TABLE OF CONTENTS

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.

2021 - JCR Evaluation Form

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

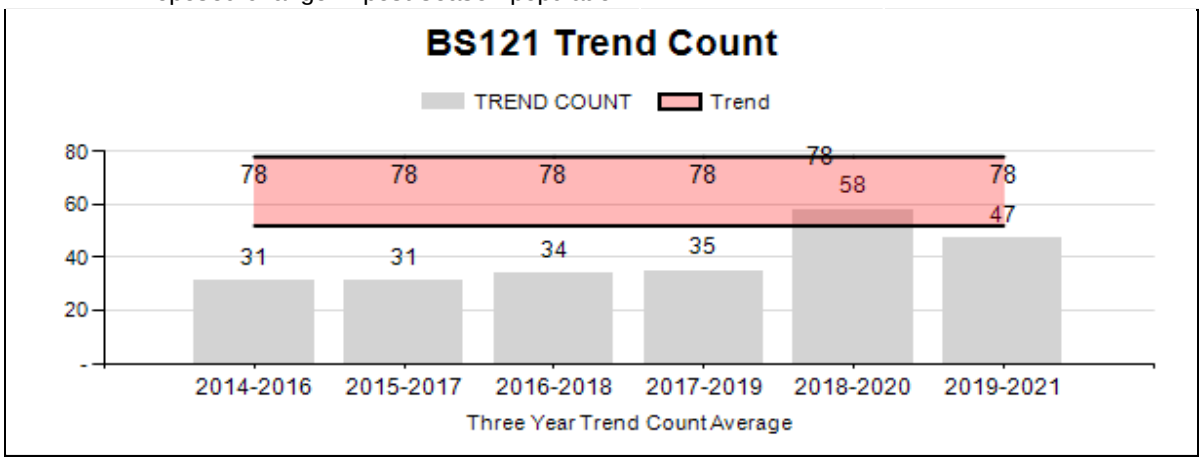
PERIOD: 6/1/2021 - 5/31/2022
PREPARED BY: GARY FRALICK

	2016 - 2020 Average	2021	2022 Proposed
Trend Count:	53	30	45
Harvest:	1	1	2
Hunters:	1	1	2
Hunter Success:	100%	100%	100 %
Active Licenses:	1	1	2
Active License Success	100%	100%	100 %
Recreation Days:	4	1	5
Days Per Animal:	4	1	2.5
Males per 100 Females:	118	0	
Juveniles per 100 Females	48	0	

Trend Based Objective (± 20%)	65 (52 - 78)
Management Strategy:	Special
Percent population is above (+) or (-) objective:	-53.8%
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%



2022 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	2	Any ram (1 resident and 1 nonresident)

2021 Hunter Satisfaction: 100%

2022 Management Summary

1.) Hunting Season Evaluation: The 2022 bighorn sheep hunting season will be open for hunting for the 7th consecutive year. An increase in the number of licenses issued was approved by the Commission for the 2022 hunting season. A total of two (2) limited quota license will be issued for any ram to a resident hunter and a nonresident hunter. This hunting season will likely result in the harvest of two adult rams 2+ years old. The increase in the number of licenses issued is a result of at least 20+ rams being documented during summer and winter over the last four years, and the number of rams observed during these surveys that were at least 6 years old. The posthunt 2022 population trend count is projected at approximately 45-60 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+-years old rams, 1 yearling ram, 30 ewes and 12 lambs. A sufficient number of rams were observed to justify the issuance of two licenses for any ram in the 2022 hunting season.

During July 2021 surveys, 21 rams were observed on Darby Mountain (n=15) and Mt. Coffin (n=6). During summer surveys, sheep typically are observed on Fish Creek and Darby Mountains, and along the ridges in Middle Piney Creek, Straight Creek, North Piney Creek and South Cottonwood Creek west of Triple Peak.

A partial winter helicopter survey was completed on February 6, 2022 along the crest of the Wyoming Range from Mt. Coffin northward to Sheep Creek. A total of 30 sheep were observed at the following locations: Box Canyon- 21 sheep; Wyoming Range north of Box Canyon- 7 sheep; and Wyoming Range south of Marten Creek- 3 sheep.

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, with ages of harvested rams at least 8.5 years or older.

4.) Disease Surveillance: A research effort was initiated on January 25th, 2017 to evaluate the health of the Darby Mountain bighorn sheep herd. A total of 8 sheep were captured via helicopter net-gunning on Fish Creek Mountain and in Straight Creek (Table 1). Six ewes and two rams were assessed for general health, vigor and exposure to respiratory pathogens by collecting nasal, tonsil and ear swabs and blood and fecal samples. All sheep were outfitted with satellite-based GPS collars and ear-tagged. After biological samples were collected and tags affixed, all sheep were transported back to their respective capture sites and released.

Table 1. A summary of bighorn sheep captured in January and tested for respiratory pathogens, Darby Mountain bighorn sheep herd, 2017.

			Capture Location					
Freq	Ear Tag	Capture Date	Easting (UTM)	Northing (UTM)	Sheep ID	Sex	Age	Pregnancy Status
151.770	Yellow 10	25-Jan	536,578 Fish Cr Mtn	4,715,497	694462A	Female	6	P
151.870	Yellow 11	25-Jan	536,578 Fish Cr Mtn	4,715,497	694464A	Female	5	P
151.900	Yellow 15	25-Jan	536,578 Fish Cr Mtn	4,715,497	694467A	Female	2	P
151.930	Yellow 12	25-Jan	536,578 Fish Cr Mtn	4,715,497	694470A	Female	4	P
151.940	Yellow 13	25-Jan	536,578 Fish Cr Mtn	4,715,497	694471A	Female	3	P
151.950	Yellow 14	25-Jan	536,578 Fish Cr Mtn	4,715,497	694451A	Female	4	P
151.970	Yellow 16	25-Jan	532,903 Straight Cr	4,716,857	694453A	Male	2	NA
151.980	Yellow 21	25-Jan	532,903 Straight Cr	4,716,857	694454A	Male	3	NA

Collected biological samples were tested for presence of respiratory pathogens, including; *Mannheimia haemolytica*, *Mycoplasma ovipneumoniae* and *Pasteurella multocida*. *Mannheimia haemolytica* was present in three (n=3) sheep, *Mannheimia glucosida* was found in one (n=1) sheep and *Pasteurella spp.* was found in three (n=3) sheep. Respiratory pathogens were isolated in four (n=4), or 50%, of the bighorn sheep captured from this herd (Table 2).

Table 2. A summary of respiratory pathogens prevalence in Darby Mountain bighorn sheep herd, Wyoming, 2017.

