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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, the Habitat Biologist, the Wildlife Management Coordinator, Region Supervisor and other Department personnel and volunteers working at check stations. The authors express their sincere appreciation to all those who assisted with data collection.

2018 - JCR Evaluation Form

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

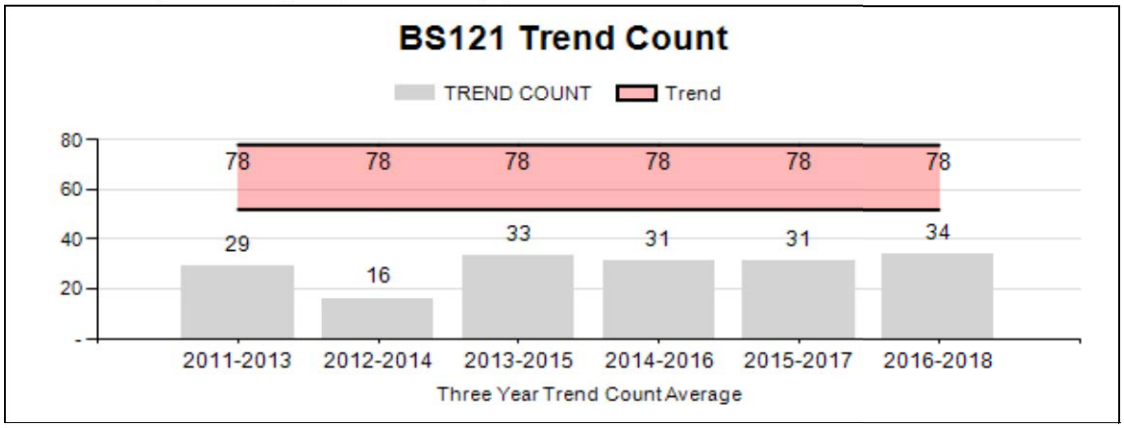
PERIOD: 6/1/2018 - 5/31/2019
PREPARED BY: GARY FRALICK

	2013 - 2017 Average	2018	2019 Proposed
Trend Count:	28	63	55
Harvest:	0	1	1
Hunters:	0	1	1
Hunter Success:	0%	100%	100 %
Active Licenses:	0	1	1
Active License Success	0%	100%	100 %
Recreation Days:	1	2	3
Days Per Animal:	0	2	3
Males per 100 Females:	220	112	
Juveniles per 100 Females	70	50	

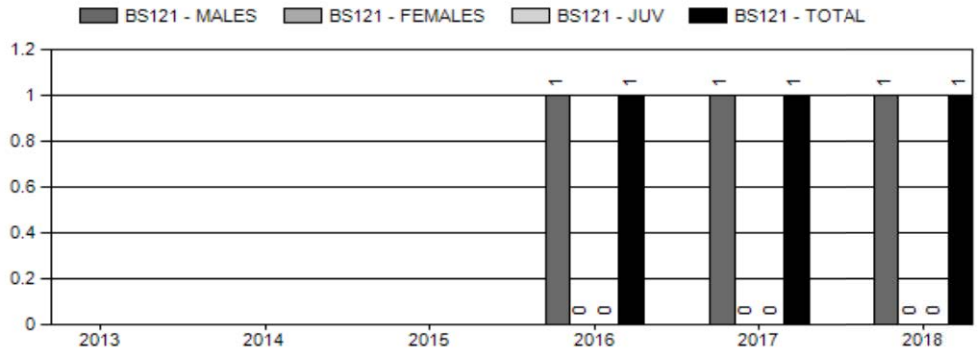
Trend Based Objective (± 20%)	65 (52 - 78)
Management Strategy:	Special
Percent population is above (+) or (-) objective:	-3.1%
Number of years population has been + or - objective in recent trend:	1

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

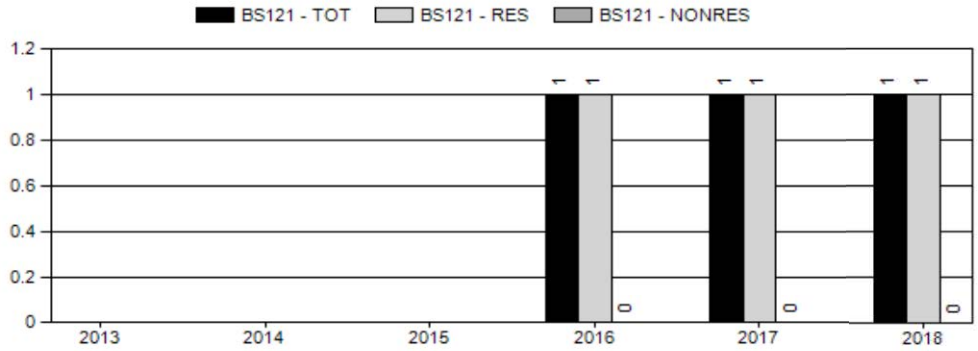
	JCR Year	Proposed
Females ≥ 1 year old:	NA%	NA%
Males ≥ 1 year old:	NA%	NA%
Juveniles (< 1 year old):	NA%	NA%
Total:	NA%	NA%
Proposed change in post-season population:	NA%	NA%



Harvest



Number of Active Licenses



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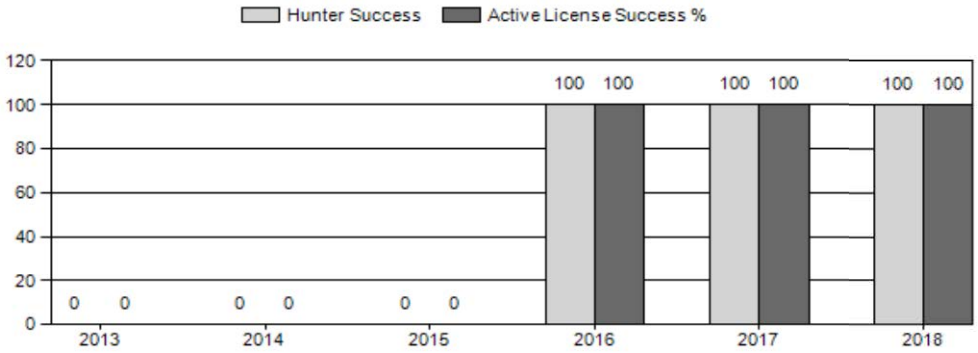

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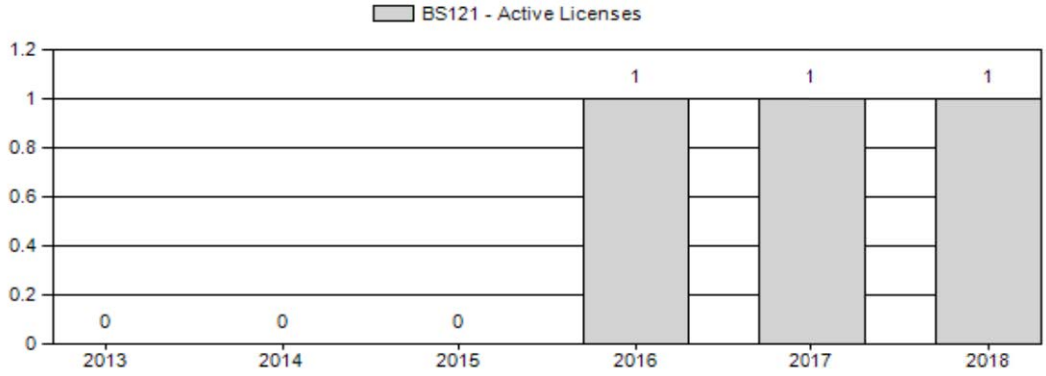
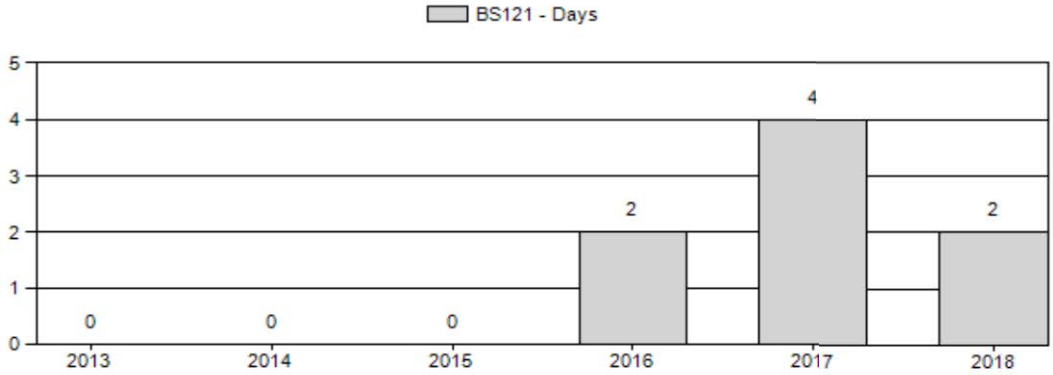
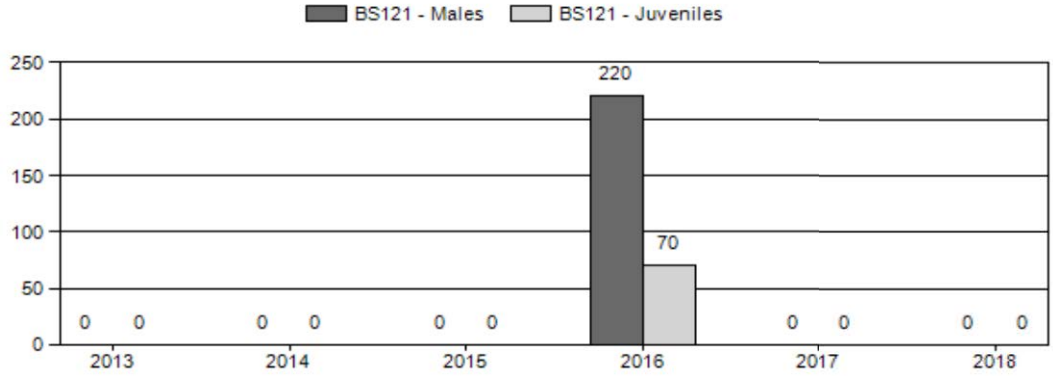


Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Bighorn Sheep Herd BS121 - DARBY MOUNTAIN

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	60	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	± 0	0
2014	60	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	± 0	0
2015	75	3	7	10	18%	28	51%	17	31%	55	0	1	25	36	± 0	61	± 0	45
2016	0	2	20	22	56%	10	26%	7	18%	39	0	10	200	210	± 0	70	± 0	23
2017	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2018	75	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

2019 HUNTING SEASON
DARBY MOUNTAIN HERD UNIT - BHS121

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
24	1	Sep. 1	Oct. 31	1	Limited quota	Any ram
		Aug. 15	Aug.31			Archery only; REFER TO SECTION 4

SUMMARY OF PROPOSED CHANGES BY LICENSE NUMBER

Area	License Type	Change from 2018
24	Limited Quota Type 1	Change; One (1) License will be issued to a Non-resident Hunter
Herd Unit Total	Net Change	Change from Resident hunt to nonresident hunter

Management Evaluation

Current Mid-Winter Trend Count Management Objective: 65
Management Strategy: Recreational
2018 Mid-Winter Trend Count: NA
Most Recent 3-Year Running Average Trend Count: 34

The Darby Mountain bighorn sheep herd mid-winter trend objective is 65 sheep. The objective was established in 2016, and the 2019 hunting season will be the third year of hunting since the season was closed in 2012. During the period from 2012 to 2015, the season was closed due to concerns over the difficulty of locating trophy class rams in the population. The last comprehensive aerial surveys were completed in 2015 and 2017. On-

ground and aerial surveys were conducted in April through July 2015, and in July 2018. The 2015 surveys resulted in a minimum of 55 different sheep being observed. In February 2017, an aerial survey was conducted and 39 sheep were observed. In July 2018 a total of 63 sheep were counted.

Herd Unit Issues

In 1981 the Wyoming Game and Fish Department and U.S. Forest Service reintroduced bighorn sheep (*Ovis canadensis*) into the Wyoming Mountain Range, west of Big Piney, Wyoming. The last wild sheep occupied this range in the early 1960s. Competition with domestic sheep and illegal harvest were believed responsible for their extirpation. Prior to the transplant, domestic sheep were removed from allotments on Fish Creek and Darby Mountain, which provided the best historic bighorn sheep habitat. In January 1981, 35 Rocky Mountain sheep were transplanted from the Whiskey Basin Habitat Unit near Dubois, Wyoming to Fish Creek Mountain. In January 1987, another 25 bighorn sheep were transplanted from Whiskey Basin to the Fish Creek Mountain site. Funding assistance for this relocation effort was provided by the Foundation for North American Wild Sheep (FNAWS).

The estimated herd size in mid-winter 1988 was 110 sheep. However, the actual count on 20 February 1988 was 70 sheep and poor weather prevented completion of the survey. A comprehensive on-ground and aerial survey was conducted from 20 June - 14 July 1988 in approximately a 90 square mile area around Fish Creek Mountain. These surveys resulted in a post-lambing count of a minimum of 124 sheep consisting of 56 ewes, 28 lambs and 40 rams in the herd. In 1988 the first hunt was conducted in Hunt Area 24, based primarily on the results of the previous survey. Four permits were issued with 3/4 curl restrictions and four rams were harvested. The population is estimated to have increased to a maximum of approximately 150 sheep in 1994. The department continued to issue four permits for 3/4 curl rams from 1988 through 1997.

Forage production and availability studies on Fish Creek and Darby Mountain winter ranges, (prior to the 1981 re-introduction) suggested a combined capacity for 150 to 175 sheep in most winters. Other potential wintering sites were identified north and east of Fish Creek Mountain. Since 1981 individuals and small groups of sheep that typically number less than 15 individuals have been observed wintering near Star Hill, above the Middle Piney Creek summer homes, the hydrographic divide between the Greys River and Green River drainages in Box Canyon Creek in Greys River drainage, and the windblown ridge tops in the Straight Creek drainage west of Mount Schidler. Fish Creek Mountain and Darby Mountain continue to support the largest concentrations of wintering sheep.

Most summer observations have occurred within the 90 square mile core area around Fish Creek Mountain. However, since 1994 a few sub-legal rams and small ewe-lamb groups have been observed on summer range outside the core area. Summer dispersal of bighorn sheep have been documented along the crest of the Wyoming Mountain Range in the vicinity of the headwaters of South Cottonwood Creek, McDougal Peak, Gunsight Pass,

Middle Piney Creek, Straight Creek, North Piney Creek and Roaring Fork drainages as well. This dispersal has resulted in bighorn sheep and domestic sheep mingling on summer ranges in several active sheep allotments.

Weather

Overall precipitation from October 2017 through September 2018 was well below average when evaluated across the entire herd unit, over the water year (October through September of the following year). The general characteristics included a very mild and dry winter followed by average spring precipitation. Although growing season (April through June) precipitation was near average due to several significant precipitation events, summer (May-July) precipitation was significantly below average and resulted in less than ideal growing conditions on summer range.

The 2018-2019 winter began mild, but the months of January and February have been increasingly tough for wildlife with regard to snow accumulation and cold temperatures on winter ranges. As of February 24, 2019, SNOWTEL locations in the high elevations of the Wyoming Range indicate snow water equivalent ranging from 85-100% of average and the Green River Basin watershed is close to 100% of average. Additional snow accumulation and warmer temperatures are forecasted for the next several weeks.

Habitat

Forage production and availability studies on Fish Creek and Darby Mountain winter ranges, (prior to the 1981 re-introduction) suggested a combined capacity for 150 to 175 sheep in most winters. Given the lower than average precipitation during May-July, the high elevation habitats used by Darby Mountain sheep likely produced less forage than normal.

Field Data

2018 Pre-season Survey

Preseason on-ground surveys were conducted in July and August 2018. A total of 63 sheep were observed. On-ground surveys were conducted over a period of 6-10 days using binoculars and spotting scopes. The results of those surveys were as follows: 25 adult rams, 2 yearling rams, 24 ewes and 12 lambs were observed. A total of 27 sheep were observed on Fish Creek Mountain and in the headwaters of Middle Piney Creek, and 36 sheep were observed along the crest of the Wyoming Range from Box Canyon northward to South Cottonwood Creek. No mountain goats (*Oreamnos americanus*) were observed along the crest of the Wyoming Range during these pre-season 2018 surveys.

2018 Post-hunt Survey

No postseason aerial surveys were conducted in 2018 due to time and budget constraints and conflicts with other aerial surveys. Moreover, inclement weather conditions when the helicopter was in the area made flying conditions unsafe and not feasible.

2016 Post-hunt Survey
An aerial survey was conducted in February 2017 from a Bell 47 Turbine helicopter. The area surveyed encompassed the crest of the Wyoming Range from Marten Creek southward to Box Canyon. Fish Creek and Darby Mountains were not surveyed because of time and fuel constraints. These areas typically support substantial numbers of bighorn sheep. A total of 39 sheep were observed. The age/sex classification of the sheep observed during this survey is as follows: 22 adult rams, 2 yearling rams, 10 ewes and 7 lambs. No mountain goats (*Oreamnos americanus*) were observed along the crest of the Wyoming Range during this survey. Approximately one (1) hour of survey time was completed.

2015 Post-hunt Survey
An aerial survey was conducted on April 2, 2015 from a Bell 47 Turbine helicopter. The primary survey area encompassed the crest of the Wyoming Mountain Range and Bighorn Sheep Hunt Area 24. The objective of the survey was to document the location and age/sex characteristics of bighorn sheep. The survey was initiated on the north at Mount McDougal and terminated on the south along the crest of the Wyoming Range at Cheese Pass and Fish Creek and Darby Mountains. All suitable bighorn sheep habitat was surveyed within the required budgetary constraints and as weather conditions permitted safe flying conditions. No mountain goats (*Oreamnos americanus*) were observed along the Wyoming Range crest during this survey. Approximately 6 hours of survey time were completed, and a total of 55 sheep were observed. The age/sex classes were: 7 adult rams, 3 yearling rams, 28 ewes and 17 lambs. The observed age/sex ratios were noted as follows: 36 rams:100 ewes:61 lambs. Bighorn sheep were observed in three primary locations; the crest of the Wyoming Range from Marten Creek south to Box Canyon Creek, Fish Creek Mountain to Middle Piney Creek and Darby Mountain. A total of three (n=3) sheep were observed in Marten Creek and 16 sheep observed in Box Canyon Creek. Two rams (n=2) were observed in Straight Creek and one ewe and one lamb were observed in Middle Piney Creek. A total of 27 sheep were observed on Fish Creek Mountain, while five adult rams were noted on Darby Mountain.

Harvest
One license valid for any ram was issued annually during the period from 2008 to 2012. A total of four rams were harvested from 2008 – 2011. In 2012, the one licensed hunter observed very few sheep and could not find a mature ram older than 5 years of age after 15 total days of hunting. The lack of mature rams observed by the hunter was consistent with Department field surveys during that period. The hunting season was closed in 2013 and remained closed until 2016.

The first license issued since 2012 was awarded to a resident hunter in 2016. This hunter harvested a mature ram that was estimated at 8 years old. In 2017, a resident hunter harvested a mature ram on Darby Mountain. The estimated age of this ram was 9 years of age. In 2018, a resident hunter harvested a ram also estimated to be 9 years old.

Population
The population has stabilized at approximately 60 - 75 sheep. Systematic surveys, typically conducted from a helicopter in winter, have resulted in fewer than 60 sheep observed. Summer on-ground surveys conducted in August have identified the Box Canyon and Fish Creek Mountain areas as locations that typically support the highest aggregations of sheep.

The population objective was evaluated for the first time since 1991. Since that time the Darby Mountain herd objective was 150 sheep. The population objective was revised in 2016 based on public and federal agency input and approval by the Wyoming Game and Fish Commission. The current 3-year mid winter trend population objective for the Darby Mountain herd is 34 sheep.

Management Summary
The 2019 bighorn sheep hunting season for Hunt Area 24 will remain open to hunting for the 4th consecutive year. A total of one (1) limited quota license will be issued for any ram to a nonresident hunter. This hunting season will result in the harvest of one adult ram 2+-years old. The posthunt 2019 population trend count is projected at approximately 75 sheep.

