

2013 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2013 - 5/31/2014

HERD: PR401 - SUBLETTE

HUNT AREAS: 85-93, 96, 107

PREPARED BY: PATRICK BURKE

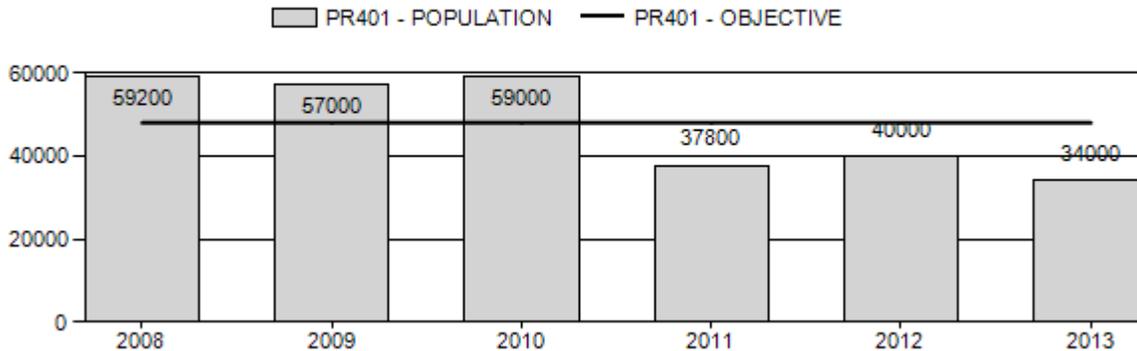
	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	50,600	34,000	34,000
Harvest:	5,561	3,647	3,647
Hunters:	5,750	3,767	3,700
Hunter Success:	97%	97%	99%
Active Licenses:	6,428	4,282	4,000
Active License Percent:	87%	85%	91%
Recreation Days:	19,870	13,378	13,000
Days Per Animal:	3.6	3.7	3.6
Males per 100 Females	57	48	
Juveniles per 100 Females	62	63	

Population Objective:	48,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-29.2%
Number of years population has been + or - objective in recent trend:	3
Model Date:	2/21/2014

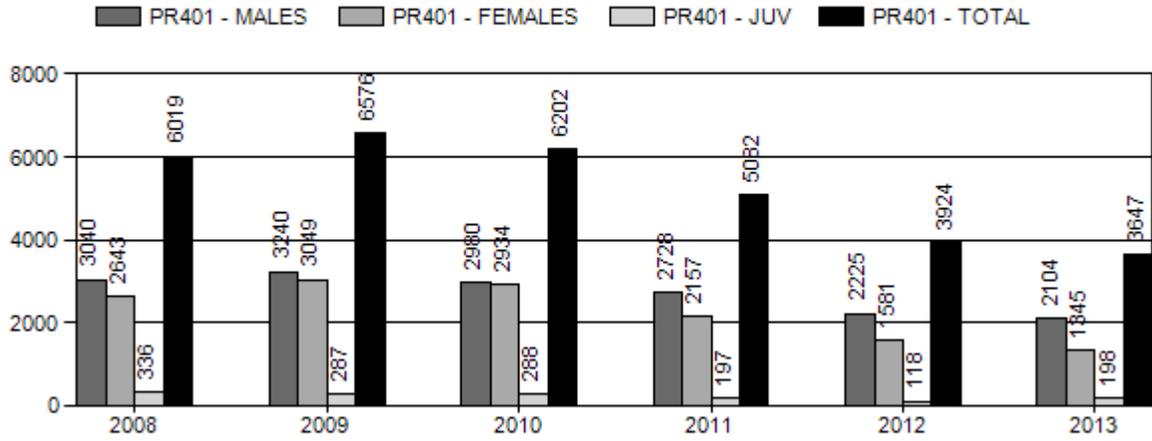
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	8.0%	8%
Males ≥ 1 year old:	21.3%	25%
Juveniles (< 1 year old):	0.9%	1%
Total:	8.5%	8%
Proposed change in post-season population:	0.3%	0%

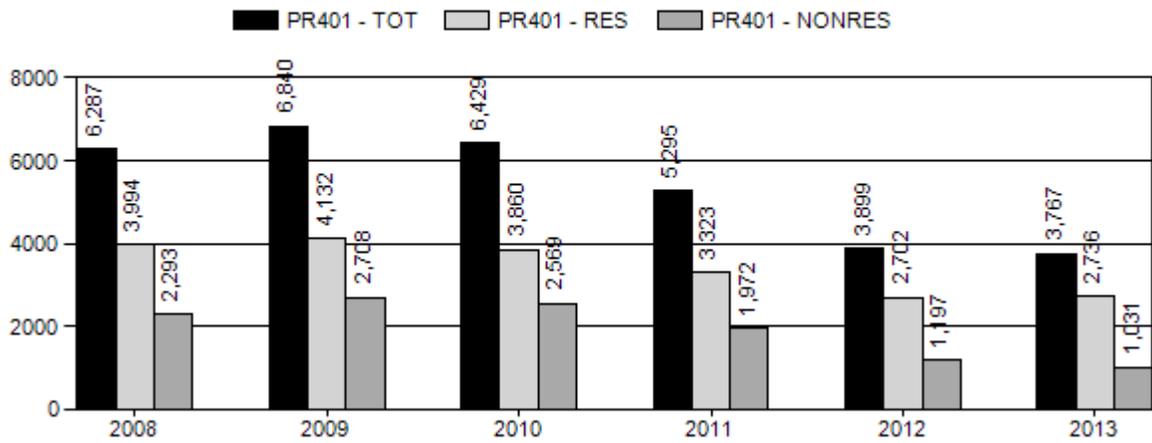
Population Size - Postseason



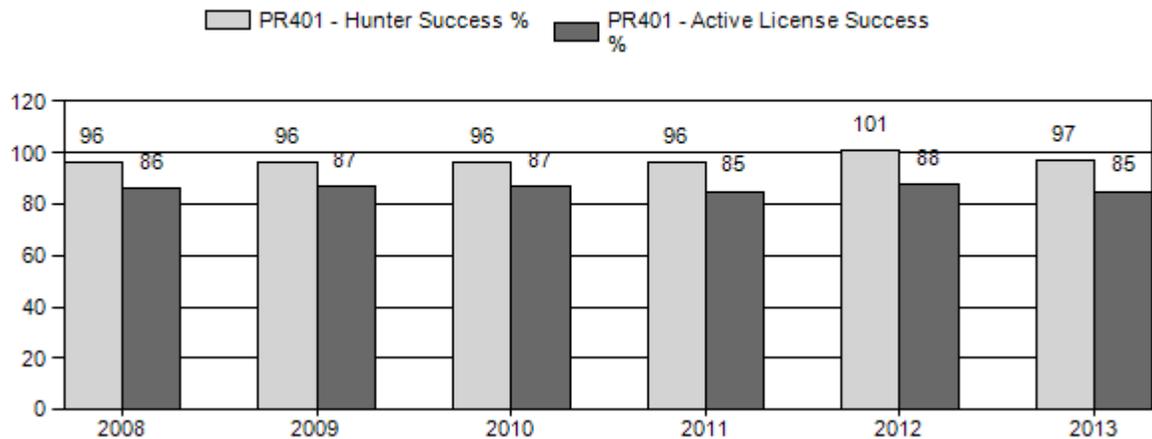
Harvest



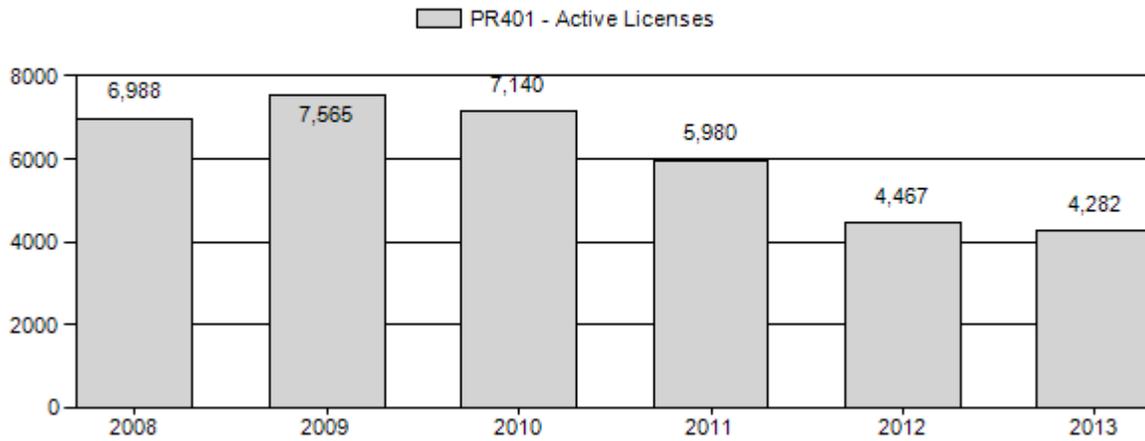
Number of Hunters



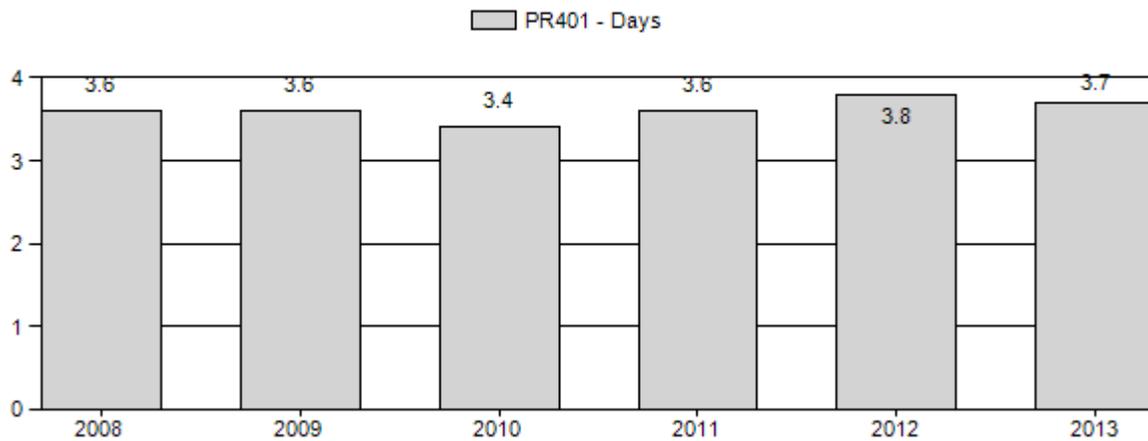
Harvest Success



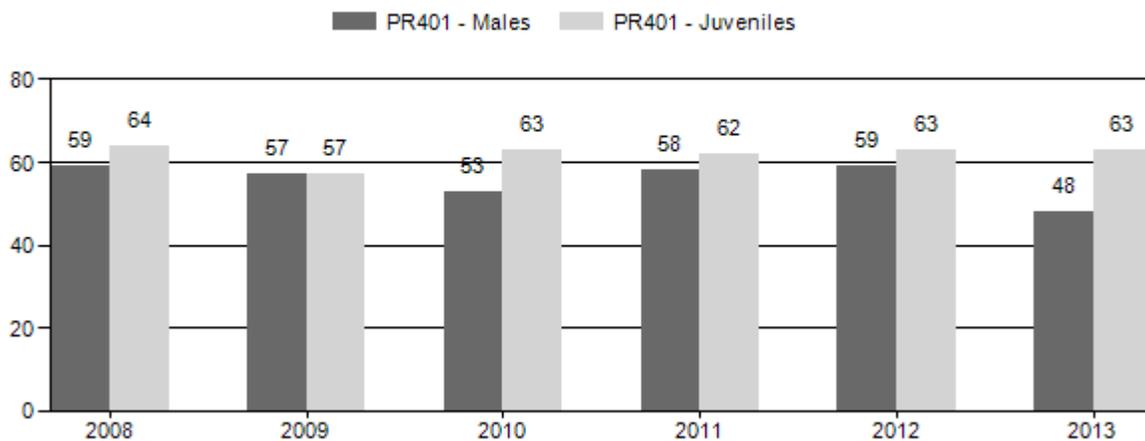
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2008 - 2013 Preseason Classification Summary

for Pronghorn Herd PR401 - SUBLETTE

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	65,800	1,103	2,241	3,344	26%	5,693	45%	3,635	29%	12,672	1,575	19	39	59	± 2	64	± 2	40
2009	64,500	1,088	2,357	3,445	27%	6,036	47%	3,431	27%	12,912	2,385	18	39	57	± 0	57	± 0	36
2010	66,000	783	2,407	3,190	24%	6,035	46%	3,804	29%	13,029	2,138	13	40	53	± 2	63	± 2	41
2011	43,400	684	2,043	2,727	26%	4,713	45%	2,936	28%	10,376	2,163	15	43	58	± 2	62	± 2	39
2012	45,086	646	1,967	2,613	27%	4,439	45%	2,800	28%	9,852	1,986	15	44	59	± 2	63	± 2	40
2013	38,172	517	1,848	2,365	23%	4,975	48%	3,123	30%	10,463	2,065	10	37	48	± 2	63	± 2	43

**2014 HUNTING SEASONS
SUBLETTE PRONGHORN HERD (PR401)**

Hunt Area	Type	SEASON DATES		Quota	Limitations
		Opens	Closes		
85	1	Sept.10	Oct. 31	15	Limited quota; any antelope
86	1	Sept. 10	Oct. 31	50	Limited quota; any antelope
	6	Sept. 10	Oct. 31	25	Limited quota; doe or fawn antelope
87	1	Sept. 10	Oct. 31	200	Limited quota; any antelope, except that portion of Area 87 one (1) mile north and one (1) mile west of the junction of U.S. Highway 191 and Wyoming Highway 352 shall be closed to hunting.
	2	Sept.25	Oct. 31	150	Limited quota; any antelope, except that portion of Area 87 one (1) mile north and one (1) mile west of the junction of U.S. Highway 191 and Wyoming Highway 352 shall be closed to hunting
	6	Sept. 10	Oct. 31	150	Limited quota; doe or fawn antelope, except that portion of Area 87 within one (1) mile north and one (1) mile west of the junction of U.S. Highway 191 and Wyoming Highway 352 shall be closed to hunting
	7	Sept.25	Oct. 31	150	Limited quota; doe or fawn antelope, except that portion of Area 87 within one (1) mile north and one (1) mile west of the junction of U.S. Highway 191 and Wyoming Highway 352 shall be closed to hunting

88	1	Sept. 10	Oct. 31	300	Limited quota; any antelope, except that portion of Area 88 on BLM lands immediately west of the East Green River Road (Sublette County Road 23-110) and west of the Woods-Wardell Road (Sublette County Road 23-179) shall be closed to hunting
	6	Oct. 1	Oct. 31	325	Limited quota; doe or fawn antelope, except that portion of Area 88 on BLM lands immediately west of the East Green River Road (Sublette County Road 23-110) and west of the Woods-Wardell Road (Sublette County Road 23-179) shall be closed to hunting
89	1	Sept. 10	Oct. 31	200	Limited quota; any antelope
	2	Oct. 10	Oct. 31	125	Limited quota; any antelope
	6	Oct. 1	Oct. 31	375	Limited quota; doe or fawn antelope
	7	Oct. 1	Oct. 31	25	Limited quota; doe or fawn antelope valid in that portion of Area 89 south of Wyoming Highway 351 and east of U.S. Highway 189

90	1	Sept. 10	Oct. 31	225	Limited quota; any antelope valid in that portion of Area 90 east of U.S. Highway 191
	2	Sept. 10	Oct. 31	175	Limited quota; any antelope valid in that portion of Area 90 west of U.S. Highway 191
	6	Aug. 15	Sept. 9	200	Limited quota; doe or fawn antelope valid on private land in that portion of Area 90 east of U.S. Highway 191
		Sept. 10	Oct. 31		Unused Area 90 Type 6 licenses doe or fawn antelope valid in that portion of Area 90 east of U.S. Highway 191
	7	Sept. 10	Oct. 31	75	Limited quota; doe or fawn antelope valid in that portion of Area 90 west of U.S. Highway 191
91	1	Sept. 10	Oct. 31	400	Limited quota; any antelope
	6	Sept. 10	Oct. 31	225	Limited quota; doe or fawn antelope
	7	Aug. 15	Oct. 31	125	Limited quota; doe or fawn antelope, valid in that portion of Area 91 on private and Bureau of Reclamation land within Sweetwater County
92	1	Sept. 10	Oct. 31	150	Limited quota; any antelope
	7	Sept. 10	Oct. 31	50	Limited quota; doe or fawn antelope valid in that portion of Area 92 within the Farson-Eden Irrigation Project
93	1	Sept. 10	Oct. 31	400	Limited quota; any antelope
	6	Sept. 10	Oct. 31	25	Limited quota; doe or fawn antelope
	7	Sept. 10	Oct. 31	150	Limited quota; doe or fawn antelope valid in that portion of Area 93 north and west of Wyoming Highway 189

96	1	Sept. 10	Oct. 31	50	Limited quota; any antelope
	7	Sept. 10	Oct. 31	25	Limited quota; doe or fawn antelope valid in that portion of Area 96 within the Farson-Eden Irrigation Project
107	1	Sept. 10	Oct. 22	50	Limited quota; any antelope
	6	Sept. 10	Oct. 22	50	Limited quota; doe or fawn antelope
	0	Aug. 20	Sept. 9	50	Limited quota; any antelope, muzzleloading firearms and handguns only

ARCHERY : Aug. 15 Refer to license type and limitations in Section 3.

Hunt Area	Type	Quota change from 2013
87	6	-50
89	1	-125
	2	+125
	6	-50
90	2	-25
	6	-25
	7	-50
93	1	-100
	6	-25
	7	+50
96	1	-25
Herd Unit Total	1	-250
	2	+125
	6	-150

Management Evaluation

Current Management Objective: 48,000

Management Strategy: Recreational

2013 Postseason Population Estimate: ~34,000

2014 Proposed Population Estimate: ~34,000

The post-season population objective for the Sublette pronghorn herd is 48,000 pronghorn and is designated as a recreational management herd. This objective for this population was set in 1994.

Herd Unit Issues

The 2013 post-season modeled population estimate for the Sublette herd is approximately 34,000 pronghorn with a stable trend. The last two line-transect surveys conducted in this herd unit have yielded radically different estimates for where this herd is in relation to its population objective. One survey flown at the end of the 2006 bio-year year resulted in an estimated end of bio-year population size of just over 48,000 pronghorn, which placed this population significantly over objective. Because of this survey, harvest was significantly increased across the herd unit in order to move the herd down towards its population objective. Following that survey, severe winter conditions during the 2010-2011 winter resulted in significantly higher than normal mortality for the herd. Another line-transect survey flown at the end of the 2010 bio-year resulted in a much lower population estimate of just under 27,000 animals. The discrepancy between these two estimates, even with a severe winter between them when this herd experience higher than normal mortality, raised some questions about the true size of this population. In early June 2013, another line-transect survey was flown, using a slightly modified stratified survey design from the 2010 survey. The resulting end of bio-year population estimate from this latest survey was around 31,500 pronghorn which correlated well with both the 2010 estimate and with model predictions.

Weather

Tougher than normal winter conditions during the 2010-2011 winter resulted in higher than normal over winter mortality in this herd. Winters since then have been, by comparison significantly milder than the 2012-2011 winter. The summers of 2012 and 2013 were both very dry with little summer precipitation, especially in the southern, lower elevation portions of this herd unit. These weather conditions appear to have had little effect on this herd as fawn ratios have been remarkably stable for the last few years. This can probably be explained by the northern, more productive portions of the herd unit being less affected by the drought conditions than the southern, traditionally less productive, portions of the herd. Significant rainfall events did occur during September and October of 2013, while this precipitation came after the growing

season, hopefully it will increase soil moisture and allow for better plant growth in 2014. The wet conditions in the fall of 2013 did inhibit hunters' ability to access some parts of the herd unit, but did not seem to negatively impact overall success rates since the pronghorn hunting season occurred at the beginning of these rainfall events.

Habitat

No habitat transects targeting pronghorn range were conducted in the Sublette herd unit during the period covered by this report. However, the summer of 2012 was one of the driest summers on record in Wyoming, with the summer of 2013 also being very dry in portions of the herd unit. This lack of moisture was especially evident in areas of the herd unit below 8,000 ft, which covers much of the occupied pronghorn habitat. Despite the low moisture levels during the fawn rearing portion of 2012 and 2013, pre-season classifications resulted in normal fawn to doe ratios, suggesting that this herd was able to handle the drought conditions reasonably well. The below average precipitation and the reduced plant growth that the drought conditions would have caused, may impact this herd in the future by not allowing this herd to grow as quickly as if had normal precipitation occurred.

Field Data

Pre-season ground classifications conducted in August of 2013 resulted in observed ratios of 63 fawns per 100 does as well as 48 total and 10 yearling bucks per 100 does for the herd unit. A total of 10,463 pronghorn were classified across the whole herd unit, which is down from a high of 13,029 pronghorn classified in 2010 when the population was at a higher level, but up slightly from the 9,852 classified in 2012.

Harvest Data

The 2013 hunting season saw the lowest harvest recorded in the Sublette herd since 2001. This reduction in the number of pronghorn harvested in the herd was caused by fewer licenses being issued due in part to the 2010-2011 winter and to increased numbers of licenses issued when the herd was above objective in the late 2000's. Days per animal harvested however, remained in line with average values for this herd at 3.7 days per harvest. The overall active license success rate in 2013 was 85%, which is generally in line, but at the lower end of success rates for the herd in recent years.

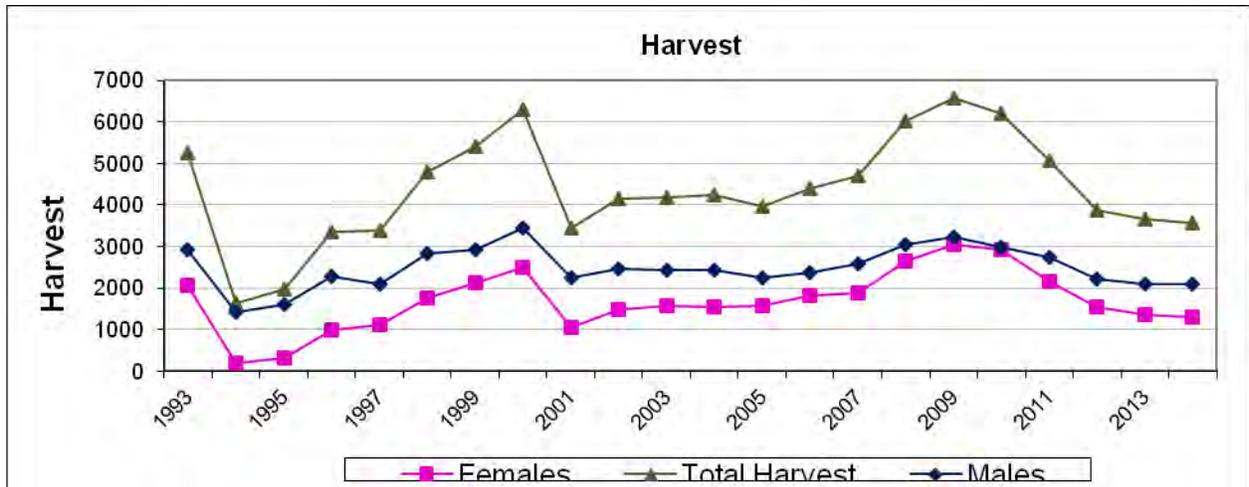
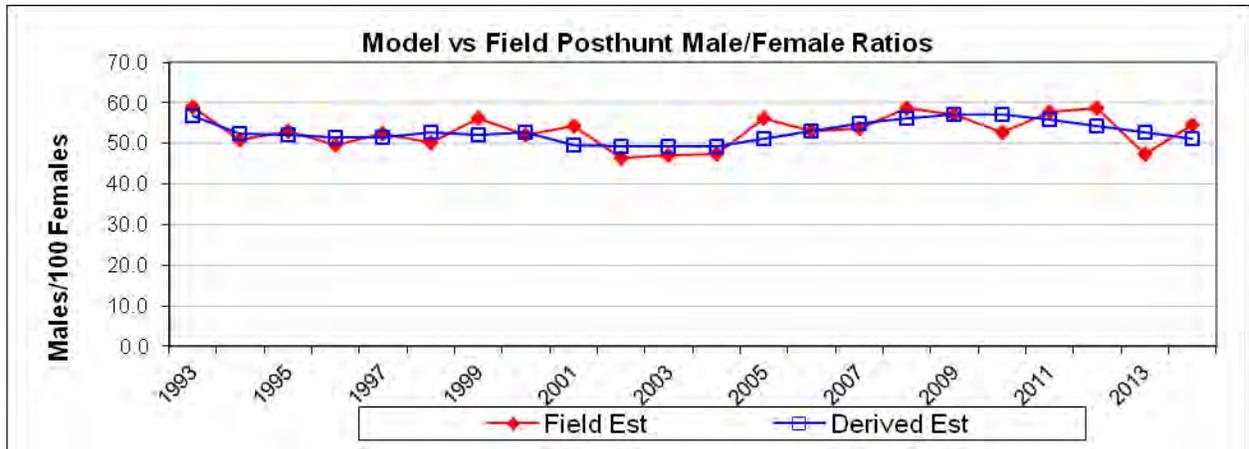
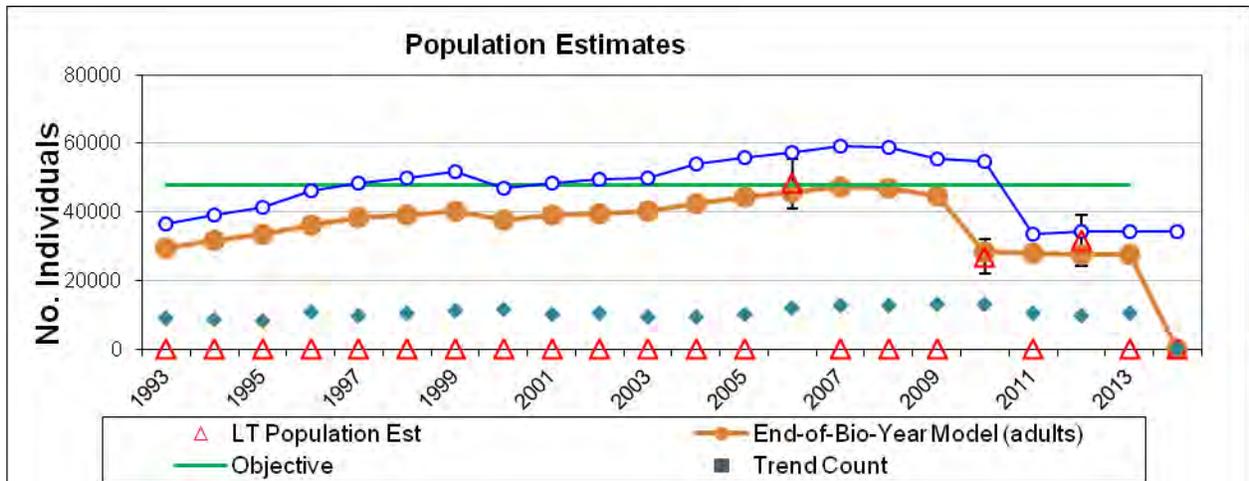
Population

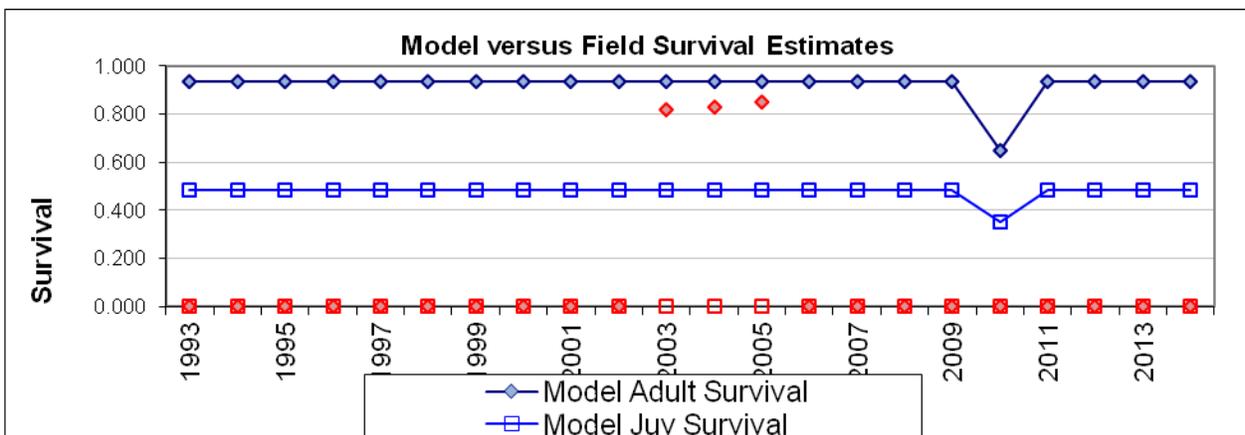
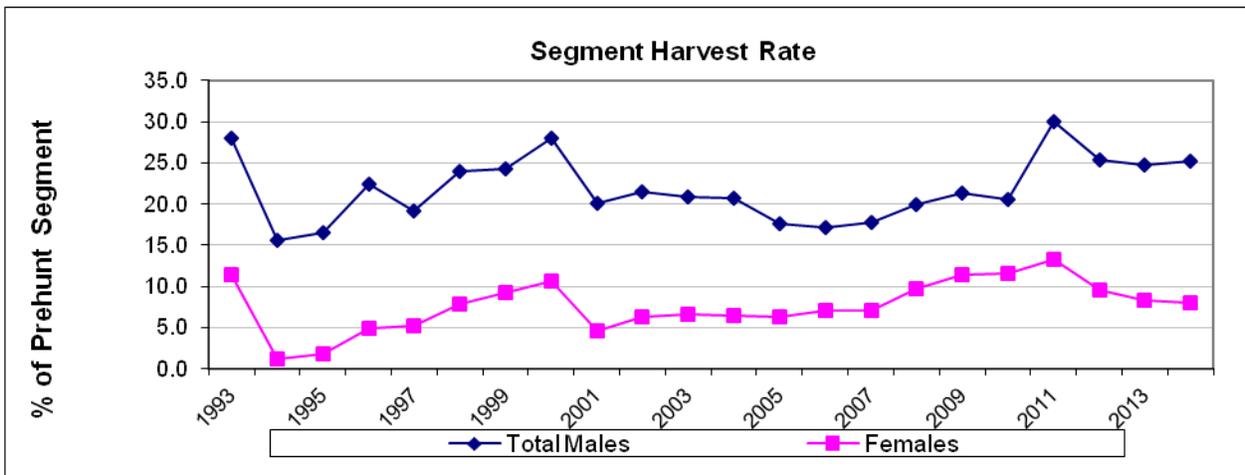
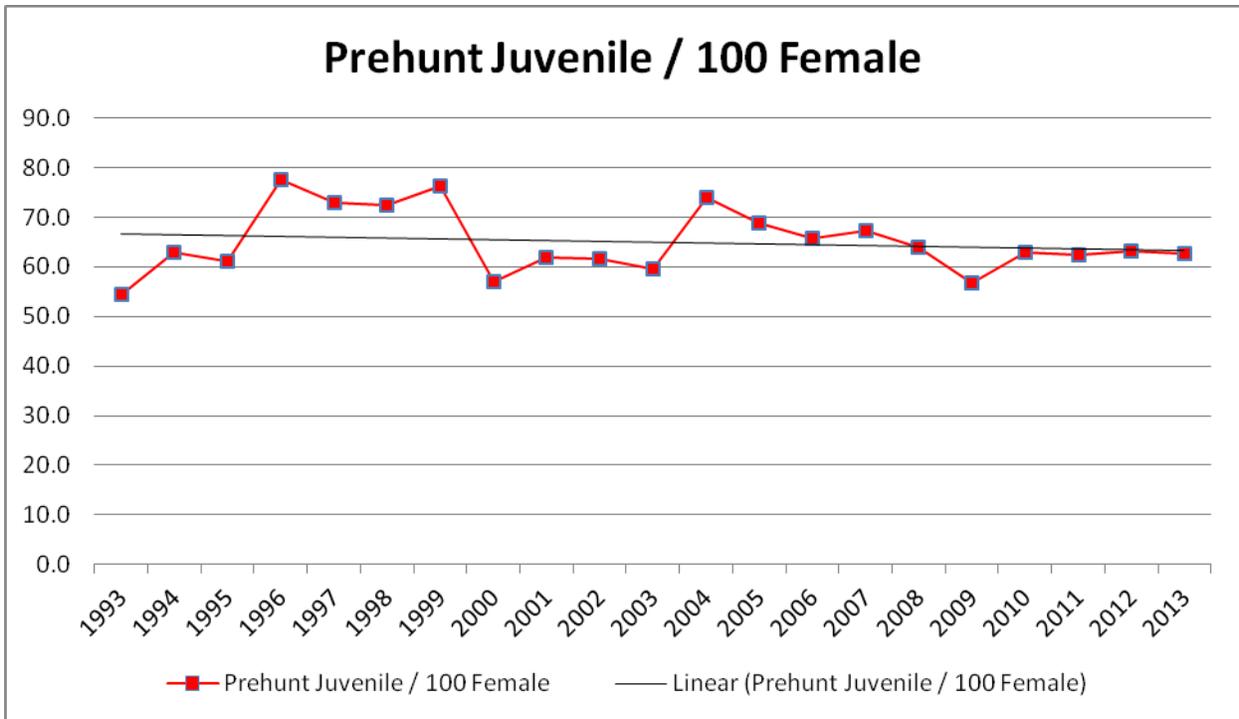
The model for the Sublette herd does a reasonable job of tracking observed ratios and line-transect estimates for this large and geographically spread out pronghorn herd. Use of the semi-constant survival model was necessary to allow the modeled population estimates to match the line-transect estimates and to allow for the population to decline sharply after the 2010-2011 winter when this herd experienced above average winter mortality. The model prediction of a significant population reduction between the 2006 bio-year and 2010 bio-year line-transect estimates matches observations made by both field personnel and the general public.