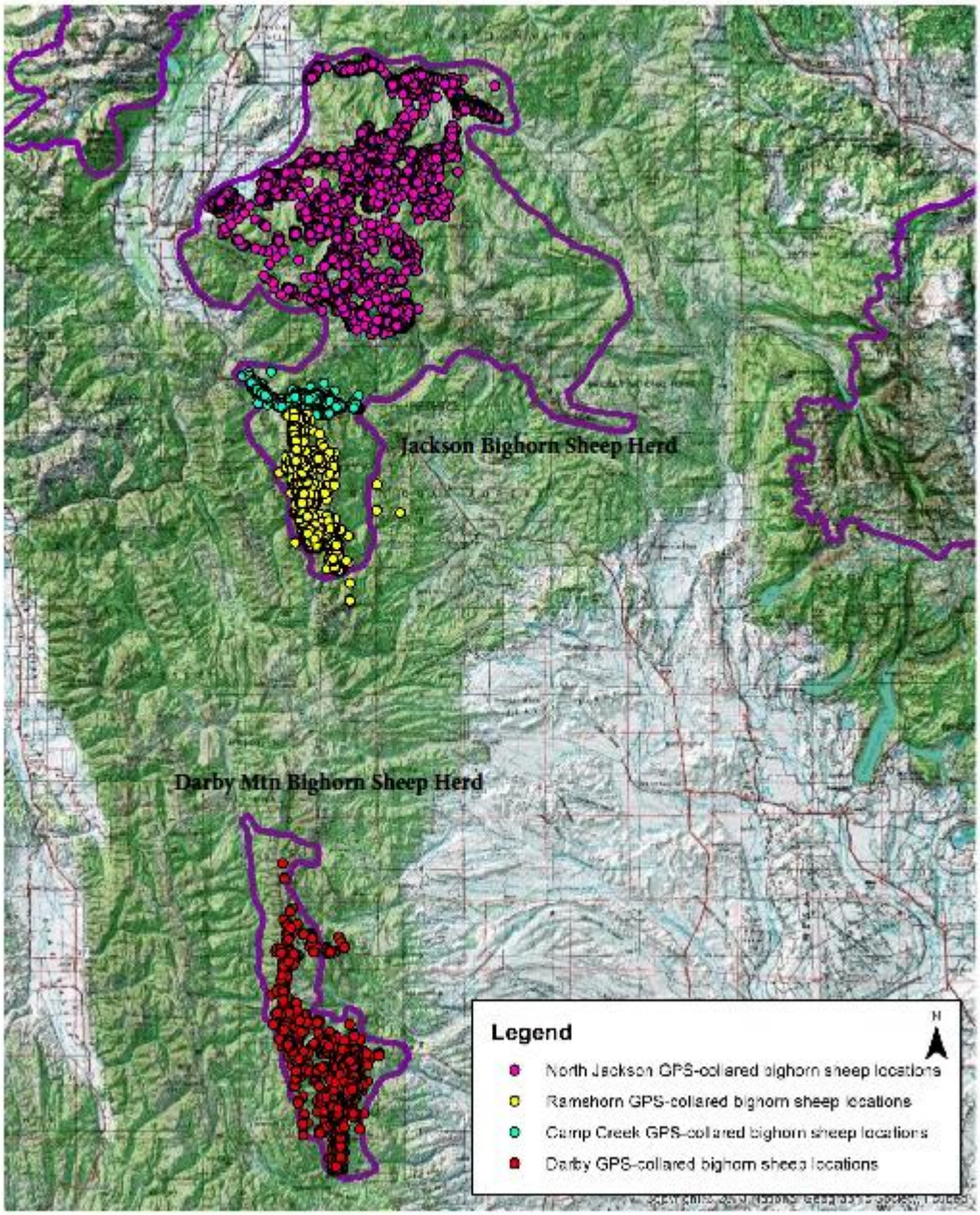
Tagging Information of Captured Sheep					Presence/Absence of Respiratory Disease					
Frequency	**Ear Tag**	**Capture Date**	**Sex**	**Age**	*Mannheimia haemolytica*		*Mannheimia glucosida*		*Pasteurella spp.*	
151.770	Yellow 10	25-Jan	Female	6	Culture	PCR	Culture	PCR	Culture	PCR
151.870	Yellow 11	25-Jan	Female	5	Culture	PCR	NSP	NA	Culture	NA
151.900	Yellow 15	25-Jan	Female	2	NSP	NSP	NSP	NSP	NA	NA
151.930	Yellow 12	25-Jan	Female	4	NSP	NSP	NSP	NSP	Culture	NA
151.940	Yellow 13	25-Jan	Female	3	Culture	NA	NSP	NSP	NA	NA
151.950	Yellow 14	25-Jan	Female	4	NSP	NSP	NSP	NSP	NA	NA

151.970	Yellow 16	25-Jan	Male	2	NSP	NSP	NSP	NSP	NA	NA
151.980	Yellow 21	25-Jan	Male	3	NSP	NSP	NSP	NSP	NA	NA

To ensure the long-term welfare and viability of the Darby Mountain sheep population, the Department committed to a management program that entails summer on-ground surveys in areas of historical distribution, including; Fish Creek Mountain, Mt. Darby, Box Canyon Creek, Marten Creek and along the crest of the Wyoming Range from Cheese Pass north to Sheep Creek (Appendix A). During the intervening years since the initial sheep capture, opportunistic mid-winter and early spring helicopter surveys were conducted dependent upon weather conditions that allowed safe flying conditions and adequate funding. The effect of these surveys was to document the location of crucial winter ranges, seasonal ranges, and identify changes in herd dynamics.

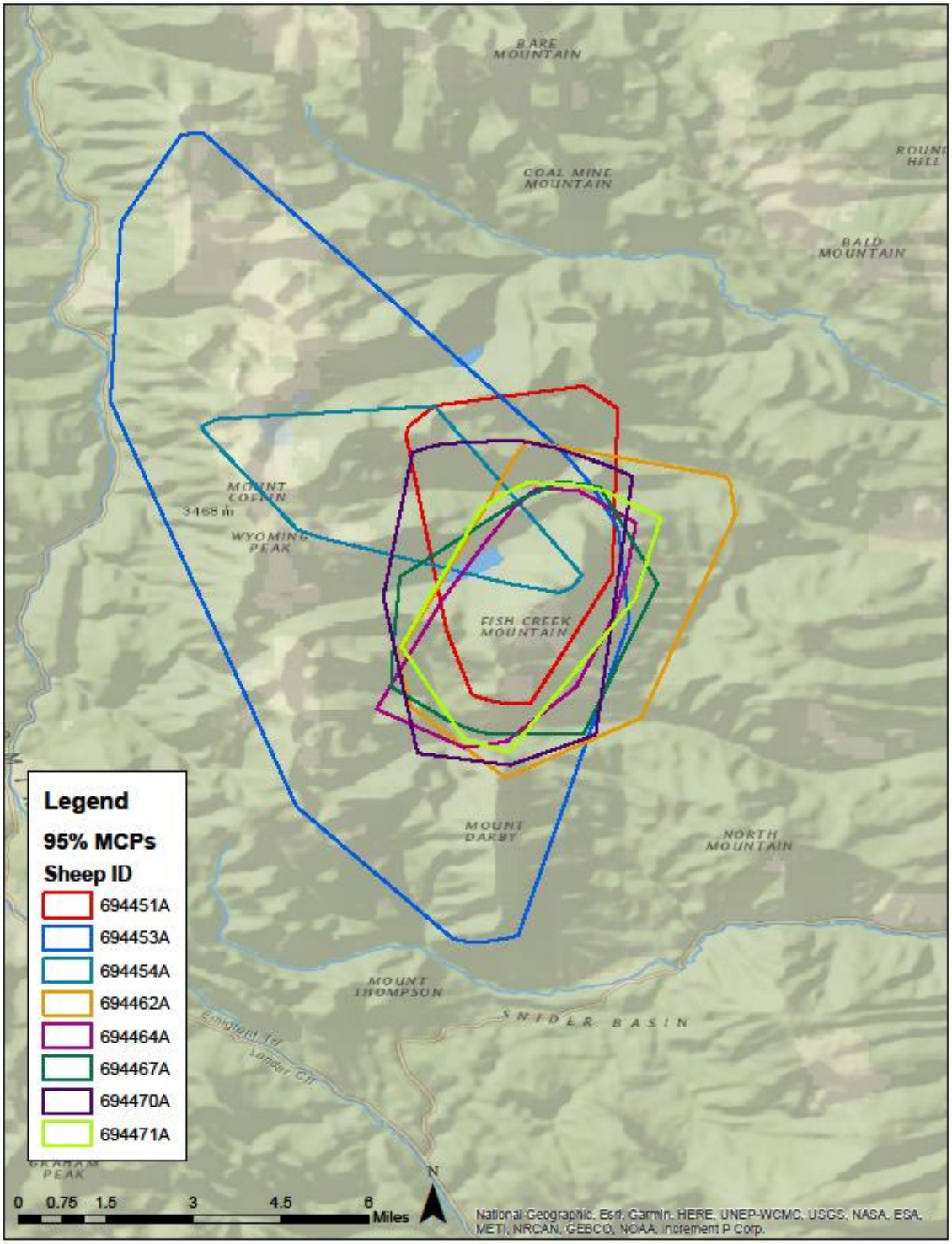
Minimum Convex Polygons were derived for the GPS-collared sheep to define home ranges (Appendix B and Appendix C). Female sheep distribution has been primarily confined to Fish Creek Mountain, Mt. Darby and Middle Piney Creek, while the two marked rams utilized a wider and larger range of habitats in the Wyoming Range. While one ram died approximately one month post capture in Straight Creek, the other collared male was last observed in July of 2021.

