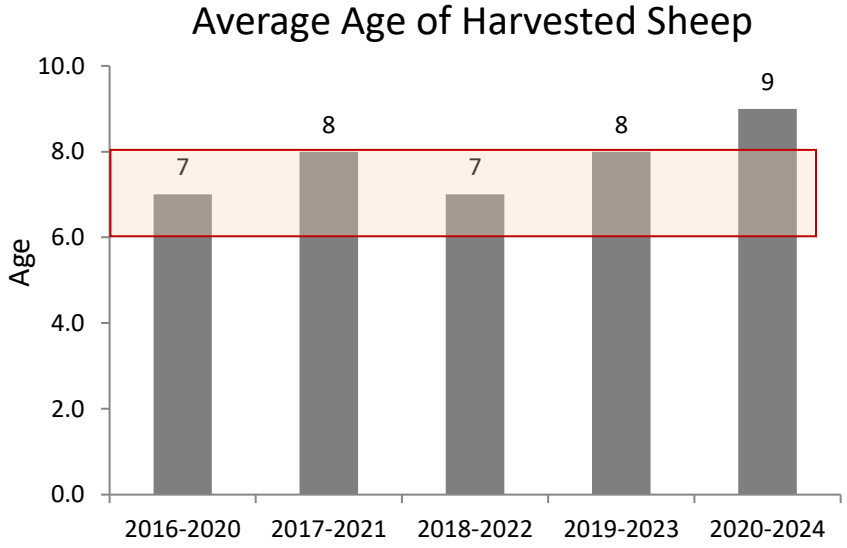
Limited Opportunity Objective:

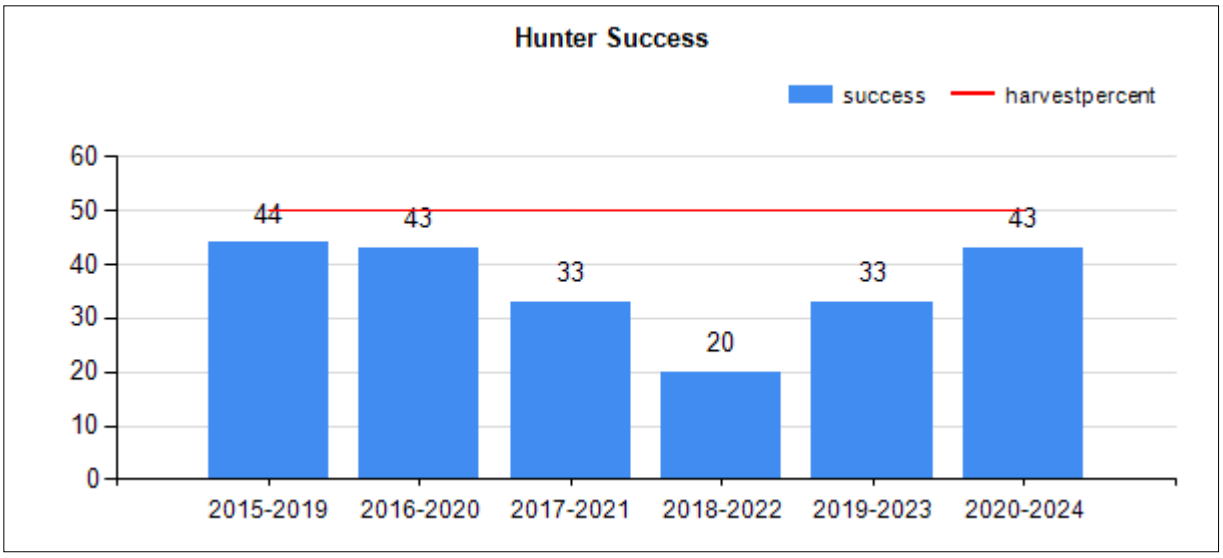
5-year average harvest age of 6-8 years

5-year average hunter success of >= 50%

Secondary Objective:

Management Strategy: Special





2019 - 2024 Postseason Classification Summary

for Bighorn Sheep Herd BS106 - TARGHEE

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2019		0	20	20	20%	61	61%	19	19%	100	82	0	33	33	± 0	31	± 0	23
2020		0	32	32	36%	44	49%	14	16%	90	86	0	73	73	± 0	32	± 0	18
2021		2	37	39	39%	40	40%	20	20%	99	101	5	92	98	± 0	50	± 0	25
2022		4	29	33	46%	33	46%	5	7%	71	69	12	88	100	± 0	15	± 0	8
2023																		
2024		0	21	21	26%	48	60%	11	14%	80	72	0	44	44	± 0	23	± 0	16

2025 Hunting Seasons
Targhee Bighorn Sheep (BS106)

Hunt Area	Type	Archery Dates Opens	Archery Dates Closes	Season Dates Opens	Season Dates Closes	Quota	Limitations
6	1			Aug. 1	Aug. 31	1	Any ram valid north of South Badger Creek (1 resident)
6	1			Sep. 1	Oct. 31		Any ram valid in the entire area

2025 Management Summary

Hunting Season Evaluation

This herd is managed using a limited opportunity objective that consists of three parts: 1) 5-year average harvest age of 6-8 years, 2) 5-year average hunter success of at least 50%, and 3) documented occurrence of mature rams available in the hunt area. An annual winter trend count is also flown. There were two licenses in this herd in 2024. Both hunters were successful and harvested 8 and 11 year-old rams. The average days to harvest was 30.5. The average age of harvested sheep over the past 5 years is 9 years old. The average hunter success during the past 5 years is 43%. Therefore, this herd is exceeding its first objective and not meeting the second.

Managers have been conducting a mid-winter trend count on this herd annually for the past 11 years. Flying conditions were good in February 2025 and we conducted a thorough survey, including low and mid elevation canyons on the west side of the Tetons. This year's trend count was 80 sheep (48 ewes, 11 lambs, 21 rams (7 rams less than ¾ curl and 14 rams ¾ curl or larger)). The lamb:ewe ratio was 23 and the ram:ewe ratio was 44. There were 39 sheep in the south herd segment and 41 in the north. Of these, there were 12 rams in the south (6, ¾ curl or larger) and 9 in the north (8, ¾ curl or larger). This trend count is lower than counts during 2020-2022 when there were approximately 100 sheep. This is most likely attributable to the severe winter of 2022/2023. During that winter, the neighboring Jackson Herd decreased by 20%, which matches the decrease observed in the Targhee Herd from this year's survey. Grand Teton National Park recently completed a study to estimate the population size of the herd using a fecal DNA mark-recapture method (see Additional Management Data section). Their results corroborate our winter survey counts and show that we are consistently observing approximately 75% of the sheep on the landscape, which is consistent with other sheep sightability studies in mountainous terrain.

In 2022, managers increased the number of licenses from 1 to 2 in this herd due to more sightings of ram groups reported in Hunt Area 6 and slightly higher ram numbers observed during winter trend counts (39 rams in 2021 winter trend count, including 27 with ¾ curl or larger (11 in the south, 16 in the north). However, ram numbers appear to have decreased by about half with 21 rams counted in 2024 (of those, 14 have ¾ curl or larger (6 in the south, 8 in the north)). For the past 20 years, all harvest in Hunt Area 6 has occurred in the southern segment of the herd. Genetic data from the herd shows that the north and south herd segments are genetically isolated from one another. Due to these reasons, there are not enough ¾ curl or larger rams currently available in the southern herd segment to allow for sustainable harvest of up to 2 mature rams annually. Therefore, licenses were decreased to 1 in 2025.

Management Objective Review

The objective and management strategy for the Targhee Bighorn Sheep Herd was last evaluated and approved in 2024. It is scheduled to be reviewed again until 2029.

Additional Management Data

Grand Teton National Park (GTNP) recently completed a study to estimate the population size of the Targhee Herd using a fecal DNA mark-recapture method at mineral licks in the Teton Range (both within GTNP and in Hunt Area 6). The study estimated annual summer population size from 2019-2022, and female and male numbers. The results show that the estimated annual population

size was between 118-132 sheep during the four years of the study. The male population was between 45-56 sheep and the female population was between 69-77 sheep. These results corroborate our winter trend counts during the same time period. The winter trend counts mirror the annual estimates and show that we are observing approximately 75% of the sheep on the landscape, which is expected based on sheep sightability in mountainous terrain and a sparse, patchy distribution. Unfortunately, the study ended before the severe winter of 2022/2023, therefore the population decline that winter was not estimated. A final report is expected in 2025 and will be included in next year's JCR.

Research

Grand Teton National Park (GTNP) began a new research project in 2023 partnering with the University of Idaho and a PhD student. This study aims to quantify spatiotemporal variation in forage resources and to estimate the nutritional carrying capacity of bighorn sheep in the Teton Range. To accomplish this broad objective, researchers will intensively sample vegetation communities throughout the range and use those data to validate and improve upon an existing model for predicting forage characteristics across space and time in the Tetons. As part of this study, GTNP captured and deployed GPS collars on 14 ewes in November 2023 and 13 ewes in November 2024. Body condition was measured using ultrasonography and palpation scoring and sheep were sampled for respiratory disease, ear mites, and protostrongylid lungworms. In November 2024, disease testing at the Wyoming Game and Fish Department Wildlife Health Laboratory found that all sheep were negative for *Mycoplasma ovipneumoniae,* leukotoxin-positive *Bibersteinia trehalosi*, *Pasteurella multocida*, and leukotoxin-positive *Mannheimia haemolytica/glucosida*. Five sheep tested positive for leukotoxin-positive *Mannheimia* species from tonsil swabs. No ear mites were detected. Most sheep had low to moderate levels of *Protostrongylus sp.* in their fees. These results are similar to previous disease testing in this herd.

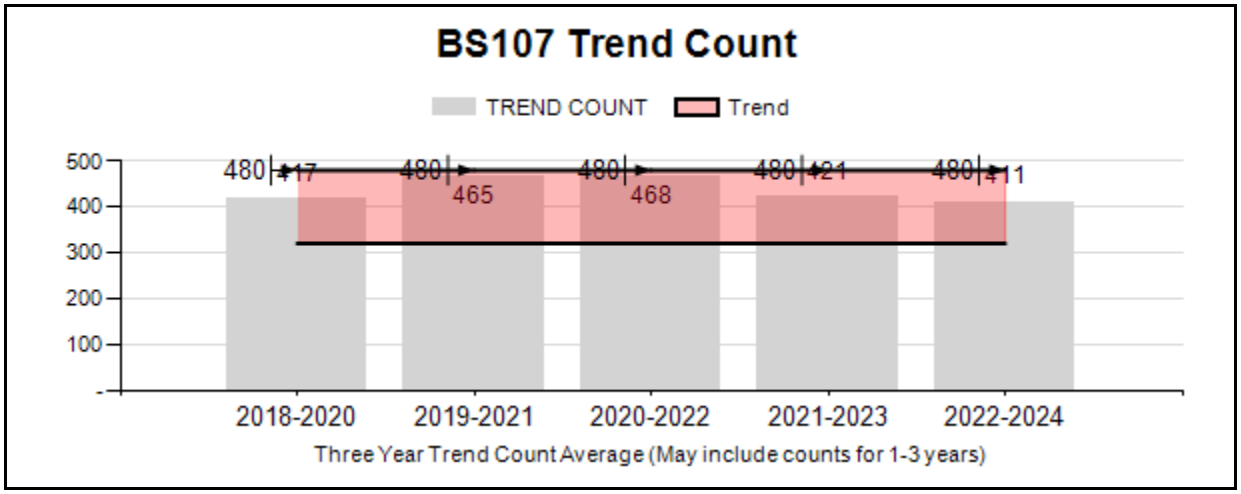
2024 - JCR Evaluation Form

SPECIES: Bighorn Sheep
HERD: BS107 - JACKSON
HUNT AREAS: 7

PERIOD: 6/1/2024 - 5/31/2025
PREPARED BY: ALYSON COURTEMANCH

	2019 - 2023 Average	2024	2025 Proposed
Trend Count:	430	477	450
Harvest:	13	14	42
Hunters:	20	22	52
Hunter Success:	65%	64%	81%
Active Licenses:	20	22	52
Active License Success	65%	64%	81%
Recreation Days:	189	214	500
Days Per Animal:	14.5	15.3	11.9
Males per 100 Females:	42	39	
Juveniles per 100 Females	37	38	