2018 - JCR Evaluation Form

SPECIES: Elk
HERD: EL104 - HOBACK
HUNT AREAS: 86-87

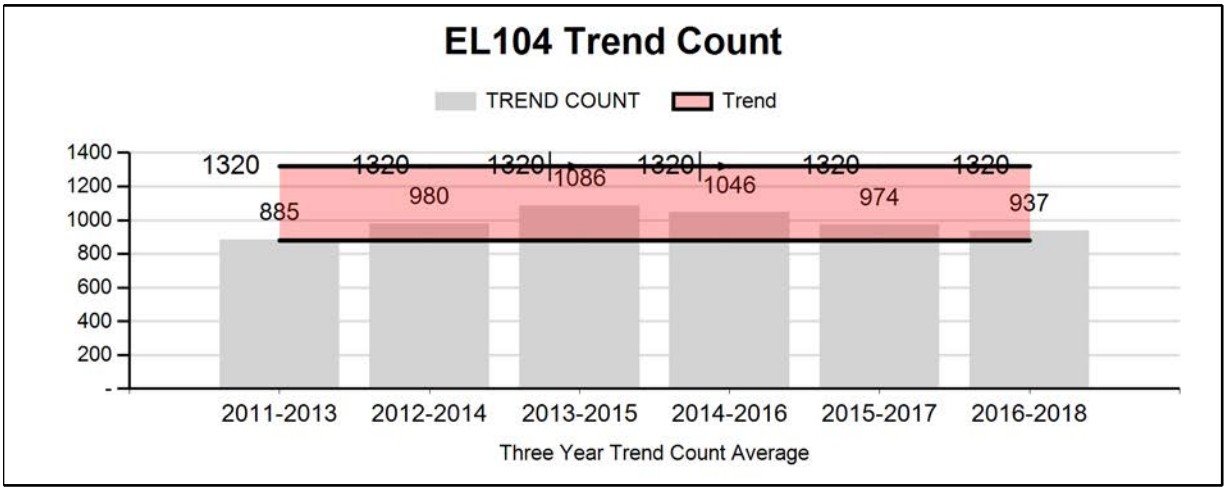
PERIOD: 6/1/2018 - 5/31/2019
PREPARED BY: DEAN CLAUSE

	2013 - 2017 Average	2018	2019 Proposed
Trend Count:	1,015	993	1,050
Harvest:	213	131	180
Hunters:	759	565	650
Hunter Success:	28%	23%	28%
Active Licenses:	766	568	650
Active License Success	28%	23%	28%
Recreation Days:	5,141	3,402	4,000
Days Per Animal:	24.1	26.0	22.2
Males per 100 Females:	17	19	
Juveniles per 100 Females	30	39	

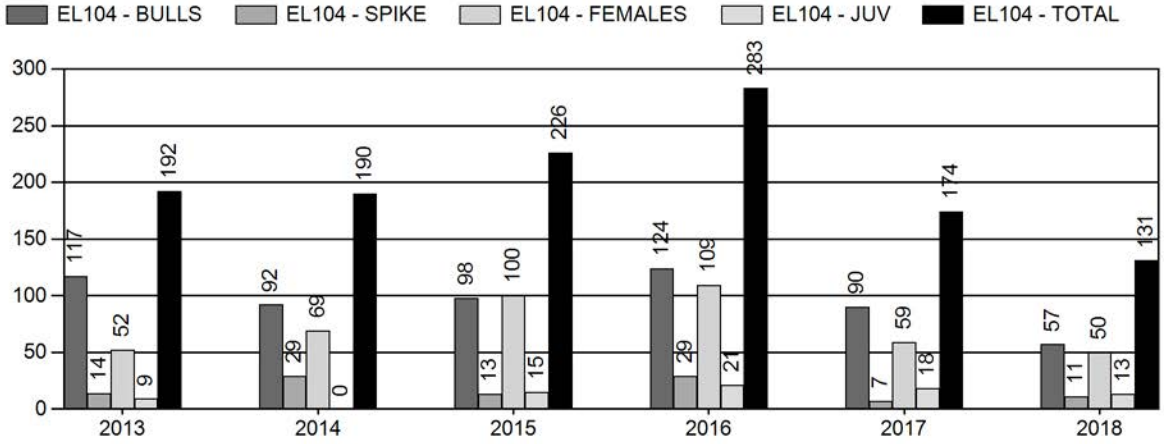
Trend Based Objective (± 20%)	1,100 (880 - 1320)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	-9.7%
Number of years population has been + or - objective in recent trend:	0

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

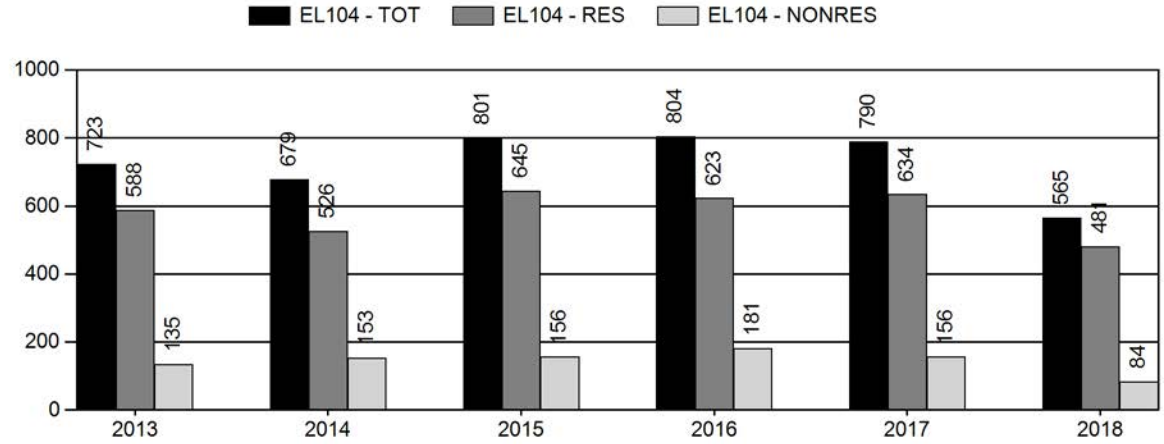
	JCR Year	Proposed
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



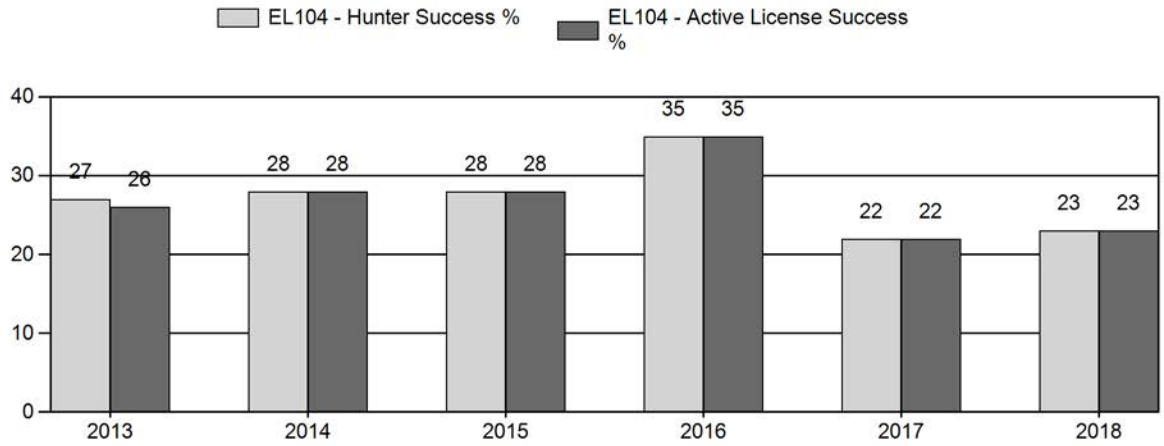
Harvest



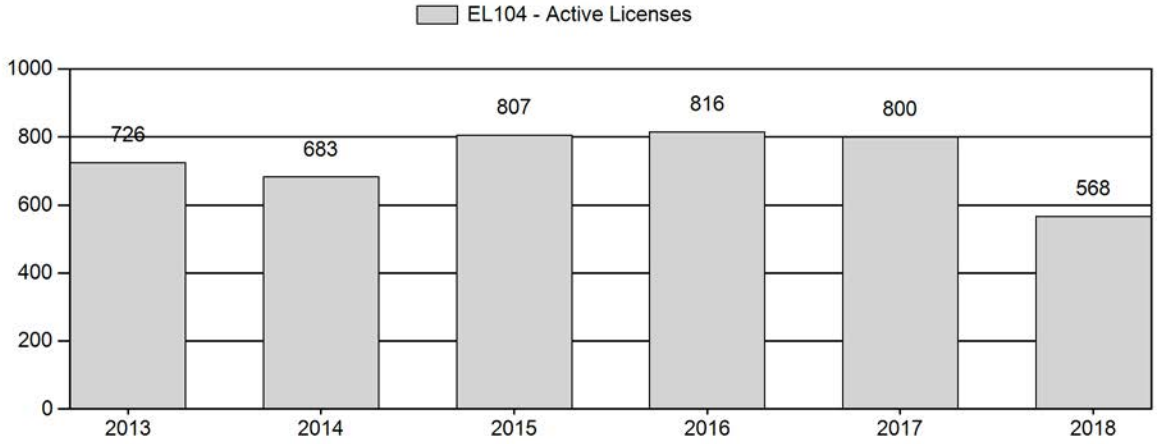
Number of Hunters



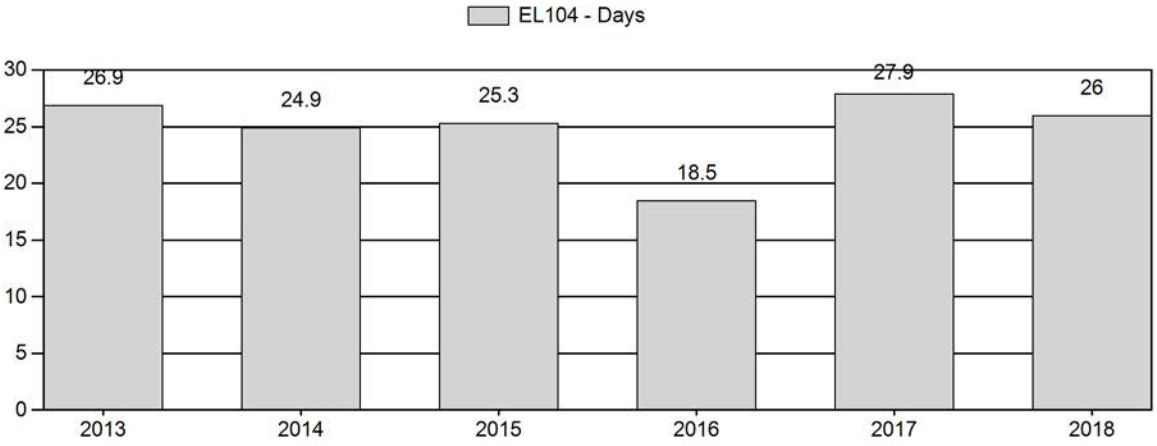
Harvest Success



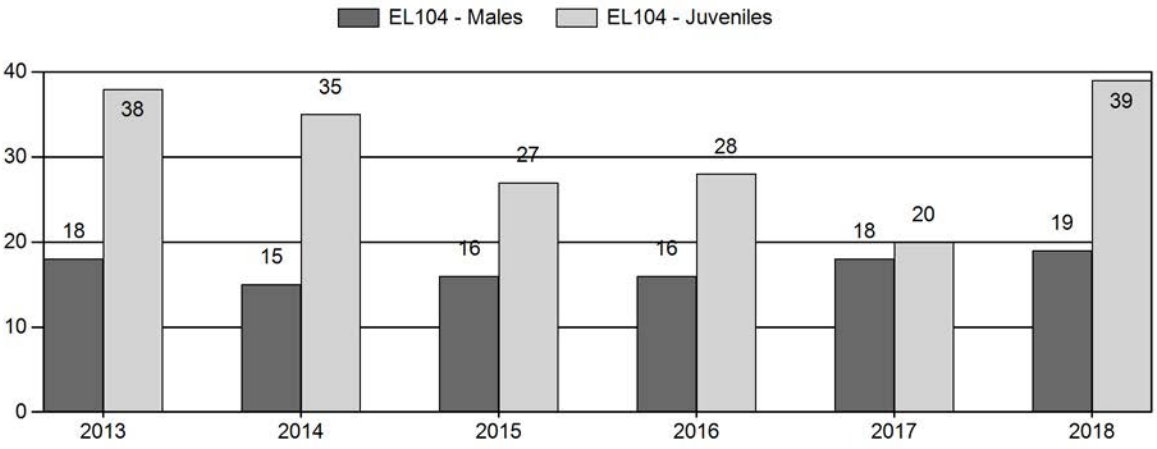
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL104 - HOBACK

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	0	55	54	109	11%	617	64%	235	24%	961	349	9	9	18	± 0	38	± 0	32
2014	0	42	62	104	10%	689	66%	244	24%	1,037	325	6	9	15	± 0	35	± 0	31
2015	0	39	64	103	11%	640	70%	173	19%	916	291	6	10	16	± 0	27	± 0	23
2016	0	33	71	104	11%	642	69%	182	20%	928	251	5	11	16	± 0	28	± 0	24
2017	0	57	55	112	13%	628	73%	126	15%	866	290	9	9	18	± 0	20	± 0	17
2018	0	45	71	116	12%	623	64%	241	25%	980	323	7	11	19	± 0	39	± 0	33

2019 Seasons – Hoback Elk Herd Unit (EL104)

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
86		Sep. 26	Oct. 31		General	Any elk
86		Nov. 1	Nov. 5		General	Antlerless elk
87		Oct. 15	Oct. 31		General	Any elk
87		Nov. 1	Nov. 5		General	Antlerless elk
87	6	Dec. 1	Jan. 31	75	Limited quota	Cow or calf valid south and east of Dell Creek, north and east of U.S. Highway 191, and west of the North Fork of Fisherman Creek
Archery Seasons						
86		Sept. 1	Sept. 25			Refer to Section 3
87		Sept. 1	Sept. 30			Refer to Section 3

Summary of Changes in License Numbers

Hunt Area	Type	Changes from 2018
		No Changes
EL104 Totals		**No Changes**

Management Evaluation

Current Mid-Winter Trend Count Management Objective: 1,100
Management Strategy: Recreational
2018 Trend Count: 993
Most Recent 3-year Running Average Trend Count: 937

The Hoback Herd Unit encompasses approximately 341 square miles of occupied elk habitat almost entirely within Sublette County. Hunt Areas 86 (Monument Ridge) and 87 (Raspberry Ridge) make up the Hoback Herd Unit. This herd is managed under a mid-winter trend objective of 1,100 (± 20%) with a herd estimate derived from a 3-year trend count average on feedgrounds and native range combined. This herd is managed under "recreational" management.

Herd Unit Issues
Managers believe a very high proportion (>90%) of elk are typically counted in this herd unit and are located on feedgrounds during the winter. This is an extremely "leaky" herd unit and as a result, a population model has not been successfully developed or neeeded. Elk are annually documented moving into and out of this herd unit resulting in annual winter trend counts that can vary from year to year. Elk depredation on private land haystacks and cattle and domestic bison feed lines continue to be a problem in most winters.

Weather
Elk in this herd unit experience the coldest winter temperatures compared to all others herd units in western Wyoming, and heavy snow loads typically make native forage unavailable on most winters. These climatic conditions likely result in higher feedground dependence by elk in this herd unit.

Habitat
Diverse spring, summer and fall habitats from low elevation willow bottoms and sagebrush/grasslands, to aspen and mixed conifer, to high elevation tall forb, white-bark pine, and alpine habitat make this herd unit rich for a wide array of wildlife. Due to the heavy snow accumulations and cold temperatures during winter, over 90% of the elk rely on supplemental feedgrounds within this herd unit. Therefore winter and other seasonal habitats do not limit population growth in this herd. Two large wildfires (Cliff Creek and Roosevelt Fires) have recently occurred within this herd unit and likely will result in improved habitat (foraging) conditions in future years.

Field Data
The 2018 postseason trend count of 993 elk observed on Department-operated elk feedgrounds and native winter ranges (Table 1). A low number of elk (n=35) were counted away from established feedgrounds in Areas 86 and 87, typical for this herd unit. Snow conditions were average this past winter (2018-19) along with normal temperatures.

Table 1. Herd Composition Counts in the Hoback Herd Unit, 2009-2018

Location	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Dell Creek F.G.	298	228	205	171	242	294	330	314	327	395
McNeel F.G.	701	596	613	544	706	728	693	605	470	563
N.W.R.	44	13	4	72	99	85	81	9	94	35
Herd Unit Total	**1043**	**837**	**822**	**787**	**1047**	**1107**	**1104**	**928**	**891**	**993**

The 2018 postseason ratios of 19 bulls:100 cows shows a slight increase compared to the 5-year average bull:cow ratio of 17:100. The 2018 bull:cow ratio is within the management goals for this herd unit. The documented 2018 calf:cow ratio was 39:100, the highest documented in the past 10-year period and follows the lowest 10-year documented calf ratio of 20:100 in 2017. The 5-year average calf ratio is 30:100.

Harvest Data
Additional antlerless harvest opportunities were available in 2008 through 2011 in Area 86 and the southern portions of Area 87, and then re-instated back for the 2015 season. Liberal seasons

were designed to help reduce elk numbers from surrounding herd units, as many of these animals move into the Hoback during the spring/summer/fall period. The 2018 harvest survey indicated a total harvest of approximately 130 elk (70 bulls and 60 cows/calves). This 2018 harvest is the lowest reported during the past 10-year period due to a multitude of factors, but primarily attributed to the effects from a September wildfire (Roosevelt Fire) in the southeastern portion of this herd unit. Area closures, fire suppression activities, and elk displacement from this wildfire resulted in a significant drop (~30%) in hunter numbers. Mild fall conditions and tough hunting conditions may have also played a role in the low 2018 harvest rate, as hunter success was 23% compared the 5-year average of 28% success, and hunter effort increased to 26 days/harvest from the 5-year average of 24 days/harvest.

Population

Starting in 2012, a mid-winter trend count was used to manage this herd unit instead of hand-derived population model estimates. This is an extremely "leaky" herd unit and as a result, a functional computer simulation model has never been developed. The post hunt population trend objective for this herd is 1,100 elk (± 20%). The 2016-2018 mid-winter 3-year trend count average is 937 elk, meeting the management goal for this herd objective.

Management Summary

Elk in the Hoback Herd Unit exhibit a considerable amount of interchange with adjacent herd units on a seasonal basis. Fluctuations of up to 200+ animals between annual winter counts are common. GPS collared elk and harvest data from elk tagged at Franz (located in the Piney herd unit), McNeel, and Dell Creek feedgrounds have documented animal movements between herd units. Ear tag data has documented 29% to 43% harvest outside the herd unit where those elk were tagged. Collared elk movements outside the herd unit from where the animals was collared are as follows; McNeel at 0%, Dell Creek at 63% and Franz at 89%.

Since 2008, hunting seasons have been designed to increase harvest on antlerless elk within the Hoback herd unit and surrounding herd units. In 2012 seasons were changed to reduce female harvest in response to low elk numbers during the winters of 2010-11 and 2011-12. Additional harvest opportunities were provided in 2015-2018 as elk numbers appeared to be increasing. Currently, adequate bull:cow ratios are being maintained. The most recent mid-winter 3-year trend average was 937 elk, placing the population within the objective of 1,100 (± 20%) elk for this herd. Elk numbers have increased at the Dell Creek Feedground since female harvest opportunities have been shortened in recent years in the north portion of Area 87. Mortalities estimated near 100+ elk were documented on or near feedgrounds within this herd unit during the 2015-16 winter due to extreme snow levels and wolf depredations, contributing to the lower elk numbers documented during the postseason of 2016.

The 2019 hunting seasons for this herd unit will provide similar seasons compared to 2018, but with increased antlerless harvest opportunities in Area 87 north of Hwy 191. The general license season in all of Hunt Area 87 will be "any" elk hunting from Oct. 15-Oct. 31, followed by a Nov. 1-Nov. 5 season for antlerless elk in that portion of Area 87 south of U.S. Highway 191. A total of 75 limited quota Type 6 (cow/calf) licenses will again be available in a portion of Hunt Area 87, valid from Dec. 1-Jan. 31, in an effort to reduce damage to privately stored hay crops.

The 2019 season in Hunt Area 86 offers general license, “any” elk hunting from Sept. 26-Oct. 31, with harvest opportunities for antlerless elk from Nov. 1-Nov. 5. The 2019 hunting seasons are projected to harvest approximately 180 elk (100 bulls, 80 cows/calves).

