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Acknowledgements

The data contained in these reports were collected by the combined efforts of Pinedale and Jackson Region Wildlife Division personnel, including District Wildlife Biologists, District Game Wardens, Wildlife Management Coordinators, Region Supervisors, the Habitat Biologist and other Department personnel and volunteers working in the field and at check stations. The authors express their sincere appreciation to all those who assisted with data collection.

2022 - JCR Evaluation Form

SPECIES: Bighorn Sheep
HERD: BS121 - DARBY MOUNTAIN
HUNT AREAS: 24

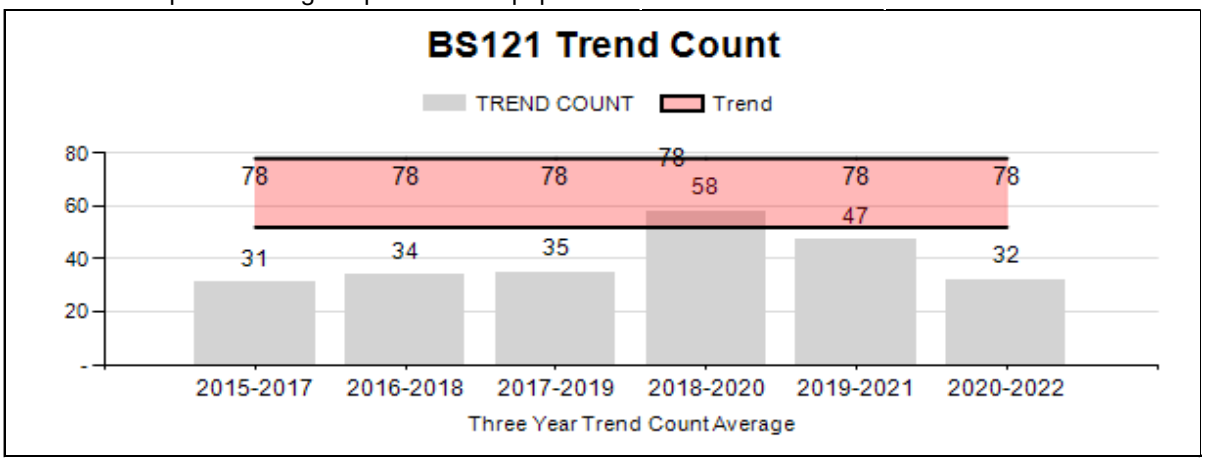
PERIOD: 6/1/2022 - 5/31/2023
PREPARED BY: GARY FRALICK

	2017 - 2021 Average	2022	2023 Proposed
Trend Count:	51	79	60
Harvest:	1	2	1
Hunters:	1	2	1
Hunter Success:	100%	100%	100%
Active Licenses:	1	2	1
Active License Success	100%	100%	100%
Recreation Days:	4	8	4
Days Per Animal:	4	4	4
Males per 100 Females:	83	44	
Juveniles per 100 Females	40	31	

Trend Based Objective (± 20%)	65 (52 - 78)
Management Strategy:	Special
Percent population is above (+) or (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	2

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%



2023 HUNTING SEASON
DARBY MOUNTAIN HERD UNIT - BHS121

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
24	1	Aug.15	Aug.31	Sep. 1	Oct.31	1	Any ram (1 resident)

2022 Hunter Satisfaction: 100%

2023 Management Summary

1.) Hunting Season Evaluation: The 2023 bighorn sheep hunting season will be open for hunting for the 8th consecutive year. The number of licenses issued in 2023 will revert back to one (1) license issued to a resident hunter after two licenses were issued to a resident and nonresident hunter in 2022. This hunting season will likely result in the harvest of one adult ram 2+-years old. The posthunt 2023 population trend count is projected at approximately 60 sheep.

2.) Management Objective Review: The 3-year trend-based objective of 65 sheep was approved by the Wyoming Game and Fish Commission in 2016, and was last reviewed in 2021 when no changes were recommended.

3.) Herd Unit Evaluation: The most comprehensive posthunt helicopter survey since 2017 was conducted on March 3, 2021. A total of 67 sheep were observed. The age/sex composition of these sheep were as follows: 24 2+ year old rams, 1 yearling ram, 30 ewes, and 12 lambs. A sufficient number of rams were observed to justify the issuance of one (1) license for any ram in the 2021 hunting season and two (2) licenses in 2022.

A spring helicopter survey was conducted on April 23, 2023 to document sheep on winter ranges prior to annual dispersal to spring and summer ranges. During the most current survey, a total of 79 sheep were observed in hunt area 24. The number, location, and age/sex of the sheep are provided in Table 1.

Table 1. A trend count summary of the Darby Mountain bighorn sheep herd, April 2023.

Location	Adult Rams	Yearling Rams	Ewes	Lambs	Total
Box Canyon	2	0	8	0	10
Straight Cr.	7	1	1	1	10
Darby Mtn	1	1	0	0	2
Fish Cr Mtn	4	2	17	7	30
Lunch Cr.	0	0	2	0	2
Roaring Fk	0	1	14	5	20
Marten Cr.	1	0	3	1	5
Total	15	5	45	14	79

The hunting season in the Darby herd was closed in 2013 due to an apparent lack of mature rams in the population. The season was re-opened in 2016, and mature rams have been harvested in every season thereafter. During the 2022 season, a 7 and a 9 year old ram were harvested, and the age of harvested rams since 2016 has been 7.5 years or older.

2022 - JCR Evaluation Form

SPECIES: Elk
HERD: EL106 - PINEY
HUNT AREAS: 86, 92, 94

PERIOD: 6/1/2022 - 5/31/2023

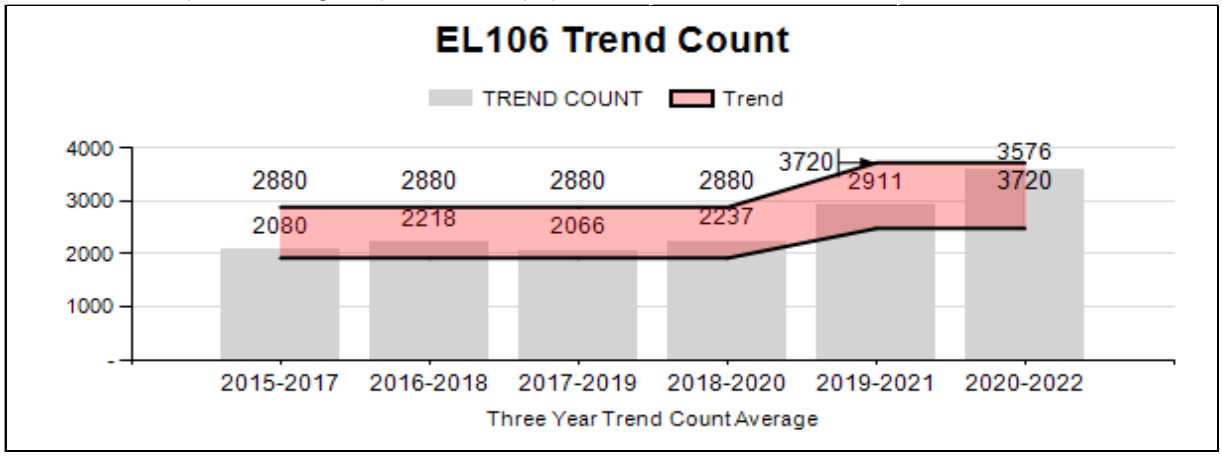
PREPARED BY: GARY FRALICK

	2017 - 2021 Average	2022	2023 Proposed
Trend Count:	2,475	4,554	4,150
Harvest:	769	905	1,120
Hunters:	2,629	2,829	3,189
Hunter Success:	29%	32%	35 %
Active Licenses:	2,829	3,038	3,189
Active License Success	27%	30%	35 %
Recreation Days:	22,081	23,445	25,550
Days Per Animal:	28.7	25.9	22.8
Males per 100 Females:	29	37	
Juveniles per 100 Females	33	37	

Trend Based Objective (± 20%)	3,100 (2480 - 3720)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	47%
Number of years population has been + or - objective in recent trend:	2

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%



2023 HUNTING SEASONS
PINEY ELK HERD UNIT (EL106)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
86	Gen	Sep.1	Sep.25	Sep.26	Oct. 31		Any elk
86	Gen			Nov.1	Nov.20		Antlerless elk
86	6	Sep. 1	Sep.25	Sep.26	Nov.20	100	Cow or calf
92	Gen	Sep. 1	Sep.30	Oct. 15	Oct.31		Any elk
92	Gen			Nov. 1	Nov.20		Antlerless elk
92	6	Sep. 1	Sep. 30	Oct. 1	Nov.30	400	Cow or calf
92	6	Sep. 1	Sep. 30	Dec. 1	Jan. 31		Cow or calf valid north of Hwy 354 and Sublette County Road 112, east of Sublette County Road 115, and south of South Beaver Creek
94	Gen	Sep. 1	Sep.30	Oct. 15	Oct.31		Any elk
94	Gen			Nov. 1	Nov.20		Antlerless elk
94	6	Sep. 1	Sep. 30	Oct. 1	Nov.30	450	Cow or calf
94	7	Sep. 1	Sep. 30	Nov. 1	Dec.10	125	Cow or calf valid north of Middle Piney Creek
94	7			Dec. 1	Jan. 31		Cow or calf valid on private land north of Middle Piney Creek

2022 Hunter Satisfaction: 65% Satisfied, 20% Neutral, 15% Dissatisfied

2023 Management Summary
1.) Hunting Season Evaluation: The Hoback elk herd was dissolved in 2021 and a portion of hunt area 87, including the McNeel feedground, was incorporated into hunt area 92 upon WGF Commission approval in July, 2022. Liberal elk hunting opportunities are warranted in 2023 because of increased elk numbers; the 2022 trend count of 4,554 elk is 47% above the objective of 3,100 elk, although the most recent three-year trend count average of 3,576 is within the objective range. Consequently, November, general hunting for antlerless elk and increases in the number of type 6 cow/calf only seasons will be implemented throughout the herd unit.

