2018 - JCR Evaluation Form

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

HERD: PR401 - SUBLETTE

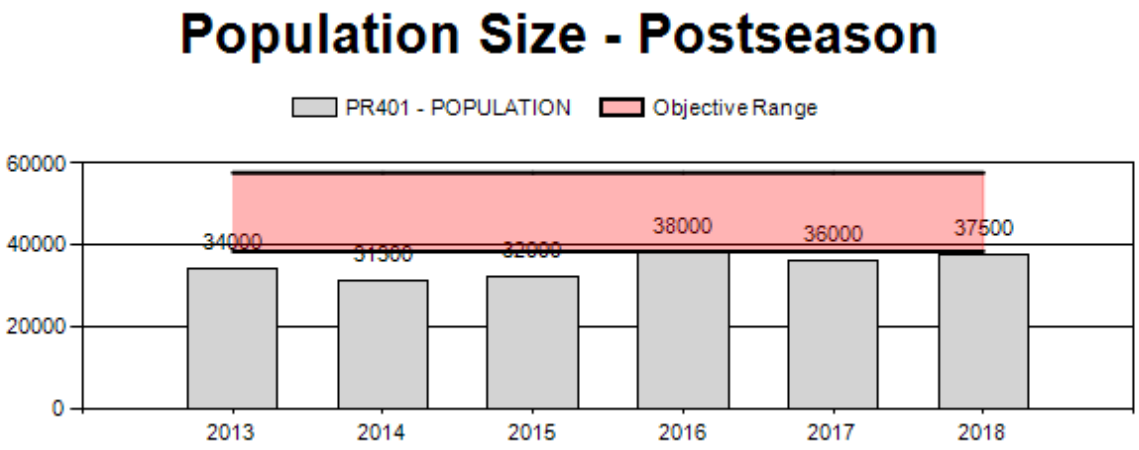
HUNT AREAS: 85-93, 96, 101, 107
PREPARED BY: PATRICK BURKE

	2013 - 2017 Average	2018	2019 Proposed
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	

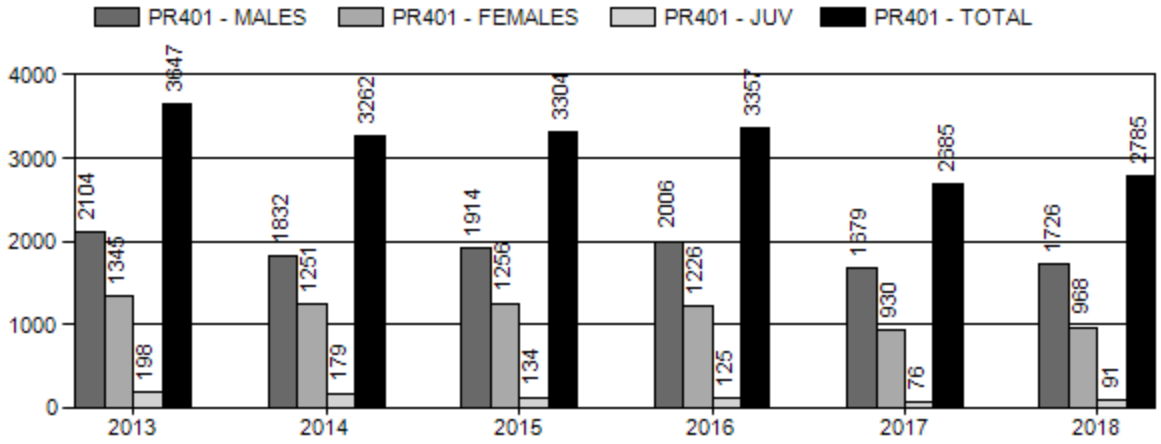
Population Objective (± 20%) :	48000 (38400 - 57600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-21.9%
Number of years population has been + or - objective in recent trend:	8
Model Date:	2/22/2019

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

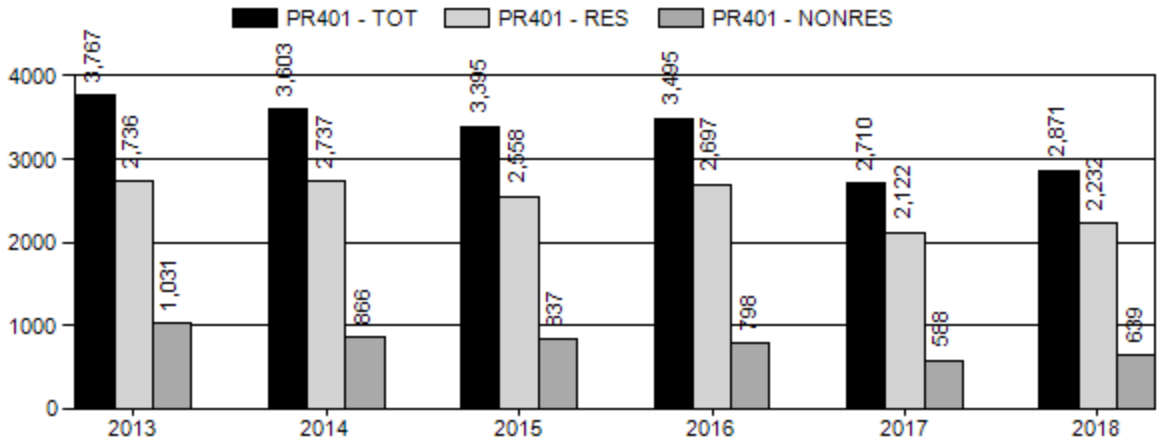
	JCR Year	Proposed
Females ≥ 1 year old:	5%	6%
Males ≥ 1 year old:	18%	17%
Total:	7%	8%
Proposed change in post-season population:	7%	3%



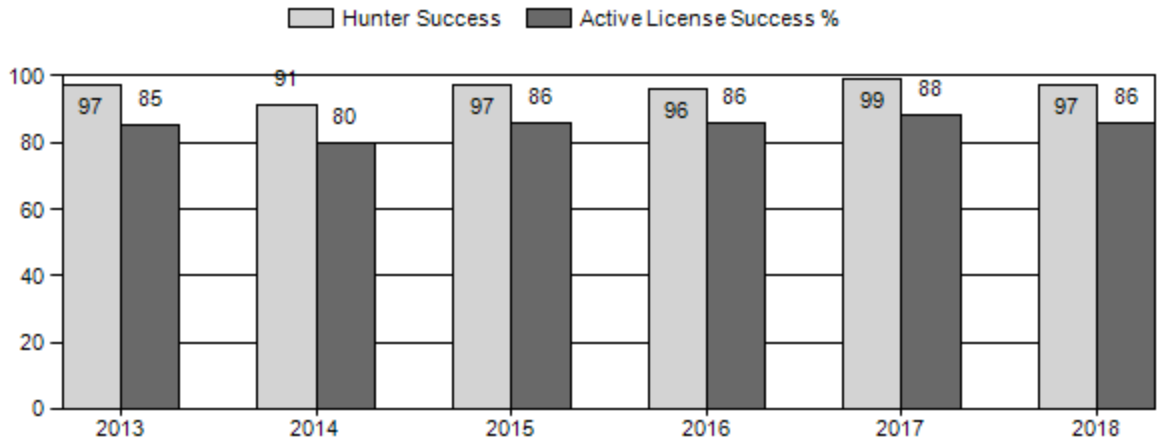
Harvest



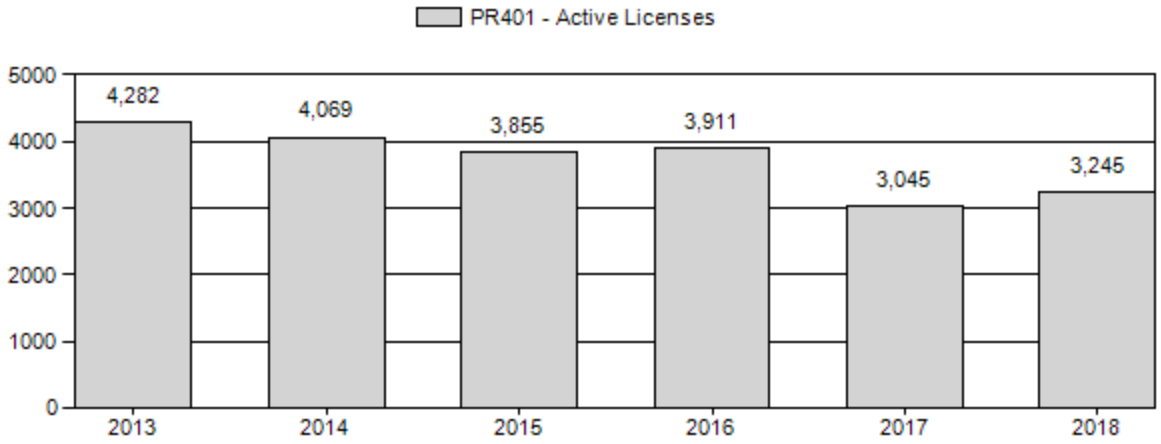
Number of Active Licenses



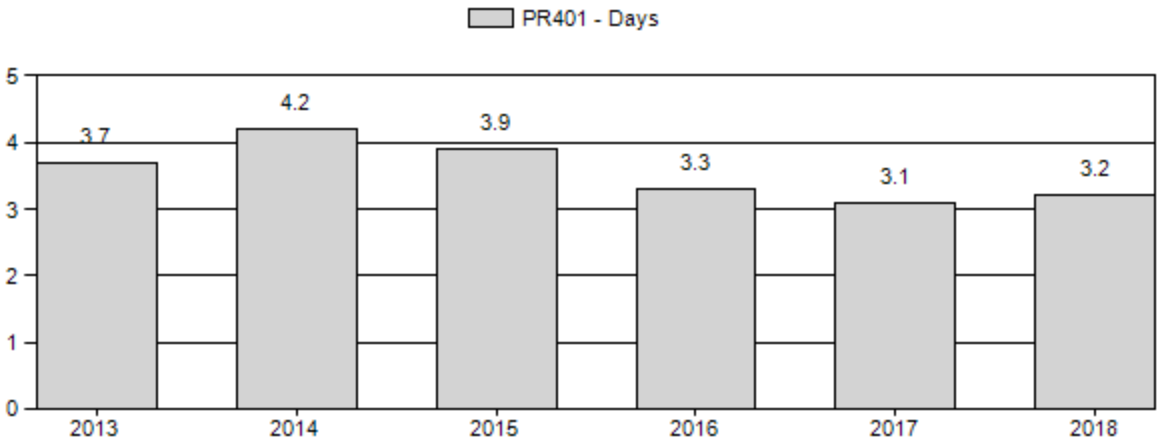
Harvest Success



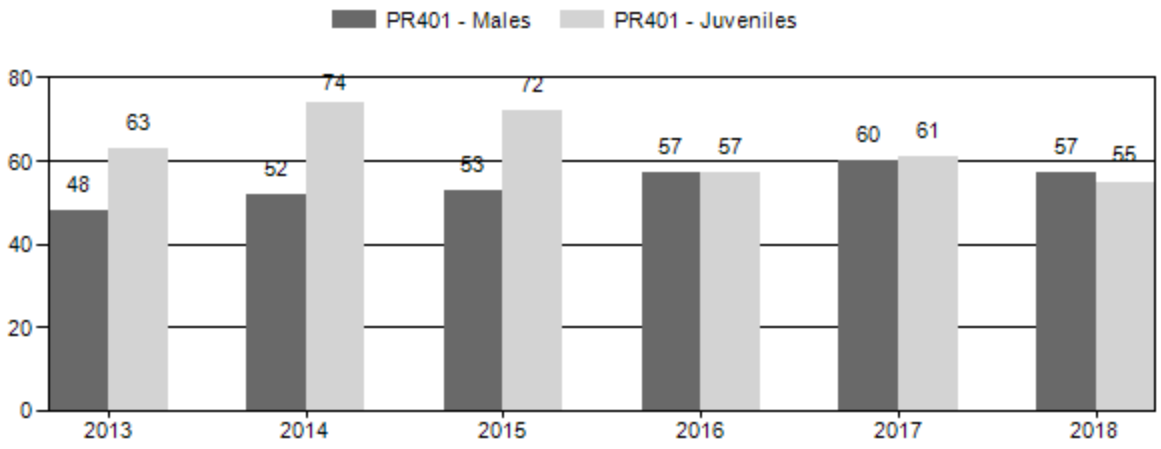
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR401 - SUBLETTE

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	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 Total	**1**	**+75**
	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.

