

**GREEN RIVER REGION
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2018 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2018 - 5/31/2019

HERD: PR401 - SUBLETTE

HUNT AREAS: 85-93, 96, 101, 107

PREPARED BY: PATRICK BURKE

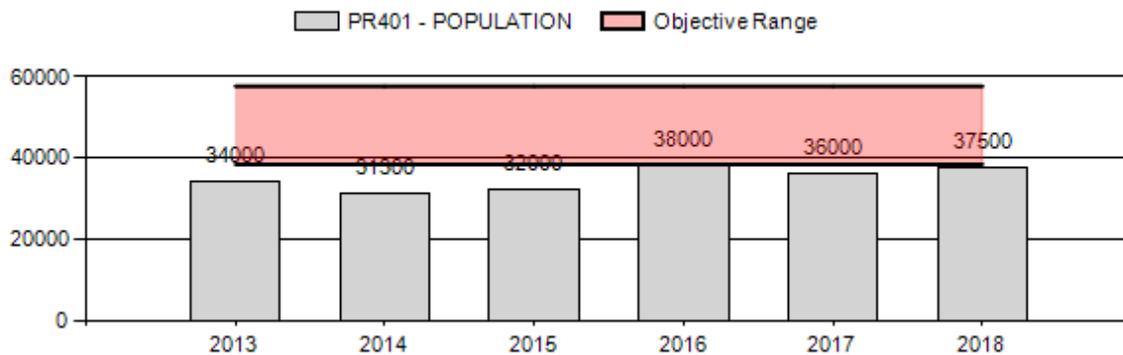
	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	34,260	37,500	38,500
Harvest:	3,251	2,785	2,800
Hunters:	3,394	2,871	2,900
Hunter Success:	96%	97%	97 %
Active Licenses:	3,832	3,245	3,300
Active License Success:	85%	86%	85 %
Recreation Days:	11,819	8,862	8,900
Days Per Animal:	3.6	3.2	3.2
Males per 100 Females	54	57	
Juveniles per 100 Females	65	55	

Population Objective (± 20%) :	48000 (38400 - 57600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-21.9%
Number of years population has been + or - objective in recent trend:	8
Model Date:	2/22/2019

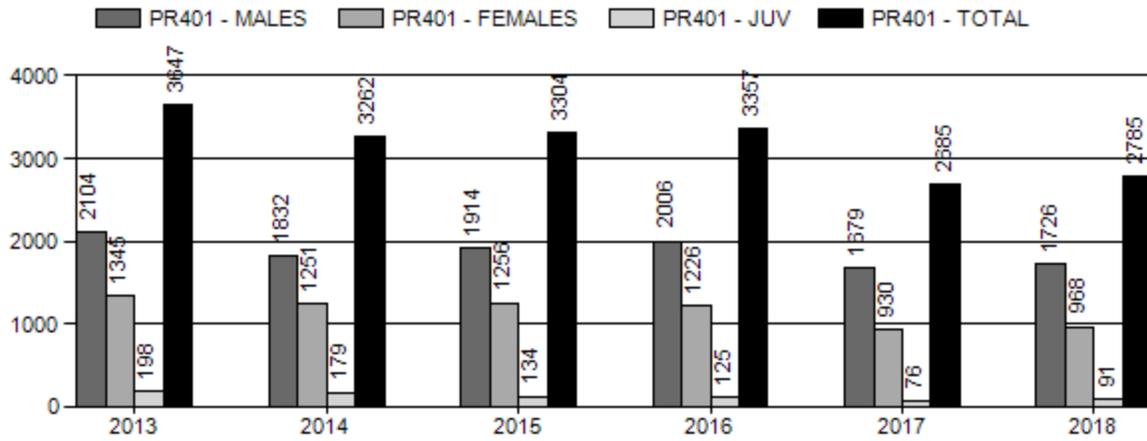
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	5%	6%
Males ≥ 1 year old:	18%	17%
Total:	7%	8%
Proposed change in post-season population:	7%	3%

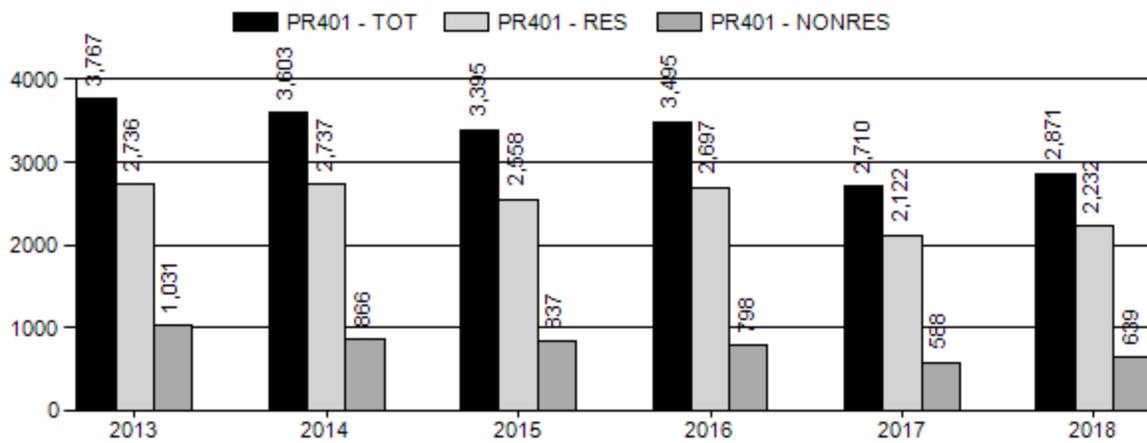
Population Size - Postseason



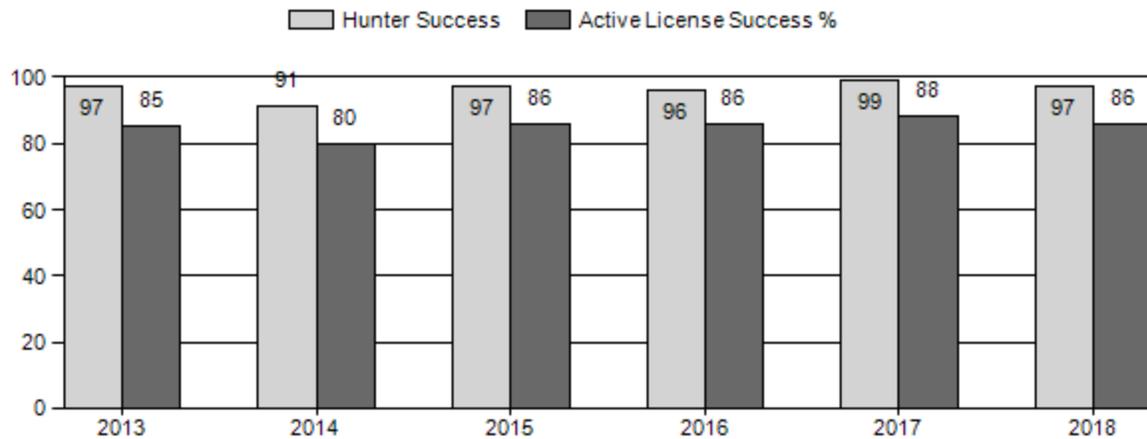
Harvest



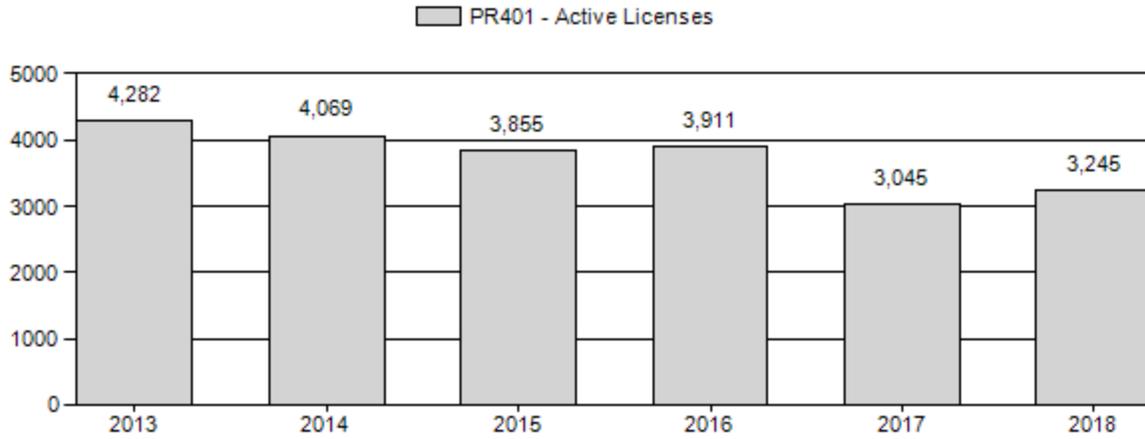
Number of Active Licenses



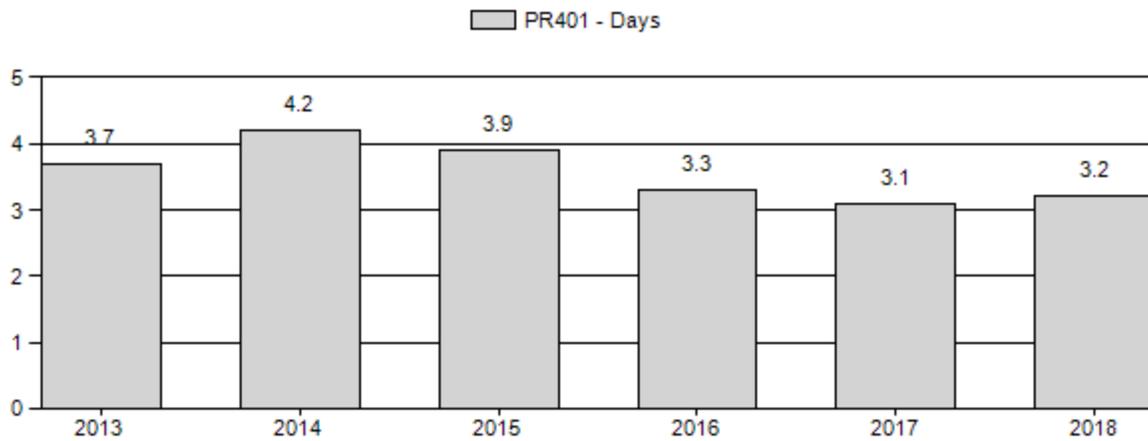
Harvest Success



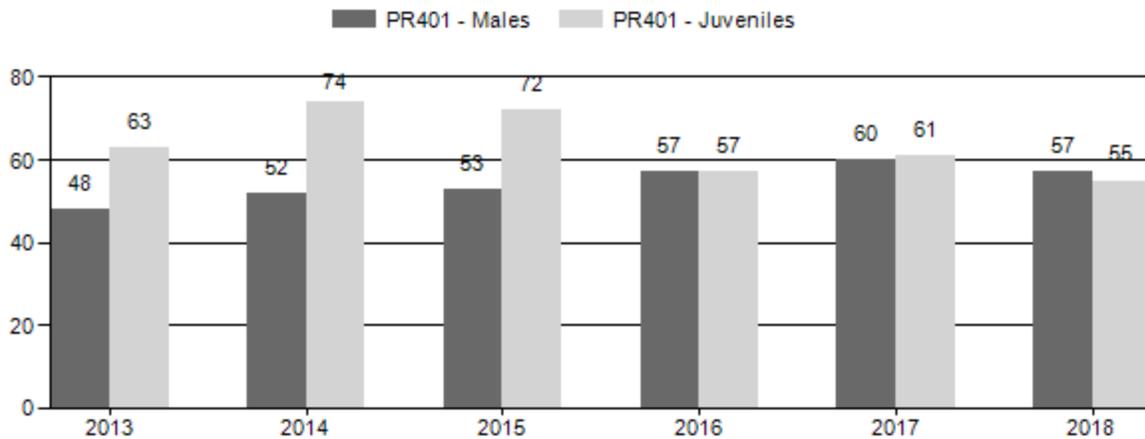
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR401 - SUBLETTE

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	38,000	517	1,848	2,365	23%	4,975	48%	3,123	30%	10,463	2,065	10	37	48	±2	63	±2	43
2014	35,000	786	1,687	2,473	23%	4,791	44%	3,529	33%	10,793	2,614	16	35	52	±2	74	±2	49
2015	35,500	864	1,651	2,515	24%	4,764	45%	3,408	32%	10,687	2,603	18	35	53	±2	72	±2	47
2016	41,500	1,050	1,983	3,033	27%	5,295	47%	3,006	27%	11,334	2,291	20	37	57	±2	57	±2	36
2017	39,000	645	2,129	2,774	27%	4,639	45%	2,828	28%	10,241	2,398	14	46	60	±2	61	±2	38
2018	40,500	925	2,515	3,440	27%	6,082	47%	3,346	26%	12,868	1,955	15	41	57	±2	55	±2	35

**2019 HUNTING SEASONS
SUBLETTE PRONGHORN HERD (PR401)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
85	1	Sep. 10	Oct. 31	20	Limited quota	Any antelope
86	1	Sep. 10	Oct. 31	50	Limited quota	Any antelope
	6	Sep. 10	Oct. 31	25	Limited quota	Doe or fawn
87	1	Sep. 10	Oct. 31	175	Limited quota	Any antelope
	2	Sep. 25	Oct. 31	125	Limited quota	Any antelope
	6	Sep. 10	Oct. 31	100	Limited quota	Doe or fawn
	7	Sep. 25	Oct. 31	100	Limited quota	Doe or fawn
88	1	Sep. 10	Oct. 31	275	Limited quota	Any antelope
	6	Oct. 1	Oct. 31	300	Limited quota	Doe or fawn
89	1	Sep. 10	Oct. 31	175	Limited quota	Any antelope
	2	Oct. 10	Oct. 31	125	Limited quota	Any antelope
	6	Oct. 1	Oct. 31	325	Limited quota	Doe or fawn
	6	Nov. 1	Nov. 15			Doe or fawn valid south of Middle Piney Creek and south of Wyoming Highway 351
	7	Sept. 1	Nov. 15	75	Limited quota	Doe or fawn valid south of Middle Piney Creek and south of Wyoming Highway 351
90	1	Sep. 10	Oct. 31	175	Limited quota	Any antelope
	6	Sep. 10	Oct. 31	75	Limited quota	Doe or fawn
	8	Aug. 15	Sep. 9	50	Limited quota	Doe or fawn valid on private land
91	1	Sep. 10	Oct. 31	275	Limited quota	Any antelope
	6	Sep. 10	Oct. 31	100	Limited quota	Doe or fawn
	7	Aug. 15	Oct. 31	50	Limited quota	Doe or fawn valid on private land and Bureau of Reclamation land within Sweetwater County
92	1	Sept. 10	Oct. 31	200	Limited quota	Any antelope
	7	Aug. 15	Nov. 30	100	Limited quota	Doe or fawn valid within the Farson-Eden Irrigation Project

93	1	Sept. 10	Oct. 31	400	Limited quota	Any antelope
	6	Sept. 10	Oct. 31	25	Limited quota	Doe or fawn
	7	Oct. 1	Nov. 30	100	Limited quota	Doe or fawn valid on private irrigated land
96	1	Sept. 10	Oct. 31	50	Limited quota	Any antelope
	7	Aug. 15	Nov. 30	100	Limited quota	Doe or fawn valid within the Farson-Eden Irrigation Project or west of the Blue Rim (Sweetwater County Road 5) and Old Stauffer Road (Sweetwater County Road 7) and south of the OCI Entrance Road (Sweetwater County Road 6) and east of Wyoming Highway 372; also valid in that portion of Area 101 within the Farson-Eden Irrigation Project
101	1	Sept. 10	Oct. 31	100	Limited quota	Any antelope
107	1	Sept. 10	Oct. 22	100	Limited quota	Any antelope
	6	Sept. 10	Oct. 22	25	Limited quota	Doe or fawn
	0	Aug. 20	Sept. 9	50	Limited quota	Any antelope, muzzleloading firearms and handguns only

Special Archery Season Hunt Areas	Opening Date	Limitations
85-93, 96, 101,107	Aug. 15	Refer to Section 2 of this Chapter

Hunt Area	Type	Quota change from 2018
92	1	+75
	7	+75
96	7	+75
Herd Unit	1	+75
Total	7	+150

Management Evaluation

Current Management Objective: 48,000

Management Strategy: Recreational

2018 Postseason Population Estimate: ~37,500

2019 Proposed Postseason Population Estimate: ~38,600

The post-season population objective for the Sublette pronghorn herd is 48,000 pronghorn and is designated as a recreational management herd. This objective for this population was set in 1994.

Herd Unit Issues

The 2018 post-season modeled population estimate for the Sublette pronghorn herd is approximately 37,500 pronghorn with a slightly increasing trend. The Sublette herd is one of the larger pronghorn herds in Wyoming, both in population size and in geographic area, which makes it one of the largest herds in North America. This herd occupies very diverse habitats from Grand Teton National Park to South Pass and the Red Desert northeast of Rock Springs. The large geographic area occupied by this herd can sometimes create complications in its management. This herd overlaps with many different land ownerships from National Park Service and US Forrest Service lands, to Bureau of Land Management owned lands and many different private landowners. It also covers many land uses from protected almost pristine intact habitats to areas of extremely heavy energy development. The area this herd inhabits, the Upper Green River Basin, also often experiences extreme weather conditions, especially when every few years the region experiences severe winters with deep snow conditions and bitterly cold temperatures. These severe winters have been a major driving force for this herd in recent years. This herd experienced above average winter mortality during the 2010-2011 winter, and it again higher than normal winter mortality during the 2016-2017 winter in some portions of the herd unit.

Weather

Tougher than normal winter conditions during the 2010-2011 winter resulted in higher than typical over winter mortality in this herd. The winters from 2011 to 2016 have been, by comparison, significantly milder. The 2016-2017 winter however, was again severe with deep snow and prolonged periods of cold in some portions of the herd unit, particularly in the Upper Green River area, and led to some increased winter mortality in this herd. The southern portions of the herd unit however, did not experience as severe of winter conditions and allowed for better survival of animals that were able to access that winter. In contrast to the 2016-2017 winter, the 2017-2018 winter was extremely mild with moderate temperatures and limited snow cover. While this winter has made it easy for wintering wildlife, the low precipitation levels seen this

winter do pose the potential for drought conditions this summer and its consequential reduced vegetation growth. The 2018-2019 winter was about average in the northern portions of the herd to above average in the southern portions. While the winter conditions in some parts of the southern portion of the herd may have been severe enough for some increased winter mortality, it will probably not be significant on a herd unit scale.

Habitat

No habitat transects targeting pronghorn range were conducted in the Sublette herd unit during the period covered by this report. However, the dry summers over the last few years have had an impact on the overall habitat conditions in the southern portion of the herd. Some large scale sagebrush die-offs have been documented in the herd unit that could have an impact on pronghorn living in these areas. While the exact cause of die-offs has not been determined, it has been speculated that the dry conditions during the summer of 2013 and then the very wet conditions in the fall of 2013 may have drown sagebrush living in low-laying areas. Improved precipitation levels during the summers of 2015, 2016, and 2017 did result in better plant growth than had been seen in the previous three years. The 2018 summer again saw dry conditions in portions of the herd unit.

Field Data

Pre-season ground classifications conducted in August of 2018 resulted in a total of 12,868 pronghorn being classified across the herd unit. That classification sample was made up of 6,082 does, 3,346 fawns, 2,515 two year old or older bucks, and 925 yearling bucks. This resulted in observed ratios of 55 fawns per 100 does, and 57 total bucks per 100 does, which included 15 yearling bucks per 100 does. The 2018 classification sample size was up slightly from 2017's sample size of 10,241 pronghorn, but is below the 13,029 pronghorn classified in 2010 when the population was at a larger size before the 2010-2011 winter.

Harvest Data

The 2018 hunting season saw a herd unit harvest that was very similar to what was reported during the 2017 hunting season. The total number of pronghorn harvested, herd unit wide, in 2018 was 2,785 which is up slightly for the 2,685 pronghorn harvested in 2017. Days per animal harvested increased marginally in 2018 to 3.2 days per harvest, compared to 2017's estimate of 3.1 days per animal harvested. The overall success rate in 2018 was 87% for the Type 1 licenses

and was 83% for the doe/fawn licenses in the herd unit, which is generally in line with normal success rates for this herd.

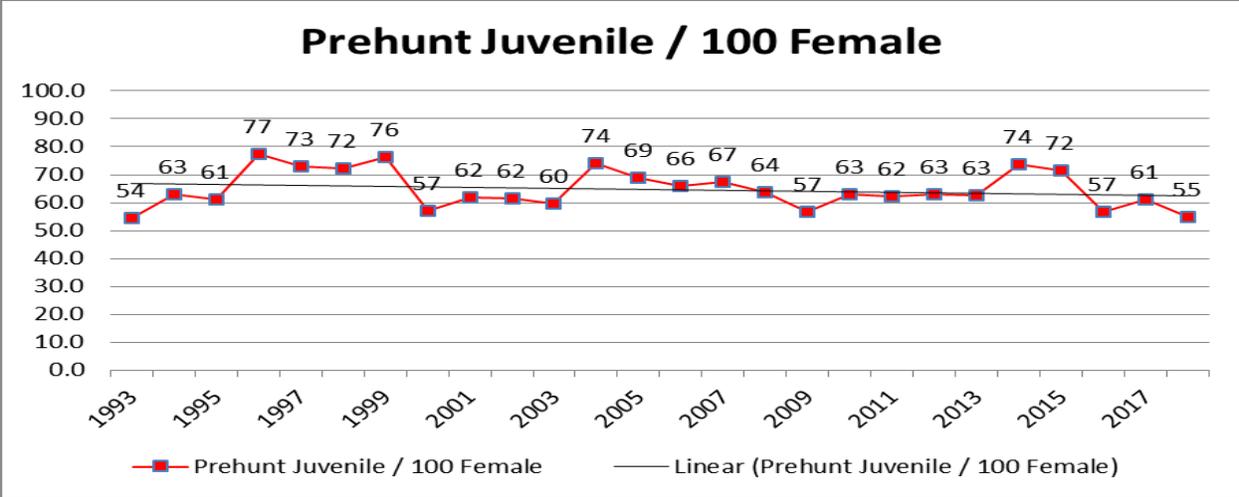
Population

The model for the Sublette herd does an acceptable job of tracking observed ratios and line-transect estimates for this large and geographically expansive pronghorn herd. Use of the semi-constant survival model was necessary to allow the modeled population estimates to match the line-transect estimates, and to allow for the population to decline sharply after the 2010-2011 winter when this herd experienced significant above average winter mortality. The ability of the semi-constant survival model to allow for increased winter mortality was again used for the 2016-2017 winter. While the impacts of the 2016-2016 winter do not appear to have been as severe as the impacts from the 2010-2011 winter, some portions of the herd that weren't able to move to the south and east where conditions were more moderate, did experience lower over-winter survival rates than what is observed during more normal winters. A line-transect survey was flown in the Sublette herd in June of 2013 to obtain an end of bio-year estimate for the 2012 bio-year. That survey was designed and analyzed using a stratified design to account for low, medium, and high density areas of the herd unit. The resulting end of bio-year population estimate for the herd was 31,550 (SE 7438) pronghorn. This population estimate agrees well with the previous line-transect survey flown in 2011 and with model predictions.

Management Summary

The 2019 season includes only minimal changes from 2018's season offering. The only changes from 2018 are increases in two hunt areas along with some changes in the areas in which those licenses are valid. The first of these changes is an increase in the number of Type 7 licenses in HA92 and HA96, these increases are being proposed to address some issues with growing pronghorn numbers and resulting damage issues in areas of the Farson-Eden Irrigation Project areas and along the Green River. The 2019 season also includes extending the season dates for those license types to help move animals off of agricultural fields during the growing season. The other changes for the 2019 season are increases in Type 1 licenses in HA92. These increases are being proposed since pronghorn densities and observed buck numbers in that hunt area appear sufficient to allow for increased public hunting opportunity.

The seasons for the 2019 hunting season should result in approximately 2,850 pronghorn being harvested with 1,750 bucks, 1,000 does and 90 fawn projected to be harvested assuming similar success rates to previous seasons. This level of harvest, particularly doe harvest will keep this population under its objective of 48,000 pronghorn, but should allow for some growth.



2018 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2018 - 5/31/2019

HERD: PR411 - UINTA-CEDAR MOUNTAIN

HUNT AREAS: 95, 99

PREPARED BY: JEFF SHORT

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	7,504	5,507	5,232
Harvest:	871	877	900
Hunters:	912	896	900
Hunter Success:	96%	98%	100 %
Active Licenses:	1,003	989	890
Active License Success:	87%	89%	101 %
Recreation Days:	3,742	3,073	3,000
Days Per Animal:	4.3	3.5	3.3
Males per 100 Females	60	57	
Juveniles per 100 Females	58	39	

Population Objective (± 20%) : 10000 (8000 - 12000)

Management Strategy: Recreational

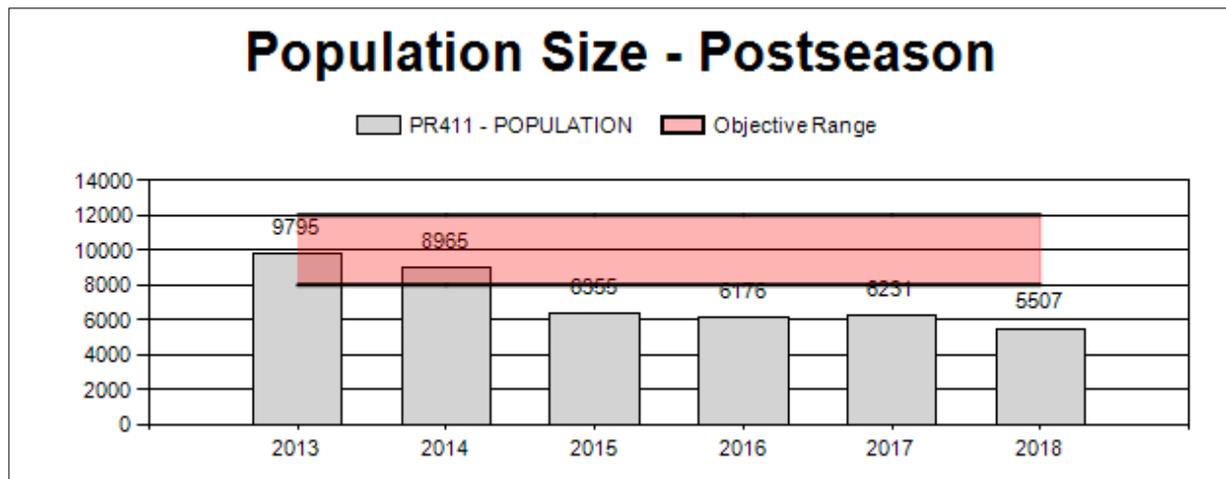
Percent population is above (+) or below (-) objective: -44.9%

Number of years population has been + or - objective in recent trend: 0

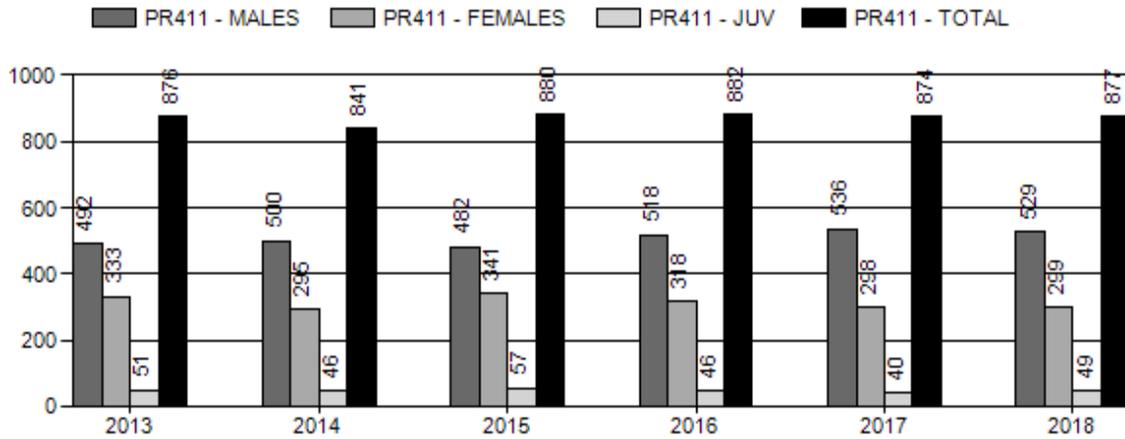
Model Date: 02/18/2019

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

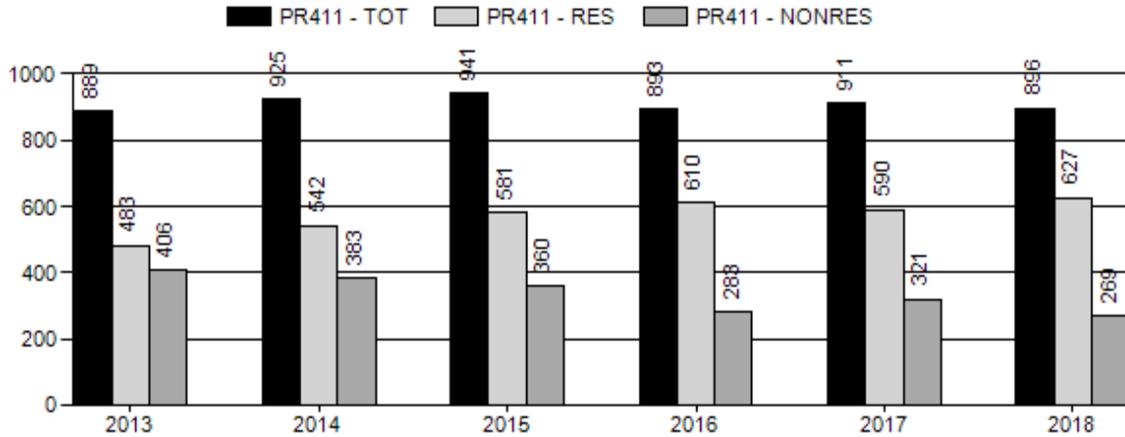
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	8.7%	9.5%
Males ≥ 1 year old:	30.5%	34.4%
Total:	13.6%	13.6%
Proposed change in post-season population:	-11.6%	-4.9%



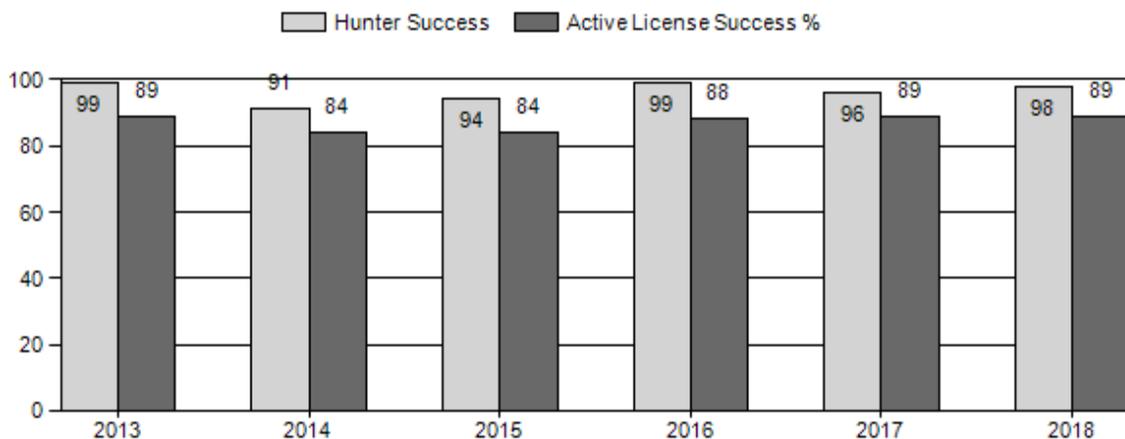
Harvest



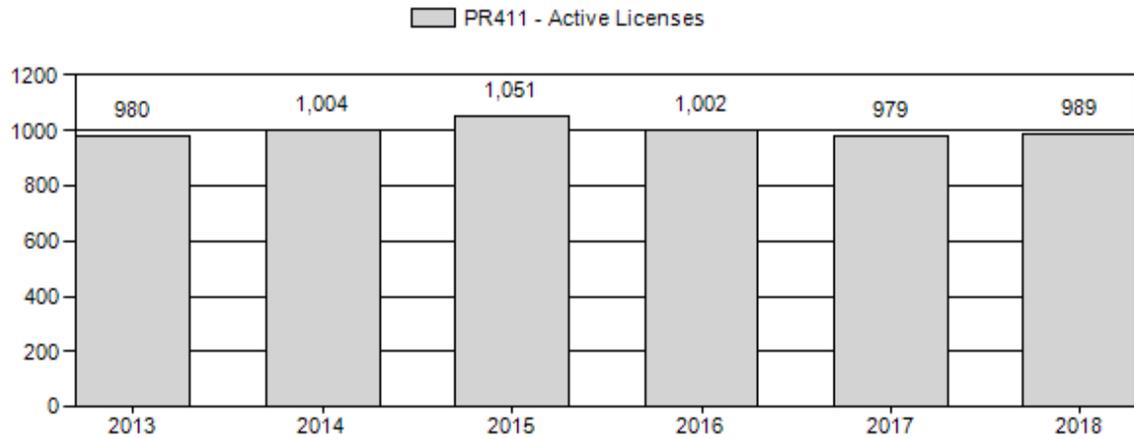
Number of Active Licenses



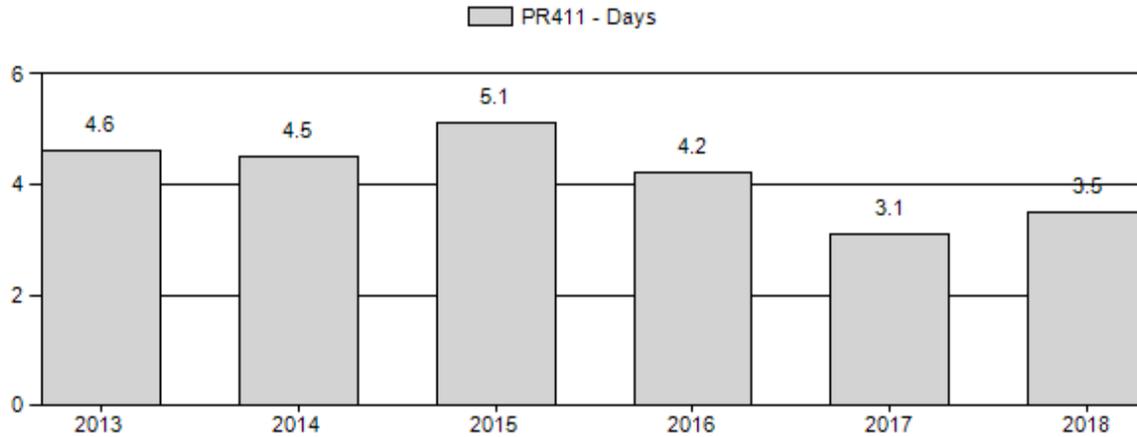
Harvest Success



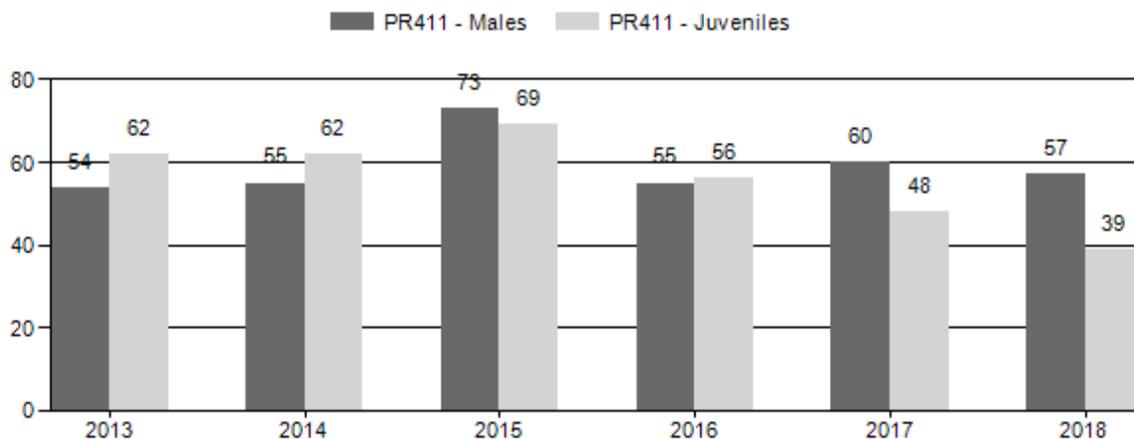
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR411 - UINTA-CEDAR MOUNTAIN

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females			Young to			
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	10,759	80	210	290	25%	536	46%	332	29%	1,158	0	15	39	54	± 6	62	± 7	40
2014	9,891	152	374	526	25%	960	46%	598	29%	2,084	0	16	39	55	± 4	62	± 5	40
2015	7,323	201	392	593	30%	812	41%	563	29%	1,968	0	25	48	73	± 6	69	± 5	40
2016	7,146	175	384	559	26%	1,014	47%	570	27%	2,143	0	17	38	55	± 4	56	± 4	36
2017	7,192	210	487	697	29%	1,155	48%	550	23%	2,402	0	18	42	60	± 4	48	± 3	30
2018	6,471	123	542	665	29%	1,162	51%	448	20%	2,275	0	11	47	57	± 4	39	± 3	25

2019 HUNTING SEASONS

SPECIES: Pronghorn

HERD UNIT: Uinta-Cedar Mountain (411)

HUNT AREAS: 95, 99

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
95	1	Sep. 10	Oct. 31	325	Limited quota	Any antelope
95	7	Aug. 15	Oct. 31	150	Limited quota	Doe or fawn valid on irrigated land
99	1	Sep. 10	Oct. 31	225	Limited quota	Any antelope
99	2	Aug. 15	Nov. 30	150	Limited quota	Any antelope valid north and west of Wyoming Highway 410 and west of Uinta County Road 271
99	6	Sep. 10	Oct. 31	25	Limited quota	Doe or fawn
99	7	Aug. 15	Nov. 30	250	Limited quota	Doe or fawn valid north and west of Wyoming Highway 410 and west of Uinta County Road 271
99	8	Aug. 15	Oct. 31	100	Limited quota	Doe or fawn valid east of Cottonwood Creek on irrigated land
99	0	Sep. 1	Oct. 31	25	Limited quota	Any antelope, muzzle-loading firearms only

95, Archery Aug. 15 Sept. 9 Limited quota Refer to Section 2 of this chapter
99

Hunt Area	License Type	Quota change from 2018
99	2	+100
99	8	+100
99	0	-25
Herd Unit Total	2	+100
	8	+100
	0	-25

Management Evaluation

Current Postseason Population Management Objective: 10,000

Management Strategy: Recreational

2018 Postseason Population Estimate: ~ 5,507

2019 Proposed Postseason Population Estimate: ~ 5,232

Herd Unit Issues

The two hunt areas in this herd are very different in several characteristics. Hunt Area 95 is mostly public land, more xeric, and has much lower fawn ratios. Hunt Area 99 has much better conditions for fawn production and survival. Hunt Area 99 has much more private land where the majority of HA 95 is BLM land.

Throughout the herd unit there is a low tolerance for the presence of pronghorn on many of the irrigated land holdings. Conflict with agriculture producers can be an issue. Damage complaints mostly occur on irrigated lands during the summer and early fall. However, irrigated lands are uncommon relative to native ranges. Significant efforts have been made to direct harvest toward those problems. Perceived reduction in livestock forage due to pronghorn foraging is an issue that can be brought up. However, dietary overlap and pronghorn impacts are negligible in native rangelands.

Energy development on crucial habitat is a looming issue for this herd. Development is present but has yet to impact habitats on a large scale. Wyoming Highway 414 has created a significant movement barrier between the two hunt areas in this herd unit. Interstate 80 is a significant movement barrier as well as animals likely moved north to access more productive summer ranges before the interstate.

Weather

Weather during 2018 and into 2019 has been highly variable. The early part of 2018 was very mild with low snow loads and moderate temperatures. Spring brought some moisture but in late summer and fall the weather was very warm and dry. Summer range conditions were very poor and animals were in low body condition due to low habitat productivity. From December 2018 to May 2019 the winter has been harsh with high snow loads and cold temperatures. Snow is persisting and there has been a very cold and wet spring. This winter looks like it was severe and have impacts to fawn and adult survival. Winter conditions during bad years does not tend to be as severe on pronghorn winter ranges as it can be on mule deer winter ranges. Most pronghorn in the area have the ability to migrate to lower elevation flats during severe winters. These crucial winter range movements become more difficult as human disturbance threatens those migration corridors.

Habitat

Habitat data has been inconsistently collected in this herd unit and has been absent in the recent past.

Field Data

The 2018 post-season population estimate is 5,507 animals with a downward trend since 2011. A line transect survey was last flown in 2015. Survey variance has been high for this herd unit in the past and a new survey design was used in 2015. This was an end of bio year 2014 estimate of 4,923 with a relatively low variance. The previous line transect survey conducted in this herd unit was in June 2009. Originally, that survey was reported as an estimate of 10,997 pronghorn for the end of bio year 2008 with a huge variance on the estimate. A new method was used to reanalyze that survey data which resulted in a much lower estimate of 6,009 with a much lower variance. The addition of this information has significantly changed population estimates for this herd from previous estimates.

Harvest Data

In 2012 a type 7 hunt was added to Area 99 to target specific depredation problems on the west side of the hunt area. This is largely private land. We have increased those permits over time to address complaints. This has helped to alleviate private land problems. For 2018 we started a type 2 hunt to go along with the type 7 hunt to target the high number of bucks that are also causing problems there.

Conservative seasons continue to be warranted overall in HA 95 due to low productivity in this dry environment. We have hunt area 95 type 7 (irrigated land only) licenses to alleviate damage issues on key parcels. Those were lowered in 2018 since it was a struggle for some hunters to find animals to hunt in 2017.

Doe/fawn harvest opportunity was increased every year for several years in area 99. This was to alleviate pressure on limited winter ranges and to address landowner concerns. The 2009, 2010 and 2011 season structures offered substantial doe/fawn harvest opportunity to try to control growth of that part of the herd. Those seasons allowed significant doe/fawn harvest with large increases in permits. These hunts had good success rates. This management framework greatly reduced this population segment. Public land areas of hunt area 99 have much lower antelope populations due to those type 6 licenses. We have reduced this harvest pressure in the last few years since the herd is well below objective. For 2019 we will keep area 99 type 6 licenses low at 25. The high numbers of Type 6 licenses were pushing antelope off of BLM lands onto Private Land along Sage Creek and the upper Henrys Fork causing complaints. This has led us to propose a type 8 hunt that is only good on irrigated land east of Cottonwood Creek. The key landowners have agreed to allow hunting in the area.

Population

The TSJ,CA model was selected due to the low Relative AICc score and its good fit with the data. This TSJ,CA model fits very well with the variable fawn survival common in the high elevation winter ranges in the herd unit. In the future it will be imperative that we get a reliable population estimate periodically through line transect surveys to check the status of the herd and anchor the model. With this, it is likely we can provide a reasonable population model and track the trend of this population. Without these anchor points, it will be unclear if our current harvest levels can be sustained or if we are on the right management track.

Due to significant documented differences in density and productivity between hunt areas within this herd unit models generated for this herd should be used with some caution. However, with consistent good line transect data it should be able to perform in the future. In 2012 the Department switched from POPII models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data.

The model underwent a lot of change in 2016 with the addition of new and refined line transect data. The addition of this information has significantly changed population estimates for this herd from previously reported estimates. Currently the model is estimating we have around 5,500 pronghorn in the herd. The model estimates a downward trend since 2011. This is substantiated by a reduction in classification sample sizes and field observations in hunt area 99.

Management Summary

For 2019 season setting, we will maintain similar conservative levels of harvest in hunt area 95 and maintain pressure on antelope causing damage on private irrigated lands. This should alleviate depredation issues and provide enough areas for hunters to find places to hunt. We will continue to promote low doe/fawn harvest in the public land portions of area 99 to help that population segment rebound. We will add an additional doe/fawn hunt in Area 99 to address damage issues in the eastern portion of the area. This will be a type 8 hunt that is only east of Cottonwood Creek on irrigated land. The model predicts a 2018 post-season population of 5,507. The objective and management strategy were last revised in 2014.

The Herd unit objective and management strategy were last revised in 2014. We went through an internal review of the objective and harvest strategy in early 2019. The recommendation for the Uinta-Cedar Mountain pronghorn herd is to maintain a post-season population based objective of 10,000 and to continue with recreational management. This appears to be about the number of pronghorn that the area can support without significant damage concerns and without issues on limited winter ranges in Area 99.