Trend Based Objective (± 20%)	400 (320 - 480)
Management Strategy:	Special
Percent population is above (+) or (-) objective:	19%
Number of years population has been + or - objective in recent trend:	1



2019 - 2024 Postseason Classification Summary

for Bighorn Sheep Herd BS107 - JACKSON

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2019		1	71	72	19%	228	60%	78	21%	378	221	0	31	32	± 0	34	± 0	26
2020		0	102	102	22%	260	55%	111	23%	473	295	0	39	39	± 0	43	± 0	31
2021		12	109	121	25%	265	54%	103	21%	489	326	5	41	46	± 0	39	± 0	27
2022		8	93	101	27%	206	56%	61	17%	368	275	4	45	49	± 0	30	± 0	20
2023		5	78	83	25%	177	53%	71	21%	331	268	3	44	47	± 0	40	± 0	27
2024		6	98	104	22%	265	56%	102	22%	471	273	2	37	39	± 0	38	± 0	28

2025 Hunting Seasons
Jackson Bighorn Sheep (BS107)

Hunt Area	Type	Archery Dates Opens	Archery Dates Closes	Season Dates Opens	Season Dates Closes	Quota	Limitations
7	1	Aug. 1	Aug. 14	Aug. 15	Oct. 31	12	Any bighorn sheep (11 residents, 1 nonresident)
7	6			Oct. 15	Nov. 15	50	Ewe or lamb valid within the Gros Ventre River and Flat Creek drainages east of Highway 89/191/26 (45 residents, 5 nonresidents)

2025 Management Summary

Hunting Season Evaluation

This herd is managed using a 3-year average mid-winter trend count objective of 400 sheep. The 2024 winter trend count was 477 sheep, which is a substantial increase from last year. This is above the objective of 400 sheep but within the +/- 20% range. The lamb:ewe ratio was 38 and the ram:ewe ratio was 39. Fifty-six rams with at least ¾ curl horns were observed during this year's winter trend count. Survey conditions were favorable this year and a comprehensive survey was flown including both low elevation and high elevation winter ranges. Based on these results, the herd is expected to increase next year and be above the upper 20% objective range unless numbers are reduced through ewe harvest.

In 2024, 8 of 12 Type 1 hunters harvested a ram (67% success). Average age of harvested rams was 7.5 years with a range of 5 years to 9 years. Average days to harvest was 21.8 for residents and 6 days for nonresidents. Most of Hunt Area 7 has very challenging terrain and is difficult to

access. Ram groups are sparsely distributed in the hunt area and much of it is extremely difficult or inaccessible by horseback and requires off-trail hiking. Furthermore, ram groups are often found below tree line, making them difficult to locate. This is reflected in the number of days to harvest in this area. However, surveys consistently indicate mature rams are available and therefore there are no changes to the Type 1 licenses in 2025.

This herd has a history of pneumonia die-offs when numbers approach or surpass 500 sheep. The last pneumonia die-off occurred in 2011-2012. Since then, the herd steadily increased from 2013-2020 and the herd surpassed its objective in winters 2020/2021 and 2021/2022 with 491 sheep and 505 sheep counted, respectively. During the same time, research led by the University of Wyoming documented a decline in body condition in ewes, decreased pregnancy rate, and increased prevalence of *Mycoplasma ovipneumoniae (M. ovi)*, indicating that a pneumonia outbreak was imminent (Fig. 1, Fig. 2). Therefore, in 2022, a Type 6 ewe/lamb season was added to reduce the population back to its objective. A combination of ewe hunting and a severe winter in 2022/2023 reduced the herd back down to its objective of approximately 400 sheep. Since then, body condition and pregnancy rates have increased and *M. ovi* prevalence has dropped to zero (Fig. 1, Fig. 2), suggesting that sheep are healthier and more productive when the population does not exceed the objective. This winter's trend count showed that the herd is increasing again. Based on the current population size and anticipated births this spring, the population is projected to grow above 500 sheep unless ewe numbers are reduced.

The Type 6 ewe/lamb license has been popular. In 2024, the draw odds for nonresidents were 1.8% (56 applicants) and residents were 3.1% (292 applicants). Harvest success on the Type 6 ewe/lamb licenses during the past three years has been lower than expected at 30% (2022), 38% (2023), and 60% in 2024 when the season dates were extended. In 2025, the Type 6 ewe season will occur from October 15 – November 15. Benefits of running this season into November are that lambs are older and more likely to survive on their own after ewes are harvested and ewes will be harvested more randomly when on winter ranges, reducing the likelihood that certain social groups that are easier to access on summer range will be overharvested. The season dates in August, September, and early October were eliminated this year due to public concern about overlap with Type 1 license hunters. In order to reduce the herd back toward objective and prevent further increase, at least 30-40 ewes need to be harvested in 2025. Therefore, Type 6 ewe/lamb licenses were increased from 10 to 50 this year. Additionally, the valid area was expanded to include the Flat Creek drainage.

Management Objective Review

The objective and management strategy for the Jackson Bighorn Sheep Herd was last evaluated and approved in 2020. For the 2025 5-year objective review, the current winter trend count objective of 400 and special management strategy will be maintained for the next five years following an internal evaluation.

Research

Managers continued the research project with the University of Wyoming on bighorn sheep nutrition, disease, and population dynamics this year. This research began in 2015 and has provided valuable information that has guided bighorn sheep management in this herd. Data from this collaborative project have clearly shown how body condition and disease prevalence have

changed when the herd is at its population objective versus over its objective (above its carrying capacity) (Fig. 1, Fig. 2). This project is scheduled to continue for another 3 years to track the population while ewe harvest is implemented to maintain the herd at its objective.

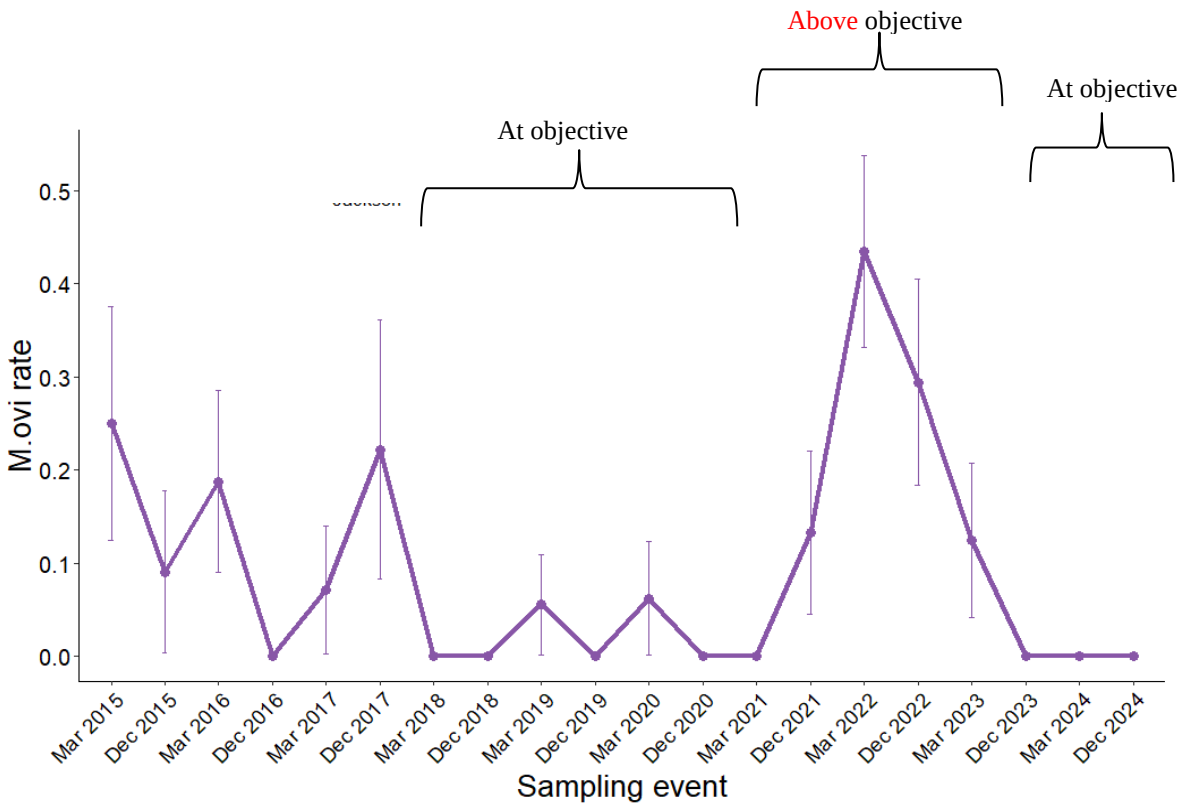


Figure 1. *Mycoplasma ovipneumoniae (M. ovi*) prevalence in captured ewes from the Jackson Herd, 2015-2024. The brackets indicate the time periods when the herd was above objective (~500 sheep) from 2020-2023 and when it was at objective (~400 sheep) from 2018-2020 and 2024. From 2015-2017, samples sizes were lower and may not have been representative and *M. ovi* prevalence may have still been elevated as the herd was recovering from the previous die-off.

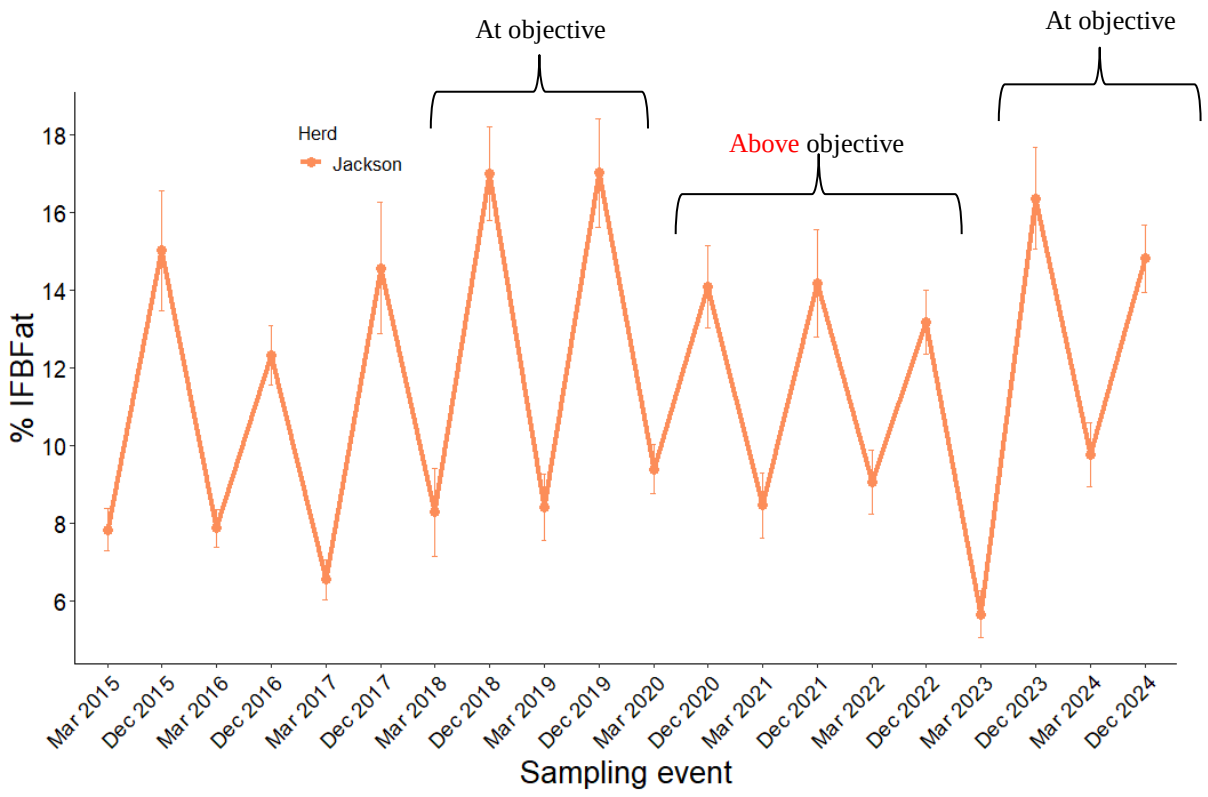


Figure 2. Body condition (percent ingesta-free body fat) of captured ewes in the Jackson Herd from 2015-2024. The brackets indicate the time periods when the herd was above objective (~500 sheep) from 2020-2023 and when it was at objective (~400 sheep) from 2018-2020 and 2024. From 2015-2017, samples sizes were lower and may not have been representative and the herd was still recovering from the previous pneumonia die-off.

