

2016 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR615 - RED DESERT

HUNT AREAS: 60-61, 64

PREPARED BY: GREG HIATT

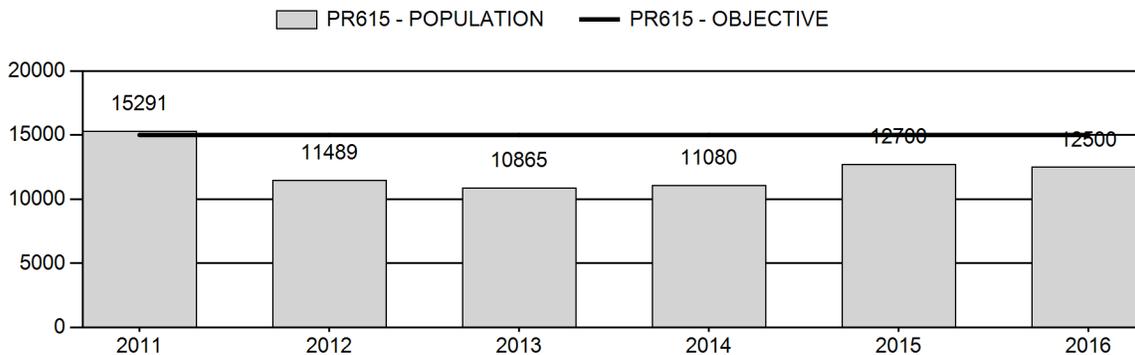
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	12,285	12,500	12,575
Harvest:	658	264	250
Hunters:	684	265	290
Hunter Success:	96%	100%	86 %
Active Licenses:	747	285	290
Active License Success:	88%	93%	86 %
Recreation Days:	2,122	952	920
Days Per Animal:	3.2	3.6	3.7
Males per 100 Females	60	53	
Juveniles per 100 Females	54	57	

Population Objective (± 20%) :	15000 (12000 - 18000)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-16.7%
Number of years population has been + or - objective in recent trend:	5
Model Date:	2/27/2017

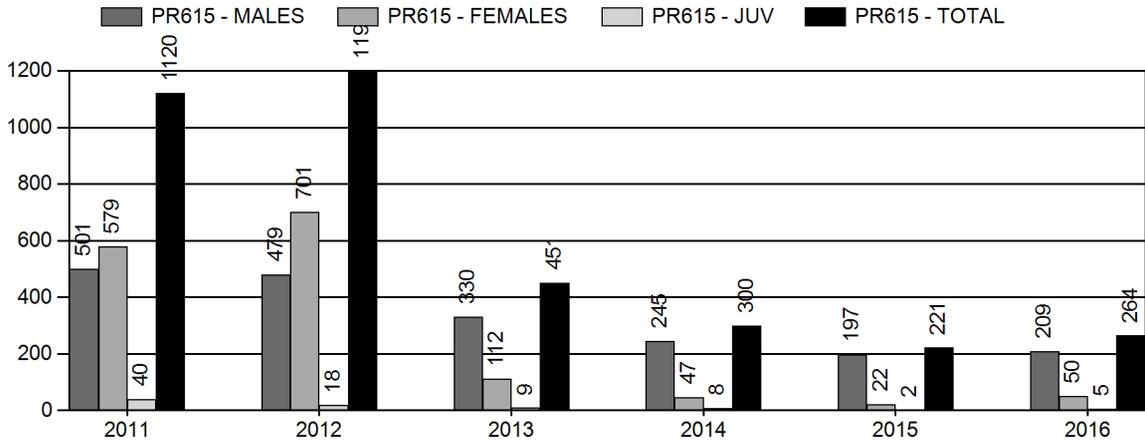
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.5%	0.7%
Males ≥ 1 year old:	6.1%	5.4%
Total:	2.0%	1.9%
Proposed change in post-season population:	-6.0%	0.7%

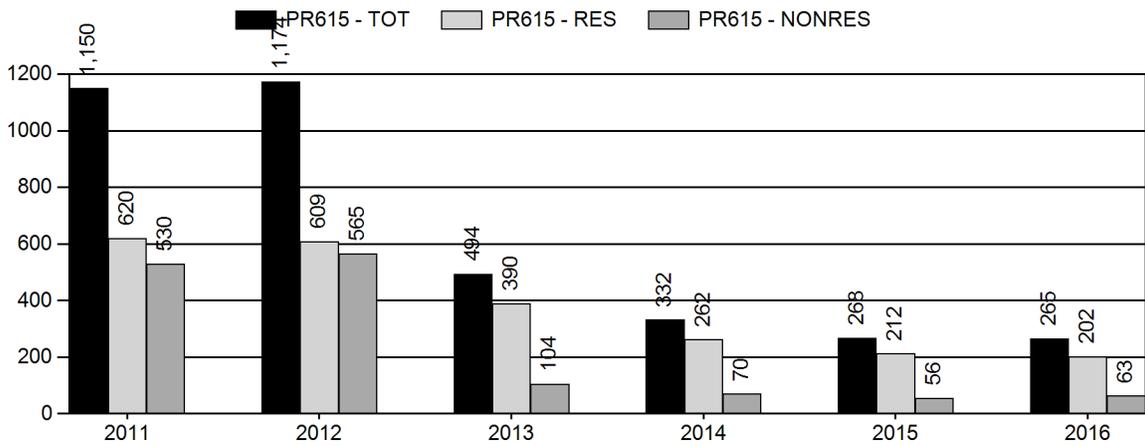
Population Size - Postseason



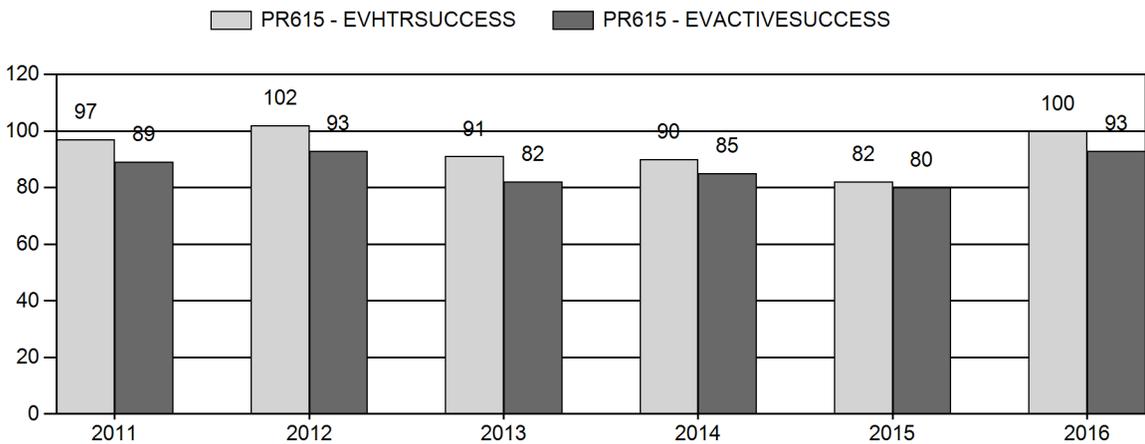
Harvest



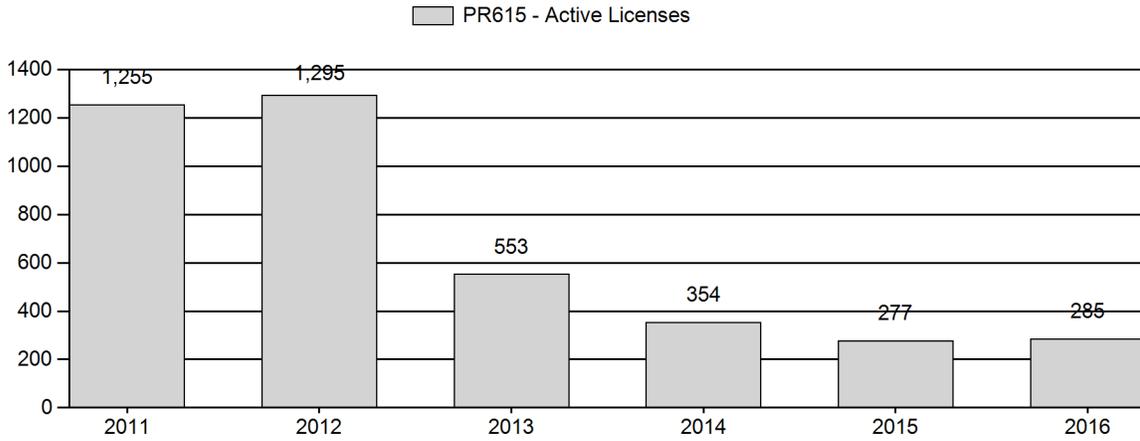
Number of Active Licenses



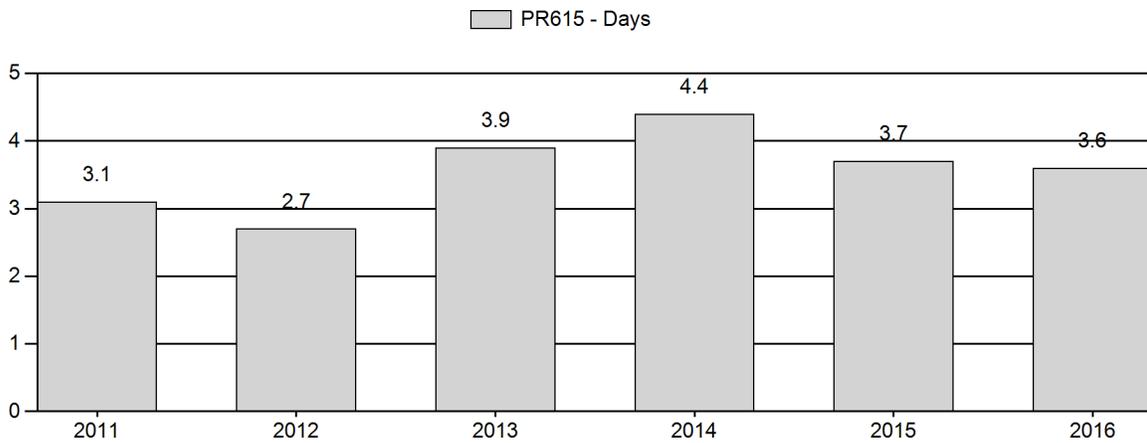
Harvest Success



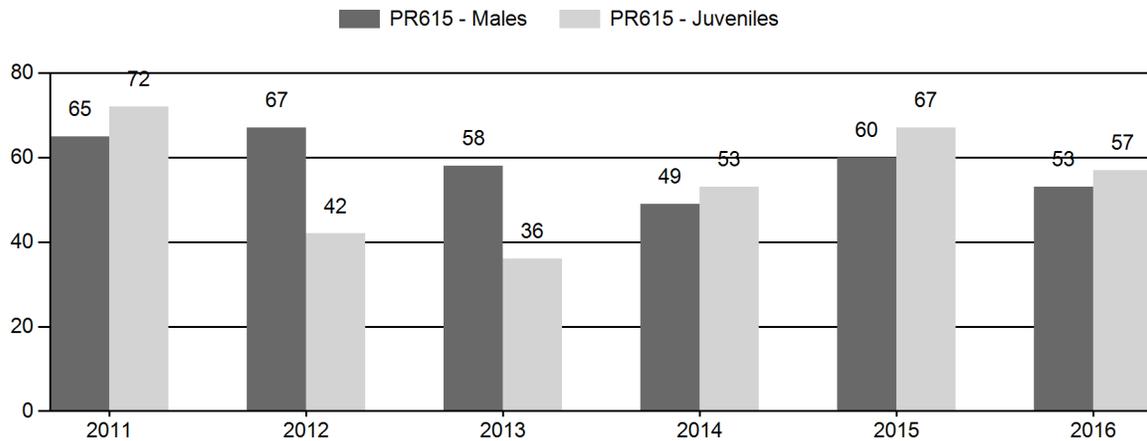
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary

for Pronghorn Herd 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
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	12,775	265	728	993	25%	1,873	48%	1,067	27%	3,933	1,756	14	39	53	± 3	57	± 3	37

**2017 HUNTING SEASONS
RED DESERT PRONGHORN HERD (PR615)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
60	1	Sep. 16	Oct. 31	50	Limited quota	Any antelope
	6	Sep. 16	Oct. 31	25	Limited quota	Doe or fawn
61	1	Sep. 9	Oct. 31	100	Limited quota	Any antelope
	6	Sep. 9	Oct. 31	25	Limited quota	Doe or fawn
64	1	Sep. 16	Oct. 31	100	Limited quota	Any antelope
	6	Sep. 16	Oct. 31	25	Limited quota	Doe or fawn
Archery 60, 64		Aug. 15	Sep. 15			Refer to Section 2 of this Chapter
61		Aug. 15	Sep. 8			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2016
60	1	0
	6	0
61	1	0
	6	0
64	1	0
	6	0
Herd Unit Total	1	0
	6	0

Management Evaluation

Current Postseason Population Management Objective: 15,000

Management Strategy: Special

2016 Postseason Population Estimate: 12,500

2017 Proposed Postseason Population Estimate: 12,575

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 2017. 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, expansion 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

Record precipitation was received in 2015, producing exceptional vegetation growth and improved fawn survival. This was followed by good precipitation again in spring of 2016, allowing some recovery of winter ranges from the severe drought of 2012 and 2013. Condition of pronghorn going into the 2016-17 winter is expected to have been excellent. The 2016-17 winter had numerous periods of bitter cold with significant snowfall, continuing through February. Despite improved condition of both animals and forage, winter losses are expected to be above average, but not excessive.

Habitat

Only one shrub transect has been established in this herd unit, on the Chain Lakes WHMA, but was not read in 2016. 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 and 2016. While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be above average due to the increased precipitation.

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

Field Data

Classification sample size increased again in 2016, the largest sample in six years. Nearly all the increase in sample came from Area 64, which provided almost half the entire classification. The sample from Area 60 dropped to its lowest level in 8 years, partly due to personnel scheduling rather than low pronghorn numbers. Sample from Area 61 increased by less than 4 percent.

Even with continued moisture, fawn production declined to 57:100 in 2016, but was still slightly above the five-year average. Fawn production declined in both Area 60 and Area 64, remaining stable in Area 61. Unusually, production was again highest in Area 60 at 65:100 and lowest in Area 64 at 54:100. Normally fawn production is significantly lower in Area 60 and highest in Area 64. Both Area 61 and Area 64 have significant numbers of does that fawn at higher elevations and, as in 2015, 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 failed to meet the special management criterion of 60:100, having failed to meet it in three of the past five years. Both the adult and yearling buck:doe ratios declined. Only Area 60 exceeded this criterion, at 71:100. The supply of bucks in Area 61 improved, to 58:100. Both the adult and yearling buck:doe ratios dropped significantly in Area 64, leaving it well below the special management minimum at 45:100.

Harvest Data

Hunter success returned to normal levels in 2016 after near-record lows in 2015. Hunter effort was essentially stable. After three years with statistically the poorest hunting in this herd since it was delineated in 1976, 2016 harvest data suggest the herd is recovering. Hunter success was highest in Area 61 and poorest in Area 64. The average days of effort required to harvest an animal was lowest in Area 60, and similar between Areas 61 and 64. Hunters with Type 1 licenses in each of the three areas expended more effort than doe/fawn hunters, often double the doe/fawn average in each area. With the difficulty in drawing a Type 1 license in any of these three areas, it appears more hunters are treating the license like a one in a lifetime opportunity and expending extra effort and time to try to find a trophy buck to harvest. Hunter satisfaction has remained high, however, around 85 percent for the past four years.

Population

Modeling this herd has been difficult, due to two low line transect estimates in 2001 and 2007, followed by two high estimates in 2010 and 2013. Both the SCJ,SCA and TSJ,CA models try to align with buck:doe ratios, which match well with the older line transect estimates while sacrificing fit with the more recent line transect estimates. In an effort to align the model with the more recent independent estimates of herd size, a model was developed that doubles the emphasis on line transect estimates and reduces reliance on buck:doe ratios.

The Time-Specific Juvenile & Constant Adult Survival (TSJ,CA) spreadsheet model with emphasized line transect data provided the best fit with observed buck:doe ratios while improving fit with the more recent line transect surveys. The model still aligns well with three older line transect estimates, but deviates less from the two most recent survey estimates. Because of these manipulations, it is considered a “Fair” model of the herd. Annual adult survival was predicted at 91 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 lower 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 2017 was projected to be near the five-year average and the model was run with median juvenile survival in 2017.

The model predicts the herd has been 15-20 percent below objective for the past five years. Assuming average fawn production and survival, the 2017 pre-hunt population should be similar to that seen in 2016 and herd growth will be minimal. Without major improvement in fawn

production and survival, harvest quotas for 2017 will provide little or no increase in herd size, but should produce some improvement in the buck:doe ratio.

Management Summary

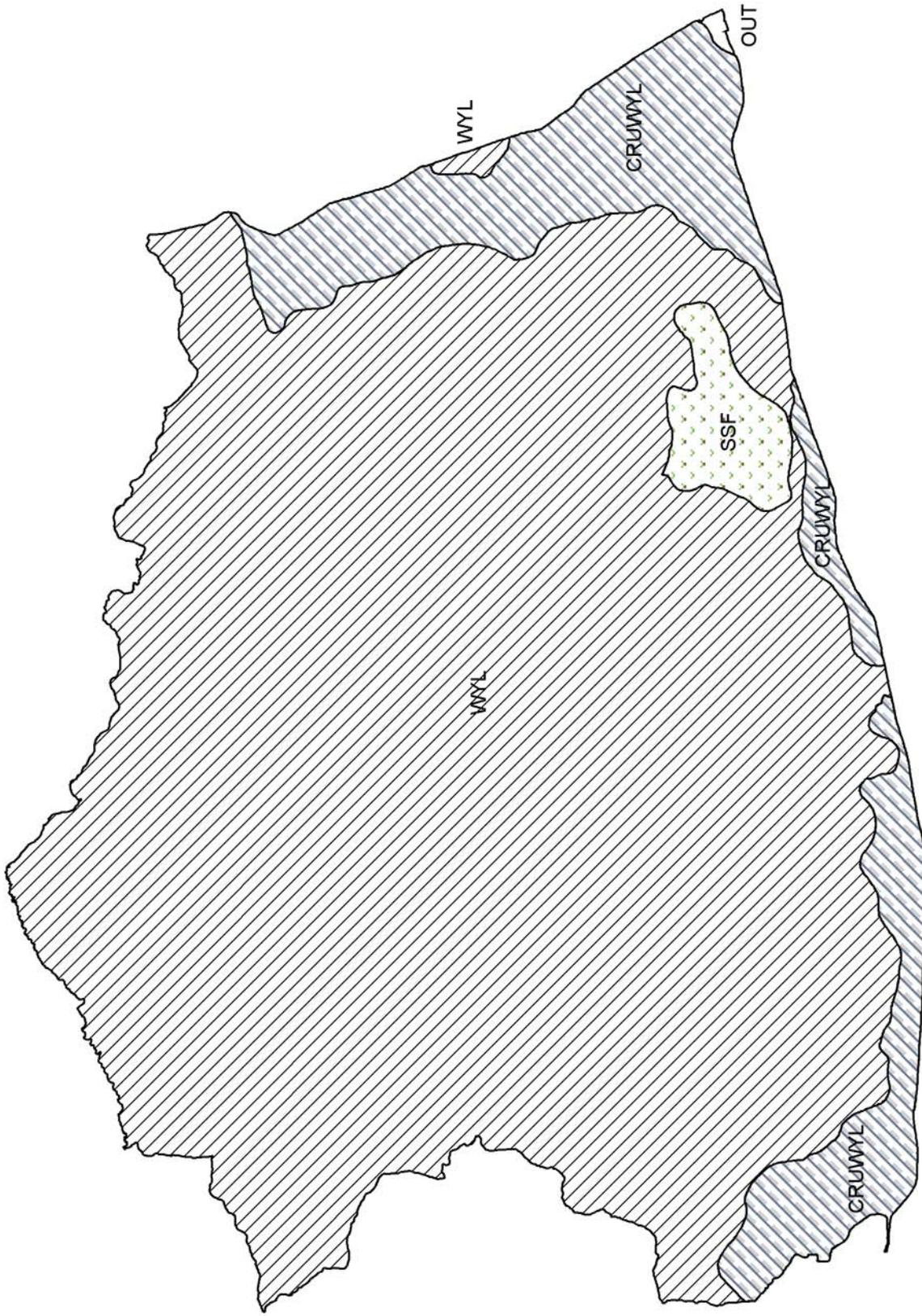
This herd was well below objective size following a record harvest and severe winter losses in 1992. Conservative harvests after that winter combined with improved fawn production and survival beginning in 2007 allowed the herd to reach and be maintained at objective size in 2010 and 2011.

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 12,000. Improved fawn production in 2015 provided the first increase in herd size in three years. Increased severity of the 2016-17 winter may have removed much of those gains.

With the population estimated to be 15-20 percent below objective, harvests need to remain conservative. Quotas for Type 1 and Type 6 licenses are unchanged in all three areas. A line transect survey scheduled for Spring 2017 will provide a sixth independent estimate of herd size and may help align the herd model.

With the projected harvest of roughly 200 bucks and 50 does and fawns, predicted herd size will remain stable around 12,600 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 one day 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 2016.