APPENDIX A

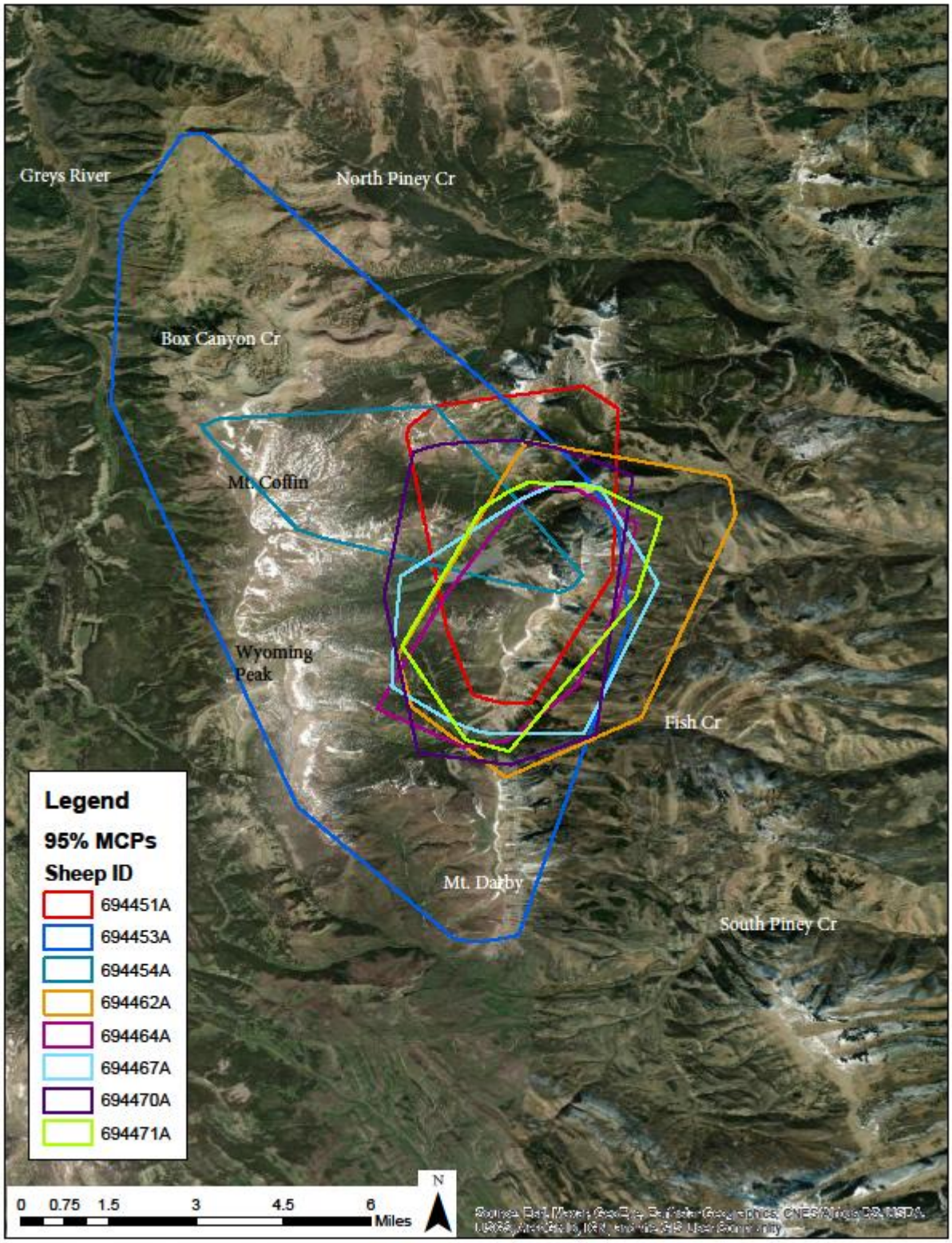


Wyoming Game and Fish Department GPS-collared bighorn sheep locations within the Jackson Herd and Darby Herd (2010-2021). Sheep data in neighboring herds are not shown.

APPENDIX B


BARE MOUNTAIN
COAL MINE MOUNTAIN
BALD MOUNTAIN
MOUNT COLLIN
3468 m
WYOMING PEAK
FISH CREEK MOUNTAIN
MOUNT DARBY
NORTH MOUNTAIN
MOUNT THOMPSON
SNIDER BASIN
Emigrant Trl
Lander Cut
GRAHAM PEAK
Legend
95% MCPs
Sheep ID
694451A
694453A
694454A
694462A
694464A
694467A
694470A
694471A
0 0.75 1.5 3 4.5 6
Miles
N
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

APPENDIX C


Greys River
North Piney Cr
Box Canyon Cr
Mt. Coffin
Wyoming Peak
Fish Cr
Mt. Darby
South Piney Cr
Legend
95% MCPs
Sheep ID
694451A
694453A
694454A
694462A
694464A
694467A
694470A
694471A
0 0.75 1.5 3 4.5 6
Miles
N

2021 - JCR Evaluation Form

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

PERIOD: 6/1/2021 - 5/31/2022

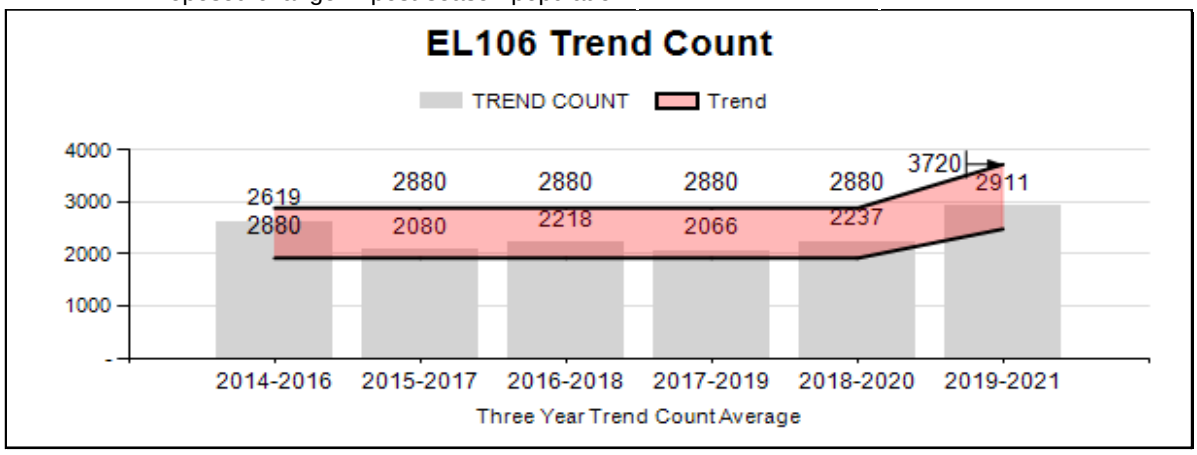
PREPARED BY: GARY FRALICK

	2016 - 2020 Average	2021	2022 Proposed
Trend Count:	2,243	4,170	3,270
Harvest:	815	717	900
Hunters:	2,777	2,333	2,800
Hunter Success:	29%	31%	32%
Active Licenses:	2,973	2,541	2,800
Active License Success	27%	28%	32%
Recreation Days:	22,801	20,182	24,000
Days Per Animal:	28.0	28.1	26.7
Males per 100 Females:	34	24	
Juveniles per 100 Females	30	41	

Trend Based Objective (± 20%)	3,100 (2480 - 3720)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	35%
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%



2022 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.15		Antlerless elk
92	Gen	Sep. 1	Sep.30	Oct. 15	Oct.31		Any elk
92	Gen	Sep. 1	Sep.30	Nov. 1	Nov.15		Antlerless elk
92	6	Sep. 1	Sep. 30	Oct. 1	Nov.25	250	Cow or calf
92	6	Sep. 1	Sep. 30	Nov.26	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	Sep. 1	Sep. 30	Nov. 1	Nov.15		Antlerless elk
94	6	Sep. 1	Sep. 30	Oct. 1	Nov.25	400	Cow or calf
94	7	Sep. 1	Sep. 30	Nov. 1	Nov.30	100	Cow or calf valid north of Middle Piney Creek
				Dec. 1	Jan. 31		Cow or calf valid on private land north of North Piney Creek

2021 Hunter Satisfaction: 60% Satisfied, 24% Neutral, 15% Dissatisfied

2022 Management Summary

1.) Hunting Season Evaluation: The Hoback elk herd was dissolved in 2021 and that portion of hunt area 87, to include the McNeel feedground, will be incorporated into hunt area 92 upon WGF Commission approval in July, 2022. Liberal elk hunting opportunities are warranted in 2022 because of the increase in overall elk numbers and trend-based objective in the Piney herd associated with the Hoback elk herd. Consequently, November, general hunting for antlerless elk and increases in the number of type 6 cow/calf licenses will be incorporated into the hunt season structure throughout the herd unit.

In hunt area 92, because of the additional 990 elk that attended the McNeel feedground during winter 2021-22, elk hunting opportunity will increase considerably. Elk increases were noted on Franz feedground for the first time since 2015, with 622 elk counted. Numbers of elk attending the Jewett feedground remained somewhat static at 471, which is similar to numbers observed there since 2017 (see Appendix A). The general license antlerless elk portion of the November hunting season will be reinstated since it was removed for the 2021 hunt, running from November 1–November 15. The number of limited quota type 6 cow/calf licenses will increase

from 150 to 250 licenses in effort to affect the desired decrease in the 2022 posthunt elk population.

The emphasis to harvest adult female elk in hunt area 94 will continue for the 15th 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 three days and close on November 15. This season structure will allow general license hunters to maximize the November segment of the hunt to harvest elk that have moved to lower, more accessible areas. The number of type 6 and 7 licenses will remain unchanged from the numbers issued in the previous three years. The extension on the closing date for the type 6 licenses will increase by two days and close on November 25 in an effort to provide the opportunity to harvest elk during the Thanksgiving holiday.

In hunt area 86, the effort to harvest antlerless elk in November with general license hunting will continue in 2022 because of the high number of elk counted during the posthunt 2021 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 three days, and close on November 15.