2018 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2018 - 5/31/2019

HERD: PR412 - SOUTH ROCK SPRINGS

HUNT AREAS: 59, 112

PREPARED BY: PATRICK BURKE

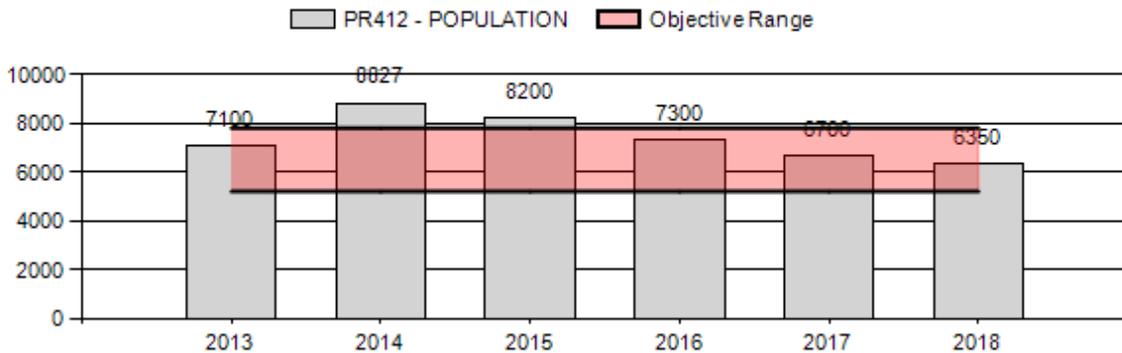
	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	7,625	6,350	5,900
Harvest:	332	444	450
Hunters:	364	489	500
Hunter Success:	91%	91%	90 %
Active Licenses:	373	520	525
Active License Success:	89%	85%	86 %
Recreation Days:	1,181	1,716	2,000
Days Per Animal:	3.6	3.9	4.4
Males per 100 Females	46	46	
Juveniles per 100 Females	56	40	

Population Objective (± 20%) :	6500 (5200 - 7800)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-2.3%
Number of years population has been + or - objective in recent trend:	1
Model Date:	02/19/2019

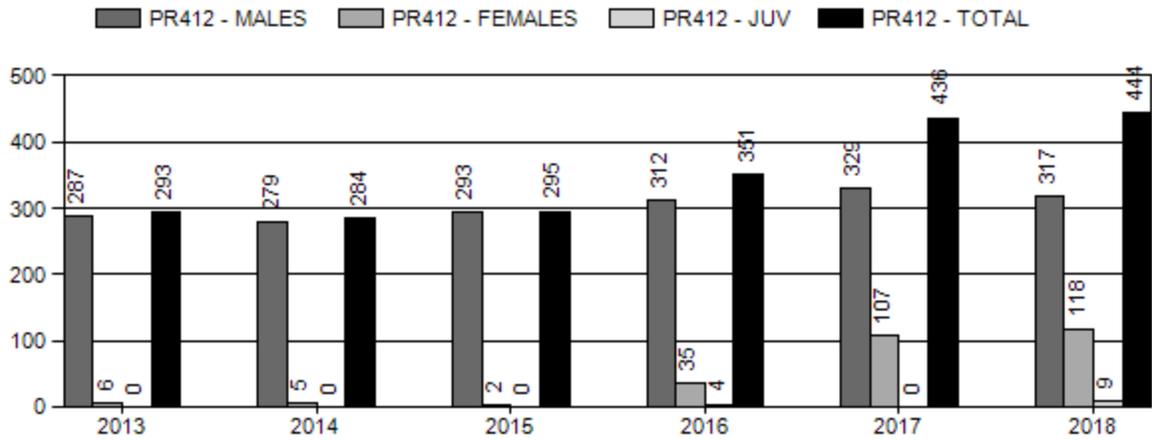
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	3%	4%
Males ≥ 1 year old:	22%	26%
Total:	6%	7%
Proposed change in post-season population:	-6%	-7%

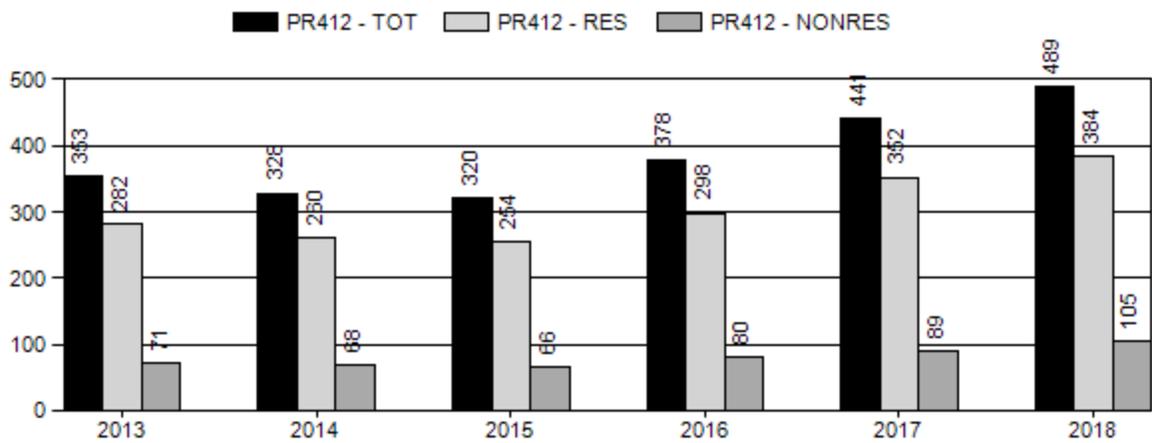
Population Size - Postseason



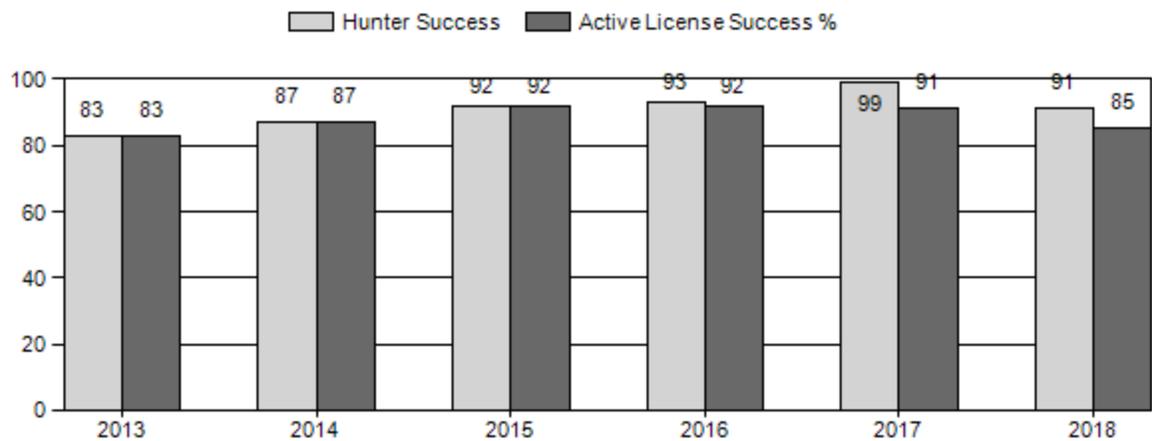
Harvest



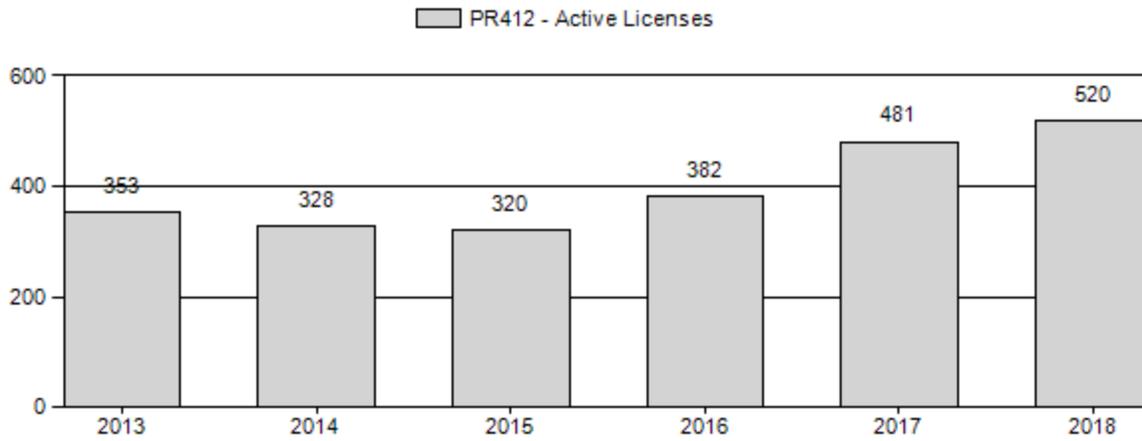
Number of Active Licenses



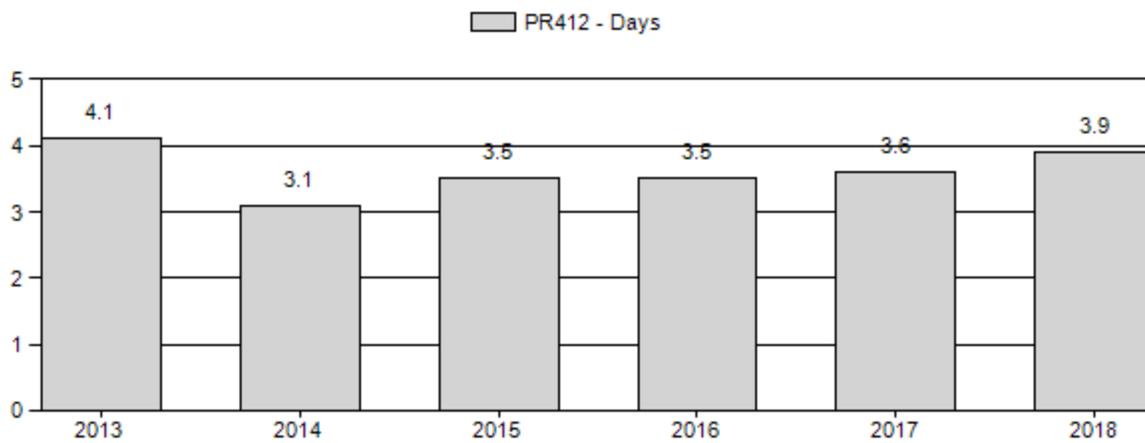
Harvest Success



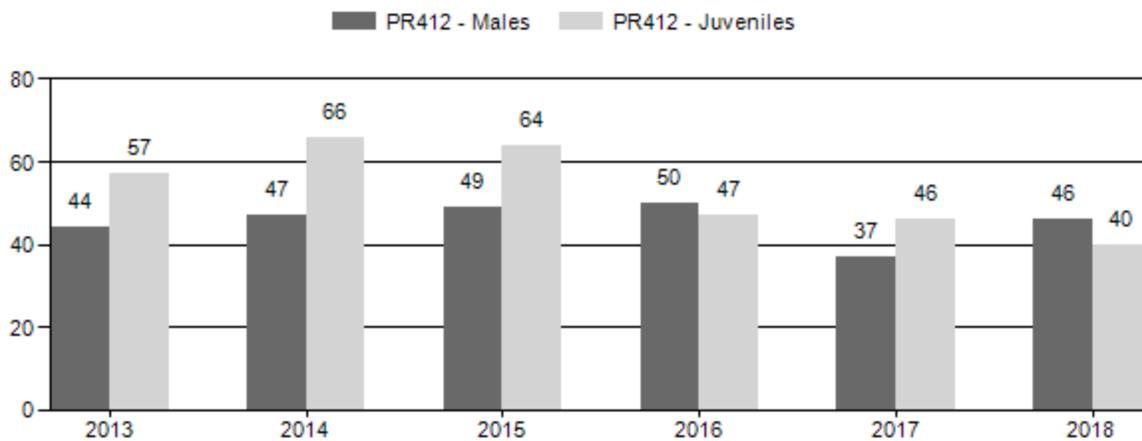
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR412 - SOUTH ROCK SPRINGS

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	7,450	119	256	375	22%	848	50%	482	28%	1,705	944	14	30	44	± 4	57	± 5	39
2014	9,139	144	195	339	22%	724	47%	480	31%	1,543	1,773	20	27	47	± 5	66	± 6	45
2015	8,500	179	250	429	23%	873	47%	558	30%	1,860	1,940	21	29	49	± 4	64	± 5	43
2016	7,700	217	333	550	25%	1,097	51%	519	24%	2,166	1,648	20	30	50	± 4	47	± 4	32
2017	7,200	36	167	203	20%	543	54%	251	25%	997	1,481	7	31	37	± 5	46	± 5	34
2018	6,850	81	254	335	25%	732	54%	290	21%	1,357	1,129	11	35	46	± 4	40	± 4	27

**2019 HUNTING SEASONS
SOUTH ROCK SPRINGS PRONGHORN HERD (PR412)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
59	1	Sept. 20	Oct. 31	300	Limited quota	Any antelope
	6	Sept. 20	Oct. 31	100	Limited quota	Doe or fawn
112	1	Sept. 20	Oct. 31	100	Limited quota	Any antelope
	6	Sept. 20	Oct. 31	50	Limited quota	Doe or fawn

Special Archery Season Hunt Areas	Opening Date	Limitations
59, 112	Aug. 15	Refer to Section 2 of this Chapter

Hunt Area	Type	Quota change from 2018
Herd Unit Total		No Changes

Management Evaluation

Current Management Objective: 6,500

Management Strategy: Recreational

2018 Postseason Population Estimate: ~6,350

2019 Proposed Postseason Population Estimate: ~5,900

The post-season population objective for the South Rock Springs pronghorn herd is 6,500 animals under recreational management. The objective for this herd was changed to its current level in 2002. The objective was reviewed in the summer of 2013, when no changes were made.

Herd Unit Issues

In the past, this population has had modeled population estimates of varying quality, with the model suggesting unrealistic growth rates in some years. However, current model population estimates seem realistic. Beside the sometimes questionable results output by the model, this herd has few issues, with both the public and landowners being relatively happy with pronghorn numbers in the herd unit.

Weather

While the spring of 2018 saw decent moisture, which allowed for good forb production in many areas of the South Rock Springs herd unit; the summer months saw very little precipitation in the region. This lack of moisture during a significant portion of the growing season unfortunately resulted in early plant senescence and decreased forage value for pronghorn. Regrettably, this condition has been present in the herd unit for many of the recent years, which is probably the contributing factor to the decreases in observed fawn ratios over the last several years.

In addition to the dry summer observed in 2018, the 2018-2019 winter has been above average in terms of snowfall amount and to a lesser extent, winter temperatures. These severe winter conditions following a year of poor forage production probably resulted in a decrease in over winter survival for pronghorn in the herd unit.

Habitat

No habitat transects targeting pronghorn ranges have been conducted in the South Rock Springs pronghorn herd unit. However, based on observations made during other field work, shrubs in the South Rock Springs area have not been putting on much in the way of annual growth during the last several summers. This trend has continued in 2018, which was the driest summers since the 2012-2014 drought. While there was good spring time moisture which resulted in good forb growth, the area received little summer precipitation which resulted in little shrub growth.

Field Data

Pre-season classifications conducted from the ground in August 2018 resulted in 1,357 pronghorn being classified in the herd unit, which is up from the 2017 classification sample size of 997 pronghorn, but down from the 2,166 classified in 2016. The 2018 sample consisted of 732 does, 290 fawns, 254 two-year-old or older bucks and 81 yearling males. The 2018 classifications produced observed fawn to doe ratios of 40 fawns per 100 does. This observed fawn to doe ratio is below the observed ratios of the last several years, when the fawn ratio averaged around 60 fawns per 100 does, and a ratio this low suggests that this herd is declining. The last three year's observed fawn ratios, while very low, are not out of line for what has been observed in this herd in the past. Pre-season classifications also resulted in observed buck ratios of 46 total bucks per 100 does which includes 11 yearling bucks per 100 does; for the herd unit as a whole, which is within the approved range for a recreational management herd.

Harvest Data

Harvest statistics for the 2018 hunting season were typical for this herd. Harvest success for the herd unit as a whole was 90.8%. Days per harvest was 3.9 days per harvest during the 2018, which is up slightly from the 2017 results, when the days per harvest estimate was 2.6 days per harvest, but similar to the 2016 estimate of 3.5 days per harvest. A total of 444 pronghorn were harvested in 2018, with 317 bucks, 118 does, and 9 fawns being harvested. Broken out by hunt area, HA59 had a 83.9% success rate and 4.5 days per harvest on the Type 1 licenses with a total of 234 bucks and 84 does harvested including 6 that were harvested by Type 1 license holders. The Type 1 license holders in HA112 had an 87.3% success rate and 4.7 days per harvest with a total of 89 bucks being harvested. The Type 6 license holders in HA59 experienced a 84.8% success rate, harvesting 78 does and no fawns with an average of 2.2 days per harvest, while the hunters in HA112 had a 91.5% harvest success rate, harvesting a total of 34 does and 9 fawns; they took an average of 3.8 days to harvest their animal.

Population

The model for this population has tracked fairly well with field observations of this herd until 2013, when the post-season population estimate moved in a direction counter to the field observations of both the managers and the public for a few years. The model's performance appears to have improved however starting in 2017, and now produces a reasonable estimate that more closely resembles on the ground observations.

The model estimated post-season population size for the South Rock Springs pronghorn herd after the 2018 season is about 6,350 animals. This estimate places the herd right in the middle of its population objective range. Given the observed fawn ratios and expected 2019 harvest from

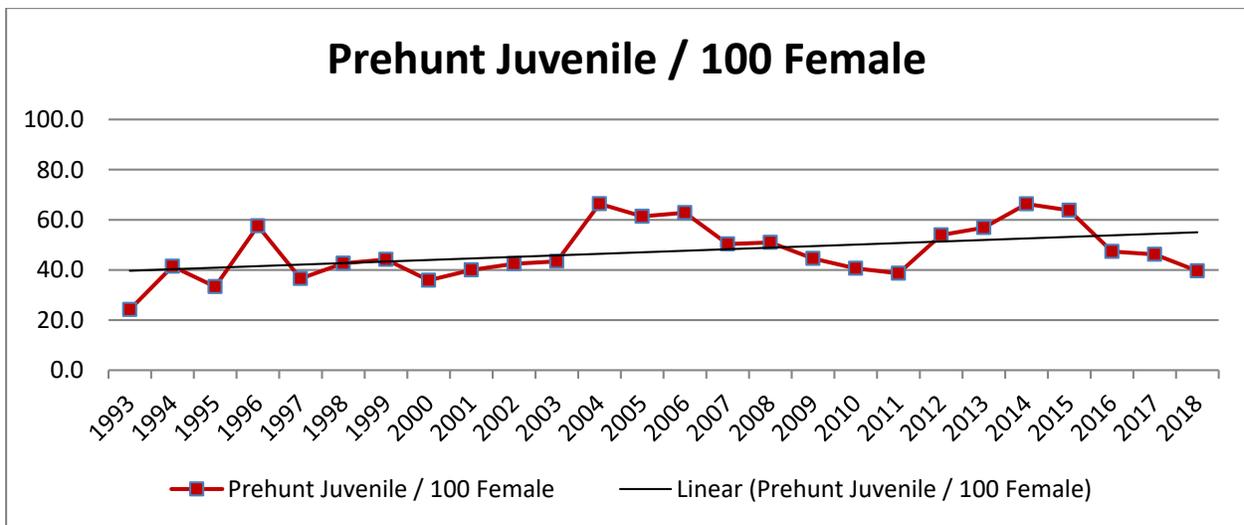
the proposed seasons, the model predicts a slight decline in the post-season population to 5,900 animals after the 2019 season.

The time-specific juvenile survival model was selected for this herd because of its relative AIC value and because that model best fit the field observations of the population and the biology of the species.

Management Summary

The hunting season for 2019 maintains license allocation levels at their 2018 levels in both HA59 and HA112. While the observed fawn ratio in 2018 was less than desired, and that the 2018-2019 winter is severe enough that the herd may be experiencing higher than normal over-winter mortality, the 2019 proposed seasons should keep the herd within its objective range.

Assuming similar success rates in 2019 as were observed in 2018, the 2019 seasons should result in the harvest of 450 pronghorn from the herd unit, 325 bucks, and approximately 120 does.



2018 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2018 - 5/31/2019

HERD: PR414 - BITTER CREEK

HUNT AREAS: 57-58

PREPARED BY: PHIL DAMM

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	12,072	11,381	12,000
Harvest:	330	598	600
Hunters:	338	607	600
Hunter Success:	98%	99%	100%
Active Licenses:	360	656	600
Active License Success:	92%	91%	100%
Recreation Days:	1,234	2,182	2,200
Days Per Animal:	3.7	3.6	3.7
Males per 100 Females	55	60	
Juveniles per 100 Females	46	25	

Population Objective (\pm 20%) : 13000 (10400 - 15600)

Management Strategy: Special

Percent population is above (+) or below (-) objective: -12.5%

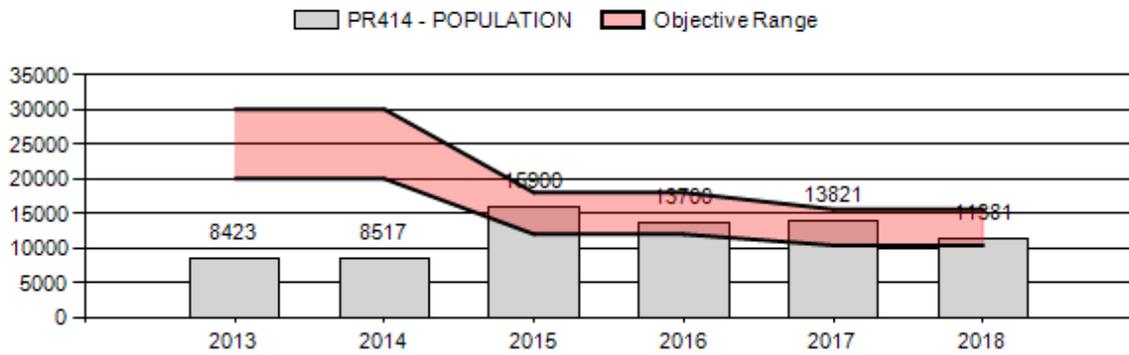
Number of years population has been + or - objective in recent trend: 0

Model Date: 3/6/2019

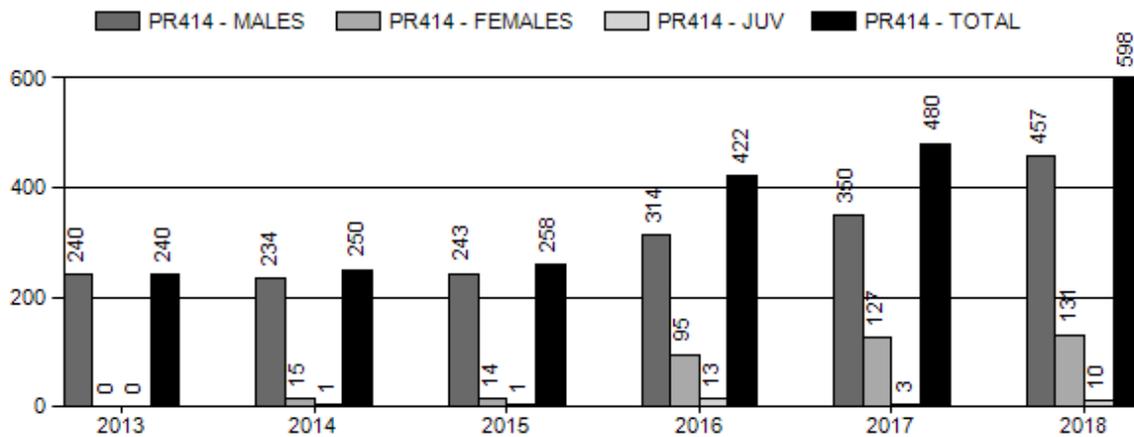
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	0%	0%
Males \geq 1 year old:	0%	0%
Total:	0%	0%
Proposed change in post-season population:	10%	10%

Population Size - Postseason

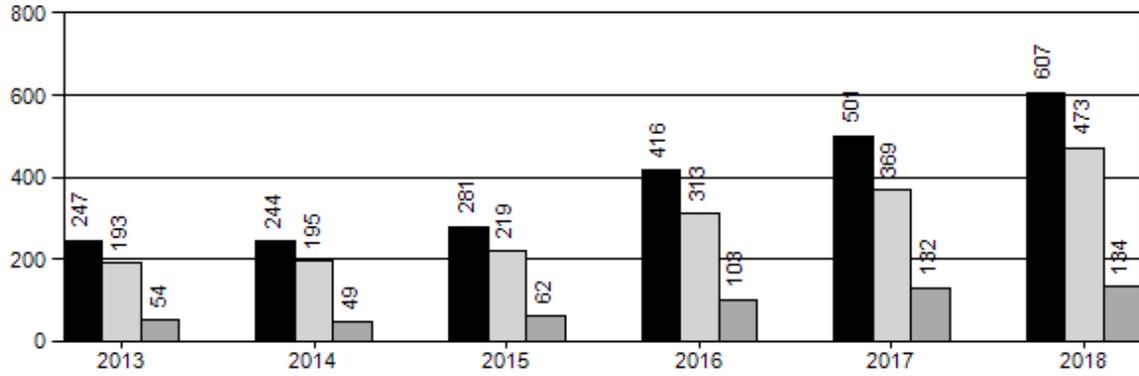


Harvest



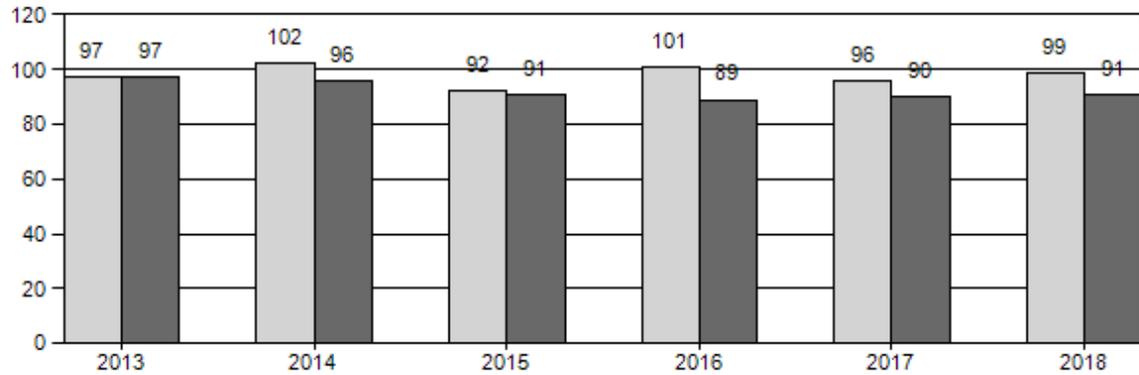
Number of Active Licenses

PR414 - TOT PR414 - RES PR414 - NONRES

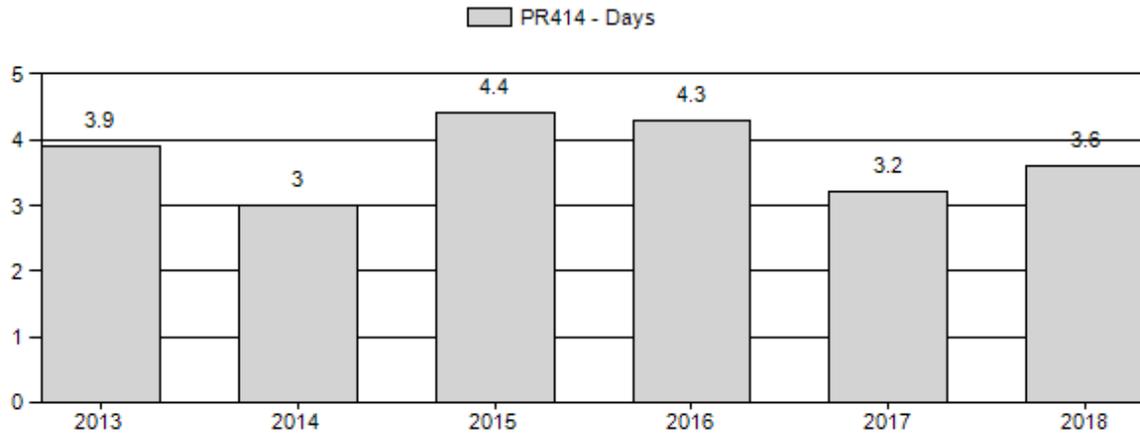


Harvest Success

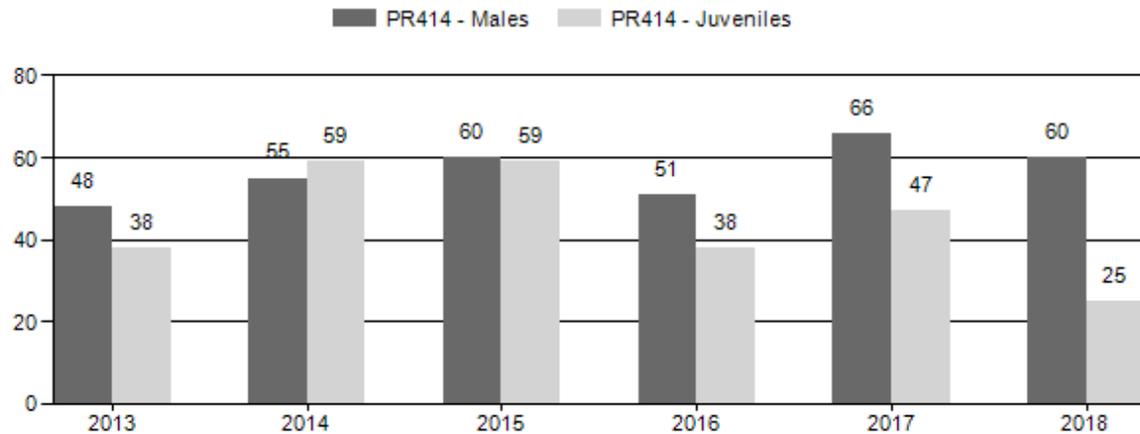
Hunter Success Active License Success %



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR414 - BITTER CREEK

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	10,390	51	306	357	26%	751	54%	283	20%	1,391	0	7	41	48	± 5	38	± 4	26
2014	8,792	91	217	308	26%	563	47%	333	28%	1,204	0	16	39	55	± 6	59	± 6	38
2015	16,200	179	399	578	27%	960	46%	565	27%	2,103	0	19	42	60	± 5	59	± 5	37
2016	14,100	204	608	812	27%	1,587	53%	596	20%	2,995	0	13	38	51	± 3	38	± 3	25
2017	14,301	95	369	464	31%	706	47%	330	22%	1,500	0	13	52	66	± 6	47	± 5	28
2018	12,038	124	546	670	32%	1,120	54%	275	13%	2,065	0	11	49	60	± 4	25	± 2	15

2018 PROPOSED HUNTING SEASON

SPECIES : **Pronghorn**

HERD UNIT : **Bitter Creek (414)**

HUNT AREAS: **57, 58**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
57	1	Sep. 20	Oct. 31	400	Limited Quota	Any antelope
57	2	Sep. 20	Oct. 31	25	Limited Quota	Any antelope valid west of Sweetwater County Road 23S and B.L.M. Road 3310, and north and east of B.L.M. Roads 4411 and 4409
57	6	Sep. 20	Oct. 31	125	Limited Quota	Doe or fawn only
57	7	Sep. 1	Oct. 31	50	Limited Quota	Doe or fawn valid on private land within one (1) mile of Carbon County Road 603
58	1	Sep. 20	Oct. 31	150	Limited Quota	Any antelope

Special Archery Season Hunt Areas	Opening Date	Limitations
57, 58	Aug. 15	Refer to Section 2 of this Chapter

Hunt Area	Type	Quota change from 2016
57	1	+50
	2	0
	6	0
	7	0
58	1	0
	1	+50
	2	0
	6	0
7	0	

Management Evaluation

Current Management Objective: 13,000 (2015)

Management Strategy: Special

2018 Post-season estimate: 11,381

2019 Proposed postseason estimate: 12,000

The Bitter Creek herd is currently within the 20% range of the 13,000 objective (established in 2015), but on the low end of the range. Our current management strategy is to maintain the population within this range through a combination of full and reduced price licenses and similar female harvest. Increased bucks throughout the herd unit allow for a modest increase in Type 1 licenses in area 57, resulting in more hunter opportunity, double that of recent years. The type 7 licenses we have issued the past few years have had some success in alleviating damage concerns on some of the irrigated meadows in the southeastern portion of hunt area 57. Given recent very poor fawn production and extreme drought in growing season of 2018, it is expected this population may continue into a declining trend. At only 3% of the total population size, the current modest doe harvest will not impact this population noticeably.

Herd Unit Issues

The main issues impacting the Bitter Creek herd include continued large scale energy development and competition with non-native, invasive feral horses. The Bitter Creek herd is facing many challenges through the expansion of the Continental Divide-Creston Junction (CDC), Hiawatha, and Desolation Flats gas fields. Currently there are nearly 5,000 wells in the CDC and an EIS for an additional 8,950 infill wells. Through cooperative research with the University of Wyoming, collared pronghorn within the Bitter Creek herd demonstrated avoidance behavior to development during the winter, a time they are particularly vulnerable to stressors that may result in death the following summer. However, collared does showed a marked selection for these areas of disturbance during the summer, probably due to diet shift to herbaceous plants more commonly found in disturbed areas.

Feral horses have been shown to “defend” open water sources and recent fecal analysis is showing a major dietary overlap with pronghorn, given high shrub use by feral horses in the Adobe Town-Salt Wells HMA. Important research is ongoing to document the interaction and competition between feral horses and native wildlife.

Weather

Dry weather and decreased precipitation persisted through the summers of 2017 and (especially) 2018, negatively impacting fawn survival, water resources, and forage production, and resulting in less than stellar horn growth in this “trophy” herd unit for 2018. Many pronghorn were forced to use the extreme eastern portion of the unit, along the Muddy Creek Wetlands, where densities were very high. After summer, moisture has been above average throughout much of this herd and during this winter, and should result in improved habitat conditions and horn growth in this area for 2019. We did not see increased winter mortality as a result of this increase in moisture in the southern half of the herd; however, some larger winter kill events were reported near Interstate 80. Given the increased moisture through winter coupled with superb moisture through the end of

May 2019, we should see a return of normal or above normal fawn production and survival and horn growth.

Winter Severity

As mentioned above, the winter of 2018-19 has shown increased moisture and harsher conditions across the herd unit, when compared to recent years. This increase in moisture should help recharge springs and improve forage conditions across this desert landscape. Significant winter mortality was not observed in much of these units; but again, some larger winter kill events were reported near Interstate 80. These may have been isolated instances of pronghorn groups being “stuck” in the snow and unable to migrate to areas with less accumulation. During elk classification flights in late February 2019, thousands of pronghorn were observed using the Muddy Creek riparian areas for many miles. A few mortalities were observed from the air; however, coyote predation was likely for these observations. It is not unreasonable to believe fawn mortality was higher over winter than is typical. Combined with lower fawn ratios to begin the winter, yearlings recruited to the population in 2019 may be minimal.

Field Data

Fawn ratios declined precipitously in 2019 compared to both last year and the previous 5 year average. We attribute this solely to extreme drought conditions during the summer of 2018. Fawn ratios fell from 44 fawns:100 does in 2017 (previous 5-year average of 48:100) to a very disappointing 24:100 does. This may change the trajectory of this population and will result in many fewer individuals in this age class. Buck ratios were at the bottom end of special management at 60:100 does, but Area 57 had a very high ratio of 71:100, suggesting a little more opportunity exists in this hunt area. Doe:fawn ratios remained significantly lower than neighboring pronghorn herds, but this is the historic pattern and is indicative of a xeric and less productive herd unit. In the recent half decade, conservative management and a couple of reasonable fawn production years have resulted in buck ratios that have been trending upward, especially in the more “mesic” Area 57. Despite high buck ratios and hunters reporting they were looking at hundreds of bucks a day, there were a number of complaints concerning horn growth in 2018; another drought driven issue.

Harvest Data

Hunters in the Bitter Creek herd unit experienced typically high success, and were generally satisfied with their experience in both hunt areas. Harvest success (98.5%) increased slightly from previous years and is extremely high. Hunters tend to be very selective in this herd unit due to buck size potential, and a few choose to not harvest anything if they do not find the buck they are seeking. Hunter effort tends to be a little higher and hunts longer in these areas because of this selectivity. Many of the hunter comments we received at check stations and during field checks suggest they are ecstatic regarding the number of bucks available and the number of total pronghorn seen, but were somewhat dissatisfied due to environmental influence on horn growth this past season. However, over 92% of hunters reported they were Very Satisfied or Satisfied with their 2018 hunt in this herd unit.

Population

We chose the time-specific juvenile, constant adult survival model to estimate this year’s population abundance of Bitter Creek pronghorn. Despite the models relatively high AICc value, we find this model to be a better representation of pronghorn ecology and the stochastic nature of juvenile survival in a variable climate.

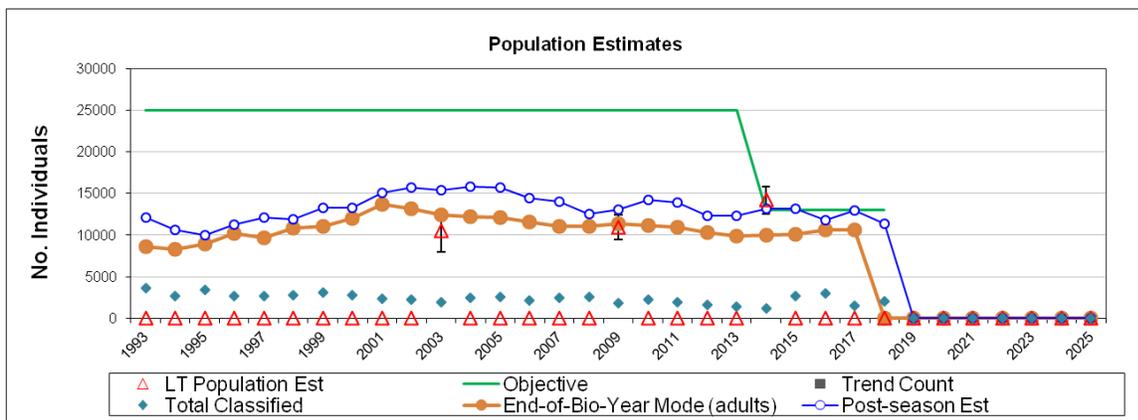
The current population model estimates the 2018 post season population to be around 11,381 pronghorn. Despite the low AICc value of the constant juvenile, constant adult survival model, it is unrealistic to assume that juvenile survival will remain constant in light of both drought and/or severe winter conditions. The TSJ,CA model also gives a better representation of actual population trend and size based on the line transect estimates obtained in previous years.

Management Summary

Maintaining higher quotas in this proposal will allow us to continue offering more opportunity in order to maintain current population levels, but may decrease buck ratios. Both hunt areas have shown improvements in pronghorn densities and buck ratios, with an upcoming dip expected due to this year’s very poor fawn crop and more difficult winter. The threat of continued drought during upcoming summers will continue to have adverse effects on productivity in this xeric herd unit. However, it is expected increased moisture this winter and spring will ameliorate some of this effect. While some modest increase in buck opportunity exists, we will remain cautious at this time concerning doe-fawn opportunity.

The type 2 license remains useful in the north end of Area 57 and helps to alleviate landowner concerns in this checkerboard landownership area. These have been successful in adding harvest into the lightly hunted northern portion of Area 57 and have allowed us the opportunity to direct harvest and increase opportunity in a little used portion of the herd unit.

We have made a slight impact on the damage concerns we were having in the southeastern portion of the herd through the type 7 licenses. Despite the harvest in the type 7 area we are proposing to maintain a low quota in this area, but made up the difference last year in Type 6 licenses that can be used in all of Area 57. Since Area 58 remains drier and less productive than 57, we propose no changes to “any” licenses in this area and issue no doe-fawn opportunity.



2018 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2018 - 5/31/2019

HERD: PR419 - CARTER LEASE

HUNT AREAS: 94, 98, 100

PREPARED BY: JEFF SHORT

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	6,082	5,704	5,760
Harvest:	1,412	1,494	1,500
Hunters:	1,462	1,581	1,600
Hunter Success:	97%	94%	94 %
Active Licenses:	1,650	1,779	1,800
Active License Success:	86%	84%	83 %
Recreation Days:	5,566	5,024	5,200
Days Per Animal:	3.9	3.4	3.5
Males per 100 Females	57	66	
Juveniles per 100 Females	69	50	

Population Objective (± 20%) : 6000 (4800 - 7200)

Management Strategy: Recreational

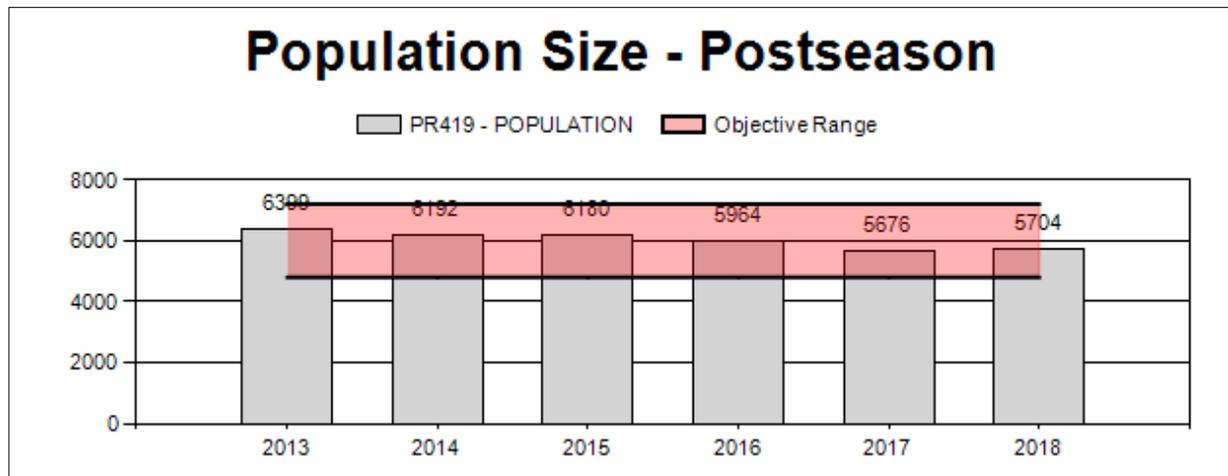
Percent population is above (+) or below (-) objective: -4.9%

Number of years population has been + or - objective in recent trend: 7

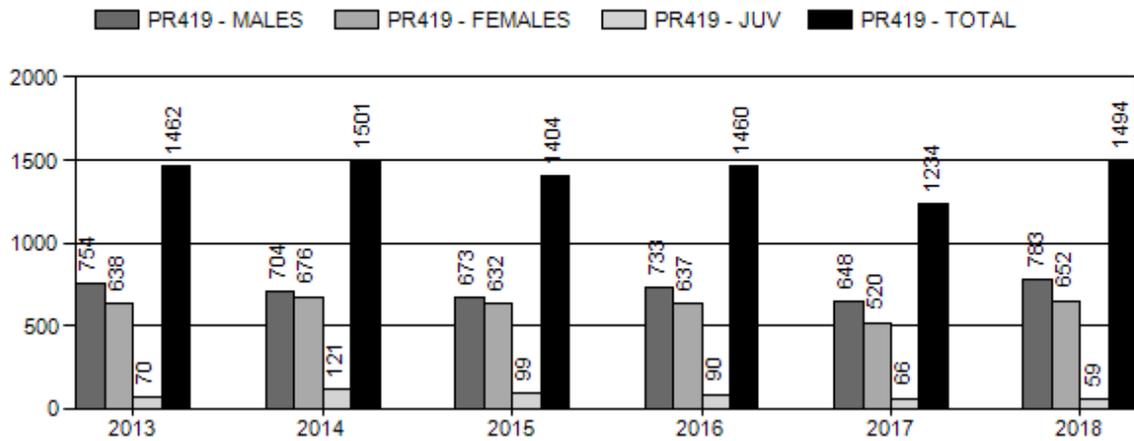
Model Date: 02/18/2019

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

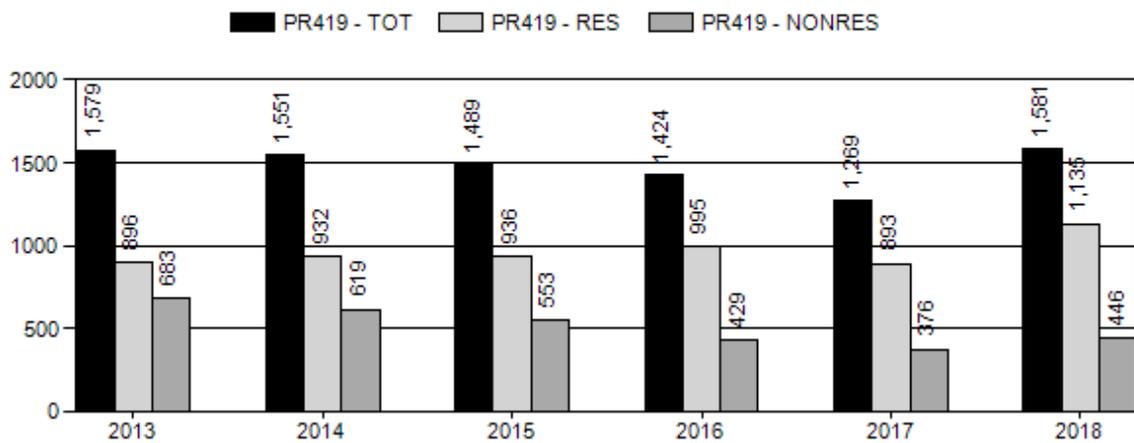
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	10.1%	10.9%
Males ≥ 1 year old:	26.0%	26.4%
Total:	12.9%	12.3%
Proposed change in post-season population:	-3.6%	+1.1%



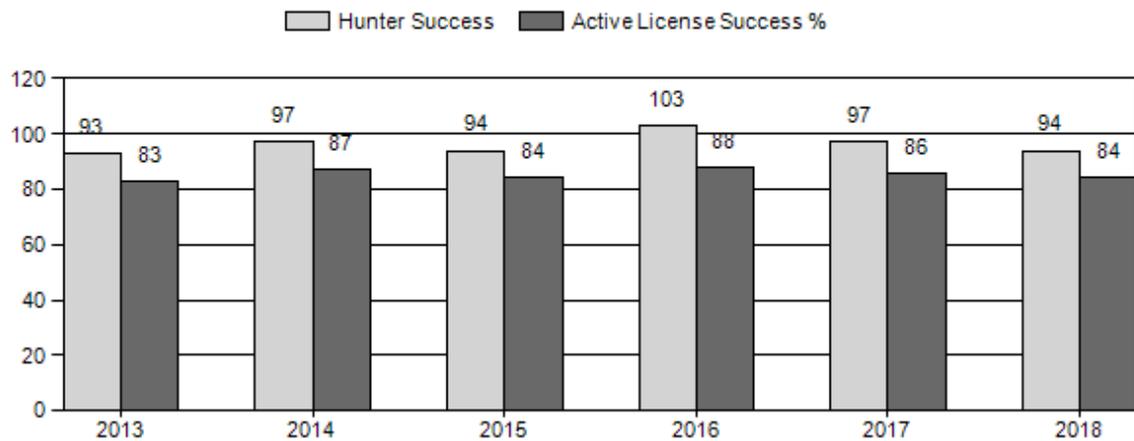
Harvest



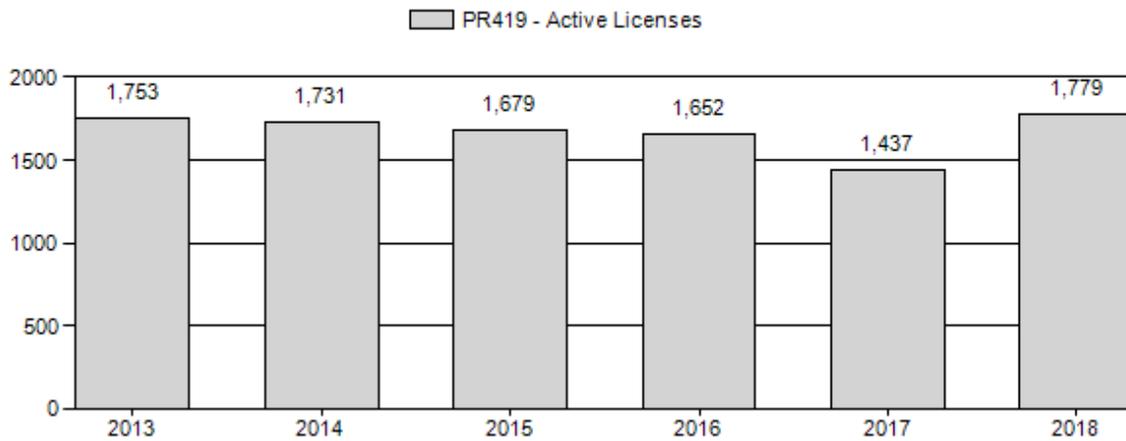
Number of Active Licenses



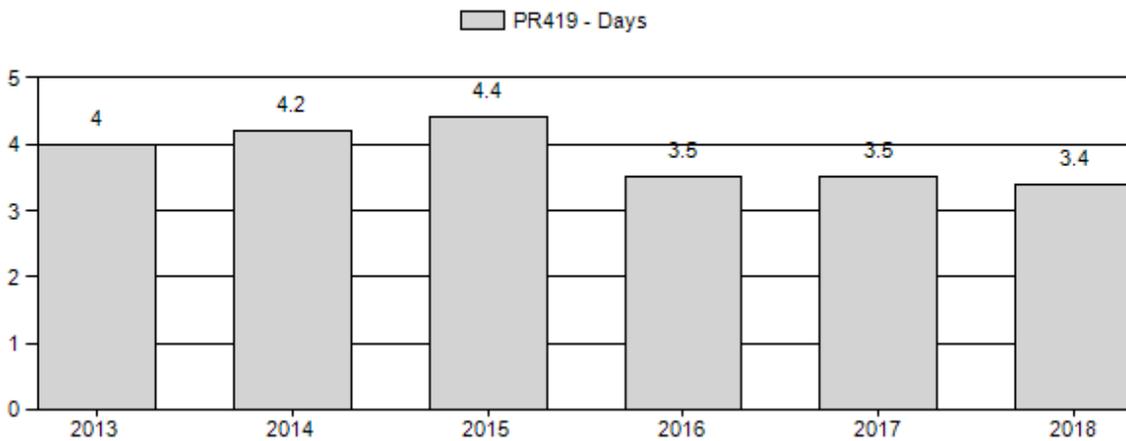
Harvest Success



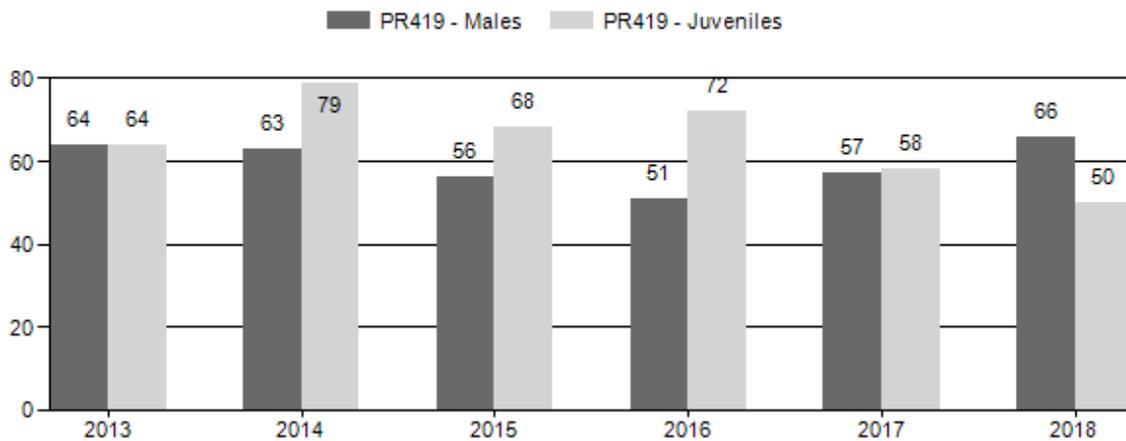
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR419 - CARTER LEASE

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	7,273	106	475	581	28%	904	44%	576	28%	2,061	0	12	53	64	± 5	64	± 5	39
2014	7,073	152	511	663	26%	1,058	41%	838	33%	2,559	0	14	48	63	± 4	79	± 5	49
2015	6,984	281	419	700	25%	1,252	45%	849	30%	2,801	0	22	33	56	± 3	68	± 4	43
2016	6,838	258	400	658	23%	1,297	45%	939	32%	2,894	0	20	31	51	± 3	72	± 4	48
2017	6,339	157	396	553	26%	978	47%	566	27%	2,097	0	16	40	57	± 4	58	± 4	37
2018	6,483	148	468	616	31%	931	46%	466	23%	2,013	0	16	50	66	± 5	50	± 4	30

2019 HUNTING SEASONS

SPECIES: Pronghorn

HERD UNIT: Carter Lease (419)

HUNT AREAS: 94, 98, 100

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
94	1	Sep. 10	Oct. 31	500	Limited quota	Any antelope
94	6	Sep. 10	Oct. 31	150	Limited quota	Doe or fawn
94	7	Aug. 15	Oct. 31	300	Limited quota	Doe or fawn valid on or within one (1) mile of irrigated land
98	1	Sep. 10	Oct. 31	150	Limited quota	Any antelope
98	6	Sep. 10	Oct. 31	200	Limited quota	Doe or fawn
98	7	Nov. 1	Nov. 30	50	Limited quota	Doe or fawn valid within the Smiths Fork drainage
100	1	Sep. 10	Oct. 31	350	Limited quota	Any antelope
100	6	Sep. 10	Oct. 31	325	Limited quota	Doe or fawn

94, Archery Aug. 15 Sept. 9
98,
100

Limited Refer to Section 2 of this chapter
quota

Hunt Area	License Type	Quota change from 2018
94	7	+50
98	1	-50
100	1	+50
Herd Unit Total	7	+50
	1	-50
	1	+50

Management Evaluation

Current Postseason Population Management Objective: 6,000

Management Strategy: Recreation

2018 Postseason Population Estimate: ~ 5,704

2019 Proposed Postseason Population Estimate: ~ 5,760

Herd Unit Issues

Energy development on crucial habitat is a looming issue for this herd. Development is present and has had impacts to habitats in the eastern portion of the herd unit. Highways have created significant movement barriers between the hunt areas in this herd unit. Highway 189 is a large problem for antelope trying to access winter ranges on tough years. Animals can get stuck in the right of way and many vehicle related mortalities occur. Highway 30 is another movement barrier, however on some years it seems that they may use mule deer underpasses and cross under the highway. Interstate 80 is a significant movement barrier as well, as many animals would likely move further south for winter if they could. On very bad winters we can get antelope in the interstate right of way if snow buries fences and they walk over the top.

The hunt areas in this herd are very different in several characteristics. Hunt Area 94 is more xeric and has classic pronghorn habitat. Hunt Areas 98 and 100 have more hilly terrain, are slightly wetter and are very important winter range for the Wyoming Range mule deer herd. A large number of mule deer migrate into that area to winter on shrub browse. Therefore, we manage for low pronghorn numbers in 98 and 100 to reduce browse competition for mule deer. The herd unit has a split objective of 5,000 antelope in Hunt Area 94 and 1,000 antelope in Hunt Areas 98 and 100 combined.

In some years, high recruitment rates can make it difficult to maintain this population at such a low level. This is especially true in Hunt Areas 98 and 100 where the desired population is approximately 1,000 antelope, which is less than 1 antelope per square mile. Due to low antelope densities hunter success is usually lower than adjacent areas.

Throughout the herd unit there can be a low tolerance for the presence of pronghorn on some of the private land holdings. Conflict with agriculture producers can be a primary issue for this herd. Damage complaints primarily occur on irrigated lands during the summer and early fall. However, irrigated lands are uncommon relative to native ranges. Significant efforts have been made by field personnel to target harvest toward those problems. Perceived reduction in livestock forage due to pronghorn foraging is an issue occasionally brought up.

Weather

Weather during 2018 and into 2019 has been highly variable. The early part of 2018 was very mild with low snow loads and moderate temperatures. Spring brought some moisture but in late summer and into fall the weather was very warm and dry. Summer range conditions were poor and animals were in low body condition due to low habitat productivity. From December 2018 to May 2019 the winter has been harsh with high snow loads and cold temperatures. Snow is persisting and spring has been very cold and wet. This winter was severe and will have impacts to fawn and adult survival. Winter conditions during bad years does not tend to be as severe on pronghorn winter ranges as it can be to mule deer winter ranges. Most pronghorn in the area have the ability to migrate to lower elevation flats during severe winters. These crucial winter range movements become more difficult as human disturbance threatens

Habitat

Habitat data collection has been inconsistently collected in this herd unit and has been absent in the recent past. A new effort is underway to resume data collection.

Field Data

Fawn ratios in this Herd Unit have been very good in the past, averaging over 75:100 from 2007-2010. During that time observed ratios ranged from 73:100 in 2010 to 83:100 in 2007. This population had been suppressed by harvest due to a low overall objective for the herd unit when compared to carrying capacity. This explained the productive nature of the herd. However, the 2011 herd unit fawn:doe ratio data was significantly lower at 54:100 and even lower in 2012 at 47:100. Those were the lowest fawn:doe ratios in over 12 years. The harsh winter conditions in the winter of 2010/11 decreased doe condition enough to cause poor fawn production in 2011 and the extremely dry conditions in 2012 caused significant observed pre-season fawn mortality. From 2013 through 2016 Herd Unit fawn ratios rebounded greatly to 64:100 in 2013, 79:100 in 2014, 68:100 in 2015 and 72:100 in 2016. A harsh winter hit this Herd unit in 2016/17. This had impacts on doe condition and fawn survival in 2017 where fawn ratios fell to 58:100. Fawn ratios fell again in 2018 to 50:100 due to the dry conditions and poor summer forage.