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

2016 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR630 - IRON SPRINGS

HUNT AREAS: 52, 56, 108

PREPARED BY: GREG HIATT

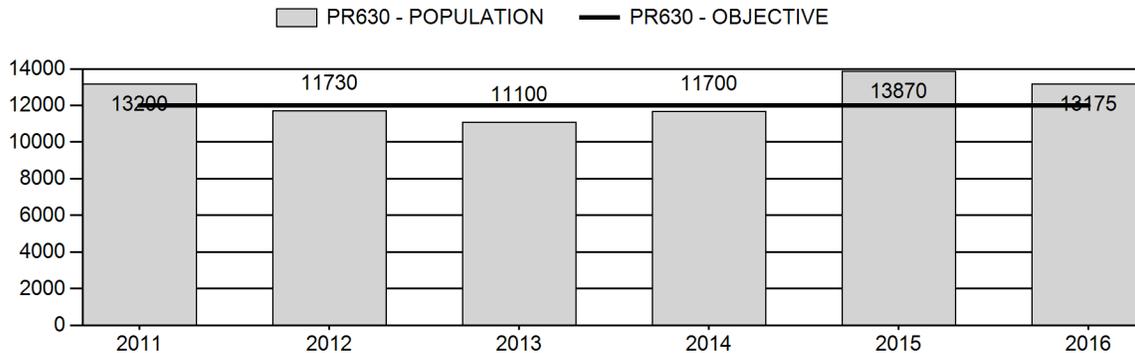
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	12,320	13,175	13,680
Harvest:	685	766	725
Hunters:	684	727	825
Hunter Success:	100%	105%	88 %
Active Licenses:	795	868	825
Active License Success:	86%	88%	88 %
Recreation Days:	2,415	2,446	2,450
Days Per Animal:	3.5	3.2	3.4
Males per 100 Females	46	50	
Juveniles per 100 Females	55	47	

Population Objective (± 20%) :	12000 (9600 - 14400)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	10%
Number of years population has been + or - objective in recent trend:	2
Model Date:	2/27/2017

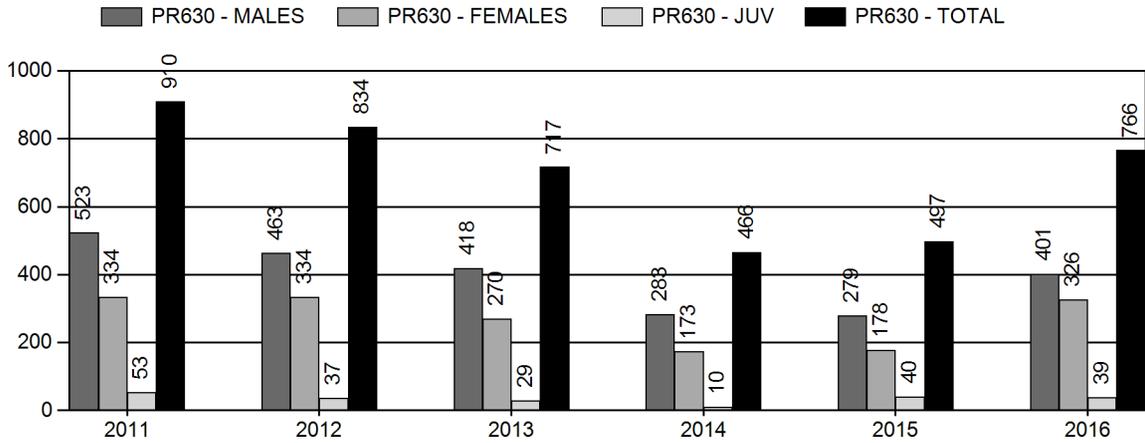
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	4.7%	4.7%
Males ≥ 1 year old:	9.9%	9.5%
Total:	5.3%	5.0%
Proposed change in post-season population:	+0.9%	3.8%

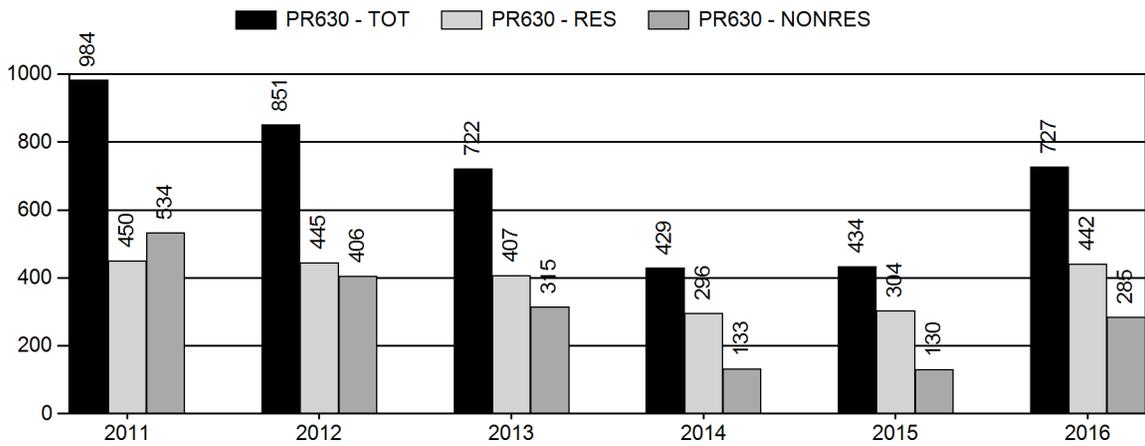
Population Size - Postseason



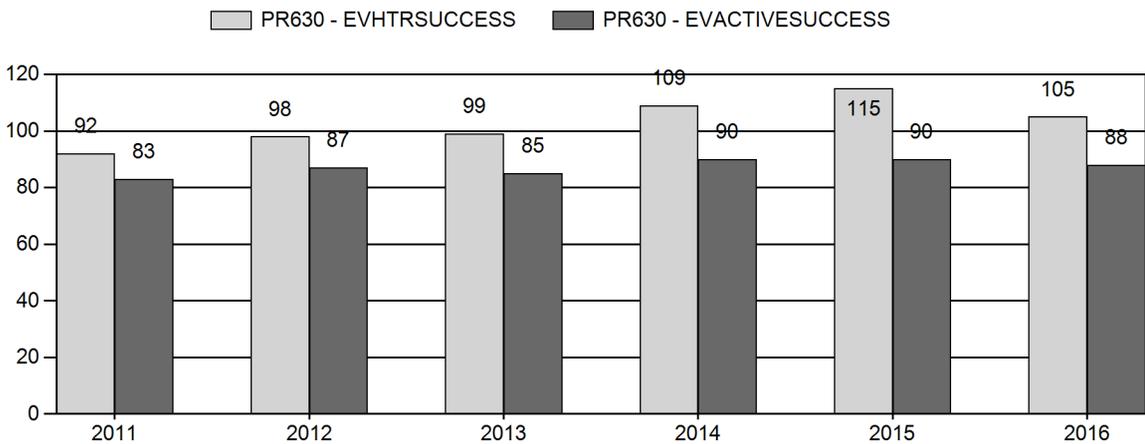
Harvest



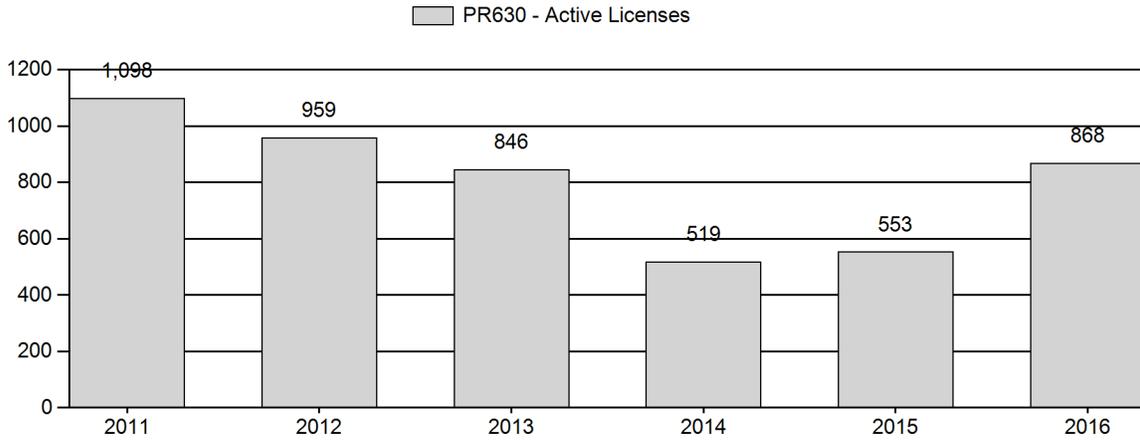
Number of Active Licenses



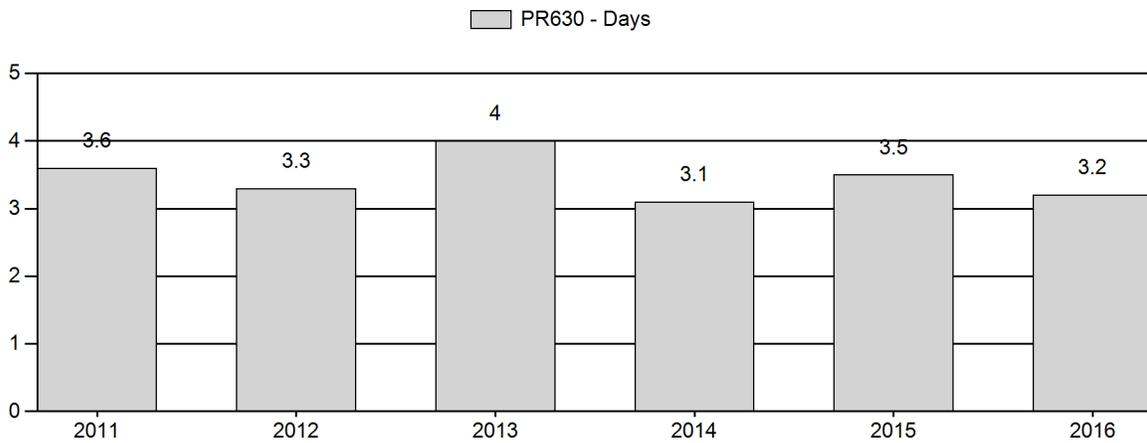
Harvest Success



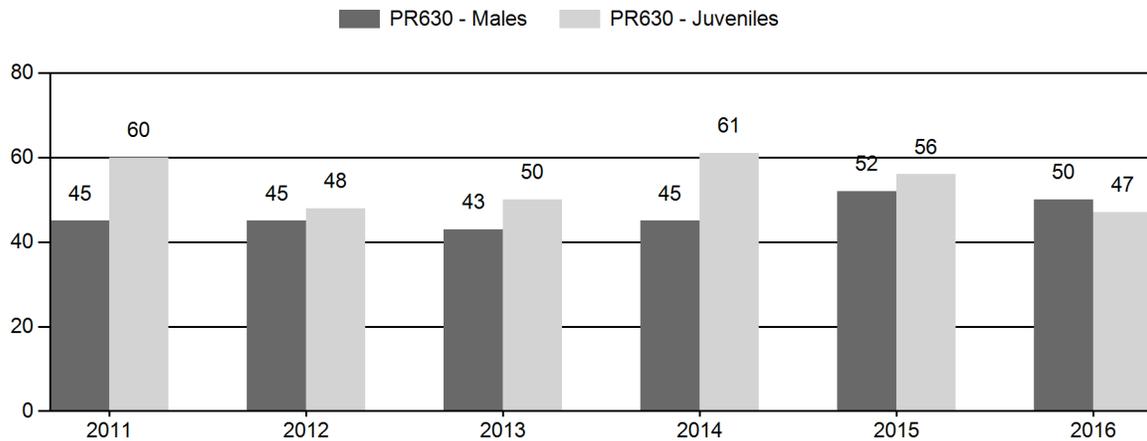
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary

for Pronghorn Herd 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
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	14,015	224	638	862	25%	1,730	51%	816	24%	3,408	1,436	13	37	50	± 3	47	± 3	31

**2017 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. 31	50	Limited quota	Any antelope
108	1	Sep. 20	Oct. 31	100	Limited quota	Any antelope
	6	Sep. 20	Oct. 31	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 2016
52	1	0
	2	0
	6	0
	7	0
56	1	0
108	1	-50
	6	0
	7	0
Herd Unit Total	1	-50
	2	0
	6	0
	7	0

Management Evaluation

Current Postseason Population Management Objective: 12,000

Management Strategy: Recreation

2016 Postseason Population Estimate: 13,170

2017 Proposed Postseason Population Estimate: 13,680

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 2017. 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 networks, 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. Private landowners have denied recreational access to the vast majority of Area 56 and a significant portion of Area 108 in preparation of the wind farms. The Walk-In program has opened access to large blocks of private land in Area 52 during some years, which helped address concerns over large numbers of pronghorn residing on irrigated croplands during summer and fall, but enrollment has declined as pronghorn numbers were reduced and native range response to increased precipitation reduced damage concerns.

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. Several miles of sheep-tight fence had been replaced with wildlife-friendly fencing during recent years.

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. This disease may recur if drought conditions return.

Weather

Record precipitation in 2015 produced exceptional vegetative growth, and improved fawn survival in many herds in the southern part of the state, and was followed by another wet spring in 2016. But that increase in fawns was not seen in this herd, in either 2015 or 2016. Many of the does in this herd give birth in high elevation, mesic habitats near the interface with forested habitats. Both 2015 and 2016 had cold, wet, late spring storms that may have increased fawn losses due to hyperthermia.

Condition of pronghorn going into the 2016-17 winter is expected to have been good because of high forage production. The 2016-17 winter had numerous periods of bitter cold with significant snowfall, continuing through February. Snow cover and snow depth were particularly extreme in the Platte Valley, including Area 52, and winter losses may 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 because of low energy prices, but a successful shale oil well a few miles to the east in Area 50 may lead to increased interest within the herd unit. 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.

Ground breaking for construction of the 1,000 turbine Chokecherry and Sierra Madre wind farms occurred this year, with extensive activity predicted to begin in 2017. 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. Disturbance during construction will reduce pronghorn use of many habitats. 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 increased in 2016 and was the largest sample in four years. With low fawn:doe and buck:doe ratios, the sample was more than twice the statistically desired sample. Classification sample size increased in all three areas, but was within recent normal levels for each.

Despite record precipitation in 2015, fawn production declined slightly to 56 fawns:100 does, and this was repeated again, yielding a fawn:doe ratio of only 47:100 in 2016. This was the lowest fawn crop recorded in this herd since 1997. As in 2015, fawn production was surprisingly lowest in Area 108 at only 27:100. Production was again unusually high for Area 56 at 39:100. Fawn production in Area 52 declined again to 60:100, below 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 declined slightly in 2016 to 50:100, but was still the second highest in ten years. The supply of bucks was well within recreational management, but should be high enough to help address outfitter concerns over low numbers of quality bucks. The decline resulted from slight decreases in both adult and yearling buck:doe ratios. The buck:doe ratio was highest in Area 56 at 94:100, which is largely un hunted, and again lowest in Area 108, at only 28:100. Buck:doe ratio for Area 52 was 55, within the normal range for this area.

The yearling buck:doe ratio was only 13:100 for this herd, within the normal range, but surprisingly low considering the good physical condition of animals as they entered the mild 2015-16 winter. Yearling recruitment improved in Area 56, but dropped in Area 108. Adult buck:doe ratios were again exceptionally high in Area 56, within the normal range in Area 52, and low in Area 108. If access continues to be denied after the wind project is constructed, buck:doe ratios will be expected to remain artificially high in Area 56 and may cause the herd ratio to exceed the maximum for recreational management without providing any extra bucks for hunters to harvest. Overall, buck:doe ratios for this herd over the past ten years have been less than would be desired in areas with large blocks of public land.

Harvest Data

Overall hunter success declined slightly to 88 percent, but was still above the previous five-year average. The average number of days hunted for each pronghorn harvested also declined, and was below the five-year average. Hunter success in Area 56, where access was most difficult, was similar to that in Area 52, but no doe/fawn licenses were issued in Area 56, which tend to have lower success. Surprisingly, success was highest for the Type 1 hunters in Area 108, where the buck:doe ratio was poorest. Within Area 52, hunters limited to the southern portion of the area where most of the private land is found (Type 2 and Type 7) enjoyed higher success than the Type 1 and Type 6 hunters, who had large blocks of public land available. Hunters with Type 7 licenses for a limited portion of Area 108 had the poorest success, at 75 percent.

The average number of days of effort necessary to harvest an animal was lowest in Area 56 for the fifth straight year. Being restricted to a few scattered sections of accessible public land apparently reduces hunter opportunity. This average was highest for Type 1 and Type 6 hunters in Area 52, suggesting pronghorn were less available in this portion of the herd unit, despite the large blocks of public land available.

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 and 2016 classification and harvest data, the current model now predicts this herd was about 10 percent above objective in 2016.

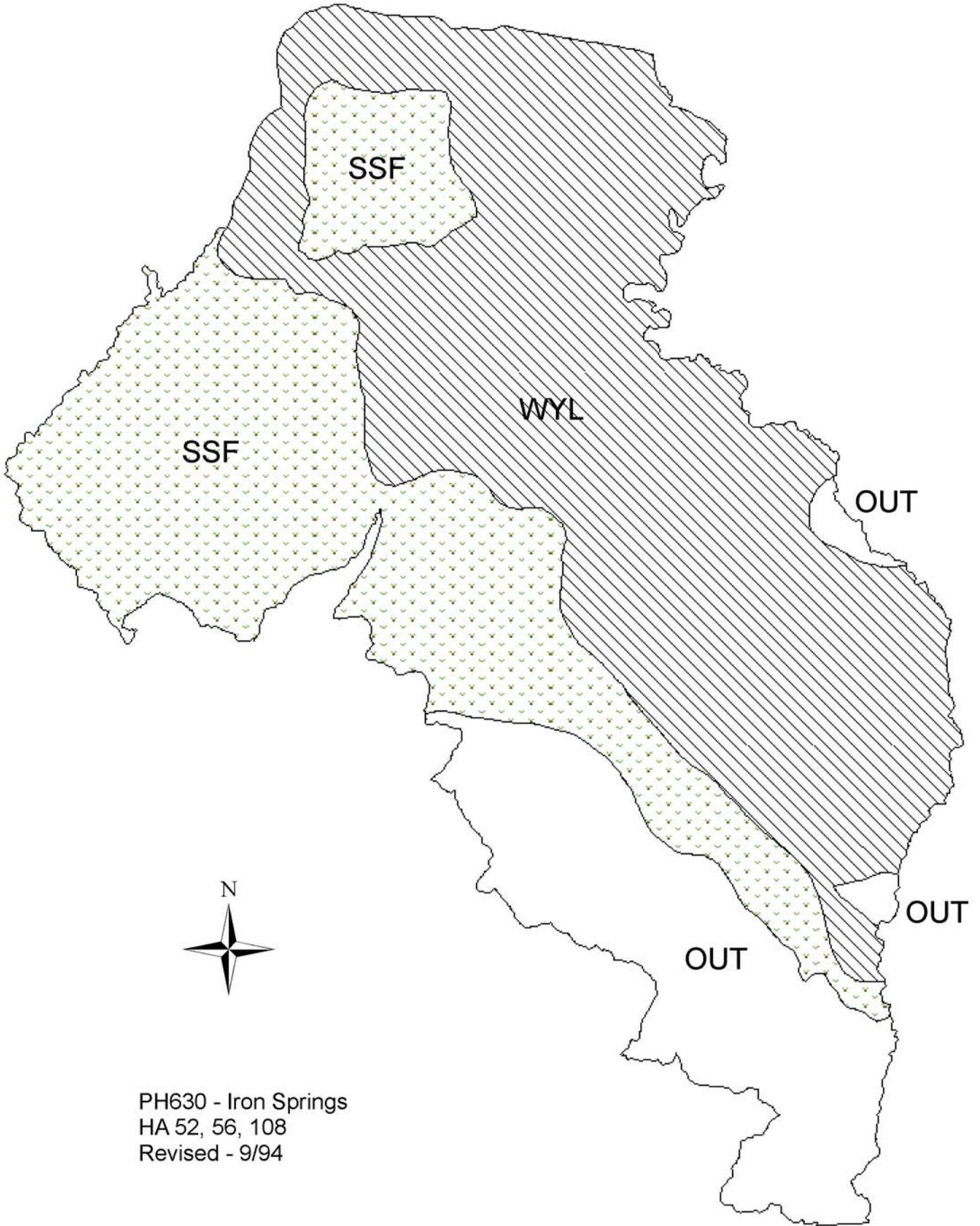
After adding the 2016 data, the SCJ,SCA spreadsheet model provided the best fit with observed buck:doe ratios for this herd and all four line-transect estimates. The model was modified to allow lower survival rates in the 2003-04 and 2007-08 winters. It behaved predictably when 2016 classification and harvest data were added and is considered a "Fair" model of the herd. Annual adult survival is predicted at 95 percent, a reasonable value. Juvenile survival rates were low but acceptable, at 41 percent. The CJ,CA and TSJ,CA models each had higher AICc values, but the TSJ,CA model had better fit with observed buck:doe ratios. Both models predicted herd size below objective, despite the 2015 line-transect estimate. Fawn production in 2017 was projected near the 5-year average. The model was run using a median juvenile survival in 2017.

Management Evaluation

With the population estimated to be only 10 percent above objective and the slow rate of growth seen in the past five years, no drastic changes in harvest quotas are necessary. Increased severity of the winter, particularly in Area 52, also promotes caution in adjusting harvest rates. Quotas for 2017 are unchanged in Area 52 and Area 56. Quotas for Type 6 and Type 7 licenses in Area 108 are also unchanged. The quota for Type 1 licenses in Area 108 is reduced by 50 in response to the drastically low buck:doe ratio of 28:100 recorded there prior to the 2016 hunt.

If fawn production and survival are near predicted levels, the expected harvest of roughly 360 bucks and 365 does and fawns from the 2017 license quotas should provide a slight increase in herd size. If either fawn production or survival is lower than average, or if winter losses are above average in 2016-17, the herd should remain near objective or slightly below.

