

## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2015 - 5/31/2016

HERD: PR202 - BIG HORN

HUNT AREAS: 79

PREPARED BY: LESLIE SCHREIBER

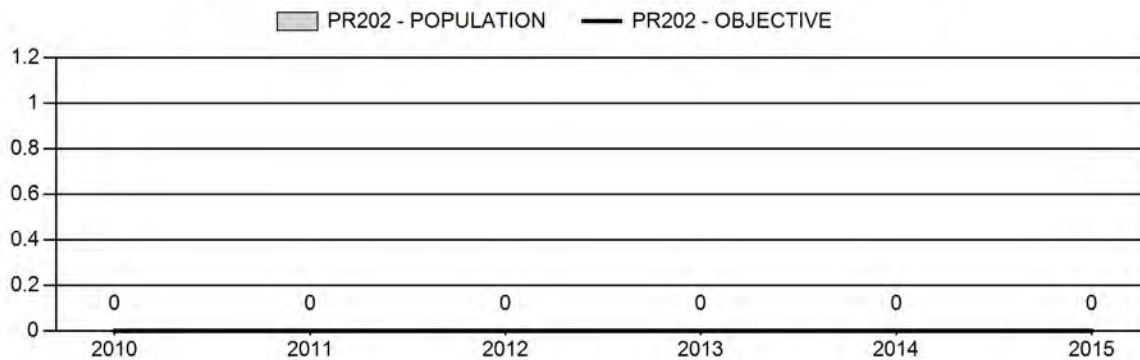
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	0	N/A	N/A
Harvest:	44	62	62
Hunters:	55	62	62
Hunter Success:	80%	100%	100 %
Active Licenses:	60	74	74
Active License Success:	73%	84%	84 %
Recreation Days:	243	473	470
Days Per Animal:	5.5	7.6	7.6
Males per 100 Females	54	84	
Juveniles per 100 Females	65	80	

Population Objective ( $\pm$ 20%) :	0 (0 - 0)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	0
Model Date:	None

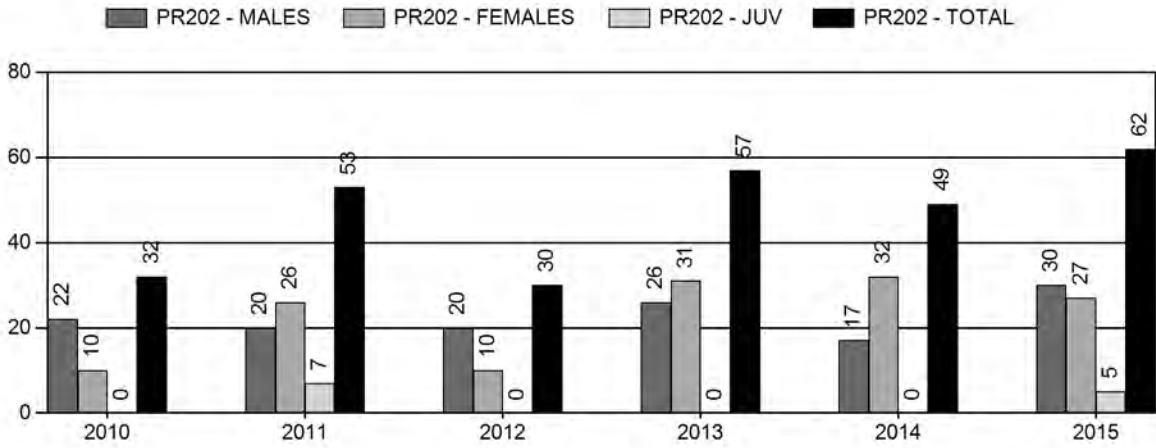
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

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

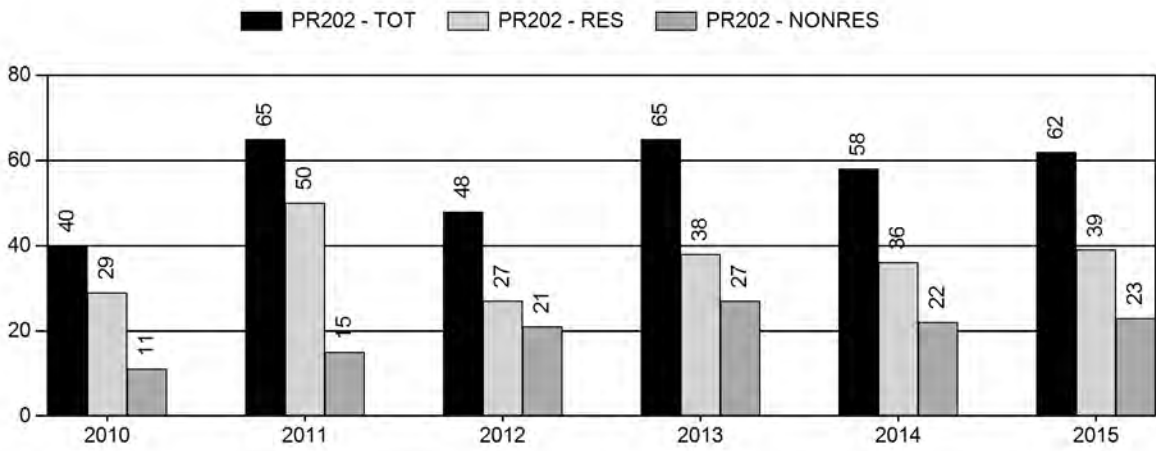
## Population Size - Postseason



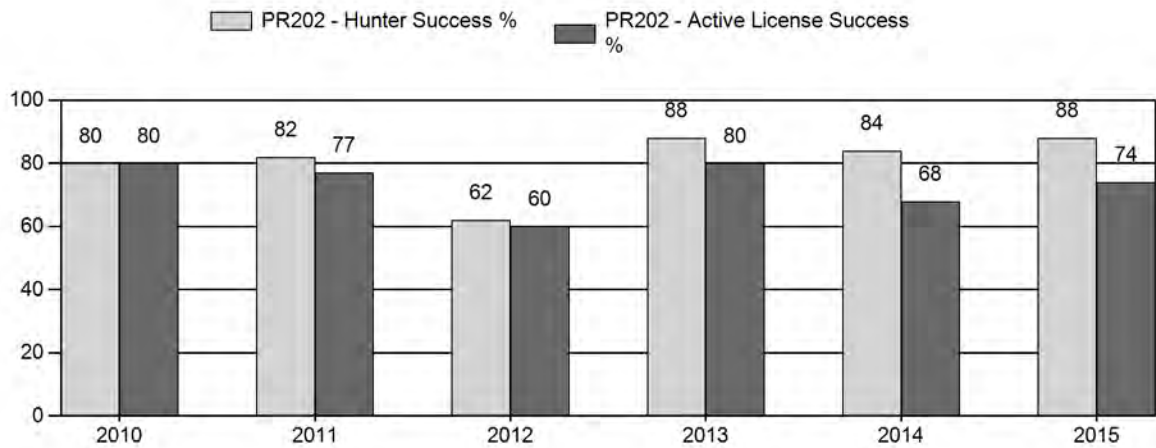
# Harvest



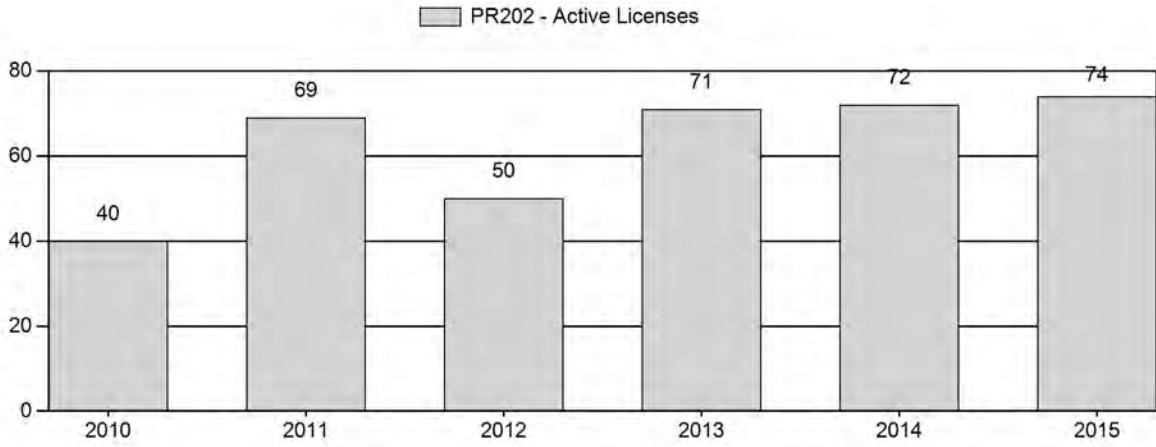
# Number of Hunters



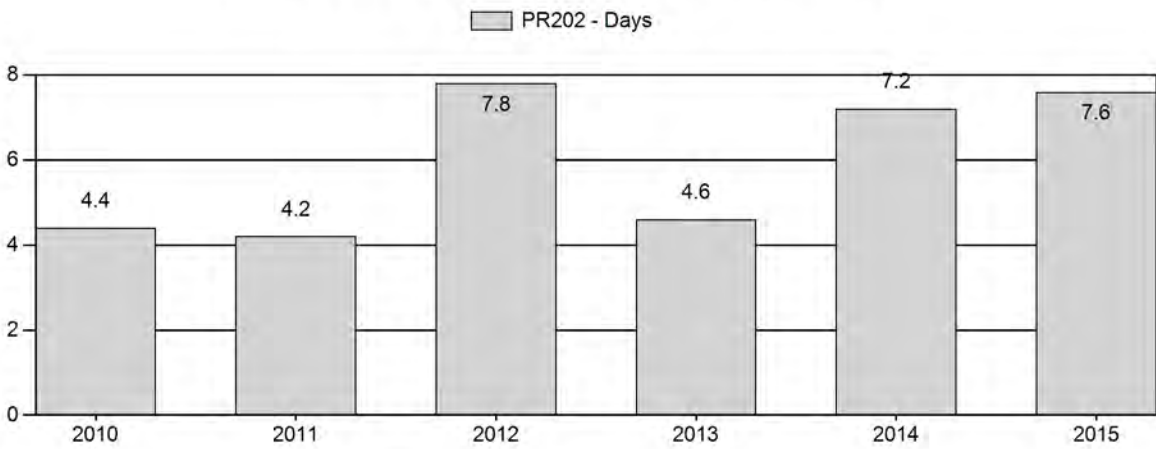
# Harvest Success



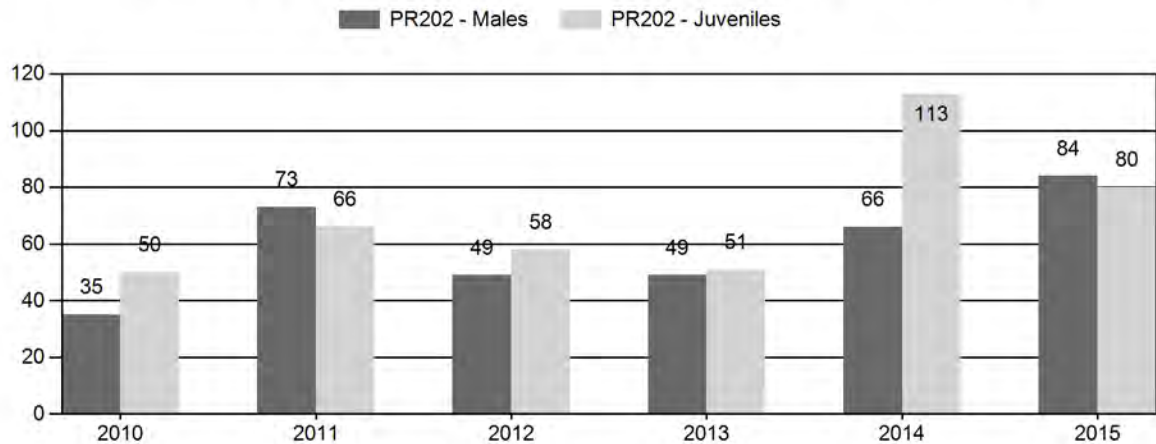
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