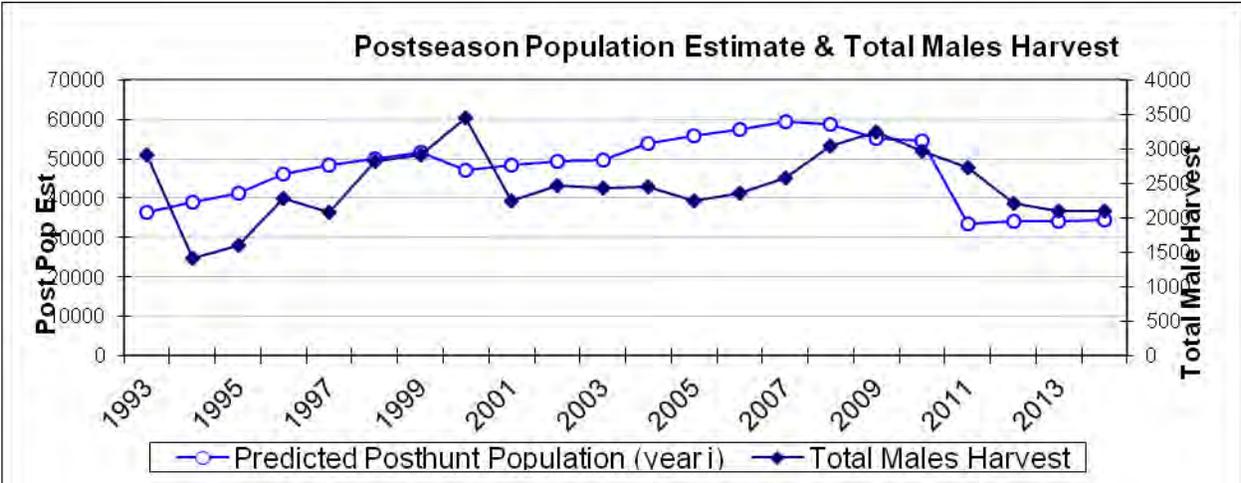
A line-transect survey was flown in the Sublette herd in June of 2013 to obtain an end of bio-year estimate for the 2012 bio-year. That survey was designed and analyzed using a stratified design to account for low, medium, and high density areas of the herd unit. The resulting end of bio-year population estimate for the herd was 31,550 (SE 7438) pronghorn. This population estimate agrees well with the previous line-transect survey flown in 2011 and with model predictions.

Management Summary

The 2014 season structure includes maintaining license numbers at their 2013 levels in most hunt areas in the herd unit with only slight reductions in a few hunt areas of the herd. Reductions in Type 1 licenses will take place in Hunt Areas 89, 93 and 96. These were proposed due to concerns over lower pronghorn numbers in the southern portions of the herd. These reductions in HA89 are offset by the creation of a Type 2 license in that hunt area. Reductions in Type 6 or 7 licenses will take place in Hunt Areas 87, 89, 90, and 93. The season for HA93 also includes an increase in the number of Type 7 licenses. The 2014 season structure also includes a change in the ending dates for HA107. This change was recommended to align the ending date for HA107 with ending dates of other pronghorn herds in the Lander Region.







INPUT	
Species:	Pronghorn
Biologist:	Patrick Burke
Herd Unit & No.:	Sublette PR401
Model date:	02/21/14

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	117	126	<input type="checkbox"/> CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	131	145	<input checked="" type="checkbox"/> SCJ,SCA Model	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	38	142	<input type="checkbox"/> TSJ,CA Model	

Population Estimates from Top Model															
Year	Predicted Prehunt Population (year t)			Total	Predicted Posthunt Population (year t)			Total	Predicted adult End-of-bio-year Pop (year t)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	10885	11410	20042	42336	10582	8211	17767	36560	10163	19350	29513			48000	
1994	11949	9959	18963	40872	11923	8411	18749	39082	10864	20826	31690			48000	
1995	12487	10647	20409	43544	12439	8880	20045	41364	11420	22176	33596			48000	
1996	16835	11192	21732	49759	16745	8682	20648	46075	12233	23755	35988			48000	
1997	16999	11988	23280	52268	16794	9694	22051	48539	13196	25067	38262			48000	
1998	17783	12932	24565	55280	17541	9826	22634	50001	13443	25752	39196			48000	
1999	19261	13174	25237	57672	18849	9974	22913	51737	13856	26272	40128			48000	
2000	14678	13579	25746	54004	14301	9788	23005	47094	12527	25220	37747			48000	
2001	15306	12276	24715	52298	15156	9807	23557	48520	12902	26121	39023			48000	
2002	15754	12644	25598	53997	15521	9930	23974	49425	13073	26557	39629			48000	
2003	15526	12811	26026	54362	15349	10133	24282	49763	13240	26816	40056			48000	
2004	19449	12975	26279	58704	19186	10287	24581	54054	14310	28028	42338			48000	
2005	18884	14024	27467	60375	18727	11551	25726	56004	15447	29033	44480			48000	
2006	18729	15138	28452	62319	18504	12537	26446	57487	16307	29630	45938	48244	7423	48000	
2007	19526	15981	29038	64544	19276	13139	26960	59374	17050	30301	47350			48000	
2008	18960	16709	29695	65363	18590	13365	26787	58743	17032	29881	46913			48000	
2009	16645	16692	29283	62621	16330	13128	25930	55387	16248	28489	44738			48000	
2010	17598	15923	27920	61442	17282	12645	24692	54619	10198	18206	28403	26991	5038	48000	
2011	11115	9994	17842	38950	10898	6993	15469	33360	9794	18054	27848			48000	
2012	11160	9599	17693	38451	11027	7158	16000	34184	9557	18140	27698	31550	7438	48000	
2013	11160	9366	17777	38303	10942	7052	16298	34292	9340	18272	27612			48000	
2014	11230	9153	17906	38289	11037	6843	16476	34357						48000	
2015														48000	
2016														48000	
2017														48000	
2018														48000	
2019														48000	
2020														48000	
2021														48000	
2022														48000	
2023														48000	
2024														48000	
2025														48000	

Survival and Initial Population Estimates

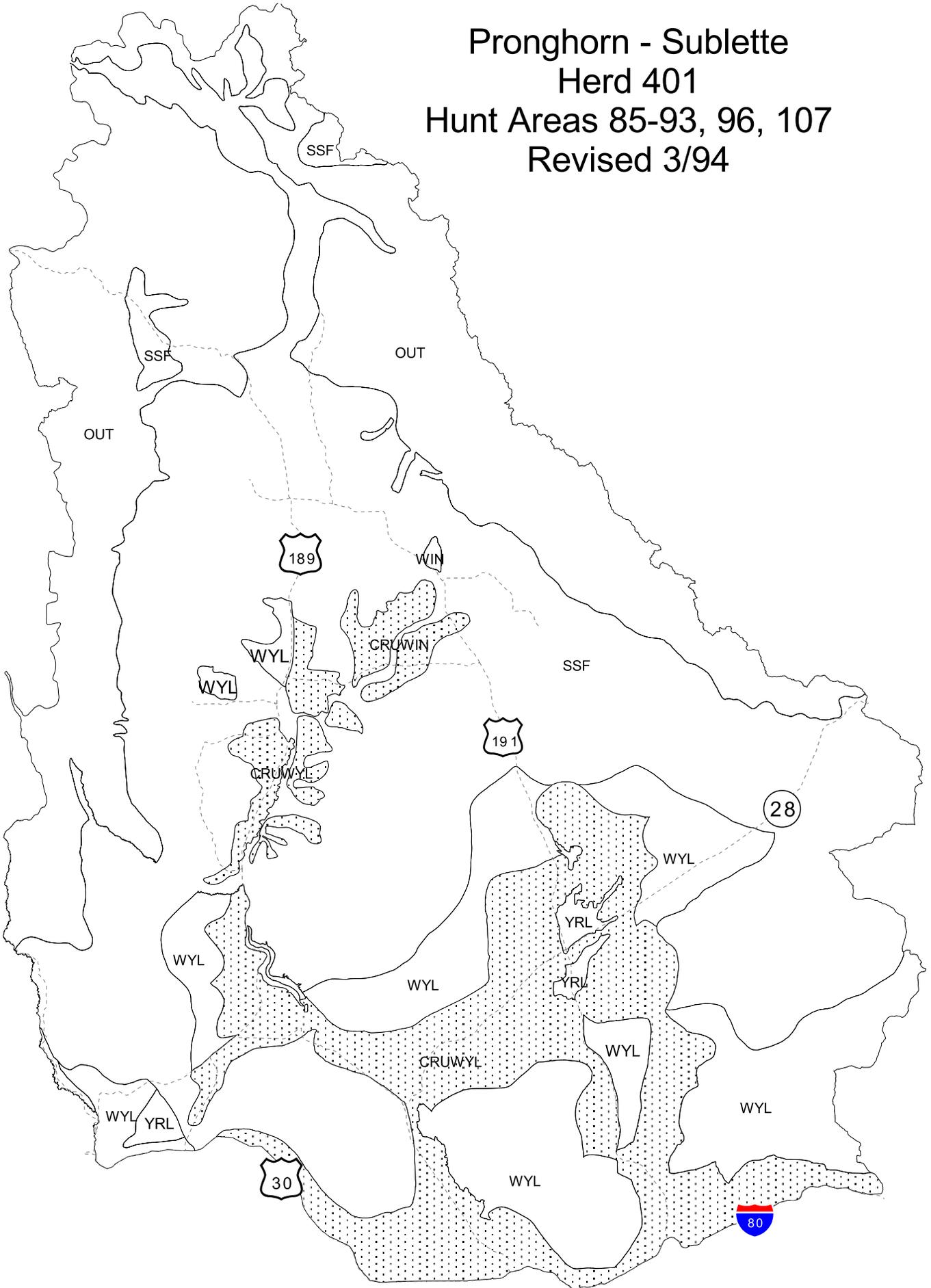
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.48			0.94		
1994	0.48			0.94		
1995	0.48			0.94		
1996	0.48			0.94		
1997	0.48			0.94		
1998	0.48			0.94		
1999	0.48			0.94		
2000	0.48			0.94		
2001	0.48			0.94		
2002	0.48			0.94		
2003	0.48			0.94	0.82	0.04
2004	0.48			0.94	0.83	0.04
2005	0.48			0.94	0.85	0.04
2006	0.48			0.94		
2007	0.48			0.94		
2008	0.48			0.94		
2009	0.48			0.94		
2010	0.35			0.65		
2011	0.48			0.94		
2012	0.48			0.94		
2013	0.48			0.94		
2014	0.48			0.94		
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

Parameters:		Optim cells
Juvenile Survival =		0.483
Adult Survival =		0.936
Initial Total Male Pop/10,000 =		1.141
Initial Female Pop/10,000 =		2.004

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

Classification Counts										Harvest		
Year	Juvenile/Female Ratio			Total Male/Female Ratio			Males	Females	Juveniles	Total Harvest	Segment Harvest Rate (%)	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE					Total Males	Females
1993		54.31	1.42	56.93	59.04	1.50	2908	2068	275	5251	28.0	11.4
1994		63.01	1.58	52.52	50.94	1.37	1408	195	24	1627	15.6	1.1
1995		61.19	1.61	52.17	53.06	1.46	1606	331	44	1981	16.6	1.8
1996		77.47	1.68	51.50	49.61	1.24	2282	985	82	3349	22.4	5.0
1997		73.02	1.71	51.49	52.59	1.36	2085	1118	187	3390	19.1	5.3
1998		72.39	1.62	52.64	50.28	1.26	2823	1756	220	4799	24.0	7.9
1999		76.32	1.68	52.20	56.19	1.36	2909	2113	374	5396	24.3	9.2
2000		57.01	1.28	52.74	52.22	1.21	3447	2492	343	6282	27.9	10.6
2001		61.93	1.46	49.67	54.31	1.33	2245	1053	137	3435	20.1	4.7
2002		61.54	1.41	49.39	46.45	1.16	2467	1477	212	4156	21.5	6.3
2003		59.66	1.44	49.22	47.24	1.23	2435	1585	161	4181	20.9	6.7
2004		74.01	1.74	49.37	47.50	1.28	2444	1544	239	4227	20.7	6.5
2005		68.75	1.61	51.06	56.13	1.40	2248	1583	143	3974	17.6	6.3
2006		65.83	1.41	53.20	53.06	1.21	2364	1824	205	4393	17.2	7.1
2007		67.24	1.39	55.04	53.82	1.20	2584	1889	227	4700	17.8	7.2
2008		63.85	1.36	56.27	58.74	1.28	3040	2643	336	6019	20.0	9.8
2009		56.84	1.22	57.00	57.07	1.22	3240	3049	287	6576	21.4	11.5
2010		63.03	1.30	57.03	52.86	1.16	2980	2934	288	6202	20.6	11.6
2011		62.30	1.46	56.01	57.86	1.39	2728	2157	197	5082	30.0	13.3
2012		63.08	1.52	54.25	58.86	1.45	2219	1539	1539	3879	25.4	9.6
2013		62.77	1.43	52.69	47.54	1.19	2104	1345	1345	3647	24.7	8.3
2014		62.72	1.47	51.12	54.75	1.34	2100	1300	1300	3575	25.2	8.0
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

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



2013 - JCR Evaluation Form

Species: Pronghorn

Period: 6/1/2013 - 5/31/2014

Herd: PR411 - UINTA-CEDAR MOUNTAIN

Hunt Areas: 95, 99

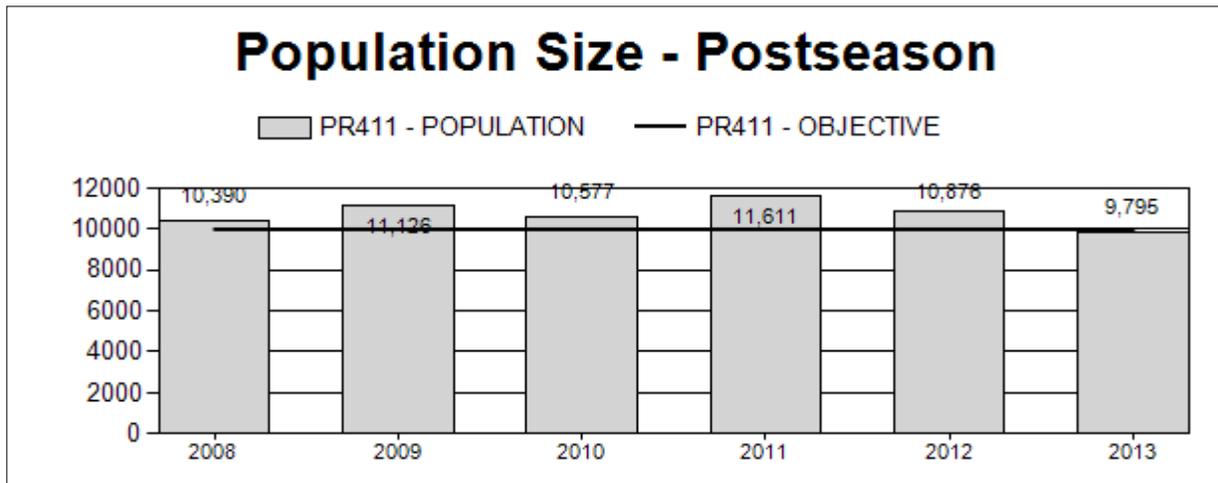
Prepared By: JEFF SHORT

	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	10,916	9,795	9,660
Harvest:	888	876	955
Hunters:	941	889	900
Hunter Success:	94%	99%	106 %
Active Licenses:	1,022	980	1,000
Active License Percent:	87%	89%	96 %
Recreation Days:	3,505	3,988	3,900
Days Per Animal:	3.9	4.6	4.1
Males per 100 Females	64	54	
Juveniles per 100 Females	51	62	

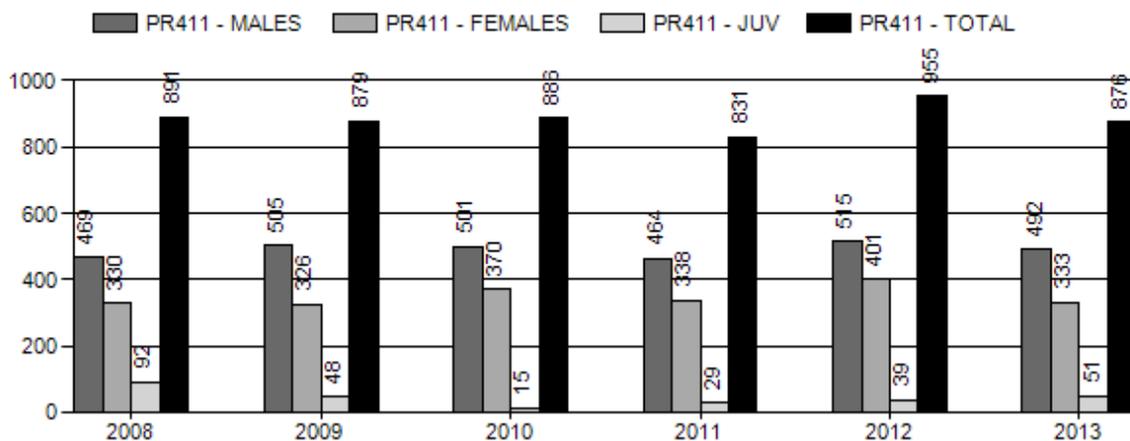
Population Objective:	10,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	-2.0%
Number of years population has been + or - objective in recent trend:	1
Model Date:	01/29/2014

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

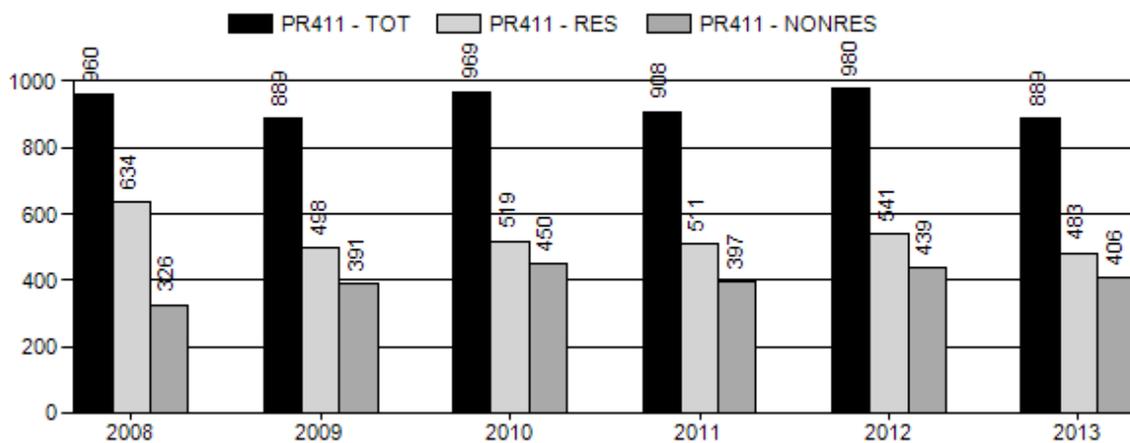
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	7.5%	9.0%
Males ≥ 1 year old:	18.9%	19.7%
Juveniles (< 1 year old):	1.98%	1.04%
Total:	8.53%	8.9%
Proposed change in post-season population:	-6.7%	-1.3%



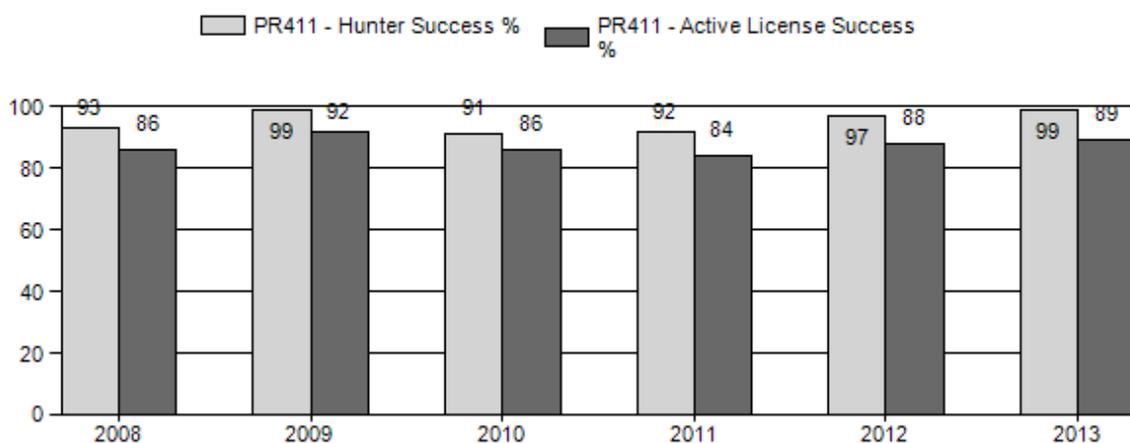
Harvest



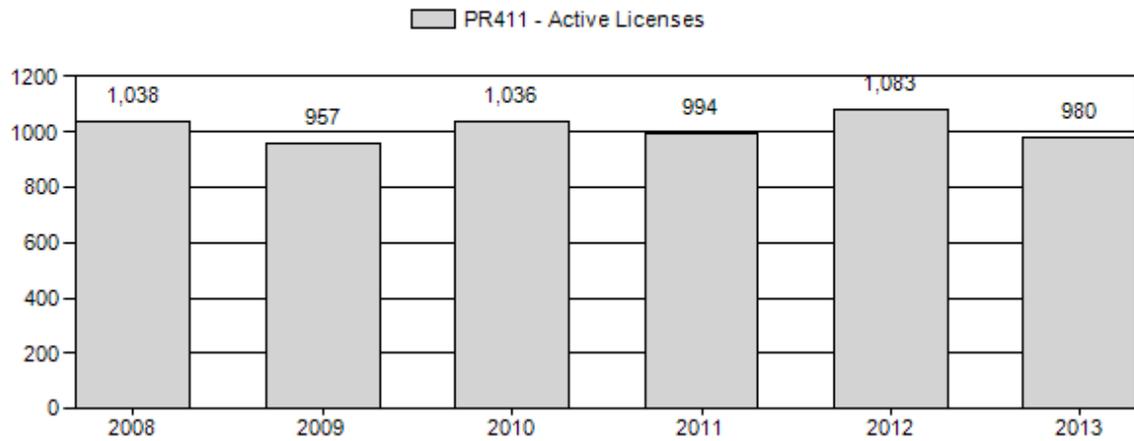
Number of Hunters



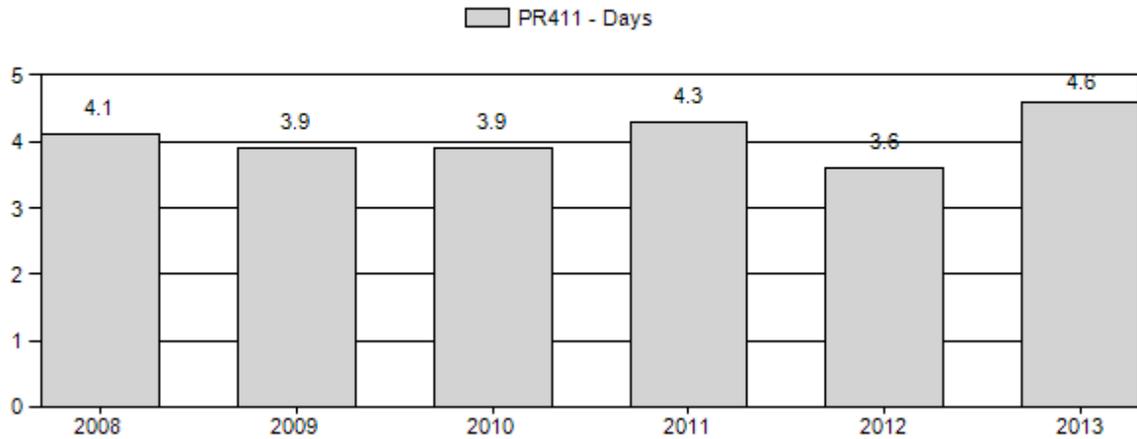
Harvest Success



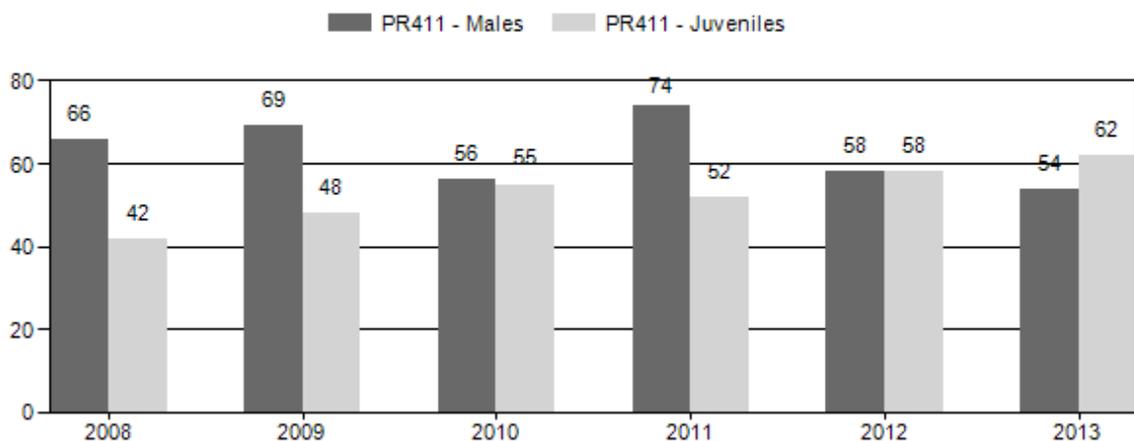
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2008 - 2013 Preseason Classification Summary

for Pronghorn Herd PR411 - UINTA-CEDAR MOUNTAIN

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	11,370	222	337	559	32%	849	48%	353	20%	1,761	0	26	40	66	± 5	42	± 4	25
2009	12,093	191	542	733	32%	1,060	46%	511	22%	2,304	0	18	51	69	± 5	48	± 4	28
2010	11,551	151	525	676	26%	1,213	47%	668	26%	2,557	0	12	43	56	± 4	55	± 4	35
2011	12,525	120	317	437	33%	589	44%	309	23%	1,335	0	20	54	74	± 7	52	± 6	30
2012	11,916	88	378	466	27%	799	46%	460	27%	1,725	0	11	47	58	± 5	58	± 5	36
2013	10,759	80	210	290	25%	536	46%	332	29%	1,158	0	15	39	54	± 6	62	± 7	40

2014 HUNTING SEASONS

SPECIES: Pronghorn

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

Hunt Area	Type	Dates of Seasons		Limited Quota	Limitations
		Opens	Closes		
95	1	Sept. 10	Oct. 31	325	Limited quota licenses; any antelope
	7	Sept. 10	Oct. 31	75	Limited quota licenses; doe or fawn valid on irrigated lands
99	1	Sept. 10	Oct. 31	225	Limited quota licenses; any antelope
	6	Sept. 10	Oct. 31	400	Limited quota licenses; doe or fawn
	7	Sept. 10	Oct. 31	50	Limited quota licenses; doe or fawn valid north and west of Wyoming Highway 410 and west of Uinta County Road 271
	0	Sept. 1	Oct. 31	50	Limited quota licenses; any antelope, muzzle-loading firearms only
95, 99	Archery	Aug. 15	Sept. 9		Refer to Section 3 of this chapter

Hunt Area	License Type	Quota change from 2013
Herd Unit Total		

Management Evaluation

Current Postseason Population Management Objective: 10,000

Management Strategy: Recreational

2013 Postseason Population Estimate: ~9,795

2014 Proposed Postseason Population Estimate: ~9,660

Herd Unit Issues

The two hunt areas in this herd are very different in several characteristics. Hunt Area 95 is mostly public land, more xeric, and has much lower fawn ratios. Hunt Area 99 has much better conditions for fawn production and survival. Hunt Area 99 has much more private land where the majority of HA 95 is BLM land.