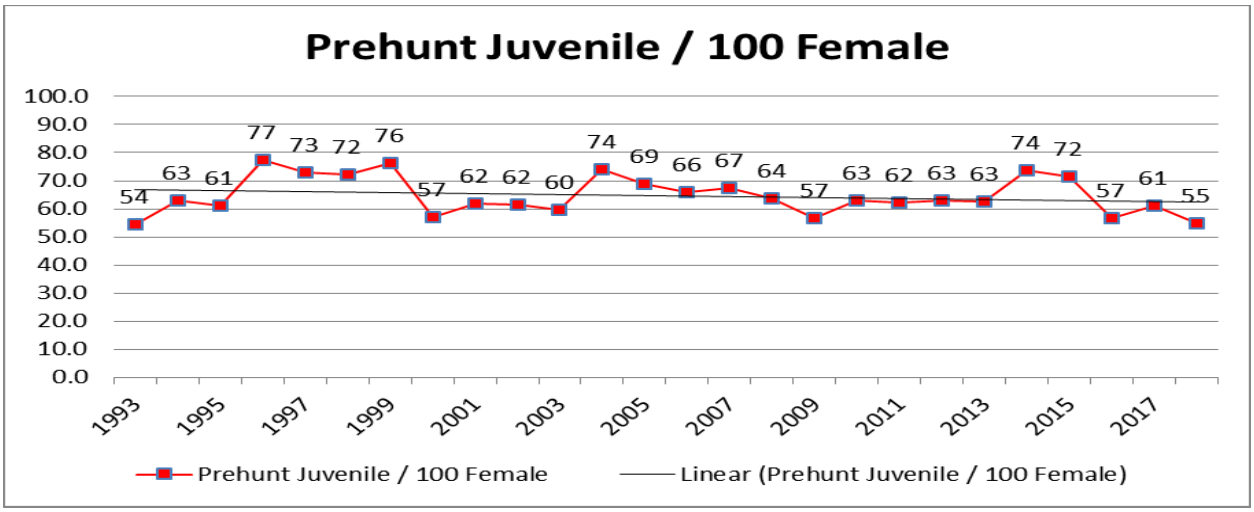
Population

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.


Prehunt Juvenile / 100 Female
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
54 63 61 77 73 72 76 57 62 62 60 74 69 66 67 64 57 63 62 63 63 74 72 57 61 55
1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017
Prehunt Juvenile / 100 Female
Linear (Prehunt Juvenile / 100 Female)

2018 - JCR Evaluation Form

SPECIES: Pronghorn | PERIOD: 6/1/2018 - 5/31/2019

HERD: PR411 - UINTA-CEDAR MOUNTAIN

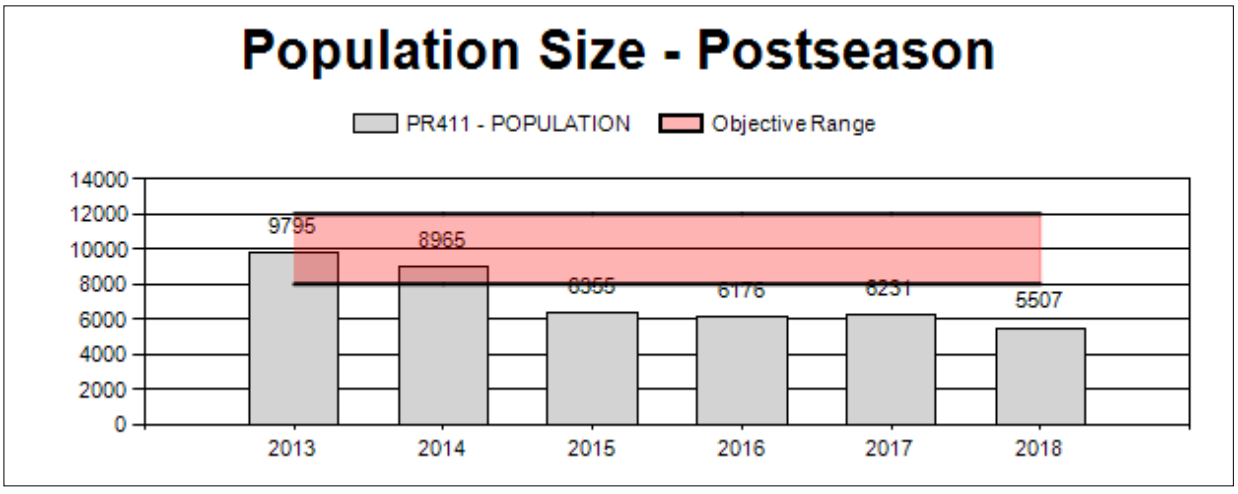
HUNT AREAS: 95, 99 | PREPARED BY: JEFF SHORT

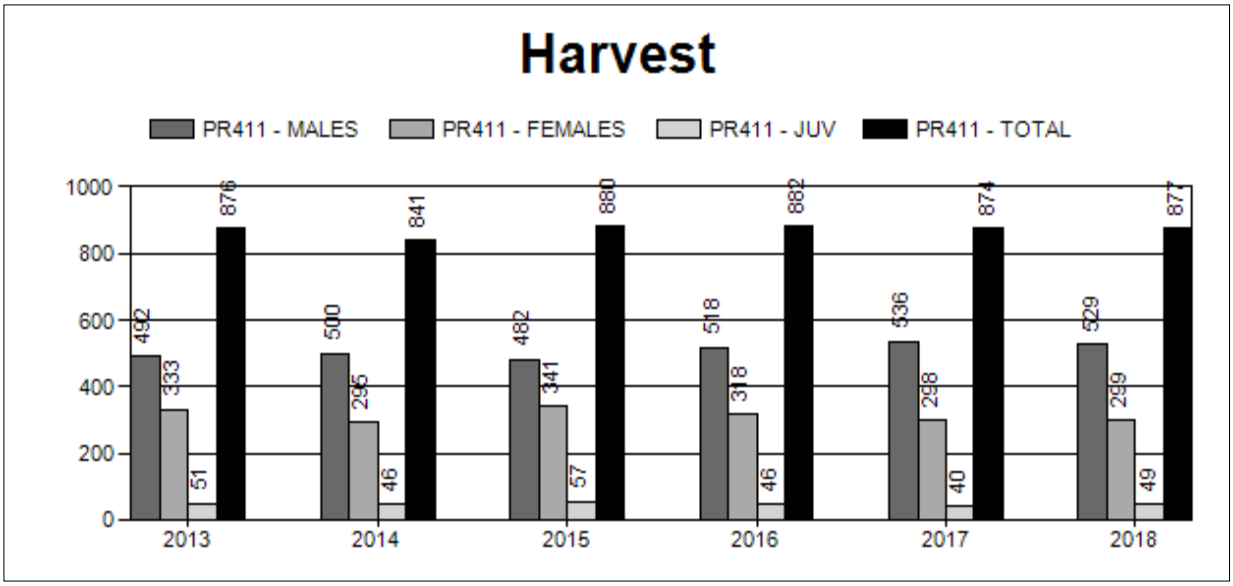
	2013 - 2017 Average	2018	2019 Proposed
Population:	7,504	5,507	5,232
Harvest:	871	877	900
Hunters:	912	896	900
Hunter Success:	96%	98%	100 %
Active Licenses:	1,003	989	890
Active License Success:	87%	89%	101 %
Recreation Days:	3,742	3,073	3,000
Days Per Animal:	4.3	3.5	3.3
Males per 100 Females	60	57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

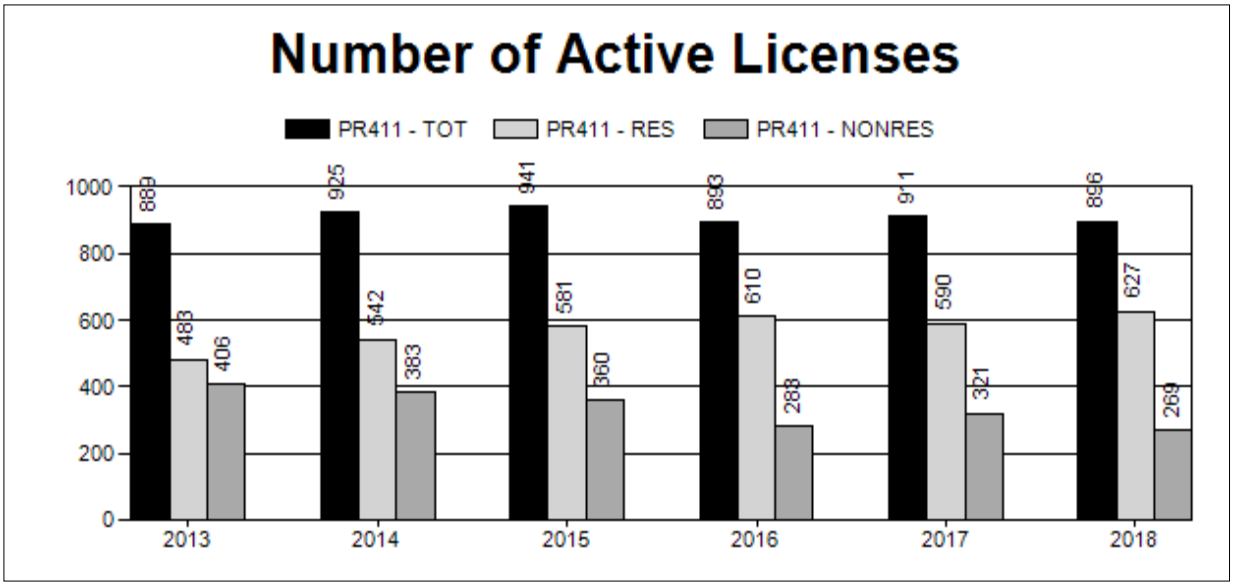
Population Objective (± 20%) :	10000 (8000 - 12000)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-44.9%
Number of years population has been + or - objective in recent trend:	0
Model Date:	02/18/2019

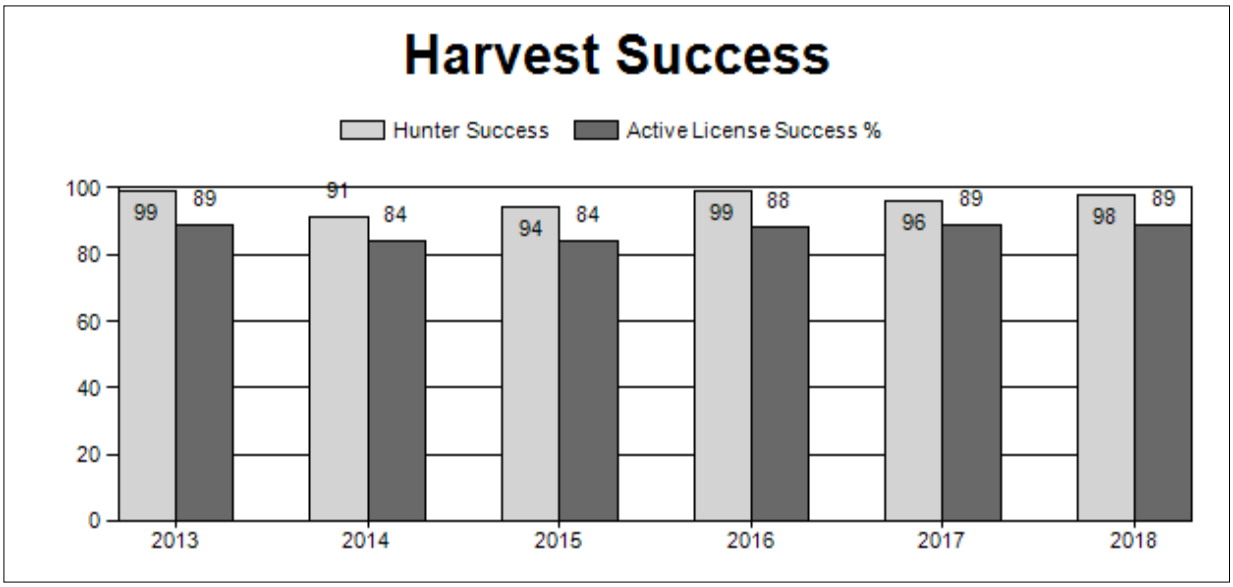
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	JCR Year	Proposed
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%