Opening dates for licenses in Area 52 are the same as in the past four years and coincide with seasons in neighboring Areas 50 and 51. As in the previous four 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 18 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

2016 - JCR Evaluation Form

SPECIES: Pronghorn

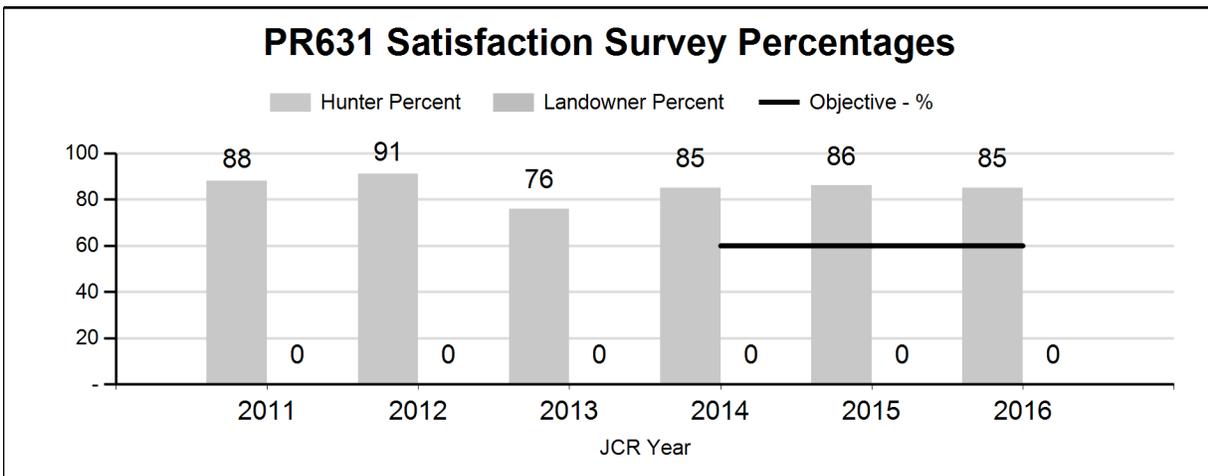
PERIOD: 6/1/2016 - 5/31/2017

HERD: PR631 - WIND RIVER

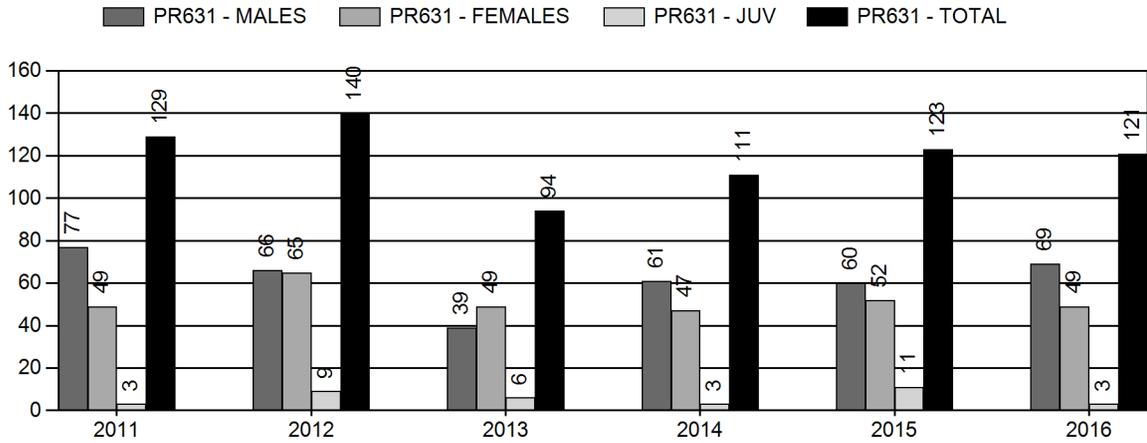
HUNT AREAS: 84

PREPARED BY: GREG ANDERSON

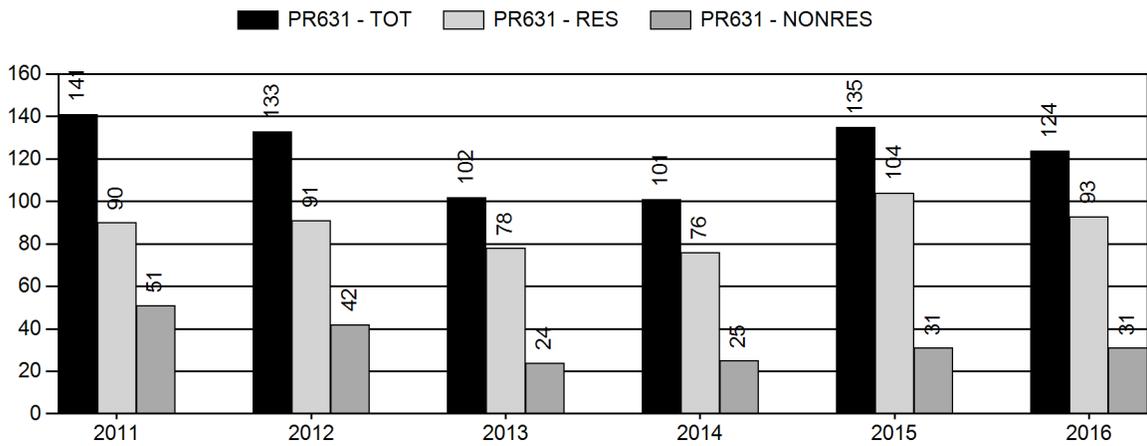
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Hunter Satisfaction Percent	85%	85%	85%
Landowner Satisfaction Percent	0%	0%	0%
Harvest:	119	121	120
Hunters:	122	124	125
Hunter Success:	98%	98%	96 %
Active Licenses:	152	165	160
Active License Success:	78%	73%	75 %
Recreation Days:	684	591	600
Days Per Animal:	5.7	4.9	5
Males per 100 Females:	25	44	
Juveniles per 100 Females	36	40	
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:			3



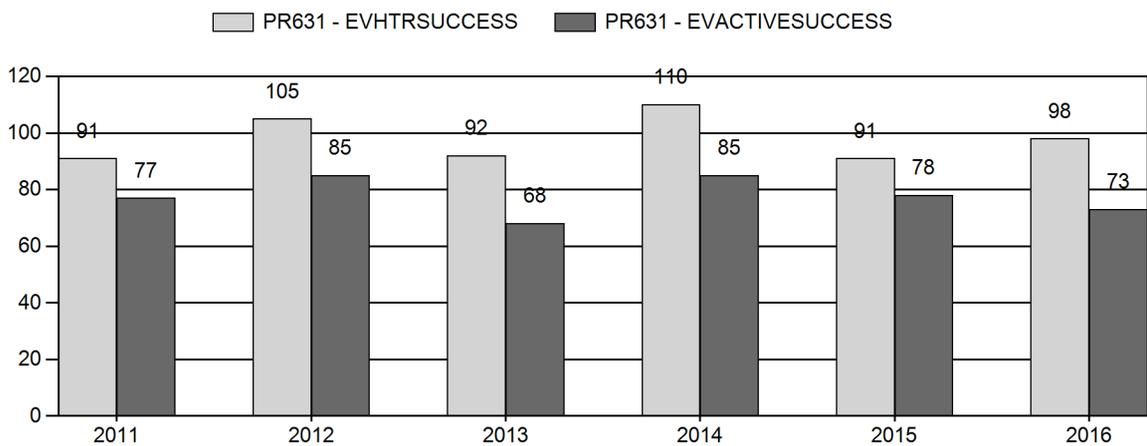
Harvest



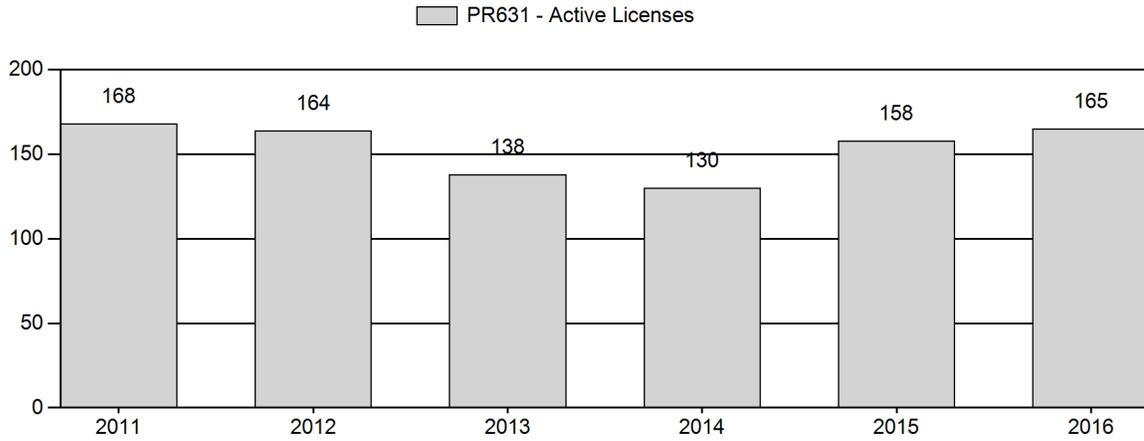
Number of Active Licenses



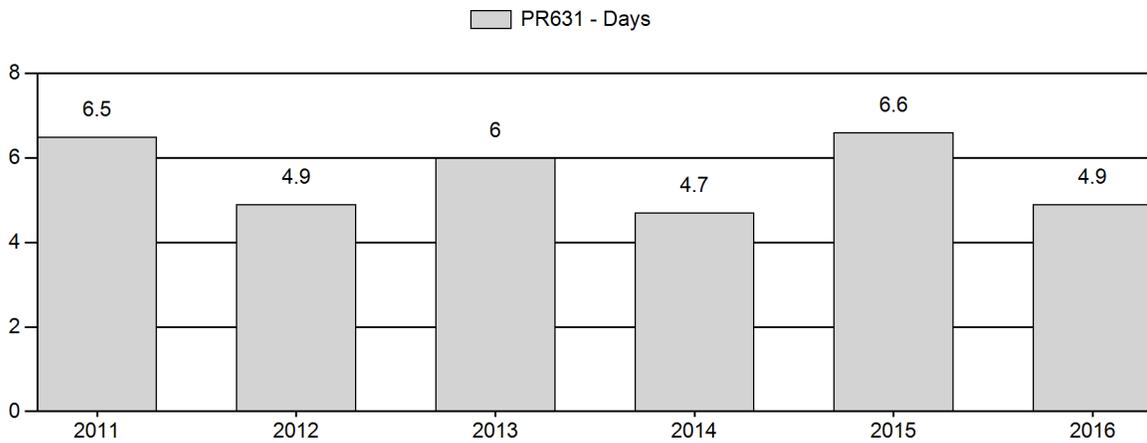
Harvest Success



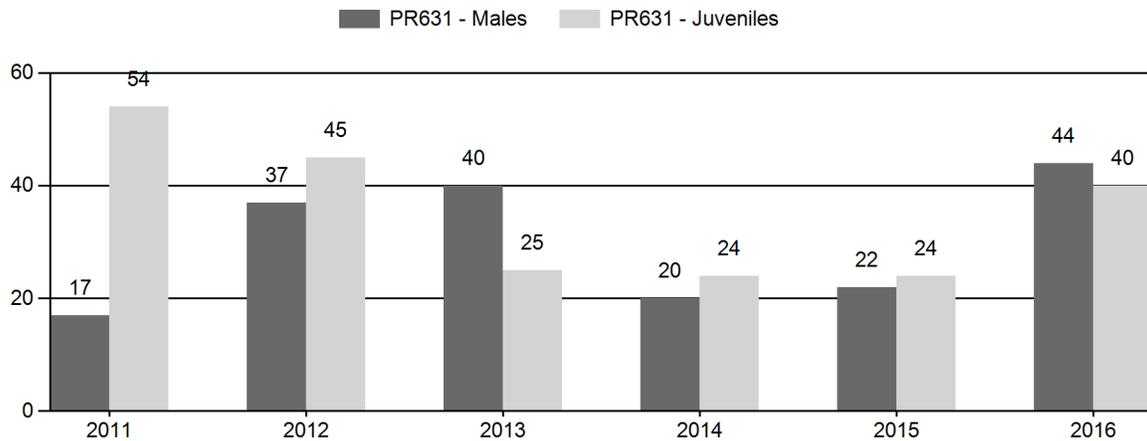
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary

for Pronghorn Herd 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
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	0	16	39	55	24%	124	54%	49	21%	228	0	13	31	44	± 0	40	± 0	27

**2017 HUNTING SEASONS
WIND RIVER PRONGHORN (PR 631)**

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

Hunt Area	Type	Quota change from 2016
Total		

Management Evaluation

Current Hunter Satisfaction Management Objective: Hunter Satisfaction 60%

Management Strategy: Recreational

2016 Hunter Satisfaction Estimate: 85%

Most Recent 3-year Running Average Hunter Satisfaction Estimate: 85%

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.

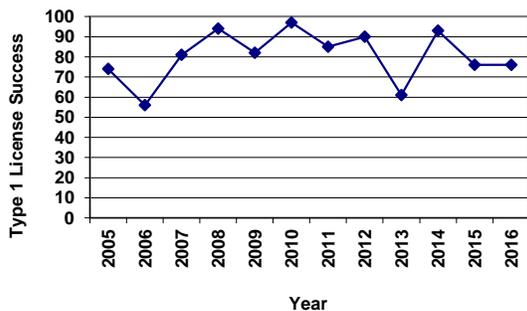
The past year was characterized by mild conditions and good vegetation growth throughout the herd unit. Vegetation transects monitored to determine the amount of forage available on elk winter range revealed herbaceous vegetation production was well above the 20-year average for the area. No shrub data is collected in the herd unit, but the good growing conditions undoubtedly resulted in higher browse production than previous drought years. Given the good feed resource in 2016, antelope in the herd unit undoubtedly entered winter in good shape. Fall weather was mild followed by harsh winter conditions in December and January. Snow cover and depth were greater than normal on the low elevation winter range occupied by antelope along the Wind River. It is possible winter survival could be well below average if harsh winter conditions continue through spring.

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 2016 the classification sample was 228 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 2016 yielded a fawn/doe ratio of 40/100. This level of recruitment is extremely low compared to many antelope herds, but not atypical for this population. The buck/doe ratio was higher than the previous two years at 44/100. Again, this would be low in many antelope herds but not atypical for the Wind River herd. Generally, classification ratios for this herd should be viewed skeptically given the low sample sizes.

Type 1 license success was 76% in 2016. This success rate was the same as in 2015 and was lower than average over the past 10 years (Fig. 1). The days/animal decreased from 7.8 in 2015 to 5.1 for Type 1 licenses in 2016. These statistics indicate the hunt experience was similar to 2015. Despite harvest statistics indicating lower success in 2015 and 2016, hunter satisfaction was 85% in 2016. This was the same as the 5-year average.

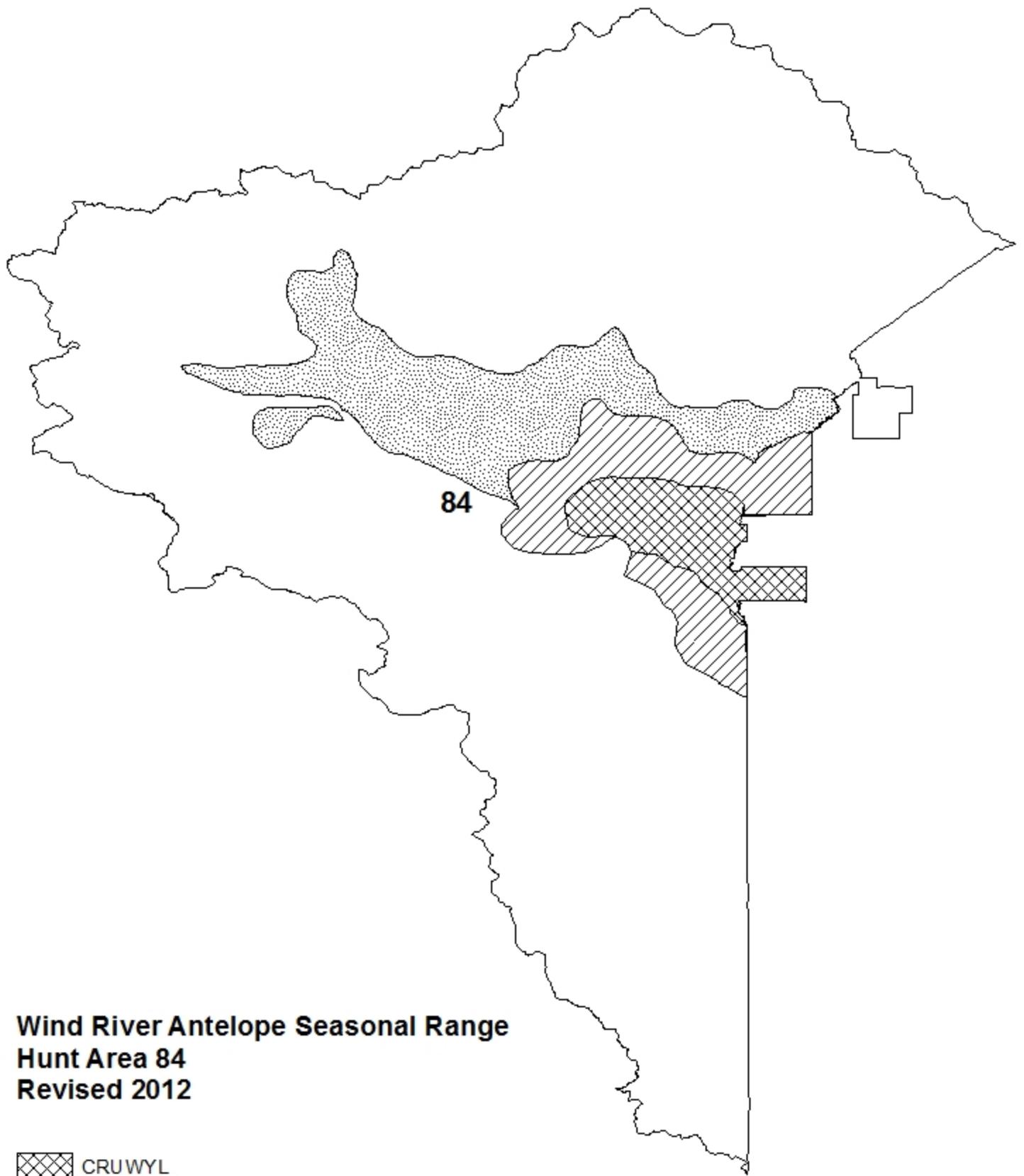
Figure 1. Type 1 license success in the Wind River Antelope Herd



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. In

concert, harvest statistics and hunter satisfaction data indicate the population was likely stable between 2014 and 2016. As such, no changes are proposed for the 2017 hunting season.