Throughout the herd unit there is a low tolerance for the presence of pronghorn on some of the irrigated land holdings. Conflict with agriculture producers can be an issue for this herd. Damage complaints mostly occur on irrigated lands during the summer and early fall. However, irrigated lands are uncommon relative to native ranges. Significant efforts have been made to direct harvest toward those problems. Perceived reduction in livestock forage due to pronghorn foraging is an issue that can be brought up. However, dietary overlap and pronghorn use is negligible in native rangelands.

Energy development on crucial habitat is a looming issue for this herd. Development is present but has yet to impact habitats on a large scale. Wyoming Highway 414 has created a significant movement barrier between the two hunt areas in this herd unit.

Weather

Weather during 2013 and into 2014 was highly variable. In the early part of 2013 the winter was very mild and dry. A dry spring and summer followed. In late August and into September heavy precipitation came and ended the dry conditions. The winter of 2013-2014 has been fairly mild to this point. The winters of 2011-2012 and 2012-2013 were also mild with low snowpack resulting in good over winter survival. However, the dry springs and summers of 2012 and 2013 negatively impacted summer and winter range forage production. Fawn survival suffered from the extremely dry conditions. Conditions were better at higher elevations but pronghorn distribution was greatly affected.

Habitat

Habitat data collection has been inconsistently collected in this herd unit and has been absent in the recent past.

Field Data

The 2013 post-season population estimate was about 9,795 with limited growth since 2007. The last line transect survey was conducted in this herd unit in June 2009. That survey resulted in an estimated population of 10,997 pronghorn for the end of bio year 2008. A new line transect survey is scheduled to be flown in 2014.

Harvest Data

In 2012 in Area 99 we added a type 7 hunt with 50 permits to target specific depredation problems west of Mountain View. This helped to alleviate private land damage problems. Conservative seasons continue to be warranted in HA 95 due to very low fawn ratios.

Doe/fawn harvest opportunity was increased every year for several years in area 99. The 2009, 2010 and 2011 season structures offered substantially increased doe/fawn harvest opportunity to try to control growth of that part of the herd. Those seasons allowed significant doe/fawn harvest with large increases in permits. These hunts have had good success rates. This management framework has held this population near objective. For 2014 we are continuing this strategy to further reduce damage complaints and keep the herd near objective.

Population

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

In the future it will be imperative that we get a reliable population estimate periodically through line transect surveys to check the status of the herd and anchor the model. With this, it is likely we can provide a good population model and track the trend of this population. Without this anchor point, it will be unclear if our current harvest levels can be sustained or if we are on the right management track relative to objective.

Due to significant documented differences in density and productivity between hunt areas within this herd unit models generated for this herd should be used with some caution. However, at the current time the model appears to be performing well and with good line transect data it should be able to perform in the future. In 2012 the Department switched from POPII models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data.

Currently the model is estimating we have around 9,795 pronghorn in the herd. The model estimates a very stable trend since 2007. This is substantiated by consistency in classification sample sizes, harvest success and field observations. The hunt area 99 portion of this herd has the potential for rapid growth as consecutive years with high fawns ratios have occurred in the past. This can result in overloaded winter ranges on difficult years. Therefore, adequate harvest has been needed to curtail growth.

Management Summary

For 2014 season setting we will maintain current levels of harvest. This should continue to alleviate depredation issues and keep the population fairly stable. If we attain the projected harvest of 955 animals and near normal fawn recruitment this pronghorn population should remain close to objective. We predict a 2014 post-season population of about 9,660. The objective and management strategy were last revised in 2000 and is scheduled for review in 2014.

Model

INPUT	
Species:	Pronghorn
Biologist:	Jeff Short
Herd Unit & No.:	Uinta CM PR411
Model date:	01/29/14

Clear form

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	102	110	<input type="checkbox"/> CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	102	110	<input type="checkbox"/> SCJ,SCA M	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	41	141	<input checked="" type="checkbox"/> TSJ,CA Model	

Population Estimates from Top Model															
Year	Predicted Prehunt Population (year i)			Total	Predicted Posthunt Population (year i)			Total	Predicted adult End-of-bio-year Pop (year i)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	1409	2436	4789	8634	1249	1617	4008	6874	1970	4173	6144	7347	1837		10000
1994	1819	1931	4090	7839	1793	1562	3909	7265	1787	3965	5752	5957	1489		10000
1995	1599	1751	3886	7236	1577	1467	3767	6810	1844	3976	5820				10000
1996	2364	1807	3897	8068	2350	1521	3804	7675	2101	4221	6322	6476	1619		10000
1997	1975	2059	4136	8170	1928	1673	3937	7538	1926	4028	5964				10000
1998	2159	1887	3947	7993	2153	1484	3769	7406	1762	3886	5648	4802	1201		10000
1999	2327	1727	3809	7862	2301	1354	3573	7229	1969	4025	5994				10000
2000	2050	1930	3944	7925	2021	1524	3763	7306	1764	3846	5610	7877	1969		10000
2001	2101	1729	3769	7599	2030	1380	3459	6869	1975	3891	5866				10000
2002	2019	1936	3813	7768	1990	1487	3569	7046	2018	3953	5971	6320	1580		10000
2003	2092	1977	3874	7943	2068	1505	3541	7114	1752	3638	5390				10000
2004	2892	1717	3565	8174	2881	1239	3474	7594	1676	3771	5447	4524	1131		10000
2005	2530	1643	3695	7868	2507	1217	3627	7351	2227	4479	6706				10000
2006	2333	2182	4390	8905	2312	1742	4270	8324	2619	4976	7595				10000
2007	3109	2566	4876	10552	3053	2100	4639	9792	3284	5642	8926				10000
2008	2299	3218	5529	11046	2198	2702	5166	10066	3438	5719	9157	10997	2423		10000
2009	2702	3369	5605	11676	2649	2813	5246	10709	3056	5314	8370				10000
2010	2868	2995	5208	11071	2851	2444	4801	10096	3501	5683	9154				10000
2011	2922	3431	5569	11922	2890	2921	5198	11008	3176	5264	8441				10000
2012	2970	3113	5159	11242	2939	2548	4714	10202	2917	4978	7895				10000
2013	3022	2859	4878	10759	2965	2318	4512	9795	2997	4995	7991				10000
2014	2879	2937	4895	10711	2846	2359	4455	9660							10000

Survival and Initial Population Estimates						
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.90			0.90		
1994	0.43			0.90		
1995	0.66			0.90		
1996	0.61			0.90		
1997	0.45			0.90		
1998	0.40			0.90		
1999	0.65			0.90		
2000	0.40			0.90		
2001	0.73			0.90		
2002	0.69			0.90		
2003	0.40			0.90		
2004	0.40			0.90		
2005	0.90			0.90		
2006	0.90			0.90		
2007	0.90			0.90		
2008	0.90			0.90		
2009	0.40			0.90		
2010	0.90			0.90		
2011	0.40			0.90		
2012	0.40			0.90		
2013	0.62			0.90		
2014	0.40			0.90		

Parameters: Optim cells

Adult Survival = 0.901

Initial Total Male Pop/10,000 = 0.244

Initial Female Pop/10,000 = 0.479

MODEL ASSUMPTIONS

Sex Ratio (% Males) = 50%

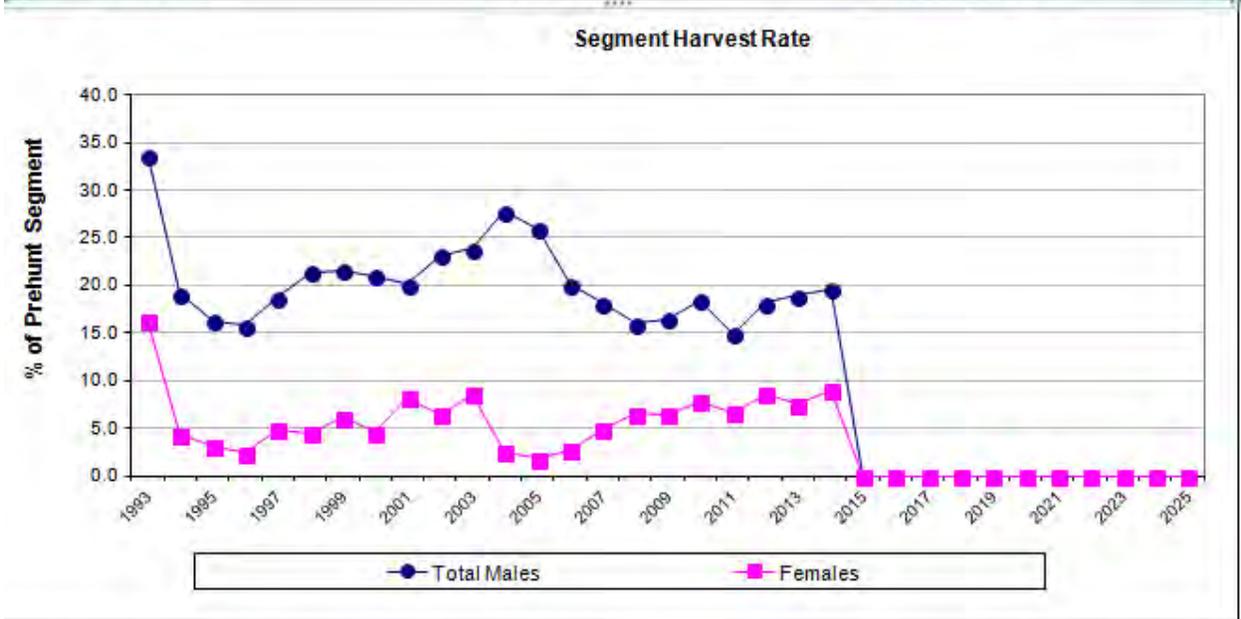
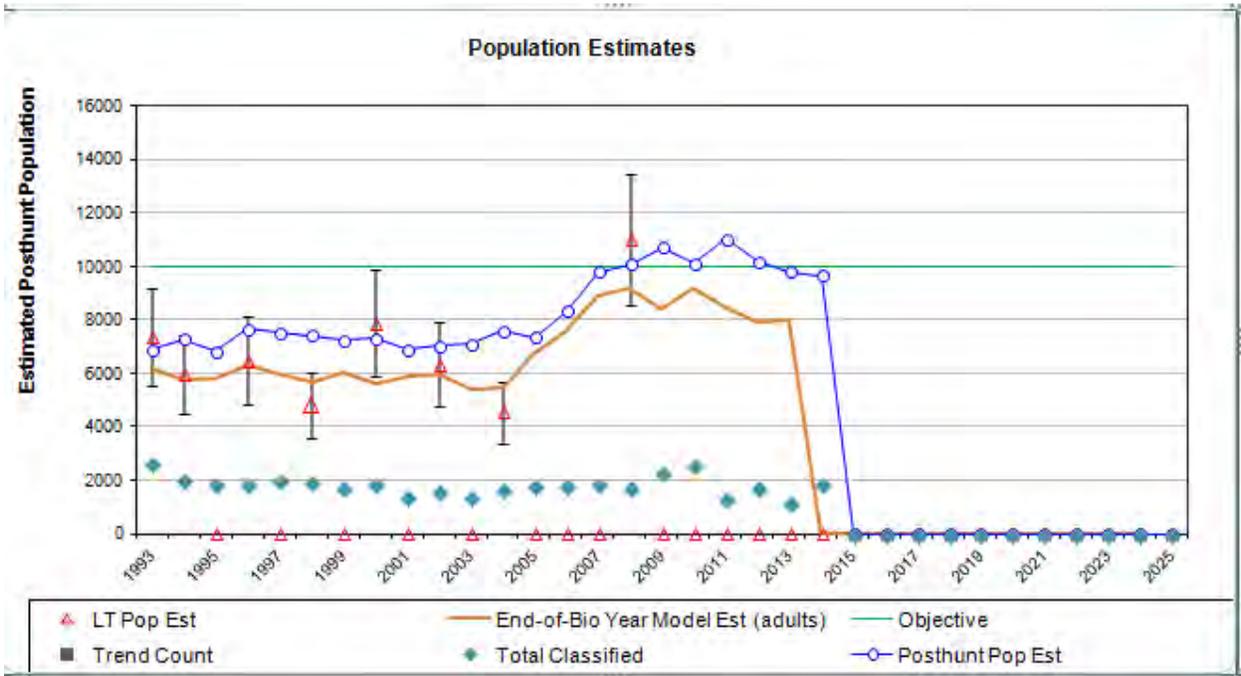
Wounding Loss (total males) = 10%

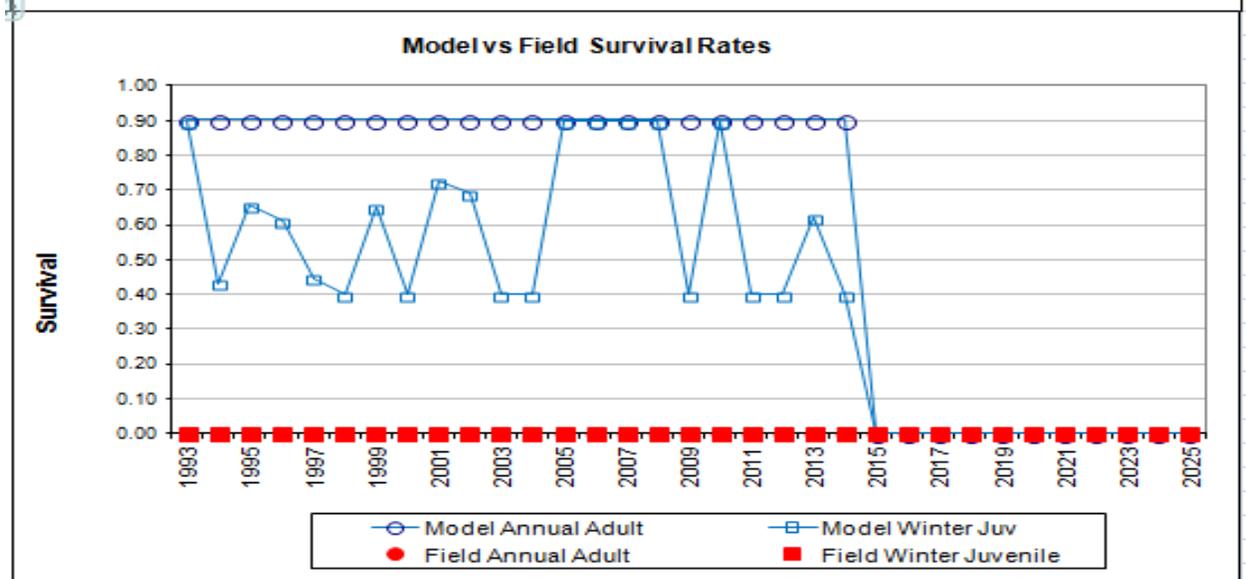
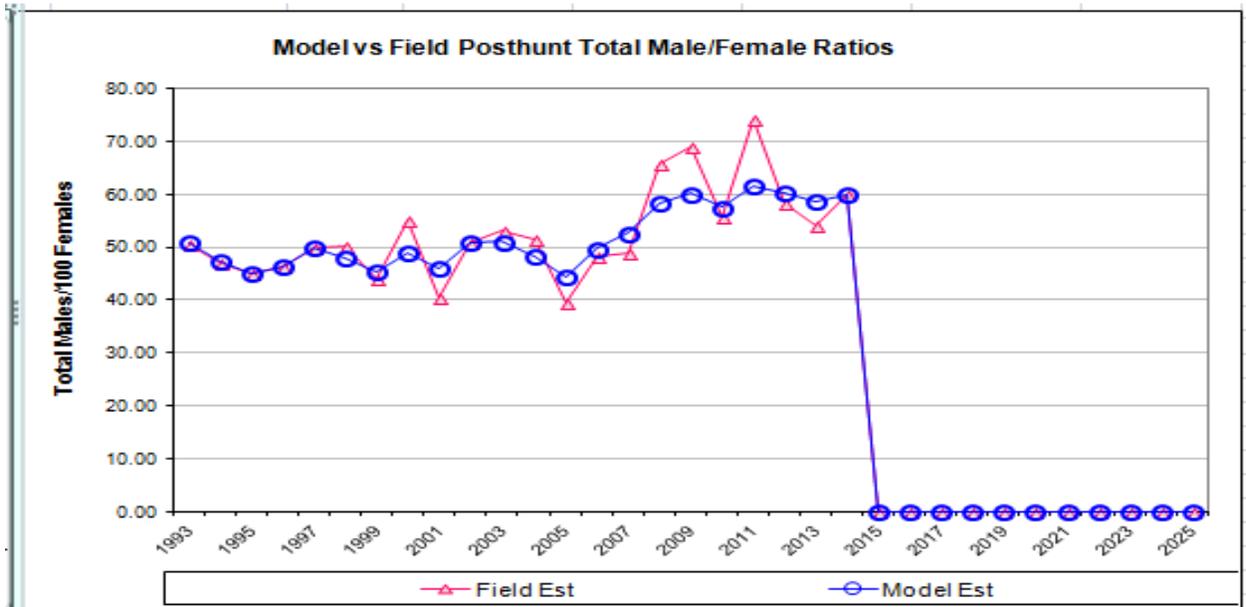
Wounding Loss (females) = 10%

Wounding Loss (juveniles) = 10%

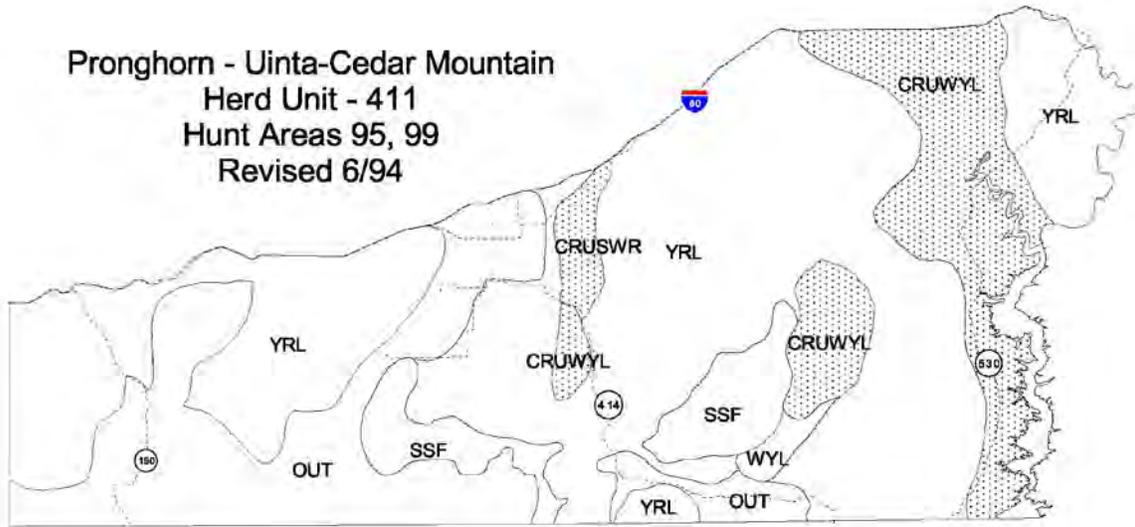
Over-summer adult survival = 98%

Year	Classification Counts						Harvest					
	Juvenile/Female Ratio			Total Male/Female Ratio			Males	Females	Juveniles	Total Harvest	Segment Harvest Rate (%)	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE					Total Males	Females
1993		29.42	1.61	50.88	50.65	2.28	745	710	145	1600	33.6	16.3
1994		44.47	2.49	47.21	47.06	2.58	335	164	23	522	19.1	4.4
1995		41.16	2.39	45.08	44.99	2.53	259	108	20	387	16.3	3.1
1996		60.67	3.30	46.37	46.37	2.75	260	84	13	357	15.8	2.4
1997		47.74	2.63	49.78	49.71	2.70	351	181	42	574	18.8	4.8
1998		54.70	2.97	47.82	50.21	2.81	367	162	5	534	21.4	4.5
1999		61.09	3.42	45.34	43.89	2.74	339	214	23	576	21.6	6.2
2000		51.98	2.95	48.93	55.18	3.07	369	165	27	561	21.0	4.6
2001		55.74	3.51	45.88	40.43	2.84	317	282	65	664	20.2	8.2
2002		52.94	3.22	50.77	50.77	3.13	408	222	26	656	23.2	6.4
2003		53.99	3.51	51.04	52.96	3.46	429	303	22	754	23.9	8.6
2004		81.11	4.57	48.15	51.42	3.33	434	83	10	527	27.8	2.6
2005		68.48	3.65	44.46	39.49	2.52	387	62	21	470	25.9	1.8
2006		53.14	3.00	49.71	48.29	2.81	400	109	19	528	20.2	2.7
2007		63.76	3.42	52.63	48.99	2.86	424	216	51	691	18.2	4.9
2008		41.58	2.63	58.20	65.84	3.59	469	330	92	891	16.0	6.6
2009		48.21	2.60	60.11	69.15	3.32	505	326	48	879	16.5	6.4
2010		55.07	2.65	57.52	55.73	2.67	501	370	15	886	18.4	7.8
2011		52.46	3.69	61.60	74.19	4.68	464	338	29	831	14.9	6.7
2012		57.57	3.37	60.34	58.32	3.40	513	405	28	946	18.1	8.6
2013		61.94	4.33	58.60	54.10	3.94	492	333	51	876	18.9	7.5
2014		58.82	3.32	60.00	60.00	3.36	525	400	30	955	19.7	9.0





Pronghorn - Uinta-Cedar Mountain
Herd Unit - 411
Hunt Areas 95, 99
Revised 6/94



2013 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2013 - 5/31/2014

HERD: PR412 - SOUTH ROCK SPRINGS

HUNT AREAS: 59, 112

PREPARED BY: PATRICK BURKE

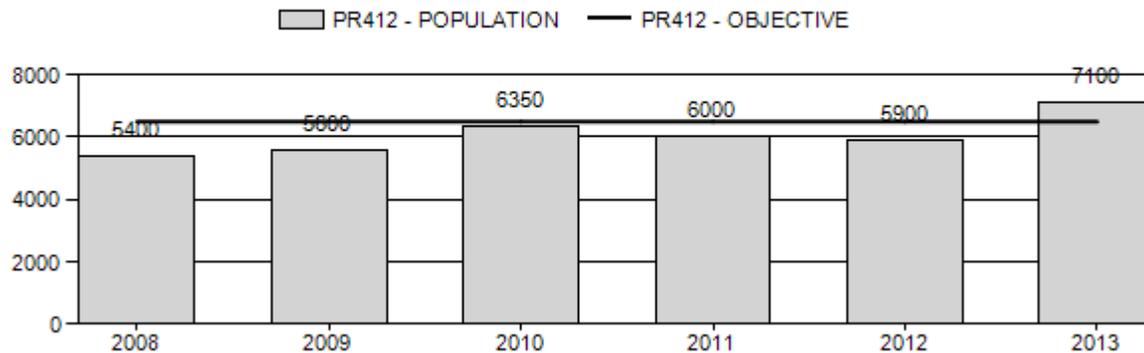
	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	5,850	7,100	7,300
Harvest:	418	293	300
Hunters:	433	353	325
Hunter Success:	97%	83%	92%
Active Licenses:	471	353	325
Active License Percent:	89%	83%	92%
Recreation Days:	1,489	1,199	1,000
Days Per Animal:	3.6	4.1	3.3
Males per 100 Females	48	44	
Juveniles per 100 Females	46	57	

Population Objective:	6,500
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	9%
Number of years population has been + or - objective in recent trend:	0
Model Date:	2/11/2014

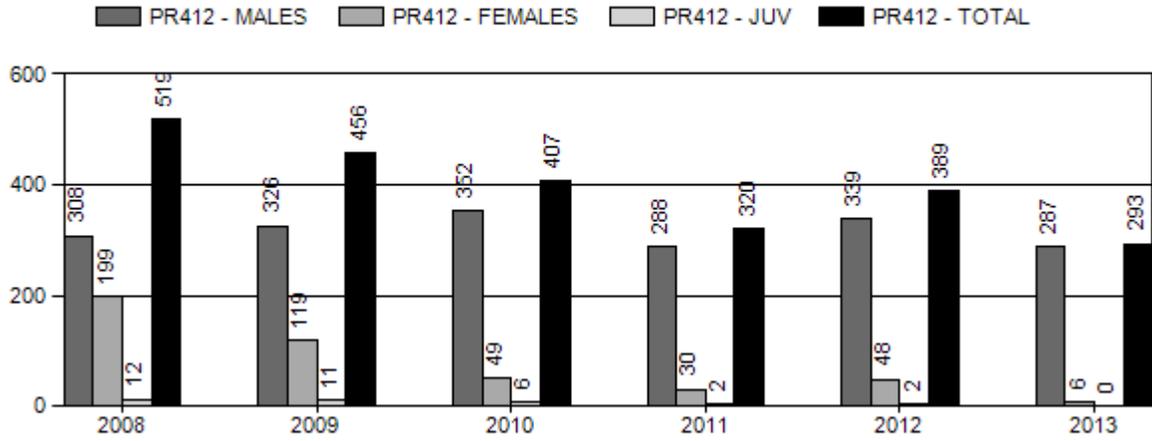
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	.1%
Males ≥ 1 year old:	24.7%	20%
Juveniles (< 1 year old):	0%	0%
Total:	5.0%	4%
Proposed change in post-season population:	6.9%	2.8%