2018 - JCR Evaluation Form

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

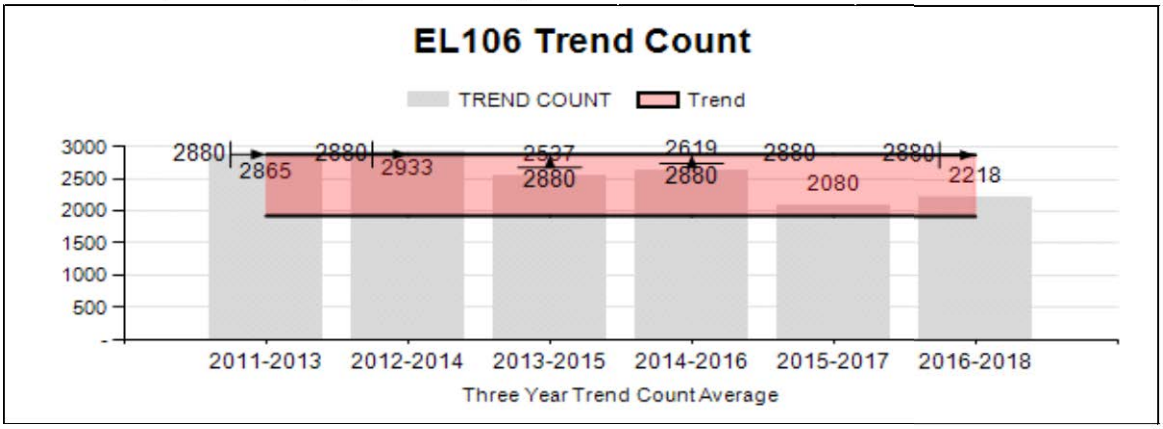
PERIOD: 6/1/2018 - 5/31/2019
PREPARED BY: GARY FRALICK

	2013 - 2017 Average	2018	2019 Proposed
Trend Count:	2,423	2,150	2,450
Harvest:	941	861	900
Hunters:	3,128	2,818	3,000
Hunter Success:	30%	31%	30%
Active Licenses:	3,299	3,062	2,810
Active License Success	29%	28%	32%
Recreation Days:	26,251	24,573	25,000
Days Per Animal:	27.9	28.5	27.8
Males per 100 Females:	41	28	
Juveniles per 100 Females	33	30	

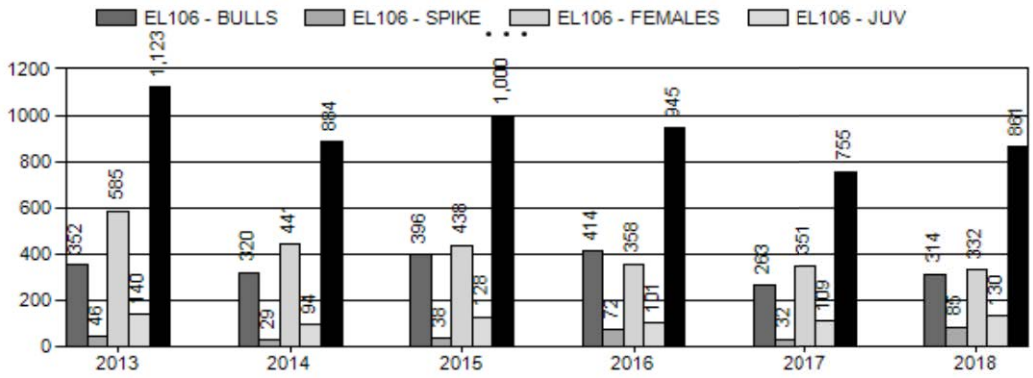
Trend Based Objective (± 20%)	2,400 (1920 - 2880)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	-10.4%
Number of years population has been + or - objective in recent trend:	10

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

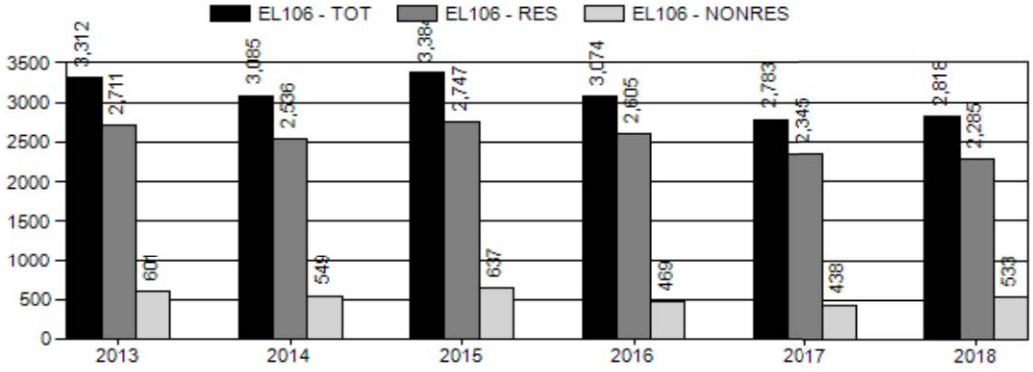
	JCR Year	Proposed
Females ≥ 1 year old:	NA%	NA%
Males ≥ 1 year old:	NA%	NA%
Juveniles (< 1 year old):	NA%	NA%
Total:	NA%	NA%
Proposed change in post-season population:	NA%	NA%



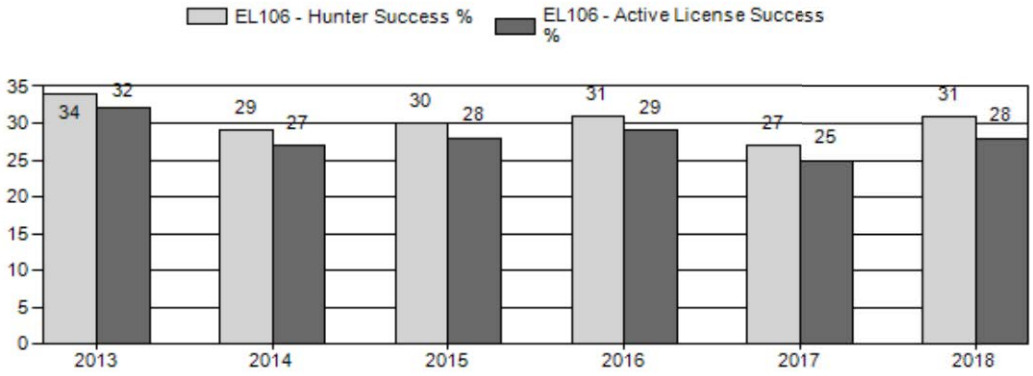
Harvest



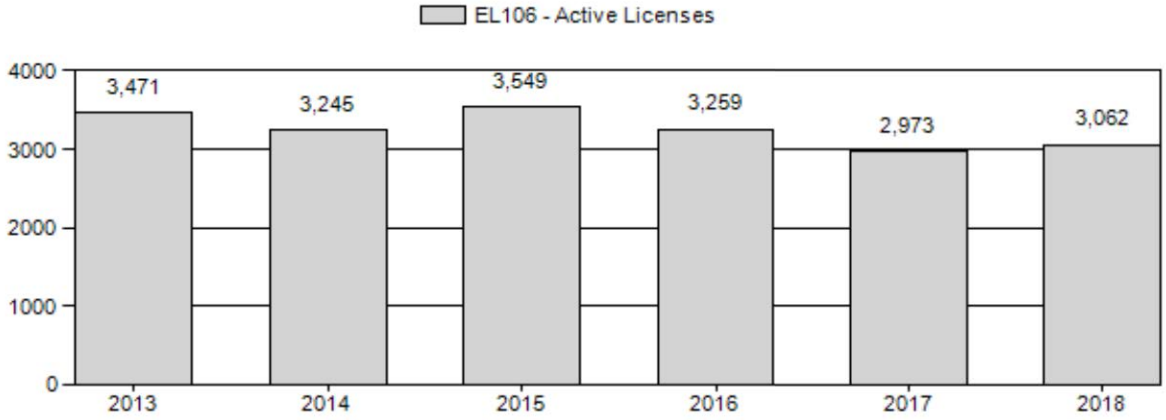
Number of Hunters



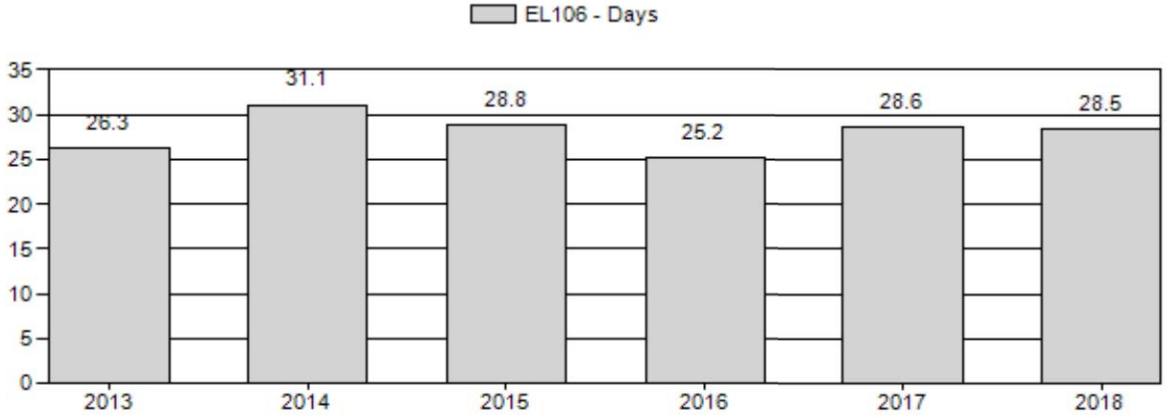
Harvest Success



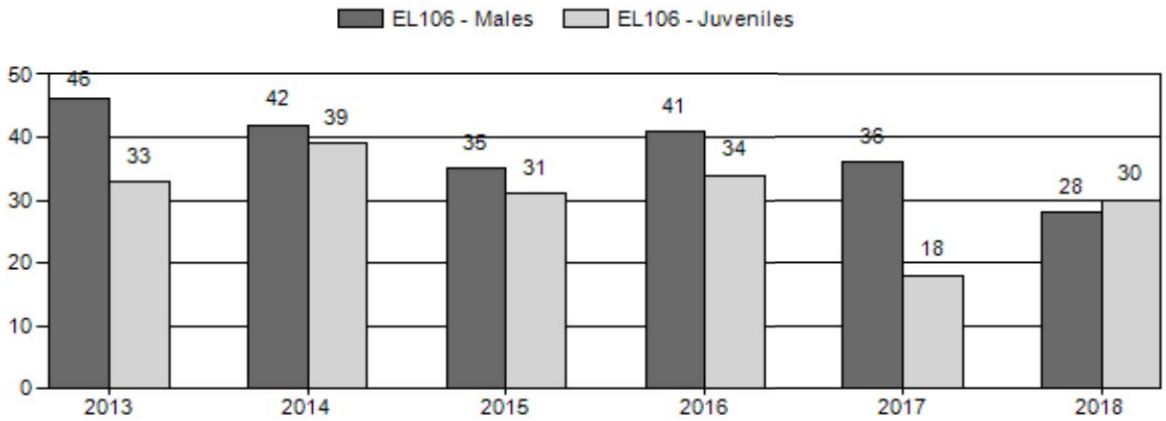
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL106 - PINEY

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	3,800	240	380	620	26%	1,337	56%	443	18%	2,400	0	18	28	46	± 2	33	± 1	23
2014	3,700	157	458	615	23%	1,476	55%	579	22%	2,670	0	11	31	42	± 1	39	± 1	28
2015	3,100	152	297	449	21%	1,273	60%	396	19%	2,118	0	12	23	35	± 1	31	± 1	23
2016	4,045	229	431	660	23%	1,600	57%	551	20%	2,811	0	14	27	41	± 1	34	± 1	24
2017	0	84	177	261	23%	722	65%	130	12%	1,113	0	12	25	36	± 0	18	± 0	13
2018	0	87	272	359	18%	1,283	63%	390	19%	2,032	0	7	21	28	± 0	30	± 0	24

2019 HUNTING SEASONS
PINEY ELK HERD UNIT (EL106)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
92		Oct. 15	Oct. 31		General	Any elk – SEE SECTION 6
		Nov. 1	Nov.12		General	Antlerless elk- SEE SECTION 6
	6	Oct. 1	Nov. 23	400	Limited quota	Cow or calf – SEE SECTION 6
	6	Nov. 24	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 – SEE SECTION 6
94		Oct. 15	Oct. 31		General	Any elk – SEE SECTION 6
		Nov. 1	Nov. 12		General	Antlerless elk – SEE SECTION 6
	6	Oct. 1	Nov. 23	400	Limited quota	Cow or calf – SEE SECTION 6
	7	Nov. 1	Nov. 30	100	Limited quota	Cow or calf valid north of Middle Piney Creek – SEE SECTION 6
92		Sep. 1	Sep. 30			Archery only – SEE SECTION 4
94		Sep. 1	Sep. 30			Archery only – SEE SECTION 4

SUMMARY OF PROPOSED CHANGES BY LICENSE NUMBER

Area	License Type	Change from 2018
92		No Changes
94		No Changes
Herd Unit Total	Net Change	No Net Change

Management Evaluation
Current Mid-Winter Trend Count Management Objective: 2,400
Management Strategy: Recreational
2018 Mid-Winter Trend Count: 2,150
Most Recent 3-Year Running Average Trend Count: 2,218

The current mid-winter trend count objective for the Piney elk herd is 2400 elk. The management strategy is recreational management. The objective and management strategy were revised in 2011. The current mid-winter trend count is 2150 elk.

Herd Unit Issues
Since 2005 sustained population reduction has been has been difficult to achieve. Hunting opportunities in this herd are among the most liberal in western Wyoming. Management strategies have emphasized hunter opportunity by promoting antlerless elk harvest with November hunting seasons and issuance of limited quota cow/calf only licenses.

While both hunt areas generally support winter elk numbers at or above Commission-established feedground quotas, Area 94, and specifically the Bench Corral feedground, supports the highest increase in elk. Hunting seasons over the last 10 years have continually targeted elk that spend the winter on the Bench Corral feedground. By focusing hunting pressure in Hunt Area 94, north of Middle Piney Creek, the desired result of reducing elk numbers on this feedground to levels closer to 700 or 800 have been unattainable.

Weather

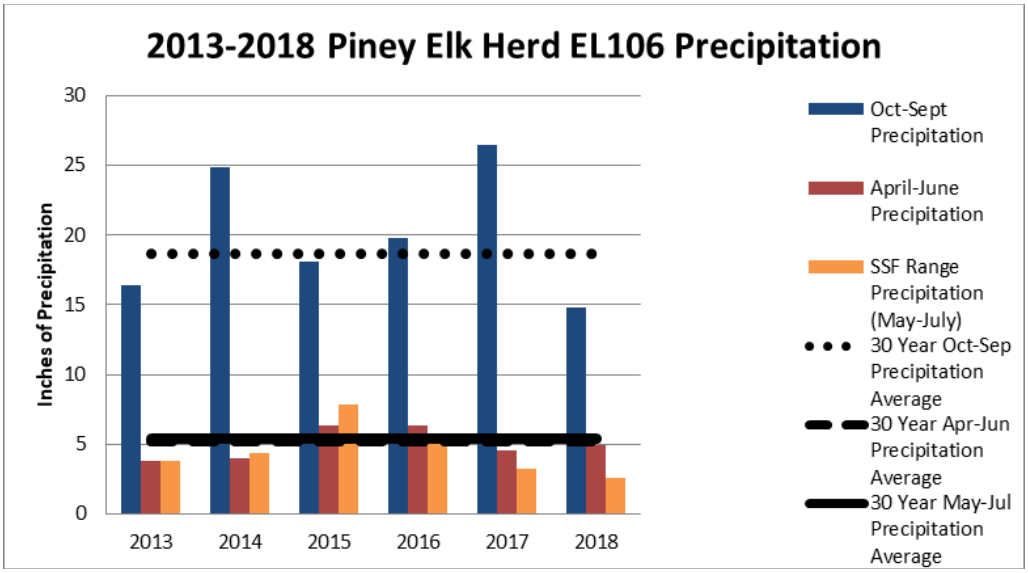


Figure 1. Inches of precipitation for three time periods/year in the Piney elk herd unit from 2013-2018, as modeled by the USDA's PRISM interpolation method. See DOI: 10.1002/joc.1688

Precipitation
Overall precipitation from October 2017 through September 2018 was well below average when evaluated across the entire herd unit, over the water year (October through September of the following year). The general characteristics included a very mild and dry winter followed by average spring precipitation. Although growing season (April through June) precipitation was near average due to several significant precipitation events, summer (May-July) precipitation was significantly below average and resulted in less than ideal growing conditions on summer range.

Winter Severity
The 2018-2019 winter started mild but the months of January and February have been increasingly tough for wildlife with regard to snow accumulation and cold temperatures on winter ranges. Current winter conditions follow the mild conditions in 2017-2018 which resulted in high calf and adult survival. As of February 24, 2019, SNOWTEL locations in the high elevations of the Wyoming Range indicate snow water equivalent ranging from 85-100% of average and the Green River Basin watershed is close to 100% of average. Additional snow accumulation and warmer temperatures are forecasted for the next several weeks.

Habitat
In 2018, annual leader production on important forage shrubs was significantly less than the last three years. This reduction is due to less overall precipitation and relatively higher than average temperature during the growing season, which affected the availability of soil moisture which is an important resource for plants to put into growth. For additional site specific information, please refer to the 2018 Annual Report Strategic Habitat Plan Accomplishments, for the Pinedale Region habitat improvement project summaries

Field Data
Population reduction has been difficult to achieve. Management strategies have emphasized the harvest of antlerless elk with November hunting seasons and issuance of limited quota cow/calf licenses. Hunt Area 94, and specifically the Bench Corral feedground, has supported the highest increase in elk throughout the herd unit. Consequently, hunting opportunities, especially for antlerless elk in Area 94 where trend counts continue to remain high, have continued to be liberal in order to affect the desired population reduction. Limited quota Type 6 cow/calf licenses have focused harvest on the antlerless segment of the population since these license holders typically account for at least 35% of the antlerless harvest in the herd unit. Limited quota Type 7 cow/calf licenses have been designed to harvest elk that migrate to the Bench Corral feedground.

Elk numbers on feedgrounds in Area 92 have generally been near the desired Commission-established quota over the last 7 years. As a result hunting structure has been designed to maintain elk numbers near these quotas by implementing general license any elk hunting in October and extending unused general licenses into November for antlerless elk only. In addition, the issuance of limited quota type 6 cow or calf only licenses have proven to be supported and popular with the hunting public, however, even with issuance of additional licenses and extended seasons into November, population reduction has been difficult to achieve.

Harvest Data

A total of 861 elk were harvested in 2018 by an estimated 2818 hunters. For comparative purposes, a total of 934 and 765 elk were taken in 2016 and 2017, respectively. The slight increase in harvest in 2018 is likely a function of slightly higher hunter numbers and increased hunter participation from 2017. Overall, hunter numbers are still lower than the 5-year average of 3128 hunters. The slight difference in total harvest over the last three years has been insufficient to affect the desired population reduction.

Hunter success was estimated at 30% in 2018, identical to the 30% success recorded in 2015 and 2016. In 2017, hunter success was 27%. There were somewhat similar numbers of antlered elk harvested in 2015 (N=434 bulls) and 2016 (N=477 bulls), which did not significantly affect a decrease in the annual bull:cow ratio in the posthunt 2016 population. The total number bulls harvested in 2017 (N=295) is the lowest number of antlered elk taken since 2008 (N=274 bulls). In 2018, a total of 402 bulls were harvested. Antlered harvest tallied 47% of the current year's harvest, while antlerless elk comprised the remaining 53% of the harvest.

Despite some of the most liberal elk hunting seasons in western Wyoming, the number of cow elk harvested in the Piney elk herd over the last 3 years has exhibited a decreasing trend. During the 3-year period from 2016-2018, an estimated 358 cows, 361 cows and 329 cows were taken during the annual hunt. From 2016-2018, a total of 97 calves, 109 calves and 129 calves were harvested during this period. Since 2000, population reduction is typically achieved when total antlerless elk harvest exceeds 700 cows and calves, percent annual antlerless harvest tallies at least $\geq$ 54% of the total harvest, and total annual elk harvest exceeds 1200 elk.

General license hunters accounted for 76% and 65% of the total elk harvest in 2016 and 2017, respectively. In 2018, general license hunters accounted for 70% of the total estimated harvest. An emphasis on antlerless harvest is the preferred management strategy to affect population reduction in this elk herd. Consequently, providing opportunity to antlerless elk hunters and providing opportunity through November late hunts and limited quota licenses are essential in population management. Most of the antlerless elk harvest is achieved through general license opportunity. In fact, general licenses hunters were successful in harvesting 52% of the total number of antlerless elk taken in the 2016. However, in 2017 and 2018, the antlerless harvest dynamic reversed and general license hunters accounted for only 43% and 44% of the total antlerless harvest in response to decreased opportunity for general licenses hunters with shorter seasons. For comparative purposes, limited quota Type 6 and 7 license holders accounted for 36%, 48%, 57%, and 56% of the total antlerless elk harvest from 2015-2018, respectively.

The majority of the antlerless harvest occurs from mid-October through November, and affirms the management strategy to promote antlerless harvest when elk are more likely to be present at lower elevations and more accessible to hunters. Antlerless harvest over the last 8 years has not resulted in the desired downturn in the total number of elk counted during the annual trend count. However, antlerless hunting is an essential component of the elk management strategy and will continue to manage the reproductive segment of the population and emphasize cow harvest with limited quota licenses holders during the months of October and November.

Population
Management efforts focused on assessing population performance are based on annual trend counts conducted since 2007. The mid-winter trend count provides managers with a realistic assessment of population dynamics in this elk herd. Furthermore, trend counts present a depiction of this population's annual performance, which has averaged approximately 2800 elk during the 3-year period from 2014 – 2016. Trend counts in 2017 and 2018 do not accurately reflect elk numbers as at least one feedground, Bench Corral was not surveyed in 2017 and all of the native winter ranges in Hunt Area 94 were not surveyed in 2018.