Line transect survey data was most recently conducted in 2014 in Hunt Area 94. Hunt areas 98 and 100 are not conducive to this type of survey due to low antelope densities and broken terrain. Hunt Area 94 is difficult to attain minimum sample sizes with this type of survey. An increased effort was made in 2011 and 2014 to survey HA 94 with high enough intensity to develop a better estimate. The Hunt area 94 population had declined for several years due to aggressive harvest strategies. That harvest was reduced and we have leveled off at or near objective.

Harvest Data

Doe/fawn harvest opportunity was increased every year for several years in area 94. Starting in 2006 season structures offered substantially increased doe/fawn harvest opportunity to try to reduce that part of the herd and reduce damage problems on irrigated lands. Those seasons allowed significant doe/fawn harvest. These hunts had very good success rates. This management framework along with years of poor fawn production brought this population down to objective in 2012. Harvest in hunt area 94 was reduced after getting to objective in 2012. Since that time we have made periodic changes in harvest to address damage concerns with type 7 licenses and offer opportunity with type 1 and type 6 as much as possible.

We have had good success on area 100 licenses in recent years and over 85% success on both license types in 2018. During our extensive mule deer survey in this area during February 2018 we observed more pronghorn than expected. With this information, we increased Area 100 type 1 and type 6 licenses in 2018. For 2019, we are going to raise type 1 license numbers again due to high buck:doe ratios in the area. Hunt area 98 has had variable but overall lower harvest success and had low buck:doe ratios in 2018 so we plan to reduce type 1 license numbers there.

Population

A total Herd Unit 419 (Carter Lease) model is not feasible due to much different population parameters in Hunt Areas 98 and 100 compared to Hunt Area 94. Additionally the line transect survey method does not fit with hunt areas 98 and 100. It makes sense to model Hunt Area 94 only. The HA 94 population model is presented. Efforts have been made to tighten line transect estimates and we now have two estimates with tight confidence intervals. The current model tracks well and we have some confidence in the estimates. Model results are presented for hunt area 94 only. Herd unit population estimates are reported as the HA94 model plus 1,000 animals to account for the populations we are unable to model in HA 98 and 100. The TSJ,CA model was selected due to its excellent fit with the data, a reasonably low relative AICc score, proper population dynamics fit with the nature of this herd and the population estimate appears to be reasonable. Another reason we have good confidence in the strength of this model is that all three model variations produce a similar population estimate.

In the future it will be imperative that we obtain a reliable population estimate periodically through line transect surveys to check the status of the herd and anchor the model. A line transect survey has not been flown since 2014 and is badly needed to aid in modeling this population. Without this it is unlikely that we can continue to provide a good population model and track the trend of this population. It will then be unclear if our current harvest levels can be sustained or if we are on the right management track relative to objective. In 2012 the Department switched from POPII models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data.

Currently the model is estimating we have around 4,704 pronghorn following the 2018 season in hunt area 94. This is very near the population objective of 5,000 animals for that area. The model estimates that we were on a steep downward trend from 2009 to 2012. This was due to a severe winter in 2010/11, very poor fawn production in 2011/2012 and harvest designed to reduce the population. The population reduction was substantiated by reductions in classification sample sizes and field observations. Since 2012 we have relaxed harvest and tried to stabilize the herd. This has rebounded the population slightly and we are close to objective levels. This herd has the potential for rapid growth as consecutive years with high fawns ratios have occurred in the past. Therefore, adequate female harvest has been needed to curtail growth.

Management Summary

For 2019 we will have limited changes in all license types issued in the Herd. All areas in the Herd Unit have good hunting opportunity. According to the model we are now right below the objective in Hunt Area 94 and well within the 20% range. We are striving to maintain very low antelope densities in Areas 98 and 100. Hunt Area 94 type 7 licenses will be increased to address damage situations on irrigated lands near Bridger Valley. Type 1 licenses will be reduced in Hunt Area 98 due to low buck:doe ratios. Type 1 licenses in Hunt Area 100 will be increased to provide more opportunity since the buck:doe ratios are high there. The Objective and management strategy were last revised in 2015 and no changes were made.

2018 - JCR Evaluation Form

SPECIES: Pronghorn
 HERD: PR438 - BAGGS
 HUNT AREAS: 53, 55

PERIOD: 6/1/2018 - 5/31/2019
 PREPARED BY: PHIL DAMM

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	8,332	7,013	8,000
Harvest:	340	730	700
Hunters:	323	675	675
Hunter Success:	105%	108%	104 %
Active Licenses:	372	807	800
Active License Success:	91%	90%	88 %
Recreation Days:	932	1,945	1,900
Days Per Animal:	2.7	2.7	2.7
Males per 100 Females	58	65	
Juveniles per 100 Females	56	50	

Population Objective (± 20%) : 9000 (7200 - 10800)

Management Strategy: Recreational

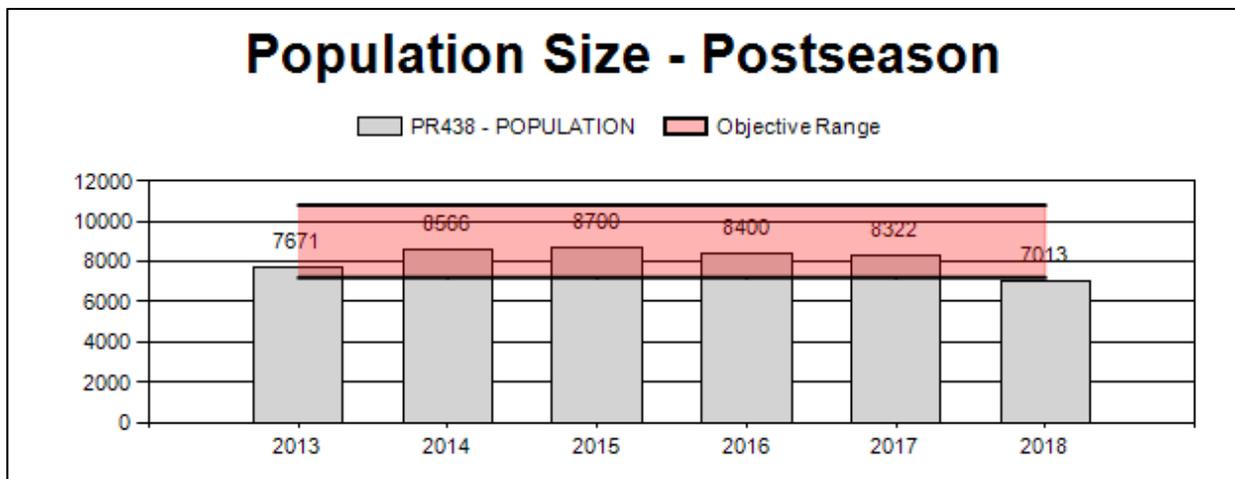
Percent population is above (+) or below (-) objective: -22.1%

Number of years population has been + or - objective in recent trend: 1

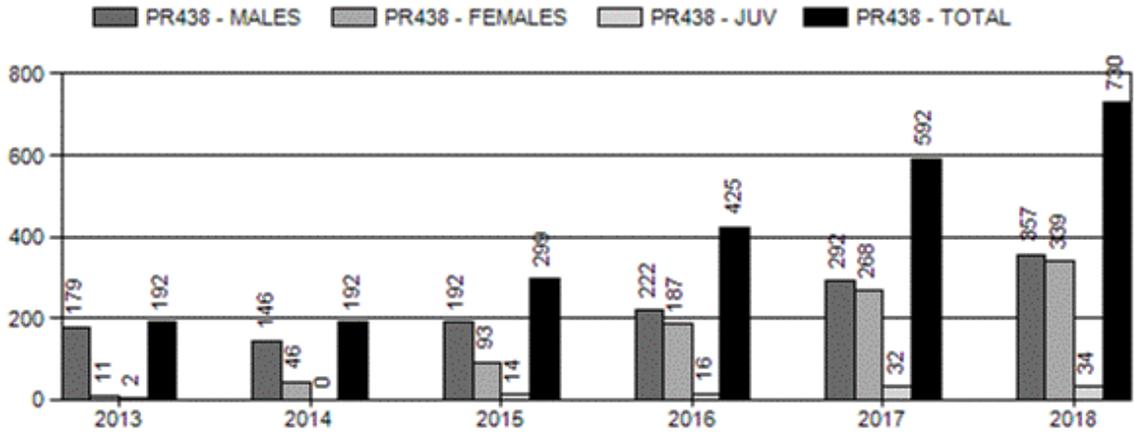
Model Date: 3/6/2019

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

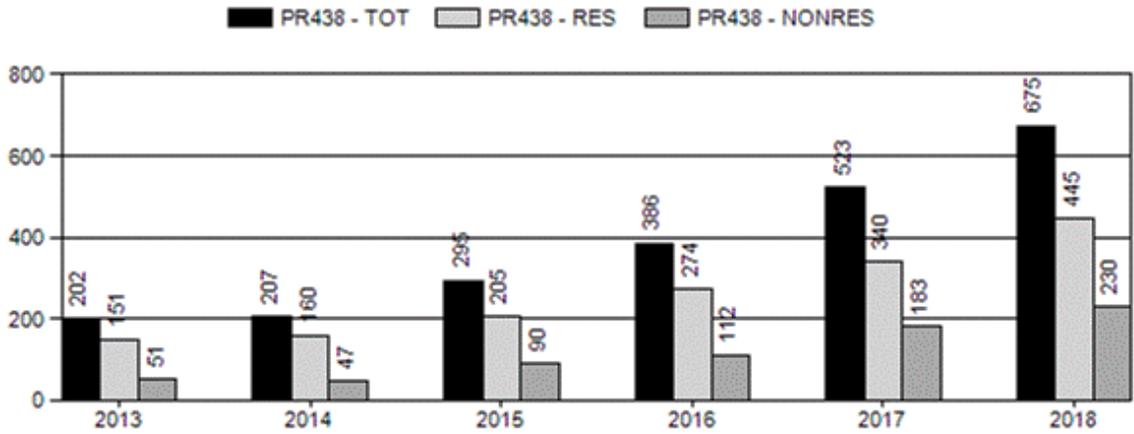
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	+2.5%	0%
Males ≥ 1 year old:	+3.5%	0%
Total:	-1.8%	0%
Proposed change in post-season population:	-3.8%	0%



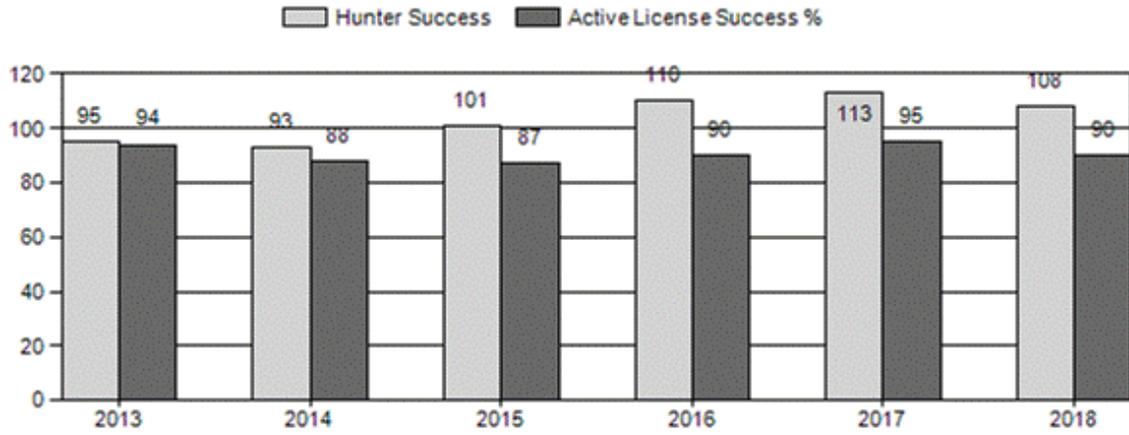
Harvest



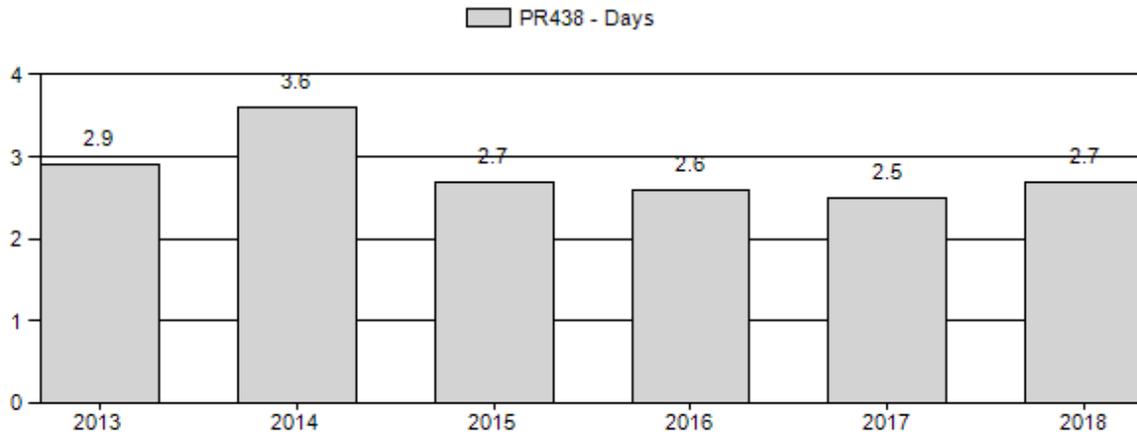
Number of Active Licenses



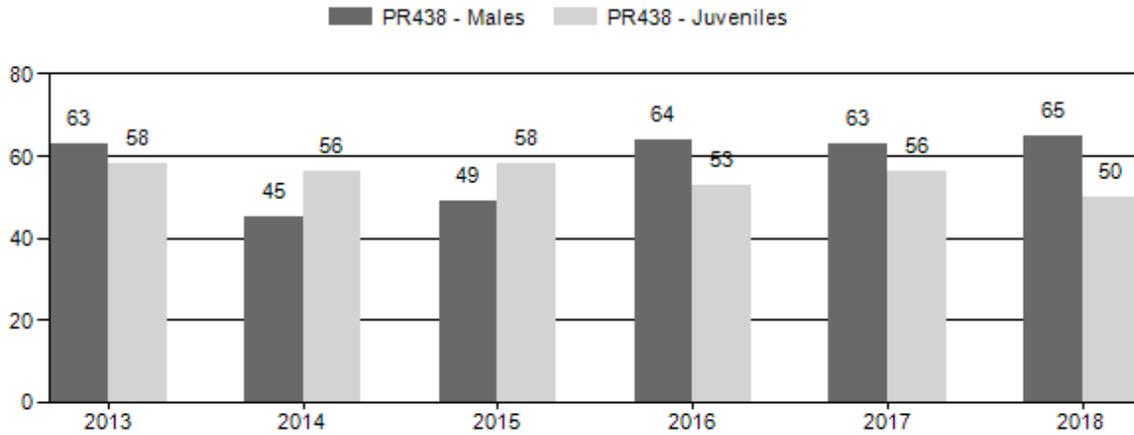
Harvest Success



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR438 - BAGGS

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ying	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	9,571	89	314	403	29%	638	45%	373	26%	1,414	0	14	49	63	± 6	58	± 6	36
2014	8,783	92	258	350	22%	776	50%	437	28%	1,563	0	12	33	45	± 4	56	± 5	39
2015	9,000	89	265	354	24%	728	48%	422	28%	1,504	0	12	36	49	± 5	58	± 5	39
2016	8,800	219	537	756	30%	1,174	46%	625	24%	2,555	0	19	46	64	± 4	53	± 4	32
2017	8,944	259	617	876	29%	1,385	46%	781	26%	3,042	0	19	45	63	± 4	56	± 3	35
2018	7,816	140	480	620	30%	955	47%	477	23%	2,052	0	15	50	65	± 5	50	± 4	30

2019 PROPOSED HUNTING SEASON

SPECIES : **Pronghorn**
 HUNT AREAS: **53, 55**

HERD UNIT : **Baggs (438)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
53	1	Sep. 20	Oct. 31	250	Limited quota	Any antelope
	6	Sep. 20	Oct. 31	150	Limited quota	Doe or fawn
	7	Sep. 1	Oct. 31	125	Limited quota	Doe or fawn valid on private land
55	1	Sep. 20	Oct. 31	250	Limited quota	Any antelope
	6	Sep. 20	Oct. 31	150	Limited quota	Doe or fawn

Special Archery Season Hunt Areas	Opening Date	Limitations
53, 55	Aug. 15	Refer to Section 2 of this Chapter

Hunt Area	Type	Quota change from 2017
53	1	+50
	6	0
	7	0
55	1	0
	6	0
Herd Unit Total	1	+50
	6	0
	7	0

Management Evaluation

Current Management Objective: 9,000 (2015)

Management Strategy: Recreation

2018 Postseason Estimate: 7,013

2019 Proposed Postseason Population Estimate: 8,000

The Baggs pronghorn herd is modeled slightly below the objective range at below 7,200. Recent harvest levels and decent productivity have generally maintained this herd within the 20% range of the objective of 9,000. However, the extreme drought conditions the last couple years have limited recruitment and contributed to slight declines. Our management strategy has been to maintain current population levels by increasing hunting opportunity, but concerns over increased winter mortality this year, particularly in Area 55 have tempered the desire to increase licenses. At 6% of the total population size, the current fairly modest doe harvest should not impact this population significantly; however, we will continue to re-evaluate harvest levels if populations

continue to decline. Due to continued complaints from private landowners in hunt area 53, we are proposing to maintain the moderate level of Type 7 licenses that allow hunters to harvest does and fawns on private land throughout the hunt area.

Herd Unit Issues

There are three main issues impacting the Baggs herd including: energy development, hunter access in hunt area 55, and increasing numbers of summering pronghorn in the irrigated meadows along the two main drainages in the herd unit, slightly north and east of Baggs. Throughout the Baggs herd we continue to see development of oil and gas fields within the Atlantic Rim Project Area. Through cooperative research with the University of Wyoming, pronghorn within the Baggs herd avoid development during the winter and select for habitats closer to disturbance during the summer, not surprising given seasonal shifts in diet by this species, and the location of those developments. This appears to be due to seasonal forage utilization shifting from forbs growth promoted by disturbance to intact sagebrush dominated habitats during the winter.

Hunt area 53 remains relatively open to public hunting, with a majority of the land under public ownership. However, we continue to see public access issues in Area 55, with a checkerboard (federal/private) landscape and much of the private land under lease from outfitters or shut down from any use. Licenses have remained limited in number in this area to accommodate known access issues. An increase of 50 licenses in the area in 2017 did not result in a decrease in the harvest success, which suggests access may be a declining issue in this area of higher pronghorn density.

Over the last 5 years we have seen an increase in pronghorn using irrigated meadows along the Little Snake River, the lower end of Savery Creek, and now an irrigated field located a few miles north and east of Baggs. Landowner complaints regarding pronghorn numbers in these areas and interest in licenses focusing harvest solely on private lands, have been increasing in recent years. Because of the willingness of the landowners to address this issue through harvest, the regulation was expanded for this license to include all private land in hunt area 53.

Weather

Both 2017 and 2018 represented dry years in this pronghorn herd unit, with lower than average early season and late season moisture. The summer of 2018 was particularly dry to the west of this herd, but pronghorn in Baggs have the opportunity to escape low altitude habitats for more mesic and lush summer ranges in the mountain foothills. Fawns numbers were negatively influenced in the north end of this herd (Area 55) which is predominately lower altitude sagebrush habitats. Winter snowfall was above average in the 2016-17 and again during this 2018-19 winter. Winter moisture often accounts for much of our annual moisture in this herd. Drier than normal summer conditions affected plant growth throughout the herd unit, in particular leader development. A return to drought conditions will likely negatively impact fawn production in future years, but significant areas of wet meadow habitat exists in this herd, allowing some escape from these dry conditions. We did not see increased winter mortality as a result of this increase in moisture in the southern half of the herd; however, some larger winter kill events were reported near Interstate 80.

As mentioned above, bio-year precipitation from October 2016 through September 2018 is below the 30-year average, but not significantly so due to winter moisture. Both the growing season precipitation across the herd unit (April-June 2017) and the later growing season precipitation for high elevation spring/summer/fall ranges (May-July 2016) were notably lower than the 30 year averages, suggesting a return to drought conditions prior to 2015. These conditions worsened in 2018, but 2018-19 winter moisture is appearing to be more normal. Given the increased moisture through winter coupled with superb moisture through the end of May 2019, we should see a return of normal or above normal fawn production and survival and horn growth.

Winter Severity

As mentioned above, the winter of 2018-19 has shown increased moisture and harsher conditions across the herd unit, when compared to recent years. This increase in moisture should help recharge springs and improve forage conditions across this desert landscape. Significant winter mortality was not observed in much of these units; but again, some larger winter kill events were reported near Interstate 80. These may have been isolated instances of pronghorn groups being “stuck” in the snow and unable to migrate to areas with less accumulation. During elk classification flights in late February 2019, thousands of pronghorn were observed using the Muddy Creek riparian areas for many miles. A few mortalities were observed from the air; however, coyote predation was likely for these observations. It is not unreasonable to believe fawn mortality was higher over winter than is typical.

Habitat

Growing season precipitation was well below normal across the herd unit in 2018, resulting in slower growth and less abundance of cool season grasses, forbs, and shrubs, particularly in lower elevation seasonal ranges.

Rapid Habitat Assessments conducted throughout the herd unit in 2015 and 2016 suggest that shrub habitats throughout winter and transition range continue to underperform due to maturity and decadence caused by a lack of natural disturbance. This explains, in part, why pronghorn tend to shift to areas of disturbance (including that created by development) within this herd unit during the growing season. However, disturbance often leads to an increase in noxious, invasive plants. Cheatgrass, halogeton, desert alyssum, and other invasive plant species continue to degrade important habitats throughout this herd unit.

Field Data

Fawn ratios increased a fair amount in 2018, when compared to the previous year, with an observed ratio of 65 fawns:100 does (56:100 the previous year). Between the two hunt areas 53 seems to be the most productive, probably since it is more mesic when compared to area 55. Classification data collected in 2018 again shows reproduction discrepancy between the hunt areas where hunt area 55 is significantly lower than hunt area 53. Conversely the buck to doe ratio in 55 brought the herd unit average up, a fairly typical scenario. This difference in buck ratios is likely a factor of buck dispersal and habitat selection. Counter to the population model, ratios indicate an

increasing population of pronghorn, albeit slowly. Given the concerns for increased winter mortality potential in Area 55, managers are expressing caution this year regarding license issuance and propose no increases to doe/fawn licenses.

Harvest Data

Hunters within the Baggs pronghorn herd had good hunter success and required limited effort to harvest pronghorn in 2018. Hunter success rates continued to be high in this herd, with an overall active license success rate of 90%, which aligns with the previous 5-year average of 89%. Additionally hunter satisfaction maintained a high level for both hunt areas 53 and 55. Again, counter to the population model, these statistics are consistent with an increasing pronghorn population and hunters continue to be pleased.

Population

The current population model estimates the 2018 post-hunt population to be around 8,900 pronghorn. The CJ, CA model was selected based on the lowest AICc value and what we believe to be the best representation of the actual population trend and size. Results are consistent with the most recent line transect estimate, and with observations of field personnel, hunters and local residents. We have some limited faith in this model due to its inability to completely track observed trends, but current harvest rates allow us to maintain pronghorn numbers at current levels, barring significant increase in natural mortality or a reduction in fawn production.

Management Summary

Due to previously lackluster fawn production, the Baggs pronghorn herd has seen a slow recovery over the last 10 years (following increased harvest and winter losses). Current abundance allows for similar levels of doe harvest and increased opportunities to harvest bucks. Challenges include a disproportionate growth of antelope along the more mesic southern end of the unit causing concern for landowners. Maintaining the type 7 licenses should address those concerns and allow for a decrease in the number of pronghorn on irrigated hay meadows.

2018 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2018 - 5/31/2019

HERD: MD423 - UINTA

HUNT AREAS: 132-133, 168

PREPARED BY: JEFF SHORT

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	14,939	13,260	11,901
Harvest:	1,100	926	800
Hunters:	2,446	2,188	2,000
Hunter Success:	45%	42%	40 %
Active Licenses:	2,465	2,198	1,990
Active License Success:	45%	42%	40 %
Recreation Days:	12,288	10,525	10,000
Days Per Animal:	11.2	11.4	12.5
Males per 100 Females	28	28	
Juveniles per 100 Females	58	54	

Population Objective (± 20%) : 20000 (16000 - 24000)

Management Strategy: Recreational

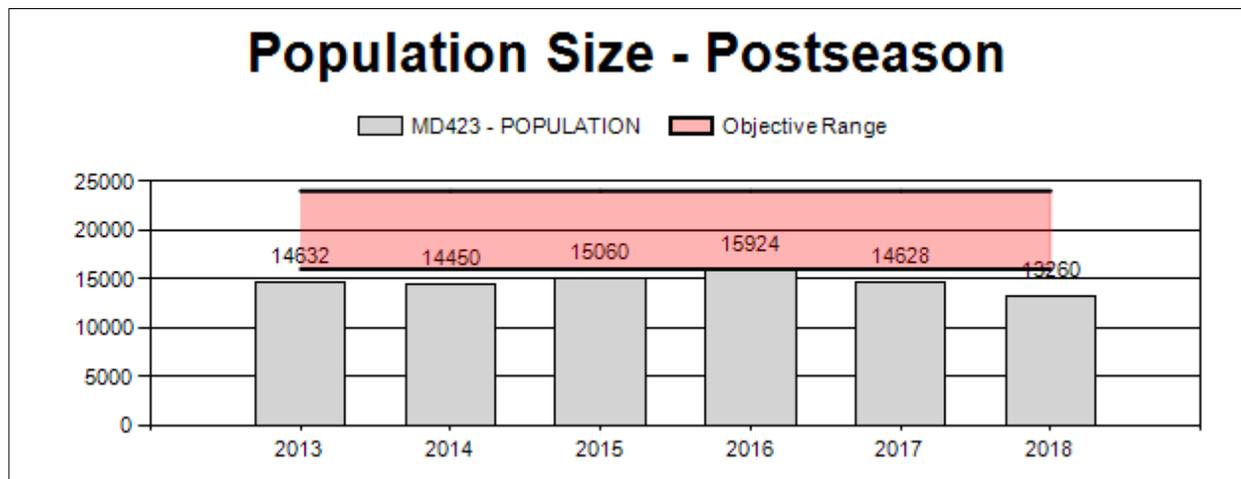
Percent population is above (+) or below (-) objective: -33.7%

Number of years population has been + or - objective in recent trend: 21

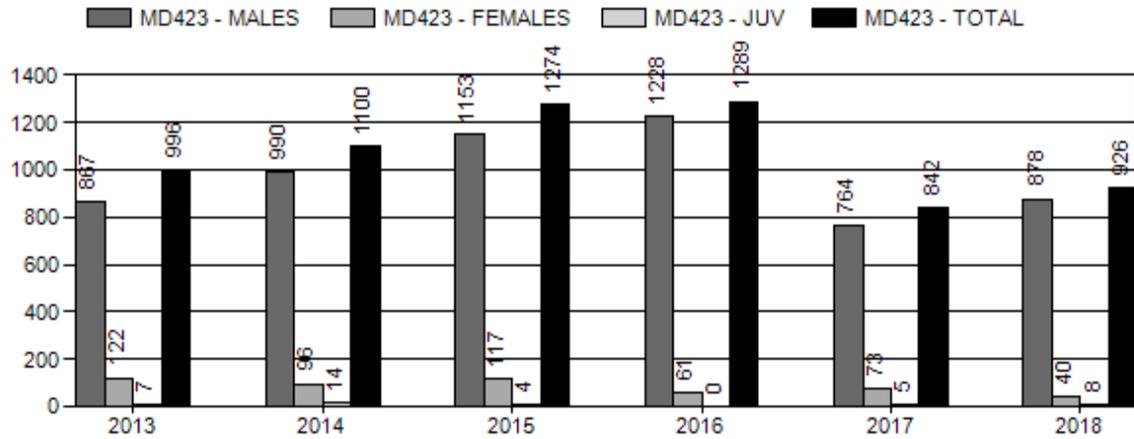
Model Date: 02/18/2019

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

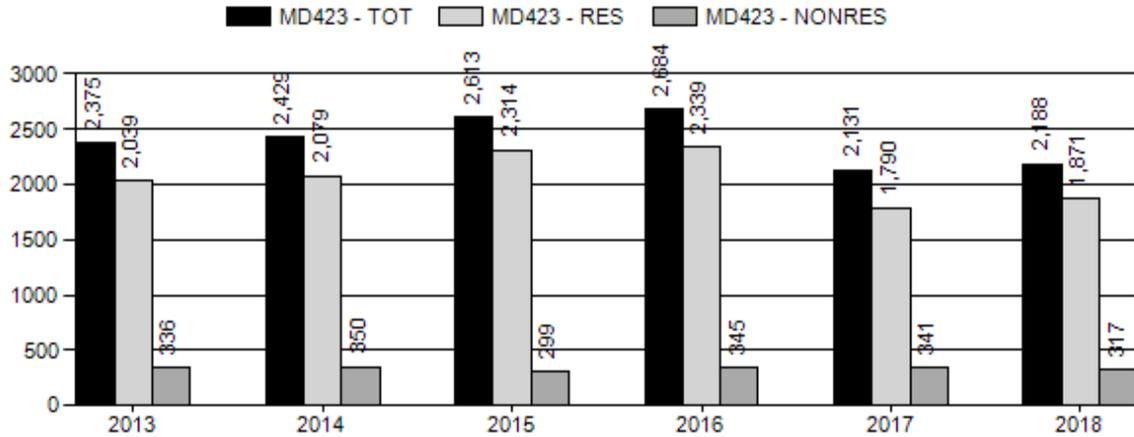
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	.01%	.01%
Males ≥ 1 year old:	31%	38%
Total:	6.5%	6.6%
Proposed change in post-season population:	-6.5%	-10.2%



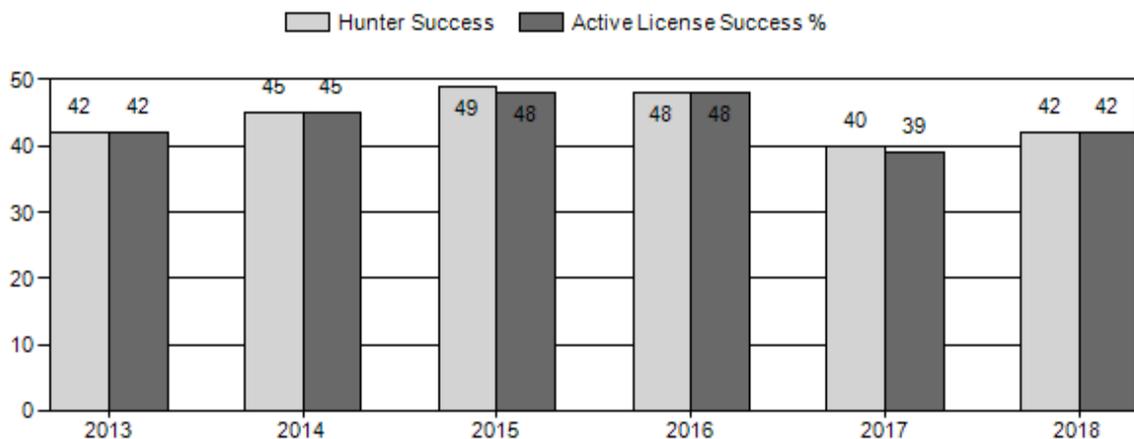
Harvest



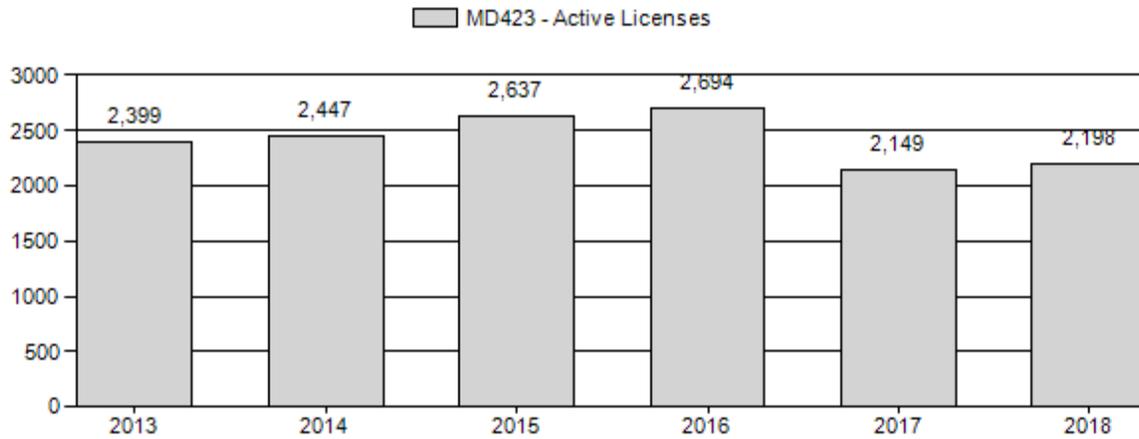
Number of Active Licenses



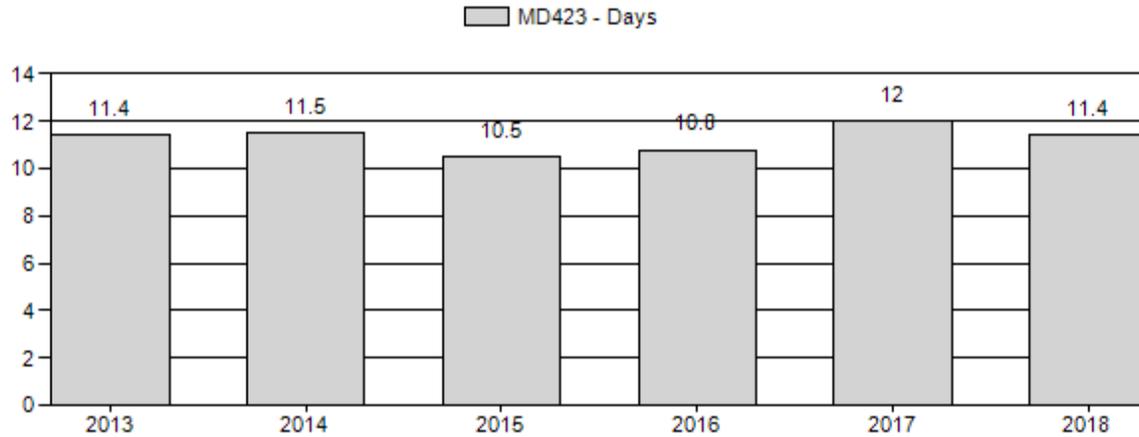
Harvest Success



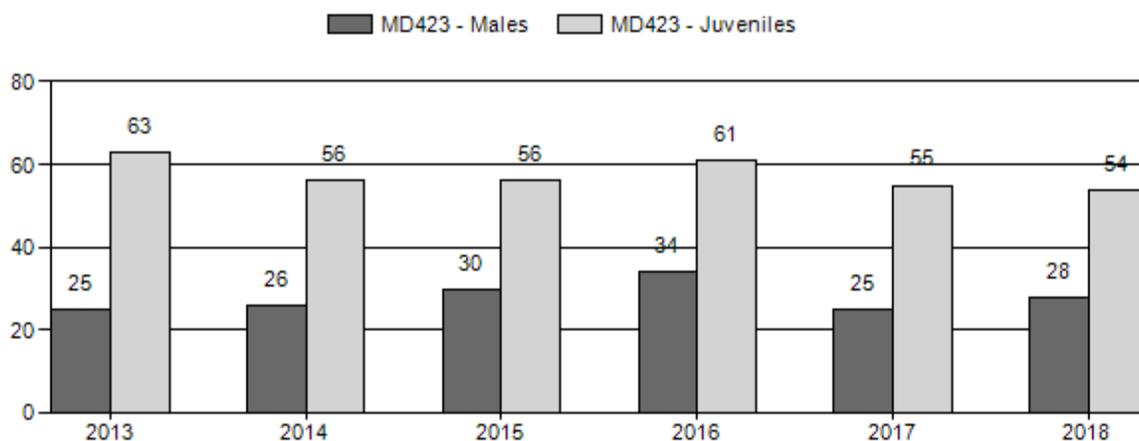
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Mule Deer Herd MD423 - UINTA

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	2+ UnCls	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	14,632	151	0	0	0	235	386	13%	1,551	53%	974	33%	2,911	0	10	15	25	± 2	63	± 3	50
2014	14,450	224	298	222	50	0	520	14%	1,982	55%	1,112	31%	3,614	0	11	15	26	± 1	56	± 2	44
2015	15,060	176	95	74	12	0	357	16%	1,204	54%	675	30%	2,236	0	15	15	30	± 2	56	± 3	43
2016	15,924	228	229	120	30	0	607	17%	1,798	51%	1,104	31%	3,509	0	13	21	34	± 2	61	± 3	46
2017	14,628	88	170	143	35	0	436	14%	1,750	56%	967	31%	3,153	0	5	20	25	± 2	55	± 3	44
2018	0	264	167	140	39	0	610	15%	2,201	55%	1,195	30%	4,006	0	12	16	28	± 0	54	± 0	43

2019 HUNTING SEASONS

SPECIES : Mule Deer

HERD UNIT : Uinta (423)

HUNT AREAS: 132, 133, 168

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
132		Oct. 1	Oct. 14		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
132, 133, 168	7	Oct. 1	Oct. 14	25	Limited quota	Doe or fawn valid on irrigated land
133		Oct. 1	Oct. 14		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer
168		Oct. 1	Oct. 14		General	Antlered mule deer three (3) points or more on either antler or any white-tailed deer

132, 133, Archery Sep. 1 Sep. 30 General Refer to Section 2 of this chapter 168

Region K Nonresident Quota: 500

Hunt Area	License Type	Quota change from 2018
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: 20,000

Management Strategy: Recreational

2018 Postseason Population Estimate: ~13,260

2019 Proposed Postseason Population Estimate: ~11,901

Herd Unit Issues

Xeric environments and limited high quality fawning habitats greatly affect deer productivity in several areas in this herd. This limited quality fawning habitat affects the ability of neonate fawns to survive and gain weight in the first 6 months. This is imperative for recruitment and population growth. Winter severity every three to five years is a major limiting factor for this deer herd. This is especially true in the western part of the herd around Evanston, Fort Bridger and Leroy. The eastern portion of the herd around Cedar Mountain experiences a rain shadow effect and does not tend to get the severe winters as often. Energy development of all types on crucial deer habitat is a looming issue for this herd. Extensive development has occurred over their range.

Highway mortality and impediment of migration is a significant issue in this herd unit. Mule deer have to cross highways to migrate to crucial winter ranges in several locations. In the Leroy area mule deer are crossing Interstate 80 to get to and from important winter ranges. Deer fencing is present in most of this area but deer crossing structures are limited and the fence is ageing and showing signs of wear. Deer must cross Highway 414 in several areas between Mountain View and McKinnon to migrate to summer and winter ranges. Mortalities are common in those areas. The most significant area of issue is Wyoming Highway 189 between I-80 and Kemmerer. A large segment of the herd must cross this highway to get to winter ranges. Mortalities are very common due to heavy traffic on the roadway. This issue is likely to become much larger due to increasing traffic on this section of the road.

Weather

Weather during 2018 and into 2019 has been highly variable. The early part of 2018 was very mild with low snow loads and moderate temperatures. Spring brought some moisture but in late summer and fall the weather was very warm and dry. Summer range conditions were very poor and animals were in low body condition due to low habitat productivity. From December 2018 to May 2019 the winter has been harsh with high snow loads and cold temperatures. Snow is persisting and the spring has been very cold and wet. This winter turned out to be very severe and had significant impact to fawn and adult survival.

Habitat

Habitat data collection has been inconsistently collected in this herd unit and has been absent in the recent past.

Field Data

Prior to the 2016/17 winter, conditions were mild for six straight years in this herd unit creating a situation where fawn and adult survival was relatively high and populations were able to grow even with low fawn production. The winter of 2016/17 was severe in some areas and the population in the western part of the herd unit declined due to it. Mortality surveys at the LeRoy winter range complex in 2017 showed significant fawn and adult doe mortality. A mild winter followed in 2017/18. This helped the herd rebound slightly but we are currently experiencing very difficult winter conditions in 2018/19 that again negatively affected the deer population. This is very harmful to the population since the last bad winter was only two years ago. Losing two fawn recruitment classes in the span of 3 years would be very bad for the deer population.

Classification data is collected yearly by helicopter in Hunt Areas 168, 132 and 133. Sample sizes are very good with around 3,000 deer classified yearly. Post season buck:doe ratios are consistently good. They run from the middle to the high end of the range for the objective in the herd unit. The objective range is 20-30:100. Yearling buck:doe ratios fluctuate with fawn recruitment from the previous year which is usually driven by winter severity. Adult buck:doe ratios tend to be more stable and are driven by, long term buck recruitment, survival and some by hunting harvest.

The 2018 postseason fawn:doe ratios as a whole were below average for this herd at 54:100. This is below where we would like to see fawn:doe ratios. Chronic low fawn recruitment in this population is of concern. It may be due to several factors including winter range habitat condition, summer range habitat condition, neonate predation on summer ranges, aspen stand condition on summer habitats, limited areas of effective parturition habitats and doe age structure. We would like to continue to improve future fawn:doe ratios through habitat improvement and predator manipulation to promote growth of this herd but project opportunities are difficult and costly to implement.

Hunt Area 132 is very dry and low productivity habitat compared to the rest of the herd unit. It also has patchy fawning habitat and newborn fawns may be easier prey for coyotes due to the limited fawning sites. Since 2012 we have procured funding and implemented targeted predator control on mule deer fawning sites in HA132. Control is conducted during the fawning period. In the last few years few have expanded this work to include areas around Evanston.

Harvest Data

The hunter harvest from seasons recently offered for mule deer do not impact overall population size, recruitment or productivity. They only influence buck:doe ratios and we have been able to maintain buck:doe ratios within the objective. Doe harvest is only allowed by youth hunters and in a very limited type 7 hunt on irrigated lands. The overall doe harvest is negligible and insignificant. Buck harvest has fluctuated greatly over the past five years due to changes in populations from winter severity and fluctuations in weather conditions during the hunting season.

Population

We feel somewhat confident in this model since it reflects field information and seems reasonable. However, caution should be used since this an interstate population with interchange across state boundaries. Recent radio collar data documents over 12% interchange. This is far lower than we once expected though. More radio collar studies would help determine the extent of these movements. The TSJ,CA model was selected due to the low Relative AICc score and its good fit with the data. The TSJ,CA model fits very well with mule deer population dynamics in this type of system. Unfortunately, model estimates do not seem to track as well as we would like with known significant winter mortality events in bad winters. This is somewhat inherent in this type of model as the model is focusing on current year estimate instead of previous trend. An independent population estimate would be helpful in aligning the model but is not very feasible for this herd.

In 2012 the Department switched from POPII models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data.

The model predicts a post-season population of around 13,260 mule deer in 2018. This is a decrease in the modeled population from prior levels. This reduction is substantiated by Hunter comments, winter mortality surveys and field observations. This supporting information gives us some confidence in model results. However, the reduction modeled from pre-2016 levels is not totally realistic considering the severity of winter mortality observed on the western winter ranges where the vast majority of the deer herd winters. The reduction should have been greater than what is modeled.

Management Summary

The 2019 season proposal in hunt areas 132, 133 and 168 will allow for 14 days of general deer hunting opportunity. In this part of the state, we strive to offer a season that includes 2 weekends of hunting opportunity. This type of season is very conservative and the population is not limited by hunting. Point restrictions have been in use for several years in this deer herd to reduce harvest of young deer. A 3-point or more antler restriction is in place in the entire Herd Unit. Members of the public brought on this restriction. The use of this type of restriction for limited periods can be warranted in parts of the herd unit where buck security cover and fawn productivity is lacking but many parts of the Herd Unit do not require this type of management. Antler point restrictions may be detrimental to genetics in the long term. A 3-point or better season is used to protect yearling 2-point deer. However, there is growing concern that this season structure is selecting for inferior genetics for antler growth. There are 3-point yearling deer being harvested, which eliminates the best genetics from the herd. We also see that most 3-points harvested are 2 or 3 year olds and there are also ample 2-points that are 2 or 3 years old that are protected from harvest. The use of this regulation needs to be reevaluated to make sure we are not causing harm.

In this Herd Unit we have a type 7 doe/fawn hunt good for all hunt areas in the herd unit on irrigated land. This is to address the number of deer that are living year round on irrigated fields and give landowners an opportunity to have some harvested. This hunt will be continued in 2019 but license numbers remain very low at 25.

The Herd unit objective and management strategy were last revised in 2014. We went through an internal review of the objective and harvest strategy in early 2019. The recommendation for the Uinta Mule Deer Herd is to maintain a post-season population objective of 20,000 and to continue with recreational management. Relative to current population estimates 20,000 appears to be about the number of mule deer the area could support with favorable weather conditions. It would also satisfy the public and should not create significant damage concerns.

