

## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR615 - RED DESERT

HUNT AREAS: 60-61, 64

PREPARED BY: GREG HIATT

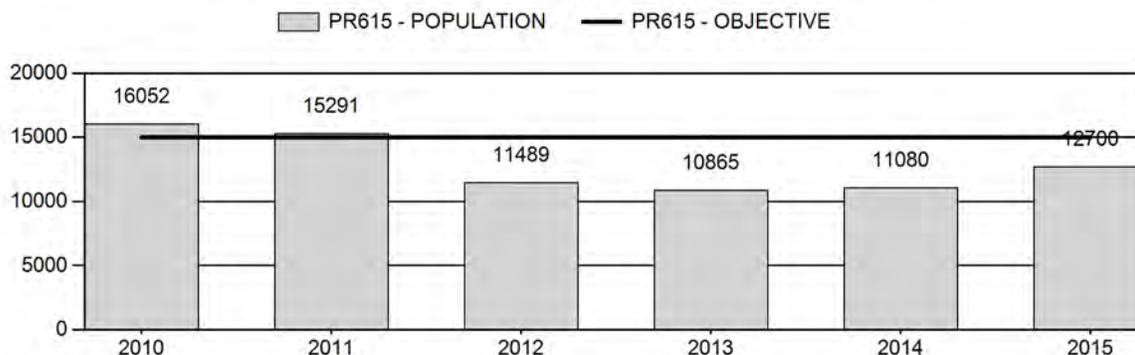
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	12,955	12,700	11,930
Harvest:	749	221	240
Hunters:	765	268	280
Hunter Success:	98%	82%	86 %
Active Licenses:	841	277	280
Active License Success:	89%	80%	86 %
Recreation Days:	2,356	812	880
Days Per Animal:	3.1	3.7	3.7
Males per 100 Females	63	60	
Juveniles per 100 Females	53	67	

Population Objective ( $\pm$ 20%) :	15000 (12000 - 18000)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-15.3%
Number of years population has been + or - objective in recent trend:	4
Model Date:	2/27/2016

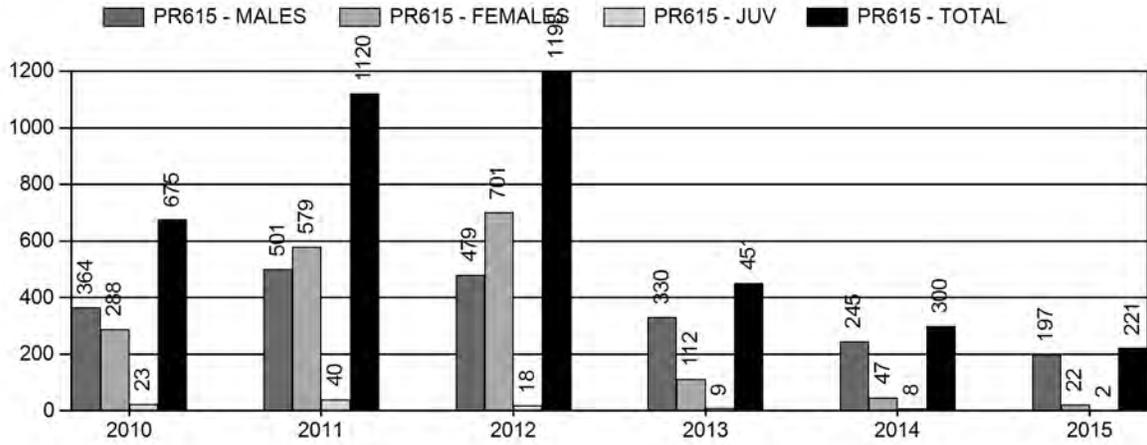
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	0.6%	0.5%
Males $\geq$ 1 year old:	6.5%	6.1%
Juveniles (< 1 year old):	0.5%	0.2%
Total:	2.0%	2.0%
Proposed change in post-season population:	+6.5%	-6.0%

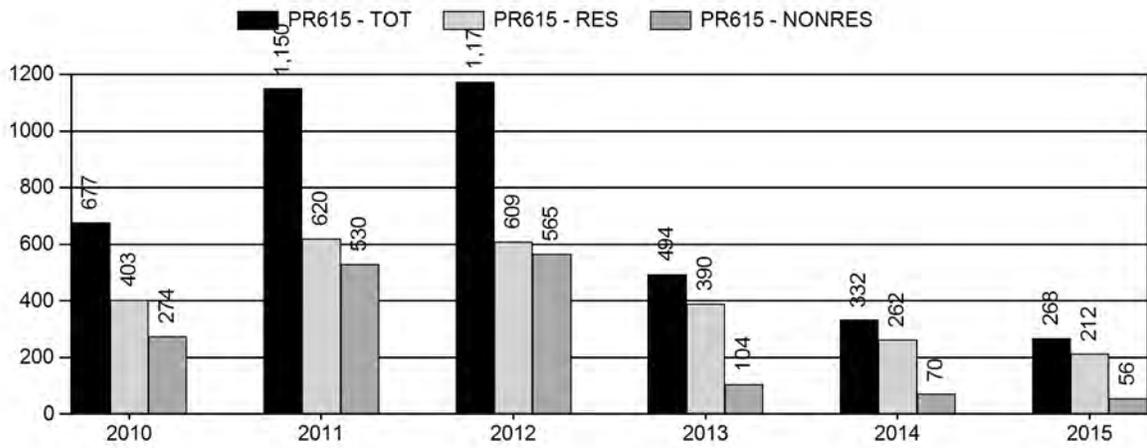
## Population Size - Postseason



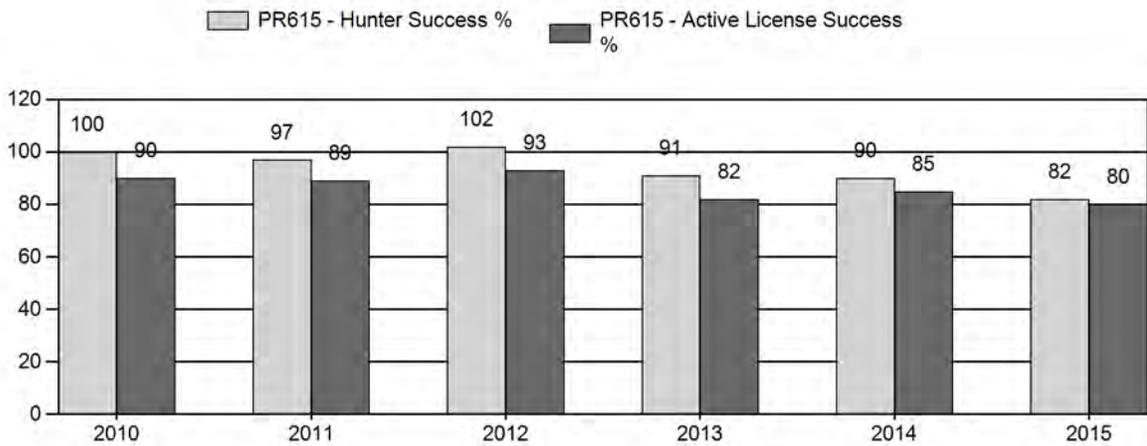
# Harvest



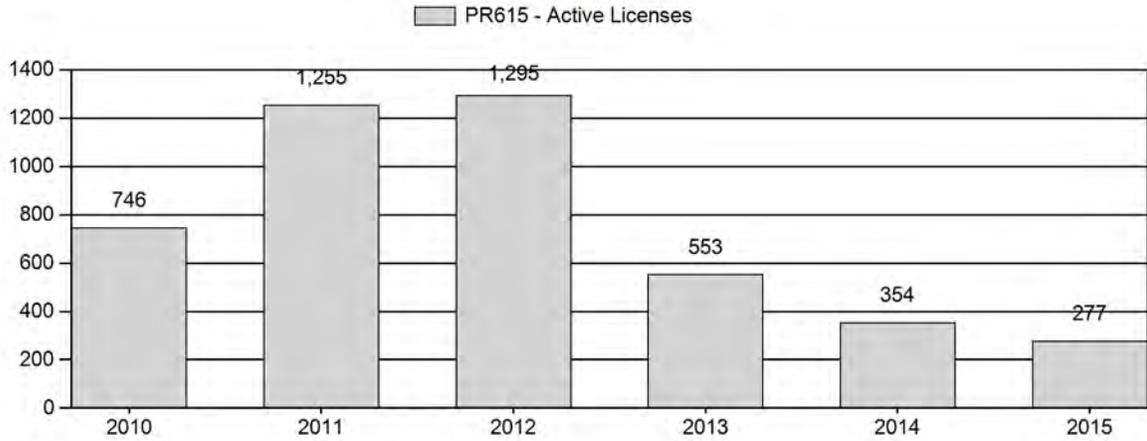
# Number of Hunters



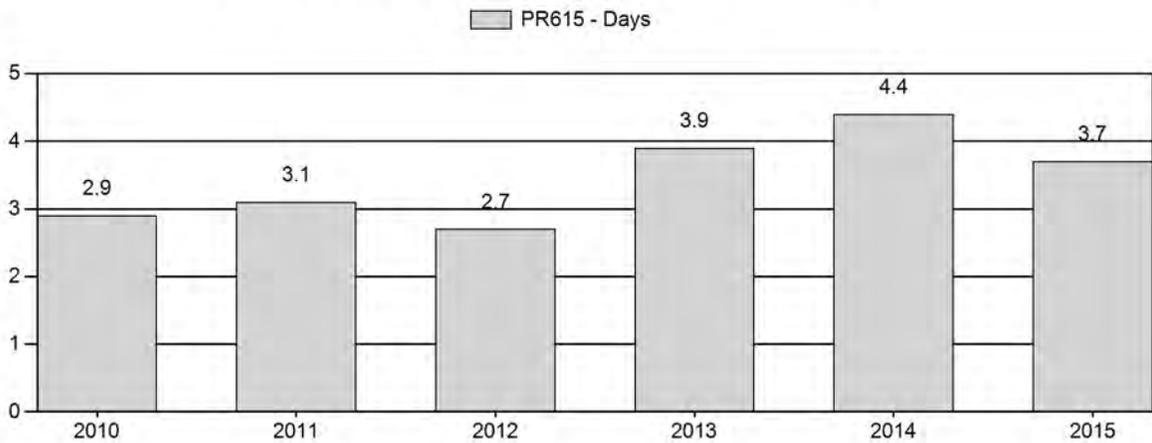
# Harvest Success



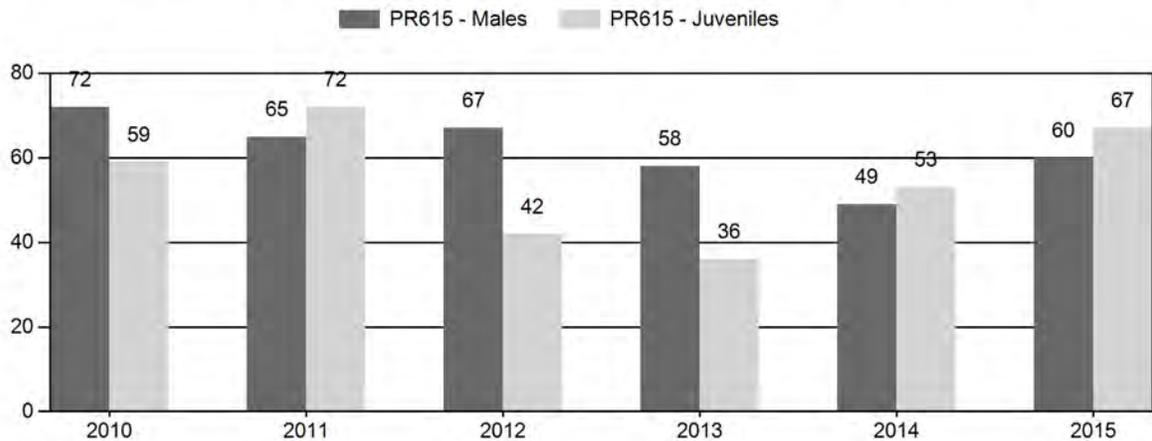
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR615 - RED DESERT

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	16,795	361	951	1,312	31%	1,823	43%	1,077	26%	4,212	2,595	20	52	72	± 4	59	± 3	34
2011	16,523	263	736	999	27%	1,540	42%	1,115	31%	3,654	2,650	17	48	65	± 4	72	± 4	44
2012	12,798	177	888	1,065	32%	1,600	48%	667	20%	3,332	2,103	11	56	67	± 4	42	± 3	25
2013	11,361	66	809	875	30%	1,517	52%	539	18%	2,931	1,629	4	53	58	± 3	36	± 3	23
2014	11,410	110	519	629	24%	1,285	49%	686	26%	2,600	1,535	9	40	49	± 3	53	± 4	36
2015	12,940	257	697	954	26%	1,585	44%	1,063	30%	3,602	2,267	16	44	60	± 3	67	± 4	42

**2016 HUNTING SEASONS  
RED DESERT PRONGHORN HERD (PR615)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
60	1	Sep. 17	Oct. 31	50	Limited quota	Any antelope
	6	Sep. 17	Oct. 31	25	Limited quota	Doe or fawn
61	1	Sep. 10	Oct. 31	100	Limited quota	Any antelope
	6	Sep. 10	Oct. 31	25	Limited quota	Doe or fawn
64	1	Sep. 17	Oct. 31	100	Limited quota	Any antelope
	6	Sep. 17	Oct. 31	25	Limited quota	Doe or fawn
Archery 60, 64		Aug. 15	Sep. 16			Refer to Section 2 of this Chapter
61		Aug. 15	Sep. 9			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
60	1	0
	6	+25
61	1	0
	6	0
64	1	0
	6	0
<b>Herd Unit Total</b>	<b>1</b>	<b>0</b>
	<b>6</b>	<b>+25</b>

**Management Evaluation**

**Current Postseason Population Management Objective: 15,000**

**Management Strategy: Special**

**2015 Postseason Population Estimate: ~12,700**

**2016 Proposed Postseason Population Estimate: ~11,900**

**Herd Unit Issues**

The Red Desert pronghorn herd is managed toward a post-hunt population of 15,000 pronghorn, an objective last reviewed in 2015. Population size is estimated using a spreadsheet model developed in 2012 and last updated in 2016. The herd is in special management, with harvest quotas designed to maintain pre-hunt buck:doe ratios above 60:100.

Historically, access in this herd unit has been good. Much of the unit is public land, and hunters have been able to acquire access to most private lands in the checkerboard. The seasonal distribution map for the herd has not been updated for many years, and it is likely there are crucial winter habitats, particularly in Area 60, that have not yet been delineated.

Habitat issues in this herd unit include continued gas field development, coalbed natural gas development, opening of an *in situ* uranium mine with other mines proposed and possible development of shale oil. Many miles of sheep-tight fences exist in the herd unit, impeding pronghorn movements and migrations, and increasing losses during severe winters.

## **Weather**

Following severe drought conditions in 2012 and 2013, improved precipitation arrived in the latter half of 2014 and continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth and improving fawn survival. Condition of pronghorn going into the winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

## **Habitat**

Only one shrub transect has been established in this herd unit, on the Chain Lakes WHMA, but was not read in 2015. Shrub production presumably improved with the increased moisture and many sagebrush plants that had appeared dead from drought in 2013 produced small but viable sprouts of green growth in 2015. While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional due to the increased precipitation.

Habitat losses to uranium development have increased with opening of the *Ur in situ* uranium mine in Area 61, but are not in or near crucial pronghorn ranges. Habitat losses to gas development have slowed due to low oil and gas prices.

## **Field Data**

Classification sample size increased in 2015, the largest sample in four years. The 2015 sample exceeded the statistically adequate sample by almost 60 percent. Sample size increased in all the areas, with Area 61 providing the largest sample, and Area 60 the least.

With increased precipitation, fawn production improved to 67:100, the highest ratio in seven years. Fawn production improved in all three hunt areas. Unusually, production was highest in Area 60 at 81:100. Production was noticeably lower in Areas 61 and 64, at 58:100 and 69:100 respectively. Normally fawn production is significantly lower in Area 60. Both Area 61 and Area 64 have significant numbers of does that fawn at higher elevations, and loss to hypothermia due to some of the late spring storms may have reduced fawn survival in portions of those two areas, while having little effect in the low elevations found in Area 60.

The herd buck:doe ratio barely met the special management criterion of 60:100 in 2015, having failed to meet it in the two years prior. Both Area 60 and Area 64 exceeded this criterion, at 70:100 and 68:100 respectively. Most of the increase in these two areas came from increased supplies of yearling bucks. The buck:doe ratio in Area 61 was considerably poorer, at only 49:100, generating large numbers of complaints from hunters. Both yearling and adult buck:doe ratios were significantly lower in Area 61 than in the other two hunt areas.

### **Harvest Data**

Hunter success declined to 80 percent, its lowest level since 2007 and the second poorest rate of success since the herd was delineated in 1976. Hunter effort decreased, despite the poor success, to 3.7 days per animal. Statistically, the past three years have seen the poorest hunting in this herd since it was delineated in 1976. As in 2014, hunter success was highest in Area 60 and lowest in Area 64. The average days of effort required to harvest an animal was again highest in Area 61. Hunters with Type 1 licenses in Area 60 enjoyed the highest success, at 86 percent, while doe/fawn hunters in Area 64 had the poorest (52 percent).

### **Population**

The Time-Specific Juvenile & Constant Adult Survival (TSJ,CA) spreadsheet model provided the best fit with observed buck:doe ratios for this herd and behaved predictably when 2015 classification and harvest data were added. The model aligns with three out of five line-transect estimates, but underestimates the two most recent. Because of these concerns, it is considered a “Fair” model of the herd. Annual adult survival was predicted at 90 percent, a reasonable level. Juvenile survival rates fluctuated within the allowed range but did hover at maximum or minimum values for many years. The CJ,CA and SCJ,SCA models each had nearly identical AIC values, but both models predicted herd sizes well below line-transect estimates and generated roughly stable buck:doe estimates that did not track the dips and rises of observed values. Fawn production in 2016 was projected to be near the five-year average and the model was run with median juvenile survival in 2016.

The model predicts the herd has been roughly 20 percent below objective for the past four years. Assuming average fawn production and survival, the 2016 pre-hunt population should be less than seen in 2015 and herd growth will be minimal. Without major improvement in fawn production and survival, harvest quotas for 2016 will provide little or no increase in herd size.

### **Management Summary**

This herd was well below objective size following a record harvest and severe winter losses in 1992. Conservative harvests after that winter combined with improved fawn production and survival beginning in 2007 allowed the herd to reach and be maintained at objective size in 2010 and 2011.

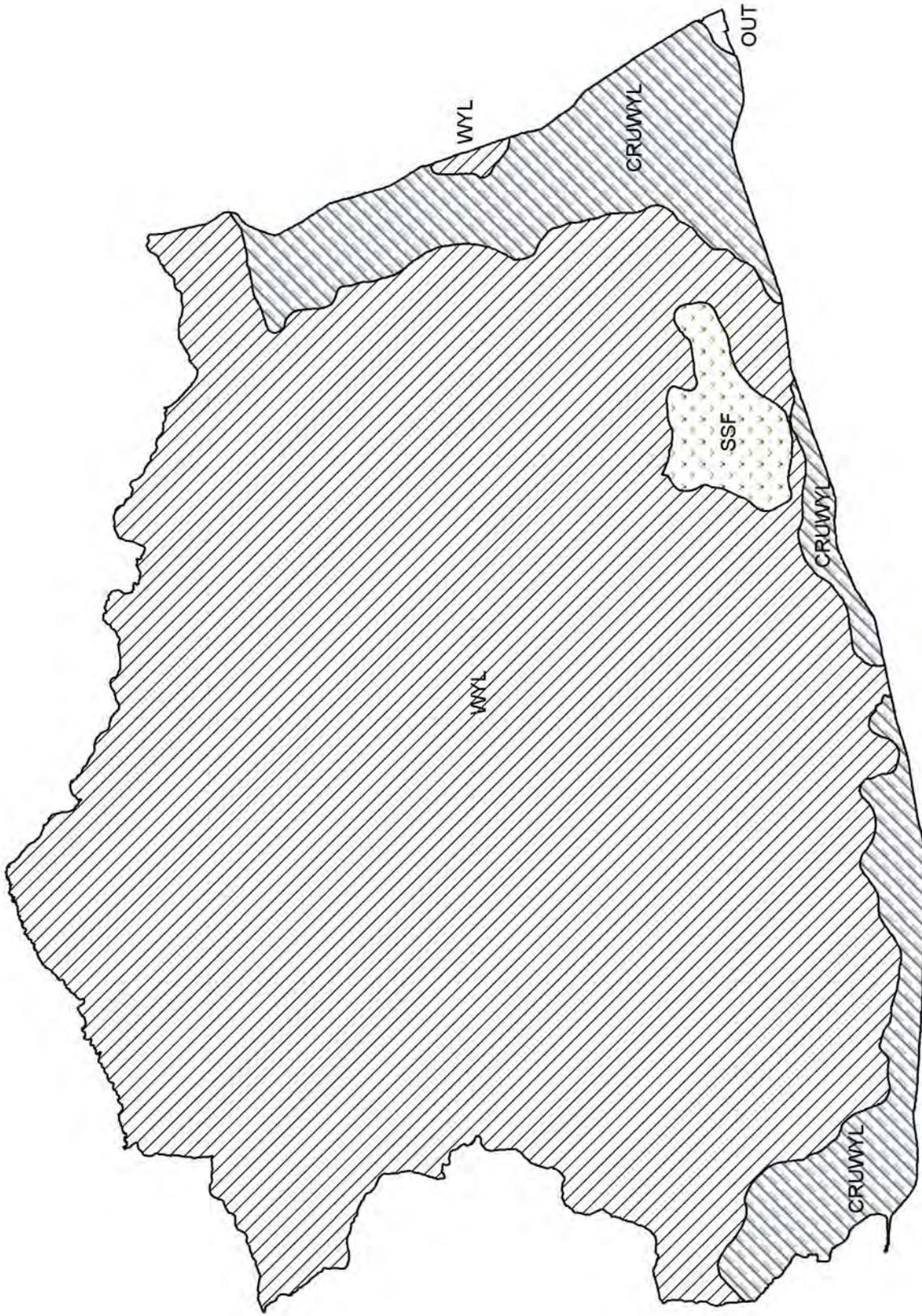
According to the spreadsheet model, the combination of heavy harvests, losses to EHD and extremely poor fawn production in 2012 and 2013 significantly reduced herd size, estimated

around 11,000. Improved fawn production in 2015 provided the first increase in herd size in three years.

With the population estimated to be 20 percent below objective and record poor harvest statistics, no doe harvest is necessary in 2016. However Type 6 licenses were listed for each of the three areas in the packet so minimal quotas of 25 Type 6 licenses are listed for each area. Quotas for Type 1 licenses are unchanged in all three areas. Type 1 licenses were reduced by 33 percent in Area 61 in 2015, and the effects of that reduction have yet to be seen in the buck supply for that area. If the buck:doe ratio for this area does not respond in 2016, further reduction in buck harvest may be necessary in this area.

With the projected harvest of roughly 205 bucks and 35 does and fawns, predicted herd size will decrease by about 6 percent to 11,900 pronghorn. The herd is unlikely to reach objective in two or three years unless precipitation continues to remain high, raising both fawn production and survival.

Opening dates are shifted by two days to stay on Saturday openers, with Area 61 opening with Area 62 and Areas 60 and 64 opening with most of the rest of the Lander Region. Closing dates are the same as in 2015.