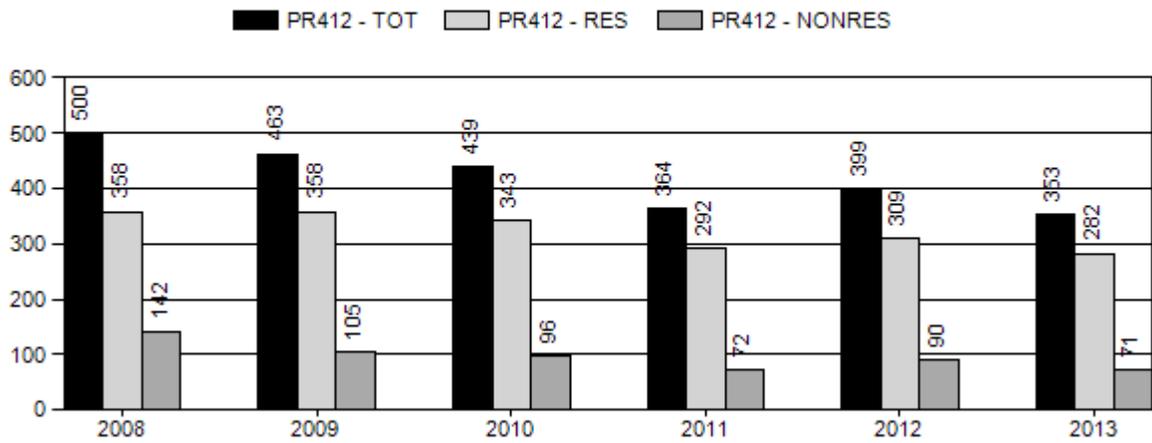
Population Size - Postseason



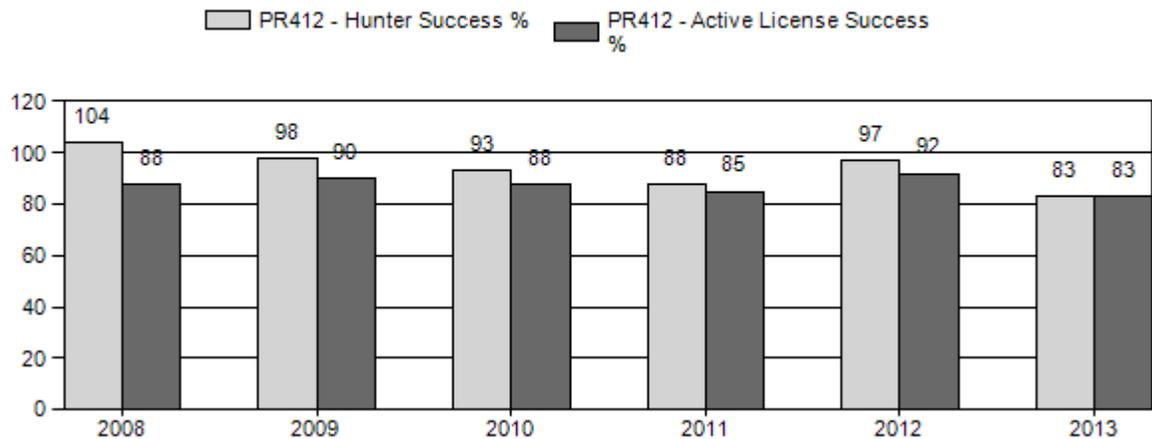
Harvest



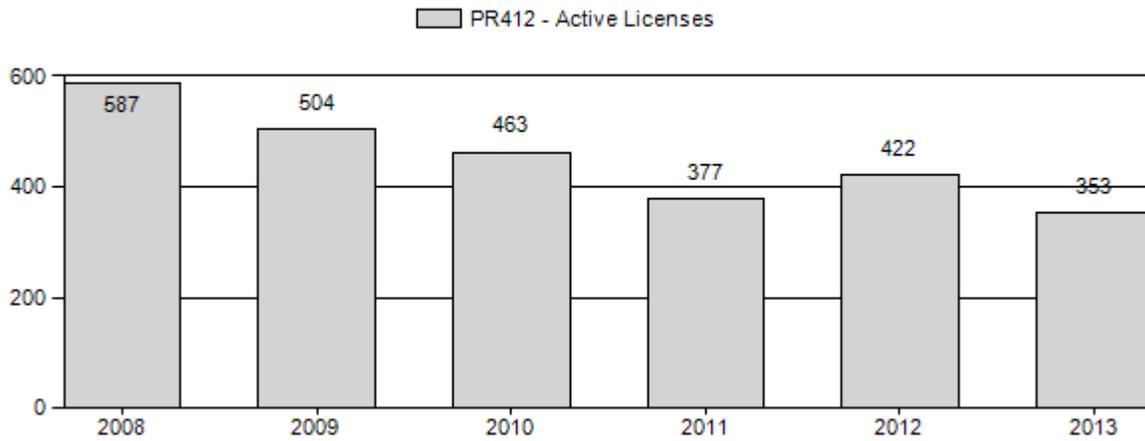
Number of Hunters



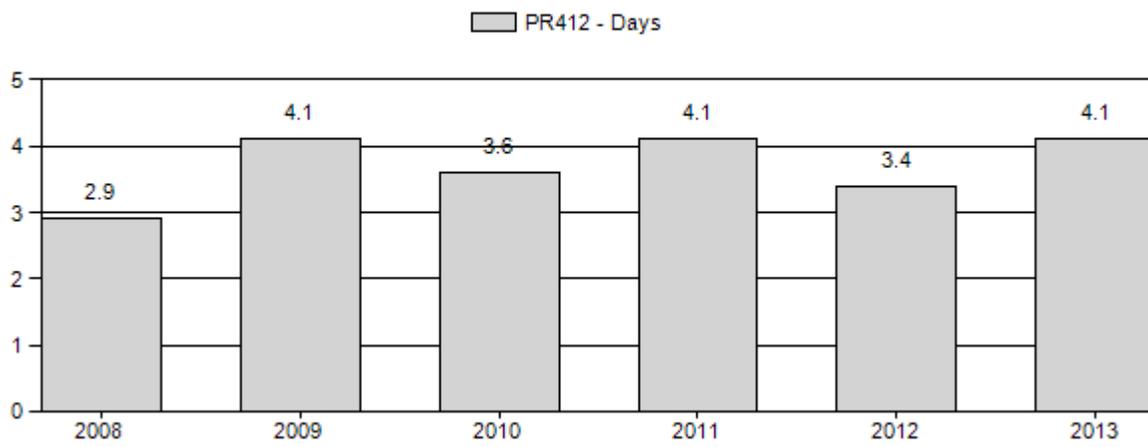
Harvest Success



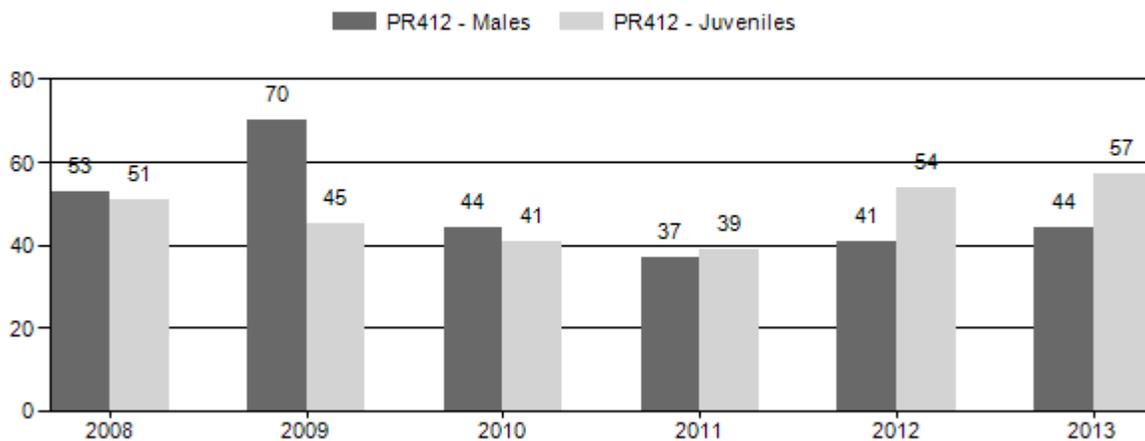
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2008 - 2013 Preseason Classification Summary

for Pronghorn Herd PR412 - SOUTH ROCK SPRINGS

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	6,000	219	295	514	26%	969	49%	494	25%	1,977	1,439	23	30	53	± 4	51	± 4	33
2009	6,100	134	352	486	33%	694	47%	309	21%	1,489	1,288	19	51	70	± 0	45	± 0	26
2010	6,800	113	302	415	24%	951	54%	386	22%	1,752	1,270	12	32	44	± 4	41	± 3	28
2011	6,350	114	274	388	21%	1,045	57%	404	22%	1,837	1,084	11	26	37	± 3	39	± 3	28
2012	6,315	120	268	388	21%	936	51%	505	28%	1,829	931	13	29	41	± 3	54	± 4	38
2013	7,449	119	256	375	22%	848	50%	482	28%	1,705	944	14	30	44	± 4	57	± 5	39

**2014 HUNTING SEASONS
SOUTH ROCK SPRINGS PRONGHORN HERD (PR412)**

Hunt Area	Type	SEASON DATES		Quota	Limitations
		Opens	Closes		
59	1	Sept. 20	Oct. 31	250	Limited quota; any antelope
112	1	Sept. 20	Oct. 31	100	Limited quota; any antelope
Archery :		Aug. 15	Sept. 19		Refer to license type and limitations in Section 3.

Hunt Area	Type	Quota change from 2013
59	1	+25
112	1	-50
Herd Unit Total	1	-25

Management Evaluation

Current Management Objective: 6,500

Management Strategy: Recreational

2012 Postseason Population Estimate: ~7,000

2013 Proposed Postseason Population Estimate: ~6,800

The post-season population objective for the South Rock Springs pronghorn herd is 6,500 animals under recreational management. The objective for this herd was changed to its current level in 2002. The objective was reviewed in the summer of 2013, when no changes were made.

Herd Unit Issues

The population model for this herd estimates the 2013 post-season population to be nearly 7,000 pronghorn. This estimate is a significant increase from the 2012 post-season estimate of around 5,900 animals and most likely does not represent biological reality. Observations by field personnel and the hunting public suggest that the herd more likely remained stable or decreased slightly in size rather than increased by over 1,000 animals. The most likely explanation for the larger population estimate is a combination of slightly increased fawn ratios along with a higher observed buck to doe ratio observed in HA59 in 2013. Future years data will be important to see if the model continues to estimate the herd at the level that it currently estimates it or if it corrects itself to a lower number.

Weather

During the 2010-2011 winter, this herd experienced tougher than normal winter conditions. During normal winters this herd winters in Wyoming, however because of deep and crusted snow conditions, a good portion of this herd migrated south into Colorado during that winter. The 2013-2014 winter for the most part was fairly mild with the exception of the first week of December, when significant snowfall events occurred along with persistent cold, sub-zero temperatures. Similar movement patterns to those observed in 2010-2011 were again observed in 2013 when large portions of the herd were not in their normal wintering areas, with large numbers of animals probably moving south in search of milder conditions. The summers of 2012 and 2013 were both extremely dry with long periods of time elapsing between precipitation events throughout the summer. This lack of moisture during the last two summers has been especially evident in areas of the herd unit below 8,000 ft, while the higher elevation portions of the herd unit received enough snow and summer precipitation to allow for some plant growth. Fortunately, many of the important parturition areas for this herd are above that altitude, which probably accounts for the improved fawn ratio seen in 2012 and 2013. Significant rainfall events did occur during September and October of 2013, while this precipitation came after the growing

season, hopefully it will increase soil moisture and allow for better plant growth in 2014. The wet conditions in the fall of 2013 did inhibit hunters' ability to access some parts of the herd unit, but probably did not have major negative impact to overall harvest success.

Habitat

No habitat transects targeting pronghorn ranges have been conducted in the South Rock Springs pronghorn herd unit. However, the dry summers of 2012 and 2013 have had a negative impact on plant growth in areas of the herd unit below 8,000 ft. where the majority of this herd winters. This lack of plant growth in the lower elevation areas of the herd unit might partially explain why significant portions of this herd chose to winter in areas outside of their normal winter ranges. The dry summers may have resulted in fewer fawns dying to cold, wet conditions during the early summer and could be the cause for the slightly better fawn ratios seen in 2012 and 2013. Continued drought and resulting poor plant growth on winter range may have long term negative impacts of this herd however.

Field Data

Pre-season classifications conducted in August 2013 resulted in observed fawn to doe ratios of 50 fawns per 100 does. While this observed ratio is not as high as the ratios seen from 2004-2006 when the population was higher, it is a significant improvement over ratios seen in from 2009 to 2011. Pre-season classifications also resulted in observed buck ratios of 44 total bucks per 100 does for the herd unit as a whole. When looked at by hunt area, the observed ratios for HA59 were 56 bucks:100 does, while the ratio for HA112 was only 27 bucks:100 does. This lower buck ratio in HA112 coincides with hunter comments about fewer bucks encountered in that hunt during the 2013 season.

Harvest Data

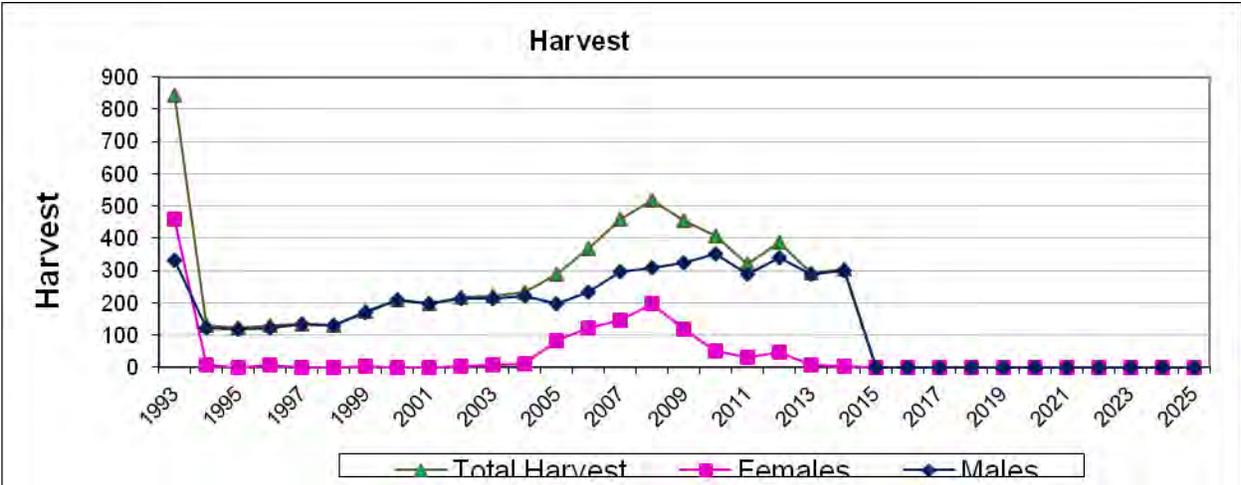
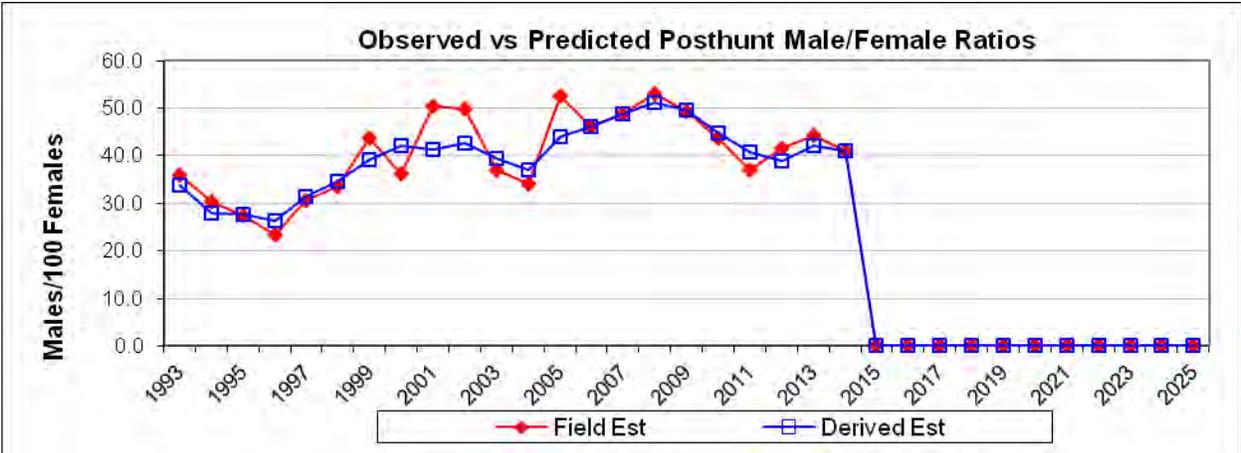
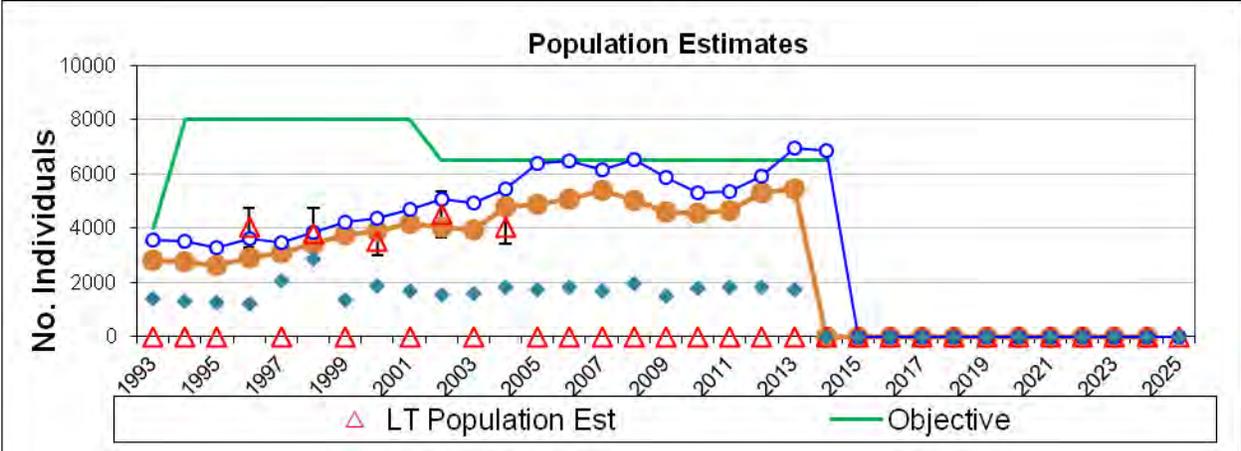
Harvest statistics for the 2013 hunting season indicated that hunters had a slightly more difficult time harvesting pronghorn than they have had in recent years. Harvest success rates declined slightly from an average of 88% active license success for the period from 2008 - 2012 to 83% success during the 2013 season. Days per harvest also increased slightly to 4.1 days per harvest during the 2013 season from 3.4 days per harvest in the 2012 season. A total of 293 pronghorn were harvested in 2013, which is the lowest harvest level in recent years. This can be explained by fewer Type 1 licenses being offered, along with no Type 6 licenses in the herd unit and lower success rates during 2013.

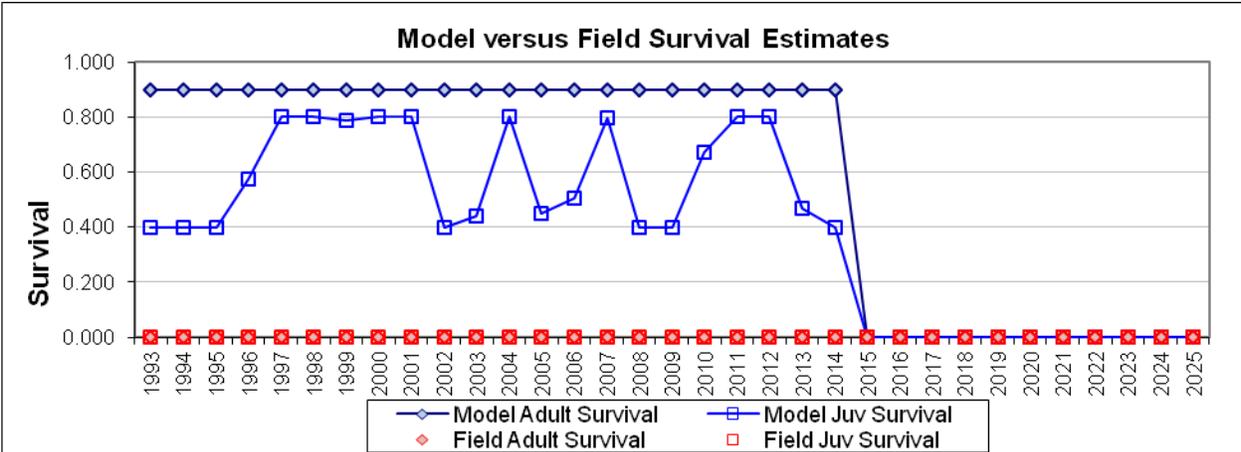
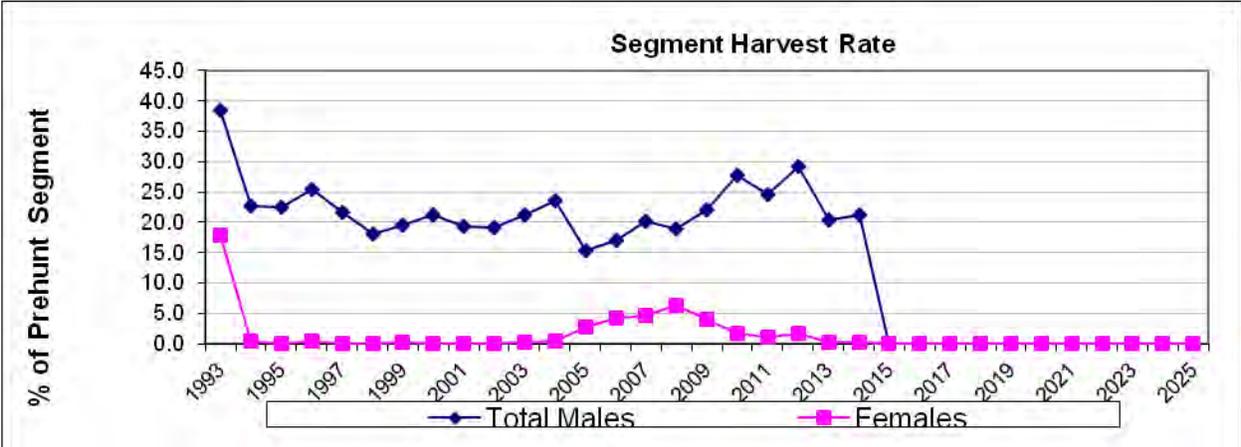
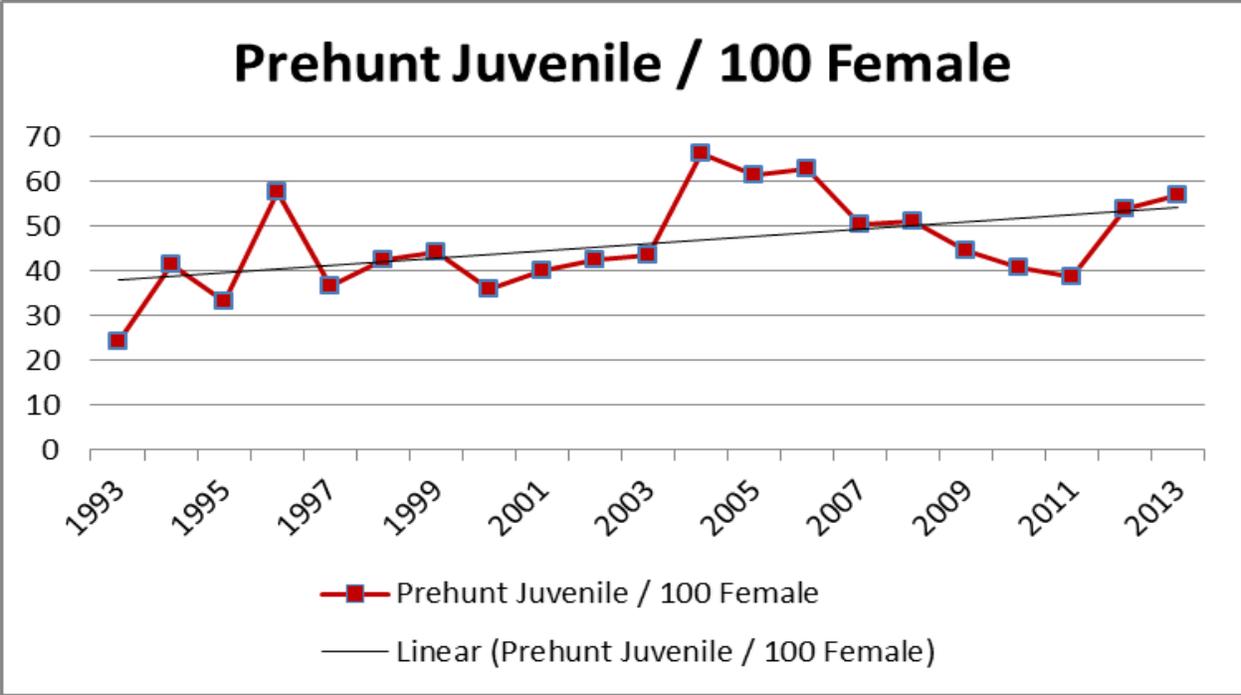
Population

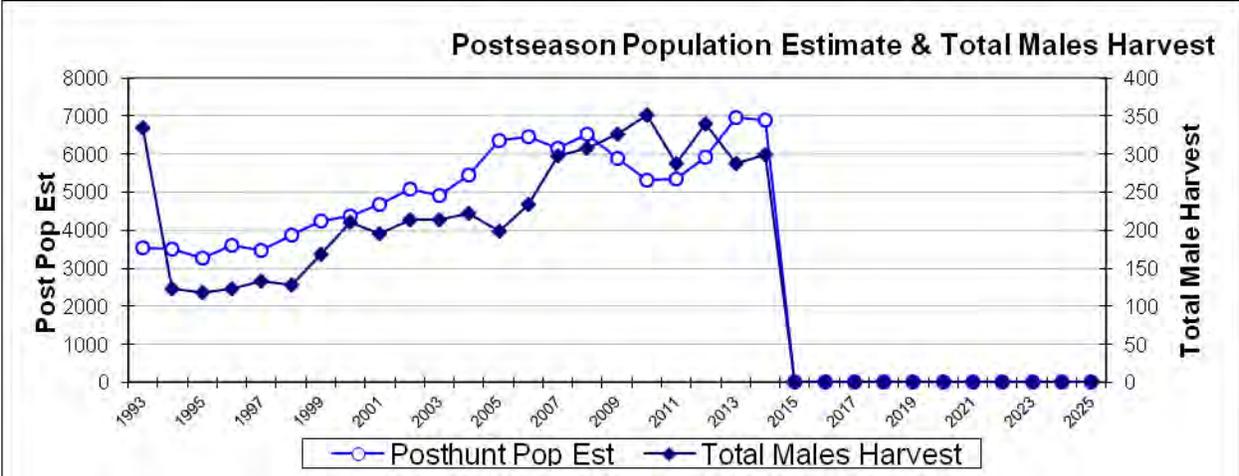
The model for this population has tracked fairly well with field observations of this herd until 2013, when the post-season population estimate moved in a direction counter to the field observations of managers. The last useable line-transect survey on this herd was conducted in 2005, and the lack of recent anchor points may partially explain why this model has allowed the population estimates for this herd to increase. A line-transect survey may be useful for estimating the size of this herd. There are several years of observed buck ratios that are simply higher than can be accommodated by the model, which probably reduces its overall reliability. The time-specific juvenile survival model was selected for this herd because of its relative AIC value and because that model best fit the field observations of the population.

Management Summary

The hunting seasons for 2014 are generally similar to the 2013 season with exception of moving some of the Type 1 licenses from HA112 to HA59. This change is being done due to the low observed buck ratios in HA112, which are below the recreational management objective of 40 or more bucks per 100 does. Since only 27 bucks:100 does were seen in HA112 and 56 bucks:100 does were observed in HA59, it is felt that this change will better align Type 1 licenses with the number of pronghorn bucks available in each respective hunt area.