The winters of 2017-2018 and 2018-2019 were characterized by reduced snow accumulation on on crucial winter ranges, especially in Hunt Area 94. The result of lower snow accumulations resulted in elk dispersed across crucial winter ranges and reduced attendance at Department-operated feedgrounds, especially Bench Corral. In addition, during the current trend count most of the native winter ranges in Hunt Area 94 were not surveyed. Further, elk attendance at Franz feedground was reduced. Elk that are typically provided supplemental feed on Franz feedground were documented on native winter ranges in the Hoback Basin or other locations within the herd unit. Consequently, the 2018 Piney elk trend count does not represent actual herd unit trend numbers because of the wide dispersal of elk on native ranges.

Management Summary
The 2019 hunting seasons are designed to reduce the Piney elk toward the objective of 2400 elk, but at a slightly lower rate. The emphasis to harvest adult female elk in both hunt areas will continue for the 12th consecutive year by opening the limited quota antlerless elk hunting on October 1. The number of days for the November portion of the general antlerless elk hunting season will be from November 1 to November 12. 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 will remain the same in 2019. A total of 400 Type 6 licenses will be issued in Hunt Areas 92 and 94, respectively. The number of Type 7 licenses will remain at 100 licenses.

A season to emphasize female harvest throughout the hunt area will continue in 2019. The Limited Quota, Type 6 licenses will be valid throughout the entire hunt area October 1-November 23. Limited quota Type 7 cow/calf only licenses will be valid north of Middle Piney Creek from November 1-30. This hunt is designed to focus harvest on that segment of the population that spends the winter on the Bench Corral feedground. For the 8thconsecutive year, hunters will be permitted to harvest up to three elk in this herd.

The 2019 hunting seasons are projected to harvest approximately 900 elk. The 2019 posthunt trend should result in an approximate count of 2500 elk.

Appendix A. Piney Elk Herd, posthunt herd composition data, 2013-2018.

							Ratio:100 Females			
2013	Adult Males	Yrlng Males	Total Males	Cows	Calves	Total	Adult Males	Yrlng Males	Total Males	Calves
92 JFG	35	61	96	493	173	762				
92 FFG	106	40	146	138	47	331				
92 NR	55	9	64	2	0(27)	93				
94 FFG	NA	NA	NA	NA	65(226)	291				
94 NPFG	0	0	0	0	0	0				
94 BCFG	113	118	231	703	156	1090				
94 NR	71	12	83	1	2(110)	196				
TOTAL	380	240	620	1337	443(363)	2763	28	18	46	33
2014										
92 JFG	51	20	71	257	83	411				
92 FFG	40	20	60	NA	NA(415)	475				
92 NR	77	9	86	5	0(27)	118				
94 FFG	29	18	47	237	87	371				
94 NPFG	0	0	0	0	0	0				
94 BCFG	207	84	291	NA	75(1034)	1400				
94 NR	54	6	60	22	4(250)	336				
TOTAL	458	157	615	521	249(1726)	3111	NA	NA	NA	NA
2015										
92 JFG	44	22	66	319	172	557				
92 FFG	22	7	29	136	25	190				
92 NR	41	0	41	1	1	43				
94 FFG	40	37	77	266	76	419				
94 NPFG	0	0	0	0	0	0				
94 BCFG	147	73	220	488	100	808				
94 NR	43	13	56	63	22(30)	276				
TOTAL	337	152	489	1273	396(135)	2293	26	12	38	31
2016										
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

2018 - JCR Evaluation Form

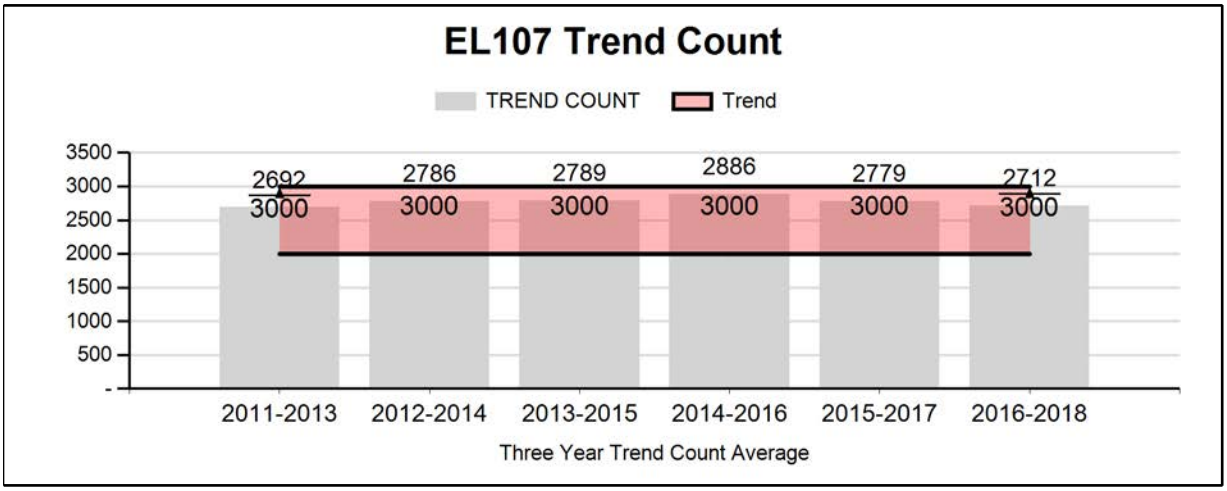
SPECIES: Elk
PERIOD: 6/1/2018 - 5/31/2019
HERD: EL107 - UPPER GREEN RIVER
HUNT AREAS: 93, 95-96
PREPARED BY: DEAN CLAUSE

	2013 - 2017 Average	2018	2019 Proposed
Trend Count:	2,798	2,512	2,500
Harvest:	444	366	425
Hunters:	1,275	1,207	1,250
Hunter Success:	35%	30%	34%
Active Licenses:	1,380	1,317	1,250
Active License Success	32%	28%	34%
Recreation Days:	11,204	11,321	11,200
Days Per Animal:	25.2	30.9	26.4
Males per 100 Females:	31	29	
Juveniles per 100 Females	33	30	

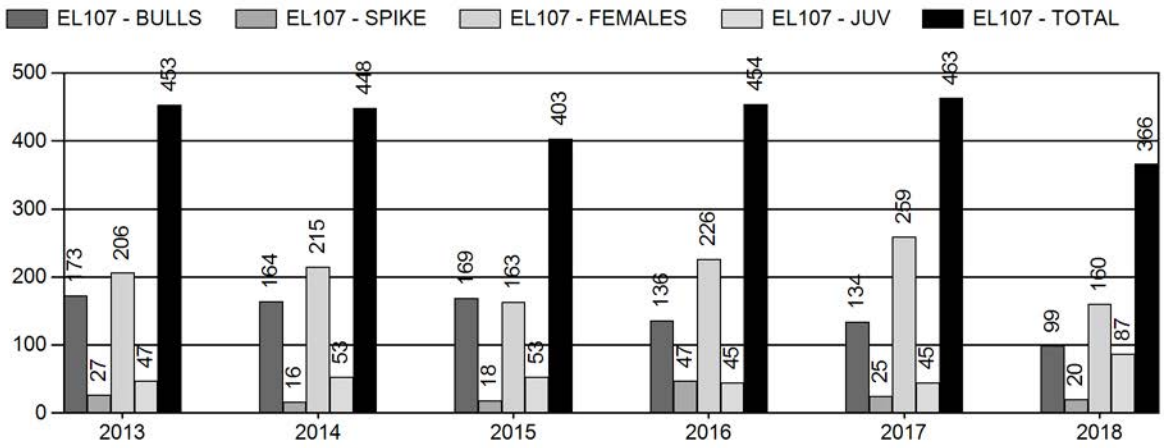
Trend Based Objective (± 20%)	2,500 (2000 - 3000)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	0%
Number of years population has been + or - objective in recent trend:	0

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

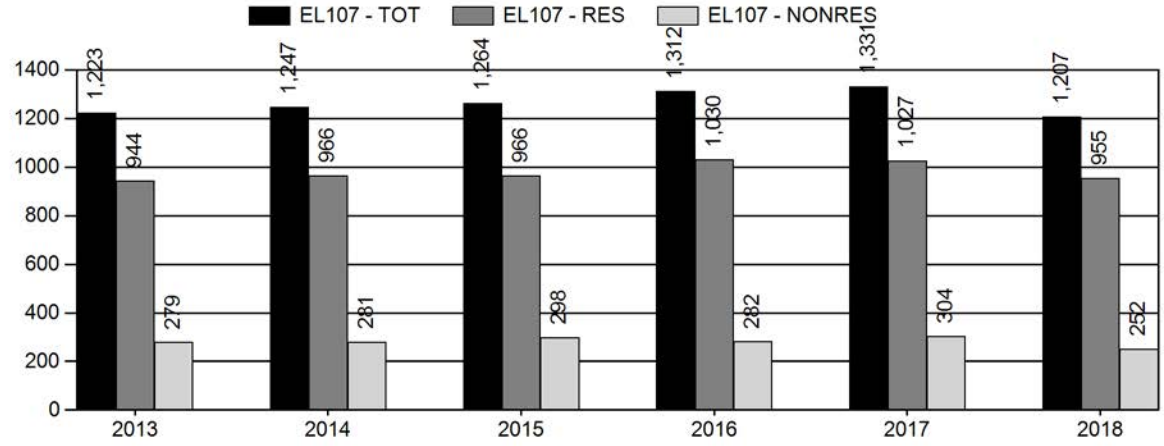
	JCR Year	Proposed
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



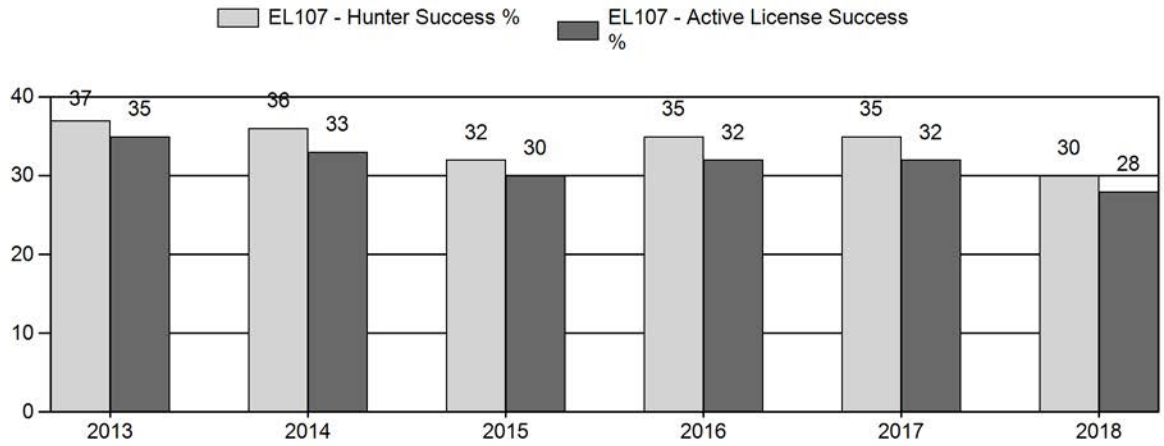
Harvest



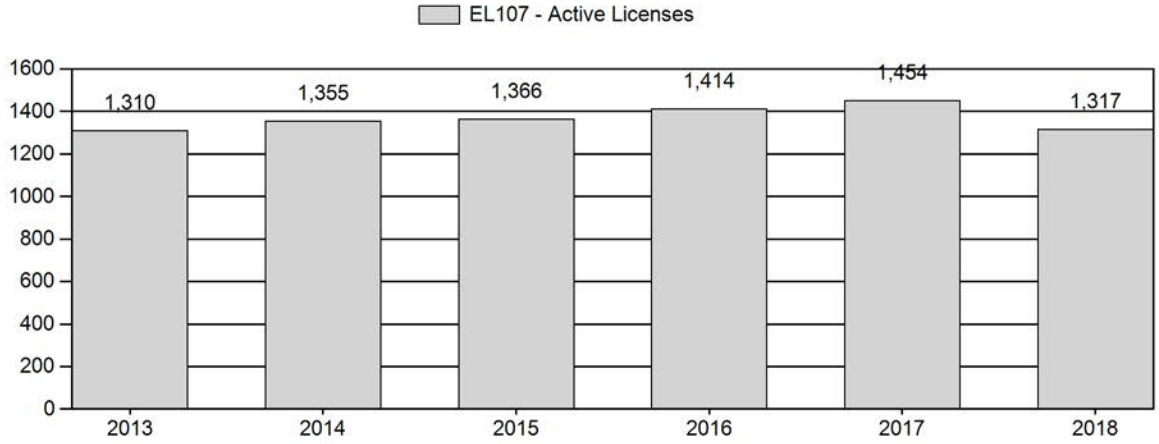
Number of Hunters



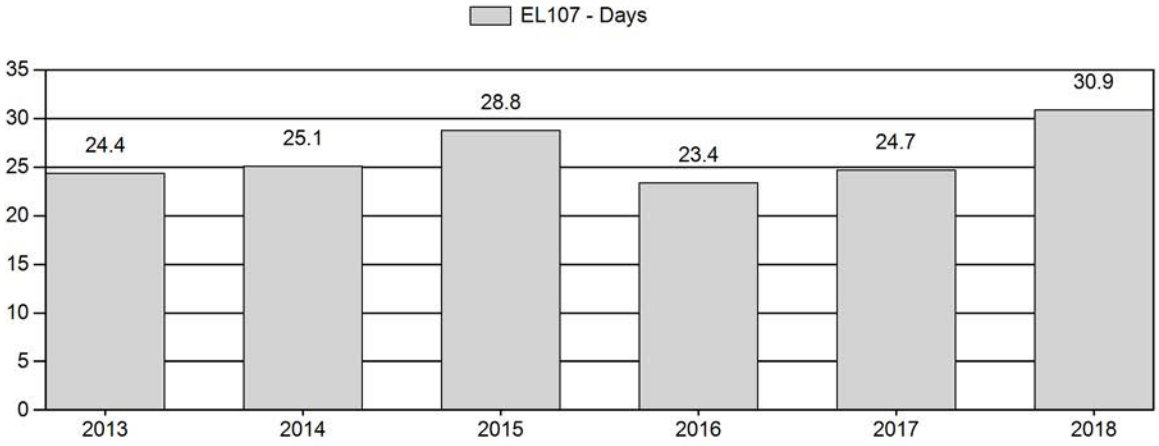
Harvest Success



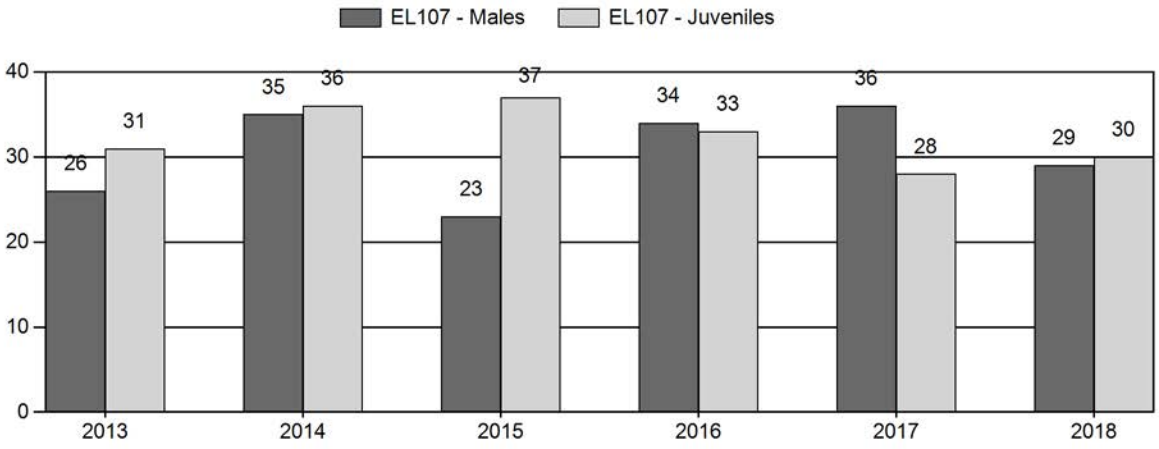
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL107 - UPPER GREEN RIVER

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	0	208	254	462	17%	1,777	64%	548	20%	2,787	364	12	14	26	± 0	31	± 0	24
2014	0	155	425	580	20%	1,676	58%	610	21%	2,866	478	9	25	35	± 0	36	± 0	27
2015	0	86	292	378	14%	1,649	63%	611	23%	2,638	401	5	18	23	± 0	37	± 0	30
2016	0	235	389	624	20%	1,840	60%	615	20%	3,079	406	13	21	34	± 0	33	± 0	25
2017	0	162	378	540	22%	1,503	61%	421	17%	2,464	401	11	25	36	± 0	28	± 0	21
2018	0	123	325	448	18%	1,562	63%	476	19%	2,486	349	8	21	29	± 0	30	± 0	24

2019 Seasons – Upper Green River Elk Herd Unit (E107)

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
93	1	Oct. 1	Oct. 31	175	Limited quota	Any elk
93	1	Nov. 1	Nov. 20			Antlerless elk
93	6	Oct. 1	Nov. 20	275	Limited quota	Cow or calf
95	1	Oct. 15	Nov. 5	200	Limited quota	Any elk
95	2	Oct. 1	Nov. 5	30	Limited quota	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	Oct. 15	Nov. 5	125	Limited quota	Antlerless elk
95	5	Oct. 1	Nov. 5	25	Limited quota	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	Oct. 15	Nov. 5	25	Limited quota	Cow or calf
96		Oct. 15	Oct. 31		General	Any elk
96	1	Oct. 1	Oct. 31	200	Limited quota	Any elk
96	1	Nov. 1	Nov. 30			Antlerless elk
96	6	Oct. 1	Nov. 30	275	Limited quota	Cow or calf
96	7	Dec. 1	Jan. 31	50	Limited quota	Cow or calf valid west of the elk fence and south of New Fork Lakes Road
Archery Seasons						
93, 95, 96		Sept. 1	Sept. 30			

Summary of Changes in License Numbers

Hunt Area	Type	Changes from 2018
96	7	+20
EL107 Totals		
96	**7**	**+20**

Management Evaluation

Current Mid-Winter Trend Count Management Objective: 2,500
Management Strategy: Recreational
2018 Trend Count: 2,512
Most Recent 3-year Running Average Trend Count: 2,712

The Green River Herd Unit encompasses approximately 837 square miles of occupied elk habitat, almost entirely within Sublette County. Hunt Area 93 (Waterdog Lakes), Area 95 (Green River), and Area 96 (New Fork) make up the Green River Herd Unit. This herd unit is managed under a mid-winter trend objective of 2,500 (± 20%) with a herd estimate derived from 3-year trend count average on feedgrounds and native range combined. This herd is managed under "recreational" management, with a management objective for a bull:100 cow ratio of 15 to 29 bulls:100 cows.

Herd Unit Issues

Managers believe a very high proportion (>90 %) of elk are typically counted in this herd unit and are located on feedgrounds during most winters. This is an extremely "leaky" herd unit and as a result, a population model has not been successfully developed. Large carnivores (wolves and grizzly bears) have reduced hunter participation in the northern portion of this herd unit, and are likely influencing elk productivity and survival. Lack of public access on private lands in Hunt Area 93 is limiting harvest and compromising female harvest goals within this herd. A large portion of occupied elk habitat in Hunt Area 96 lies within the Bridger Wilderness, limiting hunter accessibility, resulting in poor harvest rates on years with mild fall conditions when elk remain at higher elevations.

Weather

Three elk feedgrounds (Green River Lakes, Black Butte, and Soda Lake) are located within this herd unit to winter animals that otherwise would not be able survive the harsh winter conditions. Heavy snow loads typically make most native forage unavailable on most winters.

Habitat

Approximately 43 square miles of native winter range has been identified in this herd unit in the upper Green River drainage near Pinyon Ridge and Osborn Mountain where recent trends have documented fewer elk. Since a high proportion of the elk rely on supplemental feedgrounds within this herd unit, winter and other seasonal habitats do not limit population growth in this herd.

Field Data
The 2018 trend count was 2,512 elk, similar to 2017. Documented elk trends have shown an overall increasing trend from 2003-2016 with a decline in 2017 (Table 1). Snow conditions were well above normal throughout this herd unit during the 2016-17 winter, the 2017-18 winter conditions were below normal, and 2018-19 winter has shown average snow conditions. 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.

Table 1. Trend Counts in the Upper Green River Herd Unit, 2009-2018.