### 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR202 - BIG HORN

Year	Pre Pop	MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%	Tot	Cls	Ylng	Adult	Total	Conf	100 Fem	Conf Int	100 Adult
										Cls	Obj				Int			
2010	0	6	19	25	19%	72	54%	36	27%	133	0	8	26	35	± 0	50	± 0	37
2011	0	24	46	70	31%	96	42%	63	28%	229	268	25	48	73	± 0	66	± 0	38
2012	0	30	50	80	24%	162	48%	94	28%	336	0	19	31	49	± 0	58	± 0	39
2013	0	28	43	71	24%	145	50%	74	26%	290	248	19	30	49	± 0	51	± 0	34
2014	0	19	38	57	24%	87	36%	98	40%	242	0	22	44	66	± 0	113	± 0	68
2015	0	37	79	116	32%	138	38%	110	30%	364	320	27	57	84	± 0	80	± 0	43

**2016 HUNTING SEASONS  
BIG HORN PRONGHORN HERD (PR202)**

Hunt Area	Type	Season Dates			License	Limitations
		Opens	Closes			
79	1	Sep. 20	Sep. 30	15	Limited quota	Any antelope valid on or within one-half (1/2) mile of irrigated land
79	6	Sep. 1	Nov. 30	75	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land south of US Hwy 14
79	9	Aug. 15	Sept. 30	30	Limited quota	Any antelope, archery only

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

Hunt Area	License Type	Quota changes from 2015
79	6	+25
<b>Herd Unit Total</b>	<b>6</b>	<b>+25</b>

**Management Evaluation**

**Current Postseason Population Management Objective:** none

**Management Strategy:** Recreational

**2015 Postseason Population Estimate:** none

**2016 Proposed Postseason Population Estimate:** none

**2015 Hunter Satisfaction:** 78% Satisfied, 11% Neutral, 11% Dissatisfied

**Herd Unit Issues**

Management of this herd unit using a population objective was eliminated in 2001 due to insufficient sample sizes obtained during classification surveys. Without adequate samples, sex and age ratios were unreliable and inadequate for population modeling using spreadsheet models. There have been no line transect surveys conducted in this herd unit to obtain an independent population estimate due to the small population and limited flight budgets. No management goals (e.g., count objectives, satisfaction) were established for this herd due to lack of data. This herd will be reviewed in 2016 and management goals will be established.

**Weather**

Habitat quality is probably most affected by desert-like conditions (< 12" annual precipitation) and poor soils. Both of those factors have allowed cheatgrass to invade and dominate some sites. Drought is the most important factor influencing survival and productivity of this pronghorn herd. Drought conditions occurred in 2000-04 and 2012. Effects of drought on upland vegetation resulted in a shift of pronghorn to agricultural fields where landowners have a low

tolerance. Well-timed growing season precipitation resulting in increased forage occurred in 2014-15.

### **Habitat**

Dry conditions and poor soils across most of the herd unit resulted in marginal habitat for pronghorn. Saltbush and mixed shrub communities dominate the area. Sagebrush improves in quantity and quality with increased precipitation, higher elevation, and better soils on the east side of the herd unit; however, few pronghorn occur in the “best” habitat. Most pronghorn in the herd unit concentrate around irrigation canals and stock dams. Bentonite mining has been expanding toward and into the best remaining stands of sagebrush on the west side of the herd unit. The 2 shrub transects established in this herd unit, Renner and Alkali, were located outside of areas used extensively by pronghorn in order to monitor mule deer browsing.

### **Field Data**

The amount of effort (hours) to survey pronghorn in this herd unit has not been constant over the years, so trends in classification survey data should not be taken to represent trends in the overall population. This herd unit has been a low priority and classification data was not always collected. As noted, small sample sizes resulted in sex and age ratios that were not an accurate representation of the entire population. Regardless, the fawn:doe ratios obtained from the 2014 (113:100) and 2015 (80:100) classification surveys were some of the highest in the past 27 years. Total number of pronghorn classified in 2015 (364) was above average (2010-2014=246). The buck:doe ratio in 2015 (84:100) was abnormally high, and might be artificially inflated due to the presence of a particularly visible herd of bucks. Both buck ratios and fawn ratios were showing a slight downward trend since the mid-1990s until a large increase in both ratios in 2011 and now again in 2014-15. Although more data has been collected since 2006, sample sizes were still insufficient in some years to draw conclusions for the entire population.

### **Harvest Data**

Trends in hunting statistics do not suggest a clear trend in the population. From 1995-2015, recreation days and days per harvested animal have large fluctuations depending on if and how many doe/fawn licenses were issued. Considering only the archery licenses, hunter success has been increasing since 2005. Days per harvest have been trending downward, as has total recreation days, but to a lesser degree. Those statistics suggest that archery hunting for bucks has gotten easier and/or the population has been increasing. The majority (78%) of harvest survey respondents were satisfied with their hunt.

### **Population**

Preliminary attempts to construct a reliable population spreadsheet model have been marginally successful. Since 2006, more pronghorn have been observed during classification surveys (>200 animals in most years); thus, more accurate sex and age ratios were expected. However, modeling this herd unit as 1 distinct population may not be possible, because this herd unit was created from 2 old Hunt Areas (116, 79) that were managed the same for 10 years then combined in 2013. In these areas, classification data suggests differences in juvenile and adult survival, and minimal movement between them, suggesting that the model's assumptions are likely violated. Regardless, this population is probably increasing given other metrics, such as days per harvest and classification sample size.

## **Management Summary**

The Big Horn pronghorn herd is a small population (<400 animals), so only limited archery hunting has been historically offered, except with the arrival of doe/fawn (Type 6) licenses to address crop depredation. Landowners in this area requested pronghorn buck rifle hunts, and given trends suggesting an increasing population, 15 buck rifle licenses were offered starting in 2015. Stiff opposition to the buck rifle license was received from archery hunters that traditionally hunt the area. Moving the opening day for the Type 1 license to September 20<sup>th</sup> aligns this rifle season with adjacent Hunt Areas, and minimizes overlap between rifle and archery hunters. To address crop depredation, an additional 25 doe/fawn licenses restricted to the southern half of the Hunt Area will be offered in 2016. Although quantity and quality of data is lacking, it appears the Big Horn pronghorn herd is increasing, but the population remains low.





## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2015 - 5/31/2016

HERD: PR203 - COPPER MOUNTAIN

HUNT AREAS: 76, 114-115

PREPARED BY: BART KROGER

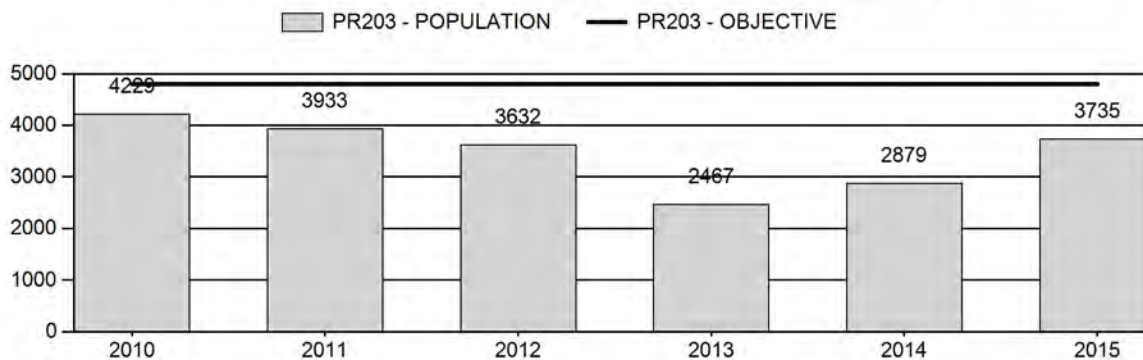
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	3,428	3,735	3,409
Harvest:	715	557	850
Hunters:	744	606	900
Hunter Success:	96%	92%	94 %
Active Licenses:	865	663	1,000
Active License Success:	83%	84%	85 %
Recreation Days:	2,963	2,438	3,000
Days Per Animal:	4.1	4.4	3.5
Males per 100 Females	46	47	
Juveniles per 100 Females	61	88	

Population Objective (± 20%) :	4800 (3840 - 5760)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-22.2%
Number of years population has been + or - objective in recent trend:	5
Model Date:	2/2/2016

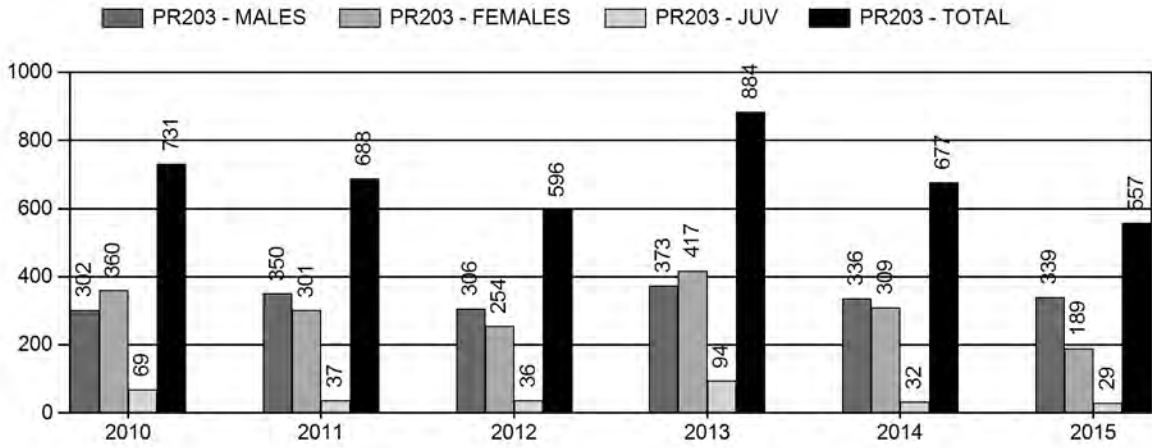
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	10%	20%
Males ≥ 1 year old:	39%	38%
Juveniles (< 1 year old):	2%	2%
Total:	13%	20%
Proposed change in post-season population:	+30%	-9%