In hunt area 86, the effort to harvest antlerless elk in November with general license hunting will continue in 2023 because of the high number of elk counted during the posthunt 2022 trend count in hunt area 92. The number of days for the general license antlerless elk portion of the

November hunting season will increase by five days, and close on November 20 instead of November 15. Additionally, a type 6 license was added for the 2023 hunting season in an effort to harvest elk attending the McNeel feedground. This new season will run September 26 through November 20, with 100 cow or calf licenses available.

In hunt area 92, because of the additional 1050 elk that attended the McNeel feedground during winter 2022-23, elk hunting opportunity will increase considerably. The general license antlerless elk portion of the November hunting season in hunt area 92 will align with most general antlerless elk hunt areas in the Pinedale Region, November 1 - November 20. The number of type 6 cow/calf licenses will increase from 250 licenses to 400 licenses in an effort to affect a desired decrease in the 2023 posthunt elk population.

The emphasis to harvest adult female elk in hunt area 94 will continue for the 16th consecutive year by opening the limited quota antlerless elk hunting on October 1 and continuing general license and limited quota hunting opportunity into November. The number of days for the November portion of the general license antlerless elk hunting season will increase by five days and close on November 20. Type 6 licenses will increase from 400 to 450 licenses, and type 7 licenses will increase from 100 to 125 licenses, concomitant with the increased number of elk counted. The type 6 license season will lengthen by several days, closing on November 30 instead of November 26, to promote elk hunting during the Thanksgiving holiday. The type 7 season will close on December 10 instead of November 30 in 2023, and the boundary on the south was extended from private land north of North Piney Creek to private lands north of Middle Piney Creek. All of these adjustments are efforts to promote and encourage hunting recreation to affect a substantial increase in elk harvest in 2023.

2.) Management Objective Review: The Piney elk population objective of 2,400 elk was most recently reviewed by the public and federal agency personnel in 2017. Based on hunt area boundary changes due to elk movements, hunt area 92 now encompasses portions of the former hunt area 87 south of US Highway 189/191. Based upon WGFC-established quotas on the McNeel feedground and available native winter ranges, 700 elk from the former Hoback elk herd were added to the Piney herd, and the remaining 400 elk were absorbed into the Upper Green herd by the WGFC in July, 2022 (no net increase in elk objectives). The shift in current objectives increased the Piney elk herd trend-based objective from 2,400 to 3,100 elk.

3.) Herd Unit Evaluation: A total of 4,554 elk were counted during the most recent winter trend count (Appendix A). Consequently, management strategies have, and will continued to be, focused on reducing the elk population. Substantial and sustained population reduction has been difficult to achieve in this elk herd even though the Piney herd is being managed with some of the most liberal elk hunting seasons in western Wyoming. Another important factor complicating population reduction in the Piney herd has been the recent addition of the southern portion of hunt area 87, which contains the McNeel feedground.

4.) Disease Management: Department personnel routinely conduct elk captures on feedgrounds to conduct brucellosis surveillance and acquire biological data for various research efforts. Ear tags are permanently attached to all elk that are captured and released. Ear tags are retrieved when the animal is harvested or when a carcass is discovered, increasing understanding of elk

distribution and dispersion, and improving knowledge of brucellosis transmission dynamics among different herd units.

A sample of adult female elk are equipped with GPS collars to facilitate efficient monitoring of feedground elk populations throughout the brucellosis transmission season. A goal of at least 5 collars deployed per feedground at any given time helps in identifying and addressing potential risks of elk-cattle disease transmission, and enables the monitoring of elk responses to adjustments in feeding strategies aimed at lowering the disease transmission rate during the feeding season. Collars are programmed to record location data at 2-hour intervals for a duration of four years, and the data assist with identifying and refining areas of high-risk areas for brucellosis transmission.

A total of seven adult female elk were captured on three feedgrounds within the Piney elk herd, with one testing positive for exposure to *Brucella abortus*, the bacteria responsible for causing brucellosis (Table 1). Brucellosis seroprevalence among elk attending specific feedgrounds is strongly correlated with the average duration of the feeding season, particularly the feeding end date. As a result of the exceptionally harsh winter conditions during winter 2022-23, all feedgrounds in the Piney elk herd experienced a longer-than-average feeding season. Consequently, elk attending feedgrounds were densely aggregated during a large portion of the peak period of *Brucella*-induced abortions (March-May). Thus, a larger percentage of elk than normal were likely exposed to the bacteria on feedgrounds this winter, and brucellosis seroprevalence may increase during subsequent monitoring.

Table 1. 2021 Piney Elk Herd Unit Capture Summary

Feedground	**# GPS collars deployed**	**# Captured**	**# Tested**	**# Positive**	**Seroprevalence***
Franz	2	2	2	0	0%
McNeel	0	0	0	0	N/A
Jewett	2	2	2	1	50%
Bench Corral	3	3	3	0	0%
Finnegan	0	0	0	0	N/A
Totals =	**7**	**7**	**7**	**1**	**14%**

*statistically insignificant *n* to apply estimate to the feedground population

Winter 2022-23 was an exceptional period for elk redistribution efforts throughout the herd unit. The utilization of a drone played a crucial role in this endeavor, being deployed on 10 separate occasions and accumulating a total flight time of 674 minutes. Furthermore, in order to prevent elk-cattle commingling, 18 elk were culled from two different locations with the aid of the aerial drone, which effectively located and dispersed the animals to locations where they could be targeted. Carcasses were tested for CWD (all negative) and donated.

To mitigate the issue of elk drifting down drainage and occupying cattle feedlines, an emergency feedground was established just south of the herd unit boundary on LaBarge Creek. Additionally, a Chapter 34 auxiliary management hunting initiative was granted for hunt areas 102 and 94 along LaBarge Creek, which spanned from February 1st to 15th. This hunting season served as a

helpful means of distributing elk away from cattle operations. Despite both of these efforts, WGFD personnel repeatedly relocated elk groups away from conflict areas multiple times per week throughout the winter and early spring seasons. Game-proof fencing materials, purchased with funding through a cooperative agreement with APHIS, were provided for 4 stackyards on 3 different ranches within the Piney herd. Once erected, stackyards reduce food rewards to elk in areas with high brucellosis transmission risk, discouraging their occupancy and minimizing the potential for co-mingling of elk and cattle.

- **Franz feedground-** On March 30th, two adult female elk were captured via chemical immobilization to deploy GPS collars. Both elk tested negative for exposure to *B. abortus*, but the sample size is not sufficient to estimate herd prevalence.
- **McNeel feedground-** On February 27th, an aerial drone equipped with a high resolution camera was used to test the capability of classifying elk on a feedground. The elk were not disturbed and a total of 1,067 were counted, slightly more than the official ground tally, and demonstrating that drones are an efficient and accurate method for counting elk.
- **Jewett feedground-** Two adult female elk were captured on April 6 via chemical immobilization to deploy GPS collars. One elk tested positive for exposure to *B. abortus*, but the sample size is not sufficient to estimate herd prevalence.
- **Bench Corral feedground-** Two adult female elk were captured on March 15 via chemical immobilization to deploy two GPS collars. Both elk tested negative for exposure to *B. abortus*. Elk were hazed approximately six miles from private cattle operation to the feedground on five different occasions early in the feeding season. This has been an ongoing issue for several years as elk discovered a newly planted alfalfa field and unprotected hay stacks. Stackyard materials have been provided, but fencing has not yet been installed around one of the haystacks.
- **Finnegan feedground-** No elk captures attempted. Multiple hazing efforts were undertaken to redistribute approximately 50 elk from neighboring cattle ranches to the feedground. These elk likely belonged to the winter-free ranging elk population in the vicinity, as they appeared unaware of the feedground's location. Most elk eventually dispersed to areas removed from cattle, but seven elk were culled to prevent the potential of brucellosis transmission from elk to cattle- all carcasses were tested for CWD (negative) and donated to the public.