Location	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Green River Lakes F.G	0	606	532	572	627	630	675	667	515	626
Black Butte F.G	959	405	751	847	475	477	750	904	553	580
Soda Lake F.G.	0	1417	1144	1103	1492	1663	1017	1478	1144	1179
N.W.R.	1344	71	155	184	193	96	271	30	332	127
Herd Unit Total	**2303**	**2499**	**2582**	**2706**	**2787**	**2866**	**2713**	**3079**	**2544**	**2512**

Composition counts during 2018 revealed a bull:cow:calf ratio of 29:100:30. The 2018 documented bull:cow ratio and the calf:cow ratio was lower compared to the 5-year average of 31:100:33. The recent bull ratios have been at the upper management objective in recent years, attributed to lower bull harvest the past two years.

Harvest Data
The 2018 harvest report indicated total elk harvest of approximately 360 elk (120 bulls and 240 cows/calves), 100 elk lower than the 2017 harvest of 460 (160 bulls and 300 cows/calves). During 2018, 28% of the hunters were successful in harvesting an elk, lower than the past 5-year average success of 32%. The 2018 hunter effort of 31 days/harvest was higher than the 5-year average of 25 days/harvest. The low 2018 harvest is attributed to mild weather resulting in tough hunting conditions. License quotas and seasons in 2014-2016, along with total harvest rates, have remained similar, while the 2017 and 2018 season allowed more opportunity for antlerless elk harvest in Area 96.

Population
Since 2012 a mid-winter trend count has been utilized to manage this herd unit instead of hand-derived population model estimates. This is an extremely “leaky” herd unit and as a result, a functional computer simulation model has never been developed. The mid-winter trend objective for this herd is 2,500 elk (± 20%). The 2016-2018 3-year trend average is 2,712 elk, which is within this herd objective.

Disease
Periodic outbreaks of *Fusobaterium necrophorum*, the bacterium responsible for foot rot and necrotic stomatitis, have been documented in this herd, primarily at the Soda Lake feedground. Foot rot is a term used for infection of the bacteria when it enters cuts and other openings around the hooves; necrotic stomatitis is the descriptive term for infection of the same bacteria in the mouth. The bacteria are part of the normal microbiome of elk, and the disease is not uncommon to feedgrounds in west central Wyoming, with occasional outbreaks documented when certain

winter and spring conditions increase the prevalence of the disease. Conditions with above average snowfall and above average temperatures create wet conditions causing the anaerobic bacteria to thrive and potentially result in infections. Crowding, poor feed dispersal and fecal accumulations facilitate infections. Freeze and thaw cycles during these winter conditions cause crusted snow and jagged ice, resulting in a higher than normal abrasions and opportunities for bacterial infections. The weakened condition of elk with this disease also makes animals more susceptible to predation as several wolf documented elk mortalities have been recorded, and infestation of parasites (ticks) have also been documented. Elk (mainly calves) losses on the Soda Lake feedground were estimated around 160 elk during the 2014 -2015 feeding season. Minimal elk losses from foot rot or necrotic stomatitis have been documented during the past few feeding seasons.

Management Summary

Overall, the data collected annually in this herd unit has indicated a slow population increase from 2003-2016 with a decline in 2017 and stabilization in 2018. The current trend count of 2,512 at the management objective for this herd unit, which can partially be attributed to increased cow/calf harvest during 2016 and 2017. The 2009-2018 seasons were designed to increase antlerless harvest which has been somewhat successful at achieving that goal. Hunter participation has declined in portions of this herd unit, specifically the northern portions of Areas 93 and 95. Limited access onto or through private lands in portions of Areas 93 and 96 has also compromised harvest goals within this herd unit. Predation from wolves and bears and recent disease outbreaks (necrotic stomatitis) have contributed to slow population growth in recent years. Wolf predation is common near feedgrounds and surrounding native winter ranges in this herd unit.

The 2019 seasons for the Upper Green River Herd Unit are to maintain similar seasons as in 2018, except for a slight increase in harvest opportunities on antlerless in Hunt Area 96 on private lands. The same Oct. 1-Nov. 20 seasons and limited quotas licenses (175 Type 1 and 275 Type 6) will be available in Hunt Area 93.

In Hunt Area 95, the season length (Oct. 15-Nov. 5) for Type 1, 4, and 6 limited quota licenses will remain the same. A total of 200 Type 1, 125 Type 4 and 25 Type 6 licenses will again be available in 2019. The season (Oct. 1-Nov. 5) and limited quota licenses (30 Type 2 and 25 Type 5) will remain the same, limited to a portion of the Hunt Area.

The General “any” elk season in Hunt Area 96 will be Oct. 15-31. Limited quota Hunt Area 96 licenses will remain the same for Type 1 (n=200) and Type 6 licenses (n=275) with an Oct. 1-Nov. 30 season, antleress harvest only in November. The Type 7 licenses will increase to 50 (+20), valid off Forest, south of New Fork Lake Road and west of the Soda Lake elk fence from Dec. 1-Jan. 31 to address damage and livestock co-mingling on private lands.

A projected harvest of 425 elk (175 bulls, 250 cows/calves) for 2019 should result in a post season trend count of approximately 2,500 elk.

2018 - JCR Evaluation Form

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

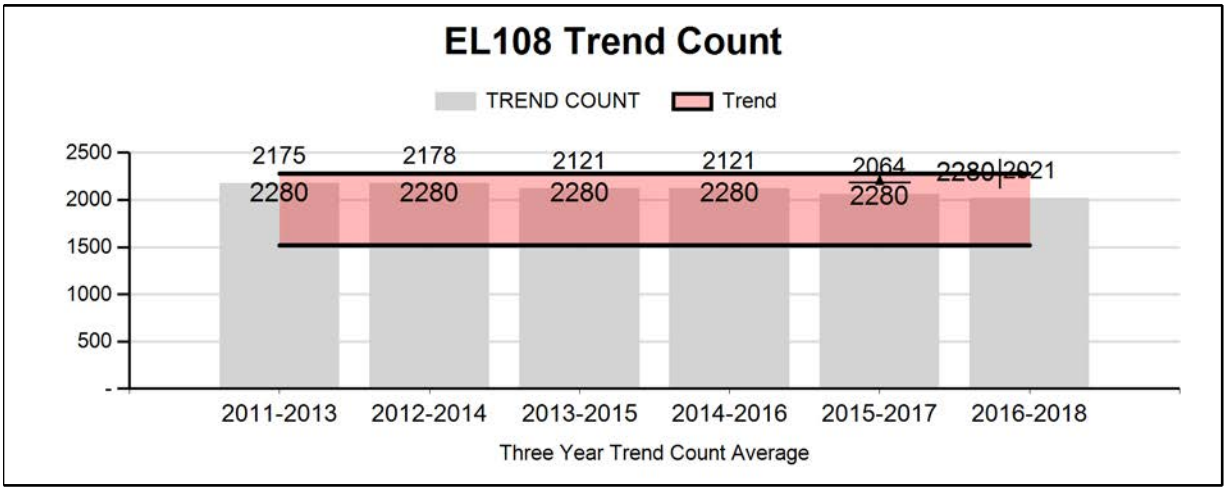
PERIOD: 6/1/2018 - 5/31/2019
PREPARED BY: DEAN CLAUSE

	2013 - 2017 Average	2018	2019 Proposed
Trend Count:	2,094	1,954	2,000
Harvest:	529	461	500
Hunters:	1,605	1,472	1,500
Hunter Success:	33%	31%	33 %
Active Licenses:	1,684	1,556	1,500
Active License Success	31%	30%	33 %
Recreation Days:	11,497	10,479	10,500
Days Per Animal:	21.7	22.7	21
Males per 100 Females:	22	23	
Juveniles per 100 Females	28	30	

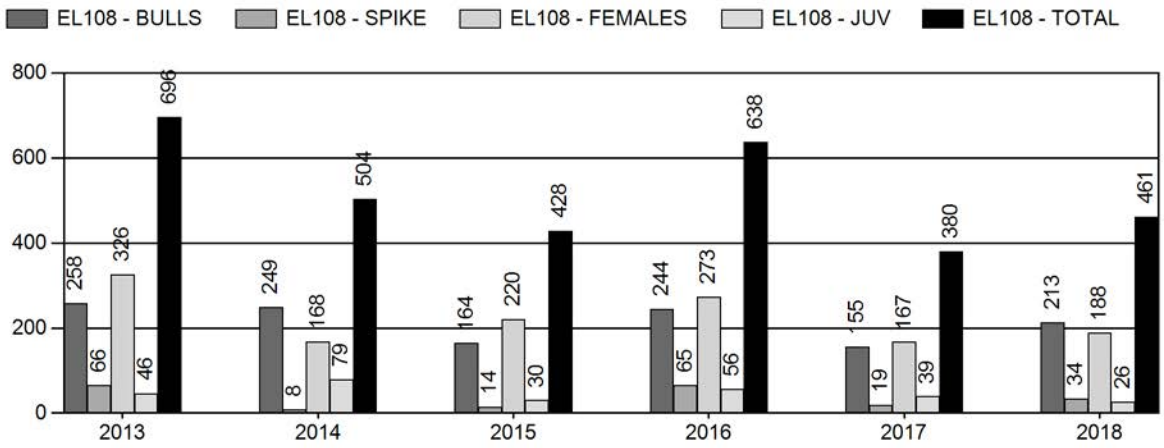
Trend Based Objective (± 20%)	1,900 (1520 - 2280)
Management Strategy:	Recreational
Percent population is above (+) or (-) objective:	3%
Number of years population has been + or - objective in recent trend:	0

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

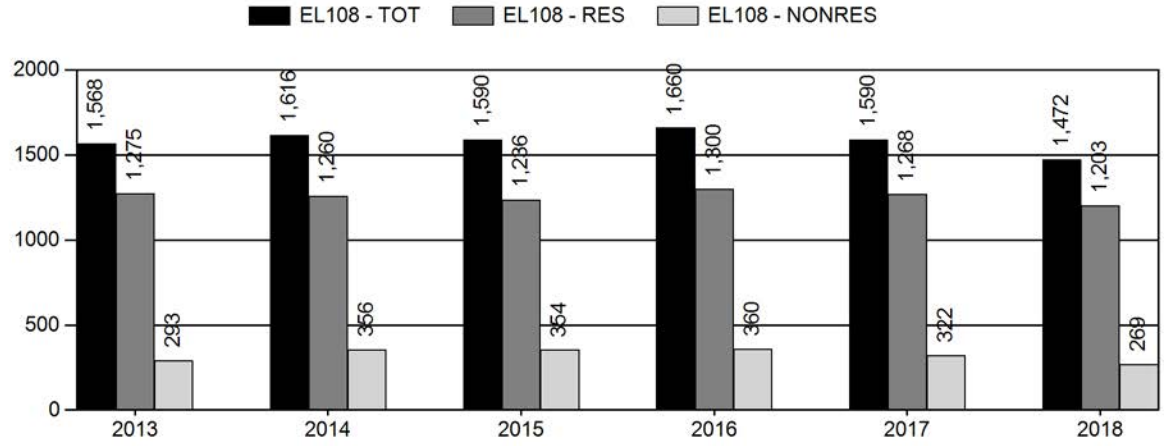
	JCR Year	Proposed
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



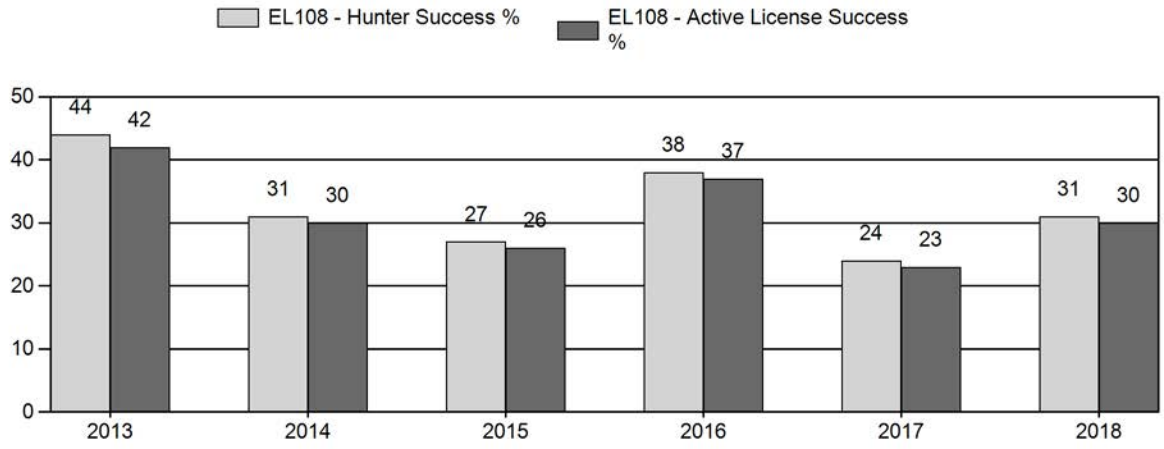
Harvest



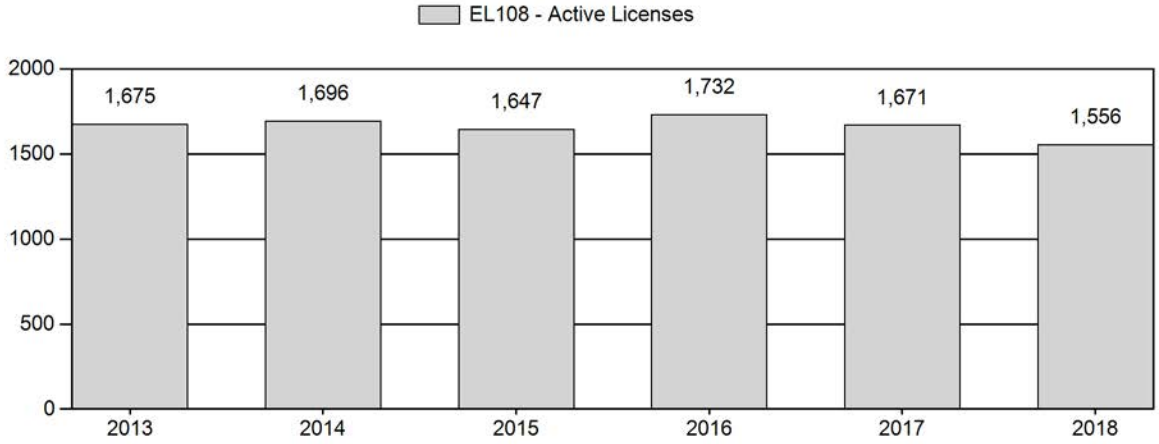
Number of Hunters



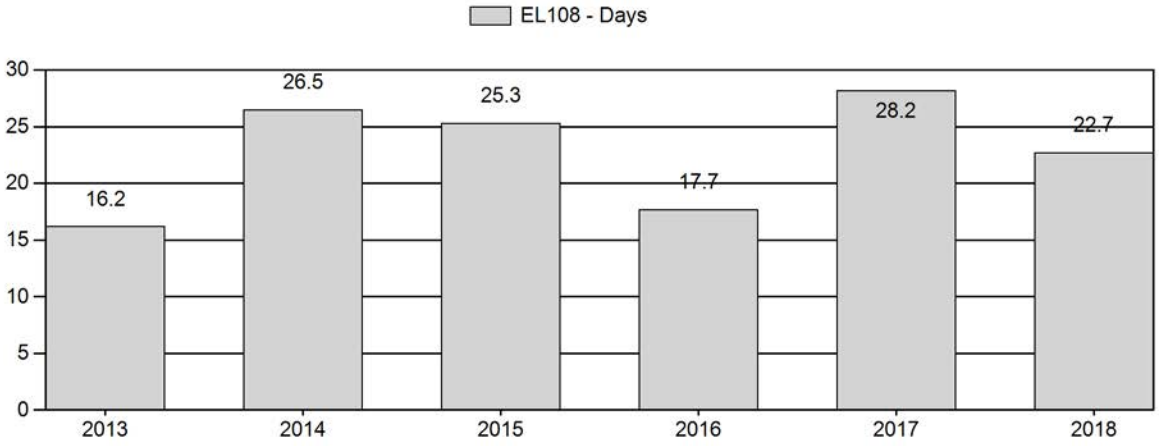
Harvest Success



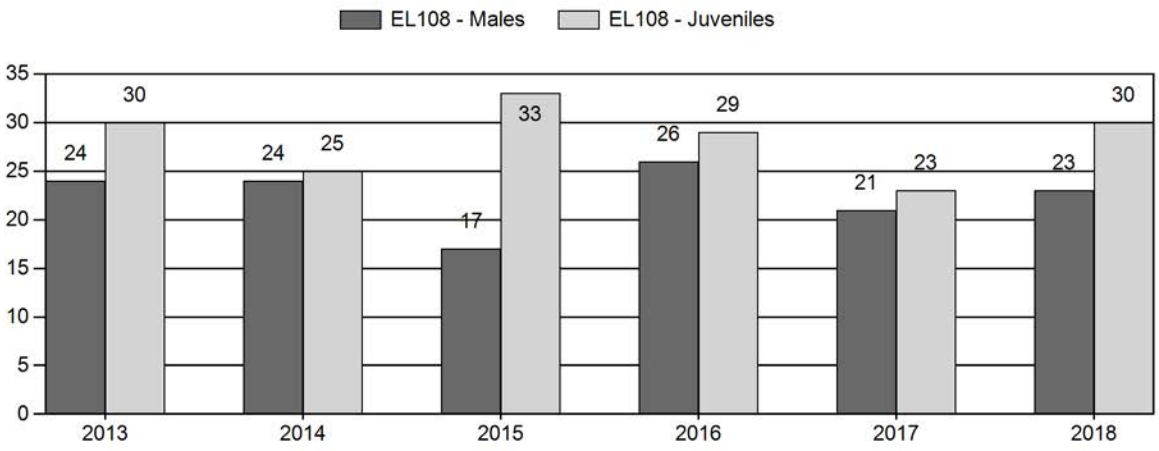
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL108 - PINEDALE

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	0	158	174	332	16%	1,383	65%	418	20%	2,133	334	11	13	24	± 0	30	± 0	24
2014	0	133	207	340	16%	1,429	67%	356	17%	2,125	260	9	14	24	± 0	25	± 0	20
2015	0	77	165	242	12%	1,386	67%	453	22%	2,081	333	6	12	17	± 0	33	± 0	28
2016	0	159	199	358	17%	1,375	64%	400	19%	2,133	335	12	14	26	± 0	29	± 0	23
2017	0	87	201	288	15%	1,378	70%	311	16%	1,977	319	6	15	21	± 0	23	± 0	19
2018	0	91	188	279	15%	1,235	66%	370	20%	1,884	326	7	15	23	± 0	30	± 0	24

2019 Seasons – Pinedale Elk Herd Unit (EL108)

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
97		Oct. 1	Oct. 15		General	Any elk
97		Oct. 16	Nov. 12			Antlerless elk
97	1	Sept. 20	Oct. 31	225	Limited quota	Any elk
97	1	Nov. 1	Nov. 20			Antlerless elk
97	6	Sept. 20	Nov. 20	150	Limited quota	Cow or calf elk
98		Oct. 1	Oct. 15		General	Any elk
98		Oct. 16	Nov. 12			Antlerless elk
98	1	Sept. 20	Oct. 31	350	Limited quota	Any elk
98		Nov. 1	Nov. 20			Antlerless elk
98	4	Sept. 20	Nov. 20	75	Limited quota	Antlerless elk
98	6	Sept. 20	Nov. 20	300	Limited quota	Cow or calf elk
98	1,4,6	Nov. 21	Jan. 31			Unused Area 98 Type 1, Type 4, and Type 6 licenses valid for antlerless elk in that portion of Area 98 between the Scab Creek and the East Fork River
Archery Seasons						
97,98		Sept. 1	Sept. 19			Refer to Section 3

Summary of Changes in License Numbers

Area	Type	Changes from 2018
		No Changes
EL107 Totals		
		No Changes

Management Evaluation
Current Mid-Winter Trend Count Management Objective: 1,900
Management Strategy: Recreational
2018 Trend Count: 1,954
Most Recent 3-year Running Average Trend Count: 2,021

The Pinedale Herd Unit encompasses approximately 2,474 square miles of which only 522 square miles are considered occupied elk habitat. Only a small portion of this herd unit is located in Sweetwater County, while the majority lies in Sublette County. Hunt Area 97 (Pinedale) and Area 98 (Boulder) make up the Pinedale Herd Unit. This herd unit is managed under a mid-winter trend objective of 1,900 (± 20%) with the herd estimate derived from the 3-year trend count of elk on feedgrounds and native ranges combined. This herd is managed under "recreational" management.

Herd Unit Issues
Managers believe a very high proportion (>90%) of elk are typically counted in this herd unit and are located on 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 Unit) 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. Hunting opportunities for self-guided non-resident sportsmen is limited because non-residents are required by law to have a licensed guide or outfitter while hunting in designated Wilderness areas. Lack of public access on private lands in Hunt Area 98 along Scab and Silver Creeks provides a refuge for elk, limiting antlerless harvest and compromising the ability to achieve harvest goals.

Weather
Three elk feedgrounds (Fall Creek, Scab Creek and Muddy Creek) are located within this herd unit to winter animals that otherwise would not be able survive the harsh winter conditions. Feedgrounds also reduce depredation to stored hay and reduce risk of disease transmission to livestock (primarily brucellosis).