PH615 - Red Desert  
HA 60, 61, 64  
Revised - 3/94



## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR630 - IRON SPRINGS

HUNT AREAS: 52, 56, 108

PREPARED BY: GREG HIATT

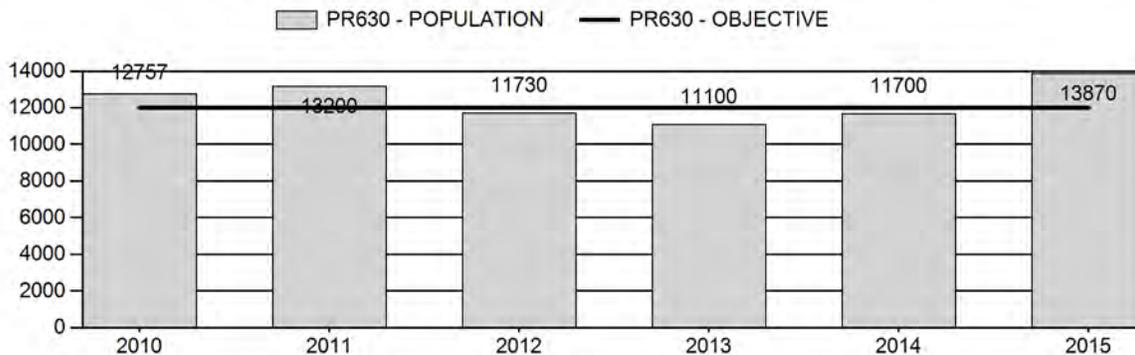
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	12,097	13,870	13,990
Harvest:	750	497	790
Hunters:	779	434	895
Hunter Success:	96%	115%	88 %
Active Licenses:	881	553	895
Active License Success:	85%	90%	88 %
Recreation Days:	2,652	1,728	2,650
Days Per Animal:	3.5	3.5	3.4
Males per 100 Females	45	52	
Juveniles per 100 Females	54	56	

Population Objective (± 20%) :	12000 (9600 - 14400)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	16%
Number of years population has been + or - objective in recent trend:	1
Model Date:	2/27/2016

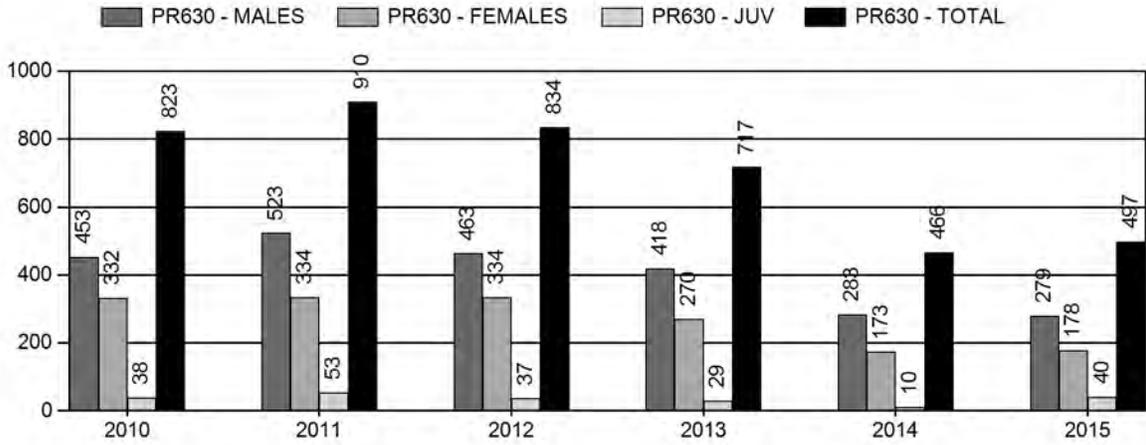
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	3.4%	4.7%
Males ≥ 1 year old:	9.6%	9.9%
Juveniles (< 1 year old):	0.7%	1.6%
Total:	4.2%	5.3%
Proposed change in post-season population:	+0.3%	+0.9%

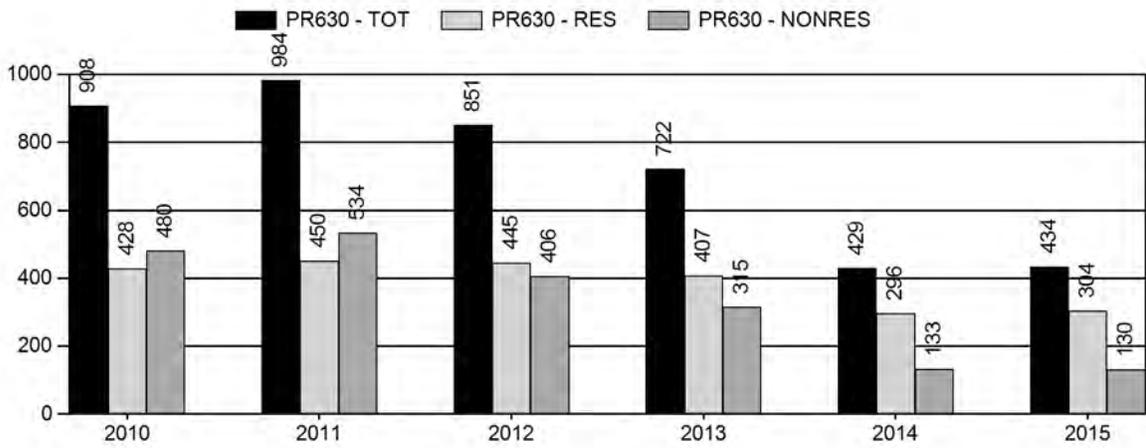
## Population Size - Postseason



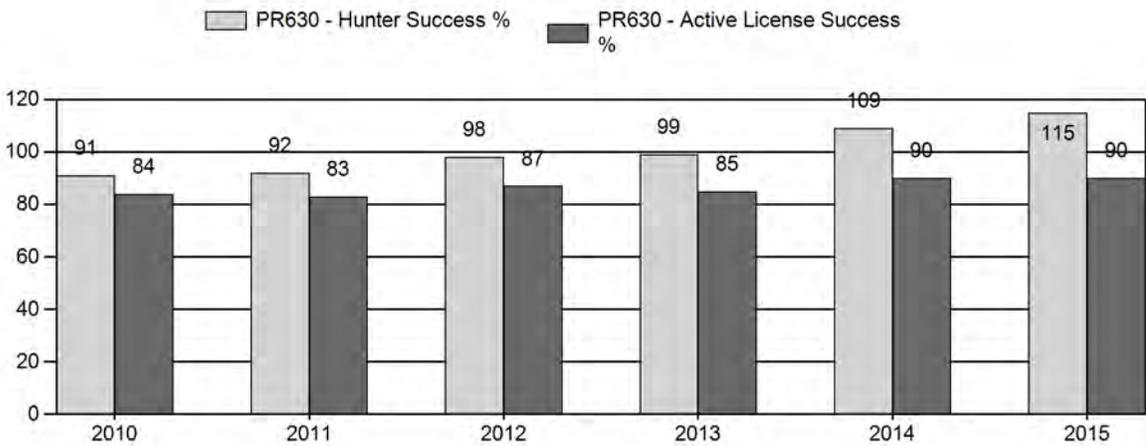
# Harvest



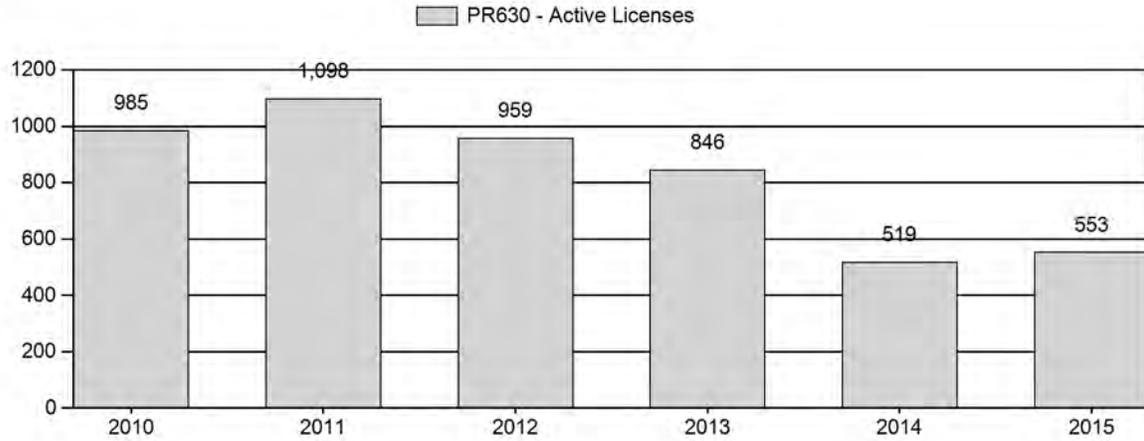
# Number of Hunters



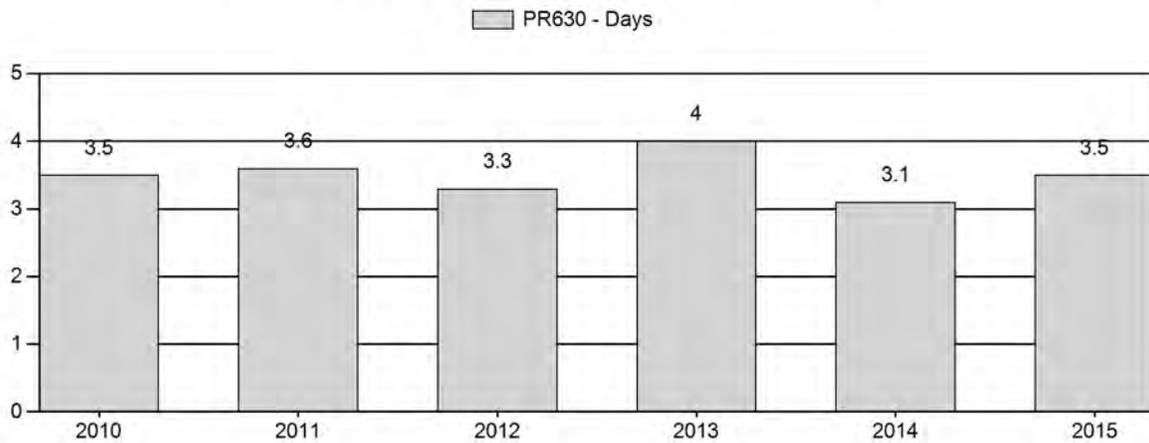
# Harvest Success



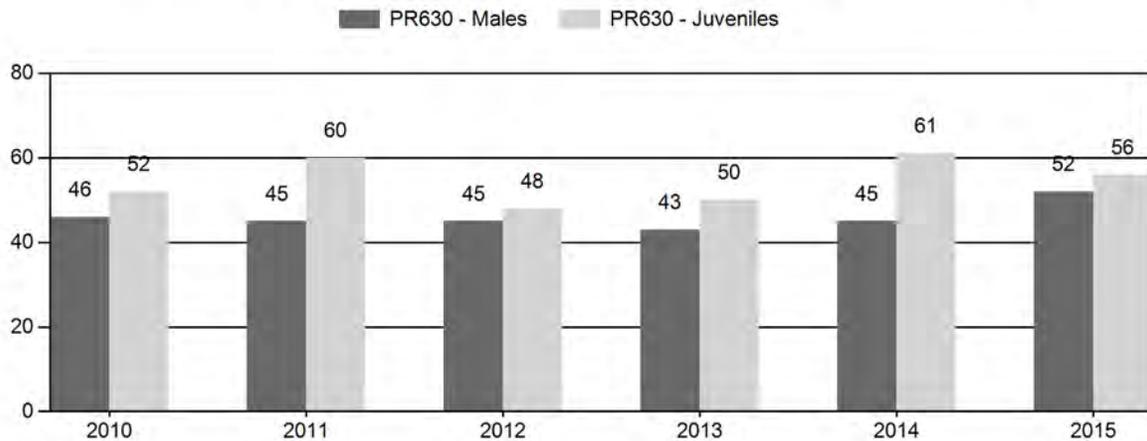
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR630 - IRON SPRINGS

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	13,663	159	710	869	23%	1,874	50%	968	26%	3,711	1,477	8	38	46	± 3	52	± 3	35
2011	14,200	150	576	726	22%	1,627	49%	984	29%	3,337	1,791	9	35	45	± 3	60	± 4	42
2012	12,640	212	604	816	23%	1,801	52%	863	25%	3,480	1,295	12	34	45	± 3	48	± 3	33
2013	11,900	131	514	645	22%	1,488	52%	746	26%	2,879	1,336	9	35	43	± 3	50	± 3	35
2014	12,200	209	472	681	22%	1,518	49%	928	30%	3,127	1,823	14	31	45	± 3	61	± 4	42
2015	14,400	194	525	719	25%	1,375	48%	775	27%	2,869	1,731	14	38	52	± 4	56	± 4	37

**2016 HUNTING SEASONS  
IRON SPRINGS PRONGHORN HERD (PR630)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
52	1	Sep. 16	Oct. 31	150	Limited quota	Any antelope
	2	Sep. 16	Nov. 14	150	Limited quota	Any antelope valid south of North Spring Creek
	6	Sep. 16	Oct. 31	150	Limited quota	Doe or fawn
	7	Sep. 16	Nov. 14	150	Limited quota	Doe or fawn valid south of North Spring Creek
56	1	Sep. 20	Oct. 14	50	Limited quota	Any antelope
108	1	Sep. 20	Oct. 14	150	Limited quota	Any antelope
	6	Sep. 20	Oct. 14	100	Limited quota	Doe or fawn
	7	Sep. 20	Nov. 30	100	Limited quota	Doe or fawn valid south of the Bridger Pass Road (B.L.M. Road 3301), east of the Continental Divide and north of the Miller Hill Road (Carbon County Road 505W)
Archery						
52		Aug. 15	Sep. 15			Refer to Section 2 of this Chapter
56, 108		Aug. 15	Sep. 19			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
52	1	+50
	2	+50
	6	+75
	7	+50
56	1	0
108	1	+75
	6	+50
	7	+50

<b>Herd Unit Total</b>	<b>1</b>	<b>+125</b>
	<b>2</b>	<b>+50</b>
	<b>6</b>	<b>+125</b>
	<b>7</b>	<b>+100</b>

**Management Evaluation**

**Current Postseason Population Management Objective: 12,000**

**Management Strategy: Recreation**

**2015 Postseason Population Estimate: ~13,800**

**2016 Proposed Postseason Population Estimate: ~14,000**

**Herd Unit Issues**

The Iron Springs pronghorn herd is managed toward a post-hunt population size of 12,000 pronghorn, an objective last publicly reviewed in 2015. Population size is estimated using a spreadsheet model developed in 2012 and updated in 2016. The herd is in recreational management, with harvest quotas designed to maintain pre-hunt buck:doe ratios below 60:100.

Construction of the proposed Chokecherry and Sierra Madre wind farms, consisting of roughly 1,000 turbines and the associated road network, could have significant impacts on important habitats in large portions of Areas 56 and 108, as well as the north portion of Area 52. Construction of several large, trans-continental powerlines would cross important winter habitats at the north edge of Area 56.

Access remains an issue in this herd unit, particularly in the checkerboard in association with the proposed Chokecherry and Sierra Madre wind farms. The Walk-In program has opened access to large blocks of private land during some years, primarily in Area 52, which helped address concerns over large numbers of pronghorn residing on irrigated croplands during summer and fall.

The seasonal distribution map was last revised in March 1994 and no changes have been made since that review. Observations during winters since 1994 indicate consideration should be given to delineating crucial winter ranges south of Saratoga, southeast of Chokecherry Knob and near Fort Steele. Fences continue to pose barriers to pronghorn movements throughout much of the herd unit, increasing mortality during tough winters. Sheep-tight fences may also contribute to low fawn survival in pastures with limited water sources during dry summers.

Small acreages of crucial winter range have been lost to subdivision of deeded lands, primarily in the southern portion of the herd, and along Interstate Highway 80 in Area 56. Increased subdivision of these habitats, especially if these tracts are fenced, could seriously degrade the quality and utility of some winter ranges and migration routes. Development, partitioning, and fencing of these lands could have more deleterious effects on pronghorn migrations and habitat than some energy developments. Segregating land ownership among dozens of owners also deters recreational use of those divided lands and inter-mixed public lands.

Losses to EHD were confirmed in the South Ferris herd immediately north of Area 56 in late summer 2013 and the disease probably struck pronghorn in this herd as well. A mule deer fawn died of EHD at the southern tip of Antelope Area 108 so it is likely the disease spanned at least through the northern half of the Iron Springs herd unit.

## **Weather**

Following severe drought conditions in 2012 and 2013, improved precipitation arrived in the latter half of 2014 and continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth and improving fawn survival. Condition of pronghorn going into the winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

## **Habitat**

This herd unit overlaps most of the western half of the Platte Valley Mule Deer herd, and habitats for pronghorn suffer the same low productivity due to overuse, decadent shrubs and drought. Treatments designed to improve habitat for mule deer through the Platte Valley Habitat Partnership are likely to improve habitats for pronghorn as well. Recent tebuthiuron treatments on top of Miller Hill in Area 108 and prescribed burns in Area 52 should improve summer ranges for pronghorn, at least in the short term.

Oil and gas drilling activity has tapered off in the herd unit because of low energy prices, but a successful shale oil well a few miles east of the herd unit may lead to increased interest here. Proposed strip mining of coal in Kindt Basin in Area 56 could damage winter habitats, but is unlikely to occur in the near future because of more competitive coal reserves elsewhere in the state and conflict with the Chokecherry wind farm. Increased interest in developing coalbed methane resources in southern Wyoming may lead to proposals to develop well fields to extract the methane from these coal seams.

Construction of the 1,000 turbine Chokecherry and Sierra Madre wind farms is predicted to begin next year. Planned revegetation of the massive road network necessary for this project is likely to improve summer forage for pronghorn, but will permanently remove browse in winter ranges and provide avenues for expansion of noxious weeds, as seen in gas fields to the west. Wind turbines have been shown to reduce soil moisture in their wind shadow and the large number of turbines in already arid habitats may remove the benefits gained from revegetation of roads and pads.

## **Field Data**

Classification sample size decreased in 2015 and was the smallest sample in 12 years, 13 percent below the five-year average. While small, the sample still exceeded the statistically desired sample by more than 65 percent. Classification sample size increased slightly for Area 56 and declined for Areas 52 and 108.

Despite record precipitation in 2015, fawn production declined slightly to 56 fawns:100 does, near the five-year average. Surprisingly, fawn production was lowest in Area 108 at 41:100. Production improved in Area 56 to 45:100, the highest recorded for that area since 2005. Fawn production in Area 52 declined slightly to 66:100, near average for that area. Many of the does in Area 108 fawn at higher elevations, as do some in Area 52, and late spring storms may have increased fawn losses to hypothermia in these habitats while benefiting those in drier habitats like Area 56.

The buck:doe ratio improved slightly in 2015 to 52:100, the highest in nine years but still well within recreational management. Most of the increase was in adult bucks, and should help address concerns by hunters and outfitters about declining buck quality in this herd. This ratio was highest in Area 52, at 59 bucks:100 does and lowest in Area 108, at only 40:100. The yearling buck:doe ratio for this herd was unchanged at its highest level in seven years, a result of higher fawn production in 2014. Yearling buck:doe ratios improved in all three areas, but recruitment was again lowest in Area 56, at 7:100, less than half that recorded in Area 52. Adult buck:doe ratios improved in all three hunt areas, but were lowest in Area 108 at only 30:100, while the other two areas each had 42:100. If access continues to be denied after the wind project is constructed, buck:doe ratios will be expected to continue to rise in Area 56 and may exceed the maximum for recreational management. Overall, buck:doe ratios for this herd over the past nine years have been less than would be desired in areas with large blocks of public land.

### **Harvest Data**

Overall hunter success remained at 90 percent in 2015, above the previous five-year average. The average number of days hunted for each pronghorn harvest increased, but was at the five-year average. Surprisingly, hunter success was highest in Area 56 where access was most difficult, but no doe/fawn licenses were issued in this area, which tend to have lower success. Success was highest for the Type 1 hunters in Area 52, who reported 100 percent success, and lowest for the second year in a row for the Type 6 licenses in Area 108, at only 80 percent. Hunters with the new Type 7 licenses for a limited portion of Area 108 fared well, with 94 percent success.

The average number of days of effort necessary to harvest an animal was highest for hunters with Type 7 licenses in the southern portion of Area 52, at 5.1 days. Again, Area 56 hunters expended the least amount of time for each animal harvested, at 2.5

### **Population**

Prior to 2015, the spreadsheet model and a line-transect survey flown in spring of 2012 indicated this herd was roughly 17 percent below the 12,000 objective. A line-transect survey flown in June 2015, however, estimated there were approximately 16,850 pronghorn in the herd. Incorporating that estimate, along with the 2015 classification and harvest data, the current model now predicts this herd was about 15 percent above objective in 2015.

The Time-Specific Juvenile & Constant Adult Survival (TSJ/CA) spreadsheet model provided the best fit with observed buck:doe ratios for this herd and all four line-transect estimates. It behaved predictably when 2015 classification and harvest data were added and is considered a

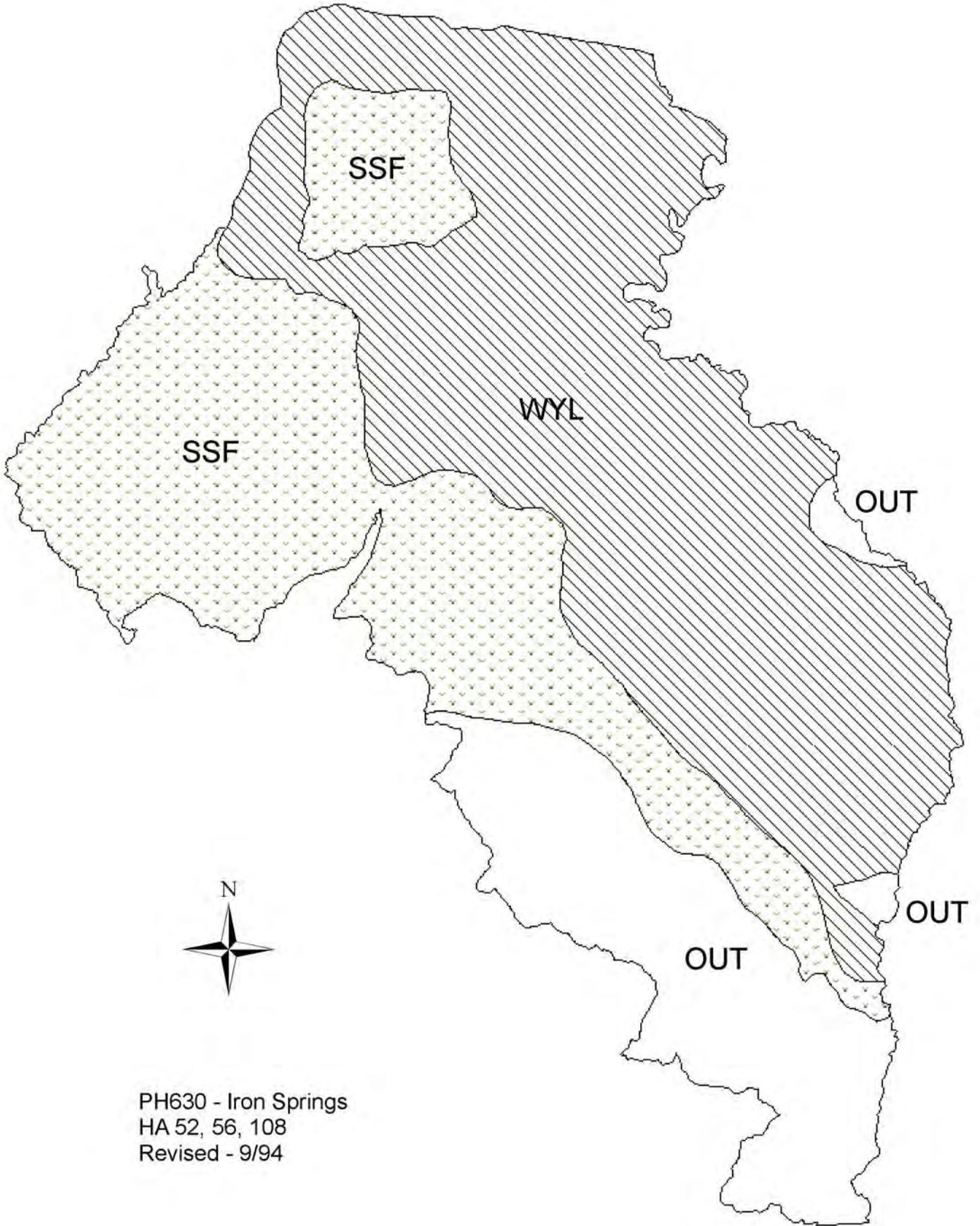
“Fair” model of the herd. Annual adult survival is predicted at 91 percent, a reasonable value. Juvenile survival rates fluctuated within the allowed range and did not hover at maximum or minimum values for most years. The CJ,CA and SCJ,SCA models each had slightly lower AIC values, but both models predicted herd sizes well below the confidence interval of the most recent line-transect estimate and well above a 1993 line-transect estimate. Both models generated roughly stable buck:doe estimates that did not track major dips and rises of observed values. Fawn production in 2015 was projected near the 5-year average. The model was run using a median juvenile survival in 2016.