5.) Chronic Wasting Disease Management: The Piney elk herd is a Tier 2 CWD surveillance herd, targeted for intensified sampling in 2025. CWD has not been documented in elk in this herd (Table 1), but a positive mule deer was identified south of Big Piney in early 2022 within the Piney elk herd unit boundary. Because the Piney elk herd is on the western edge of CWD in Wyoming, opportunistic sampling of hunter-harvested and targeted (i.e., apparently sick and euthanized) elk occurs annually.

Table 1. Chronic wasting disease prevalence of hunter-harvested elk in the Piney Herd Unit.

Year	Percent CWD-Positive and sample size (n)
	All Adult Elk (CI = 95%)
2020-2022	0.0% (0.0% - 3.7%, n=97)

Appendix A. Piney Elk Herd, posthunt herd composition data, 2018-2022.

							Ratio:100 Females			
2018	Adult Males	Yrlng Males	Total Males	Cows	Calves	Total	Adult Males	Yrlng Males	Total Males	Calves
92 JFG	38	28	66	316	81	463				
92 FFG	76	11	87	107	19	213				
92 NR	8	0	8	10	3	21				
94 FFG	23	18	41	308	115	464				
94 NPFG	0	0	0	0	0	NS				
94 BCFG	30	26	56	540	172	768				
94 NR	120	4	124	2	0(95)	221				
TOTAL	295	87	382	1283	390(95)	2150	23	7	30	30
2019										
92 JFG	44	34	78	273	69	420				
92 FFG	NA	NA	NA	NA	NA	193				
92 NR	17	3	20	0	0	20				
94 FFG	41	41	82	300	101	483				
94 NPFG	0	0	0	0	0	0				
94 BCFG	43	76	119	662	171	952				
94 NR	130	30	160	0	0(329)	489				
TOTAL	275	184	459	1235	341(522)	2557	22	15	37	28
2020										
92 JFG	31	21	52	215	78	345				
92 FFG	12	7	19	21	14(35)	89				
92 NR	0	0	0	4	0(50)	54				
94 FFG	21	36	57	263	119	439				
94 NPFG	0	0	0	0	0	0				
94 BCFG	24	25	49	489	62	600				
94 NR	86	5	91	1	1(385)	478				
TOTAL	174	94	268	993	274(470)	2005	17	9	27	28
2021										
92 JFG	47	26	73	337	61	471				
92 FFG	77	36	113	177	91(241)	622				
92 McFG	18	52	70	601	319	990				
92 NR	27	3	30	1	0	31				
94 FFG	4	37	41	NS	NS(483)	524				
94 NPFG	0	0	0	0	0	0				
94 BCFG	85	118	203	782	247(10)	1242				
94 NR	0	0	0	0	(290)	290				
TOTAL	258	272	530	1898	718(1024)	4170	14	14	28	38
2022										
92 JFG	28	29	57	344	104	505				
92 FFG	100	76	176	209	72	457				
92 McFG	0	0	0	0	0 (1050)	1050				
92 NR	30	3	33	11	0	44				
94 FFG	32	27	59	253	95	407				
94 NPFG	0	0	0	0	0	0				
94 BCFG	125	115	240	826	341	1407				
94 NR	36	1	37	3	1 (643)	684				
TOTAL	351	251	602	1646	613 (1693)	4554	21	15	36	37

2022 - JCR Evaluation Form

SPECIES: Elk
HERD: EL107 - UPPER GREEN RIVER
HUNT AREAS: 87, 93, 95-96

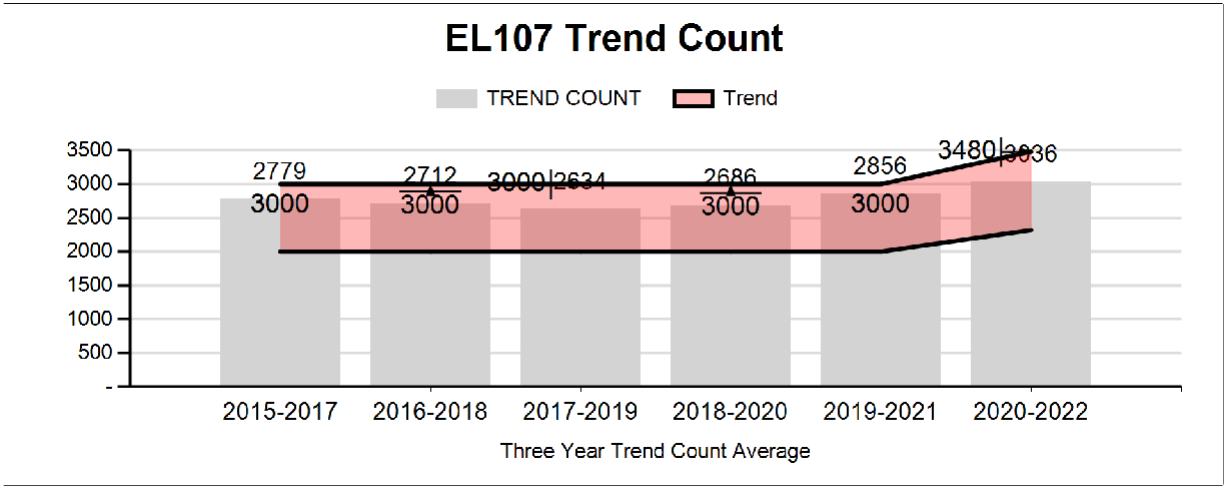
PERIOD: 6/1/2022 - 5/31/2023
PREPARED BY: DEAN CLAUSE

	2017 - 2021 Average	2022	2023 Proposed
Trend Count:	2,725	3,386	3,100
Harvest:	407	638	640
Hunters:	1,259	1,720	1,750
Hunter Success:	32%	37%	37%
Active Licenses:	1,365	1,900	1,900
Active License Success	30%	34%	34%
Recreation Days:	11,468	14,232	14,230
Days Per Animal:	28.2	22.3	22.2
Males per 100 Females:	33	37	
Juveniles per 100 Females	32	34	

Trend Based Objective (± 20%)	2,900 (2320 - 3480)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	17%
Number of years population has been + or - objective in recent trend:	0

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

	JCR Year	Proposed
Females 2: 1 year old:	0%	0%
Males 2: 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



2023 HUNTING SEASONS
Upper Green River (EL107)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
87	Gen	Sept. 1	Sept. 30	Oct. 15	Oct. 31		Any elk
87	Gen			Nov. 1	Nov. 20		Antlerless elk
87	1			Dec. 1	Jan. 31	10	Antlered elk valid within the interior of the Dell Creek Loop Road (Forest Road 30580 and Sublette County Road 23-114)
87	6			Dec. 1	Jan. 31	50	Cow or calf elk valid south and east of Dell Creek, north and east of U.S. Highway 191, and west of the North Fork of Fisherman Creek
87	7	Sept. 1	Sept. 30	Oct. 15	Nov. 20	150	Cow or calf elk
93	1	Sept. 1	Sept. 30	Oct. 1	Oct. 31	200	Any elk
93	1			Nov. 1	Nov. 30		Antlerless elk
93	6	Sept. 1	Sept. 30	Oct. 1	Nov. 30	275	Cow or calf elk
95	1	Sept. 1	Sept. 30	Oct. 15	Nov. 5	225	Any elk
95	2	Sept. 1	Sept. 30	Oct. 1	Nov. 5	30	Any elk valid within the Green River drainage upstream from the outlet of Lower Green River Lake, including that portion east and south of Mill Creek
95	4	Sept. 1	Sept. 30	Oct. 15	Nov. 5	150	Antlerless elk
95	5	Sept. 1	Sept. 30	Oct. 1	Nov. 5	25	Antlerless elk valid within the Green River drainage upstream from the outlet of Lower Green River Lake, including that portion east and south of Mill Creek
95	6	Sept. 1	Sept. 30	Oct. 15	Nov. 5	25	Cow or calf elk
96	Gen	Sept. 1	Sept. 30	Oct. 15	Oct. 31		Any elk
96	Gen			Nov. 1	Nov. 20		Antlerless elk
96	1	Sept. 1	Sept. 30	Oct. 1	Oct. 31	275	Any elk
96	1			Nov. 1	Nov. 30		Antlerless elk
96	2			Dec. 1	Jan. 31	10	Any elk valid west of the elk fence and south of New Fork Lakes Road.
96	4	Sept. 1	Sept. 30	Oct. 1	Nov. 30	150	Antlerless elk
96	6	Sept. 1	Sept. 30	Oct. 1	Nov. 30	150	Cow or calf elk

2022 Hunter Satisfaction: 70% Satisfied, 21% Neutral, 9% Dissatisfied

2023 Management Summary

1.) Hunting Season Evaluation: Hunting seasons in the past years have remained similar and successful in maintaining this herd unit within management goals. As a result of mild fall weather conditions during 2018, 2019, and 2021 hunting success and overall harvest rates have declined in this herd, but improved in 2020 and 2022. Although hunter numbers, harvest and success typically vary little for the elk herd as a whole, each hunt area is unique, resulting in different season designs and harvest strategies. This herd is managed as a "recreational herd" for a bull:100 cows between 15 to 29 and has remained above this objective in recent years. Hunt area 87 was appended to the Upper Green River herd unit after WGFC approval in July of 2022 due to the elimination of Hoback elk herd.

