2016 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2016 - 5/31/2017

HERD: PR401 - SUBLETTE

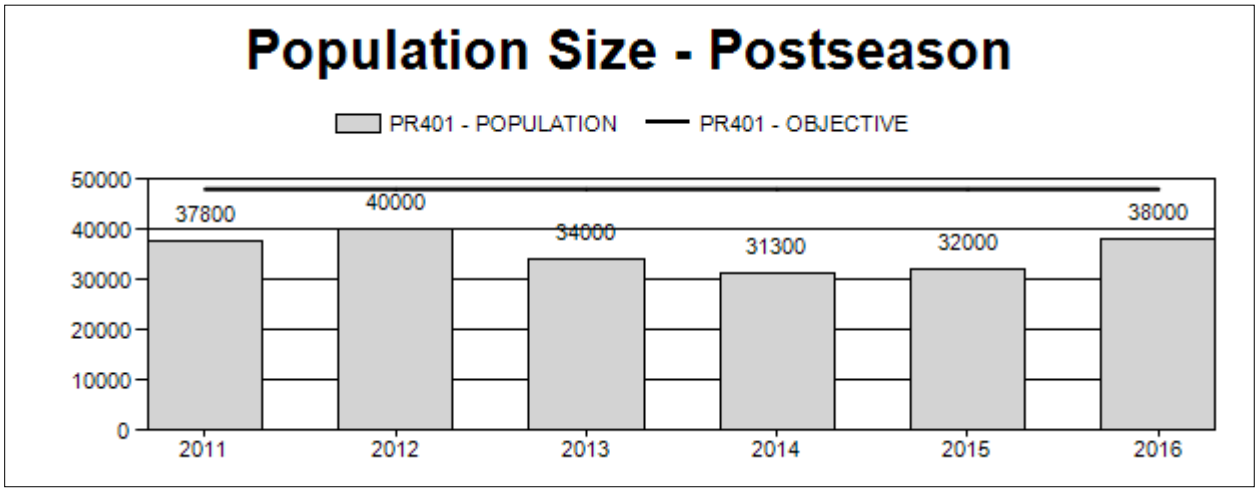
HUNT AREAS: 85-93, 96, 107
PREPARED BY: PATRICK BURKE

	2011 - 2015 Average	2016	2017 Proposed
Population:	35,020	38,000	30,000
Harvest:	3,844	3,357	2,800
Hunters:	3,992	3,495	3,000
Hunter Success:	96%	96%	93 %
Active Licenses:	4,531	3,911	3,200
Active License Success:	85%	86%	88 %
Recreation Days:	14,665	10,971	10,000
Days Per Animal:	3.8	3.3	3.6
Males per 100 Females	54	57	
Juveniles per 100 Females	67	57	

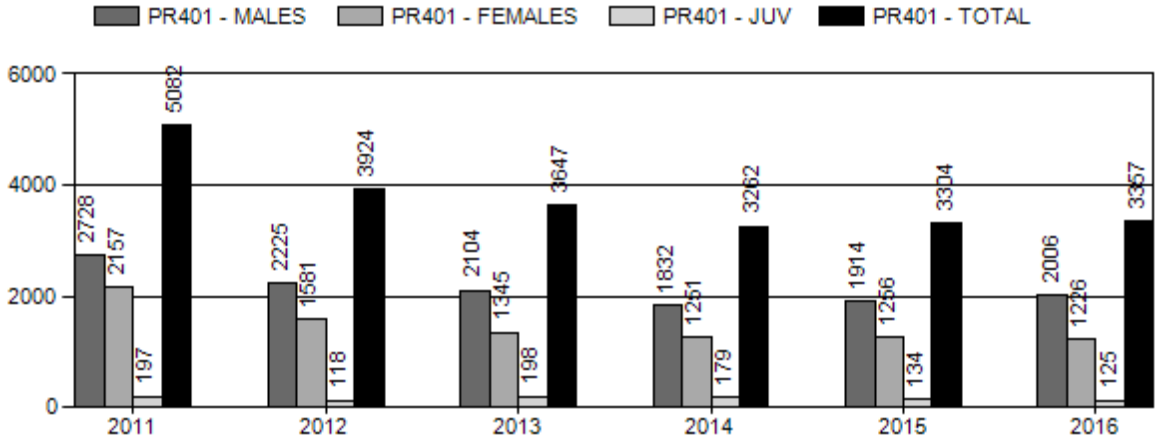
Population Objective (± 20%):	48000 (38400 - 57600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-20.8%
Number of years population has been + or - objective in recent trend:	6
Model Date:	2/15/2017

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

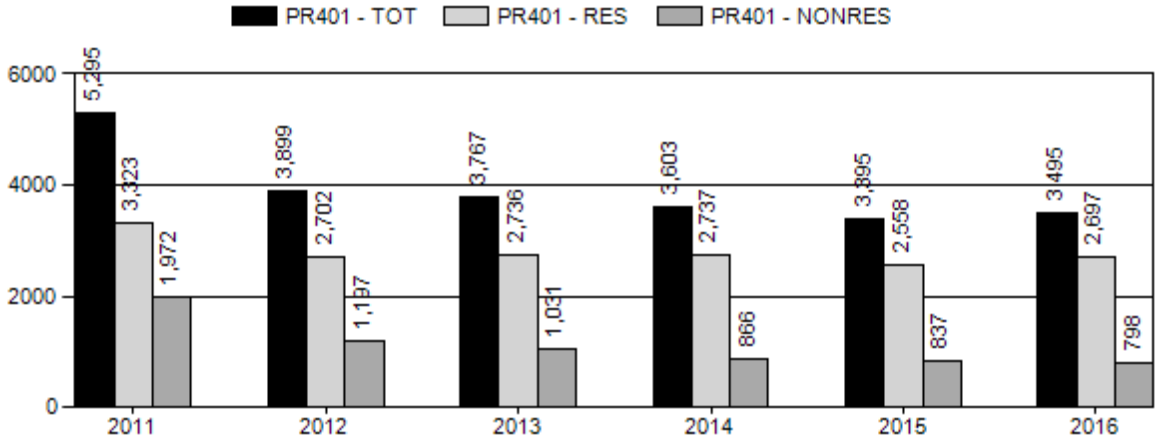
	JCR Year	Proposed
Females ≥ 1 year old:	9%	9%
Males ≥ 1 year old:	25%	27%
Total:	10%	9%
Proposed change in post-season population:	0%	-20%



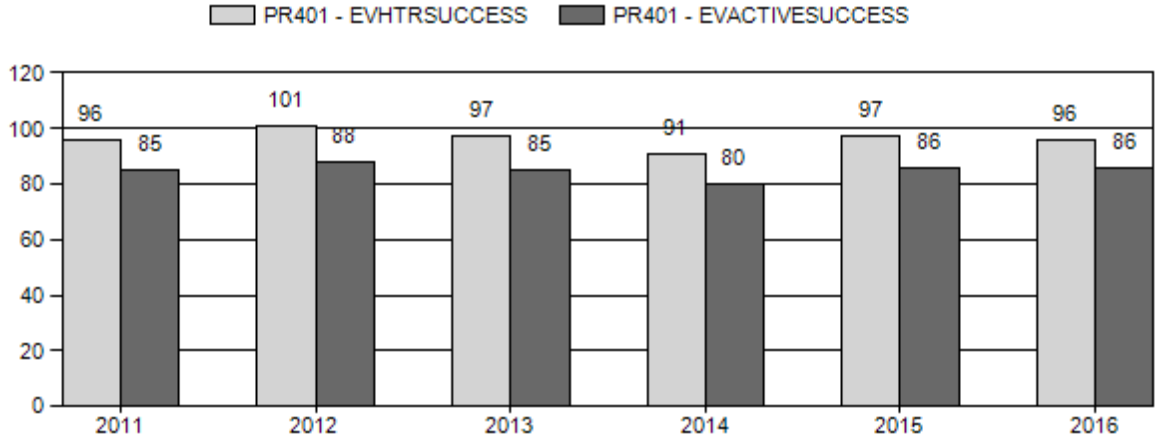
Harvest



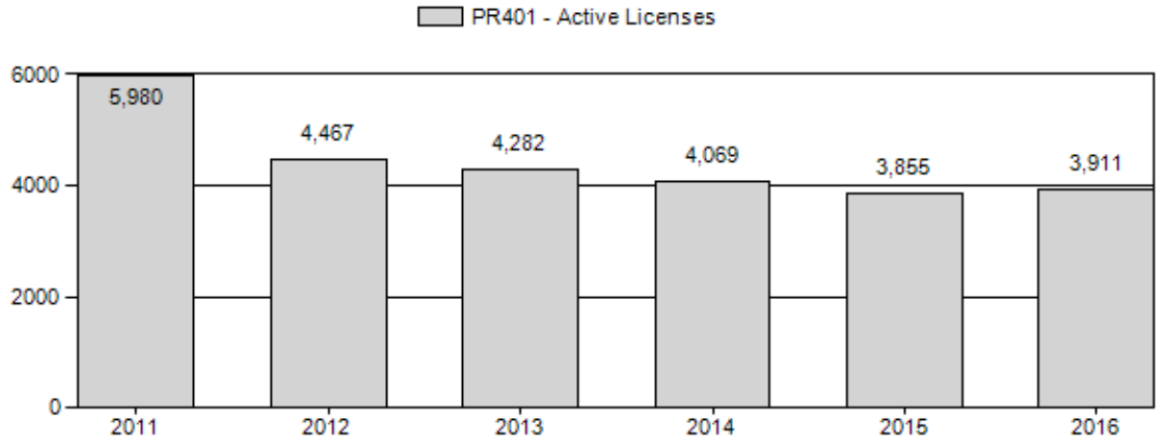
Number of Active Licenses



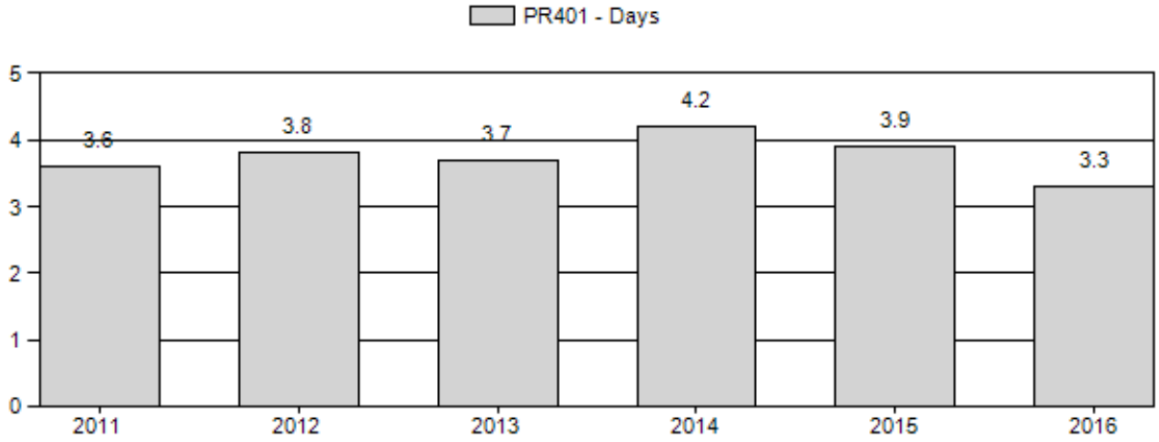
Harvest Success



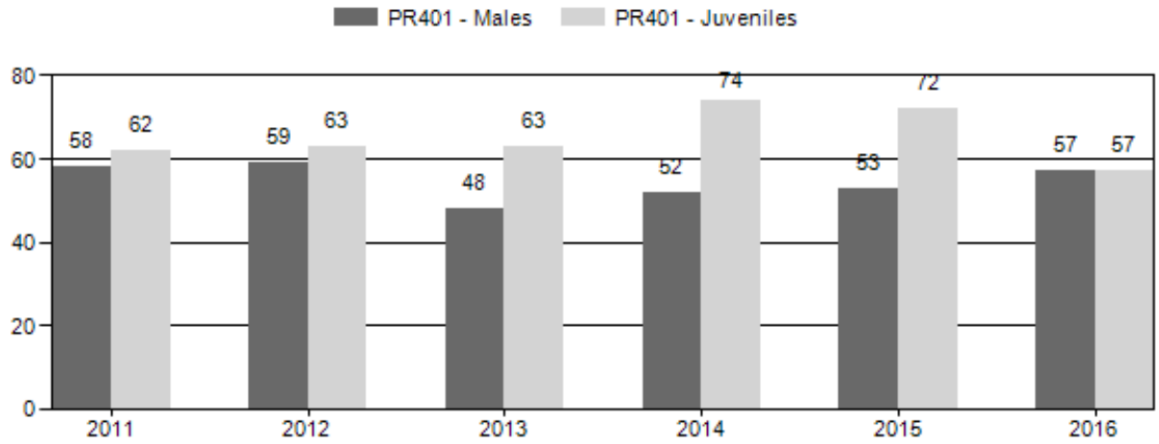
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 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	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	43,400	684	2,043	2,727	26%	4,713	45%	2,936	28%	10,376	2,163	15	43	58	± 2	62	± 2	39
2012	45,000	646	1,967	2,613	27%	4,439	45%	2,800	28%	9,852	1,986	15	44	59	± 2	63	± 2	40
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 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. 10	Nov. 15	50	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	125	Limited quota	Any antelope
	7	Sept. 10	Oct. 31	25	Limited quota	Doe or fawn valid within the Farson-Eden Irrigation Project
93	1	Sept. 10	Oct. 31	325	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
96	1	Sept. 10	Oct. 31	50	Limited quota	Any antelope
	7	Sept. 10	Oct. 31	25	Limited quota	Doe or fawn valid within the Farson-Eden Irrigation Project; 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	50	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 2016
87	1	-25
	2	-25
	6	-50
	7	-50
88	1	-25
	6	-25

89	1	-25
	6	-50
	7	+50
90	2	-150
	6	-75
91	1	-75
	6	-100
	7	-25
92	7	-25
93	1	-175
	7	-100
	8	-100
96	1	+50
	7	+25
101	1	+100
107	6	-25
Herd Unit Total	**1**	**-175**
	2	**-175**
	6	**-325**
	7	**-125**
	8	**-100**

Management Evaluation
Current Management Objective: 48,000
Management Strategy: Recreational
2016 Postseason Population Estimate: ~38,000
2017 Projected Population Estimate: ~31,000

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 2016 post-season modeled population estimate for the Sublette pronghorn herd is approximately 38,000 pronghorn with a slightly increasing trend. The Sublette herd is one of the larger pronghorn herds in Wyoming, both in numbers 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, with local issues such as damage concerns influencing overall herd management and ability to achieve population objectives. This herd overlaps a wide variety of land ownerships from National Park Service and US Forrest Service lands to Bureau of Land Management administered lands and a myriad of 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, including regular (every 3-4 years) severe winters with deep snow conditions and bitterly cold temperatures. These severe winters have been a major driving force for this herd. This herd experienced above average winter mortality during the 2010-2011 winter, and it is expected that the herd will again suffer higher than normal winter mortality during the 2016-2017 winter. Losses this winter resulted in a downward turn, and fawn production may also be impacted this year due to doe condition.

Weather

Harsher than normal winter conditions during the 2010-2011 winter resulted in higher than typical over winter mortality in this herd. Winters since then have been, by comparison, significantly milder than the 2010-2011 winter. The 2016-2017 winter however, is again looking like it will result in increased winter mortality in this herd. Conditions during January 2017 were extremely cold with significant snowfall events occurring over much of the winter ranges used by pronghorn in this herd. These severe conditions during January caused many pronghorn to move in search of more favorable conditions, resulting in them ending up in highway and interstate right of ways, and on railroad tracks where many were killed by vehicle collisions. Fortunately, temperatures moderated in early February, which allowed for some snow melt which again exposed some shrubs on the winter ranges. However, late February saw the return of deep snow conditions, which will further stress pronghorn in this herd. While the full impacts of this winter will not be known until next year, it is safe to assume that this herd will again experience increased winter mortality this year.

Snowfall was in excess of 200% of normal over much of this herd unit, and some areas exceeded 50^{o}F below zero. Crusting and drifting occurred, and pronghorn mortality was influenced by fencing and the inability to reach winter ranges. The most crucial of winter ranges north of Green River and Rock Springs received the highest recorded snowfall in history.

While this winter resulted in direct and indirect pronghorn losses (through likely reduced fawn production) it is not all bad. Recent summers have had ample, above average moisture and this winter only bolsters that. This should result in imp[roved habitat conditions across the herd unit.

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 and 2016 did result in better plant growth than had been seen in the previous three years.

Field Data

Pre-season ground classifications conducted in August of 2016 resulted in a total of 11,334 pronghorn being classified across the herd unit. That classification sample was made up of 5,295 does, 3,006 fawns, 1,983 two year old or older bucks, and 1,050 yearling bucks. This resulted in observed ratios of 57 fawns per 100 does, and 57 total bucks per 100 does, which included 20 yearling bucks per 100 does. The 2016 classification sample size was up slightly form 2015's sample size of 10,687 pronghorn, but is below the 13,029 pronghorn classified in 2010 when the population was at a larger size before the 2010-2011 winter.

Fawn ratios were less this last summer than expected, given weather conditions. It is likely this "reduction" in fawns was related to the addition of significant numbers of yearling does recruited from the prior year and the fact they do not have fawns (but are considered adults). Prior to the winter, winter losses since 2012 have been very low given mild winters.

Harvest Data

The 2016 hunting season saw a herd unit harvest that was very similar to what was seen during the 2015 season. The total number of pronghorn harvested, herd unit wide, in 2015 was 3,357, which was very close to the 3,304 pronghorn harvested in 2015.

Days per animal harvested declined slightly in 2016 to 3.3 days per harvest, compared to 2015's 3.9 days per animal harvested, which is consistent with an increase in population, all others being equal. The overall success rate in 2016 was 89% for the Type 1 licenses and 82% success for the doe/fawn licenses in the herd unit, which is a slight improvement from the success rates observed in 2015.

It is expected pronghorn hunting will be a little tougher this upcoming seasons with the winter losses we experienced. Hunters are expected to have slightly less success and require a bit more effort to harvest an antelope in 2017.

Population

The model for the Sublette herd does an OK job of tracking observed ratios and line-transect estimates for this large and geographically extensive 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 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 true impacts of this winter are not yet fully known, the conditions that this herd has been experiencing, along with the physical condition of many of the animals that have been struggling through deep snow and cold temperatures this winter will undoubtedly result in some increased losses this winter.

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 7,438) pronghorn. This population estimate agrees well with the previous line-transect survey flown in 2011 and with model predictions.