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 are proposed to be added to the Piney herd, and the remaining 400 elk would be absorbed into the Upper Green herd. While no net increase in elk objectives are proposed, the shift in current objectives, if adopted, would increase the Piney elk herd trend-based objective from 2,400 to 3,100 elk. This objective change was reviewed with the public and federal agency personnel during spring, 2022, and will be addressed by the WGFC during July, 2022 (see Appendix B).

3.) Herd Unit Evaluation: Substantial and sustained population reduction has been difficult to achieve in hunt area 94 despite this area 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. The addition of the WGF Commission established quota of 600 elk on McNeel to the Piney elk trend population objective will make population reduction an essential component of the 2022 hunting season proposal (Appendix B).

4.) Chronic Wasting Disease Monitoring and Management: This 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. CWD prevalence for hunter-harvested elk in the Piney herd, 2019-2021.

Years	Percent CWD-Positive and (*n*) – *Hunter Harvest Only*
	All Adult Elk (CI = 95%)
2019-2021	**0% (0-6.6%, n=54)**

Appendix A. Piney Elk Herd, posthunt herd composition data, 2016-2021.										
							Ratio:100 Females			
2016	Adult Males	Yrlng Males	Total Males	Cows	Calves	Total	Adult Males	Yrlng Males	Total Males	Calves
92 JFG	43	58	101	438	124	663				
92 FFG	119	40	159	271	88	518				
92 NR	13	1	14	0	1	15				
94 FFG	22	30	52	285	73	410				
94 NPFG	0	0	0	0	0	0				
94 BCFG	211	88	299	599	262	1160				
94 NR	23	12	35	7	3(200)	245				
TOTAL	431	229	660	1600	551(200)	3011	27	14	41	34
2017										
92 JFG	33	49	82	330	66	478				
92 FFG	54	4	58	106	13	177				
92 NR	16	2	18	0	0(64)	82				
94 FFG	21	26	47	284	51	382				
94 NPFG	0	0	0	0	0	0				
94 BCFG	NS	NS	NS	NS	NS	NS				
94 NR	53	3	56	2	0(315)	315				
TOTAL	177	84	261	722	130(379)	1492	24	12	36	18
2018										
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 McNFG	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

APPPENDIX B

February 2022

MEMORANDUM

TO: Brandon Scurlock, Pinedale Wildlife Management Coordinator

FROM: Gary Fralick, Thayne/Big Piney Wildlife Biologist

COPY TO: File

SUBJECT: 2022 Herd Unit Objective Review – Piney Elk Herd

EL106 – Piney Elk Herd Unit

Current Management Objective:	Postseason winter trend count- 2,400 (2012)
Management Strategy:	Recreational Management
2021 Estimate:	4,000
2022 Recommendation:	Increase the management objective to 3,100 to reflect the addition of the McNeel feedground and native winter range elk into the herd.

Rationale

The Pinedale Region proposed to dissolve the Hoback elk herd unit (EL104) based on GPS collared elk movements and expert opinion of biologists and wardens in August of 2021, and changes to hunt areas were made to the Hunt Planner during September of the same year. The Hoback elk herd has typically been considered a 'leaky' herd, and the integrity of the herd unit boundary has been discussed by WGFD personnel for several decades. Recent collar data indicate significant seasonal interchange of elk captured from the adjacent Upper Green River and Piney elk herd units into and out of the Hoback elk herd, justifying simplification of management boundaries (Figure 1).

Brandon Scurlock
23 February 2022
Page 1 of 2

APPENDIX B

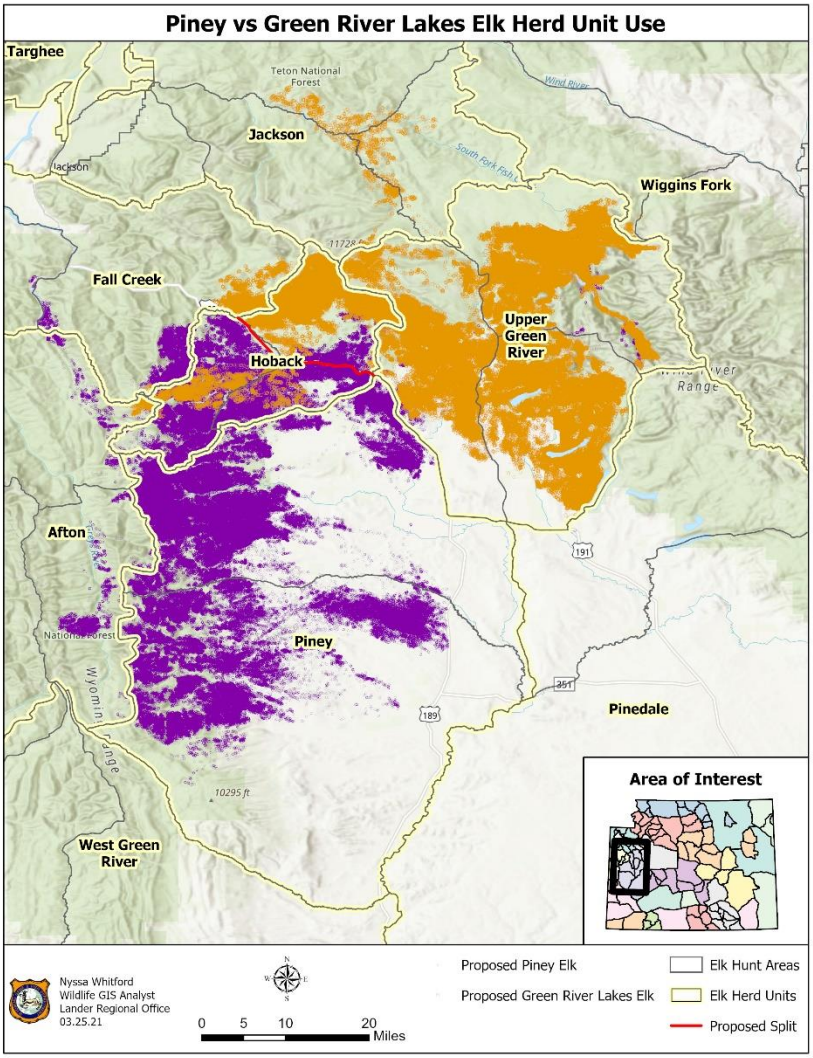


Figure 1. Elk GPS collar data location of elk collared within the Upper Green River elk herd unit and Dell Creek feedground (orange), and elk collared within the Piney elk herd unit and McNeel feedground (purple), 2006-2021.

The recommended management objective change is not an increase in the total number of elk on the landscape, but a shift in allocation of elk upon the dissolution of the Hoback herd unit into the Big Piney and Upper Green herds. The Wyoming Game and Fish Commission-established objective for the former Hoback elk herd unit was 1,100 elk; 600 elk on the McNeel feedground and 100 elk on native winter ranges will be absorbed into the Piney elk herd, and 400 elk on the Dell Creek feedground will be absorbed into the Upper Green River elk herd. We recommend increasing the management objective of the Piney elk herd to a postseason population trend of 3,100 elk.

2021 - JCR Evaluation Form

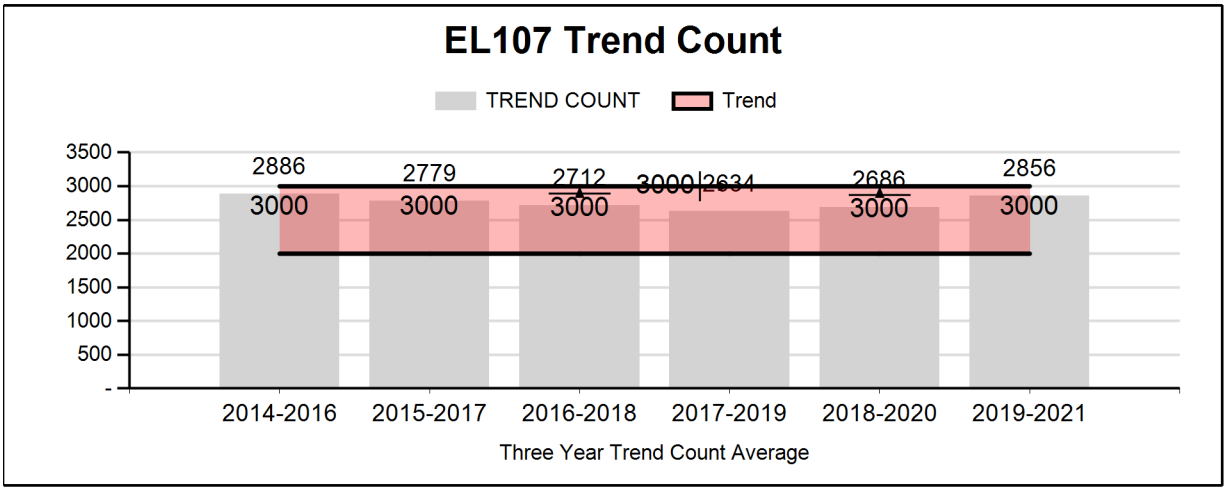
SPECIES: Elk
PERIOD: 6/1/2021 - 5/31/2022
HERD: EL107 - UPPER GREEN RIVER
HUNT AREAS: 93, 95-96
PREPARED BY: DEAN CLAUSE

