

## 2016 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR201 - Copper Mountain

HUNT AREAS: 76, 79, 114-116

PREPARED BY: Bart Kroger

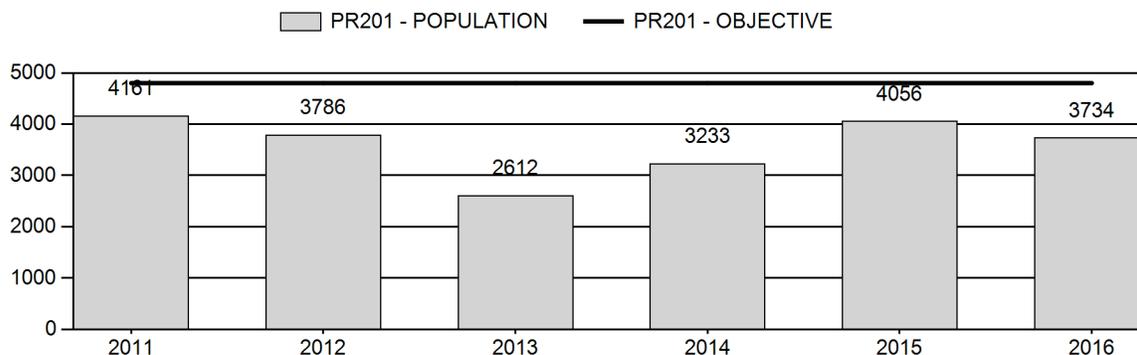
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	3,570	3,734	3,074
Harvest:	731	982	1,000
Hunters:	774	1,001	1,050
Hunter Success:	94%	98%	95 %
Active Licenses:	885	1,163	1,200
Active License Success:	83%	84%	83 %
Recreation Days:	3,126	3,825	3,900
Days Per Animal:	4.3	3.9	3.9
Males per 100 Females	49	59	
Juveniles per 100 Females	69	78	

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:	7
Model Date:	1/20/2017

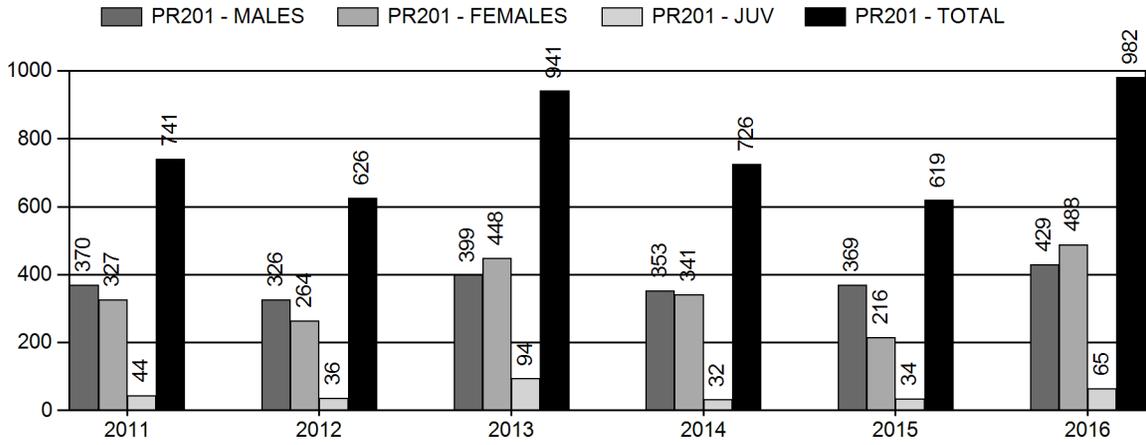
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	26%	31%
Males ≥ 1 year old:	39%	46%
Total:	20%	24%
Proposed change in post-season population:	-10%	-16%

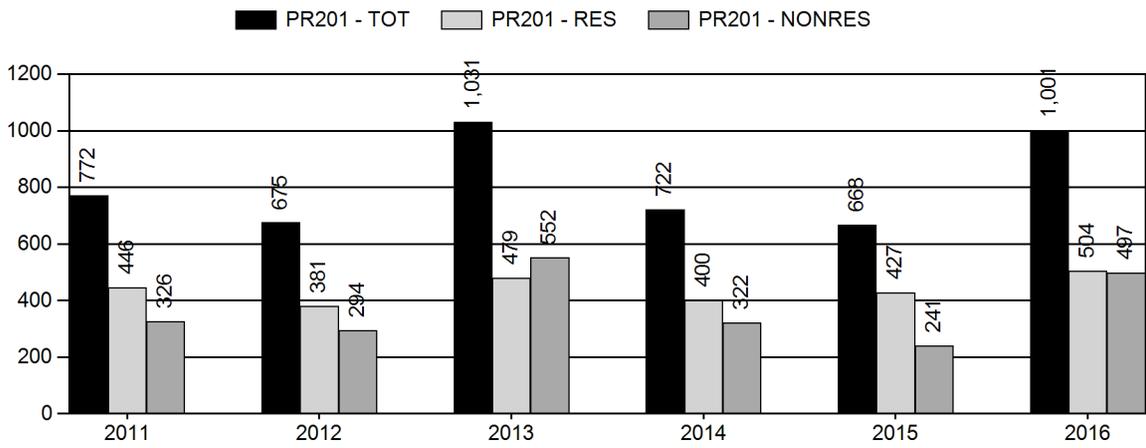
## Population Size - Postseason



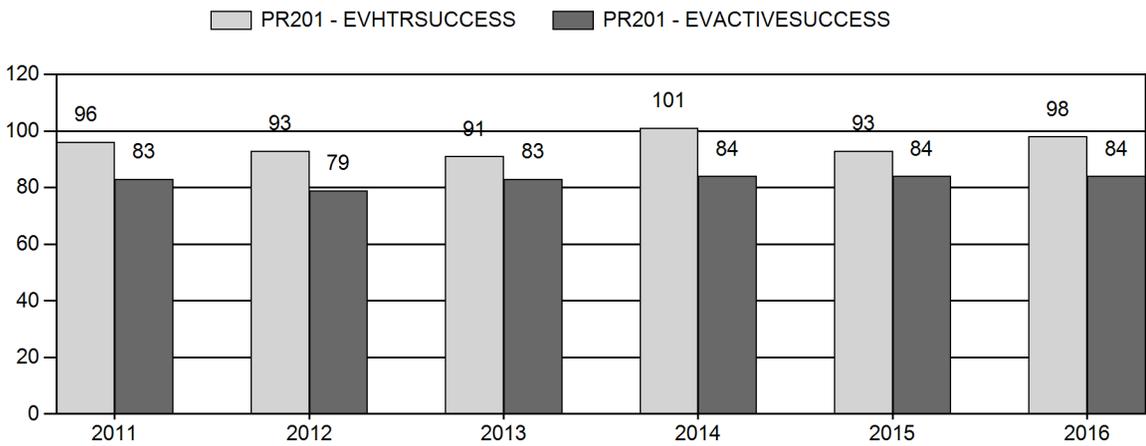
# Harvest



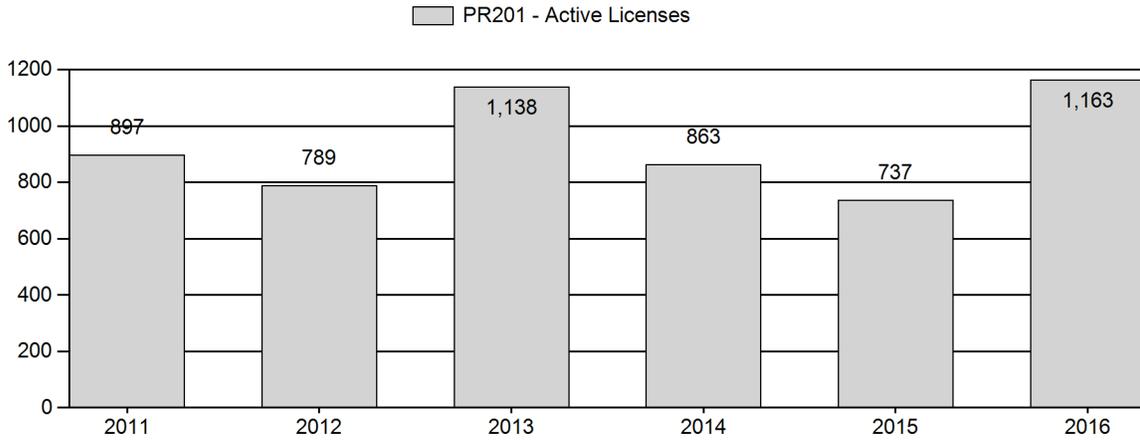
# Number of Active Licenses



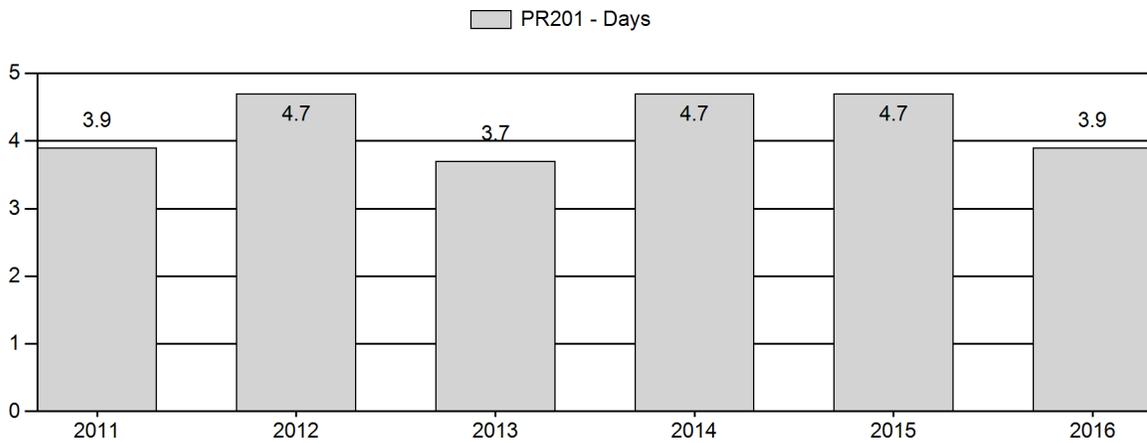
# Harvest Success



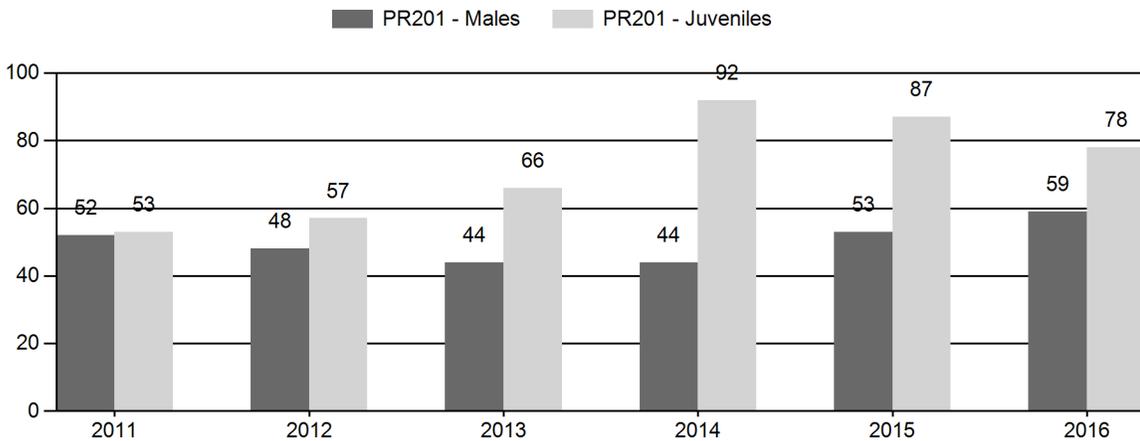
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary  
for Pronghorn Herd PR201 - Copper Mountain