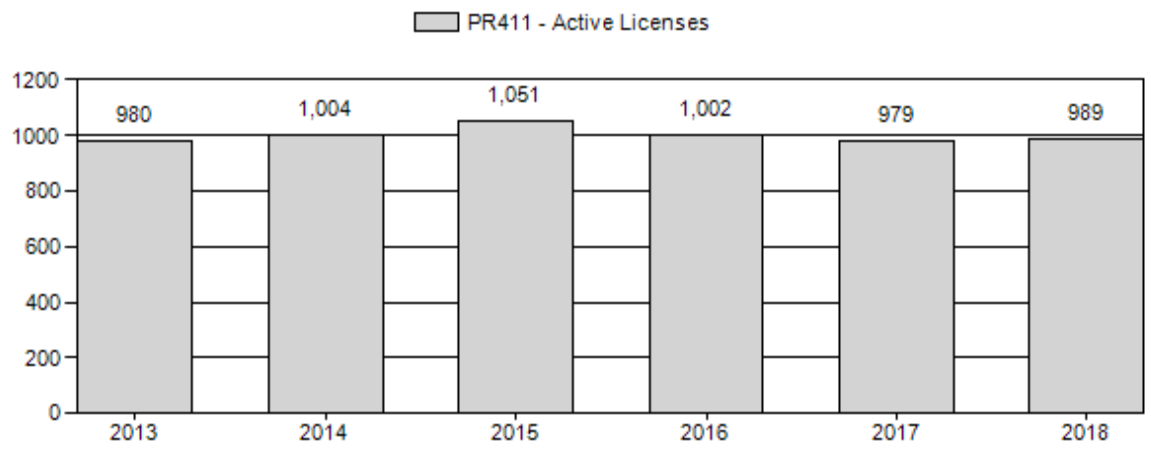



Harvest
PR411 - MALES
PR411 - FEMALES
PR411 - JUV
PR411 - TOTAL
1000
800
600
400
200
0
492
333
51
876
500
295
46
841
482
341
57
880
518
318
46
882
536
298
40
874
529
299
49
877
2013
2014
2015
2016
2017
2018

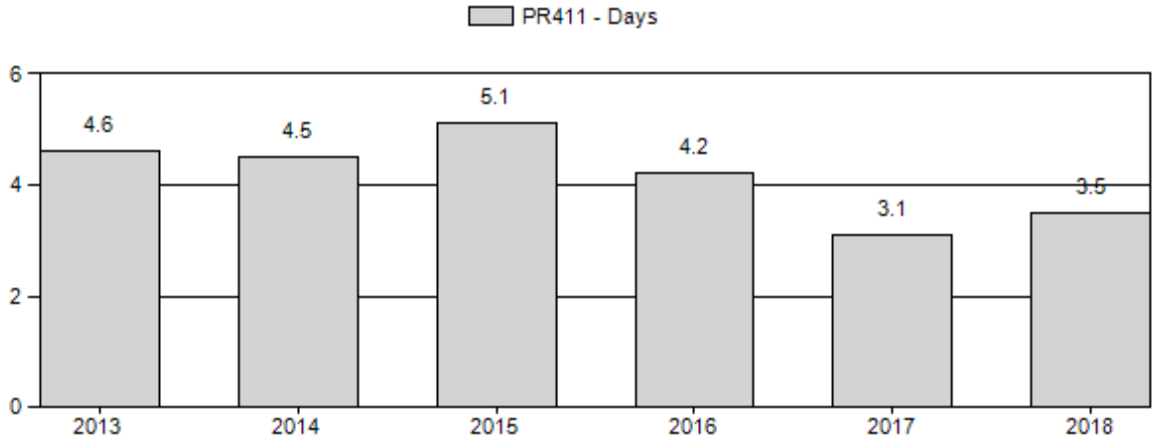

Number of Active Licenses
PR411 - TOT
PR411 - RES
PR411 - NONRES
1000
800
600
400
200
0
889
483
406
925
542
383
941
581
360
893
610
288
911
590
321
896
627
269
2013
2014
2015
2016
2017
2018


Harvest Success
Hunter Success
Active License Success %
100
80
60
40
20
0
99
89
91
84
94
84
99
88
96
89
98
89
2013
2014
2015
2016
2017
2018

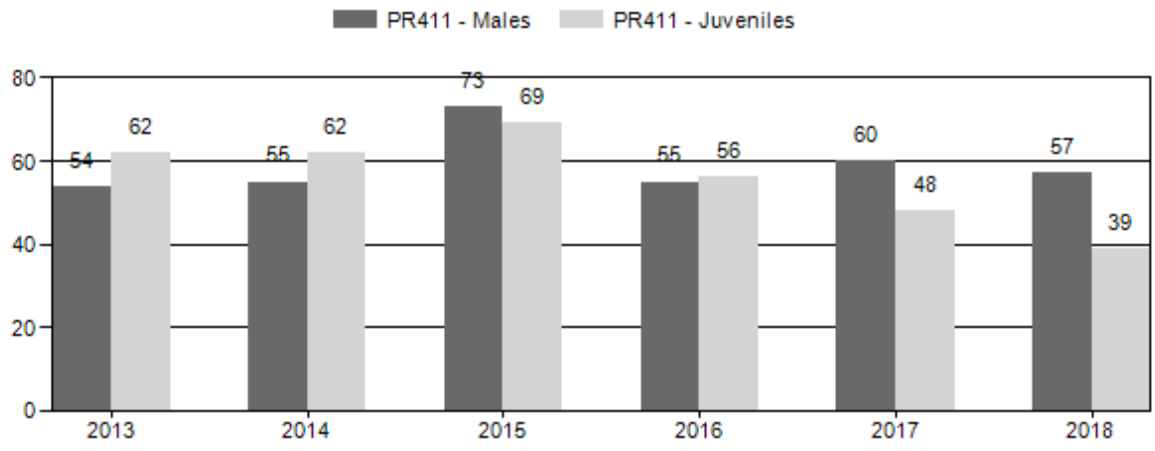
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR411 - UINTA-CEDAR MOUNTAIN

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Ylng	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 Opens	Season Dates Closes	Quota	License	Limitations
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, 99	Archery	Aug. 15	Sept. 9		Limited quota	Refer to Section 2 of this chapter

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**

<u>Management Evaluation</u>
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

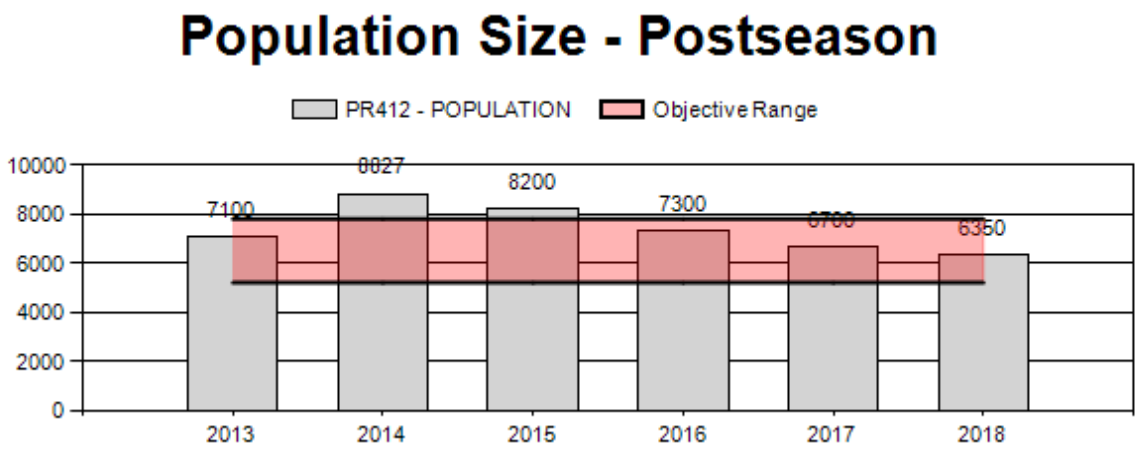
SPECIES: Pronghorn
PERIOD: 6/1/2018 - 5/31/2019
HERD: PR412 - SOUTH ROCK SPRINGS
HUNT AREAS: 59, 112
PREPARED BY: PATRICK BURKE

	2013 - 2017 Average	2018	2019 Proposed
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	

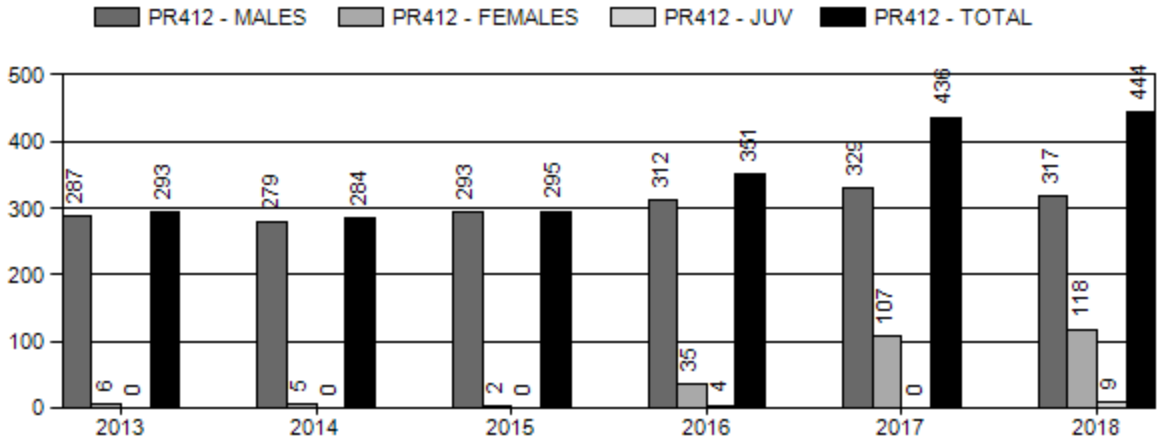
Population Objective (± 20%) :	6500 (5200 - 7800)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-2.3%
Number of years population has been + or - objective in recent trend:	1
Model Date:	02/19/2019

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

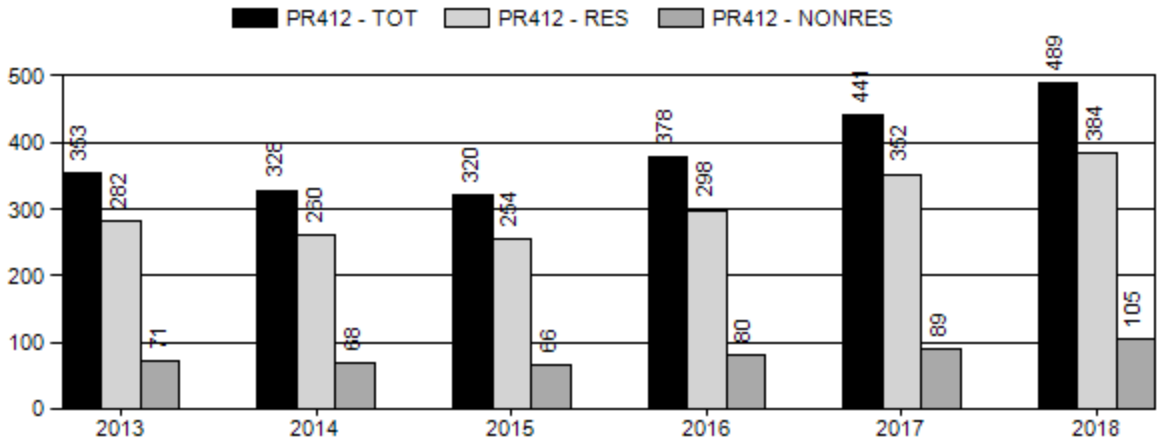
	JCR Year	Proposed
Females ≥ 1 year old:	3%	4%
Males ≥ 1 year old:	22%	26%
Total:	6%	7%
Proposed change in post-season population:	-6%	-7%