The 2023 hunting season will increase both antlered and antlerless harvest opportunities within the Upper Green herd by continuing to use a combination of general and limited quota licensed hunters. The hunt area 87 (Raspberry Ridge), new to this herd in 2022, will have similar season structure as in the past with the general antlerless season length extended five days in November and an increase in 87-7 (cow or calf) licenses. A late season antlered hunt, 87 type 1 (10 licenses) will be offered to address annual private land hay damage in a small portion of the area. Hunt area 93 and 95 seasons will be similar to 2022 with a slight increase in type 1 (any elk) licenses. The general license antlerless season in hunt area 96 will be extended by 5 days, and 25 additional limited quota type 1 (any elk) licenses were included for 2023. The late season hunt area 96-7 hunt west of the elk fence and south of New Fork Lake Road to prevent damage and cattle co-mingling was eliminated in 2023. An "auxiliary management hunt" will be used in future years as needed to address future elk damage and elk/cattle co-mingling issues, although the Area 96-2 hunt is being maintained to address damage concerns.

2.) Management Objective Review: A mid-winter trend count objective of 2,500 elk has been utilized to manage this herd since 2012, and was last reviewed in 2019. Based on hunt area boundary changes due to elk movements and the dissolution of the Hoback elk herd, hunt area 86 is now within the Upper Green herd. Based upon WGFC-established quotas on the Dell Creek feedground, 400 elk were absorbed into the Upper Green herd objective, and the WGFC approved the new objective of 2,900 elk in the Upper Green herd in July, 2022 (no net increase in elk objectives).

3.) Population and Trend Evaluation: The 2022 postseason trend count was 3,386 elk observed on Department-operated feedgrounds and native winter ranges. Classification data from aerial and ground surveys documented 32 bulls : 100 cows, similar to the previous 5-year average of 33 bulls : 100 cows. Average to above average snow accumulations and cold temperatures during the 2022-23 winter resulted in a higher than typical portion of elk located on feedgrounds compared to native winter range. Winter and habitat conditions, wolf activity and timing of classification surveys have resulted in fluctuating trend count data on all four feedgrounds and native winter ranges in past years.

4.) Disease Management: Department personnel routinely conduct elk captures on feedgrounds to conduct brucellosis surveillance and acquire biological data for various research efforts. Ear tags are permanently attached to all elk that are captured and released. Ear tags are retrieved when the animal is harvested or when a carcass is discovered, increasing understanding of elk distribution and dispersion, and improving knowledge of brucellosis transmission dynamics among different herd units.

A sample of adult female elk are equipped with GPS collars to facilitate efficient monitoring of feedground elk populations throughout the brucellosis transmission season. A goal of at least 5 collars deployed per feedground at any given time helps in identifying and addressing potential risks of elk-cattle disease transmission, and enables the monitoring of elk responses to adjustments in feeding strategies aimed at lowering the disease transmission rate during the feeding season. Collars are programmed to record location data at 2-hour intervals for a duration of four years, and the data assist with identifying and refining areas of high-risk areas for brucellosis transmission.

Brucellosis seroprevalence among elk attending specific feedgrounds is strongly correlated with the average duration of the feeding season, particularly the feeding end date. As a result of the exceptionally harsh winter conditions during winter 2022-23, all feedgrounds in the Upper Green elk herd experienced a longer-than-average feeding season. Consequently, elk attending feedgrounds were densely aggregated during a large portion of the peak period of *Brucella*-induced abortions (March-May). Thus, a larger percentage of elk than normal may have been exposed to the bacteria on feedgrounds this winter, and brucellosis seroprevalence will likely increase during subsequent monitoring.

- **Soda Lake feedground-** On March 14th, three adult female elk were captured via chemical immobilization to deploy three GPS collars. One of three elk tested positive for exposure to brucellosis, but the sample size is not sufficient to estimate herd prevalence. During the latter part of the feeding season, an outbreak of necrotic stomatitis (*Fusobacterium necrophorum*) occurred at Soda, likely influenced by the extended feeding season associated with severe and lingering winter conditions that set a 26-year record. Approximately 22 elk, mostly calves, succumbed to the disease in 2023, at least 50% fewer compared to outbreaks in previous years (2015 and 2016). This decrease could be attributed to the modification in feed type (alfalfa to native grass hay), the reduced elk population attending the feedground due to redistribution from other feedgrounds, or a combination of both factors.
- **Black Butte feedground-** No elk captures attempted. One sick elk was targeted for Chronic Wasting Disease (CWD) sampling, but the result was negative. Three other adult female elk died on the feedground showing signs of necrotic stomatitis. All also yielded negative CWD results.
- **Green River Lakes feedground-** No elk captures attempted. Two elk fetuses were discovered and removed from the feedground on March 21st and March 28th.
- **Dell Creek feedground-** No elk captures were attempted during winter 2022-23. On January 23rd, a small group of elk were hazed from a private cattle operation to the feedground via snowmobiles and aerial drone.

5.) Chronic Wasting Disease Management: This is a Tier 2 surveillance herd that was prioritized for CWD sampling in 2022-2024. Due to a lack of wild game processors in the Pinedale region, sample collection has been challenging, relying mainly on field-checked animals. During the past three years, 98 CWD samples have been collected and tested from the Upper Green elk herd, with no positive animals detected (Table 1.).

Table 1. Chronic wasting disease prevalence of hunter-harvested elk in the Upper Green elk herd.

Year	Percent CWD-Positive and sample size (n)
	All Adult Elk (CI = 95%)
2020-2022	0.0% (0.0% - 3.7%, n=98)

2022 - JCR Evaluation Form

SPECIES: Elk
HERD: EL108 - PINEDALE
HUNT AREAS: 97-98

PERIOD: 6/1/2022 - 5/31/2023

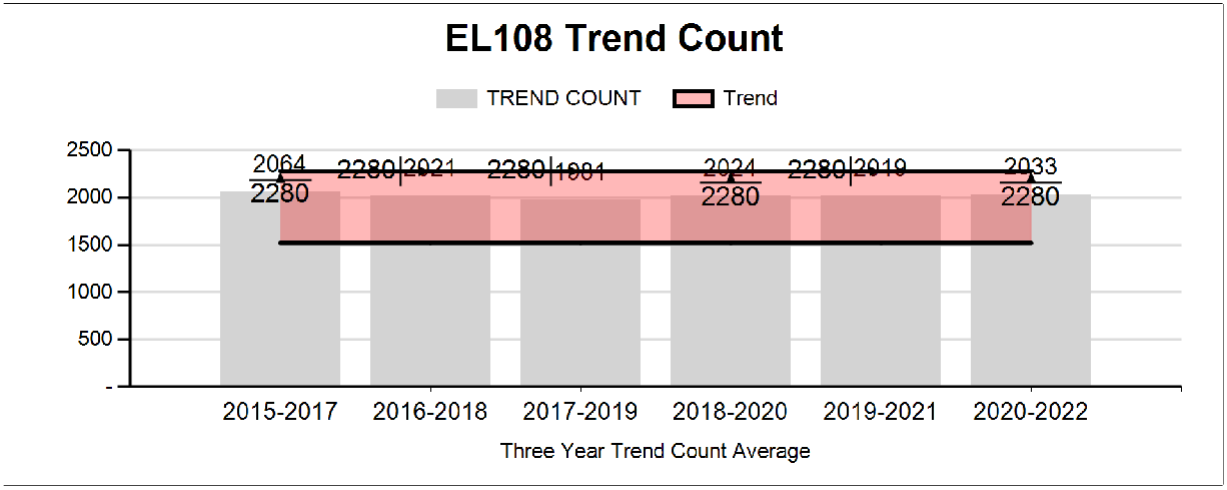
PREPARED BY: DEAN CLAUSE

	2017 - 2021 Average	2022	2023 Proposed
Trend Count:	1,997	2,054	1,950
Harvest:	399	517	520
Hunters:	1,439	1,341	1,340
Hunter Success:	28%	39%	39 %
Active Licenses:	1,525	1,479	1,480
Active License Success	26%	35%	35 %
Recreation Days:	10,392	10,928	10,930
Days Per Animal:	26.0	21.1	21.0
Males per 100 Females:	23	31	
Juveniles per 100 Females	28	33	

Trend Based Objective (± 20%)	1,900 (1520 - 2280)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	8%
Number of years population has been + or - objective in recent trend:	0

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

	JCR Year	Proposed
Females 2: 1 year old:	0%	0%
Males 2: 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