## **Management Evaluation**

With the population estimated to be 15 percent above objective, harvests need to be increased to keep the herd at objective level. Quotas for 2016 are increased by 60 percent in Area 52 and doubled for all three license types in Area 108. The quota for Area 56 is unchanged due to the greatly restricted access to most of that area.

If fawn production and survival is near predicted levels, the expected harvest of roughly 405 bucks and 385 does and fawns from the 2016 license quotas should maintain the herd near its current size.

Opening dates for licenses in Area 52 are the same as in the past three years coincide with seasons in neighboring Areas 50 and 51. As in the previous three years, the Type 2 and 7 licenses in the southern portion of this area are valid for an additional two weeks into November. The season in area 52 entirely overlaps local deer and elk general license seasons. Opening dates for areas 56 and 108 are the same as in the previous 17 years and coincide with neighboring areas 53 and 55 of the Baggs herd. Closing dates for Areas 56 and 108 are again extended to the end of October, except for the Type 7 licenses in Area 108, which extend to the end of November. Archery seasons use standardized opening dates and close the day before the regular season opens for each area.



PH630 - Iron Springs  
HA 52, 56, 108  
Revised - 9/94

## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

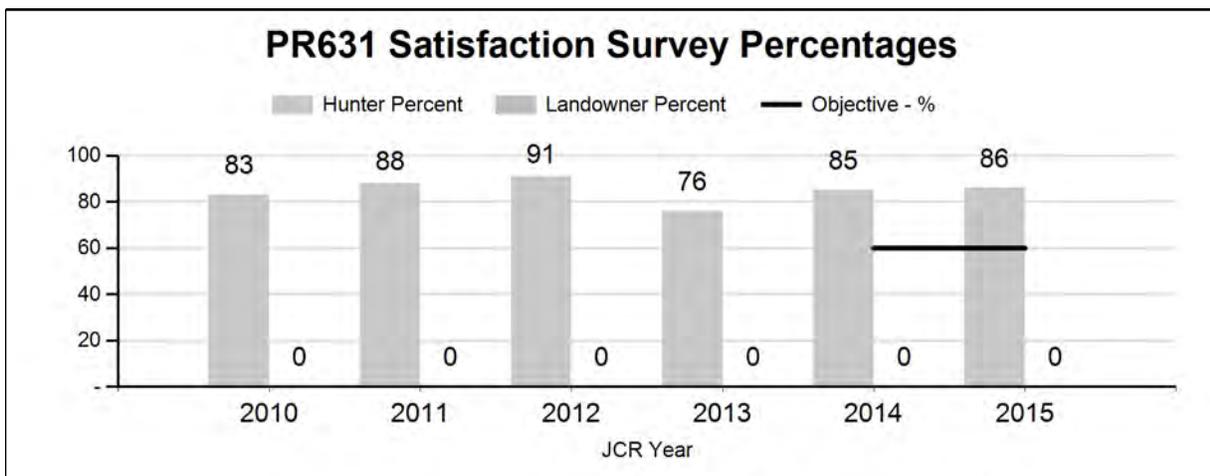
PERIOD: 6/1/2015 - 5/31/2016

HERD: PR631 - WIND RIVER

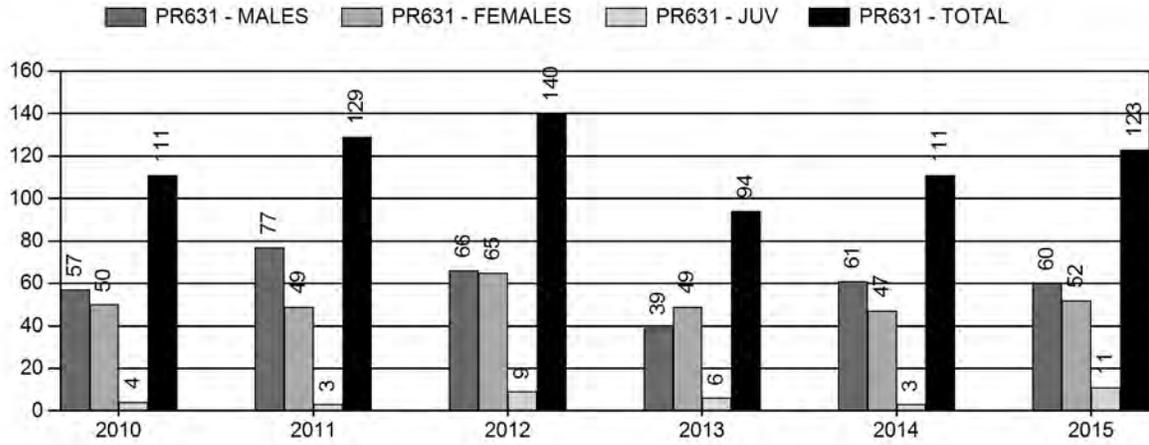
HUNT AREAS: 84

PREPARED BY: GREG ANDERSON

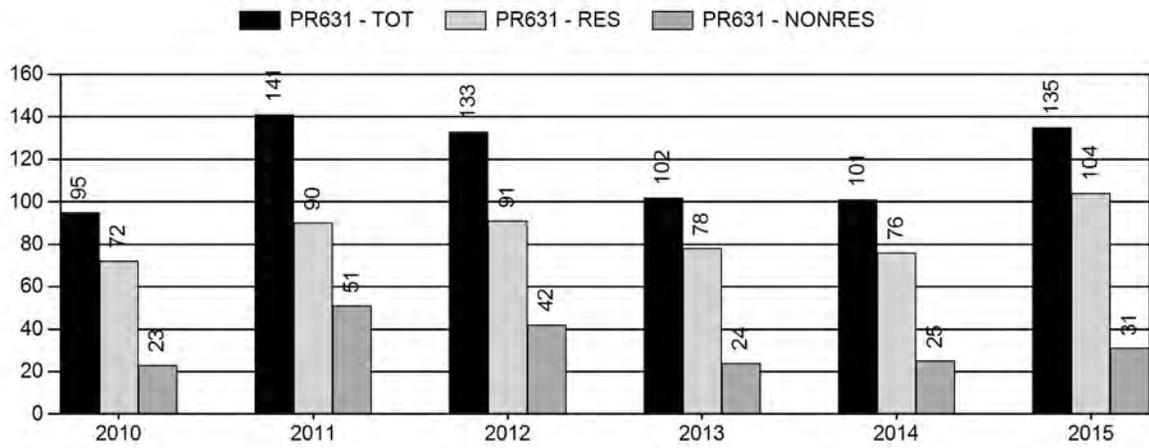
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Hunter Satisfaction Percent	84%	86%	85%
Landowner Satisfaction Percent	0%	0%	0%
Harvest:	117	123	125
Hunters:	114	135	140
Hunter Success:	103%	91%	89%
Active Licenses:	144	158	150
Active License Success:	81%	78%	83%
Recreation Days:	610	816	800
Days Per Animal:	5.2	6.6	6.4
Males per 100 Females:	24	22	
Juveniles per 100 Females	43	24	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			N/A%
Number of years population has been + or - objective in recent trend:			1



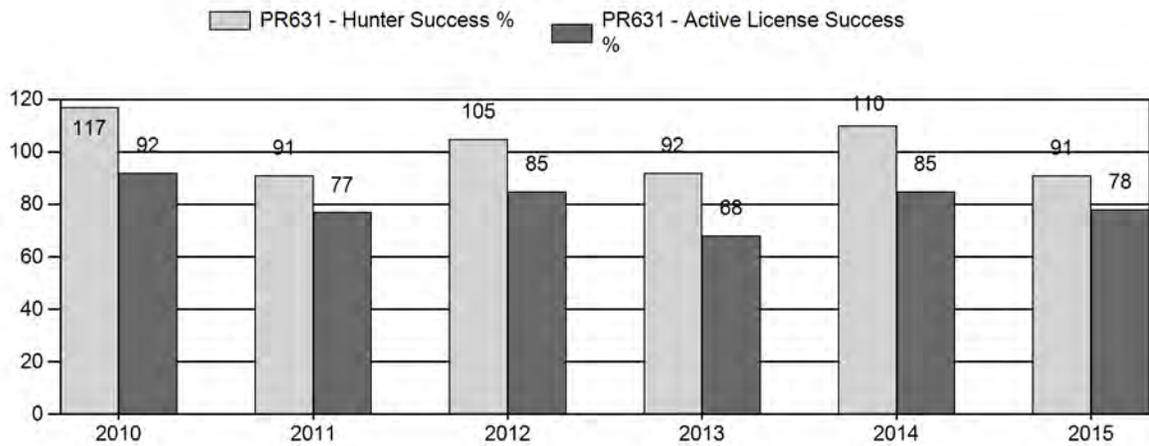
# Harvest



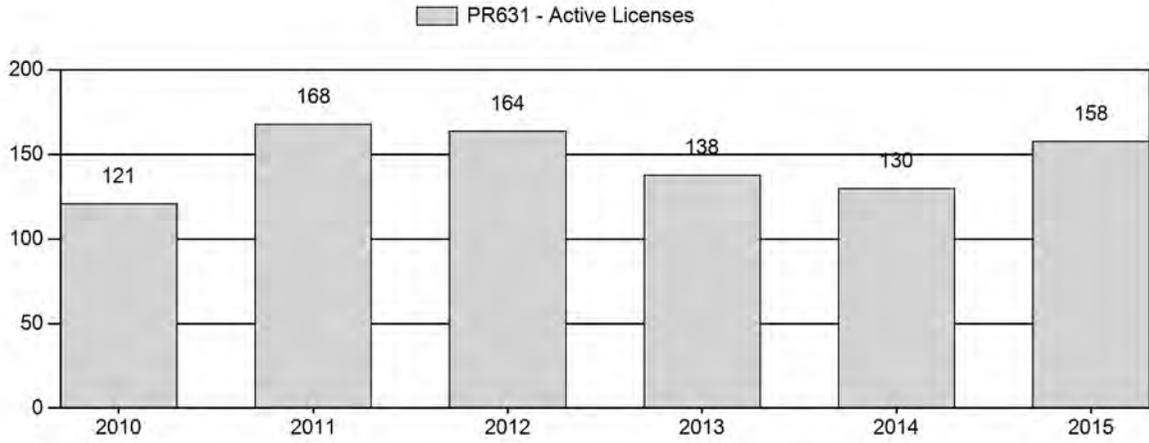
# Number of Hunters



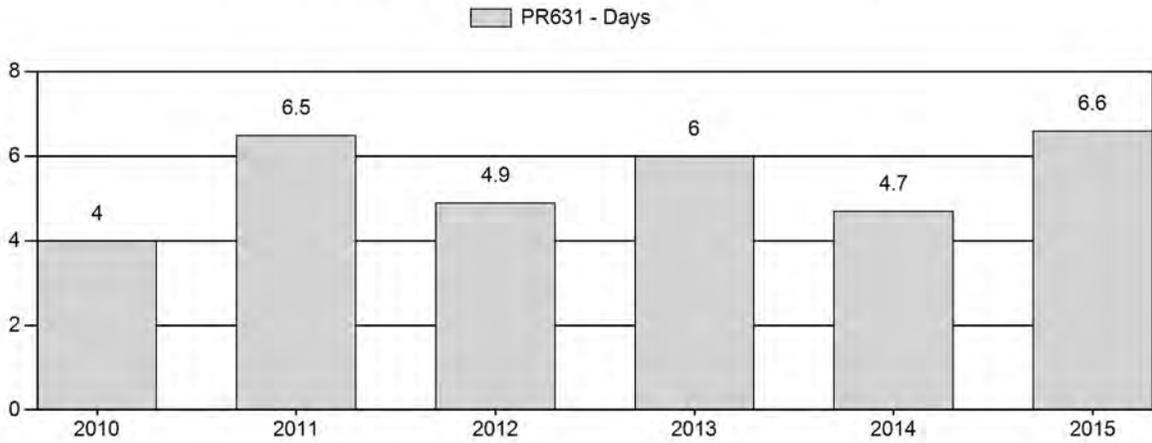
# Harvest Success



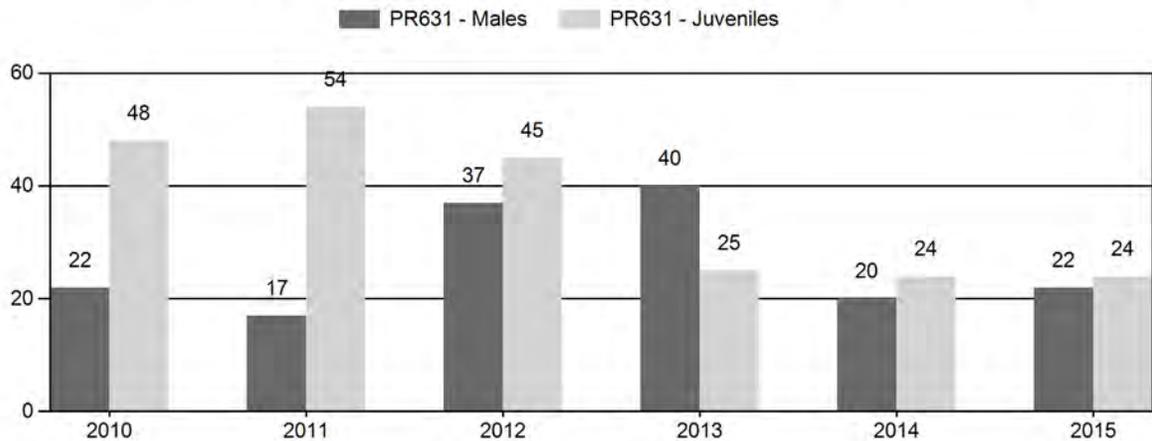
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR631 - WIND RIVER

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	923	0	0	79	13%	352	59%	169	28%	600	541	0	0	22	± 0	48	± 0	39
2011	0	4	17	21	10%	124	58%	67	32%	212	0	3	14	17	± 0	54	± 0	46
2012	0	7	29	36	20%	97	55%	44	25%	177	0	7	30	37	± 0	45	± 0	33
2013	0	7	14	21	24%	52	60%	13	15%	86	0	13	27	40	± 0	25	± 0	18
2014	0	7	15	22	14%	110	70%	26	16%	158	0	6	14	20	± 0	24	± 0	20
2015	0	6	21	27	15%	120	68%	29	16%	176	0	5	18	22	± 0	24	± 0	20

**2016 HUNTING SEASONS  
WIND RIVER PRONGHORN (PR 631)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
84	1	Sep. 17	Oct. 22	100	Limited quota	Any antelope
	6	Sep. 17	Oct. 22	75	Limited quota	Doe or fawn
Archery		Aug. 15	Sep. 16			Refer to section 2

Hunt Area	Type	Quota change from 2015
<b>Total</b>		

**Management Evaluation**

**Current Hunter Satisfaction Management Objective: Hunter Satisfaction 60%**

**Management Strategy: Recreational**

**2015 Hunter Satisfaction Estimate: 86%**

**Most Recent 3-year Running Average Hunter Satisfaction Estimate: 84%**

**Management Issues**

The Wind River pronghorn management objective was reviewed and updated in 2014. The previous objective of 400 antelope had been in place since 1994. Due to a number of factors it was never possible to accurately estimate the antelope population in this herd. In response, the Department adopted an objective of maintaining 60% hunter satisfaction. Unlike other herd units with a satisfaction objective, the objective for this herd does not include a landowner satisfaction component for reasons outlined in the objective proposal. In conjunction with hunter satisfaction, this herd is managed for recreational opportunity.

**Habitat/Weather**

This pronghorn population occupies the upper Wind River basin west of the WRR. Much of the habitat throughout the herd unit is marginal or unsuitable. Pronghorn densities are highest on the east end of the herd unit where they occupy deer and elk winter range throughout the summer months. Some pronghorn winter on bare slopes in the mountain foothills, but many migrate east down the Wind River onto the WRR. Available habitat and climatic conditions seem to be the biggest factors limiting this population.

The past year was characterized by mild conditions and good vegetation growth throughout the herd unit. Vegetation transects monitored to determine the amount of forage available on elk winter range revealed herbaceous vegetation production was well above the 20-year average for

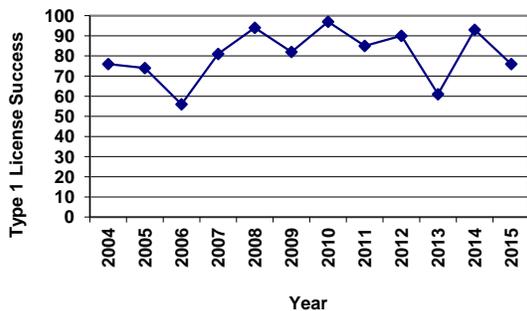
the area. No shrub data is collected in the herd unit, but the good growing conditions undoubtedly resulted in higher browse production than the previous droughty years. Given the good feed resource in 2015, antelope in the herd unit undoubtedly entered winter in good shape. Fall weather was mild followed by moderate winter conditions in December and January. Given mild to average winter conditions and excellent feed availability, antelope survival in 2015/16 is expected to be good.

**Field/Harvest Data/Population**

Classification samples have been collected from the ground and have been low over the past 5 years. Prior to that, classification data was collected aerially and sample sizes were much higher. In 2015 the classification sample was 176 antelope. Low classification samples are likely to remain the rule as long as ground classifications are conducted. Terrain, topography, and access to antelope summer range in the herd unit create difficulties. That said, the classification sample in 2015 yielded a remarkably low fawn/doe ratio of 24/100. This low ratio was quite surprising given the good climatic conditions mentioned previously. The buck/doe ratio was also extremely low at 23/100. Similar ratios were observed in 2014, but the sample size was even lower with only 158 antelope observed. Recent classification ratios should be viewed very skeptically given the low sample sizes.

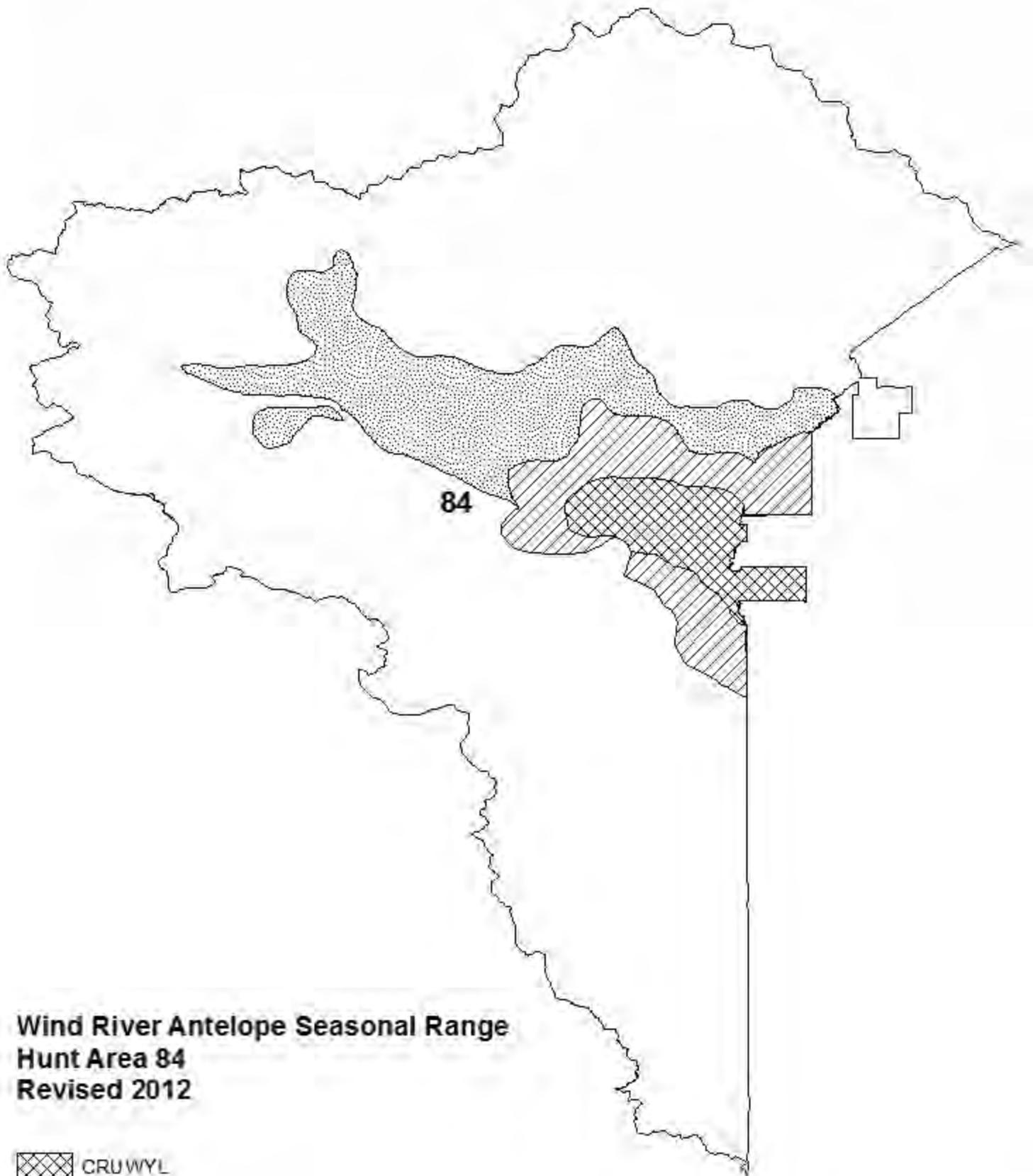
Type 1 license success was only 76% in 2015. This was a significant decline from the 2014 success rate of 93%. It was also well below average over the past 10 years (Fig. 1). The days/animal increased from 4.3 in 2014 to 7.8 for Type 1 licenses in 2015. Both of these statistics indicate hunters had a more difficult time harvesting an antelope in 2015. Despite harvest statistics indicating slightly tougher hunting in 2015, hunter satisfaction was 86% in 2015. This was nearly identical to the 5-year average of 84%.

Figure 1. Type 1 license success in the Wind River Antelope Herd



**Management Summary**

Given scarce demographic data it is difficult to determine trends in this herd unit. Anecdotally, based on public and personnel observations, it appears this population grew substantially from the middle to end of the past decade. Following a harsh winter in 2010 and extreme drought in 2012 and 2013 it seems the population declined somewhat, then increased again in 2014. Harvest statistics indicate hunters had a tougher time finding antelope in 2015 but hunter satisfaction remained unchanged. In concert, harvest statistics and hunter satisfaction data indicate the population was likely stable between 2014 and 2015. As such, no changes are proposed for the 2016 hunting season.