Journal Publications

Abernathy, H.N., R.L. Levine, Y.N. Shakeri, J.T. Kolek, B.L. Wagler, R.A. Smiley, R.P. Jakopak, M.J. Brunet, R.T. Rafferty, S.T. Rankins, K.S. Huggler, B. Scurlock, J. Randall, D. Lutz, A.B. Courtemanch, T.N. LaSharr, S.P.H. Dwinnell, L.E. Tafelmeyer, P.W. Burke, P. Lionberger, M. Valdez, G.L. Fralick, D. McWhirter, and K.L. Monteith. 2025. Temperament and state-dependent behaviours in large herbivores. *Animal Behaviour* **221**:123056

Argov, J.R., N.B. Michaels, R.A. Smiley, B.L. Wagler, J.N. Gavin, A.B. Courtemanch, D. Clause, R.C. Kaiser, D. Lutz, B. Scurlock, and K.L. Monteith. 2024. Prediction of birthdates based on fetal development in bighorn sheep (Ovis canadensis). *Journal of Mammalogy* **105**(5):1151-1156.

Smiley, R.A., B.L. Wagler, W.H. Edwards, J. Jennings-Gaines, K. Luukkonen, K. Robbins, M.

Johnson, A.B. Courtemanch, T.W. Mong, D. Lutz, D. McWhirter, J.L. Malmberg, B. Lowrey, and K.L. Monteith. 2024. Infection-nutrition feedbacks: fat supports pathogen clearance but pathogens reduce fat in a wild mammal. *Proceedings of the Royal Society B* **291**:20240636.

2024 - JCR Evaluation Form

SPECIES: Mountain Goat
HERD: MG101 - PALISADES
HUNT AREAS: 2, 4

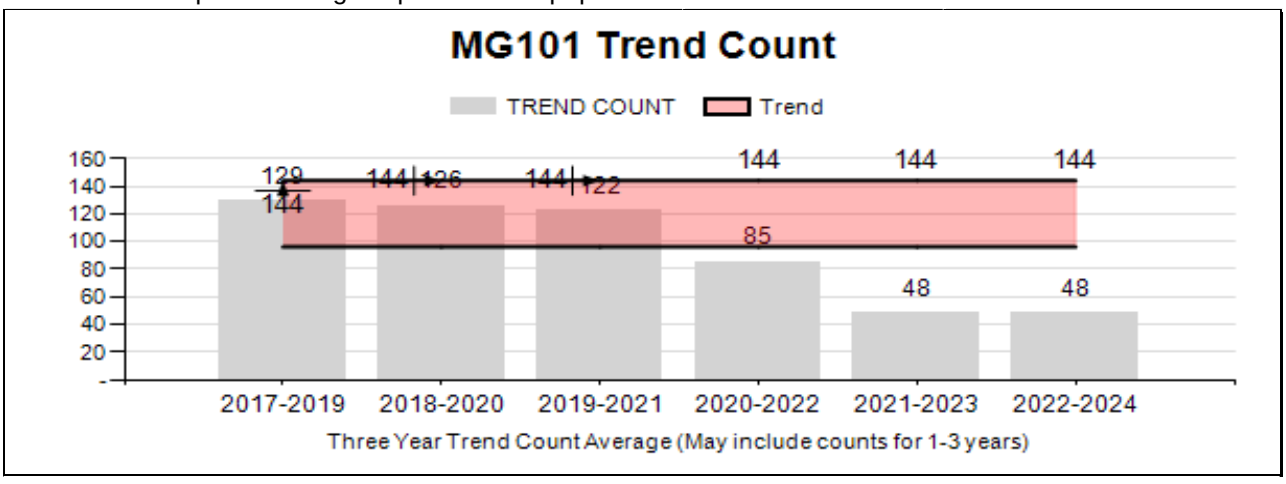
PERIOD: 6/1/2024 - 5/31/2025
PREPARED BY: GARY FRALICK

	2019 - 2023 Average	2024	2025 Proposed
Trend Count:	85	24	32
Harvest:	14	4	2
Hunters:	32	6	2
Hunter Success:	44%	67%	100 %
Active Licenses:	32	6	2
Active License Success	44%	67%	100 %
Recreation Days:	230	51	15
Days Per Animal:	16.4	12.8	7.5
Males per 100 Females:	0	0	
Juveniles per 100 Females	36	0	

Trend Based Objective (± 20%)	120 (96 - 144)
Management Strategy:	Special
Percent population is above (+) or (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	4

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	JCR Year	Proposed
Females ≥ 1 year old:	NA%	NA%
Males ≥ 1 year old:	NA%	NA%
Juveniles (< 1 year old):	NA%	NA%
Total:	NA%	NA%
Proposed change in post-season population:	NA%	NA%



2025 HUNTING SEASONS
PALISADES MOUNTAIN GOAT HERD (MG101)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
2	1	Aug.15	Aug.31	Sep. 1	Oct.31	1	Any mountain goat (1 resident)
4							Closed

2025 Management Summary

Hunting Season Evaluation

A total of one (1) hunting license valid for any goat will be issued to a resident in 2025 in Hunt Area 2. This season reflects a decrease from five (5) licenses that were issued in 2024. The 2025 hunting season limitation and number of licenses issued reflects a substantial decline in the number of goats counted during the 2022 and 2024 mid-summer trend counts. The causes of the population decline are unknown, but suspected to be related to a disease outbreak.

Trend count data is provided in Appendix A, and reflects the decline in mountain goats counted in 2022 and 2024 in which 48 and 24 goats were counted, respectively. While age and sex ratios continue to achieve management goals, the number of mountain goats counted falls below the management minimum.

The number of goats counted during the most recent survey reflects the lowest mid-summer trend count since 1996. A total of 19 adults and 5 kids were observed. The kid:100 adult ratio was 26. Since production and recruitment of juveniles drives this mountain goat population performance, the last two years of extremely low recruitment of kids will suppress population increase for the foreseeable future, and result in minimal hunting opportunity.

The Palisades herd offers hunters the opportunity to harvest trophy class billies that typically are at least 5 years old. This management approach has resulted in a high degree of hunter satisfaction, exceptionally high hunter success, low days/animal harvest, and trophy class males being harvested in most years.

The population decline in 2021 has resulted in fewer mountain goats harvested by hunters, and harvest success declining from 100% in 2023 to 67% in 2024. Other harvest statistics such as days/harvest increased in 2023 and 2024 from 9.3 days to 13 days/harvest, respectively. The most notable harvest statistic was reported for resident goat hunters. Resident hunters reported needing only 8.5 days to harvest a goat in 2023, while in 2024 it took residents 16 days, on average, to harvest a goat.

The 2024 hunting season was the 26th year that goats were hunted in Area 2. A total of five (5) licenses were issued, in addition to the one (1) Super Tag license hunter. A total of four goats were harvested by 6 hunters, which comprised three billies and one nanny in 2024. Since 1999, a total of 172 mountain goats (142 billies, 30 nannies) have been harvested in Hunt Area 2. During this period, billes and nannies have comprised 83% and 17% of the total harvest, respectively.

In Area 4, the hunting season was closed in 2024, and will remain closed in 2025 because of the low number of goats documented in this hunt area and in Grand Teton National Park.

The next mid-summer survey is scheduled for August 2026

Management Objective Review

For 2025, the Department proposes to reduce this population trend objective from 120 to 80 mountain goats, while maintaining the special management strategy for the next five years. The proposal includes removing Hunt Area 4 from the Herd Unit because the management objectives for those hunt areas are not aligned. This proposed objective revision will be presented to the Wyoming Game and Fish Commission at the July 2025 meeting.

Appendix A
SNAKE RIVER MOUNTAIN RANGE
MOUNTAIN GOAT POPULATION SURVEYS
WYOMING, 1996-2024

Wyoming Summary of Mountain Goat Surveys, Hunt Area 2, Palisades Goat Herd

Year		Adults	Kids	Unknown	Total	Kids:100 adults
1996[a]		16	8	0	24	50
1997[a]		34	20	0	54	59
1998[a]		47	15	0	62	32
2000[a]		58	18	0	76	31
2002[a]		37	17	0	54	46
2004[a]		90	31	0	121	34
2006[a]		98	32	0	130	33
2008[a]		52	13	0	65	33
2010[a]		97	30	0	127	31
2012[a]		83	25	0	108	30
2014[a]		144	21	0	165	14
2016[a]		71	22	0	93	31
2017[WH]		74	6	0	80	8
2018[WH]		65	5	0	70	8
2018[a]		96	33	0	129	34
2020[a]		91	31	0	122	34
2022[a]		34	14	0	48	41
2024[a]		19	5	0	24	26

[a] - Helicopter Survey (August)

[b] - Ground Count

[WH]- Winter Helicopter Survey

2024 - JCR Evaluation Form

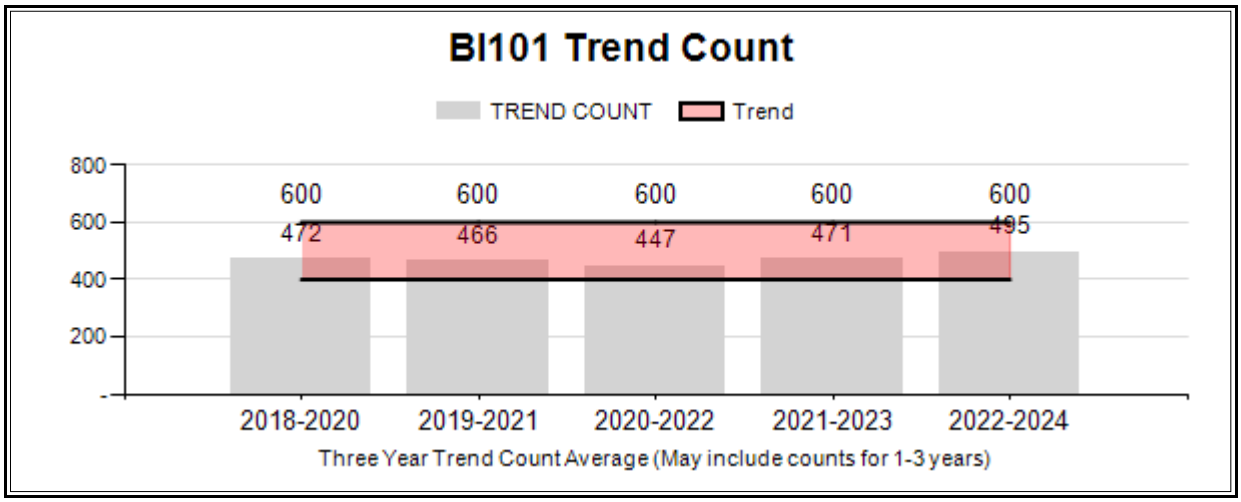
SPECIES: Bison
PERIOD: 6/1/2024 - 5/31/2025

HERD: BI101 - JACKSON

HUNT AREAS: 2
PREPARED BY: ALYSON COURTEMANCH

	2019 - 2023 Average	2024	2025 Proposed
Trend Count:	469	538	525
Harvest:	88	63	65
Hunters:	127	66	70
Hunter Success:	69%	95%	93%
Active Licenses:	127	66	70
Active License Success	69%	95%	93%
Recreation Days:	1,166	606	900
Days Per Animal:	13.2	9.6	13.8
Males per 100 Females:	65	59	
Juveniles per 100 Females	41	47	

Trend Based Objective (± 20%)	500 (400 - 600)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	8%
Number of years population has been + or - objective in recent trend:	2