INPUT	
Species:	Pronghorn
Biologist:	Patrick Burke
Herd Unit & No.:	SRS PR412
Model date:	02/11/14

MODELS SUMMARY		Fit	Relative AICc	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	111	120	<input type="checkbox"/>	CJ,CA Model
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	3966	3975	<input type="checkbox"/>	SCJ,SCA Mo
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	49	155	<input type="checkbox"/>	TSJ,CA Model

Population Estimates from Top Model																
Year	Predicted Prehunt Population (year j)			Total	Predicted Posthunt Population (year j)			Total	Predicted adult End-of-bio-year Pop (year j)			LT Population Estimate		Trend Count	Objective	
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE			
1993	685	956	2836	4477	628	589	2331	3548	614	2200	2814				4000	
1994	894	601	2156	3651	894	465	2147	3506	596	2153	2749				8000	
1995	703	584	2110	3397	700	453	2110	3263	545	2080	2625				8000	
1996	1174	534	2039	3746	1174	398	2029	3601	695	2205	2901	4022	736		8000	
1997	790	681	2161	3632	790	534	2161	3485	798	2307	3105				8000	
1998	964	782	2261	4006	964	640	2261	3865	966	2470	3436	3812	929		8000	
1999	1070	947	2420	4437	1070	762	2416	4248	1111	2648	3760				8000	
2000	930	1089	2595	4615	930	857	2595	4383	1143	2763	3906	3502	487		8000	
2001	1083	1120	2708	4911	1083	905	2708	4696	1251	2929	4180				8000	
2002	1218	1226	2870	5314	1218	990	2868	5077	1134	2882	4017	4507	847		6500	
2003	1227	1111	2825	5163	1227	876	2818	4921	1057	2864	3920				6500	
2004	1863	1036	2806	5704	1863	791	2795	5449	1462	3326	4788	4020	600		6500	
2005	2001	1433	3260	6694	1994	1214	3167	6375	1548	3355	4902				6500	
2006	2066	1517	3287	6871	2054	1259	3152	6466	1659	3409	5068				6500	
2007	1680	1625	3341	6647	1662	1298	3183	6142	1831	3580	5411				6500	
2008	1788	1795	3508	7091	1775	1456	3289	6520	1661	3357	5017				6500	
2009	1465	1627	3290	6382	1453	1269	3159	5880	1421	3180	4601				6500	
2010	1265	1393	3117	5774	1258	1006	3063	5327	1316	3239	4555				6500	
2011	1227	1290	3174	5691	1225	973	3141	5339	1305	3362	4667				6500	
2012	1778	1279	3295	6351	1775	906	3242	5923	1578	3745	5322				6500	
2013	2086	1546	3670	7302	2086	1230	3663	6979	1581	3863	5444				6500	
2014	1886	1550	3785	7221	1886	1220	3780	6885							6500	
2015																
2016																
2017																
2018																
2019																
2020																
2021																
2022																
2023																
2024																
2025																

Survival and Initial Population Estimates

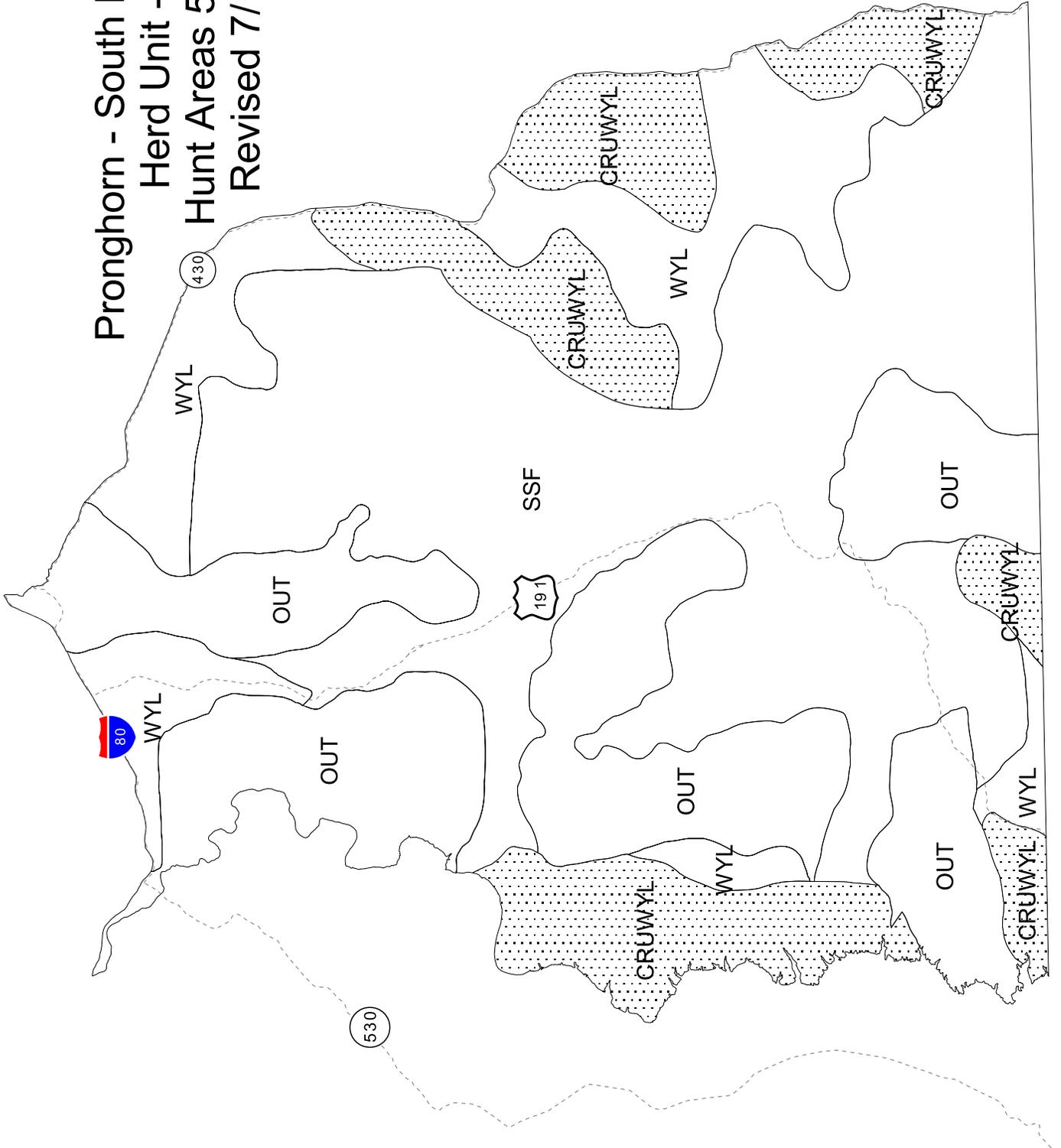
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.40			0.90		
1994	0.40			0.90		
1995	0.40			0.90		
1996	0.57			0.90		
1997	0.80			0.90		
1998	0.80			0.90		
1999	0.79			0.90		
2000	0.80			0.90		
2001	0.80			0.90		
2002	0.40			0.90		
2003	0.44			0.90		
2004	0.80			0.90		
2005	0.45			0.90		
2006	0.51			0.90		
2007	0.80			0.90		
2008	0.40			0.90		
2009	0.40			0.90		
2010	0.67			0.90		
2011	0.80			0.90		
2012	0.80			0.90		
2013	0.47			0.90		
2014	0.40			0.90		
2015						
2016						
2017						
2018						
2019						
2020						
2021						
2022						
2023						
2024						
2025						

Parameters:	Optim cells
Adult Survival =	0.900
Initial Total Male Pop/10,000 =	0.096
Initial Female Pop/10,000 =	0.284

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

Year	Classification Counts						Harvest					
	Juvenile/Female Ratio			Total Male/Female Ratio			Males	Females	Juveniles	Total Harvest	Segment Harvest Rate (%)	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE					Total Males	Females
1993		24.16	1.87	33.71	36.00	2.38	334	459	52	845	38.4	17.8
1994		41.45	2.76	27.90	30.31	2.26	124	8	0	132	22.7	0.4
1995		33.29	2.37	27.66	27.34	2.10	119	0	2	121	22.4	0.0
1996		57.57	3.67	26.18	23.29	2.06	123	9	0	132	25.3	0.5
1997		36.54	2.01	31.53	30.72	1.80	134	0	0	134	21.6	0.0
1998		42.63	1.94	34.57	33.46	1.66	129	0	0	129	18.2	0.0
1999		44.20	2.99	39.13	43.78	2.97	168	4	0	172	19.5	0.2
2000		35.85	2.11	41.96	36.12	2.12	211	0	0	211	21.3	0.0
2001		40.00	2.52	41.37	50.28	2.92	196	0	0	196	19.2	0.0
2002		42.43	2.75	42.71	49.81	3.06	214	2	0	216	19.2	0.1
2003		43.42	2.65	39.35	37.12	2.39	214	6	0	220	21.2	0.2
2004		66.37	3.50	36.90	34.18	2.26	222	10	0	232	23.6	0.4
2005		61.39	3.51	43.95	52.43	3.15	199	84	7	290	15.3	2.8
2006		62.86	3.44	46.14	46.14	2.79	234	123	11	368	17.0	4.1
2007		50.29	2.98	48.65	48.65	2.92	298	144	17	459	20.2	4.7
2008		50.98	2.82	51.15	53.04	2.89	308	199	12	519	18.9	6.2
2009		44.52	3.05	49.47	49.28	3.05	326	119	11	456	22.0	4.0
2010		40.59	2.45	44.69	43.64	2.57	352	49	6	407	27.8	1.7
2011		38.66	2.26	40.63	37.13	2.21	288	30	2	320	24.6	1.0
2012		53.95	2.98	38.81	41.45	2.50	339	48	48	389	29.2	1.6
2013		56.84	3.24	42.13	44.22	2.74	287	6	6	293	20.4	0.2
2014		49.82	2.83	40.94	40.93	2.48	300	5	5	305	21.3	0.1
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												

Pronghorn - South Rock Springs
Herd Unit - 412
Hunt Areas 59, 112
Revised 7/1999



2013 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2013 - 5/31/2014

HERD: PR414 - BITTER CREEK

HUNT AREAS: 57-58

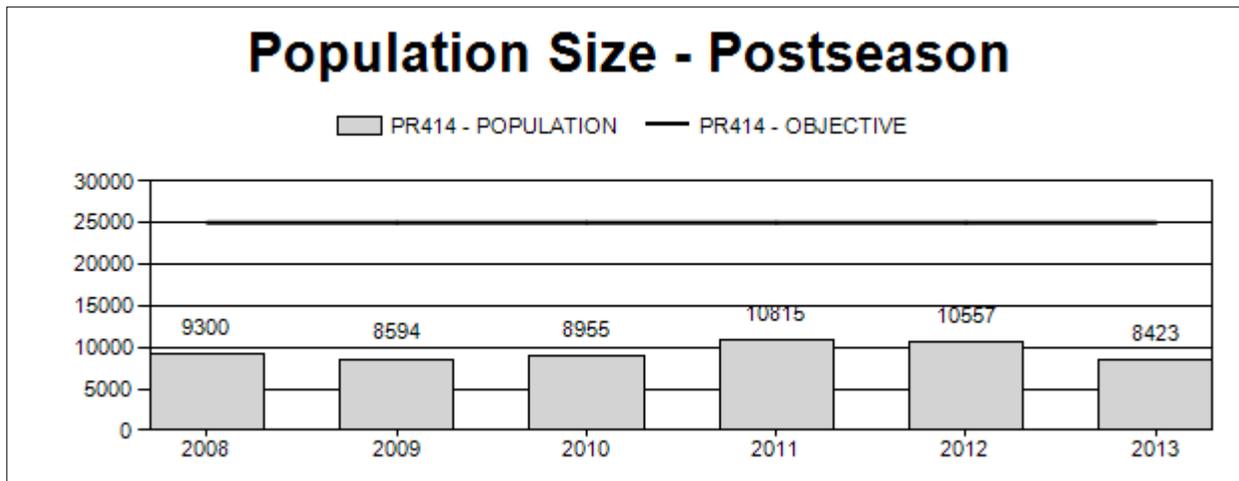
PREPARED BY: TONY MONG

	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	9,644	8,423	8,372
Harvest:	259	240	265
Hunters:	279	247	270
Hunter Success:	93%	97%	98%
Active Licenses:	287	247	270
Active License Percent:	90%	97%	98%
Recreation Days:	857	928	1,050
Days Per Animal:	3.3	3.9	4.0
Males per 100 Females	53	48	
Juveniles per 100 Females	36	38	

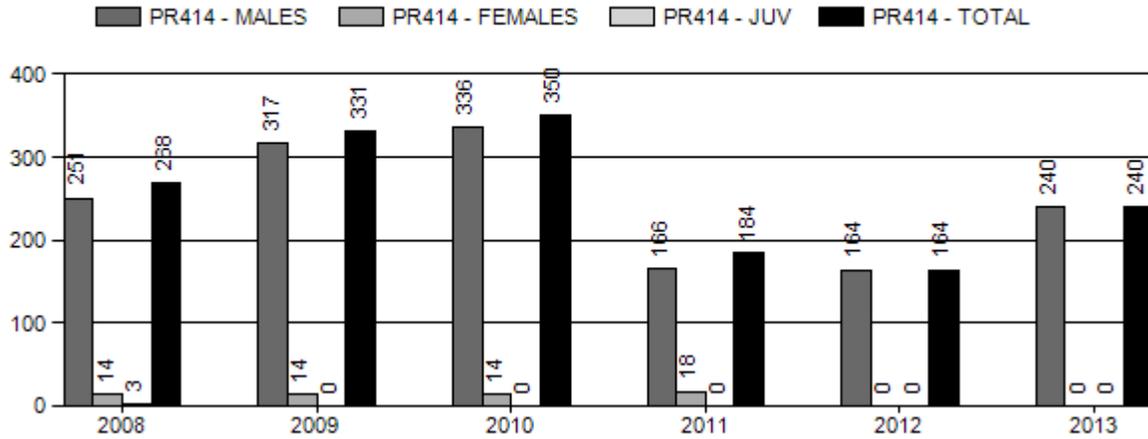
Population Objective:	25,000
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-66.3%
Number of years population has been + or - objective in recent trend:	10
Model Date:	03/03/2014

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

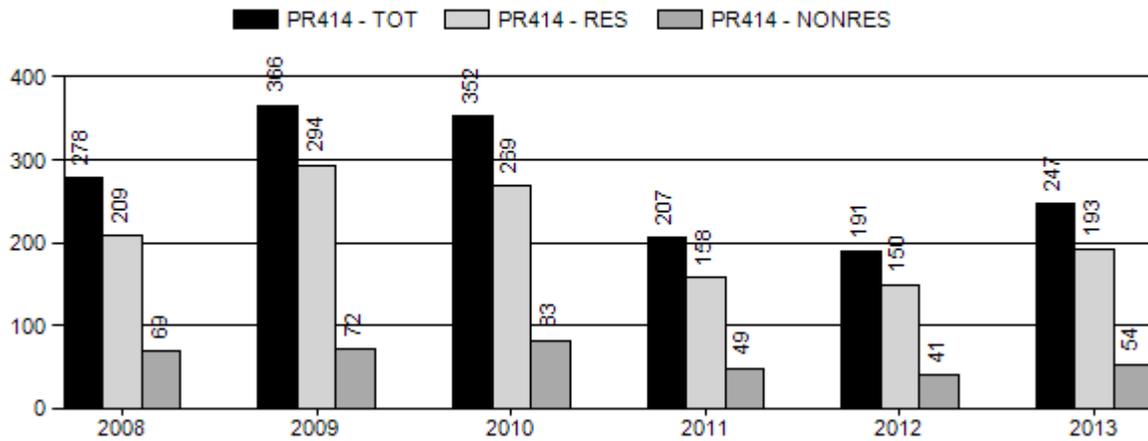
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	6.5%	6.5%
Juveniles (< 1 year old):	0%	0%
Total:	2.0%	2.0%
Proposed change in post-season population:	3.5%	1.0%



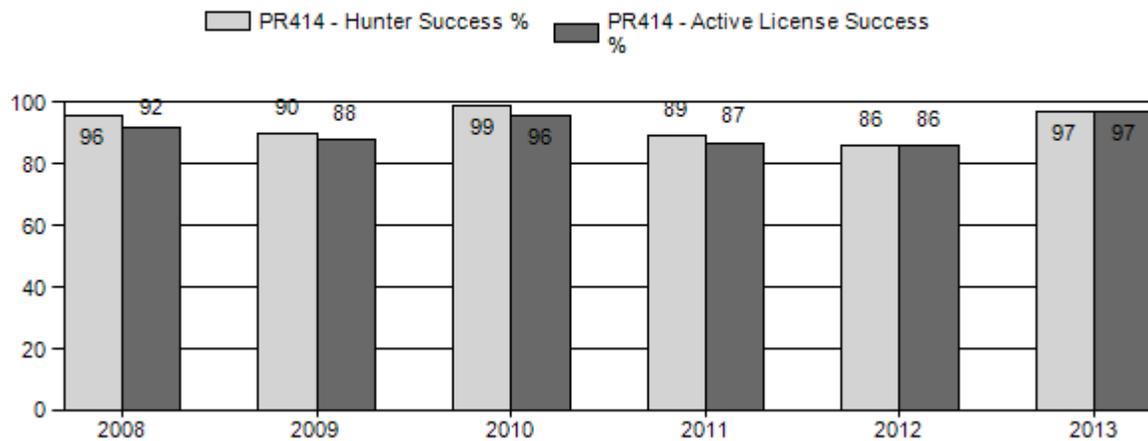
Harvest



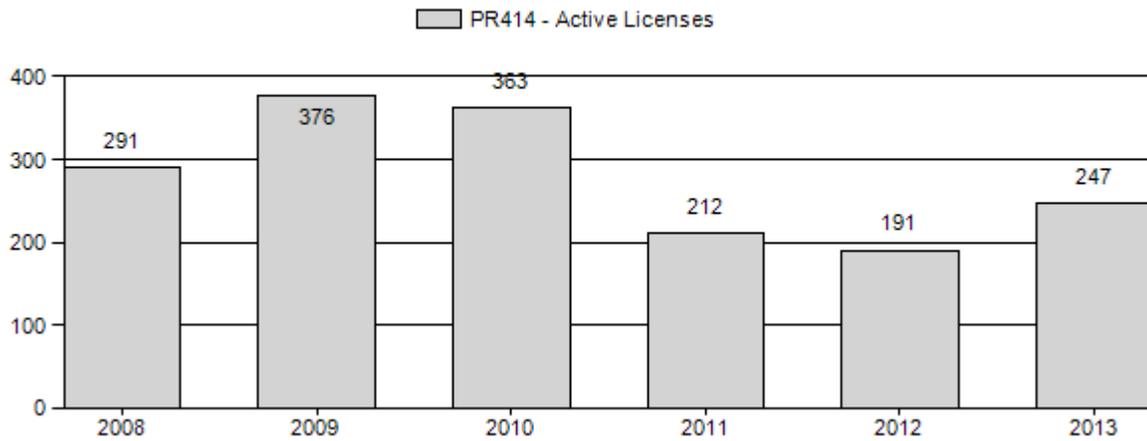
Number of Hunters



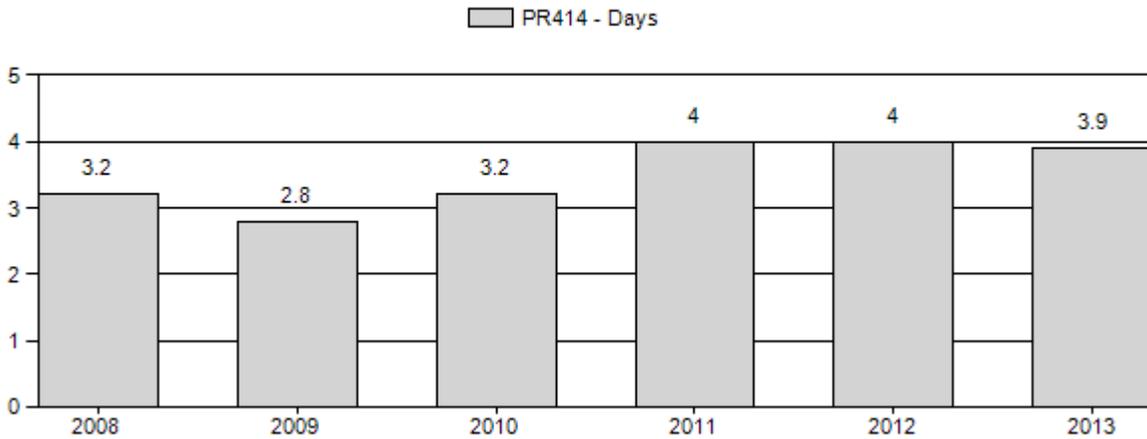
Harvest Success



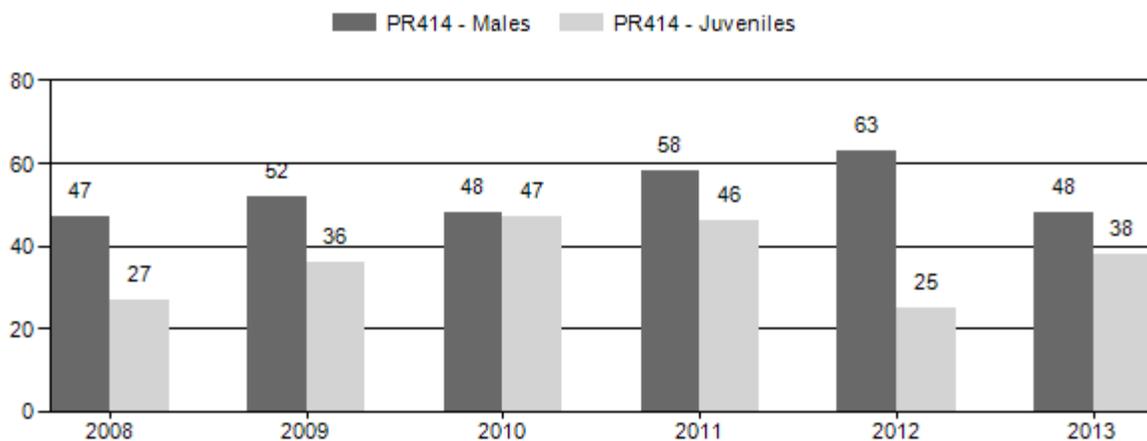
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2008 - 2013 Preseason Classification Summary

for Pronghorn Herd PR414 - BITTER CREEK

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	9,600	141	556	697	27%	1,471	57%	398	16%	2,566	1,145	10	38	47	± 3	27	± 2	18
2009	8,958	27	473	500	28%	955	53%	344	19%	1,799	0	3	50	52	± 0	36	± 0	24
2010	9,340	39	116	530	24%	1,113	51%	523	24%	2,166	0	4	10	48	± 4	47	± 4	32
2011	11,018	146	395	541	28%	937	49%	427	22%	1,905	0	16	42	58	± 5	46	± 4	29
2012	10,737	116	372	549	34%	866	53%	219	13%	1,634	0	13	43	63	± 5	25	± 3	15
2013	10,390	51	306	357	26%	751	54%	283	20%	1,391	0	7	41	48	± 5	38	± 4	26

2014 HUNTING SEASONS

SPECIES : **Pronghorn**

HERD UNIT : **Bitter Creek (414)**

HUNT AREAS: **57, 58**

Hunt Area	Type	Dates of Season		Quota	Limitations
		Opens	Closes		
57	1	Sep. 20	Oct. 31	225	Limited quota licenses; any antelope
	7	Sep. 1	Oct. 31	25	Limited quota licenses; doe or fawn valid on or within one (1) mile of private land south of County Road 700 and east of County Road 730
58	1	Sep. 20	Oct. 31	30	Limited quota licenses; any antelope
57, 58	Archery	Aug. 15	Sep.19		Refer to Section 3

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2013</i>
57	1	+25
	7	+10
58	1	-20
<i>Herd Unit Total</i>	1	+5
	7	+25

Management Evaluation

Current Management Objective: 25,000

Management Strategy: Special

2013 End-of-bio-year Estimate: 8,400

2014 Proposed Postseason Population Estimate: 8,300

The Bitter Creek herd is below the objective of 25,000 (set in 1993) therefore our current management strategy is to increase herd size. We are proposing to increase licenses in hunt area 57 to decrease buck-to-doe ratios and decrease current license levels in hunt area 58 due to low buck ratios.

Herd Unit Issues

The Bitter Creek herd is facing many challenges through the expansion of the Continental Divide-Creston Junction (CDC) and Desolation Flats gas fields and competition with wild horses for resources. Currently there are nearly 9,000 wells in the CDC and an EIS for an additional 8,950 infill wells. A majority of these wells occur in summer range and migration routes for the Bitter Creek herd. New developments have begun to occur in relation to the Desolation Flats development, most notably along the Bitter Creek Rd and the Willow Creek Rim area. A new large pipeline is being built to connect 2 new compressor stations that will be placed on and near Willow Creek Rim. The number of proposals to work year-round on both of these sites has

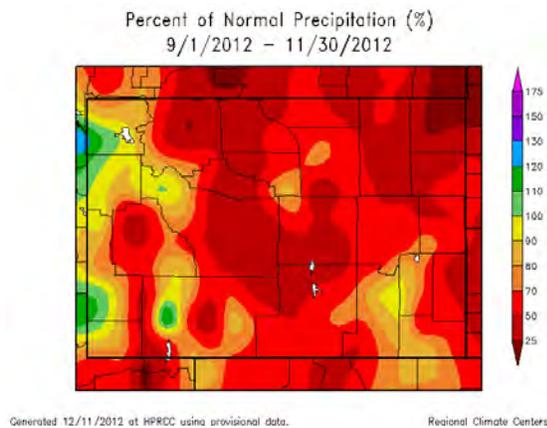
increased recently. These landscape level impacts are proving to be a challenge for the pronghorn in the Bitter Creek herd.

Weather

The weather conditions have been quite variable over the last several years. In 2011-12 moisture levels were at record lows. 2012-13 brought continued drought until the fall of 2013 when high amounts of precipitation in the form of both snow and rain aided in a fall green up which allowed animals to put on weight before winter (Figure 1). Temperatures were also closer to normal in 2013 compared to 2012 (Figure 2).

Figure 1. A) Percent of normal precipitation September to November 2012, B) Percent of normal precipitation September to November 2013.

A)



B)

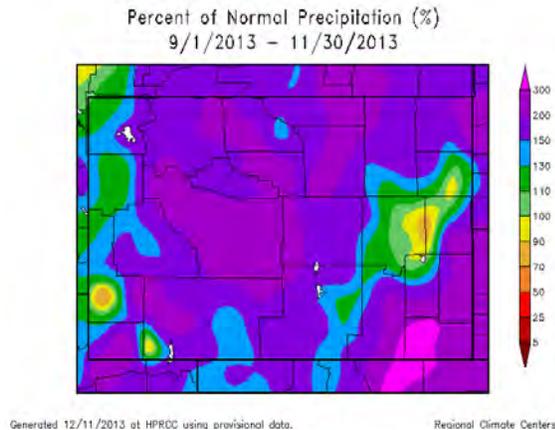
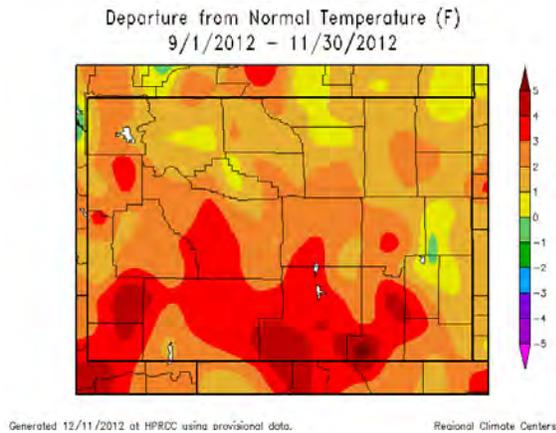
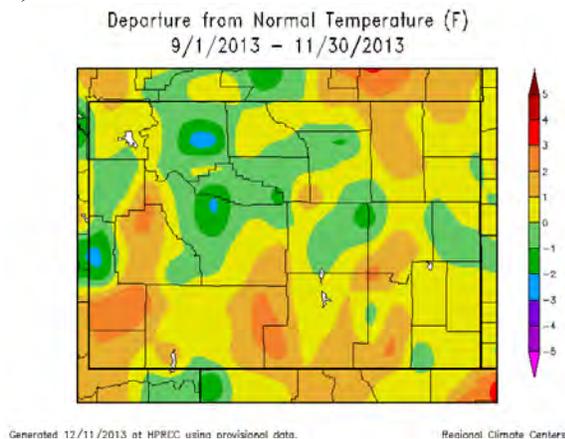


Figure 2. A) Departure from normal temperatures September to November 2012 B) Departure from normal temperatures September to November 2013.

A)



B)



Field Data

The Bitter Creek herd declined severely during the 2007-'08 winter and has been making a very slow to non-existent recovery since. The last 4 years has seen an average population of less than 9,000. Low productivity (average fawn:doe ratio since 2010 = 39:100) has played a role in the stagnant population however, more recently several tough winters coupled with extreme drought conditions are hampering a quick positive population response to the low harvest this herd has experienced over the last several years. High variability in fawn production and buck ratio between hunt areas 57 and 58 is also problematic for this herd. Hunt area 58 has shown extremely low buck ratios in both 2012 and 2013 (40 and 30) compared to hunt area 57 (82 and 61) indicating a dichotomy between the two areas in relation to population dynamics. This is also evident with fawn production in 2013 with hunt area 58 having a much lower fawn ratio (30) compared to hunt area 57 (44). These variations between the two hunt areas has been seen since the 2007-08 winter possibly pointing towards a much more severe loss in hunt area 58 than 57.

Harvest Data

Despite low population levels hunters are still able to find pronghorn to harvest. Overall harvest success is 97%, with a slight difference between hunt areas 57 (98%) and 58 (94%).

Population

The current population model estimates the 2013 end-of-bio-year population to be 8,400 animals. Both the CJ, CA and the TSJ, CA models have identical AICc values, but we chose the TSJ, CA model based on what we believe to be a better representation of the actual population trend and size based on the line transect estimates obtained in 2003 and 2010 and also on model fit (TSJ, CA = 55; CJ, CA = 66). There is some variability between the 2 models on the current population estimation ranging from the high of the TSJ, CA (8,400) to a low in the CJ, CA model (7,900). It is clear from the spreadsheet model and line transect estimates that this population is well below the population objective.

Management Summary

Current hunting seasons will allow the population the best opportunity to increase populations in both hunt areas 57 and 58. We are increasing type 1 licenses in hunt area 57 in order to continue to decrease buck ratios. Recently in the southern portion of hunt area 57 we have received complaints regarding irrigated land and use by antelope. We are issuing a small number of licenses to deter pronghorn use on these areas. Doe licenses have not been issued since 2011 and no more than 36 does have been harvest in one year since 1993. Despite the low number of licenses available in hunt area 58, it seems the pronghorn in this area continue to struggle. The proposed license increases in hunt area 57 will make up for the loss of hunting opportunity in hunt area 58. This harvest strategy should lead to the largest growth potential for the herd, barring major impacts from the landscape level challenges mentioned above.