84

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

-  CRUWYL
-  OUT
-  SSF
-  WYL
-  YRL



2016 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR632 - BEAVER RIM

HUNT AREAS: 65-69, 74, 106

PREPARED BY: STAN HARTER

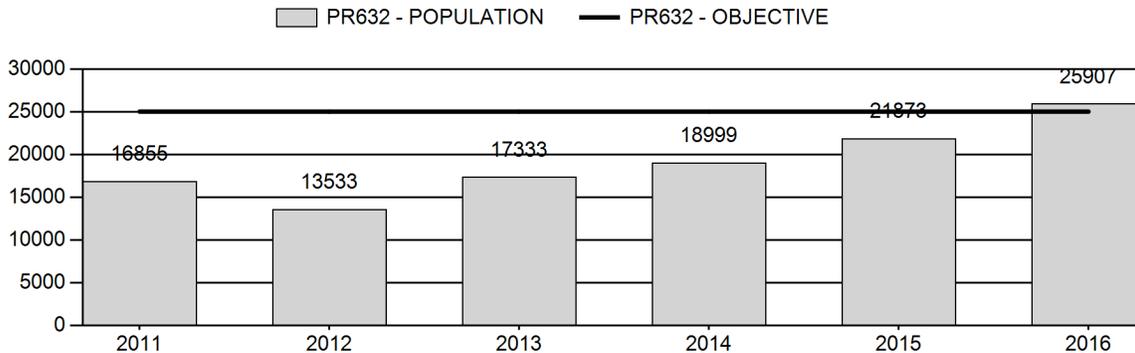
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	17,719	25,907	25,573
Harvest:	1,859	1,189	1,645
Hunters:	1,911	1,308	1,750
Hunter Success:	97%	91%	94%
Active Licenses:	2,138	1,422	1,850
Active License Success:	87%	84%	89%
Recreation Days:	6,256	4,601	5,500
Days Per Animal:	3.4	3.9	3.3
Males per 100 Females	53	62	
Juveniles per 100 Females	60	67	

Population Objective (± 20%) :	25000 (20000 - 30000)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	4%
Number of years population has been + or - objective in recent trend:	1
Model Date:	2/22/2017

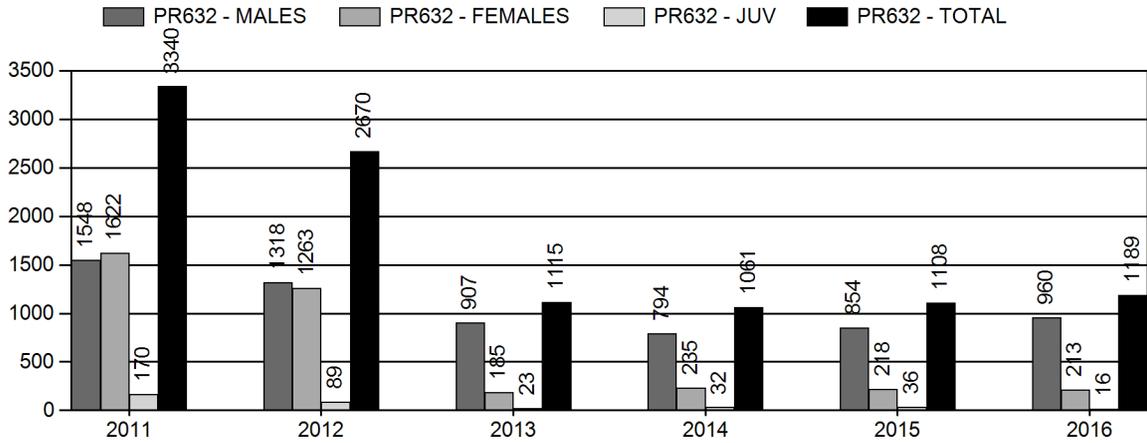
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1.9%	3.7%
Males ≥ 1 year old:	15.8%	19.4%
Total:	4.4%	6.0%
Proposed change in post-season population:	+4.0%	-1.3%

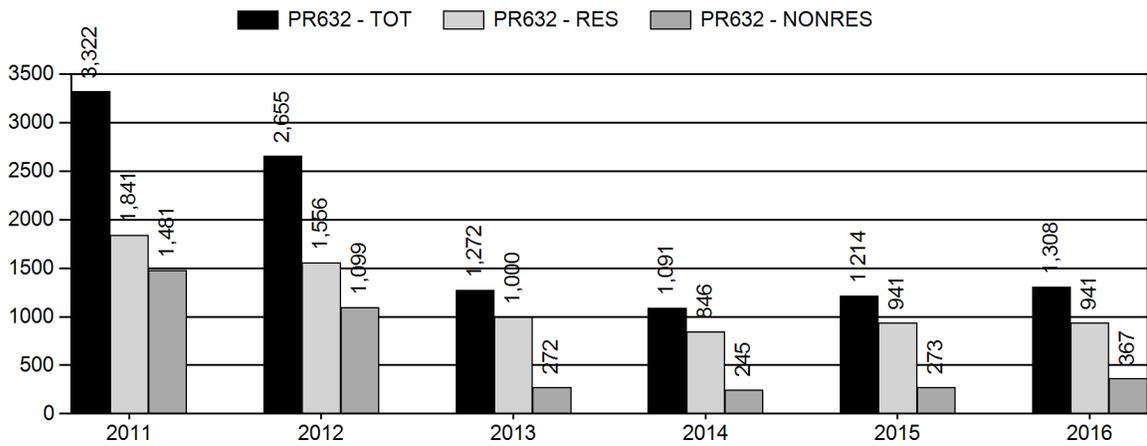
Population Size - Postseason



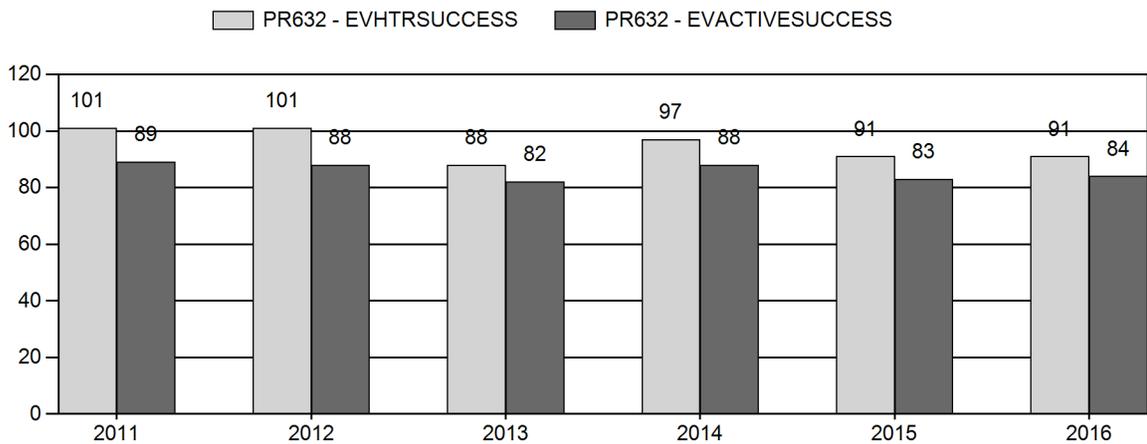
Harvest



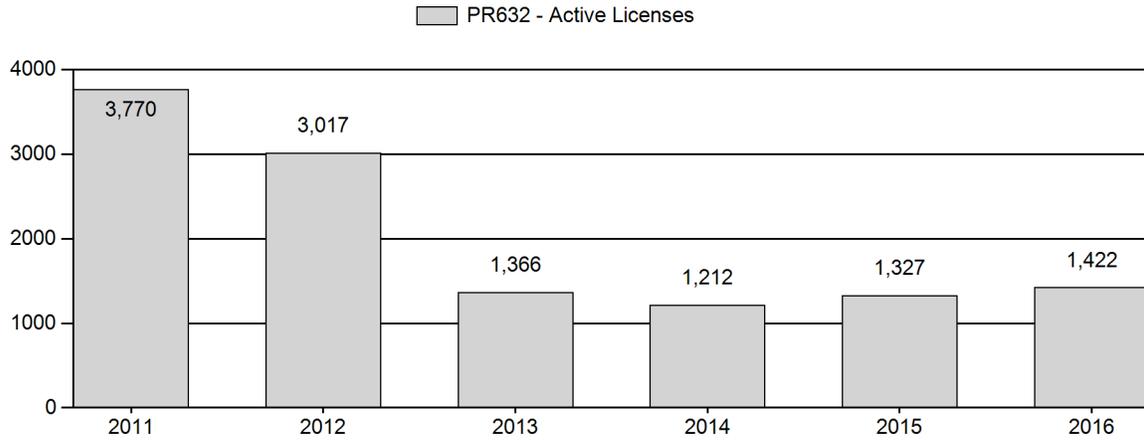
Number of Active Licenses



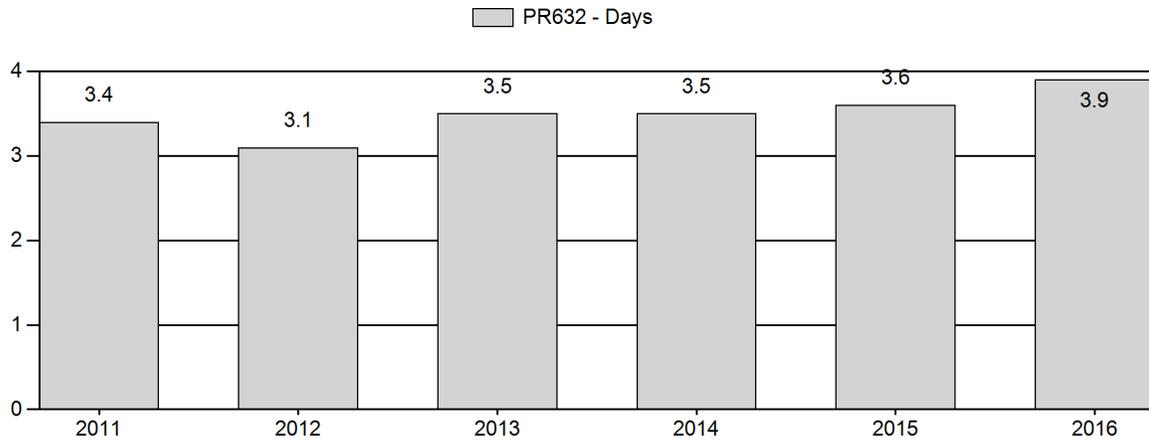
Harvest Success



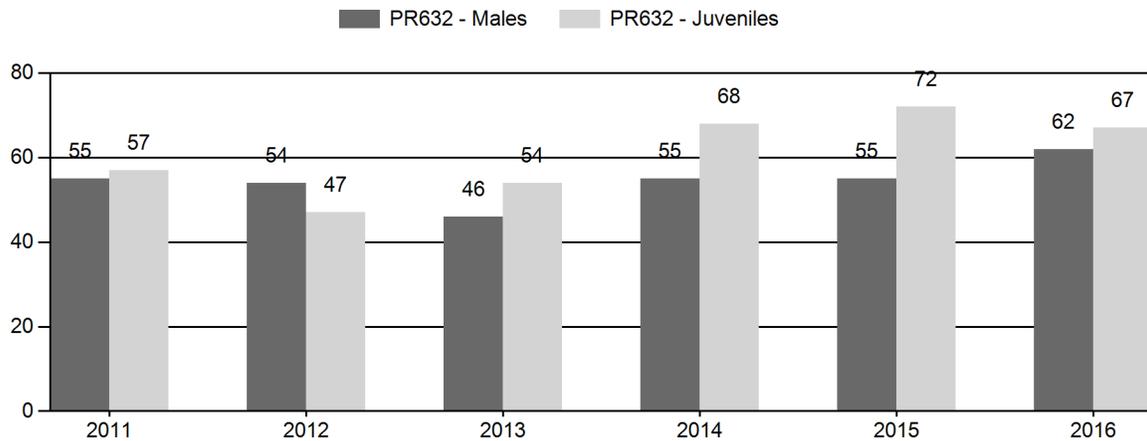
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary

for Pronghorn Herd 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
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	23,092	572	1,140	1,712	24%	3,087	44%	2,222	32%	7,021	2,279	19	37	55	± 2	72	± 3	46
2016	27,215	937	1,551	2,488	27%	4,001	44%	2,667	29%	9,156	2,516	23	39	62	± 2	67	± 2	41

2017 HUNTING SEASONS
Beaver Rim Pronghorn Herd Unit (PR 632)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
65	1	Sept. 16	Oct. 22	150	Limited quota	Any antelope
65	6	Sept. 16	Oct. 22	75	Limited quota	Doe or fawn
65	7	Sept. 1	Nov. 7	100	Limited quota	Doe or fawn valid north of the Little Popo Agie River
66	1	Sept. 16	Oct. 22	150	Limited quota	Any antelope
66	6	Sept. 16	Oct. 22	100	Limited quota	Doe or fawn
67	1	Sept. 16	Oct. 22	275	Limited quota	Any antelope
67	6	Sept. 16	Oct. 22	25	Limited quota	Doe or fawn
68	1	Sept. 16	Oct. 22	300	Limited quota	Any antelope
68	6	Sept. 16	Oct. 22	25	Limited quota	Doe or fawn
69	1	Sept. 15	Oct. 31	150	Limited quota	Any antelope
69	6	Sept. 15	Oct. 31	100	Limited quota	Doe or fawn
74	1	Sept. 16	Oct. 22	250	Limited quota	Any antelope
74	6	Sept. 16	Oct. 22	25	Limited quota	Doe or fawn
106	1	Sept. 16	Oct. 22	100	Limited quota	Any antelope
106	6	Sept. 16	Oct. 22	25	Limited quota	Doe or fawn

Archery

65 - 68,
74, 106 Aug. 15 Sept. 15 Refer to Section 2 of this Chapter

69 Aug. 15 Sept. 14 Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota Change from 2016
65	1	+75
65	6	+50
65	7	+25
66	1	+50
66	6	+25
69	1	+50
69	6	+75
106	1	+25
Herd Unit Total	1	+200
	6	+150
	7	+25

MANAGEMENT EVALUATION

Current Post-season Population Management Objective: 25,000

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

2016 Post-season Population Estimate: ~25,900

2017 Post-season Population Estimate: ~25,600

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 25,900 pronghorn post-season 201, 4% above objective.

Weather

Precipitation from October 2015 through September 2016 was markedly higher than the 30-year average. The growing season precipitation (April-June 2016) was also notably higher than the 30-year average, while the high elevation spring- summer -fall range growing season precipitation was equal to the 30-year average. A large storm in May 2016, over Mothers' Day weekend delivered much of that month's precipitation in a single weekend causing heavy runoff and flooding events. The majority of the annual precipitation for 2016 came in April and May, with no measurable precipitation falling in July. Temperatures through the summer were above average.

Following a mild fall, winter 2016-17 was colder than average in December and January, with near average snowfall overall. However, snow accumulations were periodically above average, particularly east of Riverton and raised concerns about winter mortality. But, warm, windy periods often occurred between storms, reducing snow cover to zero in many of the winter ranges, providing much needed relief. Precipitation was above average for the first four months of 2017 (+102% in Lander, +75% in Jeffrey City, and +176% in Riverton), 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 above average pre-season fawn/doe ratios and should also assist pronghorn survival over winter 2016-17, despite increased snow cover and colder temperatures. Recently developed "Rapid Habitat Assessments" will be implemented for the South Wind River and Sweetwater mule deer herd units to develop a baseline from which to gauge overall habitat condition across the landscapes. These assessments should also be useful for evaluating overall habitat condition of the Beaver Rim pronghorn herd unit.

Field Data

Pre-season fawn/doe ratios have been favorable for population growth the past few years, with the 2016 ratio of 67J/100F being 12% above the previous 5-year average. The overall buck/doe ratio increased to 62M/100F in 2016, only the second time since 1994 the overall buck/doe ratio has reached the special management strategy range. This was largely due to an increase in recruitment of yearling bucks to a pre-season ratio of 23YM/100F the highest level since 1994. However, the pre-season adult buck ratio 39AM/100F remains below average, indicating harvest of adult bucks may still be outpacing replacement due to previous low yearling buck recruitment. Fawn/doe ratios varied by hunt area from

55J/100 to 81J/100F, while buck/doe ratios had higher variability between hunt areas, ranging from 35M/100F to 94M/100F. Conservative increases in buck harvest is again recommended for 2017 to continue to allow for replacement of adult bucks following low yearling buck/doe ratios in 2012 and 2013, and to maintain this herd within the special management strategy range of 60-70 bucks/100 does.

Harvest Data

License quotas were increased slightly in 2016, compared to 2015 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 2016 remained below average at 91% overall, along with 84% active license success. Type 1 (any antelope) hunter success ranged from 71% in Hunt Area 68 to 97% in Hunt Area 74. Doe/fawn hunters had success rates ranging from of 69% in Hunt Area 68 to 91% in Hunt Area 69. As a whole, it took 3.9 days of hunting for each animal harvested, an increase of only 0.3 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, allowing the herd unit to reach both 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 2016 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 23 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 5 of 7 years, and through or nearly through the confidence interval for the other 2 years (projected end-of-year population is barely above the LT estimate’s confidence interval in 2007). The next LT survey is scheduled for the end of this bio-year. 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 from 2014 through 2016 indicate the population has recovered to the current objective, with 25,900 pronghorn post-season 2016.

Management Summary

For 2017, doe/fawn license numbers are being increased in a few hunt areas, mostly to control localized private land damage situations. Increases in Type 1 licenses are implemented in 4 hunt areas, to provide additional hunting opportunity where buck/doe ratios are within the special management range, and with increased yearling buck recruitment, the overall buck/doe ratio should remain within the Department’s Special Management criteria. Current license quotas may be lower than some public expectations of increases in license allocation, as they are seeing more pronghorn, and what we might normally consider with a population slightly above objective. Yet, due to concerns about winter mortality and lower than average adult buck/doe ratios, we are maintaining conservative seasons to maintain current levels.

The seasons outlined should keep the population stable near 25,500 pronghorn, if the growing season weather patterns and fawn production/survival observed since fall 2013 continue and winter losses are minimal. A total of 1,375 any antelope and 475 doe/fawn licenses will be available for hunters in 2017, and should result in a harvest of about 1,645 animals.

Beaver Rim Pronghorn (PR632)
HA 65, 66, 67, 68, 69, 74, 106
Revised 2016

 Antelope Hunt Areas

RANGE

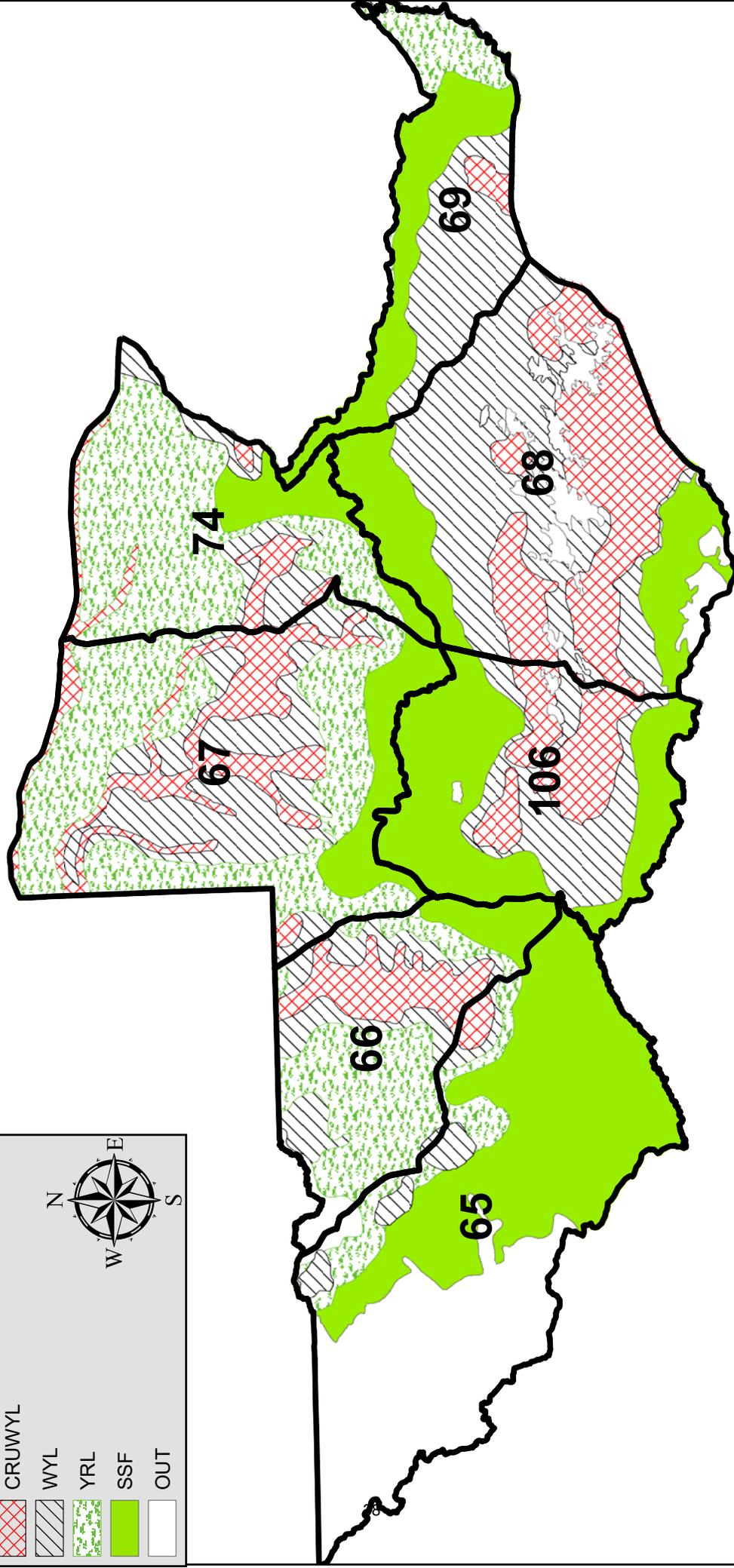
 CRUWYL

 WYL

 YRL

 SSF

 OUT



2016 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR634 - BADWATER

HUNT AREAS: 75

PREPARED BY: GREG
ANDERSON

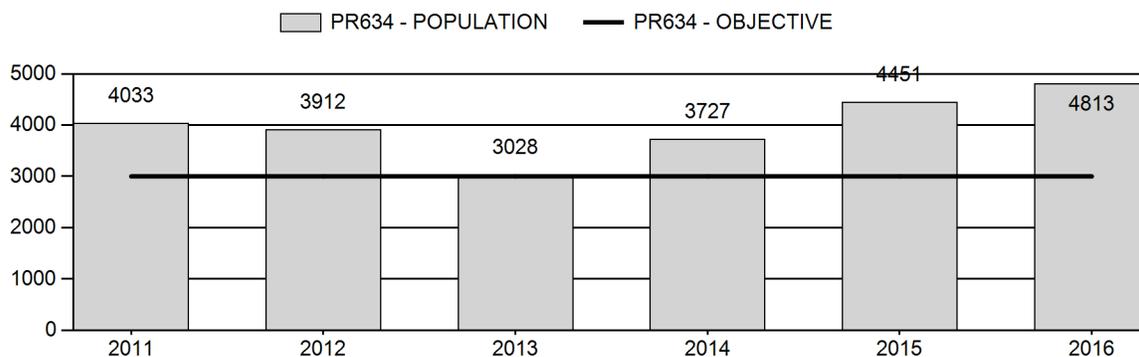
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	3,830	4,813	3,981
Harvest:	527	584	680
Hunters:	545	587	660
Hunter Success:	97%	99%	103 %
Active Licenses:	597	671	800
Active License Success:	88%	87%	85 %
Recreation Days:	1,753	2,016	2,200
Days Per Animal:	3.3	3.5	3.2
Males per 100 Females	61	73	
Juveniles per 100 Females	57	74	

Population Objective (± 20%) :	3000 (2400 - 3600)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	60%
Number of years population has been + or - objective in recent trend:	3
Model Date:	2/6/2017