2019 - 2024 Postseason Classification Summary

for Bison Herd BI101 - JACKSON

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2019		18	171	189	39%	215	44%	83	17%	487	0	8	80	88	± 0	39	± 0	21
2020		31	123	154	35%	194	44%	95	21%	443	0	16	63	79	± 0	49	± 0	27
2021		13	102	115	28%	236	56%	67	16%	418	0	6	43	49	± 0	28	± 0	19
2022		20	92	112	26%	219	51%	100	23%	431	0	9	42	51	± 0	46	± 0	30
2023		41	95	136	30%	224	49%	100	22%	460	0	18	42	61	± 0	45	± 0	28
2024		30	121	151	29%	257	49%	121	23%	529	0	12	47	59	± 0	47	± 0	30

2025 Hunting Seasons
Jackson Bison (BI101)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
2	1			Aug. 15	Jan. 31	70	Any wild bison; from Jan. 2 - Jan. 31 limited alternate permits for the National Elk Refuge may be available through the Department's Jackson Regional Office on a first-come first-served basis until the season closes or conditions dictate that supplemental feeding is necessary. Also valid in Area 1 within the Clark's Fork River and Soda Butte Creek drainages from Aug. 15 - Dec. 31. Valid in other parts of Area 1 upon authorization by the Department. (63 residents, 6 nonresidents)
3							Closed

2025 Management Summary

Hunting Season Evaluation

A total of 538 bison were counted during the 2024 mid-winter trend count. The 3-year trend count average is 495. The majority of the herd was on feed on the National Elk Refuge (NER) (474 bison; 88%) during the classification. The remainder were on native winter range in Grand Teton National Park (64 bison). The calf:cow ratio was 47 and the bull:cow ratio was 59 (adult bull:cow ratio of 47 and yearling bull:cow ratio of 12). The herd had been trending below the population objective of 500 bison from 2018-2022, but a reduction in licenses has allowed it to increase closer to the objective.

Annual hunter success in this herd in highly variable depending on when and if bison migrate to the NER during the open season. In 2024, bison migrated in late December and groups were available on the NER through January, resulting in hunter success of 95%. A total of 63 bison were harvested in Hunt Area 2 (43 bulls and 20 cows) and 2 bison were harvested in Hunt Area 1 (2 bulls). This was a significant difference from 2023 when bison did not migrate to the NER during the open season and only 19 bison were harvested and hunter success was 39%. Managers removed the Type 4 cow/calf bison license in 2023 and went to all Type 1 licenses valid for any bison due to several years of extremely limited cow bison opportunity in the open hunt area. Due to the difficulty of harvesting any bison from this herd in recent years and the once-in-a-lifetime license, some hunters are choosing to harvest cows on the Type 1 license (31% in 2024). This cow harvest is helping with population management, despite only having Type 1 licenses.

Bull numbers in this herd are declining, especially older bulls, due to harvest. Over the past 6 years, adult bull numbers have dropped by approximately 50%. In February 2025, 121 adult bulls were classified, many of which were relatively young based on horn and body size. Meanwhile, cow numbers have increased by about 40% over the same time period. If this trend continues, the herd may increase above its objective but offer very little mature bull harvest opportunity for hunters. Also, genetic viability concerns may arise if adult bull numbers get too low. Managers will continue to monitor these trends and consider changes in licenses in the future if needed.

Management Objective Review

The objective and management strategy for the herd was last evaluated and approved in 2024, and will not be reviewed again until 2029.

Rafferty

Wyoming Range Mule Deer Project

Understanding what shapes mule deer populations.

The mule deer that inhabit the Wyoming and Salt River mountain ranges in western Wyoming are among the most admired wildlife of the American West. Despite substantial efforts to increase population abundance, the Wyoming Range mule deer herd has historically experienced dramatic declines, followed by moderate recoveries. Since the steepest decline in the mid-1990s followed by precipitous declines in recent winters, the population has risen some, but has failed to come close to historic abundance. These concerning trends have motivated our research into the factors that regulate this cherished herd.

Neither deer nor their landscapes are frozen in time, but change markedly from year to year, and from season to season. It's a huge challenge to account for all these fluctuations to detect the underlying forces that are truly driving population trends. That's why we are taking a long-term approach to studying Wyoming Range deer—through the combined stories of individuals, we can start to glimpse the story of the population.

Project goals

Understand the factors regulating survival and reproduction in the Wyoming Range herd.

Identify the role of nutrition on behavior and population dynamics of mule deer.

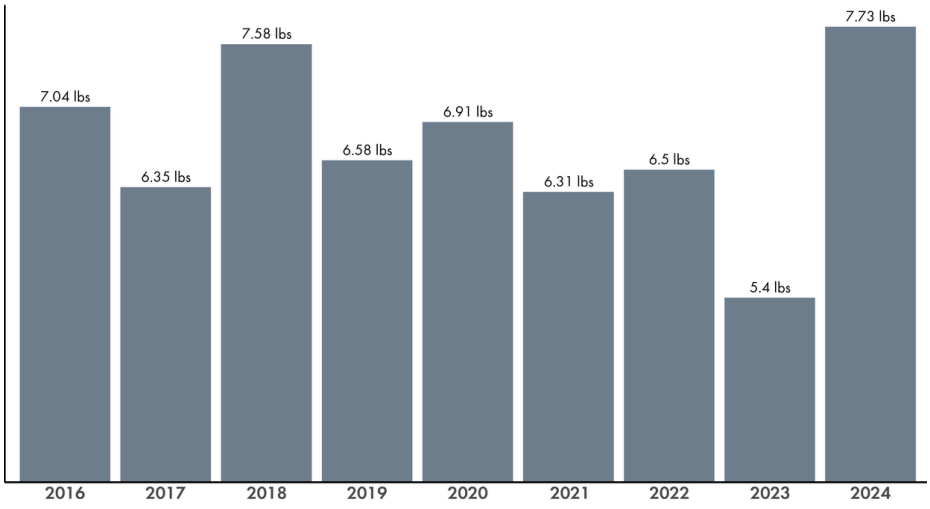
Approach

With GPS collars, we follow deer for their lives; we measure their nutritional condition every autumn and spring and, when they die, we determine how and why. We then pair long-term data from each deer with data that we collect from the environment to reveal how the landscape is shaping the lives of individual animals. After a decade of data collection, we have begun to understand how the connections that deer have with their landscapes are influencing population dynamics The Wyoming Range Mule Deer Project has allowed researchers, scientists, and managers to answer on-the-ground management questions and to better understand ecological phenomena that occur in populations of wildlife around the world.

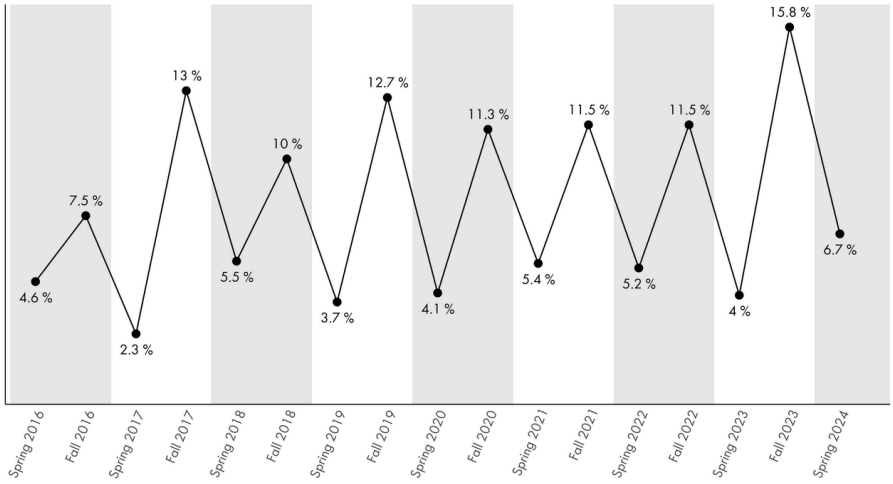
Recent finding 1: The silver lining of a terrible winter—fat moms and huge fawns.

The winter of 2023 was the worst winter deer in the Wyoming Range have experienced for many decades. The population was reduced by roughly 60% during the winter itself, the females that survived gave birth to small fawns, and survival of fawns during the summer of 2023 was the lowest we have ever measured. In the wake of so much loss, however, the survivors have flourished.

Despite low fawn recruitment, the summer of 2023 was extremely wet and there were far fewer mouths competing with one another for food. Females in December of 2023 were fatter than we've ever seen them in autumn. The winter of 2024 was mild, and females in March were fatter than we've ever seen them in spring. We knew that the population was set up for big, healthy fawns to be born in May and June of 2024. And that's what happened—fawns were the largest we've measured and fawn survival during the summer of 2024 was the highest we've seen. We will continue to monitor reproduction and survival as the population recovers over the coming years.



Weight of newborn fawns in the Wyoming Range.

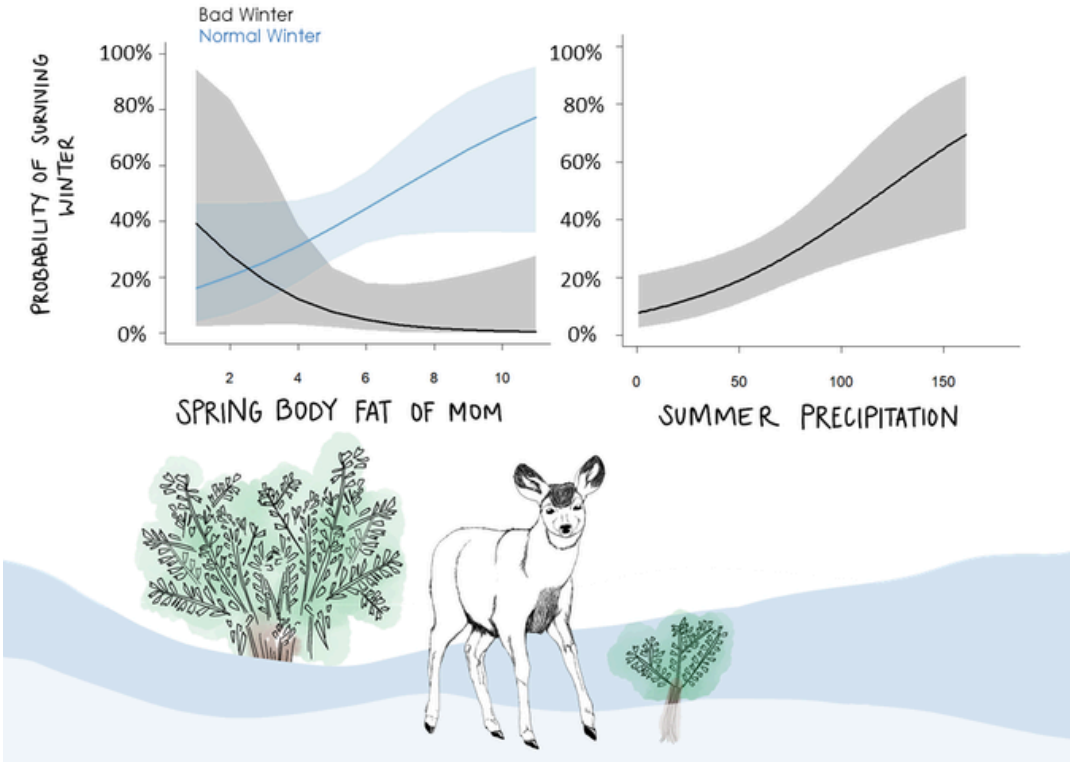


Fat in autumn and spring for adult females in the Wyoming Range.

Recent finding 2: Fawn survival during winter depends on good resources earlier in their lives.