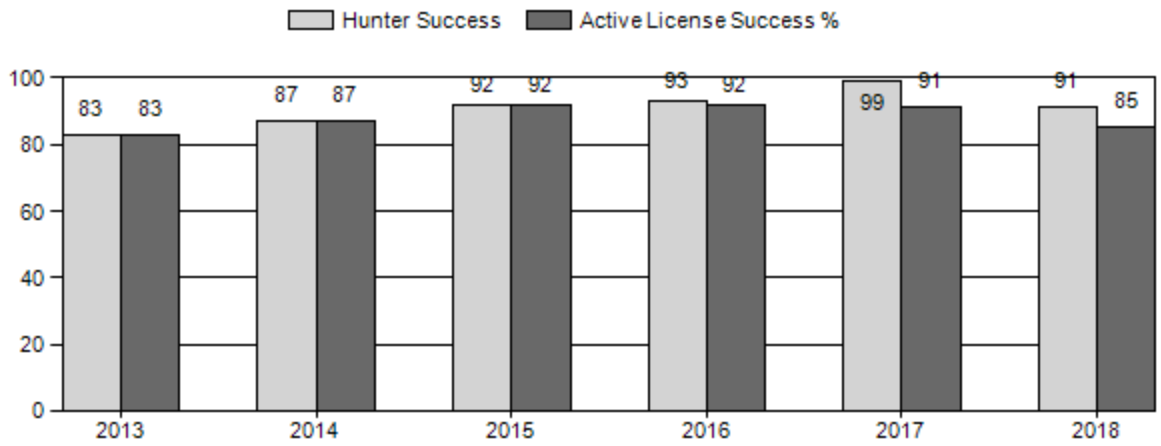
Harvest



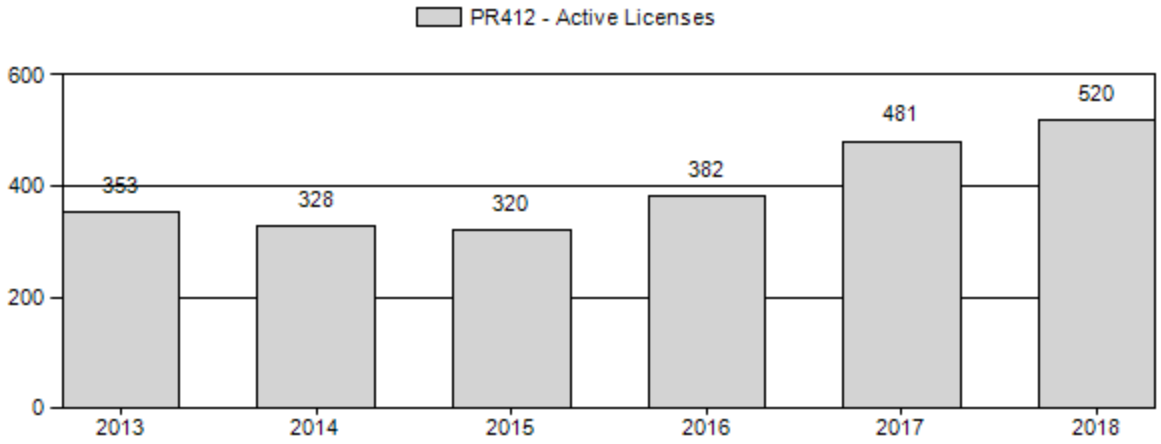
Number of Active Licenses



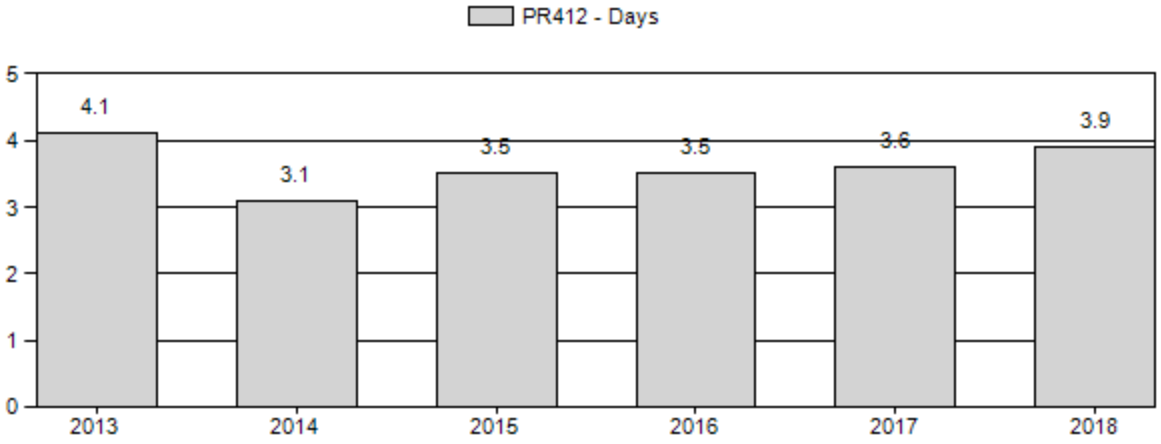
Harvest Success



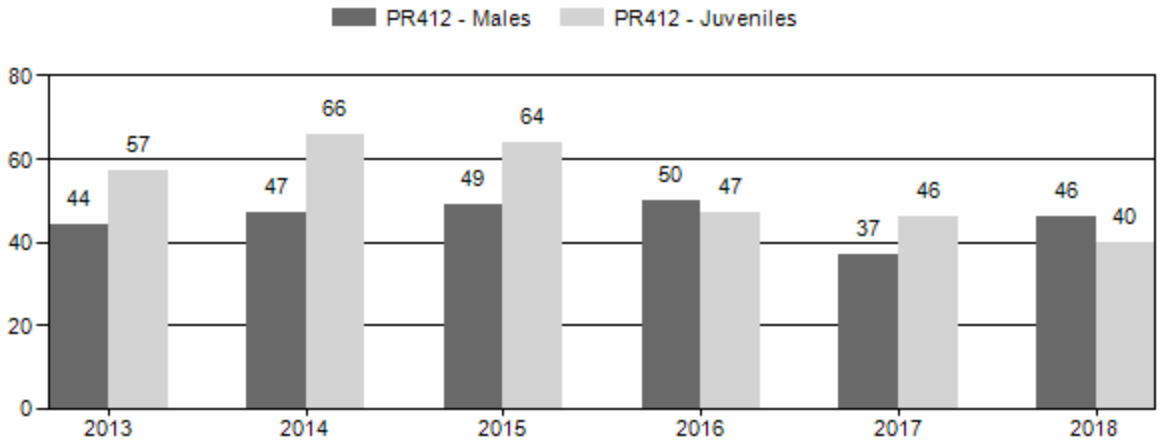
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR412 - SOUTH ROCK SPRINGS

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	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 was 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 direst 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

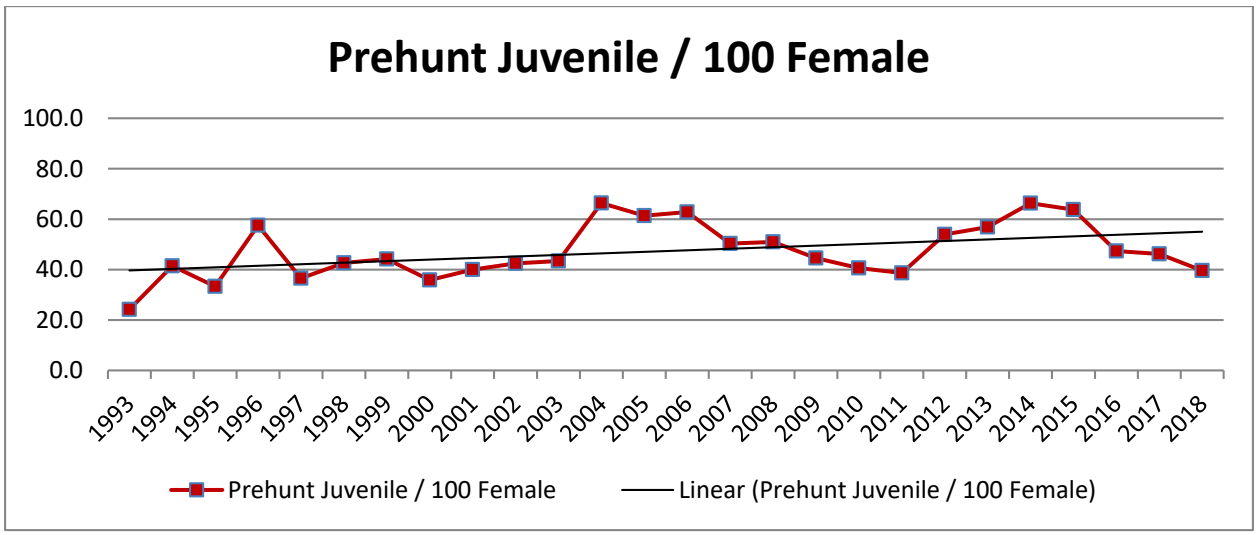
the proposed seasons, the model predicts a slight decline in the post-season population to 5,900 animals after the 2019 season.

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

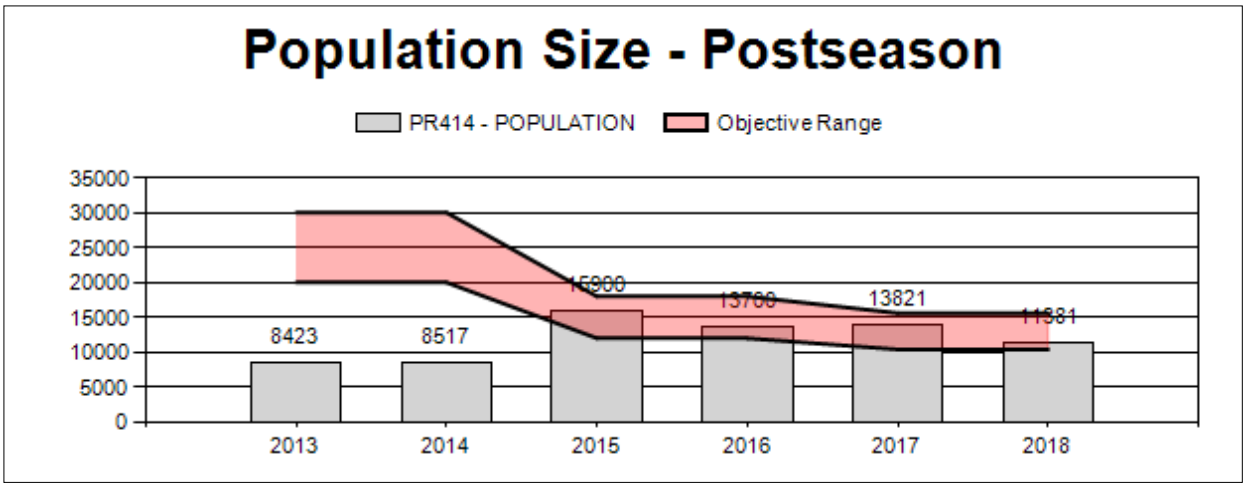
HUNT AREAS: 57-58 | PREPARED BY: PHIL DAMM