INPUT	
Species:	Pronghorn
Biologist:	Tony Meng
Herd Unit & No.:	Bittercreek, 414
Model date:	03/03/14

Clear form

MODELS SUMMARY		Fit	Relative AICc	Notes
CJ,CA	Constant Juvenile & Adult Survival	66	75	
SCJ,SJA	Semi-Constant Juvenile & Semi-Constant Adult Survival	55	75	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	80	207	

Year	Predicted Prehunt Population (year <i>t</i>)				Predicted Posthunt Population (year <i>t</i>)				Population Estimates from Top Model				Predicted adult End-of-bio-year Pop (year <i>t</i>)				LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total	Total Males	Females	Total Adults	Field Est	Field SE			
1993	4874	4118	8689	17681	4660	3160	6884	14704	4070	7330	11401	4070	7330	11401						
1994	3528	3989	7194	14701	3528	3507	7194	14219	4151	7526	11677	4151	7526	11677						
1995	3342	4068	7375	14786	3342	3601	7370	14312	4182	7637	11819	4182	7637	11819						
1996	4090	4099	7484	15673	4090	3531	7448	15069	4329	7926	12255	4329	7926	12255						
1997	3268	4242	7767	15278	3268	3681	7726	14675	4222	7932	12154	4222	7932	12154						
1998	3786	4138	7774	15697	3786	3560	7751	15097	4264	8110	12374	4264	8110	12374						
1999	3843	4179	7948	15969	3839	3562	7913	15314	4276	8271	12546	4276	8271	12546						
2000	3333	4190	8105	15628	3333	3640	8090	15063	4205	8283	12489	4205	8283	12489						
2001	3997	4121	8118	16236	3991	3700	8092	15784	4468	8478	12946	4468	8478	12946						
2002	2657	4379	8308	15344	2654	3932	8282	14879	4280	8264	12544	4280	8264	12544						
2003	2880	4194	8099	15173	2878	3770	8059	14707	4202	8118	12320	4202	8118	12320	10500	2481				
2004	4081	4118	7956	16165	4079	3698	7936	15713	4493	8364	12857	4493	8364	12857						
2005	4364	4403	8197	16864	4362	4002	8165	16528	4853	8853	13506	4853	8853	13506						
2006	3262	4756	8480	16497	3258	4366	8456	16080	4857	8590	13446	4857	8590	13446						
2007	3473	4760	8418	16651	3465	4378	8395	16238	3183	6161	9344	3183	6161	9344						
2008	1634	3119	6038	10791	1630	2843	6023	10496	3014	5914	8928	3014	5914	8928						
2009	2088	2954	5795	10637	2088	2605	5780	10473	2927	5831	8758	2927	5831	8758	7337	989				
2010	2685	2868	5714	11268	2685	2499	5699	10883	2940	5708	8648	2940	5708	8648						
2011	2549	2881	5594	11024	2549	2698	5574	10822	3169	5802	8971	3169	5802	8971						
2012	1431	3106	5685	10223	1431	2926	5685	10042	2956	5553	8510	2956	5553	8510						
2013	2051	2897	5442	10390	2051	2633	5442	10126	2929	5494	8423	2929	5494	8423						
2014	2092	2870	5385	10347	2092	2584	5363	10039	2917	5455	8372	2917	5455	8372						
2015	2077	2859	5346	10281	2077	2573	5324	9973	2902	5415	8317	2902	5415	8317						
2016	2062	2844	5307	10213	2062	2558	5285	9905	2884	5376	8260	2884	5376	8260						
2017	2047	2826	5288	10141	2047	2540	5246	9833												
2018																				
2019																				
2020																				
2021																				
2022																				
2023																				
2024																				
2025																				

Survival and Initial Population Estimates

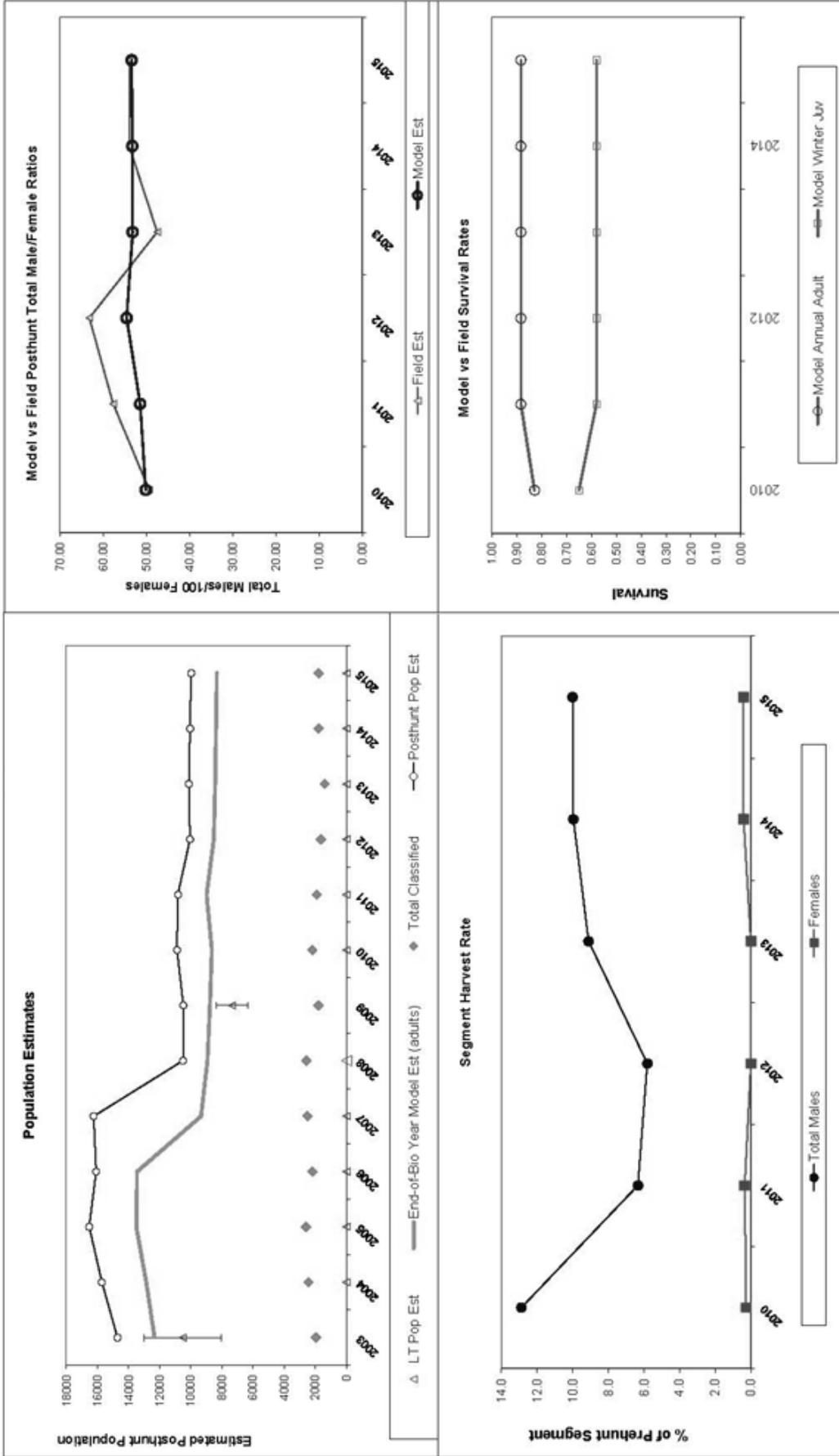
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.58		0.88	
1994	0.58		0.88	
1995	0.58		0.88	
1996	0.58		0.88	
1997	0.58		0.88	
1998	0.58		0.88	
1999	0.58		0.88	
2000	0.58		0.88	
2001	0.58		0.88	
2002	0.58		0.88	
2003	0.58		0.88	
2004	0.58		0.88	
2005	0.58		0.88	
2006	0.58		0.88	
2007	0.10		0.70	
2008	0.58		0.88	
2009	0.58		0.88	
2010	0.65		0.83	
2011	0.58		0.88	
2012	0.58		0.88	
2013	0.58		0.88	
2014	0.58		0.88	
2015	0.58		0.88	
2016	0.58		0.88	
2017	0.58		0.88	

Parameters:		Optim cells
Juvenile Survival =		0.580
Adult Survival =		0.884
Initial Total Male Pop/10,000 =		0.412
Initial Female Pop/10,000 =		0.869

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

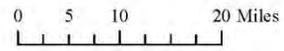
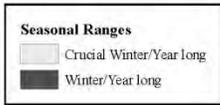
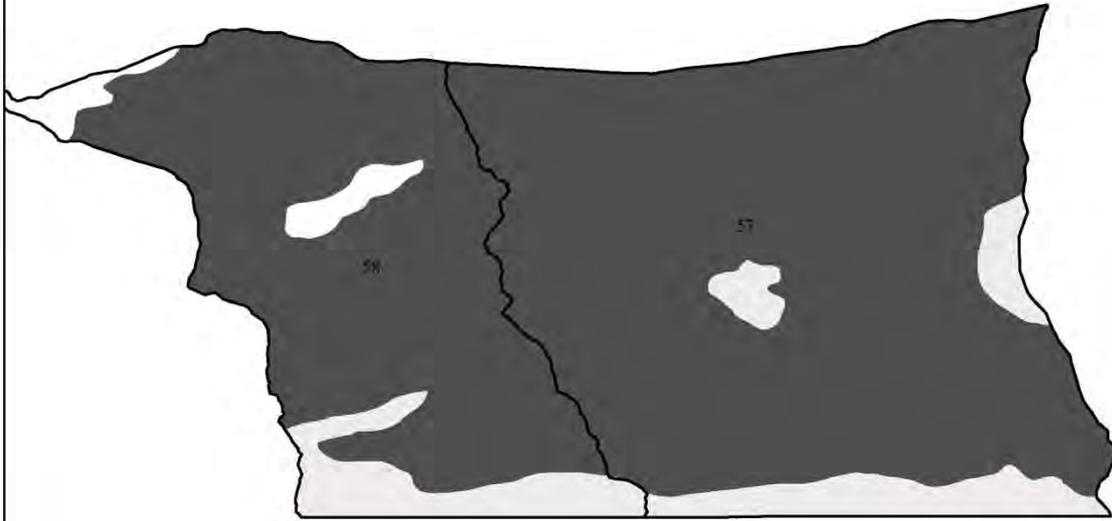
Year	Classification Counts										Harvest			
	Juvenile/Female Ratio					Total Male/Female Ratio					Segment Harvest Rate (% of			
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Males	Females	Juveniles	Total Harvest	Total Males
1993		56.09	2.26	47.39	52.94	2.17	871	1641	195	2707	23.3	20.8		
1994		49.11	2.38	55.53	56.52	2.61	438	0	0	438	12.1	0.0		
1995		45.31	1.95	55.16	51.01	2.10	425	5	0	430	11.5	0.1		
1996		54.64	2.57	54.76	50.59	2.44	516	33	0	549	13.8	0.5		
1997		42.08	2.11	54.62	56.80	2.58	510	38	0	548	13.2	0.5		
1998		48.70	2.26	53.22	47.36	2.21	525	21	0	546	14.0	0.3		
1999		48.35	2.16	52.57	55.29	2.36	561	32	3	596	14.8	0.4		
2000		41.12	2.01	51.70	50.62	2.30	500	14	0	514	13.1	0.2		
2001		49.24	2.50	50.77	51.44	2.57	383	23	5	411	10.2	0.3		
2002		31.98	1.91	52.70	58.41	2.83	406	15	2	423	10.2	0.2		
2003		35.56	2.19	51.79	58.47	3.04	386	36	2	424	10.1	0.5		
2004		51.30	2.55	51.76	53.15	2.61	382	18	2	402	10.2	0.2		
2005		53.24	2.55	53.72	54.12	2.58	365	29	2	396	9.1	0.4		
2006		38.46	2.18	56.08	56.80	2.82	354	22	3	379	8.2	0.3		
2007		41.26	2.13	56.54	52.60	2.50	347	21	7	375	8.0	0.3		
2008		27.06	1.53	51.66	47.38	2.18	251	14	3	268	8.9	0.3		
2009		36.02	2.27	50.97	52.36	2.89	317	14	0	331	11.8	0.3		
2010		46.99	2.49	50.20	49.42	2.58	336	14	0	350	12.9	0.3		
2011		45.57	2.66	51.50	57.74	3.12	166	18	0	184	6.3	0.4		
2012		25.17	1.91	54.63	63.28	3.45			0	164	5.8	0.0		
2013		37.68	2.63	53.24	47.54	3.06			0	240	9.1	0.0		
2014		38.85	2.42	53.31	54.00	3.00			20	280	10.0	0.4		
2015		38.85	2.42	53.48	54.00	3.00			20	280	10.0	0.4		
2016		38.85	2.42	53.59	54.00	3.00			20	280	10.1	0.4		
2017		38.85	2.42	53.65	54.00	3.00			20	280	10.1	0.4		

FIGURES



Comments:

Bitter Creek PR414 Herd Seasonal Ranges



2013 - JCR Evaluation Form

Species: Pronghorn

Period: 6/1/2013 - 5/31/2014

Herd: PR419 - CARTER LEASE

Hunt Areas: 94, 98, 100

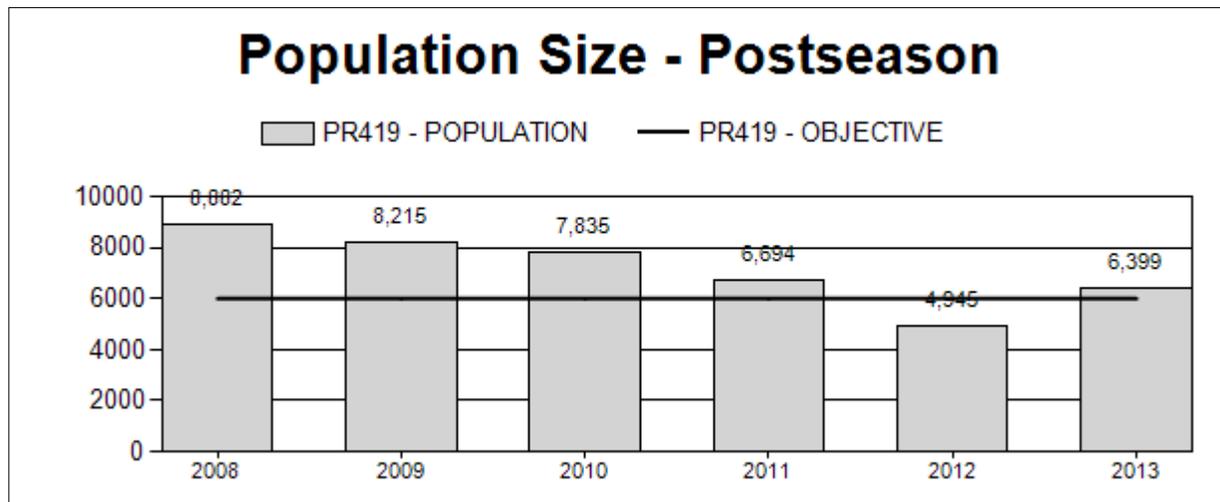
Prepared By: JEFF SHORT

	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	7,314	6,399	6,013
Harvest:	1,552	1,462	1,375
Hunters:	1,607	1,579	1,500
Hunter Success:	97%	93%	92 %
Active Licenses:	1,794	1,753	1,650
Active License Percent:	87%	83%	83 %
Recreation Days:	5,420	5,868	5,500
Days Per Animal:	3.5	4.0	4
Males per 100 Females	66	64	
Juveniles per 100 Females	64	64	

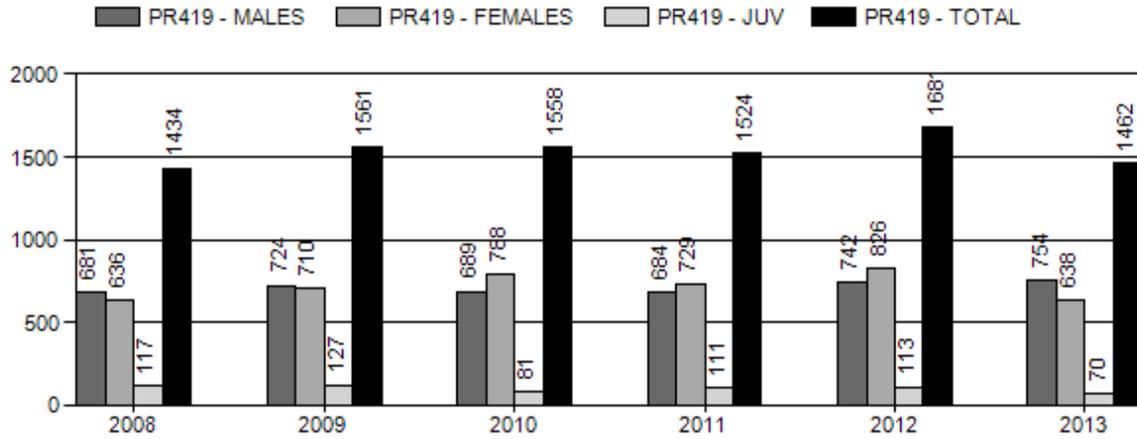
Population Objective:	6,000
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	7%
Number of years population has been + or - objective in recent trend:	5
Model Date:	02/26/2014

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

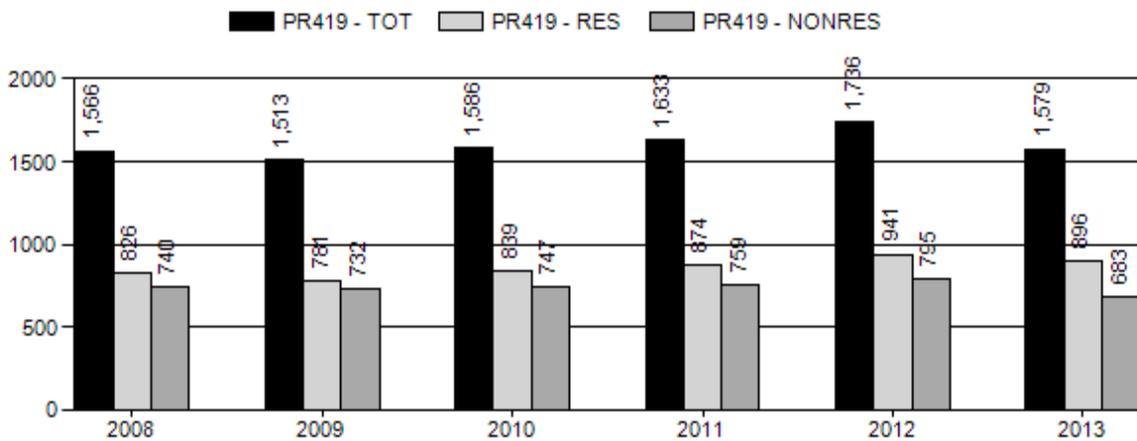
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	12.1%	13.0%
Males ≥ 1 year old:	30.0%	29.0%
Juveniles (< 1 year old):	1.8%	2.4%
Total:	12.7%	12.7%
Proposed change in post-season population:	+2.4%	-7.1%



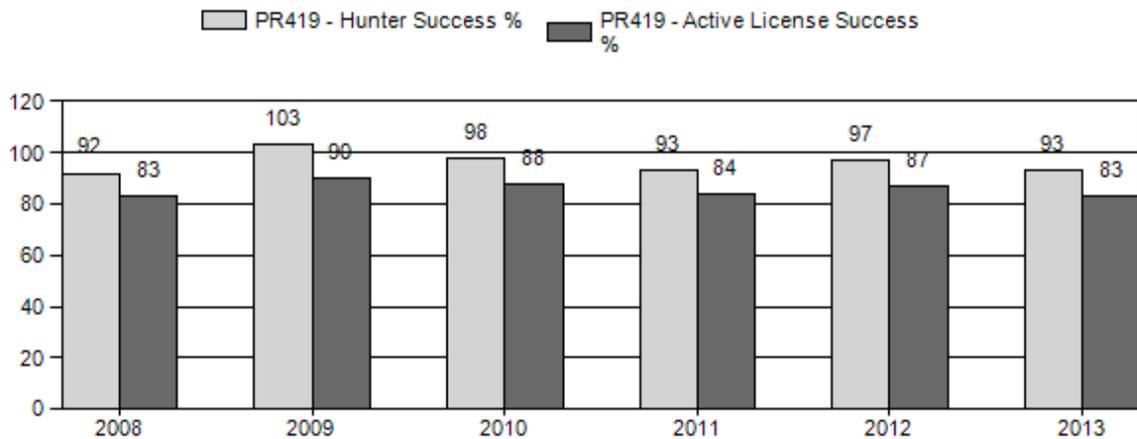
Harvest



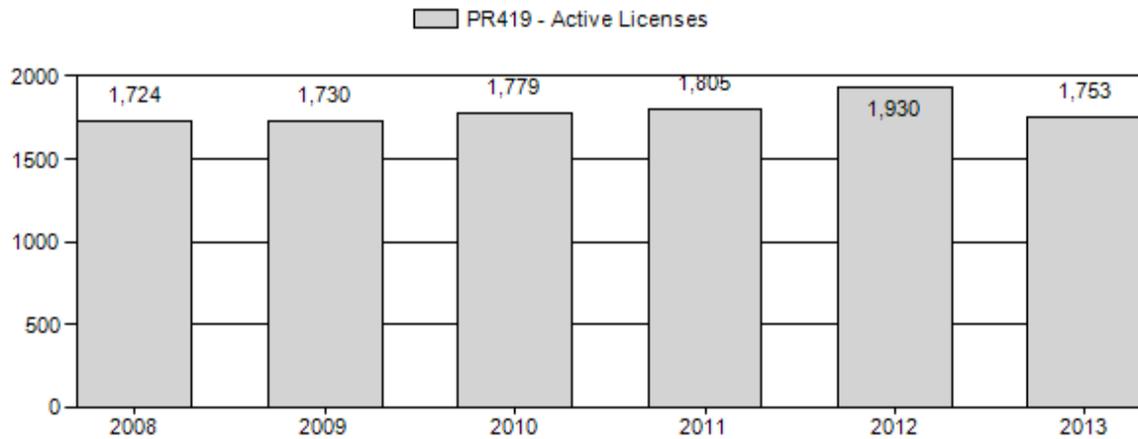
Number of Hunters



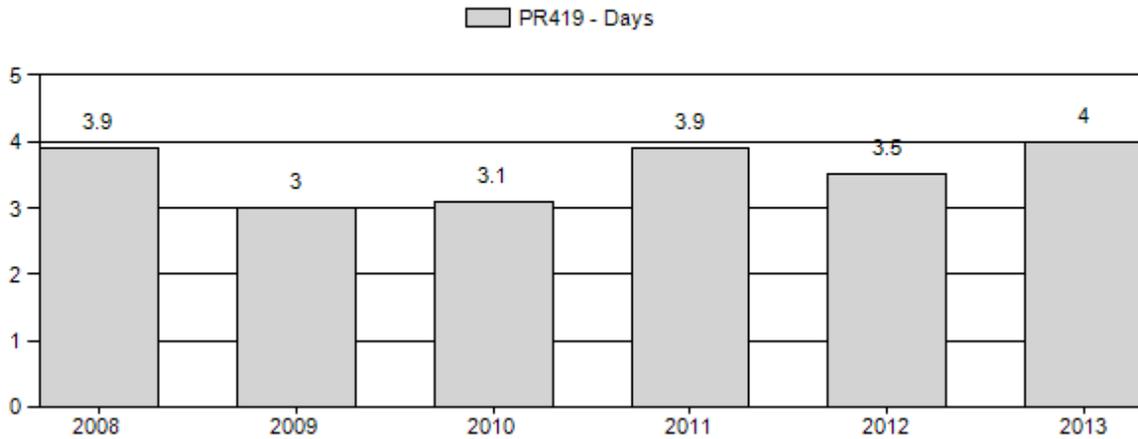
Harvest Success



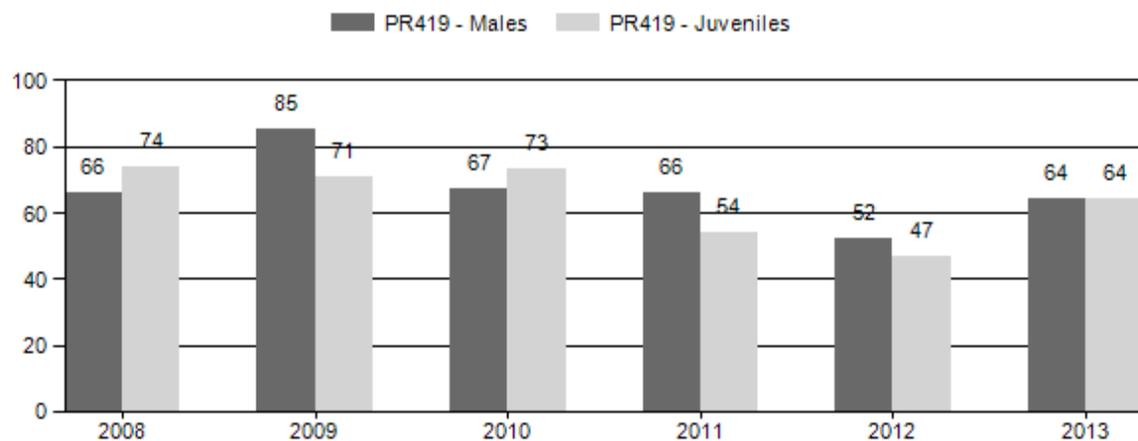
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2008 - 2013 Preseason Classification Summary

for Pronghorn Herd PR419 - CARTER LEASE

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	9,759	203	454	657	27%	1,002	42%	740	31%	2,399	0	20	45	66	± 5	74	± 5	45
2009	9,136	217	453	670	33%	790	39%	564	28%	2,024	0	27	57	85	± 6	71	± 6	39
2010	8,697	237	593	830	28%	1,234	42%	905	30%	2,969	0	19	48	67	± 4	73	± 4	44
2011	7,614	174	537	711	30%	1,071	45%	582	25%	2,364	0	16	50	66	± 4	54	± 4	33
2012	6,060	114	430	544	26%	1,051	50%	498	24%	2,093	0	11	41	52	± 4	47	± 3	31
2013	7,273	106	475	581	28%	904	44%	576	28%	2,061	0	12	53	64	± 5	64	± 5	39

2014 HUNTING SEASONS

SPECIES: Pronghorn

HERD UNIT: Carter Lease (419)

HUNT AREAS: 94, 98, 100

Hunt Area	Type	Dates of Seasons		Limited Quota	Limitations
		Opens	Closes		
94	1	Sept. 10	Oct. 31	450	Limited quota licenses; any antelope
	6	Sept. 10	Oct. 31	250	Limited quota licenses; doe or fawn
	7	Sept. 10	Oct. 31	200	Limited quota licenses; doe or fawn valid on or within one (1) mile of irrigated lands.
98	1	Sept. 10	Oct. 31	200	Limited quota licenses; any antelope
	6	Sept. 10	Oct. 31	300	Limited quota licenses; doe or fawn
100	1	Sept. 10	Oct. 31	200	Limited quota licenses; any antelope
	6	Sept. 10	Oct. 31	150	Limited quota licenses; doe or fawn
	7	Sept. 10	Oct. 31	100	Limited quota licenses; doe or fawn valid west of the Bear River Divide
94, 98, 100	Archery	Aug. 15	Sept. 9		Refer to Section 3 of this chapter

Hunt Area	License Type	Quota change from 2013
94	1	-50
98	1	+25
98	6	-50
Herd Unit Total	1	-25
	6	-50

Management Evaluation

Current Postseason Population Management Objective: 6,000

Management Strategy: Recreation

2013 Postseason Population Estimate: ~6,399

2014 Proposed Postseason Population Estimate: ~6,013

Herd Unit Issues

Energy development on crucial habitat is a looming issue for this herd. Development is present and has had impacts to habitats in the eastern portion of the herd unit. The hunt areas in this herd are very different in several characteristics. Hunt Area 94 is more xeric and has classic pronghorn habitat. Hunt Areas 98 and 100 have more hilly terrain, are slightly wetter and are very important winter range for the Wyoming Range mule deer herd. A large number of mule deer migrate into that area to winter on shrub browse. Therefore, we manage for low pronghorn numbers in 98 and 100 to reduce browse competition for mule deer. The herd unit has a split objective of 5,000 antelope in Hunt Area 94 and 1,000 antelope in Hunt Areas 98 and 100 combined.

In some years, high recruitment rates can make it difficult to maintain this population at a low level. This is especially true in Hunt Areas 98 and 100 where the desired population is approximately 1,000 antelope, which is less than 1 antelope per square mile. In recent years licenses were increased substantially. However, due to low antelope densities hunter success is usually lower than adjacent areas.

Throughout the herd unit there is a low tolerance for the presence of pronghorn on some of the private land holdings. Conflict with agriculture producers can be a primary issue for this herd. Damage complaints primarily occur on irrigated lands during the summer and early fall. However, irrigated lands are uncommon relative to native ranges. Significant efforts have been made by field personnel to target harvest toward those problems. Perceived reduction in livestock forage due to pronghorn foraging is an issue commonly brought up. However dietary overlap and pronghorn use is often negligible in native rangelands.

Weather

Weather during 2013 and into 2014 was highly variable. In the early part of 2013 the winter was very mild and dry. A dry spring and summer followed. In late August and into September heavy precipitation came and ended the dry conditions. The winter of 2013-2014 has been fairly mild to this point. The winters of 2011-2012 and 2012-2013 were also mild with low snowpack resulting in good over winter survival. However, the dry springs and summers of 2012 and 2013 negatively impacted summer and winter range forage production. Fawn survival suffered from the extremely dry conditions. Conditions were better at the higher elevations in hunt areas 98 and 100. Pronghorn distribution was affected by the drought.

Habitat

Habitat data collection has been inconsistently collected in this herd unit and has been absent in the recent past. A new effort is underway to resume data collection.

Field Data

Fawn ratios in this Herd Unit have been very good in the past, averaging over 75:100 from 2007-2010. During that time observed ratios ranged from 73:100 in 2010 to 83:100 in 2007. This population had been suppressed by harvest due to a low overall objective for the herd unit when compared to carrying capacity. This explained the productive nature of the herd. However, the 2011 herd unit fawn:doe ratio data was significantly lower at 54:100 and even lower in 2012 at 47:100. These are the lowest fawn:doe ratios in over 12 years. The harsh winter conditions in the winter of 2010/11 decreased doe condition enough to cause poor fawn production in 2011 and the extremely dry conditions in 2012 caused significant observed preseason fawn mortality. In 2013 Herd Unit fawn ratios rebounded to 64:100.

Line transect survey data was most recently conducted in 2011 in Hunt Area 94. Hunt areas 98 and 100 are not conducive to this type of survey due to low antelope densities and broken terrain. Hunt Area 94 is difficult to attain minimum sample sizes with this type of survey. An increased effort was made in 2011 to survey HA 94 with high enough intensity to develop a better estimate. The Hunt area 94 population has been declining for several years due to aggressive harvest strategies and we are now near objective.