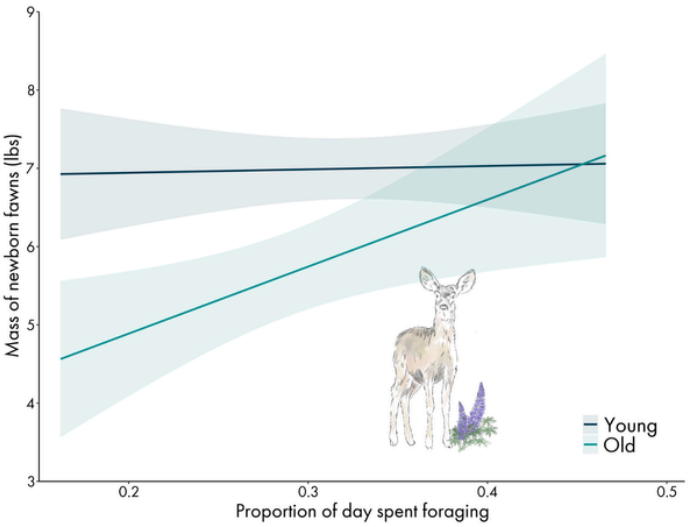
Survival of young deer increases markedly if they can make it to their first birthday. But to survive their first year, fawns face a gauntlet of challenges, not the least of which is weathering harsh elements during their first winter. At the onset of their first winter, fawns can be under half the size of a grown adult, which means that cold penetrates their bodies faster and it is harder for them to move through snow. The lifetime trajectory of a fawn begins before they're even born—their size, survival, and lifetime success are all intricately tied to what mom can provide them. So, if mom is able to give them a good start in life, they should be better prepared for winter.

During harsh winters, most fawns die no matter what, but when winter is normal, fawns are more likely to survive if their mom was fat when she was pregnant with them. They are also more likely to survive their first winter if there was a lot of precipitation on their summer range (so they had good food to eat while they were growing), and if mom kept them on summer range as long as she could before beginning their autumn migration (so they could eat that good food for as long as possible before winter).



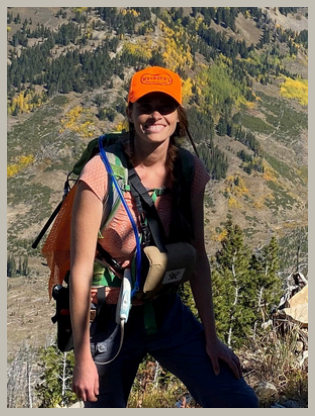
Recent finding 3: Old moms that forage a lot while pregnant can increase the size of their newborns.

As female deer age, they keep producing fawns but give birth to smaller and smaller fawns near the end of their lives. Unfortunately for these old moms, fawns born smaller than 7.5 pounds are a lot less likely to survive their first weeks of life than bigger fawns. But, old moms may be able to make up for this decline in their last chances to reproduce. We found that some old moms do their best to give their fawns a good start in life by foraging more during the final trimester of their pregnancies, which is when the bulk of fetal growth happens. An old mom that foraged 20% more could increase the size of her newborn by over 2 pounds, which could mean all the difference for her fawn's chances of survival in early life.



Age and foraging affect birth mass of fawns in the Wyoming Range.

Project lead



This project is led by PhD student Rebekah Rafferty.

Partners and collaborators

The Wyoming Range Mule Deer Project is a collaborative partnership in inception, development, operations, and funding. Without all the active partners, this work would not be possible. Funds have been provided by the Wyoming Game and Fish Department, Wyoming Game and Fish Commission, Wyoming Wildlife and Natural Resource Trust, Muley Fanatic Foundation (Kemmerer/Wyoming Range, Southwest, 10 County, Upper Green chapters), Pope and Young Club, Bureau of Land Management, Knobloch Family Foundation, U.S. Geological Survey, National Science Foundation, Wyoming Governor's Big Game License Coalition, Boone and Crockett Club, Animal Damage Management Board, Ridgeline Energy Atlantic Power, Bowhunters of Wyoming, and the Wyoming Outfitters and Guides Association. Special thanks to the Wyoming Game and Fish Department, Bureau of Land Management, United States Forest Service, and Wyoming State Veterinary Lab for assistance with logistics, lab analyses, and fieldwork. Also, thanks to the Cokeville Meadows National Wildlife Refuge and U.S. Forest Service for providing field housing.

Appendix B.

Jackson Moose Calf Survival and Development of Migration Patterns

Progress report: 01 February 2025

Photo: Aidan Sullivan

Project Background

Wyoming is close to the southern extent of the Shiras moose subspecies range. Many of the southern moose populations have been in decline. Moose are large-bodied ungulates that are adapted for cold temperatures and most of the research on population declines has focused on the effects of heat stress on moose due to a warming climate and disease/parasites. The Jackson moose herd declined by approximately 70% in the 1990s and early 2000s. Previous research and monitoring indicated that this decline was likely caused by over browsing on winter ranges, large-scale habitat alteration due to wildfires, and predation. The population has stabilized in recent years but at low numbers (~200-350 moose on winter trend counts). Additional impacts such as warming temperatures, disease/parasites, residential development, and road mortality may be compounding with predation and preventing this population from increasing. Calf:cow ratios declined in the 1990s and early 2000s along with the population numbers and reached a low of 15 calves to 100 cows in 2009. Since then, however, ratios improved to 50-59 calves to 100 cows from 2018-2021 and were 35 calves to 100 cows in winter 2023/2024. Wyoming Game and Fish Department (WGFD) managers have been anticipating that these improved ratios

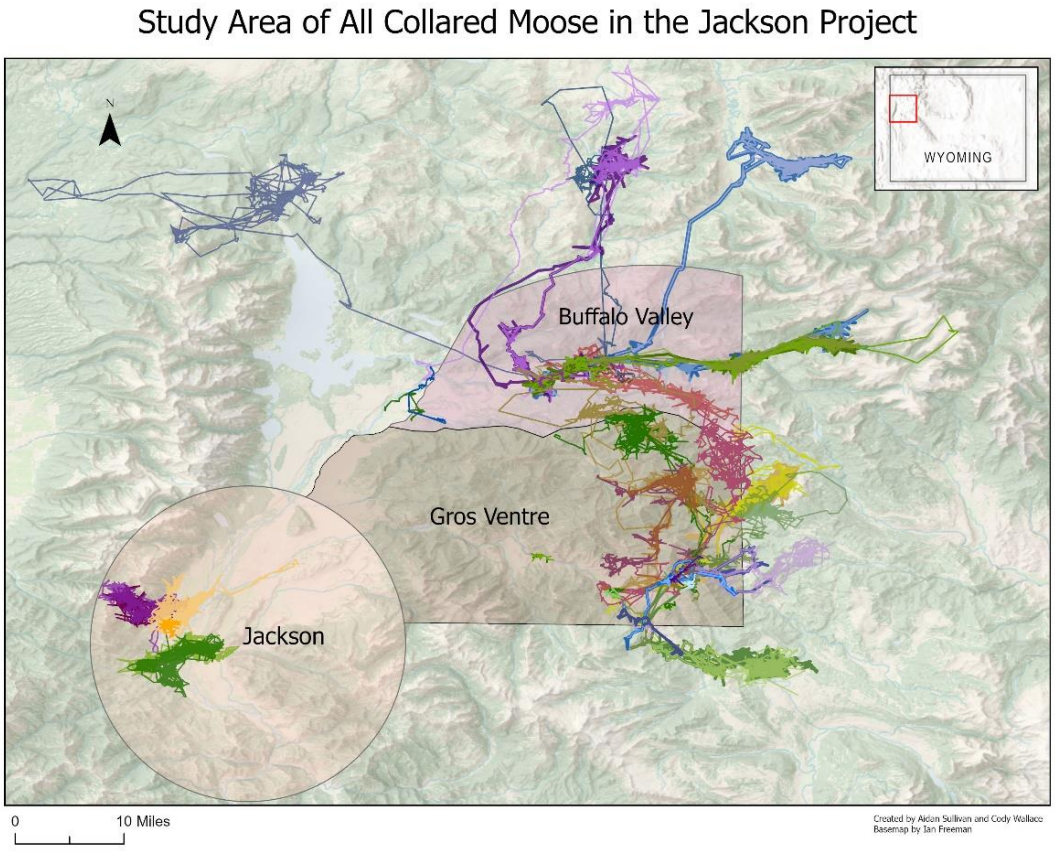
will translate into growing population numbers, but this has not happened. Managers are hypothesizing that calves may be dying at a high rate in later winter after trend count surveys are completed, and/or during the second year of life after separation from their mother. Juvenile survival has a strong influence on the demographic performance of ungulate populations. Thus, the first goal of this project is to evaluate cause-specific mortality of juvenile moose in late winter and during their second and third years of life. The second goal of this project is to assess how juvenile moose learn to migrate.

Across the globe, long-distance migrations have been declining due to anthropogenic disturbances such as roads, fences, energy development, and habitat loss. To protect migratory populations, it is important to understand how migration is maintained within populations. Recent evidence suggests that for migratory ungulates, animals rely on the memory of previous migrations to be able to repeat these movements year after year. This poses the question of how these migrations are learned in the first place. Understanding how animals learn to migrate is vital to help us understand the capacity migratory taxa have to respond to environmental change. Much of the research in this area has occurred on mule deer, however, there is an indication that other species may differ in how they learn to migrate and how loyal they are to those learned migrations over their early life. Moose are an ideal species to test this question because they are primarily solitary making it easy to capture mother-offspring pairs. The Jackson moose population is particularly well suited for this work because it is a partially migratory population where some animals migrate and others don't, allowing us to evaluate the second objective of this study: if moose adopt the same migratory strategy and seasonal ranges as their mother and whether they adhere to those patterns during the first three years of life.

There has been very little work done to evaluate the causes of late winter juvenile mortality in Shiras moose and none in the Jackson area. There is also little known about how migration is learned and possibly passed from one generation to the next. The results of this work will provide information that will have direct management implications to the Jackson moose population while simultaneously helping to answer questions that could improve the conservation of long-distance migratory populations across the world.

Data Collection

All moose are fitted with Telonics RECON-4660-4 Globalstar Satellite GPS collars. All calf collars have foam padding that is compressed as the moose grows. The female calves are fitted with two six-inch expandable sections and the male calves are fitted with two eight-inch expandable sections to allow for growth. The collars are programmed to collect a GPS location every 2 hours and transmit 4 locations via satellite every day. The battery capacity of these collars is approximately 3 years. The collars emit a very high frequency (VHF) signal, which will allow technicians to locate collars in the case of a mortality or when they drop. All helicopter captures were conducted by Native Range Capture Services. We collected biological samples during processing that included blood samples (~20 ml) and hair (20+ hairs) for DNA testing and to provide the Wyoming Game and Fish Health Lab with samples to screen for disease and test for pregnancy in cows. We also collected fecal samples (~15 to 20 pellets) for nutrition analysis.



All of the collared moose data (March 2023 – January 2024). Pairs were mapped with different shades of the same collar (i.e. dark blue, and light blue).

In March 2023, we captured 5 moose cow-calf pairs as part of a pilot season. Three pairs were ground darted in the town of Jackson, and two pairs were helicopter net-gunned in the Buffalo Valley Area. Captures took place on March 11th, 12th, and 18th. We had no capture mortalities.