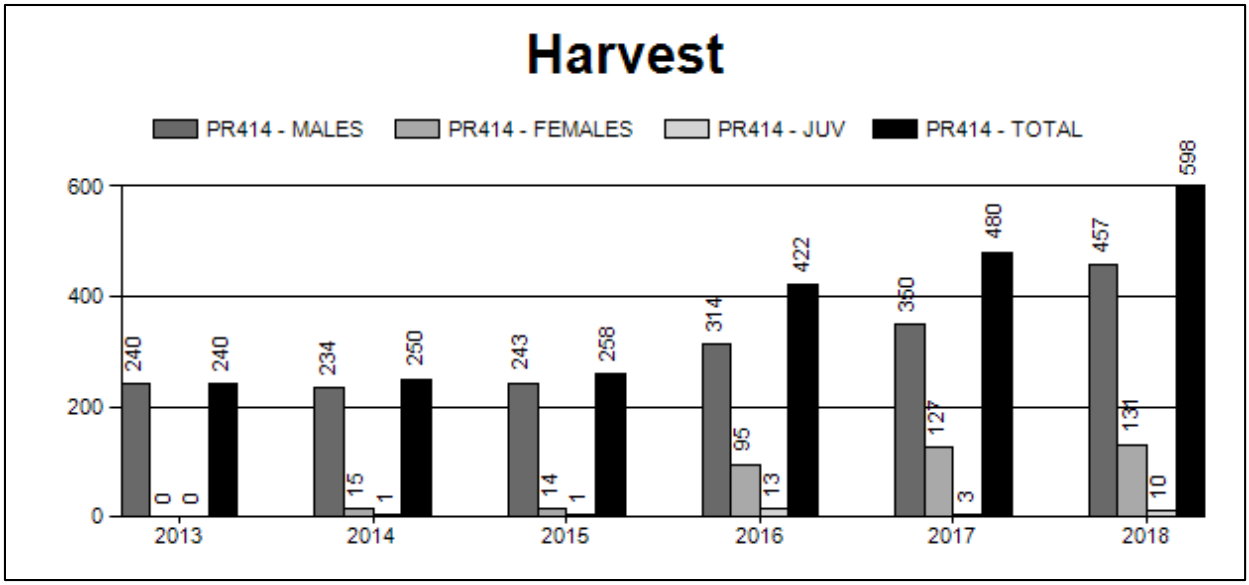
	2013 - 2017 Average	2018	2019 Proposed
Population:	12,072	11,381	12,000
Harvest:	330	598	600
Hunters:	338	607	600
Hunter Success:	98%	99%	100%
Active Licenses:	360	656	600
Active License Success:	92%	91%	100%
Recreation Days:	1,234	2,182	2,200
Days Per Animal:	3.7	3.6	3.7
Males per 100 Females	55	60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

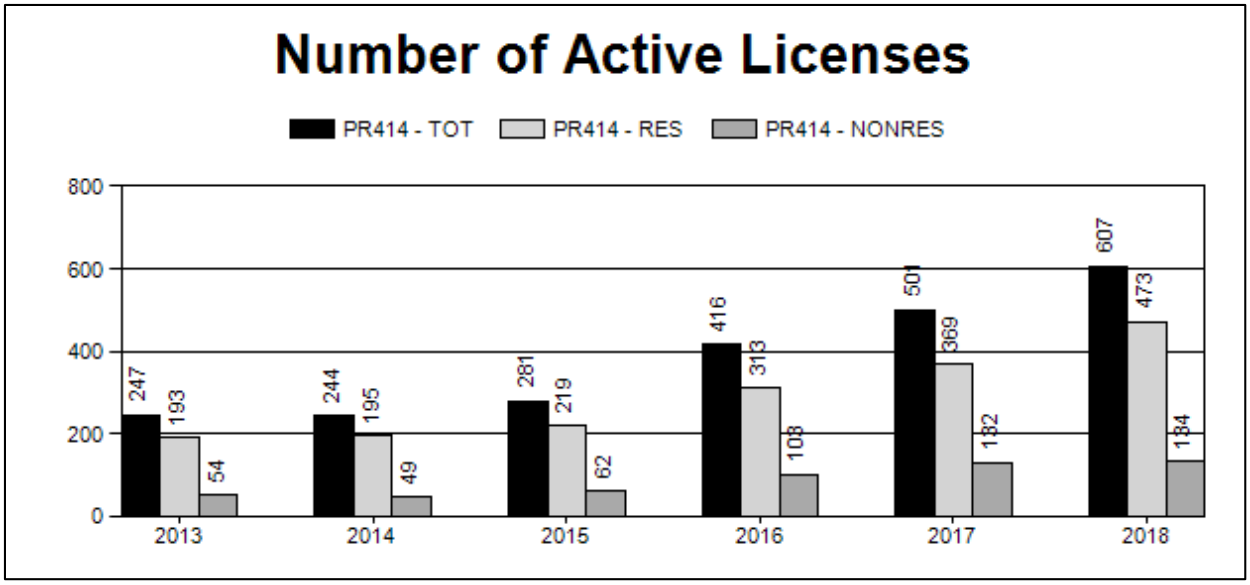
Population Objective (± 20%) :	13000 (10400 - 15600)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-12.5%
Number of years population has been + or - objective in recent trend:	0
Model Date:	3/6/2019

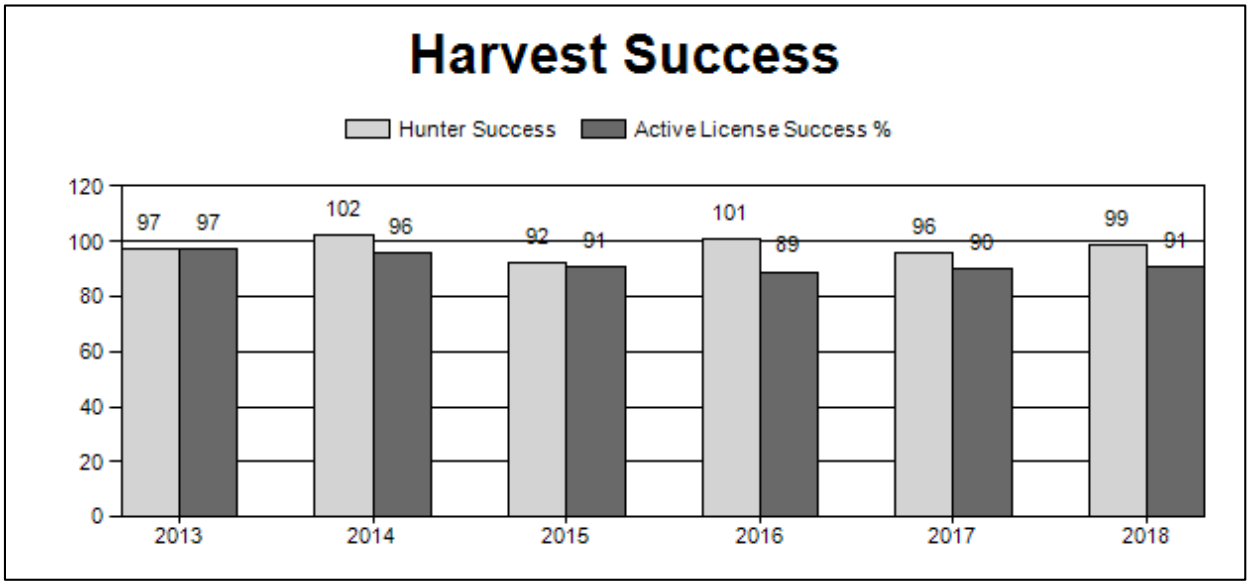
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

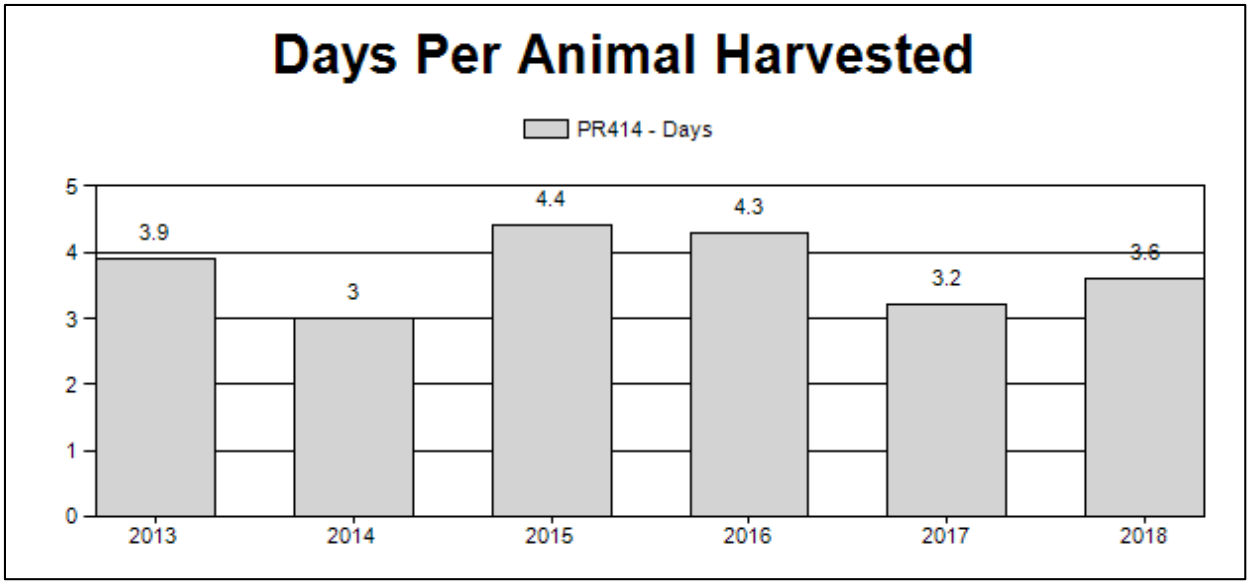
	JCR Year	Proposed
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Total:	0%	0%
Proposed change in post-season population:	10%	10%

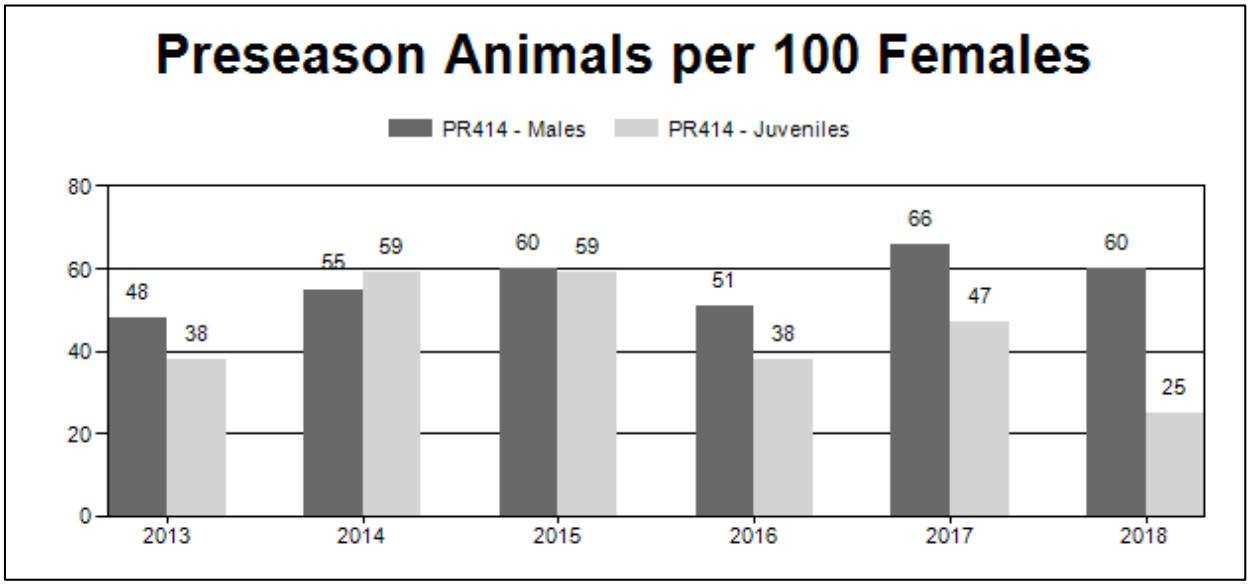

Population Size - Postseason
PR414 - POPULATION
Objective Range
35000
30000
25000
20000
15000
10000
5000
0
8423
8517
15900
13760
13821
11581
2013
2014
2015
2016
2017
2018


Harvest
PR414 - MALES
PR414 - FEMALES
PR414 - JUV
PR414 - TOTAL
600
400
200
0
240
0
0
240
234
15
1
250
243
14
1
258
314
95
13
422
350
127
3
480
457
131
10
598
2013
2014
2015
2016
2017
2018


Number of Active Licenses
PR414 - TOT
PR414 - RES
PR414 - NONRES
800
600
400
200
0
247
193
54
244
195
49
281
219
62
416
313
108
501
369
182
607
473
184
2013
2014
2015
2016
2017
2018


Harvest Success
Hunter Success
Active License Success %
120
100
80
60
40
20
0
97
97
102
96
92
91
101
89
96
90
99
91
2013
2014
2015
2016
2017
2018





2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR414 - BITTER CREEK

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	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
Herd Unit Total	**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.