	2016 - 2020 Average	2021	2022 Proposed
Trend Count:	2,736	3,021	2,800
Harvest:	420	388	500
Hunters:	1,264	1,288	1,400
Hunter Success:	33%	30%	36%
Active Licenses:	1,371	1,381	1,400
Active License Success	31%	28%	36 %
Recreation Days:	11,063	12,668	13,000
Days Per Animal:	26.3	32.6	26
Males per 100 Females:	34	32	
Juveniles per 100 Females	33	30	

Trend Based Objective (± 20%)	2,500 (2000 - 3000)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	21%
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:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



2022 HUNTING SEASONS
Upper Green River (EL107)

Hunt Area	Type	Archery Dates		Season Dates		Quota	Limitations
		Opens	Closes	Opens	Closes		
93	1	Sept. 1	Sept. 30	Oct. 1	Oct. 31	175	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	200	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. 15		Antlerless elk
96	1	Sept. 1	Sept. 30	Oct. 1	Oct. 31	250	Any elk
96	1			Nov. 1	Nov. 30		Antlerless elk
96	2			Dec. 1	Jan. 31	20	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
96	7			Dec. 1	Jan. 31	25	Cow or calf elk valid west of the elk fence and south of New Fork Lakes Road

2021 Hunter Satisfaction: 54% Satisfied, 22% Neutral, 24% Dissatisfied

2022 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 resulting a gradual population increase. Although hunter numbers, harvest, success typically don't show much annual variation for the elk herd as a whole, each hunt area is unique, resulting in different hunting strategies and seasons. This herd is managed as a "recreational herd" for a bull: 100 cow ratio between 15 to 29 and has remained above this objective in recent years. With WGF Commission approval (planned for July 2022), the proposed elimination of Hoback Elk (EL104) herd will result in hunt area 87, with a modified boundary, added to the Upper Green River herd (see Memorandum at end of this document).

The 2022 hunting season will increase antlerless harvest opportunities within this herd unit by continuing to use a combination of general and limited quota licensed hunters. The hunt area 93 season was extended to November 30 in 2021 with no changes for 2022. Hunt area 95 type 4 licenses will increase by 25 licenses, and the general license season in hunt area 96 will be extended by 15 days and 25 additional limited quota antlerless licenses will be available in area

96. The type 6 licenses (n=275) in hunt area 96 will be split between type 4 (n=150) and type 6 (n=150) in an effort to increase the proportion of hunters hunting on those licenses and harvesting elk. A late season hunt will remain in area 96 (type 2 and 7) west of the elk fence and south of New Fork Lake Road to discourage elk damage and co-mingling with livestock on private lands. The new hunt area 87 (Raspberry Ridge) added to this herd unit will have a combination of general and limited quota licenses opening Oct. 15 and closing Nov. 15 with a late season hunt allowing 75 limited quota (type 6) licenses holders to harvest antlerless elk to address private land damage and elk-livestock co-mingling.

Managers believe a high proportion of elk in this herd typically attend feedgrounds during most winters and are counted during big game surveys. Large carnivores (wolves and grizzly bears) have likely contributed to reduced hunter participation in the northern portion of this herd (hunt area 95), and are likely influencing elk productivity and survival. Lack of public access on private lands in hunt area 93 limits harvest and compromises female harvest goals within this herd. Additionally, a large portion of occupied elk habitat in hunt area 96 overlaps the Bridger Wilderness, limiting hunter accessibility and resulting in poor harvest rates on years with mild fall conditions when elk remain at higher elevations.

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. The 2021 postseason trend count was 3,021 elk observed on Department-operated feedgrounds and native winter ranges. Mild winter conditions resulted in one of the three feedgrounds (Soda Lake) with limited feeding operations and no ground classification opportunity. Classification data from aerial and ground surveys documented a bull: 100 cow ratio of 32, similar to the previous 3-year average. Winter and habitat conditions, wolf activity and timing of classification surveys have resulted in fluctuating trend count data on all three feedgrounds and native winter ranges in past years.

Department managers have proposed to append portions of hunt area 87 to the Upper Green River elk herd unit based upon elk movement data, which would increase the mid-winter trend count objective in EL107 by 400 elk, resulting in a new herd unit objective of 2,900 elk (+/- 20%, or 2,320-3,480). The previous mid-winter trend objective for the Upper Green river elk herd was 2,500 elk. This objective change was reviewed with the public and federal agency personnel during spring, 2022, and will be addressed by the WGFC during July, 2022. See Memorandum at end of this document.

4.) Chronic Wasting Disease Management: This is a Tier 2 surveillance herd that has not been prioritized for CWD sampling in the past, but will be a priority herd beginning in 2022 with a collection goal of 200 CWD samples over a three-year period. During the past three years (2019-2021), 60 CWD samples have been collected from adult elk within this herd unit with no positive animals detected.

February 2022

MEMORANDUM

TO: Brandon Scurlock, Pinedale Wildlife Management Coord

FROM: Dean Clause, Pinedale Wildlife Biologist

COPY TO: File

SUBJECT: 2022 Herd Unit Objective Review – Upper Green River Elk Herd

EL107 – Upper Green River Elk Herd Unit

Current Management Objective:	Postseason winter trend count- 2,500 (2012)
Management Strategy:	Recreational Management
2021 Estimate:	3,000
2022 Recommendation:	Increase the management objective to 2,900 to reflect the addition of the Dell Creek feedground into the herd unit.

Rationale

The Pinedale Region proposed to dissolve the Hoback elk herd unit (EL104) based on GPS collared elk movements and expert opinion of biologists and wardens in August of 2021, and changes to hunt areas were made to the Hunt Planner during September of the same year. The Hoback elk herd has typically been considered a 'leaky' herd, and the integrity of the herd unit boundary has been discussed by WGFD personnel for several decades. Recent collar data indicate significant seasonal interchange of elk captured from the adjacent Upper Green River and Piney elk herd units into and out of the Hoback elk herd, justifying simplification of management boundaries (Figure 1).

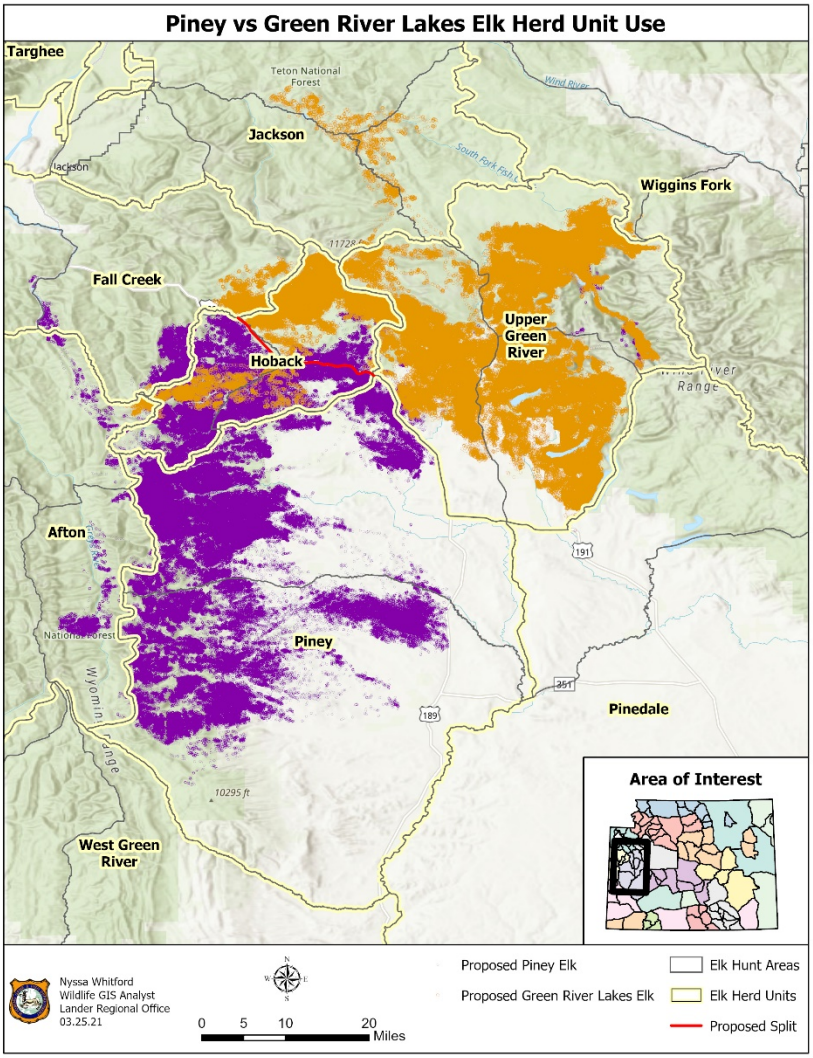


Figure 1. Elk GPS collar data location of elk collared within the Upper Green River elk herd unit and Dell Creek feedground (orange), and elk collared within the Piney elk herd unit and McNeel feedground (purple), 2006-2021.