**Wind River Antelope Seasonal Range  
Hunt Area 84  
Revised 2012**

-  CRUWYL
-  OUT
-  SSF
-  WYL
-  YRL





## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR632 - BEAVER RIM

HUNT AREAS: 65-69, 74, 106

PREPARED BY: STAN HARTER

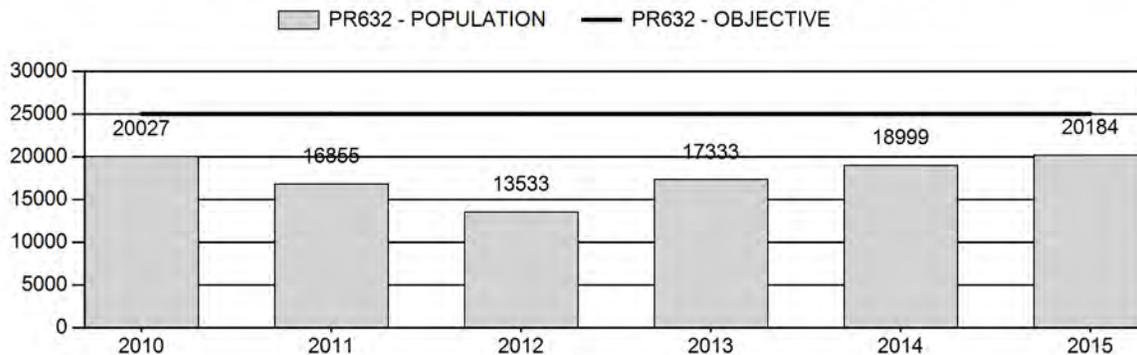
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	17,349	20,184	20,702
Harvest:	2,169	1,108	1,240
Hunters:	2,209	1,214	1,350
Hunter Success:	98%	91%	92%
Active Licenses:	2,488	1,327	1,425
Active License Success:	87%	83%	87%
Recreation Days:	7,126	4,014	4,300
Days Per Animal:	3.3	3.6	3.5
Males per 100 Females	54	55	
Juveniles per 100 Females	59	72	

Population Objective ( $\pm$ 20%) :	25000 (20000 - 30000)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-19.3%
Number of years population has been + or - objective in recent trend:	0
Model Date:	01/25/2016

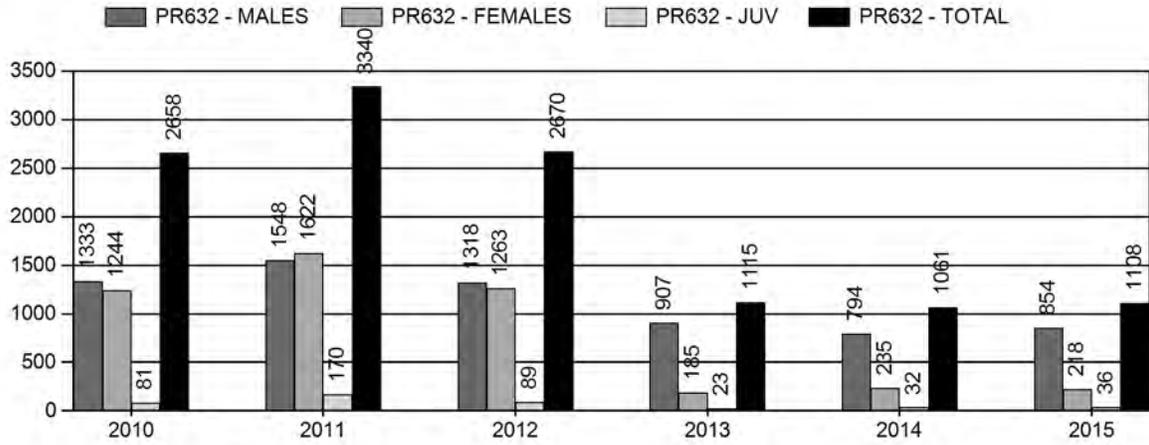
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	2.5%	2.2%
Males $\geq$ 1 year old:	19.5%	22.2%
Juveniles (< 1 year old):	0.5%	0.6%
Total:	5.5%	6.0%
Proposed change in post-season population:	+6.2%	+2.6%

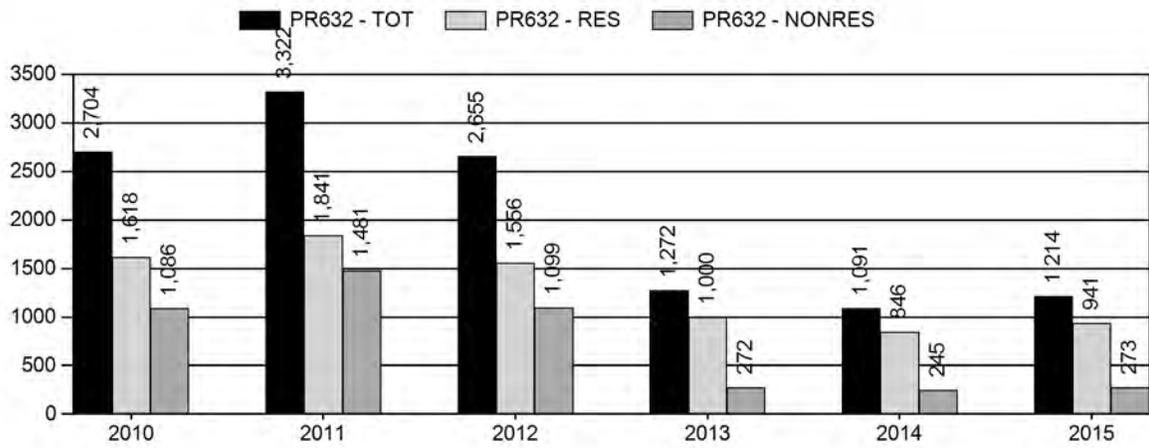
## Population Size - Postseason



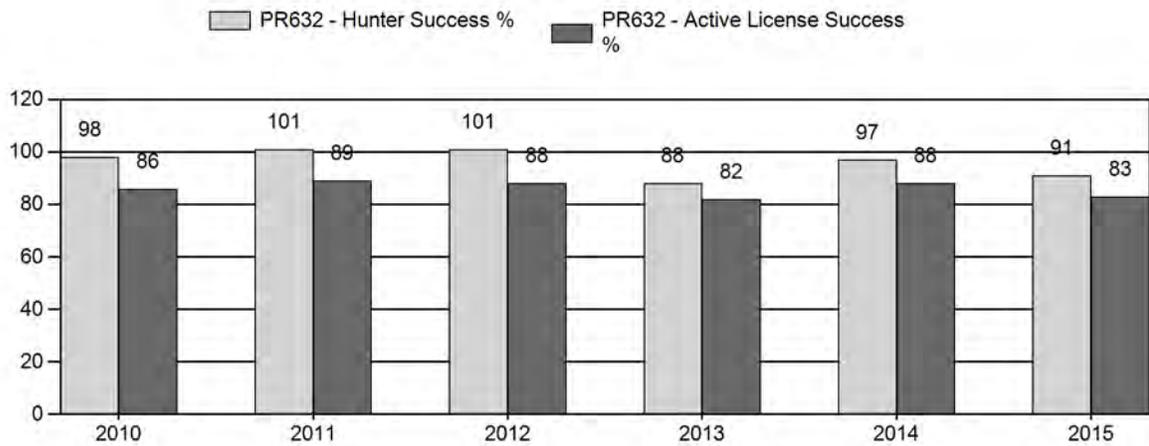
# Harvest



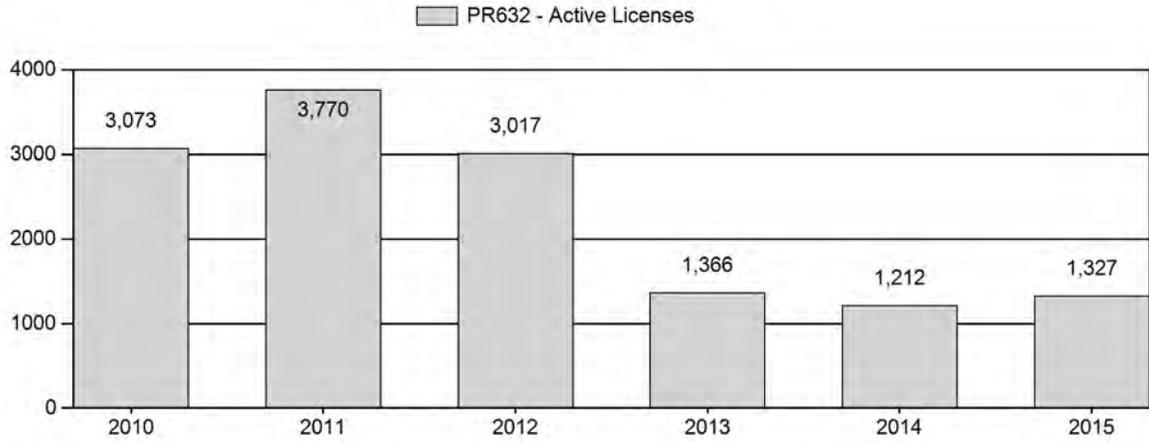
# Number of Hunters



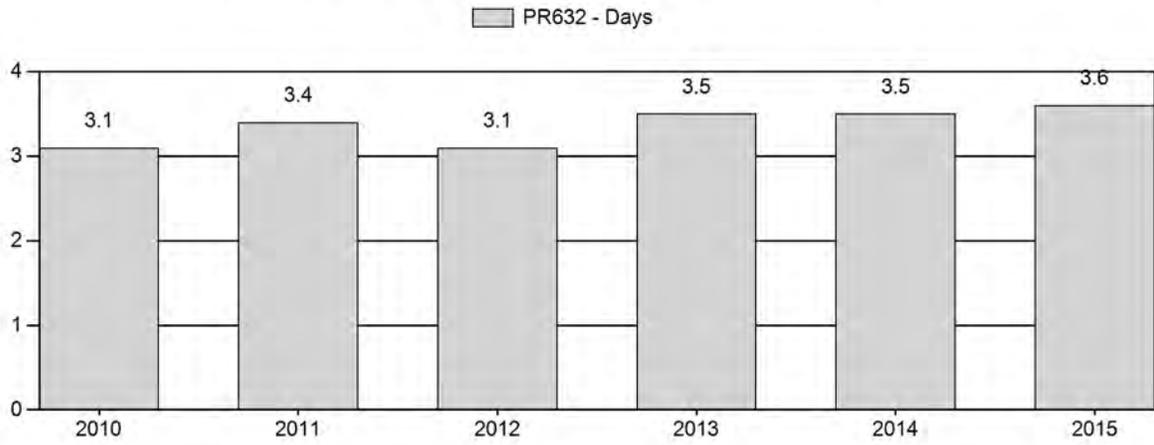
# Harvest Success



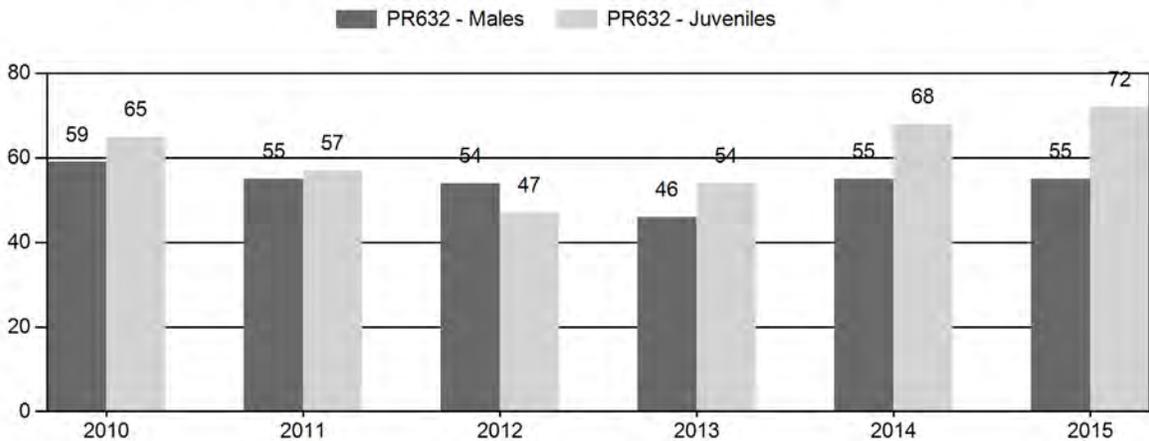
# Active Licenses



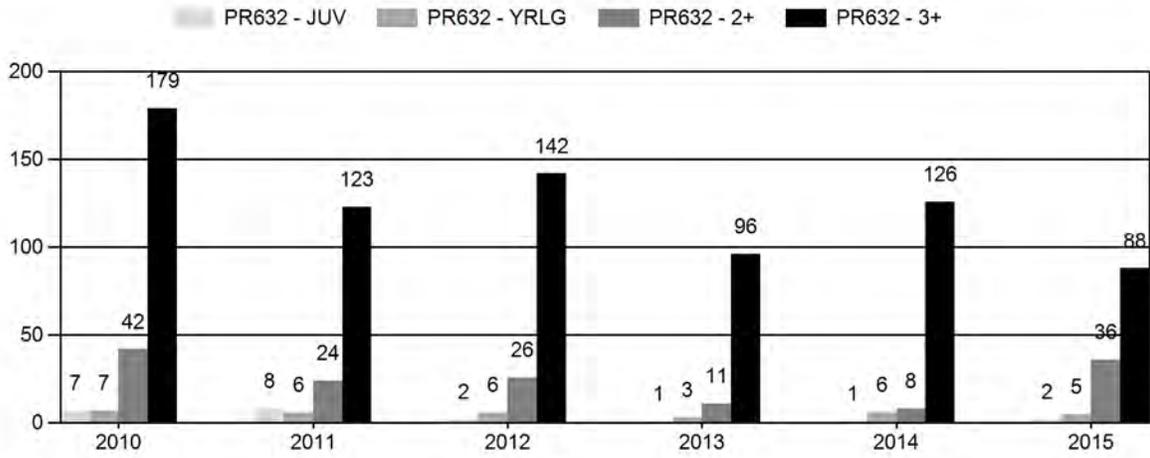
# Days Per Animal Harvested



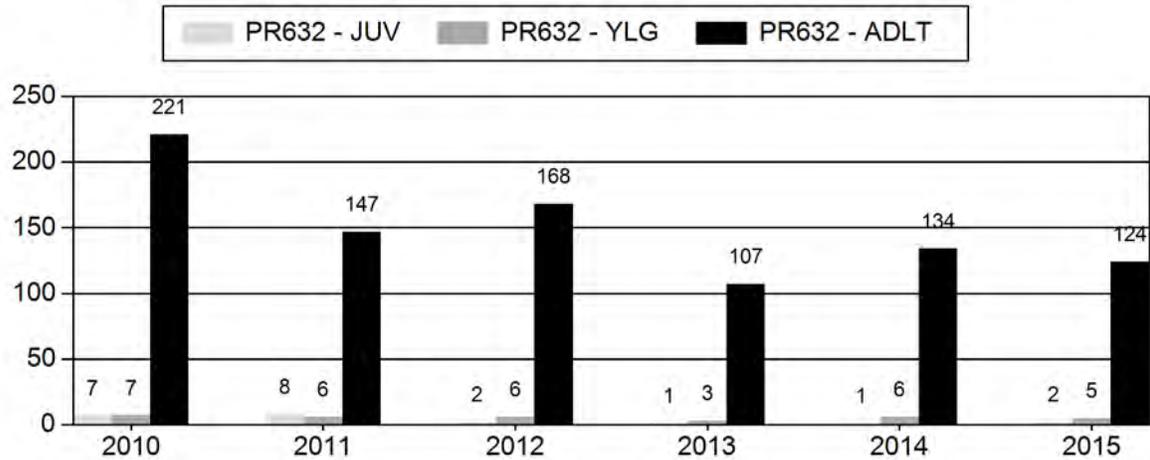
# Preseason Animals per 100 Females



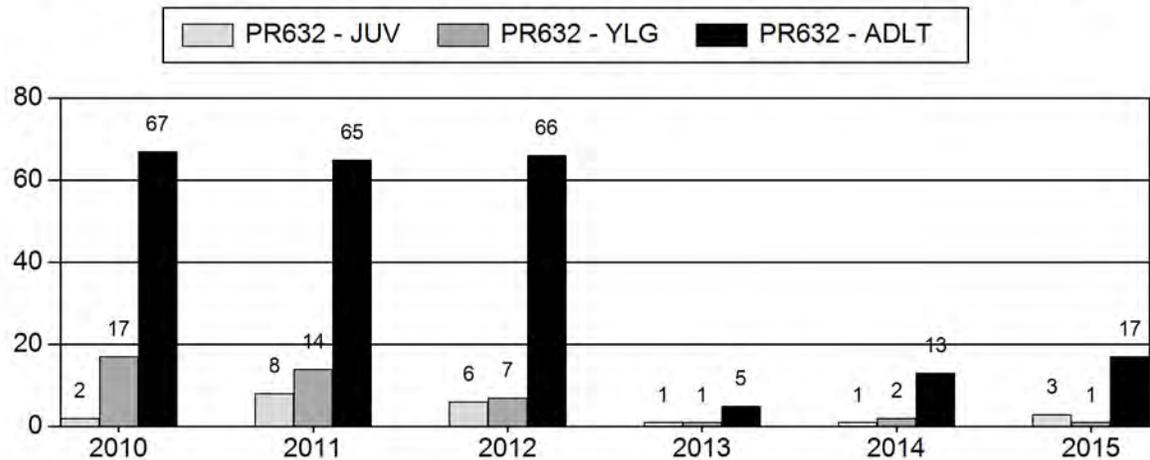
## Age Structure of Field Checked Males



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



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



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR632 - BEAVER RIM

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	22,951	778	1,745	2,523	26%	4,278	45%	2,800	29%	9,601	2,381	18	41	59	± 2	65	± 2	41
2011	20,529	521	1,413	1,934	26%	3,544	47%	2,011	27%	7,489	1,893	15	40	55	± 2	57	± 2	37
2012	16,470	317	1,234	1,551	27%	2,867	50%	1,350	23%	5,768	1,766	11	43	54	± 2	47	± 2	31
2013	18,560	149	1,314	1,463	23%	3,199	50%	1,725	27%	6,387	1,608	5	41	46	± 2	54	± 2	37
2014	20,166	419	1,240	1,659	25%	3,003	45%	2,035	30%	6,697	2,408	14	41	55	± 2	68	± 3	44
2015	21,403	572	1,140	1,712	24%	3,087	44%	2,222	32%	7,021	2,279	19	37	55	± 2	72	± 3	46

**2016 HUNTING SEASONS  
Beaver Rim Pronghorn Herd Unit (PR 632)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
65	1	Sept. 17	Oct. 22	75	Limited Quota	Any antelope
65	6	Sept. 17	Oct. 22	25	Limited Quota	Doe or fawn
65	7	Sept. 1	Oct. 31	75	Limited Quota	Doe or fawn valid north of the Little Popo Agie River
66	1	Sept. 17	Oct. 22	100	Limited Quota	Any antelope
66	6	Sept. 17	Oct. 22	75	Limited Quota	Doe or fawn
67	1	Sept. 17	Oct. 22	275	Limited Quota	Any antelope
67	6	Sept. 17	Oct. 22	25	Limited Quota	Doe or fawn
68	1	Sept. 17	Oct. 22	300	Limited Quota	Any antelope
68	6	Sept. 17	Oct. 22	25	Limited Quota	Doe or fawn
69	1	Sept. 15	Oct. 31	100	Limited Quota	Any antelope
69	6	Sept. 15	Oct. 31	25	Limited Quota	Doe or fawn
74	1	Sept. 17	Oct. 22	250	Limited Quota	Any antelope
74	6	Sept. 17	Oct. 22	25	Limited Quota	Doe or fawn
106	1	Sept. 17	Oct. 22	75	Limited Quota	Any antelope
106	6	Sept. 17	Oct. 22	25	Limited Quota	Doe or fawn

**Archery**

65-68, 74, 106	Aug. 15	Sept. 16	Refer to license type and limitations in Section 2
69	Aug. 15	Sept. 14	Refer to license type and limitations in Section 2

Hunt Area	License Type	Quota Change from 2015
68	1	+50
106	1	+25
<b>Herd Unit Total</b>	<b>1</b>	<b>+75</b>

**MANAGEMENT EVALUATION**

**Current Post-season Population Management Objective: 25,000**

**Management Strategy: Special (60-70 bucks/100 does)**

**2015 Post-season Population Estimate: ~20,200**

**2016 Post-season Population Estimate: ~20,700**

**Herd Unit Issues**

Habitats are relatively intact with localized energy development and agricultural developments scattered throughout the herd unit, and urban/rural residential development occurring primarily near Lander. This population fluctuated below objective in the 1990s, reached objective in the mid-2000s before declining

to a recent low in 2012 due to drought. The population has since increased with improved precipitation and resultant increased fawn survival. The management objective was reviewed in 2015, and the long-term post-season objective of 25,000 pronghorn was retained. The population reached about 20,200 pronghorn post-season 2015, 19% below objective.

### **Weather**

Precipitation has improved substantially since fall 2013, after a period of intense drought. Precipitation from October 2013 through September 2014 was about average in the Beaver Rim herd unit. Winter 2014-15 had lower than average snowfall, yet precipitation from October 2014 through September 2015 was higher than the 30-year average due to April and May 2015 getting nearly double the average precipitation for those months in Lander and Jeffrey City. Precipitation was 140% above average in Lander and 80% above average in Jeffrey City for the first four months of 2016, with record breaking rain falling in the first week of May, which should lead to excellent summer forage conditions.

### **Habitat**

Habitat conditions have greatly improved as a result of increased precipitation, and thus have led to improved pre-season fawn/doe ratios and should result in improved pronghorn survival over winter 2015-16, which has been fairly mild. Recently developed “Rapid Habitat Assessments” will be implemented as appropriate to develop a baseline from which to gauge overall habitat condition across the landscapes of the Beaver Rim pronghorn herd unit.

### **Field Data**

Pre-season fawn/doe ratios have improved the past 3 years, reaching a long-term high of 72J/100F in 2015, 22% above the previous 5-year average. Buck/doe ratios remained at 55M/100F in 2015, with an increase in recruitment of yearling bucks to a pre-season ratio of 19YM/100F. However, the pre-season adult buck ratio declined to 37AM/100F, indicating harvest of adult bucks is outpacing replacement due to previous low yearling buck recruitment. Fawn/doe ratios varied by hunt area from 61J/100 to 81J/100F, while buck/doe ratios had higher variability between hunt areas, ranging from 37M/100F to 69M/100F. Conservative buck harvest is again recommended for 2016 to allow for replacement of adult bucks following low yearling buck/doe ratios in 2012 and 2013, and to move this herd toward the special management strategy range of 60-70 bucks/100 does.

### **Harvest Data**

License quotas were increased slightly in 2015, compared to 2014 and led to nominal increase in total harvest. Yet, harvest statistics indicated hunters in some hunt areas still had difficulty finding antelope. Hunter success in 2015 dropped to 91% overall, along with active license success dropping from 88% to 83%. Type 1 (any antelope) hunter success ranged from 78% in hunt area 67 to 100% in hunt area 106. Doe/fawn hunters had success rates ranging from of 72% in hunt area 69 to 93% in hunt area 66. As a whole, it took 3.6 days of hunting for each animal harvested, an increase of only 0.1 day, but the highest since 1994. A few hunters expressed concerns about low pronghorn numbers, especially “quality” adult bucks, but less so than in recent years. Adjustments to the 2016 seasons were made considering these variables, combined with variations in classification data to best fit harvest to individual hunt areas, while moving toward the population objective and special management strategy range of 60-70 bucks per 100 does.

## **Population**

A spreadsheet model was developed for this population in 2012. It has been updated utilizing 2015 pre-season classification and harvest data. The spreadsheet model (CJ/CA) works very well for Beaver Rim Pronghorn and tracks quite well with 7 line-transect (LT) estimates over the past 22 years. As such, we consider the model to be Good. The end-of-year estimates produced by the model run almost exactly through or very close to the LT estimates in 3 of 7 years, and through the confidence interval for 3 of the other 4 years (projected population is just below the last LT estimate's confidence interval in 2013). The next LT survey is scheduled for the end of bio-year 2016. The model also produces post-season population estimates which closely follow trends observed by field personnel and the public. The population was at or slightly below objective for 7 years (2004 – 10), but declined sharply in 2011 and 2012, due to poor fawn recruitment as a result of intense drought. However, much improved fawn/doe ratios in 2013 through 2015 indicate the population is recovering and moving toward the current objective, with 20,200 pronghorn post-season 2015.

## **Management Summary**

For 2016, doe/fawn license numbers are maintained to control localized private land damage situations. Increases in Type 1 licenses were implemented in two hunt areas, to provide additional hunting opportunity where buck/doe ratios are within the special management range. However, the overall buck/doe ratio of 55M/100F is about 8% below the minimum of 60M/100F needed for this population to meet the Department's Special Management criteria. The total number of Type 1 licenses for 2016 are intended to allow for improvement of buck/doe ratios toward that secondary objective. Current license quotas may be lower than some public expectations of increases in license allocation, as they are seeing more pronghorn. Yet, with the population 19.3% below objective and buck/doe ratios below special management criteria, we are maintaining conservative seasons to move toward those goals.