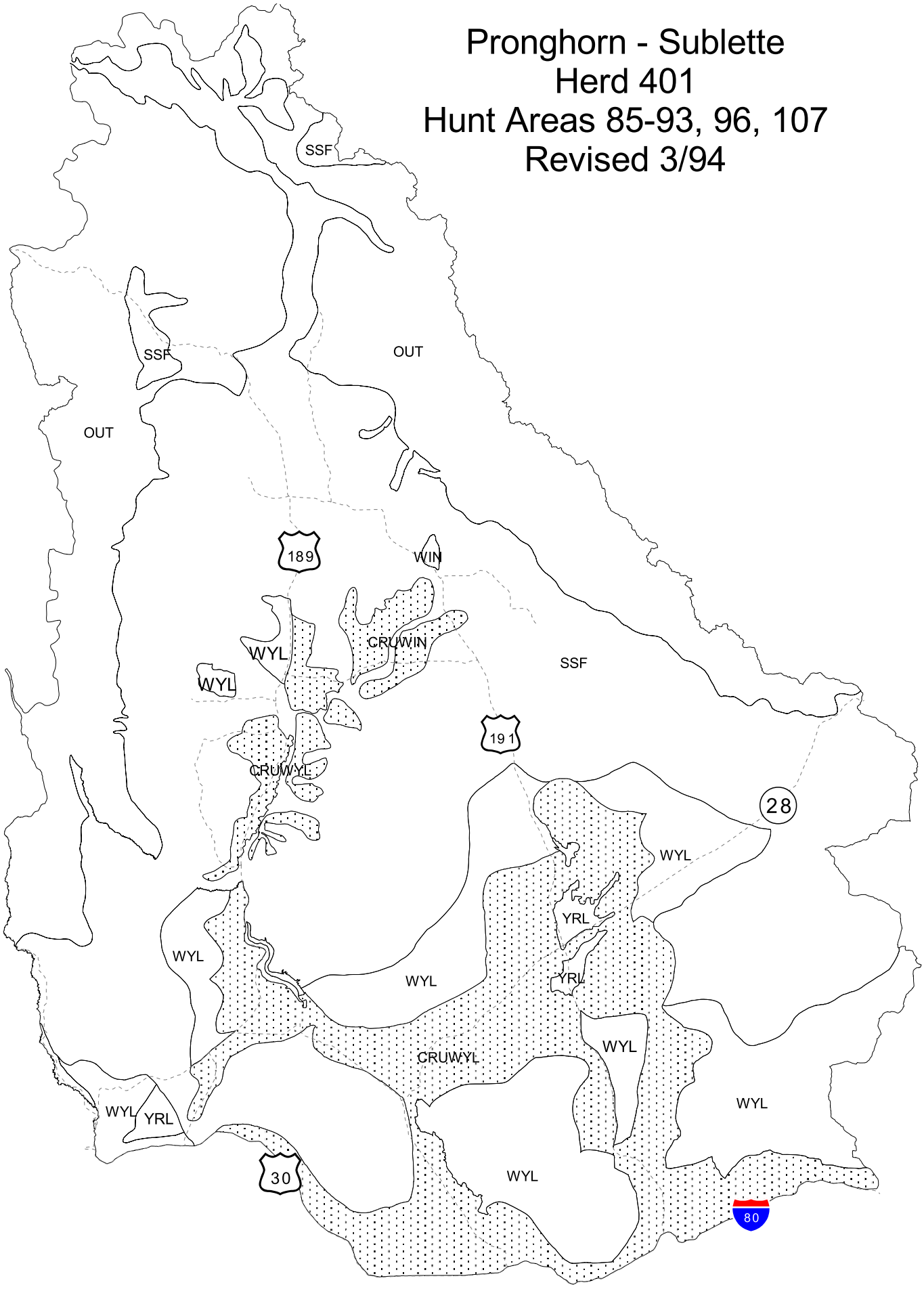
Management Summary

The 2017 hunting season does include several changes from 2016's season offering. First, because the herd has been under objective since the 2010-2011 winter, and because of the, again severe, winter conditions in the Green River Basin this winter; reductions in license numbers are being implemented in many of the hunt areas in the herd unit for the 2017 hunting season. A total of 900 fewer licenses are being issued for the 2017 hunting season than were offered during the 2016 season. Those reductions are in the Type 1, 2, 6, 8, and 0 licenses throughout the herd.

The second major change for the 2017 season is some hunt area boundary changes involving Hunt Areas 90, 93, 96, and the creation of a new hunt area, Hunt Area 101. These changes were made to simplify regulations, eliminating the need for individual hunt areas to have four or five license types in them to direct hunters to areas with higher pronghorn densities, while protecting areas where pronghorn numbers are lower than desired. The changes also eliminate the need to hunt some areas in combination because densities were so low in one area that there was concern over restricting hunters to harvest animals in those areas. The first change was to split HA90 on US 191, with the portion east of the highway remaining HA90, and making the western portion, along with the portion of HA96 north of WY 28 into a new hunt area, HA101. The second change was to split HA93 along WY 240 north of Opal, with the area west of that highway remaining HA93, and combining the area east of that highway with HA96. These changes will result in more consistent pronghorn densities in the hunt areas and will simplify the regulations for the public.

The 2017 seasons should result in approximately 2,600 pronghorn being harvested, with 1,700 bucks, 800 does and 75 fawn projected to be harvested; assuming similar success rates to previous seasons.

Pronghorn - Sublette
Herd 401
Hunt Areas 85-93, 96, 107
Revised 3/94



2016 - JCR Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2016 - 5/31/2017

HERD: PR411 - UINTA-CEDAR MOUNTAIN

HUNT AREAS: 95, 99
PREPARED BY: JEFF SHORT

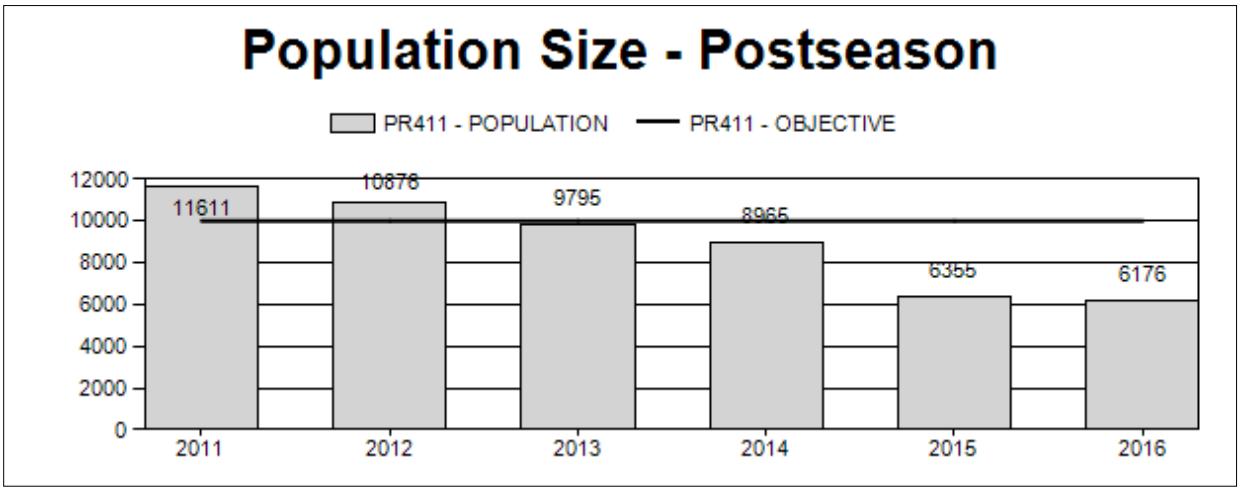
	2011 - 2015 Average	2016	2017 Proposed
Population:	9,520	6,176	6,230
Harvest:	877	882	840
Hunters:	929	893	900
Hunter Success:	94%	99%	93%
Active Licenses:	1,022	1,002	1,000
Active License Success:	86%	88%	84%
Recreation Days:	3,866	3,721	3,700
Days Per Animal:	4.4	4.2	4.4
Males per 100 Females	63	55	
Juveniles per 100 Females	61	56	

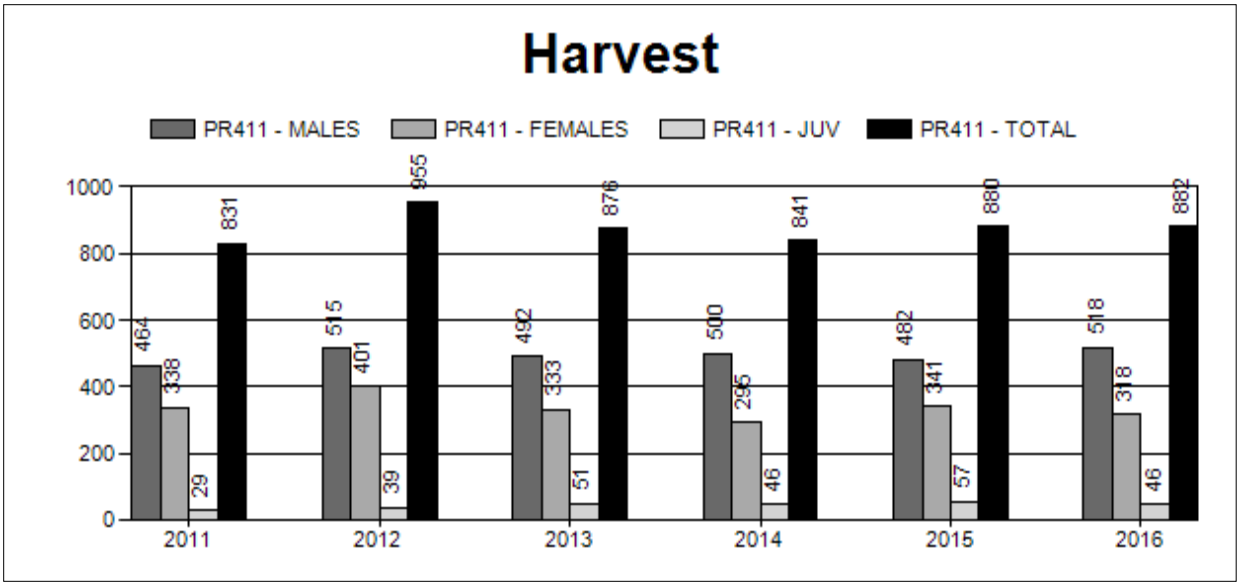
Population Objective (± 20%) : 10000 (8000 - 12000)

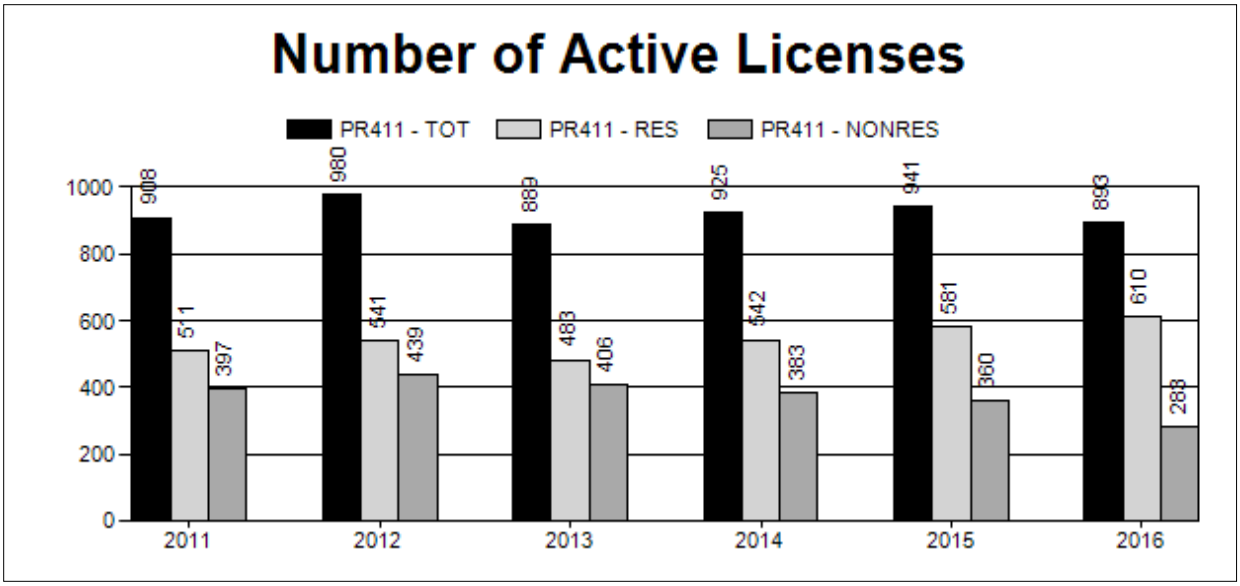
Management Strategy: Recreational
Percent population is above (+) or below (-) objective: -38.2%
Number of years population has been + or - objective in recent trend: 4
Model Date: 02/14/2017

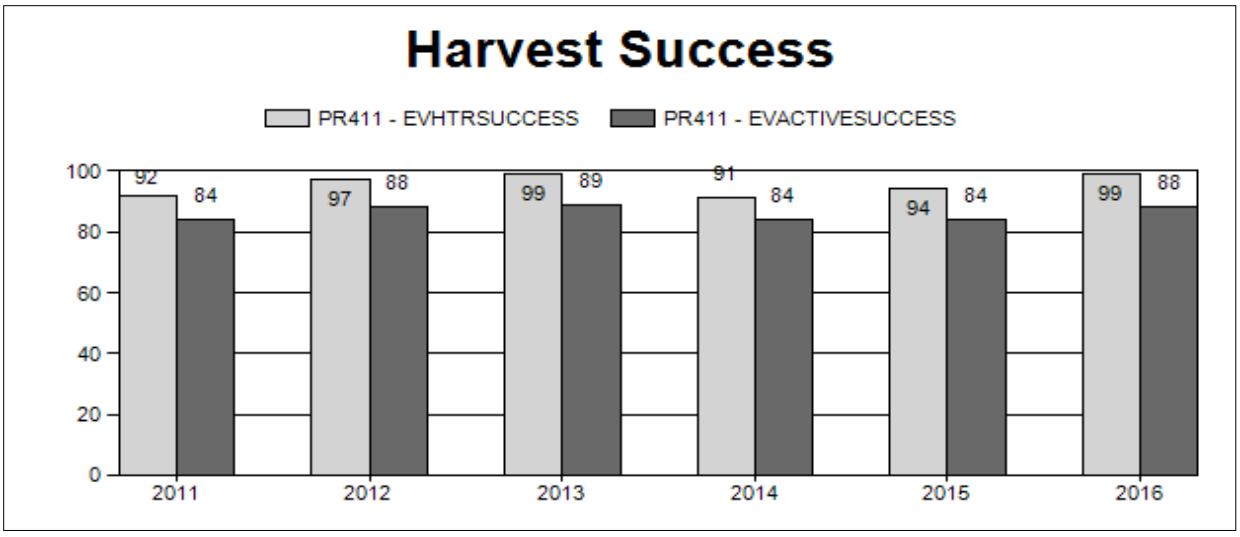
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	JCR Year	Proposed
Females ≥ 1 year old:	9.3%	8.8%
Males ≥ 1 year old:	29.1%	28.8%
Total:	12.3%	11.7%
Proposed change in post-season population:	0.12%	.08%

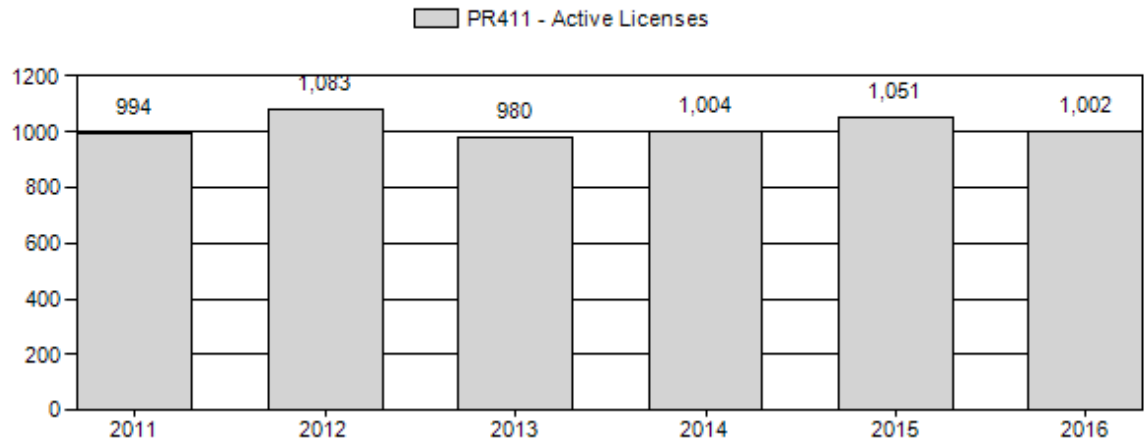



Harvest
PR411 - MALES
PR411 - FEMALES
PR411 - JUV
PR411 - TOTAL
1000
800
600
400
200
0
464
338
29
831
515
401
39
955
492
333
51
876
500
295
46
841
482
341
57
880
518
318
46
882
2011
2012
2013
2014
2015
2016

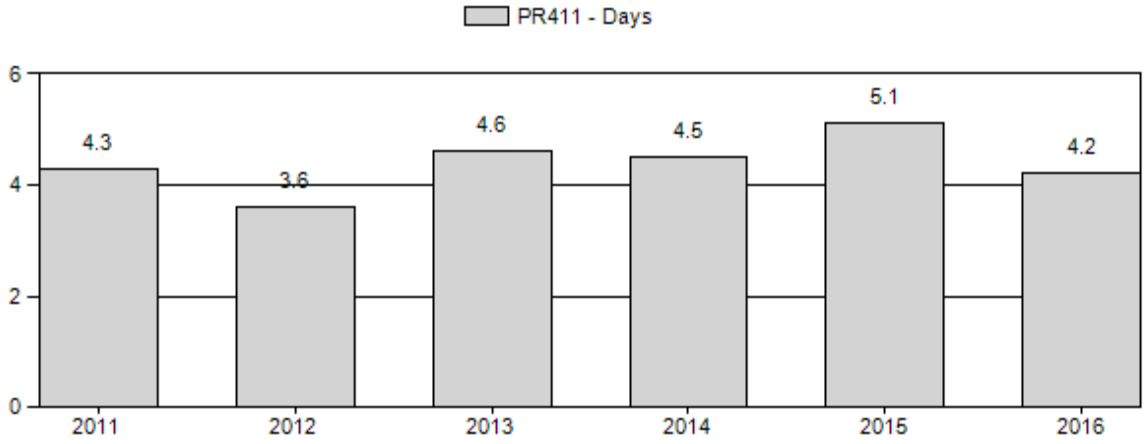

Number of Active Licenses
PR411 - TOT
PR411 - RES
PR411 - NONRES
1000
800
600
400
200
0
908
511
397
980
541
439
889
483
406
925
542
383
941
581
360
893
610
288
2011
2012
2013
2014
2015
2016


Harvest Success
PR411 - EVHTRSUCCESS
PR411 - EVACTIVESUCCESS
100
80
60
40
20
0
92
84
97
88
99
89
91
84
94
84
99
88
2011
2012
2013
2014
2015
2016

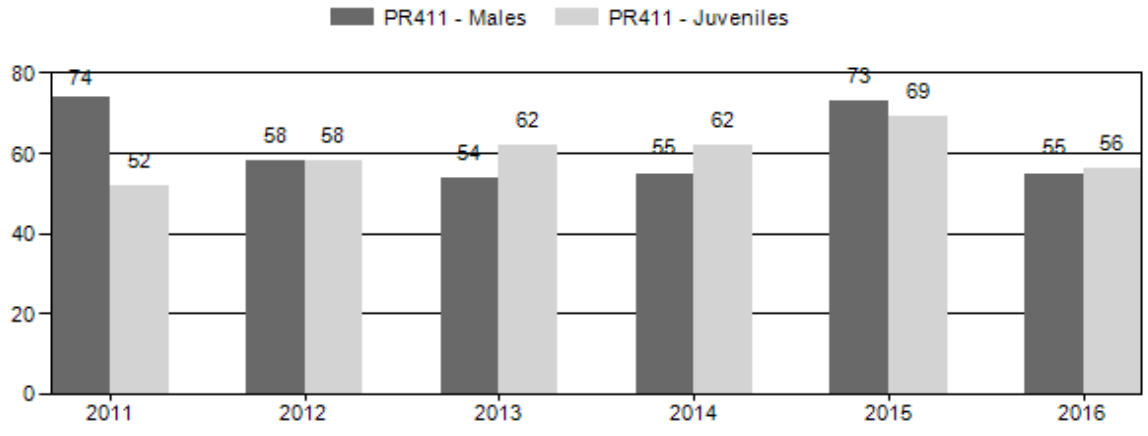
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 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	Yling	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	12,525	120	317	437	33%	589	44%	309	23%	1,335	0	20	54	74	± 7	52	± 6	30
2012	11,916	88	378	466	27%	799	46%	460	27%	1,725	0	11	47	58	± 5	58	± 5	36
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 HUNTING SEASONS

SPECIES: Pronghorn

HERD UNIT: Uinta-Cedar Mountain (411)
HUNT AREAS: 95, 99

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
95	1	Sep. 10	Oct. 31	325	Limited quota	Any antelope
95	7	Aug. 15	Oct. 31	200	Limited quota	Doe or fawn valid on irrigated land
99	1	Sep. 10	Oct. 31	225	Limited quota	Any antelope
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	0	Sep. 1	Oct. 31	50	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 2016
99	6	-75
99	7	+50
Herd Unit Total	**6**	**-75**
	7	**+50**

Management Evaluation

Current Postseason Population Management Objective: 10,000
Management Strategy: Recreational
2016 Postseason Population Estimate: ~6,176
2017 Proposed Postseason Population Estimate: ~6,230

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 administered by the Bureau of Land Management.