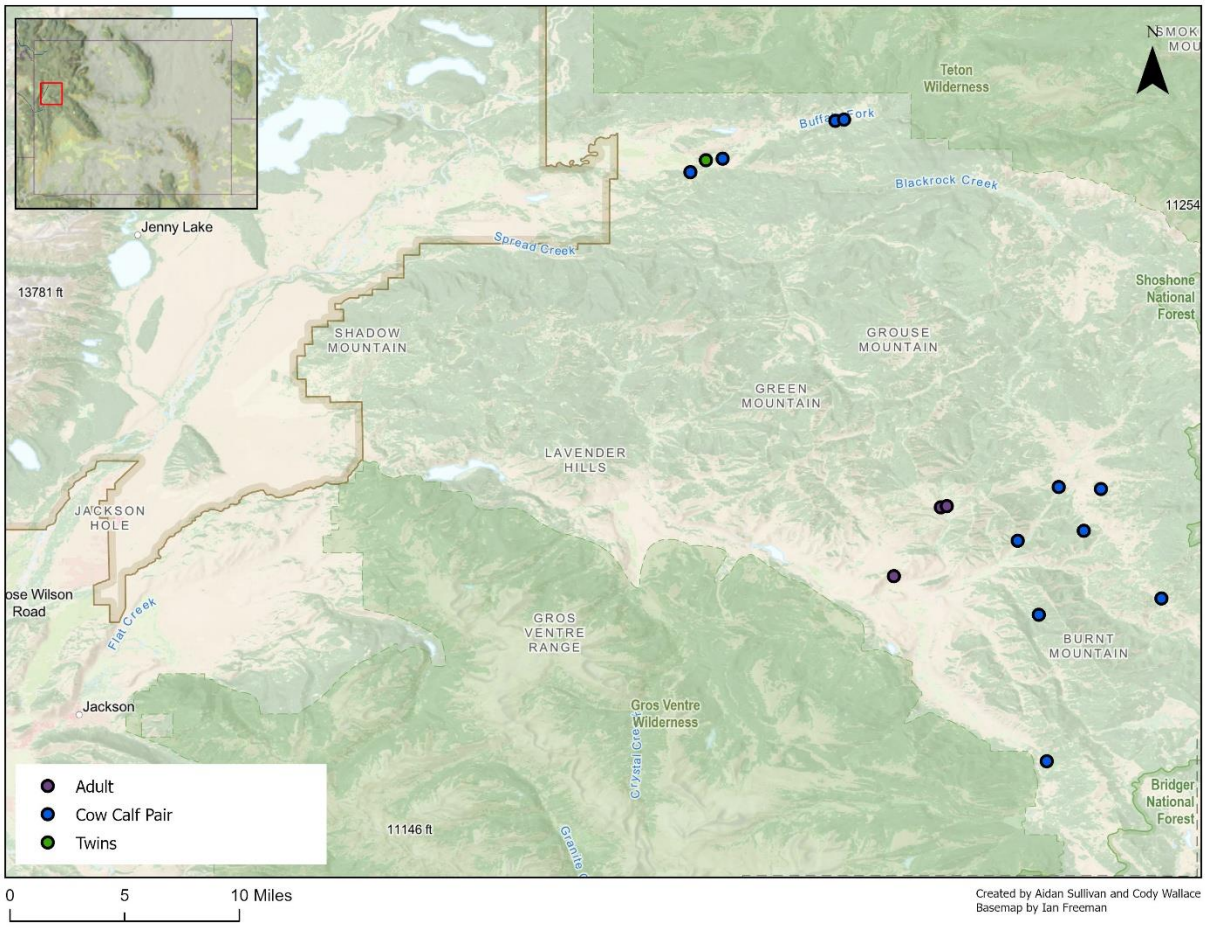
In January 2024, we captured 12 new cow-calf pairs, one of which had twins (i.e. 12 cows, 13 calves), and three adult cows without calves. All moose were captured via dart gun from a helicopter using thiafental and xylazine. Wyoming Game and Fish Department's wildlife veterinarian was on-site during captures and determined drug dosages. Captures took place on January 29th - 31st, 2024. We had no mortalities during captures, but one adult female died within the two-week period following captures that we consider a capture-related mortality. When this mortality was investigated the cause of death appeared to be predation by wolves, but we cannot rule out that it was not related to being captured.

In February 2025, we captured 10 new cow-calf pairs and four new calves from previously collared cows. Adult female moose were captured via dart gun from a helicopter using BAM (butorphanol, azaperone, medetomidine) and calves were captured via helicopter net-gunning.

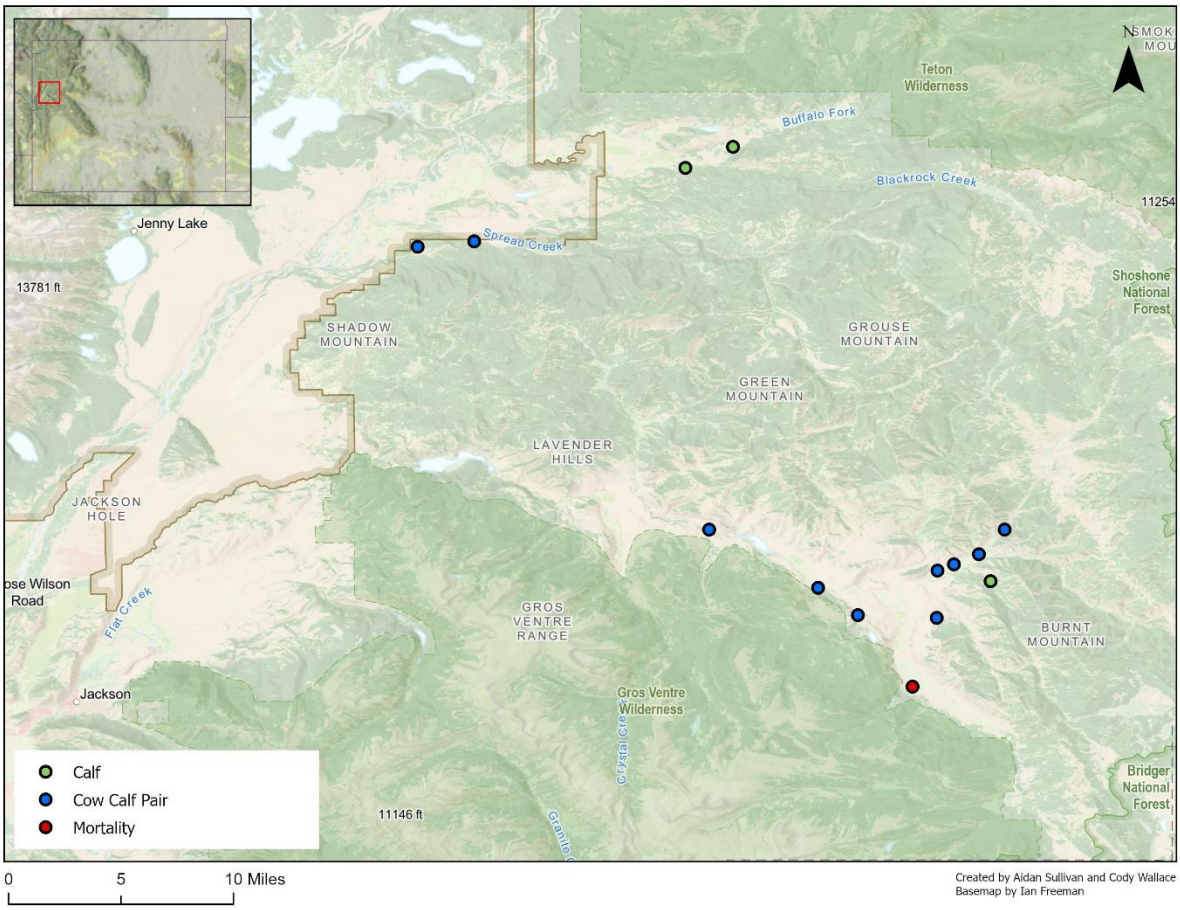
Captures took place February 3rd- 5th, 2025. During capture operations, we had one capture mortality when a bull calf suffered a broken neck when captured via net-gunning. The meat from the calf was donated to the Wyoming Hunger Initiative's Food from the Field. Seven days after being captured, a newly collared female calf got trapped and died in a frozen creek. Because the calf's death falls within the standard two-week post-capture window, we cannot rule out that its death may have been related to capture and thus consider it a capture-related mortality.

Over the three years, we captured and collared a total of 30 cows and 32 calves.

Jackson Moose Capture Locations 2024



Jackson Moose Capture Locations 2025



Mortality investigations

Over the past three years we have had 11 collared moose die on the project, five adults out of 30 (mortality rate = 16%), and six calves out of 32 (mortality rate = 19%). During 2023, two adult cows and no calves died. One cow was seen with an infection on her leg, and later died in a residential pond in Wilson, WY. Another cow was predated by wolves in Buffalo Valley in December 2023. During the spring of 2024, one adult and five collared calves died. The adult was predated by wolves two days after she was captured and was considered a capture mortality. One calf was killed by wolves in the Buffalo Valley in February. Two calves were predated by wolves, and one was killed by a grizzly in the Gros Ventre area in April. One calf died in June in an inaccessible area, and we were unable to investigate its death. So far in 2025, one adult, one yearling, and one calf have died. The yearling male had severe trauma to its front shoulder and neck, most likely from a vehicle collision. Its GPS collar data showed that it had crossed the Buffalo Valley Road in the past couple days before death. The adult female was predated by a mountain lion. The calf was found trapped in a frozen creek, seven days after being captured and was considered a capture mortality.

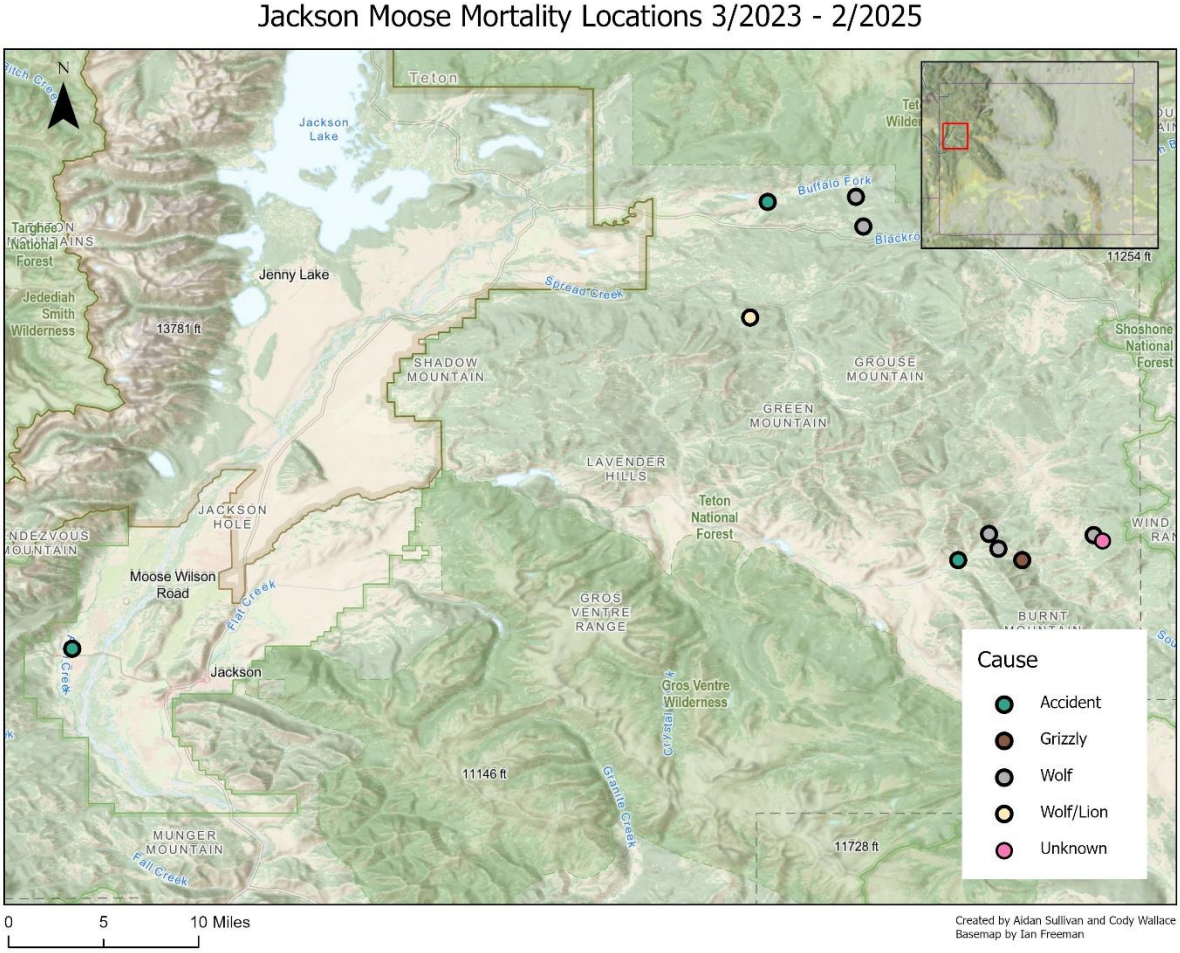
Yearling bull moose (JK_M_018), likely struck by a vehicle. Photo: Aly Courtemanch/WGFD)

(Moose calf (JK_M_031) predated by a grizzly bear, being investigated by Aly Courtemanch/WGFD)

(Moose calf JK_M_047 died trapped in a frozen creek. Photo: Briana Agenbroad/WGFD)

AID	Sex	Age	Mort Date	Cause of Death
JK_M_005	Female	Adult	10/1/2023	Systemic infection/leg injury
JK_M_001	Female	Adult	12/30/2023	Wolf predation
JK_M_024	Female	Adult	2/1/2024	*Suspected wolf predation /capture mort
JK_M_035	Female	Calf	2/27/2024	Wolf predation
JK_M_025	Male	Calf	4/1/2024	Wolf predation
JK_M_027	Male	Calf	4/2/2024	Wolf predation
JK_M_031	Female	Calf	4/20/2024	Grizzly bear predation
JK_M_033	Female	Calf	6/7/2024	Undetermined
JK_M_018	Male	Yearling	1/7/2025	Trauma, possible vehicle collision
JK_M_022	Female	Adult	1/13/2025	Mountain lion predation
JK_M_047	Female	Calf	2/10/2025	*Trapped in frozen creek and drowned/ capture mort

*Mortality falls within a two-week post-capture window. We cannot rule out that our captures did not influence their death and thus consider these capture mortalities.