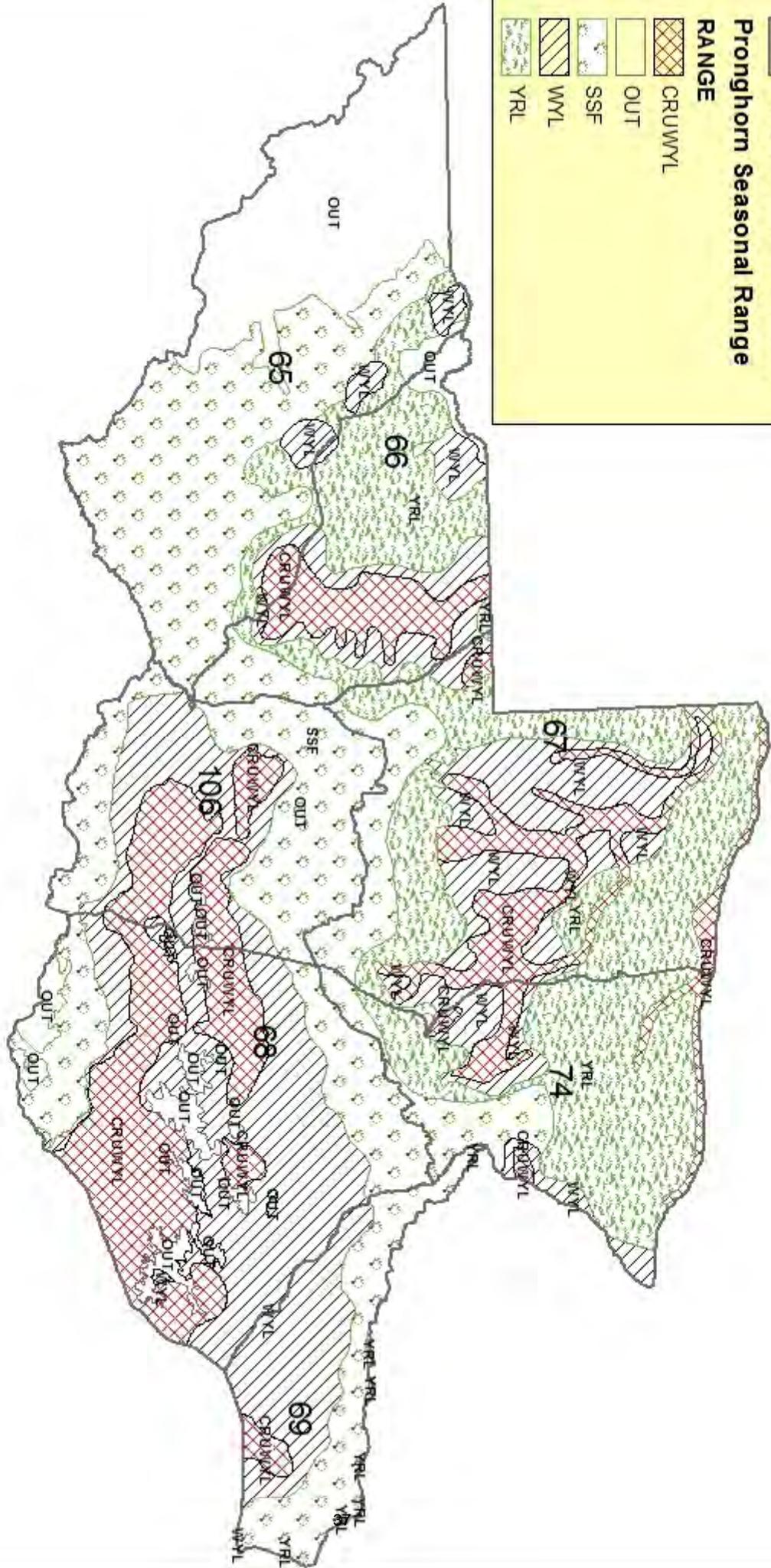
The seasons outlined should allow population improvement, if the weather patterns observed since fall 2013 continue and fawn production/survival improves. Doe/fawn licenses are part of the 2016 hunting season structure to address localized damage to private land hay crops. In 2015, the closing date of the Area 65 Type 7 doe/fawn season was extended to November 15 to provide increased opportunity, particularly for one landowner who was only allowing access after deer season ended on October 22. The same landowner has requested an earlier closing date in 2016, since he will not have the same deer hunting conflict this year. Therefore, the season dates for that license are Sept. 1 to October 31. A total of 1,175 any antelope and 300 doe/fawn licenses will be available for 2016, and should result in a harvest of about 1,240 animals. With average survival in combination with projected harvest, we predict the population will increase slightly to 20,700 pronghorn.

**Beaver Rim Pronghorn (PR632)  
 HA 65, 66, 67, 68, 69, 74, 106  
 Revised September 2011**

□ Pronghorn Hunt Area Boundaries

**Pronghorn Seasonal Range**

- RANGE**
- CRUWYL
  - OUT
  - SSF
  - WYL
  - YRL





## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR634 - BADWATER

HUNT AREAS: 75

PREPARED BY: GREG  
ANDERSON

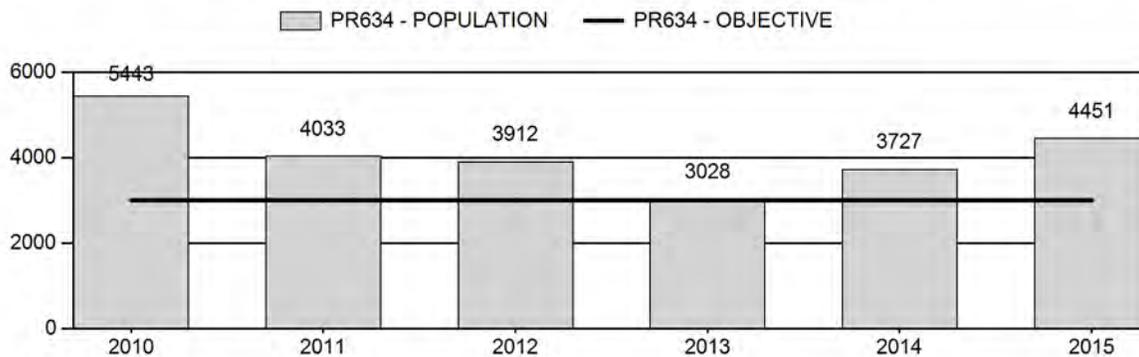
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	4,029	4,451	4,015
Harvest:	580	416	670
Hunters:	599	409	600
Hunter Success:	97%	102%	112 %
Active Licenses:	652	450	725
Active License Success:	89%	92%	92 %
Recreation Days:	1,931	1,476	1,800
Days Per Animal:	3.3	3.5	2.7
Males per 100 Females	64	66	
Juveniles per 100 Females	52	88	

Population Objective (± 20%) :	3000 (2400 - 3600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	48%
Number of years population has been + or - objective in recent trend:	10
Model Date:	1/26/2016

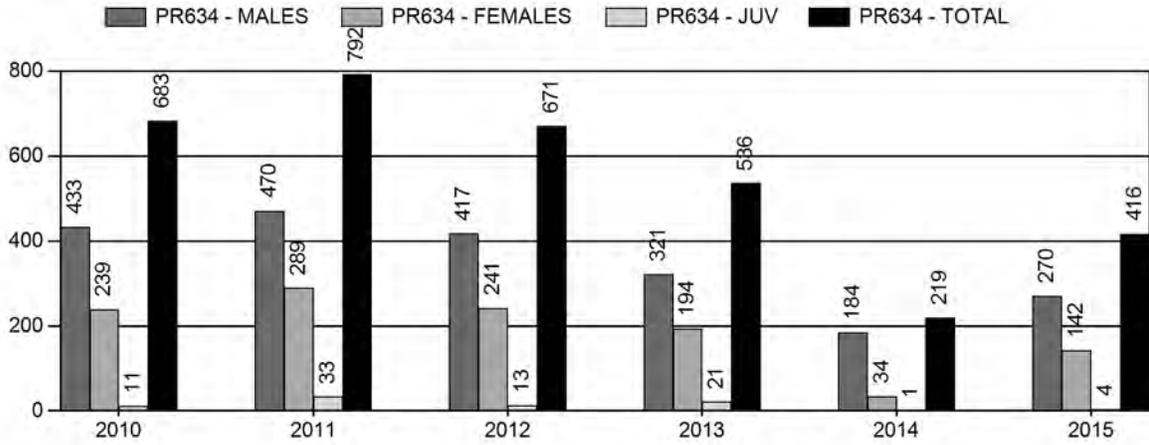
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	8%	12%
Males ≥ 1 year old:	40%	40%
Juveniles (< 1 year old):	1%	1%
Total:	12%	14%
Proposed change in post-season population:	-9%	-16%

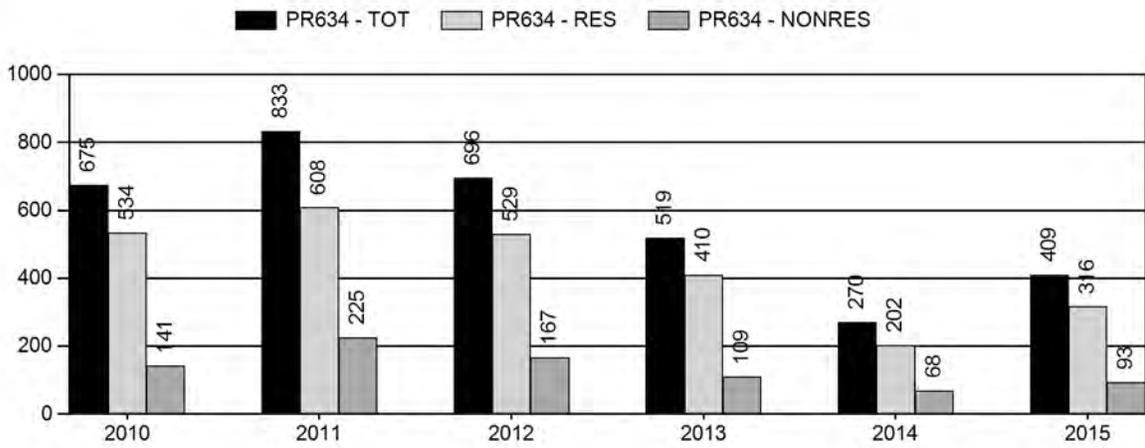
## Population Size - Postseason



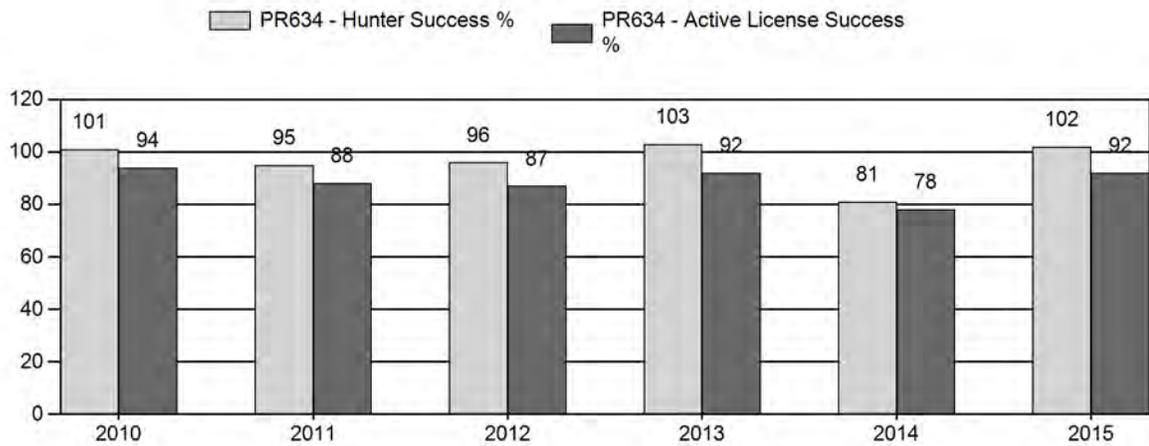
# Harvest



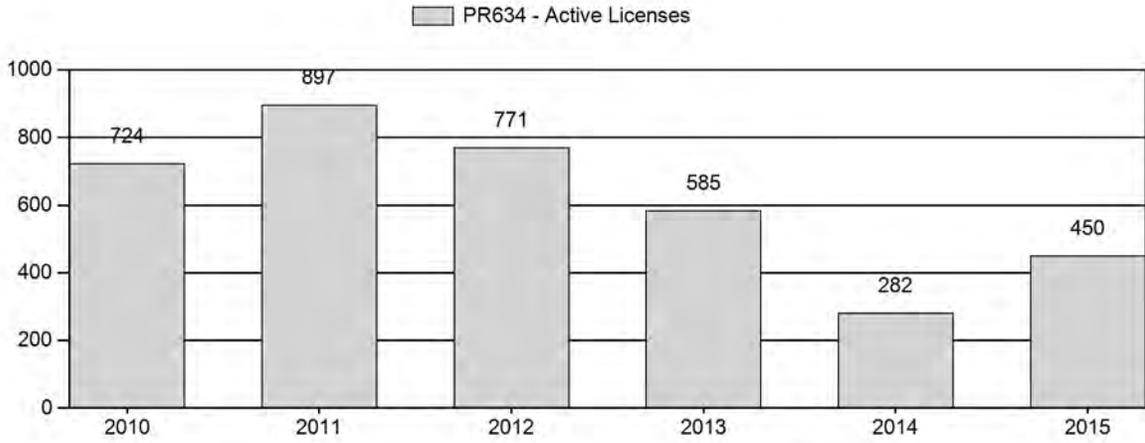
# Number of Hunters



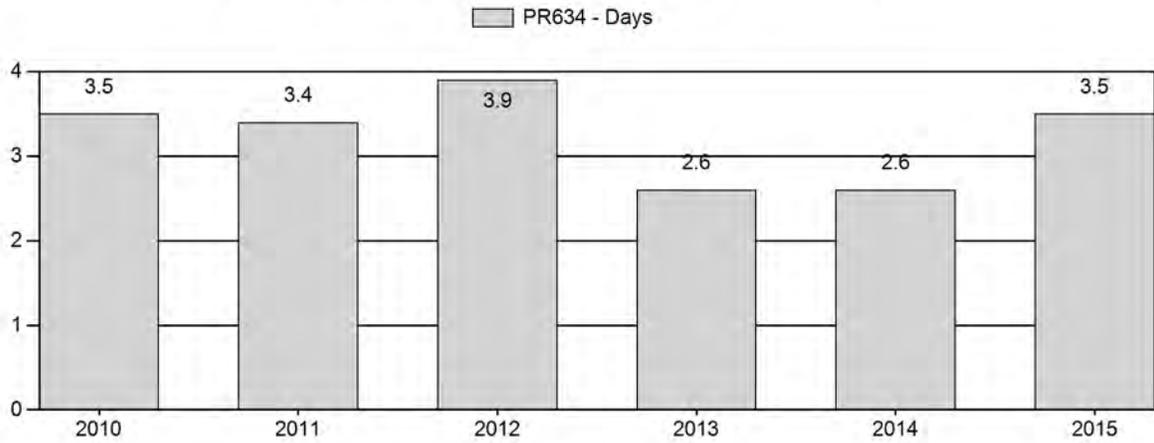
# Harvest Success



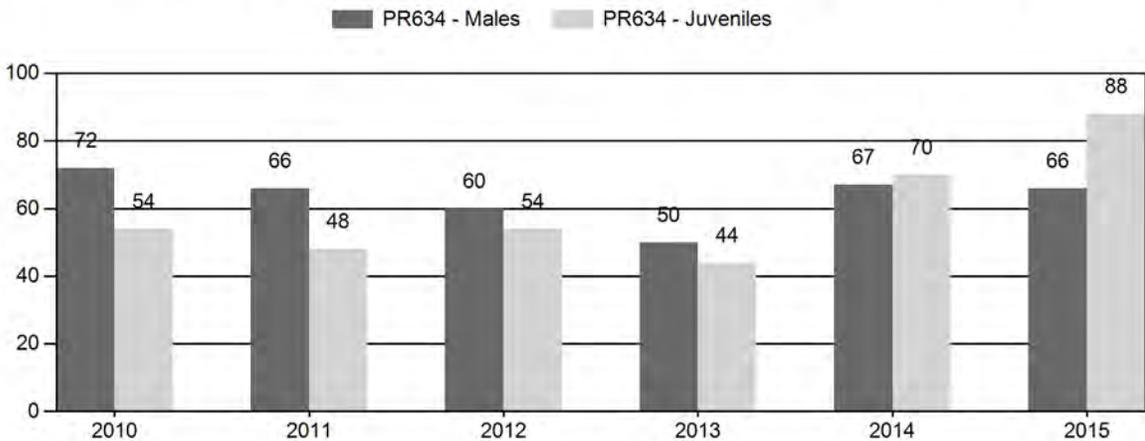
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR634 - BADWATER

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	6,195	191	425	616	32%	860	44%	464	24%	1,940	1,955	22	49	72	± 5	54	± 4	31
2011	4,904	113	468	581	31%	875	47%	421	22%	1,877	1,689	13	53	66	± 5	48	± 4	29
2012	4,650	83	296	379	28%	631	47%	339	25%	1,349	1,522	13	47	60	± 5	54	± 5	34
2013	3,617	58	268	326	26%	646	51%	285	23%	1,257	1,098	9	41	50	± 5	44	± 4	29
2014	3,968	87	142	229	28%	340	42%	237	29%	806	1,678	26	42	67	± 8	70	± 9	42
2015	4,909	149	115	264	26%	403	39%	354	35%	1,021	2,362	37	29	66	± 8	88	± 9	53

**2016 HUNTING SEASONS  
BADWATER PRONGHORN (PR 634)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
75	1	Sep. 17	Oct. 22	450	Limited quota	Any antelope
	6	Sep. 17	Oct. 22	275	Limited quota	Doe or fawn
Archery		Aug. 15	Sep. 16			Refer to section 2

Hunt Area	Type	Quota change from 2015
75	1	+100
	6	+100
<b>Total</b>	<b>1</b>	<b>+100</b>
	<b>6</b>	<b>+100</b>

**Management Evaluation**

**Current Postseason Population Management Objective: 3,000**

**Management Strategy: Recreational**

**2015 Postseason Population Estimate: ~4,400**

**2016 Proposed Postseason Population Estimate: ~4,000**

**Management Issues**

The Badwater pronghorn herd is managed toward a post-season population size objective of 3,000. The population is estimated using a spreadsheet model developed in 2012 and updated in 2015. The herd is managed for recreational opportunity. The objective was last reviewed in 2014. During the 2014 review, it was noted the new spreadsheet model appeared to track the same population trend as the previous POP-II model. However, annual population estimates tended to be about 1,000 animals higher in the new spreadsheet model. Initial attempts to increase the objective to 4,000 to compensate for the apparent higher estimates produced by the spreadsheet model were met with resistance from landowners and the BLM. When noted that leaving the objective at 3,000 would in effect mean managing for fewer antelope than in the past, a number of landowners and representatives from the BLM felt that was appropriate given long-term drought and poor habitat conditions in the area.

This pronghorn population inhabits a heavily industrialized area in central Wyoming. Much of the herd unit has been designated as a special management area emphasizing oil and gas production in both the Casper and Lander BLM RMPs. The Lander BLM is currently analyzing a proposal to develop approximately 4,500 oil/gas wells in the central part of the herd unit. Given the commodities production emphasis in the area, it is likely a significant amount of pronghorn habitat will be lost or degraded over the next 20 years.

### **Habitat/Weather**

This area has been impacted by extreme drought for much of the last decade. Virtually no vegetation grew throughout the herd unit in 2012 and 2013. In 2014 and 2015 weather conditions resulted in excellent herbaceous production throughout central Wyoming. Although no vegetation transects are monitored annually in this herd unit, observations suggested vegetation growth was quite good in 2015. Both deer and antelope in the area appeared to enter winter in excellent body condition. With ideal conditions in 2014 and 2015, this population grew over the past 2 years. Given average winter temperatures and precipitation, antelope winter survival is expected to be good in 2015.

### **Field Data**

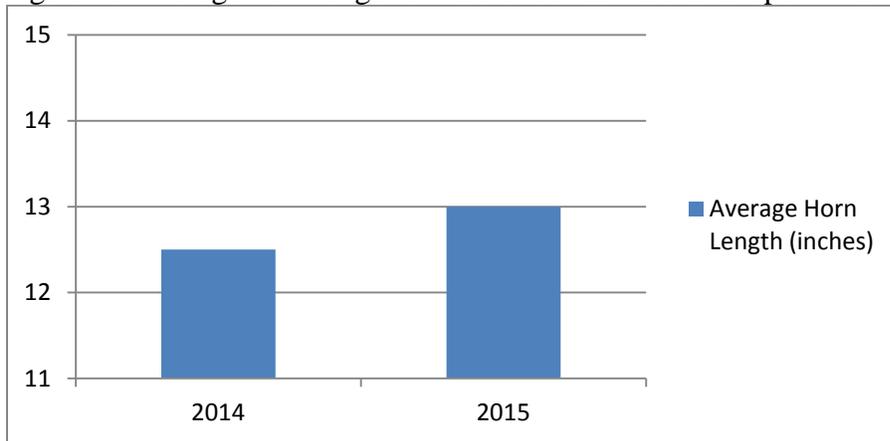
Numbers of antelope observed along specified ground classification routes had been declining steadily since 2010. In contrast, the antelope classification sample size increased from 806 in 2014 to 1,021 in 2015. Much of the classification sample increase was due to a greater number of fawns and yearling bucks. This is likely the result of good vegetation growth and weather conditions. The 2015 sample size of 1,021 antelope was 43% of the desired sample size. The sample yielded a fawn/doe ratio of 88/100. This was the highest fawn/doe ratio recorded in the last 20 years and is again testament to the good weather conditions throughout the herd unit in 2015. It should be noted the 2014 fawn/doe ratio was also quite high at 70/100. Although the buck/doe ratio of 66/100 was nearly the same as the 2014 ratio of 67/100, there was a dramatic increase in yearling bucks. The 2015 yearling buck/doe ratio was 37/100 and was also the highest recorded in the last 20 years. All of the classification data from the past 2 years indicate this population increased.

### **Harvest Data**

As expected, with a high buck/doe ratio and an increasing population, Type 1 license success was high at 92%. This was significantly higher than the 2014 success rate of 77% but close to the 5-year average of 89%. Type 6 license success was also quite good at 93%. The days/animal statistic for Type 1 license holders was unremarkable in 2015 at 3.5. This was almost the same as the 5-year average of 3.3. Overall, harvest statistics indicate recreational hunting in 2015 was good.

In 2015 personnel collected horn length measurements on 16 male antelope. The average and median lengths were both 13 inches. The longest horn measurement of the year was 14 inches (Fig. 1). This was quite similar to 2014 when personnel collected 20 horn measurements and found an average length of 12.5 inches, a median length of 13 inches, and a maximum length of 15 inches.

Figure 1. Average horn length of field checked male antelope in Hunt Area 75.



### Population

In 2012, a spreadsheet model was developed for this population. The model behaved predictably with the addition of 2013 and 2014 data but the addition of 2015 data changed model estimates dramatically. The model appears to track population trends reliably but the actual population estimate appears questionable. The model tracks significantly higher than 5 of 6 line-transect (LT) estimates. Recalibrating juvenile and adult survival rates in various versions of the model does nothing to bring the end-of-year estimate closer to these estimates. LT estimates for this population tend to have very high coefficients of variation attributable to low small samples sizes and variable densities across the herd unit. Due to the high standard errors associated with the line-transect estimates the population model deviance errors are very small. These numbers are calculated by dividing the difference of the model estimate and the LT estimate by the standard error of the LT estimate. A large standard error in the denominator of this calculation results in a small population deviance value even if the difference between the model estimate and LT estimate is quite large. Since the Solver function of these models is designed to minimize the population deviance, there is little need to account for already small deviances. The bottom line is Solver has little incentive to consider even large differences between model population estimates and LT estimates and therefore, the model essentially ignores the LT estimates.. Concurrently, differences in annual observed versus modeled buck/doe ratios are given undo consideration by Solver. This is not desirable in this case since recent classification sample sizes have been well below adequate. To deal with this problem, population deviances (the difference between model and LT estimates) are multiplied by a factor of 4 in the current model. This forces the model closer to the most recent LT estimate. A correction factor of 4 was chosen because it forces the end-of-year population to model close to the lower end of the confidence interval of a 2010 line transect estimate and at least the upper end of the confidence interval for a 2012 estimate. Without the correction factor, the model population is well above the confidence interval for the 2012 estimate. It should be noted, the overall population trend remains the same with or without the use of a correction factor.