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Int	Conf	100 Fem	100 Int
2011	4,976	24	46	537	26%	1,024	49%	541	26%	2,102	1,545	2	4	52	± 3	53	± 4	35
2012	4,475	30	376	406	23%	844	49%	485	28%	1,735	1,285	4	45	48	± 4	57	± 4	39
2013	3,647	28	43	334	21%	763	48%	503	31%	1,600	1,753	4	6	44	± 4	66	± 5	46
2014	4,031	19	38	275	19%	621	42%	572	39%	1,468	1,810	3	6	44	± 4	92	± 7	64
2015	4,737	37	79	451	22%	853	42%	738	36%	2,042	2,071	4	9	53	± 4	87	± 5	57
2016	4,815	0	0	488	25%	826	42%	643	33%	1,957	2,048	0	0	59	± 4	78	± 5	49

**2017 HUNTING SEASONS  
COPPER MOUNTAIN PRONGHORN HERD (PR201)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
76	1	Oct. 1	Oct. 31	200	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	200	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)
79	1	Sep. 20	Sep. 30	25	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
79	9	Aug. 15	Sep. 30	50	Limited quota	Any antelope, archery only
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 the Nowood River or south and west of Cornell Gulch or Nowater Stock Trail (B.L.M. 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 2016
76	1	+25
76	6	+50
79	1	+10
79	9	+20
<b>Total</b>	<b>1&amp;2</b>	<b>+35</b>
	<b>6&amp;7</b>	<b>+50</b>
	<b>9</b>	<b>+20</b>

### **Management Evaluation**

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

**Management Strategy:** Recreational

**2016 Postseason Population Estimate:** 3700

**2017 Proposed Postseason Population Estimate:** 3100

**2016 Hunter Satisfaction:** 79% satisfied, 13% neutral, 8% 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. Cropland damage issues occur in the western portion of the herd unit, particularly hunt areas 114 and 76. 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. In 2016, the Big Horn pronghorn herd PR202 (hunt area 79) was added to the Copper Mountain herd as part of that's herd unit revision process.

### **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 2016/17 winter has been semi-severe, with deep snow cover and below normal temperatures through early February, however since then significant snow melt has occurred and temperatures have moderated.

### **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.

## **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 have increased by about 40% since then. Buck ratios continue to remain mostly stable at about 50:100 on average, with fawn ratios averaging around 81:100, with 2013-2016 being four 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**

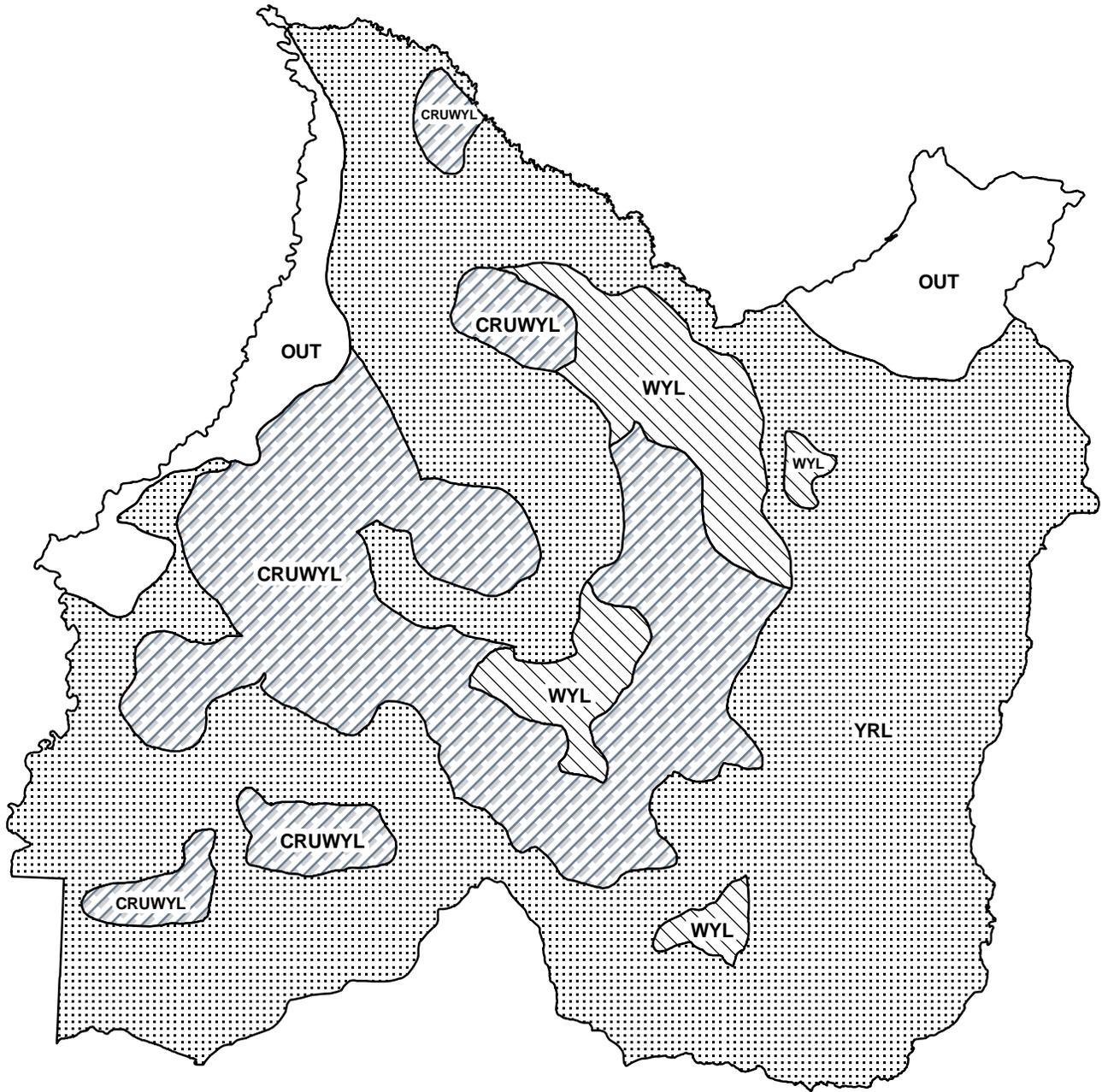
Overall total harvest has increased in this herd since the mid to late 2000's. In fact, since 2006, harvest has increased by about 200%. The increase in harvest is due in part to increasing pronghorn numbers along with increasing damage issues in areas 76 and 114. Overall, hunter success remains >90% 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 trends for this herd. This model has the highest AIC value (n=154), but the best fit (n=29) of all models. The model tracks well with past LT estimates, classification sample sizes, and mostly reflect what field personnel perceptions are of herd trends, but the model is probably underestimating population numbers. This pronghorn population declined 50% between 2009 and 2014, and has now started showing improving trend due to record high fawn ratios. Although the population is currently below objective by 23%, we are anticipating the population to continue to grow into 2017. The current model is a fair to good representation of this herd, but most field personnel feel the population is higher than model predictions.

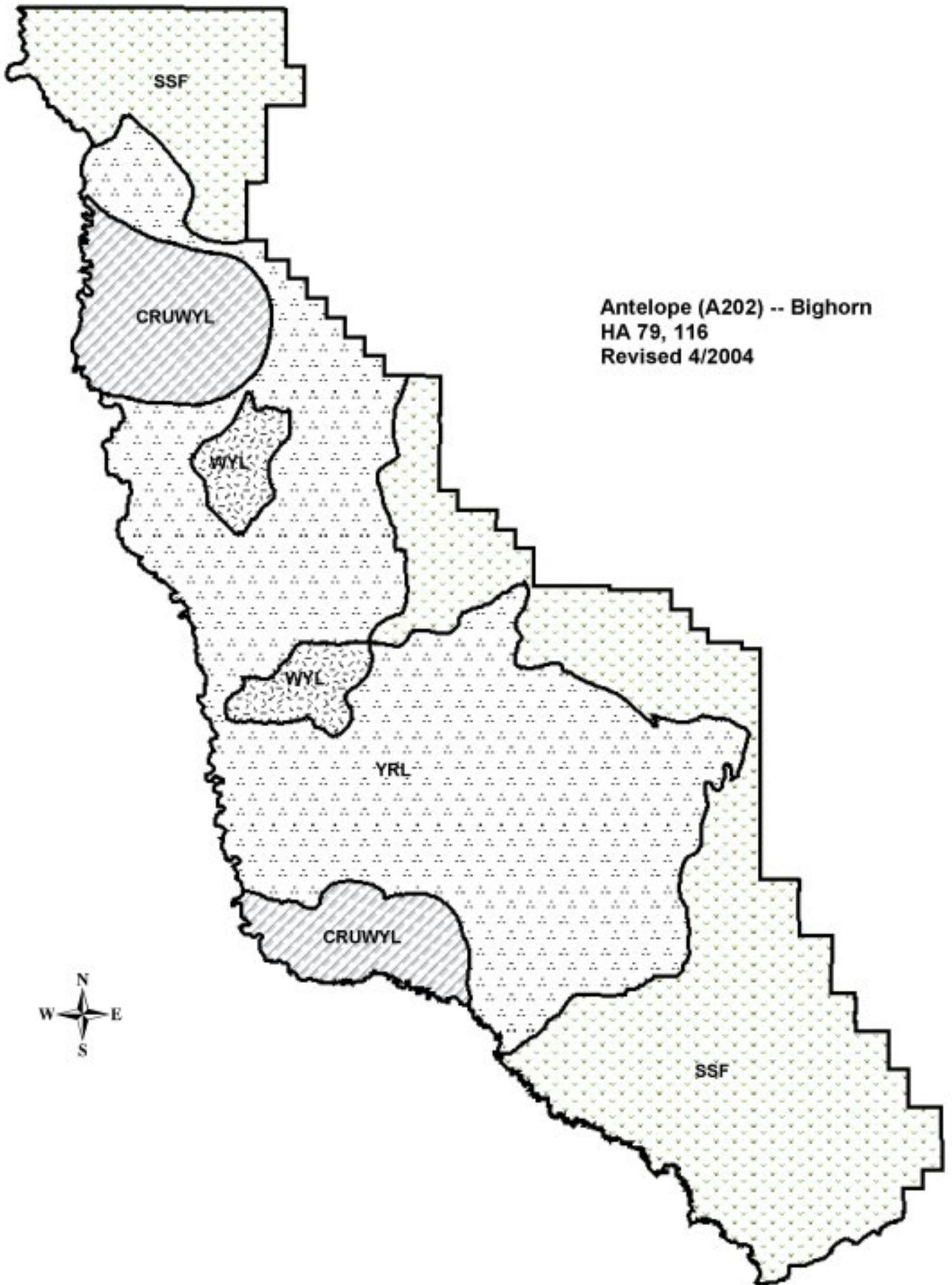
## **Management Summary**

The 2017 season calls for an increase of 50 doe/fawn licenses, 35 any antelope licenses and 20 archery only licenses. With improved fawn ratios, and a noticeable increase in the overall population, along with the potential for damage issues to arise, these licenses quota increases are warranted given the population is still below objective. The projected 2017 harvest of about 1000 pronghorn will mostly stabilize this population at about 3100 pronghorn for post-season 2017.