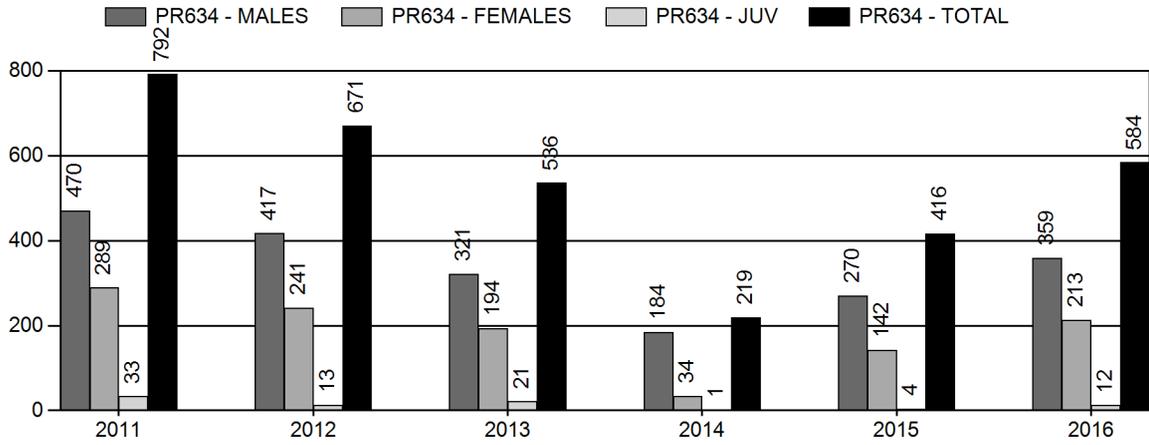
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	10%	11%
Males ≥ 1 year old:	29%	44%
Total:	11%	13%
Proposed change in post-season population:	+4%	-17%

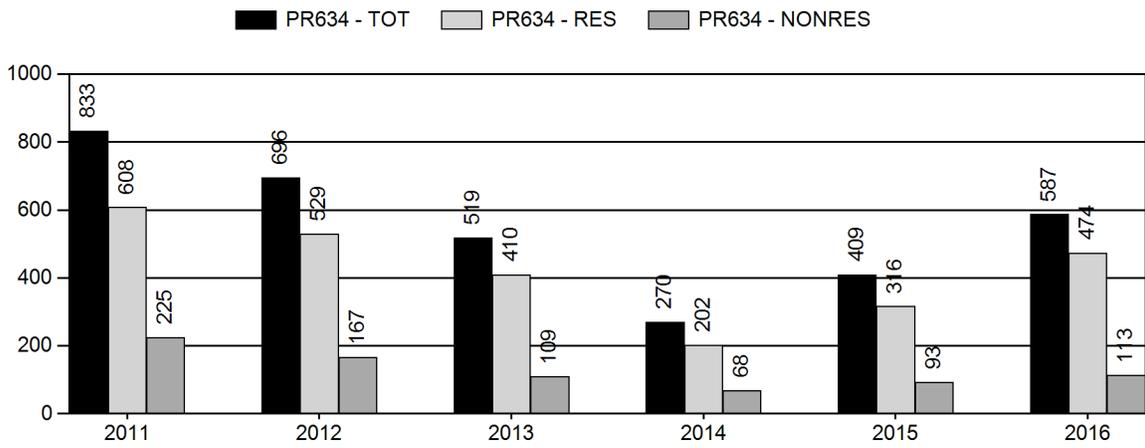
Population Size - Postseason



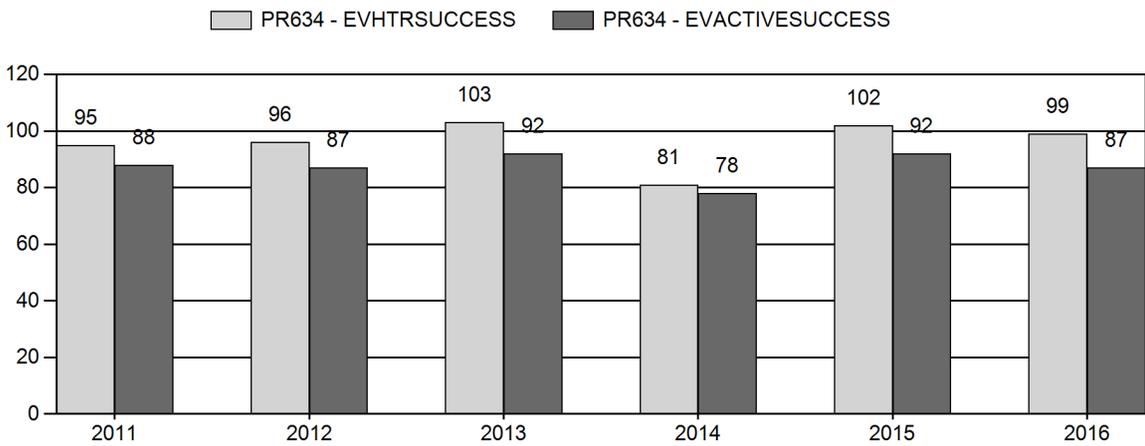
Harvest



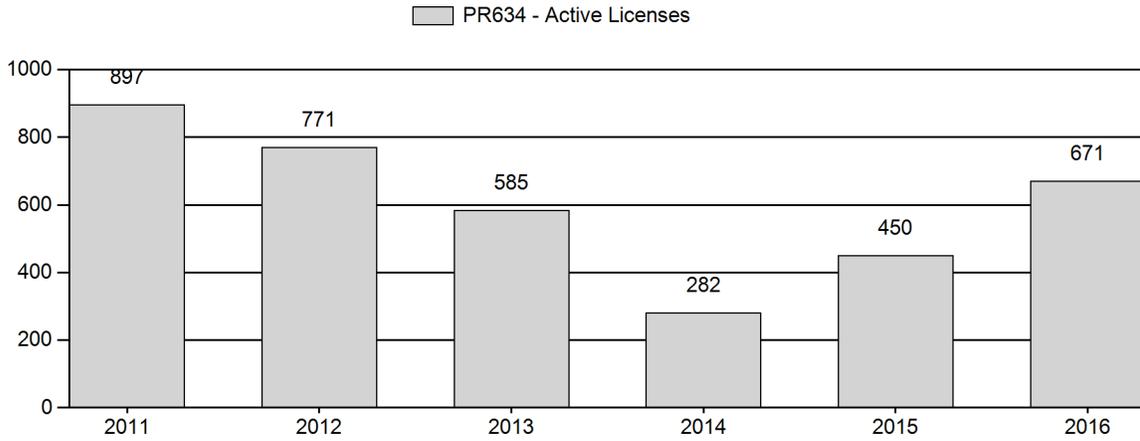
Number of Active Licenses



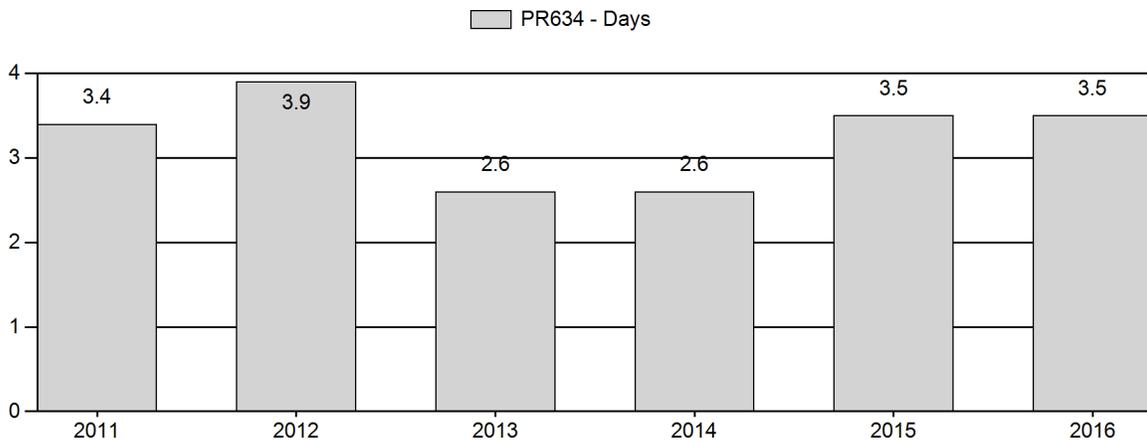
Harvest Success



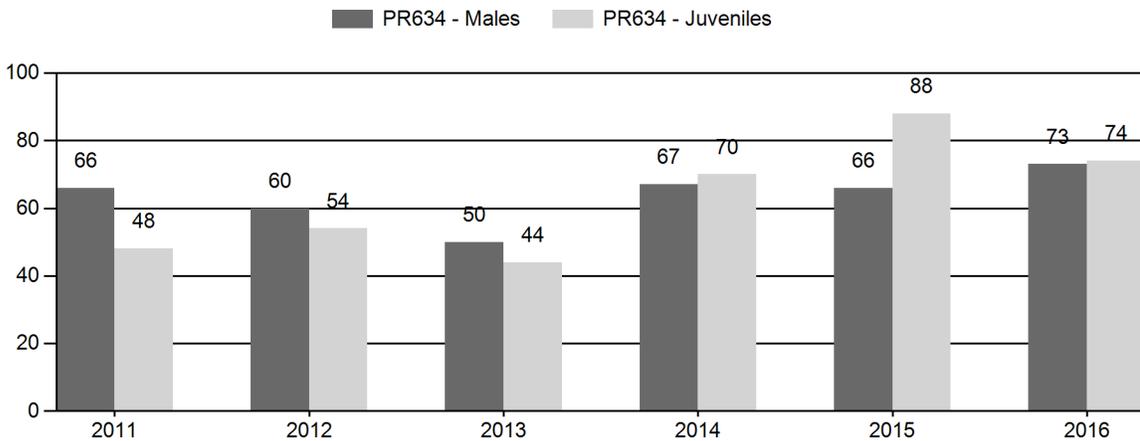
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary

for Pronghorn Herd 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
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	5,454	148	139	287	29%	394	40%	292	30%	973	2,109	38	35	73	± 8	74	± 9	43

**2017 HUNTING SEASONS
BADWATER PRONGHORN (PR 634)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
75	1	Sep. 16	Oct. 22	550	Limited quota	Any antelope
75	6	Sep. 16	Oct. 22	275	Limited quota	Doe or fawn
Archery						
75		Aug. 15	Sep. 15			Refer to section 2 of this chapter

Hunt Area	Type	Quota change from 2016
75	1	+100
Total	1	+100

Management Evaluation

Current Postseason Population Management Objective: 3,000

Management Strategy: Recreational

2016 Postseason Population Estimate: ~4,800

2017 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 2016. 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 2016 weather conditions resulted in fair herbaceous production throughout central Wyoming. Although no vegetation transects are monitored annually in this herd unit, observations suggested vegetation growth was good in 2016. Both deer and antelope in the area appeared to enter winter in excellent body condition. Following a mild fall, the area was impacted by harsh winter conditions in December and January. Most of the area had 100% snow cover from mid-December through mid-February. Typically this area has at most, patchy snow cover in the winter. Weather conditions moderated in mid-February. It is likely the harsh conditions in early winter resulted in some mortality but if late winter continues to moderate, winter mortality should not be unusually high.

Field Data

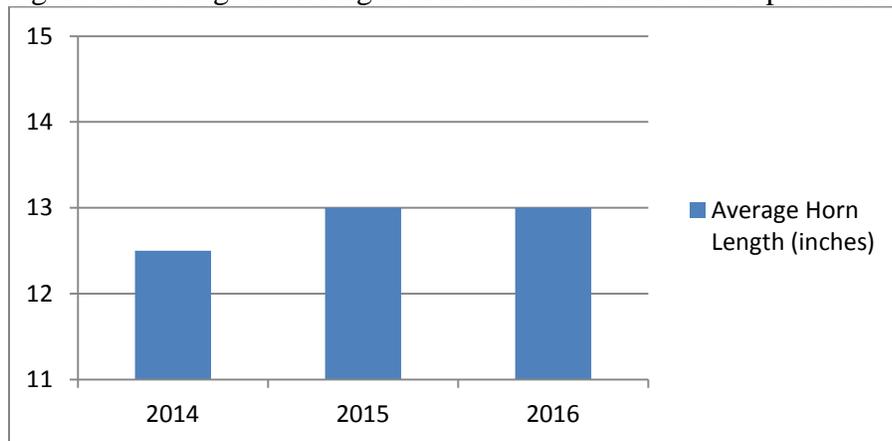
Numbers of antelope observed along specified ground classification routes had been declining steadily since 2010. This coincides with a modeled population decline. In contrast, the antelope classification sample size increased from 806 in 2014 to 1,021 in 2015 and was 973 in 2016. The large jump in sample size from 2014 to 2015 coincided with a modeled population increase. The increased classification sample size over the past two years is indicative of population growth and likely the result of high fawn/doe ratios of 88/100 and 74/100 in 2015 and 2016, respectively. Along with relatively high fawn/doe ratios over the past several years, the buck/doe ratio has been quite high at 66/100 in 2015 and 73/100 in 2016. The high buck/doe ratios are a result of abnormally high yearling buck numbers in the population associated with good recruitment. 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 good at 86%. This was lower than the 2015 success rate of 91% but close to the 5-year average of 89%. Type 6 license success was also good at 89%. The days/animal statistic for Type 1 license holders was unremarkable in 2016 at 3.7. This was almost the same as the 5-year average of 3.3. Overall, harvest statistics indicate recreational hunting in 2016 was good.

In 2016 personnel collected horn length measurements on 37 male antelope. The average and median lengths were both 13 inches. The longest horn measurement of the year was 15 inches (Fig. 1). This was quite similar to 2015 when personnel collected 16 horn measurements and found an average length of 13 inches, a median length of 13 inches, and a maximum length of 14 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 6 of 7 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 und 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 10 in the current model. This forces the model closer to the most recent LT estimate. A correction factor of 10 was chosen because it forces the end-of-year population to model close to the most recent LT estimate. Without the correction factor, the model population is well above the confidence interval for all but one unusually high LT estimate. It should be noted, the overall population trend remains the same with or without the use of a correction factor.

For 2016, the TSJ/CA model was selected to simulate the population. This was a different model than selected in 2014 and 2015 and produces a higher population estimate than models from

previous years although trends remain the same as in previous models. In 2016, the TSJ/CA model provided a substantially better fit to observed data than the SCJ/SCA model and had a lower AIC value.

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 in 2013 and then increased significantly in 2014. The population continued to increase through 2016 and is predicted to decline 17% in 2017. As mentioned previously, harvest statistics and classification data also indicate this population increased. Due to the lack of survival estimates, the model is considered a fair simulation.

A line transect survey was flown in the herd unit on May 26 and 27, 2016. The most recent line transect survey prior to 2016 was flown on May 21, 2013. Results from the 2016 survey are presented in Appendix I. The estimation function selected for the 2016 analysis was the half-normal with polynomial adjustment terms. This model appeared to fit the data histogram as well as any of the models analyzed. All models analyzed had CV values near 20% indicating none were very precise. All past LT surveys in this herd have had high CV values as well, typically 20% or above. Low precision estimates for the herd are primarily due to low group encounter rates and uneven distribution of antelope throughout the area. It is unlikely estimates will ever improve substantially for the herd given low encounter rates (some years as few as 75 groups of antelope were observed).

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 2016. Type 1 licenses will be increased by 100 to 550 to allow more recreational opportunity. Type 6 licenses will remain unchanged since the population model predicts a 17% population decline with the current level of doe/fawn harvest. Given average recruitment, the population is predicted to decline by approximately 17% to 4,000 and be within 33% of objective.

Appendix I. Line Transect Summary

Survey Date: May 26, 27 2016
 Single Observer: Greg Anderson
 Aircraft Contractor: Sky Aviation
 Aircraft: Scout
 Flight Hours: 10

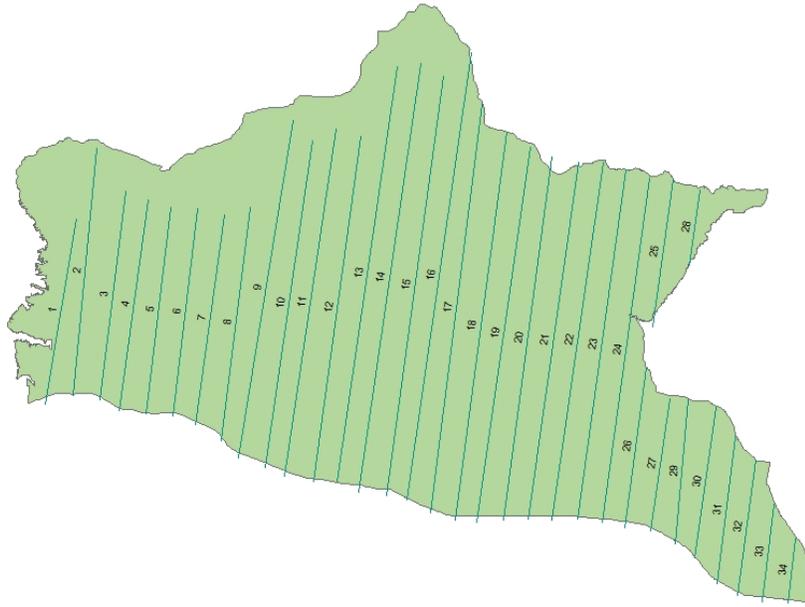
Start Time: 0700

Transects (UTM Zone 13)

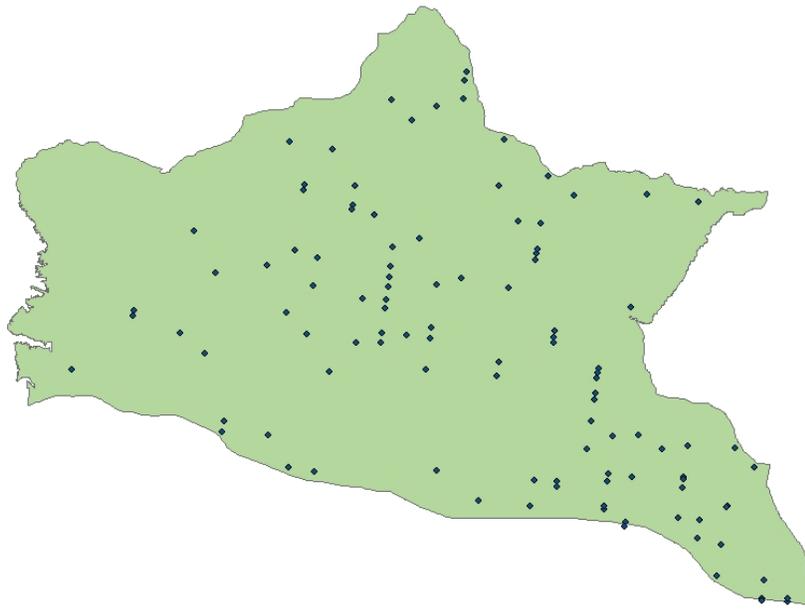
Transect		Easting	Northing	Miles
1	Start	245350	4790657	11.5
	End	248433	4808815	
2	Start	250498	4815884	15.3
	End	248069	4791543	
3	Start	250737	4791079	12.9
	End	253258	4811597	
4	Start	255477	4810733	13.1
	End	252685	4790020	
5	Start	255273	4789745	12.8
	End	257764	4810069	
6	Start	260367	4809893	12.8
	End	257916	4789495	
7	Start	260139	4788697	13.0
	End	263006	4809288	
8	Start	265623	4809995	14.4
	End	262738	4787108	
9	Start	264429	4785418	21.0
	End	269845	4818632	
10	Start	271741	4816539	20.3
	End	267020	4784426	
11	Start	268950	4783548	21.6
	End	274032	4817739	
12	Start	276519	4817050	21.5
	End	271774	4783016	
13	Start	274106	4783092	25.8
	End	280131	4823924	
14	Start	276239	4781987	26.6
	End	282391	4824166	
15	Start	284612	4822886	26.0
	End	279003	4781652	
16	Start	280996	4781283	27.8
	End	287407	4825271	

17	Start	288489	4820151	25.3
	End	283392	4779954	
18	Start	285742	4779247	24.1
	End	290830	4817401	
19	Start	293159	4815975	23.3
	End	287936	4779060	
20	Start	290601	4779203	22.6
	End	295299	4815042	
21	Start	297961	4814515	22.2
	End	292994	4779295	
22	Start	295368	4779228	22.2
	End	300352	4814470	
23	Start	302635	4813749	21.7
	End	297832	4779291	
24	Start	300278	4779039	21.4
	End	304956	4812907	
25	Start	307303	4812796	9.1
	End	305220	4798317	
26	Start	304685	4794264	10.0
	End	302507	4778476	
27	Start	305068	4778175	8.2
	End	306920	4791197	
28	Start	308851	4804328	4.7
	End	309953	4811705	
29	Start	308752	4791117	8.9
	End	307457	4776932	
30	Start	309432	4775548	9.3
	End	311518	4790302	
31	Start	313455	4787445	9.1
	End	311573	4772996	
32	Start	313622	4771819	8.4
	End	315464	4785128	
33	Start	317259	4780866	6.1
	End	316045	4771158	
34	Start	318563	4771053	4.0
	End	319395	4777475	
Total Length				557