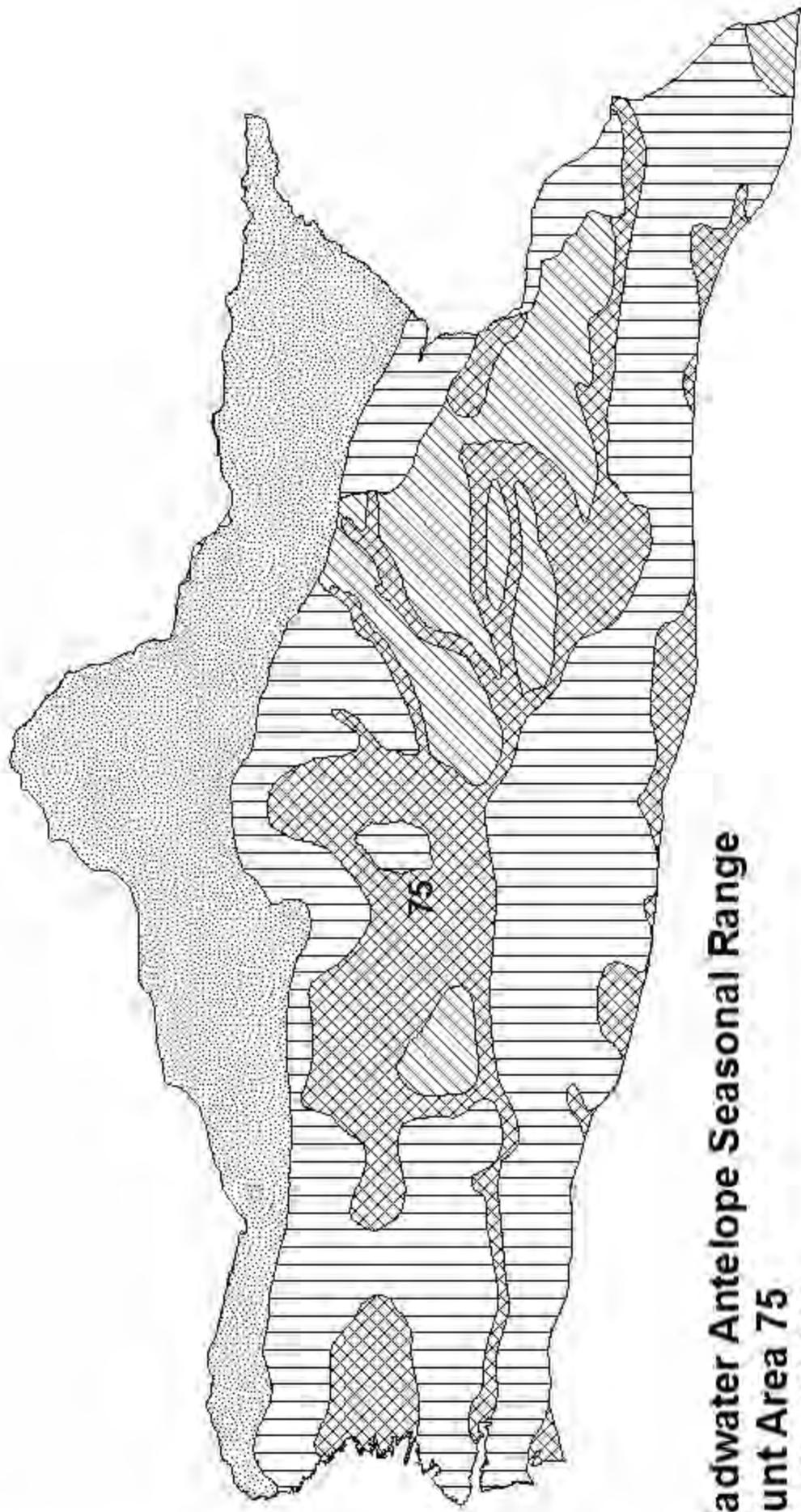
For 2015, the SCJ/SCA version of the model was selected to simulate the population. This was the same version of the model selected in 2014. The SCJ/SCA model had a higher AIC value than the CJ/CA model, but the CJ/CA version does not compensate for suspected, low survival

associated with severe drought in 2012 and 2013. The TSJ/CA had virtually the same AIC value and produced similar trends to the SCJ/SCA version. Given the same AIC and identical trends, the SCJ/SCA was deemed the best model to maintain consistency with previous years. Annual juvenile survival in the selected model is constrained to a maximum of 0.8. Without that constraint, the model consistently estimated juvenile survival higher than adult survival which is not biologically defensible. The SCJ/SCA model has 3 years with modified juvenile survival to account for extreme winter conditions in 2010 and extreme drought conditions in 2012 and 2013. Juvenile survival for these years is constrained to a maximum of 0.4.

This model version produces a population trend mirroring field personnel impressions. The model indicates the population declined significantly from 2007 through 2013. This is supported by the decreased classification samples collected along standard routes since 2010 as well as declining buck/doe ratios from 2010 through 2013. The population was predicted to be at objective using the 2014 model. Given favorable conditions throughout the herd unit and high recruitment in 2015 the model estimates from 2014 to 2015 increased substantially. Instead of being at objective as predicted in 2014, the 2015 population is now estimated to be 48% above objective. As mentioned previously, harvest statistics and classification data also indicate this population increased. Given good recruitment in 2015 and excellent survival from 2014 (as indicated by the high yearling buck/doe ratio), the modeled increase is plausible. Due to the lack of survival estimates, the model is considered a fair simulation.

### **Management Summary**

Given the modeled population increase over the past year as well as the high buck/doe ratio, hunting opportunity in area 75 can be increased in 2015. Type 1 licenses will be increased by 100 to 450 to allow more recreational opportunity. Type 6 licenses will be increased to 100 to manage the population toward objective. Given average recruitment, the population is predicted to decline by approximately 10% to 4,000 and be within 33% of objective.



**Badwater Antelope Seasonal Range  
Hunt Area 75  
Revised 2012**

-  CRUWYL
-  OUT
-  SSF
-  WYL
-  YRL



## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

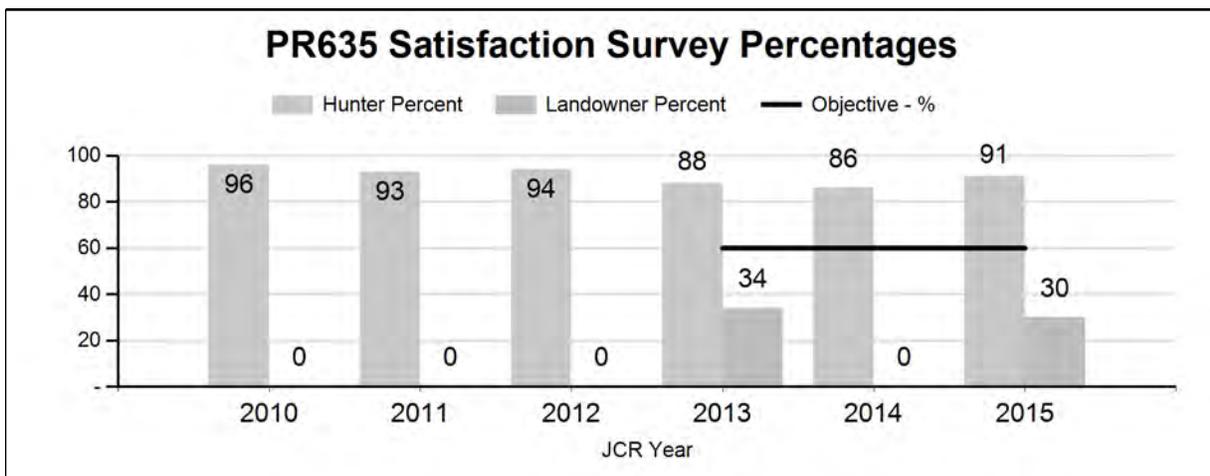
PERIOD: 6/1/2015 - 5/31/2016

HERD: PR635 - PROJECT

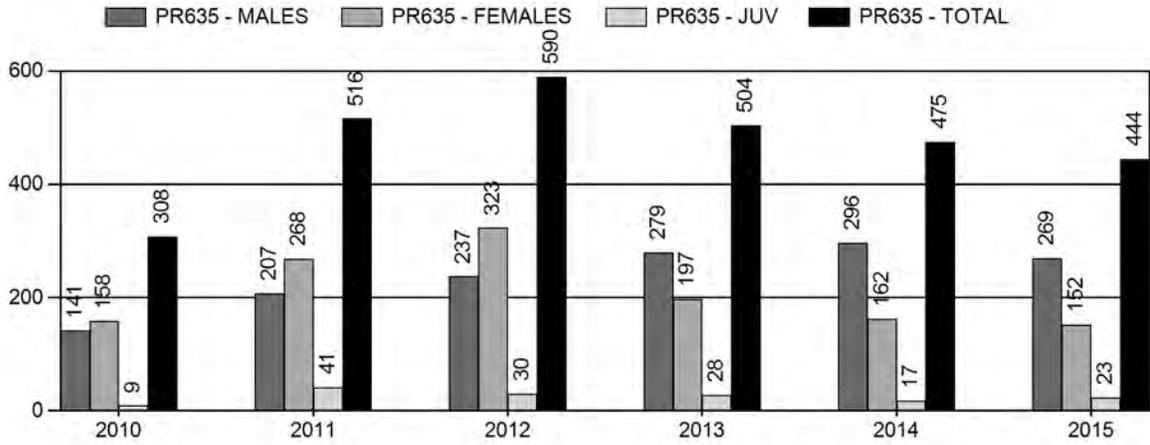
HUNT AREAS: 97, 117

PREPARED BY: GREG ANDERSON

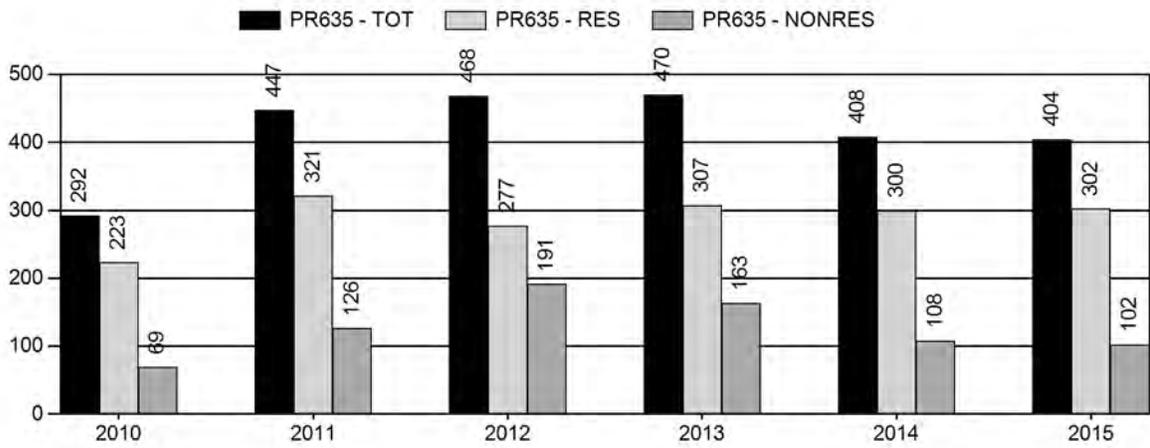
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Hunter Satisfaction Percent	91%	91%	90%
Landowner Satisfaction Percent	40%	30%	40%
Harvest:	479	444	430
Hunters:	417	404	395
Hunter Success:	115%	110%	109%
Active Licenses:	533	494	500
Active License Success:	90%	90%	86%
Recreation Days:	1,494	1,765	1,600
Days Per Animal:	3.1	4.0	3.7
Males per 100 Females:	71	38	
Juveniles per 100 Females	59	73	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			0%
Number of years population has been + or - objective in recent trend:			1



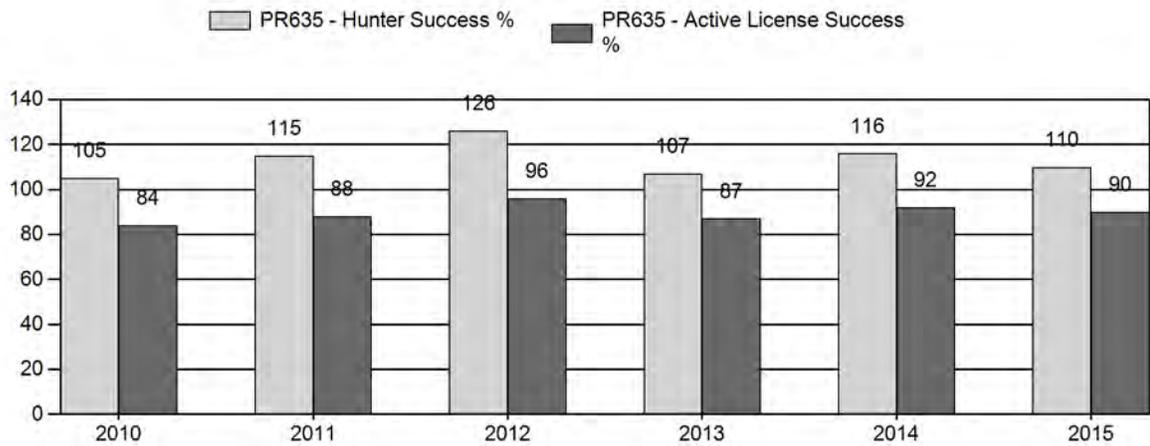
# Harvest



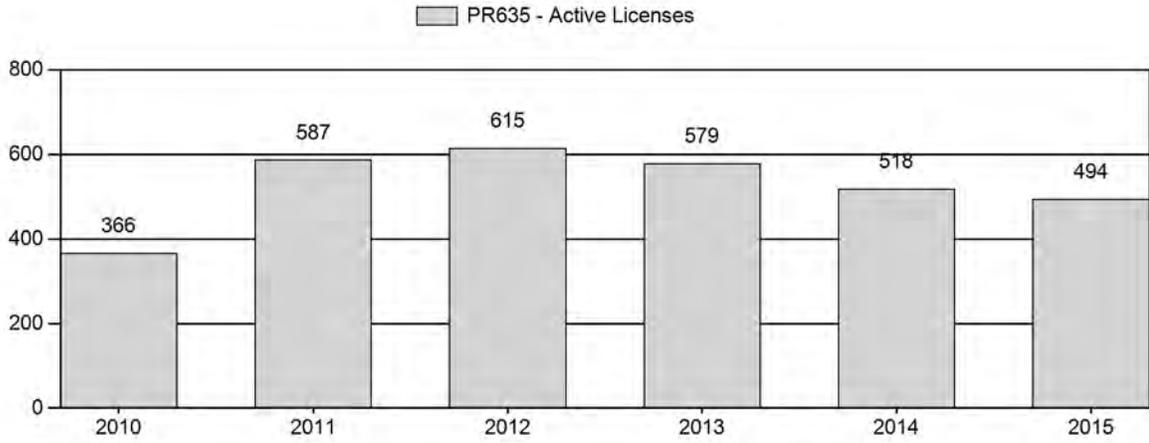
# Number of Hunters



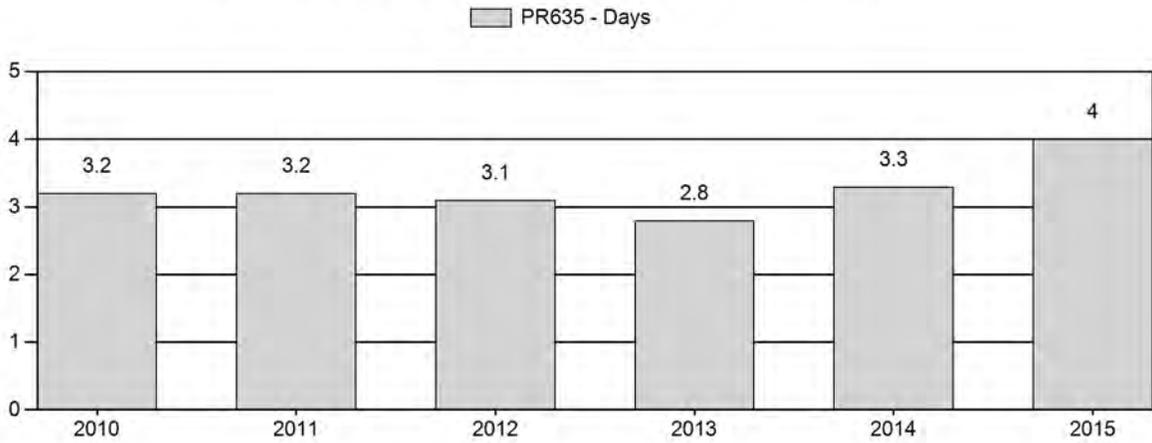
# Harvest Success



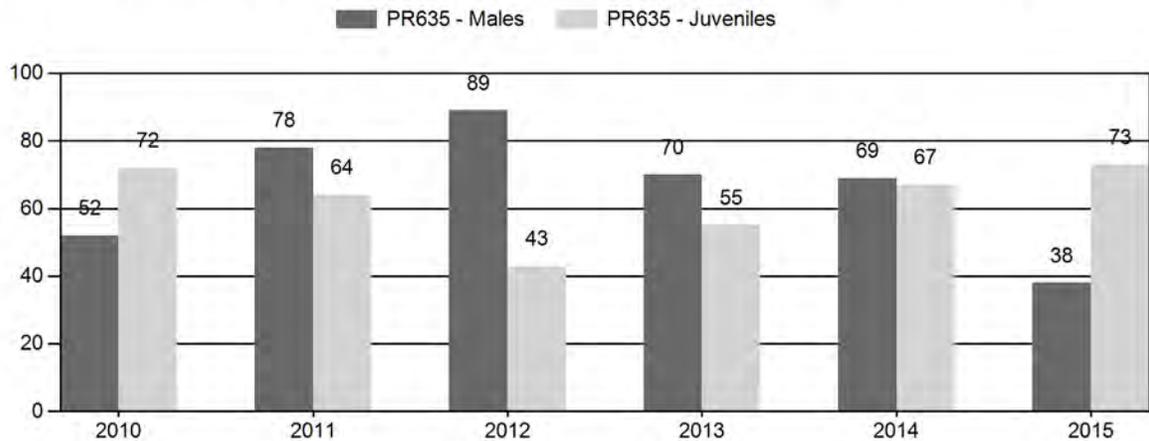
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR635 - PROJECT

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	634	0	0	118	23%	226	45%	163	32%	507	524	0	0	52	± 0	72	± 0	47
2011	0	45	89	134	32%	171	41%	109	26%	414	0	26	52	78	± 0	64	± 0	36
2012	0	67	112	179	38%	202	43%	86	18%	467	0	33	55	89	± 0	43	± 0	23
2013	0	28	125	153	31%	219	45%	120	24%	492	0	13	57	70	± 0	55	± 0	32
2014	0	21	62	83	29%	120	42%	80	28%	283	0	18	52	69	± 0	67	± 0	39
2015	0	26	45	71	18%	188	47%	137	35%	396	0	14	24	38	± 0	73	± 0	53

**2016 SEASONS  
PROJECT PRONGHORN (PR 635)**

Hunt Area	Type	Season Dates		Quota	License	Limitations	
		Opens	Closes				
97, 117	1	Sep. 17	Oct. 22	300	Limited quota	Any antelope	
	2	Aug. 15	Oct. 22	25	Limited quota	Any antelope valid in Area 97 south of U.S. Highway 26 and in all of Area 117	
	6	Sep. 17	Oct. 22	150	Limited quota	Doe or fawn	
	7	Aug. 15	Oct. 22	50	Limited quota	Doe or fawn valid in Area 97 south of U.S. Highway 26 and in all of Area 117	
	Archery		Aug. 15	Sep. 16			Refer to section 2

Hunt Area	Type	Quota change from 2015
97, 117	2	-25
	7	-25
<b>Total</b>	<b>2</b>	<b>-25</b>
	<b>7</b>	<b>-25</b>

**Management Evaluation**

**Current Hunter/Landowner Satisfaction Management Objective: Hunter/Landowner Satisfaction 60%**

**Management Strategy: Recreational**

**2015 Hunter Satisfaction Estimate: 91%**

**2015 Landowner Satisfaction Estimate: 30%**

**Most Recent 3-year Running Average Hunter Satisfaction Estimate: 89%**

**Most Recent 3-year Running Average Landowner Satisfaction Estimate: unknown**

## **Management Issues**

In 2013 the Department conducted an objective review for the Project pronghorn herd unit. Previously the herd had a population objective of 400 pronghorn. The population objective was impractical because personnel were unable to collect adequate demographic data due to extensive interchange with the neighboring Wind River Reservation (WRR). Following an internal review, a public meeting and contact with numerous landowners the objective was changed in 2013 to manage for 60% hunter and 60% landowner satisfaction. Hunter satisfaction is taken directly from the harvest survey while landowner satisfaction in 2013 was determined by mailing a survey to 98 landowners in the herd unit. From the 98 surveys, the Department received 46 responses. Of those, 21 landowners provided e-mail addresses and indicated they wished to receive the survey in future years. In 2014, 21 surveys were e-mailed to landowners and the Department received 4 responses. One of the respondents requested to no longer receive the survey. In 2015 personnel contacted landowners in person or by phone to determine satisfaction with the antelope season. Although some landowners in the herd unit feel there are too many antelope, several of them commented they did not wish to see license numbers increase.

## **Habitat/Weather**

This herd occupies a heavily agricultural area in central Wyoming as well as lands interspersed with the WRR. Land ownership patterns and extensive border with the WRR make it cost prohibitive to collect adequate demographic data in the herd unit. The highest densities of pronghorn are found along the northern portion of hunt area 97 and commonly move between the herd unit and the WRR. During periods of drought, this herd has typically been impacted less than surrounding populations due to the abundance of feed associated with agricultural operations. In 2015, weather conditions were conducive to good vegetative production throughout the herd unit including upland, native range. As such, antelope were well dispersed throughout the area. Fall observations and field checks indicate antelope in the herd unit entered winter in excellent body condition.

## **Field/Harvest Data/Population**

The fawn/doe ratio in hunt area 97 was 73/100 in 2015. This was nearly the same as the 5-year average of 65/100 but above recruitment levels over the past 2 years. The buck/doe ratio declined significantly from 69/100 in 2014 to 38/100 in 2015. The buck/doe ratio averaged 76/100 over the past 4 years which is well above the 50/100 threshold for recreational management. It appears Type 1 license numbers over the past several years did result in a buck/doe ratio decline in 2015. It should be noted there appears to be an uneven distribution of bucks throughout area 97 where most of the harvest occurs. Publicly accessible areas throughout the herd unit tend to have significantly fewer bucks than private land areas. The dramatic decline in the buck/doe ratio in 2015 bears note, but Type 1 license success remained good at 91% and hunter satisfaction remained high. These factors indicate recreational hunting remains good in the herd unit.