Pronghorn (A203) - Copper Mountain  
HA 76, 114, 115  
Revised 4/2006







## 2016 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR204 - FIFTEENMILE

HUNT AREAS: 77, 83, 110

PREPARED BY: BART KROGER

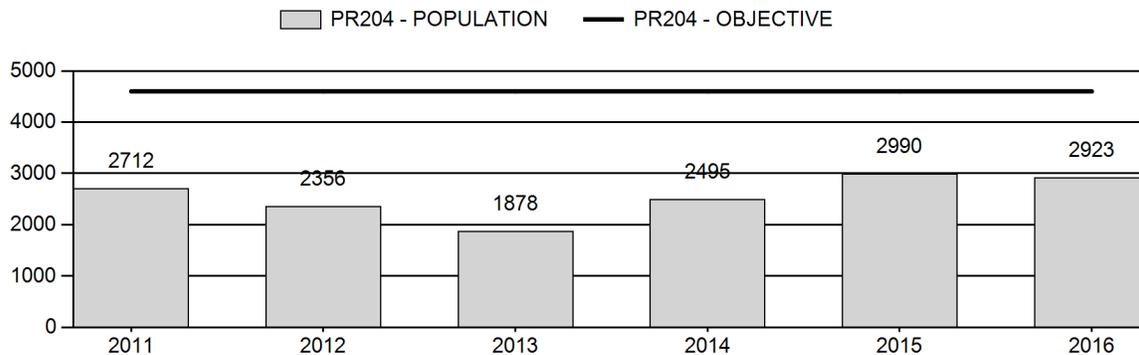
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	2,486	2,923	2,440
Harvest:	710	763	1,000
Hunters:	698	715	950
Hunter Success:	102%	107%	105 %
Active Licenses:	810	845	1,100
Active License Success:	88%	90%	91 %
Recreation Days:	2,430	2,309	3,000
Days Per Animal:	3.4	3.0	3
Males per 100 Females	34	45	
Juveniles per 100 Females	59	70	

Population Objective (± 20%) :	4600 (3680 - 5520)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-36.5%
Number of years population has been + or - objective in recent trend:	7
Model Date:	1/20/2017

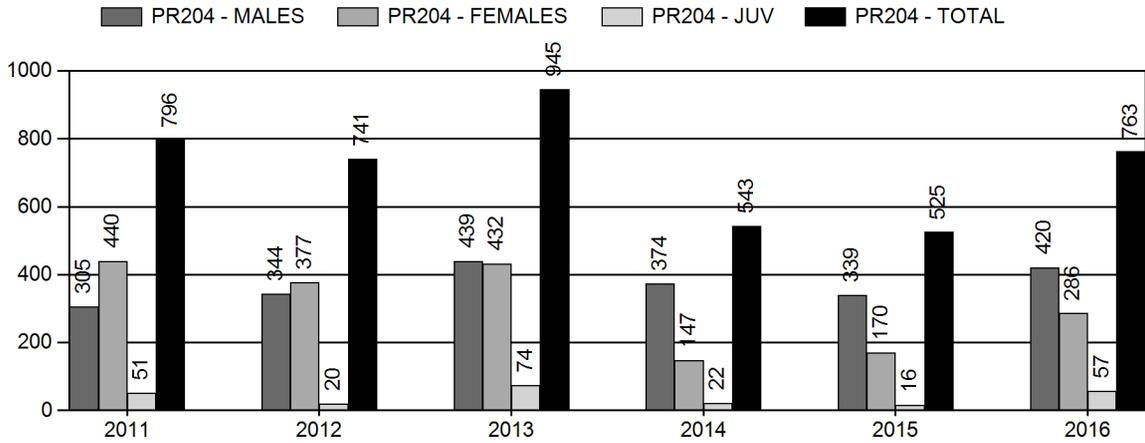
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	17%	32%
Males ≥ 1 year old:	81%	88%
Total:	20%	28%
Proposed change in post-season population:	-1%	-16%