The recommended management objective change is not an increase in the total number of elk on the landscape, but a shift in allocation of elk upon the dissolution of the Hoback herd unit into the Big Piney and Upper Green herds. The Wyoming Game and Fish Commission-established objective for the former Hoback elk herd unit was 1,100 elk; 600 elk on the McNeel feedground and 100 elk on native winter ranges will be absorbed into the Piney elk herd, and 400 elk on the Dell Creek feedground will be absorbed into the Upper Green River elk herd. We recommend increasing the management objective of the Upper Green River elk herd to a postseason population trend of 2,900 elk.

2021 - JCR Evaluation Form

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

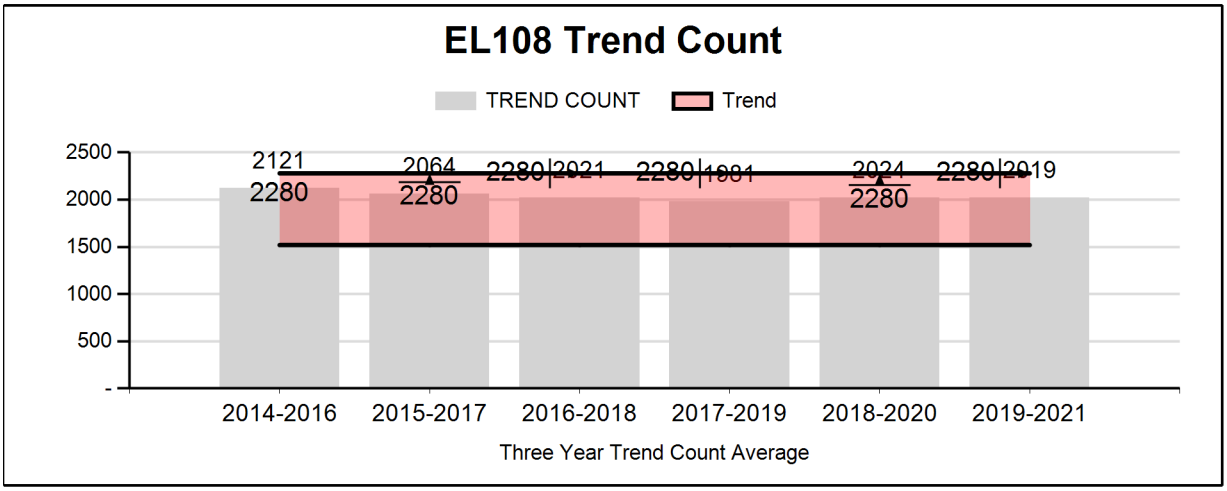
PERIOD: 6/1/2021 - 5/31/2022
PREPARED BY: DEAN CLAUSE

	2016 - 2020 Average	2021	2022 Proposed
Trend Count:	2,036	1,938	2,000
Harvest:	452	371	475
Hunters:	1,516	1,277	1,550
Hunter Success:	30%	29%	31%
Active Licenses:	1,598	1,369	1,550
Active License Success	28%	27%	31%
Recreation Days:	10,643	10,045	10,600
Days Per Animal:	23.5	27.1	22.3
Males per 100 Females:	24	20	
Juveniles per 100 Females	28	30	

Trend Based Objective (± 20%)	1,900 (1520 - 2280)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	2%
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 ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



2022 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. 15		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. 15		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

2021 Hunter Satisfaction: 60% Satisfied, 25% Neutral, 15% Dissatisfied

2022 Management Summary

1.) Hunting Season Evaluation: Harvest strategies using a combination of limited quota and general licensed hunters and lengthy seasons have been somewhat successful in maintaining this herd within management goals. Snow accumulation at higher elevations during the hunting seasons 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, well below the 5-year average.

The 2022 hunting season structure remains similar to past years for this herd, using a combination of general and limited quota licensed hunters for both hunt areas 97 and 98. Limited quota license holders were provided additional antlerless opportunities with the season extended to Nov. 30 in 2021. Additional opportunities will be provided to general licensed hunters by a slight increase in season length in 2022. A late season hunt will remain in Area 98 to 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 elk 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 in the herd 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 provide a refuge for elk and

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. We are maintaining this herd at the current objective and management strategy based on internal discussions and conversations with our constituents and federal land managers. We will review this herd objective again in 2027; however, if the situation arises that a change is needed, we will review at that time.

3.) Population and Trend Evaluation: The 2021 trend count was 1,938 elk observed on Department-operated feedgrounds and native winter ranges, but likely represents an undercount due to a combination of reduced flight budgets and mild winter conditions. The 2018-2020 trend average is 2,024 elk, which is within the herd's objective range, and mangers believe this population has been increasing the past two years. This herd unit is designated as a "recreational" herd with a bull:100 cow ratio management objective for 15- 29 bulls:100 cows. The 2021 bull:cow ratio was documented at 20 with the 2016-2020 average at 24, meeting the management objective.

4.) Chronic Wasting Disease Management: This is a Tier 2 surveillance herd that was prioritized for CWD sampling in 2019-2021. Due to somewhat limited Forest Service access, a large amount of Wilderness within the national forest, and low harvest due to mild conditions, sample collections have been challenging. During the past three years (2019-2021), 189 CWD samples have been collected/tested with one positive animal for a 0.5% (0% - 2.9% with 95% CI) prevalence, nearly meeting the target goal of 200 CWD samples.

2021 - JCR Evaluation Form

SPECIES: Moose
HERD: MO105 - SUBLETTE
HUNT AREAS: 3, 5, 10, 20-25

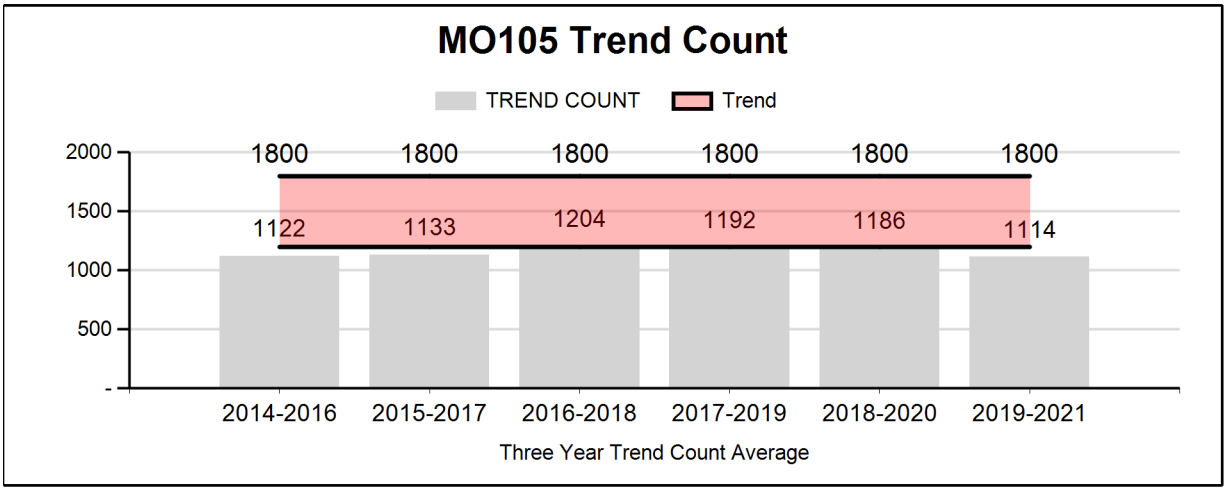
PERIOD: 6/1/2021 - 5/31/2022
PREPARED BY: DEAN CLAUSE

	2016 - 2020 Average	2021	2022 Proposed
Trend Count:	1,192	994	1,300
Harvest:	155	143	142
Hunters:	169	156	155
Hunter Success:	92%	92%	92%
Active Licenses:	169	156	155
Active License Success	92%	92%	92%
Recreation Days:	1,342	1,246	1,200
Days Per Animal:	8.7	8.7	8.5
Males per 100 Females:	70	74	
Juveniles per 100 Females	45	42	

Trend Based Objective (± 20%)	1,500 (1200 - 1800)
Management Strategy:	Special
Percent population is above (+) or (-) objective:	-33.7%
Number of years population has been + or - objective in recent trend:	3

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

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



2022 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
5	1	Sept. 1	Sept. 30	Oct. 1	Oct. 31	25	Antlered moose
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
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
23	1	Sept. 1	Sept. 14	Sept. 15	Oct. 31	15	Antlered moose
24	1	Sept. 1	Sept. 14	Sept. 15	Oct. 31	20	Antlered moose
25	1	Sept. 1	Sept. 30	Oct. 1	Oct. 31	47	Antlered moose (37 residents; 10 non-residents
25	4	Sept. 1	Sept. 30	Oct. 1	Oct. 31	5	Antlerless moose, except cow moose with calf at side

2021 Management Summary

1.) Hunting Season Evaluation: Moose harvest during the 2021 season continued to maintain high success (>91%) with hunter effort around 9 days/harvest for the overall herd unit. Hunt areas within the herd ranged from 50%-100% success and 5–19 days/harvest. Managers attempt to maintain an average age of harvest for bulls around 4.0 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 4.1 years. An average antler width of 37 inches was reported in this herd during 2021. Success, hunter effort and bull quality vary among individual hunt areas somewhat due weather conditions and license allocations. Although license allocations have remained similar at 155 (150 Type 1 & 5 Type 4 licenses) the past few years, the total number of licenses issued declined from 630 in 2002, to 155 in 2021, a total decrease of 470 (75%). These reductions by license type since 2002 equate to declines of 98% (230 to 5) cow/calf (Type 4) licenses and 63% (400 to 150) bull (Type 1) licenses.