Throughout the herd unit there is a low tolerance for pronghorn on some of the irrigated land holdings. Conflict with agriculture producers can be a significant issue for this herd and results in harvest rates that keep us below the population objective. Damage complaints primarily occur on irrigated lands during the summer and early fall. Irrigated lands are uncommon relative to native ranges, but tend to concentrate pronghorn and therefore have a disproportionately large influence on the overall management of this herd unit. Significant efforts have been made to direct harvest toward those problem areas. Perceived reduction in livestock forage due to pronghorn foraging is an issue that can be brought up, primarily by sheep producers. However, dietary overlap and pronghorn impacts are negligible in native rangelands.

Energy development on crucial habitat is a continuing issue for this herd. Development is present in some areas, in relatively high densities, but has yet to impact habitats on a population scale. Developments range from trona mines to oil and gas fields to wind energy developments. Additionally, fencing associated with Wyoming Highway 414 has created a significant movement barrier between the two hunt areas in this herd unit, limiting historic interchange.

Weather

The winters from 2011 until 2015 were fairly mild with low snowpack and relatively warm temperatures resulting in easy winter conditions. However, the dry springs and summers of 2012 and 2013 negatively impacted summer and winter range forage production. Winter weather during 2016 and 2017 was highly variable, ranging from an extremely mild winter in 2015-16 to one of the most severe in eight decades in 2016-17. In the early part of 2016 the winter started out harsh with high snow loads but it warmed up in February and March to finish fairly mild. A moist spring and early summer followed. In July and August conditions dried up considerably and into late December fairly low precipitation was received. Winter did not really begin until late December 2016. Following late December, temperatures plunged to -45^{o}F and deep, persistent snows fell. However, pronghorn were able to move from the worst conditions to pockets of milder weather, unlike herds to the north. Direct losses of pronghorn were light, and most losses may be revealed through reduced fawn production and recruitment in 2017.

Habitat

Habitat data has been inconsistently collected in this herd unit and has been absent in the recent past. Some areas of significant sagebrush mortality occurred during the 2012-13 droughts, but young plants are growing in these areas in response to ample moisture.

Field Data

The 2016 post-season population estimate for this herd is 6,176 animals, with a downward trend since 2011, significantly below the objective (10,000) for this population . A line transect survey was 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

Despite the fact this herd is well below the population objective, and particularly low in area 95, we continue to issue doe-fawn licenses for irrigated lands to alleviate damage concerns. We have increased those licenses over time to address continual complaints. Hopefully this will help to alleviate private land problems. Conservative seasons continue to be warranted overall in area 95 due to low productivity in this dry environment.

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 seasons had good success rates, and this strategy has reduced this population segment. However, public land areas of hunt area 99 have much lower antelope populations due to those licenses. We are now greatly reducing this harvest pressure since the herd is well below objective. For 2017 we will again reduce these licenses in response to pronghorn abundance. Doe-fawn licenses are still issued in this area to alleviate specific damage complaints.

Population

The TSJ,CA model was selected due to the low relative AICc score, and its good fit with the data. The CJ,CA model scored slightly better but it did not fit the data as well as the TSJ,CA model. The TSJ,CA model fits very well with the variable fawn survival common in the high elevation winter ranges in the herd unit.

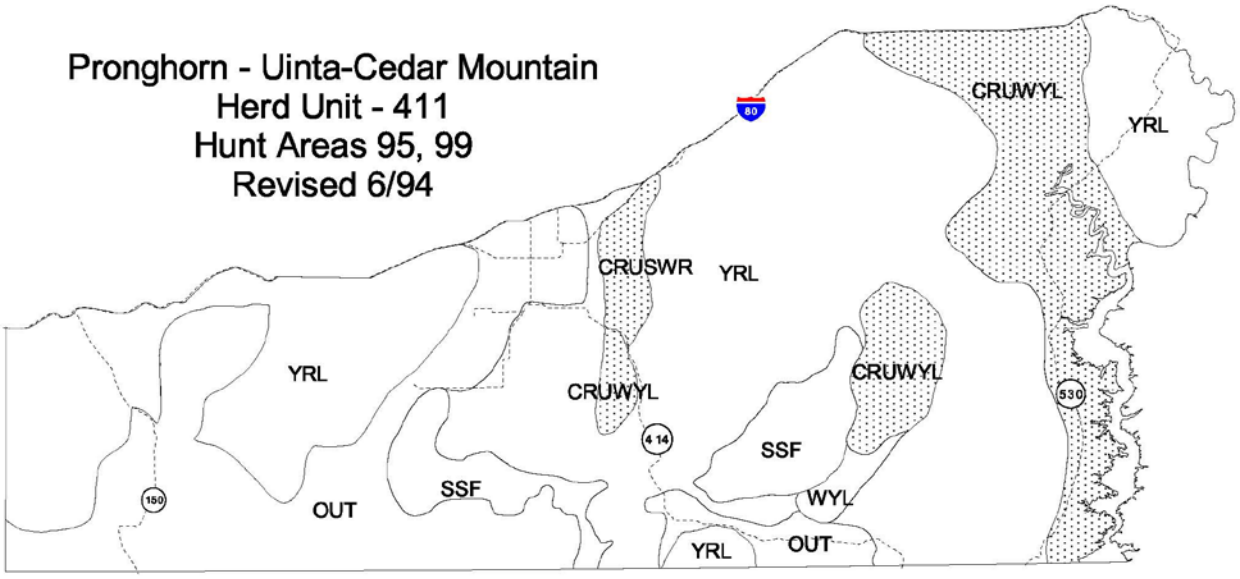
It is imperative we continue to obtain a reliable population estimate periodically through line transect surveys to proof herd status and anchor the model. With this, it is likely we can continue to provide a reasonable population model and track the trend of this population. Without this anchor point, 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 6,200 pronghorn in the herd, and has estimated a downward trend since 2011. This is substantiated by a reduction in classification sample sizes and field observations throughout the herd unit. Despite concerns from landowners, a long term reduction in harvest pressure is warranted in this herd if objectives are to be met.

Management Summary

The Uinta-Cedar Mountain pronghorn herd is nearly 40% below objective. For the 2017 season, we will be maintaining a more conservative harvest strategy to allow for population recovery. Some doe-fawn opportunity will be maintained and directed to areas of damage complaints. However, additional cuts will be warranted if fawn production does not increase. The model for this herd predicts a 2017 post-season population of about 6,200. The objective and management strategy were last revised for this herd in 2014.


Pronghorn - Uinta-Cedar Mountain
Herd Unit - 411
Hunt Areas 95, 99
Revised 6/94
80
CRUWYL
YRL
CRUSWR
YRL
YRL
CRUWYL
CRUWYL
530
414
SSF
SSF
150
OUT
WYL
YRL
OUT

2016 - JCR Evaluation Form

SPECIES: Pronghorn PERIOD: 6/1/2016 - 5/31/2017

HERD: PR412 - SOUTH ROCK SPRINGS

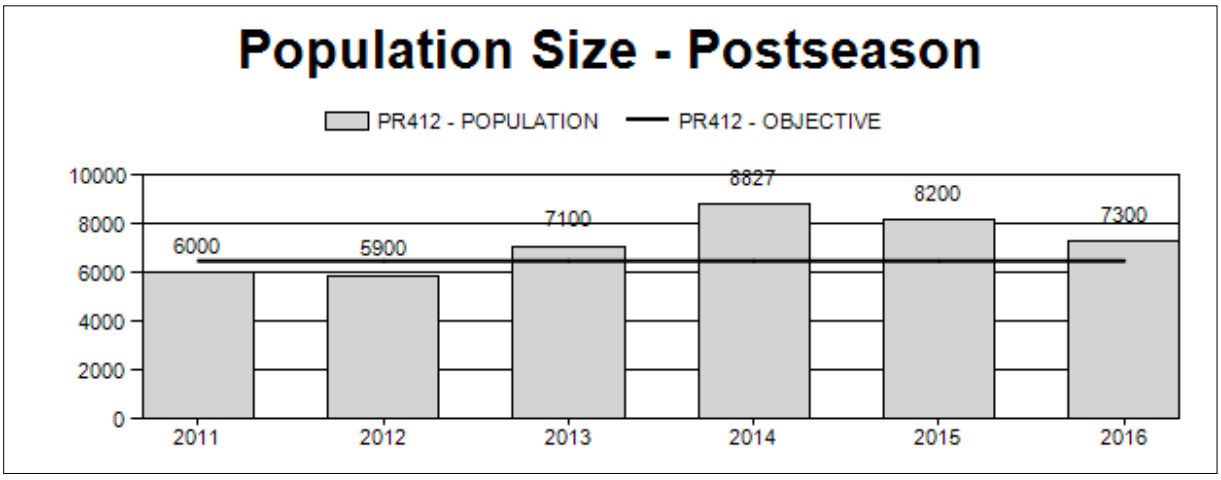
HUNT AREAS: 59, 112 PREPARED BY: PATRICK BURKE

	2011 - 2015 Average	2016	2017 Proposed
Population:	7,205	7,300	7,300
Harvest:	316	351	430
Hunters:	353	378	465
Hunter Success:	90%	93%	92 %
Active Licenses:	360	382	470
Active License Success:	88%	92%	91 %
Recreation Days:	1,148	1,234	1,300
Days Per Animal:	3.6	3.5	3.0
Males per 100 Females	43	50	
Juveniles per 100 Females	55	47	

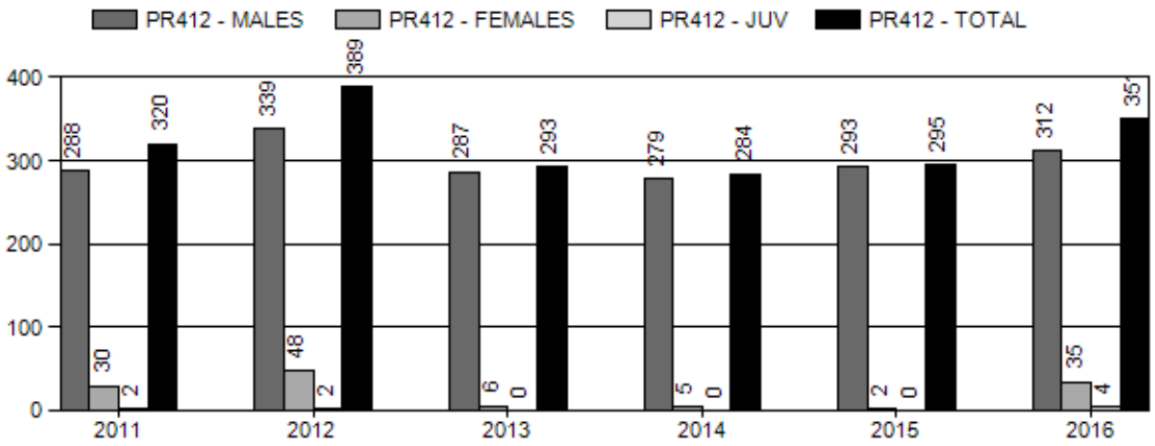
Population Objective (± 20%):	6500 (5200 - 7800)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	12%
Number of years population has been + or - objective in recent trend:	3
Model Date:	2/21/2017

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

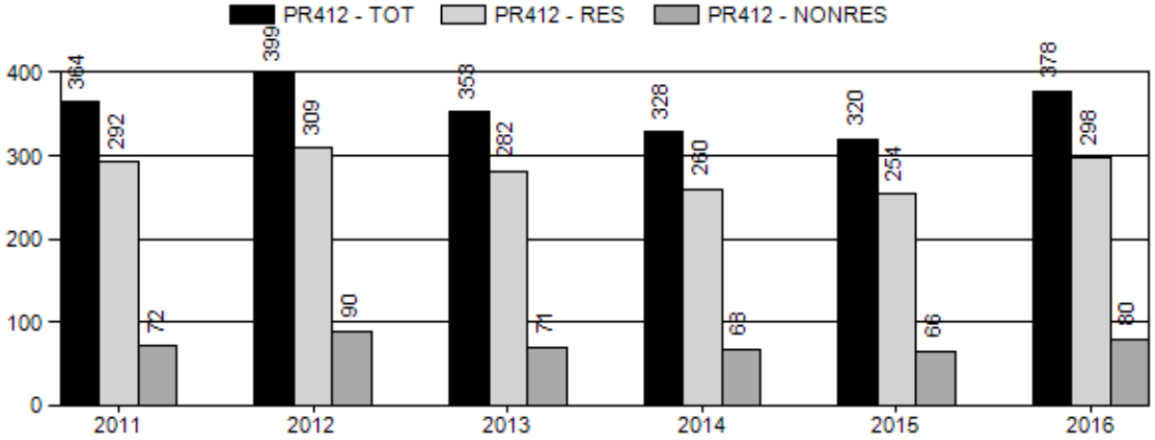
	JCR Year	Proposed
Females ≥ 1 year old:	1.1%	3%
Males ≥ 1 year old:	18%	18%
Total:	4%	5%
Proposed change in post-season population:	-1%	0%



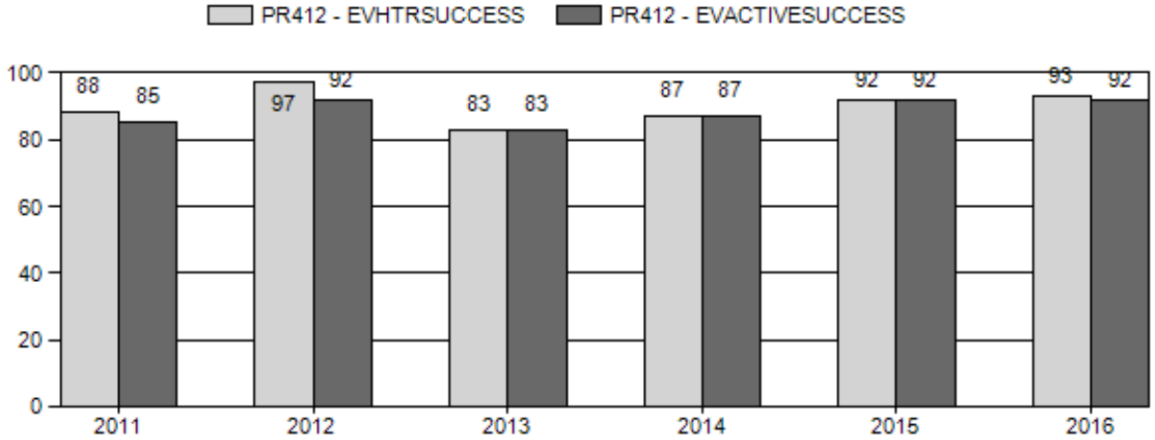
Harvest



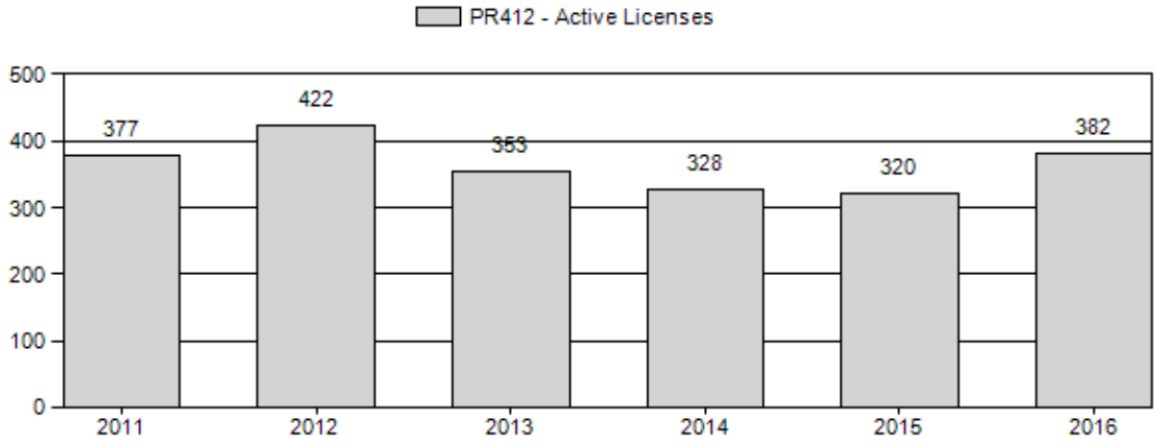
Number of Active Licenses



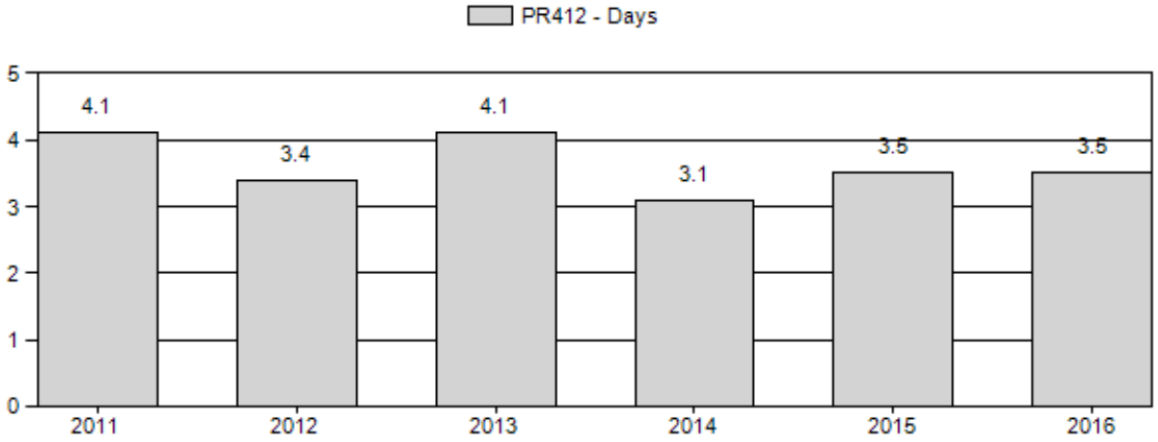
Harvest Success



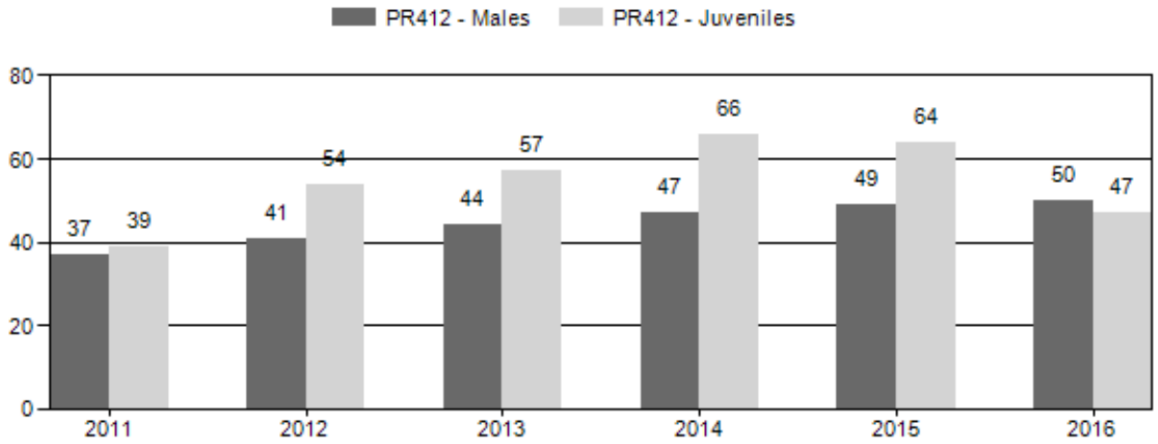
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 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
2011	6,350	114	274	388	21%	1,045	57%	404	22%	1,837	1,084	11	26	37	± 3	39	± 3	28
2012	6,300	120	268	388	21%	936	51%	505	28%	1,829	931	13	29	41	± 3	54	± 4	38
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 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	75	Limited quota	Doe or fawn
112	1	Sept. 20	Oct. 31	100	Limited quota	Any antelope
	6	Sept. 20	Oct. 31	25	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 2016
59	**1**	**+50**
	6	**+50**
Herd Unit Total	**1**	**+50**
	6	**+50**

Management Evaluation
Current Management Objective: 6,500
Management Strategy: Recreational
2016 Postseason Population Estimate: ~8,000
2017 Projected Postseason Population Estimate: ~7,500

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

The population model for this herd estimates the 2016 post-season population to be a little over 8,000 pronghorn. This estimate is above recent population estimates from a few years ago that estimated the herd to be slightly under objective. This increase in the model estimate does not coincide with field observations of the pronghorn population size in the South Rock Springs area. Observations by field personnel and the hunting public suggest that the herd more likely remained stable over the last few years rather than increasing at the rate suggested by the model. The most likely explanation for the larger population estimate is a combination of somewhat higher observed buck to doe ratios in the last couple of years and slightly increased observed fawn to doe ratios over historic levels. The observed fawn ratios for the last three years have only been in the mid 50's to the mid 60's, with the 2016 fawn ratio being only 47 fawns per 100 does. Fawn ratios in this range should not cause the population to increase, especially at the rate suggested by the model. Typically, fawn ratios in this range would result in population maintenance at best, not a rapid population increase.