Habitat
Roughly 32 square miles of crucial native winter range has been identified in this herd unit, wintering approximately 100-150 elk. Since over 90% of the elk appear to rely on supplemental feeding (feedgrounds) within this herd unit, winter and other seasonal habitats do not limit population growth in this herd.

Field Data
The 2018 elk trend count of 1,954 was lower than trend counts during 2011-2016 and similar to 2017 (Table 1). As with most years, greater than 90% of the trend count came from elk on feedgrounds. Normal snow levels and average temperatures were experienced during this 2018-19 winter. Lower 2017 and 2018 winter counts can be attributed to higher female harvest in 2015 and 2016, along with elk removal activities from private property during the 2016-17 winter. With very heavy snow accumulations during the 2016-17 winter, roughly 200+ elk stayed in the

Cottonwood and Pocket Creek areas (Hunt Area 98) throughout December of 2016 and January 2017, where a late hunting season was in place to discourage elk and cattle co-mingling. It appeared as snow accumulation increased these elk were somewhat trapped and possibly accustomed to wintering in this area due to the two previous mild winters. Repeated ground efforts to move these elk to adjacent feedgrounds failed, but eventually 100 elk were moved to the Muddy Creek feedground with the use of a helicopter resulting in higher elk numbers at Muddy feedground and fewer elk at Scab feedground in 2016 (Table 1).

Table 1. Herd Composition Counts in the Pinedale Elk Herd Unit, 2009-2018

Location	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Fall Creek F.G	0	554	655	675	660	704	656	828	610	641
Scab Creek F.G	600	780	806	912	727	850	668	553	769	700
Muddy Creek F.G.	422	467	557	522	499	488	571	643	479	479
N.W.R.	766	161	120	144	247	106	186	109	119	134
Herd Unit Total	**1788**	**1962**	**2138**	**2253**	**2133**	**2148**	**2081**	**2133**	**1977**	**1954**

Herd composition counts in 2018 documented a bull:cow:calf ratio of 23:100:30, which is similar to the previous 5-year average of 22:100:28 and within the management objective for this herd.

Harvest Data

With the termination of the 5-year Test and Removal Pilot Project after the 2009-10 winter, seasons were modified in 2010 to increase female harvest opportunities. Type 4 and Type 6 licenses were added, and general license hunters were allowed to harvest "any" elk instead of "antlered" elk. Since 2010, seasons have been designed to incrementally increase antlerless harvest, and starting in 2013 bull harvest opportunities have been shortened. The 2018 harvest survey reported approximately 460 total elk harvested (250 bulls and 210 cows/calves), higher from the reported harvest of 380 elk in 2017 and lower than the 642 elk reported being harvested in 2016. Although mild weather persisted during most of the 2018 season, harvest was somewhat average compared to lower harvest rates reported in surrounding elk herds. Hunter success remained similar to the 5-year average of 31% while hunter effort increased slightly to 23 days/harvest.

Population

Beginning in 2012, a mid-winter trend count has been utilized to manage this herd unit instead of a hand-derived population model estimates. This is a somewhat "leaky" herd unit and a functional simulation model has not been developed, which may explain the high bull harvest annually reported in this herd unit. The mid-winter trend objective for this herd is 1,900 elk (± 20%). The 2016-2018 3-year trend average is 2,021 elk, which is within the herd objective.

Management Summary

Trend counts in this herd unit indicate elk declined from 2004-2007, recovered during 2008, stabilized in 2009 and 2010, increased in 2011 and 2012, stabilized somewhat from 2013-2016, declined in 2017, and stabilized in 2018. Recent counts indicate bull:cow:calf ratios are adequate, although the bull ratio can vary considerably based on annual harvest rates due to liberal bull seasons within this herd unit. The bull harvest annually reported for this herd is

questionable. Managers are confident that most elk are classified each year, yet reported bull harvest ranges from 50% to 60% of the total classified on most years. Documented elk numbers in 2018 are currently within the management objectives. Female harvest rates are very dependent on weather and forage availability to move elk to lower elevations by late October as road access is limited at higher elevations due to Wilderness designations.

The harvest objectives for the 2019 seasons are similar to 2018. Limited quota Type 1 licenses in Hunt Area 97 will remain at 225 from Sept. 20-Nov. 20, valid for antlerless elk from Nov. 1-Nov. 20. Type 6 licenses will remain at 150, valid from Sept. 20-Nov. 20 for antlerless elk.

In Hunt Area 98, the quota for Type 1 licenses will remain at 350 with a Sept. 20-Nov. 20 season, valid for antlerless elk from Nov. 1-Nov. 20. Limited quota Type 4 licenses will remain at 75 and Type 6 licenses will remain at 300 with a Sept. 20-Nov. 20 season. Similar to past years, antlerless harvest opportunities will be provided for unused limited quota licenses (Type 1, 4, and 6) from Nov. 21-Jan. 31 between Scab Creek and the East Fork River to address damage and cattle co-mingling issues.

General license seasons in both Hunt Areas 97 and 98 will have a closing date similar to 2018 and align with other general license seasons closure dates within the region. The general license season in Hunt Areas 97 and 98 will be Oct.1-Oct. 15 valid for “any” elk as in past years and Oct. 16-Nov. 12 for “antlerless” elk.

A harvest of approximately 250 bulls, 250 cow/calves (500 total elk) during 2019 is anticipated with average fall weather. This season should result in a postseason 2019 trend count estimate of approximately 1,900 elk.

2018 - JCR Evaluation Form

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

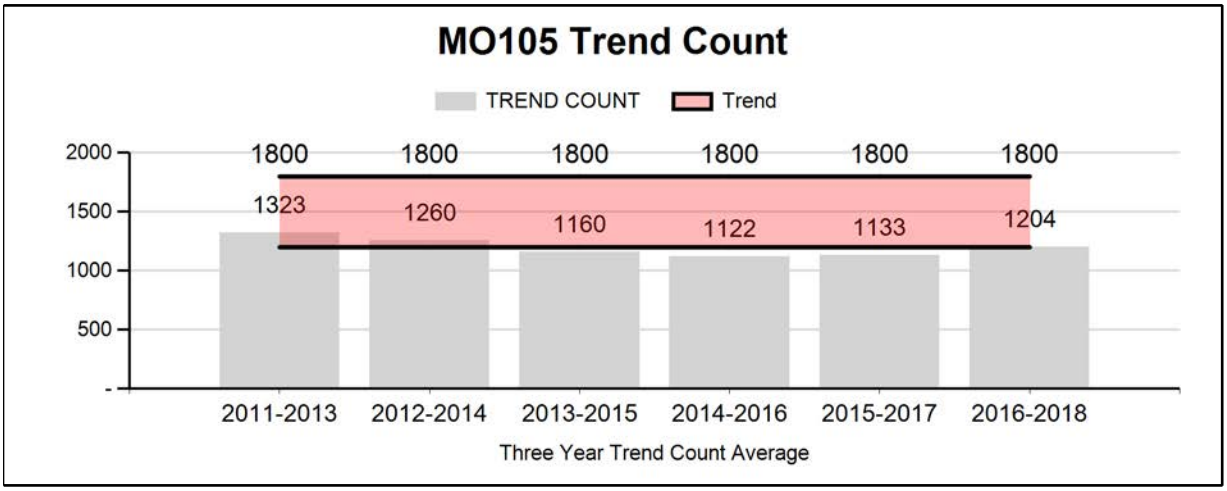
PERIOD: 6/1/2018 - 5/31/2019
PREPARED BY: DEAN CLAUSE

	2013 - 2017 Average	2018	2019 Proposed
Trend Count:	1,176	1,210	1,300
Harvest:	192	136	140
Hunters:	212	155	155
Hunter Success:	91%	88%	90%
Active Licenses:	212	155	155
Active License Success	91%	88%	90%
Recreation Days:	1,707	1,067	1,070
Days Per Animal:	8.9	7.8	7.6
Males per 100 Females:	69	73	
Juveniles per 100 Females	41	52	

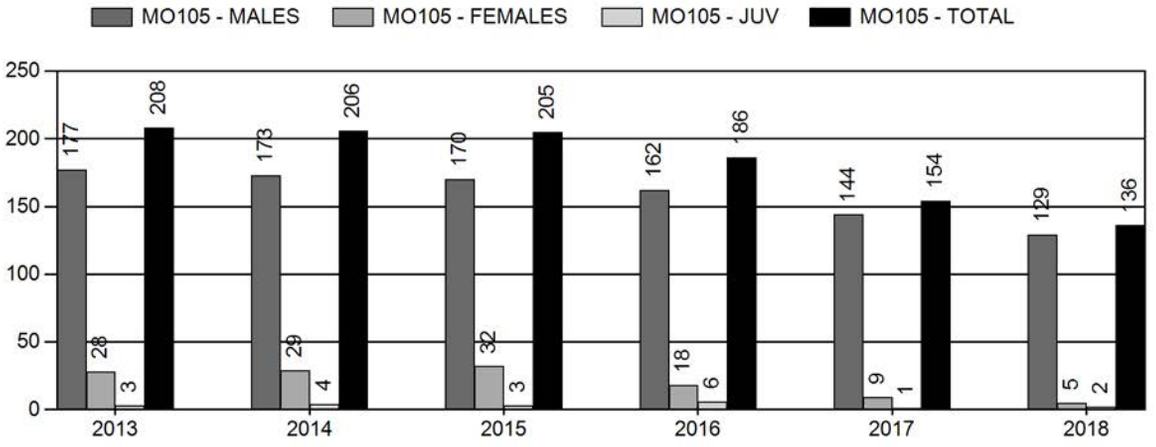
Trend Based Objective (± 20%)	1,500 (1200 - 1800)
Management Strategy:	Special
Percent population is above (+) or (-) objective:	-19.3%
Number of years population has been + or - objective in recent trend:	2

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

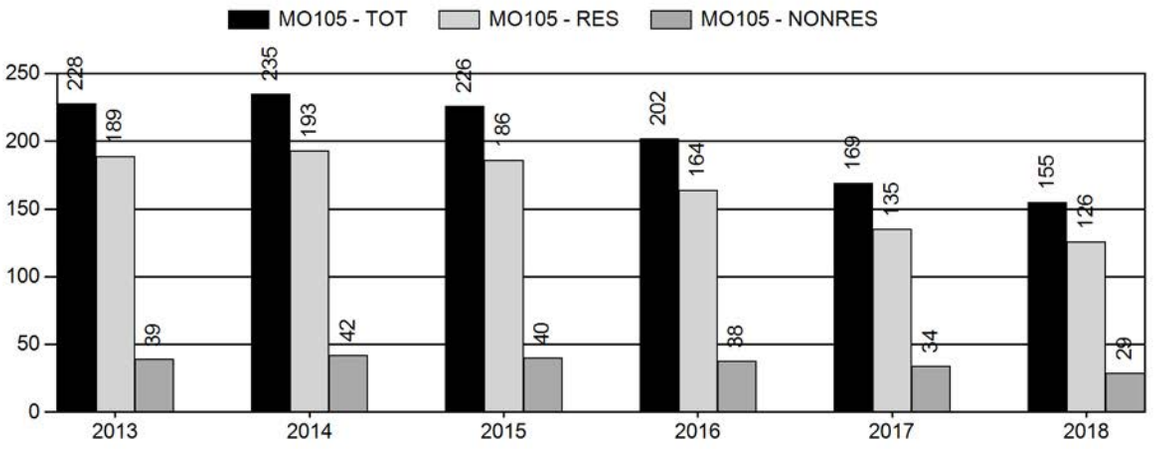
	JCR Year	Proposed
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%



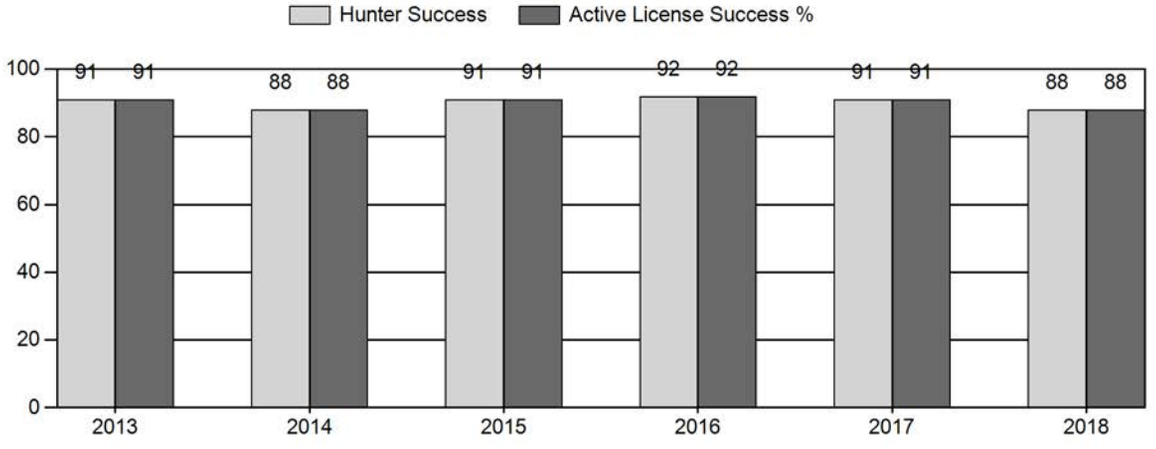
Harvest



Number of Active Licenses



Harvest Success



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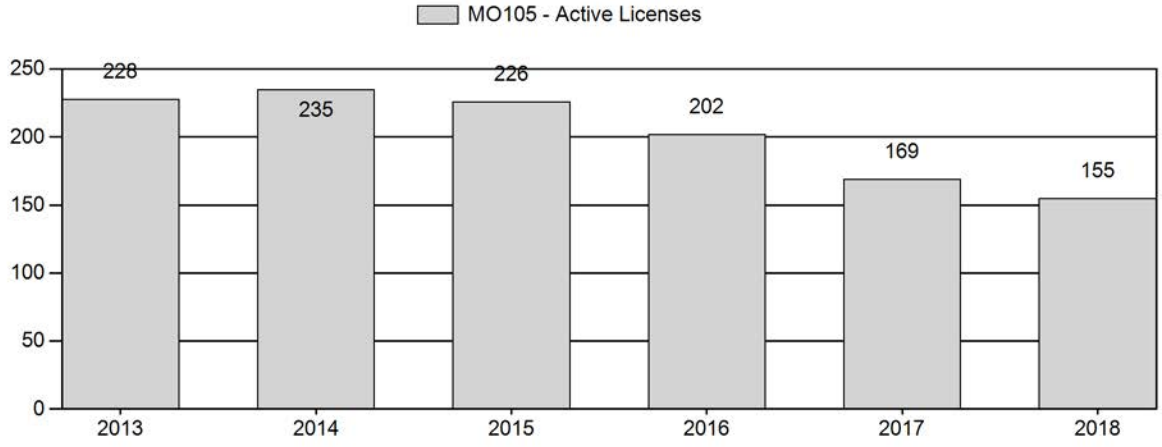
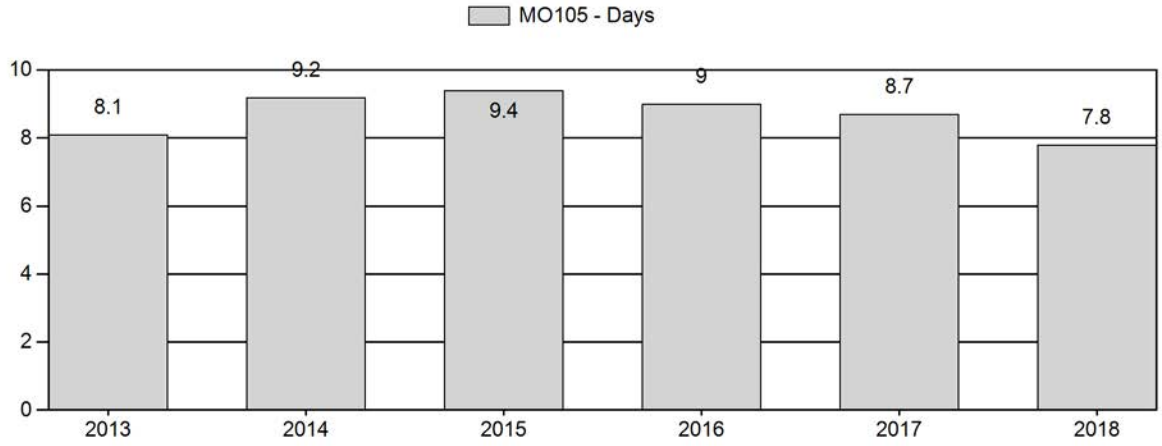
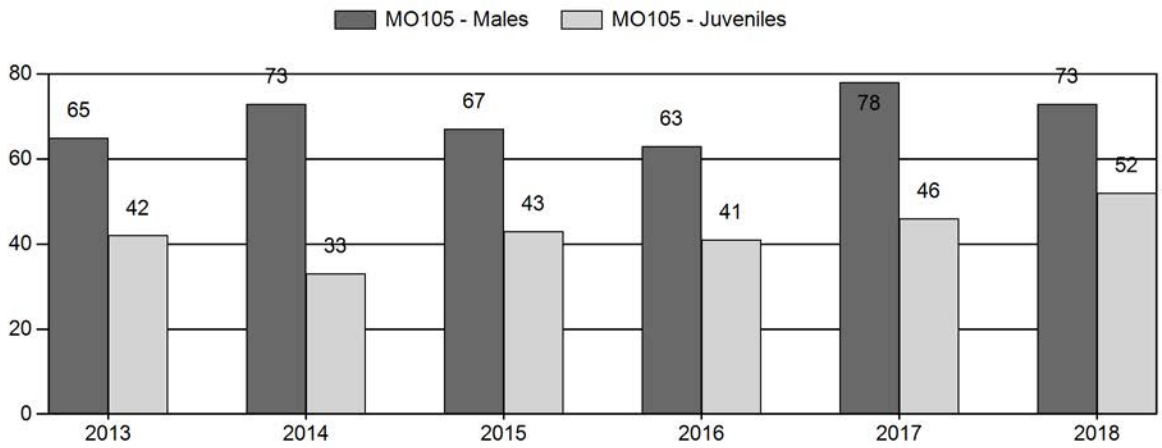


Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Moose Herd MO105 - SUBLETTE

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	0	0	435	436	31%	669	48%	282	20%	1,387	909	0	65	65	± 0	42	± 0	26
2014	0	0	380	380	35%	518	48%	173	16%	1,071	800	0	73	73	± 0	33	± 0	19
2015	0	0	314	314	32%	469	48%	202	21%	985	886	0	67	67	± 0	43	± 0	26
2016	0	0	390	390	31%	620	49%	255	20%	1,265	830	0	63	63	± 0	41	± 0	25
2017	0	0	379	379	35%	485	45%	224	21%	1,088	730	0	78	78	± 0	46	± 0	26
2018	0	0	391	391	33%	533	44%	275	23%	1,199	687	0	73	73	± 0	52	± 0	30

2019 Seasons – Sublette Moose Herd Unit (MO105)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
3	1	Sep. 20	Oct. 31	5	Limited quota	Antlered moose, also valid in Area 4
4	1	Sep. 20	Oct. 31	10	Limited quota	Antlered moose, also valid in Area 3
4	4	Sep. 20	Oct. 31	5	Limited quota	Antlerless moose, except cow moose with calf at side
5	1	Oct. 1	Oct. 31	25	Limited quota	Antlered moose
10	1	Sep. 15	Oct. 31	8	Limited quota	Antlered moose (7 resident and 1 non-resident licenses)
20	1	Sep. 15	Oct. 31	15	Limited quota	Antlered moose
21	1	Sep. 15	Oct. 31	2	Limited quota	Antlered moose (1 resident and 1 non-resident licenses)
22	1	Oct. 1	Oct. 31	5	Limited quota	Antlered moose
23	1	Sep. 15	Oct. 31	15	Limited quota	Antlered moose
24	1	Sep. 15	Oct. 31	20	Limited quota	Antlered moose
25	1	Oct. 1	Oct. 31	45	Limited quota	Antlered moose
25	4	Oct. 1	Oct. 31	5	Limited quota	Antlerless moose, except cow moose with calf at side
Archery Seasons						
3, 4		Sept. 1	Sept. 19			Refer to Section 3
5, 22, 25		Sept. 1	Sept. 30			Refer to Section 3
10, 20, 21, 23, 24		Sept. 1	Sept. 14			Refer to Section 3

Summary of Changes in License Numbers

Hunt Area	License Type	Quota Changes from 2018
		No Changes
MO105 Totals		**No Changes**

Management Evaluation

Current Mid-Winter Trend Count Management Objective: 1,500
Management Strategy: Special
2018 Trend Count: 1,210
Most Recent 3-year Running Average Trend Count: 1,204

The Sublette Moose Herd Unit encompasses approximately 3,306 square miles of occupied moose habitat that lies within portions of Lincoln, Sublette, and Teton Counties. The Wyoming Range and Salt River Range Mountains, along with a portion of the Wind River and Gros Ventre Mountains lie within this herd unit. A total of 10 Hunt Areas (Areas 3, 4, 5, 10, 20, 21, 22, 23, 24, & 25) make up the Sublette Herd Unit. A mid-winter trend objective of 1,500 (±20%) moose is the management objective for this herd unit. This herd unit is also under a "special" management strategy to maintain an average harvest age of 4 years for bulls as a measure to maintain "trophy" harvest opportunities.