Transects



Antelope sightings



Survey Results

Lines: 34

Miles: 557

Occupied Habitat: 866 mi²

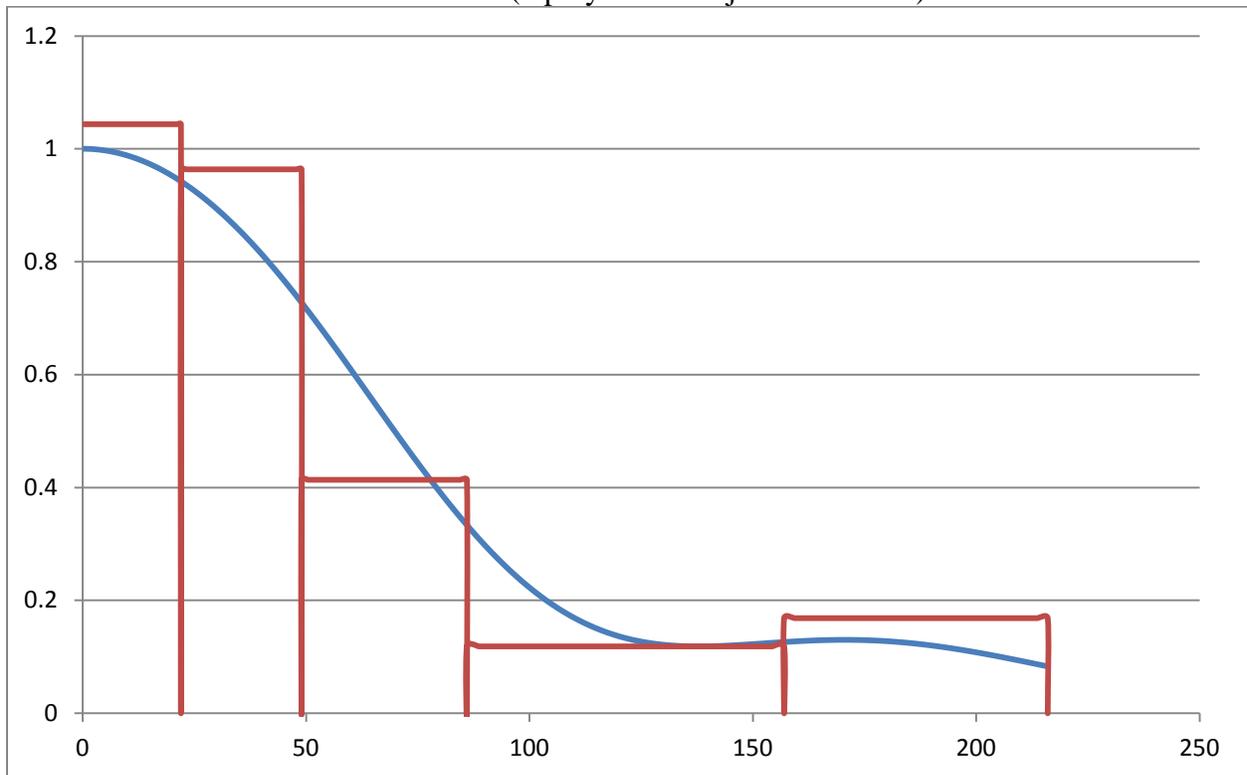
Antelope Groups:

Band	Groups
A	31
B	33
C	18
D	14
E	14

Total 110

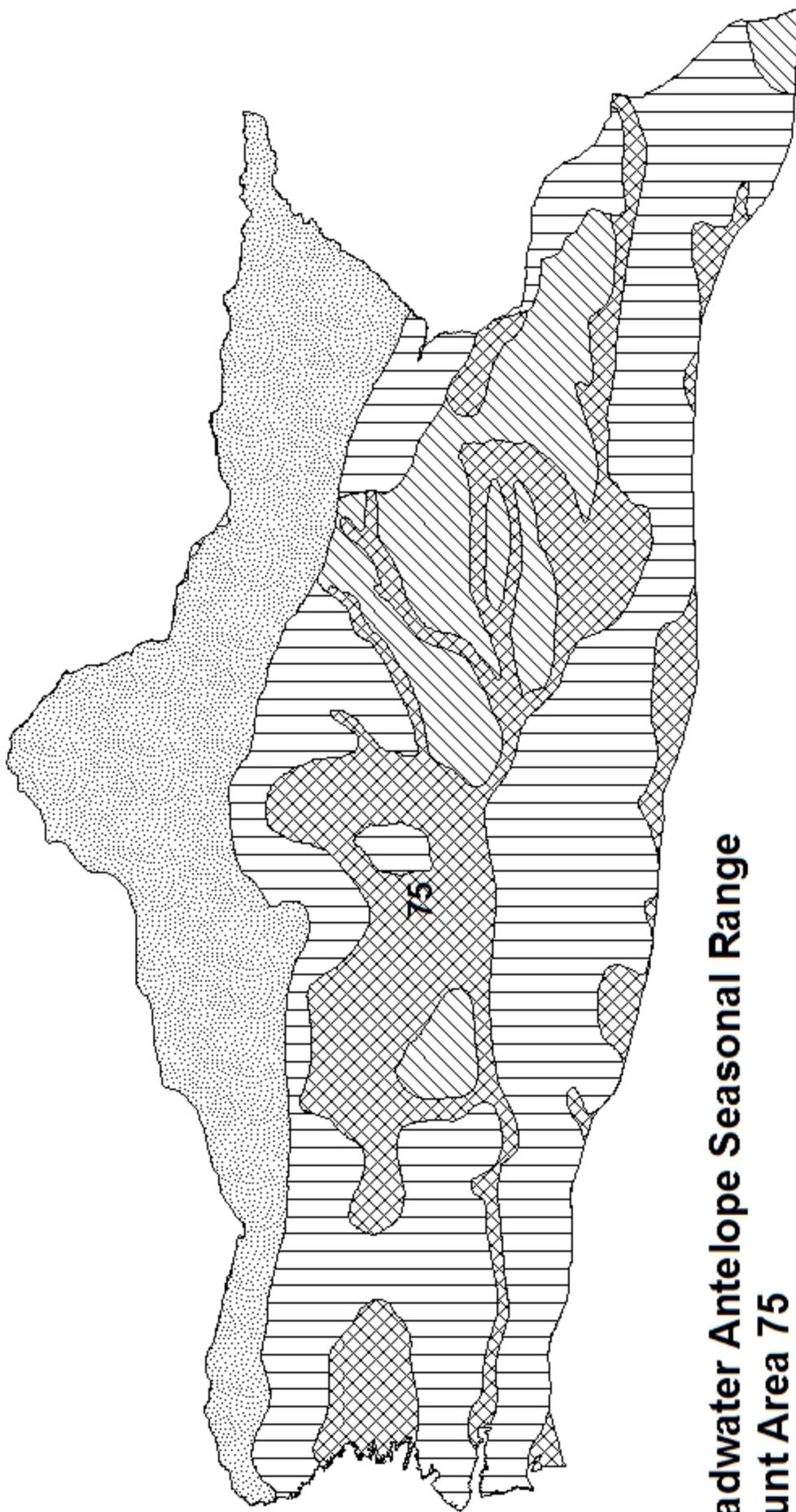
Average Group Size: 2.4

Detection Function: half-normal curve (2 polynomial adjustment terms)

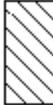
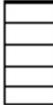


Model: Half-normal, 2 polynomial adjustment terms

Parameter	Estimate	Standard Error	Coefficient of Variation	95% CI	
				Lower	Upper
Density	3.9	0.71	18.21	2.7	5.5
Population	3360	612	18.21	2352	4800



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

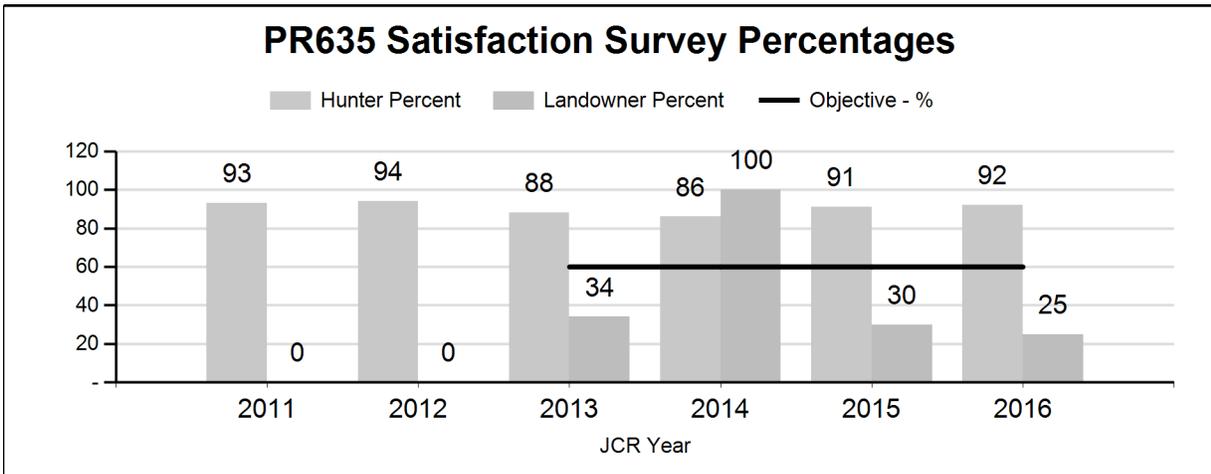
-  CRUWYL
-  OUT
-  SSF
-  WYL
-  YRL

2016 - JCR Evaluation Form

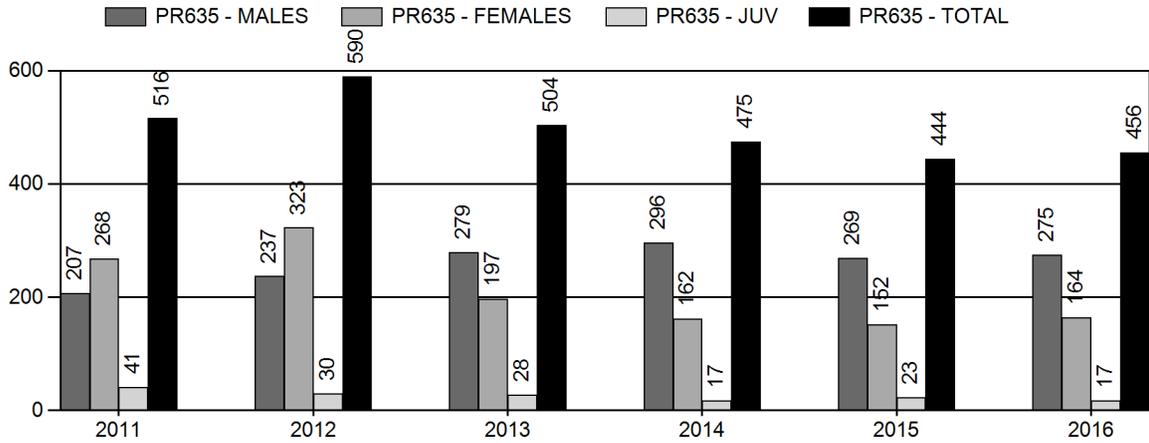
SPECIES: Pronghorn
 HERD: PR635 - PROJECT
 HUNT AREAS: 97, 117

PERIOD: 6/1/2016 - 5/31/2017
 PREPARED BY: GREG ANDERSON

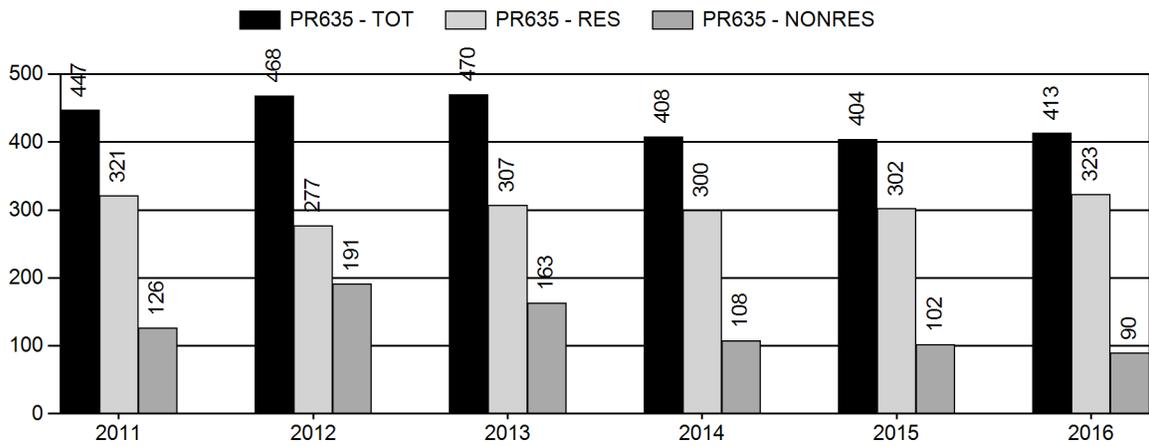
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Hunter Satisfaction Percent	91%	92%	90%
Landowner Satisfaction Percent	38%	25%	60%
Harvest:	506	456	500
Hunters:	439	413	440
Hunter Success:	115%	110%	114%
Active Licenses:	559	489	530
Active License Success:	91%	93%	94%
Recreation Days:	1,651	1,721	1,900
Days Per Animal:	3.3	3.8	3.8
Males per 100 Females:	69	36	
Juveniles per 100 Females	59	50	
Satisfaction Based Objective			60%
Management Strategy:			Recreational
Percent population is above (+) or (-) objective:			-2%
Number of years population has been + or - objective in recent trend:			3



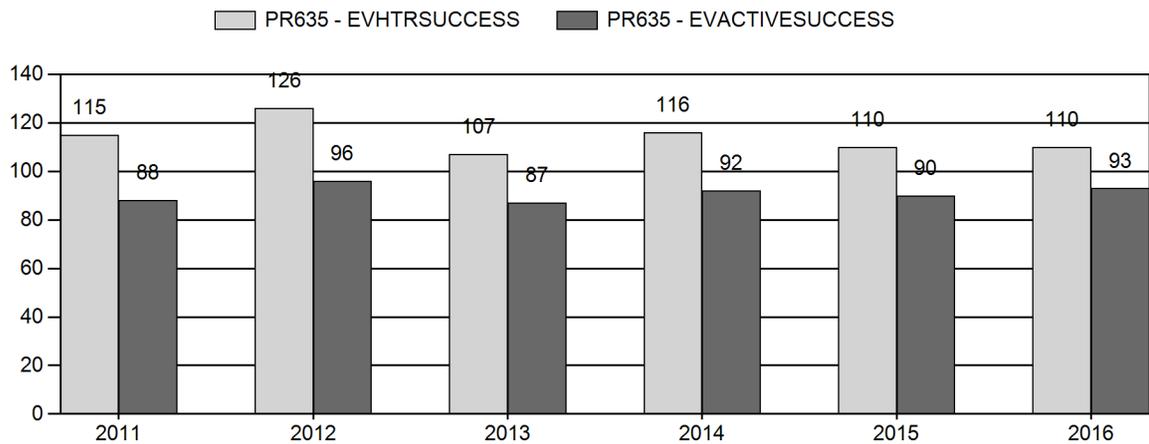
Harvest



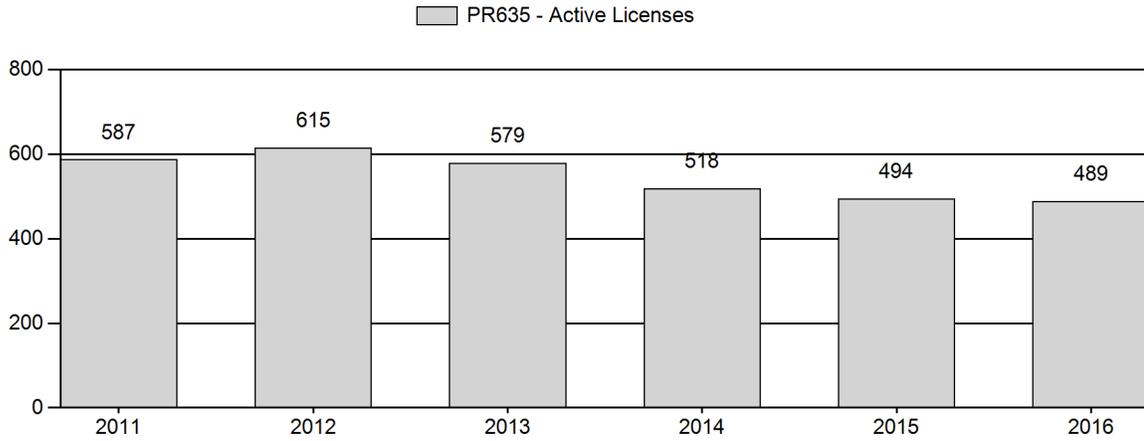
Number of Active Licenses



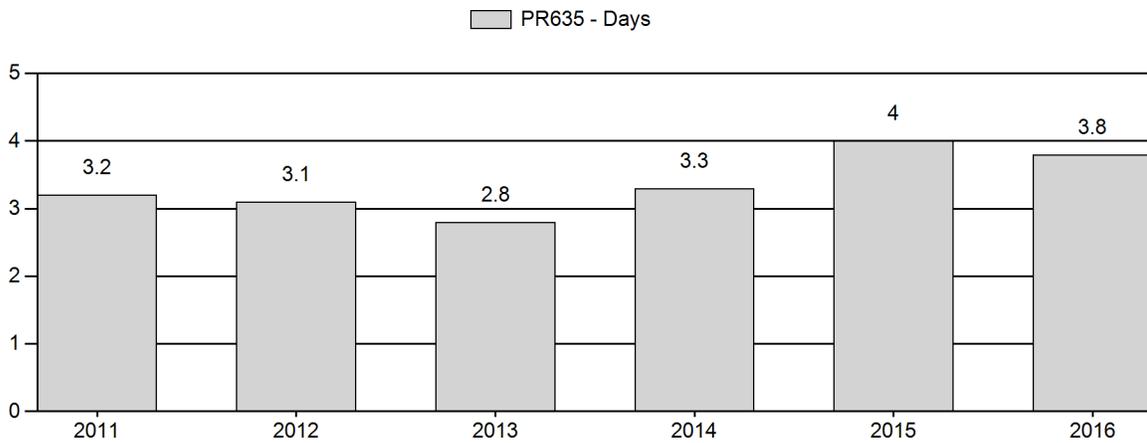
Harvest Success



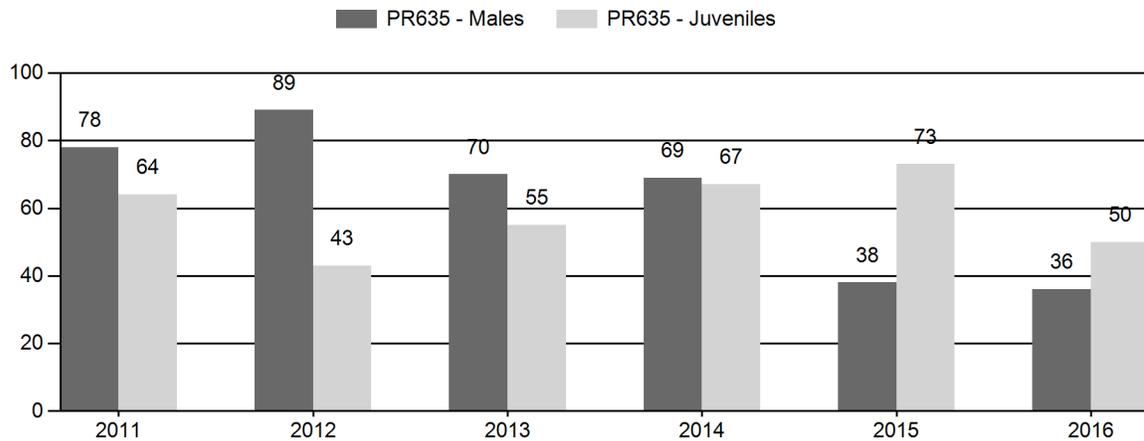
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary

for Pronghorn Herd 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
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	0	42	33	75	19%	209	54%	104	27%	388	0	20	16	36	± 0	50	± 0	37

**2017 SEASONS
PROJECT PRONGHORN (PR 635)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
97, 117	1	Sep. 16	Oct. 22	300	Limited quota	Any antelope
97, 117	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
97, 117	6	Sep. 16	Oct. 22	200	Limited quota	Doe or fawn
97, 117	7	Aug. 15	Oct. 22	25	Limited quota	Doe or fawn valid in Area 97 south of U.S. Highway 26 and in all of Area 117
Archery 97, 117		Aug. 15	Sep. 15			Refer to section 2 of this chapter

Hunt Area	Type	Quota change from 2016
97, 117	6	+50
	7	-25
Total		+25

Management Evaluation

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

Management Strategy: Recreational

2016 Hunter Satisfaction Estimate: 92%

2016 Landowner Satisfaction Estimate: 25% (12 contacts)

Most Recent 3-year Running Average Hunter Satisfaction Estimate: 90%

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 and 2016 personnel contacted landowners in person or by phone to determine satisfaction with the antelope season. Over the past 2 years, an increasing number of landowners have commented there are too many antelope.

Habitat/Weather

This herd occupies a predominantly 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 2016, 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 50/100 in 2016. This was below the 5-year average of 59/100 and also lower than recruitment levels over the past 2 years. The buck/doe ratio declined from 38/100 in 2015 to 36/100 in 2016. This was the fourth consecutive year the buck/doe ratio declined. The 2016 ratio was well below the 5-year average of 69/100. The number of Type 1 licenses over the past several years does appear to be impacting the buck/doe ratio which was well above the recreational threshold prior to 2015. Despite the lower buck/doe ratio, Type 1 license success was very high at 96% in 2016. In conjunction, hunter satisfaction was 92% in 2016 and averaged 90% over the past 3 years. As such, there is no need to reduce Type 1 licenses in 2017. The dramatic decline in the buck/doe ratio over the past 2 years bears note, but harvest statistics and hunter satisfaction indicate recreational hunting remains good in the herd unit.