Weather

The most prominent weather condition present in the South Rock Springs pronghorn herd for the last several years has been dry summer conditions with relatively mild winters. Those conditions changed somewhat in 2016, which saw an improvement in summer moisture levels and a significantly more severe winter than this herd has been seen since the 2010-2011 winter. While, the country south of Interstate 80 did not receive as much in the way of deep snow conditions as the country further north, it did still receive significant snowfall and experienced bitterly cold temperatures during January 2017. Conditions moderated though during early February, which allowed for some snowmelt, which exposed some shrubs on the winter ranges, improving conditions for pronghorn in this herd. The end of February saw a return to deep snow conditions in the herd unit however. Fortunately, the extreme cold temperatures of January did not return in February, which will be beneficial to wintering wildlife. While the full impact of this winter on the South Rock Springs pronghorn herd will not be known until next year, some level of increased winter mortality can be expected this year.

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. While the summer of 2016 saw better moisture than previous years, shrub production still was poor again this year.

Field Data

Pre-season classifications conducted in August 2016 resulted in 2,166 pronghorn being classified in the herd unit. That sample consisted of 1,097 does, 519 fawns, 333 two-year-old or older bucks and 217 yearling males. The 2016 classifications produced observed fawn to doe ratios of 47 fawns per 100 does. This observed fawn to doe ratio is the below the observed ratios of the last four years, when the fawn ratio averaged 60 fawns per 100 does. This year's observed ratio is not out of line for what has been observed in this herd in the past, and is actually almost identical to the overall observed fawn ratio for the herd since 1993. Pre-season classifications also resulted in observed buck ratios of 50 total bucks per 100 does for the herd unit as a whole, which is well within the approved range for a recreational management herd.

Harvest Data

Harvest statistics for the 2016 hunting season were typical for this herd. Harvest success for the herd unit was 93% Days per harvest was 3.5 days per harvest during the 2016, which is unchanged from the 2015 results. A total of 351 pronghorn were harvested in 2016, with 312 bucks, 35 does, and 4 fawns being harvested. Broken out by hunt area, HA59 had a 92% success rate and 4.3 days per harvest on the Type 1 licenses with a total of 222 bucks harvested and the Type 1 license holders in HA112 also had a 92% success rate and 2.3 days per harvest with a total of 90 bucks. The Type 6 license holders in HA59 experienced a 100% success rate, harvesting 20 does and 4 fawns with an average of 2.0 days per harvest, while the hunters in HA112 had an 83% harvest success rate, harvesting a total of 15 does and they took an average of 1.7 days to harvest their animal.

Population

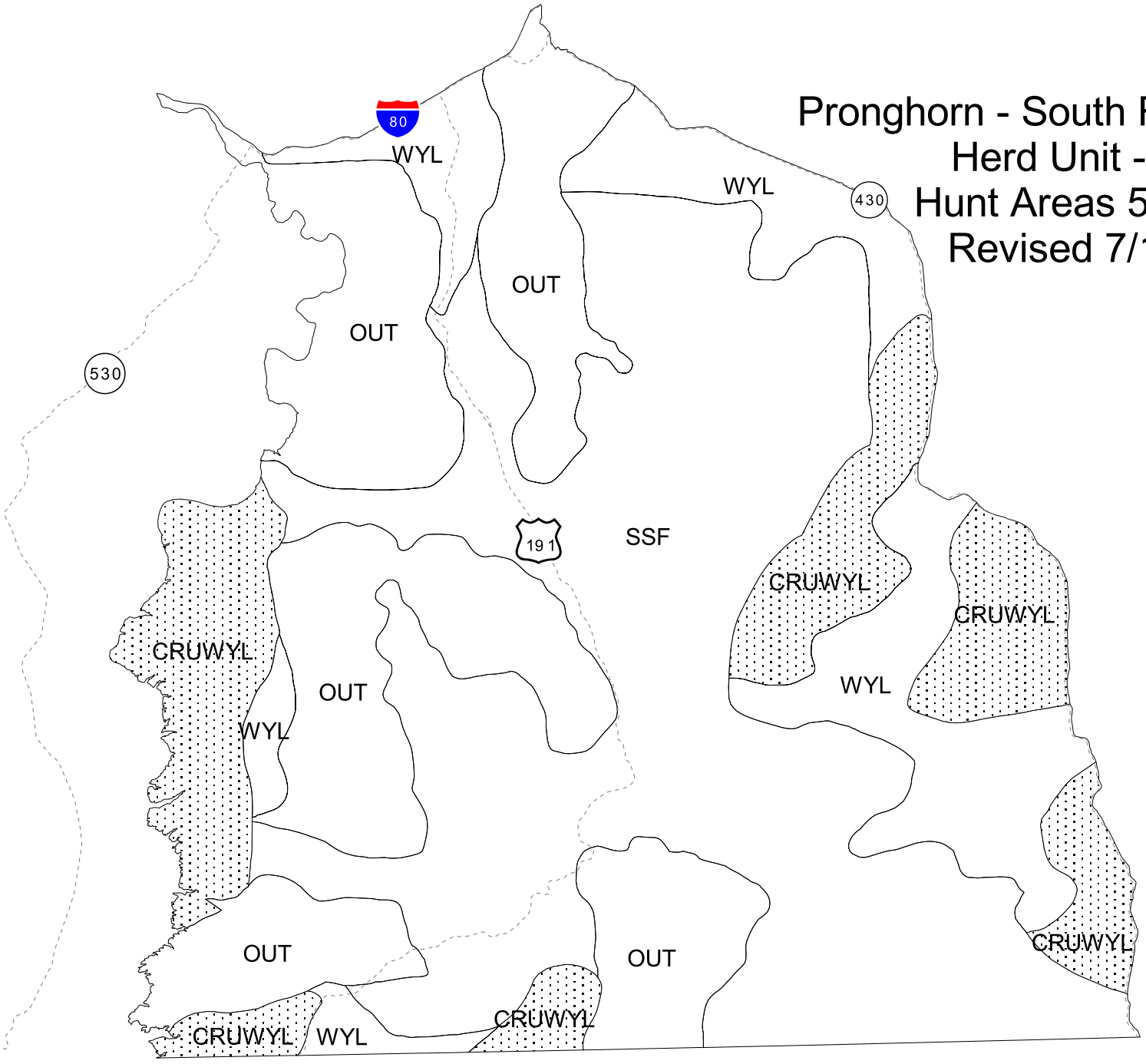
The model for this population has tracked fairly well with field observations of this herd until 2013, when the post-season population estimate moved in a direction counter to the field observations of both the managers and the public. The model performance in 2016 continues to be questionable, with the model producing a population estimate that is above what field managers feel is accurate. The model estimate has stop its drastic increase however and has at least stabilized from its unrealistic growth rates for the last several years. The growth predicted by the model from 2011 to 2015, where it estimated that the herd increased by of almost 4,000 animals is simply not possible given the fawn ratios and habitat conditions present in this herd unit during that time period. While this rapid growth predicted by the model has stopped in the 2016 estimate, the reliability of the model still must be questioned and its population estimates should be taken with a large grain of salt.

A line-transect survey was flown in this herd unit in June of 2015 for an end of bio-year 2014 estimate. The result of the LT survey was a point estimate of 6,650 pronghorn with a standard error for the estimate of 1,033. This estimate along with the model goes contrary to what is seen on the ground in August and September. It should be noted that August classification sample sizes have remained fairly consistent, with the 2016 sample size being generally in line with average sample sizes for this herd, although the 2016 classification sample size was up from recent years sample sizes.

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 2017 contains an increase in both the Type 1 and 6 license types for HA59. The increases in the Type 1 licenses are were implemented despite the observed ratios being well within the limits of recreational management in an attempt to decrease the observed buck ratio for the herd, since this appears to be the major driving force in the model's increasing population estimates. This increase in buck harvest is being directed at HA59, because that hunt area has higher buck ratios than HA112, and appears to be driving the higher observed buck ratios for the herd. The increased Type 6 licenses for HA59 are being put in place in hopes that harvesting more does will help move the population estimate down closer to its objective. The 2017 seasons should result in the harvest of approximately 430 pronghorn from the herd unit, 325 bucks, 100 does, and 5 fawns. Assuming no increased winter mortality from this winter, the 2017 seasons should stabilize the population at near its current level.


Pronghorn - South Rock Springs
Herd Unit - 412
Hunt Areas 59, 112
Revised 7/1999
80
WYL
WYL
430
OUT
OUT
530
191
SSF
CRUWYL
CRUWYL
CRUWYL
WYL
OUT
WYL
OUT
OUT
CRUWYL
CRUWYL
WYL

2017 Proposed - Season Setting Evaluation Form

SPECIES: Pronghorn
PERIOD: 6/1/2016 - 5/31/2017

HERD: PR414 - BITTER CREEK

HUNT AREAS: 57-58
PREPARED BY: TONY MONG

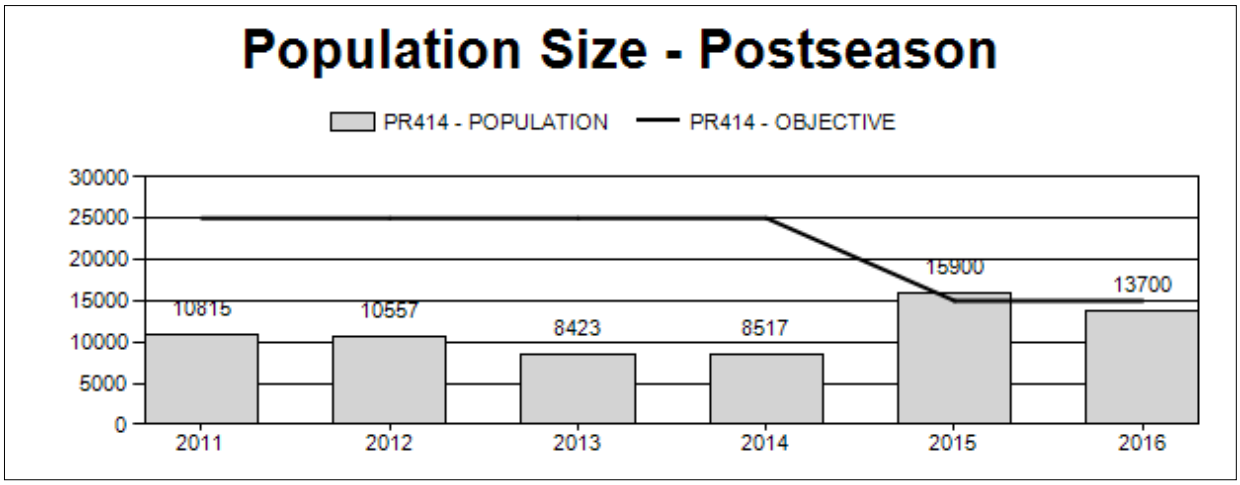
	2011 - 2015 Average	2016	2017 Proposed
Population:	10,842	13,700	13,600
Harvest:	219	422	460
Hunters:	234	416	450
Hunter Success:	94%	101%	102 %
Active Licenses:	239	473	490
Active License Success:	92%	89%	94 %
Recreation Days:	843	1,830	1,950
Days Per Animal:	3.8	4.3	4.2
Males per 100 Females	57	51	
Juveniles per 100 Females	45	38	

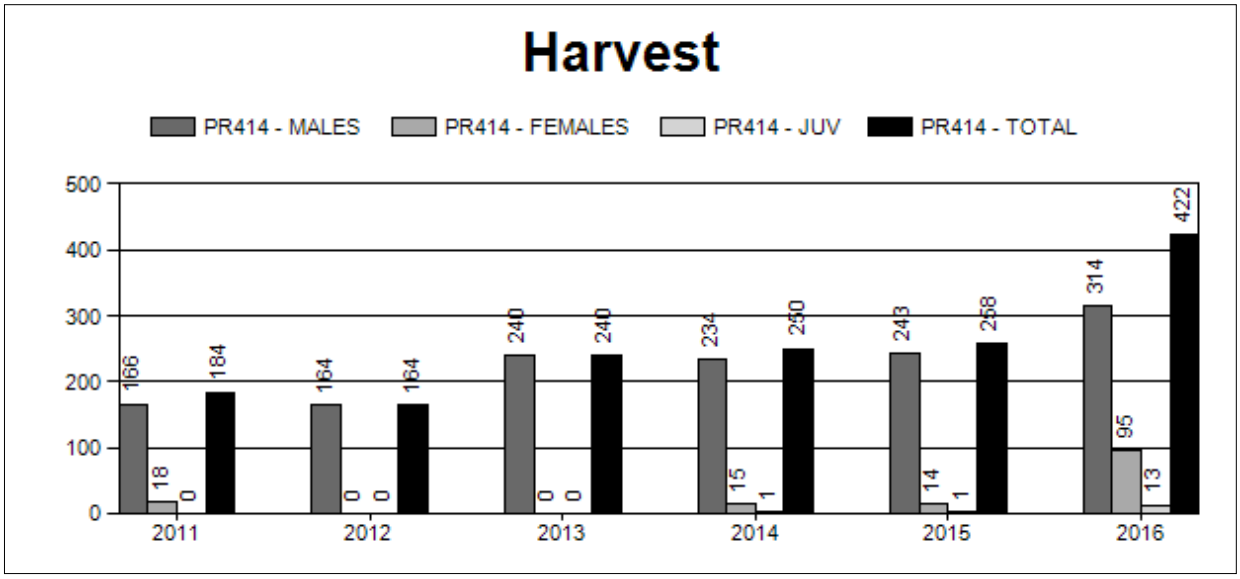
Population Objective (± 20%) : 13000 (10400 - 15600)

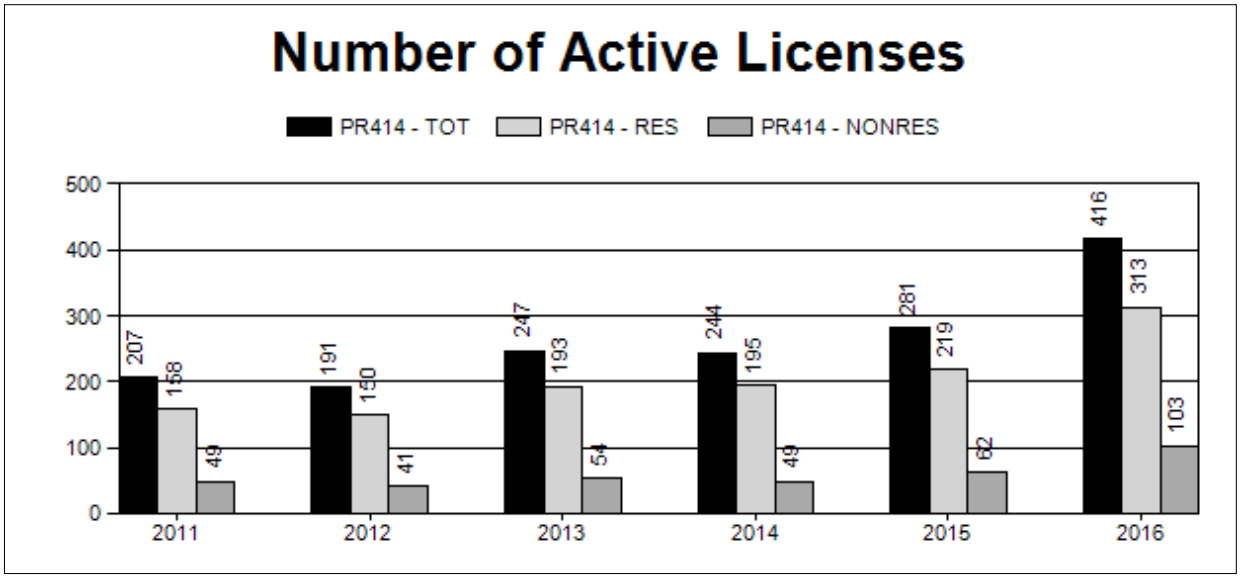
Management Strategy: Special
Percent population is above (+) or below (-) objective: +4.6%
Number of years population has been + or - objective in recent trend: 2
Model Date: 2/17/2017

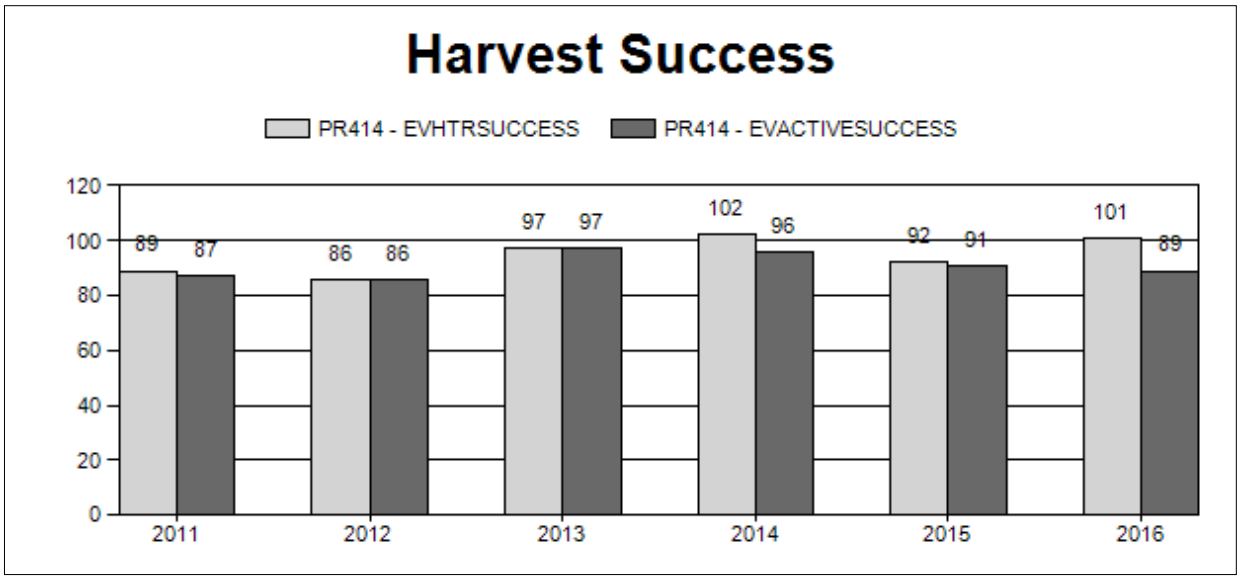
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