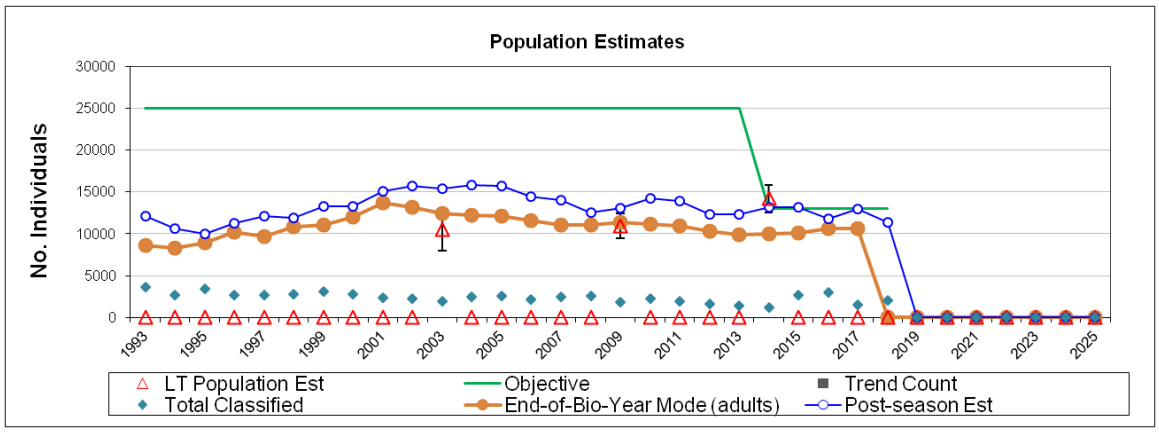
The current population model estimates the 2018 post season population to be around 11,381 pronghorn. Despite the low AICc value of the constant juvenile, constant adult survival model, it is unrealistic to assume that juvenile survival will remain constant in light of both drought and/or severe winter 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

	2013 - 2017 Average	2018	2019 Proposed
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

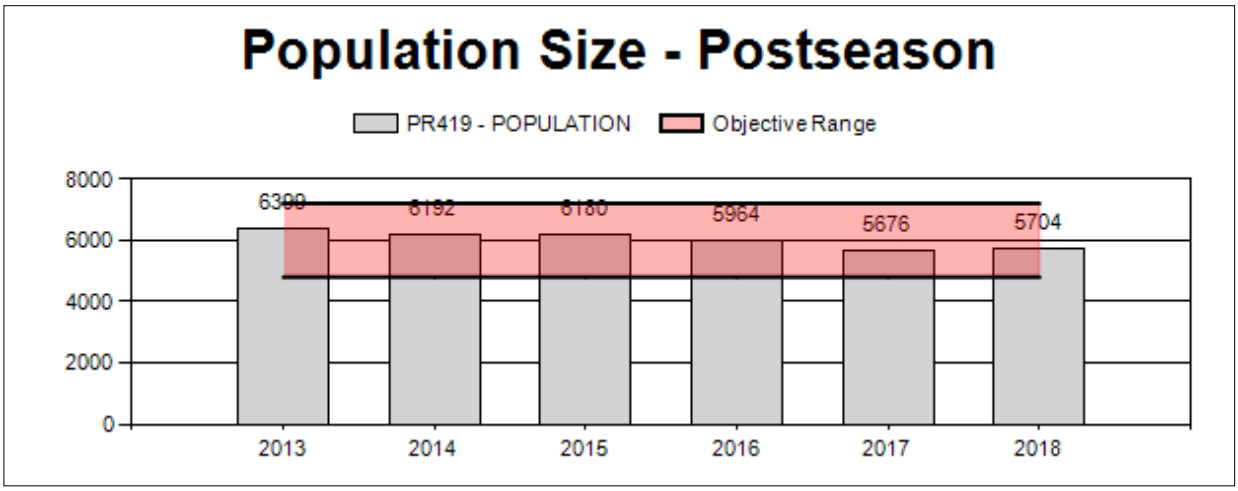
Percent population is above (+) or below (-) objective: -4.9%

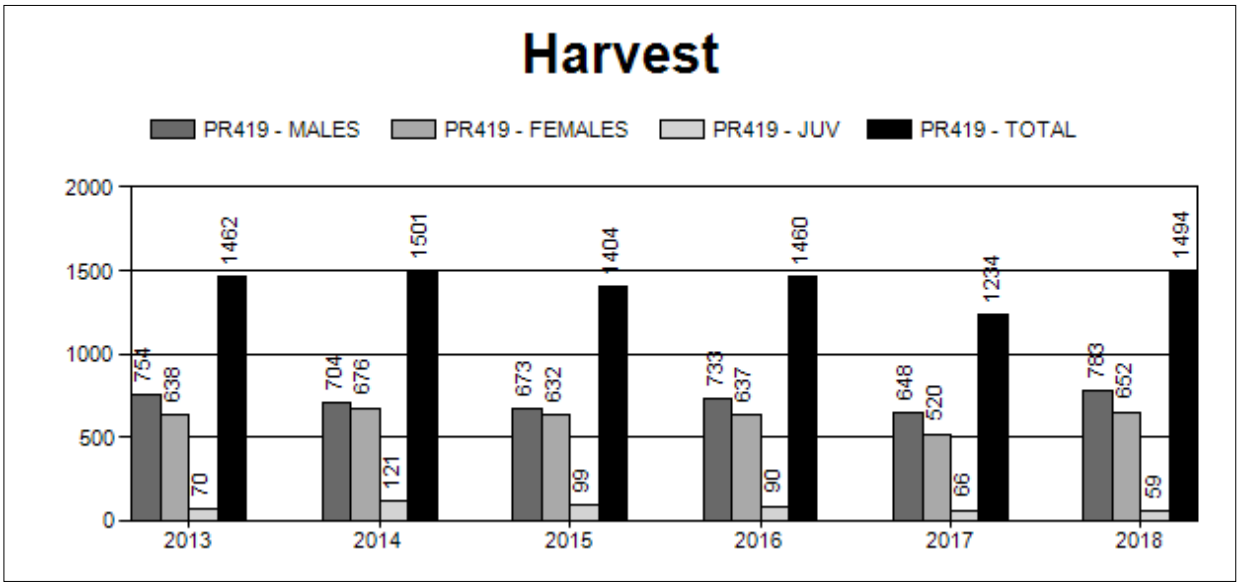
Number of years population has been + or - objective in recent trend: 7

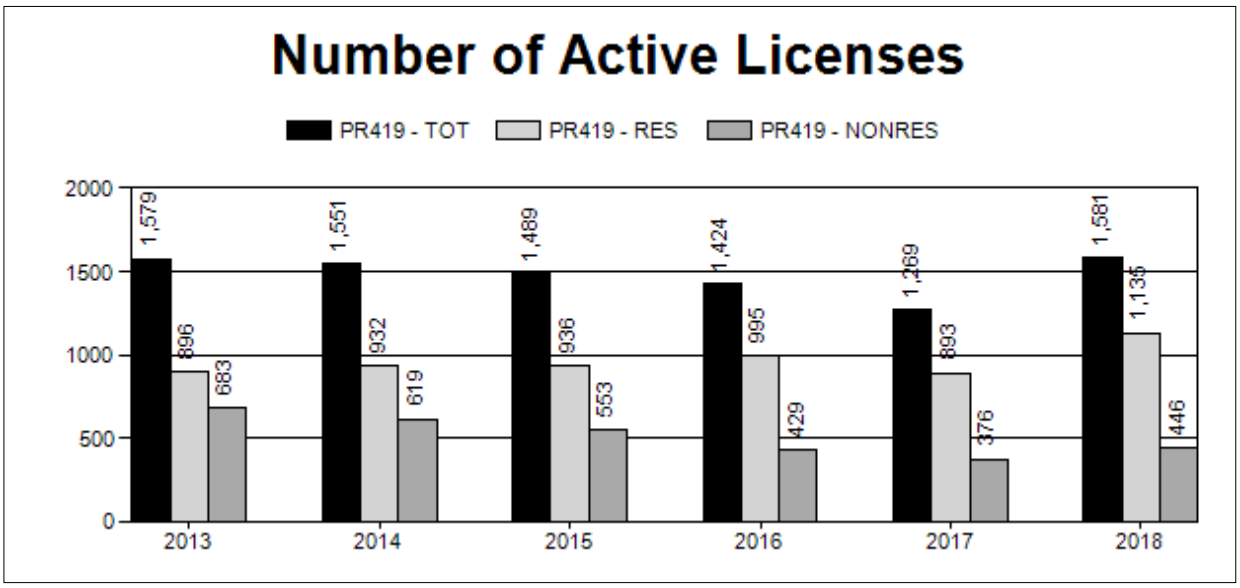
Model Date: 02/18/2019

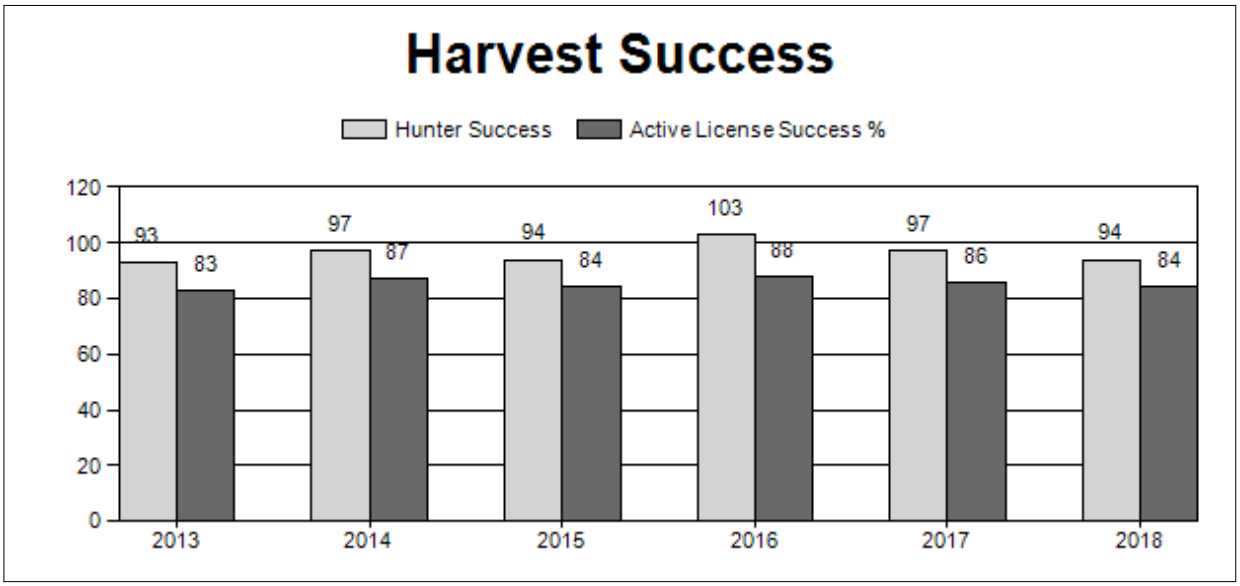
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