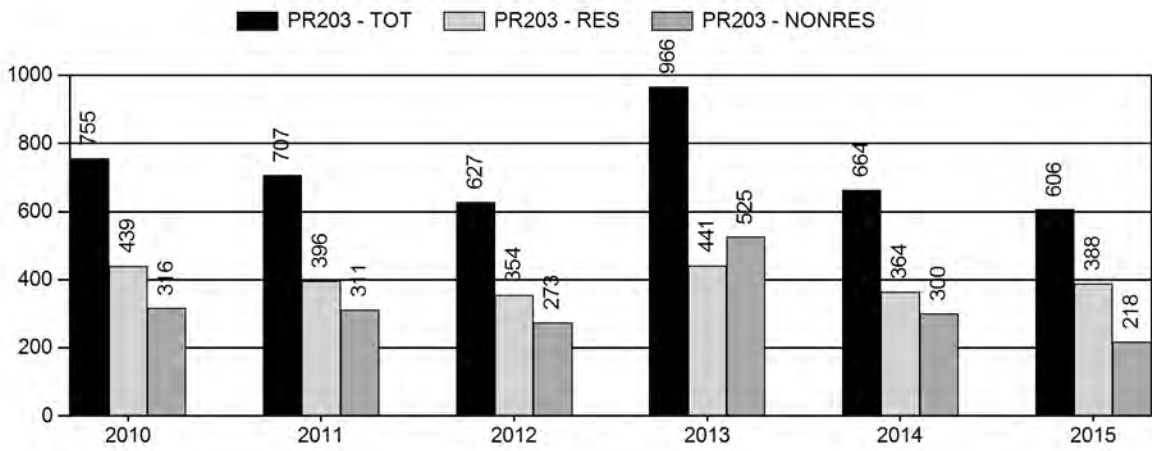
## Population Size - Postseason



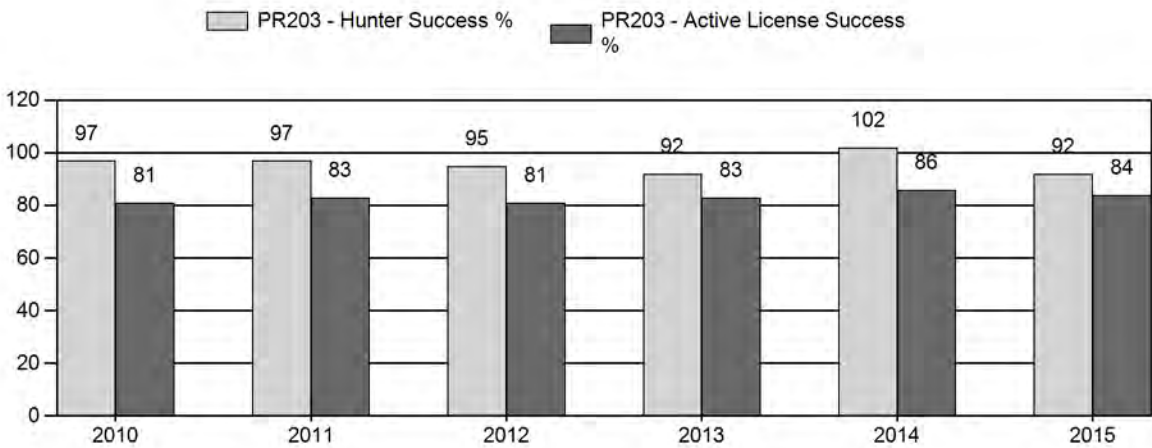
# Harvest



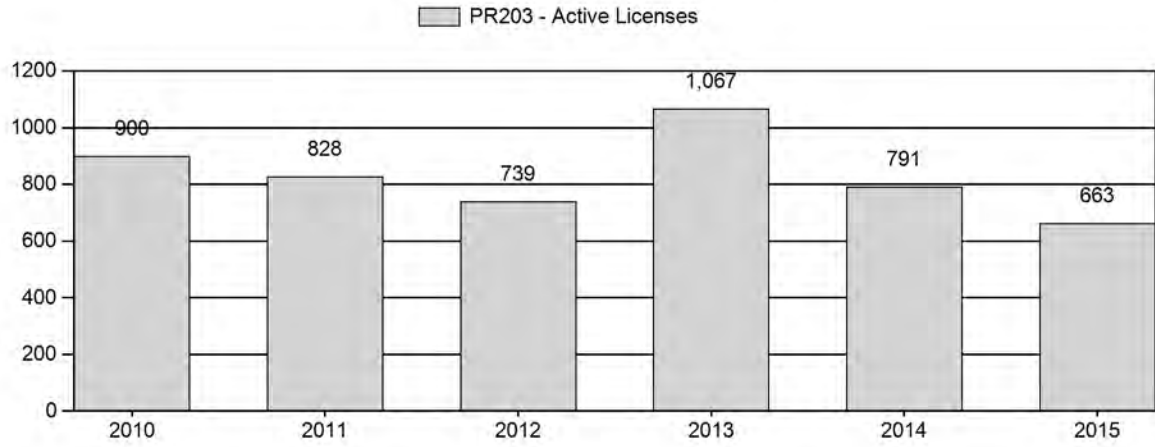
# Number of Hunters



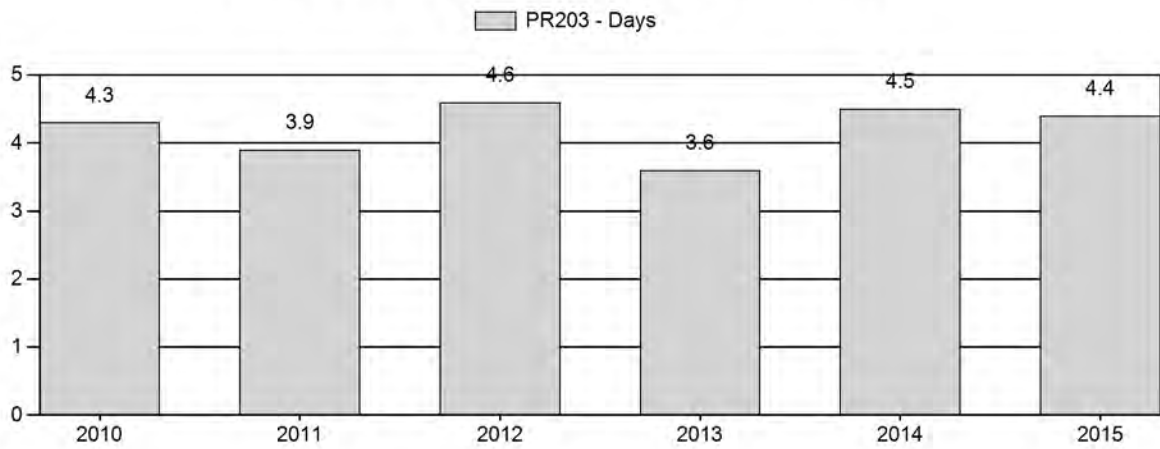
# Harvest Success



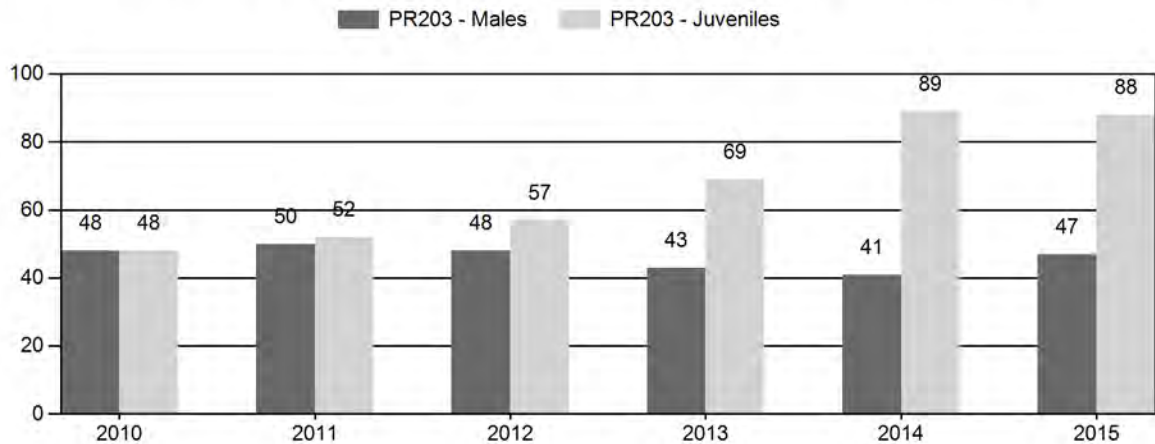
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR203 - COPPER MOUNTAIN

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	5,433	0	0	358	24%	752	51%	362	25%	1,472	1,172	0	0	48	± 4	48	± 4	33
2011	4,690	0	0	467	25%	928	50%	478	26%	1,873	1,277	0	0	50	± 4	52	± 4	34
2012	4,287	0	326	326	23%	682	49%	391	28%	1,399	1,285	0	48	48	± 4	57	± 5	39
2013	2,645	0	0	263	20%	618	47%	429	33%	1,310	1,505	0	0	43	± 4	69	± 5	49
2014	3,624	0	0	218	18%	534	44%	474	39%	1,226	1,810	0	0	41	± 4	89	± 7	63
2015	4,348	0	0	335	20%	715	43%	628	37%	1,678	1,751	0	0	47	± 4	88	± 6	60

**2016 HUNTING SEASONS  
COPPER MOUNTAIN PRONGHORN HERD (PR203)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
76	1	Oct. 1	Oct. 31	175	Limited quota	Any antelope
76	2	Aug. 15	Sep. 30	50	Limited quota	Any antelope valid within two (2) miles of the Bighorn River or south of the Buffalo Creek Road (Hot Springs County Road 5)
76	6	Aug. 15	Oct. 31	150	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land or south of the Buffalo Creek Road (Hot Springs County Road 5)
114	1	Oct. 1	Oct. 31	50	Limited quota	Any antelope
114	2	Aug. 15	Sep. 30	25	Limited quota	Any antelope valid on or within one-half (1/2) mile of irrigated land
114	6	Aug. 15	Oct. 24	100	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land
114	7	Oct. 25	Nov. 30	100	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land
115	1	Oct. 1	Oct. 31	200	Limited quota	Any antelope
115	6	Sep. 1	Nov. 30	300	Limited quota	Doe or fawn valid east of Nowood River or south and west of Cornell Gulch or Nowater Stock Trail (BLM Road 1404)

Special Archery Season Hunt Areas	Opening Date	Limitations
76, 114, 115	Aug. 15	Refer to Section 2 of this Chapter

Hunt Area	Type	Quota change from 2015
76	1	+25
76	2	+25
76	6	+100
114	7	New Type +100
115	1	+50

115	6	+100
<b>Total</b>	<b>1&amp;2</b>	<b>+100</b>
	<b>6&amp;7</b>	<b>+300</b>

**Management Evaluation**

**Current Postseason Population Management Objective:** 4,800

**Management Strategy:** Recreational

**2015 Postseason Population Estimate:** 3,700

**2016 Proposed Postseason Population Estimate:** 3,400

**2015 Hunter Satisfaction:** 87% satisfied, 7% neutral, 6% dissatisfied

**Herd Unit Issues**

The herd unit is about 70% public lands and 30% private lands. Much of the herd unit is supported by vast areas of cheatgrass. Higher densities of pronghorn occur in the southern portion of herd unit along the upper slopes of Copper Mountain and the upper Nowood area. Pronghorn utilizing the low elevation desert country are at low densities, and in some cases are struggling to maintain current numbers. In summer 2012, significant cropland damage issues occurred in the western portion of the herd unit, particularly hunt area 114. Poor habitat conditions, long-term drought, and crop damage will and continue to be major management concerns for this herd. The herd objective and management strategy were last revised in 2013.

**Weather**

The winters of 2010/11, 2012/13 and 2013/14 were severe enough in the Bighorn Basin to have caused significant mortality in this herd, thus keeping this population well below objective. It wasn't until above normal spring and early summer moisture in 2014 and 2015 that this herd started showing improving numbers. The 2015/16 winter has been mostly mild, with little snow cover and mild temperatures.