Harvest Data

Doe/fawn harvest opportunity was increased every year for several years in area 94. The 2009, 2010 and 2011 season structures offered substantially increased doe/fawn harvest opportunity to try to reduce that part of the herd and reduce damage problems on irrigated lands. Those seasons allowed significant doe/fawn harvest. These hunts have had very good success rates. This management framework along with two years of poor fawn production has brought this population near to objective.

In 2010 we altered the area 100 type 7 licenses. They are valid for doe/fawn antelope in the portion of area 100 west of the Bear River Divide. This was to address concentrations of antelope on private land near Evanston and to focus more harvest on animals in potential competition with mule deer. Since increasing doe/fawn harvest substantially over the years in area 100 the antelope population in area 100 has significantly declined, as was intended. Success rates in HA 100 are lower than adjacent hunt areas including area 98, which is also managed for low antelope densities.

Population

A total Herd Unit 419 (Carter Lease) model is very unreliable due to much different population parameters in Hunt Areas 98 and 100 compared to Hunt Area 94. Additionally the line transect survey method does not fit with hunt areas 98 and 100. It makes sense to model Hunt Area 94 only. The HA 94 population model is presented. It should be used with caution due to the lack of long term reliable line transect data sets. Future efforts will be made to tighten line transect estimates. Model results are presented for hunt area 94 only. Herd unit population estimates are reported as the HA94 model plus 1,000 animals to account for the populations we are unable to model in HA 98 and 100. The CJ,CA model was selected due to a low Relative AICc score, its fit with the data and the population estimate appears to be reasonable.

In the future it will be imperative that we obtain a reliable population estimate periodically through line transect surveys to check the status of the herd and anchor the model. With this it is likely that we can provide a good population model and track the trend of this population. Without this it will be unclear if our current harvest levels can be sustained or if we are on the right management track relative to objective. In 2012 the Department switched from POPII models to an Excel spreadsheet model. Since these are new models they are going to be under development and subject to extensive refining. They will likely change over time with new data.

Currently the model is estimating we have around 5,399 pronghorn following the 2013 season in hunt area 94. This is very near the population objective of 5,000 animals for that area. The model estimates a downward trend since 2010. This is due to a severe winter in 2010/11, very poor fawn production in 2011/2012 and harvest designed to reduce the population. The population reduction is substantiated by reductions in classification sample sizes and field observations. This herd has the potential for rapid growth as consecutive years with high fawns ratios have occurred in the past. Therefore, adequate female harvest has been needed to curtail growth.

Management Summary

For 2014 we will leave the HA100 portion of the Herd Unit at the same license numbers and season structure as 2013. Hunt Area 98 will see a reduction of 50 type 6 licenses and an increase of 25 type 1 licenses. This is to balance out the buck and doe harvest levels and offer more buck hunting opportunity. Hunt Area 94 had two successive years of very low recruitment rates. That portion of the population has decreased and is now close to objective according to the model. In 2013 we reduced type 6 doe/fawn licenses there to try and stabilize the population. We maintained levels of type 7 harvest in hunt area 94 to alleviate damage concerns on irrigated lands. For 2014 we will lower type 1 licenses in HA94 by 50 to reduce the very high harvest percentages on bucks and respond to public input. The Objective and management strategy were last revised in 2000.

Model

INPUT	
Species:	Pronghorn
Biologist:	Jeff Short
Herd Unit & No.:	Carle L PR419
Model date:	02/26/14

MODELS SUMMARY		Fit	Relative AICC	Check best model to create report	Notes
CJ,CA	Constant Juvenile & Adult Survival	110	119	<input checked="" type="checkbox"/> CJ,CA Model	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	114	128	<input type="checkbox"/> SCJ,SCA M	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	92	207	<input type="checkbox"/> TSJ,CA Model	

Population Estimates from Top Model															
Year	Predicted Prehunt Population (year <i>i</i>)			Total	Predicted Posthunt Population (year <i>i</i>)			Total	Predicted adult End-of-bio-year Pop (year <i>i</i>)			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	350	2017	3174	5642	338	1255	2908	4501	1210	2819	4029				5000
1994	1749	1186	2763	5698	1749	1076	2760	5686	1375	2988	4363				5000
1995	2470	1347	2928	6745	2470	1235	2917	6622	1674	3284	4957				5000
1996	2383	1640	3218	7241	2383	1514	3212	7109	1921	3548	5468				5000
1997	2869	1852	3477	8228	2857	1741	3434	8032	2230	3849	6079				5000
1998	3053	2185	3772	9041	3066	1979	3699	8744	2493	4140	6633				5000
1999	3143	2443	4058	9644	3127	2177	3874	9178	2690	4313	7003				5000
2000	1830	2636	4227	8693	1792	2240	3804	7836	2462	3951	6413				5000
2001	2782	2413	3872	9067	2765	2175	3728	8669	2617	4103	6719				5000
2002	1684	2564	4021	8249	1637	2247	3794	7678	2446	3927	6373				5000
2003	2653	2397	3848	8899	2623	2076	3741	8441	2484	4085	6568				5000
2004	3452	2434	4003	9889	3425	2107	3856	9388	2677	4356	7033				5000
2005	3596	2624	4269	10488	3551	2240	3988	9779	2820	4493	7313				5000
2006	2206	2763	4403	9372	2159	2319	3923	8401	2607	4133	6740				5000
2007	3356	2555	4050	9961	3312	2105	3690	9107	2638	4156	6794				5000
2008	2965	2595	4073	9623	2898	2110	3738	8747	2550	4111	6661	7400	1837		5000
2009	2628	2499	4029	9156	2573	2022	3641	8235	2403	3952	6355				5000
2010	2688	2355	3873	8916	2656	1918	3479	8053	2331	3822	6153	5789	627		5000
2011	1891	2285	3745	7921	1820	1871	3310	7001	2039	3400	5439				5000
2012	1055	1998	3332	6385	997	1485	2787	5269	1630	3025	4655				5000
2013	1710	1598	2964	6273	1675	1118	2606	5399	1451	2810	4261				5000
2014	1652	1422	2753	5827	1608	1009	2396	5013							5000

Survival and Initial Population Estimates						
Year	Annual Juvenile Survival Rates			Annual Adult Survival Rates		
	Model Est	Field Est	SE	Model Est	Field Est	SE
1993	0.40			0.93		
1994	0.40			0.93		
1995	0.40			0.93		
1996	0.40			0.93		
1997	0.40			0.93		
1998	0.40			0.93		
1999	0.40			0.93		
2000	0.40			0.93		
2001	0.40			0.93		
2002	0.40			0.93		
2003	0.40			0.93		
2004	0.40			0.93		
2005	0.40			0.93		
2006	0.40			0.93		
2007	0.40			0.93		
2008	0.40			0.93		
2009	0.40			0.93		
2010	0.40			0.93		
2011	0.40			0.93		
2012	0.40			0.93		
2013	0.40			0.93		
2014	0.40			0.93		

Parameters: Optim cells

Juvenile Survival = 0.400

Adult Survival = 0.934

Initial Total Male Pop/10,000 = 0.202

Initial Female Pop/10,000 = 0.317

MODEL ASSUMPTIONS

Sex Ratio (% Males) = 50%

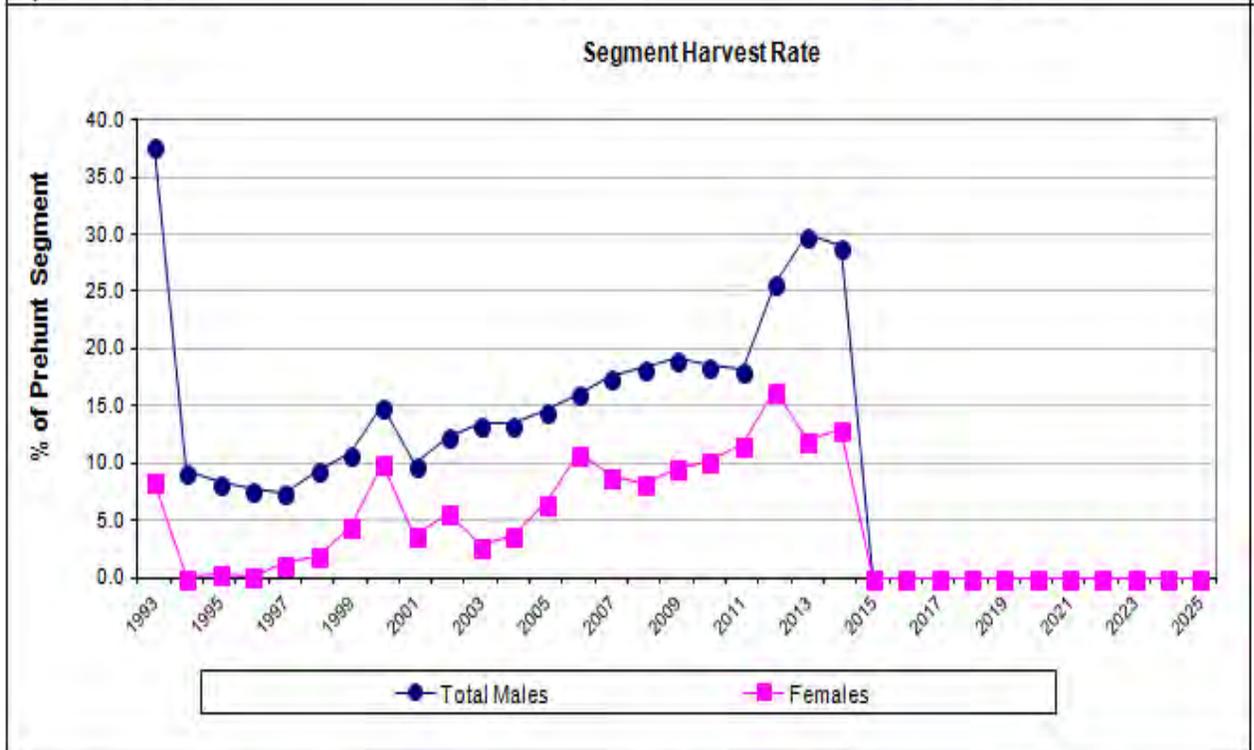
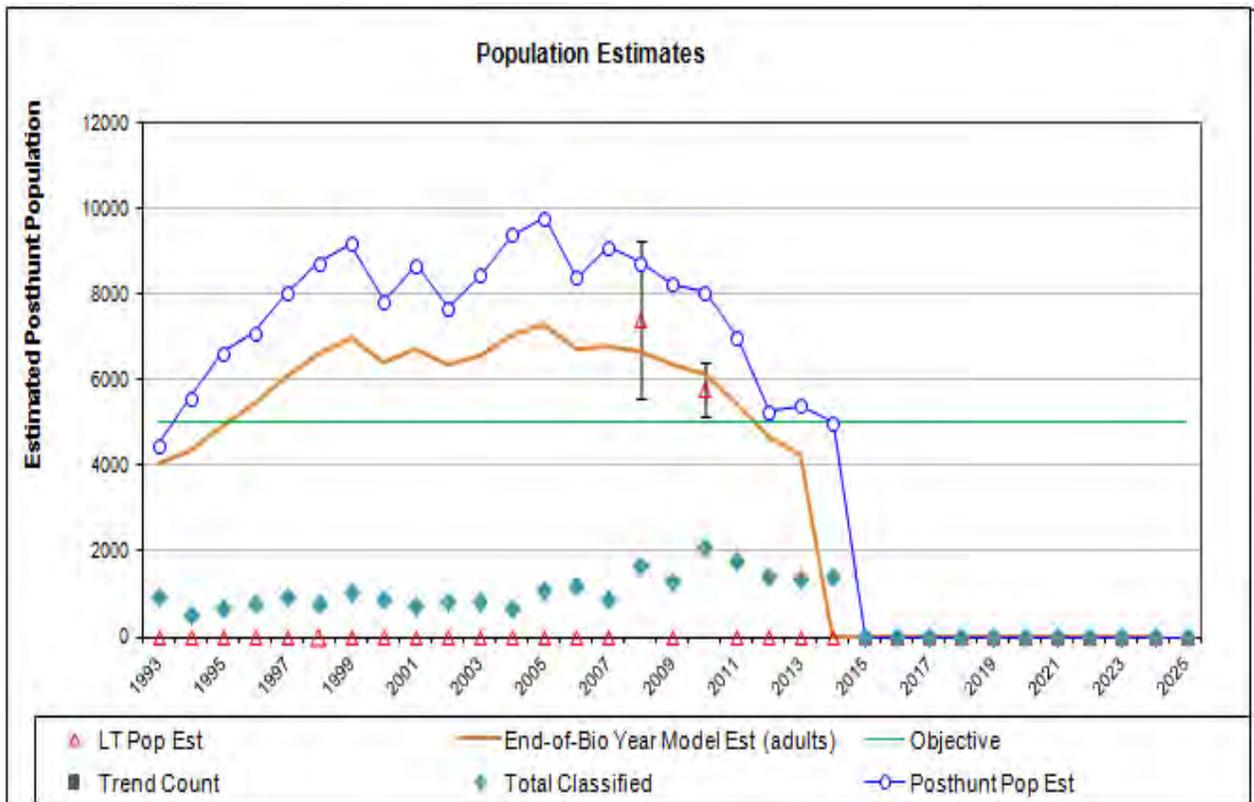
Wounding Loss (total males) = 10%

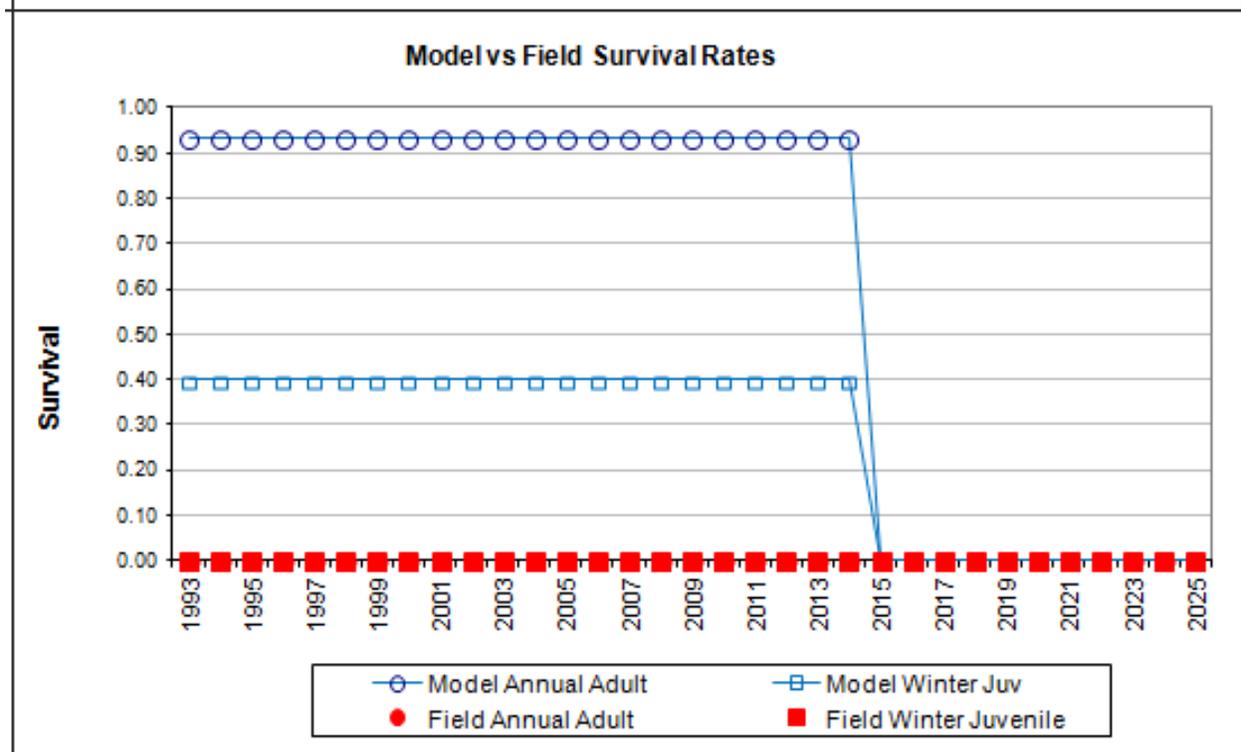
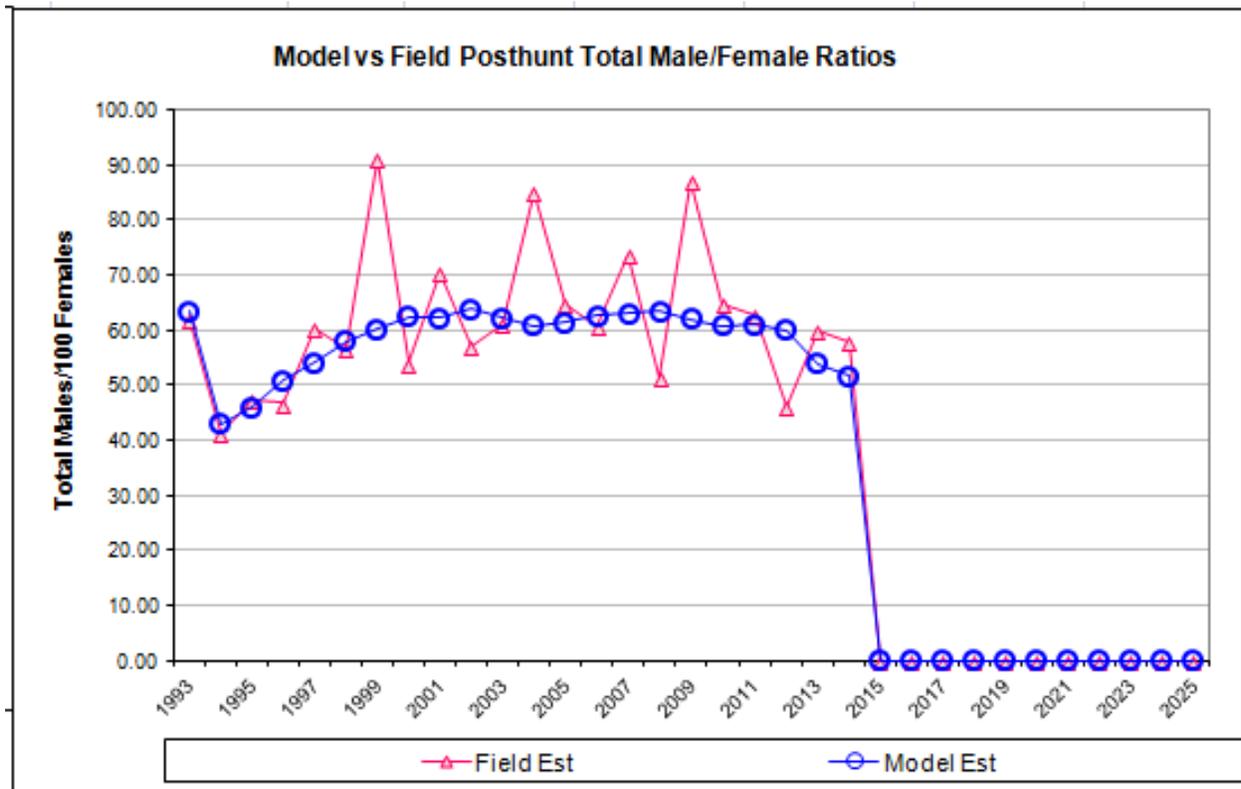
Wounding Loss (females) = 10%

Wounding Loss (juveniles) = 10%

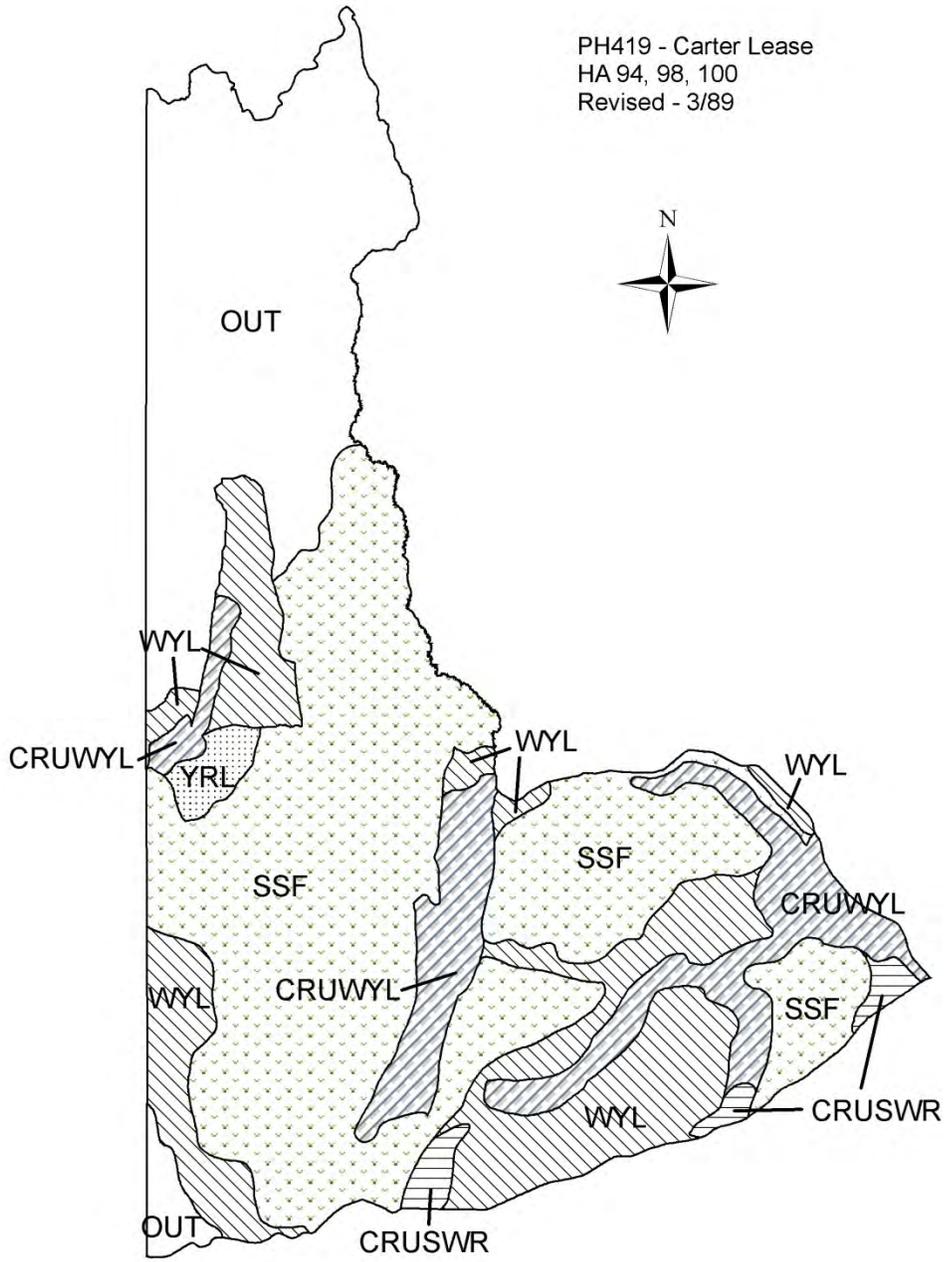
Over-summer adult survival = 98%

Year	Classification Counts						Harvest					
	Juvenile/Female Ratio			Total Male/Female Ratio			Males	Females	Juveniles	Total Harvest	Segment Harvest Rate (%)	
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE					Total Males	Females
1993		11.03	1.49	63.55	62.03	4.26	693	242	11	946	37.8	8.4
1994		63.32	6.32	42.92	41.31	4.75	100	2	0	102	9.3	0.1
1995		84.35	7.27	46.02	47.28	4.87	102	10	0	112	8.3	0.4
1996		74.04	5.93	50.98	46.72	4.33	115	5	0	120	7.7	0.2
1997		82.53	6.18	54.14	60.25	4.94	128	39	11	178	7.5	1.2
1998		81.74	6.56	57.92	56.52	5.06	187	67	16	270	9.4	2.0
1999		77.47	5.90	60.21	91.14	6.64	242	167	15	424	10.9	4.5
2000		43.30	3.72	62.37	54.02	4.31	360	384	35	779	15.0	10.0
2001		71.84	6.25	62.32	70.25	6.15	216	131	15	362	9.8	3.7
2002		41.40	3.69	63.78	57.21	4.57	288	206	25	519	12.4	5.6
2003		68.95	5.54	62.30	61.05	5.09	292	97	27	416	13.4	2.8
2004		86.22	7.95	60.80	85.04	7.87	297	134	24	455	13.4	3.7
2005		84.23	5.91	61.46	64.64	4.90	349	255	41	645	14.6	6.6
2006		50.09	3.64	62.76	60.67	4.15	404	437	42	883	16.1	10.9
2007		82.87	6.52	63.08	73.88	6.01	409	327	40	776	17.6	8.9
2008		72.81	4.06	63.49	51.24	3.18	432	304	61	797	18.4	8.2
2009		65.23	4.50	62.03	87.03	5.53	434	353	50	837	19.1	9.6
2010		69.40	3.61	60.81	64.86	3.44	397	358	29	784	18.5	10.2
2011		50.48	3.02	61.00	62.86	3.51	376	396	64	836	18.1	11.6
2012		31.65	2.29	59.98	46.28	2.92	467	495	495	1014	25.7	16.3
2013		57.70	3.76	53.90	59.88	3.86	436	326	326	794	30.0	12.1
2014		60.00	3.84	51.64	57.69	3.74	375	325	325	740	29.0	13.0





PH419 - Carter Lease
HA 94, 98, 100
Revised - 3/89



2013 - JCR Evaluation Form

SPECIES: Pronghorn
 HERD: PR438 - BAGGS
 HUNT AREAS: 53, 55

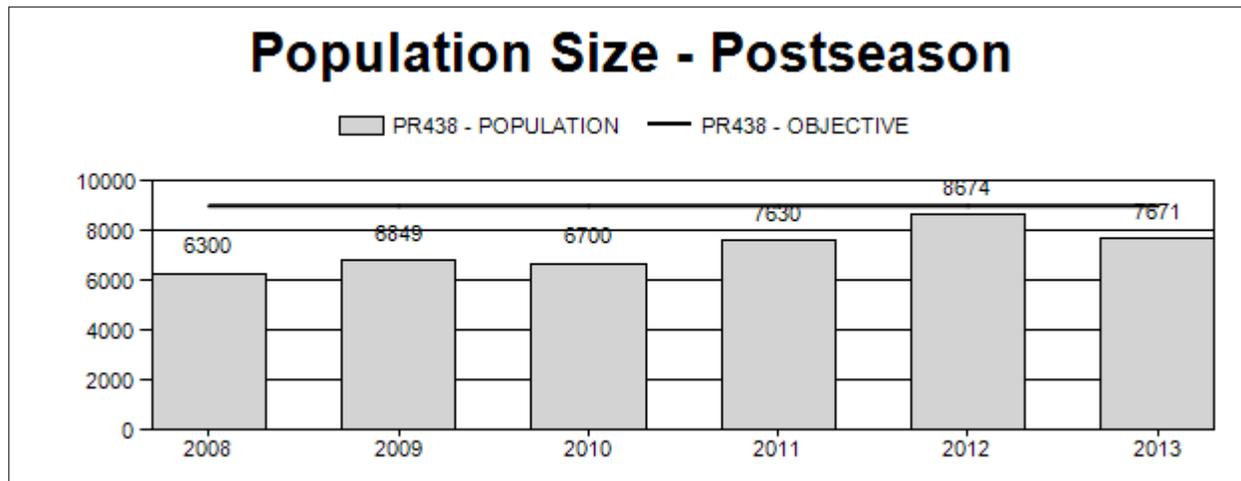
PERIOD: 6/1/2013 - 5/31/2014
 PREPARED BY: TONY MONG

	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	7,231	7,671	8,300
Harvest:	200	192	192
Hunters:	216	202	202
Hunter Success:	93%	95%	95%
Active Licenses:	233	205	205
Active License Percent:	86%	94%	94%
Recreation Days:	665	553	553
Days Per Animal:	3.3	2.9	2.9
Males per 100 Females	51	63	
Juveniles per 100 Females	58	58	

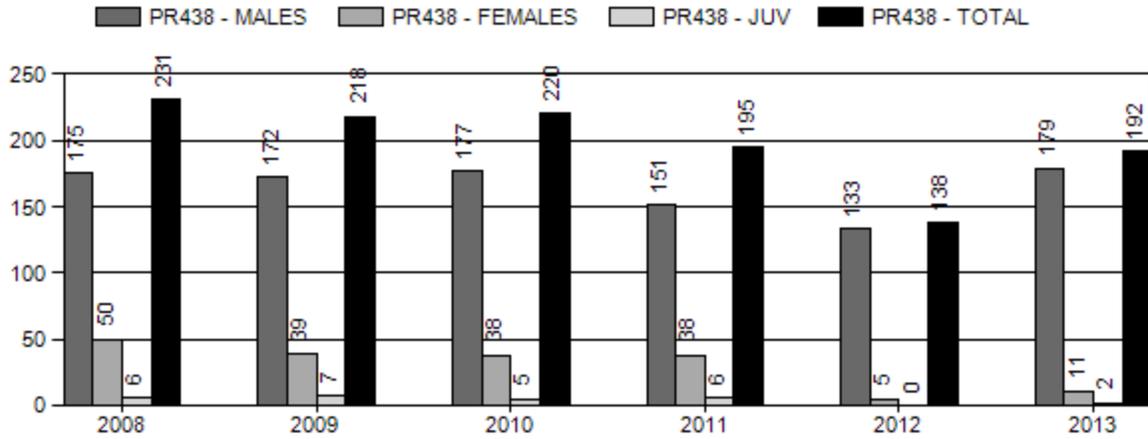
Population Objective: 9,000
 Management Strategy: Recreational
 Percent population is above (+) or below (-) objective: -14.8%
 Number of years population has been + or - objective in recent trend: 10
 Model Date: 03/03/2014