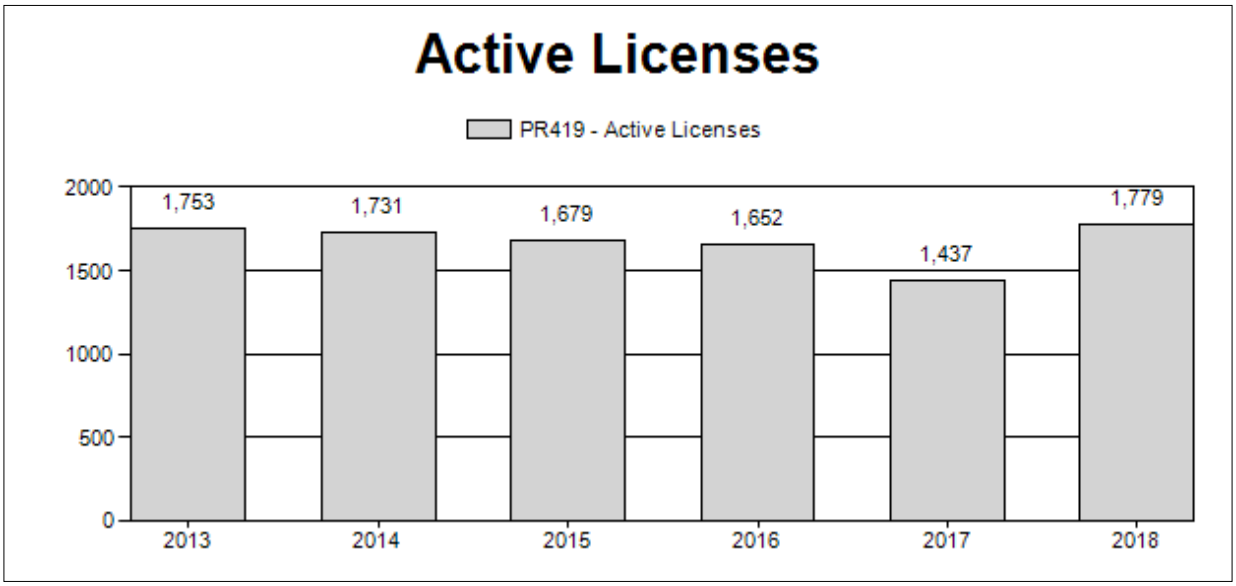
	JCR Year	Proposed
Females ≥ 1 year old:	10.1%	10.9%
Males ≥ 1 year old:	26.0%	26.4%
Total:	12.9%	12.3%
Proposed change in post-season population:	-3.6%	+1.1%

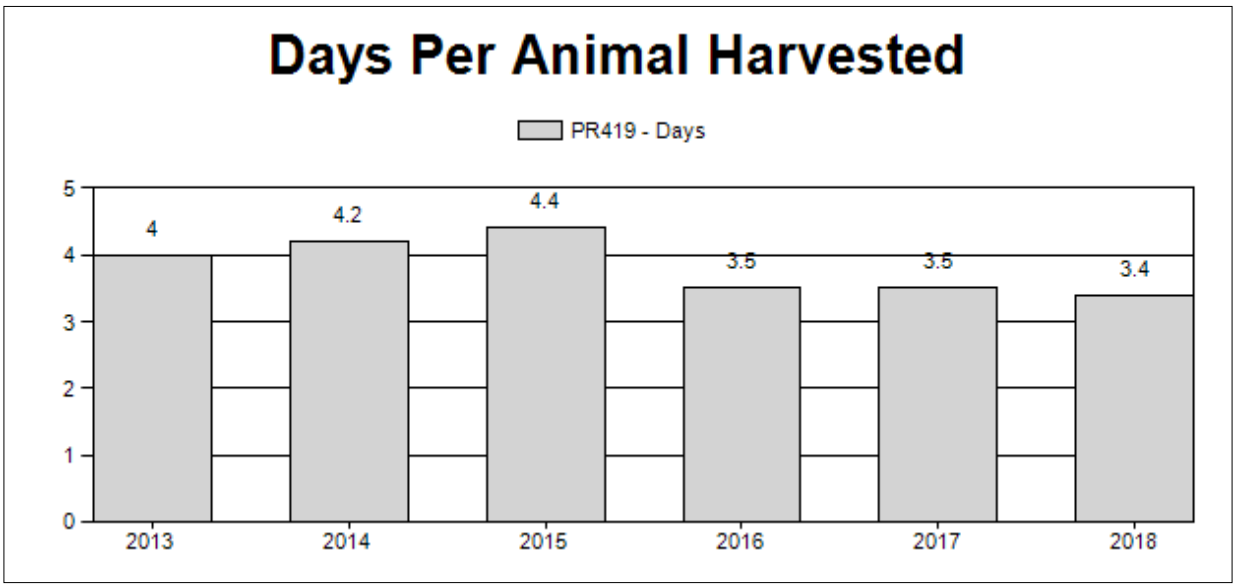


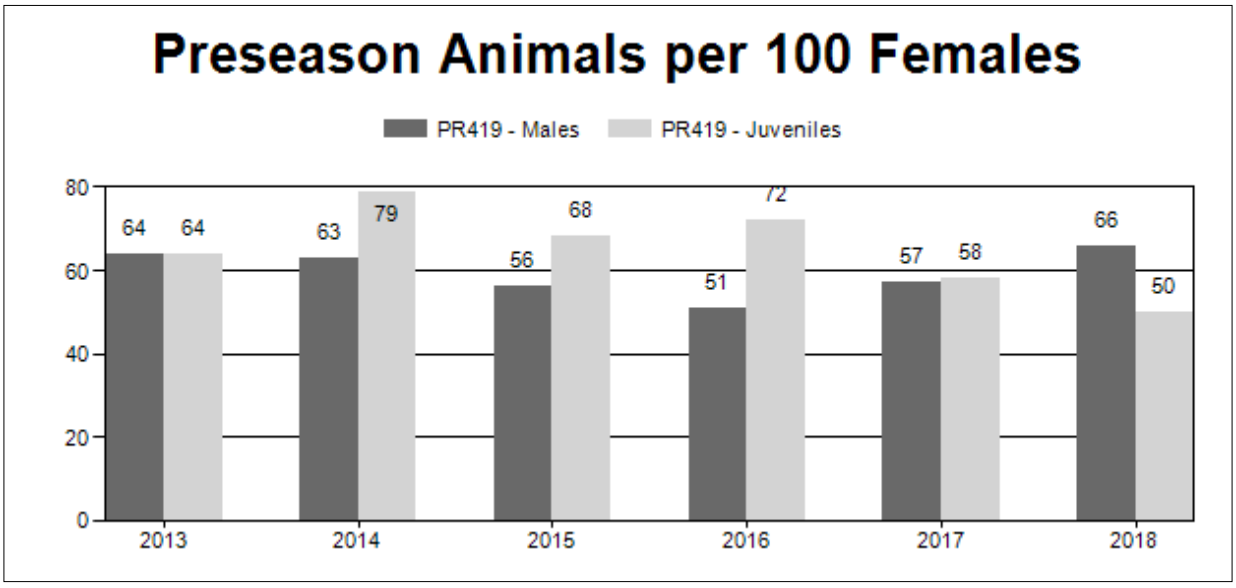

Harvest
PR419 - MALES
PR419 - FEMALES
PR419 - JUV
PR419 - TOTAL
2000
1500
1000
500
0
754
638
70
1462
704
676
121
1501
673
632
99
1404
733
637
90
1460
648
520
66
1234
783
652
59
1494
2013
2014
2015
2016
2017
2018


Number of Active Licenses
PR419 - TOT
PR419 - RES
PR419 - NONRES
2000
1500
1000
500
0
1,579
896
683
1,551
932
619
1,489
936
553
1,424
995
429
1,269
893
376
1,581
1,135
446
2013
2014
2015
2016
2017
2018


Harvest Success
Hunter Success
Active License Success %
120
100
80
60
40
20
0
93
83
97
87
94
84
103
88
97
86
94
84
2013
2014
2015
2016
2017
2018


Active Licenses
PR419 - Active Licenses
2000
1500
1000
500
0
1,753
1,731
1,679
1,652
1,437
1,779
2013
2014
2015
2016
2017
2018


Days Per Animal Harvested
PR419 - Days
5
4
3
2
1
0
4
4.2
4.4
3.5
3.5
3.4
2013
2014
2015
2016
2017
2018


Preseason Animals per 100 Females
PR419 - Males
PR419 - Juveniles
80
60
40
20
0
64
64
63
79
56
68
51
72
57
58
66
50
2013
2014
2015
2016
2017
2018

2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR419 - CARTER LEASE

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	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 Opens	Season Dates Closes	Quota	License	Limitations
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, 98, 100	Archery	Aug. 15	Sept. 9	Limited quota	Refer to Section 2 of this chapter	

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

HERD: PR438 - BAGGS

HUNT AREAS: 53, 55 PREPARED BY: PHIL DAMM

	2013 - 2017 Average	2018	2019 Proposed
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

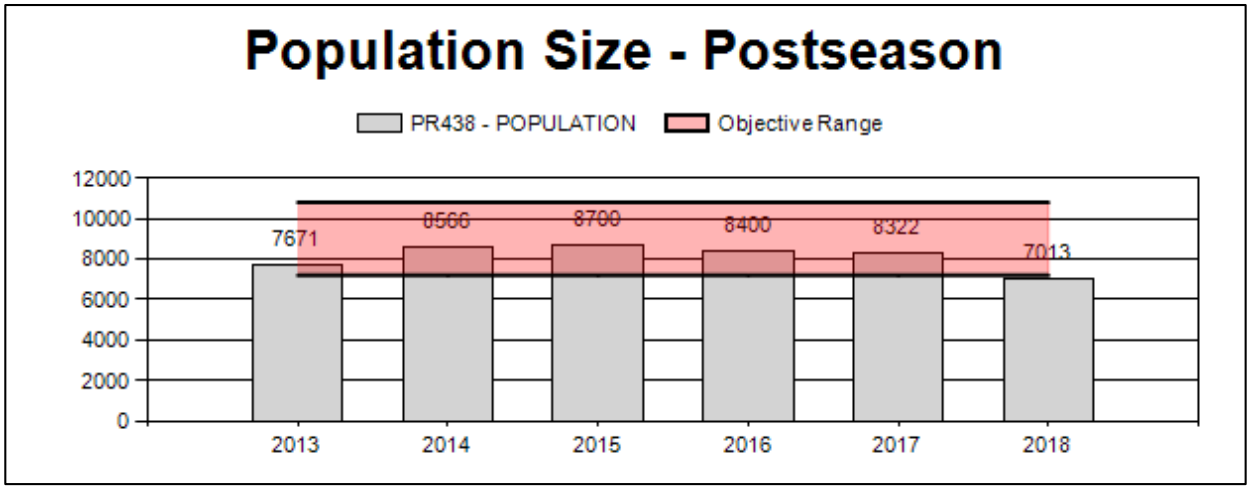
Percent population is above (+) or below (-) objective: -22.1%