2023 HUNTING SEASONS
Pinedale Elk (EL108)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
97	Gen	Sept. 1	Sept. 19	Oct. 1	Oct. 15		Any elk
97	Gen			Oct. 16	Nov. 20		Antlerless elk
97	1	Sept. 1	Sept. 19	Sept. 20	Oct. 31	225	Any elk
97	1			Nov. 1	Nov. 30		Antlerless elk
97	6	Sept. 1	Sept. 19	Sept. 20	Nov. 30	175	Cow or calf elk
98	Gen	Sept. 1	Sept. 19	Oct. 1	Oct. 15		Any elk
98	Gen			Oct. 16	Nov. 20		Antlerless elk
98	1	Sept. 1	Sept. 19	Sept. 20	Oct. 31	350	Any elk
98	1			Nov. 1	Nov. 30		Antlerless elk
98	1			Dec. 1	Jan. 31		Antlerless elk valid between Scab Creek and the East Fork River
98	4	Sept. 1	Sept. 19	Sept. 20	Nov. 30	75	Antlerless elk
98	4			Dec. 1	Jan. 31		Antlerless elk valid between Scab Creek and the East Fork River
98	6	Sept. 1	Sept. 19	Sept. 20	Nov. 30	300	Cow or calf elk
98	6			Dec. 1	Jan. 31		Cow or calf elk valid between Scab Creek and the East Fork River

2022 Hunter Satisfaction: 63% Satisfied, 20% Neutral, 17% Dissatisfied

2023 Management Summary

1.) Hunting Season Evaluation: Harvest strategies using a combination of limited quota and general license hunters and lengthy seasons have been somewhat successful in maintaining this herd unit within management goals. Snow accumulation at higher elevations during the hunting season greatly influences antlerless harvest in the herd, and hunter success is reflectantly variable. Bull harvest (Type 1 licenses) success is typically higher due to seasons opening early (Sept. 20) during the end of the rut. Mild fall weather conditions during 2019 and 2021 resulted in low hunter success, increased hunter effort (days/harvest), and poor female harvest. Conversely, 2020 and 2022 seasons had much better success and harvest due to cold and snowy fall hunting conditions.

The 2023 hunting season structure remains similar to past years for this herd, using a combination of general and limited quota licensed hunters for both hunt area 97 and 98. Limited quota license holders were provided additional antlerless opportunities with the season extended to Nov. 30 in 2023, and general license hunters will have a slight increase in season length in 2023. A late season hunt will remain in hunt area 98 to discourage elk from damaging stored hay and co-mingling with livestock on private lands.

Managers believe a high proportion of elk in this herd typically attend feedgrounds during most winters. Some interchange (~10%) of elk has been documented between the Pinedale herd and the adjacent herd unit to the southeast (South Wind River Herd) via GPS collars and ear tags. More than half of the U.S. Forest Service lands are designated as Wilderness (Bridger Wilderness) where access is limited to foot or horseback travel. The remaining Forest Service lands outside Wilderness have moderate vehicle and trail access. Lack of public access on private lands in hunt area 98 along Scab and Silver Creeks provides a refuge for elk and limits harvest opportunities.

Years with persistent and deep snow at higher elevations results in elk distributing to lower elevation where access is better for hunters, resulting in increased harvest. Weather is a very influential factor

on harvest rates, especially for antlerless elk, in this herd unit. Past elk removals from the brucellosis test and removal project, research and culls within this herd have contributed to maintaining population management objectives

2.) Management Objective Review: The mid-winter trend count objective for the Pinedale elk herd is 1,900 elk, with a range of 1,520 to 2,280 (+/- 20%) animals and was established in 2012. This objective was last reviewed in 2022, when managers recommended maintaining the 1,900 elk objective, and will be reviewed again in 2027.

3.) Population and Trend Evaluation: The 2022 post-season winter trend count was 2,054 elk observed on Department- operated feedgrounds and native winter ranges, with relatively more elk counted on feedgrounds due to above average snow levels and lower than normal temperatures. The 2020-2022 three- year trend average is 2,033 elk, which is within the herd's objective range. This herd unit is designated as a "recreational" herd with a bull:100 cow ratio management objective for 15- 29 bulls:100 cows. The 2022 bull:cow ratio was documented at 31 with the previous five-year (2017-2021) average of 23, meeting the management objective.

4.) Disease Management: A total of 225 elk were handled on feedgrounds within the Pinedale elk herd unit, with 85 yearling or adult cows sampled for exposure to *Brucella abortus*, the bacterial responsible for causing brucellosis. Twenty of the samples tested positive, indicating a 34% seroprevalence level in the herd unit for winter 2023 (Table 1). Brucellosis seroprevalence among elk attending specific feedgrounds is strongly correlated with the average duration of the feeding season, particularly the feeding end date. As a result of the exceptionally harsh winter conditions during winter 2022-23, all feedgrounds in the Pinedale elk herd experienced a longer-than-average feeding season. Consequently, elk attending feedgrounds were densely aggregated during a large portion of the peak period of *Brucella*-induced abortions (March-May). Thus, a larger percentage of elk than normal may have been exposed to the bacteria on feedgrounds this winter, and brucellosis seroprevalence will likely increase during subsequent monitoring.

Table 1. 2021 Pinedale Elk Herd Unit Capture Summary

Feedground	# GPS collars deployed	# Captured	# Tested	# Positive	Seroprevalence
Muddy Creek	2	73	37*	21	57%
Scab Creek	3	3	3	2	67%
Fall Creek	10	136	35*	6	17%
Totals =	**25**	**222**	**85**	**29**	**34%**

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

A Chapter 34 auxiliary management hunting was granted as a means to extend the late-season cow hunt in hunt area 98 until February 15th. This targeted elk that lingered nightly on cattle feedlines on private lands. The season proved to be useful in reducing elk presence through elk elimination or re-distribution. Three remaining elk were later culled by WGFD personnel aided by aerial drone which efficiently located and hazed the animals. Carcasses were tested for CWD (negative) and donated.

Game-proof fencing materials, purchased with funding through a cooperative agreement with APHIS, were provided for 3 stackyards to 3 different ranches within this elk herd. Once erected,

stackyards prevent food rewards to elk in areas with high brucellosis transmission risk, discouraging their occupancy and minimizing the potential for co-mingling of elk and cattle.

- **Muddy Creek feedground-** A total of 73 elk were captured on January 30, including 37 yearling and adult females that were bled and tested for exposure to *Brucella abortus*, and two adult females were equipped with GPS collars. Tests conducted at the WGFD Health Laboratory indicated that 57% (21 out of 37) were positive (Table 1). This result is consistent with the findings from the most recent surveillance effort in 2021, which reported a seroprevalence of 56%. Given the management strategy at Muddy Creek feedground focuses on maintaining relatively long feeding seasons to facilitate controlled separation between elk and nearby cattle herds, the transmission rate of *B. abortus* on the feedground is expected to remain relatively high.
- **Scab Creek Feedground-** On March 28th, three adult female elk were captured via chemical immobilization to deploy three GPS collars, and 2 were positive for exposure to *B. abortus*. Re-distribution of elk from nearby private property was required twice during the early part of the feeding season because elk discovered and re-visited hay that was left out for livestock. Two adult female elk died during the feeding season showing symptoms of CWD, but samples collected were negative. During 2022, a bull elk killed by a hunter near the feedground tested positive for CWD for the second consecutive year.
- **Fall Creek Feedground-** A total of 136 elk were captured on February 12, with 35 yearling or older female elk tested for exposure to *B. abortus*, and six elk tested positive for 17% seroprevalence. Since the Fall Creek feedground is managed for a shorter feeding season, facilitated by a relatively low risk of elk-cattle interaction in conjunction with high access to native forage in late-winter/early spring, the transmission rate of *B. abortus* on the feedground is expected to remain relatively low.

In response to reports of elk encroaching on haystacks located on private lands near cattle feedlines in the Boulder Creek area, WGFD personnel took action early in the brucellosis transmission season. With the assistance of aerial drone, two elk were identified and culled by WGFD personnel. Drone use proved helpful in locating the elk and hazing the elk into the open, as they had taken refuge in willow habitats during daytime hours. The carcasses were tested for CWD (negative) and donated.

5.) Chronic Wasting Disease Management: This is a Tier 2 surveillance herd that was prioritized for CWD sampling from 2019-2021. Due to limited Forest Service access, a large amount of Wilderness, and low harvest due to mild conditions, sample collections have been challenging. During the past three years, 170 samples have been collected/tested from adult elk in the herd, with two positive animals for a 1.2% CWD prevalence (Table 2).

Table 2. Chronic wasting disease prevalence of hunter-harvested elk in the Pinedale elk herd.