Herd Unit Issues

Undetermined moose deaths have been documented within this herd unit during past years. The significance of these 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 and low 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.

Weather

Although winter snow accumulations influence winter counting conditions as trend data increase on low elevation ranges during winters with above average snow depths, little is known about the other affects climate has on this moose herd. Recent weather trends have been drier and warmer, with sporadic periods of harsh winter conditions. The 2014-15, 2015-16, and 2017-18 winters had below normal snow levels at lower basin elevations, while the 2016-17 winter experienced above average snow accumulations throughout the herd unit. The 2018-19 winter appears to represent average snow accumulations as of late February.

Habitat

The main plant community associations in this herd unit are willow, sagebrush, mixed shrub, aspen, conifer, and alpine communities from low to high elevations (6,500 to 12,500 feet). Moose in this herd unit can be found on both private lands and public land managed by the U.S. Forest Service and Bureau of Land Management (BLM) throughout the year. During the winter, most moose migrate to lower elevation willow riparian, aspen, or mixed shrub dominated habitats associated with lower elevations. Roughly 700 square miles of native winter range have been identified in this herd unit, which encompasses all types of land ownership (private, public, and state trust land).

Field Data

The 2018 postseason counts resulted in more moose observed compared to 2017 postseason classification surveys (Table 1). Snow accumulations were average at the time of this survey and for the 2018-19 winter. Snow conditions were well above average during the 2016-17 winter resulting in more moose counted compared the 2014, 2015, and 2017 counts where snow accumulations were below normal (Table 1). High concentrations of moose at lower elevations (Areas 4 and 25), and fewer moose at higher elevation habitats is typical during winter surveys on all years, although trend counts are still influenced by winter snow depths. On heavy snow years, moose vacate higher elevation forested habitats where observability is limited and move to lower elevation willow habitats. Budgeted survey time limits the coverage of forested habitats, concentrating survey efforts to lower elevation habitats where moose congregate and observability is good. Overall, trend counts indicate this moose herd has been relatively stable during the past several years, although lower since 2013.

Table 1. Trend counts by Hunt Area for the Sublette Moose Herd Unit, 2009-2018.

Hunt Area	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
3	56	18	38	21	24	22	32	20	26	10
4	212	261	320	319	346	224	235	366	280	314
5	48	100	44	82	79	34	73	33	65	47
10	13	10	8	4	0	10	31	16	19	36
20	10	16	28	13	32	65	49	36	60	35
21	4	30	23	18	11	7	17	23	1	11
22	30	23	27	49	47	17	13	2	11	2
23	60	46	26	52	55	37	32	17	32	16
24	0	0	0	0	0	0	0	0	0	0
25	503	679	754	742	806	664	517	774	620	739
Total	**936**	**1183**	**1268**	**1300**	**1400**	**1080**	**999**	**1287**	**1114**	**1210**

Postseason classification surveys for 2018 produced a bull:100 cow ratio of 73:100, lower than 2017 but higher than the previous 5-year average of 69:100. During the previous 5-year period the observed bull:cow ratio has ranged from 63:100 to 78:100. The 2018 calf:100 cow ratio of 52:100 is higher than 2017, the 5-year average of 41:100, and any year during the past 25 years. The previous 5-year calf:cow ratio ranged from 33:100 to 46:100.

Harvest Data

A total of 136 moose (129 bulls and 7 cows/calves) were harvested in 2018. Harvest has continued to decline annually, as managers continue to make adjustments in licenses quotas. The total number of licenses issued declined from 630 in 2002, to 160 in 2018, a total decrease of 460 (74%). These reductions by license type since 2002 equates to declines of 96% (230 to 10) cow/calf (Type 4) licenses and 63% (400 to 150) bull (Type 1) licenses. Compared to the previous 5-year averages, hunter success was slightly lower at 88% along with lower hunter effort at 7.8 days per animal harvested in 2018.

A total of 97 teeth representing approximately 71% of the reported 2018 harvest were aged using cementum annuli analysis. The 2018 tooth age results from the WGFD lab showed an average

age of 4.7 (median age = 4.0) derived from 71% of reported harvest for bulls and an average age of 4.8 (median age = 4.5) derived from 86% of reported harvest for cows. Average age of harvest for bulls has remained relatively similar at approximately 4.0 years during the past 10+ years (Figure 1). The low sample sizes used to derive female ages in recent years results in erratic and unreliable trends (Figure 1).

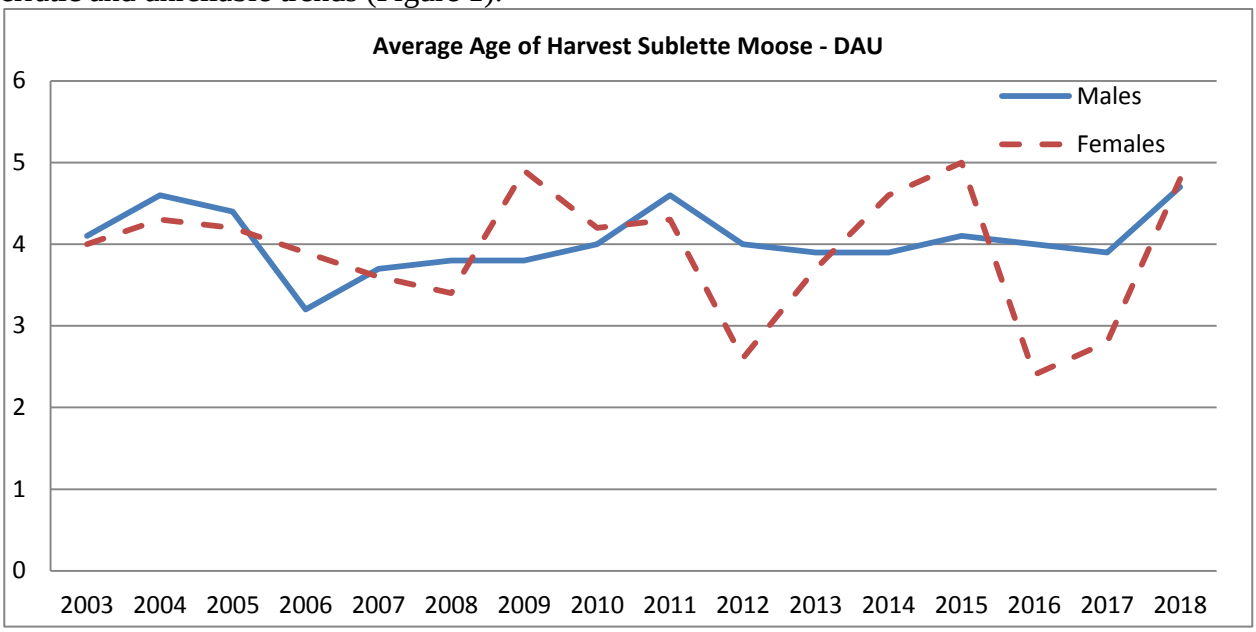


Figure 1. Average age of harvested male and female moose, Sublette Herd Unit, 2003-2018.

An average antler width of 37 inches for bull moose was reported in this herd during 2018, derived from 58% of successful moose hunters that submitted antler information with tooth collections.

Population

Starting in 2013, a mid-winter trend count was approved as the management objective for this herd unit instead post-hunt population estimates. The mid-winter trend objective for this herd is 1,500 moose (± 20%). The 2018 mid-winter trend count was 1,210 moose and the most recent 3-year average (2016-2018) trend is 1,204 moose.

Past population modeling efforts for this herd have typically produced estimates higher, usually ~75% higher, than what annual trend counts document. Maintaining comparable classification survey efforts (flight time) compared to past years will provide managers a reliable data set that will reflect population trends in this herd unit. These 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.

Management Summary

Data for this herd unit suggest this postseason moose population declined during the late 1990's, stabilized in 2004 and 2005, slowly increased through 2013, and either stabilized or slightly decreased to 2018. During 2014 calf:cow and bull:cow ratios fluctuated more than usual, as reproductive rates dropped to 33 calves:100 cows, and male ratios increased to 73 bulls:100

cows. In 2015 and 2016, calf and bull ratios returned to average levels, while both bull and calf ratios increased in 2017. Bull ratios dropped slightly while calf ratios increased to the highest level observed in 25 years in 2018. Local managers believe the lower trend counts in 2014, 2015, and 2017 is attributed to poor counting conditions due to mild winter conditions and not reflective of a declining moose population, which is confirmed by the higher documented trend count in 2016 and 2018. Harvest success remains high and hunter satisfaction appears good in most hunt areas. In addition, average age of harvested males is adequate and hunter reported antler widths average 37 inches, suggesting bull quality is being maintained in this herd unit. A few hunt areas, primarily located in the Hoback River drainage, have recently shown lower moose numbers and poorer harvest rates resulting in further quota changes and hunt area boundary modifications.

The licenses available for the 2019 season continue to be conservative as the 3-year mid-winter trend average is at the low end of the management objective (1200 -1800 moose) and herd growth has been somewhat stable or undetermined in recent years. There are no proposed changes in licenses in 2019.

A total of 150 Type 1 (antlered) and 10 Type 4 (antlerless) licenses are available for 2019. Harvest for 2018 is estimated at 135 bulls and 7 cows/calves for a total harvest of 142 moose. Given average reproduction and survival, this harvest should result in a 2018 mid-winter trend count near 1,300 moose.

2018 - JCR Evaluation Form

SPECIES: Mule Deer
PERIOD: 6/1/2018 - 5/31/2019

HERD: MD104 - SUBLETTE

HUNT AREAS: 130-131, 138-142, 146, 150-156, 162
PREPARED BY: DEAN CLAUSE

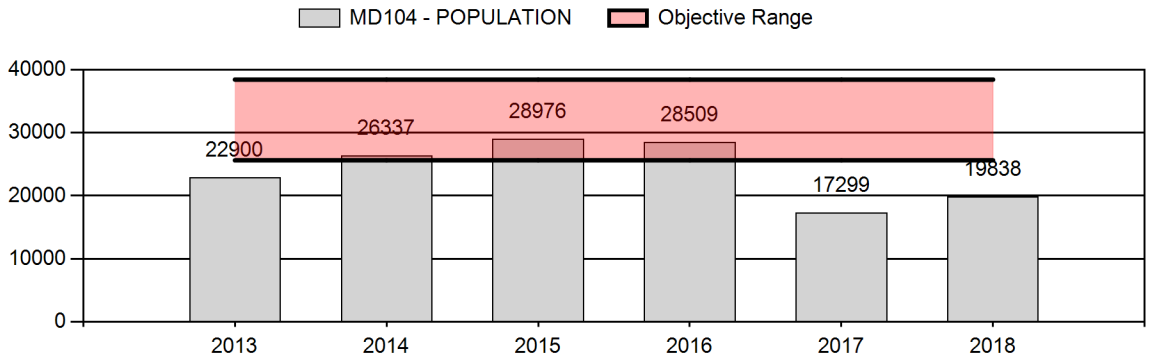
	2013 - 2017 Average	2018	2019 Proposed
Population:	24,804	19,838	20,507
Harvest:	1,678	1,174	1,355
Hunters:	4,421	3,857	4,100
Hunter Success:	38%	30%	33 %
Active Licenses:	4,441	3,860	4,100
Active License Success:	38%	30%	33 %
Recreation Days:	24,505	20,026	22,000
Days Per Animal:	14.6	17.1	16.2
Males per 100 Females	39	36	
Juveniles per 100 Females	62	68	

Population Objective (± 20%) :	32000 (25600 - 38400)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-38.0%
Number of years population has been + or - objective in recent trend:	2
Model Date:	2/16/2019

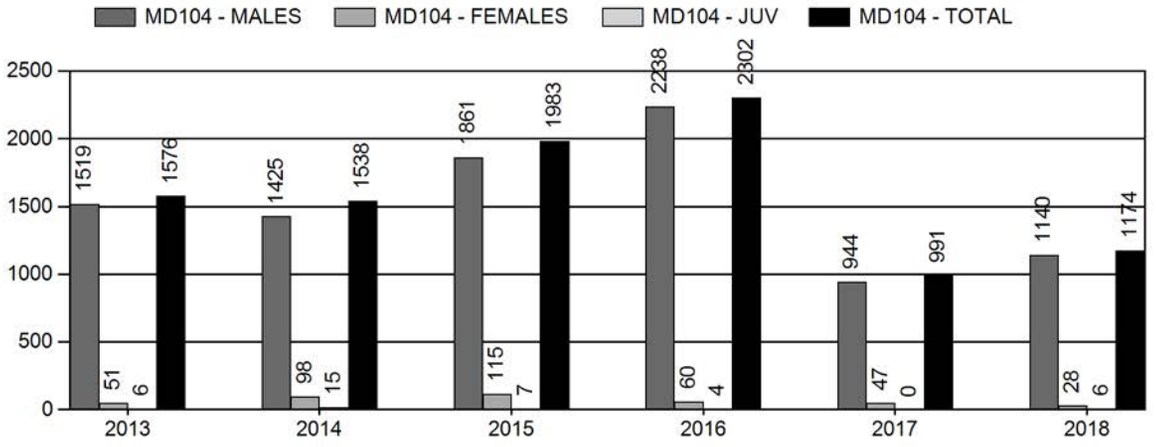
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	JCR Year	Proposed
Females ≥ 1 year old:	0.3%	0.6%
Males ≥ 1 year old:	27%	29%
Total:	6%	6%
Proposed change in post-season population:	+13%	+4%

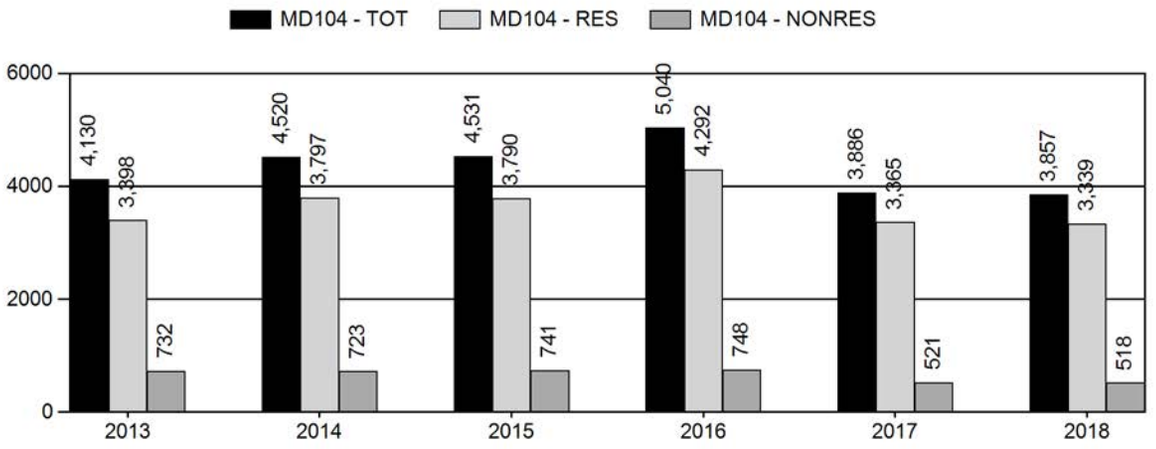
Population Size - Postseason



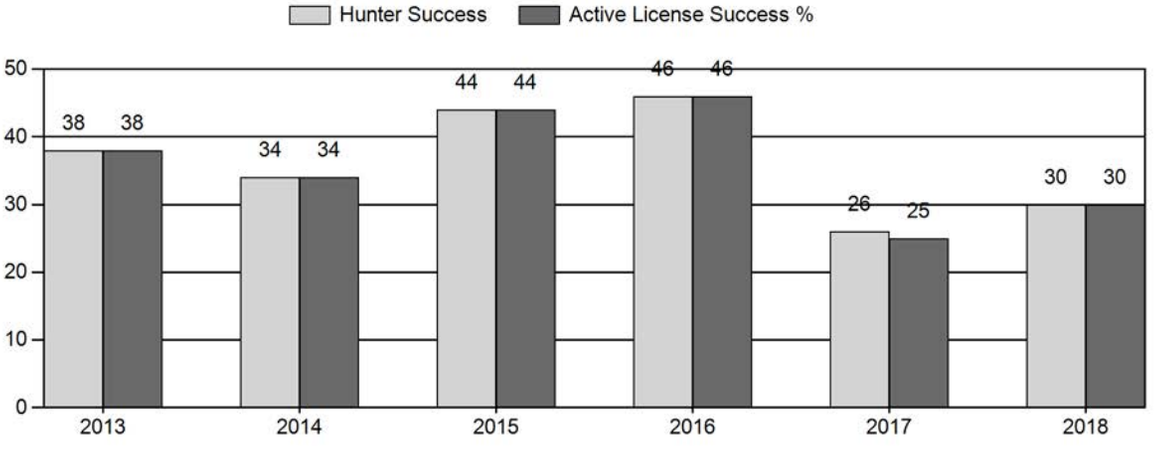
Harvest



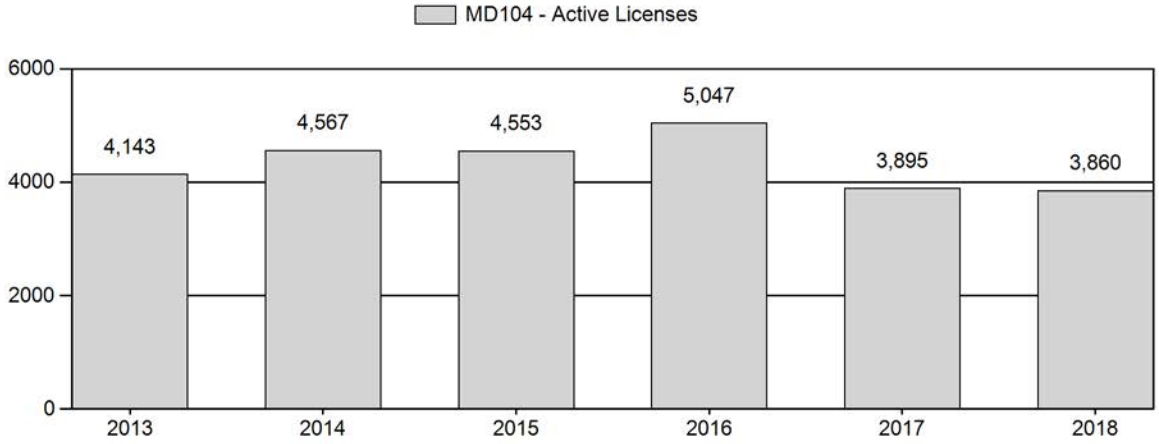
Number of Active Licenses



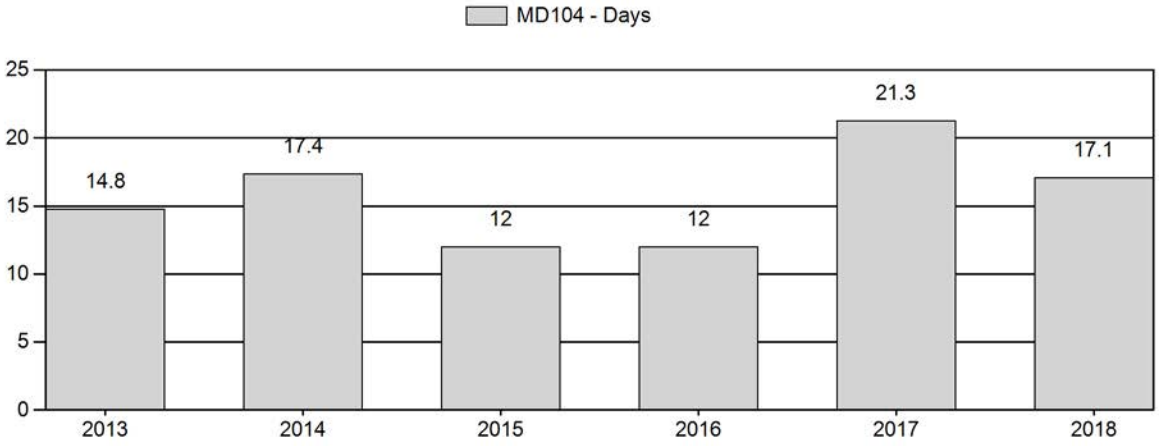
Harvest Success



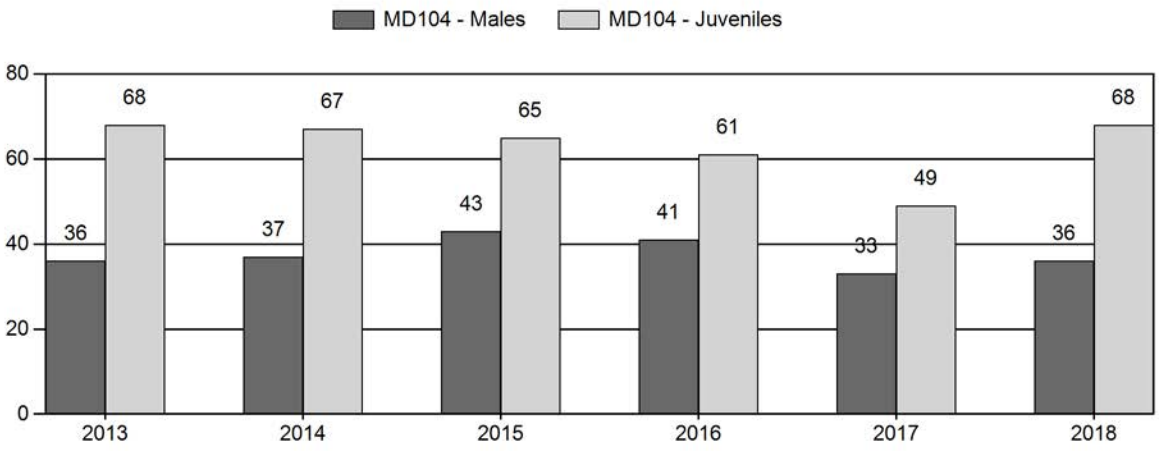
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Mule Deer Herd MD104 - SUBLETTE