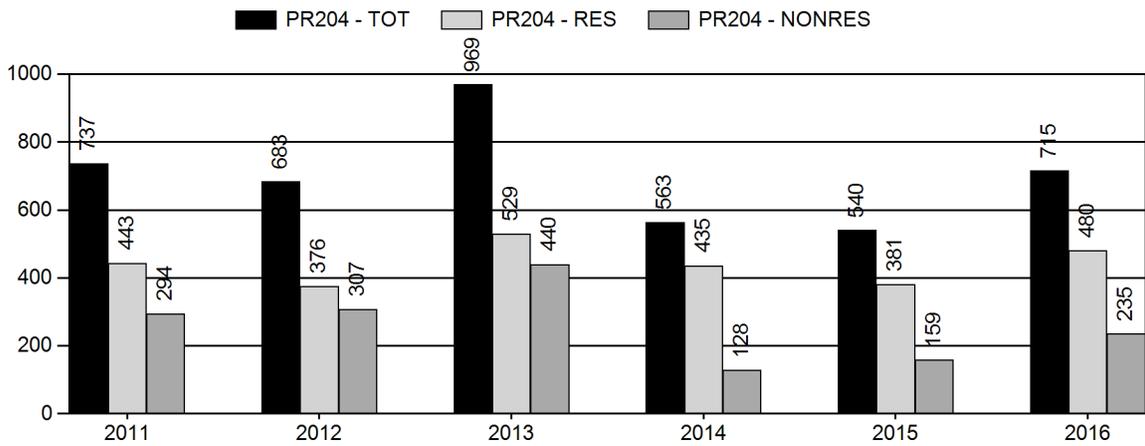
## Population Size - Postseason



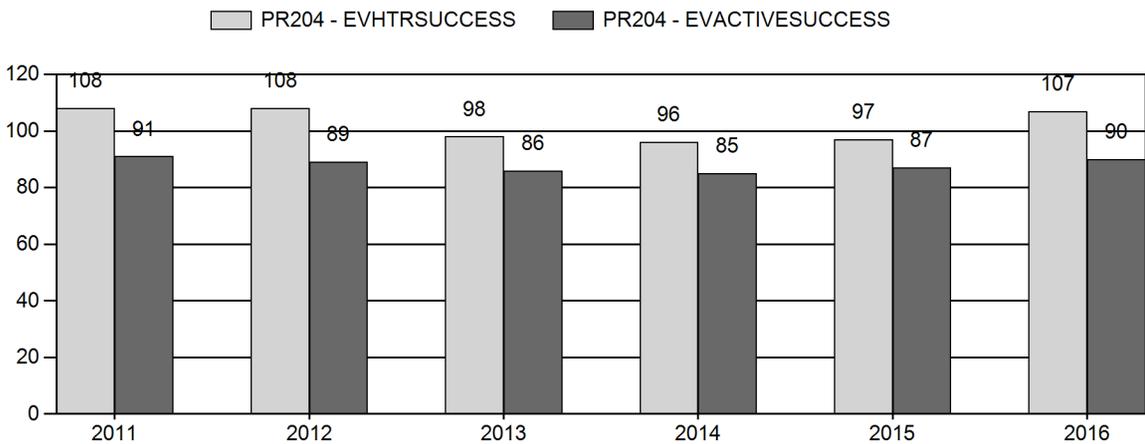
# Harvest



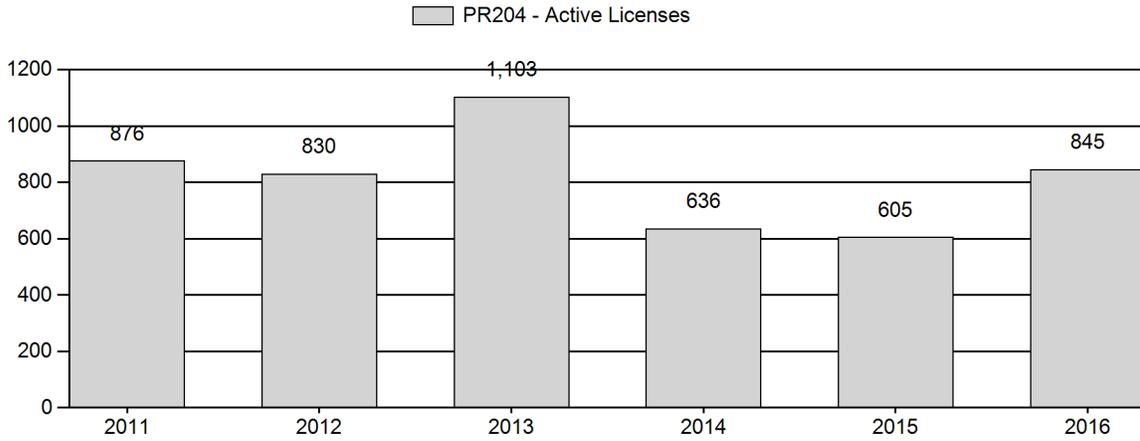
# Number of Active Licenses



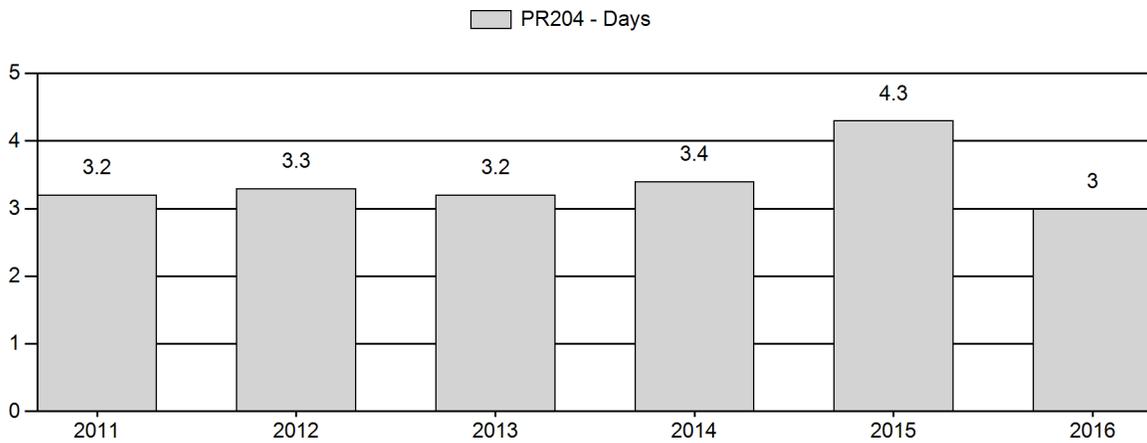
# Harvest Success



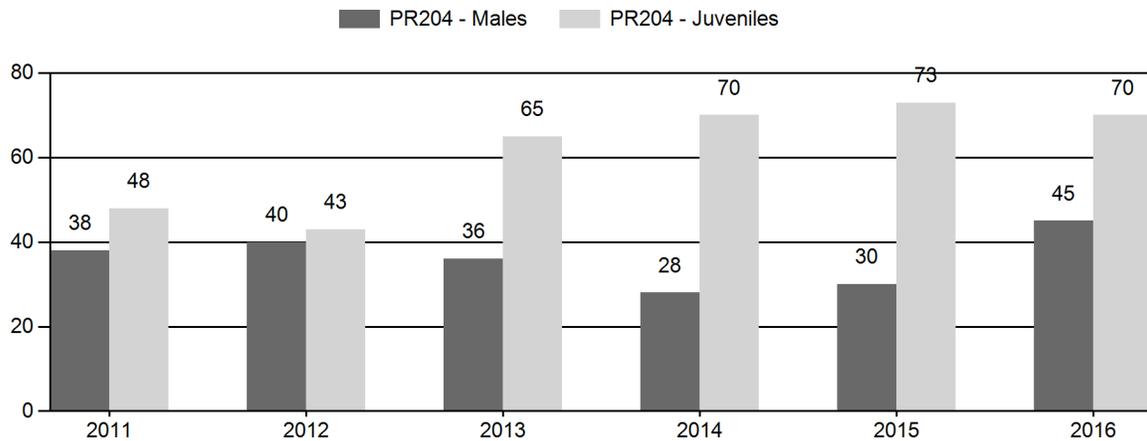
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary  
for Pronghorn Herd 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	Int	100 Fem	100 Int	100 Adult
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	3,762	0	0	516	21%	1,148	46%	809	33%	2,473	1,595	0	0	45	± 2	70	± 3	49

**2017 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	Oct. 24	75	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land
77	7	Oct. 25	Nov. 30	75	Limited quota	Doe or fawn valid on or within one-half (1/2) mile of irrigated land
83	1	Sep. 20	Nov. 7	350	Limited quota	Any antelope
83	6	Aug. 15	Nov. 15	150	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	500	Limited quota	Doe or fawn valid 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 2016
77	6	-25
77	7	+75 new license type
83	1	+50
83	6	+75
83	7	+300
<b>Total</b>	<b>1&amp;2</b>	<b>+50</b>
	<b>6&amp;7</b>	<b>+425</b>

## **Management Evaluation**

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

**Management Strategy:** Recreational

**2016 Postseason Population Estimate:** 2900

**2017 Proposed Postseason Population Estimate:** 2400

**2016 Hunter Satisfaction:** 91% satisfied, 6% neutral, 3% dissatisfied

## **Herd Unit Issues**

The herd unit is about 75% public lands and 25% private lands, with the majority of the pronghorn population in hunt area 83. Damage concerns are usually an issue in this herd unit, especially in areas 77 and 83. 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 2016/17 winter has been semi-severe, with deep snow cover and below normal temperatures through early February. Since early February significant snow melt has occurred and temperatures have moderated.

## **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 preseason 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 in fawn ratios have remained well above the long-term average the past four years, with 2013 – 2016 averaging 70:100. Prior to 2013 fawn ratios were averaging about 50:100. Buck ratios fluctuate annually due to missed buck groups during classification surveys, but appear to never exceed 45:100. Starting in 2010, classification sample sizes began to decline from a high of around 2,000 in 2010 to a low of 1,350 in 2013. However, in 2014, 1,600 pronghorn were classified, and by 2016 nearly 2,500 were classified. The number of pronghorn classified mirrors that of the population model trend in recent years, but field personnel feel population numbers are much higher than model estimates.

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. A 2016 end-of-biological year line transect survey will be flown in this herd. Data collection and analysis will not be completed in time to include in the 2016 JCR.

### **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 declined dramatically. Starting in 2014, 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.

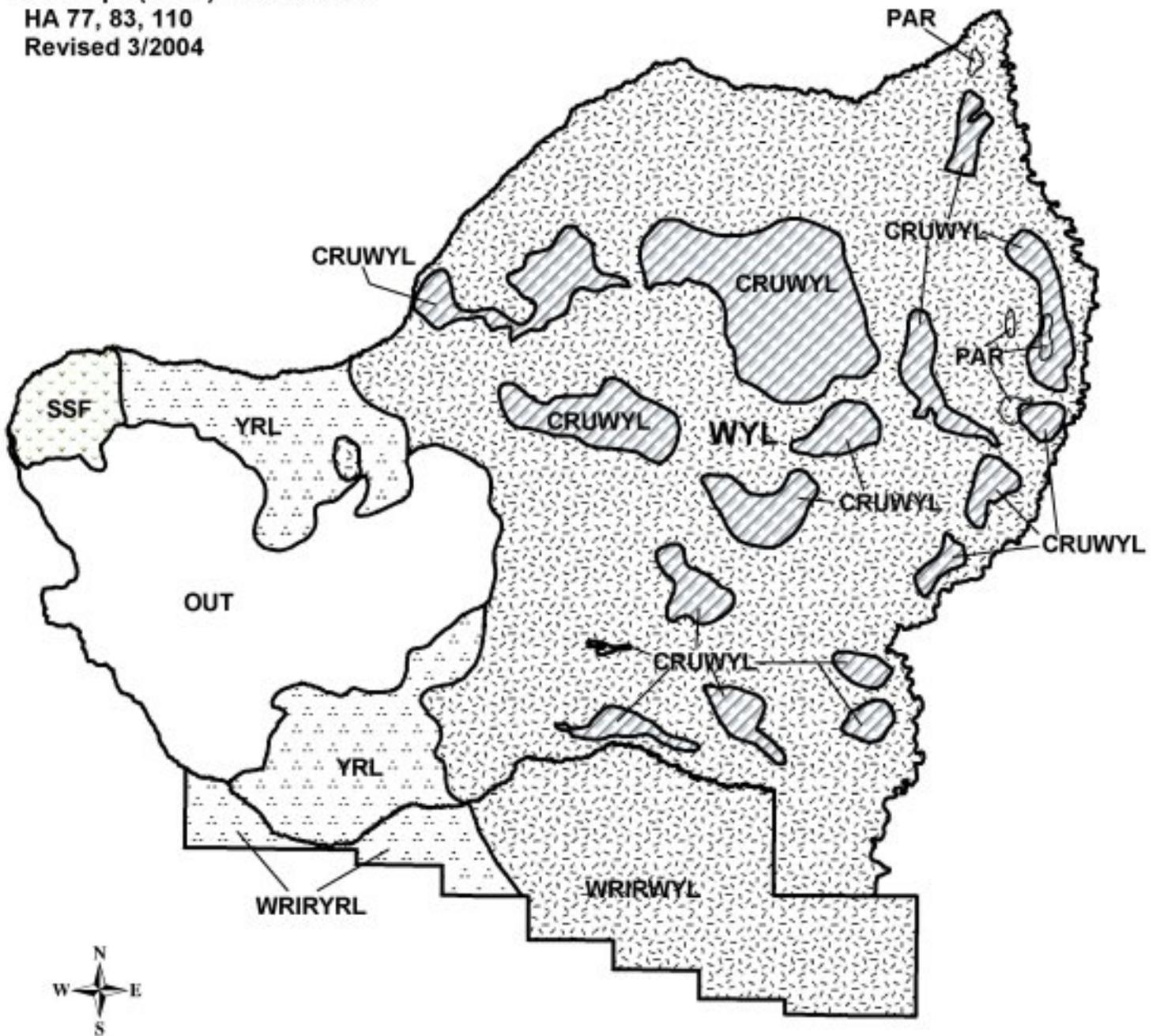
### **Population**

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), but the best Fit (n=18) of all models, and tracks well with past LT estimates, classification sample sizes, and mostly reflects what field personnel perceptions of population trends. The 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 herd trends, but likely underestimates population numbers.

### **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 2017. Area 110 is not experiencing significant increases in pronghorn, plus the Pitchfork Ranch has expressed concern over low pronghorn numbers the past couple of years. The projected 2017 harvest of about 1000 pronghorn will mostly reduce this population to about 2,400 pronghorn, which is likely an underestimate of the population.

Antelope (A204) -- Fifteenmile  
HA 77, 83, 110  
Revised 3/2004



## 2016 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR205 - CARTER MOUNTAIN

HUNT AREAS: 78, 81-82

PREPARED BY: LESLIE SCHREIBER

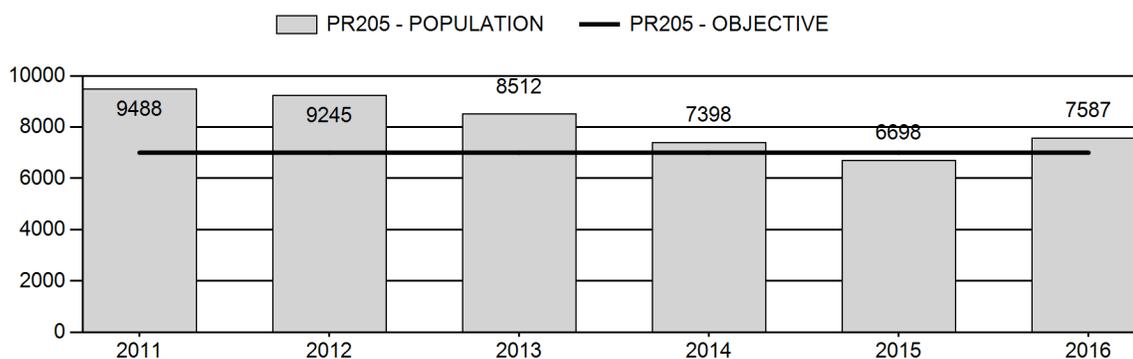
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	8,268	7,600	7,500
Harvest:	695	639	700
Hunters:	679	659	700
Hunter Success:	102%	97%	100 %
Active Licenses:	801	765	800
Active License Success:	87%	84%	88 %
Recreation Days:	2,611	2,305	2,600
Days Per Animal:	3.8	3.6	3.7
Males per 100 Females	49	50	
Juveniles per 100 Females	52	62	

Population Objective (± 20%) :	7000 (5600 - 8400)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	9%
Number of years population has been + or - objective in recent trend:	2
Model Date:	2/25/2017