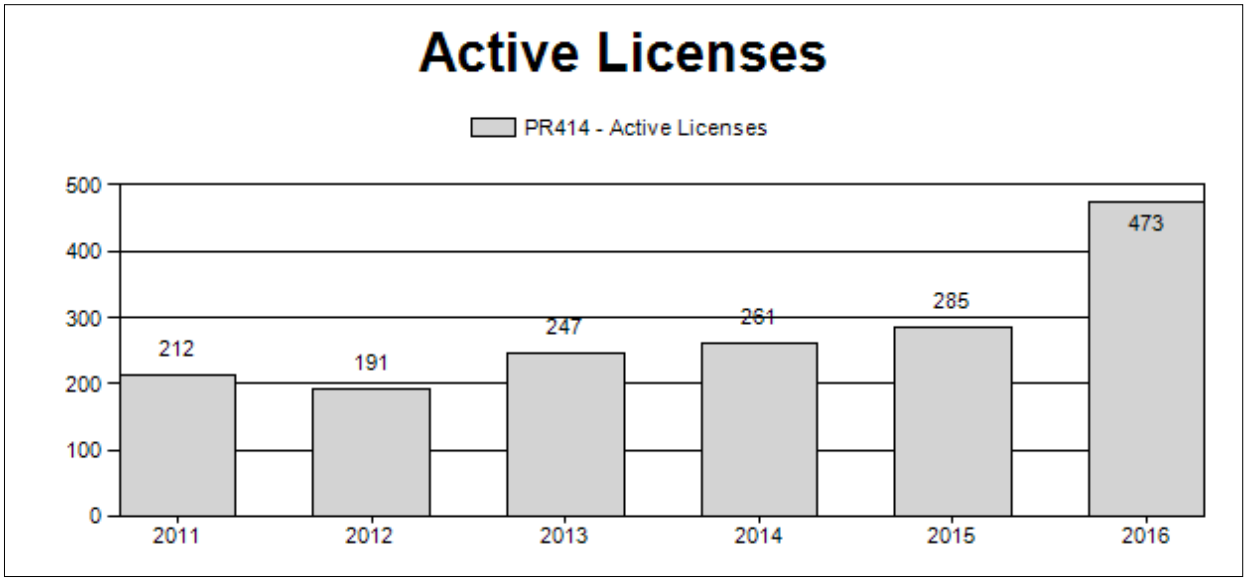
	JCR Year	Proposed
Females ≥ 1 year old:	2.1%	2%
Males ≥ 1 year old:	8.0%	9%
Total:	4%	4%
Proposed change in post-season population:	1%	0%

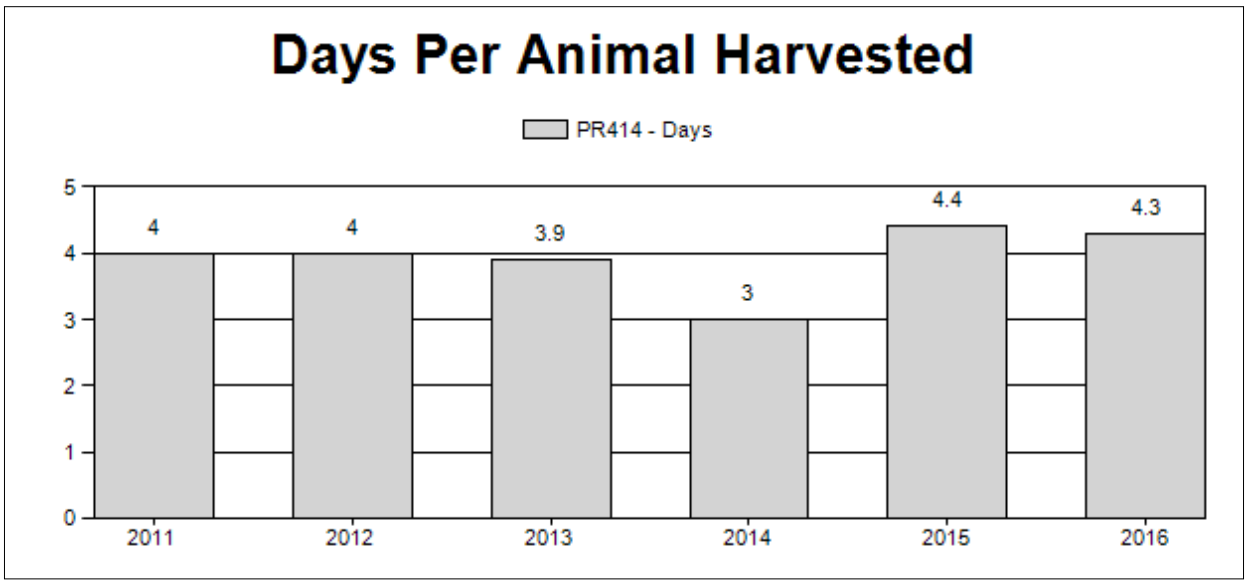


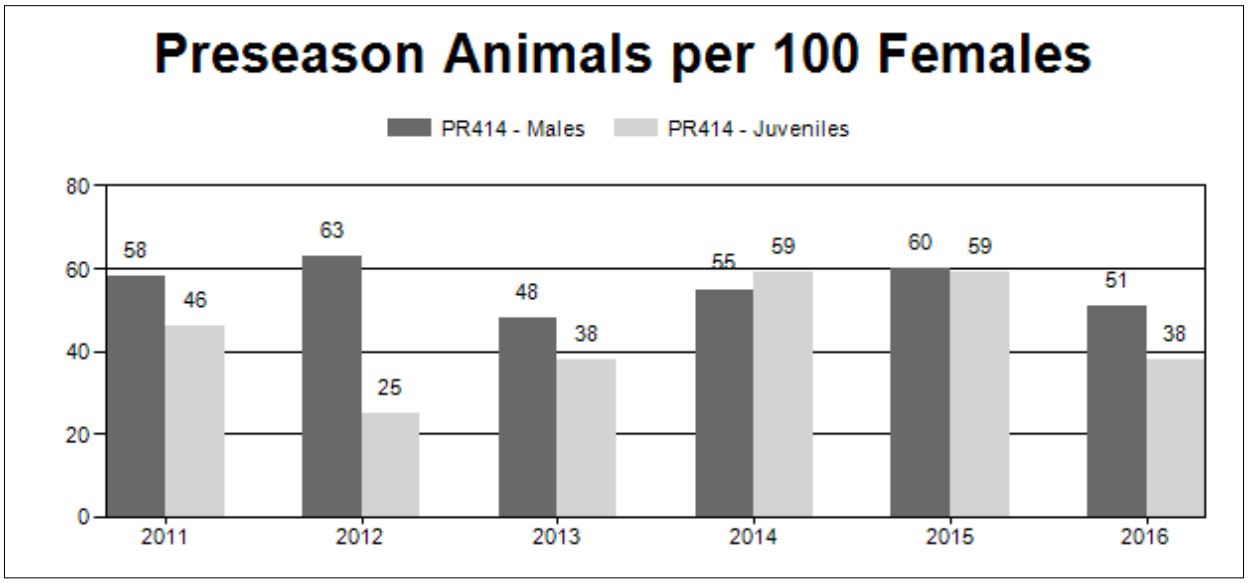

Harvest
PR414 - MALES
PR414 - FEMALES
PR414 - JUV
PR414 - TOTAL
500
400
300
200
100
0
166
18
0
184
164
0
0
164
240
0
0
240
234
15
1
250
243
14
1
258
314
95
13
422
2011
2012
2013
2014
2015
2016


Number of Active Licenses
PR414 - TOT
PR414 - RES
PR414 - NONRES
500
400
300
200
100
0
207
158
49
191
150
41
247
193
54
244
195
49
281
219
62
416
313
103
2011
2012
2013
2014
2015
2016


Harvest Success
PR414 - EVHTRSUCCESS
PR414 - EVACTIVESUCCESS
120
100
80
60
40
20
0
89
87
86
86
97
97
102
96
92
91
101
89
2011
2012
2013
2014
2015
2016


Active Licenses
PR414 - Active Licenses
500
400
300
200
100
0
212
191
247
261
285
473
2011
2012
2013
2014
2015
2016


Days Per Animal Harvested
PR414 - Days
5
4
3
2
1
0
4
4
3.9
3
4.4
4.3
2011
2012
2013
2014
2015
2016


Preseason Animals per 100 Females
PR414 - Males
PR414 - Juveniles
80
60
40
20
0
58
46
63
25
48
38
55
59
60
59
51
38
2011
2012
2013
2014
2015
2016

2011 - 2016 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	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	11,018	146	395	541	28%	937	49%	427	22%	1,905	0	16	42	58	± 5	46	± 4	29
2012	10,737	116	372	549	34%	866	53%	219	13%	1,634	0	13	43	63	± 5	25	± 3	15
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 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	300	Limited Quota	Any antelope
	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
	6	Sep. 20	Oct. 31	50	Limited Quota	Doe or fawn only
	7	Sep. 1	Oct. 31	75	Limited Quota	Doe or fawn valid on private land within one (1) mile of Carbon County Road 603
58	1	Sep. 20	Oct. 31	100	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*	*0*
	2	*0*
	6	*0*
	7	*+25*
58	*1*	*+25*
Herd Unit Total	***1***	***+25***
	2	***0***
	6	***0***
	7	***+25***

Management Evaluation

Current Management Objective: 13,000 (2015)

Management Strategy: Special

2016 End-of-bio-year Estimate: 11,200

2017 Proposed postseason Estimate: 13,700

The Bitter Creek herd is slightly above the new objective of 13,000 (established in 2015). Our current management strategy is to maintain herd size by providing a mixture of buck and doe harvest. We are proposing to increase type 1 licenses in hunt area 58 to allow for more opportunity, and a modest increase in type 7 licenses in hunt area 57. The private land type 7 has been a successful tool in alleviating damage concerns on irrigated meadows in the southeastern portion of hunt area 57.

Herd Unit Issues

The main issues impacting the Bitter Creek herd include continued large scale energy development, and competition with feral horses. The Bitter Creek herd is facing many challenges through the expansion of the Continental Divide-Creston Junction (CDC) and Desolation Flats gas fields, along with developments associated with the Hiawatha field in the western portion of the herd unit. Currently there are nearly 5,000 wells in the CDC and an EIS for an additional 8,950 infill wells. A majority of these wells occur within occupied pronghorn ranges. The Hiawatha field is expanding in a more piece-meal fashion, and continues to expand its area of influence on all wildlife in this herd unit.

Wild horses have been shown to "defend" open water sources in this area of limited available water, and studs have been observed driving all other ungulates from this water. Recent fecal analysis has indicated a major dietary overlap exists between feral horses and pronghorn, given high shrub use by horses in the Adobe Town-Salt Wells HMA. It will be important to work with the Bureau of Land Management to identify horse distribution and scientifically supported population estimates for these animals, so appropriate levels can be managed for in this increasingly impacted landscape.

Weather

Recent increased precipitation within this herd unit has resulted in filling of long dry reservoirs and has had a positive response on vegetation (Figure 1). The western portion of the unit (area 58) saw the highest increases in precipitation. Although we did not see a direct response with higher fawn ratios in 2016, we expect to see fawn ratios respond favorably in 2017.

The higher moisture levels seen throughout the unit is somewhat deceptive due to the timing of when the area received the moisture. Most of the moisture fell during spring and late fall with very little rain fall during the middle portion of the summer. This resulted in an early curing of herbaceous vegetation, which likely negatively influenced fawn survival during 2016.

Winter Severity

The weather was unseasonably warm well into December across the herd unit during 2016. These warmer temperatures paired with late fall moisture resulted in some fall green-up which may have benefitted pronghorn prior to winter.

However, January brought several big snowfall events throughout the area followed by sustained temperatures well below zero. It is expected some losses occurred due to the severe energy demands on pronghorn. Winter losses were light on this species, but it may impact this year's fawn production or fawn survival if nutritional status of the doe was reduced. However, conditions were significantly milder in this area than much of the remaining areas in the Green River Region, and it is likely pronghorn were little affected. High winds and a sustained warming trend in February helped to melt off nearly all lower elevation habitats in this herd. Overall, the warming trend allowed food resources to become more available for pronghorn, likely resulting in normal levels of winter survival.

Figure 1. Percent of normal precipitation for the Bitter Creek herd unit from February 2016 to February 2017.

Field Data

We saw a significant drop in fawn ratios this year driven primarily by hunt area 58 numbers. Hunt area 57 maintained a reasonable fawn ratio at 54:100, but hunt area 58 dropped to numbers not seen since the dry summers of 2012 and 2013. This drop may be attributed to an extremely dry summer in Area 58, reducing the nutritional status of nursing does, and available nutritious herbaceous vegetation typically available to older aged and fawns.

Given conservative seasons in response to population status, buck ratios seem to be trending up over the last 3 years with an average of 56:100 when compared to an average of 38:100 from the previous 5 years. Higher fawn ratios in 2014 and 15 contributed to this increase but we can expect a reduction (at least in yearling bucks) next year due to the low fawn ratios in 2016. Hunt Area 57 buck ratios have responded to recent allowable increased harvest, decreasing from a high ratios in 2014 (67:100) to 59:100 in 2016.

Harvest Data

Hunters within the Bitter Creek herd unit experience typically high harvest success, and remain extremely satisfied with their experience in both hunt areas. Harvest success dipped slightly from previous years but remains at 89%. In this herd, hunters tend to be highly selective due to the reputation for larger than average males, and this impacts both effort and success in an artificial manner. Some hunters choose to not harvest if they do not find a (or *the*) buck they are

seeking. Many of the hunter comments we receive at check stations and field checks appear to be ecstatic with both the number of bucks available, and the number of total pronghorn seen. Hunt area 58 returned to 100% success after a dip in success during the 2015 season. The satisfaction survey reveal that hunters were satisfied with their hunt in area 58 as 100% of those surveyed (n=24) were either “satisfied” or “very satisfied” with the overall hunt quality.

Population

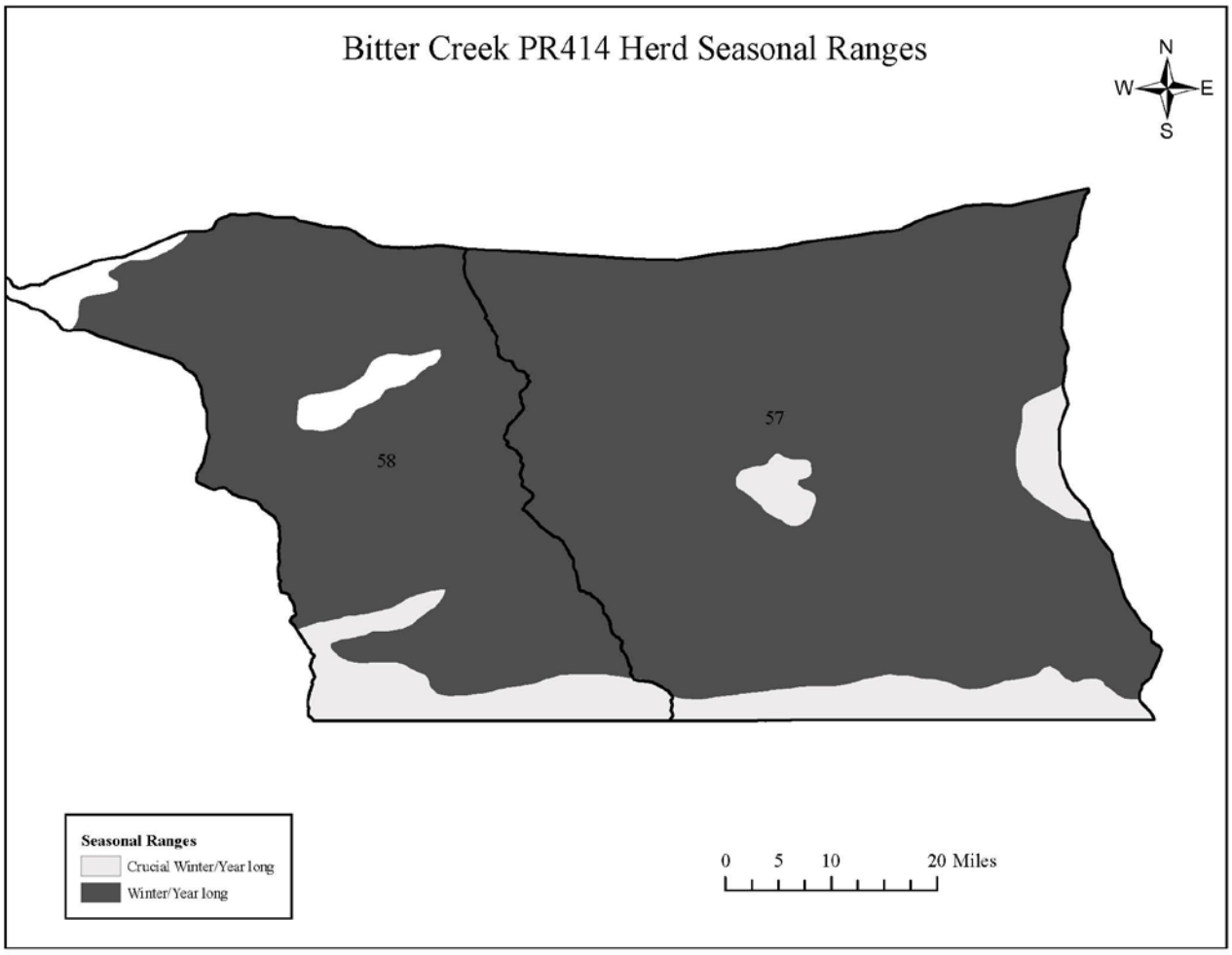
The current population model estimates the 2016 end-of-bio-year population to be around 13,700 animals. Despite the CJ, CA model having the lowest AICc value we chose the SCJ, SCA model based on what we believe to be a better representation of the actual population trend and size, adjusted with line transect estimates obtained in 2009 and 2015. Within the SCJ, SCA model we restrained juvenile survival rates for 2007 (0.1 to 0.4) and 2010 (0.1 to 0.4) based on known winter die off occurring at a higher rates than normal (model estimate for all other years, 0.414). We also restrained adult survival for the same reason for 2007 (0.4 to 0.75) and 2010 (0.6 to 0.85).

Management Summary

This proposal will allow us to begin to continue to offer opportunity in order to maintain current population levels and buck ratios. Since precipitation has improved in the typically drier western portion of the herd (hunt area 58), improvements in both pronghorn densities and buck ratios have been observed. A decline in fawn ratios in 2016 is somewhat concerning, but expected given a return to dry conditions during the 2016 summer, but dramatically increased moisture in 2017 should result in vastly improved conditions for lactating does. Overall population numbers seem to have remained consistent and stable under current management. The area 57-2 license was extremely successful in adding harvest into the northern portion of area 57 and allowed us the opportunity to direct harvest and increase opportunity in a little used portion of the herd unit.

We have made an impact on the damage concerns we were having in the southeastern portion of the herd. Despite the harvest in the type 7 area we are proposing a change to the limited area to further focus harvest on three specific landowners; those having the greatest damage issues and concerns. The increase in type 7 licenses along with the change to a more focused area should alleviate the irrigated meadow damage issues.