**Habitat**

Habitat conditions have declined in this herd unit since the onset of drought in the 1990's. With reduced moisture, spring green-up and annual plant growth has been minimal in most years. Lack of precipitation has also affected available water in many stock reservoirs and perennial streams. Much of the herd unit is supported by vast areas of cheatgrass, due to several severe fires in the 1996. Two sagebrush transects were established in this herd unit in September 2004 (Appendix A). Annual production (leader growth) for these transects has average around 2.0cm. Winter utilization remains low at about 10% for these transects. Until considerable moisture regimes return, herd growth and survival will continue to be adversely affected by reduced habitat conditions caused by drought.

**Field Data**

Both aerial and ground surveys are used in obtaining pre-season classification data for this pronghorn herd. Routine classification routes for each hunt area are maintained. The number of pronghorn classified declined by 40% from 2009 to 2014, but increased by 38% in 2015. However, buck ratios continue to remain mostly stable at about 45:100 on average, with fawn ratios averaging around 60:100, with 2013, 2014 and 2015 being three of the highest ratios recorded for this herd. With these improved fawn ratios, pronghorn numbers are increasing.

Three line-transect (LT) surveys have been conducted in the herd unit; the first in 2000 with an estimate of 4,600 pronghorn, the second in 2004 with an estimate of 4,000 pronghorn, and the last in 2007 with an estimate of 4,100 pronghorn. These LT estimates are consistent with field personnel perceptions, and track well with model trends and estimates.

### **Harvest Data**

Because of increasing pronghorn numbers in the late 2000's, along with increased damage issues, license quotas, hunter number and harvest increased dramatically from 2006 to 2010, but have dropped off since. In fact, between 2006 and 2010, harvest increased by over 130%. Between 2010 and 2012 harvests dropped by about 19% due to declining numbers and reduced damage concerns. Then in 2013, license quotas were drastically increased in area 114 due to damage issues, and thus harvest increased by 48%. Then in 2014 and 2015, harvest declined again because of reduced damage issues, and overall declines in the population. Overall, hunter success remains >90% with days/harvest at about 3-4 days.

### **Population**

The Time-Specific Juvenile & Constant Adult Survival (TSJ, CA) spreadsheet model best represents the long-term population estimate and recent trends for this herd. This model has the highest AIC value (n=154), but the best fit (n=28) of all models. The model track well with LT estimates, classification sample sizes and mostly reflects what field personnel perceptions are of this herds trend. This pronghorn population declined 50% between 2009 and 2014, but has now started showing an improving trend due to record high fawn ratios. Although the population is currently below objective by 21%, we are anticipating the population to continue to grow into 2016. The current model is a fair to good representation of this herd.

### **Management Summary**

The 2016 season will see an increase of 100 any antelope, and 300 doe/fawn licenses. With improved fawn ratios, and a noticeable increase in the overall population, along with the potential for damage issues to arise, these significant licenses quota increases are warranted. The projected 2016 harvest of about 850 pronghorn will mostly stabilize this population at about 3,400 pronghorn for post-season 2016.





## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2015 - 5/31/2016

HERD: PR204 - FIFTEENMILE

HUNT AREAS: 77, 83, 110

PREPARED BY: BART KROGER

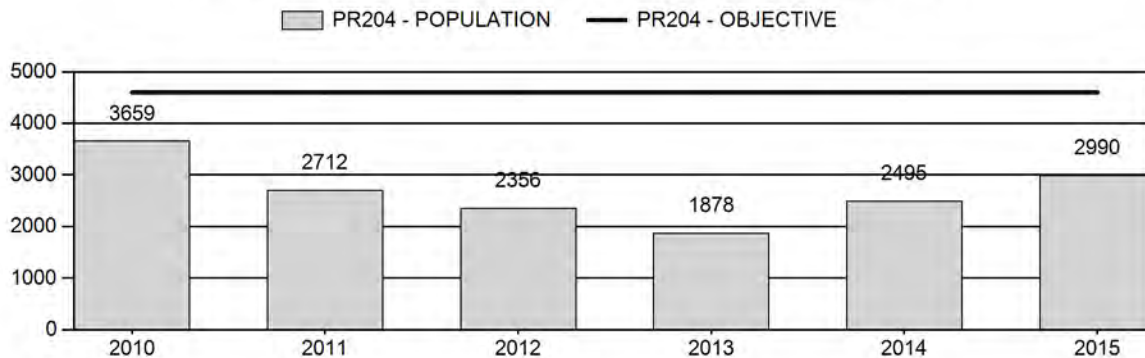
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	2,620	2,990	2,896
Harvest:	751	525	720
Hunters:	728	540	740
Hunter Success:	103%	97%	97 %
Active Licenses:	848	605	800
Active License Success:	89%	87%	90 %
Recreation Days:	2,402	2,275	2,500
Days Per Animal:	3.2	4.3	3.5
Males per 100 Females	38	30	
Juveniles per 100 Females	56	73	

Population Objective ( $\pm$ 20%) :	4600 (3680 - 5520)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-35%
Number of years population has been + or - objective in recent trend:	6
Model Date:	2/2/2016

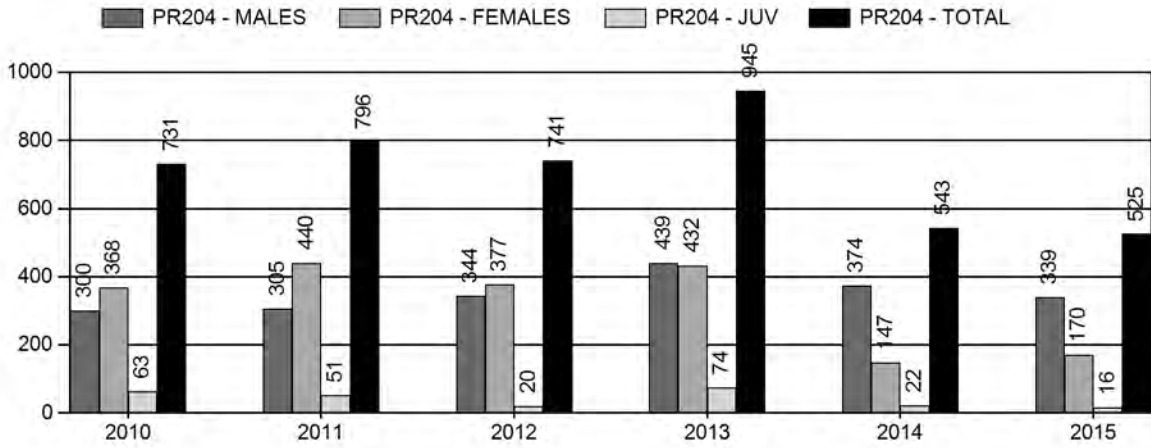
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	10%	16%
Males $\geq$ 1 year old:	65%	68%
Juveniles (< 1 year old):	2%	3%
Total:	15%	19%
Proposed change in post-season population:	+15%	-2%