2018 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2018 - 5/31/2019

HERD: MD424 - SOUTH ROCK SPRINGS

HUNT AREAS: 101-102

PREPARED BY: PATRICK BURKE

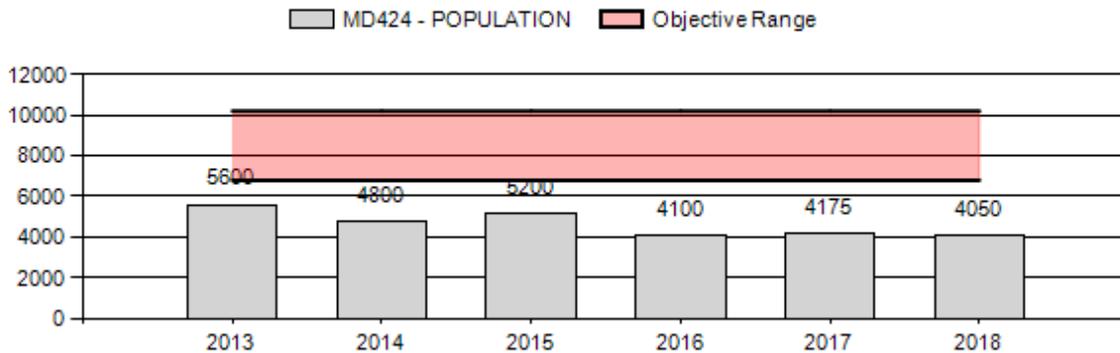
	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	4,775	4,050	3,950
Harvest:	207	229	230
Hunters:	274	281	275
Hunter Success:	76%	81%	84 %
Active Licenses:	274	281	275
Active License Success:	76%	81%	84 %
Recreation Days:	1,776	1,604	1,700
Days Per Animal:	8.6	7.0	7.4
Males per 100 Females	32	38	
Juveniles per 100 Females	59	31	

Population Objective ($\pm 20\%$) :	8500 (6800 - 10200)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-52.4%
Number of years population has been + or - objective in recent trend:	20
Model Date:	2/19/2019

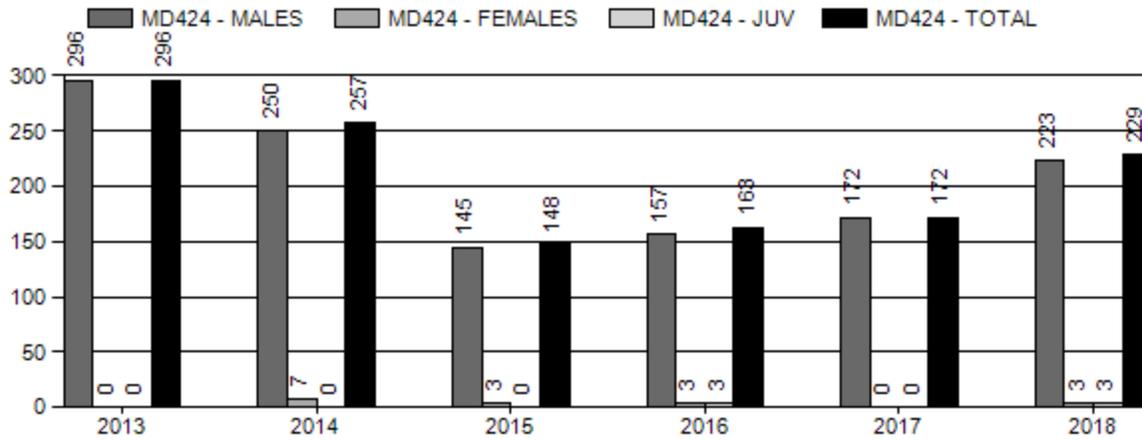
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	20%	25%
Total:	5%	5%
Proposed change in post-season population:	-4%	-3%

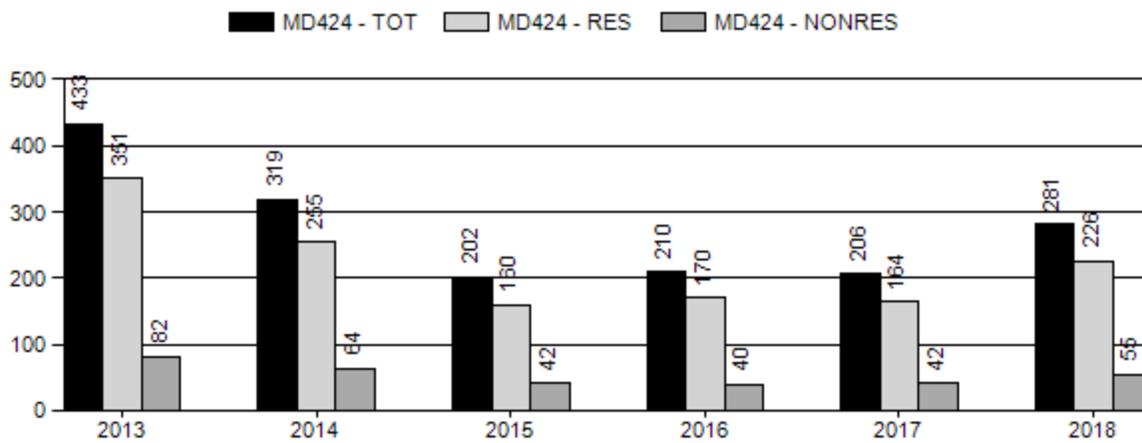
Population Size - Postseason



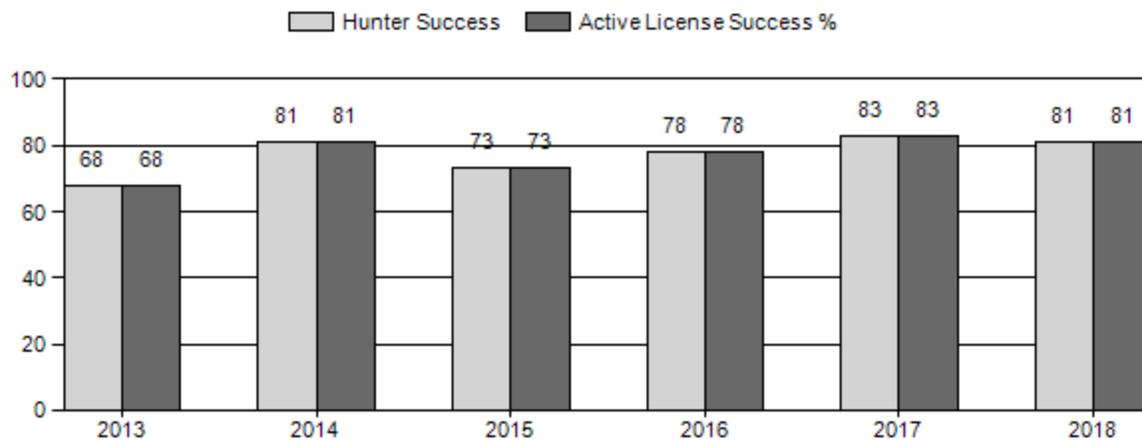
Harvest



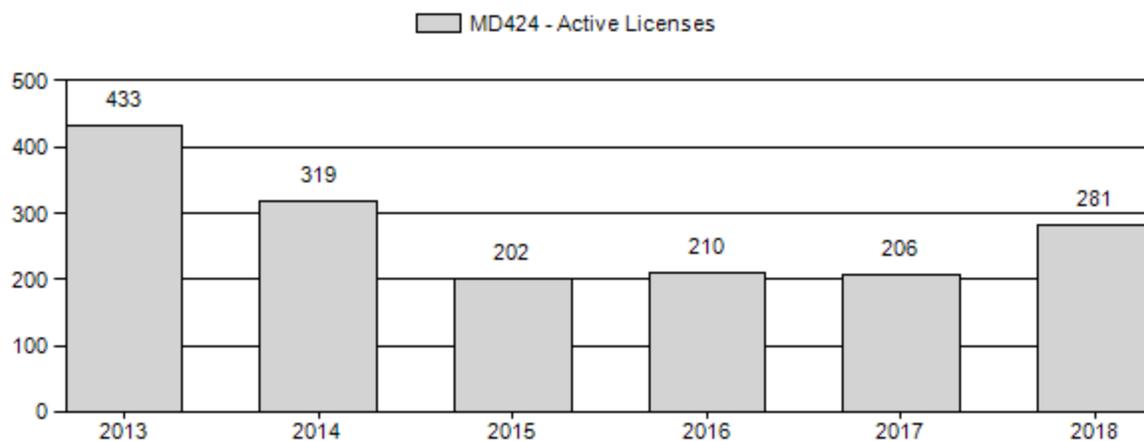
Number of Active Licenses



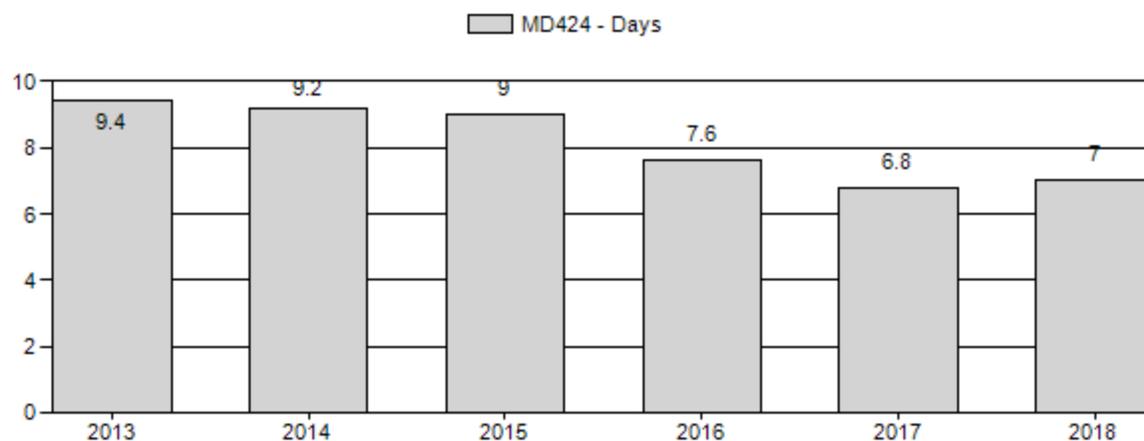
Harvest Success



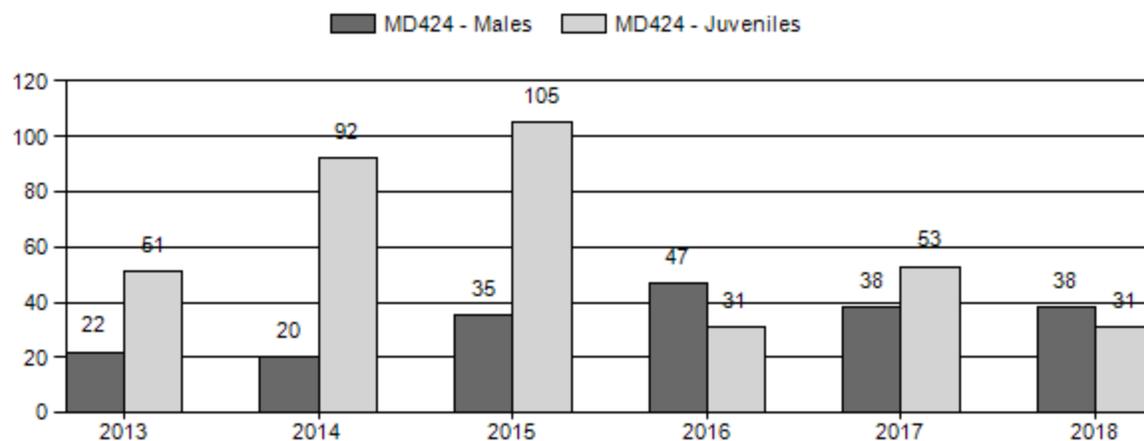
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Mule Deer Herd MD424 - SOUTH ROCK SPRINGS

Year	Post Pop	MALES							FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females			Young to			
		Ylg	2+ Cls 1	2+ Cls 2	2+ Cls 3	UnCls	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	5,600	40	0	0	0	89	129	13%	593	58%	305	30%	1,027	767	7	15	22	±2	51	±4	42
2014	4,800	30	0	0	0	55	85	10%	417	47%	383	43%	885	1,242	7	13	20	±3	92	±8	76
2015	5,200	22	0	0	0	23	45	15%	129	42%	135	44%	309	1,124	17	18	35	±8	105	±16	78
2016	4,100	72	0	0	0	129	201	27%	426	56%	130	17%	757	943	17	30	47	±5	31	±4	21
2017	4,175	45	87	70	10	0	212	20%	565	52%	301	28%	1,078	655	8	30	38	±3	53	±4	39
2018	4,050	59	97	58	0	0	214	22%	566	59%	175	18%	955	508	10	27	38	±3	31	±3	22

**2019 HUNTING SEASONS
SOUTH ROCK SPRINGS MULE DEER HERD (MD424)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
101	1	Oct. 15	Oct. 31	50	Limited quota	Antlered deer
102	1	Oct. 15	Oct. 31	250	Limited quota	Any deer

Special Archery Season Hunt Areas	Season Dates	
	Opens	Closes
101,102	Sep. 1	Sep. 30

Hunt Area	Type	Quota change from 2018
Herd Unit Total		No Changes

Management Evaluation

Current Management Objective: 8,500

Management Strategy: Special

2018 Postseason Population Estimate: ~4,050

2019 Proposed Postseason Population Estimate: ~3,950

The post-season population objective for the South Rock Springs mule deer herd is 8,500 deer under special management. The objective for this herd was changed to its current level in 2013, when it was lowered from 11,750.

Herd Unit Issues

The largest issue facing this herd has been, and continues to be, its consistent underperformance, both in relation to its population objective and in the quality of bucks it produces compared to what is expected by the public. This herd has been well below its objective since the South Rock Springs and Black Butte herds were combined in the 1980's, and most likely will continue to remain substantially below objective for the foreseeable future. Current population estimates suggest this herd may be somewhere around 4,000 deer after the 2018 hunting season, which is only 48% of its population objective.

The lack of growth in this herd despite very conservative hunting seasons can largely be attributed to consistent poor fawn recruitment year after year. Observed fawn to doe ratios for this herd have averaged just under 50 fawns per 100 does for the last decade. The fawn ratios observed in 2016 and 2018 were both substantially below that 10 year average, coming in at only 31 fawns per 100 does. A general rule of thumb is that roughly 66 fawns per 100 does is required to maintain a deer population; and while this lower evaluation herd that usually experiences less severe winter conditions than many other herds may be able to sustain itself with lower fawn recruitment rates, the last that a fawn ratio of greater than 66 fawns per 100 does was observed in this herd was 2005. Until fawn recruitment improves, this herd will continue to decline.

In addition to the poor fawn numbers, survival rates for collared does in the herd unit has been poor, especially during the 2018 summer and 2018-2019 winter. The collared does are part of a research project that employs an extremely invasive data collection regime of helicopter net-gunning and transporting those animal to a central processing area twice a year, which undoubtedly imposes significant additional stress to those individuals; but many of those does died this summer from some yet unidentified disease. While the stress of being captured twice a year would have made those animals more susceptible to disease, it is still very concerning that a new disease burden has been added on top of all the other issues this herd is facing.

Another major issue for this herd is that despite consistently conservative buck harvest, this herd has been unable to live up to the expectations that the public has for it in regards to the quality of bucks available for harvest. Probably in large part due to the low drawing odds for hunt areas in this herd unit, hunters that draw licenses in the South Rock Springs herd unit have extremely high expectations concerning the antler size of the bucks they will be hunting. Whether these expectations are realistic or not, the antler quality of the bucks in this herd unit is not what most hunters hunting in the herd unit are envisioning.

Weather

While the spring of 2018 saw decent moisture, which allowed for good forb production in many areas of the South Rock Springs herd unit; the summer months saw very little precipitation in the herd unit. This lack of moisture during a significant portion of the growing season unfortunately resulted in early plant senescence and decreased forage value for deer. Regrettably, this condition has been present in the herd unit for many of the recent years, which is probably the major driving factor behind the low fawn numbers observed in the last decade.

In addition to the dry summer observed in 2018, the 2018-2019 winter was above average in terms of snowfall levels and to a lesser extent, winter temperatures. These severe winter conditions following a year of poor forage production and poor animal condition probably resulted in a decrease in over winter survival for deer in the area.

Habitat

The Green River aquatic habitat biologist has established six aspen regeneration monitoring transects throughout Hunt Area 102. These transects are designed to evaluate browsing impacts from ungulates on young aspen suckers. Two transects were established on Little Mountain in 2007, as well as four additional transects that were established in 2009, one each on Aspen and Miller Mountains and two in the Pine Mountain area. These transects have been read each summer since their establishment, except that one of the Pine Mountain transects was not read in 2013 due to difficulty in accessing that site caused by the amount of rain and snow received that fall, and the South Pine Mountain site was not read in 2014 due to the aspen stand that it was located in dying off resulting in an insufficient number of aspen suckers left alive to measure. Because of the loss of the South Pine Mountain site, a new transect was established near the Tri-State marker in 2014.

A detailed accounting of the technique and results from these monitoring efforts can be found in the aquatic habitat annual report. In general, this method compares the height of the initial growth point for the current year's terminal leader to the height of the tallest previous terminal leader branch that was killed as a result of browsing. A positive Live-Dead (LD) value suggests growth of young trees, while a negative value or value near zero suggests that browsing may be suppressing tree growth. Results of monitoring efforts are presented in the following table (Table 1) taken from the aquatic habitat annual progress report, but in general, four of the five monitored sites showed positive LD values for 2018, while one of the sites had LD values at or below zero.

The Little Mt. /Dipping Springs LD transect that had been previously reported was not read in 2017 or 2018, because that aspen stand was fenced with an ungulate excluding modified steel jack fence in 2016. The erection of that fence makes the LD values for that site not comparable to the other sites in the herd unit. There, that site was excluded from the sample.

Table 1. Trends in aspen regeneration LD Index values (vertical inches) 2015-2018

Monitoring site	2015	2016	2017	2018
Pine Mt/Red Ck.	-1.8	0	-4.1	-5.8
Tri-State /Red Ck.	+7.2	+13.2	+10.7	+6.8
Miller Mt.	+3.6	+18.6	+3.9	+3.0
Aspen Mt.	+1.2	+4.6	+8.3	+8.9
Little Mt./West Currant Ck.	0	+5.5	+10.6	+3.8

While not a habitat data point, fat levels of collared deer measured in November 2018 indicate that many of the collared deer were entering winter with fat levels that were not much above what is commonly seen in deer exiting winter. This indicates that habitat conditions for deer during the summer of 2018 were very poor, and that it is apparent that habitat conditions, either in quantity or quality, appear to be a limiting factor for this deer population. Unfortunately, the current research project being conducted in the herd unit has not addressed the issue of habitat condition, which is a badly needed component to understanding the population dynamics of this herd.

Field Data

This herd was classified from a helicopter during December 2018 in conjunction with the South Rock Springs elk herd. A total of 955 deer were observed during that flight, with resulting observed ratios of 31 fawns per 100 does, and 38 total bucks per 100 does which included 10 yearling bucks per 100 does. All of the deer classified were from HA102, as deer densities in HA101 preclude obtaining an adequate sample from that portion of the herd unit.

In contrast to the lower than desired fawn ratios of recent years, the buck ratios that have been observed during the last several classification flights, have seen significant improvements recently. The total buck to doe ratio observed during both the 2017 and 2018 classification flights were 38 bucks per 100 does, despite the low yearling buck to doe ratios observed during both years.

Harvest Data

The 2018 hunting season saw harvest rates in both hunt areas in this herd unit that were generally in line with what is normally reported for this herd. A total of 229 bucks were reported harvested, with 35 being reported being harvested in HA101 and 194 coming from HA102. Three does and three fawns were also reported to have been harvested from HA102 in 2018. Success rates for the 2018 season for the two hunt areas that make up this herd unit were 71% for HA101 and 84% for HA102, this compares to 96% for HA101 and 82% for HA102 in 2017. The overall success rate for the herd unit was 82%, which is generally in line with average success rates for this herd.

Because the South Rock Springs mule deer herd is a special management herd, and because of its significant local status, successful hunters are asked to voluntarily submit tooth samples for

cementum annuli aging analysis. Successful hunters submitted 99 samples for analysis from the 2018 hunting season. One of those samples were unable to be aged by the tooth aging laboratory. So based on the 98 useable samples from buck deer, the average age of harvested bucks was just under 5.2 years old in 2018. This compares to an average age of 4.1 in 2017, 4.7 in 2016, and 5.3 in 2015. Based on hunter submitted tooth samples, the oldest deer harvested during the 2018 season was a 10.5-year-old buck, harvested from HA101.

Population

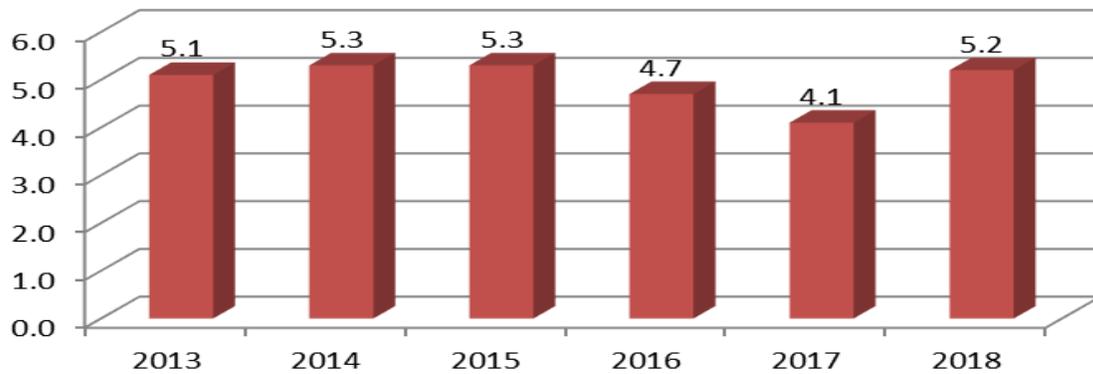
Currently, the model estimates the population size to be just over 4,000 deer with a declining trend. The model selected for this herd is the time-specific juvenile survival model based it producing the most realistic estimate for this population and based on the biology of mule deer. However, the model does a poor job of simultaneously predicting the current year's population size and producing an accurate trend of historical population sizes. While the model will change the current years population estimate to what is probably a believable number each year, it shows that the herd has been fairly steady over the past 20 years instead of showing that the population was at higher levels in the past. The model also bounces fawn survival rates back and forth from the maximum allowed to the minimum allowed by the model constraints from one year to the next, which is an indication that the model is not functioning very well. Part of this can probably be explained by the inconsistency in classification data from year to year in the past, as classifications in this herd have historically alternated between ground classifications and aerial classifications every other year. Because of differences in the areas that can be accessed and the amount of ground that can be covered between years when a helicopter is available and years when classifications are conducted from the ground, those data may not be comparable to each other, and may lead to some of the inconsistency seen in the model.

In addition to herd composition surveys, information from the harvest survey, and age data from lab-aged teeth from hunter-harvested deer, as well as field observations by field managers combined with the model help in management of this locally high profile herd.

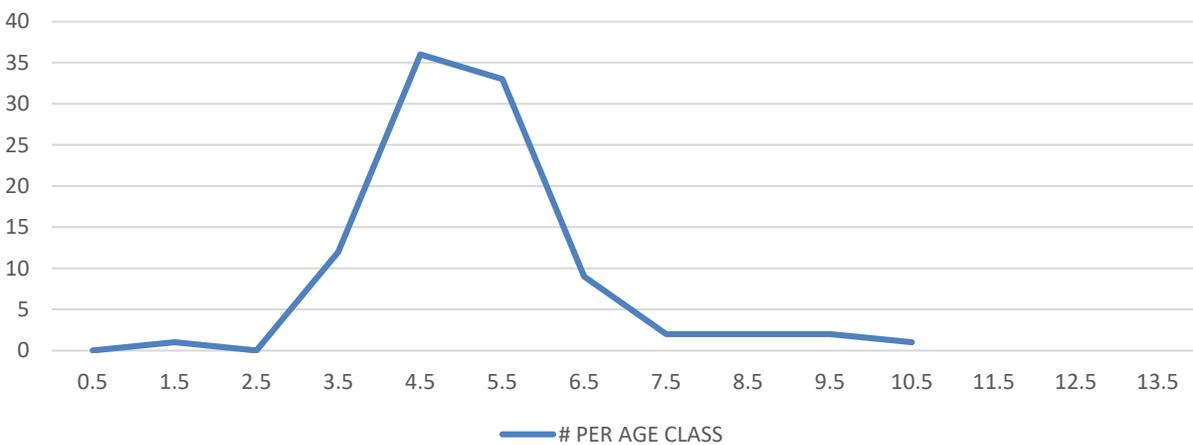
Management Summary

The 2019 hunting season is identical in season structure and license numbers to the 2018 season in both hunt areas in the herd unit. This recommendation was made despite the low observed fawn ratios and habitat issues that have been seen in this herd recently. While the herd as a whole is not doing as well as desired, the observed buck ratios are still good in the herd unit. The observed buck ratio of 38 bucks per 100 does is well above the minimum of 30 bucks per 100 does for special management herds. Therefore, since the majority of hunting pressure is directed to the male segment of the herd, the current level of license issuance looks to be appropriate. Additionally, tooth age data indicates that the age structure of bucks in the herd should be sufficient to support the current level of harvest, as the average age of harvested bucks is still above 5 years old.

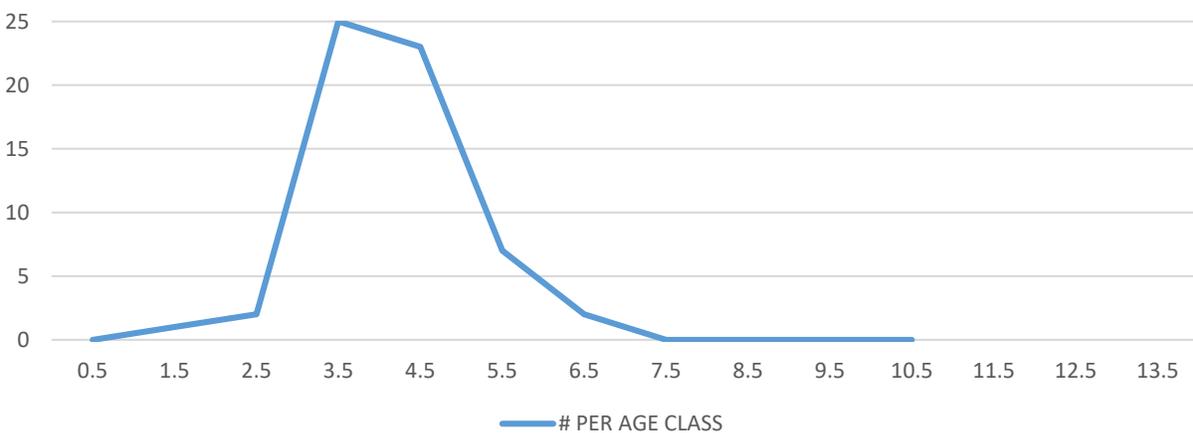
SRS Deer Average Age of Harvested Bucks

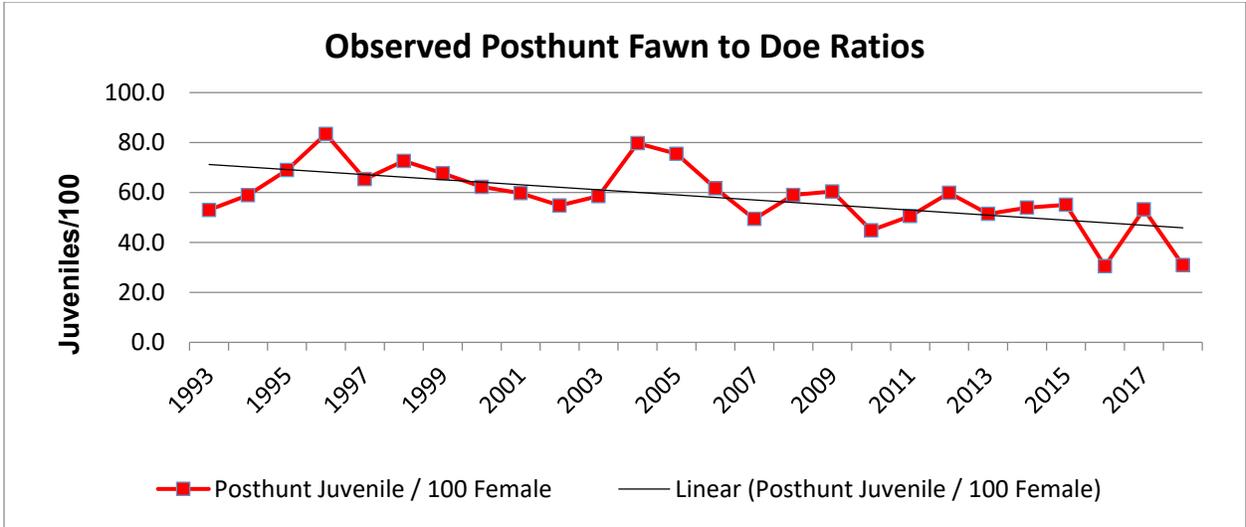


2018 SRS DEER # HARVESTED PER AGE CLASS



2017 SRS DEER # HARVESTED PER AGE CLASS





2018 - JCR Evaluation Form

SPECIES: Mule Deer

PERIOD: 6/1/2018 - 5/31/2019

HERD: MD427 - BAGGS

HUNT AREAS: 82, 84, 100

PREPARED BY: PHIL DAMM

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	20,298	20,722	20,000
Harvest:	1,463	1,926	2,000
Hunters:	2,680	3,128	3,150
Hunter Success:	55%	62%	63 %
Active Licenses:	2,723	3,235	3,250
Active License Success:	54%	60%	62 %
Recreation Days:	12,710	14,578	14,500
Days Per Animal:	8.7	7.6	7.2
Males per 100 Females	31	29	
Juveniles per 100 Females	57	62	

Population Objective (± 20%) : 19000 (15200 - 22800)

Management Strategy: Recreational

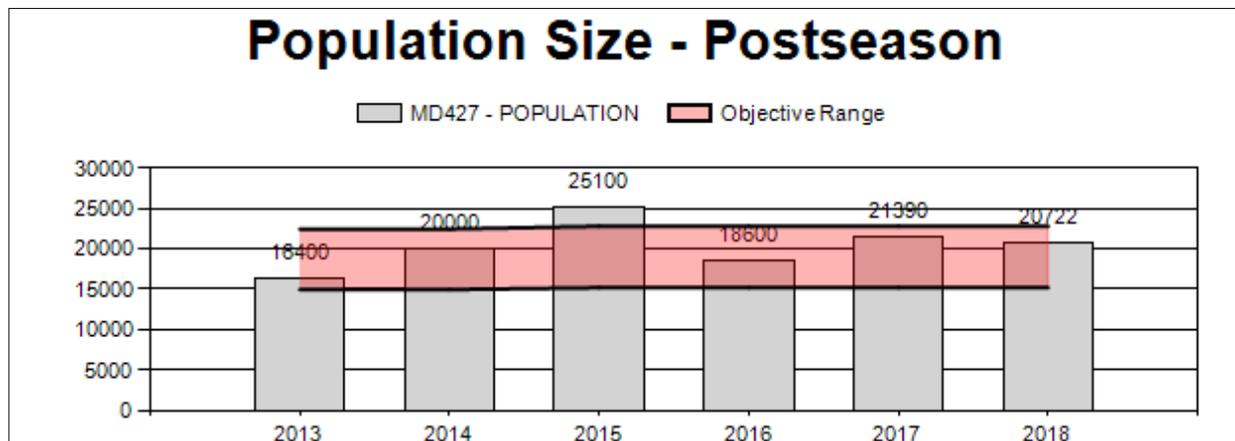
Percent population is above (+) or below (-) objective: 9%

Number of years population has been + or - objective in recent trend: 4

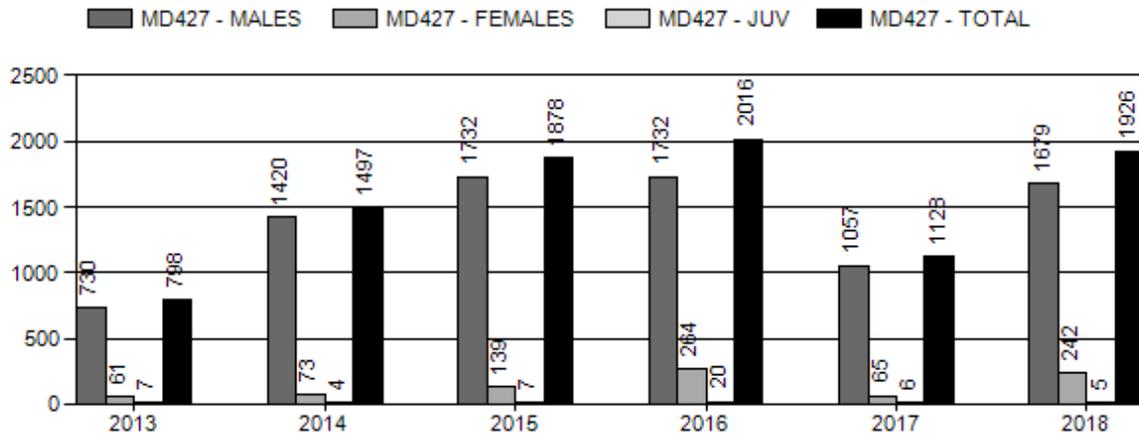
Model Date: 03/05/2019

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

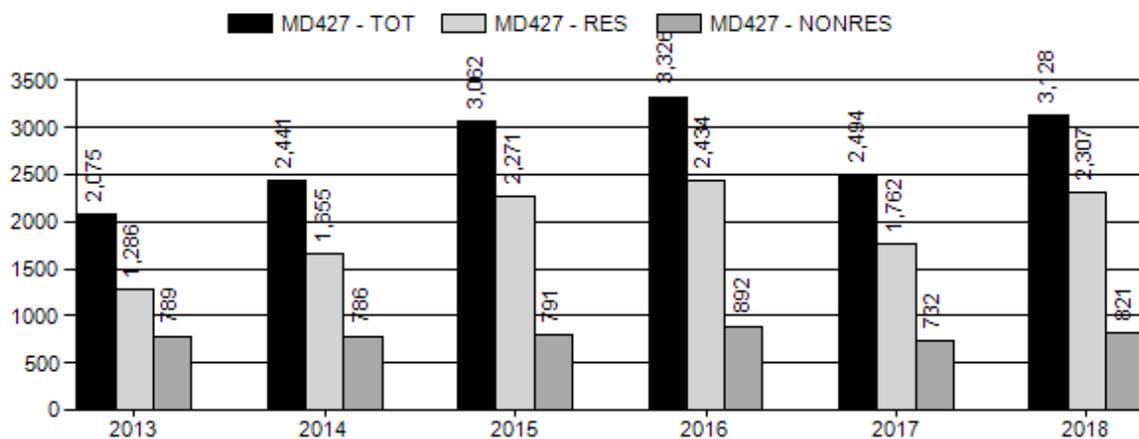
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	2%	2%
Males ≥ 1 year old:	28%	30%
Total:	8%	9%
Proposed change in post-season population:	1%	0%



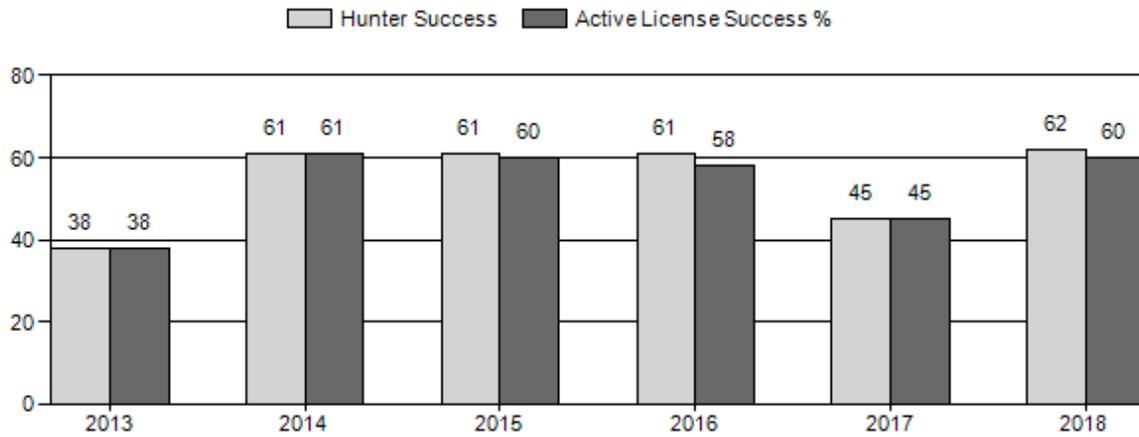
Harvest



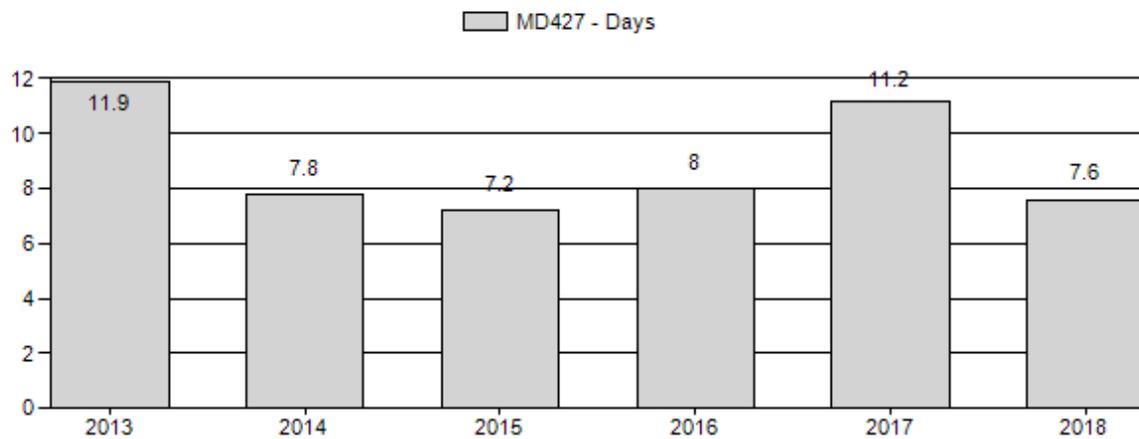
Number of Active Licenses



Harvest Success



Days Per Animal Harvested



2019 PROPOSED HUNTING SEASONS MD427 BAGGS DEER

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
82		Oct. 1	Oct. 14		General	Antlered mule deer or any white-tailed deer
82		Oct. 1	Oct. 16		General youth license	Any deer
82	6	Oct. 1	Oct. 20	200	Limited quota	Doe or fawn
82	7	Oct. 1	Oct. 20	50	Limited quota	Doe or fawn <u>south of Wyoming Highway 70, or east of Carbon County Road 503, and south of Carbon County Roads 752 and 754 (Savery Stock Drive).</u>
82, 100	8	Nov. 1	Jan. 15	50	Limited quota	Doe or fawn white-tailed deer valid on private land
84	1	Oct. 1	Oct. 14	75	Limited quota	Any deer
100		Oct. 1	Oct. 6		General	Antlered mule deer or any white-tailed deer
100		Oct. 1	Oct. 8		General youth license	Any deer

Proposed Region W Quota of 900 (no change)

Special Archery Season Hunt Areas	Season Dates	
	Opens	Closes
82	Sep. 1	Sep. 30
84	Sep. 1	Sep. 30
100	Sep. 1	Sep. 30

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2018</i>
Region W	Gen	0
82	6	-50
	7	+50
	8	0
Herd Unit Total	6	-50
	7	+50
	8	0
	Region W	0

Management Evaluation

Current Management Objective: 19,000 (2015)

Management Strategy: Special (2015)

2018 Postseason Population Estimate: 20,722

2019 Proposed Postseason Population Estimate: 20,000

The 2018 population estimate for the Baggs mule deer herd is above the range of 19,000, set in 2015. Additionally, the buck:doe ratio is increasing, though it has not yet met the objective of 30 bucks per 100 does (29:100 in 2018). However, the 5-year average is 31. Due to a stable to possibly growing population (5-year average of 20,298 and current estimate of 20,722), our management strategy is to maintain a fairly liberal season for bucks and allocate similar doe/fawn licenses as last year.

Herd Unit Issues

The primary issues for the Baggs deer herd continue to be habitat quality, drought, and fragmentation of transition and crucial winter range. Energy exploration seems to be slowing within identified mule deer transition range in the Atlantic Rim Project Area, but with a new operator comes an unknown development strategy for the field. The level of current development has the potential to alter mule deer migration as well as decrease habitat suitability through fragmentation. Additionally, road development will continue along Miller Hill as part of the Chokecherry/Sierra Madre Wind Project which could significantly impact habitat selection of mule deer on summer range. After a vigorous effort sampling 243 hunter harvested deer, chronic wasting disease (CWD) prevalence increased slightly from 7.3 to 9.0% in hunt area 82. Further caution is warranted as mandatory testing of all hunter harvested deer in Colorado’s neighboring Bears Ears Herd Unit (n~1600 samples) resulted in a more concerning prevalence rate of 18%. Within this herd unit, Colorado Parks and Wildlife (CPW) hunt areas 4 and 5 border WGFD hunt area 82 along the state line and resulted in prevalence rates of nearly 24%. Recent buck collaring efforts with the University of Wyoming Cooperative Unit has highlighted a significant amount of interstate deer movement between the Bears Ears and Baggs Herd Units (figure 1.) where 21.7% of the collared bucks spend time in both states. Additionally collaring efforts from CPW field staff has shown similar movement patterns where deer wintering in the Bears Ears Herd Unit migrate and summer in the Baggs Herd Unit.

Weather

The summer of 2018 was unseasonably hot and dry which resulted in a stunted growing season. Though seasonally beneficial, the lack of winter and spring precipitation in recent years has led to decreased shrub growth throughout the herd unit. This poses a significant issue in dryer and more xeric areas. In conjunction with a growing deer herd, this will continue to be a long-term concern if mixed mountain shrub species and big sagebrush are unable to recover from over-browsing and lack of productivity. Snow began to re-accumulate in the higher elevations in the latter parts of the hunting seasons, and the winter of 2018-2019 was substantial in terms of snow through to spring and lower temperatures well into February, which is atypical.

Habitat

Growing season precipitation continued to be below normal across the herd unit in 2018, resulting in slower growth and less abundance of cool season grasses, forbs, and shrubs, particularly in lower elevation seasonal ranges. In 2016, the Snake Fire burned approximately 2,565 acres located within the BMDHU. This was a high elevation wildfire that improved mule deer habitat on summer range by increasing aspen production, diversifying forest species age class, and increasing herbaceous forage production within the burn area.

Rapid Habitat Assessments conducted throughout the herd unit from 2015-2018 suggest that shrub habitats throughout winter and transition range continue to underperform due to maturity and decadence caused by a lack of natural disturbance. Drought conditions have persisted in concert with a high abundance of deer which has created a net-loss situation where important shrub species are unable to keep up with the browsing pressure of deer. Cheatgrass and other invasive plant species continue to degrade important mule deer habitats throughout winter and transitional ranges.

Field Data

The Baggs mule deer herd was classified from a helicopter in early December. Though the population is not monitored using an official trend count survey design, it's worth noting that the highest number of deer (6,643) were classified in 2018.

From our 2018 classification we can surmise the dynamics of this deer herd indicate a growing population. Between 2016 and 17 the fawn ratio increased from 52 to 60 fawns per 100 does. This sets the 20 year average at 56:100. This is below the prescribed 65:100, however higher juvenile survival estimates gathered across the state line by Colorado Parks and Wildlife biologists indicate that this deer herd can grow despite the lower ratios.

Overall buck ratios remained mostly unchanged from a 2017 ratio of 28:100 to 29:100 in 2018. However a significant shift occurred in our adult and yearling ratios where we saw a respective decrease and increase from 20:100 to 15:100 (2018) and an increase from 7:100 to 14:100(2018). This shift in age class composition is probably the result of multiple variables although two

consecutive years where hunters were restricted to harvesting older age class bucks is likely a contributing factor.

Post-winter ground classification was performed in three areas to estimate over-winter fawn loss, including areas along Muddy Creek just north of Baggs, Poison Basin, and around Powder Rim. The total mule deer counted was 1,279 with 985 adults and 294 fawns. Using the post-season buck ratio to assume 23% of adults are bucks, 758 were does, for a fawn:doe ratio of 39:100. This approaches a minimum of 40% over-winter fawn loss, which is significant but not nearly as substantial as some other migratory herds west of the Continental Divide. Winter ranges were surveyed for mortalities, with some ranges, like Weber Mesa, displaying significant mortality. The majority of the mortalities observed were fawns and very old does, though some yearling and older adult bucks were also observed.

Harvest Data

The 2018 hunting season saw a little over 3,100 hunters harvest 1,926 mule deer in 2019 for an overall success rate of 62%, the highest in the last 5 year period. Just over 90% of that harvest came from Area 82 (which is typical since it has more deer and great access). A significant weather event allowed hunters better access to mule deer bucks that began migrating as a result.

Population

The current post-hunt population model estimates for 2018 indicate we are within the objective range at around 20,722 animals and comparable to the most recent 5 year average of 20,298. Despite the SCJ, SCA model having the lowest relative AICc value (161), we chose the TSJ, CA model (186) based on what we believe to be a better representation of the actual population trend, buck ratio comparison, and size based on hunter satisfaction, plausibility and field observations. The SCJ, SCA model was rejected since it shows unrealistic population estimates. Within the TSJ, CA model we constrained adult survival to lower levels (0.3 to 0.82) during the 2007-08 and 2010-11 winters to match the difficult winter conditions. Additionally adult survival was constrained for the 2014-2017 years to incorporate survival estimates gathered from collared does as part of ongoing research to monitor development impacts within the Atlantic Rim and Chokecherry/Sierra Madre Wind Project areas.

The spreadsheet model seems to be a useful tool for this herd; however, without an independent estimate of the population size and the indication from studies from WGFD and Colorado Parks and Wildlife showing high interchange between the two states, we must be cautious in the use of this model as our only source of information.

Management

Given population status, our 2019 hunting season proposal will see a harvest strategy aimed at maintaining a liberal buck harvest and targeted doe harvest for herd stabilization and disease monitoring purposes. To target more of the does migrating into Wyoming from Colorado at the southern end of area 82, 50 of those Type 6 licenses will be shifted to that specific area as a Type 7 license. With some winter mortality and a possibly stable population, we are holding off on any

increases to doe harvest at this time. The antler point restriction was removed for the 2019, so buck ratios will be telling in the 2019 post-season classification flights. Removal of the APR in 2019 is on track with past APR cycles in this herd unit, and data has shown leaving APRs in place for too long can depress antler size in the harvest.

Past years of estimating abundance exhibit population oscillations where a high annual estimate of 22-25,000 animals is followed by subsequent low estimates of 13-18,000. This is likely due to a combination of variables closely related to winter severity and habitat quality. Due to these models lacking any kind of a robust estimate (i.e. sightability) to constrain the population trend, a certain amount of skepticism is warranted when reviewing the annual abundance. However the trend is indicative of the natural fluctuations in this herd. In both the 2017 and 2018 seasons we saw implementation of a desired antler point restriction (APR) where general license harvest was restricted in both hunt areas 82 and 100 to older age class bucks. This was a conscious effort by managers to preemptively set up temporary (two year) protections for juvenile deer which would have been impacted by the 2016-17 winter. As we can now see from the classification data, this restriction had a significant impact on our yearling buck ratio which doubled from 2017 to 2018. While it was popular with some, we also received numerous comments from others which suggested it was no longer desired and should be removed in 2019. Additionally the significant decrease in our adult buck ratio between 2017 and 2018 supports the theory that this restriction has only concentrated harvest pressure on older age class bucks. Removing the APR in 2019 should have a positive impact on the herd's buck ratio composition by allowing hunters to harvest younger bucks.

Doe licenses allocated in 2019 will remain unchanged although we propose a shift in licenses from 82-6 to the new 82-7 for disease monitoring purposes. The 82 type 7 license is designed to target individuals migrating and wintering in high concentrations along the border and in CWD positive hot-spots within the southern third of the hunt area. Recent disease monitoring conducted by Colorado Parks and Wildlife shows high CWD prevalence rates for mule deer in CPW hunt units 4 and 5. Testing roughly 1600 harvested deer within the Bears Ears Herd Unit resulted in a prevalence rate of 18% within the herd unit and roughly 24% within the hunt areas bordering WGFD hunt area 82. The 82 type 7 license is an effort by managers to monitor prevalence rates in deer which are largely unaccounted for with the general season. For the "desert" portion of the herd, hunt area 100 has historically been more conservative because the deer typically harvested are low in abundance and resident to the area. We recommend the general season length remain short unchanged to allow a weekend opportunity to remain within the season structure. For special youth general seasons in these units, we propose no changes in both hunt areas 82 and 100. Within the limited quota portion of the Bags herd unit: hunt area 84 will see no changes to the quota or season length.

2018 - JCR Evaluation Form

SPECIES: Elk

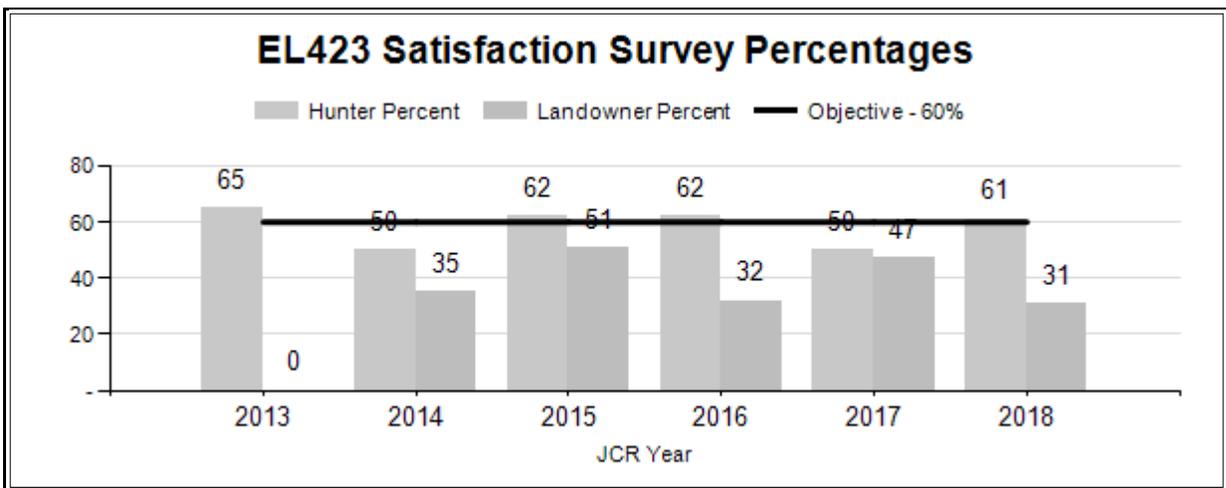
PERIOD: 6/1/2018 - 5/31/2019

HERD: EL423 - UINTA

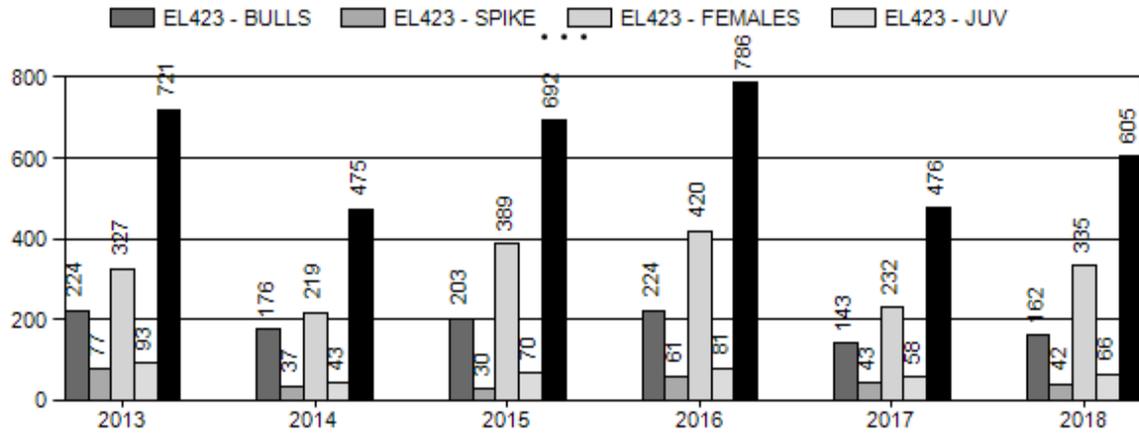
HUNT AREAS: 106-107

PREPARED BY: JEFF SHORT

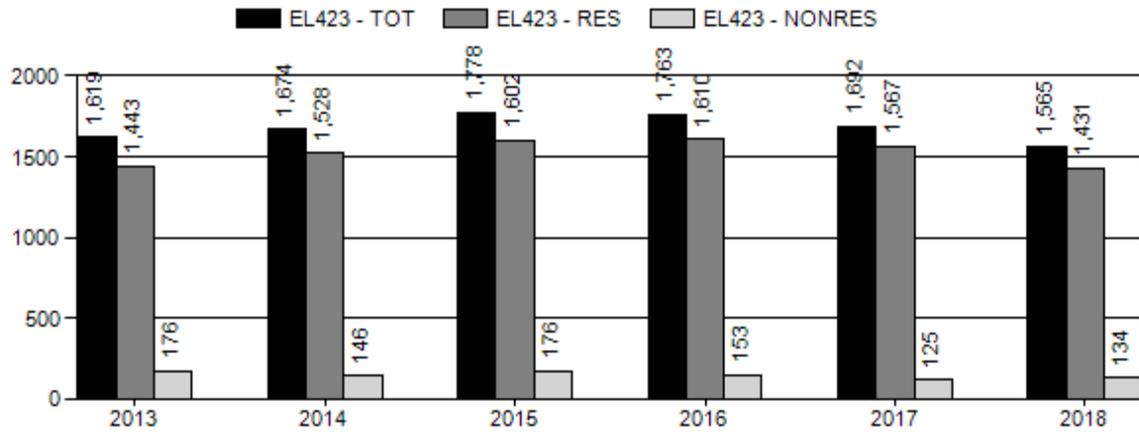
	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Hunter Satisfaction Percent	58%	62%	60%
Landowner Satisfaction Percent	41%	31%	60%
Harvest:	630	605	600
Hunters:	1,705	1,565	1,600
Hunter Success:	37%	39%	38%
Active Licenses:	1,770	1,651	1,650
Active License Success:	36%	37%	36%
Recreation Days:	11,578	10,614	10,000
Days Per Animal:	18.4	17.5	16.7
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			-14%
Number of years population has been + or - objective in recent trend:			4



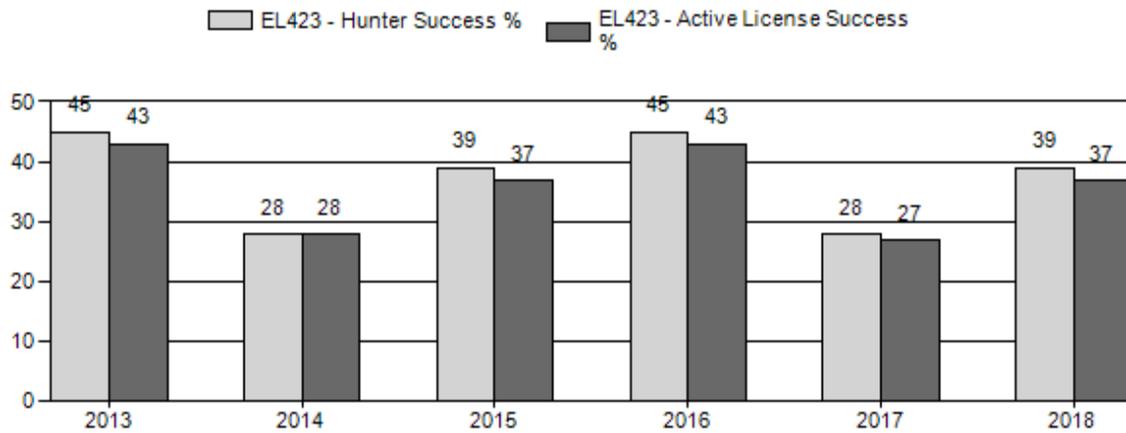
Harvest



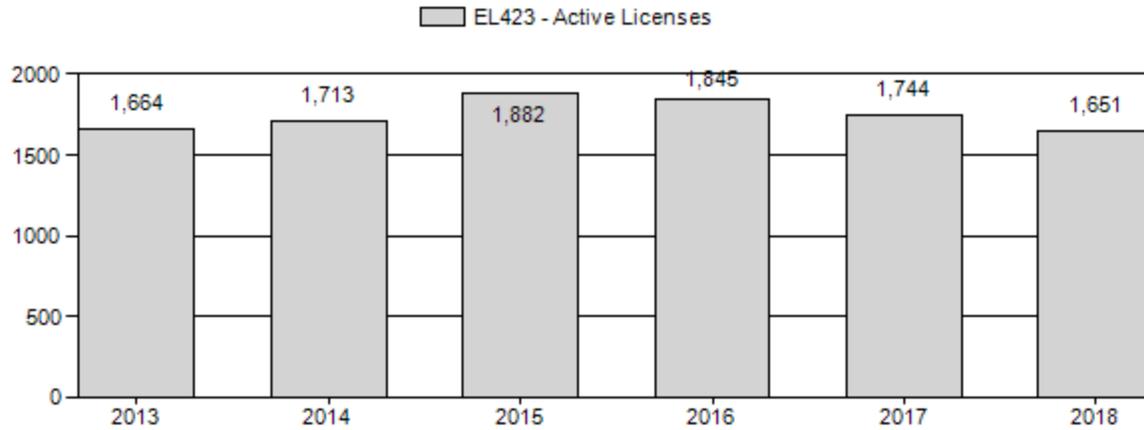
Number of Hunters



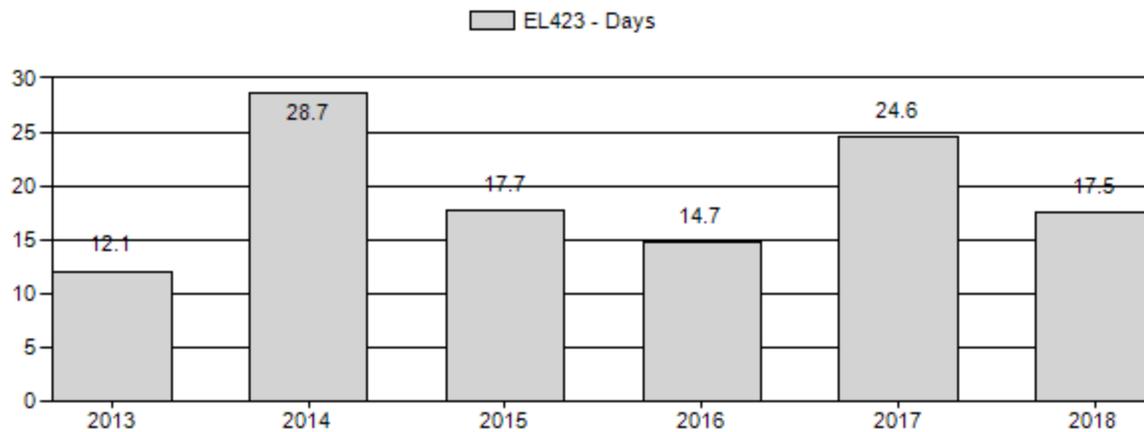
Harvest Success



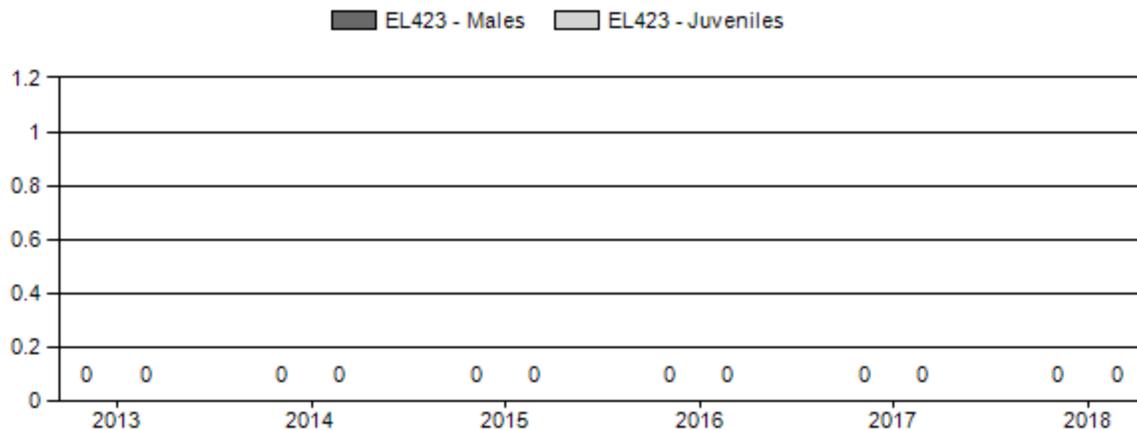
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



No classification data for this herd

2019 HUNTING SEASON

SPECIES : **Elk**

HERD UNIT : **Uinta (423)**

HUNT AREAS: **106, 107**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
106		Oct. 15	Oct. 31		General	Any elk
106		Nov. 1	Nov. 14		General	Antlerless elk
106	1	Nov. 15	Jan. 31	50	Limited quota	Any elk valid west of the Black's Fork River or north of Wyoming Highway 410; also valid in Area 105 west of the Bear River
106	4	Oct. 15	Dec. 31	100	Limited quota	Antlerless elk
106	4	Jan. 1	Jan. 31			Antlerless elk valid on private land or west of the Black's Fork River or north of Wyoming Highway 410
106	7	Aug. 15	Jan. 31	300	Limited quota	Cow or calf valid on private land or west of the Black's Fork River or north of Wyoming Highway 410
107		Oct. 15	Oct. 31		General	Any elk
107		Nov. 1	Nov. 14		General	Antlerless elk
107	4	Oct. 15	Dec. 31	150	Limited quota	Antlerless elk
107	4	Jan. 1	Jan. 31			Antlerless elk valid off national forest within the Henry's Fork River drainage
107	7	Aug. 15	Aug. 31	50	Limited quota	Cow or calf valid in Sweetwater County
107	7	Dec. 15	Jan. 31			Cow or calf valid off national forest within the Henry's Fork River drainage

106, 107 Archery Sep. 1 Sep. 30 Refer to Section 3 of this chapter

Hunt Area	License Type	Quota change from 2018
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: Satisfaction

Management Strategy: Recreational

2018 Postseason Population Estimate: ~1600

2019 Proposed Postseason Population Estimate: ~1300

Herd Unit Issues

This is an interstate herd shared with Utah. There are elk that summer in Wyoming but many elk summering in the Uinta Mountains in Utah come to Wyoming to winter. Limited public land winter range is the main issue for this herd. With winter range in short supply conflict with agriculture producers becomes an issue. Damage complaints occur on bad winters. Summer damage also occurs on crops in limited areas. Significant efforts have been made by field personnel to alleviate these problems. Perceived reduction in livestock forage due to elk grazing is an issue brought up by livestock producers but is not substantiated biologically.