Population Estimates



2016 - JCR Evaluation Form

SPECIES: Pronghorn | PERIOD: 6/1/2016 - 5/31/2017

HERD: PR419 - CARTER LEASE

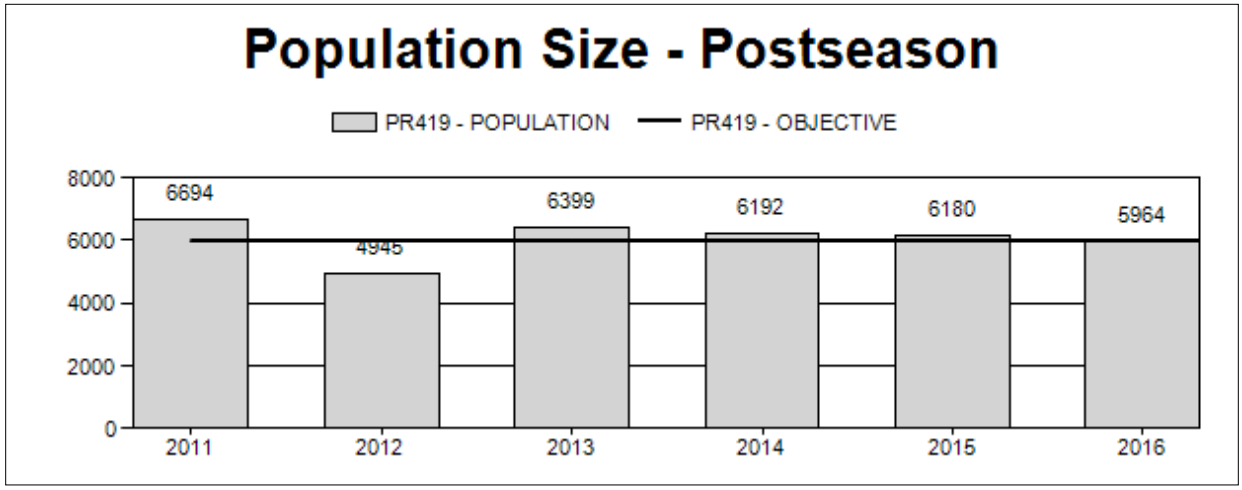
HUNT AREAS: 94, 98, 100 | PREPARED BY: JEFF SHORT

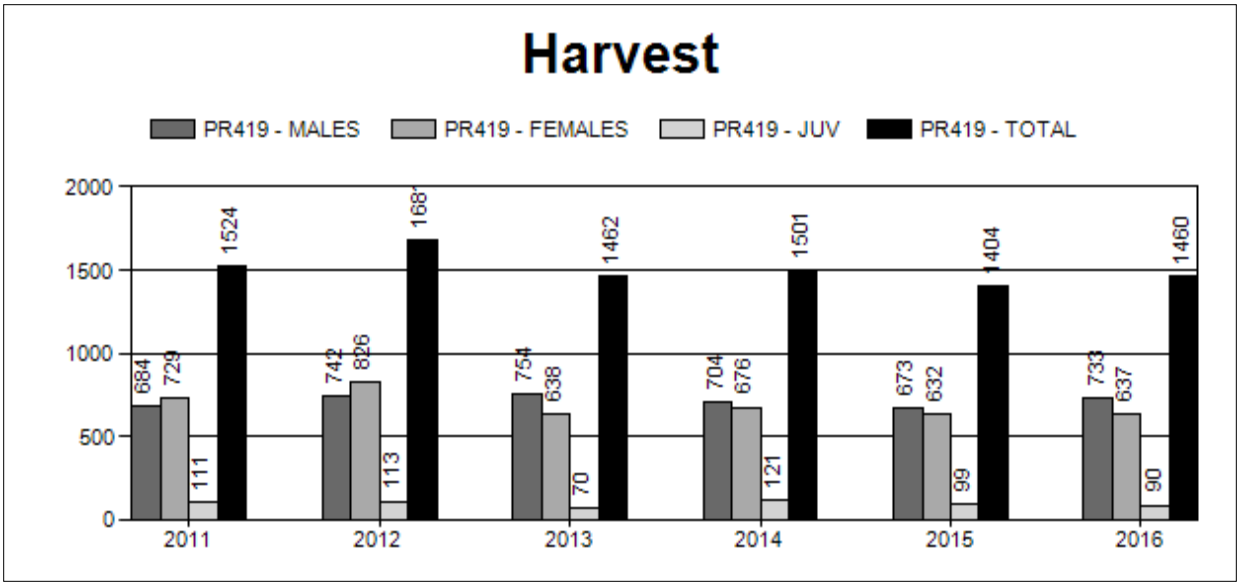
	2011 - 2015 Average	2016	2017 Proposed
Population:	6,082	5,964	6,051
Harvest:	1,514	1,460	1,300
Hunters:	1,598	1,424	1,300
Hunter Success:	95%	103%	100%
Active Licenses:	1,780	1,652	1,450
Active License Success:	85%	88%	90%
Recreation Days:	6,053	5,152	4,500
Days Per Animal:	4.0	3.5	3.5
Males per 100 Females	60	51	
Juveniles per 100 Females	63	72	

Population Objective (± 20%) :	6000 (4800 - 7200)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-0.6%
Number of years population has been + or - objective in recent trend:	1
Model Date:	02/14/2017

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

	JCR Year	Proposed
Females ≥ 1 year old:	13.0%	12.2%
Males ≥ 1 year old:	27.8%	24.6%
Total:	13.6%	12.6%
Proposed change in post-season population:	-0.56%	+1.4%




Harvest
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PR419 - FEMALES
PR419 - JUV
PR419 - TOTAL
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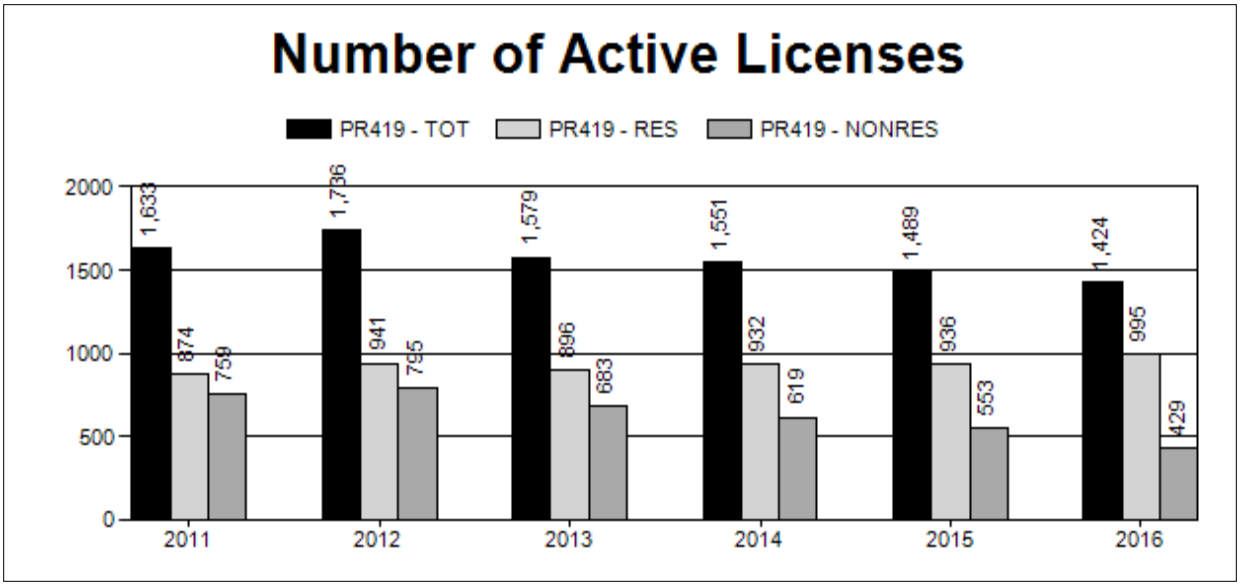
1500
1000
500
0
684
729
111
1524
742
826
113
1681
754
638
70
1462
704
676
121
1501
673
632
99
1404
733
637
90
1460
2011
2012
2013
2014
2015
2016


Number of Active Licenses
PR419 - TOT
PR419 - RES
PR419 - NONRES
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1500
1000
500
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1,633
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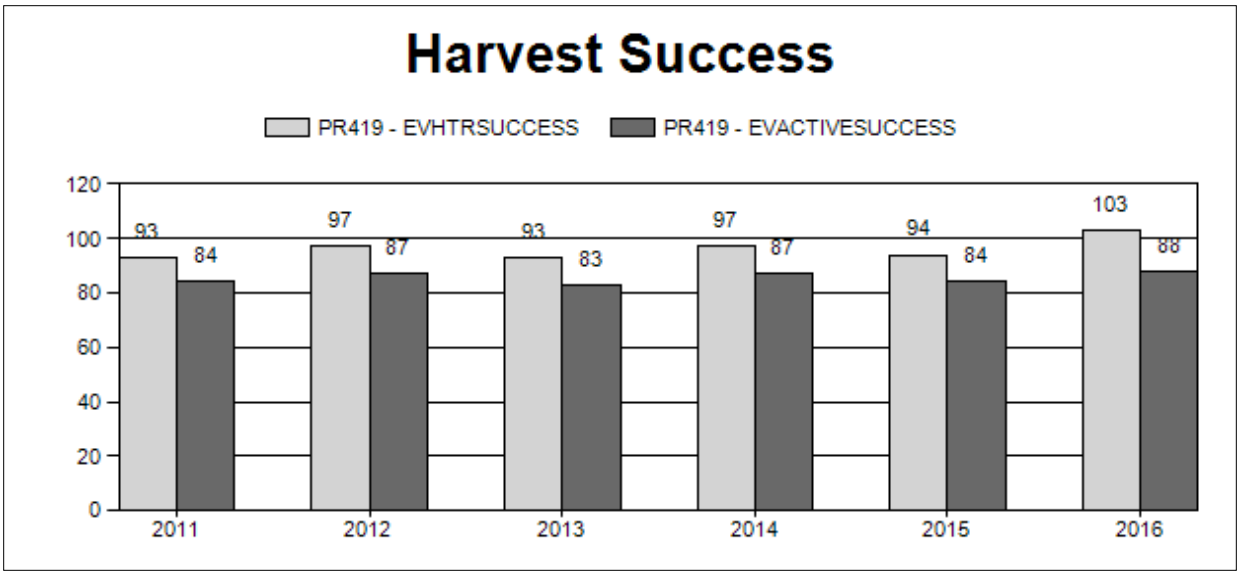
759
1,736
941
795
1,579
896
683
1,551
932
619
1,489
936
553
1,424
995
429
2011
2012
2013
2014
2015
2016


Harvest Success
PR419 - EVHTRSUCCESS
PR419 - EVACTIVESUCCESS
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100
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60
40
20
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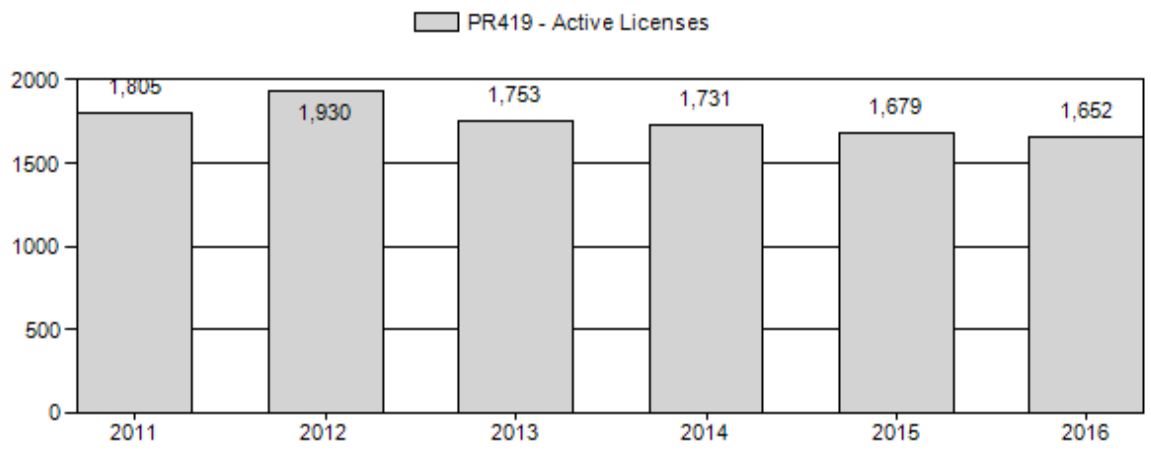
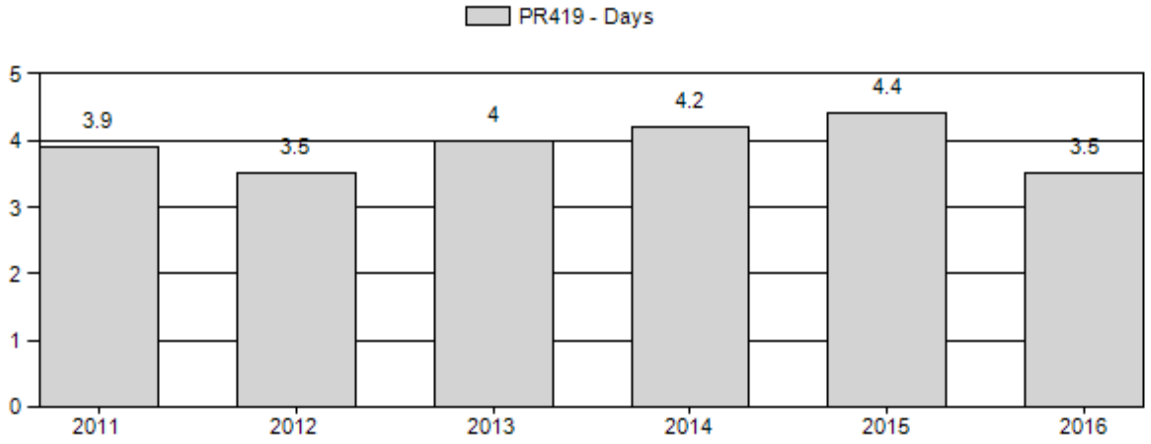
83
97
87
94
84
103
88
2011
2012
2013
2014
2015
2016

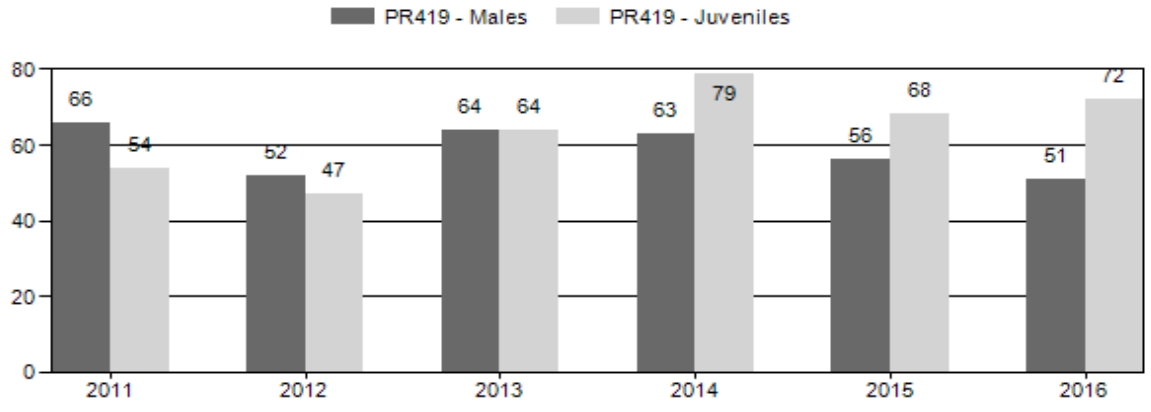
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 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
2011	7,614	174	537	711	30%	1,071	45%	582	25%	2,364	0	16	50	66	± 4	54	± 4	33
2012	6,060	114	430	544	26%	1,051	50%	498	24%	2,093	0	11	41	52	± 4	47	± 3	31
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 HUNTING SEASONS

SPECIES: Pronghorn

HERD UNIT: Carter Lease (419)
HUNT AREAS: 94, 98, 100

Hunt Area	Type	Season Dates Opens	Closes	Quota	License	Limitations
94	1	Sep. 10	Oct. 31	450	Limited quota	Any antelope
94	6	Sep. 10	Oct. 31	100	Limited quota	Doe or fawn
94	7	Aug. 15	Oct. 31	200	Limited quota	Doe or fawn valid on or within one (1) mile of irrigated land
98	1	Sep. 10	Oct. 31	200	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	200	Limited quota	Any antelope
100	6	Sep. 10	Oct. 31	225	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 2016
94	1	-50
94	6	-150
98	7	+50
100	7	-25
Herd Unit Total	**1**	**-50**
	6	**-150**
	7	**+25**

Management Evaluation

Current Postseason Population Management Objective: 6,000
Management Strategy: Recreation
2016 Postseason Population Estimate: ~5,964
2017 Proposed Postseason Population Estimate: ~6,051

Herd Unit Issues

Energy development on crucial habitat is an issue for this herd. Development is present and has had impacts to habitats in the eastern portion of the herd unit. Additionally, 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, ≤1 antelope per square mile. Due to low pronghorn densities hunter success is usually lower than adjacent areas.

Within the herd unit there can be a low tolerance for the presence of pronghorn on some private land holdings or on BLM grazing allotments. 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 or among sheep producers. Irrigated lands are uncommon relative to native ranges but tend to have a disproportionate influence on herd management due to the level of complaint. 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 commonly brought up, despite the fact domestic livestock numbers far outweigh the number of pronghorn in the herd. Landowners appear to be somewhat satisfied when pronghorn are kept at current levels through aggressive harvest.

Weather

The winters from 2011 through 2015 were mild with low snowpack and relatively warm temperatures resulting in easy winter conditions. However, the dry springs and summers of 2012 and 2013 negatively impacted summer and winter range forage production, and resulted in significant loss of sagebrush, some of which has shown regrowth since precipitation returned to more normal levels. Winter weather during the 2015-16 and 2016-17 winters has been highly variable, ranging from a very mild winter in 2015-16, to one of the worst winters in 100 years in 2016-17. Direct pronghorn loss was significant in this herd, and numerous pronghorn vehicle (trains and semi-trucks) collisions occurred involving groups of pronghorn. The winter of 2016/17 created adverse conditions for antelope that have not been seen in decades in this herd, not since 1992-93 or before. Winter conditions more approximated that recorded in 1928, one of the most severe winters on record for southwestern Wyoming.

Habitat

Habitat data 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 in the form of Rapid Habitat Assessments.

Pronghorn habitats are largely intact in much of the herd unit, dominated by a mixture of sage species, winterfat, Douglas rabbitbrush, salt desert shrubs, and, in higher elevations, mountain

shrubs. Habitats have been heavily impacted by energy development in the eastern end of area 94 and portions of area 100, including oil and gas developments, wind energy projects, and coal mines. Ground disturbing projects of all types, including pipelines, have resulted in significant invasion of non-native undesirable vegetation ranging from halogeton to cheatgrass to black henbane. Efforts are underway to reduce this concern through the Kemmerer field office of the Bureau of Land Management.

Field Data

Fawn ratios in this herd unit have been high 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 an intentionally low overall population objective when compared to carrying capacity. This, combined with large blocks of undisturbed and relatively healthy habitats explains the productive nature of this 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 fawn ratios rebounded greatly to 64:100 in 2013, 79:100 in 2014, 68:100 in 2015 and 72:100 in 2016. We can expect a reduction in fawn ratios in 2017 due to winter related doe condition. Numerous small fawns and stillborn fawns have been documented this spring in the north end of area 94.

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 without flying closely spaced (more than normal) transects. 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 been declining for several years due to aggressive harvest strategies. That harvest has been reduced and we have now leveled off at or near objective.

Harvest Data

Hunters spent about 3.5 days to harvest a pronghorn in 2016, and experienced a success rate in excess of 88%, common for this species in Wyoming. Harvest has been remarkably similar since 2013, with similar seasons, hunters, harvest, success, and effort. It is expected, given conditions and winter losses, that pronghorn hunters will have a more difficult time harvesting an antelope in 2017.

Doe/fawn harvest opportunity was increased every year for several years in area 94 to address population levels, and livestock producer/landowner concerns. Beginning in 2006, season structures offered substantially increased doe/fawn harvest opportunity to try to reduce pronghorn abundance and reduce damage problems on irrigated lands and throughout the herd. Seasons allowed significant doe/fawn harvest. This management framework along with two years of very poor fawn production brought this population to objective in 2012. Since that time, seasons have remained similar and pronghorn abundance leveled. Given winter losses in the 2016-17 winter, pronghorn licenses were reduced to achieve objectives.