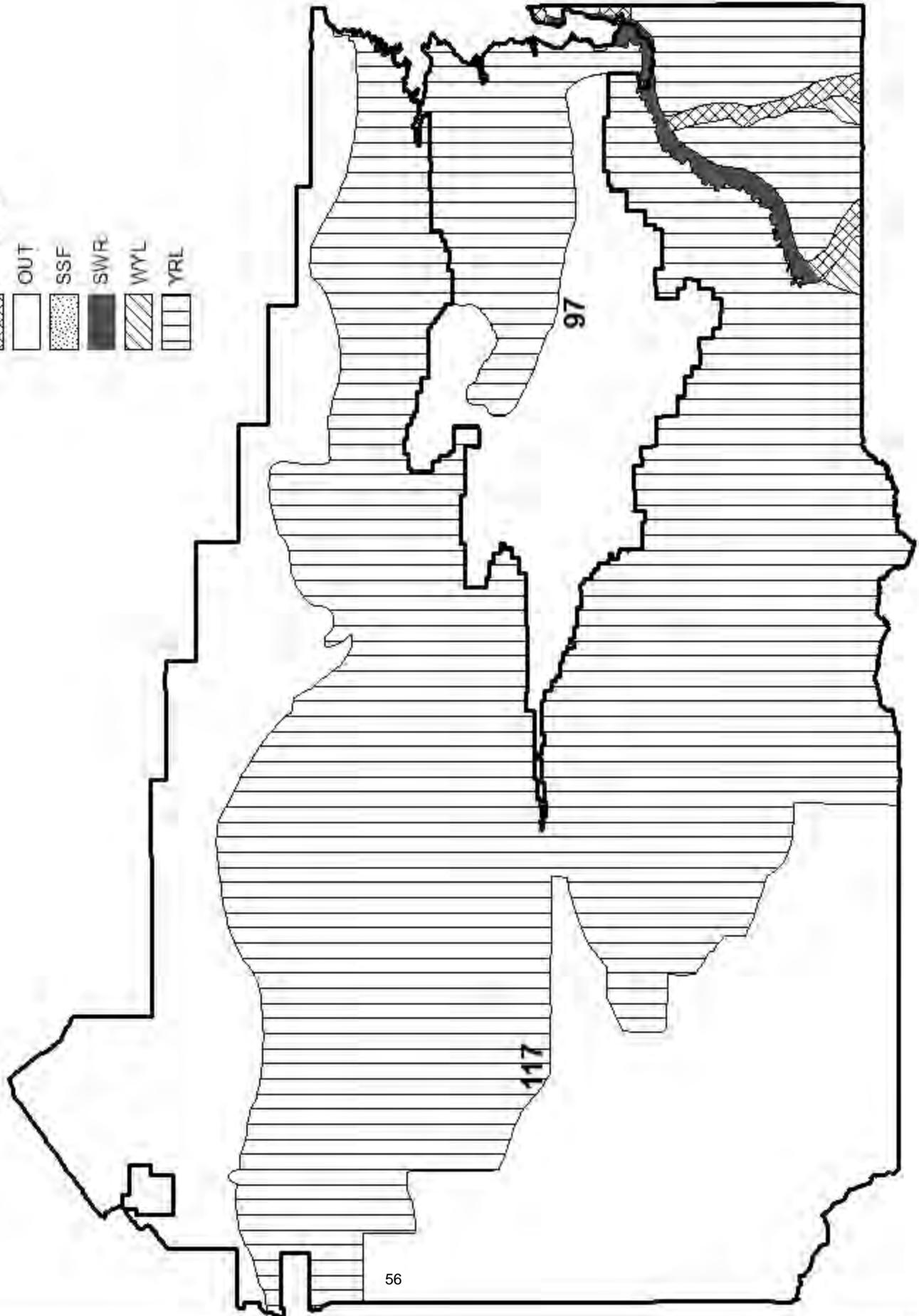
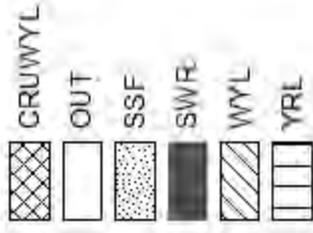
The population is considered to be at objective in 2015. Hunter satisfaction (satisfied or very satisfied) increased slightly between 2014 and 2015 from 86% to 91%. This represents a high rate of satisfaction and in combination with a 91% Type 1 success rate indicates hunt quality was good. This was the third year the landowner satisfaction survey was conducted so long term

comparisons are not possible. Out of 10 responses to the landowner survey, 6 landowners felt antelope numbers were above desired levels. It should be noted that 3 of the 6 also commented they did not want additional hunters and felt the number of licenses issued in 2014 was satisfactory. As in past years, it seemed landowners were fairly ambivalent regarding the survey.

### **Management Summary**

Given the high level of hunter satisfaction and no indication of landowner dissatisfaction, 2016 management will remain mostly unchanged from 2015. The exception being a slight reduction in Type 2 and Type 7 licenses in response to decreased damage concerns in the areas targeted for harvest with these 2 license types. With average survival for the year, the population is expected to remain unchanged in 2016.

**Project Antelope Seasonal Range  
Hunt Areas 97, 117  
Revised 2012**



## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR636 - NORTH FERRIS

HUNT AREAS: 63

PREPARED BY: GREG HIATT

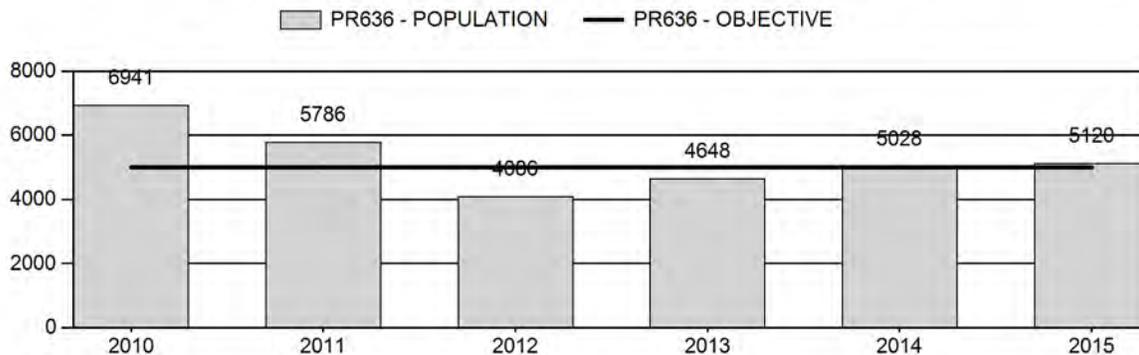
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	5,298	5,120	4,800
Harvest:	549	269	260
Hunters:	594	305	320
Hunter Success:	92%	88%	81 %
Active Licenses:	641	319	320
Active License Success:	86%	84%	81 %
Recreation Days:	1,832	1,181	960
Days Per Animal:	3.3	4.4	3.7
Males per 100 Females	64	53	
Juveniles per 100 Females	48	80	

Population Objective ( $\pm 20\%$ ) :	5000 (4000 - 6000)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	2%
Number of years population has been + or - objective in recent trend:	2
Model Date:	2/27/2016

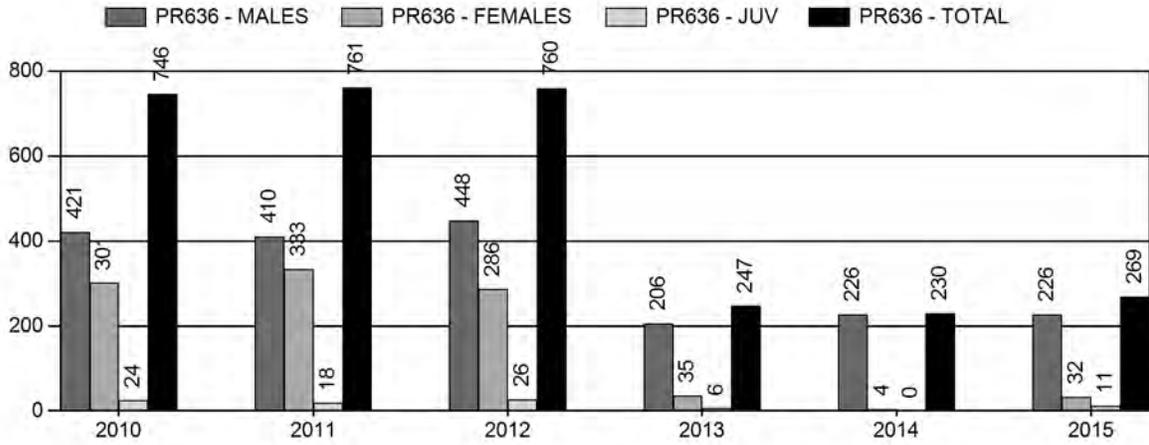
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq 1$ year old:	1.8%	1.4%
Males $\geq 1$ year old:	18.2%	16.6%
Juveniles (< 1 year old):	0.4%	0.4%
Total:	5.2%	5.1%
Proposed change in post-season population:	-5.4%	-6.3%

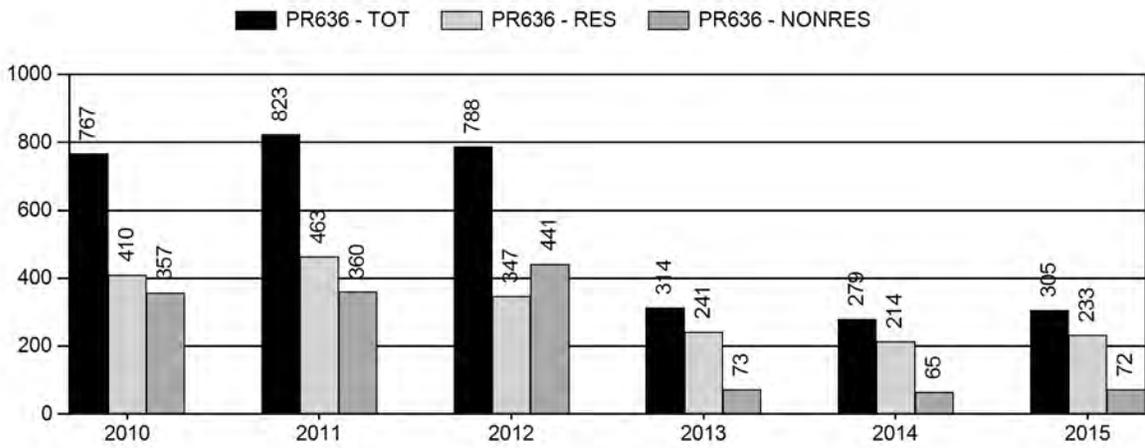
## Population Size - Postseason



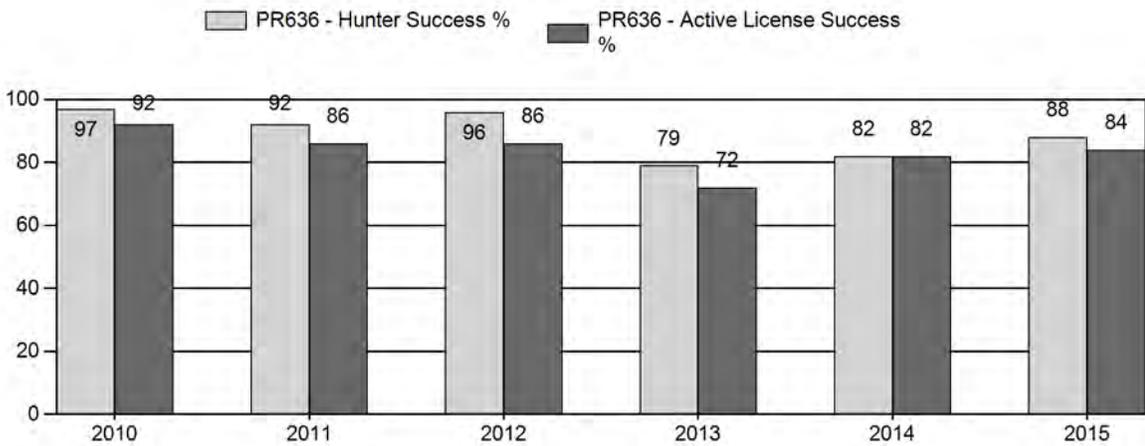
# Harvest



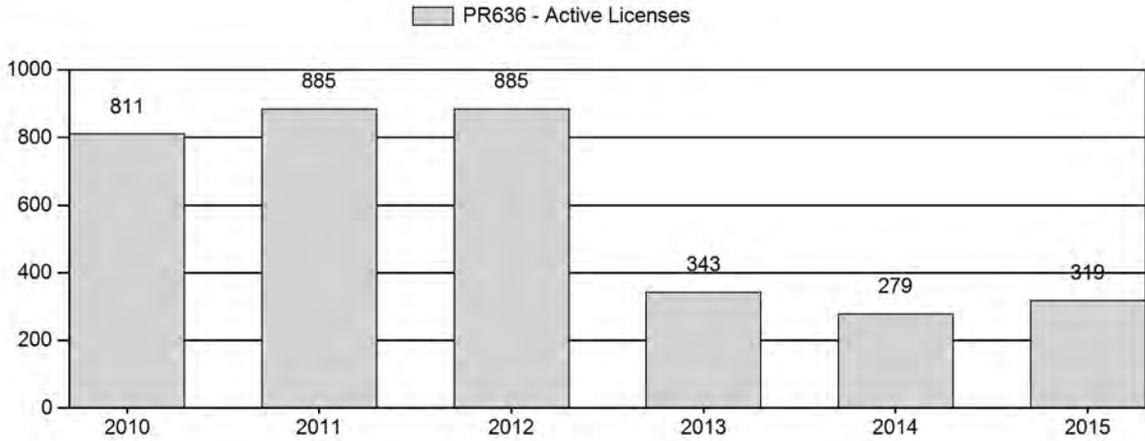
# Number of Hunters



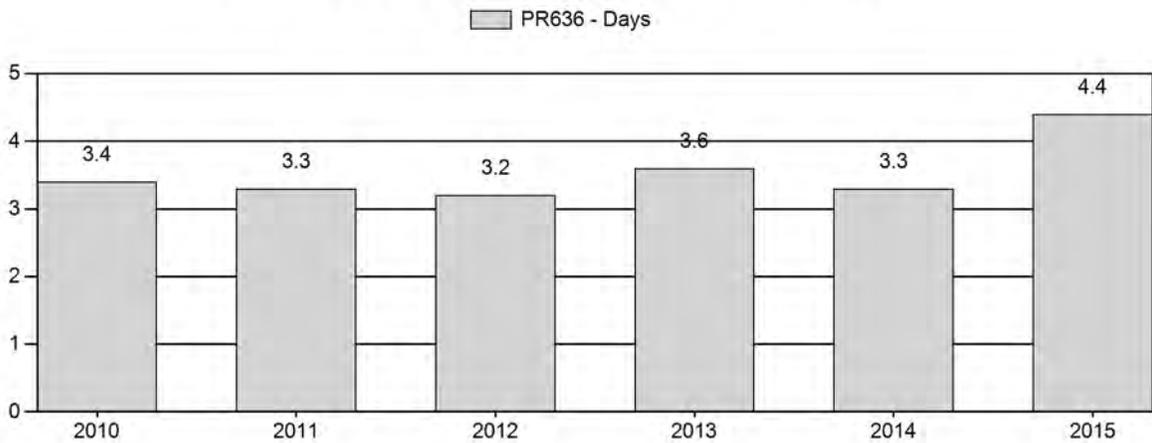
# Harvest Success



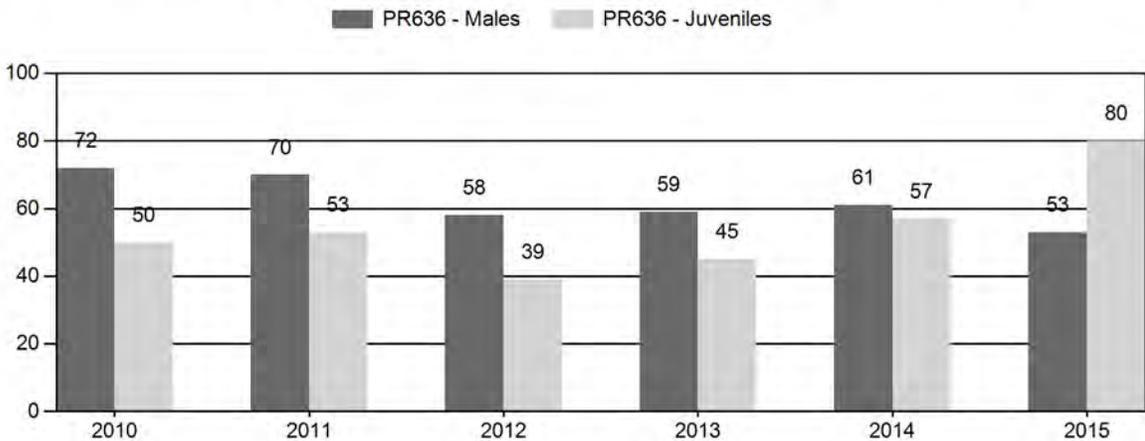
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR636 - NORTH FERRIS

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	7,762	99	274	373	32%	519	45%	257	22%	1,149	2,145	19	53	72	± 7	50	± 6	29
2011	6,623	72	288	360	31%	516	45%	275	24%	1,151	1,914	14	56	70	± 7	53	± 6	31
2012	4,914	55	253	308	29%	534	51%	208	20%	1,050	1,330	10	47	58	± 6	39	± 5	25
2013	4,920	57	216	273	29%	459	49%	205	22%	937	1,460	12	47	59	± 7	45	± 6	28
2014	5,281	72	143	215	28%	350	46%	201	26%	766	1,611	21	41	61	± 8	57	± 8	36
2015	5,420	118	273	391	23%	736	43%	587	34%	1,714	2,173	16	37	53	± 5	80	± 6	52

**2016 HUNTING SEASONS  
NORTH FERRIS PRONGHORN HERD (PR636)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations	
		Opens	Closes				
63	1	Sep. 17	Oct. 31	100	Limited quota	Any antelope	
	2	Sep. 17	Oct. 31	200	Limited quota	Any antelope valid east of the Buzzard Road (Natrona County Road 410 – Carbon County Road 497)	
	6	Sep. 17	Oct. 31	25	Limited quota	Doe or fawn	
	7	Sep. 17	Oct. 31	25	Limited quota	Doe or fawn valid east of the Buzzard Road (Natrona County Road 410 – Carbon County Road 497)	
	Archery						
	63		Aug. 15	Sep. 16			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
63	1	0
	2	0
	6	0
	7	0
<b>Herd Unit Total</b>	<b>1</b>	<b>0</b>
	<b>2</b>	<b>0</b>
	<b>6</b>	<b>0</b>
	<b>7</b>	<b>0</b>

**Management Evaluation**

**Current Postseason Population Management Objective: 5,000**

**Management Strategy: Recreation**

**2015 Postseason Population Estimate: ~5,100**

**2016 Proposed Postseason Population Estimate: ~4,800**

**Herd Unit Issues**

The North Ferris pronghorn herd is managed toward a post-hunt population of 5,000, an objective last reviewed in 2014. Population size is estimated using a spreadsheet model

developed in 2012 and updated in 2016. The herd is in recreational management, with harvest quotas designed to maintain pre-hunt buck:doe ratios below 60:100.

Historically, access has not been an issue in this herd unit which is mostly public lands, but access to some large blocks of private land has become more difficult in recent years and may affect management ability to attain adequate harvests in the future. Potential for economic wind power exists within the herd unit, but appears unlikely when other resource issues such as T&E species and sage-grouse Core Area are considered. Many miles of sheep-tight fences still stand in the herd unit, impeding pronghorn movements.

## **Weather**

Improved precipitation which arrived in the latter half of 2014, following severe drought conditions in 2012 and 2013, continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth, improving fawn survival. Condition of pronghorn going into the winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

## **Habitat**

While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional due to the increased precipitation. Herbaceous production measured on the Morgan Creek WHMA in the Seminoe Mountains at the southern extreme of the herd unit was unusually high. Two shrub transects have been established within this herd unit, primarily to monitor mule deer winter forage. One of these, on the Morgan Creek WHMA, was burned in the 2012 fires and the second was not read in 2015. New owners of the Pathfinder Ranch, which encompasses the north-central portion of this herd, have expressed interest in looking for opportunities for improving habitat conditions for wildlife, possibly as mitigation for wind power projects in other parts of the state. Shrub treatment on winter ranges, adjustments of grazing use, and modification of sheep-tight fences would benefit pronghorn in this herd unit.

## **Field Data**

Classification sample size increased in 2015, more than double the 2014 sample, and was the largest sample since 2009. Sample size was still less than statistically desired. These data are collected from the ground along routes that have had only minor changes over the past two decades. Higher densities of pronghorn were again found in the eastern half of the area near Pathfinder Reservoir and along irrigated hayfields on the Buzzard and Sand Creek Ranches. Fawn production improved to 81:100, the highest in 32 years, and was well above the long-term average for this herd.

Following exceptionally high recruitment of yearlings in 2005, buck:doe ratios exceeded the 60:100 maximum criterion for recreational management in this herd. Buck harvests were increased, often double or triple historic levels, and surplus bucks were successfully harvested with the buck:doe ratio returning to acceptable levels by 2012. Much of the decline was in the

supply of adult bucks, with that ratio dropping to its lowest level in ten years in 2015. As expected, hunter complaints about poor quality of bucks increased and hunter satisfaction declined as the adult buck:doe ratio declined. Yearling recruitment was high again in 2014, producing a slight increase in the buck:doe ratio to 61:100, but this surplus was removed by 2015.

## **Harvest Data**

Overall hunter success improved slightly, from 82 percent to 84 percent, but the average effort required to harvest a pronghorn from this herd rose to 4.4 days, the highest since 2002. Surprisingly, hunters with the Type 2 and Type 7 licenses, restricted to the eastern portion of the herd unit, enjoyed higher success than those with Type 1 or Type 6 licenses, who had the entire hunt area available and were free to hunt the eastern portion if they chose to do so. Hunters with the Type 6 doe/fawn licenses valid for the entire area required a record high average of 8.8 days to make a harvest.

## **Population**

This herd was below objective size for most of the decade following the 1992-93 winter, a consequence of low fawn production and poor recruitment. High fawn production followed by an unusually mild winter in 2004 provided the first significant growth in herd size.

Population estimates suggested this herd was well above objective size by 2006 and harvests were increased accordingly. The current spreadsheet model predicts the increased harvests successfully reduced the herd to objective size by 2011, and below objective in 2012. This model, however, aligns near the maximum limit of the confidence interval on the most recent line-transect survey and may be over-estimating current herd size. Hunter comments and harvest statistics suggest there has been a greater decline in herd size than predicted by the model.

The Time-Specific Juvenile & Constant Adult Survival (TSJ,CA) spreadsheet model provided the best fit with observed buck:doe ratios for this herd, particularly for the most recent eight years. The model behaved well when 2015 classification and harvest data were added and falls within the confidence intervals of all 3 line-transect estimates. Annual adult survival was predicted at 82 percent, a level slightly lower than in models for some nearby pronghorn herds. Juvenile survival rates fluctuated within the allowed range but frequently settled at maximum or minimum allowed values, exceeding adult survival rates in some years. This is difficult to accept biologically, and as a result the model is only considered to be a “Fair” representation of the herd. The CJ,CA and SCJ,SCA models each had lower AIC values, but both models predicted herd sizes greatly exceeding past trend counts, without following count trends, and generated roughly stable buck:doe estimates that did not follow dips and rises in observed values. Estimated buck:doe ratios of these two models approximated observed values in only five or six of the past 20 years.

Due to the excellent condition of animals going into this winter and improved browse conditions following the record moisture, fawn production in 2016 was projected to be near the 5-year average despite the harsh periods in the 2015-16 winter. The model was run using a median juvenile survival in 2016.

Losses to EHD were documented in pronghorn herds south and west of North Ferris in 2013, and reports of carcasses in Area 63 suggests the disease was present here as well. Effects of significant losses in late summer and early fall 2014 may not yet affect estimates in the model and it may be over-estimating herd size.

### **Management Summary**

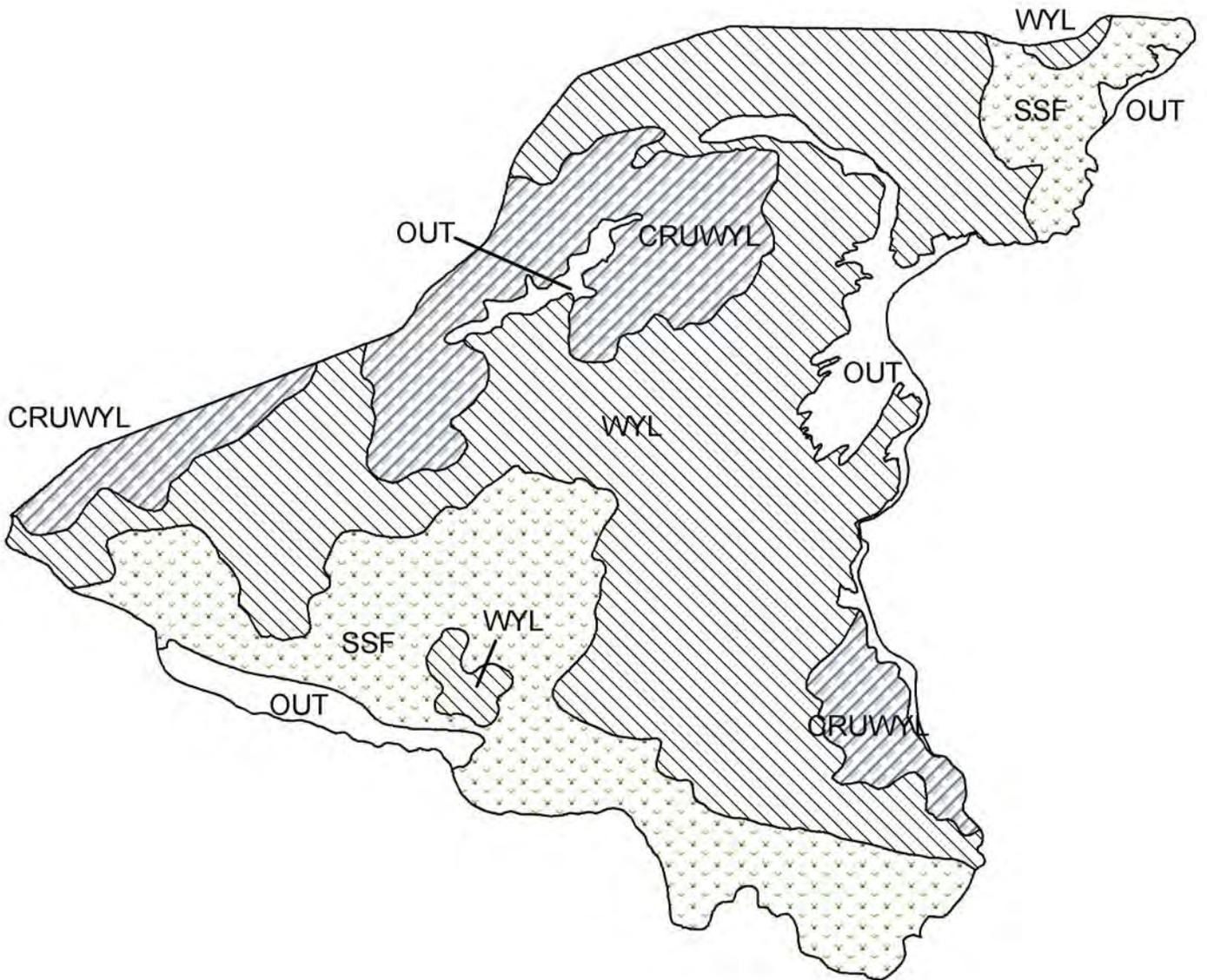
With improvement in fawn production and the herd estimated to be near objective size, doe harvest needs to be maintained to prevent any significant increase in herd size. As in three of the past four years, Type 2 and Type 7 licenses are issued to direct hunting pressure to the eastern portion of the herd unit where pronghorn densities are higher and most private lands are found. With average fawn production in 2016, the model predicts a harvest similar to that of 2015 will maintain the herd within acceptable range of the 5,000 pronghorn herd objective.