Local ranchers set up a meeting through the county Farm Bureau Agency in February 2013 to discuss elk management in this herd. During the meeting ranchers expressed significant dissatisfaction with elk in areas of the herd unit. In difficult winters problems have occurred in parts of HA 106 with elk comingling with livestock along the Bear River and Blacks Fork River where cattle feeding operations occur. However, hunters feel that elk numbers in the southeast part of the hunt area are too low and would like that segment to increase. That part of the area is largely public land and historically draws larger hunter numbers due to its easy access. We direct pressure onto the northern and western portions of the hunt area with type 7 permits. The Hunt Area 106 Type 7 licenses also help deal with an early damage problem on growing crops.

The HA 107 antlerless licenses are used to maintain pressure on elk on the Wyoming side of the state boundary during a hunt on the Utah side. Damage complaints on the HA 107 side of the herd unit are typically low even during severe winters. However, ranchers will complain about elk numbers and the herd has been over objective. The late portions of antlerless hunts are designed to target elk that have potential to cause depredation problems while protecting elk in those areas where they can winter with low probability of problems. Hunters would like to see more elk in accessible public land areas in HA 107. These areas and the small portion of public land in southeast HA 106 are the main areas for elk hunter access in the herd unit.

The strategy in this herd unit has been to ultimately minimize elk damage problems. However, it is difficult to manage a herd for limiting damage based solely on a number. Elk damage changes relative to many other factors. In 2014 the objective was reviewed and a new Satisfaction based objective was approved. This objective is to have a landowner satisfaction of 60% and a hunter satisfaction of 60%. In the fifth year of this objective, we are meeting the hunter satisfaction objective but not the landowner satisfaction objective. Hunter satisfaction is correlated to hunter harvest success and weather conditions in the fall greatly influence elk harvest. Even though landowner satisfaction is below objective, the landowner survey shows 80% of landowners are satisfied with the current season structure. There is also a secondary objective of having $\geq 60\%$ branch-antlered bulls in the harvest. We are meeting that objective at 80% of the harvest being branch-antlered bulls. The objective and management strategy were last revised in 2014.

Weather

Weather during 2018 and into 2019 has been highly variable. The early part of 2018 was very mild with low snow loads and moderate temperatures. Spring brought some moisture but in late summer and fall the weather was very warm and dry. Summer range conditions were very poor and animals were in lower body condition due to low habitat productivity. Elk distribution and migration in the fall of 2018 were unusual due to abnormal habitat conditions. Many elk migrated early and further down due to poor forage conditions, cold temperatures and ample snow in December. From December 2018 to May 2019 the winter was harsh with high snow loads and cold temperatures. Snow is persisting and spring has been cold and wet.

Habitat

Habitat data has been inconsistently collected in this herd unit and has been absent in the recent past.

Field Data

Elk surveys are flown in cooperation with Utah DWR, most recently in January of 2019. The results are shown in the table below. No classification data is available. The 2011 count in Wyoming was higher than previous counts, the result of severe winter weather and elk migration into Wyoming. The 2013 count was a very high elk count. This along with landowner complaints prompted much more aggressive elk hunting strategies. The 2019 count showed a decrease in elk numbers. This is likely correct since both Utah and Wyoming have been running aggressive hunting seasons to increase cow elk harvest.

	YEAR									
	1992	1994	1996	1998	2001	2004	2007	2011	2013	2019
Utah West Daggett	920	970	1408	919	923	716	863	NA	1055	487
Utah Summit	332	131	200	80	101	215	228	268	1006	299
Wyoming	298	238	635	299	512	446	746	1723	1810	1641
Total	1550	1339	2243	1298	1536	1377	1837	1991	3871	2427

Harvest Data

Antlerless harvest opportunity has increased for several years in this herd unit. The season structures have offered substantially increased antlerless harvest opportunity to reduce the possibility of damage in the herd unit. Those seasons allowed significant antlerless harvest with increases in permits and season lengths. These hunts had good success rates if weather conditions resulted in elk movement out of Utah and were largely successful at reducing damage issues. In 2013 we made significant increases in antlerless hunting opportunity to further reduce elk numbers and damage concerns. Harvest numbers responded to the increased opportunity. Success rates were high at 45%. That combined with higher hunter numbers produced a harvest of 732 elk in the herd unit. That was well above the previous five year average of 450. In 2014 through 2016 we continued that harvest strategy. In 2014, weather conditions made elk hunting more difficult and harvest was low at 489 animals harvested. In 2015 weather was more favorable and harvest was up at 692 for the herd unit. For 2016 harvest was gain high at 787 elk harvested. For 2017 mild weather brought the harvest back down to 493. In 2018 harvest was good at 601 elk due to some snowstorms in late fall. We will continue this aggressive hunting strategy to maintain harvest pressure on this herd. We are also adding increased opportunity to the type 4 licenses making them good during the general any elk season which should increase cow harvest.

Population

There is no population model for this interstate herd. Weather severity and forage availability are the determining factors in the number of elk that come into Wyoming from Utah during the winter. This and other factors make data collected in Wyoming unreliable.

Since data is very limited in this herd it is very difficult to look at data trends. It is not possible to model this interstate herd. Classification data is not collected. Harvest rates are highly variable due to weather conditions pushing elk into the state from Utah. Harvest survey data indicate that we have likely had adequate harvest in recent years to reduce this herd.

Management Summary

Starting in 2013 we greatly increased hunter opportunity for antlerless elk. Comments from landowners in areas around Lonetree and in large portions of area 106 indicated elk numbers were still an issue. We will continue that aggressive hunt timing and license allocation to maximize elk harvest and target elk causing problems. It appears that these new season structures are reducing this elk herd. The August 15 – 31 portion of the area 106 and 107 type 7 hunts is to address specific damage issues on private lands. The Hunt Area 106 Type 1 licenses are in place to help deal with late damage problems in the area for which they are valid. They are also valid in a far western portion of HA 105. This is to address a specific problem where Utah elk from Deseret Land and Livestock are coming to Wyoming and damaging stored hay on years with hard winters. For 2019 we will also leave this hunt open in Hunt Area 106 during the January season to address problems there. This hunt is very helpful during difficult winters.

The objective and management strategy were recently revised in 2014. During that objective review process we moved to a new objective type for this herd. Due to the issues associated with estimating this population, we switched to a satisfaction based objective for this herd. Hunter and landowner satisfaction is measured to compare to a set level of satisfaction in the objective. The new objective criteria is to have a landowner satisfaction of $\geq 60\%$ and a hunter satisfaction of $\geq 60\%$. There is also a secondary objective of having $\geq 60\%$ branch-antlered bulls in the harvest. In 2019 we went through an internal review of the objective and harvest strategy. The recommendation for the Uinta Elk Herd is to maintain the newly adopted satisfaction based objective.

2018 - JCR Evaluation Form

SPECIES: EIK

PERIOD: 6/1/2018 - 5/31/2019

HERD: EL424 - SOUTH ROCK SPRINGS

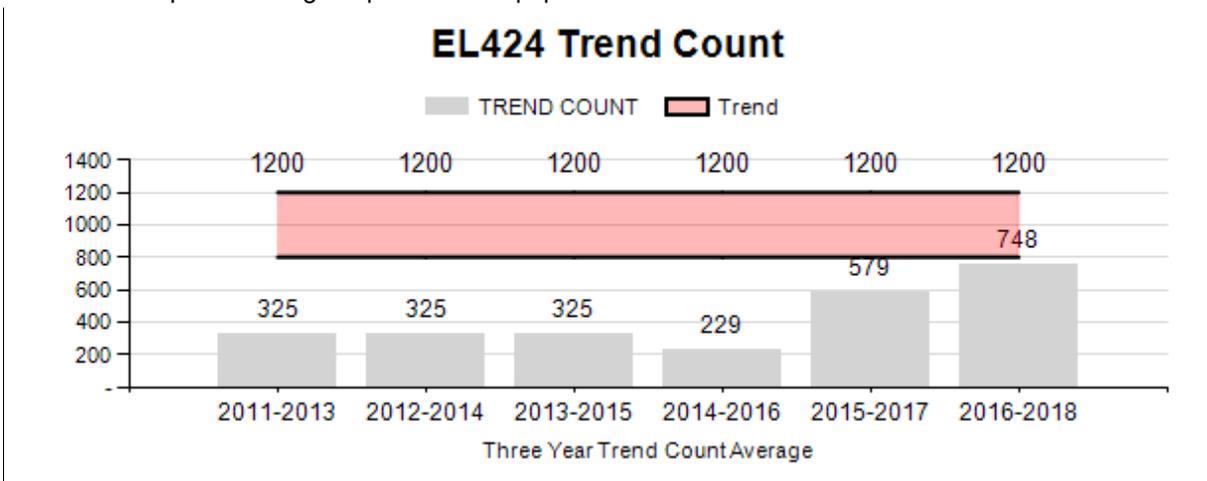
HUNT AREAS: 30-32

PREPARED BY: PATRICK BURKE

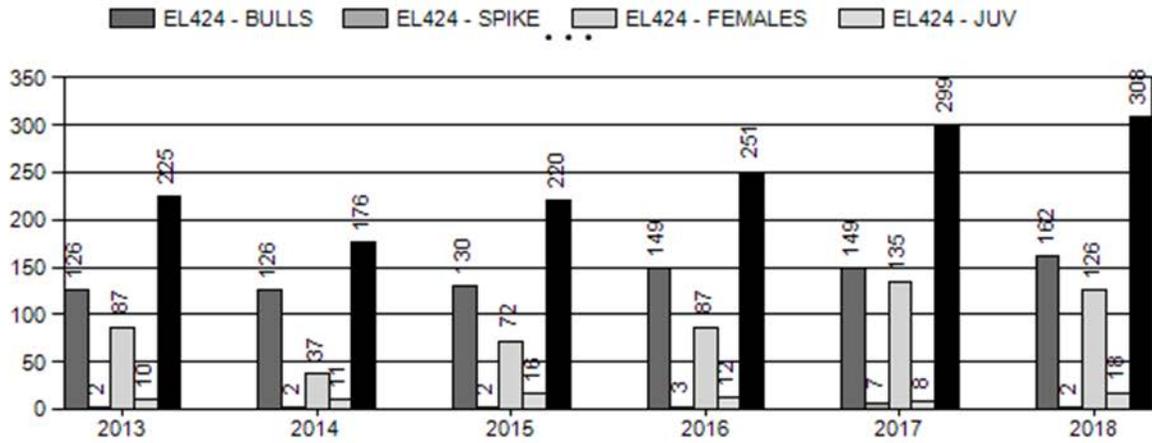
	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Trend Count:	543	506	900
Harvest:	234	308	350
Hunters:	355	405	450
Hunter Success:	66%	76%	78 %
Active Licenses:	355	405	450
Active License Success	66%	76%	78 %
Recreation Days:	2,674	3,201	3,300
Days Per Animal:	11.4	10.4	9.4
Males per 100 Females:	36	53	
Juveniles per 100 Females	39	45	
Trend Based Objective (\pm 20%)			1,000 (800 - 1200)
Management Strategy:			Special
Percent population is above (+) or (-) objective:			-49.4%
Number of years population has been + or - objective in recent trend:			5

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

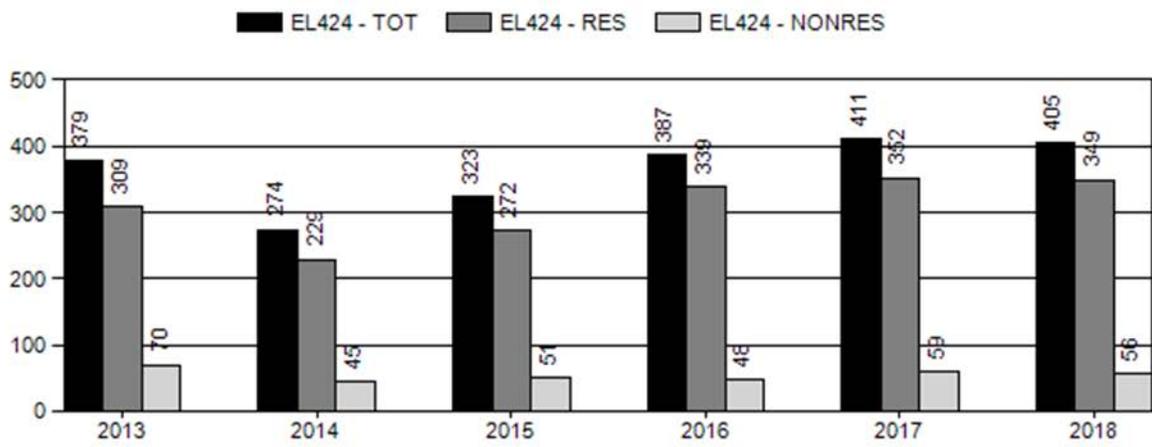
	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	0%	0%
Males \geq 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%
Total:	0%	0%
Proposed change in post-season population:	0%	0%



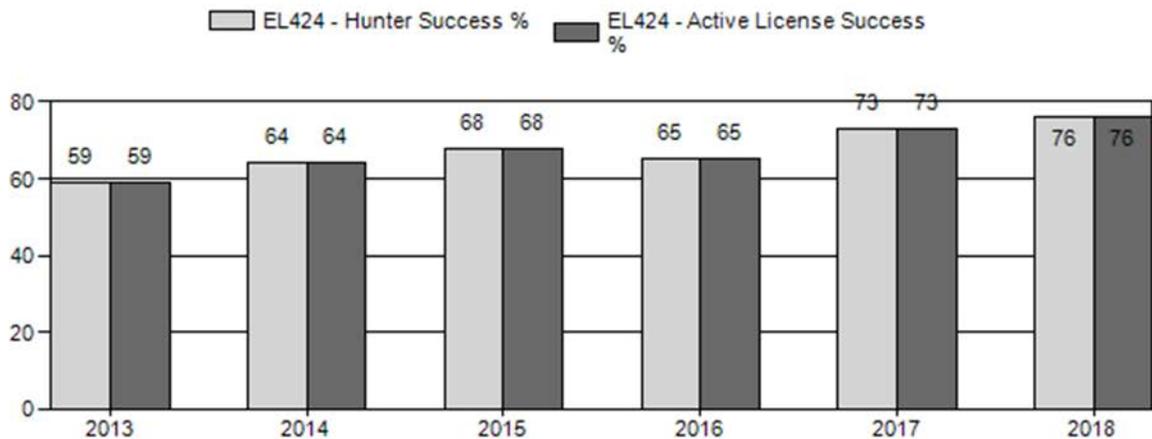
Harvest



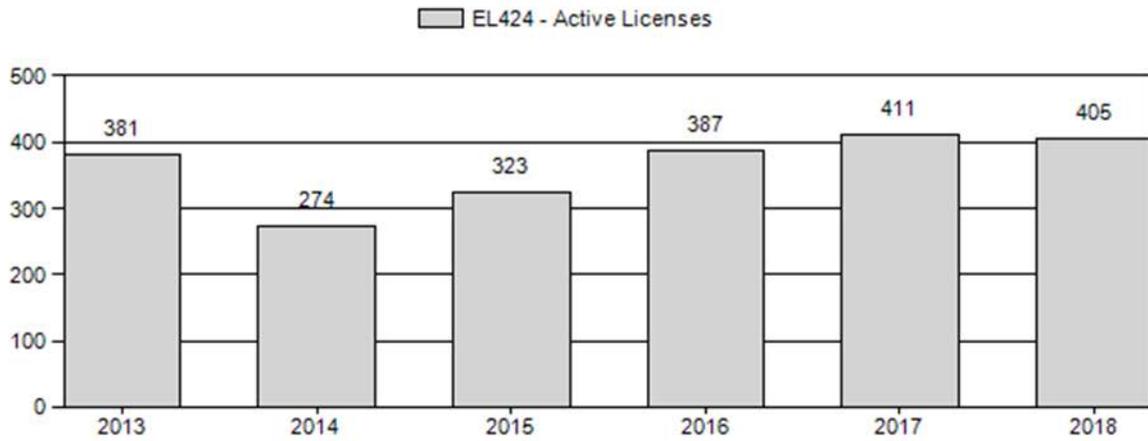
Number of Hunters



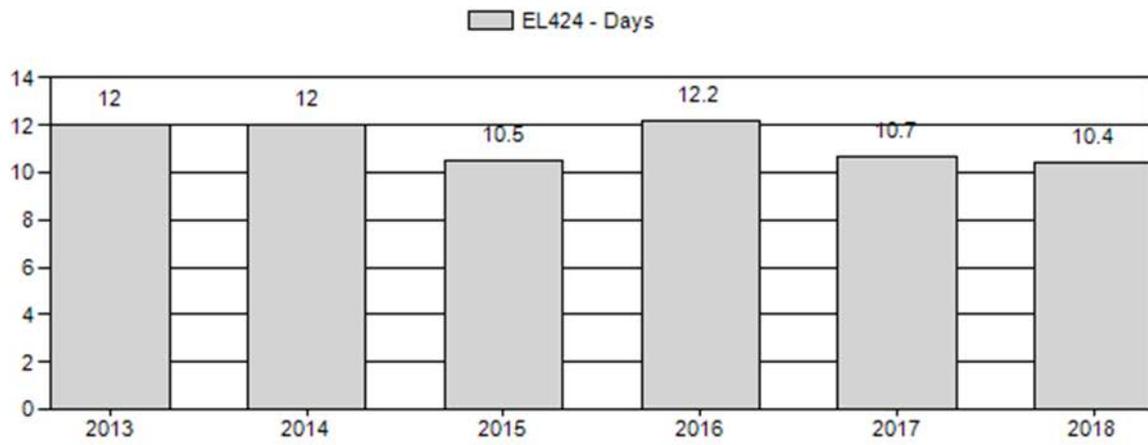
Harvest Success



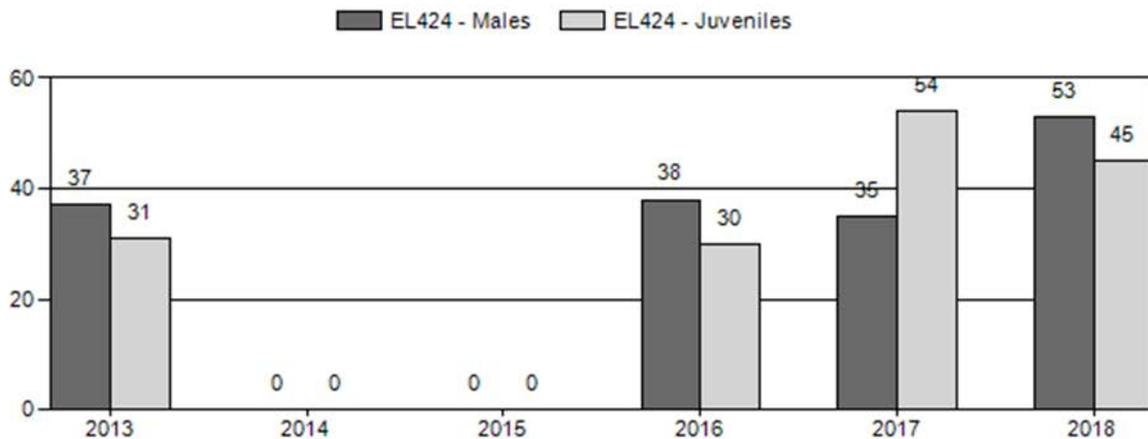
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL424 - SOUTH ROCK SPRINGS

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ying	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	0	78	135	213	22%	582	60%	181	19%	976	398	13	23	37	±0	31	±0	23
2014	0	0	0	0	0%	0	0%	0	0%	0	397	0	0	0	±0	0	±0	0
2015	0	0	0	0	0%	0	0%	0	0%	0	397	0	0	0	±0	0	±0	0
2016	0	76	78	154	22%	410	60%	124	18%	688	485	19	19	38	±0	30	±0	22
2017	0	83	110	193	18%	555	53%	301	29%	1,049	558	15	20	35	±0	54	±0	40
2018	0	67	139	206	27%	388	51%	173	23%	767	564	17	36	53	±0	45	±0	29

**2019 HUNTING SEASONS
SOUTH ROCK SPRINGS ELK HERD (EL424)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
30	1	Oct. 1	Oct. 31	50	Limited quota	Any elk
	4	Oct. 1	Nov. 15	50	Limited quota	Antlerless elk
31	1	Oct. 1	Oct. 31	100	Limited quota	Any elk
	4	Oct. 1	Nov. 15	150	Limited quota	Antlerless elk
32	1	Oct. 1	Oct. 31	50	Limited quota	Any elk
	4	Oct. 1	Nov. 15	50	Limited quota	Antlerless elk
	9	Sept. 1	Sept. 30	25	Limited quota	Antlerless elk, archery only

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
30-32	All	Sept. 1	Sept. 30	Valid in the entire area(s)

Hunt Area	Type	Quota change from 2018
31	4	+50
Herd Unit Total	4	+50

Management Evaluation

Current Management Objective: 1,000

Management Strategy: Special

2018 Postseason Population Estimate: N/A

2019 Proposed Postseason Population Estimate: N/A

The South Rock Springs elk herd is a special management herd, and has a mid-winter trend count objective of 1,000 elk. This objective was set in 2013, when the objective was changed from a population based objective to a trend count based objective. This change was made due to the difficulty and unreliability of attempting to model this interstate elk population.

Herd Unit Issues

This herd is shared between the states of Wyoming, Colorado, and Utah, with the largest segment of the population probably residing in Colorado. Because of the interstate nature of this population, the number of elk actually residing in Wyoming has been difficult to estimate since it can change on a day-to-day basis, especially during the hunting season since significant interchange has been documented between the three states, with most of the interchange

occurring between Wyoming and Colorado. There is a fairly large group of elk living near the Tri-State marker that tend to bounce back and forth between Middle Mountain in Colorado and the Little Red Creek, 4-J Basin areas in Wyoming, with some of the elk using areas further south in Colorado and Utah. This segment of the herd has particularly difficult to target for harvest as they have learned that they can use the state line as a refuge from hunting pressure.

Weather

The South Rock Springs herd has experienced relatively dry summers for the last several years; while some of the recent summers have seen decent spring time moisture, the late summers have been extremely dry lately. These dry conditions have had a negative impact on vegetative growth in the region, due to early senescence caused by a lack of moisture. Fortunately, most of the recent winters have seen relatively mild winter condition, with the exception of the 2018-2019, winter which delivered significantly increased snowfall for the herd unit. This year's winter conditions, while above average for the area, will probably not have a significant impact on the South Rock Springs elk herd, as conditions were probably not be severe enough to affect elk.

Habitat

The Green River aquatic habitat biologist has established six aspen regeneration monitoring transects throughout the herd unit. These transects are designed to evaluate browsing impacts from ungulates on young aspen suckers, especially by elk. Two transects were established on Little Mountain in 2007, as well as four additional transects that were established in 2009, one each on Aspen and Miller Mountains and two in the Pine Mountain area. These transects have been read each summer since their establishment, except that one of the Pine Mountain transects was not read in 2013 due to difficulty in accessing that site caused by the amount of rain and snow received that fall, and the South Pine Mountain site was not read in 2014 due to the aspen stand that it was located in dying off resulting in an insufficient number of aspen suckers left alive to measure. Because of the loss of the South Pine Mountain site, a new transect was established near the Tri-State marker in 2014.

A detailed accounting of the technique and results from these monitoring efforts can be found in the aquatic habitat annual report. In general, this method compares the height of the initial growth point for the current year's terminal leader to the height of the tallest previous terminal leader branch that was killed as a result of browsing. A positive Live-Dead (LD) value suggests growth of young trees, while a negative value or value near zero suggests that browsing may be suppressing tree growth. Results of monitoring efforts are presented in the following table (Table 1) taken from the aquatic habitat annual progress report, but in general, four of the five monitored sites showed positive LD values for 2018, while one of the sites had LD values at or below zero.

The Little Mt. /Dipping Springs LD transect that had been included in the past was excluded from this report because it was fenced with an ungulate excluding modified steel jack fence in

2016. The erection of that fence makes the LD values for that site is no longer comparable to the other sites in the herd unit.

Table 1. Trends in aspen regeneration LD Index values (vertical inches) 2015-2018

Monitoring site	2015	2016	2017	2018
Pine Mt/Red Ck.	-1.8	0	-4.1	-5.8
Tri-State /Red Ck.	+7.2	+13.2	+10.7	+6.8
Miller Mt.	+3.6	+18.6	+3.9	+3.0
Aspen Mt.	+1.2	+4.6	+8.3	+8.9
Little Mt./West Currant Ck.	0	+5.5	+10.6	+3.8

Field Data

The South Rock Springs elk herd was classified from a helicopter in conjunction with the South Rock Springs deer herd during December 2018, as it has been done in the past several years. During those classification flights, a total of 767 elk were classified in the herd unit, consisting of 388 cows, 173 calves, 139 adult bulls, and 67 yearling bulls. That resulted in observed ratios of 45 calves per 100 cows, and 53 bulls per 100 cows which included 17 yearling bulls per 100 cows.

The majority of the elk observed during those flights were seen in HA31, with 554 of the classified elk coming from that hunt area. Hunt Area 30 contained the next largest sample of elk, with 135 elk being found in that hunt area, and HA32 contained the smallest number of elk with only 78 elk being located in that hunt area during the classification flights.

In addition to the helicopter classification survey, a mid-winter fixed wing trend count was also conducted in January 2019. During that flight, a total of 506 elk were observed, with the majority of those elk (n=471) being observed in the Red Creek Basin in HA32. The deep snow conditions present during January probably pushed those elk into the basin, since it had lighter snow accumulation than other areas of the herd unit. This trend count number was lower than had been expected due to several factors, as the deep snow on Little Mountain may have pushed elk into the deep draws of the Marsh Creeks which made them harder to located from the air, and as time was split between the South Rock Springs and the Petition herds for this flight, the herd unit was not flown as thoroughly as it had been in previous trend counts.

Harvest Data

In 2018 there were a total of 405 active licenses in the herd unit, which is down slightly from the 411 active licenses seen in 2017. The overall harvest success rate for those 405 hunters across all hunt areas and license types in the herd unit was 76%, and it took the average hunter 10.4

days to harvest an elk in the herd unit. The 2018 hunting season resulted in a harvest of 308 elk across the herd unit. Of those 308 harvested elk, 162 of them were two year or older bulls, two were spike bulls, 126 of them were cows, and 18 were calves.

When broken out by individual hunt area, the hunt area with the highest harvest success rate in 2018 was HA31, which reported an 83.5% success rate for Type 1 and 4 license types combined, with 83.7% success for the Type 1 license holders and 83.3% for the Type 4 hunters. Hunt Area 30 reported a 81.5% overall success rate, with Type 1 licenses having a success rate of 84.8%, and a 78.3% success rate for Type 4 license holders. Hunt Area 32 reported a 57% overall success rate, with the Type 1 license holders experiencing a 85.1% success rate, and a 45.5% success rate for Type 4 license holders, along with a 6.3% success rate for the Type 9 license holders.

Because of the special management status and the local prominence of the South Rock Springs elk herd, successful Type 1 license holders are asked to voluntarily submit tooth samples from harvested elk for cementum annuli analysis. In 2018, tooth samples were submitted from 92 bull elk or about 57% of the bulls harvested based on the harvest survey. Based on those tooth submissions, the average age of harvested bulls in 2018 was 6.1 years old. This compares with an average age of 6.2 years old in 2017 and 2016, and 5.6 in 2015. The oldest bull aged from the herd unit in 2018 was a 13.5 year old bull harvested from HA31. The oldest bull aged from HA30 a 10.5 year old bull, and the oldest from HA32 were three 11.5 year old bulls. In past years, the oldest age class of bull harvested was 10.5 in 2017, 11.5 in 2016, and 9.5 in 2015.

Population

Since collar data from separate studies being conducted in Colorado, Utah, and Wyoming have demonstrated that at least portions of this herd move freely between Wyoming, Colorado, and to a lesser extent Utah; attempting to model this herd is not feasible because it violates the fundamental assumption of a closed population. Therefore, there is no population estimate for this herd and classification numbers are probably the best approximation for the number of animals in the herd in years when trend-counts are not conducted.

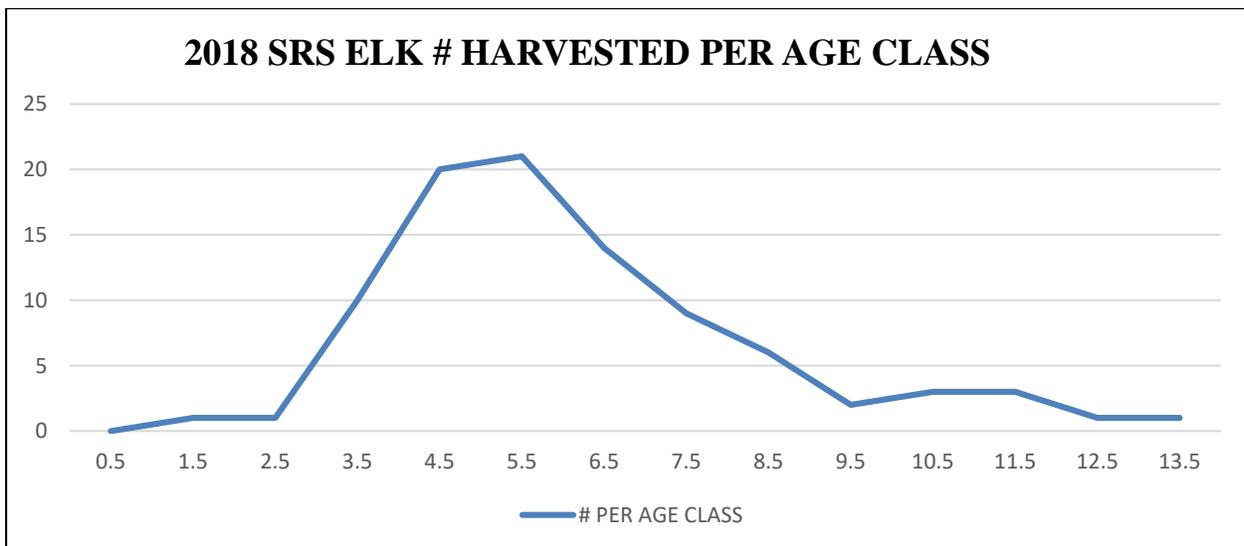
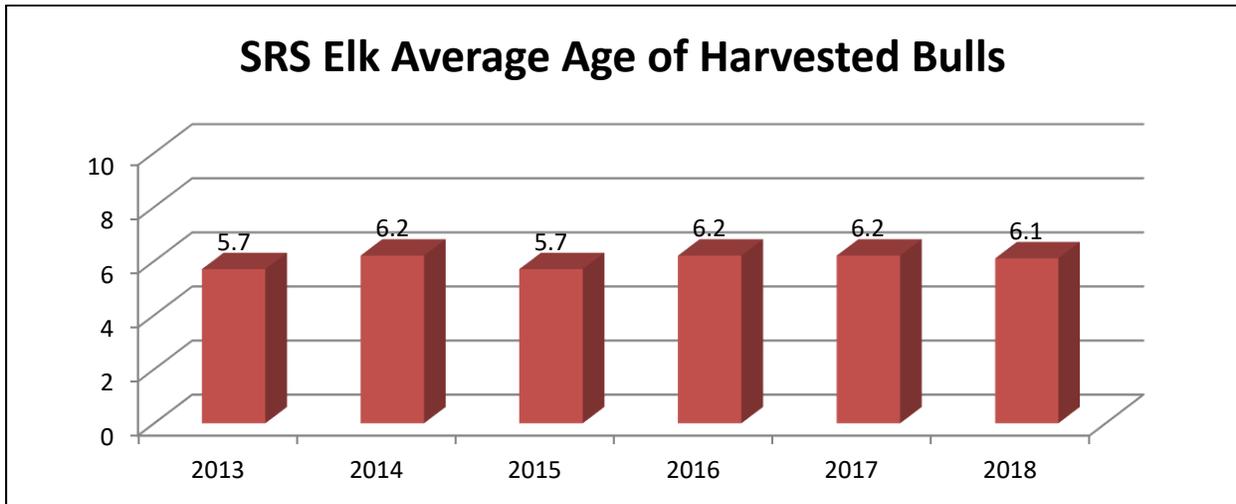
The results from 2018's trend count survey, along with recent classification sample sizes of 767 in 2018, 1,049 in 2017, and 688 elk in 2016 suggest that the herd is still at an appropriate level. However, relatively high observed calf ratios from the last two years do suggest that this herd could be growing.

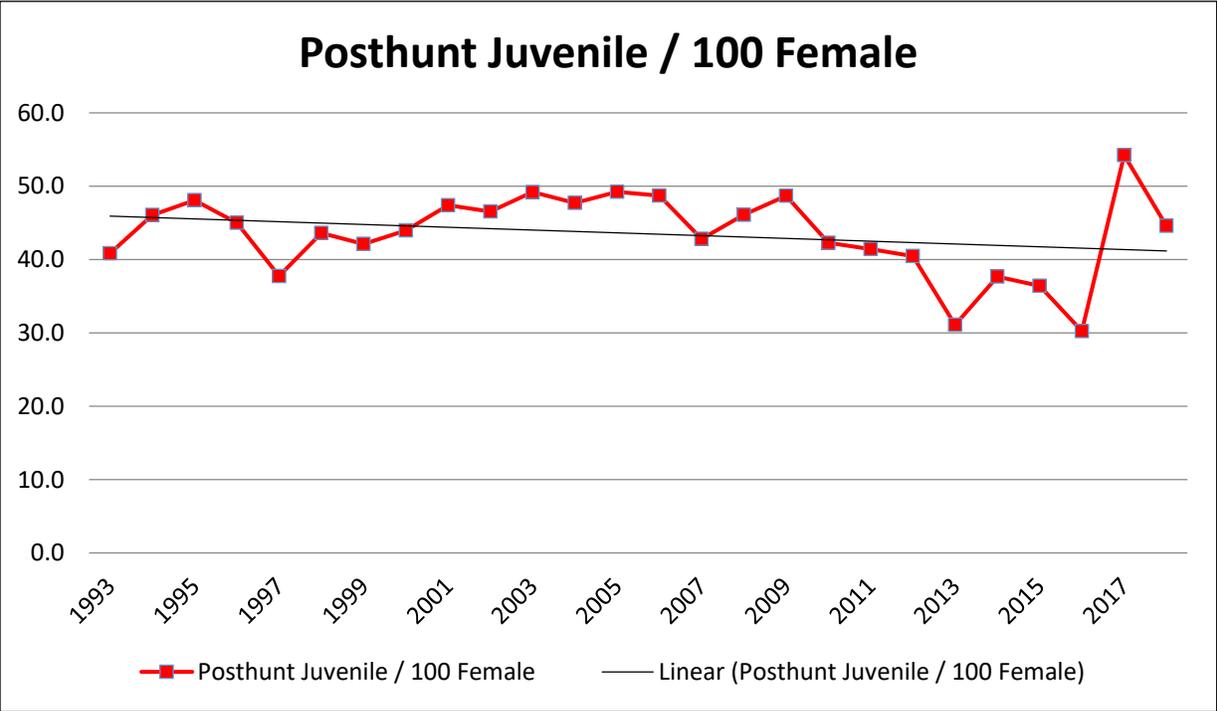
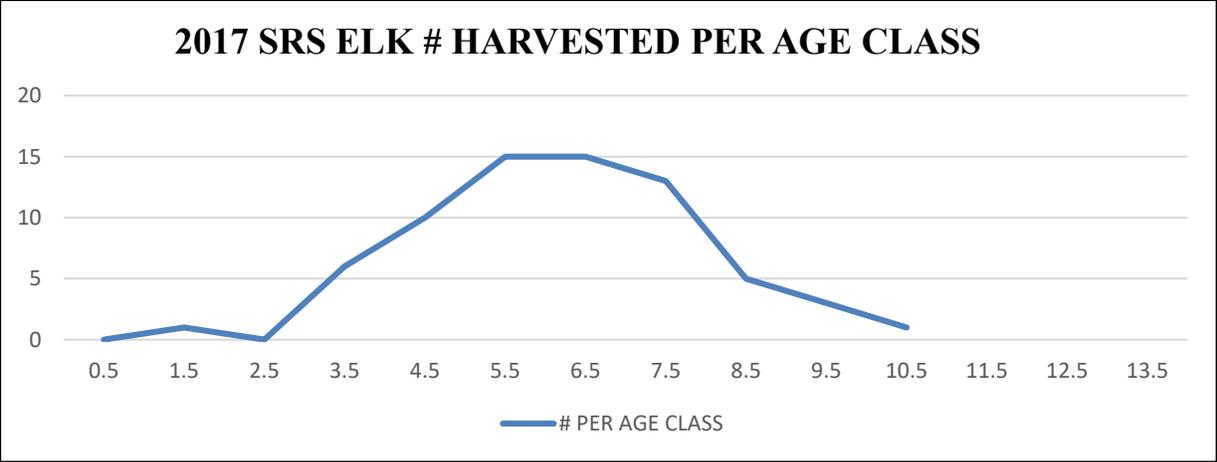
Management Summary

The 2019 season contains a few changes from the seasons seen in recent years. The biggest change is the extension of the Type 4 seasons from closing on October 31 in HAs 30 and 31, and the second weekend in November in HA32 to November 15th for all three areas. This change

was proposed to one, hopefully increase cow harvest by giving hunters more opportunity to harvest a cow; and two, to help alleviate crowding concerns that are often voiced by hunters, including deer hunters, in the area.

An increase in HA31 Type 4 licenses was also implemented for the 2019 season. This increase was a result of the observed calf ratios that had been observed in the last couple years. These observed calf ratios suggest that the herd, and especially the Little Mountain portion of the herd, could be growing; and an increased level of cow harvest in that area should help keep the elk numbers at an appropriate level.





2018 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2018 - 5/31/2019

HERD: EL425 - SIERRA MADRE

HUNT AREAS: 13, 15, 21, 108, 130

PREPARED BY: PHIL DAMM

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	8,898	7,000	6,500
Harvest:	2,191	1,979	2,100
Hunters:	5,775	4,915	5,000
Hunter Success:	38%	40%	42%
Active Licenses:	6,050	5,113	5,000
Active License Success:	36%	39%	42%
Recreation Days:	42,179	34,330	38,000
Days Per Animal:	19.3	17.3	18.1
Males per 100 Females	31	23	
Juveniles per 100 Females	41	38	

Population Objective (\pm 20%) : 5000 (4000 - 6000)

Management Strategy: Recreational

Percent population is above (+) or below (-) objective: 40%

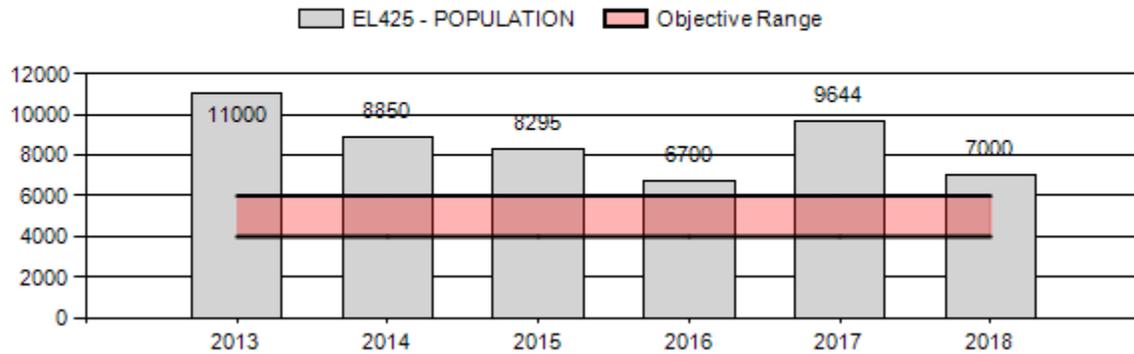
Number of years population has been + or - objective in recent trend: 5

Model Date: 3/20/2019

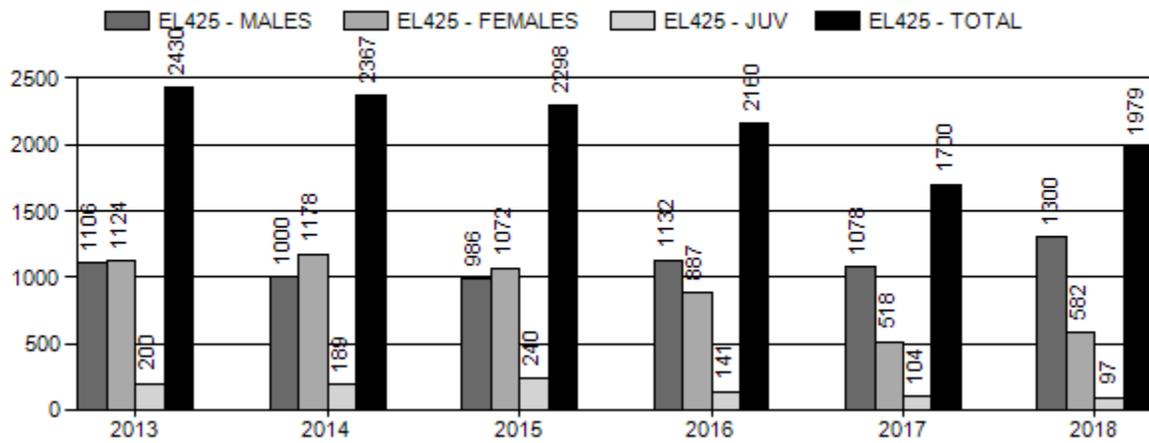
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	6%	7%
Males \geq 1 year old:	12%	12%
Total:	18%	19%
Proposed change in post-season population:	25%	27%

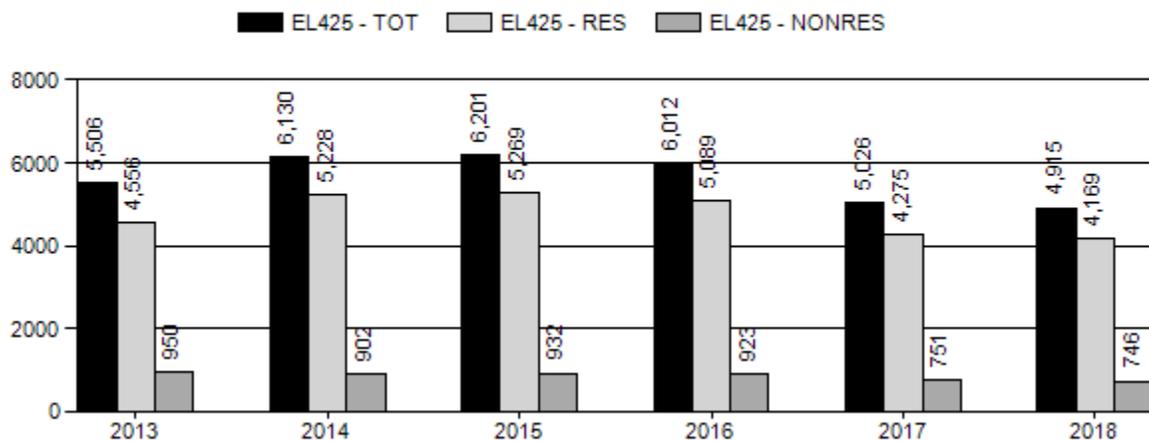
Population Size - Postseason



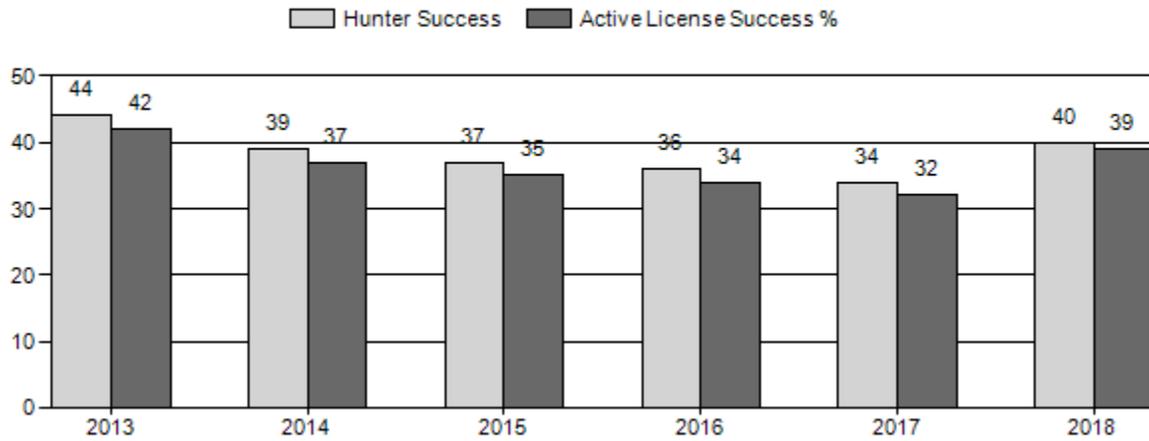
Harvest



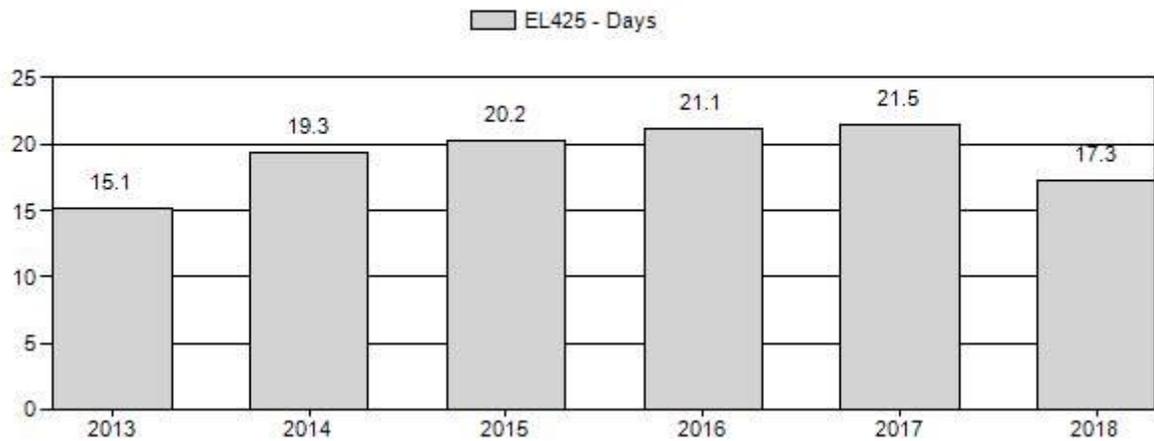
Number of Active Licenses



Harvest Success



Days Per Animal Harvested



2013 - 2018 Postseason Classification Summary

for Elk Herd EL425 - SIERRA MADRE

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Yng	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	11,000	158	124	282	17%	985	58%	430	25%	1,697	0	16	13	29	± 2	44	± 3	34
2014	8,650	432	554	986	17%	3,546	60%	1,407	24%	5,939	0	12	16	28	± 1	40	± 1	31
2015	8,295	20	9	29	8%	222	65%	93	27%	344	0	9	4	13	± 3	42	± 6	37
2016	6,700	480	610	1,090	21%	2,835	56%	1,149	23%	5,074	0	17	22	38	± 1	41	± 1	29
2017	9,644	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2018	7,000	551	572	1,123	19%	3,456	58%	1,352	23%	5,931	0	16	17	32	± 1	39	± 1	30

2018 PROPOSED HUNTING SEASON

SPECIES : Elk

HERD UNIT : Sierra Madre (425)

HUNT AREAS: 13, 15, 21, 108, 130

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
13		Oct. 15	Oct. 31		General	Any elk
13	6	Oct. 1	Nov. 14	100	Limited quota	Cow or calf
15		Oct. 15	Oct. 31		General	Any elk
15	6	Oct. 1	Nov. 14	100	Limited quota	Cow or calf
21		Oct. 13	Oct. 14		General youth	Any elk
21		Oct. 15	Oct. 22		General	Antlered elk
21		Oct. 23	Oct. 31		General	Any elk
21	6	Oct. 15	Nov. 17	200	Limited quota	Cow or calf
21	7	Aug. 15	Dec. 31	25	Limited quota	Cow or calf valid on private land
108	1	Oct. 11	Oct. 31	75	Limited quota	Any elk
108	1	Nov. 1	Jan. 31			Antlerless elk
108	4	Oct. 11	Jan. 31	50	Limited quota	Antlerless elk
108	6	Oct. 11	Dec. 31	200	Limited quota	Cow or calf
108	6	Jan. 1	Jan. 31			Cow or calf valid west of the Twentymile Road (Carbon County Rd 605 N)
130		Oct. 1	Oct. 23		General	Any elk

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
13	All	Sep. 1	Sep. 30	Valid in the entire area(s)
15	All	Sep. 1	Sep. 30	Valid in the entire area(s)
21	All	Sep. 1	Sep. 30	Valid in the entire area(s)
108	All	Sep. 1	Sep. 30	Valid in the entire area(s)
130	All	Sep. 1	Sep. 30	Valid in the entire area(s)

Hunt Area	Type	Quota change from 2017
21	6	+100
108	6	+50
108	7	-200
Herd Unit Total	1	0
	4	0
	6	+150
	7	-200
	Total	-50

Management Evaluation

Current Management Objective: 5,000 (2013)

Management Strategy: *Recreational*

2018 postseason Estimate: 7000 (see below)

2019 Proposed Postseason Population Estimate: ~6500

The current abundance estimate for the Sierra Madre elk herd (SMEH) is 40% over objective. However, the current model being used to monitor this population is producing unrealistic results, likely exacerbated by interchange with Colorado. The spreadsheet model currently employed is only one tool in managing this elk herd. Indications are that the modeled estimates have not even provided a good trend (index) to the actual population, and other variables such as harvest data and age/sex ratios have provided more valuable indices to population performance. For example, in 2017, the modeled population increased from 6,700 to 9,644 (+44%), which is not plausible. Therefore, the 2019 management strategy for this herd will be based largely off of other indices. With the exception of 2018, harvest success has declined gradually over the last five years, while hunter effort has increased. Even with fairly substantial opportunity and harvest, the population is performing fairly well with calf ratios around 40 per 100 cows and bull ratios around 30 per 100 cows; this indicates the level of harvest should be able to be maintained. Mid-winter classifications yielded 6,151 elk being counted for this herd, which is more than have been counted since 1997. However, caution must be exercised when making comparisons and assuming a large upward trend, as winter severity on higher elevation winter ranges meant that a larger proportion of the herd was counted than on more typical years. Although, given reasonably good productivity, an upward trend is plausible. Hopefully, consistent annual mid-winter flights will continue and the trend will be confirmed in 2020. Across the herd unit, reduced price cow/calf licenses will decrease by 50, but a more liberal general season will likely make up this potential difference in harvest.