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

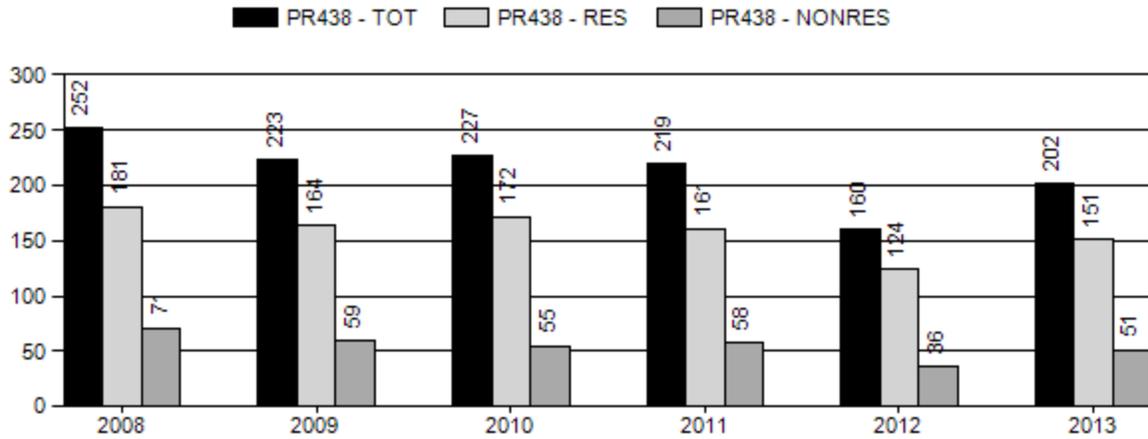
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0.9%	0.9%
Males ≥ 1 year old:	7.5%	7.5%
Juveniles (< 1 year old):	0%	0%
Total:	2.15%	2.15%
Proposed change in post-season population:	2.8%	2.0%



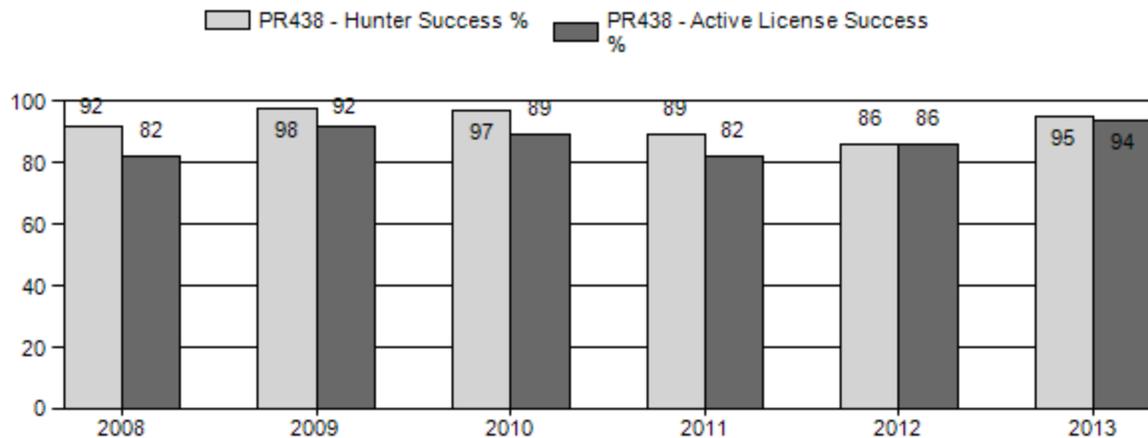
Harvest



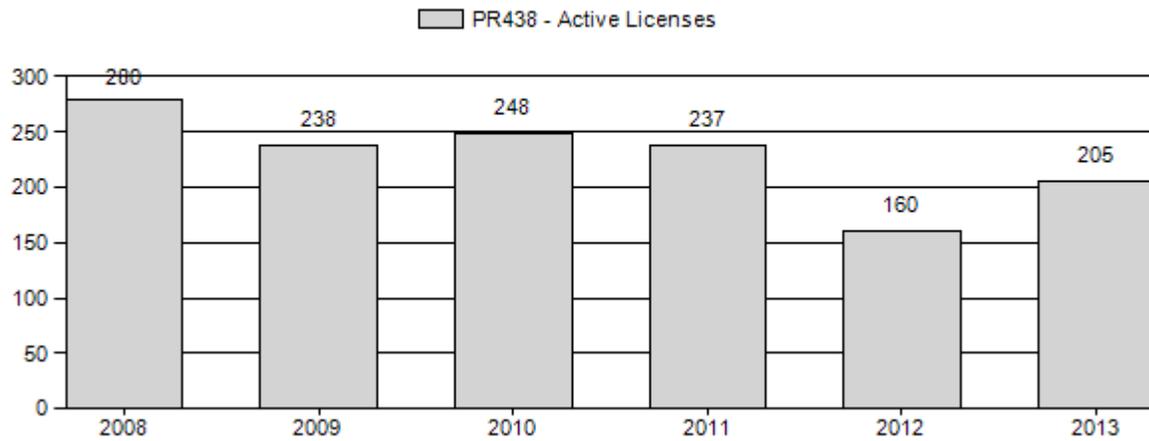
Number of Hunters



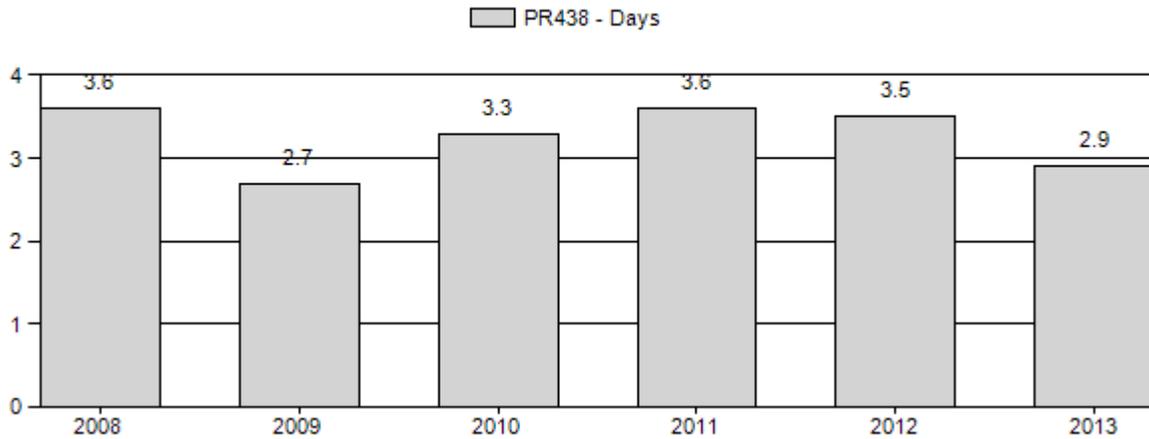
Harvest Success



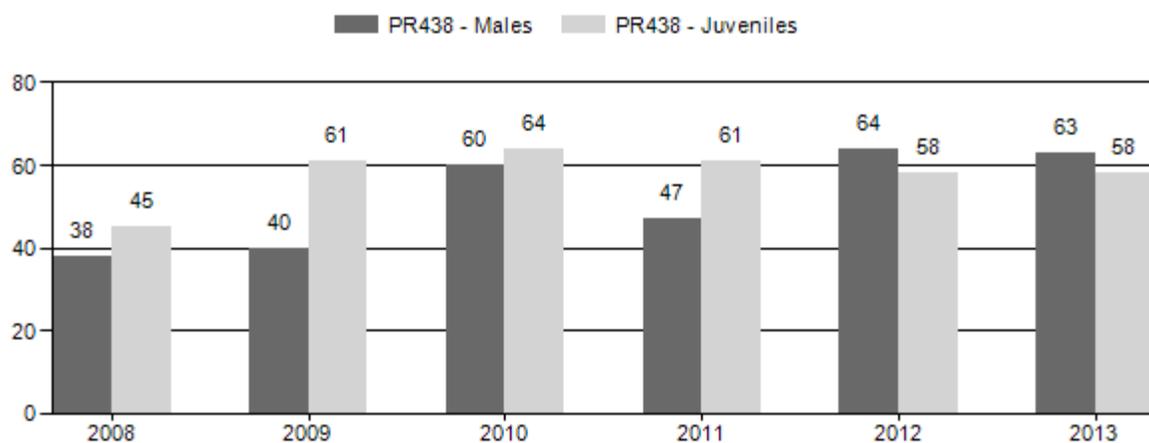
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2008 - 2013 Preseason Classification Summary

for Pronghorn Herd PR438 - BAGGS

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cts	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	7,100	43	159	202	21%	534	55%	242	25%	978	1,078	8	30	38	± 5	45	± 5	33
2009	7,089	72	224	296	20%	732	50%	444	30%	1,472	0	10	31	40	± 0	61	± 0	43
2010	7,000	221	248	469	27%	782	45%	499	29%	1,750	0	28	32	60	± 0	64	± 0	40
2011	7,884	75	222	297	23%	628	48%	381	29%	1,306	0	12	35	47	± 5	61	± 6	41
2012	8,825	107	358	465	29%	728	45%	425	26%	1,618	0	15	49	64	± 6	58	± 5	36
2013	9,571	89	314	403	29%	638	45%	373	26%	1,414	0	14	49	63	± 6	58	± 6	36

2014 HUNTING SEASONS

SPECIES : Pronghorn

HERD UNIT : Baggs (438)

HUNT AREAS: 53, 55

Hunt Area	Dates of Season				Quota	Limitations
	Type	Opens	Closes			
53	1	Sep. 20	Oct. 31	100	Limited quota	Any antelope
	7	Sep. 1	Oct. 31	25	Limited quota	Doe or fawn valid on or within one (1) mile of irrigated land
55	1	Sep. 20	Sep. 31	100	Limited quota	Any antelope
	6	Sep. 20	Oct. 31	25	Limited quota	Doe or fawn
53, 55	Archery	Aug. 15	Sept. 19			Refer to Section 3

<i>Hunt Area</i>	<i>Type</i>	<i>Quota change from 2013</i>
53	1	0
	7	0
55	1	0
	6	+25
<i>Herd Unit Total</i>	1	0
	6	+25
	7	0

Management Evaluation

Current Management Objective: 9,000

Management Strategy: Recreation

2013 End-of-bio-year Estimate: 7,700

2014 Proposed Postseason Population Estimate: 8,300

The Baggs Pronghorn Herd is below the objective of 9,000 (set in 1993) therefore our current management strategy is to increase herd size. Because of differences in population dynamics between HA 53 and HA 55 we are going to maintain the same level of harvest in HA 53 and add doe/fawn licenses in HA 55 to allow more hunting opportunity.

Herd Unit Issues

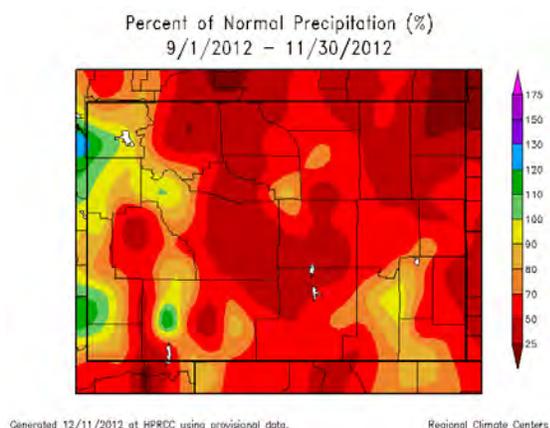
Throughout the Baggs herd we continue to see development of oil and gas fields associated with the Atlantic Rim Project and within 2 years we could begin to see the development of the largest wind turbine project in North America, the Chokecherry-Sierra Madre Wind Project. Hunt area 53 remains relatively open to public hunting with a majority of the land under public ownership; however in hunt area 55 we continue to see public access problems with a checkerboard landscape and much of the private land under lease from outfitters or shut down from any use.

Weather

The weather conditions have been quite variable over the last several years. In 2011-12 moisture levels were at record lows. 2012-13 brought continued drought until the fall of 2013 when high amounts of precipitation in the form of both snow and rain aided in a fall green up which allowed animals to put on weight before winter (Figure 1). Temperatures were also closer to normal in 2013 compared to 2012 (Figure 2).

Figure 1. A) Percent of normal precipitation September to November 2012, B) Percent of normal precipitation September to November 2013.

A)



B)

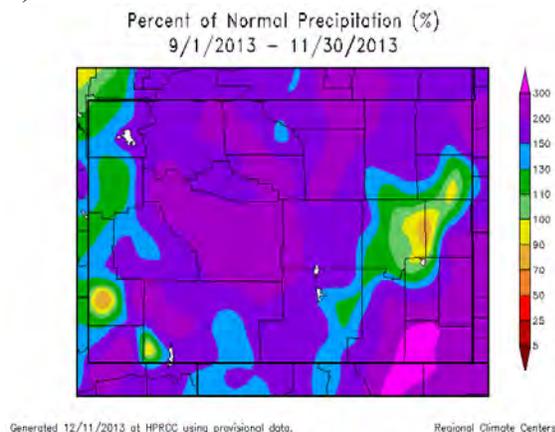
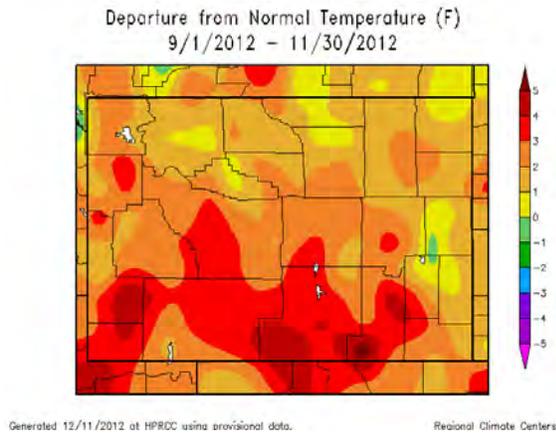
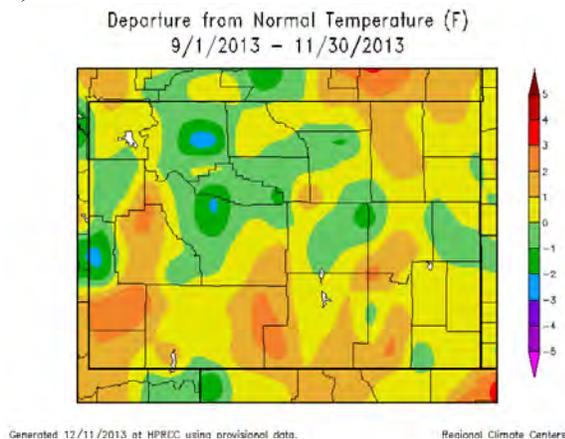


Figure 2. A) Departure from normal temperatures September to November 2012 B) Departure from normal temperatures September to November 2013.

A)



B)



Field Data

The variable weather conditions and severe winters we have seen over the last 5 to 10 years seem to be slowing the recovery of the Baggs herd from the 2007-08 winter. Herd unit wide the yearling ratio is comparable to average numbers to pre-2007-08, however, adult buck numbers remain high (63:100). Buck numbers are beginning to become more similar between hunt area 55 (66:100) and hunt area 53 (58:100). Fawn production over the last 4 years (60:100) has been high compared to the previous 10 years (52:100). The higher herd unit fawn production numbers are contributing to the increase in the herd size and if maintained along with conservative seasons we may see numbers return to herd objective size within the next 3 to 5 years.

Harvest Data

Hunter success across the herd unit returned to high levels (96%) however hunt area 55 was higher (98%) than hunt area 53 (92%).

Population

The current population model estimates the 2013 end-of-bio-year population to be 7,700 animals. The SCJ, SCA model was selected based on the lowest AICc value and what we believe to be a good representation of the actual population trend and size based on the line transect estimates

obtained in 2008 and 2012. Although we chose the SCJ, SCA model as the “best” model all models estimate the current population near 7,000 animals for 2013. Both the spreadsheet and line transect estimates are below the current objective, thus the management decision to increase the herd size is not in question.

Management Summary

The variable harvest success over the last several years, extreme weather conditions, spreadsheet model estimates and line transect estimates all indicate that the population is under the population objective. This is consistent with field contacts with hunters and long time residents of the Little Snake River Valley. The winter of 2007-08 was devastating to this herd and we are finally seeing a recovery, although the recovery seems to be slower than previous recoveries.

Our current season structure will allow the population to continue to recover and will help to increase hunter success by minimizing harvest. The creation of Type 6 doe/fawn licenses in hunt area 55 will allow more opportunity and will have little to no impact on the population. If we maintain the current level of harvest and the winters are mild we believe we will be able to increase licenses in this herd within the next 3-5 years.

INPUT	
Species:	Pronghorn
Biologist:	Tony/Mong
Herd Unit & No.:	Baggs, 438
Model date:	03/03/14

MODELS SUMMARY			
Fit	Relative AICc	Check best model to create report	Notes
<input type="checkbox"/> C.J.CA Model <input checked="" type="checkbox"/> S.C.J.SCA Model <input type="checkbox"/> T.S.J.CA Model	109 90 182	<input type="checkbox"/> Clear form	

Year	Predicted Prehunt Population (year t)		Predicted Posthunt Population (year t)		Total		Relative AICc		Predicted adult End-of-bio-year Pop (year t)		LT Population Estimate		Trend Count	Objective	
	Juveniles	Total Males	Females	Total	Juveniles	Total Males	Females	Total	Total Males	Females	Total Adults	Field Est.			Field SE
1993	2078	2758	5661	10497	1948	1750	4228	7926	2026	4348	6374			9000	
1994	1952	1986	4261	8199	1926	1855	4101	7682	2006	4340	6346			9000	
1995	1163	1966	4254	7383	1163	1607	4254	7024	1781	4319	6100			9000	
1996	1632	1746	4233	7610	1632	1559	4213	7403	1861	4392	6253			9000	
1997	1639	1824	4304	7767	1631	1683	4260	7574	1980	4433	6413			9000	
1998	2352	1941	4345	8637	2349	1795	4300	8444	2262	4646	6907			9000	
1999	2504	2216	4553	9273	2502	1984	4532	9018	2472	4905	7377			9000	
2000	2464	2422	4807	9693	2464	2122	4724	9310	2589	5075	7664			9000	
2001	2374	2537	4973	9885	2370	2318	4929	9617	2757	5248	8005			9000	
2002	2890	2702	5143	10735	2888	2357	5072	10317	2910	5508	8418			9000	
2003	2315	2852	5398	10665	2307	2428	5346	10081	2830	5627	8457			9000	
2004	2957	2774	5514	11245	2946	2284	5413	10644	2843	5841	8684			9000	
2005	3839	2786	5724	12349	3818	2234	5378	11429	2999	5998	8997			9000	
2006	2939	2939	5878	11766	2892	2317	5199	10407	2842	5574	8415	4561	676	9000	
2007	2891	2785	5462	11138	2823	2180	4953	9955	1527	3706	5233			9000	
2008	1646	1497	3632	6775	1639	1304	3577	6521	1886	3679	5365			9000	
2009	2187	1653	3905	7444	2179	1463	3562	7204	1901	3903	5804			9000	
2010	2441	1863	3925	8129	2435	1668	3783	7887	2157	4176	6333			9000	
2011	2483	2114	4092	8689	2476	1948	4051	8475	2364	4386	6750			9000	
2012	2509	2317	4298	9124	2509	2170	4292	8972	2510	4579	7089			9000	
2013	2624	2460	4488	9671	2621	2263	4476	9360	2797	4874	7671			9000	
2014	2823	2741	4777	10341	2820	2572	4757	10148	3112	5197	8309			9000	
2015	3010	3050	5093	11153	3007	2880	5073	10960	3450	5542	8992			9000	
2016	3210	3381	5431	12022	3207	3212	5412	11830	3813	5912	9725			9000	
2017	3424	3737	5794	12956	3421	3568	5774	12762						9000	
2018															9000

Survival and Initial Population Estimates

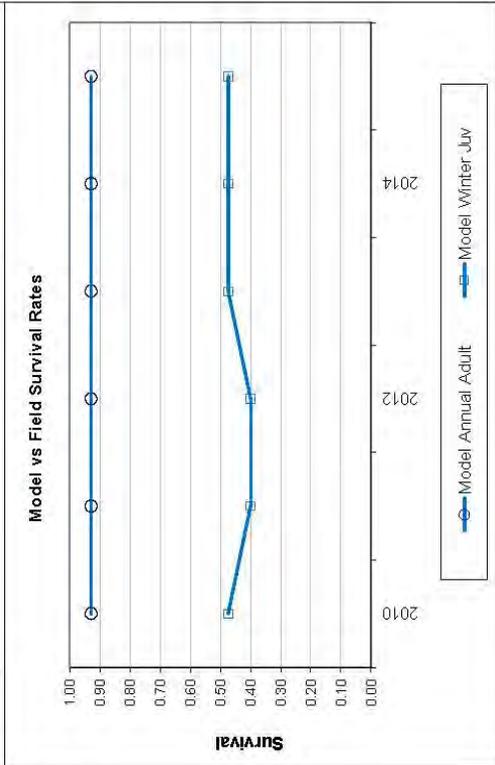
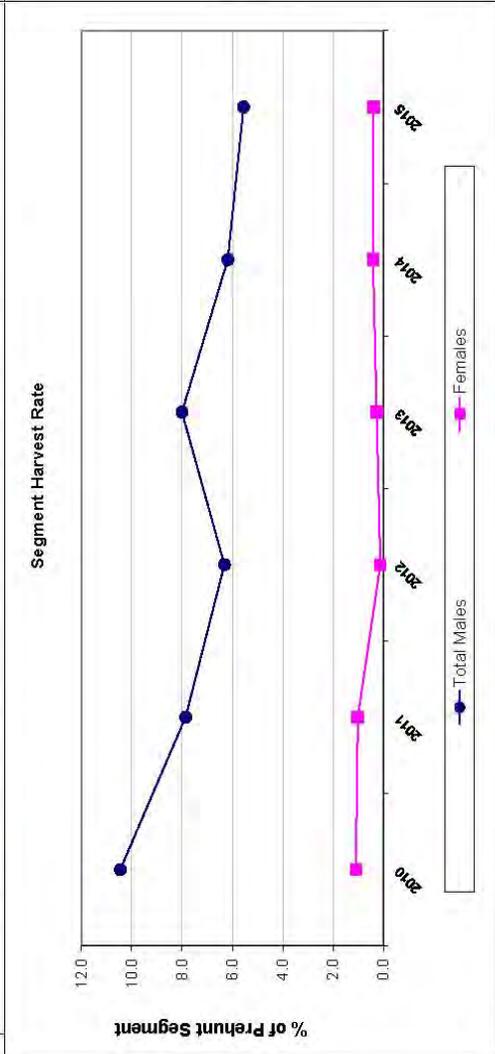
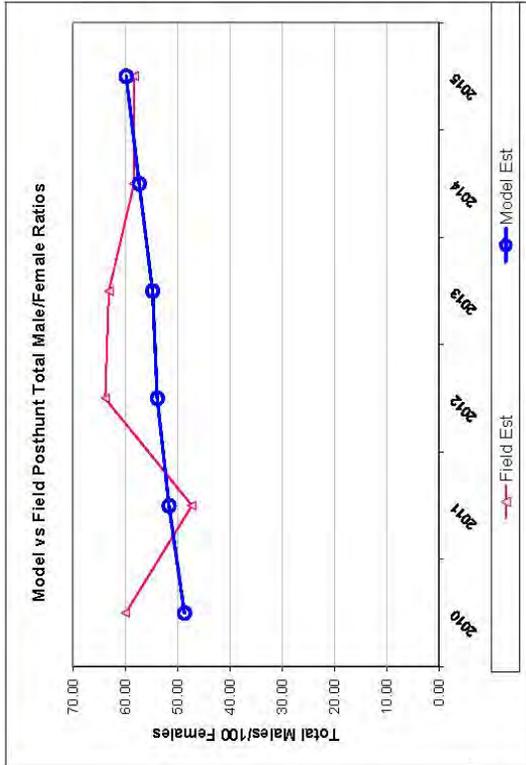
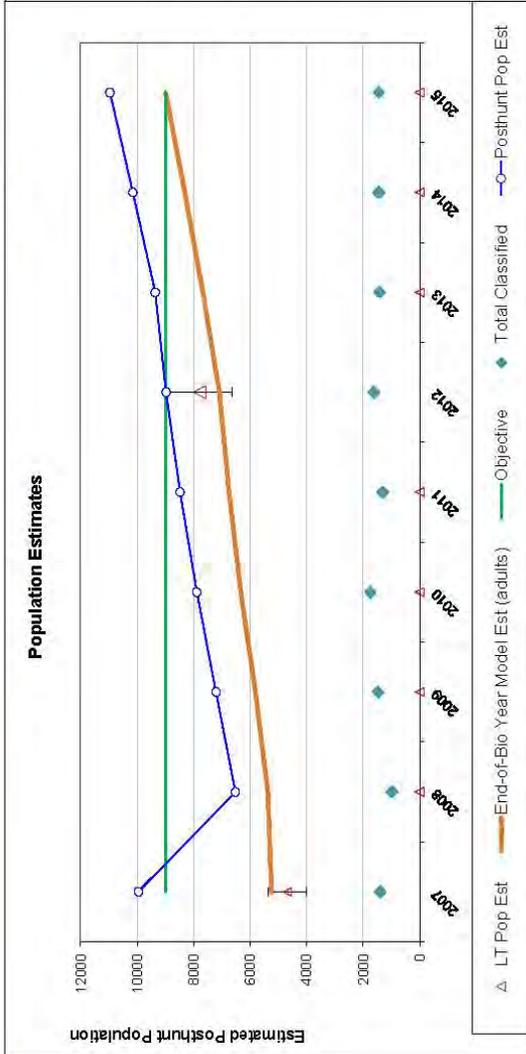
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.47		0.93	
1994	0.47		0.93	
1995	0.47		0.93	
1996	0.47		0.93	
1997	0.47		0.93	
1998	0.47		0.93	
1999	0.47		0.93	
2000	0.47		0.93	
2001	0.47		0.93	
2002	0.47		0.93	
2003	0.47		0.93	
2004	0.47		0.93	
2005	0.47		0.93	
2006	0.47		0.93	
2007	0.01		0.76	
2008	0.70		0.85	
2009	0.47		0.93	
2010	0.47		0.93	
2011	0.40		0.93	
2012	0.40		0.93	
2013	0.47		0.93	
2014	0.47		0.93	
2015	0.47		0.93	
2016	0.47		0.93	
2017	0.47		0.93	
2018				

Parameters:		Optim cells
Juvenile Survival =		0.474
Adult Survival =		0.930
Initial Total Male Pop/10,000 =		0.276
Initial Female Pop/10,000 =		0.566

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

Year	Classification Counts						Harvest						
	Juvenile/Female Ratio			Total Male/Female Ratio			Juv	Males	Females	Total Harvest	Segment Harvest Rate (% of		
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE					Total Males	Females	
1993	36.70	2.13	2.51	48.72	47.52	2.51	916	1303	118	2337	36.5	25.3	
1994	45.83	3.45	4.25	46.61	62.52	4.25	301	145	24	470	16.7	3.7	
1995	27.35	2.37	2.97	46.22	39.16	2.97	326	0	0	326	18.2	0.0	
1996	38.55	2.84	2.77	41.25	37.20	2.77	170	18	0	188	10.7	0.5	
1997	38.07	2.58	2.88	42.38	45.05	2.88	128	40	7	175	7.7	1.0	
1998	54.13	3.71	3.53	44.67	50.33	3.53	132	41	2	175	7.5	1.0	
1999	55.00	3.49	3.21	48.68	48.57	3.21	211	19	2	232	10.5	0.5	
2000	51.25	3.38	3.11	50.39	45.21	3.11	273	75	0	348	12.4	1.7	
2001	47.74	3.20	3.83	51.02	62.15	3.83	199	40	4	243	8.6	0.9	
2002	56.20	3.56	3.16	52.54	47.12	3.16	314	64	2	380	12.8	1.4	
2003	42.88	3.15	4.20	52.84	65.86	4.20	386	47	7	440	14.9	1.0	
2004	53.83	2.92	2.57	50.30	44.29	2.57	445	92	10	547	17.6	1.8	
2005	67.06	3.83	3.03	48.68	47.38	3.03	502	315	19	836	19.8	6.1	
2006	50.00	3.38	3.73	50.01	57.90	3.73	566	617	43	1226	21.2	11.5	
2007	52.92	3.44	3.38	50.99	51.46	3.38	550	463	62	1075	21.7	9.3	
2008	45.32	3.51	3.12	41.21	37.83	3.12	175	50	6	231	12.9	1.5	
2009	60.66	3.65	2.79	45.84	40.44	2.79	172	39	7	218	11.4	1.2	
2010	63.81	3.66	3.50	48.70	59.97	3.50	177	38	5	220	10.5	1.1	
2011	60.67	3.94	3.33	51.66	47.29	3.33	151	38	6	195	7.9	1.0	
2012	58.38	3.56	3.79	53.90	63.87	3.79	138	5	5	138	6.3	0.1	
2013	58.46	3.81	4.02	54.82	63.17	4.02	179	11	11	192	8.0	0.3	
2014	59.10	3.76	3.73	57.38	58.35	3.73	154	18	18	175	6.2	0.4	
2015	59.10	3.76	3.73	59.88	58.35	3.73	154	18	18	175	5.6	0.4	
2016	59.10	3.76	3.73	62.25	58.35	3.73	175	18	18	175	5.0	0.4	
2017	59.10	3.76	3.73	64.50	58.35	3.73	175	18	18	175	4.5	0.3	
2018													

FIGURES



Comments:

Baggs PR438 Herd Seasonal Ranges