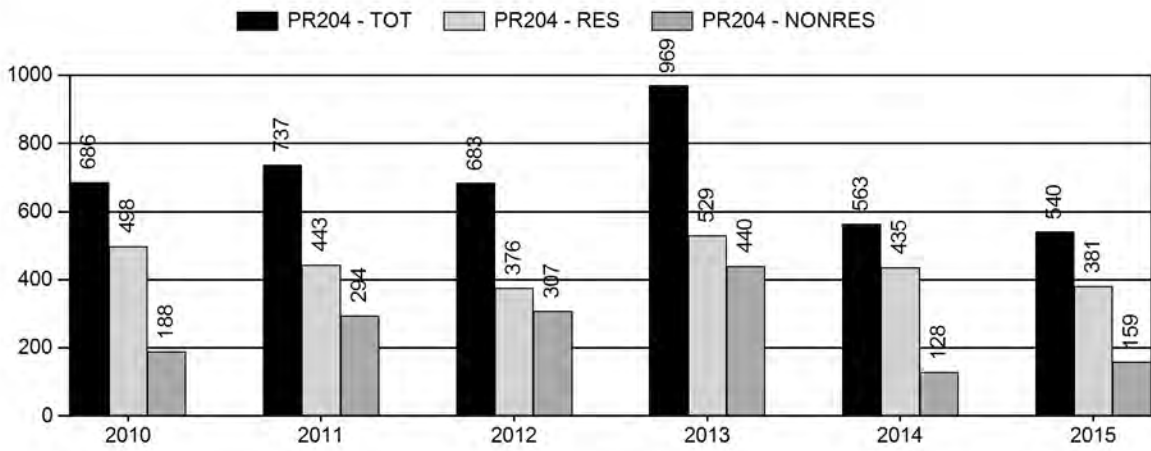
## Population Size - Postseason



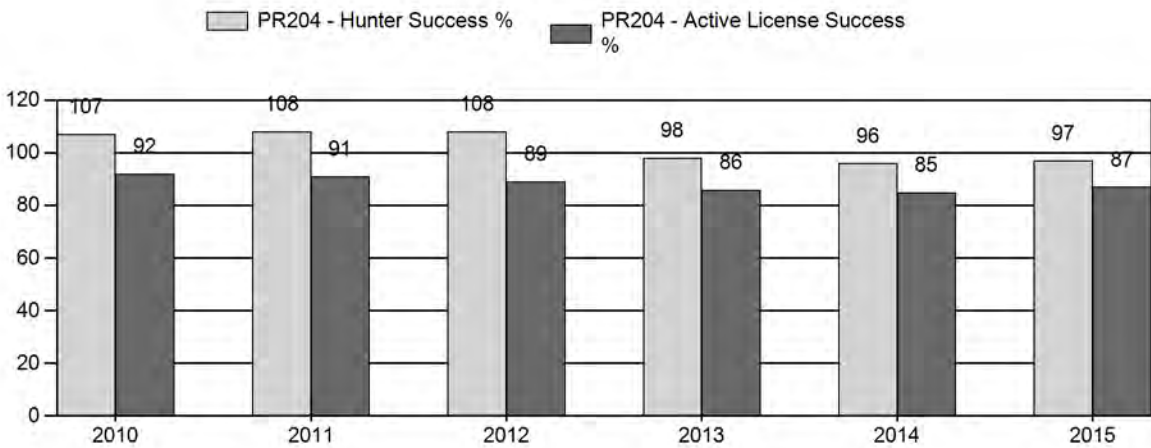
# Harvest



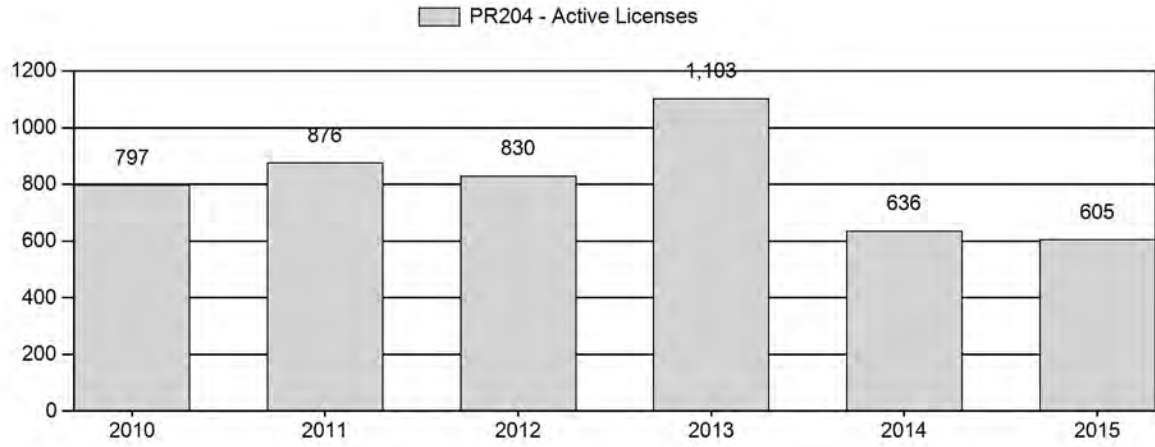
# Number of Hunters



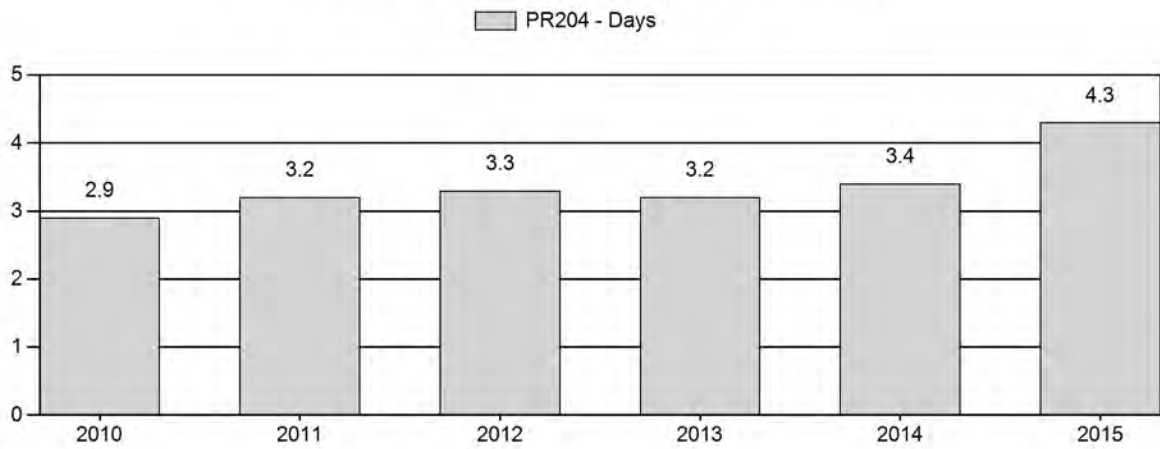
# Harvest Success



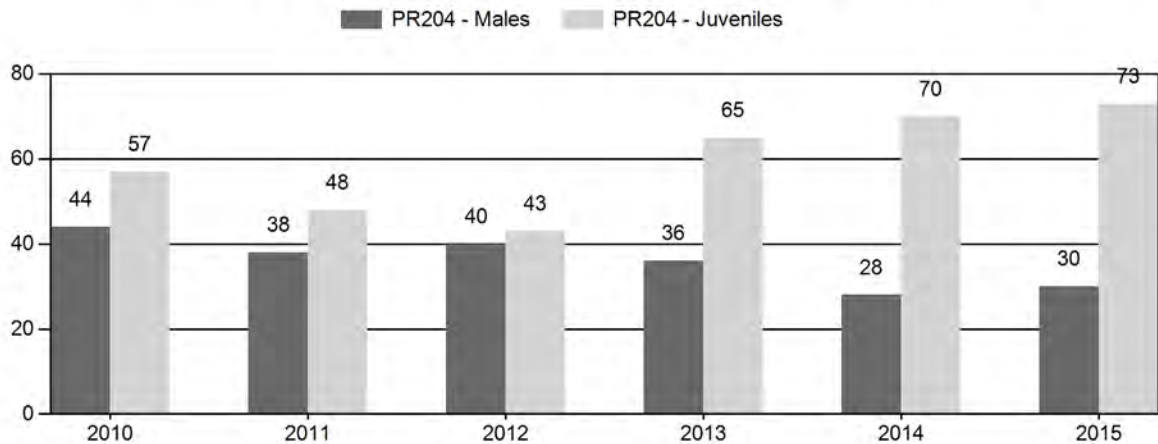
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR204 - FIFTEENMILE

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	4,463	0	0	439	22%	1,008	50%	572	28%	2,019	1,411	0	0	44	± 3	57	± 4	40
2011	3,588	0	0	404	20%	1,060	54%	507	26%	1,971	1,147	0	0	38	± 2	48	± 3	35
2012	3,171	0	362	362	22%	900	55%	389	24%	1,651	971	0	40	40	± 3	43	± 3	31
2013	2,917	0	0	244	18%	672	50%	435	32%	1,351	1,456	0	0	36	± 3	65	± 5	47
2014	3,093	0	0	227	14%	817	51%	571	35%	1,615	1,515	0	0	28	± 2	70	± 4	55
2015	3,567	0	0	334	15%	1,122	49%	815	36%	2,271	1,368	0	0	30	± 2	73	± 3	56

**2016 HUNTING SEASONS  
FIFTEEN MILE PRONGHORN HERD (PR204)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
77	1	Sep. 20	Oct. 14	100	Limited quota	Any antelope
77	2	Aug. 15	Sep. 19	25	Limited quota	Any antelope valid on or within one-half (1/2) mile of irrigated land
77	6	Aug. 15	Nov. 15	100	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land
83	1	Sep. 20	Nov. 7	300	Limited quota	Any antelope
83	6	Aug. 15	Nov. 15	75	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land east of Wyoming Highway 120
83	7	Aug. 15	Nov. 15	200	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land west of Wyoming Highway 120
110	1	Sep. 20	Oct. 14	75	Limited quota	Any antelope
110	6	Sep. 20	Oct. 14	25	Limited quota	Doe or fawn

Special Archery Season Hunt Areas	Opening Date	Limitations
77, 83, 110	Aug. 15	Refer to Section 2 of this Chapter

Hunt Area	Type	Quota change from 2015
77	1	+25
77	6	+50
83	1	+50
83	6	+50
83	7	+100
<b>Total</b>	<b>1&amp;2</b>	<b>+75</b>
	<b>6&amp;7</b>	<b>+200</b>

**Management Evaluation**

**Current Postseason Population Management Objective:** 4,600

**Management Strategy:** Recreational

**2015 Postseason Population Estimate:** 3000

**2016 Proposed Postseason Population Estimate:** 2900

**2015 Hunter Satisfaction:** 87% satisfied, 9% neutral, 4% dissatisfied

### **Herd Unit Issues**

The herd unit is about 75% public lands and 25% private lands, with the majority of pronghorn in the herd unit on or associated with private land. Damage concerns are usually an issue in this herd unit. Harvest is usually directed toward preventing damage even when the herd is well below objective levels. Poor habitat conditions, long-term drought, and crop damage will and continue to be major management concerns for this herd. The herd objective and management strategy were revised in 2013.

### **Weather**

The winters of 2010/11, 2012/13 and 2013/14 were severe enough in the Bighorn Basin to have caused significant mortality in this herd, thus keeping this population well below objective. It wasn't until above normal spring and early summer moisture in 2014 and 2015 that this herd started showing improving numbers. The 2015/16 winter has been mostly mild, with little snow cover and mild temperatures.

### **Habitat**

Habitat conditions have declined in this herd unit since the onset of drought in the 1990's. Overall, long-term drought conditions have affected habitat conditions in this herd unit. Most sagebrush communities continue to lack vigor, reproduction, and leader growth. Until considerable moisture regimes return, herd growth and survival will continue to be adversely affected by reduced habitat conditions caused by drought. Three sagebrush transects were established in this herd unit in 2004. Transect locations include 5-mile Creek, Grass Creek and Wagonhound Bench (Appendix A). Annual production of sagebrush (leader growth), continues to average about 3cm. Winter utilization of these three sagebrush transects was similar to slightly below the 7-year average of 12%.

### **Field Data**

Aerial pre-season classification flights are conducted annually during the month of August in Hunt Areas 77 and 83, while Hunt Area 110 classifications are conducted from the ground. Relative trends for fawn ratios have increased the past three years, with 2013 (65:100), 2014 (70:100) and 2015 (73:100) ratios being the highest on record. Conversely, buck ratios have declined the past few years, with a high of 45:100 in 2009 to 28:100 in 2014. Starting in 2008, classification sample sizes began to decline, with 2,100 classified in 2008, down to 1,350 in 2013. However, in 2014, 1,600 pronghorn were classified, and in 2015, 2,200 were classified. The number of pronghorn classified mirrors that of the population model trend in recent years.

Four line-transect (LT) surveys have been conducted in the herd unit since 1999. LT estimates of pronghorn over the past 14 years have been, 2,900 in 1999, 2,800 in 2002, 3,700 in 2006 and 4,600 in 2010. Model estimates are slightly higher than the 1999, 2002 and 2006 LT estimates, whereas the 2010 LT estimate is higher than the model estimate. However, all four LT standard errors (SE) fall within the range of the model estimates. In addition, population trends between the model and LT's are consistent with field personnel perceptions.

### **Harvest Data**

Because of increasing pronghorn numbers in the mid to late 2000's, along with increased damage issues, license quotas have increased dramatically since 2008. In fact, between 2008 and

2013, total harvest increased by over 300%. These harvest trends, along with model population estimates and trends are reflective of field personnel perceptions that pronghorn numbers have declined dramatically. Starting in 2013, license quotas were reduced, mainly because of reduced damage issues and low population levels. However, with recent improved fawn ratios and overall pronghorn survival, license quotas and harvest have and will continue to increase.

### **Population**

The Time-Specific Juvenile & Constant Adult Survival (TSJ, CA) spreadsheet model best represents the long-term population estimate and recent trends for this herd. This model has the highest AIC value (n=141) of all models, but tracks well with LT estimates, classification sample sizes, and mostly reflects what field personnel perceptions are of this herd. This pronghorn population declined by 59% between 2009 and 2013. Since 2013 the population has rebounded due to several years of record high fawn ratios along with reduced harvest levels. The model is a fair to good representation of this herd.

### **Management Summary**

Because of increasing pronghorn numbers in recent years, along with potential damage issues again becoming an issue, most license quotas in areas 77 and 83 will increase for 2016. Area 110 is not experiencing increases in pronghorn, plus the Pitchfork Ranch has expressed concern over low pronghorn numbers the past couple of years. The projected 2016 harvest of about 720 pronghorn will mostly stabilize this population at about 2,900 pronghorn.





## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2015 - 5/31/2016

HERD: PR205 - CARTER MOUNTAIN

HUNT AREAS: 78, 81-82

PREPARED BY: LESLIE SCHREIBER

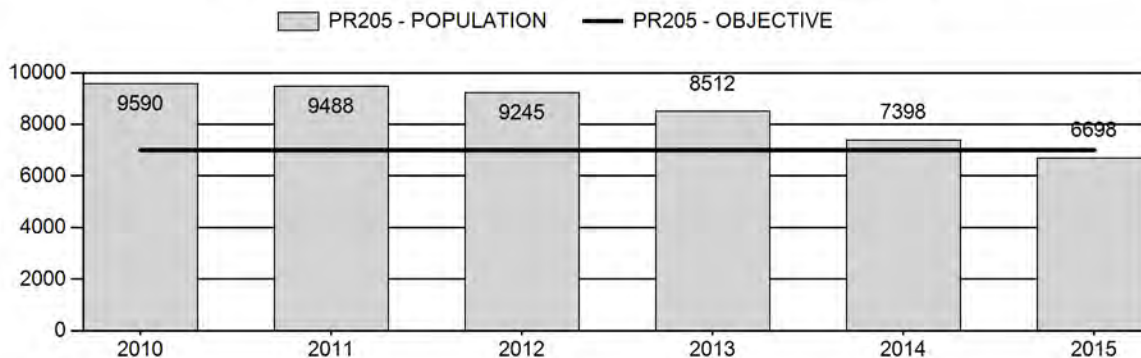
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	8,847	6,698	6,170
Harvest:	657	648	640
Hunters:	640	631	650
Hunter Success:	103%	103%	98%
Active Licenses:	757	726	745
Active License Success:	87%	89%	86%
Recreation Days:	2,533	2,195	2,300
Days Per Animal:	3.9	3.4	3.6
Males per 100 Females	51	47	
Juveniles per 100 Females	46	74	

Population Objective (± 20%) :	7000 (5600 - 8400)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-4.3%
Number of years population has been + or - objective in recent trend:	4
Model Date:	02/23/2016

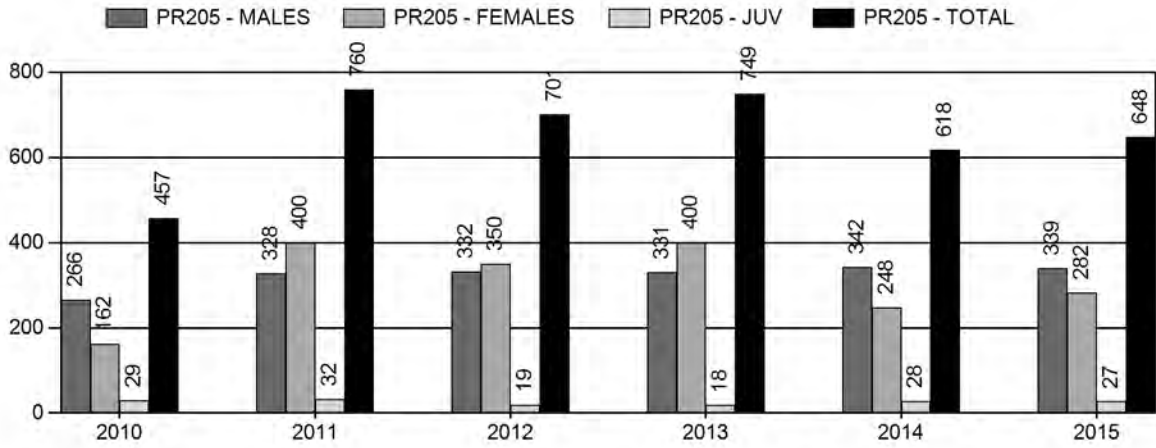
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	6%	7%
Males ≥ 1 year old:	17%	16%
Juveniles (< 1 year old):	1%	1%
Total:	23%	23%
Proposed change in post-season population:	-8%	-9%

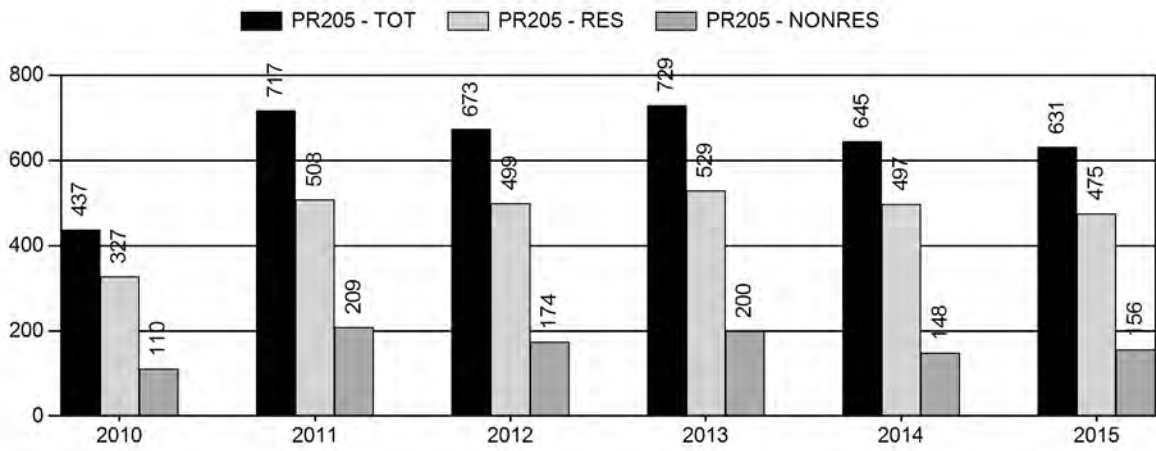
## Population Size - Postseason



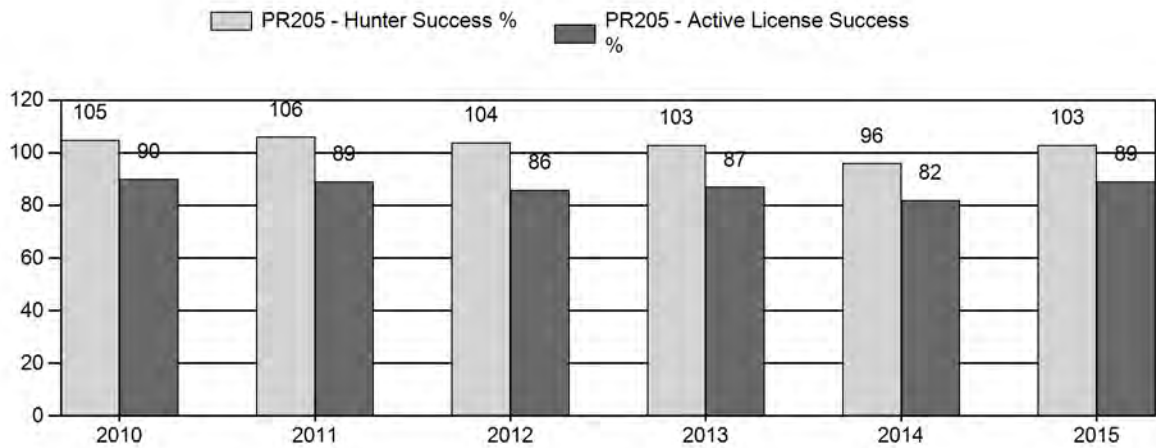
# Harvest



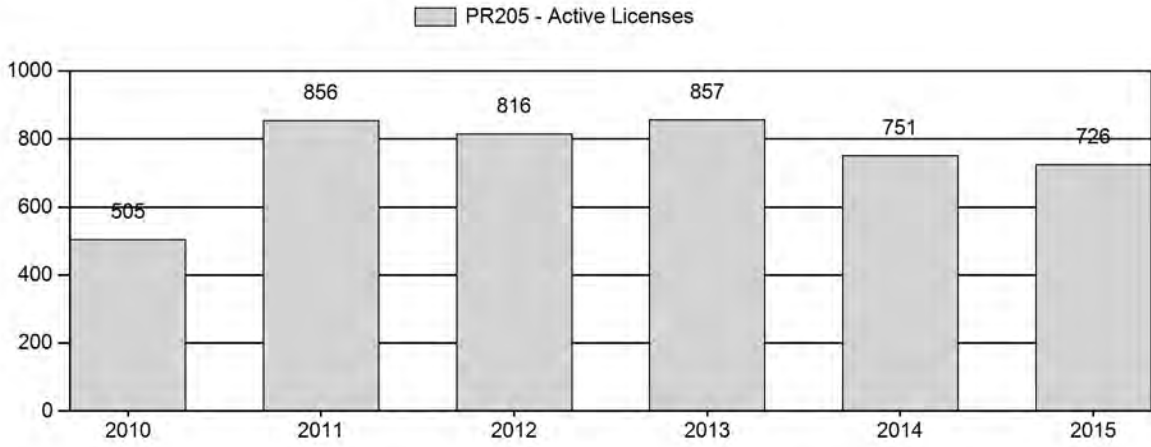
# Number of Hunters



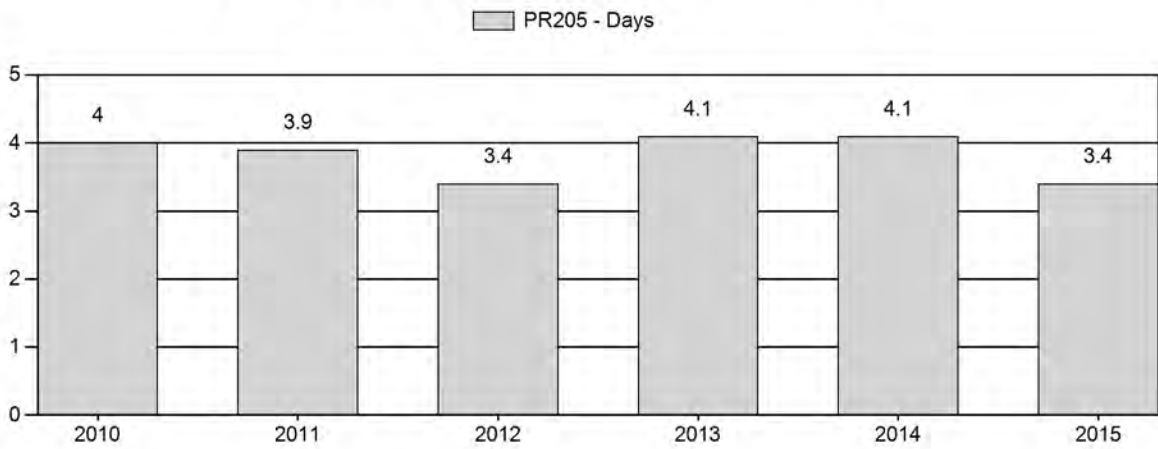
# Harvest Success



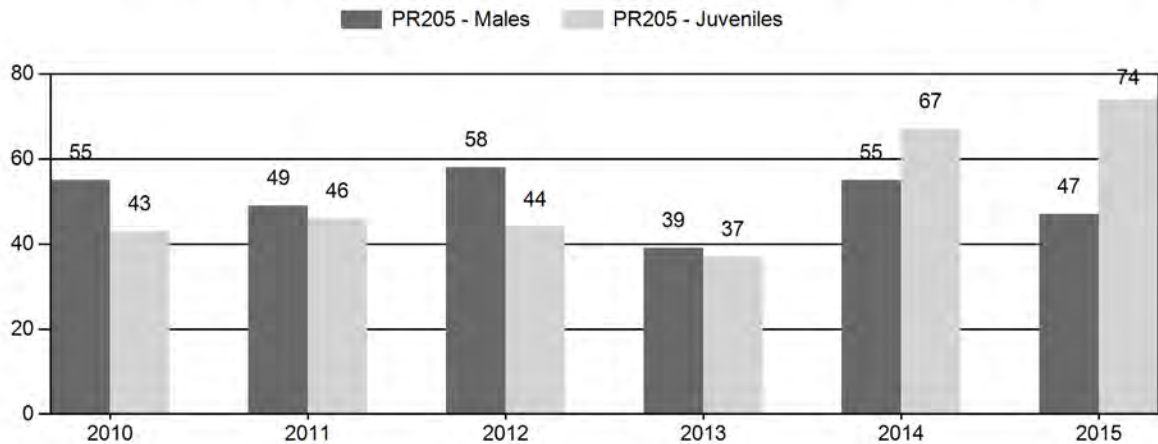
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



**2010 - 2015 Preseason Classification Summary**  
for Pronghorn Herd PR205 - CARTER MOUNTAIN

Year	Pre Pop	MALES				FEMALES		JUVENILES				Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%	Tot	Cls	Ylng	Adult	Total	Conf	100 Fem	Conf Int	100 Adult
										Cls	Obj				Int			
2010	10,093	198	410	608	28%	1,098	50%	473	22%	2,179	1,344	18	37	55	± 4	43	± 3	28
2011	10,324	115	367	482	25%	992	51%	458	24%	1,932	1,980	12	37	49	± 4	46	± 4	31
2012	10,023	125	365	490	29%	844	50%	370	22%	1,704	1,557	15	43	58	± 5	44	± 4	28
2013	9,336	74	302	376	22%	973	57%	358	21%	1,707	1,319	8	31	39	± 3	37	± 3	27
2014	8,078	79	278	357	25%	647	45%	433	30%	1,437	1,296	12	43	55	± 5	67	± 6	43
2015	8,366	141	264	405	21%	862	45%	638	33%	1,905	1,922	16	31	47	± 4	74	± 6	50