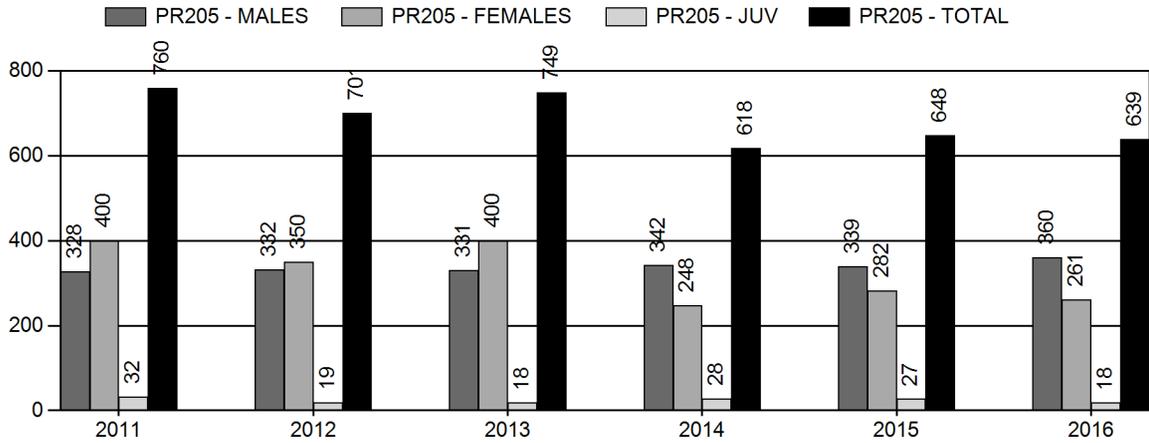
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	7%	10%
Males ≥ 1 year old:	16%	20%
Total:	23%	28%
Proposed change in post-season population:	-9%	-12%