The population is considered to be above objective in 2016. Hunter satisfaction (satisfied or very satisfied) has been quite high over the past 4 years but landowner satisfaction has been well below 60% with the majority of landowner commenting there are too many antelope. Note

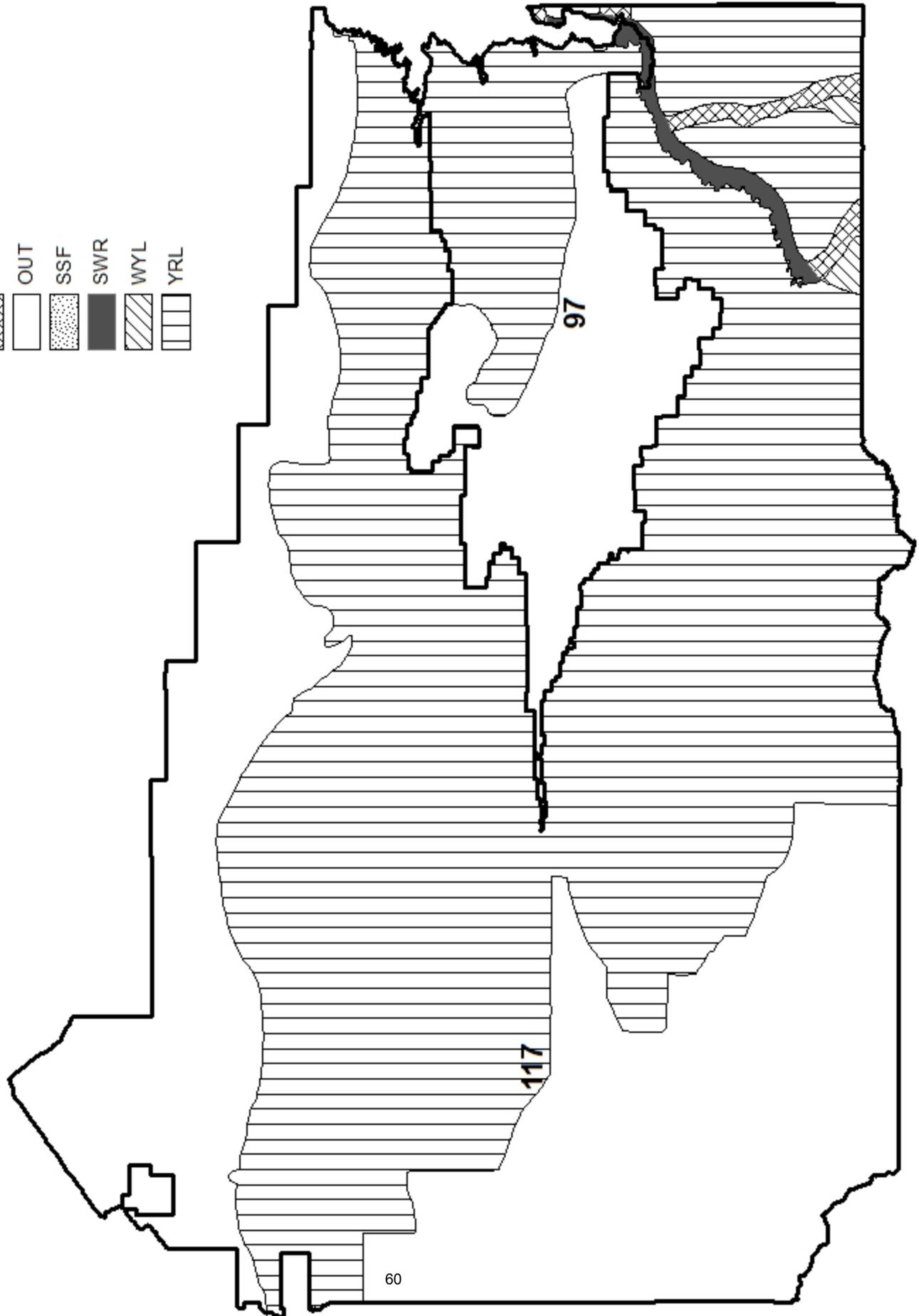
landowner satisfaction in 2014 was based on only 4 responses to an e-mail survey and is not considered accurate. Due to the lack of data in 2014 it is not possible to calculate a 3-year average for landowner satisfaction. However, each of the past 2 years indicate landowner would generally prefer fewer antelope.

Management Summary

Although hunter satisfaction has been quite high over the past several years, landowner satisfaction has declined with the majority of landowners commenting there are too many antelope in the area. To address the decreasing level of landowner satisfaction, Type 6 licenses will be increased by 50 in 2017. Type 1 licenses will not increase since the buck/doe ratio in the area has been quite low for the past 2 years. Type 7 licenses will be reduced by 25 since damage complaints in the areas targeted by these tags have decreased. With average survival for the year but increased harvest, the population is expected to decline in 2017.

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

- CRUWYL
- OUT
- SSF
- SWR
- WYL
- YRL



2016 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR636 - NORTH FERRIS

HUNT AREAS: 63

PREPARED BY: GREG HIATT

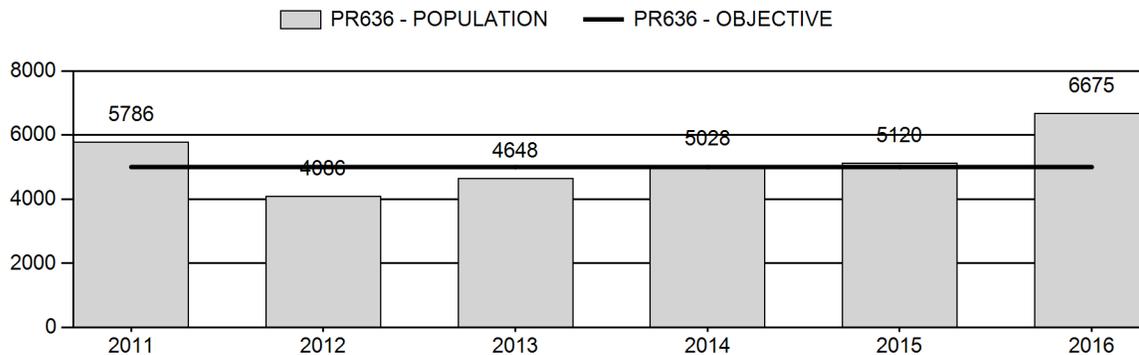
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	4,934	6,675	5,440
Harvest:	453	267	635
Hunters:	502	300	775
Hunter Success:	90%	89%	82 %
Active Licenses:	542	322	775
Active License Success:	84%	83%	82 %
Recreation Days:	1,555	735	2,200
Days Per Animal:	3.4	2.8	3.5
Males per 100 Females	60	63	
Juveniles per 100 Females	57	77	

Population Objective (± 20%) :	5000 (4000 - 6000)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	34%
Number of years population has been + or - objective in recent trend:	1
Model Date:	2/27/2017

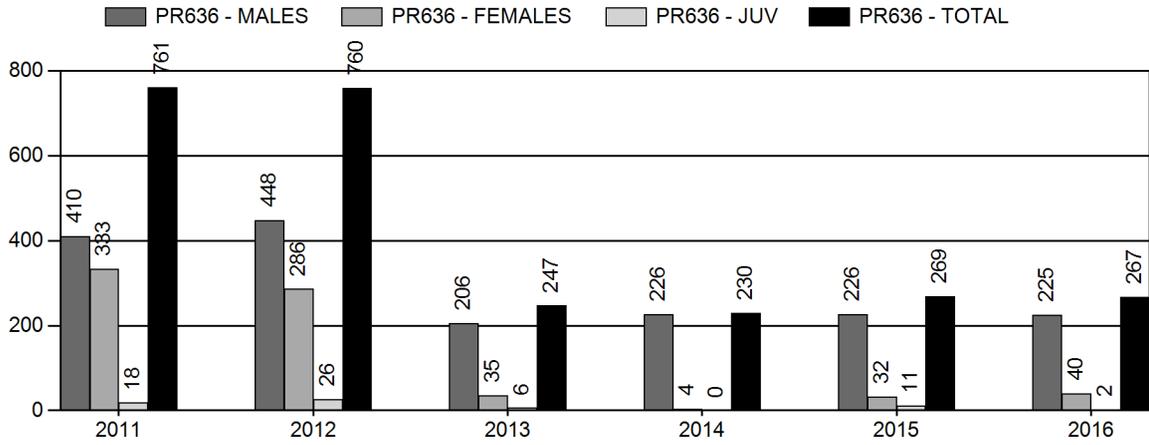
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	1.4%	9.3%
Males ≥ 1 year old:	16.6%	20.4%
Total:	5.1%	10.4%
Proposed change in post-season population:	-6.3%	-18.6%

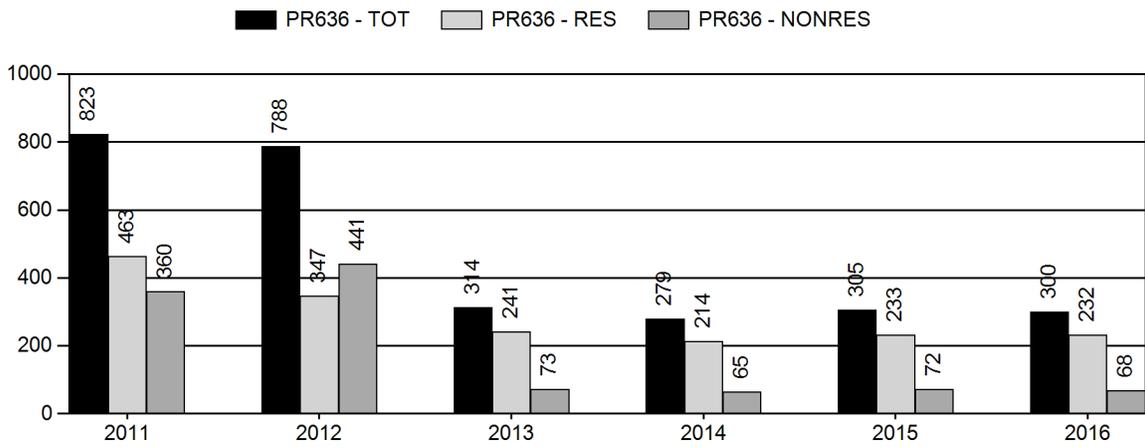
Population Size - Postseason



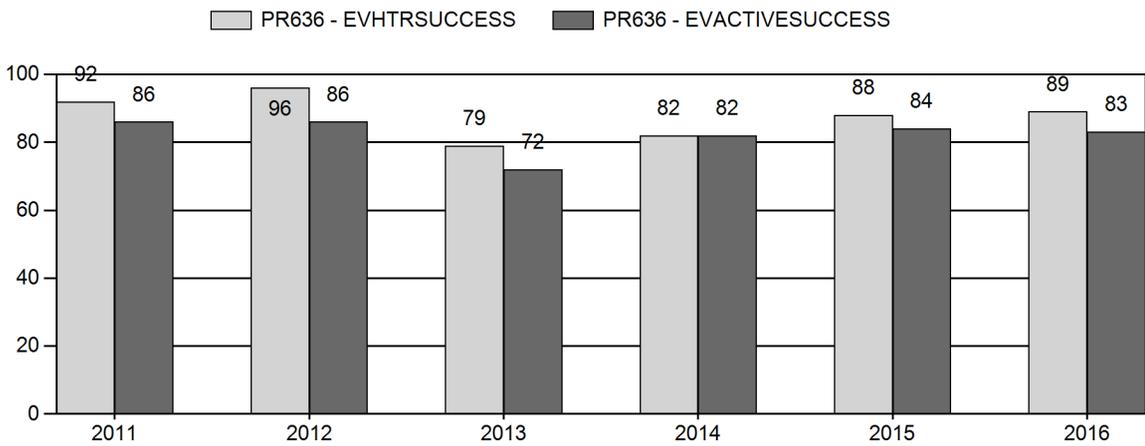
Harvest



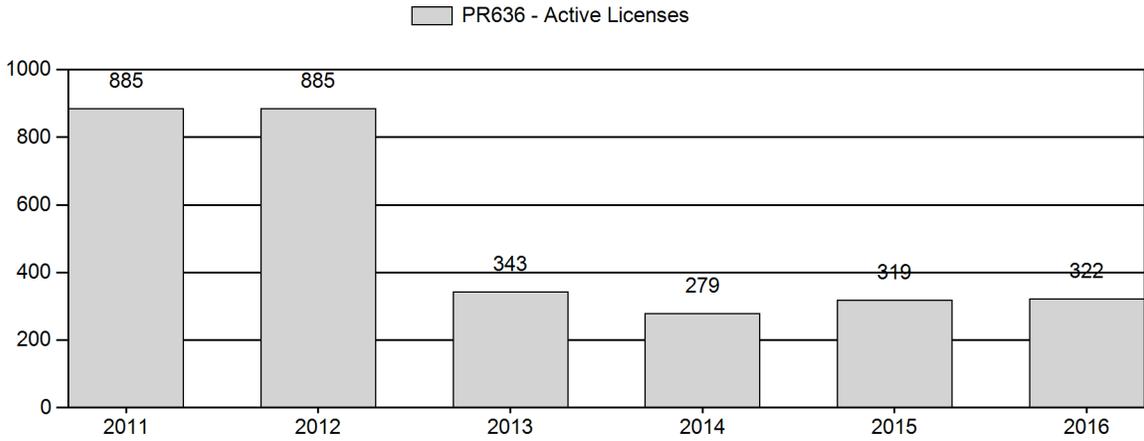
Number of Active Licenses



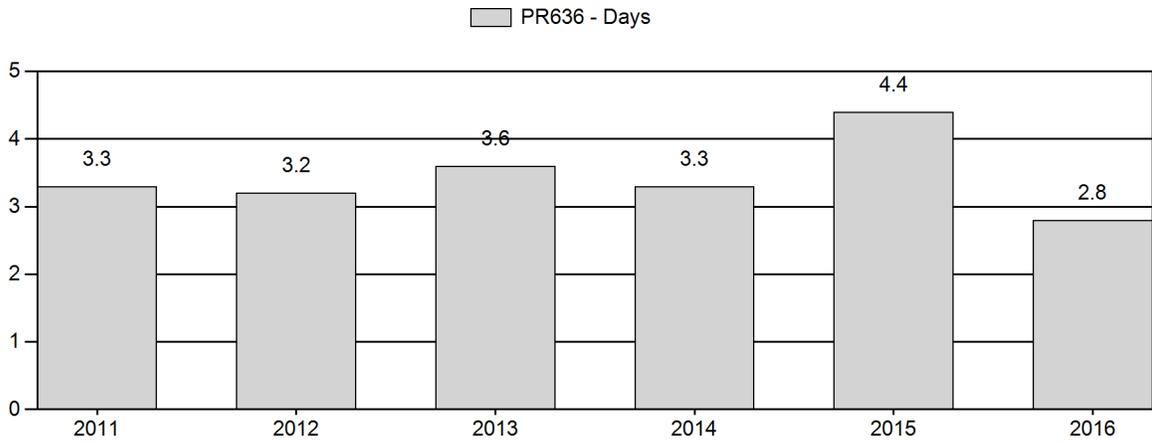
Harvest Success



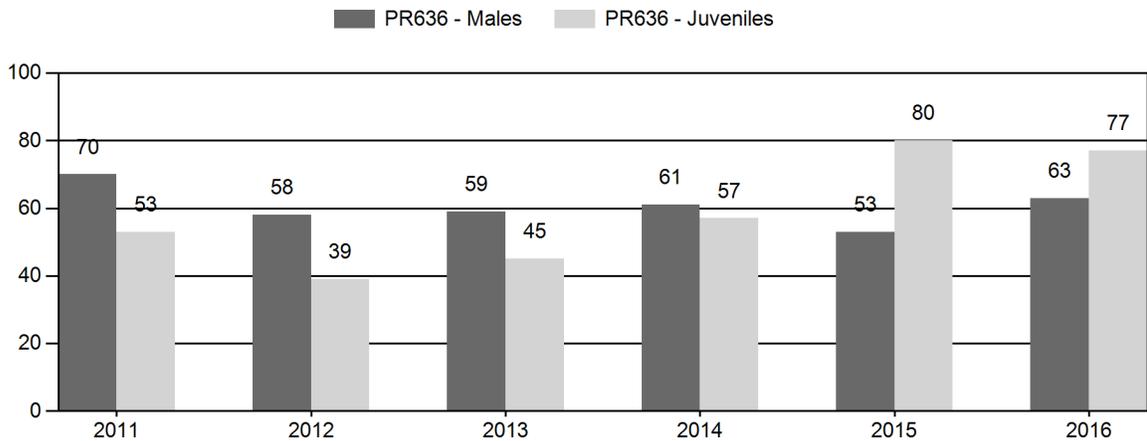
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary

for Pronghorn Herd 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
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	6,970	158	338	496	26%	782	42%	606	32%	1,884	2,347	20	43	63	± 5	77	± 6	47

**2017 HUNTING SEASONS
NORTH FERRIS PRONGHORN HERD (PR636)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations	
		Opens	Closes				
63	1	Sep. 16	Oct. 31	200	Limited quota	Any antelope	
	2	Sep. 16	Oct. 31	250	Limited quota	Any antelope valid east of the Buzzard Road (Natrona County Road 410 – Carbon County Road 497)	
	6	Sep. 16	Oct. 31	150	Limited quota	Doe or fawn	
	7	Sep. 16	Oct. 31	250	Limited quota	Doe or fawn valid east of the Buzzard Road (Natrona County Road 410 – Carbon County Road 497)	
	Archery						
	63		Aug. 15	Sep. 15			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2016
63	1	+100
	2	+50
	6	+125
	7	+225
Herd Unit Total	1	+100
	2	+50
	6	+125
	7	+225

Management Evaluation

Current Postseason Population Management Objective: 5,000

Management Strategy: Recreation

2016 Postseason Population Estimate: 6,675

2017 Proposed Postseason Population Estimate: 5,440

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 2017. 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.

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. This disease may recur when suitable conditions arise.

Weather

Record precipitation in 2015 produced exceptional vegetative growth, improving fawn survival, and was followed by another wet spring in 2016. High fawn production was seen again in 2016 as a result. Condition of pronghorn going into the 2016-17 winter is expected to have been good because of high forage production. The 2016-17 winter had numerous periods of bitter cold with significant snowfall, continuing through February. Winter losses may have been above average, but are not expected to be excessive.

Habitat

While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional in 2015, due to record precipitation, and was again above normal in 2016. 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 2016. New owners of the Pathfinder Ranch, which encompasses the north-central portion of this herd, have expressed interest in 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 again in 2016, more than double the 2013 and 2014 samples, 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 declined slightly to 77:100, but was still the second 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. Following near-record fawn production in 2015, yearling recruitment was high again in 2016, and again increased the buck:doe ratio above the recreational maximum, to 63:100.

Harvest Data

Overall hunter success declined slightly, from 84 percent to 83 percent, but the average effort required to harvest a pronghorn dropped from 4.4 days to 2.8 days, the lowest average in seven years. In a reversal of what was seen in 2015, hunters with the Type 2 and Type 7 licenses, restricted to the eastern portion of the herd unit, had poorer 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. This suggests pronghorn were more evenly distributed across the herd unit in 2016, rather than being concentrated near riparian habitats in the eastern half as was seen in previous years. Hunters with the Type 7 doe/fawn licenses valid for the eastern portion of the area had the poorest success and highest average effort.

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 due to record high fawn survival and harvests were increased accordingly. The current spreadsheet model predicts the increased harvests successfully reduced the herd to objective size by 2012. Harvests were reduced and the herd remained at objective for three years. Following near-record high fawn production in 2015, the herd grew above objective level again. This model aligns well with three line-transect survey estimates, but greatly underestimates the most recent line-transect estimate. This survey was flown with a single, inexperienced observer, which may have affected survey estimates. Hunter comments, satisfaction and harvest statistics do not support the exceptionally high numbers predicted by the most recent line-transect estimate.

The SCJ,SCA spreadsheet model provided adequate fit with observed buck:doe ratios and the lowest AIC value for this herd. This base model was modified to allow fawn survival to fluctuate upwards in four years preceding the exceptionally high observed yearling buck:doe ratios. Annual adult survival was predicted at 85 percent, a level slightly lower than models for some nearby pronghorn herds. Juvenile survival rate averaged 50 percent, except in the years when higher fawn survival was allowed. These annual fawn survival rates exceeded adult survival rates and as a result the model is only considered to be a “Fair” representation of the herd. The CJ,CA model had a higher AIC value and poorer fit with observed data. The TSJ,CA model also had a higher AIC value, but better fit with buck:doe ratios. Population estimates from this simpler model were much lower, further under-estimating the most recent line-transect estimate.

Fawn production in 2017 was projected at the 5-year average. Due to the severity of the 2016-17 winter, this average may be overly optimistic. The model was run using a median juvenile survival in 2017.