Herd Unit Issues

Three major issues continue to be discussed by hunters in the elk hunting comments; these issues included number of hunters/ATVs, elk numbers and beetle kill. Again this year we have seen a high number of negative comments related to hunter crowding in areas 13, 15, and 21 which is where we see the majority of harvest due to the general season structure. The high harvest and liberal management strategy within this herd over the last 7 years might have been successful in reducing the number of elk within the herd. Negative comments from hunters regarding elk numbers have increased as elk numbers have decreased or have become less accessible. Hunter numbers were maintained from 2017 to 2018 with about 5,000 in both years participating.

A landscape wide impact to the SMEH that is being noticed and commented on by hunters is the progression of beetle kill through the Sierra Madre Range. Trees continue to fall at alarming rate which may lead to disruption in traditional movement patterns of elk and will impact hunters ability to access the forest. A greater effort to work with the U.S. Forest Service to address these areas should be made in the coming years to ensure this herd remains accessible to hunters who wish to access the resource by foot or horseback.

Another issue for the management of this elk herd is that a growing proportion of resident elk subsist on private lands in hunt areas 108 and 130. These areas are largely dominated by private

land or checkerboard ownership, and are largely inaccessible to hunters. Some slight manipulations to those season structures in 108 were approved by the Commission for the 2019 hunting season to continue to provide opportunity and limit elk conflict on private lands.

Weather

Weather during 2018 and into 2019 has been highly variable. In the early part of 2017 the winter was light and spring moisture was extremely limited across much of the herd unit. However, higher elevations where most elk spend summer were relatively more productive as usual. Some concern existed for the productivity of the herd, but calf ratios in February 2019 counts were typical, and yearling bull ratios were excellent. Snow began to re-accumulate in the higher elevations in the latter parts of the hunting seasons, and the winter of 2018-2019 was substantial in terms of snow through to spring and lower temperatures well into February, which is atypical. Winter severity does not seem to pose a very significant risk to this elk population. Relatively stable recruitment of yearling bulls over the past ten years and decent calf ratios indicates calves fare well in spite of severe Sierra Madre winters since elk are free to move to more hospitable areas. Elk seemed to continue to do well through this winter, but with higher densities than typical in lower elevation winter ranges, and very few to no elk in higher elevation winter ranges. Lichen in certain south facing and wind-swept slopes can pose a risk to elk at the northern end of the herd, but no major issues were observed.

Habitat

Growing season precipitation was well below normal across the lower to middle elevations of the herd unit in 2018. In fact, much of the desert shrub, Utah juniper, and Wyoming big sagebrush communities received almost no precipitation during the growing season. Resident ranchers, cowboys, and herders reported no green-up in many of these desert communities. This was concerning for productivity of winter range shrubs, which showed nearly no growth during 2018. However, as mentioned previously SMEH elk seemed to weather the winter well regardless. In 2016, the Snake Fire burned approximately 2,565 acres located between the Roaring Fork and North Fork of the Little Snake River drainages. This was a high elevation wildfire that could improve summer range elk habitat by increasing herbaceous forage production within the burn area. There is a growing concern in this herd unit of increased elk use of deer winter ranges. It is possible the large Chokecherry-Sierra Madre wind development (over 1000 turbines) will displace additional elk to deer winter ranges during the colder months.

Field Data

Mid-winter classification flights were completed in later February, covering all major elk winter ranges for the SMEH. Detection rates were high, as high winter severity led to congregated elk on lower elevation winter ranges than what is probably typically observed. These classifications yielded 6,151 elk being counted for this herd, which is more than have been counted since 1997. However, caution must be exercised when making comparisons and assuming a large upward trend due to high detectability. Although, given reasonably good productivity, an upward trend is still plausible. Hopefully, consistent annual mid-winter flights will continue and the trend will be confirmed in 2020.

Harvest Data

Elk harvest data over the last several years indicates that it has become more difficult to find an elk during hunting season. Since 2013 we have seen a steady increase in effort and a decrease in hunter success, outside of 2018. Success climbed to 40% in 2018, at least partially due to some snow events during the hunting season that tend to increase elk vulnerability. Cow and calf harvest were similar to 2017, but bull harvest climbed by a little over 200, again likely due to weather events. Concern about drastic reductions in cow harvest in 2017 leading to skewed bull ratios may be unfounded, since those ratios in the classification flights were still good. However, with high winter severity and thus detection, it may be too early to judge. If a mid-winter classification flight is completed in 2020, and 2019-20 is a more “normal” winter, bull ratios should be more telling.

Population

The current abundance estimate for the Sierra Madre elk herd (SMEH) is 40% over objective, but we have mentioned this estimate is fraught with error and we place no stock in this number. Thus, other variables such as harvest data and age/sex ratios will continue to provide more valuable indices to population performance. See following report.

Management Summary

The Sierra Madre elk herd has always presented a challenge due to high harvest, high productivity and typically low bull ratios. The implementation of any elk and general cow seasons in 2010 has been successful in providing ample opportunity for hunters in Wyoming and has actually addressed the low bull ratios issues of the past. The season structure over the last 7 years has been extremely successful in harvesting large numbers of cows and potentially decreasing population size. However, it should be noted that as populations fall and elk become less accessible, so does hunter opportunity. Given the popularity of this herd with the hunting public, it is likely hunter complaints will continue to escalate, particularly in years when elk are more difficult to harvest because of weather, beetle kill, and private land accessibility. In order to decrease the impact posed by high hunter numbers, we are generally continuing to maintain a more conservative general season structure in the accessible portion of the herd unit (Area 13, 15, and 21), and will maintain similar seasons in area 108 and identical seasons in area 130.

Sierra Madre Elk Herd Unit (EL425)
Population Objective Review
May 2019

Prepared by: Phil Damm, Baggs Wildlife Biologist

HERD UNIT OVERVIEW

The Sierra Madre Elk Herd Unit is located in south central Wyoming, ranging from WY Highway 789 on the western edge to the North Platte River on the east, and from US Interstate Highway 80 on the northern end to the Wyoming-Colorado state line on the south (Figure 1). This herd unit spans three Wyoming Game and Fish Department administrative regions and is comprised of five hunt areas: 13, 15, 21, 108, and 130 (Figure 1). Habitats vary from the most productive high elevation summer ranges in the Sierra Madres in the south-central portion of the herd unit to the big sagebrush, Utah juniper, and desert shrub communities on the outer edges in the high desert, which generally function as winter range. Mid-elevations habitats, dominated by mixed mountain shrub, aspen and oak communities, remain productive during most of the year and are used to varying degrees based on winter severity.

This herd is being managed using a recreational management strategy. General license hunting opportunities follow areas with higher proportions of accessible public lands, primarily within Areas 13, 15, and 21. Fewer opportunities exist in Areas 108 and 130 due to limited entry licenses, limited access due to private ownership, or both. Late season antlerless opportunity exists in all areas except Area 130. With the exception of 2018, harvest success has declined gradually over the last five years, while hunter effort has increased. Even with fairly substantial opportunity and harvest, the population is performing well with calf ratios around 40:100 cows and bull ratios around 30:100 cows, suggesting current levels of harvest are likely sustainable. The number of sportsmen hunting in this herd unit has been around 5,000 for the past two years, one of the highest in the state of Wyoming, but this is actually a modest decline from the previous three years of over 6,000. Following a public outreach effort, the population objective for this herd unit was increased from 4,200 to 5,000 in 2013. Sportsmen satisfaction was significantly higher when numbers exceeded this by a large degree, while landowners and livestock producers generally favored lower abundance.

POPULATION OBJECTIVE REVIEW

Population estimates for this herd are suspect as the spreadsheet model seems to unrealistically over-estimate elk numbers (Figure 2). Based on the model (and other parameters such as classification sample size and hunter statistics) the population has been over objective (objective range of 4,000-6,000 elk) since 2013. It is not surprising the model performance is poor given known, significant interchange with Colorado. Based on classification counts, harvest statistics, and professional judgement, annual model estimates do not even provide a good trend (index) to actual population size. Further, the current model produces estimates that are often not plausible or realistic. For example, in 2017, the modeled population increased from around 6,700 to 9,600 (+44%), which is not biologically possible based on estimated production and harvest. Other variables such as harvest estimates and age/sex ratio data provide more reasonable indices to

population change. A sightability survey was conducted in 2013 but results were not reliable due to less than adequate coverage of the herd unit.

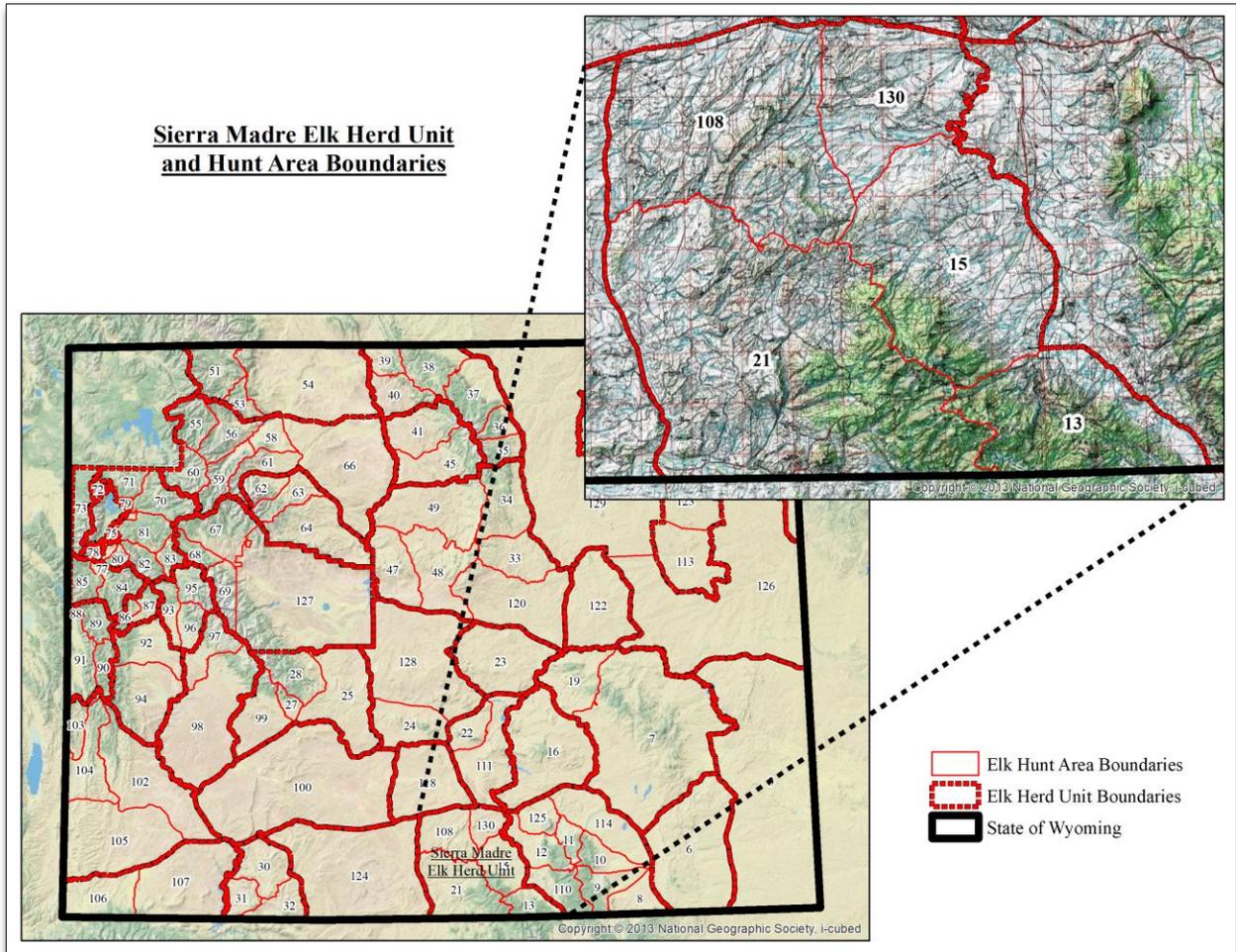


Figure 1. Sierra Madre Elk Herd Unit location and Hunt Areas 13, 15, 21, 108, and 130.

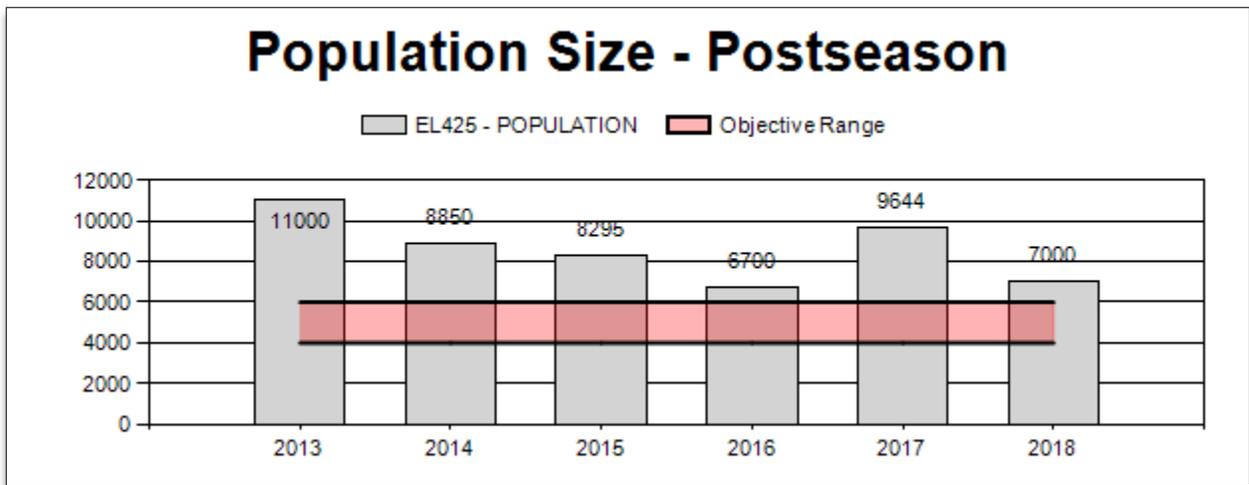


Figure 2. Post-season population size from the spreadsheet model for Sierra Madre Elk Herd.

CURRENT MANAGEMENT STRATEGIES BY HUNT AREA

Hunt Areas 13, 15, and 21: These hunt areas are generally comprised primarily of lands administered by the U.S. Forest Service and the Bureau of Land Management. There are also significant private lands occurring throughout these areas, primarily within riparian areas at lower elevations and small scattered parcels at higher elevations surrounded by federal lands. Because the majority of these hunt areas is public land, general license hunting opportunity results in substantial harvest, especially in hunt area 21. Harvest in these general license seasons is typically managed using hunting season length and a combination of “any,” “antlered” or “antlerless elk” types. Reduced price “cow or calf” licenses and seasons are used for population management, and to address damage concerns on private lands.

Hunt Area 108: Much of this hunt area is comprised of checkerboard ownership, with alternating sections of private and federal land. This land ownership pattern makes access difficult for most of the general public, with a few exceptions. There are a few roads that provide some legal access. Hunting season dates are similar to those in the adjoining general areas, beginning with an “any elk” season followed by “antlerless” opportunities to address damage concerns on private lands or to discourage elk wintering in areas where they can potentially consume lethal quantities of lichen on or near the Red Rim.

Hunt Area 130: While similar to Area 108 regarding land ownership, the similarities between these two areas stops there. Hunter access and the road system are much more restrictive in Area 130, with a single corporate ranch controlling the majority of private land within the area. Nearly no public access exists in this area. This area is managed with a longer (3 weeks) general “any elk” season. To gain some public access in Area 130, the Department attempted a Hunter Management Area, but the effort was largely unsuccessful due to landowner restrictions and the HMA was discontinued.

RECOMMENDED HERD UNIT OBJECTIVE AND MANAGEMENT STRATEGIES

Given the issues with obtaining a valid population size estimate for this herd, a mid-winter trend count objective is the best and most logical approach to manage these elk. Excluding the years 2013 and 2015, mid-winter trend counts were conducted for this herd with similar (Figure 3) flight path and survey effort since 2005. Fewer hours (effort) were flown in the years prior to 2005, and are not directly comparable. Results from 2005-2019 yielded an average of 4,941 elk counted, with 6,151 being counted in February, 2019. For this herd, trend counts appear to be a much more reliable indicator of population size and change (index) when compared to the many unsuccessful attempts to model this population. Trend counts are easier for the public and landowners to understand and relate to, as opposed to modeled estimates which are frequently viewed as nebulous. The annual Green River flight budget request will be adjusted to include funds necessary to accomplish this trend flight on an annual basis. In the recent past, flights were conducted every other year, with the funds being split with West Green River Elk (where we fly a biannual sightability survey). Elk winter concentration areas will be compiled and mapped to ensure adequate coverage and consistency between years. To account for varying elk detection rates from year to year due to changing weather severity and elk distribution, herd size will be evaluated using a 3-year running average. All three WGFD regions (Green River, Lander, and

Laramie) agree a mid-winter trend count objective of 5,000 elk (trend objective range of 4,000-6,000 elk counted) with a maintained recreational management strategy is appropriate to balance both hunter and landowner expectations of this elk population. Also, this number of elk seems reasonable based on historic trends indicating habitats are capable of sustaining this number of elk over the long-term.

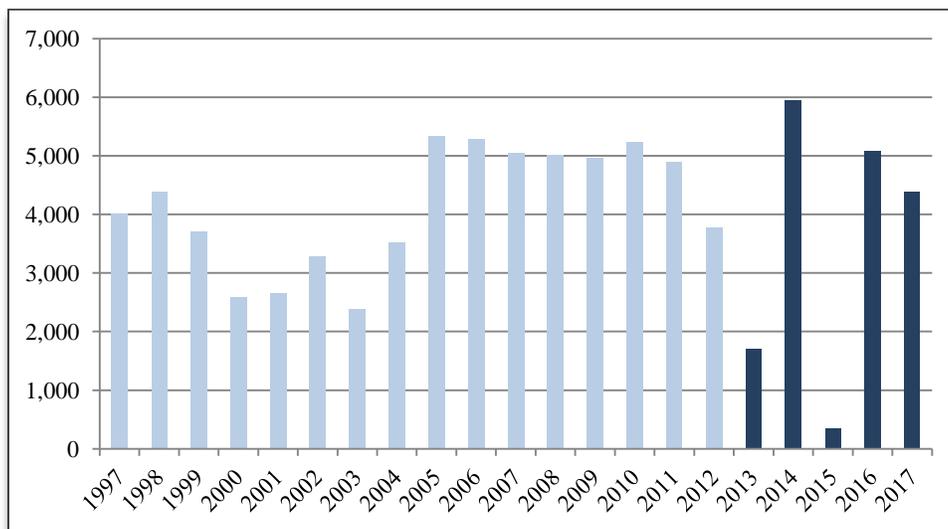


Figure 3. Post-season classification totals for the Sierra Madre Elk Herd, Wyoming. Note: effort (flight hours) was increased substantially in 2005. Effort has been consistent since that time with the exception of 2013 and 2015 when no aerial surveys were conducted.

LANDOWNER, AGENCY, AND PUBLIC INVOLVEMENT

Landowners, affected sportsmen and other members of the public, and federal/state/county agency partners were contacted during this effort to gather input and to gauge support for the Department’s new objective proposal. The following sections outline those various methods and results.

- **Sportsman Contacts**

Hunters were contacted during the 2018 elk season concerning their desires for this population, and results were not surprising given typical sportsmen desires regarding populations. At the time of the survey, the trend suggested well over 6,000 elk (2019 trend count of 6,151) in this herd unit and sportsmen indicated they either wanted more (78%) elk or for the herd to remain at similar abundance (22%). Archers polled during the September archery season, who perhaps not coincidentally encountered more elk per unit time than did rifle hunters, were on average more satisfied with current numbers.

- **Landowner Contacts**

Landowners were contacted both in the fall of 2018, and during the winter of 2018-19. Fifty-five percent (55%) of surveyed landowners in initial contacts thought we should increase the current population objective (from the population based objective of 5,000) and that more elk were

needed. The remaining 45% (including some of the key landowners mentioned below) of landowners were comfortable with both the current population and the direction we were discussing concerning potentially moving to a trend-based objective. Following initial contacts and inter-regional discussions/meetings to determine objective type and level, in-person follow-up contacts were made with key landowners concerning the final proposal to move toward a trend based objective of 5,000. These contacts included: Niels Hansen, John Espy, Ron Wille, Randy Montgomery, Pat and Sharon O'toole, Cody Mckee, Jack Cobb, Jack Berger, Mark Dunning (Big Creek Ranch), Dave Sturm (Silver Spur Outfitting), and Ron Platte. All were supportive of the proposal and felt this type of objective made more sense than model estimates, especially with a model that functions poorly.

- 2019 Season Setting – Follow-up for Sportsmen

Sportsmen were notified of the Department's draft proposal during March season setting meetings in Baggs, Rawlins, Saratoga, and Green River (n=75, Appendix B). To increase public education of this proposal and prompt public comment, Department personnel developed a power point presentation (Appendix A) to be presented at these meetings. The presentation contained general information about the herd unit, current herd status as of the February 2019 classification survey, issues with the current objective and population modeling process, the proposed trend based objective, and explanation of this different method for assessing herd size and trend. Results per meeting are found below.

Baggs: Five people attended the Baggs meeting and no comments, verbal or written, were provided.

Rawlins: Twenty-seven people attended. One written comment was submitted supporting the change to a mid-winter trend, but wanted the objective increased to 6,500-7,000 elk.

Green River: Twenty-three people attended. No written comments were submitted and one verbal comment was made after the meeting ended. The commenter expressed concern that this herd's objective was too low and should be raised. The concern was alleviated somewhat when the trend count method was clarified.

Saratoga: Twenty people attended. One written comment was received and centered on the migratory nature of the elk from Colorado into Wyoming, particularly in more severe winters. The commenter wanted the trend count objective raised to 6,000 elk.

- Agency Coordination

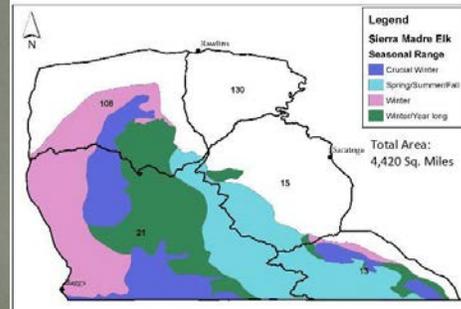
Agency coordination occurred between local field personnel and the Rawlins Field Office of the Bureau of Land Management and Medicine Bow National Forest personnel in Saratoga. Coordination also occurred between our personnel and the Little Snake River Conservation District and NRCS.

Appendix A: Season Setting Meetings Power Point Presentation

Sierra Madre Elk Objective Proposal

March 2019

Hunt Areas 13,15,21,108,130



Current Elk Objective

Post-season population estimate of 5,000 elk

Set in 2013 5 year review



- Issues/Concerns
- Model does not perform well with this unit
- No sightability to anchor the model
- Interchange with Colo.
- Flying every couple of years

Proposed Elk Objective

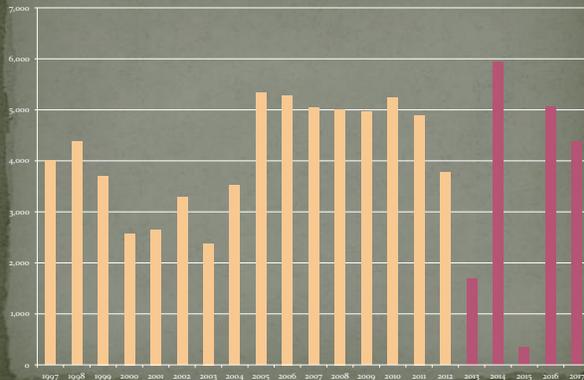
Mid-winter trend count of 5,000 elk

Still a Recreational management herd



- Consistent flight path
- Consistent amount of time flown
- Population is based upon actual numbers seen
- Flown every year
- 3-year running average
- Can range within 20%

Herd Population from 1997-2017



OBJECTIVE REVIEW PROCESS

- Proposal is made and the Dept. says take it to the public and stakeholders
- Obtain feedback from public meetings and stakeholders
- Compile information for internal Dept. review and approval
- Approved by the Commission in July
- We need your concerns /thoughts/ comments/questions

Feb. 2019 Flight Data

- Calf ratio of 39:100
- Spike ratio of 14:100
- Adult bull ratio of 16:100
- Total bull ratio of 30:100
- Classified 6,100 elk



Changes in recent years in area 21...

- Better bull quality
- Fewer hunters
- Harvesting more bulls
- Shortened the season



Questions? Concerns? Comments?



Appendix B: Public Participation/Comments

Baggs Season Setting Meeting

**Wyoming Game and Fish Department
Meeting Attendance Form**



Date: March 21, 2019

Meeting Location: Baggs

	NAME	CITY/TOWN
1.	Dan Allen	Baggs
2.	Caleb Owens	Dixon
3.	ROBERT DUNN	DARWIN
4.	Lele Emmons	Savary
5.	DUSTIN DEVOS	RAGGS
6.		
7.		
8.		

Saratoga Season Setting Meeting

**Wyoming Game and Fish Department
Meeting Attendance Form**



Date: March 21, 2019

Meeting Location: Saratoga

	NAME	CITY/TOWN
1.	Mark Miller	Saratoga
2.	Harry & Judy	Encampment
3.	Roy Wells	Riverdale
4.	Nick Warrington	Rawlins
5.	Mike Johnson	Saratoga
6.	JASON THEESPEED	SARATOGA
7.	Dave Starnes	SARATOGA
8.	Tom Crowe	SARATOGA
9.	Herb Porter	Saratoga
10.	Roger Cox	Saratoga
11.	Joe Parsons	Saratoga
12.	Pat Malone	Saratoga
13.	TREVOR LAISW	SARATOGA
14.	Dak Kostur	S/E
15.	Ron Platt	S of E
16.	Bob JOHNSON	SARATOGA
17.	Brad Weatherd	Saratoga
18.	PAT Rollison	SARATOGA
19.	Garratt Pantle	Encampment
20.	Leonard Johnson	Saratoga
21.		

**Wyoming Game and Fish Department
2019 Season Setting**



The Department welcomes comment regarding proposed changes to regulations. Questions about these proposed regulation changes should be directed to Department Regional Offices for clarification. No individual Department response will be generated from questions submitted through this comment form. Written comments shall be accepted at all public meetings, by standard mail at the address below, or on the WGFD website at <https://wgfd.wyo.gov/Get-Involved/Public-Meetings>. Comments will not be accepted via email, fax or telephone. All written comments must be received at the below address no later than 5:00 p.m., April 1, 2019.

Wyoming Game and Fish Department
Wildlife Division
ATTN: Regulations
3030 Energy Lane
Casper WY 82604

Please use a separate form for each of the categories below:

- | | | |
|--|--|--------------------------------------|
| <input type="checkbox"/> General Hunting | <input type="checkbox"/> Moose | <input type="checkbox"/> Wild Bison |
| <input type="checkbox"/> Antelope | <input type="checkbox"/> Bighorn Sheep/Mountain Goat | <input type="checkbox"/> Wild Turkey |
| <input type="checkbox"/> Deer | <input type="checkbox"/> Upland Game Bird/Small Game | |
| <input checked="" type="checkbox"/> Elk | <input type="checkbox"/> Migratory Game Bird/Light Goose | |

Comments:

Ref: Head level objective - At the Saratoga meeting you made reference to wanting a head level objective of 5,000 head in that portion of the head unit that includes hunt area 13. And said you counted 6,100 animals in the area. As a landowner in area 13 and 110 and with over 100 years of history in the area I have a excellent knowledge of this herd.

First, these elk are known no state line boundaries many live in Colo. a long part of the year. All animals in this part of the world move North in the winter and on a hard winter (2018) such as this year many Colo elk are here when you counted them in Feb. For the last three years the elk population during summer & fall months has declined on our property. Basically this means that huntable elk population (WY) is well below

(Please use reverse for additional comments.)

Ros Platt
Printed Name

3/27/19
Date

2/2019

13 elk 5000 herd objective was 6100 elk Feb

The number you counted in Feb. In addition, this year we have seen an unacceptable number of elk kill by large trucks now using the Hwy's in the area more than the past. These losses should be figured in total harvest. I feel that the area can safely have a herd level objective of 6,000 elk and request that the level be set at this number (6,000).

Rawlins Season Setting Meeting

**Wyoming Game and Fish Department
Meeting Attendance Form**



Date: March 26, 2019

Meeting Location: Jeffrey Memorial Community Center-Rawlins

	NAME	CITY/TOWN/Email
1.	Mike Clegg	Rawlins - mclagg57@gmail.com
2.	JIM ANSWORTH	Rawlins - mawlingHE@hotmail.com
3.	Bryson Spilski	Rawlins - BrysonSpilski14@gmail.com
4.	Levi Beard	Rawlins - LeviBeard@icloud.com
5.	Kirk Warrington	Rawlins Kirkdevlin@excite.com
6.	Palma Jack	Rawlins PL11874yo@gmail
7.	Bill Jack	" " "
8.	Steve Kovachevich	Rawlins sage713@gmail.com
9.	GARRY EVANS	✓ GANOSTR@HOTMAIL.COM
10.	Dan Howard	Rawlins danhow@Q.com
11.	BRAD TRIBBY	btribby@gmail.com
12.	John Sjogren	jrsjogren@hotmail.com
13.	Rocco Ear	
14.	George Postlethwaite	
15.	Tyrell Perry	Rawlins
16.	Wade D. Murray	Rawlins
17.	Krist Strong	Rawlins
18.	Mike Carrico	Rawlins
19.	Justin Carrico	Rawlins
20.	Scott Roberts	Rawlins
21.	Elias Gonzalez	Rawlins
22.	Sean Tyson	Rawlins
23.	CHRIS BEZOLD	SINCLAIR
24.	CHRIS STEW	RAWLINS
25.	Albert Dickinson	Rawlins hootwo@gmail.com

2/2019

Wyoming Game and Fish Department
Meeting Attendance Form



Date: March 26, 2019

Meeting Location: Jeffrey Memorial Community Center-Rawlins

	NAME	CITY/TOWN/Email
1.	Spencer Larsen	Rawlins Spencer1084@gmail.com
2.	Kathy Hiatt	Simclair
3.		
4.		
5.		
6.		

**Wyoming Game and Fish Department
2019 Season Setting**



The Department welcomes comment regarding proposed changes to regulations. Questions about these proposed regulation changes should be directed to Department Regional Offices for clarification. No individual Department response will be generated from questions submitted through this comment form. Written comments shall be accepted at all public meetings, by standard mail at the address below, or on the WGFD website at <https://wgfd.wyo.gov/Get-Involved/Public-Meetings>. Comments will not be accepted via email, fax or telephone. **All written comments must be received at the below address no later than 5:00 p.m., April 1, 2019.**

Wyoming Game and Fish Department
Wildlife Division
ATTN: Regulations
3030 Energy Lane
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- | | | |
|--|--|--------------------------------------|
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| <input type="checkbox"/> Antelope | <input type="checkbox"/> Bighorn Sheep/Mountain Goat | <input type="checkbox"/> Wild Turkey |
| <input type="checkbox"/> Deer | <input type="checkbox"/> Upland Game Bird/Small Game | |
| <input checked="" type="checkbox"/> Elk | <input type="checkbox"/> Migratory Game Bird/Light Goose | |

Comments:

SIERRA MADRE OBJECTIVE REVIEW —

This Review is overdue & the proposed plan to change

to midwinty count will provide a much better

basis to establish new objectives for this herd.

The objective should be raised from 5000 to either

6500 or 7000 upon completion of this proposal.

Highly Recommend IT BE ADOPTED & IMPLEMENTED!

(Please use reverse for additional comments.)

Jim Ainsworth, Realtor

Printed Name

(HAVE HUNTED AREA 21 FOR OVER 50 YEARS)

03/26/2019

Date

2/2019

Green River Season Setting Meeting

**Wyoming Game and Fish Department
Meeting Attendance Form**



Date: March 27, 2019

Meeting Location: Green River

	NAME	CITY/TOWN
1.	Edward Lacy	G.R.
2.	DAVID R FRANKS	G.R.
3.	Troy Pistono	G.R.
4.	Troy Thomas	R.S.
5.	DAVE SIMCO	G.A.
6.	MARK Anselmi	R.S.
7.	JIM STOREY	R.S.
8.	Jim McElroy	R/S
9.	Allen Jaggi	Lyman
10.	Joe V Hickey	honetree
11.	Mark Lutz	G.R.
12.	Duane Kerr	G.R.
13.	Don Guthbertson	GR
14.	BOB WYANT	G.R.
15.	Ralph O'bray	G.R.
16.	Stelby Martin	RS
17.	Steve Martin	RS.
18.	Lexi Schultz	GJR
19.	David Schutze	GJR
20.	CODY CROSBY	MANILA
21.	MIKE SCHMID	LABARGE
22.	MIKE CHAFFIN	GR
23.	Wayne Moses	R. S.
24.		
25.		

2/2019

2018 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2018 - 5/31/2019

HERD: EL426 - STEAMBOAT

HUNT AREAS: 100

PREPARED BY: PATRICK BURKE

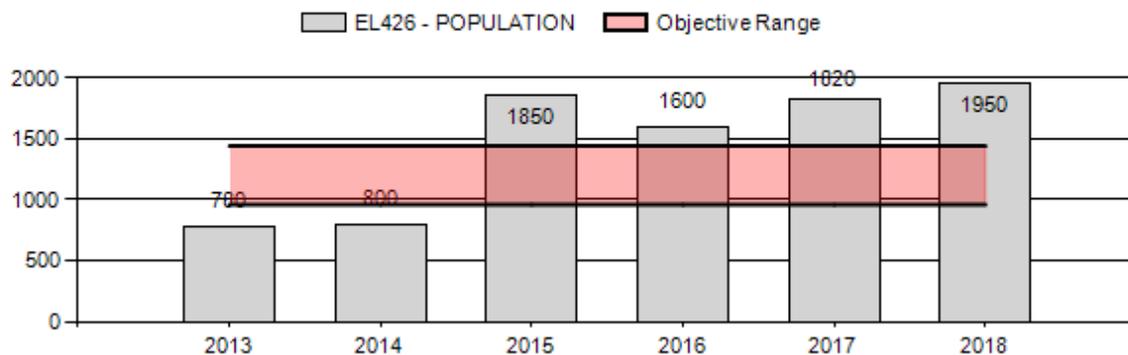
	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	1,370	1,950	1,400
Harvest:	284	547	600
Hunters:	339	690	700
Hunter Success:	84%	79%	86%
Active Licenses:	346	722	750
Active License Success:	82%	76%	80%
Recreation Days:	1,320	3,179	3,600
Days Per Animal:	4.6	5.8	6
Males per 100 Females	48	76	
Juveniles per 100 Females	43	38	

Population Objective (± 20%) :	1200 (960 - 1440)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	62%
Number of years population has been + or - objective in recent trend:	4
Model Date:	02/19/2019

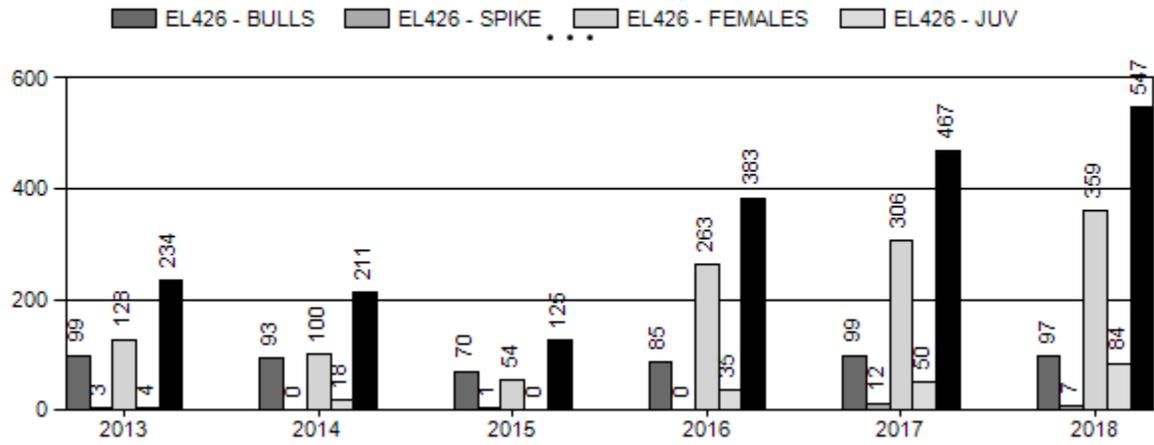
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	37%	40%
Males ≥ 1 year old:	23%	32%
Total:	25%	30%
Proposed change in post-season population:	-25%	-30%

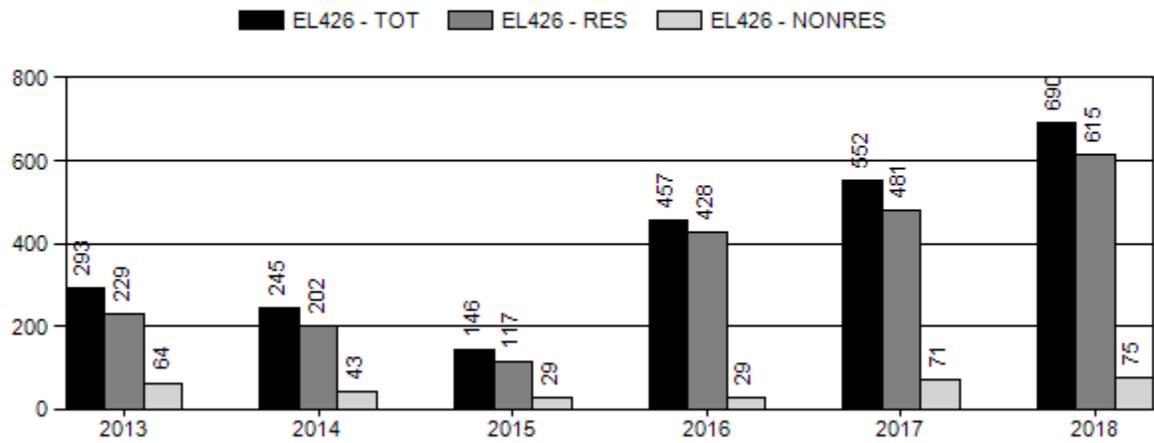
Population Size - Postseason



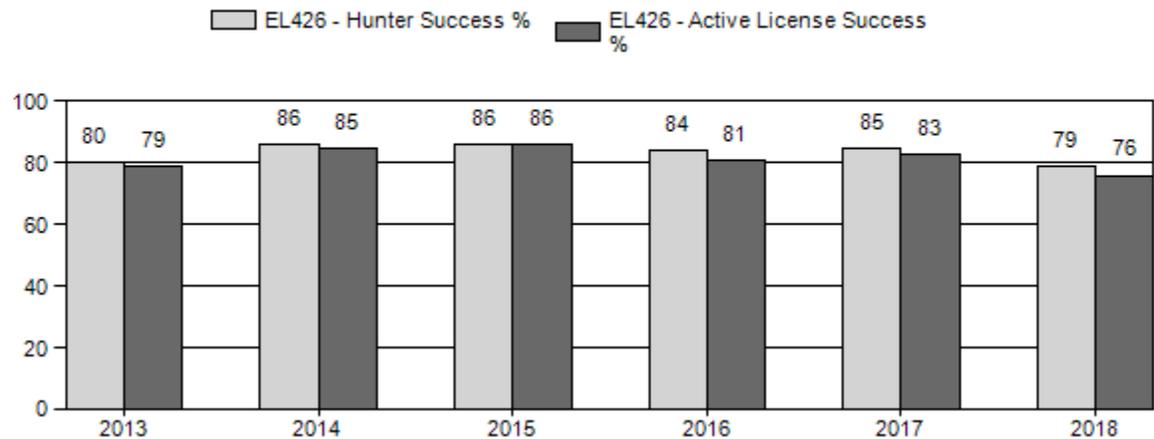
Harvest



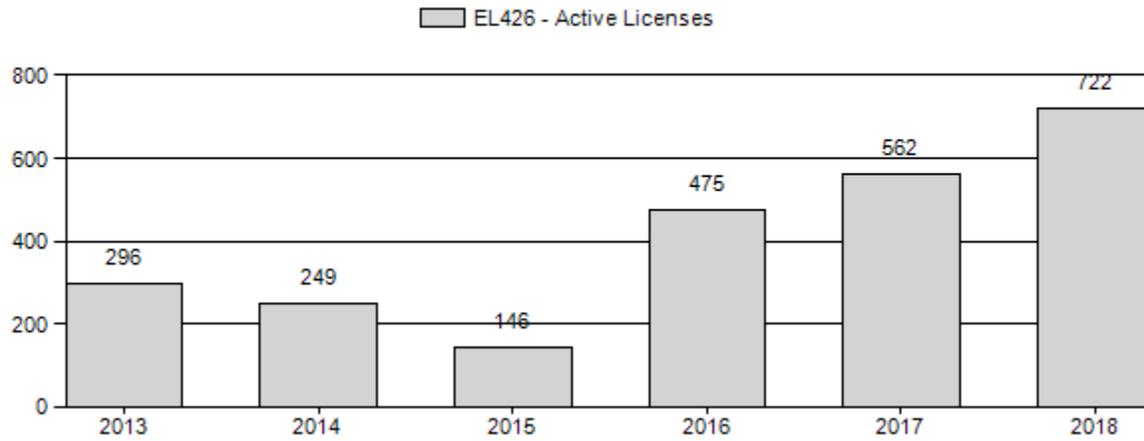
Number of Hunters



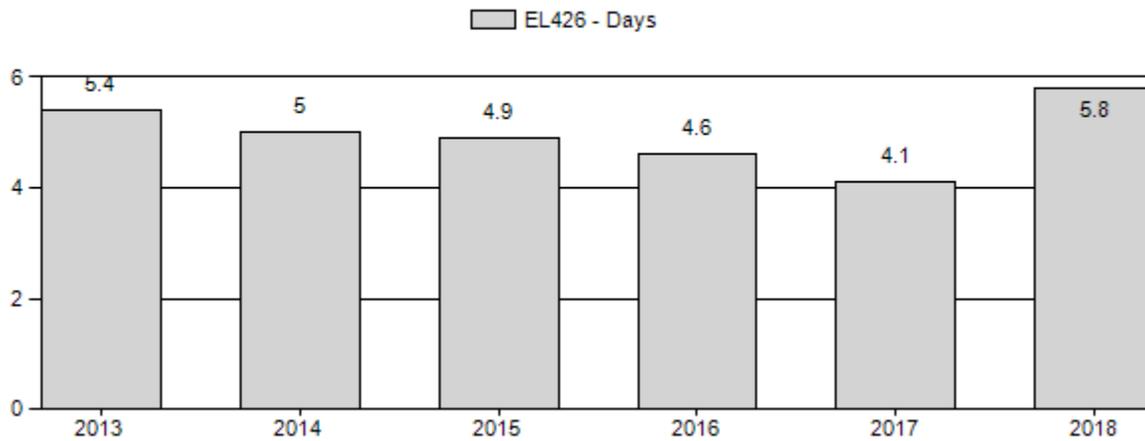
Harvest Success



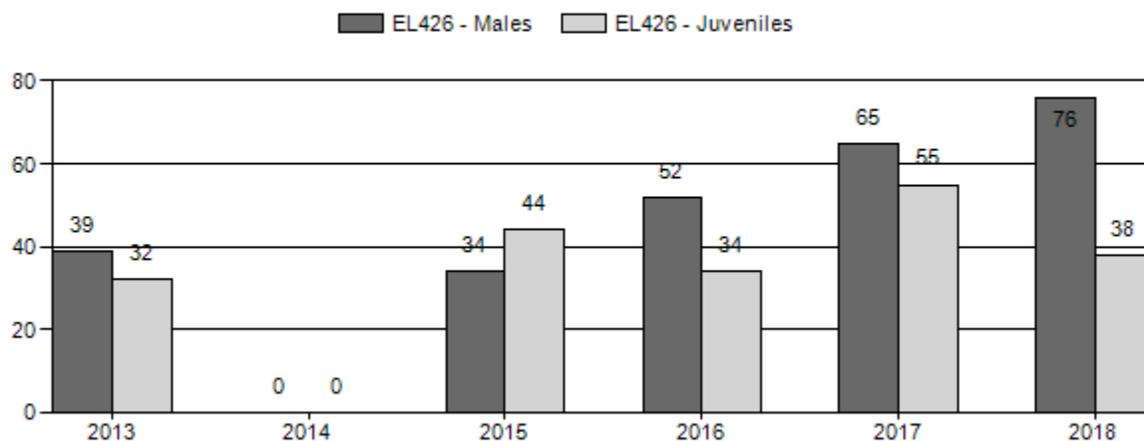
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL426 - STEAMBOAT

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	780	34	76	110	23%	280	58%	90	19%	480	432	12	27	39	± 4	32	± 3	23
2014	800	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2015	1,850	167	172	339	19%	998	56%	442	25%	1,779	540	17	17	34	± 1	44	± 1	33
2016	1,600	166	221	387	28%	749	54%	257	18%	1,393	604	22	30	52	± 1	34	± 1	23
2017	1,820	130	385	515	30%	791	45%	433	25%	1,739	551	16	49	65	± 1	55	± 1	33
2018	1,950	198	463	661	35%	872	47%	330	18%	1,863	766	23	53	76	± 1	38	± 1	22

**2019 HUNTING SEASONS
STEAMBOAT ELK HERD (EL426)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
100	1	Aug. 15	Oct. 6	200	Limited quota	Any elk valid within the Farson-Eden Irrigation Project or on or within one (1) mile of irrigated land east of U.S. Highway 191
	1	Oct. 7	Oct. 31			Any elk
	2	Oct. 15	Oct. 31	50	Limited quota	Spike elk
	4	Oct. 15	Oct. 31	200	Limited quota	Antlerless elk
	5	Nov. 8	Dec. 1	200	Limited quota	Antlerless elk
	6	Oct. 15	Dec. 1	100	Limited quota	Cow or calf valid east of Sweetwater County Road 19, south of Sweetwater County Road 82, east of Sweetwater County Road 21, and south of Sweetwater County Road 20
	7	Oct. 1	Oct. 31	100	Limited quota	Cow or calf valid east of U.S. Highway 191, south of Sweetwater County Road 17, and Sweetwater County Road 15, and west of Sweetwater County Road 19
	8	Aug. 15	Sept. 15	50	Limited quota	Cow or calf valid west of the Blue Rim Road (Sweetwater County Road 5) and the Lower Farson Cutoff Road (Sweetwater County Road 8)

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
100	All	Sept. 1	Sept. 30	Valid in the entire area

Hunt Area	Type	Quota change from 2018
100	1	+100
	2	+25
	5	+50
	8	-50
Herd Unit Total	1	+100
	2	+25
	5	+50
	8	-50

Management Evaluation

Current Management Objective: 1,200

Management Strategy: Special

2018 Postseason Population Estimate: ~1,900

2019 Proposed Postseason Population Estimate: ~1,400

The population objective for the Steamboat elk herd of 1,200 elk post-season was set in 2002 and was reviewed in 2014, when no changes were made. The Steamboat elk herd is managed under a special management prescription.