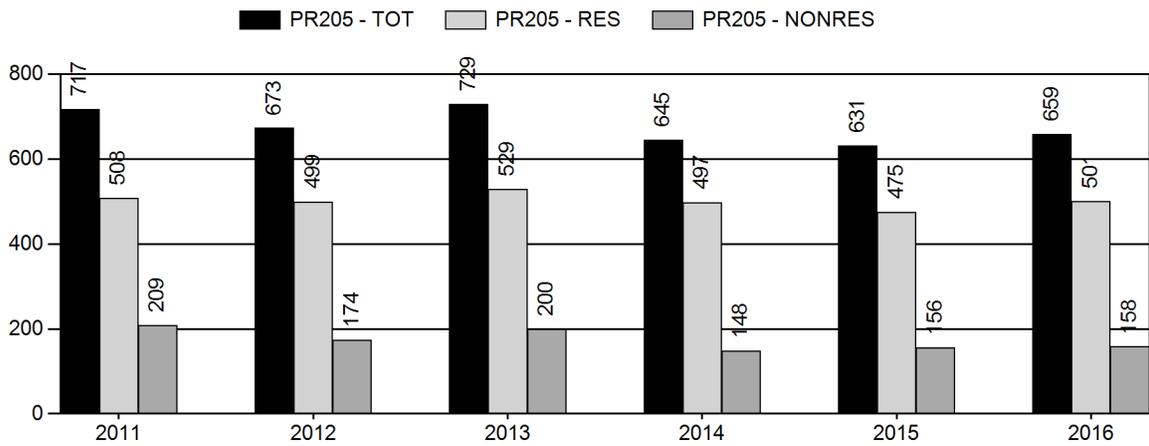
## Population Size - Postseason



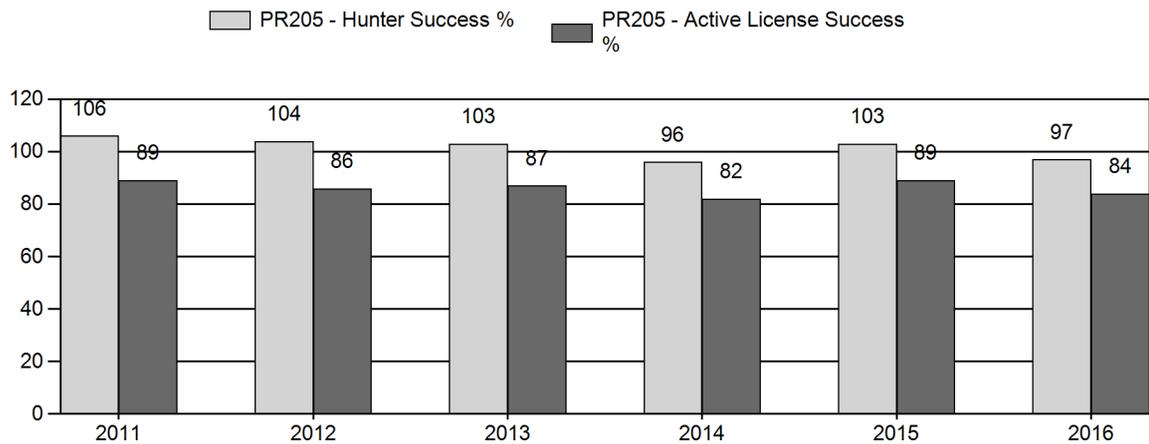
# Harvest



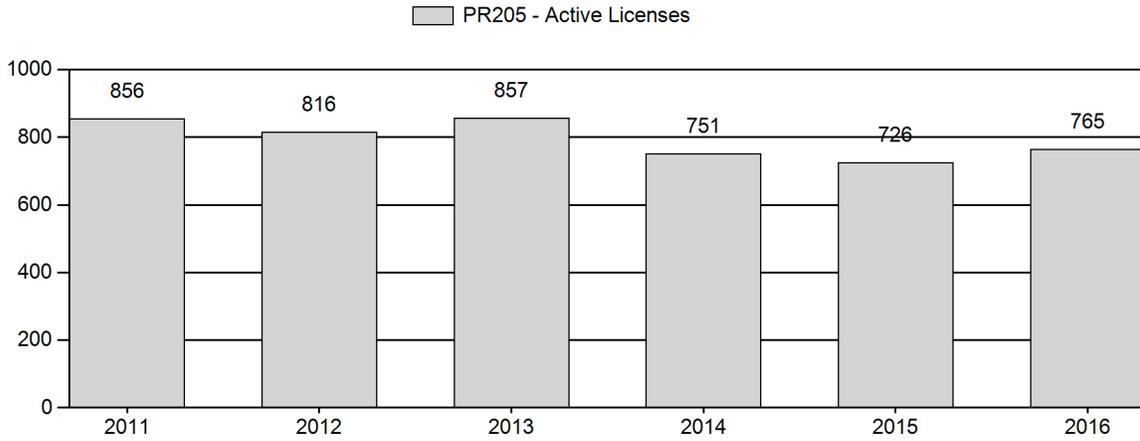
# Number of Active Licenses



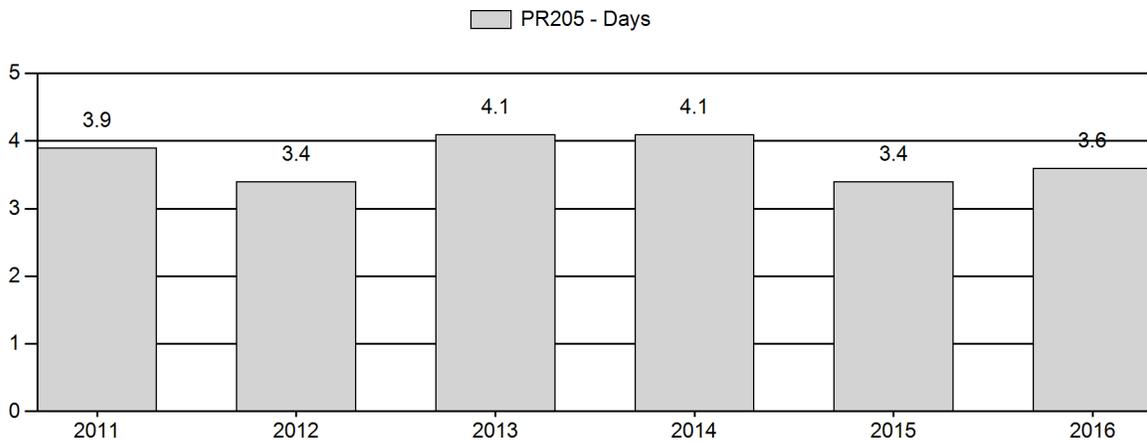
# Harvest Success



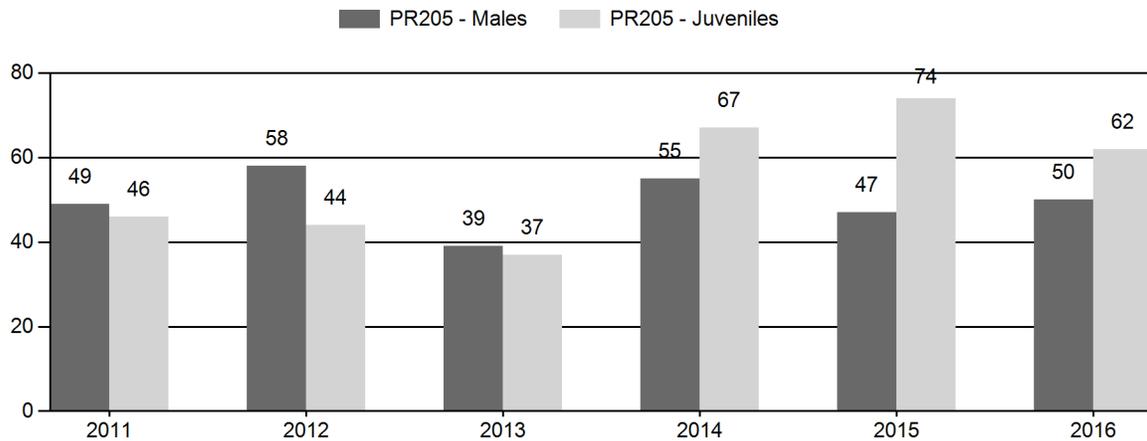
# Active Licenses



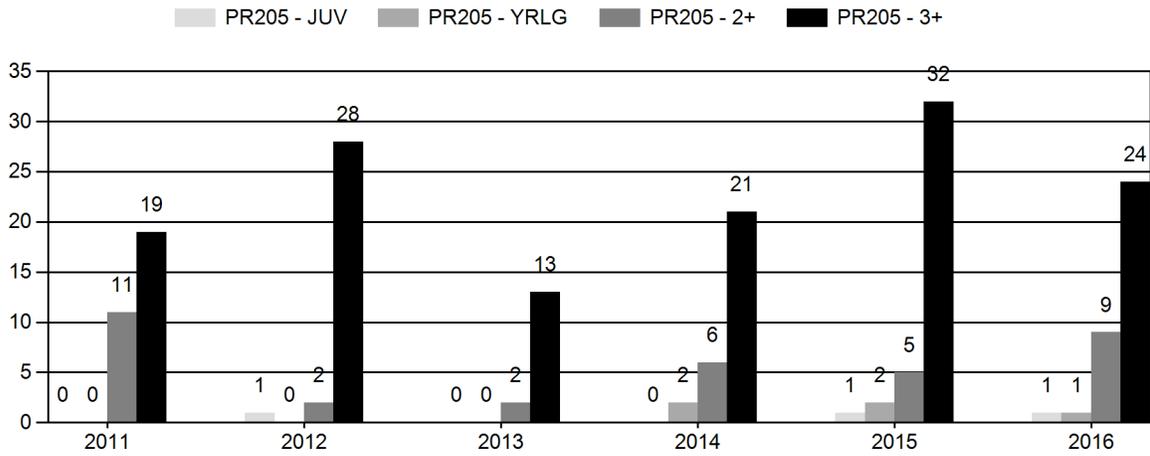
# Days Per Animal Harvested



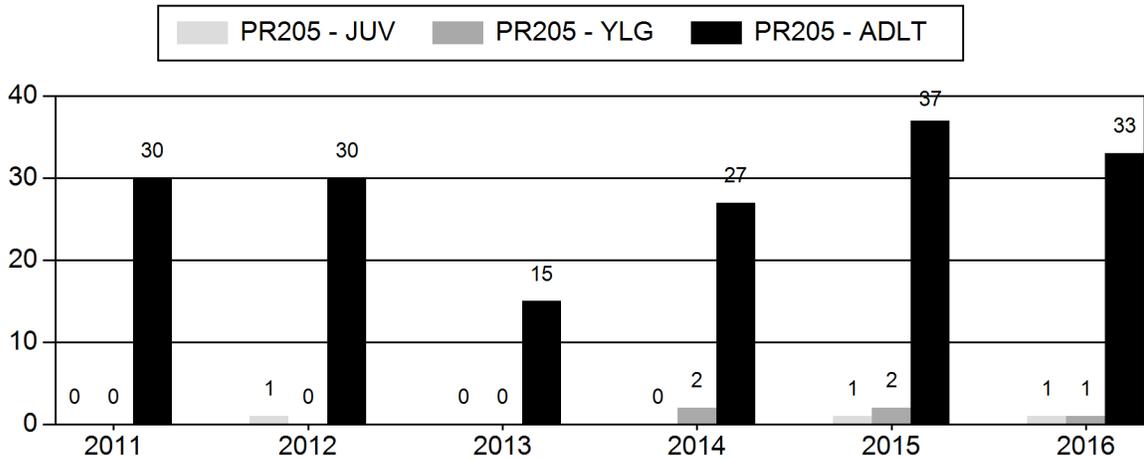
# Preseason Animals per 100 Females



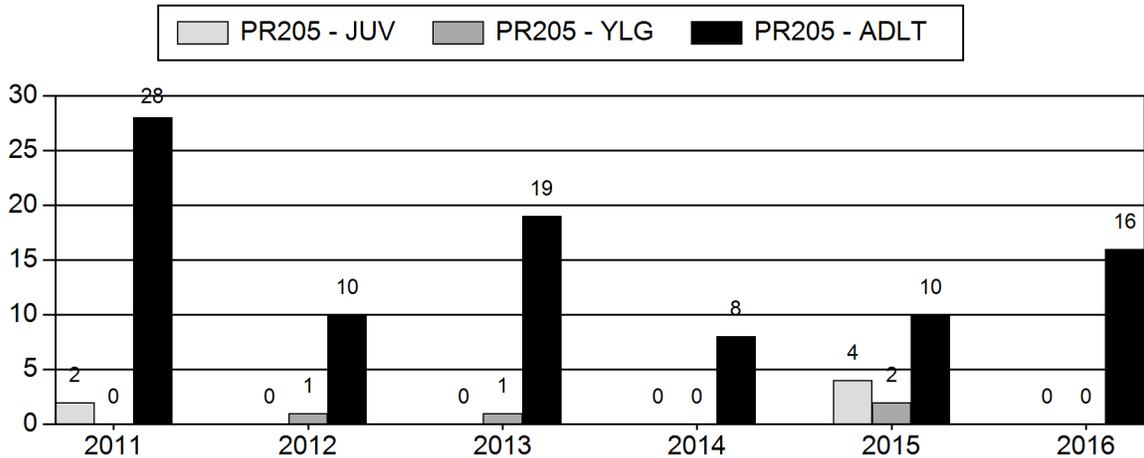
## Age Structure of Field Checked Males



## Age Structure Data (Field and Laboratory) - Male



## Age Structure Data (Field and Laboratory) - Female



**2011 - 2016 Preseason Classification Summary**

for Pronghorn Herd PR205 - CARTER MOUNTAIN

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
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	7,411	141	264	405	21%	862	45%	638	33%	1,905	1,922	16	31	47	± 4	74	± 5	50
2016	8,289	0	0	485	24%	969	47%	599	29%	2,053	1,684	0	0	50	± 4	62	± 5	41

**2017 HUNTING SEASONS  
CARTER MOUNTAIN PRONGHORN HERD (PR205)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
78	1	Sep. 20	Oct. 31	175	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	175	Limited quota	Any antelope
81	6	Oct. 1	Nov. 15	150	Limited quota	Doe or fawn valid west of Wyoming Highway 120
82	1	Sep. 20	Oct. 14	200	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	125	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 2016
78	1	+50
81	1	+50
81	6	+75
82	1	+25
82	7	+25
<b>Herd Unit Total</b>	<b>1</b>	<b>+125</b>
	<b>6&amp;7</b>	<b>+100</b>

**Management Evaluation**

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

**Management Strategy:** Recreational

**2016 Postseason Population Estimate:** ~7,600

**2017 Proposed Postseason Population Estimate:** ~7,500

**2016 Hunter Satisfaction:** 86% Satisfied, 10% Neutral, 4% Dissatisfied

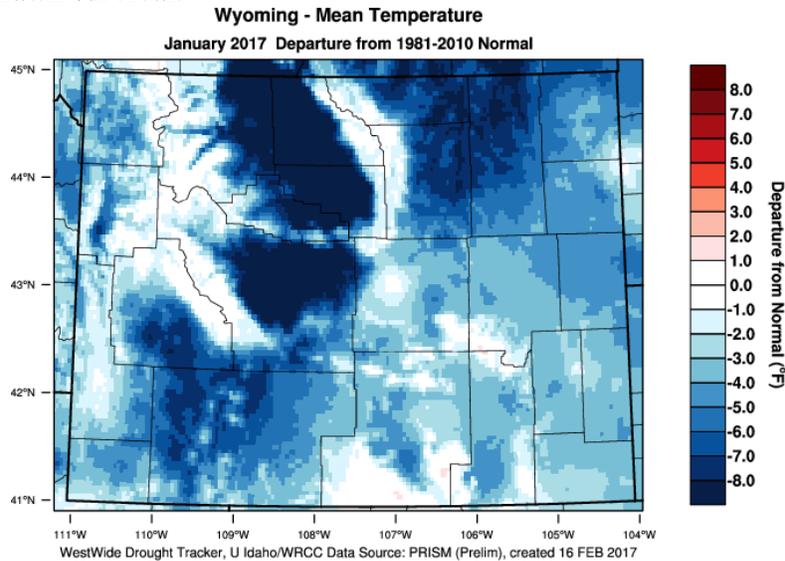
## Herd Unit Issues

Carter Mountain pronghorn herd unit 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, anthropomorphic 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. Well-timed growing season precipitation in 2013-15 resulted in increased forage throughout the Bighorn Basin. The winter of 2016/17 started out with cold temperatures and deep snow, but temperatures moderated in February. The migratory portion of this herd seemed to effectively seek out snow-free range. Nevertheless, above average precipitation and colder than average temperatures probably had an adverse effect on fawn survival.



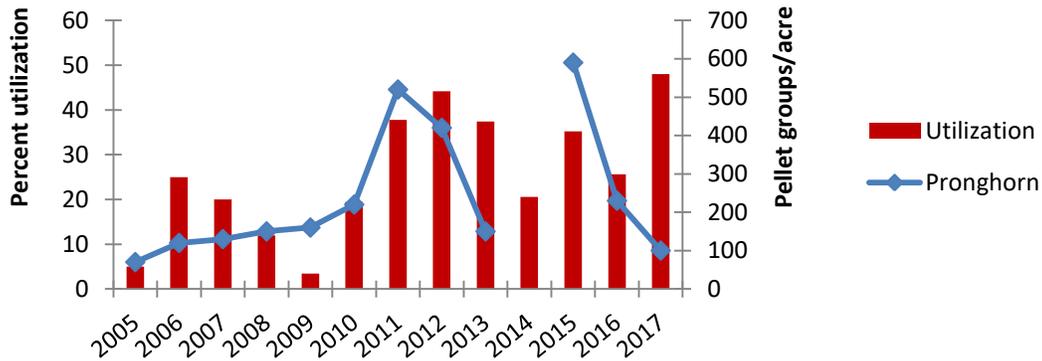
## Habitat

Habitat quality is probably most affected by desert-like conditions, including less than 12 inches of annual precipitation, and poor soils. 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. Landowners have a low tolerance for pronghorn.

With only 1 sagebrush browse transect established in this herd unit, data is insufficient to draw any inferences across the entire herd unit. The transect in Dry Creek Basin was established in 2004. Historically, this single transect has been of limited utility in gauging browsing levels

with utilization ranging from <5% to 25% (2005-2010). However, utilization has been above 30% in 5 of the past 7 years with nearly 50% utilization this winter. The deep snow experienced last winter forced massive (1000+) herds to concentrate near this site.

## Dry Creek Utilization and Pellet Counts



### 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 was 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 helping does reach excellent condition. The upward trend is continuing in 2016 with 62 fawns:100 does.

The 2016 buck:doe ratio (50:100) was exactly at the 5-year average. Historically, buck:doe ratios declined during drought years to 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 2016 (~2,000) was above the 5-year average (~1,700). Standardized survey routes were established in 2001.

### Harvest Data

In response to increasing number of complaints of crop depredation in 2010, the number of hunting licenses, especially doe/fawn licenses, was increased. Days per harvest has remained relatively steady between 2011-16, averaging 3.8 days. Hunter success typically does not fluctuate greatly; however, 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 might also be influenced by number of licenses issued. For the hunter survey, 86% of respondents indicated satisfaction, while 10% were neutral, and 4% were dissatisfied.

## **Population**

For the Carter Mountain pronghorn herd unit, the Time-Specific Juvenile/Constant Adult (TSJ,CA) survival model was selected. While the constant juvenile, constant adult survival model had the lowest AIC score (207), the TSJ, CA model was chosen, because the AIC score (243) is within the same order of magnitude and it biologically makes sense that fawn survival varies temporally. Survival constraints matched normal criteria. This model performs *good* and the results are biologically defensible. For post-season 2016, the TSJ,CA model estimated 7,600 pronghorn. The challenge with modeling this herd is that a portion of the population is migratory and a portion resides on agriculture fields nearly year-round.

Line transect surveys in 2006, 2009, 2012, and 2016 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. Furthermore, 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 2016 (2015 bio-year) estimated 8,000 ( $\pm 902$ ) pronghorn which matches field personnel's perceptions and tracks well with model estimates.

## **Management Summary**

The spreadsheet model estimates this herd is slightly above objective, but within the allowable range. Pronghorn numbers are coming back; therefore, an 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. We are increasing the number of Type 1 licenses across the herd unit. We will keep the doe/fawn license quota at a conservative level until the effects of this winter are fully evaluated.