		MALES							FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Post Pop	Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	22,900	575	0	0	0	895	1,470	18%	4,044	49%	2,745	33%	8,259	1,436	14	22	36	± 1	68	± 2	50
2014	26,337	620	514	483	144	0	1,761	18%	4,699	49%	3,167	33%	9,627	1,420	13	24	37	± 1	67	± 2	49
2015	28,976	766	585	490	217	0	2,058	21%	4,768	48%	3,106	31%	9,932	1,463	16	27	43	± 1	65	± 2	46
2016	28,509	660	646	647	231	5	2,189	20%	5,285	49%	3,207	30%	10,681	1,248	12	29	41	± 1	61	± 1	43
2017	17,299	178	503	480	142	0	1,303	18%	3,907	55%	1,902	27%	7,112	1,123	5	29	33	± 1	49	± 1	37
2018	19,838	430	338	405	157	0	1,330	18%	3,663	49%	2,491	33%	7,484	1,444	12	25	36	± 1	68	± 2	50

2019 Seasons - Sublette Mule Deer (MD104)

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
130		Oct. 1	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
130	1	Oct. 15	Oct. 31	15	Limited quota	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
130	6	Oct. 1	Oct. 31	25	Limited quota	Doe or fawn valid on private land within Sweetwater County
131		Oct. 1	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
131, 132, 133, 134, 135, 168	3	Oct. 1	Nov. 30	25	Limited quota	Any white-tailed deer
131	6	Oct. 1	Oct. 31	50	Limited quota	Doe or fawn valid within the Farson-Eden Irrigation Project
131	7	Oct. 1	Oct. 31	50	Limited quota	Doe or fawn valid west of the Blue Rim (Sweetwater County Road) and Old Stauffer Roads (Sweetwater County Road 7) and south of the OCI Entrance Road (Sweetwater County Road 6)
138		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
138, 139, 140, 142, 143	3	Oct. 1	Nov. 30	50	Limited quota	Any white-tailed deer
139		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
140		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
141	1	Oct. 1	Oct. 21	80	Limited quota	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		Sept. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
146		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
150		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
150	3	Sep. 15	Nov. 30	15	Limited quota	Any white-tailed deer
151		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
151		Oct. 7	Oct. 31		General	Antlerless white-tailed deer
152		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
152		Oct. 7	Oct. 31		General	Antlerless white-tailed deer
153		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
154		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
155		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
156		Sep. 15	Oct. 6		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
Archery Seasons						
130,131, 141		Sept. 1	Sept. 30			Refer to Section 3
138-140, 142,146, 150-156		Sept. 1	Sept. 14			Refer to Section 3

REGION H NON-RESIDENT QUOTA - 600 LICENSES

Summary of Changes in License Numbers

Hunt Area	License Type	Quota Changes from 2018
131	3	+25 (new)
131	6	+50 (new)
131	7	+50 (new)
MD104 Totals		
131	**3**	**+25**
131	**6,7**	**+100**

Management Evaluation

Current Postseason Population Management Objective: 32,000
Management Strategy: Special
2018 Postseason Population Estimate: ~20,000
2019 Proposed Postseason Population Estimate: ~21,000

The Sublette Mule Deer Herd Unit is very large and contains habitat throughout Teton, Sublette, Lincoln and Sweetwater Counties. This deer herd contains 16 hunt areas (130, 131, 138-142, 146, 150-156, 162) with a population objective of 32,000 deer and a "special" management buck ratio objective of 30 to 45 bucks:100 does.

Herd Unit Issues

Winter survival, habitat condition and quality on winter ranges, and habitat loss (direct and indirect) from gas and residential development are the primary issues the influencing population dynamics in this herd unit. During the past 10 years, this deer herd experienced two winters that resulted in above normal fawn mortality (> 50% loss). Winter conditions experienced in 2016-17 resulted in a significant deer die-off where fawn loss was estimated near 85% and adult mortality near 35%. From 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 among years, but the overall habitat conditions remain poor with some improvement on certain years. 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.

We are maintaining this herd at the current objective and management strategy based on internal discussions and conversations with our constituents. We evaluated and considered population status and habitat data included in this document and a change is not warranted at this time. We will review this herd objective again in 2024; however, if the situation arises that a change is needed, we will review and submit a proposal as needed.

Weather

Precipitation

Overall precipitation from October 2017 through September 2018 was below average when evaluated across the entire herd unit, over the water year (Fig. 1; October through September of

the following year). The general characteristics included a very mild and dry winter followed by average spring precipitation. Although growing season (April through June) precipitation was near average due to several significant precipitation events, summer (May-July) precipitation was significantly below average and resulted in less than ideal growing conditions on summer range.

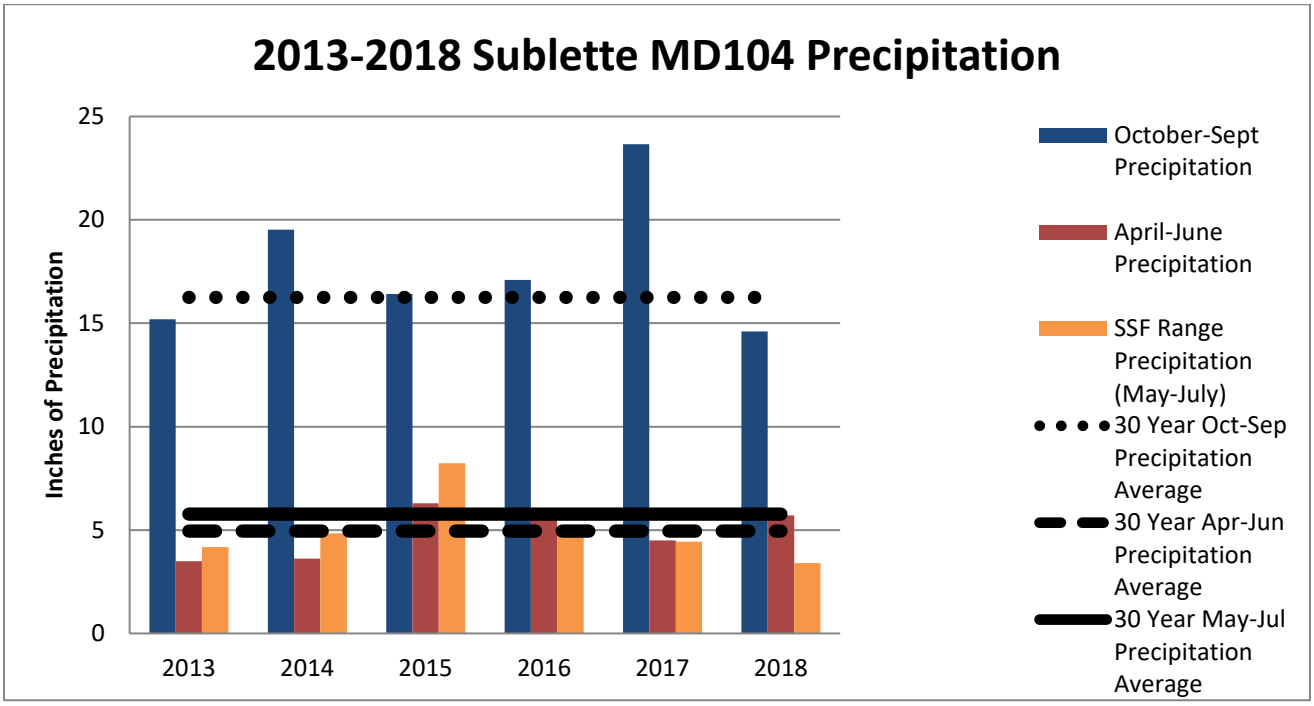


Figure 1. Inches of precipitation for three time periods/year in the Sublette Deer herd unit from 2013-2018, as modeled by the USDA's PRISM interpolation method. See DOI: 10.1002/joc.1688 for an article on the PRISM method.

Winter Severity

The 2018-2019 winter started mild but the months of January and February have been increasingly tough for wildlife with regard to snow accumulation and cold temperatures on winter ranges. Fawn survival data from the Wyoming Range Mule Deer Research project (winter ranges located to the south and west of the Sublette Herd Unit) indicate as of February 22, 2019, fawn survival since November 1, 2018 is 64% with more mortality expected to occur in the next several months. Current winter conditions follow the mild conditions in 2017-2018 which resulted in excellent fawn and adult survival and increased fawn production in 2018. As of February 24, 2019, SNOWTEL locations in the high elevations of the Sublette herd indicate snow water equivalent ranging from 85-100% of average and the Green River Basin watershed is near 100% of average. Additional snow accumulation and warmer temperatures are forecasted for the next several weeks.

Habitat

In 2018, annual leader production on important forage shrubs was significantly less than the last three years. This reduction is due to less overall precipitation and relatively higher than average temperatures during the growing season, which affected the availability of soil moisture as a resource for plants to put into growth. As of late February, sagebrush plants are generally buried in snow. Snow crusting has also been noteworthy which limits mobility and requires deer to expend more energy moving between patches of habitat.

Significant Events

Habitat treatments were conducted at several locations in 2018 throughout the herd unit. The Sublette Mule Deer Mitigation project implemented its third year of treatments including nearly 700 acres of sagebrush mowing and 370 acres of Spike application to thin sagebrush communities. Other projects include over 23 miles of fence modified to wildlife-friendly standards, 362 acres of aspen mechanical treatments, 283 acres of aspen prescribed burns, and over 17,600 acres of cheatgrass treated with herbicide. Lastly, livestock management and weed control was cooperatively implemented in the 34,000 acre Cliff Creek Wildfire (2016) in the Hoback basin and within the Sublette Mule Deer sagebrush treatments completed in 2016 and 2017 on BLM land. More detailed information can be obtained by reading the Pinedale Region report in the 2018 Strategic Habitat Plan (SHP) Annual Report.

In September-October 2018, the 62,000 acre Roosevelt Wildfire burned in the Upper Hoback and Beaver Creeks drainages near the Hoback Rim. This wildfire burned extensive areas dominated by conifer, aspen, sagebrush, and riparian habitat including spring-summer-fall, fawning, and migration corridor habitats. Although expected to provide long-term improvements to habitat, this fire likely reduced forage in the short-term during migration in the fall 2018 and spring 2019. Restoration efforts including livestock rest and weed control as well as vegetation monitoring are slated to occur in 2019-20.

Habitat Monitoring

Winter Range Shrub transects were not monitored in 2018 by Department personnel, but monitoring associated with past and future treatments was conducted throughout the herd unit and is discussed in more detail in the 2018 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 2018, 2,362 acres of rangeland and 651 acres of aspen RHAs were completed by personnel in the Pinedale Region.

Data was summarized (Table 1) for 2015-2018 to facilitate discussions on the Sublette mule deer objective review. Some of the more interesting findings include: 1) rangeland conditions either did not meet or only partially met objectives in the three seasonal ranges where assessments occurred; 2) invasive species were documented on nearly 25% of the rangelands and 20% of the aspen areas; and 3) aspen had a greater percentage of stands meeting objectives than the rangeland assessment areas. The primary reasons for not meeting objectives in rangeland sites were lack of age class diversity, unhealthy mixed mountain shrub communities, and excessive hedging on key species.

Table 1. Rangeland and aspen Rapid Habitat Assessments of seasonal ranges in the Sublette mule deer herd.

Rangeland RHA								
Migration/Transitional Range			Spring-Summer-Fall Range			Winter Range		
Acres		20,387	Acres		6,985	Acres		6,441
Seral State	Early	0%	Seral State	Early	0%	Seral State	Early	0%
	Middle	4%		Middle	88%		Middle	82%
	Late	96%		Late	12%		Late	18%
Herbivory	Light	25%	Herbivory	Light	20%	Herbivory	Light	0%
	Moderate	45%		Moderate	80%		Moderate	45%
	Severe	30%		Severe	0%		Severe	55%
Species Diversity	Low	30%	Species Diversity	Low	16%	Species Diversity	Low	0%
	Medium	67%		Medium	44%		Medium	100%
	High	3%		High	40%		High	0%
Invasives	None	72%	Invasives	None	72%	Invasives	None	83%
	Present	25%		Present	25%		Present	17%
	Mngt Limiting	3%		Mngt Limiting	3%		Mngt Limiting	0%
Meet Objectives	Yes	3%	Meet Objectives	Yes	7%	Meet Objectives	Yes	2%
	Partial	25%		Partial	67%		Partial	23%
	No	71%		No	26%		No	74%

Aspen RHA		
Spring-Summer-Fall Range		
Acres		14,950
Seral State	Early	30%
	Middle	35%
	Late	20%
	PFC	15%
Herbivory	Light	33%
	Moderate	44%
	Severe	23%
Species Diversity	Low	7%
	Medium	63%
	High	30%
Invasives	None	80%
	Present	20%
Meet Objectives	Yes	54%
	Partial	37%
	No	10%

Field Data

Postseason herd composition (classification) counts in late November 2018 totaled 7,484 deer, a slight increase from 7,112 deer in 2017 but much lower than 10,681 deer in 2016. Snow cover was good in most areas surveyed during 2018, with deer distribution occupying most traditional winter habitats. Survey effort and timing to conduct these herd composition counts has remained relatively similar during all years.

The postseason 2018 total buck:100 doe ratio of 36:100 increased from 33:100 in 2017, a result from an improved yearling buck ratio of 12:100 in 2018. The 2018 and 5-year average (39:100) total buck ratios are both meeting management goals for this herd unit. Yearling buck:100 doe ratio in 2017 were 5:100, a result from the poor fawn survival during the 2016-17 winter. Adult buck ratios vary annually based on yearling buck recruitment and buck harvest levels.

The 2018 fawn:100 doe ratio of 68:100 improved drastically from 49:100 in 2017, the lowest documented since 1993 (50:100) following the very severe winter of 2016-17. The previous 5-year average fawn:100 doe ratio is 62:100. Good fawn production and winter survival are important for population growth and sustainability in this herd unit. Fawn production and recruitment through the winter has been sporadic in this herd and appears to influence population trend the most.

Harvest Data

The 2018 harvest was approximately 1,150 total deer (1,100 bucks and 50 does/fawns), slightly higher than the 2017 harvest of 1,000 total deer (950 bucks and 50 does/fawns), and much lower than the 2016 harvest of approximately 2,300 deer (2,200 bucks and 100 does/fawns). Since the low harvest reported in 2011, harvest has gradually increased within this herd. Similar to harvest rates, hunter success has also shown increasing trends through 2016, which reported a 46% hunter success and 12 days/harvest. The 2017 and 2018 hunter success of 25% and 30% remain lower compared to 2016 and the previous 5-year average of 38%. Hunter effort showed an increase in 2017 and 2018 at 21 and 17 days/harvest compared to 2016. Hunter numbers in 2017 declined around 24% to 3,886 and remained low in 2018 at 3,857 hunters, compared to 5,040 in 2016. The hunting seasons in 2011-2018 were more conservative compared to previous years, as all doe/fawn harvest opportunities were eliminated (except for youth), season lengths were slightly shortened, and limited quota licenses (including non-resident quotas) were reduced. The 2017 and 2018 seasons had an antler point restriction (APR) of 3 points or better to protect harvest on young bucks. Harvest and hunter effort trends correlate well with estimated population trends. When this deer population declines, as in 2011 and 2017, harvest rates and hunter participation decrease, and hunter effort increases. The opposite trend (increase harvest rates, hunters, and reduced hunter effort) is apparent with a population increase as harvest metrics have shown in 2013-2016. Harvest rates vary among hunt areas, as hunting pressure and harvest is highest in Hunt Areas 142, 152, 153, and 154, attributed to higher deer densities and little to no wilderness area limitations for non-resident hunters.

Population

The WGFD changed modeling techniques for all of big game herd units in July, 2012. A spreadsheet model designed by the Colorado Division of Wildlife uses harvest, sex/age ratios, and survival data. With the consolidation of data from the Steamboat Herd (Hunt Area 131) with the Sublette Herd Unit data a new model was incorporated, resulting in a slightly higher 2013 postseason population estimate of roughly 1,700 more deer compared to the previous model. The Time-Specific Juvenile and Constant Adult Survival (TSJ,CA) Model always exhibits the best overall fit compared to the other models (Fit = 102 and Relative AICc = 209) resulting in a 2018 postseason population estimate of approximately 20,000 deer, nearly a 30% decline from the 2016 population estimate, but a 13% increase from 2017. The TSJ,CA model appears to track

male:female ratios very well and represent population trends well. The 2018 population estimate is 38% below the desired objective of 32,000 for this herd unit.

Management Summary

The combination of variable reproductive rates, fawn survival, natural gas development on the Mesa winter complex, and habitat conditions are the primary factors regulating population trends in the Sublette herd unit. The winter/spring losses (fawns and adults) during 2010-11 dropped this population to an estimated 20,600 deer. The following winters through 2015-16 were mild resulting in good winter survival and continual population growth. The 2016-17 resulted in one of the toughest winters experience by this deer herd in over 25 years. With severe winter conditions (deep snow accumulations and below normal temperatures) experienced during the 2016-17 winter, little forage (browse) was available on much the traditional winter ranges and deer were forced to search and move into habitats not typically used in the winter. Spring data collection efforts such as change-in-ratio surveys, deer mortality documentation, and survival of collared deer estimate fawn loss near 85% and adult loss near 35% resulting from the 2016-17 winter. The 2017-18 winter was mild resulting very good winter survival for fawns and adults attributing to modest growth near 13% and improved fawn production in 2018.

In addition to years with large winter die-off, other population setbacks have been common in this herd and are likely attributed to poor fawn survival and poor forage conditions on winter ranges. Overall habitat conditions remain poor, but conditions have improved in recent years. Although the current management direction is for maximum population growth (minimal female harvest), female harvest may be necessary at some point in the future to offset degradation of crucial winter habitats and poor survival rates as this population increases. Population estimates indicate the population is roughly 38% below the objective of 32,000. Buck ratios are meeting herd goals (special status; 30-45 bucks:100 does) with trophy buck quality being maintained. Overall hunter satisfaction has been good within this herd in most years, even following years with winter die-off and fewer deer.

Harvest strategies in this herd have been very conservative in allowing primarily buck harvest, and hunting seasons will remain conservative to reduce buck harvest rates and maintain adequate buck ratios.

An antler point regulation (APR) on mule deer was established in 2017 for all hunt areas within this herd unit, restricting harvest to bucks with three (3) points or more on either antler in an effort to help maintain buck ratios above 30:100. That same APR will be maintained again in 2019, with plans to eliminate the APR for 2020 if buck ratios are adequate. A general license deer season for most hunt areas will open on September 15 and close October 6. Doe/fawn harvest opportunities will be the same as in 2012-2018, as only youth hunters will be allowed to harvest doe/fawn deer in general seasons.

Limited quota (Type 1) licenses in hunt areas 141 will remain at 80 licenses valid for the month of October. Limited quota (Type 1) licenses in hunt area 130 will remain at 15 licenses with an October 15 to October 31 season. There will be the same white-tailed deer season with 50 limited quota (Type 3) licenses valid for any white-tailed deer, October 1-November 30 in hunt areas 138-140 and 142, and 15 limited quota licenses Type 3 in hunt area 150. A Type 3 license

(n=25) will be now be available in hunt area 131, also valid for other hunt areas outside this herd unit from October-November. A total of 25 limited quota doe/fawn licenses (Type 6) in hun area 130 are available and 50 new Type 6 licenses available in hunt area 131 to address damage concerns on private lands near Farson valid in October. An additional 50 Type 7 licenses will be added in hunt area 131 to address damage on private lands along the Green River.

The Nonresident Region H quota will remain at 600 licenses. The 2019 season is projected to harvest approximately 1,400 deer (1300 bucks, 100 doe/fawns).