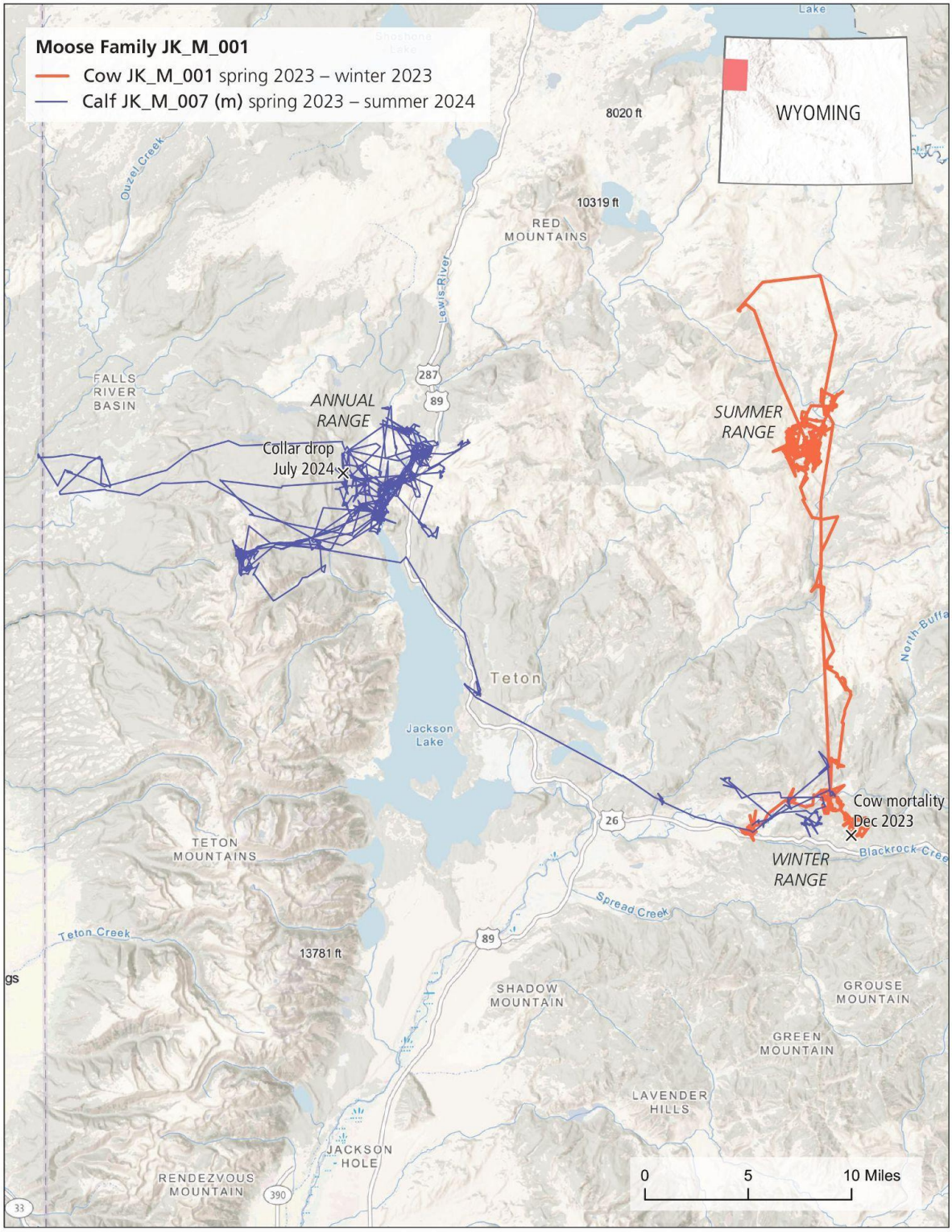


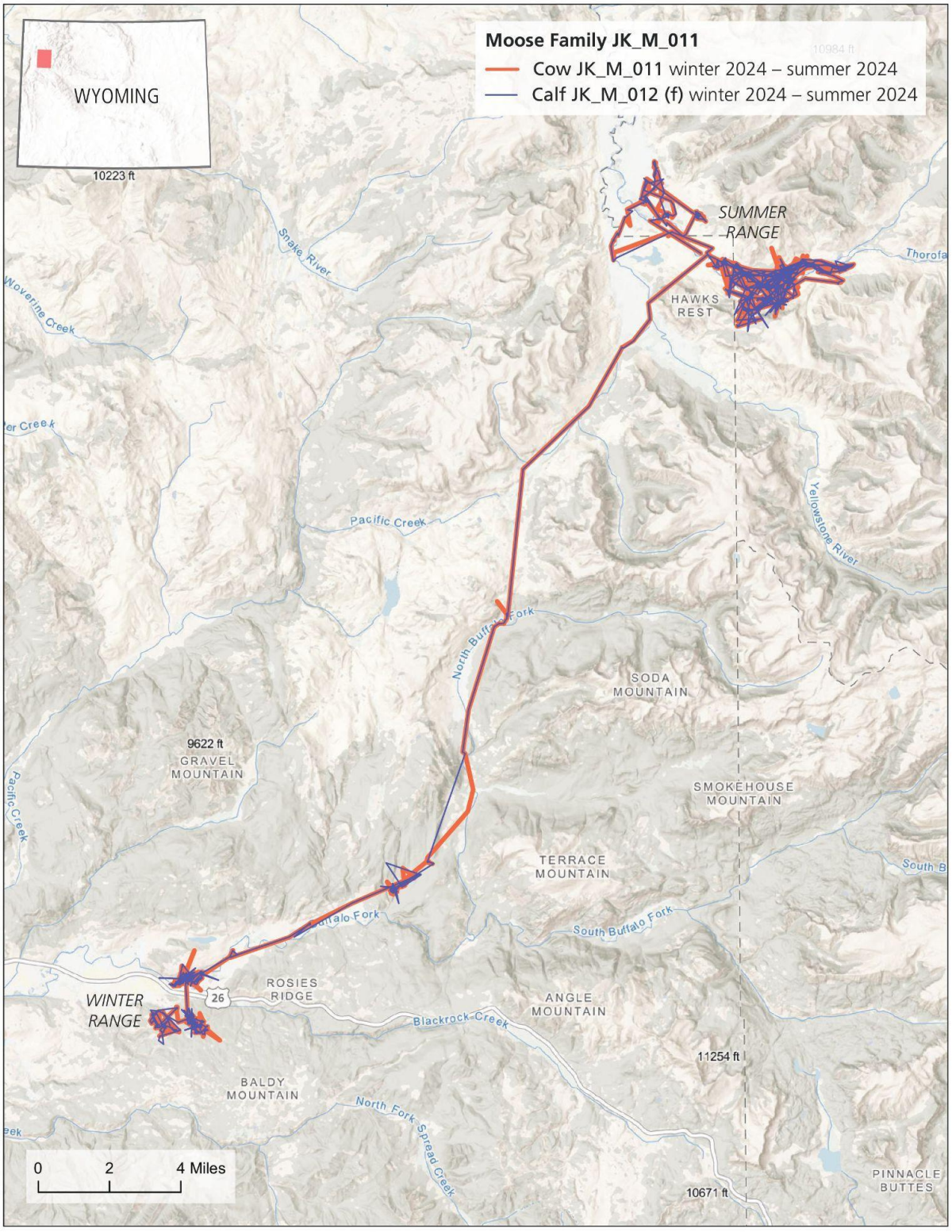
All mortality Locations of collared moose