The proposed 2022 moose seasons in this herd are similar to 2021, with 150 Type 1 licenses, but a proposed elimination of hunt area 3 Type 4 licenses (5 licenses). Hunter success is expected to be high with the proposed seasons.

2.) 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.

3.) 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. Starting in 2013, a mid-winter trend count was approved as the management objective for this herd instead of post-hunt population estimates. The mid-winter trend objective for this herd is 1,500 moose with a range of 1200–1800 (+/- 20%) animals. The postseason 2021 mid-winter trend count was 994 moose and the most recent 3-year average (2019-2021) trend is 1,114 moose. Below normal snow accumulations were largely responsible for the lower overall trend count in 2021. Mid-winter trend counts do not reflect the entire moose population, as not all areas with wintering moose are surveyed and not all moose are observed in those areas that are surveyed.

Table 1. Trend counts by Hunt Area for the Sublette Moose Herd Unit, 2012-2021.

Hunt Area	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
3	21	24	22	32	20	26	10	288	313	248
4	319	346	224	235	366	280	314	-	-	-
5	82	79	34	73	33	65	47	53	98	90
10	4	0	10	31	16	19	36	22	3	9
20	13	32	65	49	36	60	35	54	21	7
21	18	11	7	17	23	1	11	15	13	0
22	49	47	17	13	2	11	2	0	22	13
23	52	55	37	32	17	32	16	25	0	16
24	0	0	0	0	0	0	0	0	0	0
25	742	806	664	517	774	620	739	794	626	611
Total	**1300**	**1400**	**1080**	**999**	**1287**	**1114**	**1210**	**1251**	**1096**	**994**

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

4.) Harvest Age and Antler Width Data: A total of 97 teeth representing approximately 68% of the reported 2021 harvest were aged using cementum annuli analysis. The 2021 tooth age results from the WGFD lab showed an average age of 4.7 (median= 4.0) derived from 69% of reported harvest for bulls and an average age of 3.3 (median= 3.0) derived from 50% of reported harvest for cows (Figure 1). Average age of harvest for bulls has remained relatively constant at approximately 4.0 years during most years. The low sample sizes used to derive female ages results in erratic and unreliable trends. An average antler width of 37 inches for bull moose was reported in this herd during 2021, derived from 64% of successful moose hunters that submitted antler information with tooth samples.

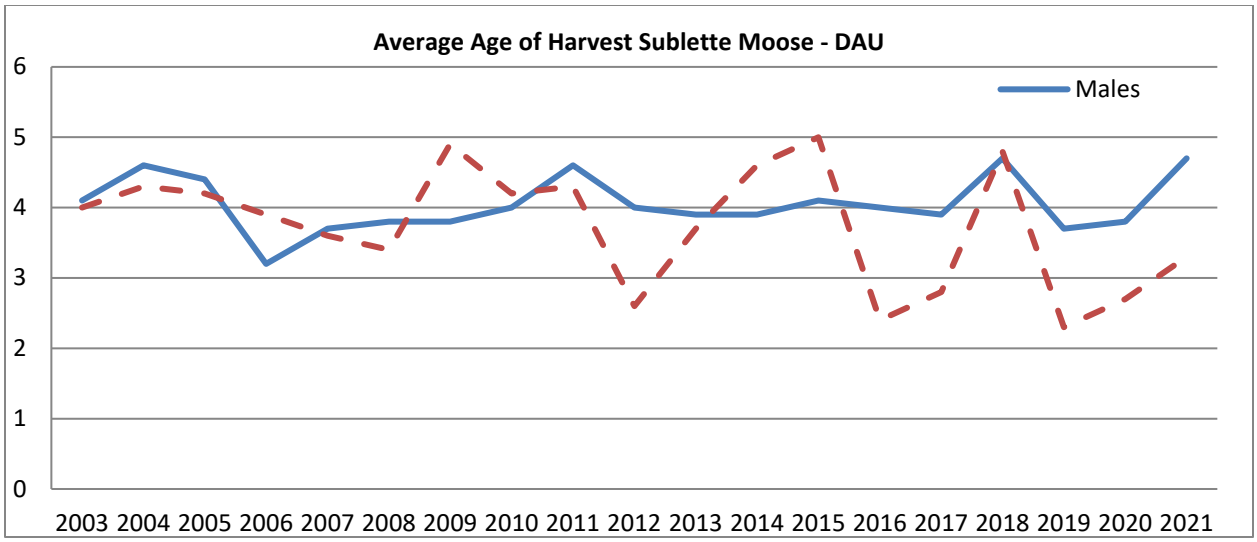


Figure 1. Average age of harvested male and female moose, Sublette Herd Unit, 2003-2021.

2021 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2021 - 5/31/2022

HERD: MD104 - SUBLETTE

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

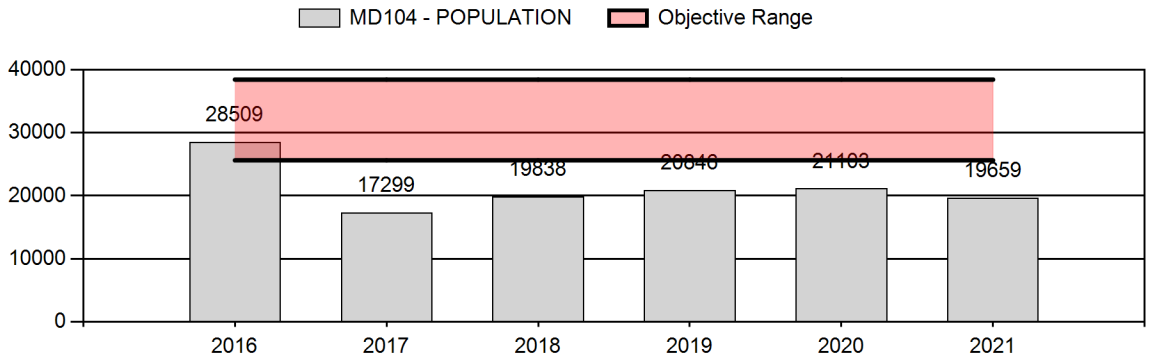
	2016 - 2020 Average	2021	2022 Proposed
Population:	21,519	19,659	22,000
Harvest:	1,469	1,404	1,500
Hunters:	4,287	4,079	4,100
Hunter Success:	34%	34%	37%
Active Licenses:	4,310	4,136	4,100
Active License Success:	34%	34%	37%
Recreation Days:	22,934	21,294	22,000
Days Per Animal:	15.6	15.2	14.7
Males per 100 Females	37	30	
Juveniles per 100 Females	62	70	

Population Objective (± 20%) :	32000 (25600 - 38400)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-38.6%
Number of years population has been + or - objective in recent trend:	5
Model Date:	2/24/2022

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

	JCR Year	Proposed
Females ≥ 1 year old:	0.7%	0.8%
Males ≥ 1 year old:	31.4%	30%
Proposed change in post-season population:	0%	+12%