Management Summary

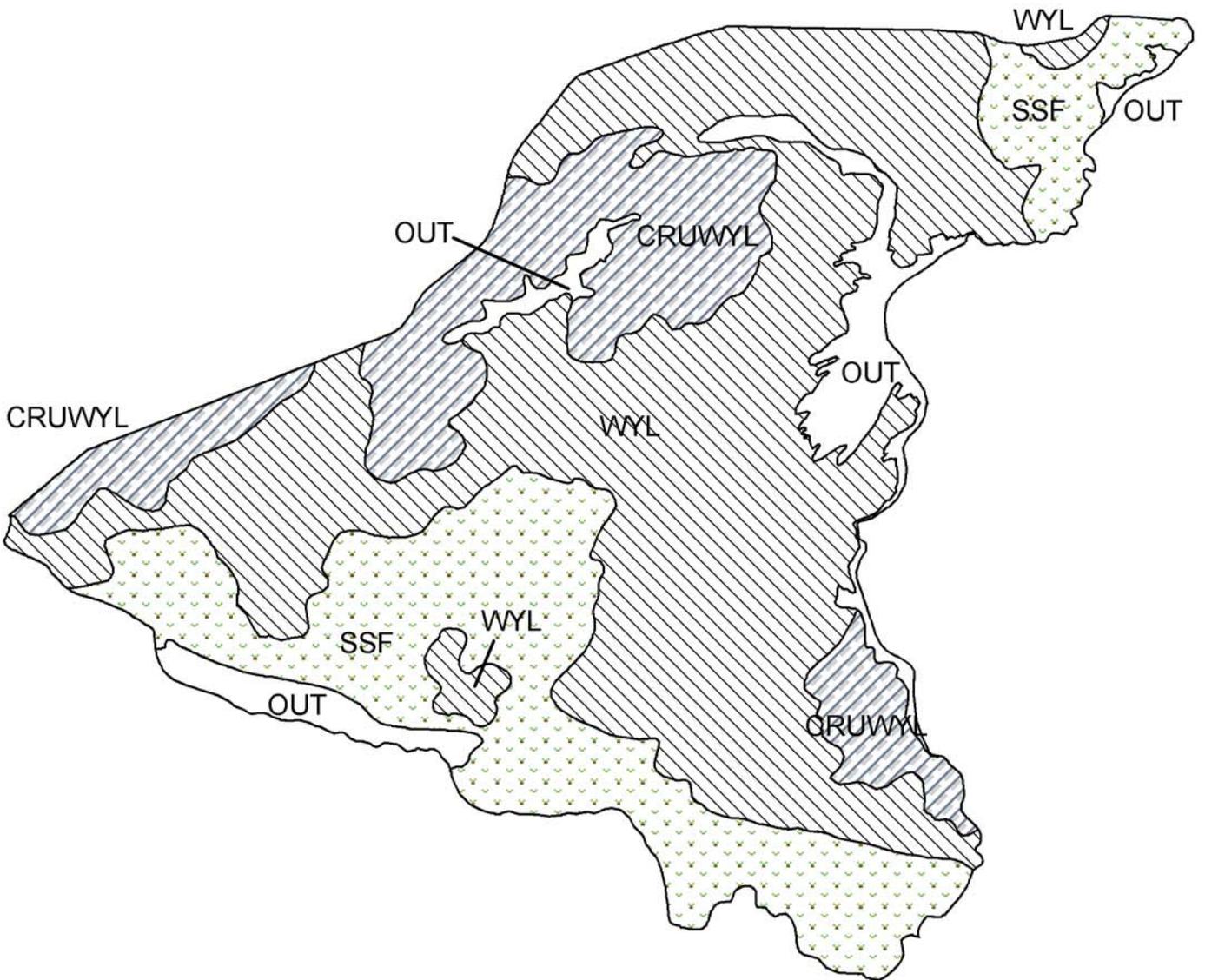
With improvement in fawn production and the herd estimated to be above objective size, doe harvest was increased to return the herd to objective size. As in previous years, Type 2 and Type 7 licenses are issued to direct hunting pressure to the eastern portion of the herd unit where pronghorn densities are higher and most private lands are found. With average fawn production in 2017, the model predicts this increased harvest will reduce the herd within acceptable range of the 5,000 pronghorn herd objective.

The expected harvest of roughly 335 bucks and 300 does and fawns from the 2017 license quotas should provide a significant decrease (15-20 percent) in herd size, projected to be ~5,440 at post-hunt 2017. With the herd so close to objective, either low winter survival or poor fawn production in 2017 could require harvest reductions 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 five 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



2016 - JCR Evaluation Form

SPECIES: Pronghorn

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

HERD: PR637 - SOUTH FERRIS

HUNT AREAS: 62

PREPARED BY: GREG HIATT

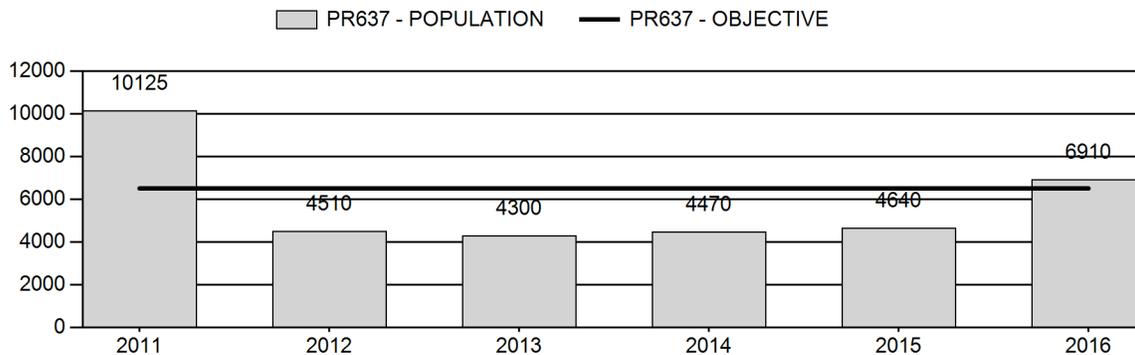
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	5,609	6,910	7,120
Harvest:	170	132	225
Hunters:	191	149	255
Hunter Success:	89%	89%	88 %
Active Licenses:	208	157	255
Active License Success:	82%	84%	88 %
Recreation Days:	637	462	780
Days Per Animal:	3.7	3.5	3.5
Males per 100 Females	58	65	
Juveniles per 100 Females	47	54	

Population Objective (± 20%) :	6500 (5200 - 7800)
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	6%
Number of years population has been + or - objective in recent trend:	0
Model Date:	2/27/2017

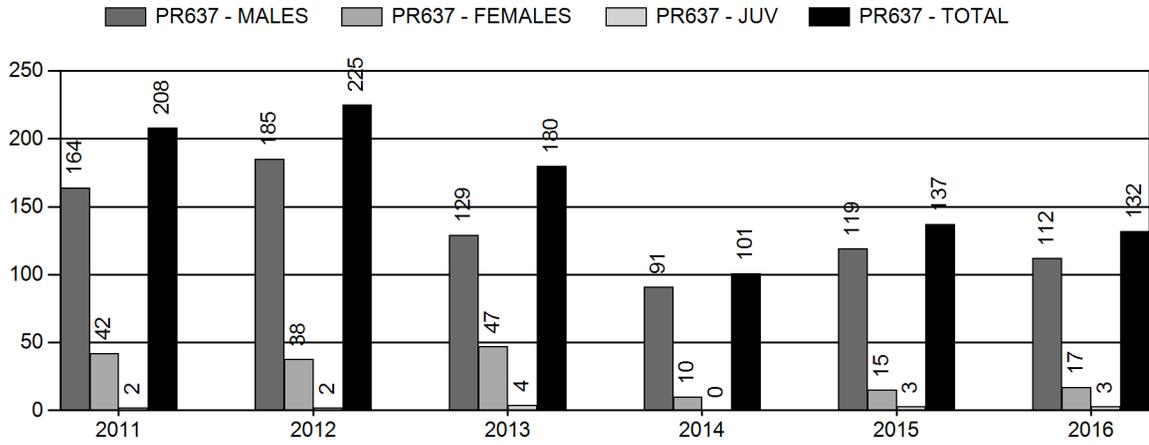
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.7%	2.3%
Males ≥ 1 year old:	8.0%	6.2%
Total:	2.6%	3.1%
Proposed change in post-season population:	-0.2%	3.1%

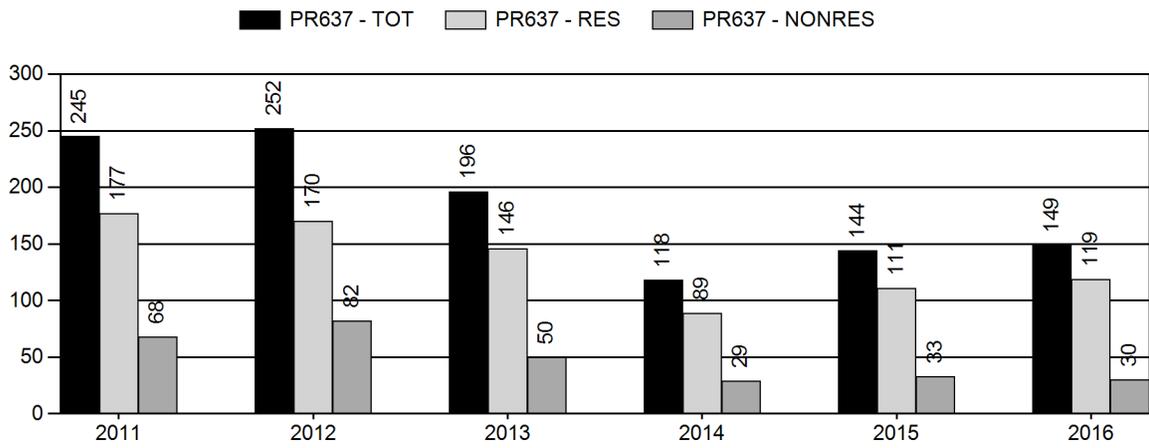
Population Size - Postseason



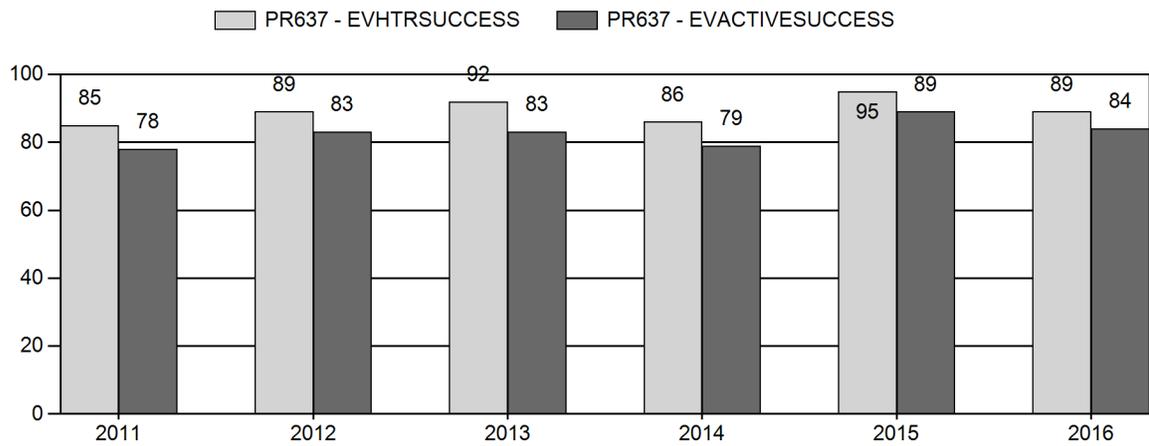
Harvest



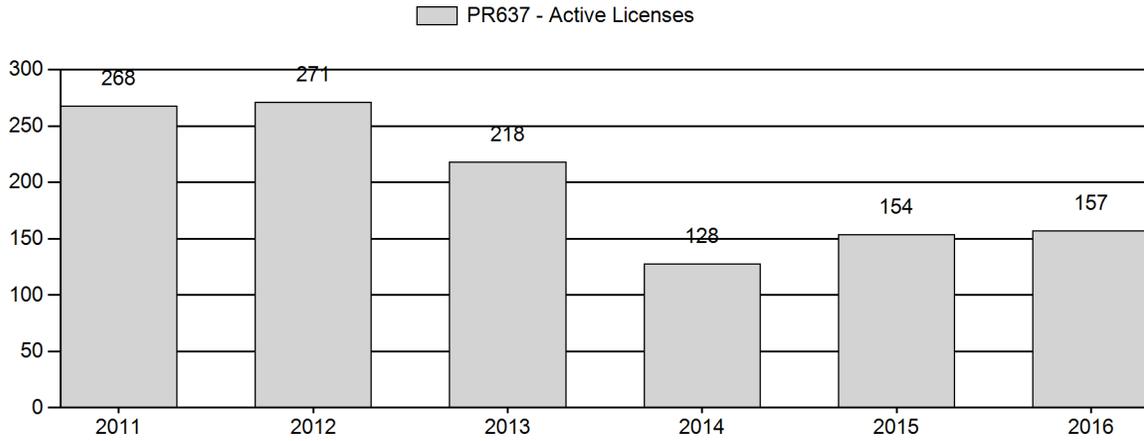
Number of Active Licenses



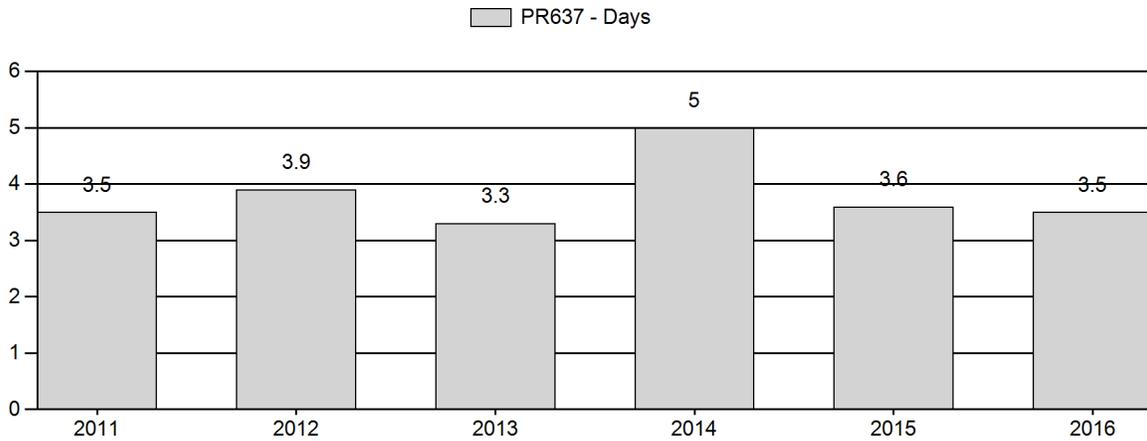
Harvest Success



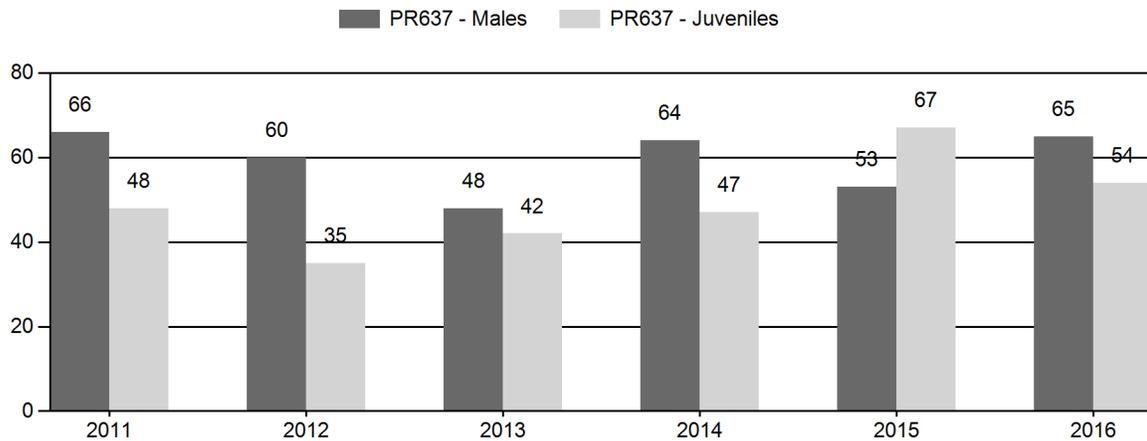
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary

for Pronghorn Herd 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
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	7,050	141	263	404	30%	620	46%	334	25%	1,358	1,868	23	42	65	± 6	54	± 5	33

**2017 HUNTING SEASONS
SOUTH FERRIS PRONGHORN HERD (PR637)**

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
62	1	Sep. 9	Oct. 31	75	Limited quota	Any antelope valid east of the Continental Divide and north of Wise Dugout Draw Doe or fawn valid east of the Continental Divide and north of Wise Dugout Draw Doe or fawn valid in the Muddy Creek drainage
	2	Sep. 9	Oct. 31	100	Limited quota	
	6	Sep. 9	Oct. 31	50	Limited quota	
	7	Aug. 15	Oct. 31	25	Limited quota	
Archery 62		Aug. 15	Sep. 8			Refer to Section 2 of this Chapter

Hunt Area	License Type	Quota change from 2016
62	1	+35
	2	0
	6	+50
	7	0
Herd Unit Total	1	+35
	2	0
	6	+50
	7	0

Management Evaluation

Current Postseason Population Management Objective: 6,500

Management Strategy: Recreation

2016 Postseason Population Estimate: 6,900

2017 Proposed Postseason Population Estimate: 7,100

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 last updated in 2017. 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 67:100 over the past 15 years, averaging ~43:100. 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 several times 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 following years, but the presence of the disease should remain a concern whenever drought conditions arise.

Weather

Record precipitation in 2015 produced exceptional vegetative growth, improving fawn survival, and was followed by another wet spring in 2016. High fawn production was seen again in 2016 as a result. Condition of pronghorn going into the 2016-17 winter is expected to have been good because of high forage production. The 2016-17 winter had numerous periods of bitter cold with significant snowfall, continuing through February. Winter losses may have been above average, but are not expected to be excessive.

Habitat

While no herbaceous habitat transects are established within occupied habitats of this herd unit, herbaceous forage production appeared to be exceptional in 2015, due to record precipitation, and appeared above normal again in 2016. 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 declined again in 2016, the smallest sample since 1978, 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, and it is difficult to reconcile low sample sizes with estimates suggesting the herd is near objective size.. Fawn production dropped to 54:100 from

67:100 in 2015, but was still the second highest ratio since 2005 and well above the 5-year average. Fawn production was again lower in the western portion of the herd at 49:100, compared to 57:100 in the east.

The buck:doe ratio jumped from 53:100 in 2015 to 65:100 in 2016, with almost all the increase in the yearling buck:doe ratio. This rose to 20:100, the highest yearling recruitment since 1992, and was a result of exceptional forage production in 2015 and the mild 2015-16 winter. As is typical, the buck:doe ratio was significantly higher in the eastern portion of the herd unit, where access is strictly limited. The eastern ratio rose from 68:100 in 2015 to 75:100 in 2016. Both the adult buck:doe and yearling buck:doe ratios increased in the eastern third of the herd unit. Type 2 licenses introduced in 2012 to address the disparity between buck densities between the two portions of the area have only been moderately successful, due to continued access restriction to much of the eastern third.

Buck:doe ratios in the western portion of the herd improved to 51:100, but all of the increase resulted from increased numbers of yearling bucks. The adult buck:doe ratio remained essentially stable at 31:100, while the yearling buck:doe ratio jumped from 5:100 in 2015 to 20:100 in 2016. Buck:doe ratios for this herd have exceeded the 60:100 maximum criterion for recreational management in three of the past five 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, publicly accessible 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 77:100 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 remained low, at only 79 percent, while those hunting the eastern portion with Type 2 licenses enjoyed 90 percent success. Those hunters limited to the eastern portion of the herd unit only expended an average of 2.6 days to harvest an animal, despite the difficult access issues, while the Type 1 hunters expended an average of 6.1 days for each pronghorn harvested. Again, it is difficult to reconcile poor hunter success for most of the herd unit with population estimates indicating the herd is near objective.

Type 7 doe/fawn licenses valid only in the Muddy Creek drainage were introduced in this area in 2013 to address complaints about high concentrations of pronghorn on irrigated fields along that creek. Nineteen does were harvested the first year, 10 were removed in 2014, 18 were taken in 2015 and 19 reported for 2016. Pronghorn use of the irrigated fields has lessened, and the landowner has requested these licenses not be issued in 2017. Pronghorn use of these fields may increase if drought conditions return, but this strategy was effective in addressing that issue.

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. This unified model still worked well when 2016 data were added.

A line-transect survey in spring of 2016 estimated 5,482 pronghorn in this herd, and again found a noticeable disparity in pronghorn densities between the east and west portions. The population estimate was 19 percent higher than from a similar survey three years earlier, despite declines in classification samples and hunter success. This survey was flown with a single, inexperienced observer, which may have affected survey estimates. The current model incorporates four years of variable survival in the SCJ,SCA model, accounting for three severe winters and losses due to the 2012 drought.

The resultant SCJ,SCA 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 survival for the majority of years in the model is estimated at a high 95 percent, while dropping to reasonable levels for the severe winters and drought. Juvenile survival is a reasonable 49 percent in most years, however, juvenile survival rate exceeded adult survival rate in one year 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 higher AICc value, but did not track observed buck:doe ratios and only aligned with one line-transect estimate. The TSJ,CA model had the highest AICc value, and only aligned with two of three line transect estimates.

The new SCJ,SCA model predicts the herd was about 6 percent above objective in 2016. Fawn production in 2017 was projected to be near the 5-year average. Assuming a mid-range fawn survival of 60 percent, the model predicts the herd will be essentially stable in 2017.

Management Summary

With the population apparently at objective, harvests are increased to maintain herd size. Herd growth has been slow due to poor fawn production, so large increases in harvest are not necessary. The 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, but access to most of those surplus bucks is still limited. Moderately improved buck:doe ratios in the western portion suggest harvest from this segment could also be increased. Classification and line-transect observations suggest most doe harvest should also come from the eastern portion of the area, and the Type 6 doe/fawn licenses are designed to do that. Landowners along Muddy Creek have expressed a desire to end the doe/fawn harvest directed towards their irrigated croplands, but the Type 7 licenses have already been available for applications from hunters. To meet hunter expectations for an early doe/fawn hunt, and alleviate landowner concerns, the private land restriction is removed for those licenses.

The expected harvest of roughly 135 bucks and 70 does and fawns from the proposed license quotas should maintain herd size near the 2016 level of approximately 7,000 pronghorn. With the herd so close to objective, either poor winter survival or low fawn production in 2017 could require harvest reductions in future years.

Opening date falls on the traditional day of the week and will synchronize with neighboring Area 61. The closing date is the same as in the previous five 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