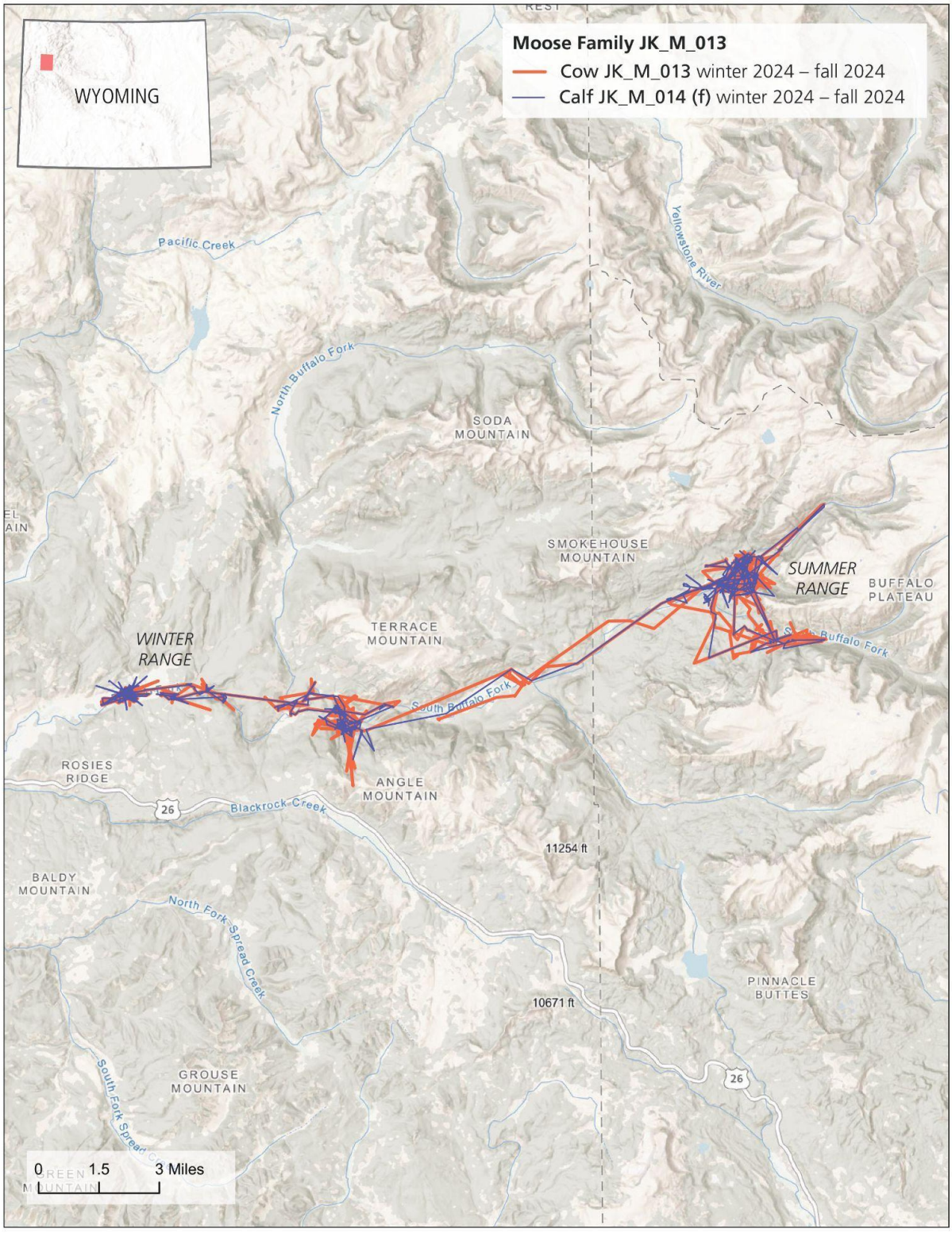
Migration

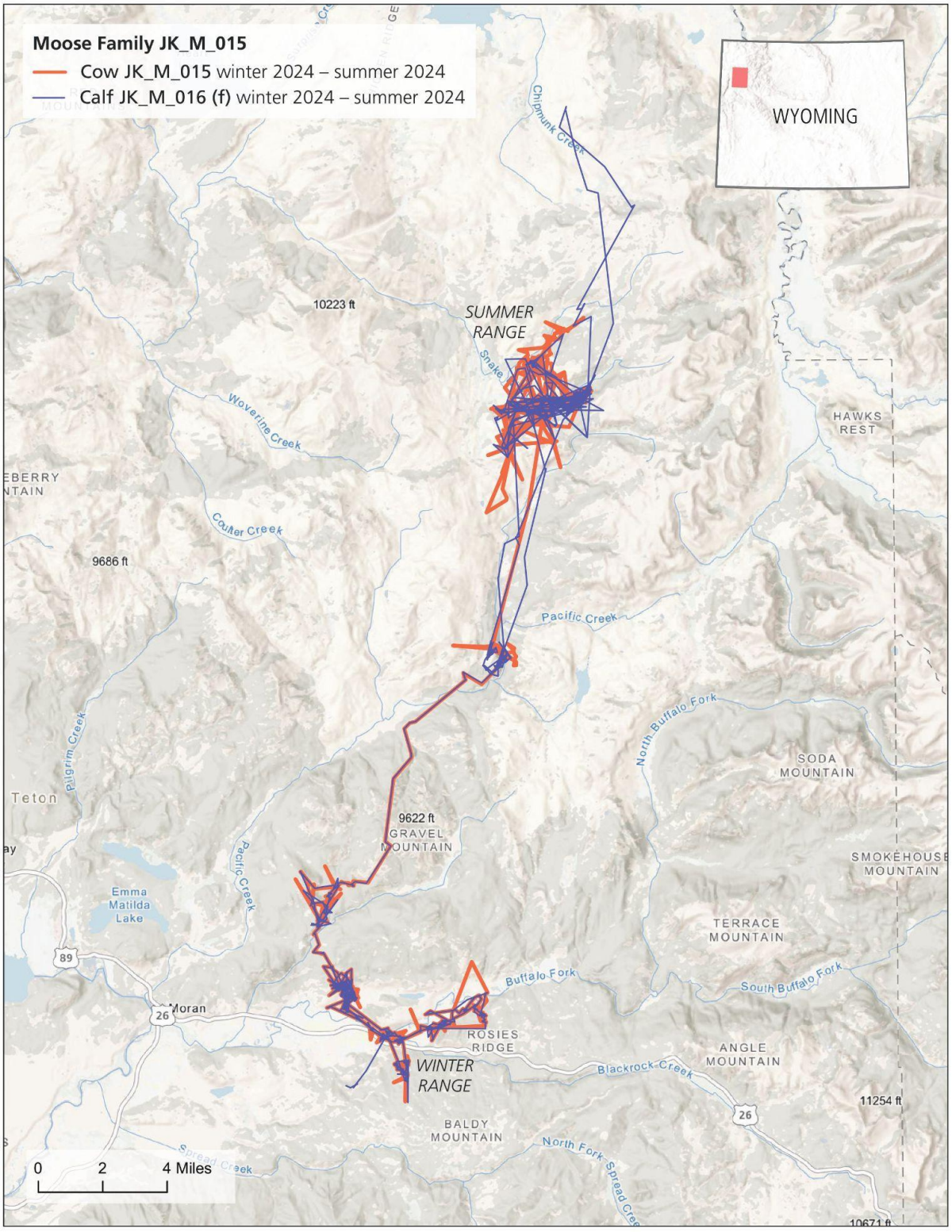
We collared five cow/calf pairs in 2023 and another 12 pairs, in 2024. DNA analysis confirmed that all 17 collared pairs were parent/offspring. In 2025 we captured 10 new pairs and three new calves from previously collared cows. This increases our sample size to 30 pairs, 20 of which are currently online. We will continue to monitor their migration patterns.

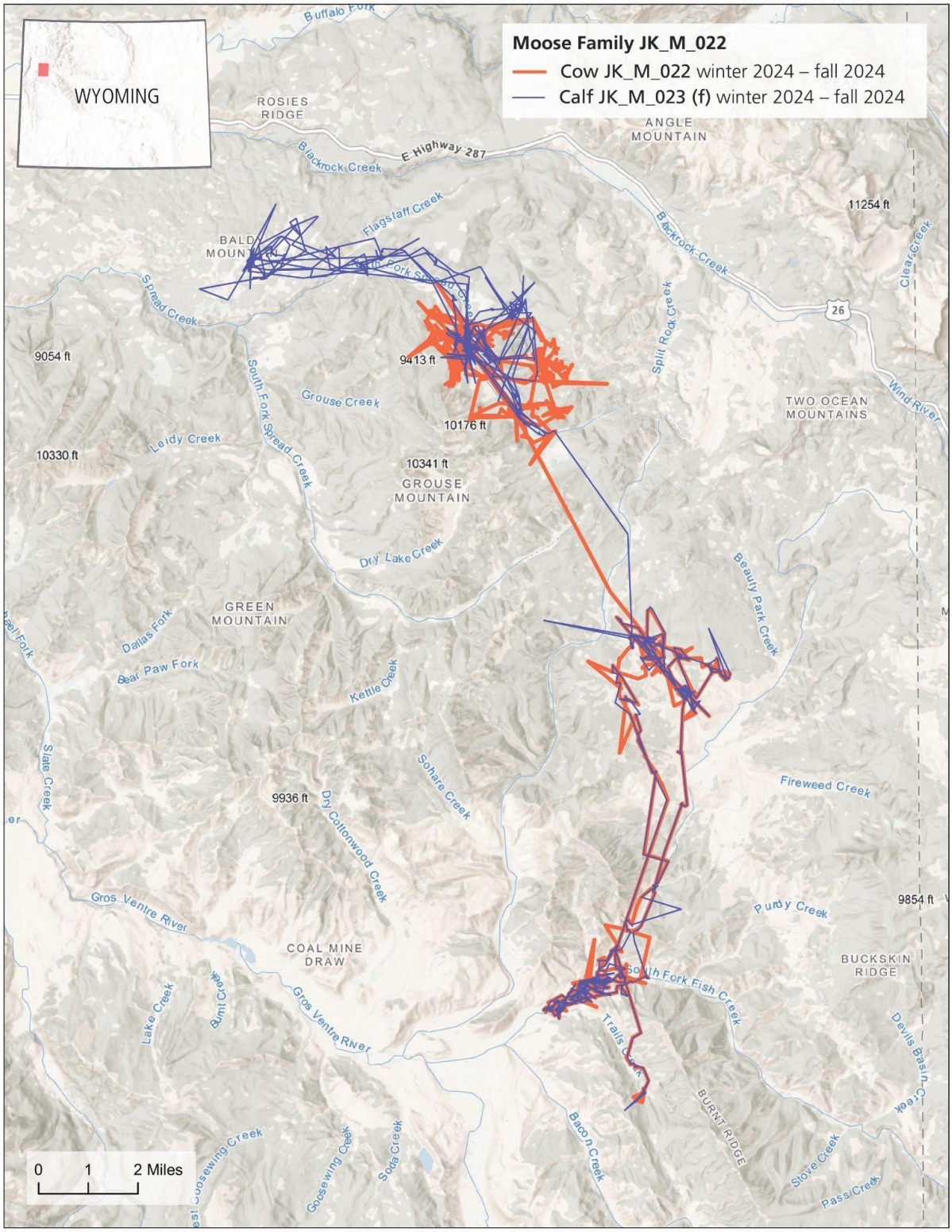
Selection of Cow/Calf Migration Maps:




Moose Family JK_M_011
Cow JK_M_011 winter 2024 – summer 2024
Calf JK_M_012 (f) winter 2024 – summer 2024
WYOMING
10223 ft
10984 ft
SUMMER RANGE
WINTER RANGE
HAWKS REST
SODA MOUNTAIN
GRAVEL MOUNTAIN
9622 ft
SMOKEHOUSE MOUNTAIN
TERRACE MOUNTAIN
ROSIES RIDGE
ANGLE MOUNTAIN
BALDY MOUNTAIN
11254 ft
10671 ft
PINNACLE BUTTES
Snake River
Wolverine Creek
Pacific Creek
Yellowstone River
North Buffalo Fork
South Buffalo Fork
Blackrock Creek
North Fork Spread Creek
26
0 2 4 Miles


Moose Family JK_M_013
Cow JK_M_013 winter 2024 – fall 2024
Calf JK_M_014 (f) winter 2024 – fall 2024
WYOMING
Pacific Creek
Yellowstone River
North Buffalo Fork
SODA MOUNTAIN
SMOKEHOUSE MOUNTAIN
SUMMER RANGE
BUFFALO PLATEAU
WINTER RANGE
TERRACE MOUNTAIN
South Buffalo Fork
ROSIES RIDGE
ANGLE MOUNTAIN
26
Blackrock Creek
11254 ft
BALDY MOUNTAIN
North Fork Spread Creek
10671 ft
PINNACLE BUTTES
GROUSE MOUNTAIN
South Fork Spread
0 1.5 3 Miles


Moose Family JK_M_015
Cow JK_M_015 winter 2024 – summer 2024
Calf JK_M_016 (f) winter 2024 – summer 2024
WYOMING
Chipmunk Creek
10223 ft
SUMMER RANGE
Snake
Wolverine Creek
HAWKS REST
Coulter Creek
9686 ft
Pacific Creek
North Buffalo Fork
SODA MOUNTAIN
Pilgrim Creek
Teton
9622 ft
GRAVEL MOUNTAIN
Pacific Creek
SMOKEHOUSE MOUNTAIN
Emma Matilda Lake
TERRACE MOUNTAIN
89
Buffalo Fork
South Buffalo Fork
Moran
26
ROSIES RIDGE
WINTER RANGE
ANGLE MOUNTAIN
Blackrock Creek
11254 ft
BALDY MOUNTAIN
North Fork Spread Creek
0 2 4 Miles


Moose Family JK_M_022
Cow JK_M_022 winter 2024 – fall 2024
Calf JK_M_023 (f) winter 2024 – fall 2024
WYOMING
Buffalo Fork
ROSIES RIDGE
ANGLE MOUNTAIN
E Highway 287
Blackrock Creek
11254 ft
Flagstaff Creek
BALD MOUNTAIN
South Fork Spread Creek
Spread Creek
Clear Creek
26
9054 ft
9413 ft
Split Rock Creek
Grouse Creek
TWO OCEAN MOUNTAINS
Wind River
10176 ft
Leidy Creek
10330 ft
10341 ft
GROUSE MOUNTAIN
Dry Lake Creek
Beauty Park Creek
GREEN MOUNTAIN
Dallas Fork
Bear Paw Fork
Kettle Creek
Slate Creek
Sohare Creek
Fireweed Creek
9936 ft
Dry Cottonwood Creek
Gros Ventre River
Purdy Creek
9854 ft
COAL MINE DRAW
BUCKSKIN RIDGE
South Fork Fish Creek
Lake Creek
Burnt Creek
Gros Ventre River
Trails Creek
Devils Basin Creek
BURNT RIDGE
Bacon Creek
Stove Creek
Pass Creek
Goosewing Creek
Soda Creek
0 1 2 Miles

Collaborators

Wyoming Cooperative Fish and Wildlife Research Unit and the Wyoming Game and Fish Department. We want to sincerely thank all collaborators for their help and funding to make this project possible: Wyoming Game and Fish Department, Teton Conservation District, and Wyoming Governor's Big Game License Coalition. In addition, we would like to thank the numerous landowners who allowed us access to capture moose on their property; this project would not be possible without their collaboration.

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