## AERIAL LINE TRANSECT REPORT

Herd Unit: **Carter Mountain**

Biological Year: **2016**

Date(s) of Survey: 28 May – 1 June, 2016

Observer: Leslie Schreiber

Pilot/Aircraft Information: Mark Packila, Plane, Scout, Sky Aviation, Worland, WY

Special Equipment: GPS, laser range finder, handheld computer with CyberTracker Program

Set-up: Both sides of plane marked to define line offset 65m from beneath the plane and distance bands of 0-20m, 20-45m, 45-80m, 80-145m, and 145-200m from the line (total of 265m from beneath the plane) when the plane is at 300 feet AGL. Observer sat in rear seat behind pilot.

Design: The study area was flown with generally northwest-southeast transect lines. See map.

Mean Height AGL: Based on 331 groups observed, mean AGL was 346 feet.

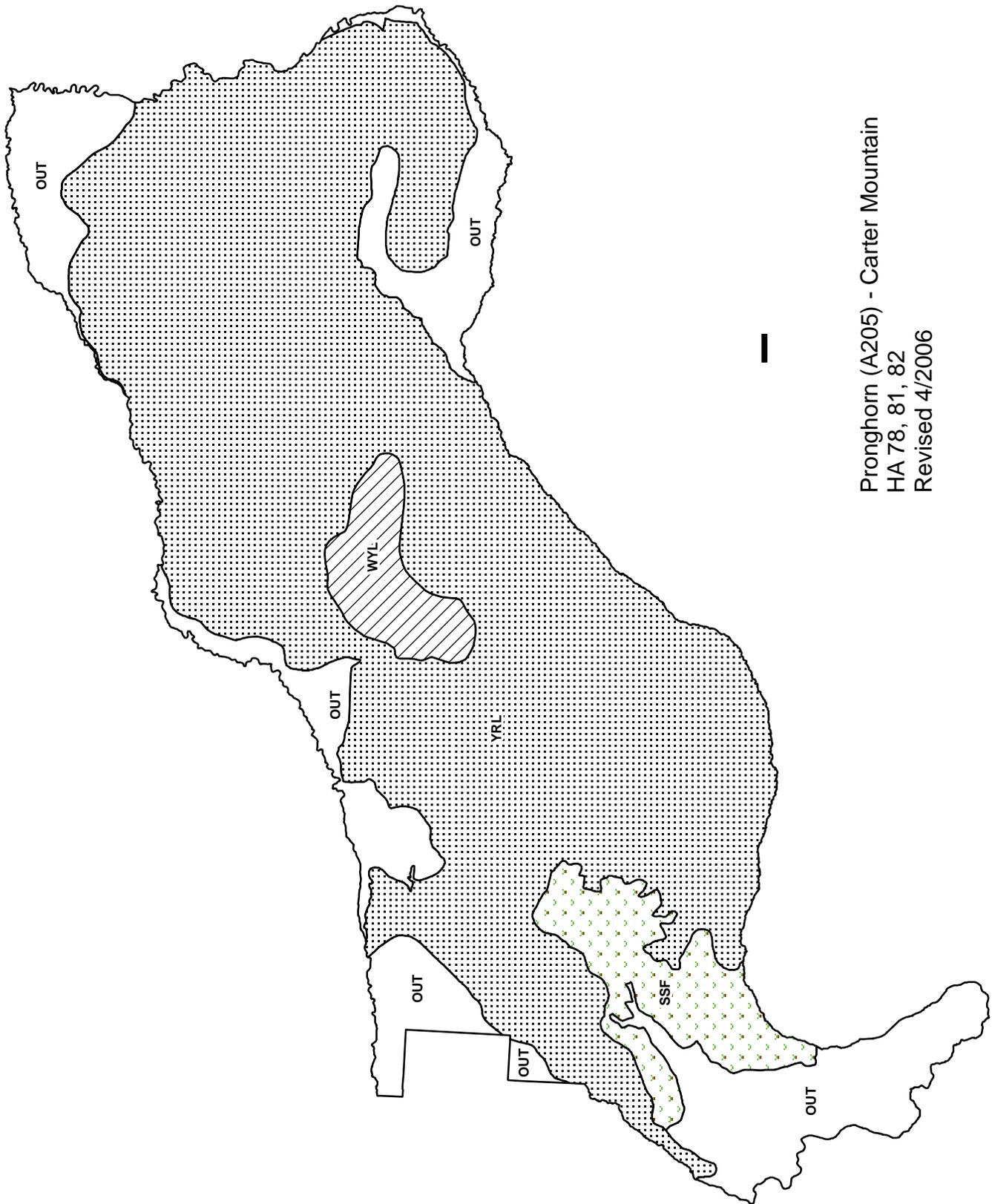
Total Transect Length: A total of 91 transect lines were flown, totaling 1,687 km.

Area Surveyed: The density estimate was applied across all occupied habitat (1,390 mi<sup>2</sup>). Hunt areas 78, 81, and 82 cover 2,097 mi<sup>2</sup>.

Weather/Visibility: Weather conditions were fair to marginal for all flights, but the first day (May 28) was the worst. Skies ranged from complete cloud cover on May 28 to completely clear on June 1. Temperatures ranged from 50° to 70° F. Background was green on the west side of the herd unit, but mostly brown on the east side due to poor vegetation types (saltbush desert) and drought conditions.

Costs: 22.8 hours of flight time at \$255/hr = **\$5814 total** (includes ferry time)

Model Estimate: The Uniform model estimated 8,020 pronghorn (SE=902).



Pronghorn (A205) - Carter Mountain  
 HA 78, 81, 82  
 Revised 4/2006



## 2016 - JCR Evaluation Form

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SPECIES: Pronghorn

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

HERD: PR207 - BADGER BASIN

HUNT AREAS: 80

PREPARED BY: Tony Mong

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	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Trend Count:	417	464	400
Harvest:	137	97	100
Hunters:	140	104	115
Hunter Success:	98%	93%	87%
Active Licenses:	168	117	125
Active License Success	82%	83%	80%
Recreation Days:	794	407	450
Days Per Animal:	5.8	4.2	4.5
Males per 100 Females:	48	39	
Juveniles per 100 Females	35	36	

Trend Based Objective ( $\pm$  20%) 400 (320 - 480)

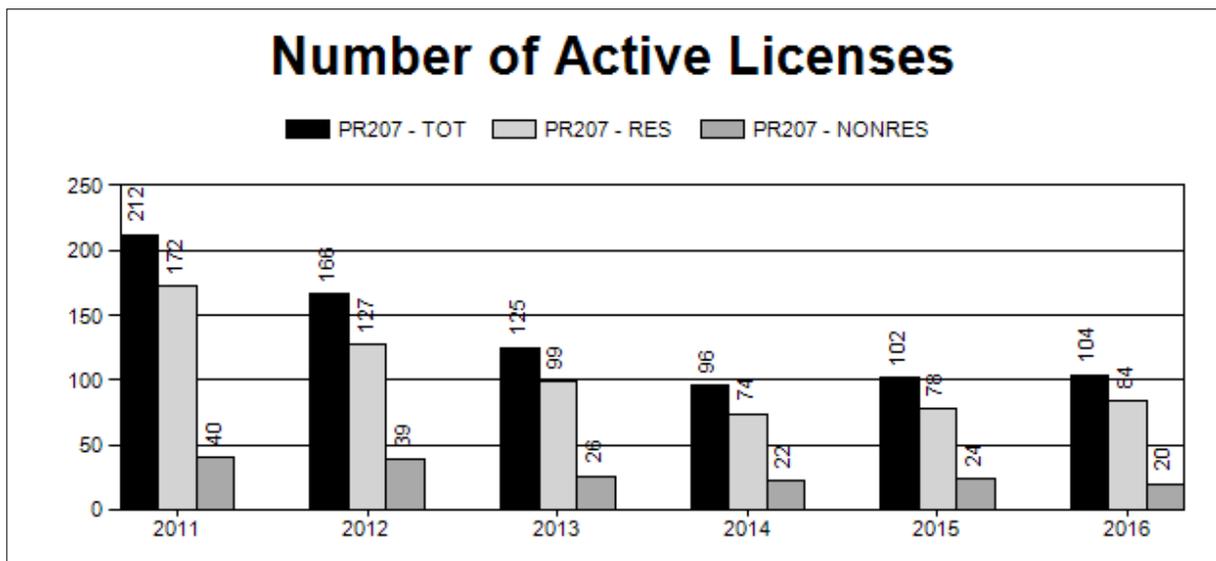
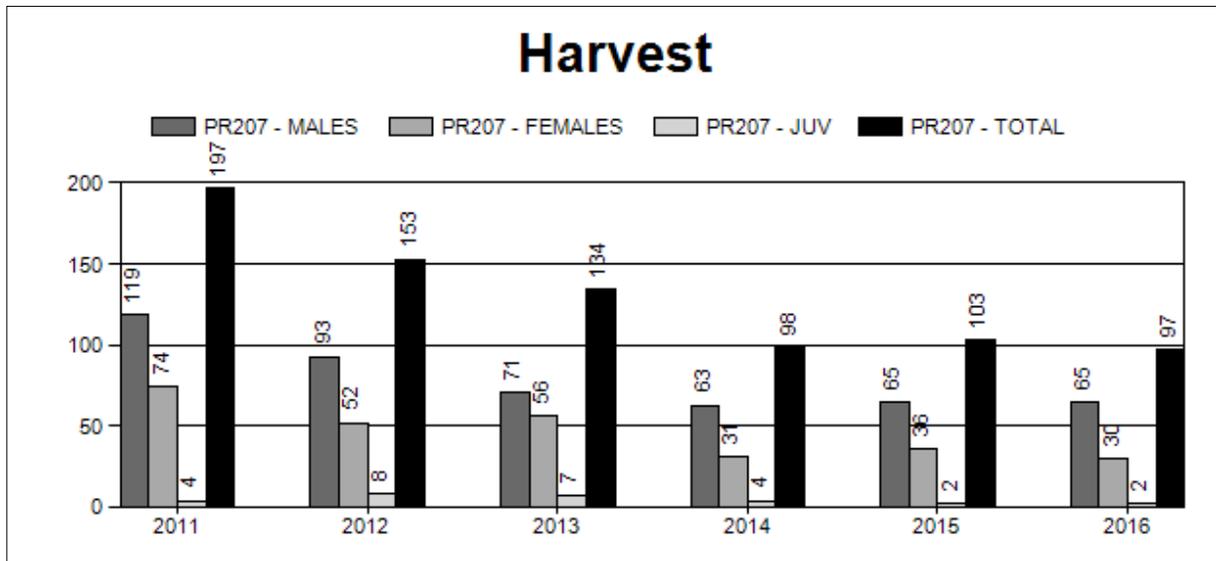
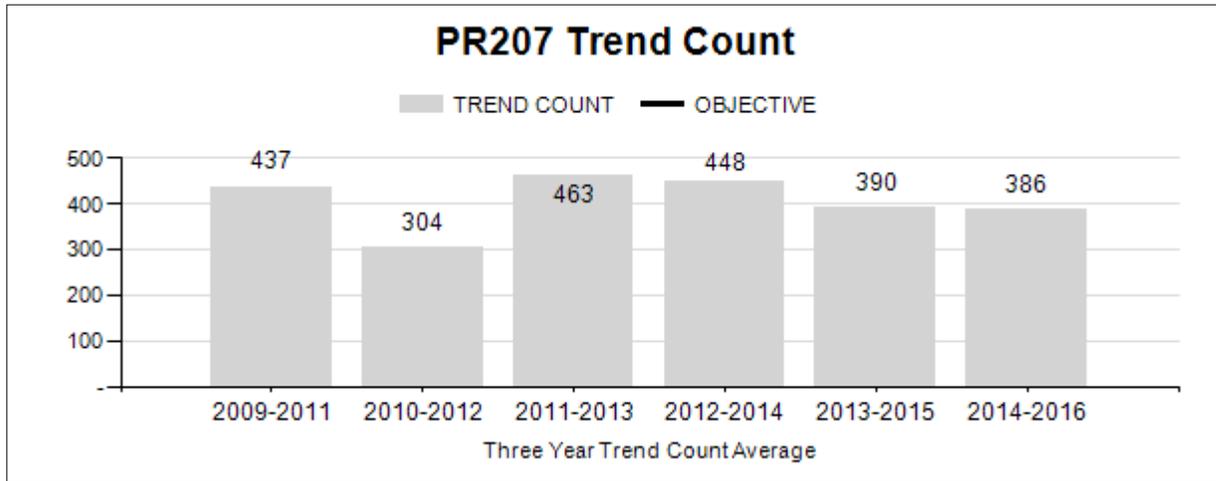
Management Strategy: Recreational