**2016 HUNTING SEASONS  
CARTER MOUNTAIN PRONGHORN HERD (PR205)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
78	1	Sep. 20	Oct. 31	125	Limited quota	Any antelope
78	6	Sep. 1	Nov. 30	150	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land
81	1	Oct. 1	Nov. 15	125	Limited quota	Any antelope
81	6	Oct. 1	Nov. 15	75	Limited quota	Doe or fawn valid west of Wyoming Highway 120
82	1	Sep. 20	Oct. 14	175	Limited quota	Any antelope
82	6	Aug. 15	Oct. 31	50	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land east of Wyoming Highway 120
82	7	Sep. 20	Oct. 14	100	Limited quota	Doe or fawn valid west of Wyoming Highway 120
82	8	Oct. 15	Nov. 30	50	Limited quota	Doe or fawn valid in Big Horn County

Special Archery Season Hunt Areas	Opening Date	Limitations
78, 81, 82	Aug. 15	Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
82	1	+25
82	7	+25
<b>Herd Unit</b>	<b>1</b>	<b>+25</b>
<b>Total</b>	<b>7</b>	<b>+25</b>

**Management Evaluation**

**Current Postseason Population Management Objective:** 7,000

**Management Strategy:** Recreational

**2015 Postseason Population Estimate:** ~6,700

**2016 Proposed Postseason Population Estimate:** ~6,200

**2015 Hunter Satisfaction:** 89% Satisfied, 8% Neutral, 3% Dissatisfied

**Herd Unit Issues**

The Carter Mountain pronghorn herd has been managed under recreational management with a post-season population objective of 7,000 pronghorn since 1984. That population goal was reviewed in 2002, 2007 and 2015. Due to the large size of the herd unit, anthropogenic factors probably have an influence on herd survival and productivity. There is 1 major oil/gas field (Oregon Basin) and many wells scattered across the herd unit. US Highway 14-16-20 and Wyoming Highway 120 are major highways bisecting the herd unit which may affect migration routes. Urban expansion is a concern in Area 81 near Cody and the South Fork Highway. Grazing by cattle and feral horses may be affecting herbaceous vegetation which affects pronghorn forage in spring and summer.

## **Weather**

Drought is the most important factor influencing survival and productivity of this pronghorn herd. Drought conditions occurred in 2000-04 and 2012. Growing season precipitation in the northern half of the herd unit was above average in 2013-15 resulting in increased forage. Growing season precipitation in the southern half was average, but well-timed, also resulting in good forage.

## **Habitat**

Habitat quality is probably most affected by desert-like conditions, including poor soils and less than 12 inches of annual precipitation. Both of those factors have allowed cheatgrass to invade and dominate some sites. In some years, effects of drought on upland vegetation result in a shift of pronghorn to agricultural fields, especially along the Shoshone River in Hunt Area 78. Most landowners have a low tolerance for pronghorn.

The Dry Creek Basin sagebrush transect was established in this herd unit in 2004 (Appendix A). Historically, this transect has been of limited utility in gauging browsing levels, because production has been limited, even in non-drought years. Utilization of sagebrush along the transect has ranged from <5% to 44% (2005-2016). Snow depth probably determines how many pronghorn concentrate near this site.

## **Field Data**

Low fawn:doe ratios were observed during 2012, a drought year, and immediately after in 2013 (44:100 and 37:100, respectively). In 2015, 74 fawns:100 does were observed, the highest since 1980, indicating this pronghorn herd is rebounding from those drought years. This high fawn ratio is likely a product of 2 years worth of spring moisture and corresponding plant growth sustaining does in excellent condition.

The 2015 buck:doe ratio (47:100) was down from 2014 (55:100). Historically, the buck:doe ratio declined during drought years to a low of 26:100 in 2004. Buck ratios have been increasing since 2004, peaking at 61:100 in 2009 and ranging between 39:100 in 2013 and 58:100 in 2012. Total number of pronghorn classified in 2015 (~1,900) was near the 5-year average (~1,800). Standardized survey routes were established in 2001.

## **Harvest Data**

In 2010, the doe/fawn hunting license quota was increased in response to rising crop depredation. Days per harvest has remained relatively steady between 2010-15, averaging 3.8 days. Hunter success typically does not fluctuate greatly, but a decline was noted during drought. Prior to 2000, average success was 87% (range 80-90%); during drought (2000-05) success averaged 84% (range 78-90%); and following the extended drought, success increased back to 88% (range 87-90%). Hunting statistics reflect population levels, but this metric may also be influenced by number of licenses issued. Hunter satisfaction with this herd is high with 89% of respondents indicating a satisfactory hunt.

## **Population**

For the Carter Mountain pronghorn herd, the constant juvenile/constant adult (CJ,CA) survival model was selected. Not surprisingly, this simple model had the lowest AIC value (195) compared to the SCJ/SCA model (221) and the TSJ/CA model (229). The Spreadsheet User Guide (pg. 23) suggests the CJ, CA model should have tighter constraints than the other models because this model assumes juvenile and adult survival is the same every year, so estimates

should be near average. Accordingly, the lower constraint for juvenile survival was set to 0.5; higher than the recommended criteria of 0.4. The CJ,CA model estimated 6,700 pronghorn post-season 2015. The population was estimated to have peaked in 2009 at 7,800 pronghorn. Modeling this herd is challenging, because a portion of the population is migratory and a portion resides on agriculture fields nearly year-round. Nevertheless, this model performs *good*. The TSJ, CA model was also evaluated, but this model estimates a population of less than 4,000 pronghorn in the 1990's and early 2000's which did not seem reasonable to field personnel.

Line transect surveys in 2006, 2009, and 2012 used a single observer while similar surveys in 2000 and 2003 used 2 observers. Use of a single observer significantly changed the calculations performed on the line transect data, resulting in estimates around 10,000-12,000 pronghorn which were 2-3 times higher than previous estimates. Higher estimates due to the change in protocol were mirrored in other parts of the state. Field personnel feel there has never been 10,000 pronghorn in this herd unit. The line transect survey in 2012 estimated 6,900 ( $\pm 877$ ) pronghorn which matches field personnel's perceptions. Future surveys should be redesigned to fly transects across dense and sparse pronghorn densities rather than fly across sparse areas first then dense areas which was done in all past surveys.

### **Management Summary**

The spreadsheet model estimates this herd is within the range allowed by the objective. Pronghorn numbers are slowly coming back; therefore, a slight increase in the number of licenses is warranted. The upland habitat has recovered from drought and pronghorn have been able to distribute away from cropland. Doe/fawn license quotas and season dates were adjusted based on cropland damage.





## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2015 - 5/31/2016

HERD: PR207 - BADGER BASIN

HUNT AREAS: 80

PREPARED BY: DOUG  
MCWHIRTER

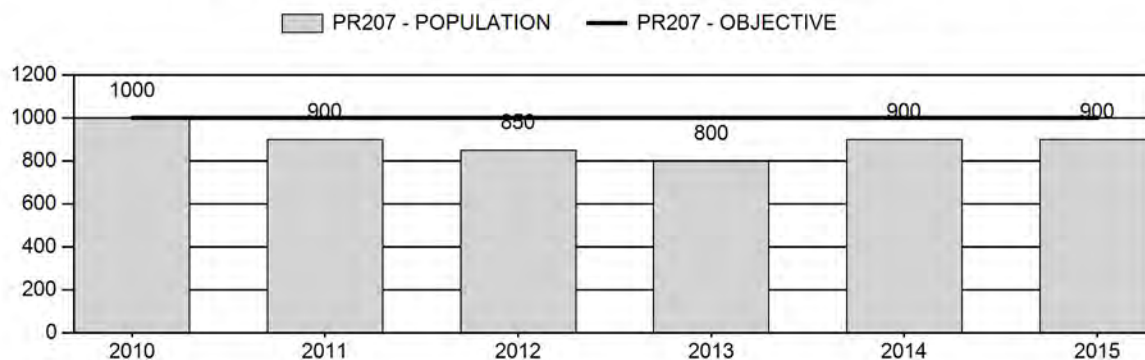
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	890	900	900
Harvest:	172	103	100
Hunters:	175	102	105
Hunter Success:	98%	101%	95 %
Active Licenses:	211	110	105
Active License Success:	82%	94%	95 %
Recreation Days:	977	321	325
Days Per Animal:	5.7	3.1	3.2
Males per 100 Females	45	82	
Juveniles per 100 Females	33	47	

Population Objective (± 20%) :	1000 (800 - 1200)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-10%
Number of years population has been + or - objective in recent trend:	5
Model Date:	None

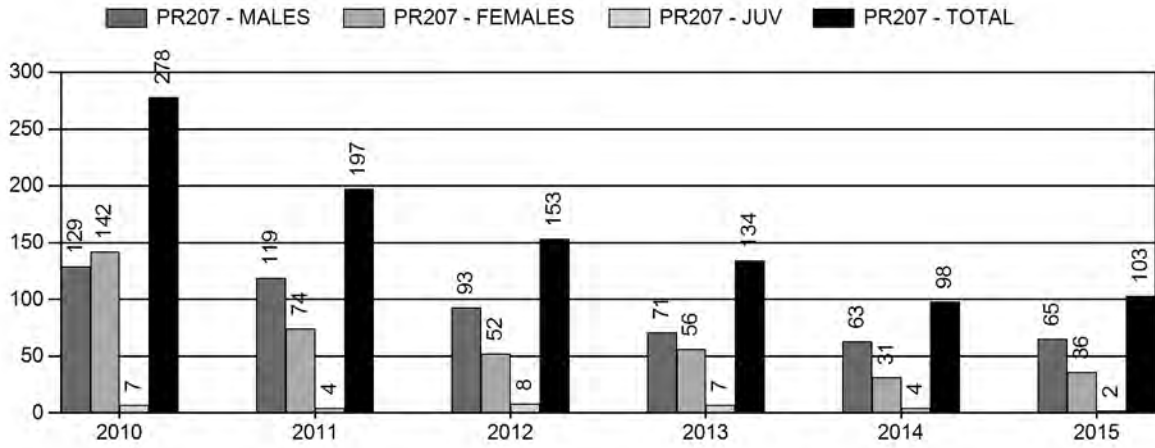
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	8.0%	n/a%
Males ≥ 1 year old:	28.6%	n/a%
Juveniles (< 1 year old):	0.0%	n/a%
Total:	10.4%	n/a%
Proposed change in post-season population:	5.5%	n/a%