Year	Percent CWD-Positive and sample size (n)
	All Adult Elk (CI = 95%)
2020-2022	1.2% (0.1% - 4.2%, n=170)

2022 - JCR Evaluation Form

SPECIES: Moose
PERIOD: 6/1/2022 - 5/31/2023

HERD: MO105 - SUBLETTE

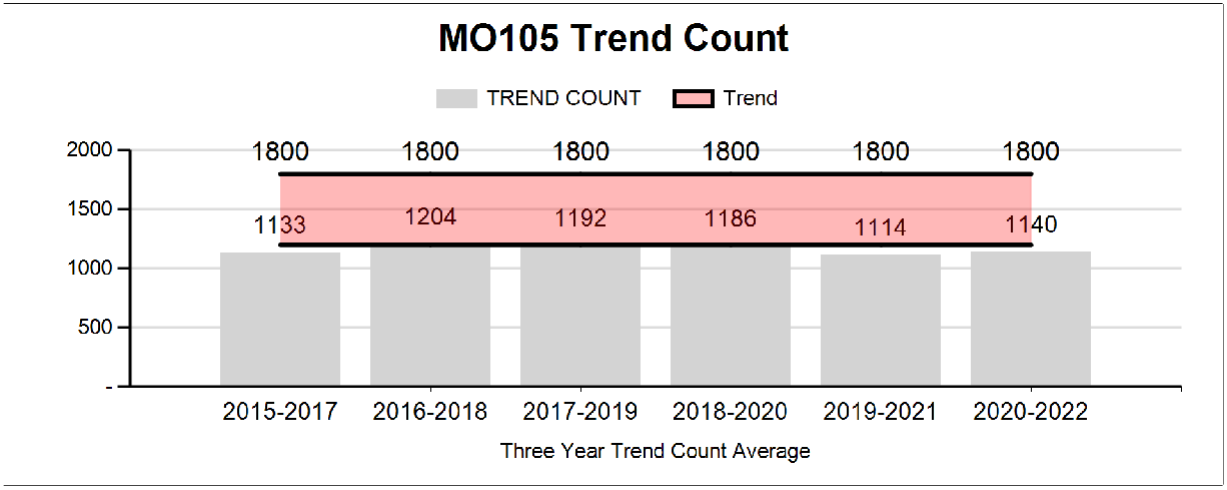
HUNT AREAS: 3, 5, 10, 20-25
PREPARED BY: DEAN CLAUSE

	2017 - 2021 Average	2022	2023 Proposed
Trend Count:	1,133	1,331	1,350
Harvest:	147	148	140
Hunters:	160	157	150
Hunter Success:	92%	94%	93%
Active Licenses:	160	157	150
Active License Success	92%	94%	93%
Recreation Days:	1,256	1,365	1,250
Days Per Animal:	8.5	9.2	8.9
Males per 100 Females:	73	63	
Juveniles per 100 Females	45	37	

Trend Based Objective (± 20%)	1,500 (1200 - 1800)
Management Strategy:	Special
Percent population is above (+) or (-) objective:	-11.3%
Number of years population has been + or - objective in recent trend:	0

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

	JCR Year	Proposed
Females 2: 1 year old:	0%	0%
Males 2: 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



2023 HUNTING SEASONS
Sublette Moose (MO105)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
3	1	Sept. 1	Sept. 19	Sept. 20	Oct. 31	15	Antlered moose (14 residents; 1 non-resident)
5	1	Sept. 1	Sept. 30	Oct. 1	Oct. 31	25	Antlered moose (23 residents; 2 non-residents)
10	1	Sept. 1	Sept. 14	Sept. 15	Oct. 31	8	Antlered moose (6 residents; 2 non-residents)
20	1	Sept. 1	Sept. 14	Sept. 15	Oct. 31	15	Antlered moose (13 residents; 2 non-residents)
21	1	Sept. 1	Sept. 14	Sept. 15	Oct. 31	2	Antlered moose (2 residents)
22	1	Sept. 1	Sept. 30	Oct. 1	Oct. 31	5	Antlered moose (5 residents)
23	1	Sept. 1	Sept. 14	Sept. 15	Oct. 31	10	Antlered moose (9 resident; 1 non-resident)
24	1	Sept. 1	Sept. 14	Sept. 15	Oct. 31	20	Antlered moose (18 residents; 2 non-residents)
25	1	Sept. 1	Sept. 30	Oct. 1	Oct. 31	45	Antlered moose 40 residents; 5 non-residents)
25	4	Sept. 1	Sept. 30	Oct. 1	Oct. 31	5	Antlerless moose, except cow moose with calf at side (5 residents; 0 non-resident)

License Summary: Type 1 = 145 licenses (130 residents; 15 non-residents); Type 4 = 5 licenses (5 residents; 0 non-resident)

2023 Management Summary

1.) Hunting Season Evaluation: Moose harvest during the 2022 season continued to maintain high success (94%) with hunter effort around 9 days/harvest for the overall herd. Hunt areas within the herd ranged from 50%-100% success and 8-29 days/harvest for bulls. Managers attempt to maintain an average age of harvest for bulls around 4 years or older to provide hunters with opportunities to harvest "trophy" class bulls, and the recent 5-year average age for harvested bulls in the Sublette herd is 4.2 years. An average antler width of 36 inches was reported in this herd during 2022. Success, hunter effort and bull quality vary among individual hunt areas due to weather conditions and license allocations. The total number of licenses issued in the Sublette moose herd has declined from 630 in 2002, to 145 in 2023, a total decrease of 485 licenses (77%). These reductions by license type since 2002 equate to declines of 98% (230 to 5) cow/calf (type 4) licenses and 64% (400 to 145) bull (type 1) licenses.

The 2023 moose seasons in this herd are similar to 2022, with 145 type 1 licenses (reduction of five), and five type 4 licenses in hunt area 25, for a total herd quota of 150 licenses. Hunter success is expected to be high during the 2023 seasons.

2.) Management Objective Review: The mid-winter trend count objective for the Sublette moose herd is 1,500 moose, with a range of 1,200 to 1,800 (+/- 20%) animals and was established in 2013 and last reviewed in 2018. The Department is maintaining this herd at the current objective and management strategy based on internal discussions and conversations with our constituents and federal land managers. The Department will review this herd objective again in 2028, but could be modified at any time given a need. The postseason 2022 mid-winter trend count of 1,331 moose was higher than the most recent 3-year average (2019-2021) trend of 1,114 moose (Table 1).

Table 1. Trend counts by Hunt Area for the Sublette Moose Herd Unit, 2013-2022.

Hunt Area	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
3	24	22	32	20	26	10	288	313	248	355
4	346	224	235	366	280	314	-	-	-	-
5	79	34	73	33	65	47	53	98	90	34
10	-	10	31	16	19	36	22	3	9	-
20	32	65	49	36	60	35	54	21	7	25
21	11	7	17	23	1	11	15	13	-	16
22	47	17	13	2	11	2	-	22	13	32
23	55	37	32	17	32	16	25	-	16	31
24	-	-	-	-	-	-	-	-	-	-
25	806	664	517	774	620	739	794	626	611	838
Total	**1400**	**1080**	**999**	**1287**	**1114**	**1210**	**1251**	**1096**	**994**	**1331**

*Areas 3 and 4 combined into Area 3 starting postseason of 2019

3.) Herd Unit Evaluation: Undetermined moose deaths have been documented within this herd during past years. The significance of these mostly spring mortalities are currently unknown, and it appears other factors besides hunter harvest is slowing population growth. A study conducted during 2011-2014 within a portion of this herd unit documented moose demographics, body condition and survival rates to help managers better understand issues and problems within this moose population. Findings from this study indicate lower than expected adult female survival, fluctuating pregnancy rates and high calf survival rates. Fat measurements from study animals indicated overall poor body condition, suggesting poor quality habitat. A combination of factors such as habitat conditions, disease, parasites, predation, etc. may all be attributing to limited population growth in this herd.

4.) Population and Trend Evaluation: Data for this herd suggest that this moose population declined during the late 1990's, stabilized in 2004 and 2005, slowly increased through 2013 and has stabilized to present. Above average snow accumulations were attributed to the higher overall trend count in 2022, compared to 2020 and 2021 that experienced winters with below normal snow levels along with reduced flight budgets. Moose classification data from the 2022 postseason survey flights documented a bull ratio of 63:100 cows and calf ratio of 37:100 cows, both lower than the past 5 year averages. Mid-winter trend counts do not reflect the actual moose population, as not all areas with wintering moose are surveyed and not all moose are observed in those areas that are surveyed.

5.) Harvest Age and Antler Width Data: A total of 93 teeth representing approximately 65% of the reported 2022 harvest were aged using cementum annuli analysis. The 2022 tooth age results from the WGFD lab showed an average age of 4.3 (median age = 4.0) derived from 65% of reported harvest for bulls. Average age of harvest for bulls has remained relatively constant at approximately 4.0 years during most years (Figure 1). The low sample sizes used to derive female ages results in erratic and unreliable trends. An average antler width of 36 inches for bull moose was reported in the Sublette herd during 2022, derived from 62% of successful moose hunters that submitted antler information with tooth samples.