Percent population is above (+) or (-) objective: 16%

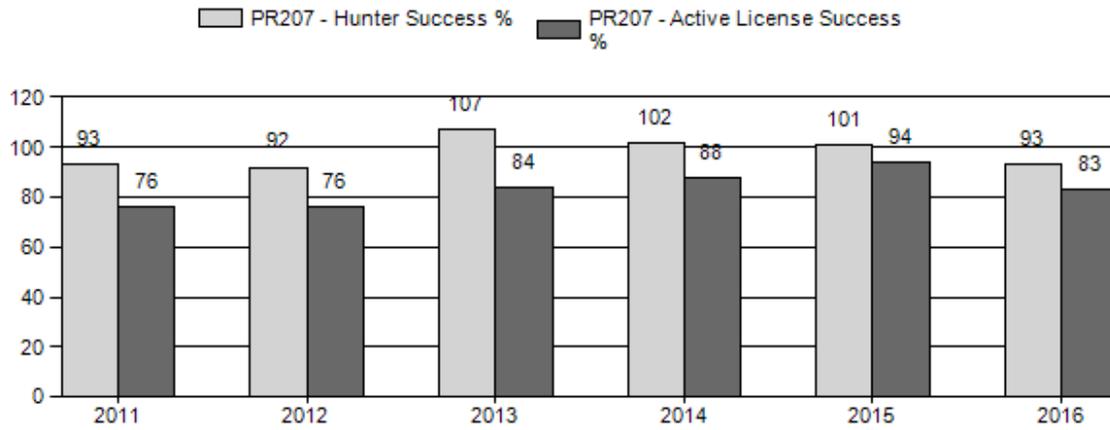
Number of years population has been + or - objective in recent trend: 1

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

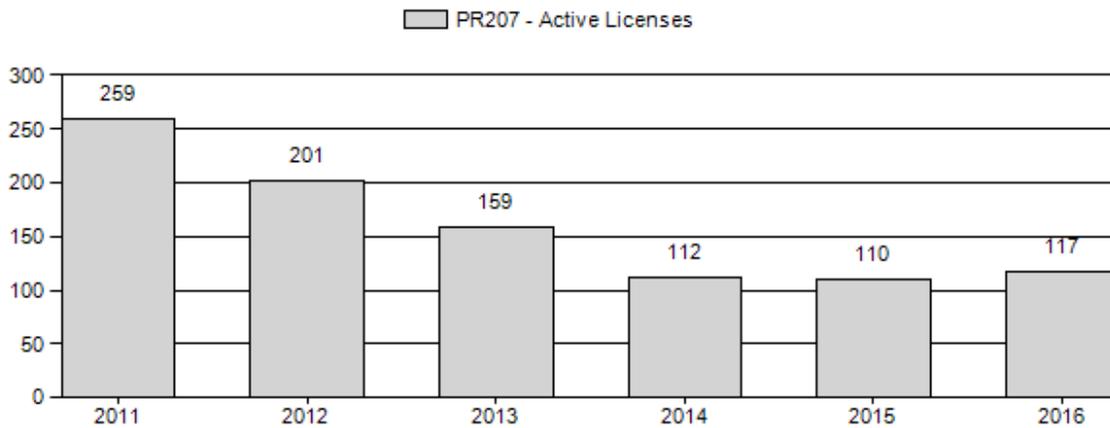
	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	n/a%	n/a%
Males $\geq$ 1 year old:	n/a%	n/a%
Juveniles (< 1 year old):	n/a%	n/a%
Total:	n/a%	n/a%
Proposed change in post-season population:	n/a%	n/a%



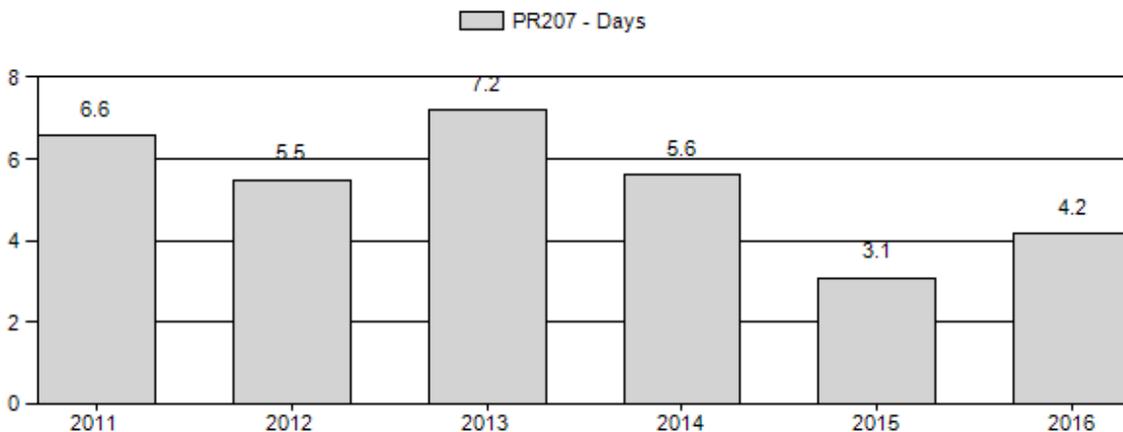
# Harvest Success



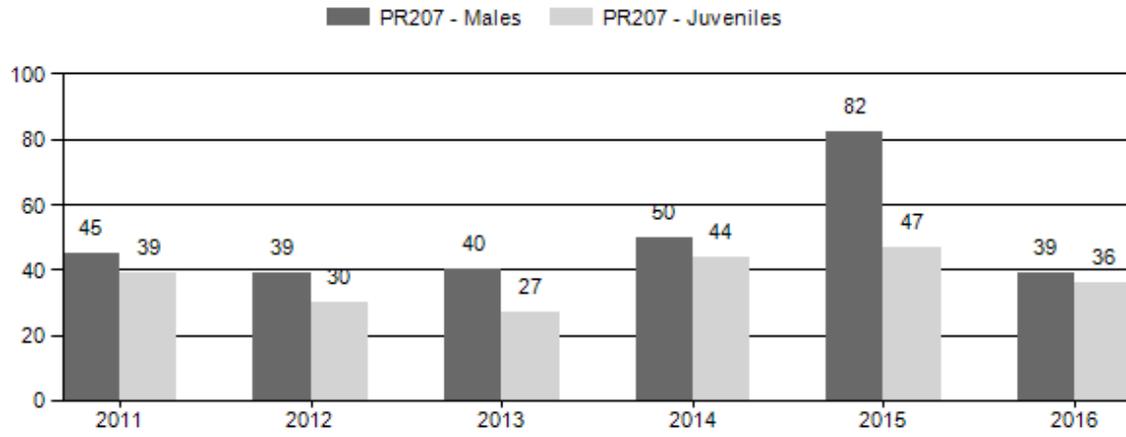
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



**2017 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	License Type	Quota change from 2016
80		No Change
<b>Herd Unit Total</b>		<b>No Change</b>

**Management Evaluation**

**Current Trend Count Objective:** 400

**Management Strategy:** Recreational

**2015 3-year Running Average Trend Count:** 390

**2016 3-year Running Average Trend Count:** 386

**2016 Hunter Satisfaction:** 87% Satisfied, 11% Neutral, 2% Dissatisfied

**Herd Unit Issues**

Badger Basin Herd Unit consists of mostly arid habitats interspersed with irrigated agricultural lands adjacent to the Shoshone River drainage. The herd has one of lowest fawn ratios statewide, and has low antelope densities throughout the herd unit. Antelope concentrate in agricultural lands in drier years, and these areas tend to have higher levels of productivity. As a result, damage to irrigated lands is often a problem in this herd unit, especially in drought periods.

Creating a reliable postseason population model for this herd has been difficult to impossible over the life of the herd. Because of these difficulties during the herd objective review in 2016 the objective was changed to a trend count survey objective of 400 in order to allow for a measurable and obtainable herd objective.

## **Weather**

Weather conditions during the 2016 biological year were characterized by near normal precipitation during the growing season (April-June). Winter conditions; however, were relatively severe in most of the unit, with above average snowfall and colder than normal temperatures. We expect overwinter mortality to be higher than normal.

## **Habitat**

No habitat monitoring data is collected in this herd unit. Although growing season precipitation was near normal, damage issues on agricultural lands continued to be a problem in some locations. A complete habitat report is included the Cody regional appendix.

## **Field Data**

We observed a preseason fawn ratio of 36:100 does, and a total buck ratio of 39:100 does calculated from a sample size of about 460 antelope. The poor productivity during the last 20 years (especially in drought periods) is common with only three years it exceeded 50:100 (1996, 2005, and 2007). Classification sample sizes are often low and can result in varying buck:doe ratios (both adult and yearling) some years.

## **Harvest Data**

In 2016, 104 hunters harvested 65 bucks, and 30 does, and 2 fawns for a success rate of 83%. When the population declined in 2011-2012, we reduced permits to allow this herd to stabilize. But, despite low antelope and permit numbers we see continued high hunter success on all license types, and is probably a reflection of low hunter density and increased hunter access to key irrigated lands with high antelope densities.

## **Population**

The small size of this antelope herd has made population modeling difficult to portray a believable population size regardless of model selection. As a result, we use a preseason trend count to track the population, with an objective of 400 averaged over three years. Past aerial trend counts resulted in sample sizes lower than what was counted during annual standardized classification counts. Classification totals have tracked well over time with perceived abundance.

## **Management Summary**

For the time being, no changes are proposed for the 2016 hunting season, which we believe should maintain or allow for a slight increase in antelope numbers. Past conservative hunting seasons and good fawn production (for this herd) allowed this population to substantially exceed the objective by 2005. We increased harvest from 2007-2011, to decrease the population and in conjunction with low fawn productivity, this herd as stayed at or below objective since the early

2000's. Recent poor fawn crops coupled with moderate female harvest, has kept this population in check.