The expected harvest of roughly 220 bucks and 40 does and fawns from the 2016 license quotas should provide a slight decrease (~6 percent) in herd size, projected to be ~4,800 at post-hunt 2016. With the herd so close to objective, if either winter survival or fawn production exceeds expectations in 2016, harvests will probably need to be further increased in future years.

Opening date is shifted one day to remain on the third Saturday of September, synchronizing with Area 68 to the north and other areas in the Lander Region. Closing date is the same as in the previous four years and extends to the closing of the local deer season. Archery season uses a standardized opening date and closes the day before the opening of the regular season.



PH636 - North Ferris  
HA 63  
Revised - 8/95





## 2015 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR637 - SOUTH FERRIS

HUNT AREAS: 62

PREPARED BY: GREG HIATT

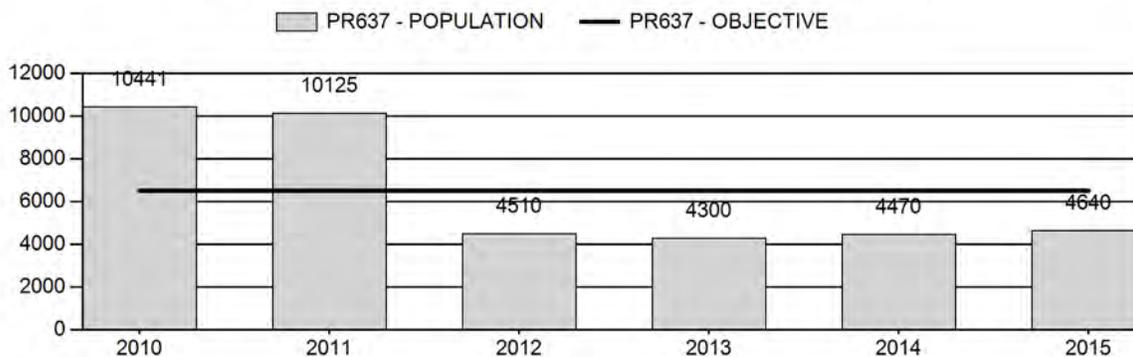
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	6,769	4,640	4,630
Harvest:	186	137	125
Hunters:	209	144	150
Hunter Success:	89%	95%	83 %
Active Licenses:	224	154	150
Active License Success:	83%	89%	83 %
Recreation Days:	674	487	470
Days Per Animal:	3.6	3.6	3.8
Males per 100 Females	61	53	
Juveniles per 100 Females	42	67	

Population Objective ( $\pm 20\%$ ) :	6500 (5200 - 7800)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-28.6%
Number of years population has been + or - objective in recent trend:	4
Model Date:	2/27/2016

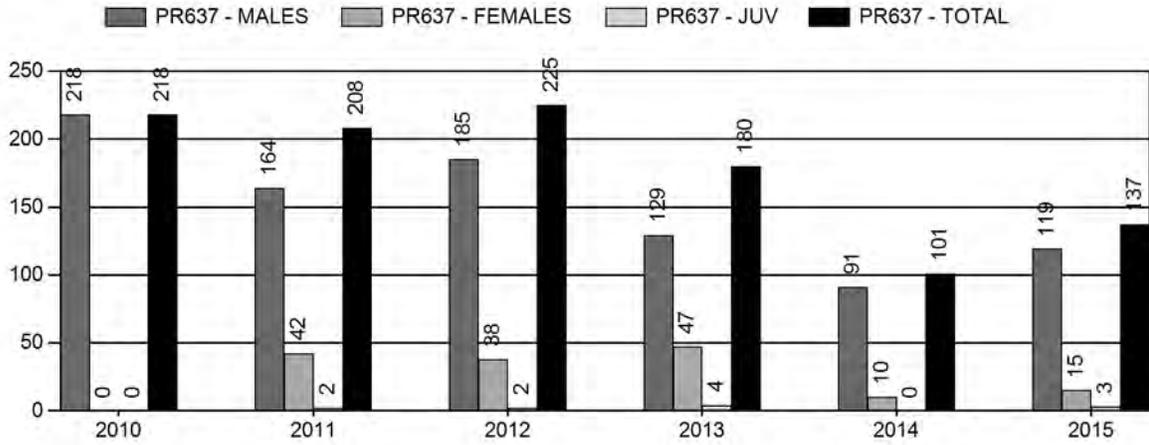
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq 1$ year old:	0.7%	0.7%
Males $\geq 1$ year old:	7.6%	8.0%
Juveniles (< 1 year old):	0%	0%
Total:	2.3%	2.6%
Proposed change in post-season population:	+0.2%	-0.2%

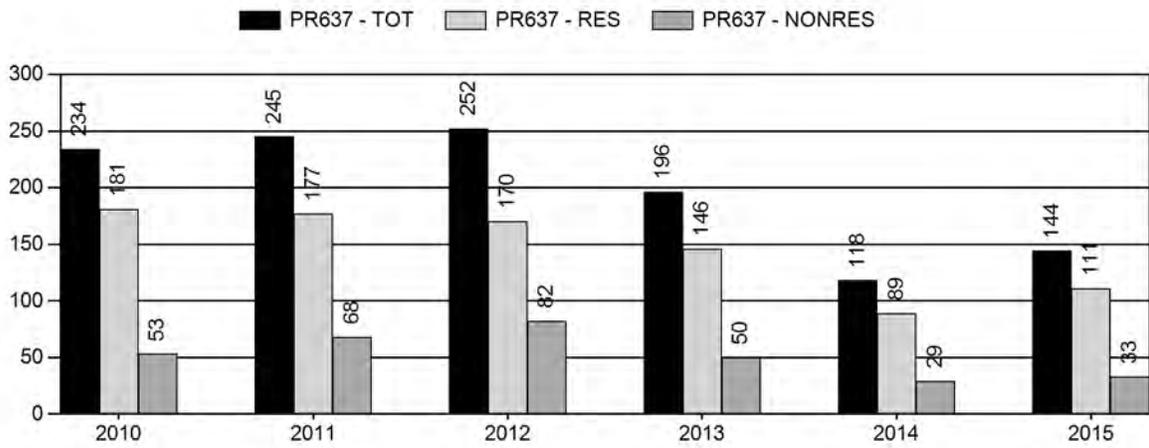
## Population Size - Postseason



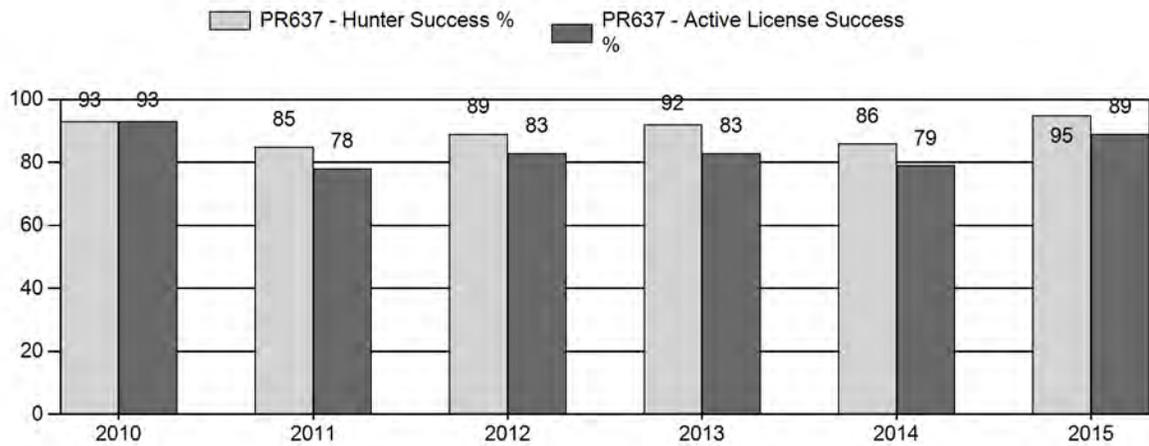
# Harvest



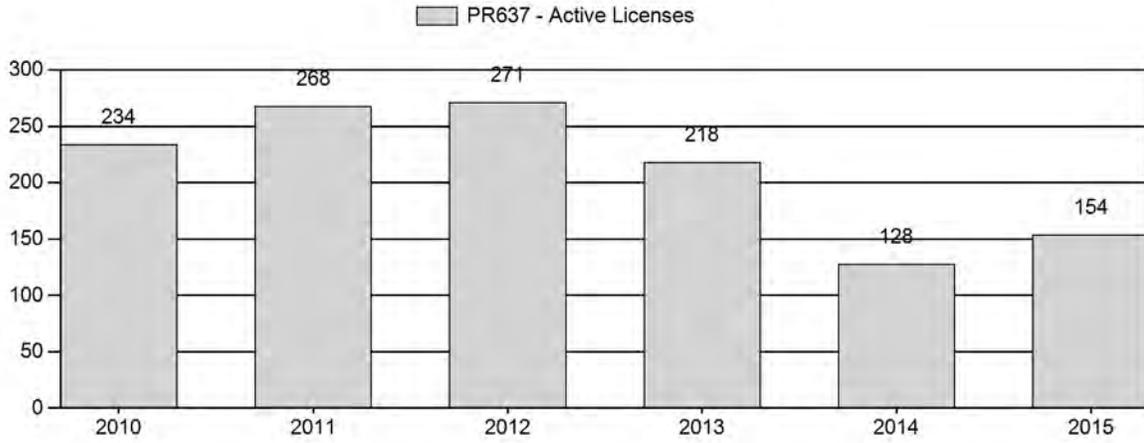
# Number of Hunters



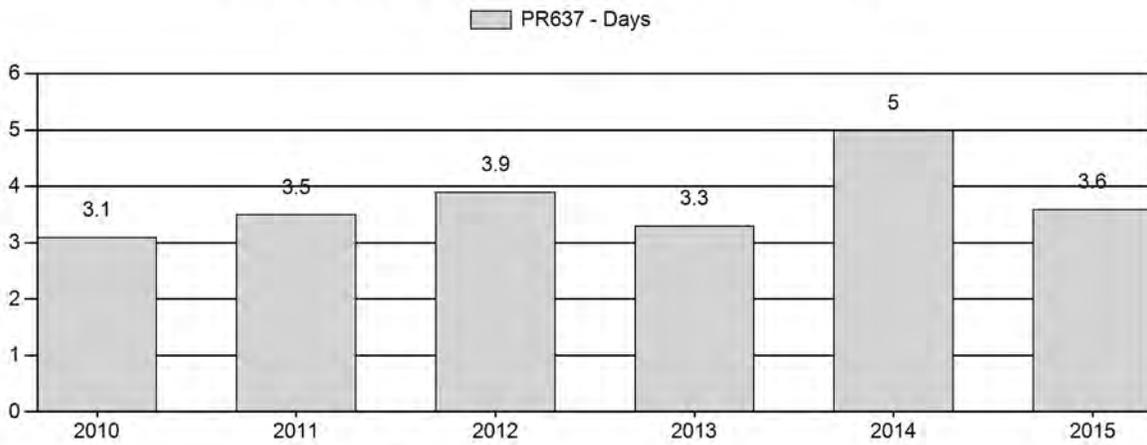
# Harvest Success



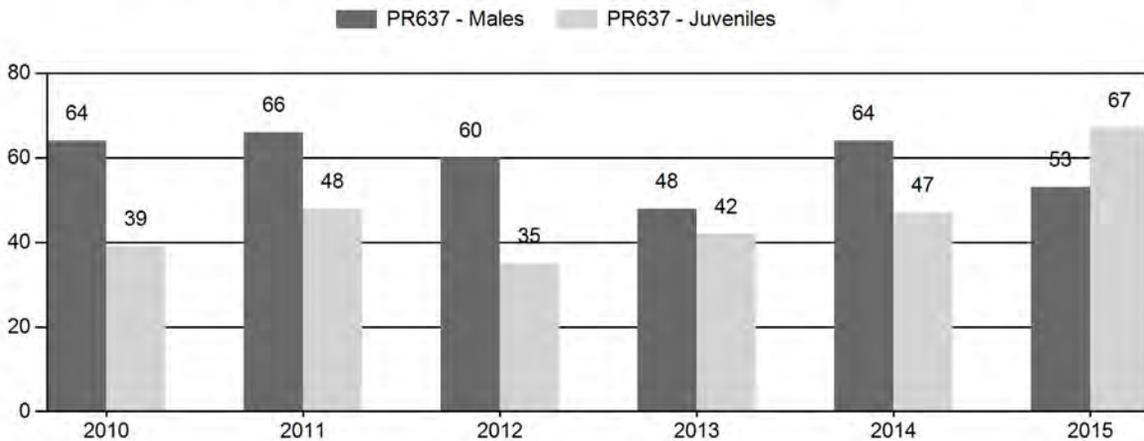
# Active Licenses



# Days Per Animal Harvested



# Preseason Animals per 100 Females



## 2010 - 2015 Preseason Classification Summary

for Pronghorn Herd PR637 - SOUTH FERRIS

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	10,681	209	578	787	31%	1,234	49%	481	19%	2,502	1,652	17	47	64	± 4	39	± 3	24
2011	10,350	144	477	621	31%	943	47%	451	22%	2,015	1,776	15	51	66	± 5	48	± 4	29
2012	4,760	47	452	499	31%	827	51%	293	18%	1,619	1,502	6	55	60	± 5	35	± 3	22
2013	4,500	53	312	365	25%	766	53%	319	22%	1,450	1,145	7	41	48	± 4	42	± 4	28
2014	4,580	82	354	436	30%	686	47%	324	22%	1,446	1,638	12	52	64	± 5	47	± 4	29
2015	4,790	89	261	350	24%	661	45%	443	30%	1,454	1,711	13	39	53	± 5	67	± 6	44

**2016 HUNTING SEASONS  
SOUTH FERRIS PRONGHORN HERD (PR637)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
62	1	Sep. 10	Oct. 31	40	Limited quota	Any antelope valid east of the Continental Divide and north of Wise Dugout Draw)
	2	Sep. 10	Oct. 31	100	Limited quota	
	7	Aug. 15	Oct. 31	25	Limited quota	
Archery 62		Aug. 15	Sep. 9			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2015
62	1	0
	2	0
	7	0
<b>Herd Unit Total</b>	<b>1</b>	<b>0</b>
	<b>2</b>	<b>0</b>
	<b>7</b>	<b>0</b>

**Management Evaluation**

**Current Postseason Population Management Objective: 6,500**

**Management Strategy: Recreation**

**2015 Postseason Population Estimate: ~4,600**

**2016 Proposed Postseason Population Estimate: ~4,600**

**Herd Unit Issues**

The South Ferris pronghorn herd is managed toward a post-hunt population size of 6,500 pronghorn, an objective last publicly reviewed in 2014. Population size is estimated using a spreadsheet model developed in 2015 and updated in 2016. The herd is in recreational management, with harvest quotas designed to maintain pre-hunt buck:doe ratios below 60:100.

Hunter access to much of the eastern half of the herd has been severely limited by private landowners since the mid-1990s and has resulted in buck:doe ratios and pronghorn densities greatly skewed between the western and eastern portions.

Fawn crops have only ranged from 28 to 55:100 over the past 14 years, averaging ~40:100. In addition to limited access to much of the herd, poor production and recruitment has reduced harvest levels the herd can support.

The large Peterson Ranch in the south-central portion of the herd has changed hands twice in recent years, and it is not known how the newest owners will handle hunter access. They have already decided to not renew the large Walk-In area along US287.

Losses to EHD were documented in this herd in 2013. By the number of reported and observed carcasses, losses appeared to be greatest along the west shore of Seminole Reservoir, but spanned down to Rawlins and up towards Lamont. No similar mortalities were found in 2014 or 2015, but the presence of the disease should remain a concern whenever drought conditions arise.

### **Weather**

Improved precipitation which arrived in the latter half of 2014, following severe drought conditions in 2012 and 2013, continued through 2015. Record precipitation was received in 2015, producing exceptional vegetative growth and improving fawn survival. Condition of pronghorn going into the winter is expected to have been excellent. The 2015-16 winter had numerous bitter cold spells, with significant snowfall, but milder conditions arrived in mid-February. Winter losses are not expected to be above average.

### **Habitat**

While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional due to the increased precipitation. Herbaceous production measured on the Morgan Creek WHMA in the Seminole Mountains immediately north of the herd unit was unusually high. Only one shrub transect has been established near this herd unit, on the Morgan Creek WHMA. This transect used to monitor bitterbrush growth and utilization in the Seminole Mountains was burned in the 2012 fires.

Owners of the Pathfinder Ranch, which encompasses the north-central portion of this herd, have expressed interest in looking for opportunities for improving habitat conditions for wildlife, possibly as mitigation for wind power projects in other parts of the state. Treatment of browse on winter ranges, adjustments of grazing use, and modification of sheep-tight fences would benefit pronghorn in this herd unit.

### **Field Data**

Classification sample size in 2015 was essentially the same as in 2013 and 2014, the smallest samples since 1979, and failed to meet the desired statistical precision. These data have been collected on standard routes for more than 20 years for most of the herd unit. Fawn production improved to 67:100, the highest since 1987 and more than 50 percent above the 5-year average. Fawn production was significantly lower in the western portion of the herd at 52:100, compared to 80:100 in the east.

The buck:doe ratio declined from 64:100 in 2014 to 53:100 in 2015. As is typical, this ratio was significantly higher in the eastern portion of the herd unit, where access is strictly limited. The eastern ratio dropped from 100:100 in 2014 to 68:100 in 2015. All of the decrease was in the adult buck:doe ratio, which fell from 80:100 in 2014 to 47:100 in 2015, while the yearling buck ratio remained essentially stable at 21:100, compared to 19:100 in 2014. The Type 2 licenses introduced in 2012 to address the disparity between buck densities between the two portions of the area have apparently been moderately successful.

Buck:doe ratios in the western portion of the herd also declined, at 5:100 for yearling bucks compared to 7:100 in 2014 and 2013, and 30:100 for adult bucks compared to 33:100 in both 2013 and 2014. Buck:doe ratios for this herd have exceeded the 60:100 maximum criterion for recreational management in four of the past eight years, but always due to high ratios in the east half of the herd which is largely unavailable to most hunters. Buck:doe ratios in the western portion only averaged 40:100 over the past five years, generating complaints of poor buck numbers and quality by hunters. Buck:doe ratios in the eastern portion, however, averaged 79:100 over those five years, nearly twice as high.

### **Harvest Data**

The difference in supply of bucks between the two portions of the herd unit is also apparent in harvest statistics. Success for hunters with Type 1 licenses dropped to only 78 percent, while those hunting the eastern portion with Type 2 licenses enjoyed 93 percent success. Those hunters limited to the eastern portion of the herd unit only expended an average of 2.3 days to harvest an animal, while the Type 1 hunters expended an average of 7.8 days for each pronghorn harvested.

Type 7 doe/fawn licenses were introduced in this area in 2013 to address complaints about high concentrations of pronghorn on irrigated fields along Muddy Creek. Nineteen does were harvested the first year, only 10 were removed in 2014, and 18 does and fawns were taken in 2015. Pronghorn use of the irrigated fields appears to have lessened, but it is not known if that is due to harvest, hunter activity or more forage opportunities on native ranges due to increased precipitation in 2014 and 2015.

### **Population**

Efforts to develop a reasonable spreadsheet model for this herd in 2012 and 2013 failed, a failure attributed to the highly skewed buck:doe ratios between the eastern and western portions of the herd unit. Population estimates in 2013 were obtained using two separate spreadsheet models, one each for the east and west portions of the herd unit. While effective, these separate models could not be anchored to defensible line-transect estimates of herd size. The addition of the 2014 and 2015 classification and harvest data allowed for a reasonable unified model which incorporates line-transect estimates, despite the highly skewed buck:doe ratios within portions of the herd.

A line transect survey in spring of 2013 estimated only 4,600 pronghorn in this herd, and found a noticeable disparity in pronghorn densities between the east and west portions. The population estimate was less than half that of a similar survey three years earlier, and standard spreadsheet models were apparently unable to accommodate that steep of a decline in herd size. The current model, however, incorporates one year of variable adult survival in the Time-Specific Juvenile &

Constant Adult Survival (TSJ,CA) model, for the severe 2011-12 winter and losses to EHD, and provides better alignment with line transect estimates.

While costing a degree of freedom, the resultant model has a reasonable AICc value, aligns closely with all three line-transect estimates, has a reasonable track compared to historic trend counts, and aligns well with most observed buck:doe ratios. Adult mortality for the majority of years in the model is estimated at a reasonable 87 percent, while adult survival in 2011 drops to 40 percent. This also appears reasonable, given the losses noted that year and the severe decline in line transect estimates. However, juvenile survival rates exceeded adult survival rates in some years of the model. This is difficult to accept biologically, and as a result the model is only considered to be a “Fair” representation of the herd.

The CJ,CA model had a similar AICc value, but did not track observed buck:doe ratios, aligned with only the two older line transect estimates, and predicted unrealistic counting success for early trend counts and equally unrealistic poor counting success for later trend counts. The SCJ,SCA model had the lowest AICc value, but only aligned with two of three line transect estimates, fit poorly with historic trend counts, observed buck:doe ratios and required four years of variable survival rates instead of one.

The new TSJ,CA model predicts the herd was about 29 percent below objective in 2015. Fawn production in 2016 was projected to be near the 5-year average. Assuming a mid-range fawn survival of 60 percent, the model predicts the herd will essentially be stable in 2016.

## **Management Summary**

With the population well below objective, harvests need to remain conservative to allow the herd to recover and no changes were made for license quotas in 2016. The exceptionally high buck:doe ratio in the eastern portion of the herd indicates there is still a surplus of bucks that can be harvested in that portion. While no doe harvest is needed for the herd as a whole, the Type 7 doe/fawn licenses on private lands along Muddy Creek were retained to address high numbers of pronghorn on irrigated croplands in the northwestern corner of the herd. Most of these lands are enrolled in the Department’s Walk-In program, so access to these private lands should not be a concern.

The expected harvest of roughly 110 bucks and 15 does and fawns from the proposed license quotas should maintain herd size near the 2015 level of approximately 4,600 pronghorn.

Opening date falls on the traditional day of the week and synchronizes with neighboring Area 61. The closing date is the same as in the previous four years and extends to the closing of the local deer season. A standardized opening date is used for the archery season, which closes the day before the opening of the regular season.



PH637 - South Ferris  
HA 62  
Revised - 8/95