Herd Unit Issues

Starting in 2015, the number of elk classified in this herd increased dramatically from previous samples. Prior to that year, the number of elk annually classified in the herd was usually somewhere around 800 elk, since then the number of elk classified each year has been in the 1,400 to 1,800 range. This sudden increase in the number of elk classified each year suggests that some number of elk from outside the herd unit have moved into the area. This feeling that new elk have moved into the area from elsewhere is echoed by some of the landowners in the area. This sudden and fairly drastic increase in the number of elk classified each December in the herd unit is currently the largest issue facing this herd.

Despite dramatically increasing license numbers in the herd by over 450% above 2015 license issuance levels, attempts to reduce the number of elk present in the herd unit have so far been unsuccessful. To further complicate herd reduction efforts, hunter complaints from the 2017 season indicate that we have reached a point of diminishing returns, where simply issuing more licenses may not result in increasing the number of elk harvested, as hunter crowding appears to be impeding our ability to harvest additional elk.

Another issue that has been developing in recent years is growing damage issues with some irrigated alfalfa and grain pivots in the far western and north central portions of the herd unit. There has been a number of elk that have almost become residents on some of these irrigated fields, and since these fields have provided an oasis in the desert, the number of elk residing on these fields has increased in the past few years. As the number of elk occupying these fields has

grown, landowner tolerance for their presence has decreased. In order to address this situation, increased harvest pressure will need to be placed on the elk that are visiting these fields.

Weather

Due to where the Steamboat herd unit is situated in the Red Desert, weather conditions generally do not have a large impact on elk residing in this herd. However, because the elk in this herd live year round in a low precipitation zone, dry summers that result in little plant growth can potentially have negative impacts on elk in the herd unit. Fortunately, the last three summers saw decent moisture levels in the Steamboat herd unit, which resulted in ample grass production throughout the herd unit.

The 2018 summer was fairly dry, with little mid to late summer precipitation. These conditions did not appear to have negative impacts on this elk herd however, as calf ratios observed during December classification flights were good; this calf ratio may have been slightly inflated due to the large number of cows harvested in 2018 though.

Habitat

No habitat transects targeting elk habitat were conducted within the Steamboat herd unit since the Green River Region lacks a terrestrial habitat biologist. However, the drought conditions experienced from 2012 to 2014 did result in limited plant growth during those years. The grass growth, however that resulted from the moisture received in the last several years has been noticeably better than it had been in the preceding years.

Field Data

Post-season classifications on the Steamboat herd were conducted from a helicopter during December 2018. Those aerial classification flights resulted in a total of 1,863 elk being classified, consisting of 872 cows, 330 calves, 463 adult bulls, and 198 yearling bulls. This resulted in observed ratios of 38 calves per 100 cows and 76 total bulls per 100 cows including 23 yearling bulls per 100 cows. While this herd has historically exhibited high bull ratios, the 2018 observed bull ratio was probably artificially inflated by the large number of cows harvested in the past two seasons.

The largest number of elk observed during the flights were in the Alkali Draw Wilderness Study Area where over 900 elk were in essentially one large group. This increase in the number of elk residing in the Wilderness Study Areas and the large group size can probably be explained by the large number of cow licenses and the late cow seasons that were held in 2018. These elk probably moved into the WSA to avoid hunter pressure since the majority of hunters in HA100 will not venture into these roadless areas in pursuit of a cow.

Harvest Data

According to the number of elk reported to have been harvested in HA100 from the harvest survey, a total of 547 elk were harvested in the herd unit in 2018. Interestingly, this is only 80 elk more than were harvested in 2017, despite there being 225 more licenses issued in 2018 over what had been issued in 2017.

According to the harvest survey, the overall harvest success rate for the Steamboat elk herd in 2018 was 79%. Broken out by license type, the success rates were 89% for the Type 1 license holders, 79% for the Type 2 hunters, 81% for the Type 4 hunters, 74% for the Type 5 licenses, 79% for the Type 6 licenses, 63% for the Type 7 hunters and Type 8 hunters. These harvest success rates are generally slightly lower than what is typically reported for HA100.

Some of this decline in success rates can probably be attributed to the increase in the number of hunters in the field at any one time. Due to the open country where the Steamboat elk herd lives, it is difficult for too many hunters to pursue the same group of elk without affecting each other's hunt. Many of the hunter comments from the harvest survey suggest that this was a common problem in 2018. The lower than typical success rates for the Type 7 and 8 licenses also contributed to the decline in the overall success rate for the herd unit. This may be due to fewer elk being available in these areas, especially the Type 8 area after several years of significantly increased harvest in those areas; or due to elk moving to areas where they are inaccessible to hunters, such as the mine property in the Type 7 area which is off limits to hunting.

The 2018 season did see an increase in the number of days it took the average hunter to harvest an elk in the herd unit as well. Typically the Steamboat elk herd has a reported average of around 4 days per harvest, this year that number was almost 6 days per harvest. Much of this increase was driven by the Type 5 licenses, which had an estimate of almost 8 days hunted per animal harvested. This may have been caused by elk responding to the increased hunting pressure and longer seasons by moving to areas where they were less susceptible to harvest. The Type 7 and 8 license types also had higher than typical days per harvest estimates of around 6 days.

Because of the special management status of the Steamboat elk herd, hunters who draw a Type 1 license are asked to voluntarily submit tooth samples from harvested bulls for cementum annuli analysis. Based on the 33 bull elk tooth samples submitted from the 2018 hunting season, the average age of harvested bulls was 6.4 years old. The 33 teeth submitted from bull elk for laboratory aging represent around 34% of the bulls reported harvested in the harvest survey, which is quite a bit below the usual submission rate of around 50% of the reported harvest. The 2018 average age of 6.4 years old compares to 5.7 years old in 2017, 6.1 years old in 2016, and 5.3 years old in 2015. Based on the teeth that were submitted for aging, the oldest bulls harvested in 2018 were two 10.5 year old bulls. The oldest bulls aged in 2017, 2016, 2015, and 2014 were 9.5 years old.

Population

The 2018 post-season population estimate for the Steamboat herd is just over 1,900 elk. The recent population estimates have been driven solely by the increased number of elk classified in the last four years, which has been a significant departure from the number of elk that had been

classified in previous years. The average number of elk classified during the 10 year period for 2005 to 2014 was 775 elk, while the average classification sample size for 2015 to 2018 is a little under 1,700 elk. This increase in the number of elk observed each winter suggests that a number of elk has moved into the hunt area from some nearby elk populations. This sudden change in the number of elk observed during winter classification counts has required that major modifications be made to the model in an attempt to try and accommodate the large number of elk observed in recent years. Even with those modifications, the model has a difficult time accommodating the number of elk classified from 2015 to 2018, and still produce a realistic trend for the population. This is because the model is not designed to deal with immigration events like what appears to have happened in this area, as this a violation of the assumption of a closed population.

Because of these issues, the population model for this herd tracks poorly with observed data due partly to varying data quality from year to year, and partly due to what appears to be the movement of animals into this area. In order to get the population model to accommodate the large number of elk classified in the last several winters, population parameters range constraints had to be moved outside of the normal accepted limits or the model simply could not reconcile the number of elk classified recently. In order to attempt to fit the data, the model puts calf survival at an unrealistically low level, and would probably put that value even lower if the constraints would allow for it. This unrealistically low calf survival rate along with the model's poor correlation with observed bull ratios suggest that its functionality is low.

Management Summary

The 2019 season will again offer increases in the number of elk licenses being offered throughout the herd unit. Due to the bull numbers seen during the December classification flights, the 2019 season included doubling the number of Type 1 and Type 2 licenses. This increased number of licenses may further contribute to the hunter crowding issues experienced in 2018, so to help alleviate some of those issues, the opening date for the time period when the Type 1 licenses are valid in the whole hunt area was moved to Oct. 7, a week earlier than when the Type 4 hunters can take to the field. In recent years, the HA100 Type 1 license has been the hardest elk license to draw in the state of Wyoming, with drawing odds for residents being approximately 2% for the license type. This, combined with the special management status of the herd has raised concerns about placing increasing numbers of hunters in the field during a short two week season. In addition to opening in the whole area a week earlier, the 2019 season also includes an early season for the Type 1 license holders where the licenses are valid in the Farson-Eden Irrigation project and on irrigated land east of U.S. Highway 191. This change was put forward to help address some damage issues in the Farson and Hay Middle Ranch areas; where elk, and in particular bulls, have been frequenting agricultural fields and causing damage concerns.

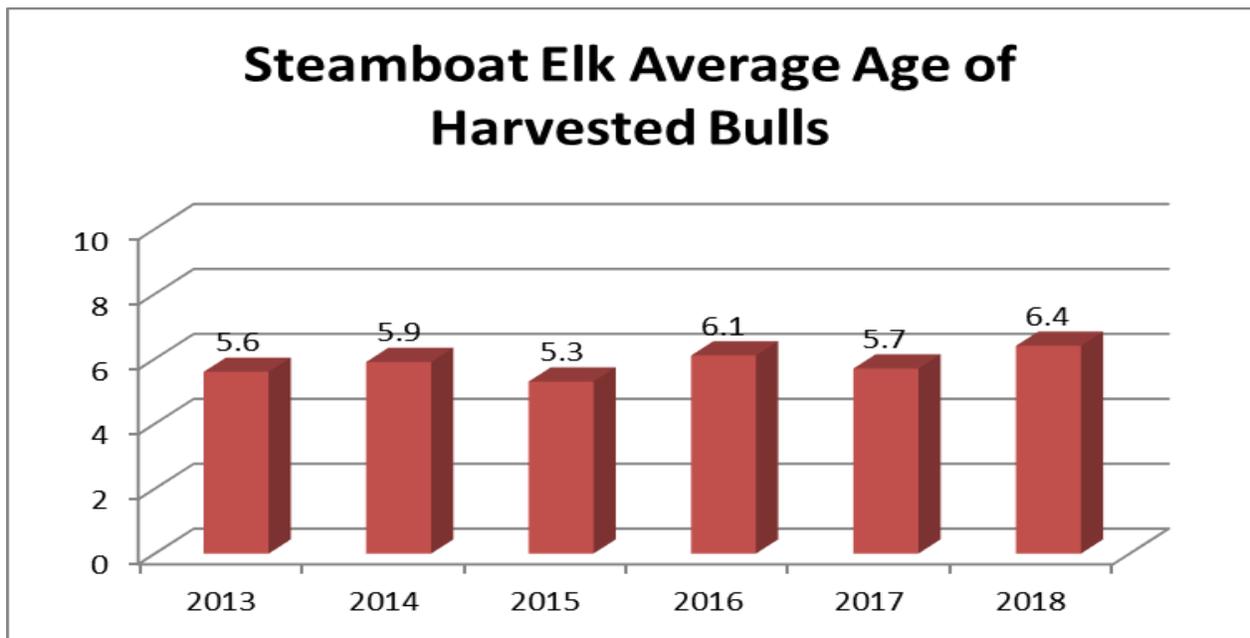
Along with the changes to the Type 1 licenses, a few changes were also implemented to the Type 5 licenses. Those changes included removing the early season west of U.S. Highway 191, putting a week long break in between when the Type 1, 2, and 4 licenses end and when the Type 5 licenses open, as well as increasing the number of Type 5 licenses to 200. It is hoped that by better focusing the Type 5 licenses on the portion of the herd in the Jack Morrow Hills area, where the largest increases in the number of elk classified has been documented, that they will be more effective in reducing the elk population where the greatest number of elk reside. It is also

hoped that by putting a break in between the earlier hunts and when the Type 5 licenses open that the elk that may have sought refuge in the Wilderness Study Areas, and other more difficult to access areas may leave those areas and move to places where they may be more available for harvest.

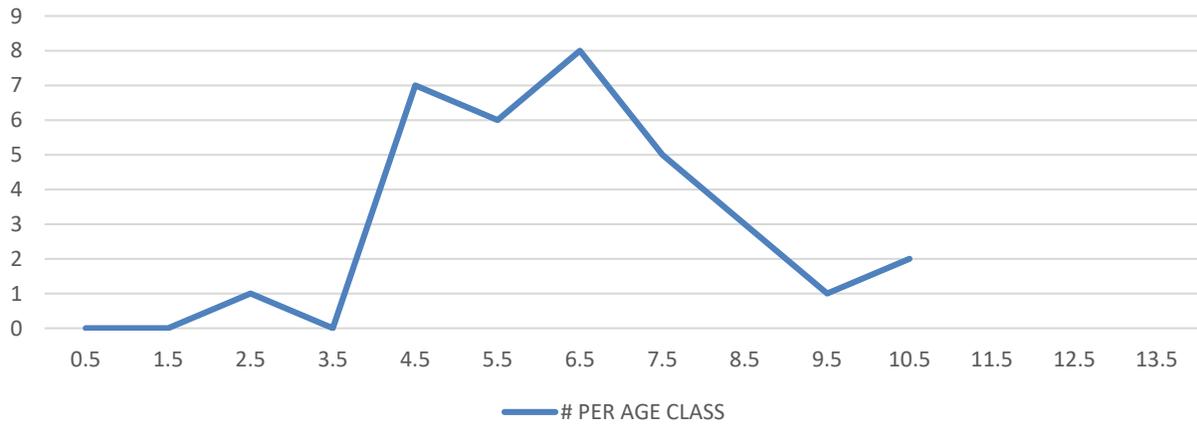
The final significant change for the 2019 season is to the Type 8 licenses. The season modification for that license type is to reduce the number of those licenses to 50 licenses with the same area limitations. This change was done to better align the number of hunters on the river to the amount of available access.

These changes brought the number of licenses available for the herd to 900 licenses for the herd unit. The 2019 season should harvest somewhere between 600 and 700 elk depend on how harvest success is influenced by the increased number of hunters in the field.

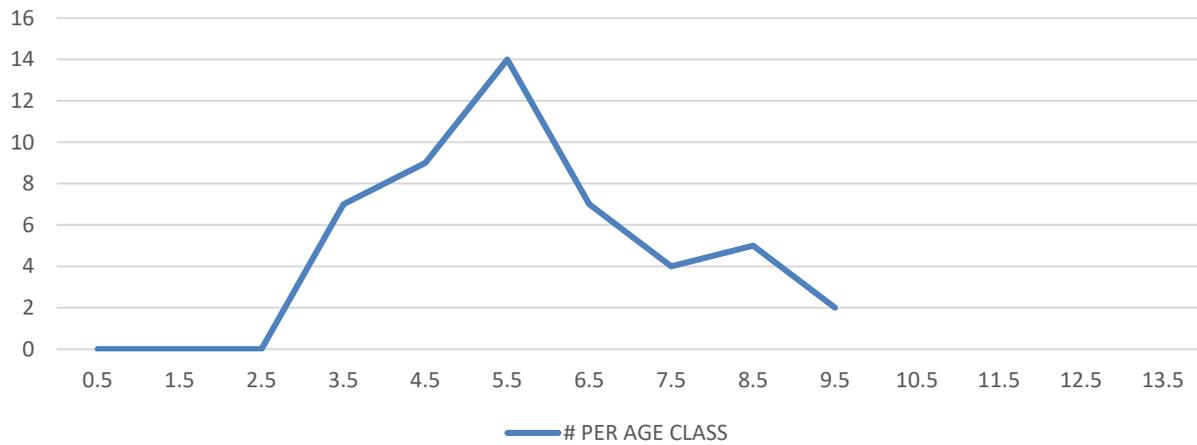
While it is difficult to project where the population will be after the 2019 season, as putting this level of harvest on a population of this size artificially alters bull and calf ratios to a point that the model cannot accommodate, the 2019 seasons will certainly substantially reduce the number of elk in the Steamboat herd.



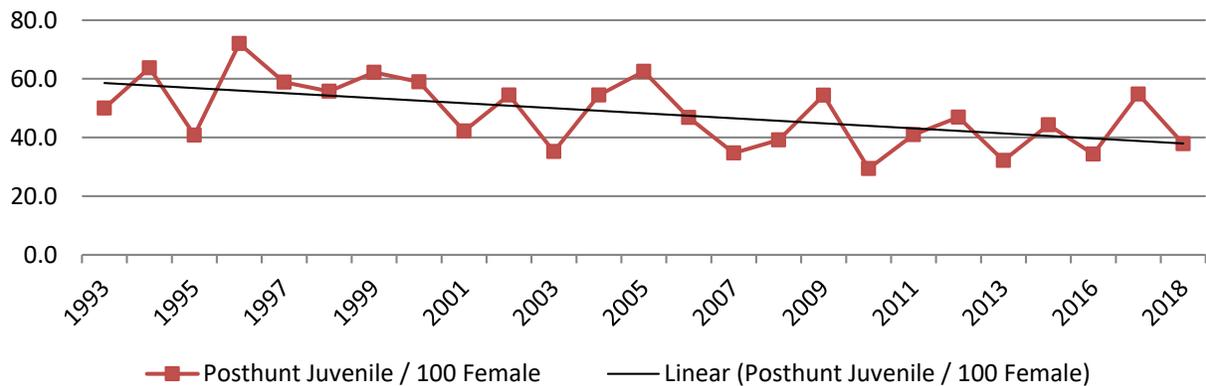
2018 STEAMBOAT ELK # HARVESTED PER AGE CLASS



2017 STEAMBOAT ELK # HARVESTED PER AGE CLASS



Posthunt Juvenile / 100 Female



2018 - JCR Evaluation Form

SPECIES: Elk

PERIOD: 6/1/2018 - 5/31/2019

HERD: EL428 - WEST GREEN RIVER

HUNT AREAS: 102-105

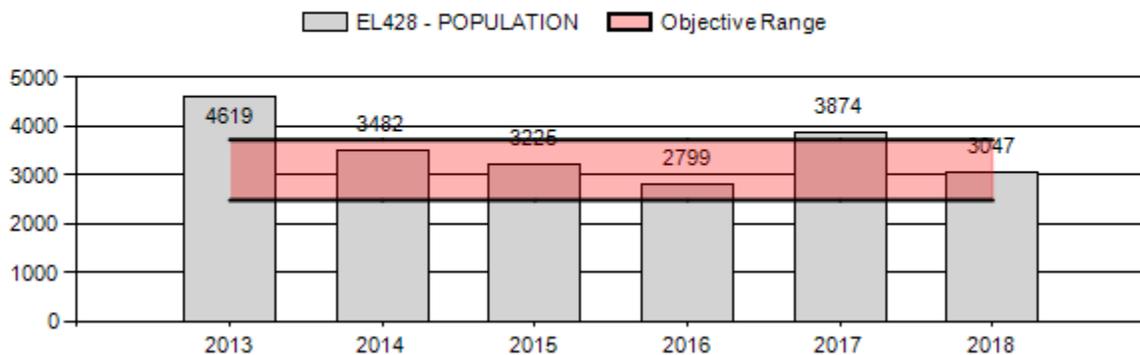
PREPARED BY: JEFF SHORT

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	3,600	3,047	2,945
Harvest:	1,125	1,199	1,200
Hunters:	3,743	3,375	3,400
Hunter Success:	30%	36%	35%
Active Licenses:	3,896	3,541	3,500
Active License Success:	29%	34%	34%
Recreation Days:	26,065	21,064	21,000
Days Per Animal:	23.2	17.6	17.5
Males per 100 Females	31	0	
Juveniles per 100 Females	30	0	

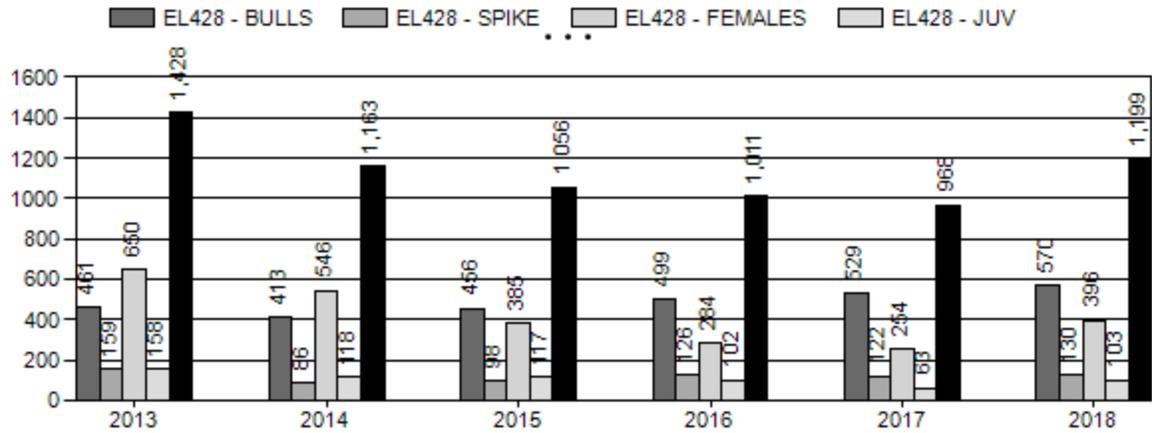
Population Objective ($\pm 20\%$) :	3100 (2480 - 3720)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-1.7%
Number of years population has been + or - objective in recent trend:	1
Model Date:	02/18/2019

Proposed harvest rates (percent of pre-season estimate for each sex/age group):		
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	12.42%	8.19%
Males ≥ 1 year old:	826.91%	-85.41%
Total:	28.17%	20.43%
Proposed change in post-season population:	-17.4%	-3.5%

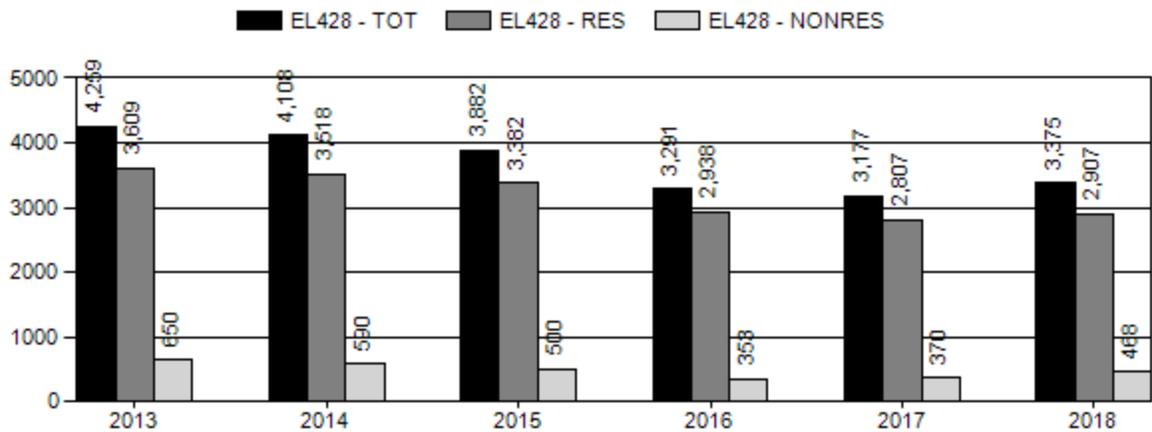
Population Size - Postseason



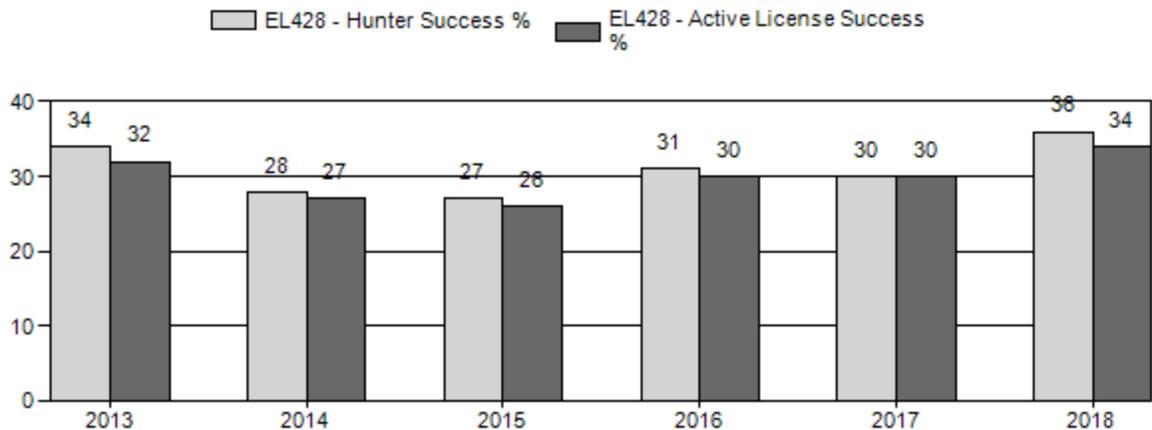
Harvest



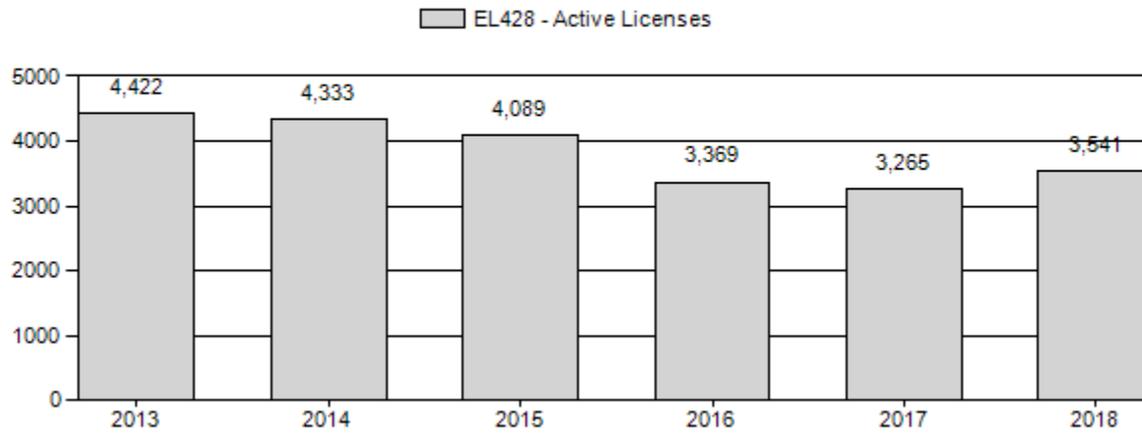
Number of Hunters



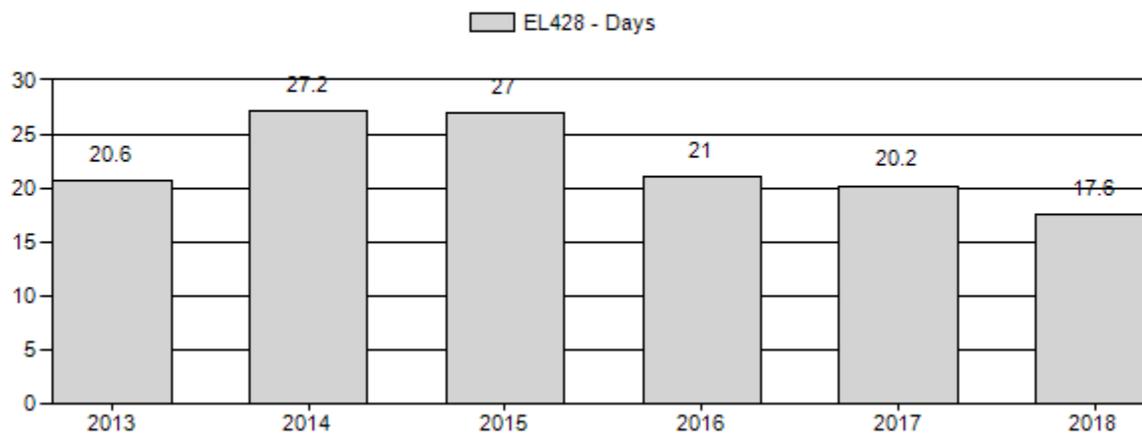
Harvest Success



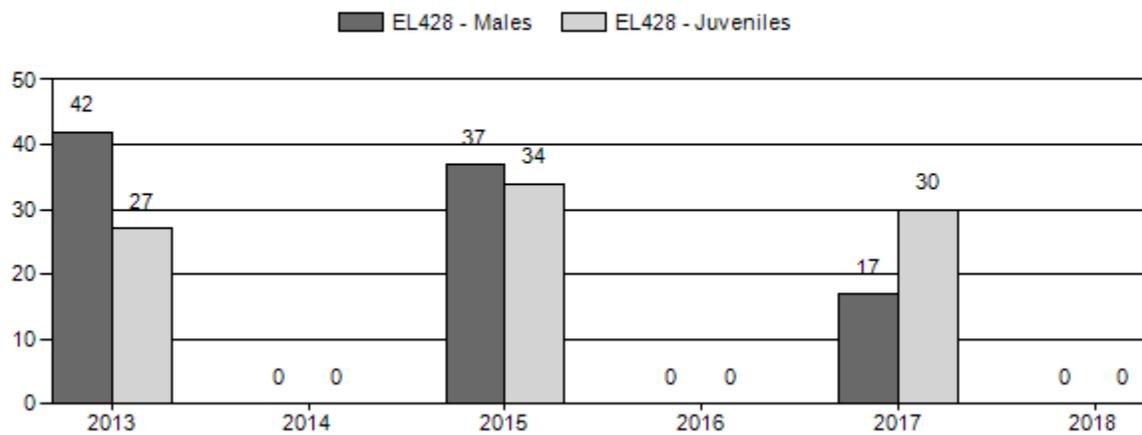
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Elk Herd EL428 - WEST GREEN RIVER

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females			Young to			
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	4,619	440	510	950	25%	2,285	59%	627	16%	3,862	0	19	22	42	± 1	27	± 1	19
2014	3,482	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2015	3,225	283	354	637	21%	1,740	59%	593	20%	2,970	0	16	20	37	± 1	34	± 1	25
2016	2,799	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2017	3,874	180	218	398	11%	2,396	68%	723	21%	3,517	0	8	9	17	± 0	30	± 0	26
2018	3,047	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

2019 HUNTING SEASONS

SPECIES : Elk

HERD UNIT : West Green River (428)

HUNT AREAS: 102, 103, 104, 105

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
102		Oct. 15	Oct. 24		General	Any elk
102	6	Oct. 15	Nov. 30	25	Limited quota	Cow or calf
102	7	Dec. 15	Jan. 31	25	Limited quota	Cow or calf
103		Oct. 15	Oct. 24		General	Any elk
103		Oct. 25	Oct. 31		General	Antlerless elk
103	6	Oct. 15	Oct. 31	100	Limited quota	Cow or calf
103	6	Aug. 15	Aug. 30			Cow or calf valid on or within one-quarter (1/4) mile of irrigated land
103	6	Dec. 15	Jan. 31			Cow or calf
104		Oct. 15	Oct. 24		General	Any elk
104		Oct. 25	Nov. 10		General	Antlerless elk
104	6	Oct. 15	Nov. 30	200	Limited quota	Cow or calf
104	7	Aug. 15	Aug. 30			Cow or calf valid on or within one-quarter (1/4) mile of irrigated land
104	7	Dec. 15	Dec. 31	75	Limited quota	Cow or calf
104	7	Jan. 1	Jan. 31			Cow or calf valid west of U.S. Highway 30 and east of Lincoln County Road 207 or east of Rock Creek within the Twin Creek drainage
105		Oct. 15	Oct. 31		General	Any elk

Hunt Area	License Type	Quota change from 2018
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: 3,100

Management Strategy: Recreation

2018 Postseason Population Estimate: ~ 3,047

2019 Proposed Postseason Population Estimate: ~ 2,945

Herd Unit Issues

Energy development on crucial elk habitat is a potential issue for this herd. As an unfed elk herd in Western Wyoming, habitat integrity is of critical importance. Additionally, conflict with agriculture producers can be an issue for this elk herd. Damage complaints can occur during bad winters but are usually rare. Elk comingling with livestock during winter is rare in limited areas but is considered a potential issue. Limited past problems have typically been dealt with successfully if the Department was notified. The area has been added to the Brucellosis surveillance area. Even though the area has very low brucellosis prevalence in elk this adds additional concern over elk and cattle comingling specifically on the west side of the herd unit. Summer damage is rare but has been an issue lately. Significant efforts by field personnel have been made to alleviate potential conflicts. Perceived reduction in livestock forage due to elk grazing is an issue that can be brought up but is not biologically substantiated.

In the last several hunting seasons hunters commonly complain that elk numbers are down significantly and they were too low for their standards. However, we were over the set objective until 2016. This herd went through an extensive public objective review in 2012 and it was determined that the objective should remain at 3,100 animals. This was mainly due to input from agriculture producers. Under aggressive harvest strategies and attempts to get down to objective, we were successful and the population is at the objective. Hunters are largely unhappy with the reduced elk population and the set objective.

In recent years elk moving onto Fossil Butte National Monument prior to the season has increased, and is estimated to be around 600-800 animals. Radio collar data indicates that a significant number of the marked animals moved onto the Monument in early September. The Monument is closed to hunting. As the number of elk on the Monument increased, it has become more difficult to manage this herd to objective while still providing huntable elk for sportsmen. The Cokeville Meadows National Wildlife Refuge became open for elk hunting in 2014 and this has greatly helped to alleviate elk problems in the Bear River valley but there is no solution in sight for Fossil Butte.

Weather

Weather during 2018 and into 2019 has been highly variable. Winter conditions in early 2018 were very mild with low snow loads. Spring brought adequate moisture however, summer dried out quickly. In late summer and fall of 2018 the weather was very warm and dry. Summer range conditions were very poor and animals were in lower body condition due to low habitat productivity. Elk distribution and migration in the fall of 2018 were unusual due to abnormal habitat conditions. From December 2018 to May 2019 the winter has been harsh with high snow loads and cold temperatures. Snow is persisting and the spring has been cold and wet.

Habitat

Habitat data collection has been inconsistently collected in this herd unit and has been absent in the recent past.

Field Data

Intensive helicopter based elk flights were performed in Hunt areas 102, 103 and 104 every other year from 2012 to 2018. Idaho's sightability model correction was used for these four surveys. In the 2018 survey 3,740 elk were observed. Flight conditions were favorable and elk were primarily in very large groups. The sightability correction estimate was 3,774 elk. This is a very low correction. On these surveys a low sightability correction factor is produced due to large groups of elk in high snow cover and open environments. This creates survey conditions where very few elk are missed during helicopter surveys. We flew all known available elk winter range during the survey. There is an additional area in the herd unit that is not flown in Hunt Area 105. This is not flown due to budget constraints and low elk densities in that area. This area has traditionally been thought to contain approximately 100 elk. This information is added to the population estimates to create a total herd unit estimate.

Recent post-season bull:cow ratios have been excellent. However, during the 2018 survey snow conditions were highly unusual creating a situation where we were unable to find many bull groups. This is a common phenomenon in many elk herds but does not usually happen in the West Green River Herd. Due to this bad data point we decided to use average bull:cow ratios for modeling purposes. Calf ratios have fluctuated recently but are still reasonable. Harvest was decreased on this herd markedly in 2016 in an effort to keep the herd from going below objective. This has worked and the herd is right at objective. It is probable that bull harvest will go down in the future due to less elk production with a smaller herd and it may become difficult to maintain favorable bull:cow ratios. Another helicopter survey will not be conducted until post season 2019. This is a sampling strategy where surveys are flown every other year and with greater intensity. In the past, classification surveys were flown on a yearly basis but with less intensity. This provided excellent classification data but did not provide any estimate of overall population size and/or trend information. The new strategy improves overall population model estimates and gives us a better estimate of trend.

Harvest Data

Antlerless harvest opportunity was increased every year for several years in this herd unit. The 2010 to 2014 season structures offered substantially increased cow/calf harvest opportunity to reduce the herd. Those seasons allowed significant antlerless harvest with large increases in licenses and season lengths. These hunts had good success rates as weather moved elk to winter ranges during those hunts. This management framework reduced this population to objective in 2016. The public has voiced many concerns about the population reduction but it was required to get the herd to objective. For 2019 we are recommending no change to antlerless license allocation since the estimates indicate we are at the population objective and should stay there with the current harvest. The current elk population level is still unpopular with the hunting public who feel elk numbers are too low.

Population

The West Green River elk model is comprised of data from Hunt Areas 102, 103 and 104 only. Hunt Area 105 is left out due to a different hunting season structure, sub-objective and survey methodology. The post season 2018 population model estimate is 2,947 elk with the population trending downward. The TSJ,CA,MSC model was selected due to the low AICc score and its good fit with the data. The herd estimate published will be plus 100 to account for unknown

numbers of elk residing in Hunt Area 105. The model cannot reconcile the current population level with bull harvest estimated in this herd. We do not know if this is a data issue or a model issue but it has been the case for over 6 years and gives us concern over the validity of the model. We rely largely on the aerial survey population estimates for population management.

The addition of aerial population estimates every other year since 2012 has been very valuable to check the status of the herd and this data is more useful than the model. With this continuing into the future it is likely that we can provide good population estimates and track the trend of this population. Without this, the model would not function and it would be unclear if our current harvest levels can be sustained or if we are on the right management track relative to objective.

Due to documented interchange with adjacent herd units, models generated for this herd should be used with caution. This interchange has been affirmed in recent years with several radio collared elk from multiple studies crossing the herd unit border at different times of year. More radio collar studies would help determine the extent of these movements. In 2012 the Department switched from POPII models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data.

Management Summary

For 2019 season setting, we will continue the current level of antlerless harvest. We will reevaluate harvest strategies after new flight data is available in 2020. The harvest system in place should keep the herd at objective. I hope that we can gain a handle on conflicting data within this herd since the model does not function properly. However, there are many herd units where spreadsheet models are not functioning well for modeling elk populations. Elk damage situations have increased on irrigated land in Hunt Area 103 and 104. To address this we will make Type 7 licenses valid in August. These licenses will only be good on or within ¼ mile of irrigated lands. Considerable numbers of elk have been wintering close to Highway 30 in Nugget Canyon. There is concern that those elk may get pushed across the highway during late season hunts. If they were to cross, they would end up in an unintended sanctuary from hunting in Hunt Area 105. To address this we are going to allow 104 type 7 licenses to also be valid in the northern portion of Hunt area 105 during the December season.

The Herd unit objective and management strategy were last reviewed in 2018. We went through an internal review of the objective and harvest strategy. The recommendation was to maintain the post-season population objective of 3,100 and to continue with recreational management.

2018 - JCR Evaluation Form

SPECIES: EIK

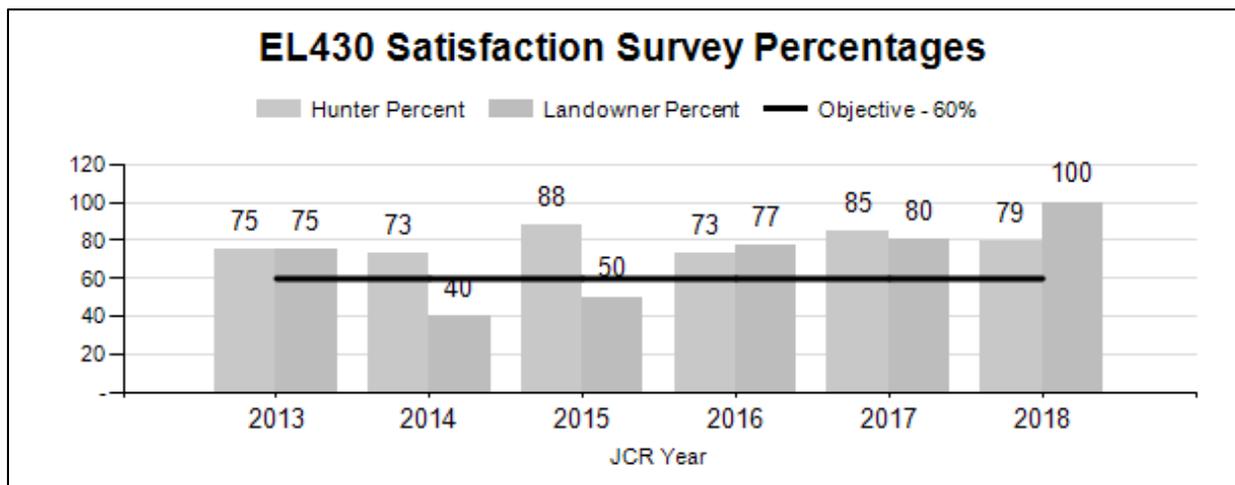
PERIOD: 6/1/2018 - 5/31/2019

HERD: EL430 - PETITION

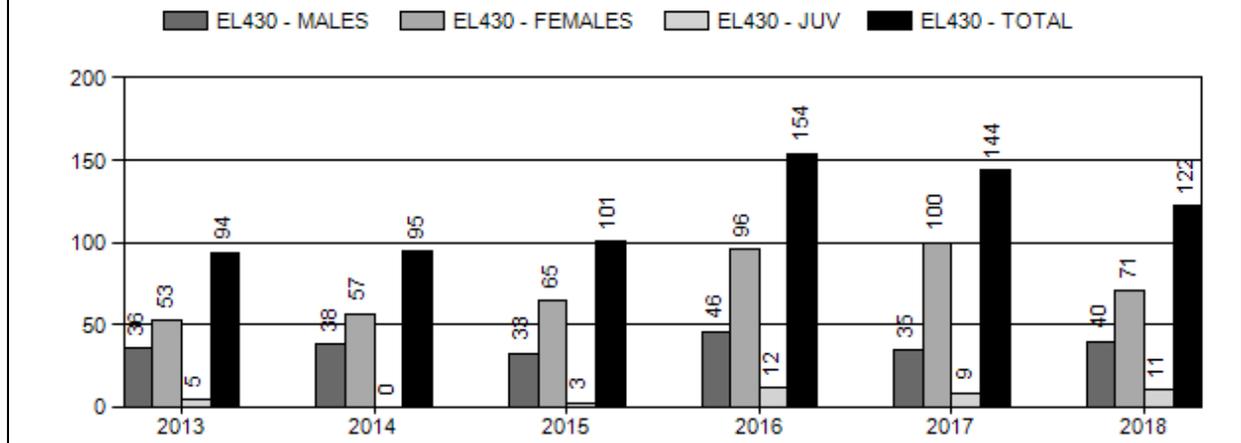
HUNT AREAS: 124

PREPARED BY: PHIL DAMM

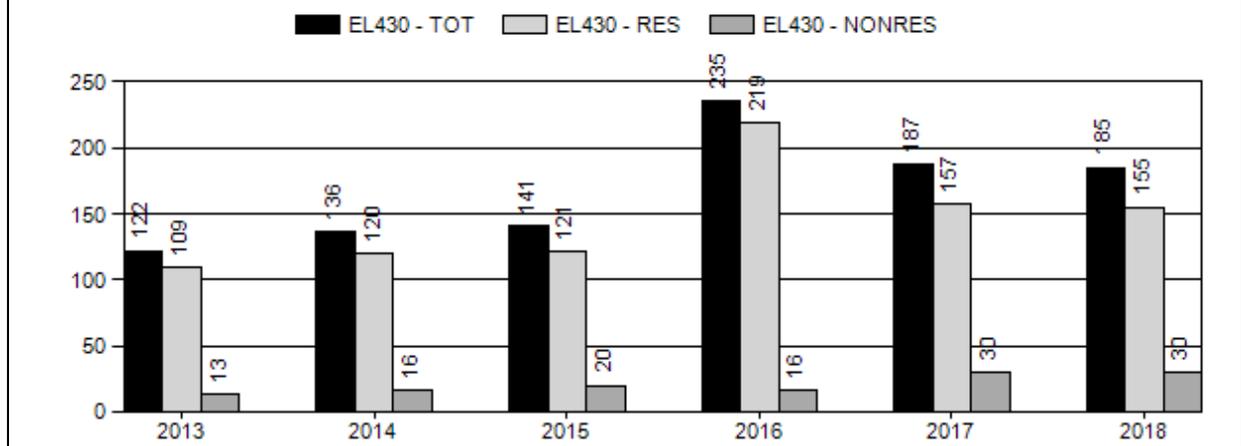
	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Hunter Satisfaction Percent	79%	79%	75%
Landowner Satisfaction Percent	62%	100%	75%
Harvest:	118	122	120
Hunters:	164	185	180
Hunter Success:	72%	66%	67%
Active Licenses:	164	185	180
Active License Success:	72%	66%	67%
Recreation Days:	1,188	1,099	1,100
Days Per Animal:	10.1	9.0	9.2
Males per 100 Females:	0	0	
Juveniles per 100 Females	0	0	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			N/A%
Number of years population has been + or - objective in recent trend:			3



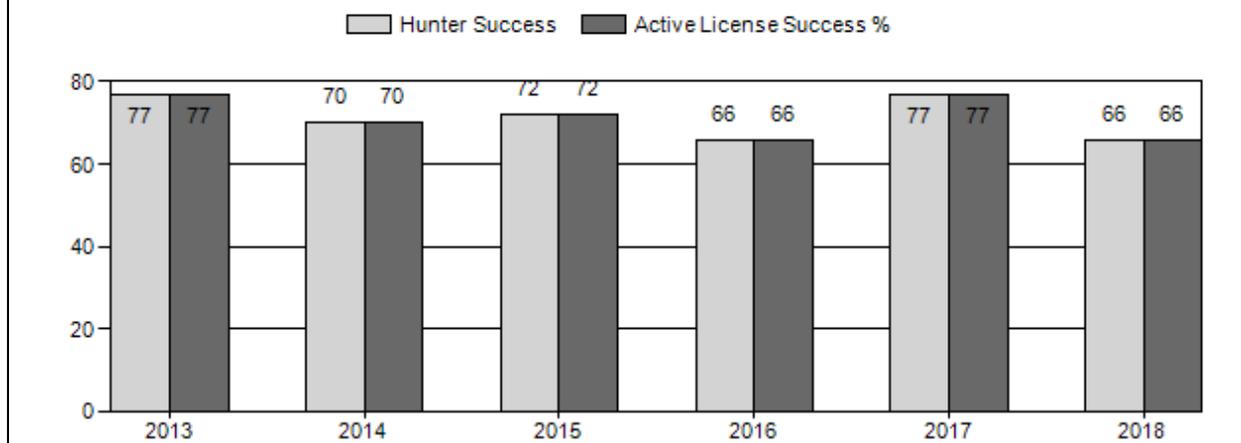
Harvest

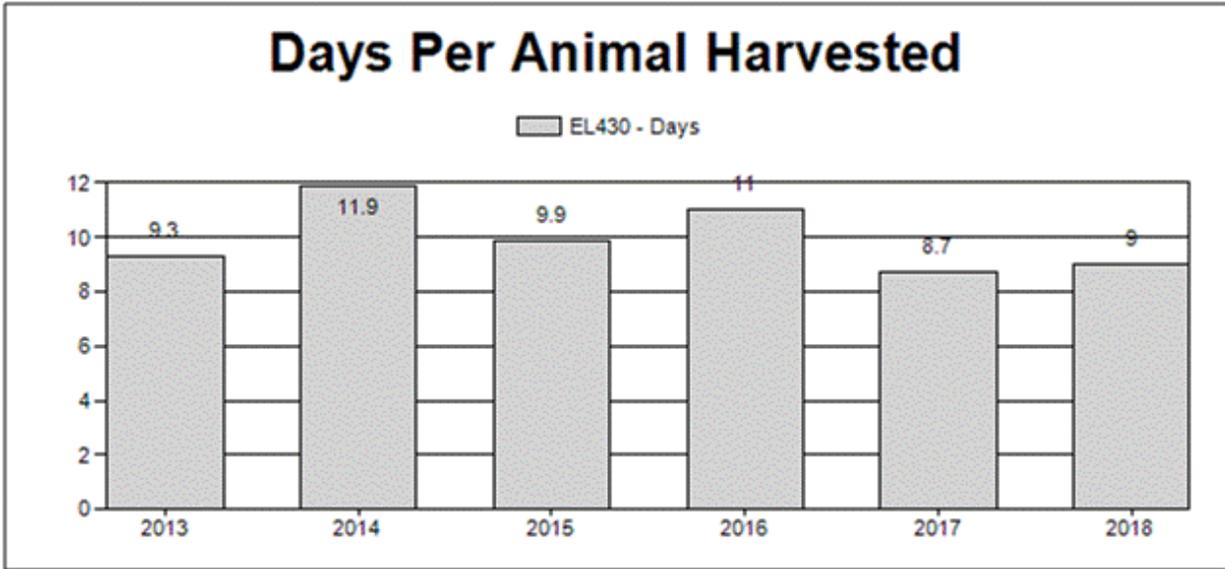


Number of Active Licenses



Harvest Success





2019 PROPOSED HUNTING SEASON

SPECIES : **Elk**
HUNT AREAS: **124**

HERD UNIT : **Petition (430)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
124	1	Oct. 15	Nov. 30	50	Limited quota	Any elk
	4	Oct. 15	Nov. 30	150	Limited quota	Antlerless elk
	4	Dec. 1	Dec. 31			Antlerless elk valid east of Sweetwater County Road 19, and north and east of B.L.M. Roads 4409 and 4411, and west of B.L.M. Road 3310 and Sweetwater County Road 23S

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
124	All	Sep. 1	Sep. 30	Valid in the entire area(s)

Hunt Area	Type	Quota change from 2018
124	1	0
	4	0
Herd Unit Total	1	0
	4	0

Management Evaluation

Current Hunter/Landowner Satisfaction Objective: 60% landowner/hunter satisfaction; sub-objective bull quality (average age of harvested elk 7.0) (2013)

Management Strategy: “Recreational” *treated as Special by the public and landowners*

2018 Hunter Satisfaction Estimate: 79%

2018 Landowner Satisfaction Estimate: 100%

Most Recent 3-year Running Average Hunter Satisfaction Estimate: 79%

Most Recent 3-year Running Average Landowner Satisfaction Estimate: 86%

Most Recent 3-year Running Average Tooth Age: 6.9

Currently the average bull elk tooth age, landowner satisfaction, and hunter satisfaction indicate we are meeting our management objectives. The current management objective was established in 2013. Due to our inability to collect a reasonable estimate of abundance in this huge area with few elk, the objective consists of an alternative objective of landowner and sportsmen satisfaction along with a sub-objective measure of bull quality measure using tooth age of harvested bulls. Given our concerns for habitat impacts in this xeric area, our proposal is to limit growth through continued higher cow harvest across the area, with a season extension in the northern portion of the herd unit where there are landowner concerns. Bull harvest is proposed to remain highly limited to maintain age and antler size, but with a marginal increase in licenses to provide more opportunity and account for what is likely a growing herd.

Herd Unit Issues

The Petition elk herd is a small highly mobile elk herd spread over a very large area. A great deal of interchange occurs with both the state of Colorado, the South Rock Springs herd, and hunt area 100, making meaningful data collection and population estimation difficult, if not impossible. There are three issues for the herd; possible competition with Bitter Creek pronghorn and mule deer in the South Rock Springs Deer herd (Area 101), competition with the non-native and invasive feral horse, and the increasing popularity of this herd for large antlered bulls.

Competition for space and forage could occur between mule deer and elk in the western half of this herd (overlap with Deer Area 101). The South Rock Springs mule deer herd is a high profile population and any perception of competition between the two species could result in a call for a reduction of elk numbers in those areas where competition could be taking place. We need to ensure managers keep this in mind as we move forward with the management of this herd.