Population Size - Postseason



2022 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 or any white-tailed deer
130	1	Sept. 1	Sept. 30	Oct. 15	Oct. 31	15	Antlered mule or any white-tailed deer
130	6	Sept. 1	Sept. 30	Oct. 1	Oct. 31	75	Doe or fawn valid on private land within Sweetwater County
131	Gen	Sept. 1	Sept. 30	Oct. 1	Oct. 6		Antlered mule deer four (4) points or more on either antler or any white-tailed deer
131,132, 133,134, 135, 168	3	Sept. 1	Sept. 30	Oct. 1	Nov. 30	25	Any white-tailed deer
131	6	Sept. 1	Sept. 30	Oct. 1	Nov.30	25	Doe or fawn valid within the Farson-Eden Irrigation Project
131	7	Sept. 1	Sept. 30	Oct. 1	Oct. 31	50	Doe or fawn valid west of the Blue Rim (Sweetwater County Road 5) and west of the Old Stauffer Roads (Sweetwater County Road 7) and south of the OCI Entrance Road (Sweetwater County Road 6)
138	Gen	Sept. 1	Sept. 14	Sep. 15	Oct. 6		Antlered mule deer 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	Oct. 6		Antlered mule deer or any white-tailed deer
140	Gen	Sept. 1	Sept. 14	Sep. 15	Oct. 6		Antlered mule deer or any white-tailed deer
141	1	Sept. 1	Sept. 30	Oct. 1	Oct. 21	80	Antlered mule deer or any white-tailed deer
141	1			Oct. 22	Oct. 31		Antlered mule deer or any white-tailed deer on national forest
142	Gen	Sept. 1	Sept. 14	Sept. 15	Oct. 6		Antlered mule deer or any white-tailed deer
146	Gen	Sept. 1	Sept. 14	Sep. 15	Oct. 6		Antlered mule deer or any white-tailed deer
150	Gen	Sept. 1	Sept. 14	Sep. 15	Oct. 6		Antlered mule or any white-tailed deer
148,149, 150,151, 152,155, 156	3	Sept. 1	Sept. 14	Sep. 15	Nov. 30	25	Any white-tailed deer
148,149, 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	Oct. 6		Antlered mule deer or any white-tailed deer

152	Gen	Sept. 1	Sept. 14	Sep. 15	Oct. 6		Antlered mule deer or any white-tailed deer
153	Gen	Sept. 1	Sept. 14	Sep. 15	Oct. 6		Antlered mule deer or any white-tailed deer
154	Gen	Sept. 1	Sept. 14	Sep. 15	Oct. 6		Antlered mule deer or any white-tailed deer
155	Gen	Sept. 1	Sept. 14	Sep. 15	Oct. 6		Antlered mule or any white-tailed deer
156	Gen	Sept. 1	Sept. 14	Sep. 15	Oct. 6		Antlered mule deer or any white-tailed deer

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

2022 Region H nonresident quota: 600 licenses

2021 Hunter Satisfaction: 50% Satisfied, 25% Neutral, 25% Dissatisfied

2022 Management Summary

1.) Hunting Season Evaluation: The 2021 hunting seasons continued to be conservative, limiting most hunters to buck harvest and allowing for population growth in the herd. Doe/fawn harvest has been limited to youth hunters and a small number of Type 6/7 licenses to address private land damage. Since 2016, this herd has seen little growth until the past year, and remains below the population objective range of 25,600 to 38,400 deer. The 2022 hunting seasons will limit harvest to bucks using general license hunters for most hunt areas, opening on September 15 and closing October 6, except for youth hunters and limited quota doe/fawn licenses (150 Type 6 & 7) near Farson and the lower Green River to address damage concerns on private lands. The Type 8 licenses (n=75) provide additional white-tailed doe harvest in the Jackson Region. No changes are proposed for the number of limited quota licenses available (Type 1 & 3).

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%. 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 unit. The Pinedale Anticline gas field development overlaps with 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 winter die-off and fewer deer.

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. No changes were recommended at that time, and 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 329 CWD samples from hunter-harvested deer were collected in this herd from 2019-2021. During this 3-year period, three adult bucks tested positive for CWD for a 0.9% (3/329) prevalence, while no positive deer were found in any other sex/age class (Table 1) during this time period. An adult female was the first deer to test positive in this herd in April, 2017.

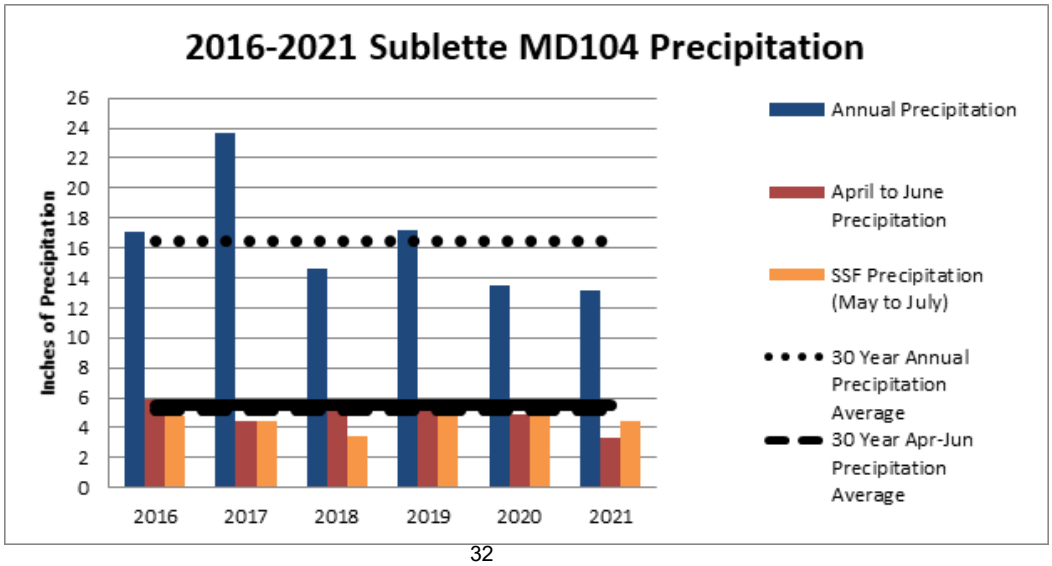
Table 1. CWD prevalence for hunter-harvested mule deer in the Sublette Mule Deer Herd, 2019-2021.

Year(s)	Percent CWD-Positive and (*n*) – *Hunter Harvest Only*		
	Adult Males (CI = 95%)	Yearling Males	Adult Females
2021	**0% (n=149)**	0% (12)	0% (7)
2019-2021	**0.9% (0.2-2.6%, n=329)**	0% (42)	0% (29)

5.) Mule Deer Initiative Habitat Information:

Precipitation (2021 Water Year)

Reduced annual and growing season precipitation led to severe drought conditions throughout the herd. Monitoring indicated that plant communities senescenced two to three weeks early, even at high elevations in subalpine tall forb communities. In extreme examples on low elevation rangelands, some grass species failed to emerge from dormancy or were unable to produce seed while some shrubs showed signs of defoliation. The impacts to wildlife as a result of drought are widespread due to the reduction of the quality and quantity of forage, especially as animals moved back into winter range complexes where monitoring indicated that production on key shrubs was approximately 16.5% of the long-term average. Scattered precipitation events during the fall followed by warm temperatures resulted in a late green-up and germination of plants throughout parts of the Sublette mule deer herd, at least somewhat offsetting reduced production of key forage species.



Winter Severity (2021-2022)
Generally, most of the low elevation winter ranges experienced below-average monthly snow accumulation during the 2021-2022 winter. Periods of above-average temperatures occurred during the month of February resulting in snowmelt, exposing vegetation and soil, especially on south facing slopes. As of May 1, 2022, SNOTEL locations indicate snow water equivalent averaging approximately 91% of average, an improvement since March, but likely suggesting the possibility of reduced soil moisture for early growing season conditions and an increased likelihood of continued drought conditions if trends continue. These mild winter conditions resulted in a higher concentration of deer on higher elevation winter ranges associated with foothill and broken terrain habitats.

6.) Population Modeling: A spreadsheet model uses harvest, sex/age ratios, and survival data to project population estimates and trends for this herd unit. The Time-Specific Juvenile and Constant Adult Survival (TSJ,CA) model typically exhibits the best overall fit compared to other models (Fit = 105 and Relative AICc = 225) resulting in a 2021 postseason population estimate of approximately 20,000 deer, below the desired objective of 32,000 (+/-20%) for this herd. Trend counts from postseason classifications 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. This reduction in documented buck ratios resulted in the spreadsheet model output of fewer deer during postseason 2021, although the trend out to 2022 appears reasonable.

A new model program, Integrated Population Model (IPM) was also utilized in 2021 for future consideration and comparison with the spreadsheet model for the Sublette herd. The IPM output projected a 2021 postseason estimate that was roughly 3,000 deer higher than the spreadsheet model with confidence intervals nearly overlapping with the spreadsheet model estimate. The main concern identified with the IPM is the projected downward trend from 2019 –2023, which is not likely since most all other herd data suggests population growth since 2020. The IPM projects 2022 and 2023 buck and fawn ratios that are much lower than means for this herd, and is partially responsible for the predicted decline. However, the downward population trend starting in 2020 in the IPM can not be explained. Further collaboration, investigation and evaluation of the IPM is warranted.

During February and March of 2022, a sightability-corrected abundance survey was conducted for the first time in the Sublette mule deer herd. Although analyses and results are not yet available, the abundance estimate garnered from this effort will be very useful for the evaluation of population models and future modeling efforts in the Sublette herd.