Population

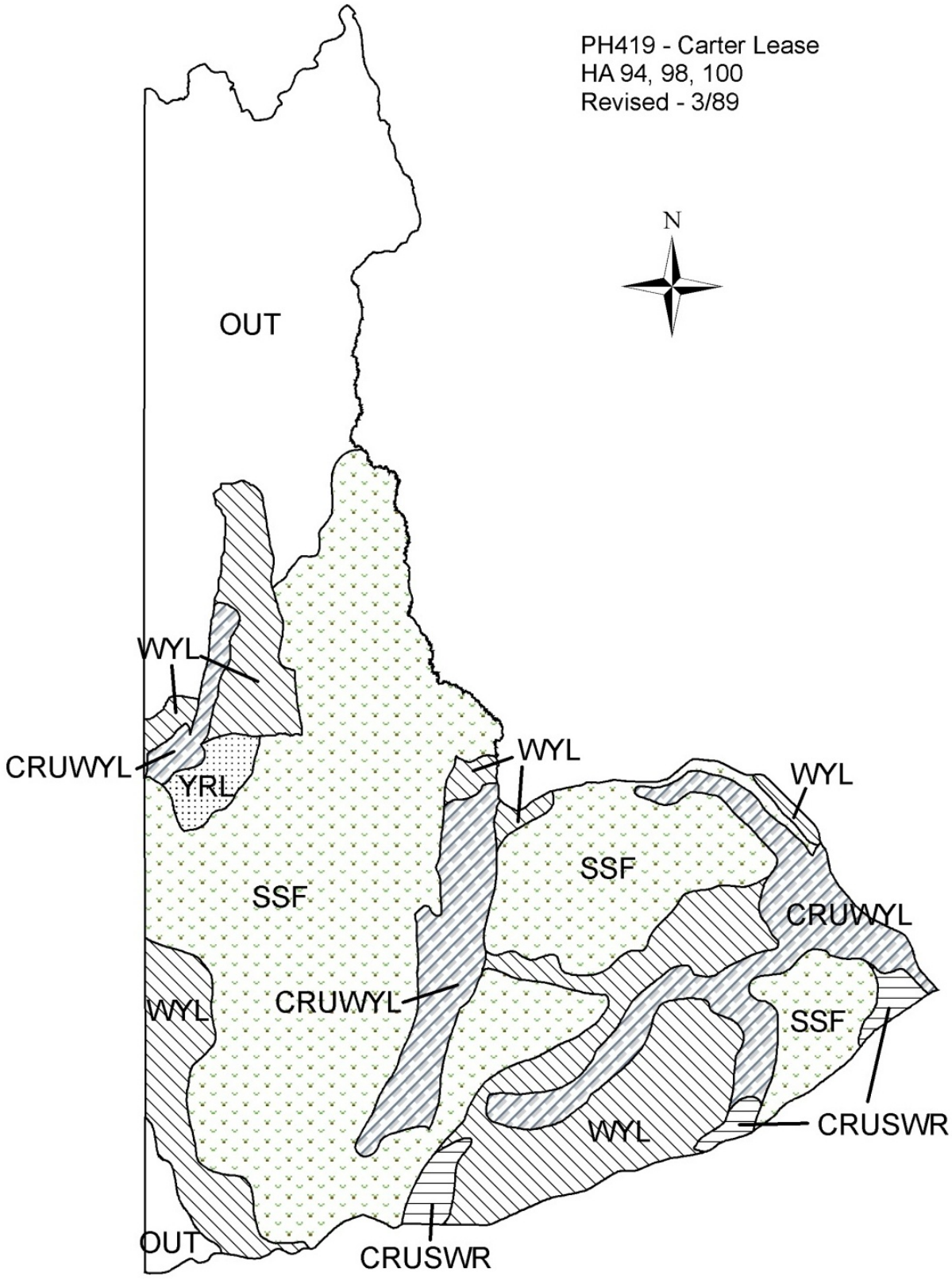
A total Herd Unit 419 (Carter Lease) model is very unreliable due to much different population parameters in Hunt Areas 98 and 100, when compared to Hunt Area 94. Additionally the line transect survey method is incompatible with terrain and pronghorn density in areas 98 and 100. Given these constraints, it makes more sense to model hunt area 94, only, since the method is picture perfect for this large area. Efforts have been made to tighten line transect estimates through tightening of lines and increased effort, and we now have two surveys that resulted in tight confidence intervals. The current model tracks very well and we have fairly good confidence in the estimates. Herd unit population estimates are reported as the area 94 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 fact the population estimate is reasonable. Another reason we have good confidence in the strength of this model is that all three model variations produce a very similar population estimate.

It will be imperative that we continue to obtain a reliable population estimate periodically through line transect surveys to anchor the model. With this it is likely that we can continue to provide a good population model and track the trend of this population. Model efforts are now conducted on a spreadsheet model developed in 2012 since POP-II software is no longer supported.

Currently the model is estimating we have around 5,000 pronghorn following the 2016 season in hunt area 94, meaning we are at objective. 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 slightly and had very mild winters, allowing the herd to climb to objective. 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. The winter of 2016/17 will end up having negative impacts on this herd. The total impact will not be known until later but we are proposing reductions in harvest to account for this winter.

Management Summary

For 2017, we are reducing doe-fawn licenses due to winter severity. We will also decrease hunt area 94 “any antelope” licenses in a modest manner. All areas in the herd unit still have ample hunting opportunity, and it is likely hunters will generally have good success with limited extra effort. We are now right at the objective in Hunt Area 94 according to the model and are striving to maintain very low antelope densities in both areas 98 and 100. We will maintain levels of directed doe-fawn harvest in hunt area 94 to alleviate damage concerns on irrigated lands. The Objective and management strategy were last revised in 2015 and no changes were made.


PH419 - Carter Lease
HA 94, 98, 100
Revised - 3/89
N
OUT
WYL
CRUWYL
YRL
SSF
WYL
WYL
SSF
CRUWYL
WYL
CRUWYL
SSF
WYL
CRUSWR
OUT
CRUSWR

2017 Proposed - Season Setting Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2016 - 5/31/2017

HERD: PR438 - BAGGS

HUNT AREAS: 53, 55

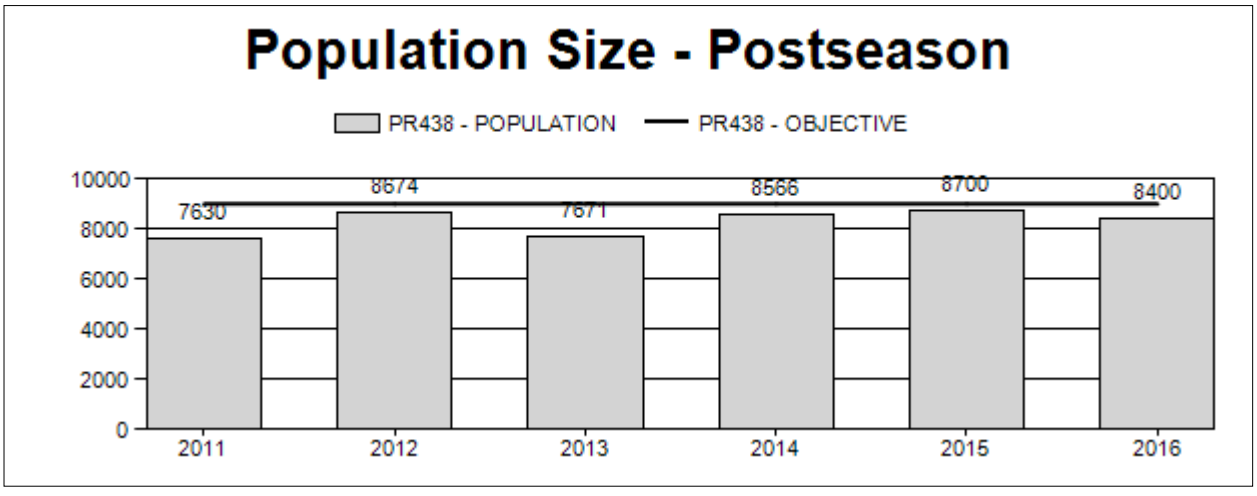
PREPARED BY: TONY MONG

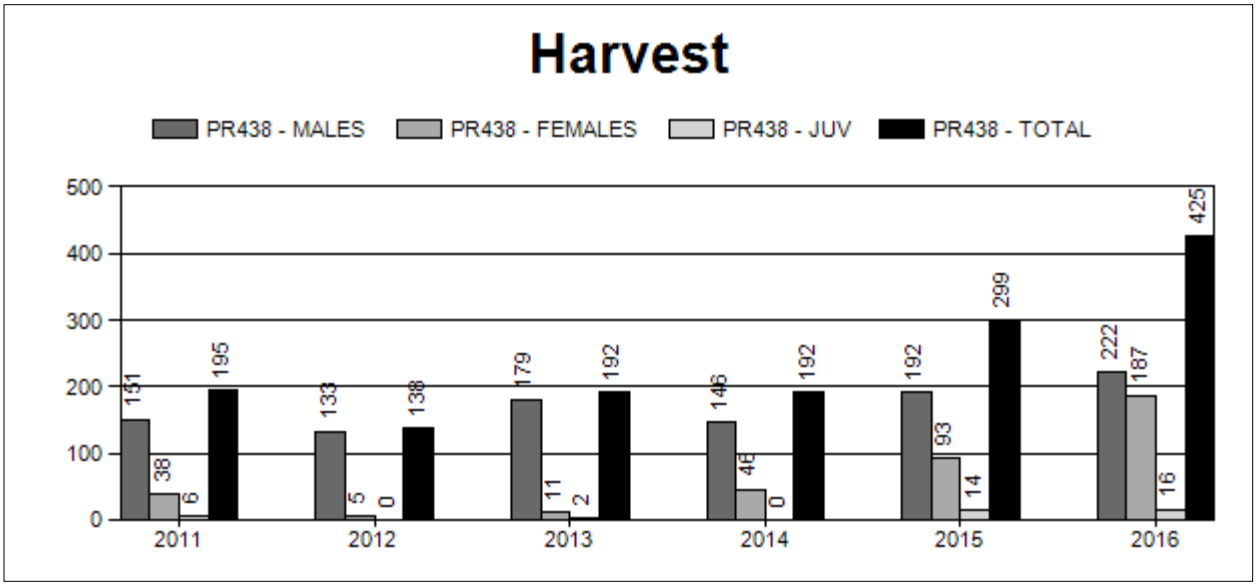
	2011 - 2015 Average	2016	2017 Proposed
Population:	8,248	8,400	8,500
Harvest:	203	425	460
Hunters:	217	386	400
Hunter Success:	94%	110%	115 %
Active Licenses:	233	470	500
Active License Success:	87%	90%	92 %
Recreation Days:	648	1,122	1,200
Days Per Animal:	3.2	2.6	2.6
Males per 100 Females	53	64	
Juveniles per 100 Females	58	53	

Population Objective (± 20%) :	9000 (7200 - 10800)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-6.7%
Number of years population has been + or - objective in recent trend:	0
Model Date:	2/21/2017

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

	JCR Year	Proposed
Females ≥ 1 year old:	2.7%	5%
Males ≥ 1 year old:	7.3%	9%
Total:	2.5%	3%
Proposed change in post-season population:	3.0%	0%




Harvest
PR438 - MALES
PR438 - FEMALES
PR438 - JUV
PR438 - TOTAL
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400
300
200
100
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6
195
133
5
0
138
179
11
2
192
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16
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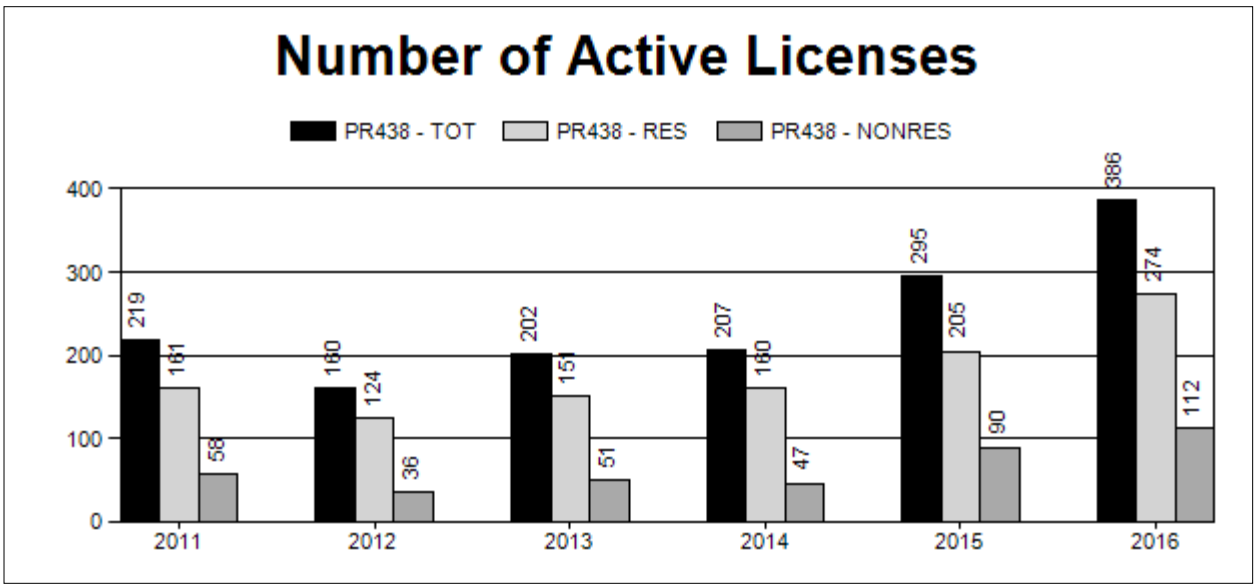
2011
2012
2013
2014
2015
2016


Number of Active Licenses
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PR438 - RES
PR438 - NONRES
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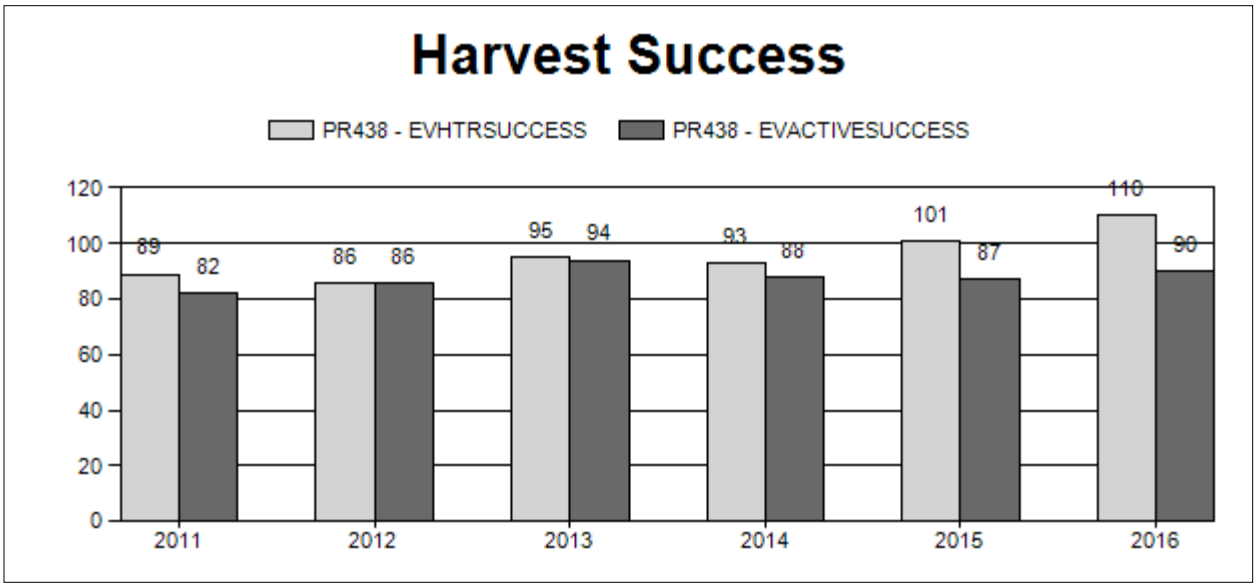
2014
2015
2016


Harvest Success
PR438 - EVHTRSUCCESS
PR438 - EVACTIVESUCCESS
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100
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60
40
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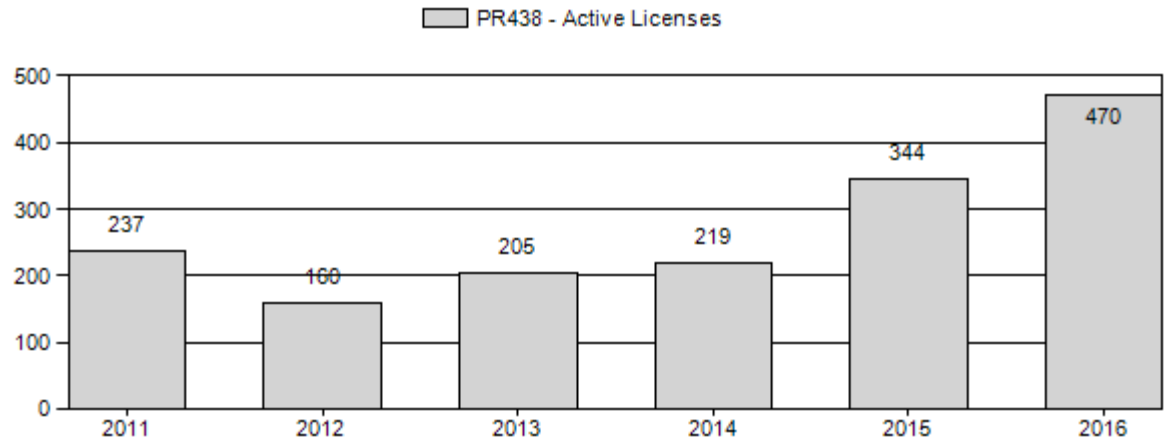
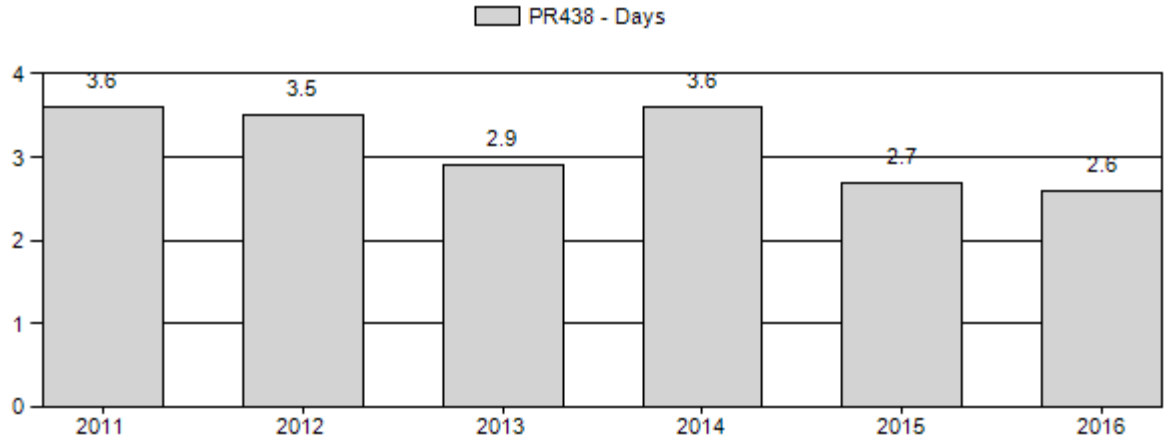
93
88
101
87
110
90
2011
2012
2013
2014
2015
2016

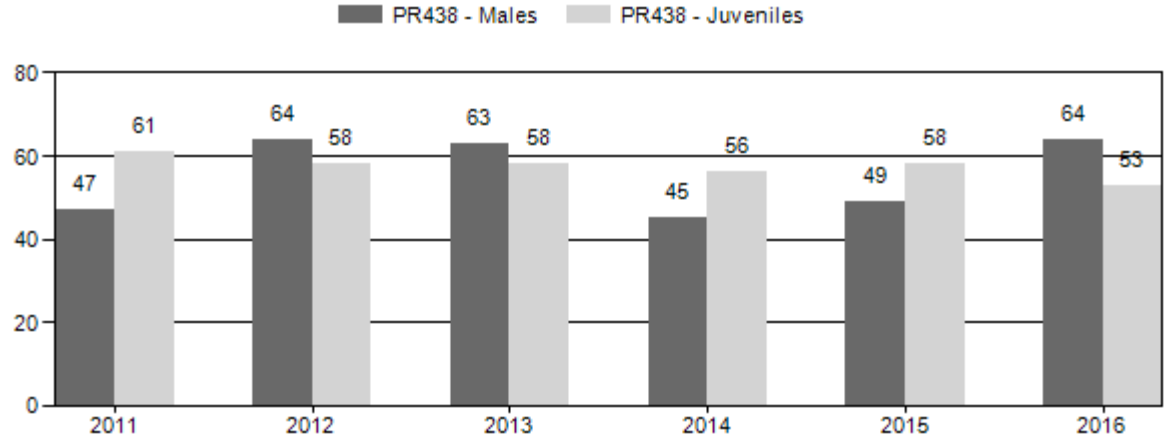
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 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	Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	7,884	75	222	297	23%	628	48%	381	29%	1,306	0	12	35	47	± 5	61	± 6	41
2012	8,825	107	358	465	29%	728	45%	425	26%	1,618	0	15	49	64	± 6	58	± 5	36
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 PROPOSED HUNTING SEASON

SPECIES : **Pronghorn** HERD UNIT : **Baggs (438)**
HUNT AREAS: **53, 55**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
53	1	Sep. 20	Oct. 31	150	Limited quota	Any antelope
	6	Sep. 20	Oct. 31	100	Limited quota	Doe or fawn
	7	Sep. 1	Oct. 31	125	Limited quota	Doe or fawn valid on private land within one (1) mile of Wyoming Highway 70, Carbon County Road 561 or Carbon County Road 702
55	1	Sep. 20	Sep. 31	200	Limited quota	Any antelope
	6	Sep. 20	Oct. 31	100	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 2016*
53	*1*	*+50*
	6	*0*
	7	*+75*
55	*1*	*+50*
	6	*0*
Herd Unit Total	***1***	***+100***
	6	***0***
	7	***+75***

Management Evaluation
Current Management Objective: 9,000 (2015)
Management Strategy: Recreation

2016 End-of-bio-year Estimate: 6,700
2017 Proposed Postseason Population Estimate: 8,500

The Baggs pronghorn herd is within the 20% range of the objective of 9,000. Therefore, our current management strategy is to maintain current population levels through some additional doe harvest. In addition we have seen a slight increase in buck ratios in both hunt areas in this herd, and we are proposing increases in both areas. Due to continued complaints from private landowners in the southern portion of the herd unit we are proposing an increase of 75 doe-fawn licenses to address these concerns.