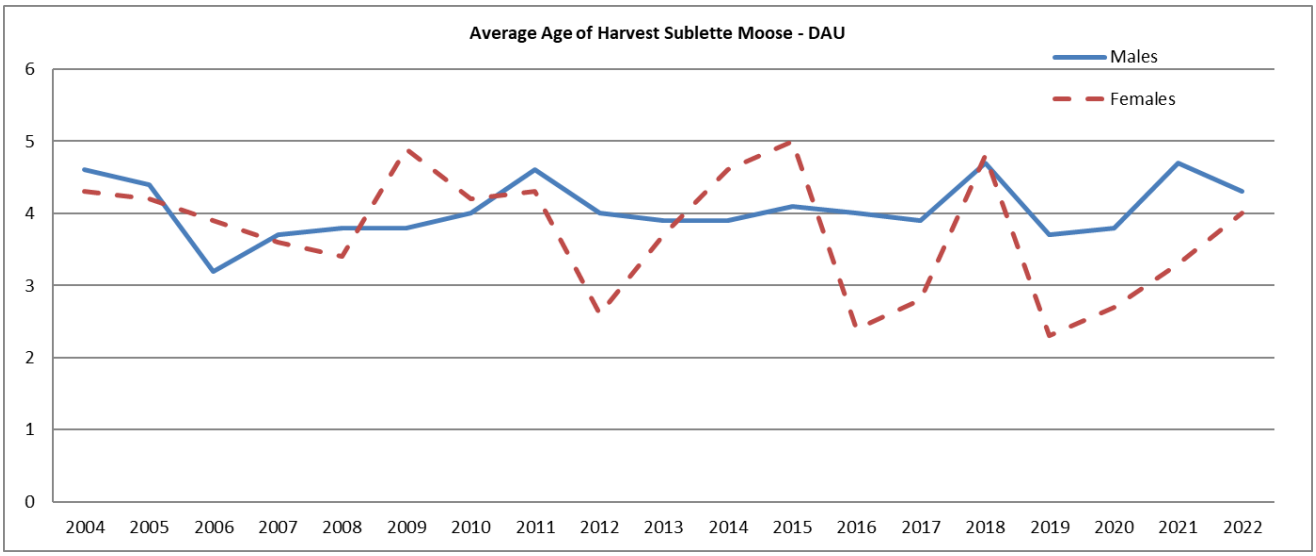


Figure 1. Average age of harvested male and female moose, Sublette herd, 2004-2022.

2022 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2022 - 5/31/2023

HERD: MD104 - SUBLETTE

HUNT AREAS: 130-131, 138-142, 146, 150-156
PREPARED BY: DEAN CLAUSE

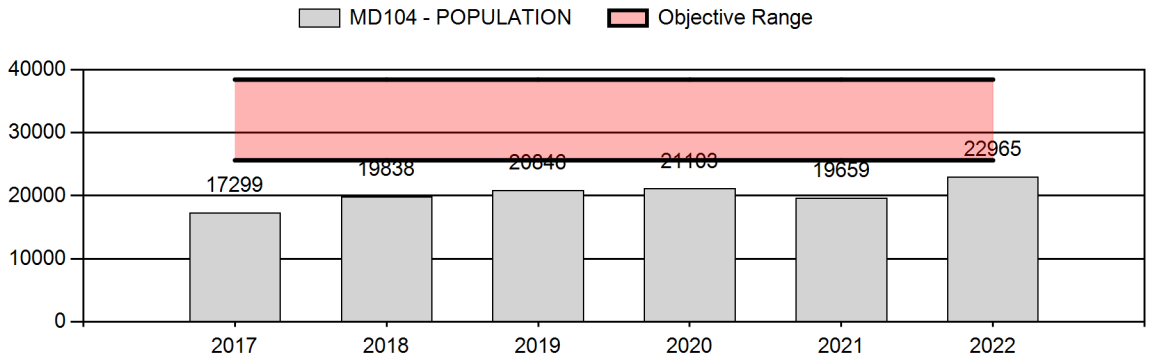
	2017 - 2021 Average	2022	2023 Proposed
Population:	19,749	22,965	23,441
Harvest:	1,289	1,430	1,430
Hunters:	4,095	4,025	4,025
Hunter Success:	31%	36%	36 %
Active Licenses:	4,127	4,080	4,080
Active License Success:	31%	35%	35 %
Recreation Days:	21,677	22,533	22,533
Days Per Animal:	16.8	15.8	15.8
Males per 100 Females	35	36	
Juveniles per 100 Females	63	71	

Population Objective (± 20%) :	32000 (25600 - 38400)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-28.2%
Number of years population has been + or - objective in recent trend:	6
Model Date:	2/24/2023

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

	JCR Year	Proposed
Females ≥ 1 year old:	1%	1%
Males ≥ 1 year old:	23%	23%
Proposed change in post-season population:	+17%	+2%

Population Size - Postseason



2023 HUNTING SEASONS
Sublette Deer (MD104)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
130	Gen	Sept. 1	Sept. 30	Oct. 1	Oct. 6		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
130	1	Sept. 1	Sept. 30	Oct. 15	Oct. 31	5	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
131	Gen	Sept. 1	Sept. 30	Oct. 1	Oct. 5		Antlered mule deer four (4) points or more on either antler or any white-tailed deer
138	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
138,139, 140,142, 143	3	Sept. 1	Sept. 30	Oct. 1	Nov. 30	50	Any white-tailed deer
139	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
140	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
141	1	Sept. 1	Sept. 30	Oct. 1	Oct. 21	50	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
141	1			Oct. 22	Oct. 31		Antlered mule deer three (3) points or more on either antler or any white-tailed deer on national forest
142	Gen	Sept. 1	Sept. 14	Sept. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
146	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
150	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
148,150, 151,152, 155,156	3	Sept. 1	Sept. 14	Sep. 15	Nov. 30	50	Any white-tailed deer
148,150, 151,152, 155, 156	8	Sept. 1	Sept. 14	Sept. 15	Nov. 30	75	Doe or fawn white-tailed deer
151	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
152	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer

153	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
154	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
155	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer
156	Gen	Sept. 1	Sept. 14	Sep. 15	Sep. 30		Antlered mule deer three (3) points or more on either antler or any white-tailed deer

*hunt areas with green font are not part of the Sublette Herd Unit.

2023 Region H nonresident quota: 400 licenses

2022 Hunter Satisfaction: 53% Satisfied, 24% Neutral, 23% Dissatisfied

2023 Management Summary

1.) Hunting Season Evaluation: The 2023 hunting seasons will continue to be conservative, limiting most hunters to buck harvest and allowing for population growth in the herd. Doe/fawn mule deer harvest opportunity was completely eliminated for the 2023 season. Since 2016, this herd has seen little growth until the past couple years, and remains below the population objective range of 25,600 to 38,400 deer, although the buck ratio objective (range of 30-45 bucks:100 does) continues to be achieved. The winter of 2022-23 was extremely severe on most winter ranges for the Sublette herd, resulting in considerable deer mortality. The 2023 hunting seasons limit harvest to bucks with an antler point restriction (APR) of three points or better on either antler. General license hunting opportunities, opening on September 15 and closing September 30 (6 days shorter), is provided in most hunt areas within the herd unit. The type 3 and type 8 licenses provide additional white-tailed deer harvest opportunities in the herd. Limited quota license (type 1) in hunt areas 130 and 141 were reduced, and non-resident Region H licenses were reduced by 200, for a total of 400 license in 2023.

2.) Herd Unit Evaluation: Winter survival, habitat condition and quality on winter ranges and habitat loss (direct and indirect) from gas and residential development are the primary issues influencing population dynamics in this herd. During the past 10 years, this deer herd experienced three winters that resulted in above average fawn mortality (> 50% loss). Winter conditions experienced in 2018-19 resulted in winter fawn loss of 50+% and the winter of 2016-17 resulted in considerable mortality when fawn loss was estimated near 85% and adult mortality near 35%. During the winter of 2010-11, fawn mortality estimates exceeded 70%. The 2022-23 winter was the most severe winter in the past 30+ years. Above average snow levels persisted and blanketed most sagebrush throughout all winter ranges, and temperatures were well below normal. These 2022-23 winter conditions resulted in above average winter deer mortality with an estimated fawn loss at or above 70%, and estimated adult female mortality ranging above 40% on most winter ranges down to 20% on southern winter ranges northeast of Rock Springs in the Red Desert. The winter loss and foreseeable reduction in buck ratios triggered managers to implement an APR, shorten seasons, and reduce quotas in 2023 to maintain buck ratio objectives within the herd and maximize the potential for future herd

growth. Winter fawn mortality estimates average around 30% on most years when winter severity is moderate to average. Current annual growth on key winter browse species has varied, but overall habitat conditions remain poor due to recent drought conditions.

Gas field development has and will continue to impact deer numbers within this herd. The Pinedale Anticline gas field development overlaps crucial winter range located on the Mesa, where annual population estimates indicate deer numbers have declined by roughly 40% from 2001–2017. Studies have demonstrated that deer avoid areas with intensive winter gas development, resulting in less forage available for wintering deer within and adjacent to gas development. Overall hunter satisfaction has been good within this herd in most years, even following years with high winter mortality.