Many of the areas used by the Petition elk are also occupied by feral horses. Feral horses have been shown to be aggressive at water holes and may also exhibit the same behavior when it comes to feeding areas. The areas encompassed by both animals are typically low in plant production. Feral horses may be causing a shift in distribution by elk and other native wildlife and definitely negatively impact both herbaceous plants and shrubs in this area.

The popularity of this herd has increased due to the reputation for trophy bulls. However overall antler size was down from previous years during the period 2016 – 2018, which can likely be attributed to drought and subsequent decrease in forage production. It certainly is not an indicator

of harvest pressure in this lightly hunted herd unit. As the word has gotten out regarding bull size in this herd, the number of nonresident outfitters (especially from Utah) conducting day hunts in this area has increased, and the use of commissioner's licenses is common.

Weather

Dry weather and decreased precipitation persisted through the summers of 2016, 2017 and 2018. This has moderated somewhat with increased winter precipitation in 2018-19. Typically, this desert environment receives less than 12 inches of annual precipitation, and may receive less than 2 inches during the growing season. Current moisture levels within the Petition Herd unit continue to be below average. If drought conditions persist it will likely have continued effects on antler growth next year.

Field Data

Classification and population data are rarely collected in this herd due to the scattered nature of these elk over a vast desert landscape. They are unpredictable and frequently enter or leave the area at whim. However, personnel felt it was appropriate to periodically attempt to get a minimum count on these elk from the air to assist us in management.

A trend flight using a fixed wing aircraft was flown during February of 2019 in an attempt to get a minimum count of elk using this herd unit at that time. As mentioned above, these efforts are hampered by herd unit size (area) and leaky borders. At the time of the flight, 8 hours were flown during the survey, and 381 elk were counted, 49 of which were adult bulls.

Tooth age data from teeth sent in to the WGFD tooth aging lab for 2018 (N = 18) yield an average age of 6.9 (the oldest being 11+). Combined with the 2 previous years we have a 3-year average of a little over 7.0. An issue with the tooth age sample is that the vast majority of hunters who are interested in the age of their animals typically have a proclivity for large antlers. This is likely skewing the data towards an older average age. Additionally, some hunters deliberately do not submit teeth because of their fear we will increase bull licenses. A greater effort must be made in the future to get a sample of all bulls harvested in the area.

Despite some concerns about perceived reduced antler size, sportsmen satisfaction in this herd is very high for this species, with nearly 80% of hunters "satisfied or very satisfied" with their overall hunting experience (including the large number of cow hunters).

Landowner satisfaction was collected through personal contacts either via phone or face to face meetings. Five key landowners were contacted by WGFD managers. All five felt elk numbers were "at or about at desired levels", none felt numbers were "above desired levels" and none felt elk numbers were "below desired levels".

Harvest Data and Population Indications

Hunter success decreased from 77% to 66% in 2018. This is totally driven by cow hunters, as bull elk hunters achieved a success rate in excess of 80%. Much like the desert area to the north (Area 100), this is not uncommon since cow-calf groups tend to be larger and less widespread on the landscape, and can be difficult to locate at times. Cow harvest has always been erratic in this herd unit, despite nearly unlimited access. As is typical with antlerless hunts, hunters typically expend far less effort in the pursuit of a cow or calf than they do a bull.

Management Summary

It is important that we balance the management of an important resource to hunters (i.e. good opportunity for large bulls) and the extremely sensitive ecosystem found in the Petition elk herd as we move forward with the management of this herd. The area is extremely unproductive and fragile, yet supports a host of wild, feral, and domestic ungulates and can have use levels in excess of its capability. Currently we see only few issues between landowners/lessees and the Petition elk herd and strong support from sportsmen hunting elk within the herd. Because of the low number of elk in this unit we feel having flexibility in the harvest numbers between years is key. The overlap of elk and the important south Rock Springs deer herd unit has not been shown to be adverse to those deer, although research in the adjacent elk herd (overlap with Area 102) suggests both separation is occurring and dietary overlap is higher than expected (for browse). This may be a point of contention in the future leading to specific increased elk harvest in that portion of the herd unit. An increase in average age of bull harvested and a higher landowner satisfaction rate has lead to our current management strategy for a minor increase in bull licenses in the area to allow for increased chances to draw the highly coveted opportunity, without dramatically increasing hunter density or competition for these animals.

2018 - JCR Evaluation Form

SPECIES: Moose

PERIOD: 6/1/2018 - 5/31/2019

HERD: MO415 - UINTA

HUNT AREAS: 27, 35, 44, 901-902

PREPARED BY: JEFF SHORT

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:		N/A	N/A
Harvest:	17	16	18
Hunters:	18	16	20
Hunter Success:	94%	100%	90 %
Active Licenses:	18	16	20
Active License Success:	94%	100%	90 %
Recreation Days:	147	146	175
Days Per Animal:	8.6	9.1	9.7

Limited Opportunity Objective:

5-year median age of > 4 years for harvested moose

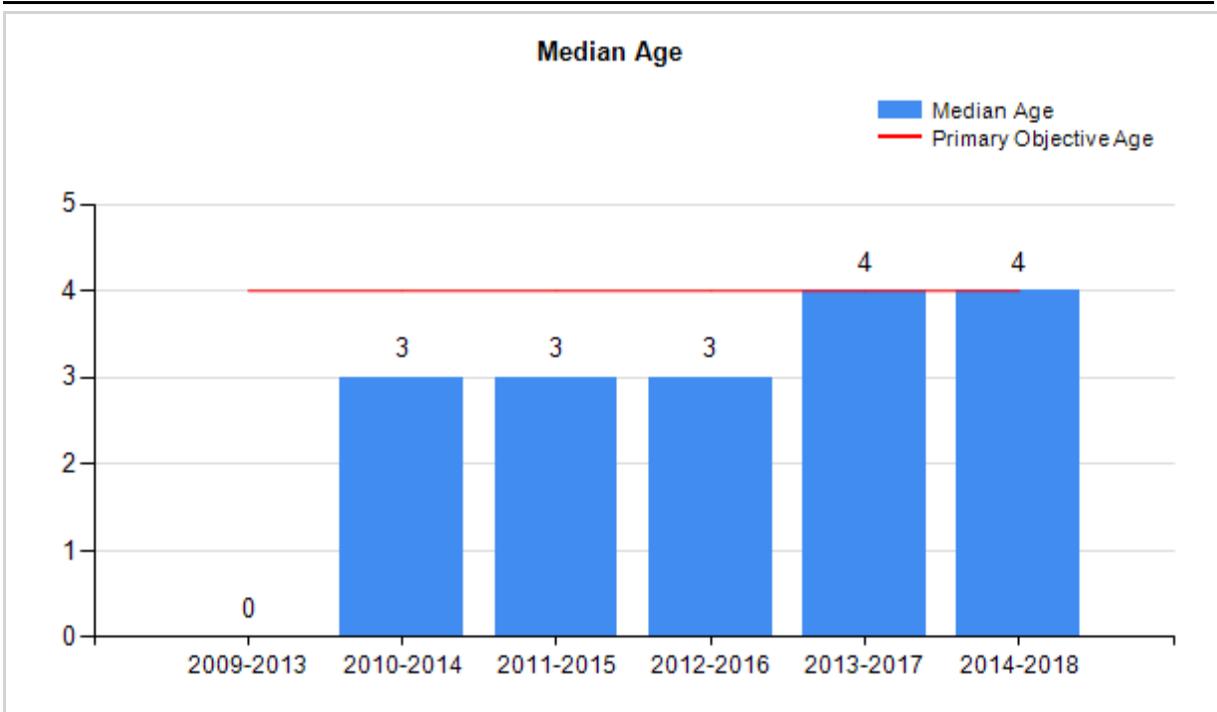
5-year average of <= 10 days/animal to harvest

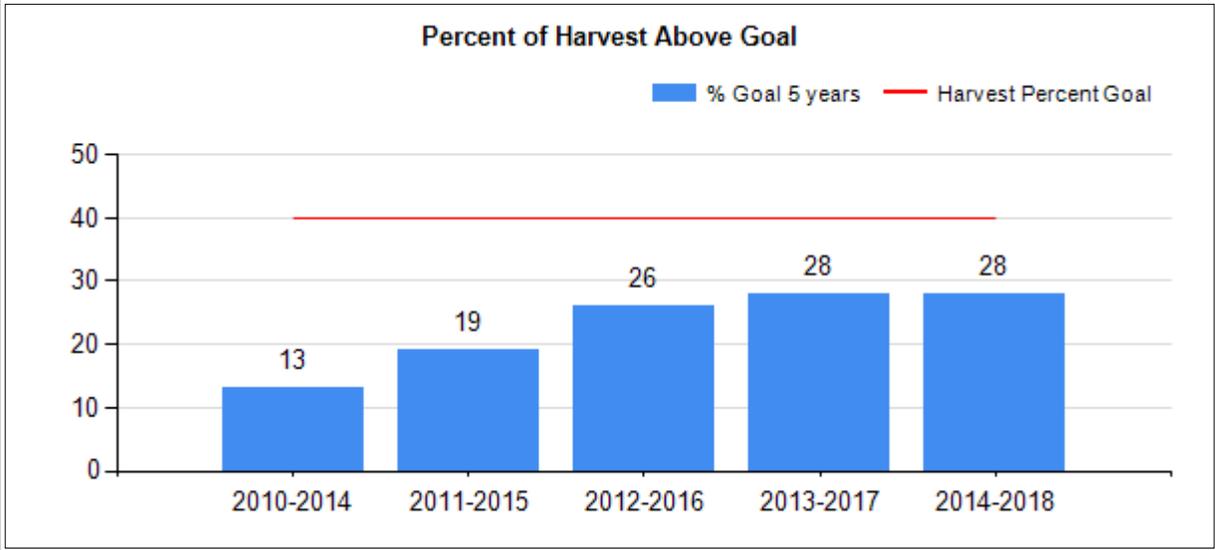
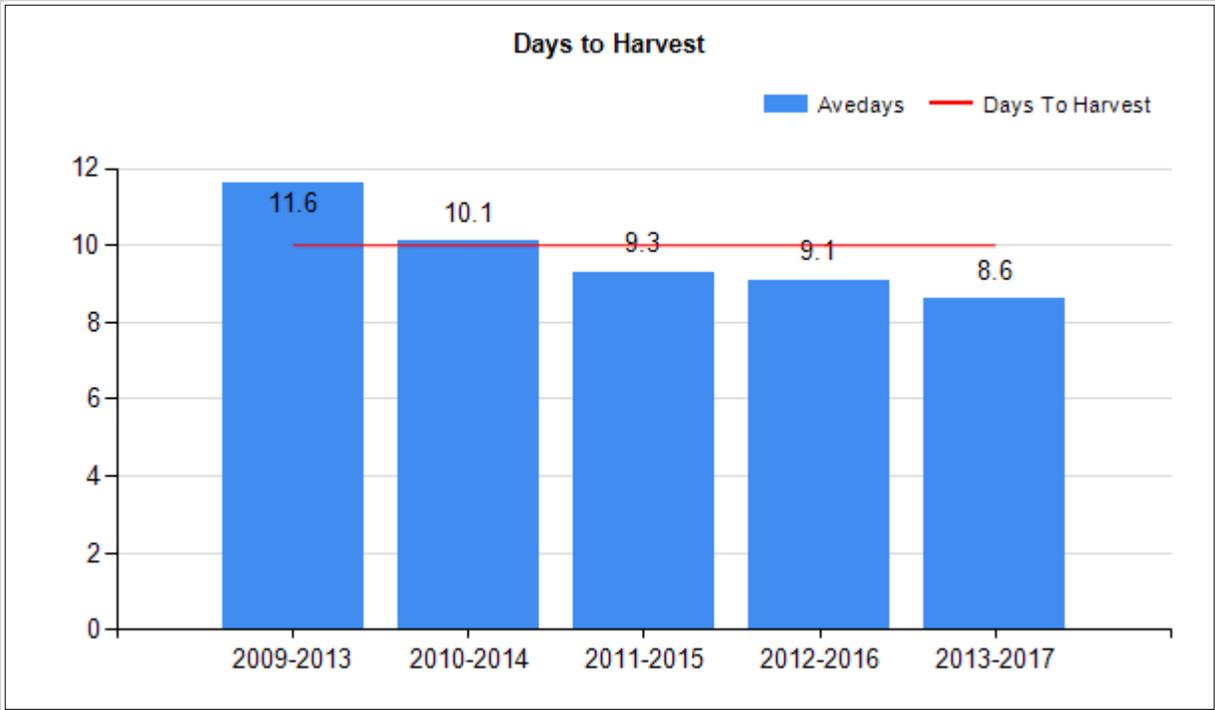
Secondary Objective:

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

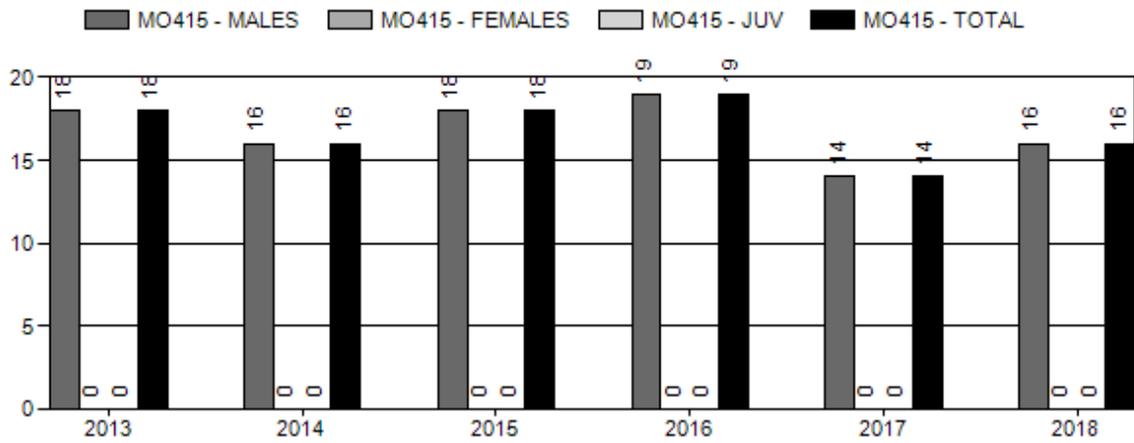
Management Strategy:

Special

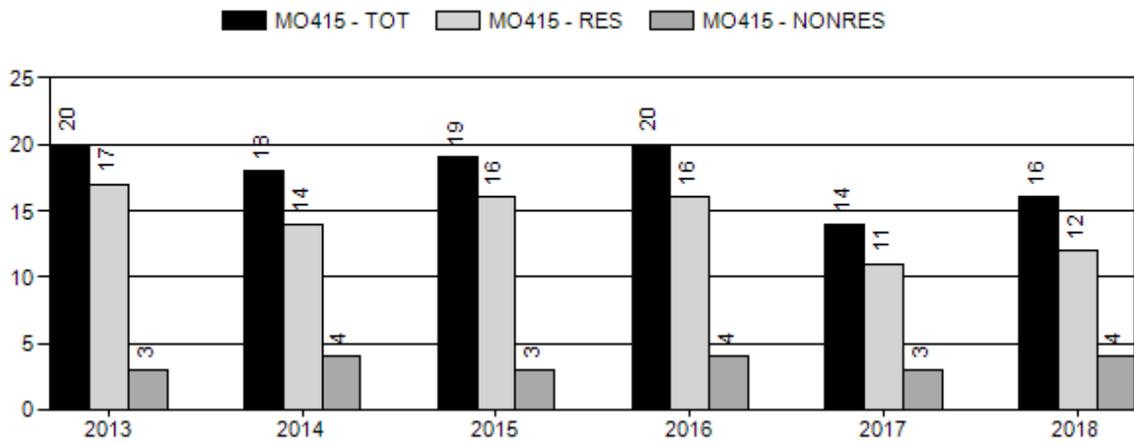




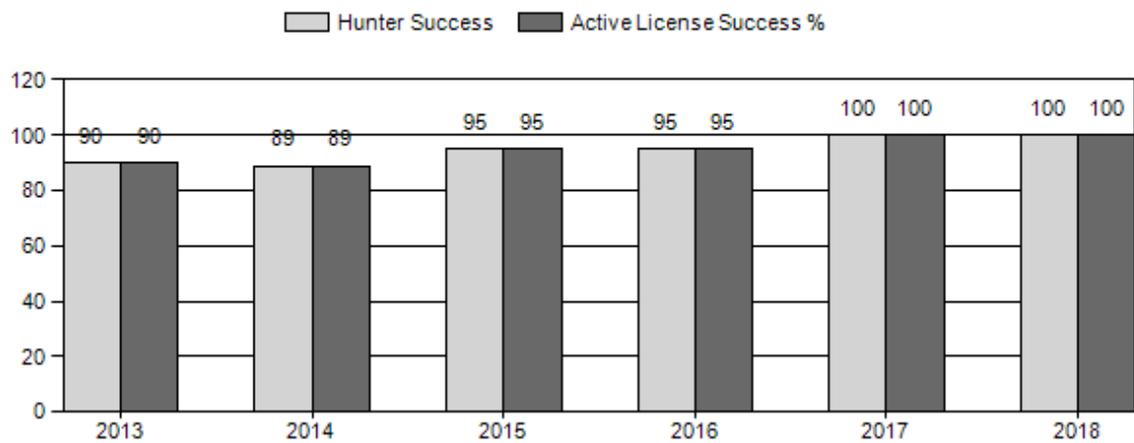
Harvest



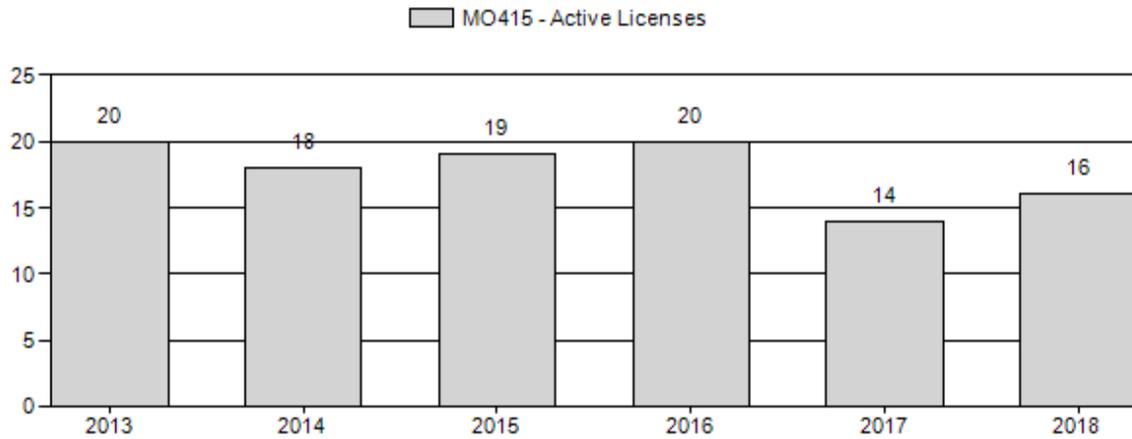
Number of Active Licenses



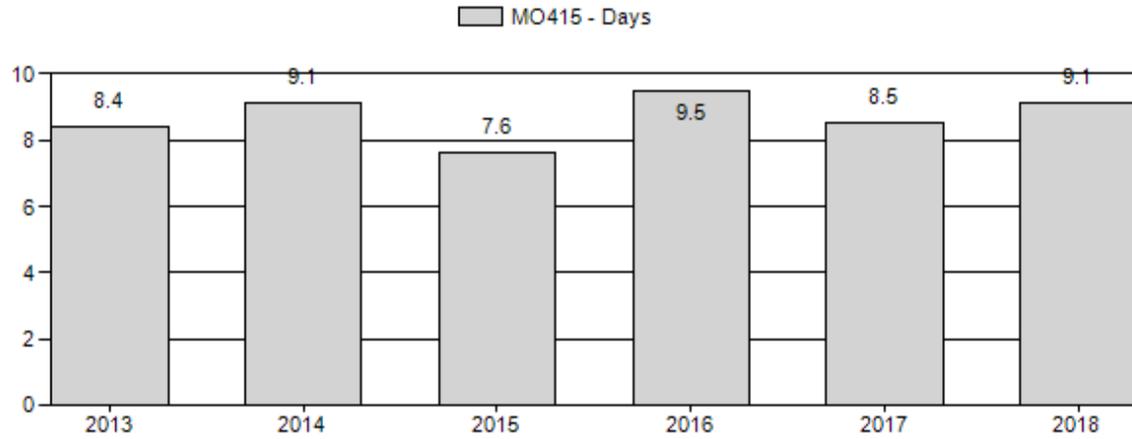
Harvest Success



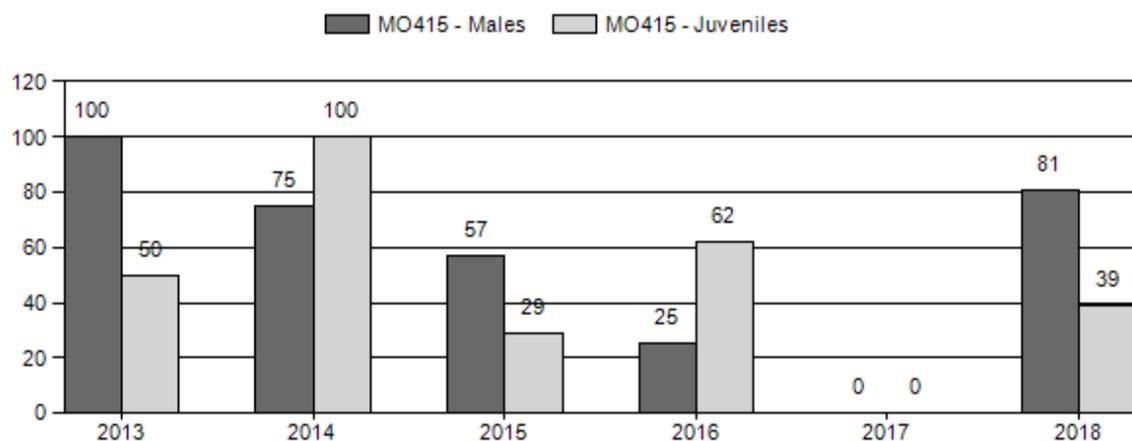
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Moose Herd MO415 - UINTA

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females			Young to			
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	0	0	8	8	40%	8	40%	4	20%	20	0	0	100	100	± 0	50	± 0	25
2014	0	1	2	3	27%	4	36%	4	36%	11	0	25	50	75	± 0	100	± 0	57
2015	0	1	3	4	31%	7	54%	2	15%	13	0	14	43	57	± 0	29	± 0	18
2016	0	0	2	2	13%	8	53%	5	33%	15	0	0	25	25	± 0	62	± 0	50
2017	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2018	0	0	0	88	37%	108	45%	42	18%	238	0	0	0	81	± 0	39	± 0	21

2019 HUNTING SEASON

SPECIES : **Moose**

HERD UNIT : **UINTA (415)**

HUNT AREAS: **27, 35, 44**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
27	1	Oct. 1	Nov. 20	15	Limited quota	Antlered moose
35	1	Oct. 1	Nov. 20	5	Limited quota	Antlered moose
44						CLOSED

27, 35 Archery Sept. 1 Sept. 30 Limited quota Refer to Section 2 of this chapter

Hunt Area	License Type	Quota change from 2018
27	1	+3
35	1	+2
Herd Unit Total	1	+5

Management Evaluation

Current Postseason Population Management Objective: Harvest Based

Management Strategy: Special

2018 Postseason Population Estimate: ~350

2019 Proposed Postseason Population Estimate: ~350

Herd Unit Issues

This is an interstate herd shared with Utah. Many moose that summer in the Uinta Mountains in Utah come to Wyoming to winter. Limited winter range is an issue for this herd. A significant portion of the lower elevation moose habitat is on private land so landowner tolerance of moose can be an issue. Moose coming into towns and residing in yards has been a reoccurring issue but far less common than in the past.

Our biggest concern is our lack of knowledge on disease issues in this herd. We have had several documented cases of elaeophorosis caused deaths in this herd and feel that this has had a significant population effect on the herd. This has stabilized and elaeophorosis caused mortalities have reduced significantly in the last four years. However, we are continuing a conservative management strategy until we see moose numbers rebound significantly.

In 2006 Hunt Area 44 was added to the herd unit. There have been fluctuating numbers of moose in this area. When numbers are high it has created some concern to habitat managers since these moose are impacting the ability to bring back riparian shrubs in these xeric habitats. The objective has been to keep moose from establishing in this area. In 2012 Area 44 was added to the Area 35 hunt in the packet. Starting in 2015 Area 44 was closed to moose hunting due to concern over offering an opportunity with extremely low moose numbers.

Weather

Weather during 2018 and into 2019 has been highly variable. In the early part of 2018 the winter was mild. Snowpack was low in the higher elevations. This reduced moisture made forage production lower than normal. In July and August conditions dried even more and habitat conditions were poor in the area. The winter of 2018/19 was very harsh with high snow loads and cold temperatures.

Habitat

Habitat data collection has been inconsistently collected in this herd unit and has been absent in the recent past.

Field Data

Since data is very limited in this herd it is difficult to look at data trends. It is not possible to model this interstate herd. Classification data is not collected consistently. We experienced a significant reduction in nuisance moose complaints and reduced field observations of moose in the starting in 2007. Field observations indicated we had a sharp reduction in moose populations. We also received complaints from moose hunters about moose numbers. This prompted us to drastically reduce moose hunting opportunity over the last 10 year period.

Moose flight data supported our concerns about a reduction in moose numbers in the Uinta Herd Unit. The 2011 survey was conducted in ideal circumstances with high snow loads making moose highly visible and concentrated on specific wintering areas. The survey was also more intensely flown than previous surveys. This indicates that it was a good reference count and that we would have not missed large numbers of animals that may have been seen in previous surveys. The 2011 count represented the lowest total moose seen in Wyoming since the counts began. Counts since then have continued to be low. This information supported the deep cuts we made in moose harvest over those years. In 2017 we got even more conservative with harvest. This was due to not meeting our minimum age of harvest objective and animals harvested in Areas 27 and 35 were not meeting the % of male harvest ≥ 5 years of age objective. There were no changes made to seasons in 2018. For 2019 we are now above objective for all objective criteria and feel that we can offer slightly more opportunity.

Moose surveys are flown in cooperation with Utah DNR, most recently in January 2019. Past results are shown below. Utah pays for a joint elk and moose survey approximately every 3 to 5 years. Classification data is collected during those surveys with Utah. In the off years some moose classification data is collected during aerial mule deer surveys in December. That data is reported in the JCR report graphs and tables but sample sizes are very inadequate and those ratios are not reliable.

TOTAL MOOSE COUNTED BY YEAR

	1996	1998	2001	2004	2007	2011	2013	2019
UTAH DAGGETT (8B)	103	84	109	107	95	NA	74	55
UTAH SUMMIT (8A)	182	229	243	150	181	92	104	110
WYOMING	393	289	334	270	314	232	174	238
TOTAL WYOMING AND UTAH SUMMIT	575	518	577	420	495	324	278	348
TOTAL	678	602	686	527	590	324	352	403

Harvest Data

Antlerless harvest opportunity has been eliminated in this herd unit. We have drastically reduced the number of licenses from what it was ten years ago. Type 1 hunts have still had very high success rates and hunters have had quality hunts with several good adult bulls harvested. Tooth age data indicates at current hunting levels we are able to recruit a few older animals into the population and have them available to hunters. However, sample sizes are very low and may be biased easily.

2013 - 2018 Harvest Summary

for Moose Herd MO415 - UINTA

Year	HUNTERS					HARVEST								SUCCESS				
	Res Htrs	NRes Htrs	% NRes	Total Htrs	Act Lic	Ylg Male	Adult Male	Total Male	% Male	Fem	% Fem	Juv	% Juv	Tot Harv	Hntrs	Act Lic	Hntr Days	Days to Harv
2013	17	3	15%	20	20	0	18	18	100%	0	0%	0	0%	18	90%	90%	151	8.4
2014	14	4	22%	18	18	0	16	16	100%	0	0%	0	0%	16	89%	89%	146	9.1
2015	16	3	16%	19	19	0	18	18	100%	0	0%	0	0%	18	95%	95%	137	7.6
2016	16	4	20%	20	20	0	19	19	100%	0	0%	0	0%	19	95%	95%	180	9.5
2017	11	3	21%	14	14	0	14	14	100%	0	0%	0	0%	14	100%	100%	119	8.5
2018	12	4	25%	16	16	0	16	16	100%	0	0%	0	0%	16	100%	100%	146	9.1

Population

Due to interstate nature of this herd no working model exists. Weather severity is usually the determining factor in the number of moose that come into Wyoming from Utah during the winter. This and other factors make data collected inconsistent and unreliable.

Management Summary

For 2019 hunting seasons we feel we can offer slightly more opportunity for hunters. In 2018 we were above objective for all criteria and slightly more hunter harvest is possible. We will add 2 type 1 licenses to Hunt Area 35 and 3 to Hunt Area 27. Hunt area 44 will be closed again for 2018 and no antlerless harvest will be allowed in the herd unit. This is an effort to allow maximum growth of the herd. However, hunting is not likely to be the limiting factor for this herd.

Herd Unit Objective

Objective criteria (Harvest Based)

- Minimum age of Harvest (median ≥ 4 years)
- Days per Harvest (average ≤ 10 days)

Secondary objective:

- 40% of male harvest ≥ 5 years of age
(5 year average timelines for better sample sizes)

Uinta Moose Herd Harvest Data 2014 -2018

	2014	2015	2016	2017	2018	5 year average
Mean age of harvest	4.125	4.37	4.18	4.2	5.09	4.93
Median age of harvest	3	4	4	4	6	4.2
Days per harvest	9.1	7.6	9.5	8.5	8.6	8.66
% male harvest ≥ 5 years	12%	25%	45%	40%	55%	35.4%
Average Antler spread (in)	36.0	35.75	38.2	39.37	36.40	37.14

The Uinta Herd Unit has small sample sizes for harvest so outliers or missed samples have a large affect on the data. Currently the 5 year average for the herd is slightly below objective for percent of male harvest ≥ 5 years of age, however, the yearly data has risen rapidly to well over the objective for 2018. We are above objective for median age of Harvest and above objective on days per harvest. We are trending upward and feel slightly more harvest is justifiable.

The objective and management strategy were revised in 2014. During that objective review process we moved to a new objective type for this herd. Due to the issues associated with modeling and tracking this population we switched from a population based objective to a harvest statistic based objective. This entailed the age of harvest objectives and an average days per harvest objective seen above. In 2019 we went through an internal review of the objective and harvest strategy. The recommendation for the Uinta Moose Herd is to maintain the newly adopted harvest statistic based objective. 2014 was the first year of this type of objective option. Since there are very low harvest sample sizes averages over time will be most useful. There is also an unknown amount of variation around tooth cementum analysis estimates of age.

2018 - JCR Evaluation Form

SPECIES: Moose

PERIOD: 6/1/2018 - 5/31/2019

HERD: MO417 - LINCOLN

HUNT AREAS: 26, 33, 36, 40

PREPARED BY: JEFF SHORT

	<u>2013 - 2017 Average</u>	<u>2018</u>	<u>2019 Proposed</u>
Population:	757	676	641
Harvest:	46	38	38
Hunters:	47	40	40
Hunter Success:	98%	95%	95%
Active Licenses:	47	40	40
Active License Success:	98%	95%	95%
Recreation Days:	380	266	270
Days Per Animal:	8.3	7	7.1
Males per 100 Females	48	0	
Juveniles per 100 Females	40	0	

Population Objective (± 20%) : 1000 (800 - 1200)

Management Strategy: Special

Percent population is above (+) or below (-) objective: -35.9%

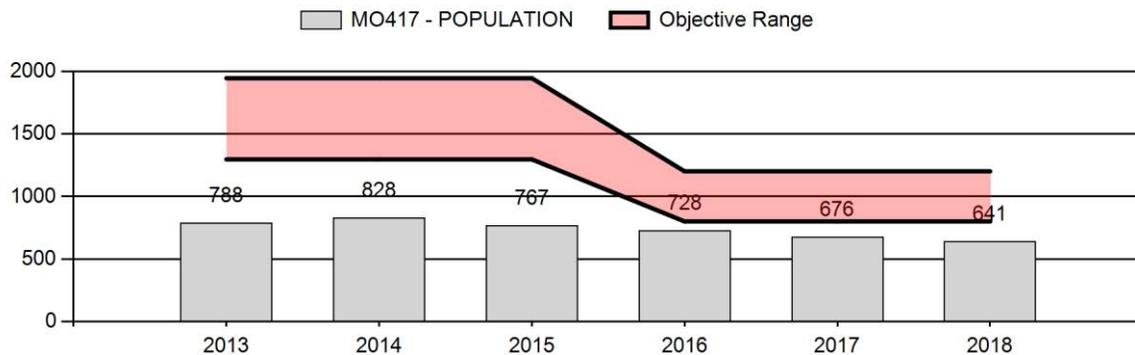
Number of years population has been + or - objective in recent trend: 3

Model Date: 02/18/2019

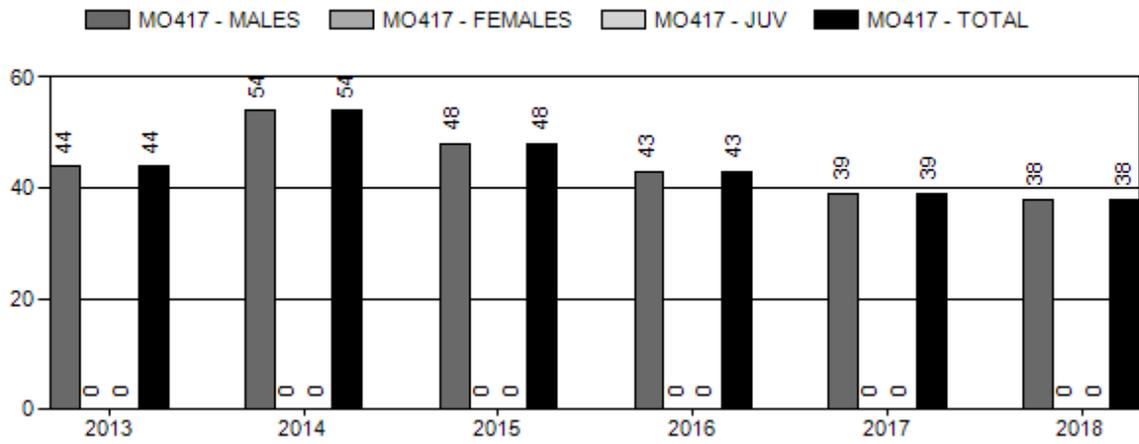
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	23.9%	25.9%
Total:	5.6%	6.0%
Proposed change in post-season population:	-6.4%	-6.6%

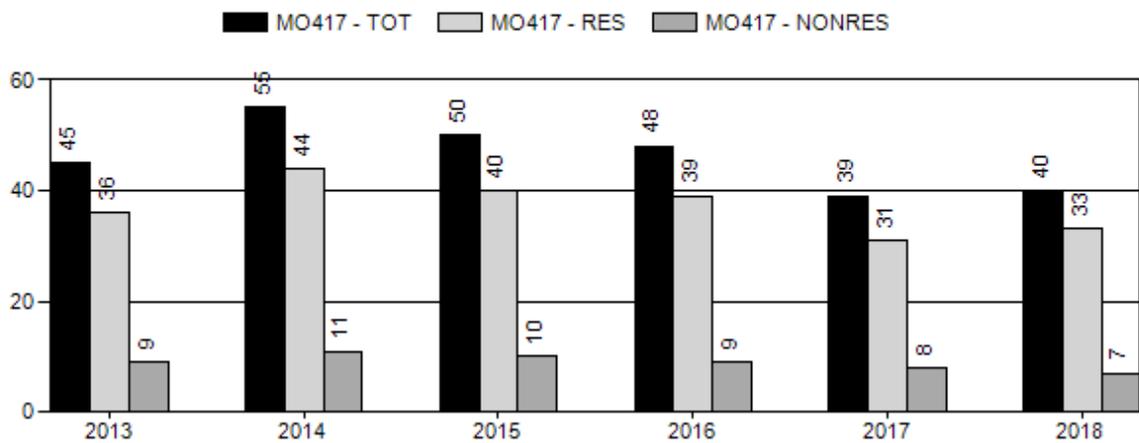
Population Size - Postseason



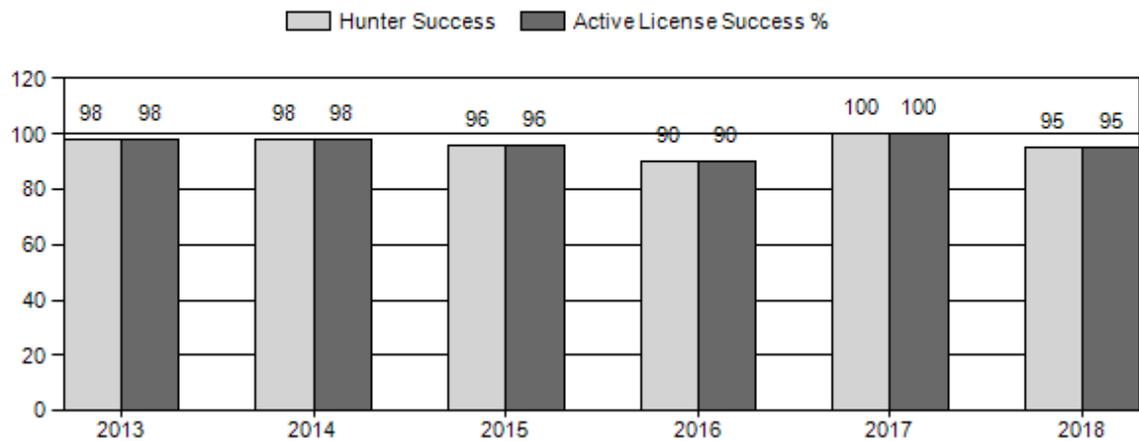
Harvest



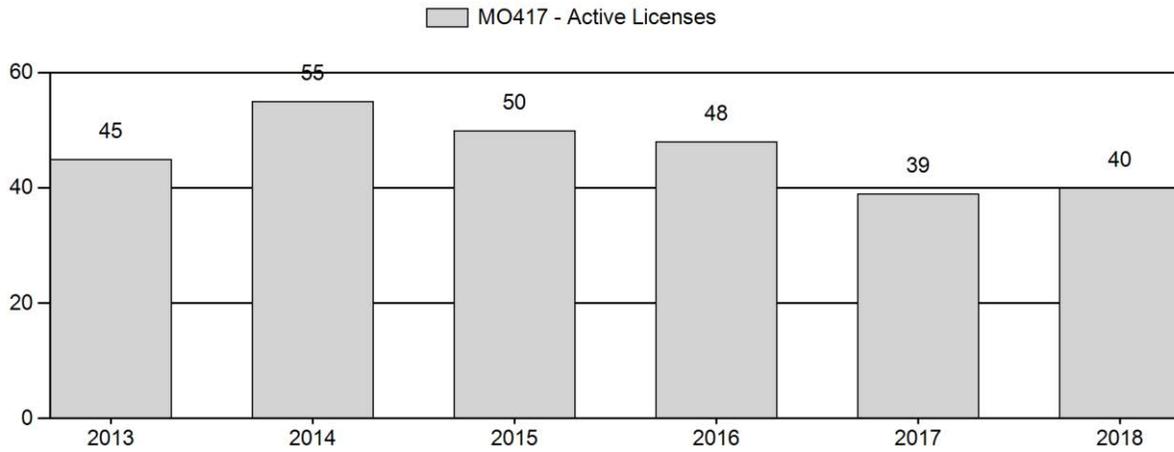
Number of Active Licenses



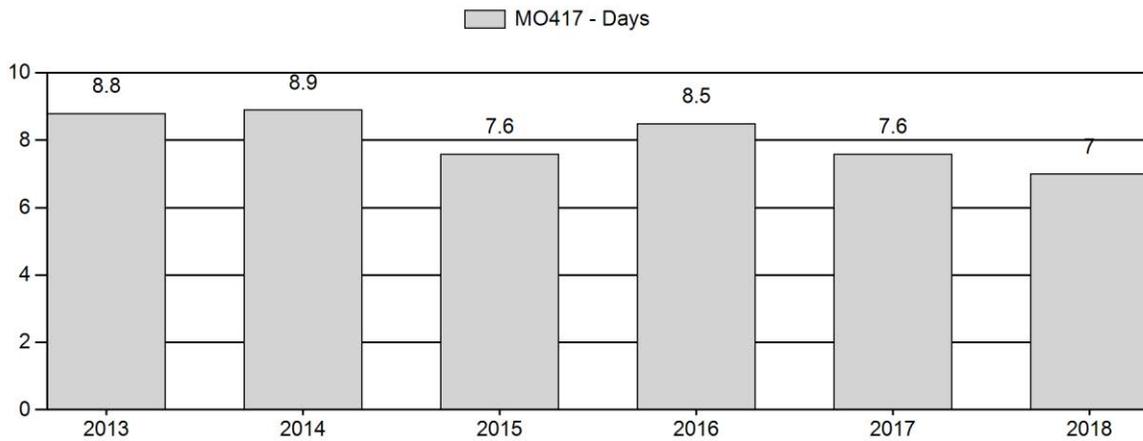
Harvest Success



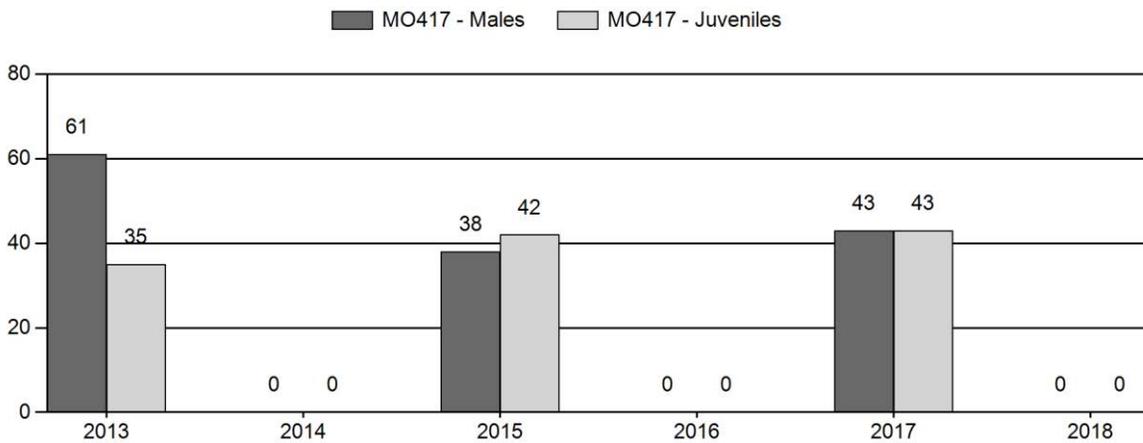
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2013 - 2018 Postseason Classification Summary

for Moose Herd MO417 - LINCOLN

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females			Young to			
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2013	788	0	124	124	31%	202	51%	71	18%	397	0	0	61	61	± 6	35	± 4	22
2014	828	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 27	0	± 34	0
2015	767	11	59	70	21%	183	55%	77	23%	330	0	6	32	38	± 5	42	± 6	30
2016	728	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2017	676	0	58	58	23%	136	54%	59	23%	253	0	0	43	43	± 7	43	± 7	30
2018	641	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 40	0	± 38	0

2019 HUNTING SEASON

SPECIES : **Moose**

HERD UNIT : **LINCOLN (417)**

HUNT AREAS: **26, 33, 36, 40**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
26	1	Oct. 1	Oct. 31	32	Limited quota	Antlered moose
33						CLOSED
36	1	Oct. 1	Oct. 31	5	Limited quota	Antlered moose
40	1	Oct. 1	Oct. 31	3	Limited quota	Antlered moose

26, 36, 40 Archery Sep. 1 Sep. 30 Limited quota Refer to Section 2 of this chapter

Hunt Area	License Type	Quota change from 2018
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: 1,000

Management Strategy: Special

2018 Postseason Population Estimate: ~ 676

2019 Proposed Postseason Population Estimate: ~ 641

Herd Unit Issues

A portion of the lower elevation riparian moose habitat is on private land so landowner tolerance of moose can be an issue. Moose coming into towns and residing in yards has been an issue in the past. This herd unit is not a closed population with the northeast boundary line being through prime moose habitat.

The advent of parasite caused mortalities of unknown magnitude in the herd complicates management. There is a lack of knowledge on disease issues in this herd. We have had many documented cases of Elaeophorosis caused deaths in this herd and that has had a significant population effect. However, Elaeophorosis caused mortalities have reduced in the last four to five years.

Hunt area 36 is a small moose herd that is scattered over a large expanse of non-typical open moose habitat. This area acts as an “over flow” area for adjacent larger populations of moose in the Uinta and Lincoln herds. The young average age of animal harvested there supports our concept that younger age class animals are immigrating into this area. We do not survey this area for moose. In hunt area 40 the moose population is almost entirely on private lands along the Hams Fork. Like Area 36, it has a small population of moose. Area 33 also has a very limited number of moose. They primarily occur on Seedska-dee National wildlife refuge and along the Green River. Area 33 had been closed for hunting from 2003 to 2013 and has been closed again since 2017.

Weather

Weather during 2018 and into 2019 has been highly variable. In the early part of 2018 the winter was mild. Snowpack was low in the higher elevations. This reduced moisture made forage production lower than normal. In July and August conditions dried even more and habitat conditions were poor in the area. The winter of 2018/19 has been very harsh with high snow loads and cold temperatures.

Habitat

Habitat data collection has been inconsistently collected in this herd unit and has been absent in the recent past.

Field Data

Moose surveys are conducted in hunt area 26 from a helicopter concurrent with West Green River elk surveys. Classification data is collected during these flights. Those surveys are conducted every other year. Areas 33, 36 and 40 are not flown due to the large geographic area and very low moose densities. The joint elk and moose survey was last flown in the winter of 2017/18. Total numbers of moose seen were 262. The Idaho sightability model was used to estimate a total population for the area flown. That estimate was 353 moose with a standard error of 45. Good coverage of occupied moose winter habitat was achieved in the survey. However, there are some peripheral habitats that were not flown due to budget constraints and the very mild winter conditions spreading out moose. For population modeling we have added 50 animals to the estimate and enlarged the SE to account for those areas. Two previous surveys have been flown. In the off years between elk/moose flights, some moose classification data is collected during aerial deer surveys in December. That data is not reported in the JCR report graphs and tables since sample sizes are inadequate and those ratios are not reliable. The extensive surveys conducted in 2014, 2016 and 2018 resulted in estimates that are lower than survey sample sizes were in the late 1990s and early 2000s with lower effort back then. This substantiates field observations that moose populations were greatly reduced around 2006/2007. Reduced habitat condition and Elaeophorosis were likely contributors to the population reduction.

Harvest Data

Harvest opportunity has been very limited in this herd unit. We have drastically reduced the number of licenses in the last 10 years due to the population crash and antlerless harvest has been eliminated since 2010. Type 1 hunts still have very good success rates. Hunt area 26 is considered a very good quality moose hunt with potential for trophy animals. Area 26 has ample public access and a variety of places to hunt moose. Hunts in areas 33, 36 and 40 are considered good hunts with good success rates but require more time to find moose spread out over large areas. Public access can be more challenging in these areas but access to moose hunting is available. Those areas are not typically considered trophy areas but mature animals do exist and are harvested. Harvest data from 33, 36 and 40 does not give us much information since sample sizes are very small. In Hunt area 26 harvest data has a better sample size. Tooth age data indicates we have an average age of harvest of 3.95 years old for 2018. Average antler spread was 36.76 for 2018.

In addition to the population-based objective, the Lincoln herd unit also has two secondary objectives. Those objectives are to have a median age of harvested bulls ≥ 4 years old and a bull:cow ratio range of 50-70 males/100 females. We are currently below both of those objectives. We instituted more conservative seasons with reduced license numbers in 2016 and again in 2017 to address this. We are continuing this strategy to increase those parameters. However, without increased calf recruitment and natural adult survival it may not be possible to meet those objectives, as they are very possibly not harvest driven.

Lincoln Moose Herd Harvest Data 2014 -2018

	2014	2015	2016	2017	2018	5 year average
Mean age of harvest	4.1	3.6	3.2	3.4	3.95	3.65
Median age of harvest	4	4	3	3	4	3.6
Days per harvest	8.9	7.6	8.5	7.6	7	7.92
% male harvest ≥ 5 years	34%	20%	12%	19%	35%	24%
Average Antler spread (in)	37.84	37.40	35.20	35.84	36.76	36.61

2013 - 2018 Harvest Summary

for Moose Herd MO417 - LINCOLN

Year	HUNTERS					HARVEST								SUCCESS				
	Res Htrs	NRes Htrs	% NRes	Total Htrs	Act Lic	Ylg Male	Adult Male	Total Male	% Male	Fem	% Fem	Juv	% Juv	Tot Harv	Hntrs	Act Lic	Hntr Days	Days to Harv
2013	36	9	20%	45	45	0	44	44	100%	0	0%	0	0%	44	98%	98%	386	8.8
2014	44	11	20%	55	55	0	54	54	100%	0	0%	0	0%	54	98%	98%	482	8.9
2015	40	10	20%	50	50	0	48	48	100%	0	0%	0	0%	48	96%	96%	366	7.6
2016	39	9	19%	48	48	0	43	43	100%	0	0%	0	0%	43	90%	90%	366	8.5
2017	31	8	21%	39	39	0	39	39	100%	0	0%	0	0%	39	100%	100%	298	7.6
2018	33	7	18%	40	40	0	38	38	100%	0	0%	0	0%	38	95%	95%	266	7

Population

Previous to 2015 there was no model for this moose herd. It was not possible to build a reasonable model with the available data. With the new sightability estimates we now have population estimate data points and are able to build a reasonable model. The new model is to be used with caution. This modeling technique is not designed to be used for moose populations. It is based on an elk population model and some parameters may be different. With a new model population

trends will often be unrealistic in the early timeframe as the model works to try to figure out the data. Only the last few years of model estimates should be considered since they are anchored by aerial population estimates. In 2012 the Department switched from POPII models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data. The reported model is for hunt area 26 only. It is not feasible to collect adequate data for modeling in the rest of the herd unit. Total herd unit estimates in the JCR are reported as model estimates plus 120 animals to account for the overall objective.

The CJ,CA model was selected due to the low Relative AICc score, and its relatively good fit with the data. The CJ,CA model fits reasonably within the population characteristics of moose. In the future it will be important that we get a population estimate periodically to check the status of the herd and anchor the model. Without this, it is unlikely we can provide a working population model and track the trend of this population.

For several consecutive years in Area 26 we saw very low numbers of moose on post-season classification surveys. This was very concerning considering counting conditions were ideal in several of those surveys. We also experienced a reduction in nuisance moose complaints and reduced field observations of moose.

Management Summary

We instituted more conservative license numbers in the 2017 season due to continued low trends in moose populations and low average age of harvested bulls in the Herd Unit. In Hunt Area 26 we reduced licenses from 40 to 32. That area had fallen below objective in bull:cow ratio and mean age of harvested bulls. In Hunt Areas 33, 36 and 40 we split the hunt areas into separate hunts. We have 5 licenses in Hunt Area 36 and 3 licenses in Hunt Area 40. Hunt Area 33 was closed. We will continue this license structure since we are still below objective but are trending in the right direction. The objective and management strategy were last revised in 2016.