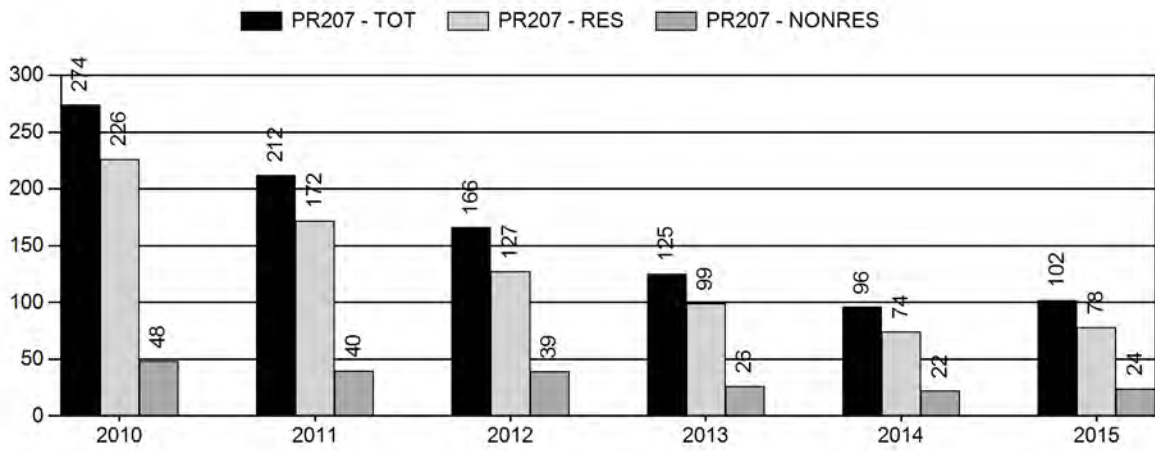
## Population Size - Postseason



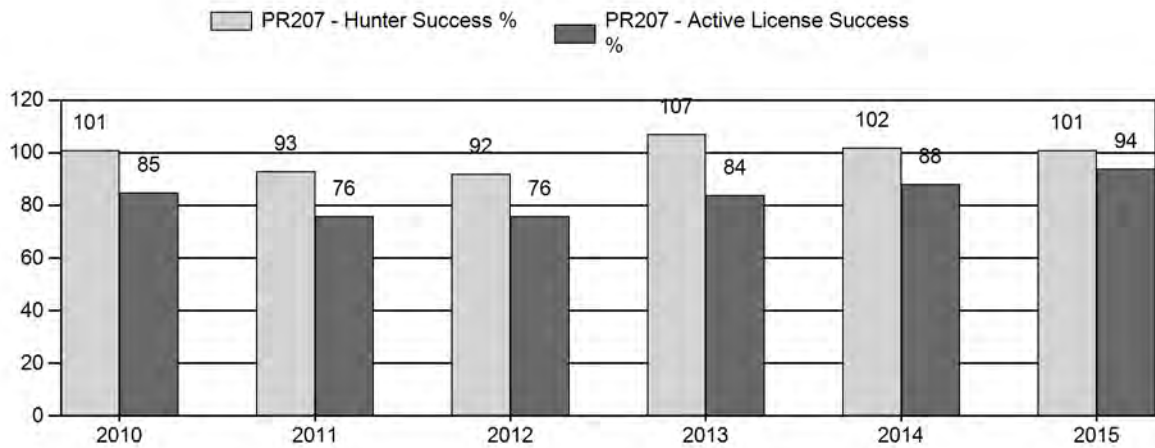
# Harvest



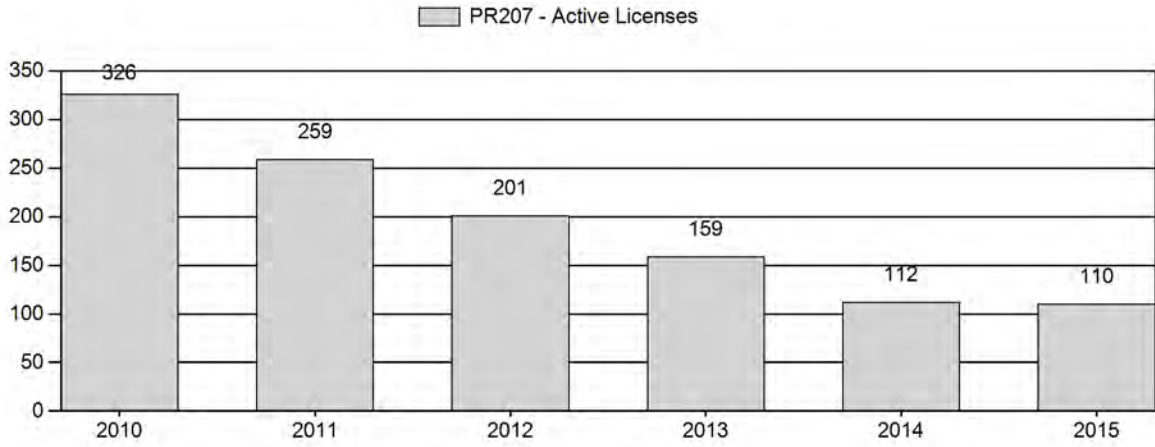
# Number of Hunters



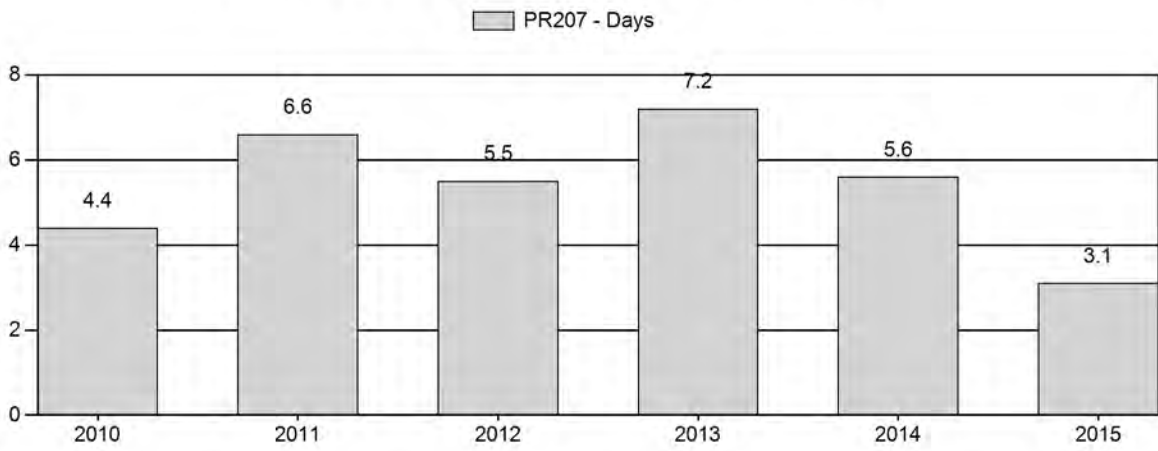
# Harvest Success



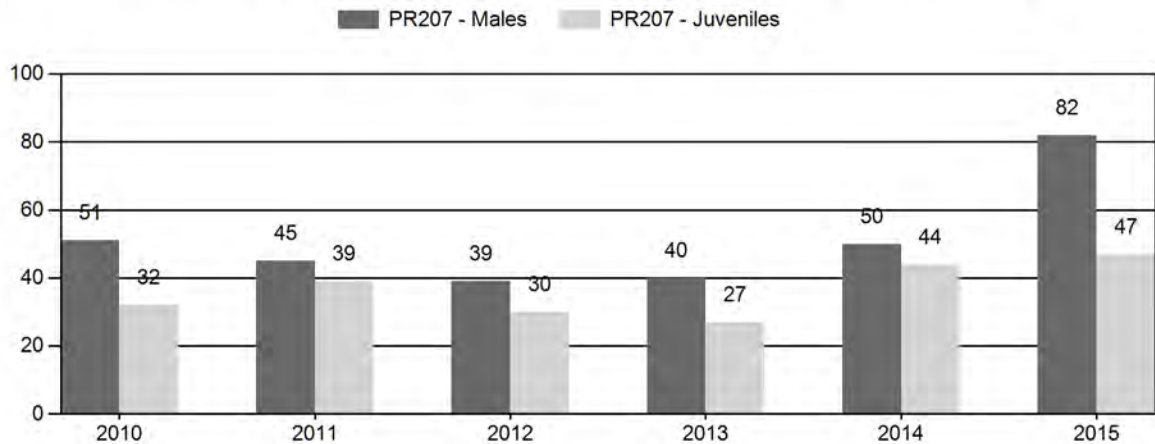
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR207 - BADGER BASIN

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	1,313	58	157	215	28%	419	55%	132	17%	766	617	14	37	51	± 5	32	± 3	21
2011	1,118	15	92	107	25%	236	54%	92	21%	435	612	6	39	45	± 7	39	± 6	27
2012	1,032	37	73	110	23%	283	59%	85	18%	478	515	13	26	39	± 5	30	± 4	22
2013	944	36	79	115	24%	286	60%	76	16%	477	451	13	28	40	± 5	27	± 4	19
2014	988	27	73	100	26%	201	52%	88	23%	389	515	13	36	50	± 8	44	± 7	29
2015	1,000	42	69	111	36%	135	44%	63	20%	309	599	31	51	82	± 14	47	± 10	26

**2016 HUNTING SEASONS  
BADGER BASIN PRONGHORN HERD (PR207)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
80	1	Sep. 1	Sep. 30	75	Limited quota	Any antelope
80	6	Sep. 1	Oct. 31	50	Limited quota	Doe or fawn

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

Hunt Area	Type	Quota change from 2015
80	1 & 6	No Changes
<b>Total</b>	<b>1 &amp; 6</b>	<b>No Changes</b>

**Management Evaluation**

**Current Postseason Population Management Objective:** 1,000

**Management Strategy:** Recreational

**2015 Postseason Population Estimate:** 900

**2016 Proposed Postseason Population Estimate:** 900

**Herd Unit Issues**

Much of the Badger Basin Herd Unit consists of extremely arid habitats, with low antelope densities that exhibit poor productivity. These areas are interspersed with irrigated lands that are characterized by higher levels of productivity. As a result, damage to irrigated lands is often a problem in this herd unit, especially in drought periods. However, winters are relatively mild and survival is presumably good in most years.

**Weather**

Conditions during the 2015-2016 winter were relatively mild, although snow cover and colder than normal temperatures persisted from mid-December through mid-January. Conditions moderated and above average temperatures returned during February and early March. Several bouts of snow and cold temperatures returned in late winter, but did not persist. Although annual precipitation was below average, growing season precipitation in 2015 was near to slightly above average.

**Habitat**

No habitat monitoring data is collected in this herd unit. Near normal growing season precipitation may explain the higher than average fawn recruitment in 2015.

**Field Data**

Preseason classifications in 2015 yielded a fawn ratio of 47 fawns:100 does, and a total buck ratio of 82 bucks:100 does. The poor productivity exhibited by this herd (especially in drought periods) is reflected in the fact that in the last 20 years, fawn:doe ratios have only exceeded 50:00 3 times (1996, 2005, 2007). The 20-year (1995-2014) average fawn:doe ratio is only 38.3 fawns:100 does. Adequate sample sizes are often not obtained in this herd unit, and as a result widely varying buck:doe ratios (both adult and yearling) are common.

**Harvest Data**

Permit levels (both doe/fawn and any antelope licenses) were reduced in 2011-2012 as the population declined. Continued high hunter success on all license type is probably a reflection of reduced permit levels and increased hunter access to key irrigated lands with high antelope densities.

**Population**

Conservative hunting seasons and good fawn production (for this herd) allowed this population to substantially exceed the objective by 2005. Measures were taken to increase harvest from 2007-2011, and the population declined. Recent poor fawn crops (31:100 in 2008, 26:100 in 2009, 32:100 in 2010, 39:100 in 2011, 30 in 2012, 27:100 in 2013), coupled with increased female harvest, reduced pronghorn numbers in this herd unit and addressed damage in agricultural areas.

The small size of this pronghorn herd, lack of adequate sample sizes in many years, and widely varying preseason classification data has made modeling attempts difficult, and none of the model scenarios depict a believable population size (1,500-2,600 pronghorn). As a result, a preseason trend count will be recommended as a management objective in the future. For the time being, no changes are proposed for the 2016 hunting season, which should maintain antelope numbers, or allow for a slight increase.