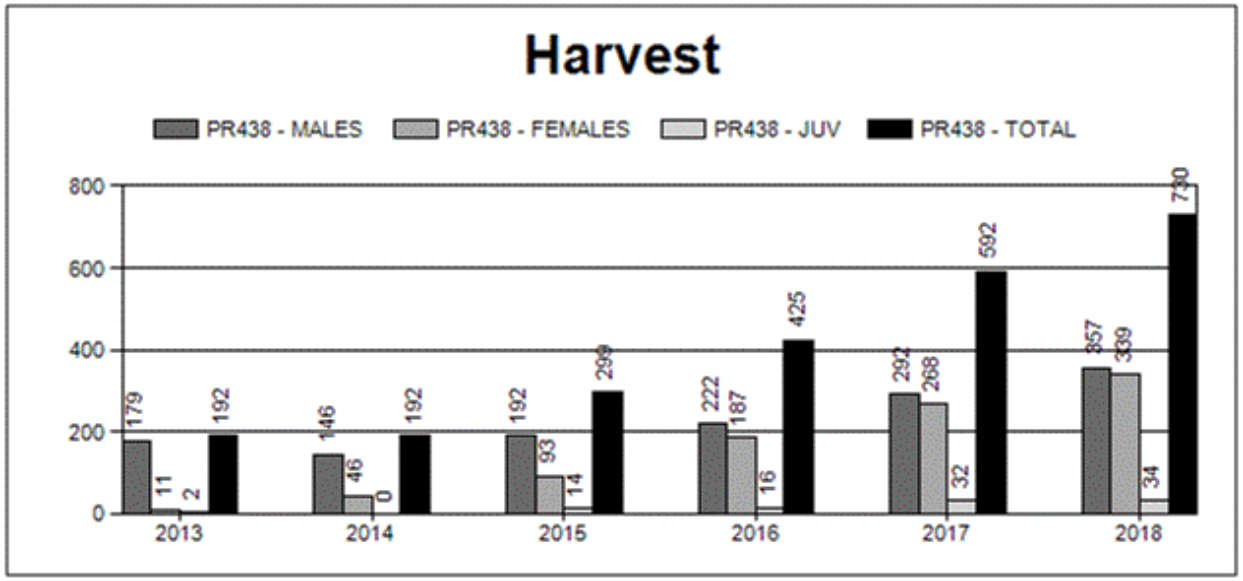
Number of years population has been + or - objective in recent trend: 1

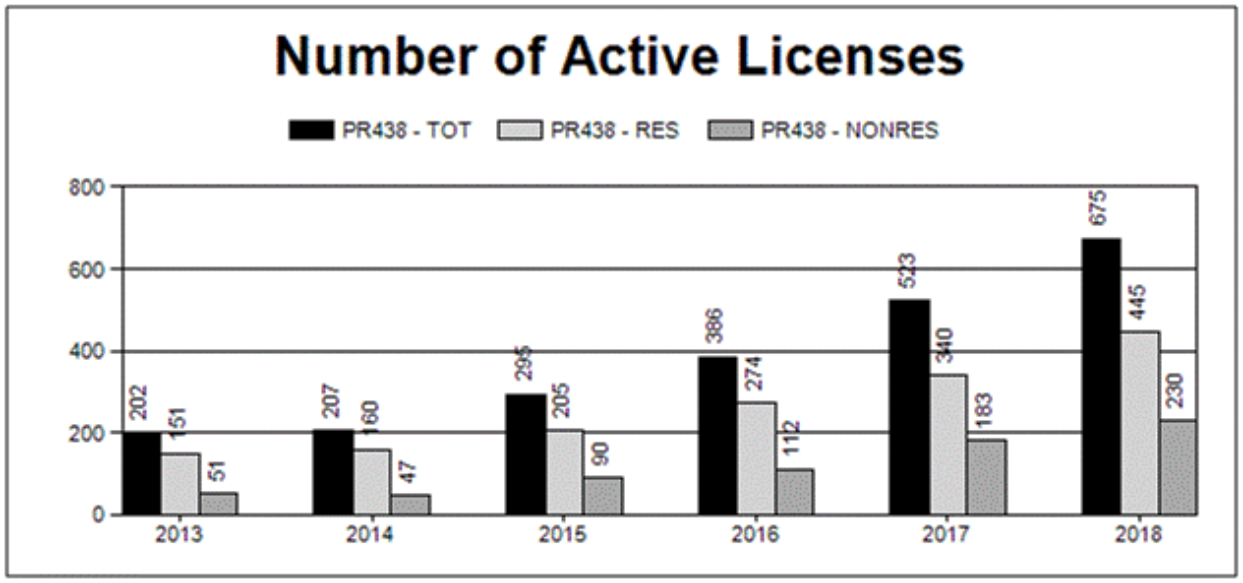
Model Date: 3/6/2019

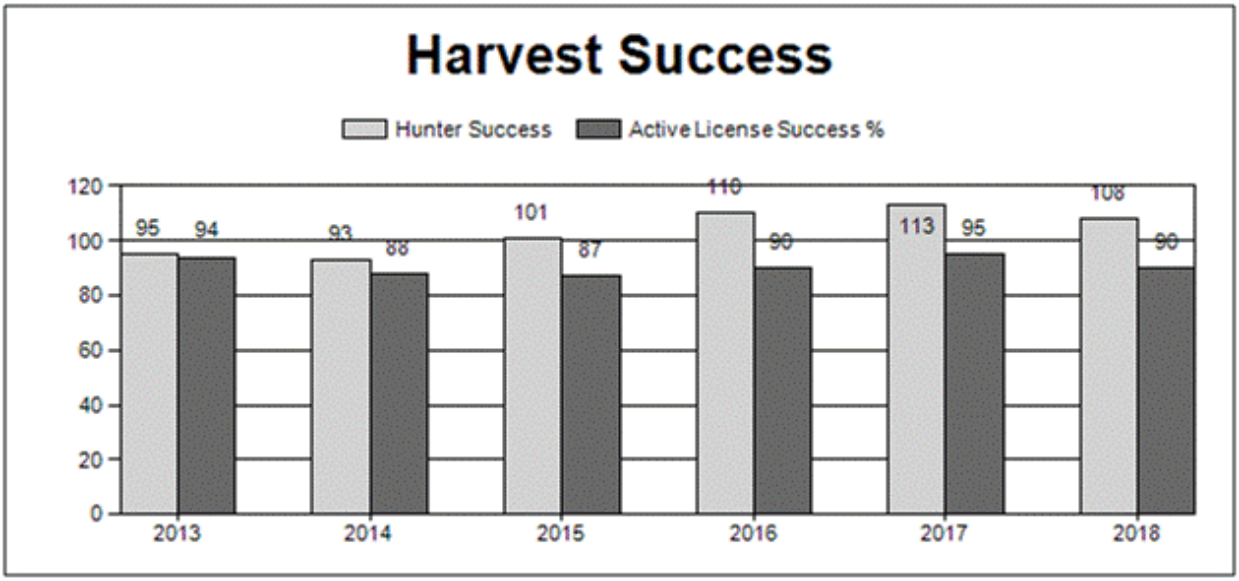
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

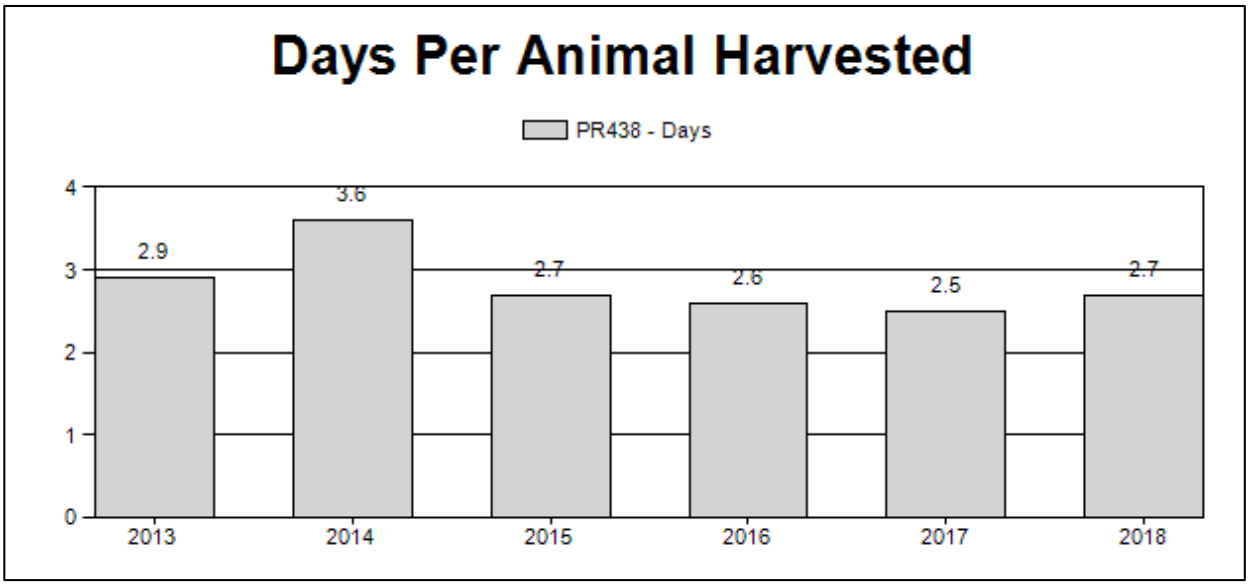
	JCR Year	Proposed
Females ≥ 1 year old:	+2.5%	0%
Males ≥ 1 year old:	+3.5%	0%
Total:	-1.8%	0%
Proposed change in post-season population:	-3.8%	0%

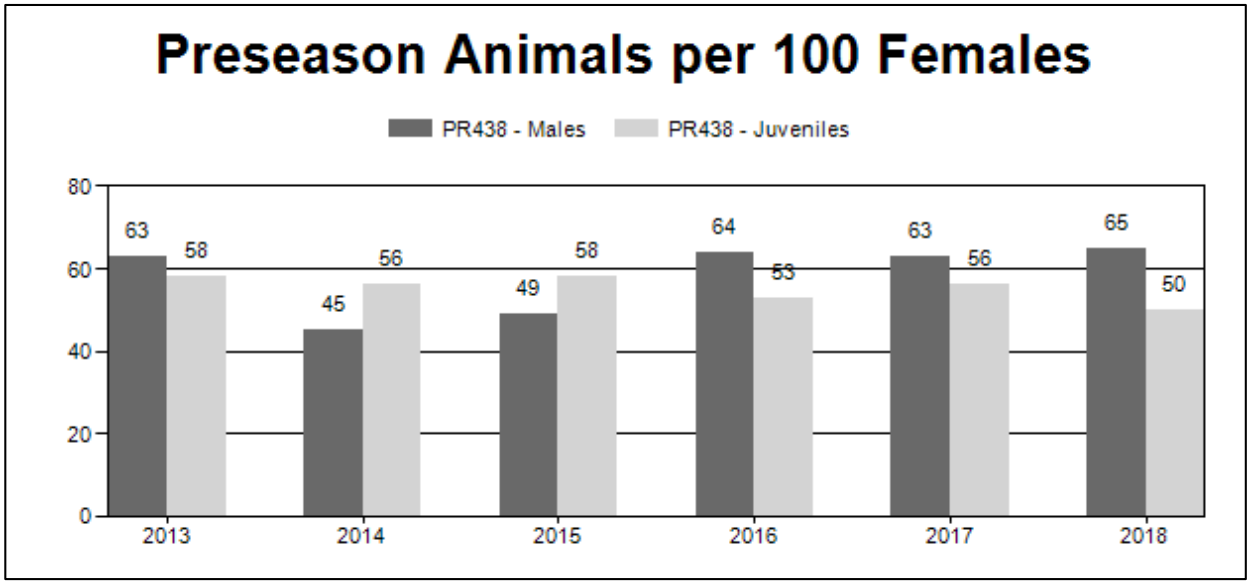



Harvest
PR438 - MALES
PR438 - FEMALES
PR438 - JUV
PR438 - TOTAL
800
600
400
200
0
179
11
2
192
146
46
0
192
192
93
14
299
222
187
16
425
292
268
32
592
357
339
34
730
2013
2014
2015
2016
2017
2018


Number of Active Licenses
PR438 - TOT
PR438 - RES
PR438 - NONRES
800
600
400
200
0
202
151
51
207
160
47
295
205
90
386
274
112
523
340
183
675
445
230
2013
2014
2015
2016
2017
2018


Harvest Success
Hunter Success
Active License Success %
120
100
80
60
40
20
0
95
94
93
88
101
87
110
90
113
95
108
90
2013
2014
2015
2016
2017
2018


Days Per Animal Harvested
PR438 - Days
4
3
2
1
0
2.9
3.6
2.7
2.6
2.5
2.7
2013
2014
2015
2016
2017
2018



2013 - 2018 Preseason Classification Summary

for Pronghorn Herd PR438 - BAGGS

		MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
Year	Pre Pop	Ylg	Adult	Total	%	Total	%	Total	%	Tot Cls	Cls Obj	Yling	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** HERD UNIT : **Baggs (438)**
HUNT AREAS: **53, 55**

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
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 is 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.