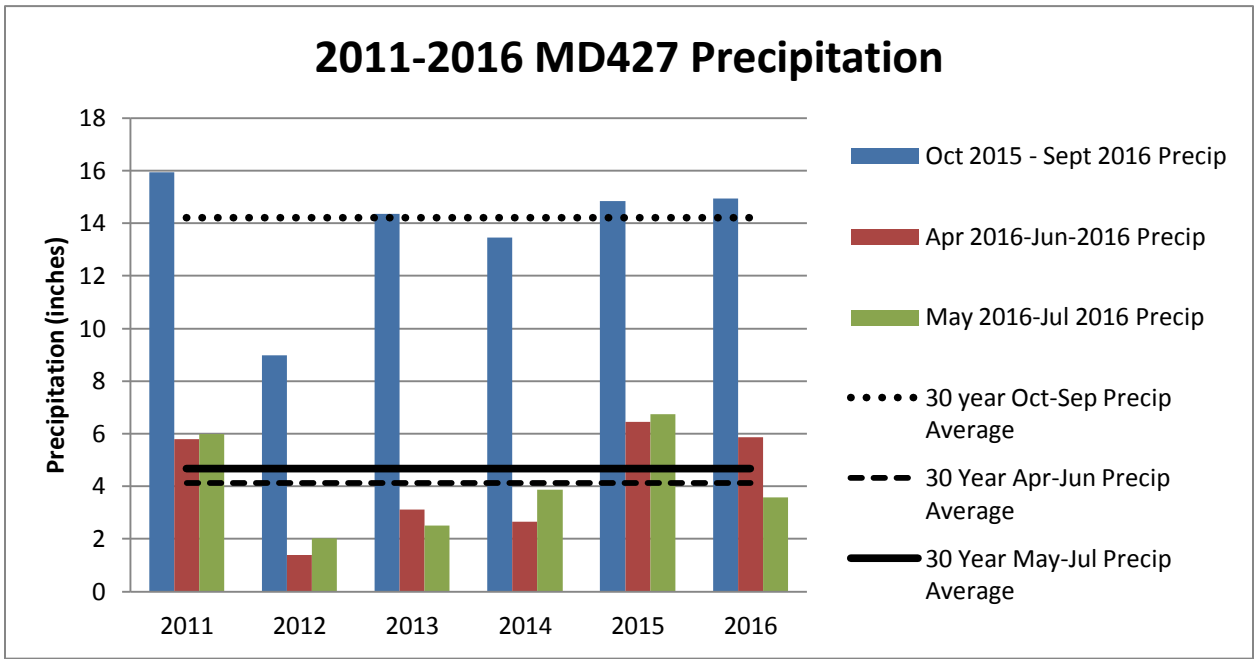
Herd Unit Issues

There are three main issues impacting the Baggs herd: 1) energy production, 2) poor hunter access in hunt area 55, and 3) increasing numbers of summering pronghorn on irrigated meadows in hunt area 53, on drainages north and east of Baggs. Throughout the Baggs herd unit development of oil and gas fields associated with the Atlantic Rim Project continues, and year we will soon begin to see the development of the largest wind turbine project in North America, the Chokecherry-Sierra Madre Wind Project. We are uncertain of the potential impacts to the herd, but this development will likely represent an additional negative impact to this population through direct and indirect habitat loss.

Hunt area 53 retains decent hunter access, with a majority of the land under public ownership. However, we continue to have significant access concerns 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 numbers have remained limited in number in this area to accommodate known access issues. An increase of 50 licenses in the area last year did not result in a decrease in the harvest success, which could indicate access was not an issue for the majority of those hunters.

Over the last 4 years we have seen an increase of pronghorn using irrigated meadows along the Little Snake River, the lower end of Savery Creek, and now an irrigated fields 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 those private lands, have been increasing in recent years. Because of the willingness of the landowners to address this issue through harvest, we have increased the designated licenses for those areas for 2017, and have expanded the area where these private land licenses are valid.

Weather



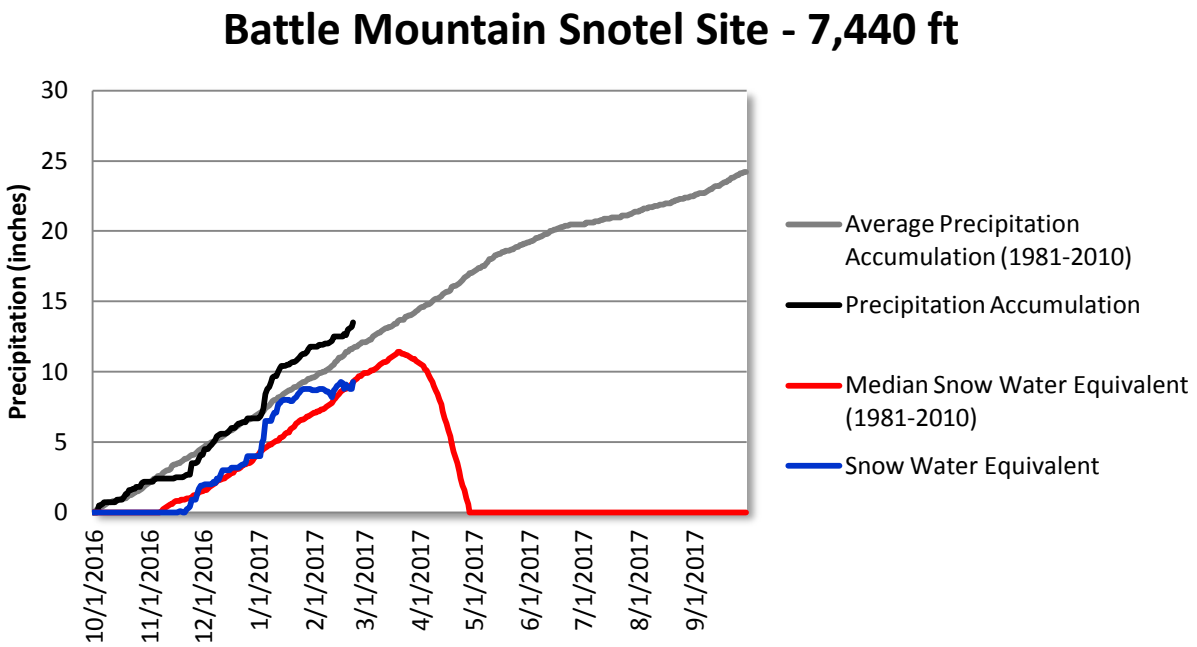
Parameter-Elevation Relationships on Independent Slopes Model (PRISM) was utilized to estimate precipitation by calculating a climate-elevation regression for each Digital Elevation Model grid cell (4 km resolution).

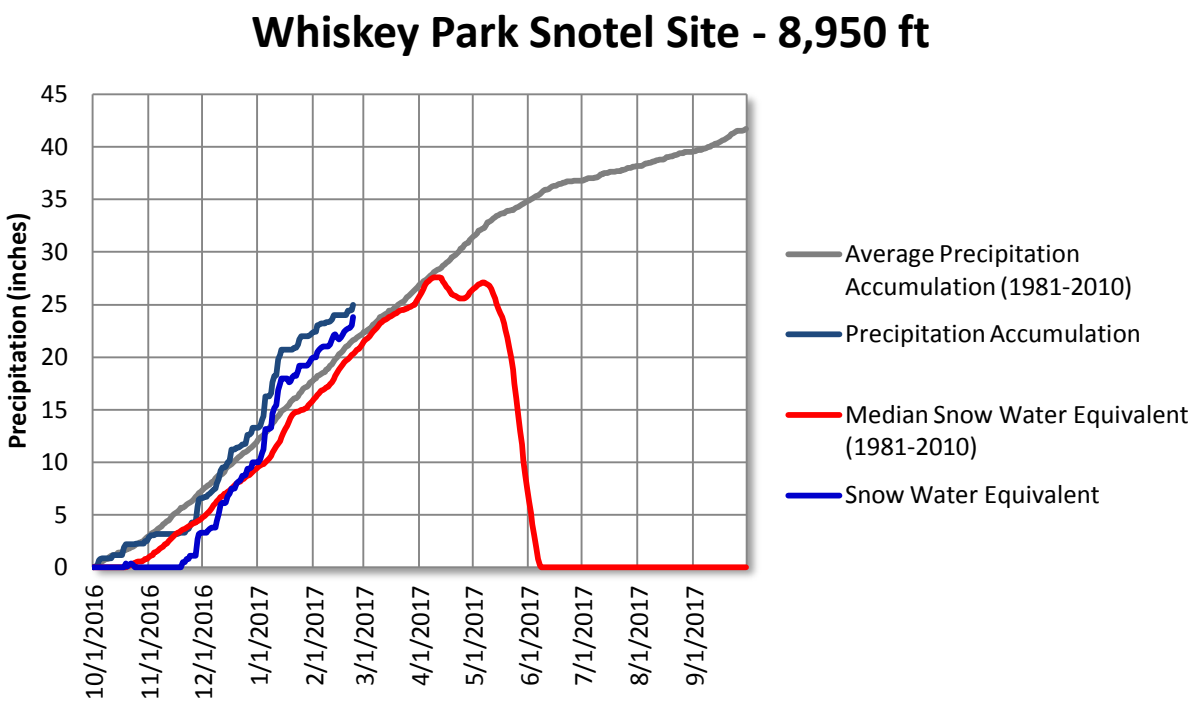
Precipitation

Annual bio-year precipitation from October 2015 through September 2016 was slightly higher than the 30 year average. Growing season precipitation (April-June 2016) across the herd unit was higher than the 30 year average, but later season precipitation from May-July 2016 (higher elevation growing season) was notably lower than the 30 year average. As illustrated by the above graph, most of the precipitation occurred outside of the primary growing season, primarily in the form of snow. Although there was significant spring moisture in 2016 from both early spring snows and significant late spring rain events, precipitation slowed by early June. June through October 2016 was extremely dry causing vegetation to dry and cure fairly early in the growing season. The dry summer in conjunction with fine fuel loading from the high vegetative production seen in 2014 and 2015, big wind events, and the abundance of beetle killed lodgepole created an environment conducive to large wildfires throughout the Sierra Madres.

Winter Severity

The early portion of the winter in 2016 was unseasonably warm well into December across the herd unit. These warmer temperatures, paired with late fall moisture, resulted in a late fall green-up at some elevations, providing pronghorn with an extra nutritional boost prior to winter. January brought several significant snowfall events in the herd unit and sustained temperatures well below zero, which may have created severe energy demands on pronghorn with very little access to forage. High winds and a sustained warming trend in February helped to melt off lower elevation habitats, and losses in this herd will likely be less than in herds north and west of Baggs. At mid-range elevations, as reported by the Battle Mountain Snotel Site, snowpack (snow water equivalent) is currently at 100% of normal; however it was at 151% in mid-January reflecting those big snow events. Higher elevations have slightly higher current winter snowpack with the Whiskey Park Snotel Site reporting a snowpack that is 117% of normal (2/23/2017) also showing significantly higher snowpacks in mid-January of 146%.





Field Data

A downward trend in herd unit wide pronghorn fawn ratios is slightly concerning, but likely reflects issues involving short term drying of native habitats and the influence that plays on doe condition and fawn survival. This may also explain the increased use of irrigated lands by pronghorn in this herd unit. As is typical for this population, fawn production was most affected in hunt area 53 with a drop from 62 to 51. It is unclear why we saw such a dramatic drop in fawn ratios within the herd unit because there did not seem to be any major weather issues to cause this decline, except for a decline in summer precipitation and relatively dry summer. There has been some discussion from area residents centered around the increase in predator (coyote) populations in the area but we have no data to support these claims, and this is certainly not a new or unique phenomenon in Wyoming. It is likely coyote populations have responded favorably to recent past increases in lagomorphs and small rodents, but this typically results in reduced focus on young ungulates.

In the past we have seen a dichotomy between area 53 and area 55 adult buck ratios. However, this year's data does not reflect that difference. Hunt areas 53 and 55 adult buck ratios were the same in 2016, with Area 53 remarkably increasing from 27 bucks:100 does to 46:100. This increase may have been impacted in either year (2015 vs 2016) by sample size issues, or movement of bucks from area 55 where buck ratios are typically much higher. Regardless of cause, bucks appear to be doing well in the herd and more opportunity is available for hunters in 2017.

Harvest Data

Hunters within the Baggs pronghorn herd had good hunter success and required limited effort to harvest pronghorn in 2016, typical for this species, and hunters appeared to be satisfied during their hunts in 2016. Hunter success rates were the highest seen in the herd unit with an overall active license success rate of 90% which is higher than the previous 5-year average of 89%. This success equated to 91% of hunters surveyed indicated they were either satisfied or very satisfied

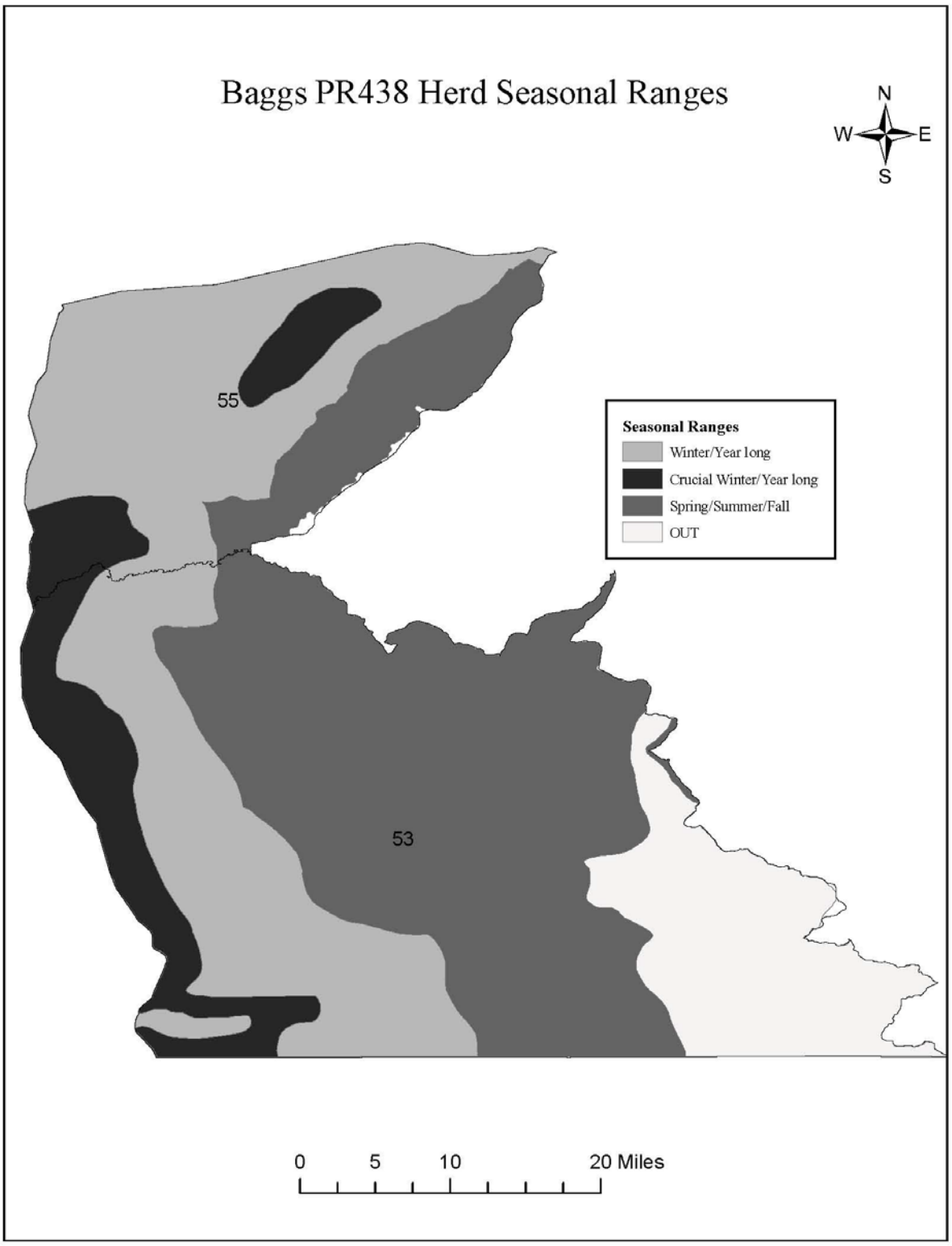
with the overall quality of the hunt in the Baggs herd unit. Unlike many previous years, we saw similar success and satisfaction rates between areas 53 and 55.

Population

The current population model estimates the 2016 posthunt population to be around 8,400 pronghorn, approaching the current objective of 9,000. The CJ, CA model seemed to perform best, and 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 line transect estimates obtained in 2008, and with observations of field personnel, hunters and local residents. The spreadsheet model is tracking below the 2012 line transect population estimate, and despite efforts to parameterize the model to try and better fit the line transect estimate, efforts were not successful. As is common with these models, buck ratios in this model have not been able to track actual ratios. This may be related to the highly variable nature of buck ratios in this herd. Despite some questionable model performance, current harvest rates should allow us to maintain pronghorn numbers at current levels.

Management Summary

The Baggs pronghorn herd has seen a slow recovery from reduced numbers over the last 10 years. Currently, the population appears to be at levels that will allow for limited doe harvest and increased opportunities for buck harvest. Challenges include a disproportionate growth of antelope along the more mesic southern end of the unit causing concern for landowners. An increase of type 7 licenses should address those concerns allowing for a decrease in the number of pronghorn on irrigated hay meadows.


Baggs PR438 Herd Seasonal Ranges
N
W
E
S
55
53
Seasonal Ranges
Winter/Year long
Crucial Winter/Year long
Spring/Summer/Fall
OUT
0
5
10
20 Miles