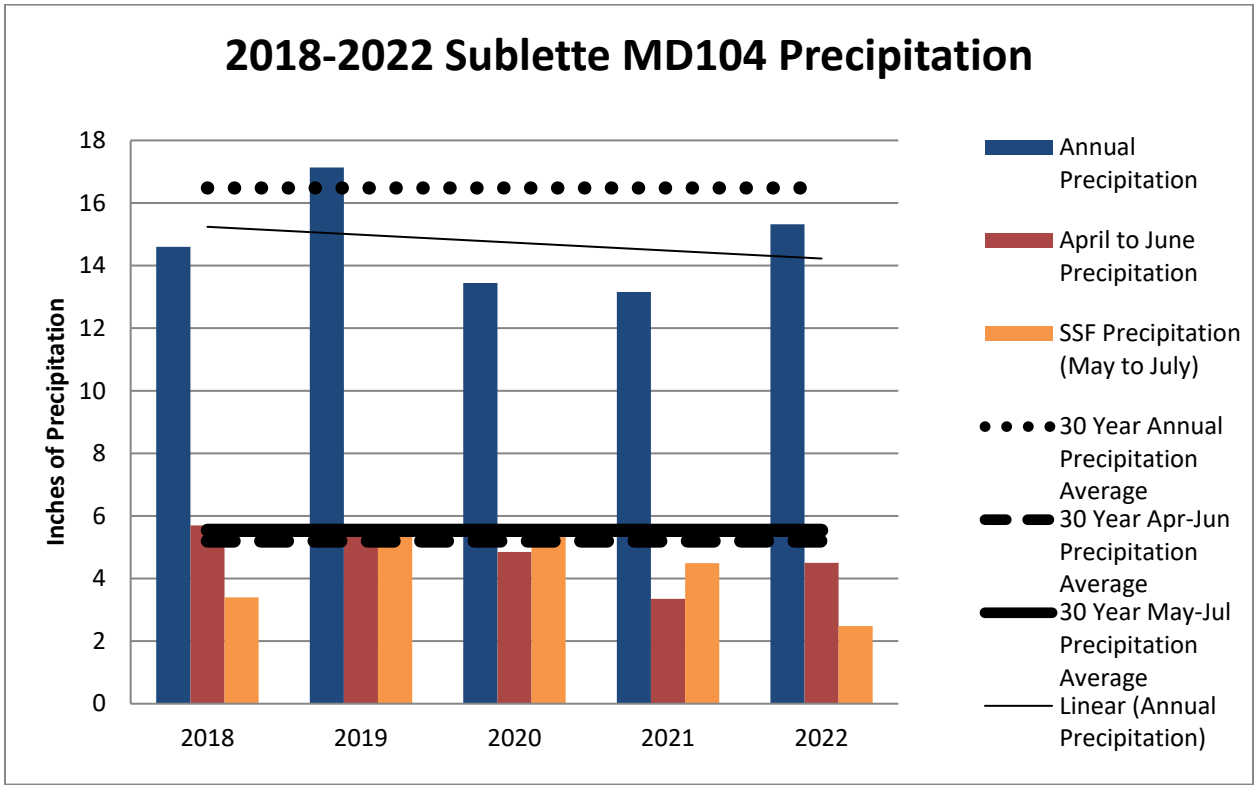
3.) Management Objective Review: The Sublette mule deer population objective of 32,000 deer was established by the WGFC after review by the public and federal agency personnel in 1989. An objective review was last conducted in 2019 and the next review will be in 2024. The population objective remains at 32,000 deer.

4.) Chronic Wasting Disease Management: This is a Tier 1 surveillance herd that has been identified as an ongoing priority area for CWD sampling. A total of 371 CWD samples from hunter harvested adult male mule deer were collected from this herd from 2020-2022. During this 3-year period, five adult bucks have tested positive for CWD for a 1.3% (5/371) prevalence, while no positive deer have been found in any other sex/age class (Table 1).

Table 1. CWD prevalence for hunter-harvested mule deer in the Sublette Mule Deer Herd

Year(s)	Percent CWD-Positive and (*n*) – *Hunter Harvest Only*		
	Adult Males (CI = 95%)	Yearling Males	Adult Females
2022	**3.5% (n=113)**	0% (25)	0% (5)
2020-2022	**1.3% (0.4-3.1%, n=371)**	0% (63)	0% (26)

5.) Mule Deer Initiative Habitat Information:



Precipitation

The Parameter-Elevation Relationships on Independent Slopes Model (PRISM) was utilized to estimate precipitation by calculating a climate-elevation regression for each Digital Elevation Model grid cell (4km resolution) for the Sublette Mule Deer Herd Unit during the water year from October 2021 through September 2022. Annual precipitation was slightly below the 30 year average and the highest since 2019. Precipitation during the growing season (April – June) and precipitation that fell between May and July on higher elevation SSF seasonal ranges were below average. SSF seasonal range precipitation was the lowest recorded over the last decade.

Winter Severity

As of March 30th, 2023: Winter temperatures in 2022-2023 are below average with 62 days experiencing temperatures below zero between December – March recorded at Pinedale, WY (30 year average = 39 days) and 88 days experiencing temperatures below zero between December – March at the Boulder Rearing Station (30 year average = 61 days). Minimum temperature recorded during the month of January was -42 degrees at the Pinedale station. Temperature data obtained from National Weather Service, NOAA Weather Data. Prolonged exposure to these cold temperatures increase energy demands, adding to the cumulative impacts of a harsh winter. Low elevation winter ranges have experienced above average monthly snow accumulation during the 2022 – 2023 winter. A general lack of wind from December to January maintained snow depth on ridges that would have normally been swept free while storm events during February with significant winds created additional drifting and crusting on the top layer. While ridge complexes in limited areas have been exposed from wind events and sun, above average

snow depth has persisted across much of winter range when warmer temperatures typically begin to expose soil and forage during the latter part of March. As of March 29, 2022, SNOTEL locations in the high elevations of the Sublette herd indicate snow water equivalent at approximately 108% of average. Above average snow depth is anticipated to increase soil moisture which will benefit early season growing conditions and annual shrub production during 2023.

Significant Events
Several habitat improvement projects were carried out within the herd unit during 2022. Approximately 190 acres of mechanical enhancements took place in mountain big sagebrush communities, 26,539 acres of cheatgrass treatments were carried out through aerial and ground application of herbicide, 17 Zeedyk structures were built within Monument Draw to reduce erosion and increase water storage capacity, a 2 acre (1300 foot) steel-jack exclosure was built to assist restoring degraded aspen community, and 18.1 miles of fence were converted to wildlife-friendly standards within the herd unit with an additional 4.6 miles removed from the landscape. On-going restoration projects, such as noxious weed management were completed within wildfire perimeters and are slated to continue over the next several years. More detailed information on projects can be obtained by reading the Pinedale Region report in the 2022 Strategic Habitat Plan (SHP) Annual Report.

Habitat Monitoring
Vegetation monitoring associated with past and future treatments was conducted throughout the herd unit and is discussed in more detail in the 2022 SHP Report.

Rapid Habitat Assessments
In 2015, Department personnel initiated the Rapid Habitat Assessment methodology to survey important mule deer habitats. This method strives to capture large-scale habitat quality metrics to better understand how the habitat is providing for the current population of mule deer. The overall end result of this effort is to provide a standardized habitat component for discussions about how mule deer objectives should or should not be adjusted based on the general concept of carrying capacity. In the Sublette Herd during 2022 department personnel completed 3,984 acres of aspen, rangeland, and special surveys within the Pinedale and Jackson Regions.

6.) Population Modeling and Trend Evaluation: A spreadsheet model uses harvest, sex/age ratios and survival data to project population estimates and trends. The 2022 postseason spreadsheet population estimate for the Sublette herd was 20,858 deer. Trend counts from postseason classification counts also reflect the population trends quite well in this herd since survey time and coverage has remained similar in the past, except for 2020 and 2021 when budgetary restriction resulted in a 40% reduction in survey effort. The 2021 documented buck ratios were most likely low due to a combination of limited survey coverage and scattered deer distribution due to extremely mild conditions. The 2022 buck ratio was 36:100 does with good survey conditions, similar to the previous 5-year average.

A new model program, Integrated Population Model (IPM), was also utilized in 2021 and 2022 for future consideration and comparison with the spreadsheet model for the Sublette herd. Excluding some issues identified in 2021 with the IPM, the 2022 IPM estimate appears to produce population trends and estimates that are realistic and similar to the spreadsheet model. The 2022 postseason IPM population mean estimate is 22,965 deer, a difference of about 2,000 deer between the models. Further evaluation and calibration of the IPM is warranted.

During February and March of 2022, a sightability survey was conducted for the first time in the Sublette mule deer herd. The model estimated a 2021 postseason population of 20,025 deer (raw count of 15,153 deer x 1.19 (sightability inflation) x 1.11 (sampling inflation)). Sightability surveys can be very useful for producing abundance estimates to evaluate and inform future modeling efforts in the Sublette herd.